State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Jim Doyle, Governor
Scott Hassett, Secretary
Scott Humrickhouse, Regional Director

Baldwin Service Center
890 Spruce Street
Baldwin, Wisconsin 54002
Telephone 715-684-2914
FAX 715-684-5940
TTY Access via relay - 711

February 7, 2006

Manitowoc Company
Mr. Tim Reis
2400 S. 44th Street
Manitowoc, WI 54271

Subject: **Final Case Closure**
Former Volrath/Shannon Group, 715 St. Croix Street,
River Falls, Wisconsin 54022
WDNR BRRTS Activity # 02-56-000046

Dear Mr. Reis:

On October 6, 2005, the West Central Region Closure Committee reviewed your request for closure of the case described above. The West Central Region Closure Committee reviews environmental remediation cases for compliance with state laws and standards to maintain consistency in the closure of these cases. On October 10, 2005, you were notified that conditional closure was granted to this case.

On January 30, 2006, the Department received correspondence indicating that you have complied with the conditions of closure. On that date, the well abandonment forms were submitted to this office. Based on the correspondence and data provided, your case has been remediated to Department standards in accordance with s. NR 726.05, Wis. Adm. Code. The Department considers this case closed and no further investigation, remediation or other action is required at this time.

Please be aware that this case may be reopened pursuant to s. NR 726.09, Wis. Adm. Code, if additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety or welfare, or the environment.

We appreciate your efforts to restore the environment at this site. If you have any questions regarding this letter, please contact me at 715 684-2914 ext.117.

Sincerely,

Patrick J Collins

Patrick J. Collins
Hydrogeologist
Bureau for Remediation & Redevelopment

cc: Dan Hall - RMT

File

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
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Baldwin Service Center
890 Spruce Street
Baldwin, Wisconsin 54002
Telephone 715-684-2914
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TTY Access via relay - 711

October 10, 2005

Manitowoc Company
Mr. Tim Reis
2400 S. 44th Street
Manitowoc, WI 54271

Subject: **Conditional Closure Decision with Requirements to Achieve Final Closure**
Former Volrath Shannon Group, 715 St. Croix Street,
River Falls, Wisconsin 54022
WDNR BRRTS Activity # 02-56-000046

Dear Mr. Reis:

On October 6, 2005, the West Central Region Closure Committee reviewed your request for closure of the case described above. The West Central Region Closure Committee reviews environmental remediation cases for compliance with state rules and statutes to maintain consistency in the closure of these cases. After careful review of the closure request, the West Central Region Closure Committee has determined that the VOC and metal contamination on the site from the area around MW-3 appears to have been investigated and remediated to the extent practicable under site conditions. Your case meets the screening criteria of s. NR 746.07 or s. NR 746.08, Wis. Adm. Code, and the requirements of ch. NR 726, Wis. Adm. Code and will be closed if the following conditions are satisfied:

MONITORING WELL ABANDONMENT
The monitoring wells at the site must be properly abandoned in compliance with ch. NR 141, Wis. Adm. Code. Documentation of well abandonment must be submitted toPatrick Collins on Form 3300-5B found at www.dnr.state.wi.us/org/water/dwg/gw/ or provided by the Department of Natural Resources.

PURGE WATER, WASTE AND SOIL PILE REMOVAL
Any remaining purge water, waste and/or soil piles generated as part of site investigation or remediation activities must be removed from the site and disposed of or treated in accordance with Department of Natural Resources' rules. Please send a letter advising me that any remaining purge water, waste and/or soil piles have been removed once that work is completed.

When the above conditions have been satisfied, please submit a letter to let me know that applicable conditions have been met, and your case will be closed.

Please be aware that the case may be reopened pursuant to s. NR 726.09, Wis. Adm. Code, if additional information regarding site conditions indicates that contamination on or from the site poses a threat to public health, safety, or welfare or to the environment.

We appreciate your efforts to restore the environment at this site. If you have any questions regarding this letter, please contact me at 715 684-2914 ext.117.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist
Bureau of Remediation & Redevelopment

cc: Dan Hall – RMT
FILE

Letter of Transmittal

RMT, Inc.
744 Heartland Trail (53717-1934)
PO Box 8923 (53708-8923)
Madison, WI
Tel. (608) 831-4444 • Fax (608) 831-3334

To:	Pat Collins	**Date:**	10/7/05
	Wisconsin DNR	**Project No.:**	7193.03
	890 Spruce Street	**Subject:**	Closure Documentation - Manitowoc Co (Kolpak), River Falls
	Baldwin, WI 54002		ERP# 02-56-000046

Prepared By: Troy Clausen

Please replace page 2 of the October 4, 2005 letter and page 3 of Attachment A1 of the Case Summary and Close Out Request with the enclosed pages. The pages were edited to remove references to the availability of municipal water supplies to private residences located west of the Kolpak facility.

If you have any further questions, please contact us at 608-831-4444.

Thanks,

Troy H. Clausen
Staff Hydrogeologist

cc: Timothy Reis, Manitowoc Company

Analytical Results

VOCs were not detected in groundwater at the site and hexavalent chromium was not detected in samples of soil collected beneath the outfall of the site's storm water discharge structure or in a sample of surface water running through the culvert to the local drainage. In addition, the concentration of hexavalent chromium detected in groundwater at MW-3 (4.2 μg/L) is less than the NR 140 Preventive Action Limit (PAL) (10 μg/L) and less than previously detected concentrations (50 μg/L) at the well.

Conclusions and Justification for Case Closure

Based on the current site conditions, the residual concentrations of chromium in soil and groundwater at the site do not pose a risk to human health or the environment. The following conclusions can be drawn from the data in support of unconditional case closure:

- VOCs are absent from groundwater at the site.
- The concentration of hexavalent chromium detected in groundwater at MW-3 has decreased from a concentration of 50 μg/L in 1992 and 1993 to a concentration of 4.2 μg/L in 2005 and no longer exceeds the PAL of 10 μg/L.
- Hexavalent chromium is absent from soil samples collected from 1 and 3 feet below ground surface at a location immediately beneath the site's storm water discharge structure. And, the concentrations of total chromium detected in these samples (14.8 mg/kg at 1 ft and 12.4 mg/kg at 3 ft) are less than the NR 720 nonindustrial Residual Contaminant Level (RCL) of 16,000 mg/kg for trivalent chromium. An industrial RCL for trivalent chromium has not been established.
- The concentration of dissolved hexavalent chromium detected in a sample of surface water collected at the storm water discharge structure was less than the laboratory limit of detection.
- There are no known receptors of any environmental impacts related to the Kolpak facility.

Given the lack of residual VOCs and chromium in soil and groundwater at the site and the lack of actual or potential receptors, RMT recommends that this case be closed without condition.

Conclusions and Justification for Case Closure

Based on the current site conditions, the residual concentrations of chromium in soil and groundwater at the site do not pose a risk to human health or the environment. The following conclusions can be drawn from the data in support of unconditional case closure:

- VOCs are absent from groundwater at the site.
- The concentration of hexavalent chromium detected in groundwater at MW-3 has decreased from a concentration of 50 μg/L in 1992 and 1993 to a concentration of 4.2 μg/L in 2005 and no longer exceeds the PAL of 10 μg/L.
- Hexavalent chromium is absent from soil samples collected from 1 and 3 feet below ground surface at a location immediately beneath the site's storm water discharge structure. And, the concentrations of total chromium detected in these samples (14.8 mg/kg at 1 ft and 12.4 mg/kg at 3 ft) is less than the NR 720 Non-industrial Residual Contaminant Level (RCL) of 16,000 mg/kg for trivalent chromium. An Industrial RCL for trivalent chromium has not been established.
- The concentration of dissolved hexavalent chromium detected in a sample of surface water collected at the storm water discharge structure was less than the laboratory limit of detection.
- There are no known receptors of any environmental impacts related to the Kolpak facility.

Given the lack of residual VOCs and chromium in soil and groundwater at the site and the lack of actual or potential receptors, RMT recommends that this case be closed without condition.

TR

RMT Integrated Environmental Solutions

744 Heartland Trail 53717-1934
P.O. Box 8923 53708-8923
Madison, WI
Telephone: 608-831-4444
Fax: 608-831-3334
www.rmtinc.com

January 26, 2006

Mr. Patrick J. Collins
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, WI 54002

Subject: Well Abandonment Forms
Kolpak Facility - River Falls, Wisconsin

Dear Mr. Collins:

Enclosed are the well abandonment forms for former monitoring wells MW-1 through MW-4 that were located at the Kolpak facility in River Falls, Wisconsin. SGS Environmental Contracting, L.L.C., of Merrill, Wisconsin, performed the work on December 20, 2005. A representative of RMT, Inc., provided oversight for the work.

These well abandonment forms are being submitted in fulfillment of the conditional closing requirements outlined in your October 10, 2005, letter to The Manitowoc Company. Further, purge water, waste, and/or soil piles associated with investigation activities have been removed from the site, in accordance with this closure condition.

Submittal of this information to the WDNR should now constitute satisfaction for all conditions for final closure of this environmental issue.

We appreciate your attention to this case closure. If you any questions about the enclosed information, please contact me, at 608-662-5313.

Sincerely,

RMT, Inc.

Daniel W. Hall

Daniel W. Hall, P.G.
Project Manager

Enclosure: Well Abandonment Forms MW-1 through MW-4

cc: Tim Reis - The Manitowoc Company

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5 2/2000

Notice: Please complete Form 3300-5 and return it to the appropiate DNR office and bureau. Completion of this report is required by chs. 160, 281, 283, 289, 291, 292, 293, 295, and 299, Wis. Stats., and ch. NR 141, Wis. Adm. Code. In accordance with chs. 281, 289, 291, 292, 293, 295, and 299, Wis. Stats., failure to file this form may result in a forfeiture of between $10 and $25,000, or imprisonment for up to one year, depending on the program and conduct involved. Personally identifiable information on this form is not intended to be used for any other purpose. NOTE: See the instructions for more information.

Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. _____ DNR Well ID No. _____ County: St Croix

Common Well Name: MW-1 Gov't Lot (If applicable) _____

Grid Location: ____ 1/4 of ____ 1/4 of Sec. ____ ; T. ____ N; R. ____ ☐ E ☐ W

____ ft. ☐ N. ☐ S., ____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. ___° ___' ___.___" Long ___° ___' ___.___" or

St. Plane ____ ft. N. ____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Site Closure

WI Unique Well No. of Replacement Well _____

(2) FACILITY/OWNER INFORMATION

Facility Name: KOLPAK FACILITY

Facility ID _____ License/Permit/Monitoring No. _____

Street Address of Well: 715 Saint Croix St

City, Village, or Town: River Falls

Present Well Owner: KOLPak Facility Original Owner _____

Street Address or Route of Owner: 715 Saint Croix St

City, State, Zip Code: River Falls WI 54022

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date _____

☒ Monitoring Well
☐ Water Well
☐ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☒ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 23.03 (From groundsurface) Casing Diameter (in.) 2"

Casing Depth (ft.) 23.03

Lower Drillhole Diameter (in.) 2"

Was Well Annular Space Grouted? ☒ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet) _____

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☒ No	☐ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	
Was Casing Cut Off Below Surface?	☒ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☐ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☒ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite - Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
Bentonite chips	Surface	23.03	38 #'s	

(6) Comments: _____

(7) Name of Person or Firm Doing Sealing Work: S&S Environmental Contracting LLC Date of Abandonment: 12/20/05

Signature of Person Doing Work: George O Fuck Date Signed: 1/19/06

Street or Route: 10449 3 Pope Rd Telephone Number: (715) 539-2803

City, State, Zip Code: Merrill WI 54452

FOR DNR OR COUNTY USE ONLY
Date Received _____ Noted By _____
Comments _____

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5 2/2000

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. _ _ _ _ _ | DNR Well ID No. | County: St Croix

Common Well Name: MW2 | Gov't Lot (If applicable): _____

Grid Location: ____ 1/4 of ____ 1/4 of Sec. ____ ; T. ____ N; R. ____ ☐ E ☐ W

____ ft. ☐ N. ☐ S., ____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. ___ ___ ___ . ___ " Long ___ ___ ___ . ___ " or

St. Plane ____ ft. N. ____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Site Closure | WI Unique Well No. of Replacement Well _ _ _ _ _

(2) FACILITY/ OWNER INFORMATION

Facility Name: KOLPAK FACILITY

Facility ID | License/Permit/Monitoring No.

Street Address of Well: 715 Saint Croix St

City, Village, or Town: River Falls

Present Well Owner: KOLPak Facility | Original Owner

Street Address or Route of Owner: 715 Saint Croix St

City, State, Zip Code: River Falls WI 54022

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date _____

☒ Monitoring Well
☐ Water Well
☐ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☒ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) 20.46 (From groundsurface) | Casing Diameter (in.) 2" | Casing Depth (ft.) 20.46

Lower Drillhole Diameter (in.) 2"

Was Well Annular Space Grouted? ☒ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet) _____

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☒ No	☐ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	
Was Casing Cut Off Below Surface?	☒ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☐ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☒ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite - Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
Bentonite chips	Surface	20.46	33 #'s	

(6) Comments: _____

(7) Name of Person or Firm Doing Sealing Work: SGS Environmental Contracting LLC | Date of Abandonment: 12/20/05

Signature of Person Doing Work: George O Fruck | Date Signed: 1/19/06

Street or Route: 10449 3 Pope Rd | Telephone Number: (715) 539-2803

City, State, Zip Code: Merrill WI 54452

FOR DNR OR COUNTY USE ONLY
Date Received | Noted By
Comments

DNR/COUNTY

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5 2/2000

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. _____ DNR Well ID No. _____ County: St Croix

Common Well Name: MW-3 Gov't Lot (If applicable) _____

Grid Location: ____ 1/4 of ____ 1/4 of Sec. ____ ; T. ____ N; R. ____ ☐ E ☐ W

____ ft. ☐ N. ☐ S., ____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. ___ ° ___ ' ___ . ___ " Long ___ ° ___ ' ___ . ___ " or

St. Plane ____ ft. N. ____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Site Closure

WI Unique Well No. of Replacement Well _____

(2) FACILITY/OWNER INFORMATION

Facility Name: KOLPAK FACILITY

Facility ID _____ License/Permit/Monitoring No. _____

Street Address of Well: 715 Saint Croix St

City, Village, or Town: River Falls

Present Well Owner: KOLPak Facility Original Owner _____

Street Address or Route of Owner: 715 Saint Croix St

City, State, Zip Code: River Falls WI 54022

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date _____

☒ Monitoring Well
☐ Water Well
☐ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☒ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) (From groundsurface): 22.35 Casing Diameter (in.): 2"

Casing Depth (ft.): 22.35

Lower Drillhole Diameter (in.): 2"

Was Well Annular Space Grouted? ☒ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet) _____

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☒ No	☐ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	
Was Casing Cut Off Below Surface?	☒ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☐ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☒ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite - Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
Bentonite Chips	Surface	22.35	36 #'s	

(6) Comments: _____

(7) Name of Person or Firm Doing Sealing Work: S&S Environmental Contracting LLC Date of Abandonment: 12/20/05

Signature of Person Doing Work: George O Frick Date Signed: 1/19/06

Street or Route: 10449 3 Pope Rd Telephone Number: (715) 539-2803

City, State, Zip Code: Merrill WI 54452

FOR DNR OR COUNTY USE ONLY
Date Received _____ Noted By _____
Comments _____

State of Wisconsin
Department of Natural Resources

WELL/DRILLHOLE/BOREHOLE ABANDONMENT

Form 3300-5 2/2000

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Route to: ☐ Drinking Water ☐ Watershed/Wastewater ☐ Waste Management ☒ Remediation/Redevelopment ☐ Other _____

(1) GENERAL INFORMATION

WI Unique Well No. _____ DNR Well ID No. _____ County: St Croix

Common Well Name: MW-4 Gov't Lot (If applicable) _____

____ 1/4 of ____ 1/4 of Sec. ____ ; T. ____ N; R. ____ ☐ E ☐ W

Grid Location

_____ ft. ☐ N. ☐ S., _____ ft. ☐ E. ☐ W.

Local Grid Origin ☐ (estimated: ☐) or Well Location ☐

Lat. ___ ° ___ ' ___ . ___ " Long ___ ° ___ ' ___ . ___ " or

St. Plane _____ ft. N. _____ ft. E. ☐ S ☐ C ☐ N Zone

Reason For Abandonment: Site Closure

WI Unique Well No. of Replacement Well _____

(2) FACILITY/ OWNER INFORMATION

Facility Name: KOLPAK FACILITY

Facility ID _____ License/Permit/Monitoring No. _____

Street Address of Well: 715 Saint Croix St

City, Village, or Town: River Falls

Present Well Owner: KOLPak Facility

Original Owner _____

Street Address or Route of Owner: 715 Saint Croix St

City, State, Zip Code: River Falls WI 54022

(3) WELL/DRILLHOLE/BOREHOLE INFORMATION

Original Construction Date _____

☒ Monitoring Well
☐ Water Well
☐ Borehole / Drillhole

If a Well Construction Report is available, please attach.

Construction Type:
☐ Drilled ☒ Driven (Sandpoint) ☐ Dug
☐ Other (Specify) _____

Formation Type:
☒ Unconsolidated Formation ☐ Bedrock

Total Well Depth (ft.) (From groundsurface): 22.44 Casing Diameter (in.): 2"

Casing Depth (ft.): 22.44

Lower Drillhole Diameter (in.): 2"

Was Well Annular Space Grouted? ☒ Yes ☐ No ☐ Unknown

If Yes, To What Depth? _____ Feet

Depth to Water (Feet) _____

(4) PUMP, LINER, SCREEN, CASING, & SEALING MATERIAL

Pump & Piping Removed?	☐ Yes	☐ No	☒ Not Applicable
Liner(s) Removed?	☐ Yes	☐ No	☒ Not Applicable
Screen Removed?	☐ Yes	☒ No	☐ Not Applicable
Casing Left in Place?	☒ Yes	☐ No	
Was Casing Cut Off Below Surface?	☒ Yes	☐ No	
Did Sealing Material Rise to Surface?	☒ Yes	☐ No	
Did Material Settle After 24 Hours?	☐ Yes	☒ No	
If Yes, Was Hole Retopped?	☐ Yes	☐ No	

Required Method of Placing Sealing Material
☒ Conductor Pipe-Gravity ☐ Conductor Pipe-Pumped
☐ Screened & Poured (Bentonite Chips) ☐ Other (Explain)

Sealing Materials
☐ Neat Cement Grout
☐ Sand-Cement (Concrete) Grout
☐ Concrete
☐ Clay-Sand Slurry (11 lb./gal. wt.)
☐ Bentonite-Sand Slurry " "
☐ Bentonite Chips

For monitoring wells and monitoring well boreholes only
☒ Bentonite Chips
☐ Granular Bentonite
☐ Bentonite - Cement Grout
☐ Bentonite - Sand Slurry

(5) Material Used To Fill Well/Drillhole	From (Ft.)	To (Ft.)	No. Yards, Sacks Sealant or Volume (Circle One)	Mix Ratio or Mud Weight
Bentonite chips	Surface	22.44	36 lbs	

(6) Comments: _____

(7) Name of Person or Firm Doing Sealing Work: SGS Environmental Contracting LLC

Date of Abandonment: 12/20/05

Signature of Person Doing Work: George O Fruck

Date Signed _____

Street or Route: W4493 Pope Rd

Telephone Number: (715) 539-2803

City, State, Zip Code: Merrill WI 54452

FOR DNR OR COUNTY USE ONLY
Date Received _____ Noted By _____
Comments _____

DNR/COUNTY

Letter of Transmittal

RMT, Inc.
744 Heartland Trail (53717-1934)
PO Box 8923 (53708-8923)
Madison, WI
Tel. (608) 831-4444 • Fax (608) 831-3334

To:	Wisconsin DNR	**Date:**	10/4/05
	890 Spruce Street	**Project No.:**	7193.03
	Baldwin, WI 54002	**Subject:**	Clusure Documentation and Check
Prepared By:	Jennifer Warmka		

Enclosed please find the WDNR Case Summary and Close Out Request (Form 4400-202) and the required $750 close out review fee.

If you have any questions, please contact Dan Hall at 608-662-5313.

Thanks,

Jennifer

cc: Tim Reis, Manitowoc Company – 2 copies

Integrated
Environmental
Solutions

744 Heartland Trail 53717-1934
P.O. Box 8923 53708-8923
Madison, WI
Telephone: 608-831-4444
Fax: 608-831-3334
www.rmtinc.com

October 4, 2005

Mr. Patrick J. Collins
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, WI 54002

Subject: Summary of Soil and Groundwater Sampling Results and Request for Case Closure for the Manitowoc Company 715 St. Croix Street, River Falls, Wisconsin WDNR BRRTS#02-56-000046

Dear Mr. Collins:

RMT, Inc. (RMT), has prepared this letter report to document the analytical results of soil, groundwater, and surface water sampling conducted at the above-noted site on September 26, 2005, and to formally request case closure. Attached to this letter is a figure showing the locations of the soil and surface water sampling locations and the locations of the existing water table monitoring wells. Copies of the laboratory analytical reports are included as Appendix A. The Wisconsin Department of Natural Resources (WDNR) Case Summary and Close Out Request (Form 4400-202), including a brief executive summary of site activities and all appropriate attachments (maps, figures and tables), are included in Appendix B.

Background

The Manitowoc Company is in the process of closing business operations at the River Falls Division (Kolpak) facility. To help facilitate sale and/or lease of the property and remove any perceived burden of environmental liability, The Manitowoc Company is seeking a favorable case closure decision with respect to historical issues of groundwater quality and discharges to a local surface water drainage. To demonstrate the lack of residual environmental impact at the Kolpak facility, groundwater samples were collected from the site's four water table monitoring wells in September 2005 for analysis of volatile organic compounds (VOCs). At water table monitoring well, MW-3, a sample of groundwater was also collected for analysis of dissolved total and hexavalent chromium. Soil samples were collected at depths of 1 and 3 feet below ground surface at the site's storm water discharge structure (24–inch diameter culvert) and submitted for analysis of total chromium and hexavalent chromium. A sample of surface water was also collected at the storm water discharge structure for analysis of dissolved total and hexavalent chromium. Soil and groundwater sample locations are shown on the attached figure.

Analytical Results

VOCs were not detected in groundwater at the site and hexavalent chromium was not detected in samples of soil collected beneath the outfall of the site's storm water discharge structure or in a sample of surface water running through the culvert to the local drainage. In addition, the concentration of hexavalent chromium detected in groundwater at MW-3 (4.2 μg/L) is less than the NR 140 Preventive Action Limit (PAL) (10 μg/L) and less than previously detected concentrations (50 μg/L) at the well.

Conclusions and Justification for Case Closure

Based on the current site conditions, the residual concentrations of chromium in soil and groundwater at the site do not pose a risk to human health or the environment. The following conclusions can be drawn from the data in support of unconditional case closure:

- VOCs are absent from groundwater at the site.
- The concentration of hexavalent chromium detected in groundwater at MW-3 has decreased from a concentration of 50 μg/L in 1992 and 1993 to a concentration of 4.2 μg/L in 2005 and no longer exceeds the PAL of 10 μg/L.
- Hexavalent chromium is absent from soil samples collected from 1 and 3 feet below ground surface at a location immediately beneath the site's storm water discharge structure. And, the concentrations of total chromium detected in these samples (14.8 mg/kg at 1 ft and 12.4 mg/kg at 3 ft) are less than the NR 720 nonindustrial Residual Contaminant Level (RCL) of 16,000 mg/kg for trivalent chromium. An industrial RCL for trivalent chromium has not been established.
- The concentration of dissolved hexavalent chromium detected in a sample of surface water collected at the storm water discharge structure was less than the laboratory limit of detection.
- There are no known receptors of any environmental impacts related to the Kolpak facility. ~~Private residences located immediately west of the site no longer make use of private drinking water supply wells~~. Because of the groundwater impacts related to a retail gasoline station located north of the facility, th~~ese residences now obtain drinking water from the municipal water supply~~.

Given the lack of residual VOCs and chromium in soil and groundwater at the site and the lack of actual or potential receptors, RMT recommends that this case be closed without condition.

If you have any questions or comments regarding this submittal, please contact us, at 608-662-5131.

Sincerely,

RMT, Inc.

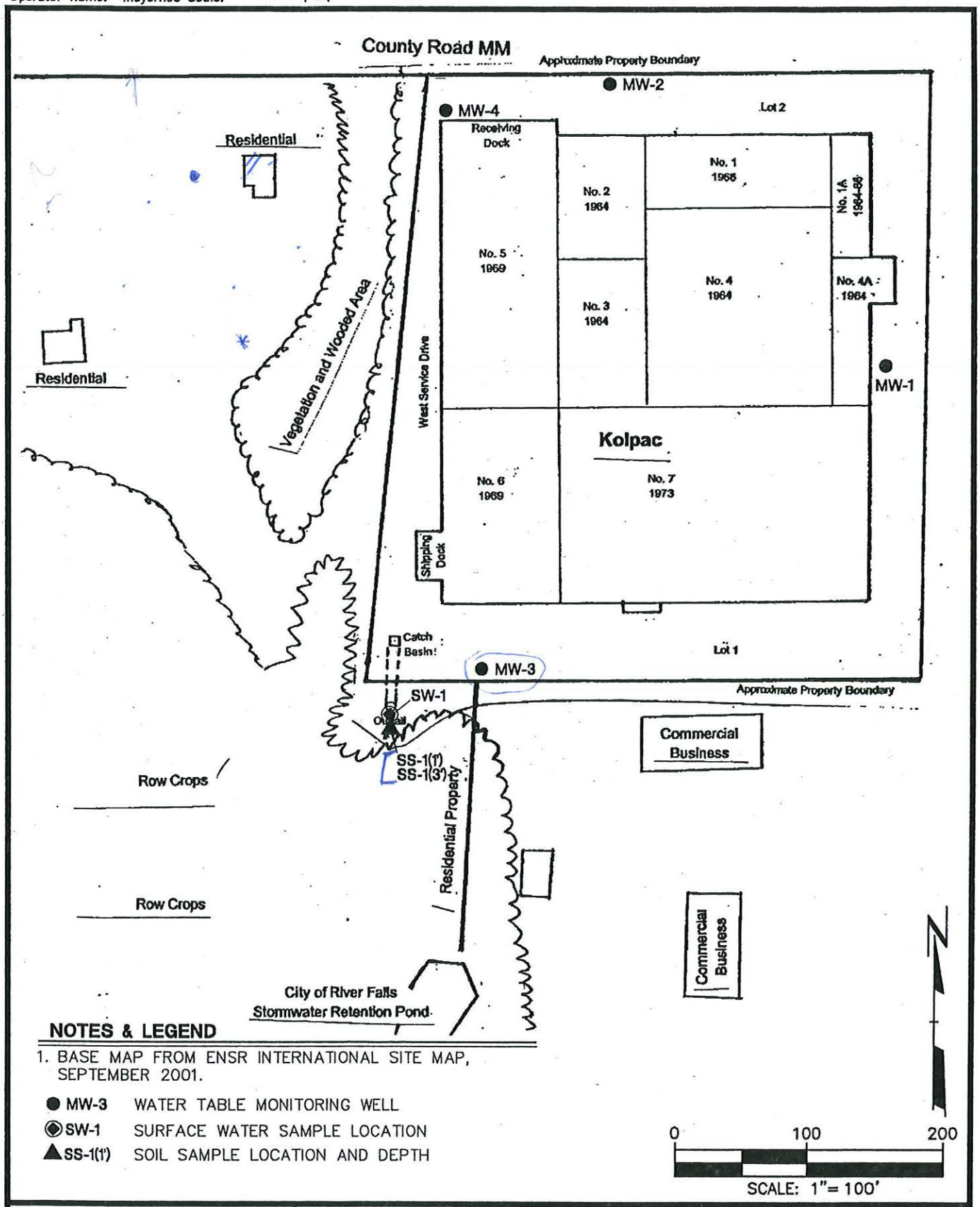
Troy H. Clausen
Staff Hydrogeologist

Daniel W. Hall
Senior Client Executive

Attachments: Figure 1 - Site Features Map/Sampling Location Map
Appendix A – Laboratory Analytical Results
Appendix B – WDNR Case Summary and Close Out Request (Form 4400-202)

cc: Timothy T. Reis

PLOT DATA
Drawing Name: J:\07193\03\71930301.dwg
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

1. BASE MAP FROM ENSR INTERNATIONAL SITE MAP, SEPTEMBER 2001.

● MW-3 WATER TABLE MONITORING WELL
◈ SW-1 SURFACE WATER SAMPLE LOCATION
▲ SS-1(1') SOIL SAMPLE LOCATION AND DEPTH

RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

DRAWN BY:	FIEBRANT
APPROVED BY:	THC
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005

CTLaboratories

1230 Lange Court
Baraboo, WI 53913-3109
Phone: (800) 228-3012
Fax: (608) 356-2766
www.ctlaboratories.com

ANALYTICAL REPORT

RMT
DAN HALL
744 HEARTLAND TRAIL
MADISON, WI 53717

Project Name: RIVER FALLS
Contract #: 2010
Project #:
Folder #: 49811
Purchase Order #:
Arrival Temperature: See COC

Report Date: 9/28/2005
Date Received: 9/27/2005

Reprint Date:

CT Lab#: 344575 Sample Description: MW-1 Sampled: 9/26/2005 0908

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B

WI DNR Lab Certification Number: 15-7066030
DATCP Certification Number: 105-000289
LA NELAP Certification Number: 04091

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344575 Sample Description: MW-1 Sampled: 9/26/2005 0908

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344575 Sample Description: MW-1 Sampled: 9/26/2005 0908

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344576 Sample Description: MW-2 Sampled: 9/26/2005 1028

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344576 Sample Description: MW-2 Sampled: 9/26/2005 1028

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344576 Sample Description: MW-2 Sampled: 9/26/2005 1028

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344577 Sample Description: MW-3 Sampled: 9/26/2005 1115

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Inorganic Results										
Dissolved Hexavalent Chromium	4.20	ug/L	4 *	12	1.0	M,Y		9/27/2005	KJW	EPA 7196A
Metals Results										
Dissolved Chromium	3.0	ug/L	1.7 *	5.6	1.0			9/27/2005	NAH	EPA 6010B
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344577 Sample Description: MW-3 Sampled: 9/26/2005 1115

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344577 Sample Description: MW-3 Sampled: 9/26/2005 1115

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344578 Sample Description: MW-4 Sampled: 9/26/2005 0958

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344578 Sample Description: MW-4 Sampled: 9/26/2005 0958

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344578 Sample Description: MW-4 Sampled: 9/26/2005 0958

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344579 Sample Description: SW-1 Sampled: 9/26/2005 1204

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Inorganic Results										
Dissolved Hexavalent Chromium	<4	ug/L	4	12	1.0			9/27/2005	KJW	EPA 7196A
Metals Results										
Dissolved Chromium	<1.7	ug/L	1.7	5.6	1.0			9/27/2005	NAH	EPA 6010B

CT Lab#: 344580 Sample Description: TRIP BLANK Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344580 Sample Description: TRIP BLANK Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344580 Sample Description: TRIP BLANK Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344581 Sample Description: DUP-01 Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Organic Results										
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
1,1,1,2-Tetrachloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1,1-Trichloroethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,1,2,2-Tetrachloroethane	<0.15	ug/L	0.15	0.52	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethane	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloroethene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,1-Dichloropropene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2,3-Trichlorobenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344581 Sample Description: DUP-01 Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
1,2,3-Trichloropropane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trichlorobenzene	<0.70	ug/L	0.70	2.4	1.0			9/27/2005	APG	EPA 8260B
1,2,4-Trimethylbenzene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromo-3-chloropropane	<1.1	ug/L	1.1	3.6	1.0			9/27/2005	APG	EPA 8260B
1,2-Dibromoethane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloroethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
cis-1,2-Dichloroethene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
trans-1,2-Dichloroethene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
1,2-Dichloropropane	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
cis-1,3-Dichloropropene	<0.12	ug/L	0.12	0.42	1.0			9/27/2005	APG	EPA 8260B
trans-1,3-Dichloropropene	<0.14	ug/L	0.14	0.48	1.0			9/27/2005	APG	EPA 8260B
1,3,5-Trimethylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
1,3-Dichloropropane	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
1,4-Dichlorobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
2,2-Dichloropropane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
2-Butanone	<7.0	ug/L	7.0	25	1.0			9/27/2005	APG	EPA 8260B
2-Chlorotoluene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
2-Hexanone	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
4-Chlorotoluene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B
4-Methyl-2-pentanone	<7.0	ug/L	7.0	24	1.0			9/27/2005	APG	EPA 8260B
Acetone	<9.0	ug/L	9.0	29	1.0			9/27/2005	APG	EPA 8260B
Benzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Bromobenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromochloromethane	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Bromodichloromethane	<0.13	ug/L	0.13	0.42	1.0			9/27/2005	APG	EPA 8260B
Bromoform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
Bromomethane	<0.80	ug/L	0.80	2.7	1.0			9/27/2005	APG	EPA 8260B
n-Butylbenzene	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
sec-Butylbenzene	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B
tert-Butylbenzene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Carbon disulfide	<1.1	ug/L	1.1	3.8	1.0			9/27/2005	APG	EPA 8260B
Carbon tetrachloride	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Chlorobenzene	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Chloroethane	<0.70	ug/L	0.70	2.2	1.0			9/27/2005	APG	EPA 8260B
Chloroform	<0.50	ug/L	0.50	1.7	1.0			9/27/2005	APG	EPA 8260B

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344581 Sample Description: DUP-01 Sampled: 9/26/2005

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Chloromethane	<0.24	ug/L	0.24	0.79	1.0			9/27/2005	APG	EPA 8260B
Dibromochloromethane	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
Dibromomethane	<0.70	ug/L	0.70	2.3	1.0			9/27/2005	APG	EPA 8260B
Dichlorodifluoromethane	<0.60	ug/L	0.60	2.1	1.0			9/27/2005	APG	EPA 8260B
Diisopropyl ether	<0.50	ug/L	0.50	1.8	1.0			9/27/2005	APG	EPA 8260B
Ethylbenzene	<0.50	ug/L	0.50	1.5	1.0			9/27/2005	APG	EPA 8260B
Hexachlorobutadiene	<0.60	ug/L	0.60	1.8	1.0			9/27/2005	APG	EPA 8260B
Isopropylbenzene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
p-Isopropyltoluene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Methyl tert-butyl ether	<0.60	ug/L	0.60	1.9	1.0			9/27/2005	APG	EPA 8260B
Methylene chloride	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Naphthalene	<0.60	ug/L	0.60	2.0	1.0			9/27/2005	APG	EPA 8260B
n-Propylbenzene	<0.40	ug/L	0.40	1.3	1.0			9/27/2005	APG	EPA 8260B
Styrene	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Tetrachloroethene	<0.40	ug/L	0.40	1.4	1.0			9/27/2005	APG	EPA 8260B
Tetrahydrofuran	<7.0	ug/L	7.0	23	1.0			9/27/2005	APG	EPA 8260B
Toluene	<0.40	ug/L	0.40	1.2	1.0			9/27/2005	APG	EPA 8260B
Trichloroethene	<0.15	ug/L	0.15	0.50	1.0			9/27/2005	APG	EPA 8260B
Trichlorofluoromethane	<0.50	ug/L	0.50	1.6	1.0			9/27/2005	APG	EPA 8260B
Vinyl acetate	<8.0	ug/L	8.0	27	1.0			9/27/2005	APG	EPA 8260B
Vinyl chloride	<0.12	ug/L	0.12	0.39	1.0			9/27/2005	APG	EPA 8260B
m & p-Xylene	<1.0	ug/L	1.0	3.4	1.0			9/27/2005	APG	EPA 8260B
o-Xylene	<0.40	ug/L	0.40	1.5	1.0			9/27/2005	APG	EPA 8260B

CT Lab#: 344582 Sample Description: DRAIN 1FT Sampled: 9/26/2005 1140

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Inorganic Results										
Hexavalent Chromium	<5.4	mg/kg	5.4	18	1.0		9/27/2005	9/27/2005	MML	EPA 3060A/7196A
Solids, Percent	82.1	%	N/A	N/A	1.0			9/27/2005	KJW	EPA 5030A
Metals Results										
Chromium	14.8	mg/kg	0.16	0.54	1.0		9/27/2005	9/27/2005	NAH	EPA 6010B

CT Lab#: 344583 Sample Description: DRAIN 3FT Sampled: 9/26/2005 1200

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method

Solid sample results reported on a Dry Weight Basis

CT Lab#: 344583 Sample Description: DRAIN 3FT Sampled: 9/26/2005 1200

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date	Analysis Date	Analyst	Method
Inorganic Results										
Hexavalent Chromium	<5.4	mg/kg	5.4	18	1.0		9/27/2005	9/27/2005	MML	EPA 3060A/7196A
Solids, Percent	82.2	%	N/A	N/A	1.0			9/27/2005	KJW	EPA 5030A
Metals Results										
Chromium	12.4	mg/kg	0.20	0.68	1.0		9/27/2005	9/27/2005	NAH	EPA 6010B

Notes regarding entire Chain of Custody:

Notes: * Indicates Value in between LOD and LOQ.
All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

This report satisfies the requirements of your project but has not been prepared to comply with NELAP reporting requirements.

Submitted by: PML

Pat M. Letterer
Project Manager
608-356-2760

QC Qualifiers

Code	Description
A	Analyte averaged calibration criteria within acceptable limits.
B	Analyte detected in associated Method Blank.
C	Toxicity present in BOD sample.
D	Diluted Out.
E	Safe, No Total Coliform detected.
F	Unsafe, Total Coliform detected, no E. Coli detected.
G	Unsafe, Total Coliform detected and E. Coli detected.
H	Holding time exceeded.
J	Estimated value.
L	Significant peaks were detected outside the chromatographic window.
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.
N	Insufficient BOD oxygen depletion.
O	Complete BOD oxygen depletion.
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.
Q	Laboratory Control Sample outside acceptance limits.
R	See Narrative at end of report.
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.
T	Sample received with improper preservation or temperature.
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.
W	Sample amount received was below program minimum.
X	Analyte exceeded calibration range.
Y	Replicate/Duplicate precision outside acceptance limits.
Z	Calibration criteria exceeded.

Solid sample results reported on a Dry Weight Basis

Rev. 3/2003

Chain of Custody

Page _____ of _____

CTLaboratories

1230 Lange Court, Baraboo, WI 53913
608-356-2760 Tel. Fx 608-356-2766
www.ctlaboratories.com

Company Name: RMT, Inc
Project Contact: Don Hall
Telephone: 608-662-5313
Project Name: Manitowoc - Rapids
Project Number:
Project Location: River Falls
Sampled By: N. Keller

Folder #: 49811
Company: RMT
Project: RIVER FALLS
Logged By: JLW PM: PMI

Ice Present (Yes) No
Temperature 5.6
Initials jlw
Date 9/26/05 Time 1600
Cooler #

Mail Report To: Don Hall
Company: RMT Inc
Address: 744 Heartland Tr
City/State/Zip: Madison 53711

Invoice To:
Company: Same
Address:
City/State/Zip:
PO No.
Contract No.

Regulatory Program:
UST RCRA SDWA NPDES
Solid Waste Other _____

Turnaround Time
Normal RUSH* Date Needed _____
*Notify Lab prior to sending in RUSH
Surcharges 24 hr 200% 2-3 days 100% 4-9 days 50%
Surcharges subject to change without notice.

Landfill License Number _____

Client Special Instructions:

Fill in Spaces with Bottles per Tests

Collection Date	Collection Time	Field Screen	Field ID	Grab/ Comp	Sample ID Description	Filt'd Y/N	WDNR Well ID #	**Matrix:	VOCs 8260	Total Chlorine	Hef Chlorin.	Filtration Sample	4oz Cup				Total No of Containers	Total No of Cont. Rec'd	Preservation*	Lab ID #
9/26/05	9:03	N	—	G	MW-1	N		GW	3											344575
	10:28				MW-2															* Metals not 344576
	11:15				MW-3					1*	1*									preserved or 344577
	9:58				MW-4															filtered 344578
	12:07				SW-1					1*	1*									344579
					Trip Blank				2											344580
					Dup-01				3											344581
	11				Drain Left			S					2							344582
					Drain Right			S					2							344583

Relinquished By:	Date/Time	Relinquished By:	Date/Time
		[signature]	9/26/05 18:00
Received by:	**Date/Time**	**Received by:**	**Date/Time**
		jlw	9/26/05 1605

**Matrix
S-Soil A-Air Slg-Sludge M-Misc Waste
GW-Groundwater SW-Surface Water
WW-Wastewater DW-Drinking Water

* Preservation Code
A=None B=HCL
C=H2SO4 D=HNO3
E=Encore F=Methanol
G=NaOH
O=Other _____

A1
Case History & Justification for Closure

Attachment A1

The following is a description of the site history and chronology of site investigation and environmental sampling events associated with the Kolpak facility. As described below, soil and groundwater sampling was conducted by RMT in September 2005 (as directed by the WDNR) to facilitate case closure. A summary of the analytical results and a brief written justification for case closure are presented below.

Site History/Chronology of Site Investigation Activities

In October 1990, petroleum volatile organic compounds (PVOCs) were detected in groundwater samples collected from the private water supply well at the "Rugor" rental property located west of the Kolpak facility. Two sampling events on October 23, and October 29, 1990, confirmed the presence of benzene in groundwater at the Rugor well at concentrations between 600 and 800 μg/L, which is more than 100 times greater than the NR 140 Enforcement Standard (ES) of 5 μg/L for benezene. In addition to benzene, lesser concentrations of toluene (3.4 to 3.8 μg/L), xylenes (9.2 to 9.5 μg/L), and 1,2-dicholorethane (1.4 to 1.8 μg/L) were detected. The concentrations of 1,2-dichloroethane exceeded the NR 140 Preventive Action Limit (PAL) of 0.5 μg/L.

In a letter dated December 14, 1990, the Wisconsin Department of Natural Resources (WDNR) requested that the Shannon Group (now Kolpak) obtain an environmental consultant to conduct a remedial investigation on the Kolpak property in response to the detections of PVOCs at the Rugor well.

In June 1991, Conestoga Rovers and Associates (CRA) performed a limited site investigation at the Kolpak facility. Four soil borings were advanced to depths generally between 20 and 25 feet below ground surface. Site soil was found to be poorly graded sand. The water table was encountered at depth of approximately 12 to 15 feet below ground surface, and the direction of groundwater flow was determined to be to the southwest toward the Kinnickinnic River.

Soil samples were collected at each boring for field-screening and laboratory analysis of volatile organic compounds (VOCs). Four water table wells were installed, and groundwater samples were also collected for laboratory analysis of VOCs. The results of laboratory analysis indicated the presence of very low concentrations of VOCs in soil and groundwater at the Kolpak facility. None of the detected VOCs exceeded NR 720 Residual Contaminant Levels (RCLs) or NR 140 PALs, with the exception of the detection of benzene (1.0 μg/L) in groundwater at MW-1 in June 1991. The presence of VOCs appeared to be unrelated to operations at the facility and potentially related to the retail gasoline station located northeast (upgradient) of the Kolpak facility at the corner of State Highway 35 and County Trunk Highway MM.

CRA conducted groundwater sampling events in June and August of 1991 at the facility. Groundwater sampling was also conducted during this time frame at the Rugor well and adjacent residence (sometimes referred to as the main house). Following the initial site investigation,

groundwater sampling was conducted in May 1992 and July 1993. During this time, elevated concentrations of dissolved chromium (50 μg/L) were detected in groundwater collected from MW-3.

In response to the detections of chromium at MW-3 (and the absence of VOCs in groundwater at the facility's wells), Mr. Patrick Collins of the WDNR in a letter dated October 21, 1993, instructed the Shannon Group to continue groundwater sampling at the facility for analysis of chromium only. According to records we were able to obtain from the WDNR case file, Kolpak monitoring wells MW-2, MW-3, and MW-4 were sampled in October 1999 for analysis of VOCs. It appears that these samples were collected in conjunction with samples collected from monitoring wells that had been installed on the Rugor property. Samples of groundwater collected from the Kolpak wells in October 1999 were not analyzed for total chromium or hexavalent chromium.

Recent Site Investigation and Analytical Results

To facilitate case closure, The Manitowoc Company representatives met with Mr. Patrick Collins of the WDNR in September 2005. The Manitowoc Company is in the process of closing business operations at the River Falls Division (Kolpak) facility. To help facilitate sale and/or lease of the property and remove any perceived burden of environmental liability, The Manitowoc Company is seeking a favorable case closure decision with respect to historical issues of groundwater quality and discharges to a local surface water drainage. To achieve case closure, Mr. Collins requested that groundwater samples be collected from the site's four water table monitoring wells for analysis of VOCs. A sample of groundwater was also to be collected at water table monitoring well MW-3 for analysis of dissolved total and hexavalent chromium. And, near-surface soil samples were to be collected at the site's storm water discharge structure (24-inch–diameter culvert) and submitted for analysis of total chromium and hexavalent chromium.

On September 26, 2005, RMT mobilized to the site to collect the environmental samples as outlined above. The site's groundwater wells were sampled for analysis of VOCs. MW-3 was sampled for analysis of total and hexavalent chromium. Samples of near-surface soil were collected at depths of 1 foot and 3 feet below grade beneath the outfall of the facility's storm water discharge structure. In addition, a sample of surface water was collected from the culvert for analysis of total and hexavalent chromium.

The analytical results of the September 2005 sampling event indicate that VOCs are not present in groundwater at the site. In addition, the concentration of hexavalent chromium detected in groundwater at MW-3 (4.2 μg/L) is less than the NR 140 Preventive Action Limit (PAL) (10 μg/L) and less than previously detected concentrations (50 μg/L) at the well. And, hexavalent chromium was not detected in samples of soil collected beneath the outfall of the site's storm water discharge structure or in a sample of surface water running through the culvert to the local drainage.

WDNR BRRTS CASE # 02 - 56 - 000046 WDNR SITE NAME : Vollrath Shannon Group

WISCONSIN DEPARTMENT OF NATURAL RESOURCES
Bureau for Remediation and Redevelopment

This form is intended to provide instructions and a list of information that must be submitted for evaluation for case closure, each time a request is made. The closure of a case means that the Department has determined that no further response is required at that time based on the information that has been submitted to the Department.

NOTICE: ***Completion of this form is mandatory*** *for applications for case closure pursuant to ch. 292, Wis. Stats. and ch. NR 726, Wis. Adm. Code, including cases closed under ch. NR 746 and ch. NR 726. The Department will not consider, or act upon your application, unless all applicable sections are completed on this form and the closure fee and any other applicable fees, required under ch. NR 749, Wis. Adm. Code, Table 1 are included. It is not the Department's intention to use any personally identifiable information from this form for any purpose other than reviewing close out requests and determining the need for additional response action. The Department may provide this information to requesters as required by Wisconsin's Open Records law [ss. 19.31 - 19.39, Wis. Stats.].*

In order to expedite the closure process, provide a complete and accurate closure package according to the following instructions, each time a closure decision is requested:

- Submit the Case Summary and Close Out Form and the required attachments as a stand-alone, **unbound** package. Include all information requested per section, as appropriate to the site, in the order shown. Include all attachments per section, as appropriate. Do not attach previously submitted reports. Correctly reference any reports in the case summary, as applicable.
- Include fees with this package at the time it is submitted to the department in order for the application to be considered complete.
- Specify your selected closure option.
- Include all **GIS Registry information** (in Section I) as a stand-alone document (*do not refer to materials in other attachments*). Include copies of **all off-source property and ROW notifications**.
- Place a √ (attached) or NA (not applicable) in the blank next to each attachment, in each section.
- Include a draft of the deed document with the close out application, if a **deed restriction** or **deed notice** is required as a condition of closure of the selected remedy. Include a maintenance plan, if it is required in the deed instrument.
- **Maps for the GIS Registry may not be larger than 8.5 x 14 inches,** unless maps are submitted in electronic form in portable document format (pdf) readable by the Adobe Acrobat Reader. For electronic document submittal requirements, see http://www.dnr.wi.gov/org/aw/rr/archives/pubs/RR690.pdf.
- Prepare maps according to the applicable portions of ss. NR 716.15(2)(h)1 and 726.05(3)(a)4.d. Prepare visual aids, including maps, plans, drawings, cross sections, fence diagrams, tables and photographs according to s. NR 716.15(2)(h)1. – 4.
- **Use a bold font** on information of importance on tables, maps and figures. A **bold font (for ES exceedances)** and *italics (for PALs)* are preferred when differentiation is necessary. **Please do not use shading or highlights** on any of the analytical tables (per s. NR 726.05(3) and maps as the shading obscures the information that is scanned for inclusion in the GIS Registry.
- Put multiple tables submitted for contaminated media data (eg. pre- and post-remedial data) in chronological order. Include the level of detection for results which are below the detection level (i.e. do not just list as no detect (ND)). Summaries of all data should include information collected by previous consultants. Do not submit lab data sheets unless these have not been submitted in a previous report. Tabulate all data required in s. NR 716.15(2)(g)3 in the format required in s. NR 716.15(2)(h)3.
- Document free product recovery estimates as required in s. NR 708.15, if applicable.

WDNR BRRTS CASE # 02 - 56 - 000046 WDNR SITE NAME : Vollrath Shannon Group

Section A: Case History and Closure Pathway Selected

ATTACHMENTS:

A1 A brief site summary including results of all investigative activities, interim and remedial actions taken, a description of any residual soil and/or groundwater contamination and their locations, a description of any other media affected, and a description of how actual and potential impacts to receptors have been addressed.

A2 Site location map on USGS topographic base map.

A3 Site map including buildings, utilities, property lines of source property and impacted non-source properties, ground cover and supply wells. *These maps may be combined. A copy of the map(s) from Section I, #5 may be used.*

A4 Verification of the zoning for affected properties.

INFORMATION NEEDED:

1. Site Name The Manitowoc Company (Kolpak), River Falls Division (former Shannon Group)
   Street Address: 715 St. Croix Street
   City/Zip Code: River Fall, WI 54221
2. BRRTS #: 02-56-000046
3. DNR FID #: N/A PECFA Claim#: N/A
4. Responsible Party Name The Manitowoc Company
   Mailing Address: 2400 S. 44th Street City/Zip Code: Manitowoc, WI 54271-0066
   Phone number: (920) 652-1751 Contact Person: Timothy T. Reis
5. Date of Incident/Discovery: October 1990 Contaminant Type(s): VOCs and chromium
6. Quantity Released: Unknown
7. Land Use:
   Current : ____ Residential ____ Commercial _X_ Industrial ____ Other
   If other, specify: ____
   Planned Post Remediation : ____ Residential ____ Commercial _X_ Industrial ____ Other
   If other, specify: ____
8. Is a zoning change required? ____Y _X_N
   If so, has it been completed for post remedial land use? ____Y ____N
9. 4 Acres ready for use (The total area in acres of all adjacent tax parcels owned by the same entity on the site where the contamination originated, rounding fractions to nearest .5 acre and noting >100 acres for acreages above 100 acres. For multiple discharges that are cleaned up concurrently, count the acres once.)
10. Geographic Coordinates (meters/ WTM83/91) E 312,765 N 491,788
11. Method Used to Obtain Geographic Coordinates:
    ____ On-site using GPS equipment, converted or projected into WTM83/91 coordinates
    _X_ Used RR GIS Registry web site to get WTM83/91 coordinates
    ____ Other (specify): ____
12. *Groundwater Contamination Remaining (>ES):
    On Source Property ___Y _X_ N
    Off Source Property ___Y _X_ N
13. *Residual Soil Contamination > Generic or Site-Specific RCL:
    On Source Property ___Y _X_ N
    Off Source Property ___Y _X_ N
14. Contamination in Right of Way: ___Y _X_ N
15. Closure Pathway Selected: check all that apply

CLOSURE via NR 726	
Soil	Groundwater
_X_ < s. NR 720.09/720.11 Generic RCLs	___< s. NR 140.10 Table 1 & Table 2 Values
___s. NR 720.19(2) Soil Performance Standards	___s. NR 140.28(2) PAL Exemption
___s. NR 720.19(4) Groundwater Pathway	___s. NR 726.05(2)(b), ≥ ES Natural Attenuation
___s. NR 720.19(5) Direct Contact	
___s. NR 720.19(6) Other Pathways	

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CLOSURE via NR 746 and NR 726	
Petroleum Storage Tank **Soil** Options for Closure:	
___s. NR 746.07 Requirements Met-Post Investigation	
___s. NR 746.08 Requirements Met-Post Remed.	
Petroleum Storage Tank **GW** Options for Closure:	Petroleum Storage Tank **GW** Options for Closure:
Within Permeable Material:	Within Low Permeability Material:
___s. NR 746.07(3) ≥PAL <ES, Post Investigation	___s. NR 746.07(2), Post Investigation
___s. NR746.07(4) >ES, Post Investigation	___s. NR 746.08(2), Post Remediation
___s. NR 746.08(3)≥ PAL, <ES, Post Remediation	
___s. NR 746.08(4) >ES, Post Remediation	

Section B: Receptor Summary

ATTACHMENTS:

N/A Notification(s) regarding contamination in ROW
N/A Notification(s) to off-source property owners regarding sampling results

INFORMATION NEEDED:

1. Identify **all** pre-remedial actual receptors, the assessed risk and their locations (e.g., both on- and off-site utility corridors, basements or sumps of nearby buildings, direct contact threat from soil, water supplies, surface waters, sediments, vapors, etc.) *For definitions, refer to s. NR 700.03 (47), Wis. Adm. Code.*
   Surface water discharges to local drainage - minimal risk
2. Have the remedial actions addressed the potential or actual impacts to these receptors?
   X Y (Details in the case history summary (Section A)).
   ___N If no, please identify the nature of the remaining risk and the receptor at risk, if any:

Section C: Soil Investigation Information

ATTACHMENTS:

C1 Complete soil data summary table of field screening and laboratory analytical results, including all detects, regardless of ch. NR 720 standards, with dates, sample locations, depths and detection limits. Identify exceedances.
C2 Map(s) of all pre-remedial soil sampling locations: depicting all soil sample locations relative to site facilities. Note in bold font those sample locations that exceed ch. NR 720 RCLs (including free product location) and delineate the extent of contamination.
N/A Pre-remedial geologic cross-sections; including geology, source location(s), extent of soil and groundwater contamination, free product location/depth, soil sample locations, water table elevation, and bedrock elevation, if encountered.

INFORMATION NEEDED:

1. Extent Defined? X Y ___N If not, explain why. ___
2. Soil Type(s): SP, poorly graded sand
3. Depth of Contamination: Top: 5 feet Bottom: 14.5 feet
4. Type of Bedrock: Not determined Depth to Bedrock: Not determined

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5. Is Any Contaminated Soil (Unsaturated or Saturated) in Contact With the Bedrock? ____Y _X_N
6. Measurable Free Product? ____Y _X_ N Depth/Location: _____

Section D: Soil Remediation Information

ATTACHMENTS:

N/A Map showing remediated area (for example, excavation limits or area influenced by SVE) and locations of post-remediation soil samples (if any). This map should show the locations and extent of residual soil contamination exceeding ch. NR 720 RCLs. These samples should be noted in bold font. *A copy of the map(s) from Section I, #10, may be used.*

N/A Soil disposal documentation

N/A NR 720.19 analysis, assumptions and calculations for site specific RCLs (SSRCLs) , with justification

N/A Calculations and results of EPA Soil Screening Level Model.

N/A Post-remedial cross-section(s) with post remedial soil sampling results, if soil removal or treatment has occurred. Identify sample results and depths. *A copy of the cross-section(s) from Section I, #11, may be used or you may refer to the cross-section(s) in Section E, as appropriate.*
____see Section E

INFORMATION NEEDED:

1. Remedial Action Completed? ____Y _X_N
2. Were immediate or interim actions conducted? ____Y _X_N If yes, what action was taken?
3. Brief description of remedial action taken:
   Monitored natural attenuation
4. Were soils excavated? _____Y _X_N
   Quantity: _____ Disposal Method: _____
5. Final Confirmation Sample Collection Methods:
   N/A
6. Final Soil/Drill Cuttings Disposal Location:
   Not known
7. Estimated volume and depth of in situ soils exceeding ch. NR 720 Table RCLs or Site Specific RCLs:
   Residual soil not greater than NR 720 RCLs
8. Estimated volume and depth of in situ soils exceeding ch. NR 746 Table 1 or Table 2 or Site Specific RCLs (*underground petroleum tank systems, as defined in ch. NR 746 only*):
   Residual soil not greater than NR 746, Table 1 or 2 RCLs
9. s. NR 720.19 Analysis? _____Y _X_N
   ___ Performance Standard -NR 720.19(2)
   ___ SSRCL - NR 720.19(3) and (4),(5) or (6)
10. If the remedy includes a Soil Performance Standard, what type? _X_ not applicable
    ____Cap ____ Soil ____Building ____ Natural Attenuation of Groundwater ____Other
    Specify other: _____
11. Will the maintenance of the SPS be consistent with the planned post remediation land use?
    _____Y _____N If No, please explain: _____
12. Is the EPA Soil Screening Level Model used as justification for closure of sites with residual contaminated soils?
    ____ Y _X_N Are the input numbers used: _____ Site Specific , or _____ WI Defaults?

Section E: Groundwater Information

ATTACHMENTS:

E1 Table identifying all contaminants, summarizing all pre- and post-remediation groundwater analytical results, with sample collection dates *(prepared in accordance with guidance document RR-628)*

E2 Groundwater sample location map showing the site facilities and all monitoring wells, sumps, extraction wells, and potable and non-potable wells.

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N/A Isoconcentration map(s) when included as part of the site investigation or map(s) of the horizontal extent of contamination based on most recent data. *A copy of the map(s) from Section I, #7, may be used.*

E3 A map showing groundwater flow direction(s) and summarizing the maximum variation in flow direction. *Multiple maps may be used. A copy of the map(s) from Section I, #9, may be used.*

E4 A table summarizing all groundwater elevations, with dates, and top and bottom elevations of well screens. (*Wells are to be referenced to national geodetic survey datum, as per NR 141.065(2)).*

N/A Graphs and statistical analyses which demonstrate the dynamics of the groundwater plume, for sites requesting closure using natural attenuation that meet the criteria s. NR 726.05(2)(b) or of s. NR 746 (permeable soils). *Refer to WDNR publication RR-614 for guidance.*

N/A Geologic cross-sections showing extent of residual soil and/or groundwater contamination, as applicable. *A copy of the cross-section(s) from Section I, #11 may be used.*

INFORMATION NEEDED:

1. Extent of Contamination Defined? X Y ___ N ___ N/A
2. Remedial Action Completed? X Y ___ N ___ N/A
   Brief Description of Remedial Action Taken: Monitored natural attenuation (groundwter monitoring)
3. Depth(s) to Groundwater 13-18 feet Flow Direction(s): Southwest
4. Field Analyses? ___ Y X N
   Lab Analyses? ___ Y ___ N
5. 6 # of Sample Rounds
   6 # of Sampling Points
   4 # NR 141 Monitoring Wells Sampled
   0 # Temporary GW Sampling Points Sampled
   0 # Recovery Sumps Sampled
   0 # Municipal Wells Sampled
   2 # Private Wells Sampled
6. Was DNR notified of substances in groundwater without standards? X Y ___ N ___ N/A
   If yes, how many? 3 What substances? cis-1,2-dichloropropene; dibromomethane; sec-butylbenzene
7. Preventive Action Limit currently exceeded? ___ Y X N If yes, identify location(s)
8. Enforcement Standard currently exceeded? ___ Y X N If yes, identify location(s)
9. Measurable free product detected? ___ Y X N Pre-remediation
   ___ Y X N Post-remediation
10. Was free product remediated? ___ Y ___ N
    Method: Drummed
    Purge water or free product-groundwater mixture disposal method?
11. Potable wells within 1200 feet of site? X Y ___ N
    Have they been sampled? X Y ___ N
    Type (i.e. municipal, private, etc.)? Private
    [NOTE: Include wells on *groundwater well location map*]
12. Has DNR been provided with **all** results of private well sampling? X Y ___ N
13. Have well owners/occupants been notified of results? (*Sec. B Attachments*) ___ Y ___ N **(not known)**
    (*Results also need to be sent to the DNR Water Supply Specialist)*

Section F. Other Contaminated Media Information:

ATTACHMENTS:

N/A Table of analytical results for all contaminants for media other than soil or groundwater

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INFORMATION NEEDED:

1. Have other media been impacted (either on-site or off-site e.g. sediment, utilities, air)? ____Y __X__N
   Briefly describe type and extent of **all** contamination found in media other than soil or groundwater:
   _____
   _____
2. Remedial action completed? ____Y ____N __X__N/A
   Brief description of remedial action taken: _____
   _____
3. # of Post Remedial Sample Rounds: _____
   # of Sampling Points: _____
   Field Analyses? ____Y ____N
   Lab Analyses? ____Y ____N

Section G. Associated Site Closure Information:

ATTACHMENTS:

N/A Construction documentation or as-built report for any constructed remedial action or portion of, or interim action specified in s. NR 724.02(1), in accordance with s. NR 724.15.

N/A Maps and photos documenting the cap area, and/or integrity of the cap, with date.

N/A Description of any soil performance standard cover system used, including a description of how it meets the requirement to be protective until residual contaminant concentrations no longer pose a threat to public health, safety, welfare or the environment, per s. NR 720.19(2), s. NR 722.09(2) and (3).

N/A Maintenance plan with deed restriction for performance standard remedy. (per ss. NR 720.19(2) and 724.13(2))

INFORMATION NEEDED:

1. Enforcement actions closed out? ____Y ____N __X__N/A
2. Permits closed out? ____Y ____N __X__N/A
3. Describe how the following pathways are protected:
   a) Direct Contact Pathway: Residual soil impacts less than NR 720 RCLs
   b) Groundwater: Groundwater impacts less than NR 140 PALs
   c) Other: N/A

H. Proposed Institutional Controls: *(See Pub. RR-606)*

ATTACHMENTS:

N/A RR GIS Registry of Closed Remediation Sites
- ____ Soil
- ____ Groundwater
- ____ Both

N/A Draft deed document *(Contact your DNR project manager for a template or guidance.)*
Type:
- ____ Deed Restriction
- ____ Deed Notice
- ____ Maintenance Agreement
- ____ Other: _____

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I. Required GIS Registry Information: Provide the following information, as a separate, stand-alone attachment, in the order specified.

N/A 1. **Copy(s) of most recent deed**, including legal description(s), for all affected properties within or partially within the contaminated site boundary. *(NOTE: If a property has been purchased with a land contract and the purchaser has not yet received a deed, a copy of the land contract which includes the legal description shall be submitted instead of the most recent deed. If the property has been inherited, written documentation of the property transfer should be submitted along with the most recent deed.)*

N/A 2. **A copy of certified survey map(s)**, as required by s. NR 716.15(2)(j)2., or the relevant section of the recorded plat map for those properties where the legal description in the most recent deed refers to a certified survey map or a recorded plat map (lots on subdivided or platted property (*e.g.*, lot 2 of xyz subdivision).

N/A 3. **The parcel identification number** (if county uses them) for each property within the contaminated site boundaries. Include the address of each property within the contaminated site boundary (regardless of whether parcel id # exists). **Geographic position** data for each property (meters in WTM83/91 projection) in compliance with the requirements of s. NR 716.15 (2)(k), unless this information was previously submitted to the agency with administrative authority for the site as part of the site investigation report, or unless the agency with administrative authority has directed that the responsible party does not need to provide geographic position data for a specific site.

N/A 4. **A site location map** which outlines all properties within the contaminated site boundaries on a U.S.G.S. topographic map or plat map in sufficient detail to permit the easy location of all parcels. If groundwater standards are exceeded, the map must also include the location of all municipal and potable wells within 1200 feet of the site. (If only one property, combine with map required in next item #5.)

N/A 5. **A map of contaminated properties within the site boundary** showing buildings, roads, property boundaries, contaminant sources, utility lines, monitoring wells and potable wells. This map shall also show the location of all contaminated public streets, and highway and railroad rights-of-way in relation to the source property and in relation to the boundaries of groundwater contamination exceeding ch. NR 140 enforcement standards, and/or in relation to the boundaries of soil contamination exceeding generic or site-specific residual contaminant levels as determined under s. NR 720.09, 720.11 and 720.19.

N/A 6. **A table of the most recent analytical results**, with sample collection dates from all monitoring wells, and any potable wells for which samples have been collected for groundwater, and/or showing results for all contaminants found in pre-remedial sampling and in the most recent soil sampling event, for soils (without shading or crosshatching). Note occurrence of free product.

N/A 7. **A groundwater isoconcentration map**, if required as part of the site investigation (SI), of the contaminated properties within the site boundaries. The map must include the areal extent of groundwater contamination exceeding PALS and the areal extent of groundwater contamination exceeding ESs, groundwater flow direction(s) based on the most recent data, and sample collection dates. **If an isoconcentration map was not required** as part of the SI, substitute a map showing the horizontal extent of contamination, based on the most recent data. Note free product location(s).

N/A 8. **A table of the previous 4 water level elevation measurements from all monitoring wells**, at a minimum, with the date measurements were made, is to be included. If present, note free product elevation and thickness on the table.

N/A 9. **A groundwater flow direction map** representative of groundwater movement at the site. If the flow direction varies by more than 20° over the history of the site, 2 groundwater flow maps showing the maximum variation in flow direction are to be submitted. *Prepare maps according to the applicable portions of ss. NR 716.15(2)(g)5-8 and 716.15(2)(h)1-2.*

N/A 10. For sites closing with residual soil contamination, **include a map showing the location of all soil samples** and a single contour showing the horizontal extent of each area of contiguous residual soil contamination that exceeds generic or site specific residual contaminant levels.

N/A 11. **A geologic cross section**, if required as part of the SI, showing vertical extent and location of residual soil contamination exceeding generic or site specific RCLs and residual groundwater contamination, source extent and location, isoconcentrations for all groundwater contaminants that exceed PALs that remain when closure is requested; water table and piezometric elevations, and the location and elevation of geologic units, bedrock, and confining units, if any.

N/A 12. **A statement signed by the responsible party,** which states that he or she believes that the legal description has been attached for each property that is within, or partially within, the contaminated site boundary. *(The purpose of this requirement is that a legal description for each of the contaminated properties has been submitted. The RP is not required to attest to the accuracy of the attached legal descriptions.)*

WDNR BRRTS CASE # 02 - 56 - 000046 WDNR SITE NAME : Vollrath Shannon Group

N/A *13.* **A copy of the letters sent by the RP to all owners of properties with groundwater exceeding ESs** as required by s. NR 726.05(3)(a)4.g. Letters sent to off-source properties must contain standard provisions in Appendix A of ch. NR 726. *(Off source properties are listed separately on the GIS Registry with a link to the source property.)* If the source property is owned by someone other than the person who is applying for case closure, a copy of the letter notifying the current owner of the source property that case closure has been requested should also be included.

N/A 14. **A copy of all written notifications** provided to the city/village/municipal/state agency or other entity responsible for maintenance of a public street or highway or railroad right-of-way, within or partially within the boundaries of the contaminated site, for contamination exceeding groundwater ESs and/or soil exceeding generic or site specific RCLs.

N/A 15. **A list of addresses for all off-source properties** affected by residual soil or groundwater contamination exceeding applicable standards.

I certify that, to the best of my knowledge, the information presented on and attached to this form is true and accurate. This recommendation for case closure is based upon all available data as of October 4, 2004 (date). I have read the Case Summary and Close Out Form instructions and all required information has been included.

Form Completed By: _____
(Signature) **(Date)**

X **$750.00 Closeout Review Fee Attached**
____ **$250.00 GIS Registry Maintenance Fee Attached (GW)**
____ **$200.00 GIS Registry Maintenance Fee Attached (Soil)**

Printed Name: Troy H. Clausen

Company Name: RMT, Inc.

Email address: troy.clausen@rmtinc.com

If not site owner, relationship to site owner: Consultant

Address: 744 Heartland Trail City/Zip Code Madison, WI 53717

Telephone Number: (608) 831-4444 FAX Number: (608) 831-3334

Environmental Consultant (if different than above): _____

Address: _____ City/Zip Code _____

Telephone Number: ( ) _____ FAX Number: ( ) _____

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FOR DEPARTMENT USE ONLY

PROJECT MANAGER: PAT COLLINS Date Reviewed: _____

( ) **Approved** ( ) **Denied** (X) **Sent to Committee**

CLOSURE COMMITTEE DECISION ON CLOSURE:

FIRST COMMITTEE REVIEW DATE: 10-6-05 (X) **Approved** ( ) **Denied**

(Signature) (Signature) Bill Evans (Signature) Patrick Collins (Signature)

COMMITTEE RECOMMENDATION:

(X) **Closure Approved With:**

- (X) No Restrictions
- ____ Listing on GIS Registry due to Groundwater impacts
- ____ Listing on GIS Registry due to Soil impacts
- ____ Zoning Verification
- ____ Deed Restriction
- ____ Deed Notice
- ____ Site Specific Close Out Letter
- (X) Well Abandonment Documentation
- ____ Soil Disposal Documentation
- ____ NR 140 Exemption For: _____
- ____ VPLE Insurance needed
- ____ Other Conditions/Comments: _____

____ **Closure Denied, Needs More:**

- ____ Investigation
- ____ Groundwater Monitoring
- ____ Soil Remediation
- ____ Groundwater Remediation
- ____ Documentation of Soil Landspreading or Biopile Destiny
- ____ Specific Comments: _____

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FOR DEPARTMENT USE ONLY

PROJECT MANAGER: _____ Date Reviewed: _____

( ) Approved ( ) Denied ( ) Sent to Committee

CLOSURE COMMITTEE DECISION ON CLOSURE:

SECOND COMMITTEE REVIEW DATE: _____ **( ) Approved ( ) Denied**

_____	_____	_____	_____
(Signature)	(Signature)	(Signature)	(Signature)

COMMITTEE RECOMMENDATION:

_____ **Closure Approved With:**

- _____ No Restrictions
- _____ Listing on GIS Registry due to Groundwater impacts
- _____ Listing on GIS Registry due to Soil impacts
- _____ Zoning Verification
- _____ Deed Restriction
- _____ Deed Notice
- _____ Site Specific Close Out Letter
- _____ Well Abandonment Documentation
- _____ Soil Disposal Documentation
- _____ NR 140 Exemption For: _____
- _____ VPLE Insurance needed
- _____ Other Conditions/Comments: _____

_____

_____

_____

_____ **Closure Denied, Needs More:**

- _____ Investigation
- _____ Groundwater Monitoring
- _____ Soil Remediation
- _____ Groundwater Remediation
- _____ Documentation of Soil Landspreading or Biopile Destiny
- _____ Specific Comments: _____

_____

_____

_____

A2
Site Location Map

PLOT DATA
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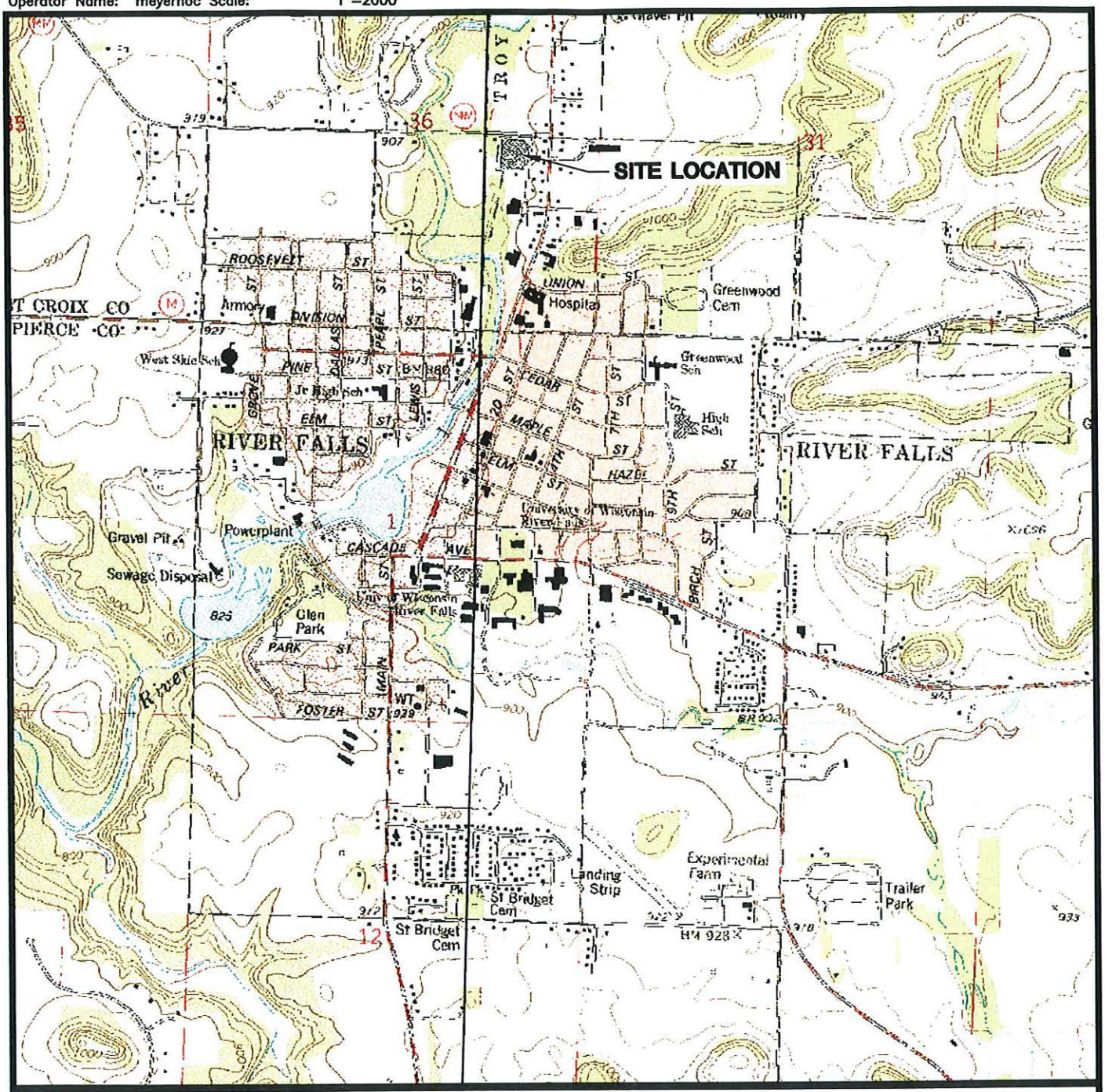
Operator Name: meyerhoc Scale: 1"=2000'



STATE LOCATION

SOURCE: BASE MAP FROM RIVER FALLS EAST AND RIVER FALLS WEST, WISCONSIN 7.5 MIN. USGS QUADRANGLE.

0 2000 4000
SCALE: 1"=2000'

N

RMT

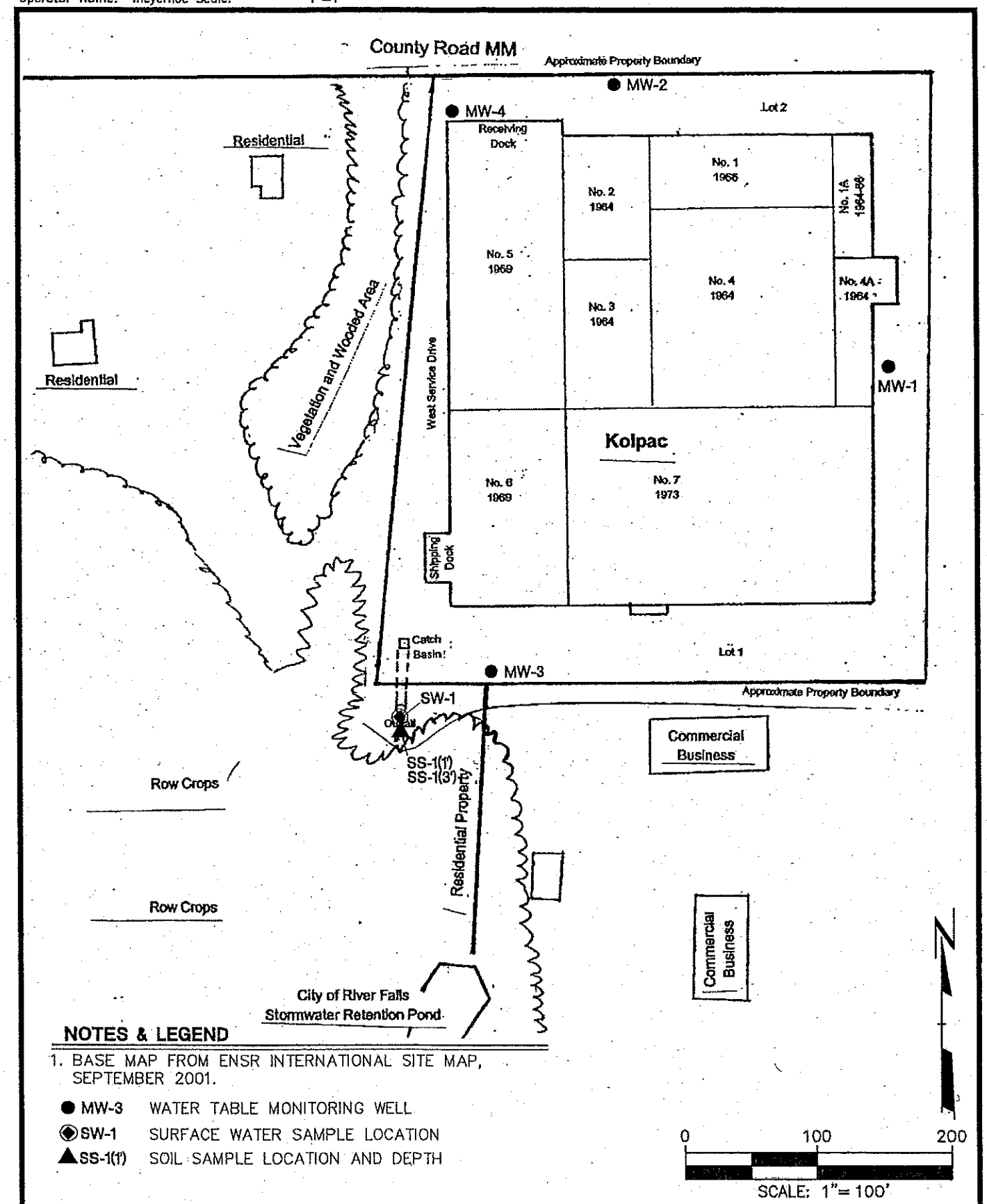
KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE LOCATION MAP

DRAWN BY:	MEYERHOC
APPROVED BY:	THC
PROJECT NO.	7193.03
FILE NO.	SITELOCATOR.DWG
DATE:	SEPTEMBER 2005

A3
Site Features/Sampling Location Map

PLOT DATA
Drawing Name: J:\07193\03\71930301.dwg
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

1. BASE MAP FROM ENSR INTERNATIONAL SITE MAP, SEPTEMBER 2001.

● MW-3 WATER TABLE MONITORING WELL
◈ SW-1 SURFACE WATER SAMPLE LOCATION
▲ SS-1(1') SOIL SAMPLE LOCATION AND DEPTH

RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

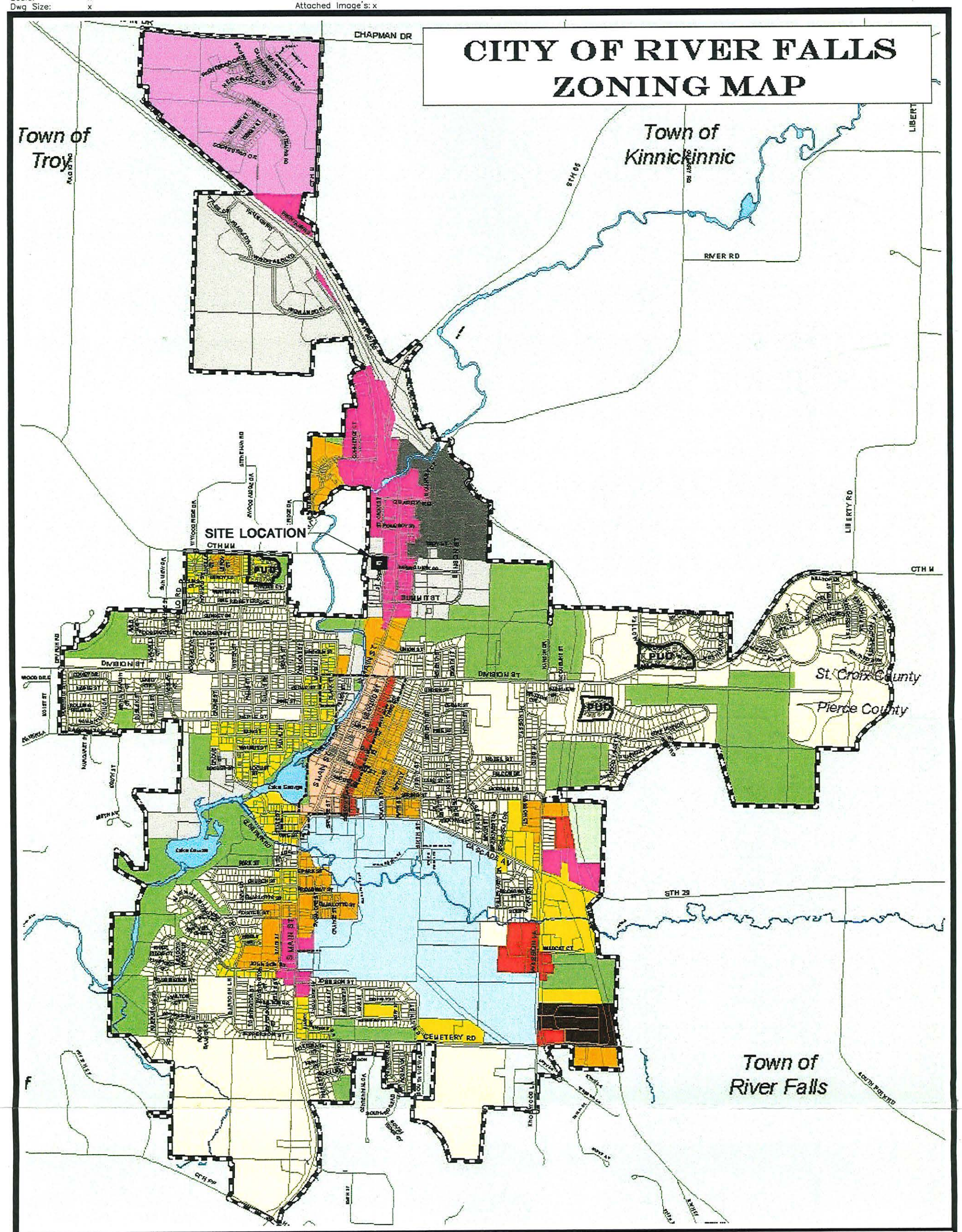
DRAWN BY:	FIEBRANT
APPROVED BY:	THe
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005

A4
Zoning Map

PLOT DATA

Drawing Name:	x	Plot Date:	x
Operator Name:	x	Plot Time:	x
Scale:	x	Attached Xref's:	x
Dwg Size:	x	Attached Image's:	x

CITY OF RIVER FALLS ZONING MAP



- B1- General Commercial
- B2-Limited Business
- B3-Highway Commercial
- I1-Industrial
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- A-Agriculture
- C-Conservancy
- U-University
- PUD Planned Unit Development
- R1-Single Family (Low Density)
- R2-Multiple Family (Medium Density)
- R3-Mulitple Family (High Density)
- MHP-Mobile Home Park
- TND-Traditional Neighborhood Development
- Downtown Overlay District
- City Limits

0 1000 2000

SCALE: 1"= 1000'

PROJECT:	KOLPAK FACILITY CASE CLOSEOUT RIVER FALLS, WISCONSIN		
SHEET TITLE:	ZONING MAP		
DRAWN BY: MEYERHOC	SCALE:	PROJ. NO.	07193.03
CHECKED BY: THC	AS SHOWN	FILE NO.	71930301.DWG
APPROVED BY: DWH	DATE PRINTED:		
DATE: SEPTEMBER 2005			

RMT

744 Heartland Trail
Madison, WI 53717-1934

P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

C1
Soil Analytical Data

Summary of Historical Soil Analytical Data (mg/Kg)
The Manitowoc Company, Inc. - Kolpak Facility
River Falls, Wisconsins

BORING/SAMPLE LOCATION	DEPTH (ft.)	SAMPLE DATE	LEAD	CHROMIUM (total)	DICHLORO-DIFLUORO-METHANE	CHLORO-ETHANE	1,1,1-TRI-CHLORO-ETHANE	CIS-1,3-DICHLORO-1-PROPENE	1,1,2,2-TETRACHLORO-ETHENE	CHLORO-BENZENE	1,3-DICHLORO-BENZENE	1,2-DICHLORO-BENZNE	1,4-DICHLORO-BENZENE	XYLENES (TOTAL)
MW-1	7.5-9.5	Jun-91	7.4	8.8				0.225		0.245				0.096
MW-1	12.5-14.5	Jun-91		10			0.165	0.16	0.115	0.255	0.06	0.07	0.07	0.092
MW-2	7.5-9.5	Jun-91	5	8.9			0.165	0.155		0.25				0.092
MW-2	12.5-14.5	Jun-91	2.5	5.2	0.24		0.205			0.23				0.09
MW-3	7.5-9.5	Jun-91	4.9	5.6		0.085	0.185		0.095	0.24		0.7		0.097
MW-3	12.5-14.5	Jun-91		4.1	0.25		0.235	0.17	0.09	0.255		0.065		0.115
MW-4	5-7	Jun-91		3.4	0.24		0.21		0.11					0.095
MW-4	12.5-14.5	Jun-91		6.1					0.095	0.25				0.1
Outfall (WDNR)	not known	Jun-91	<5	45										
Outfall (RMT)	1.0	Sep-05	NA	14.8*										
Outfall (RMT)	3.0	Sep-05	NA	12.4*										
NR 720 Residual Contaminant Level (RCL)			**500**	**NE ****	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**4,100**

Notes:

Created by: T. Clausen 10-4-05

Only parameters that were detected are shown; blank cells indicate the parameter was not detected above laborotory limits of detection.

* The outfall samples collected by RMT on September 26, 2005 were laboratory analylzed for hexavalent chromium and total chromium; the results for total chromium are shown; hexavalent chromium was not detected above the laboratory limits of detected for either outfall sample.

** The NR 720 Industrial RCL for trivalent chromium is 200 mg/kg.

NE = NR 720 RCL has not been established

TABLE 4.3

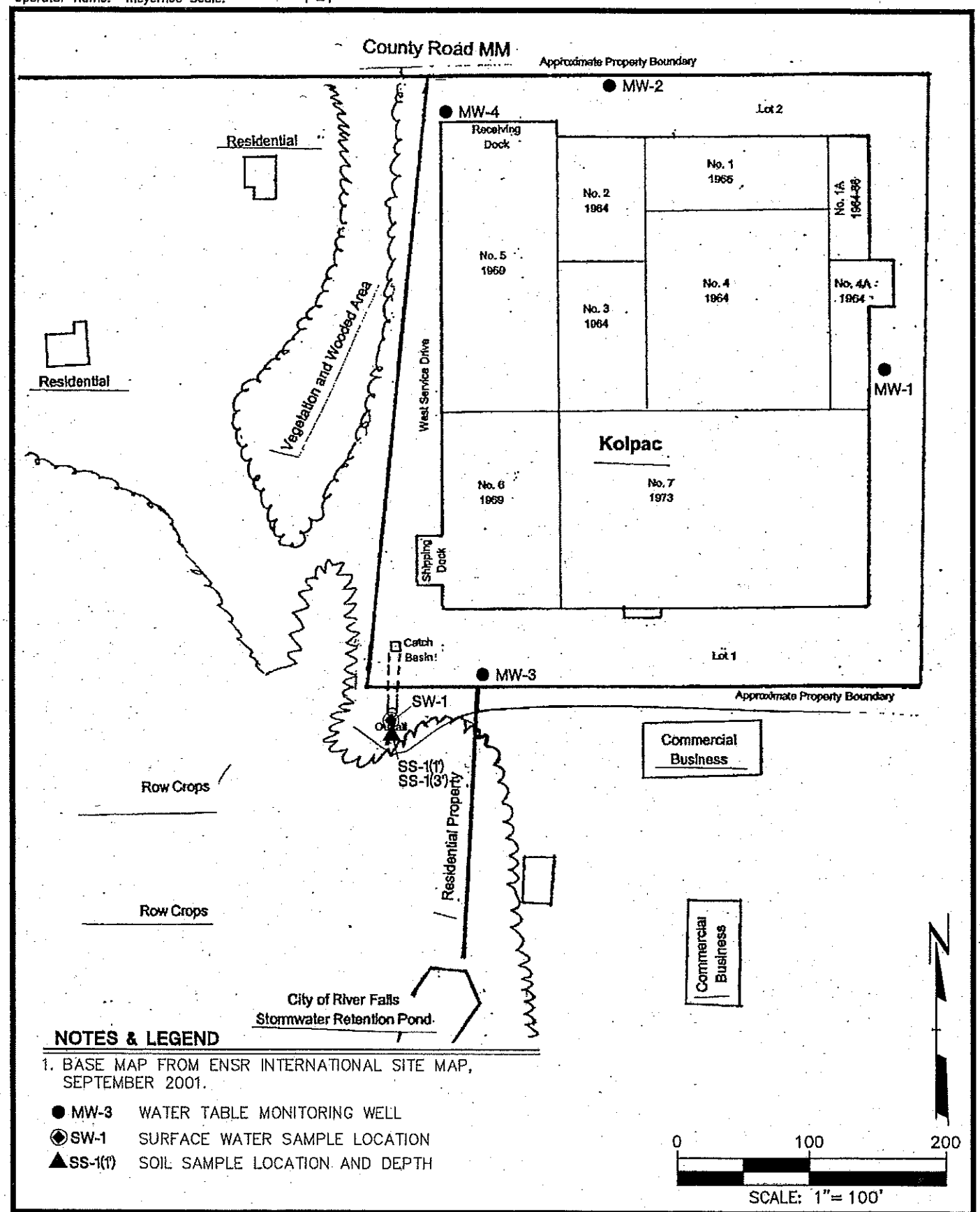
SUMMARY OF HEADSPACE SCREENING AND SOIL SAMPLING

Borehole Location	ID Number	Depth (ft. BGS)	Headspace Reading (ppm)
MW1	-	0 - 2	ND
	-	3 - 5	ND
	-	5 - 7	ND
	S-060491-PS-01	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-02	12.5 - 14.5*	ND
	-	15 - 17	ND
	-	17.5 - 19.5	ND
MW2	-	2 - 4	ND
	-	5 - 7	ND
	S-060491-PS-03	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-04	12.5 - 14.5*	ND
	-	15 - 17	ND
MW3	-	2 - 4	ND
	-	5 - 7	ND
	S-060591-PS-05	7.5 - 9.5*	ND
	-	9.5 - 11.5	ND
	S-060591-PS-06	12.5 - 14.5*	ND
	-	15 - 17	ND
MW4	-	2 - 4	ND
	S-060591-PS-07	5 - 7*	ND
	-	7.5 - 9.5	ND
	-	10 - 12	ND
	S-060591-PS-08	12.5 - 14.5*	ND

NOTE: * - Sampled for chemical analysis
BGS = Below Ground Surface
ppm = part per million
ND = None Detected

C2
Soil Sampling Location Map

PLOT DATA
Drawing Name: J:\07193\03\71930301.dwg
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

1. BASE MAP FROM ENSR INTERNATIONAL SITE MAP, SEPTEMBER 2001.

● MW-3 WATER TABLE MONITORING WELL
◈ SW-1 SURFACE WATER SAMPLE LOCATION
▲ SS-1(1') SOIL SAMPLE LOCATION AND DEPTH

RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

DRAWN BY:	FIEBRANT
APPROVED BY:	THR
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005

E1
Groundwater Analytical Results

Conclusions and Justification for Case Closure

Based on the current site conditions, the residual concentrations of chromium in soil and groundwater at the site do not pose a risk to human health or the environment. The following conclusions can be drawn from the data in support of unconditional case closure:

- VOCs are absent from groundwater at the site.
- The concentration of hexavalent chromium detected in groundwater at MW-3 has decreased from a concentration of 50 μg/L in 1992 and 1993 to a concentration of 4.2 μg/L in 2005 and no longer exceeds the PAL of 10 μg/L.
- Hexavalent chromium is absent from soil samples collected from 1 and 3 feet below ground surface at a location immediately beneath the site's storm water discharge structure. And, the concentrations of total chromium detected in these samples (14.8 mg/kg at 1 ft and 12.4 mg/kg at 3 ft) is less than the NR 720 Non-industrial Residual Contaminant Level (RCL) of 16,000 mg/kg for trivalent chromium. An Industrial RCL for trivalent chromium has not been established.
- The concentration of dissolved hexavalent chromium detected in a sample of surface water collected at the storm water discharge structure was less than the laboratory limit of detection.
- There are no known receptors of any environmental impacts related to the Kolpak facility. Private residences located immediately west of the site no longer make use of private drinking water supply wells. Because of the groundwater impacts related to a retail gasoline station located north of the facility, these residences now obtain drinking water from the municipal water supply.

Given the lack of residual VOCs and chromium in soil and groundwater at the site and the lack of actual or potential receptors, RMT recommends that this case be closed without condition.

Summary of Groundwater Analytical Results (µg/L)
The Manitowoc Company, Inc. - Kolpak Facility
River Falls, Wisconsin

WELL ID	SAMPLE DATE	LEAD	CHROMIUM (Hexavalent)	DICHLORO-DIFLUORO-METHANE	TRICHLORO-FLUORO-METHANE	1,1,1-TRI-CHLORO-ETHANE	CIS-1,2-DICHLORO-1,PROPENE	BENZENE	DIBROMO-CHLORO-METHANE	ETHYLBENZENE	XYLENES (TOTAL)	DIBROMO-METHANE	1,1-DICHLORO-ETHANE	1,1-DICHLORO-ETHENE	TETRACHLORO-ETHENE (PCE)	SEC-BUTYLBENZENE	NAPHTHALENE
MW-1	Jun-91	1	<1	1.8	<0.8	<1.3	3.4	*1.0*	<0.5	0.7	0.4	1.0	<0.8	<1.0	NA	NA	NA
	Aug-91	<1	1.0	<1.5	<0.4	<0.5	<0.5	<1.0	<1.0	<1.0	NA	NA	<0.2	<0.3	NA	NA	NA
	May-92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Jul-93	NA	NA	0.26	<0.18	<0.044	<0.20	<0.040	<0.038	<0.10	<0.142	<0.18	<0.088	<0.19	0.077	0.14	1.0
	Oct-99	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Sep-05	NS	NS	<0.6	<0.5	<0.6	<0.12	<0.40	<0.60	<0.50	<1.40	<0.70	<0.50	<0.50	<0.40	NA	<0.60
MW-2	Jun-91	<1	<1	<0.6	<0.8	<1.3	<0.5	<0.5	<0.5	<0.4	<0.4	<0.5	<0.8	*1.6*	NA	NA	NA
	Aug-91	<1	1.0	<1.5	<0.4	<0.5	<0.5	<1.0	<1.0	<1.0	NA	NA	<0.2	<0.3	NA	NA	NA
	May-92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Jul-93	NA	NA	0.12	<0.18	<0.044	<0.20	<0.040	<0.038	<0.10	<0.142	<0.18	<0.088	<0.19	<0.034	0.24	2.0
	Oct-99	NA	NA	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	Sep-05	NS	NS	<0.6	<0.5	<0.6	<0.12	<0.40	<0.60	<0.50	<1.40	<0.70	<0.50	<0.50	<0.40	NA	<0.60
MW-3	Jun-91	<1	<1	3.5	1.1	19.6	<0.5	<0.5	<0.5	<0.4	<0.4	<0.5	<0.8	<0.8	NA	NA	NA
	Aug-91	<1	1.0	<1.5	<0.4	14	<0.5	<1.0	<1.0	<1.0	NA	NA	<0.2	0.6	NA	NA	NA
	May-92	ND	*50*	ND	ND	5.8	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Jul-93	NA	*50*	<0.10	0.19	1.6	<0.20	<0.040	<0.038	<0.10	<0.142	<0.18	<0.088	<0.19	<0.034	0.22	2.2
	Oct-99	NA	NA	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	Sep-05	NS	4.2	<0.6	<0.5	<0.6	<0.12	<0.40	<0.60	<0.50	<1.40	<0.70	<0.50	<0.50	<0.40	NA	<0.60
MW-4	Jun-91	<1	<1	<0.6	<0.8	<1.3	<0.5	<0.5	<0.5	<0.4	<0.4	<0.5	<0.8	<1.0	NA	NA	NA
	Aug-91	<1	1.0	<1.5	<0.4	<0.5	<0.5	<1.0	<1.0	<1.0	NA	NA	<0.2	<0.3	NA	NA	NA
	May-92	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
	Jul-93	NA	NA	<0.10	<0.18	<0.044	<0.20	<0.040	<0.038	<0.10	<0.142	<0.18	<0.088	<0.19	0.058	0.39	3.8
	Oct-99	NA	NA	<1.0	<1.0	<1.0	NA	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	<1.0	NA	<1.0
	Sep-05	NS	NS	<0.6	<0.5	<0.6	<0.12	<0.40	<0.60	<0.50	<1.40	<0.70	<0.50	<0.50	<0.40	NA	<0.60
Rugor Rental	Jun-91	<1	<1	<0.6	<0.8	<1.3	<0.5	<0.5	<0.5	<0.4	<0.4	<0.5	<0.8	<1.0	NA	NA	NA
	Aug-91	<1	<2	<1.5	<0.4	<0.5	<0.5	<1.0	<1.0	<1.0	NA	NA	<0.2	<0.3	NA	NA	NA
	May-92	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-93	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-99	NS	NS	<0.64	<0.69	<0.50	NA	<0.44	<0.44	<0.40	<1.26	<0.41	<0.47	<0.51	<0.50	NA	<0.58
Rugor	Jun-91	NA	NA	<0.6	<0.8	<1.3	<0.5	<0.5	1.4	<0.4	<0.4	<0.5	<0.8	<1.0	NA	NA	NA
	Aug-91	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	May-92	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Jul-93	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
	Oct-99	NS	NS	<0.64	<0.69	<0.50	NA	<0.44	<0.44	<0.40	<1.26	<0.41	<0.47	<0.51	<0.50	NA	<0.58
NR 140 Enforcement Standard		**15**	**100**	**1000**	**3,490**	**200**	**NE**	**5**	**60**	**700**	**10,000**	**NE**	**850**	**7**	**5**	**NE**	**40**
NR 140 Preventive Action Limit		**1.5**	**10**	**200**	**698**	**40**	**NE**	**0.5**	**6**	**140**	**1,000**	**NE**	**85**	**0.7**	**0.5**	**NE**	**8**

Created by: T. Clausen 10-3-05

Notes:
Only parameters that were detected are shown.
Bold = ch. NR 140 Enforcement Standard exceedence.
Italics = ch. NR 140 Preventive Action Limit exceedence.
ND = results are reported in a Conestoga Rovers letter dated June 5, 1992; the laboratory reports were not available for the purposes of preparing this table; results were taken from the text of the letter.
NA = paramter was not laboratory-analyzed.
NS = a sample was not collected for laboratory analysis.
NE = NR 140 Enforcement Standard or Preventive Action Limit has not been established.

E2
Groundwater Sample Location Map

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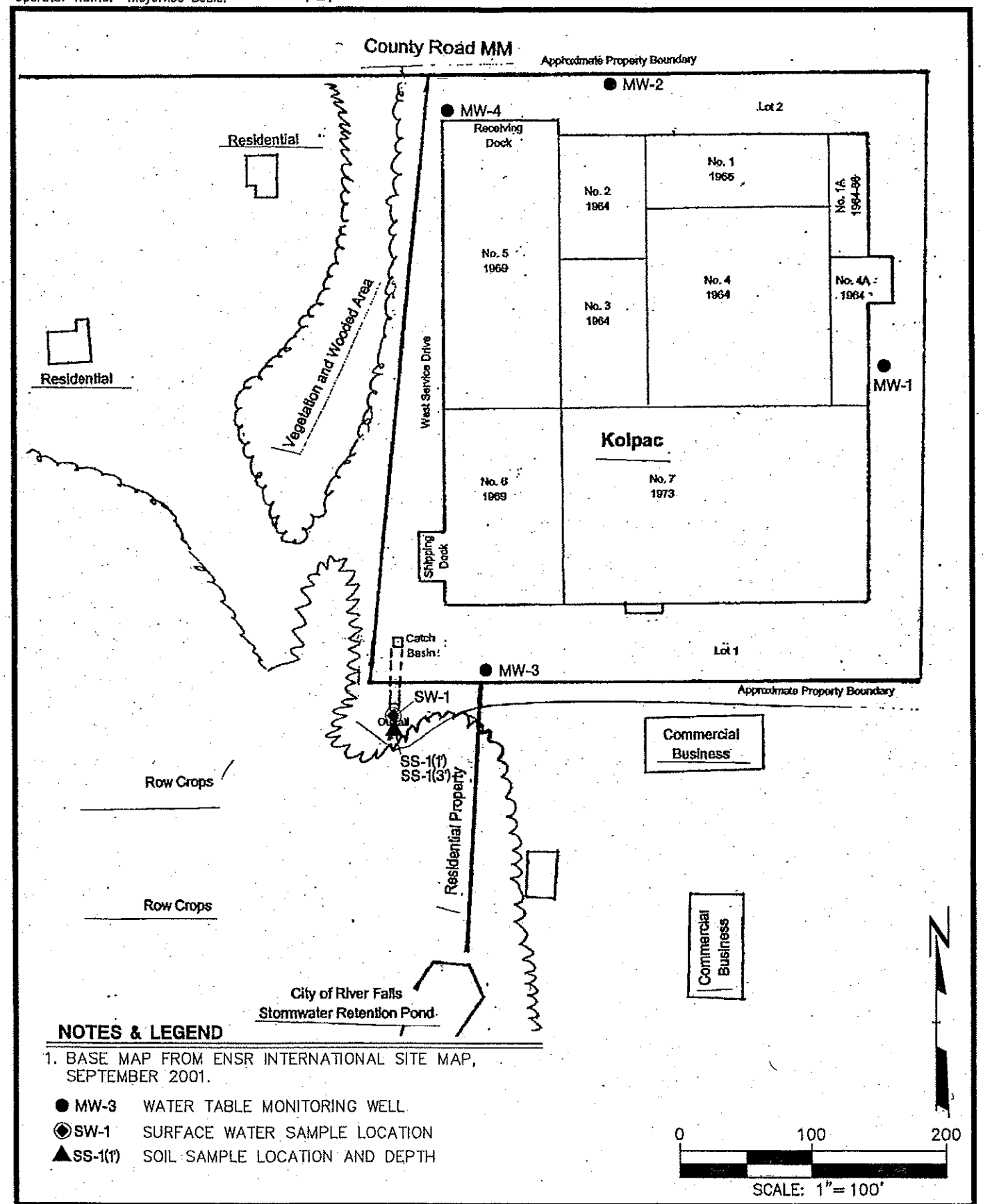
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

1. BASE MAP FROM ENSR INTERNATIONAL SITE MAP, SEPTEMBER 2001.

● MW-3 WATER TABLE MONITORING WELL
◈ SW-1 SURFACE WATER SAMPLE LOCATION
▲ SS-1(1') SOIL SAMPLE LOCATION AND DEPTH

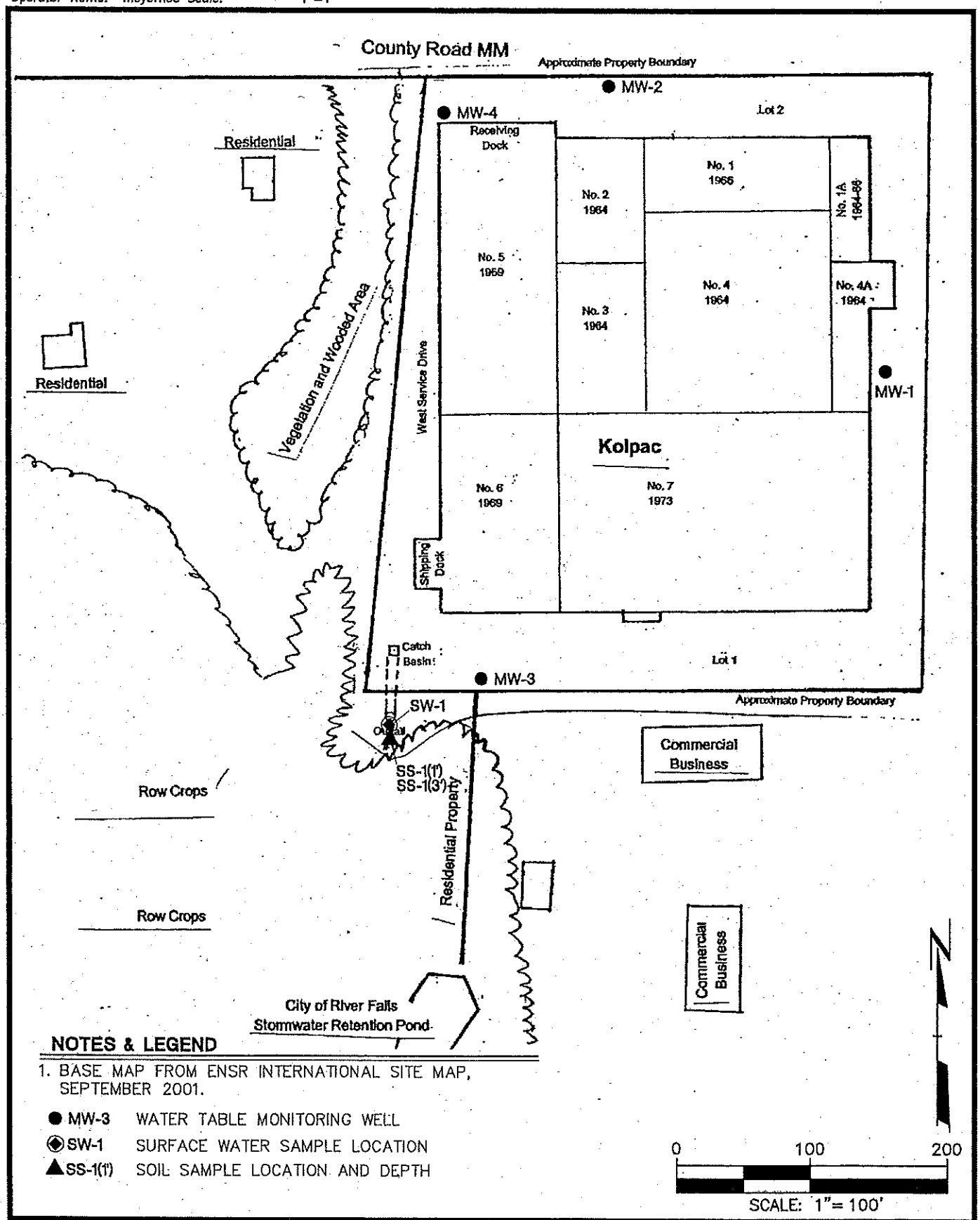
RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

DRAWN BY:	FIEBRANT
APPROVED BY:	THe
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005

PLOT DATA
Drawing Name: J:\07193\03\71930301.dwg
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

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RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

DRAWN BY:	FIEBRANT
APPROVED BY:	THZ
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005

PLOT DATA

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Operator Name:	x	Plot Time:	x
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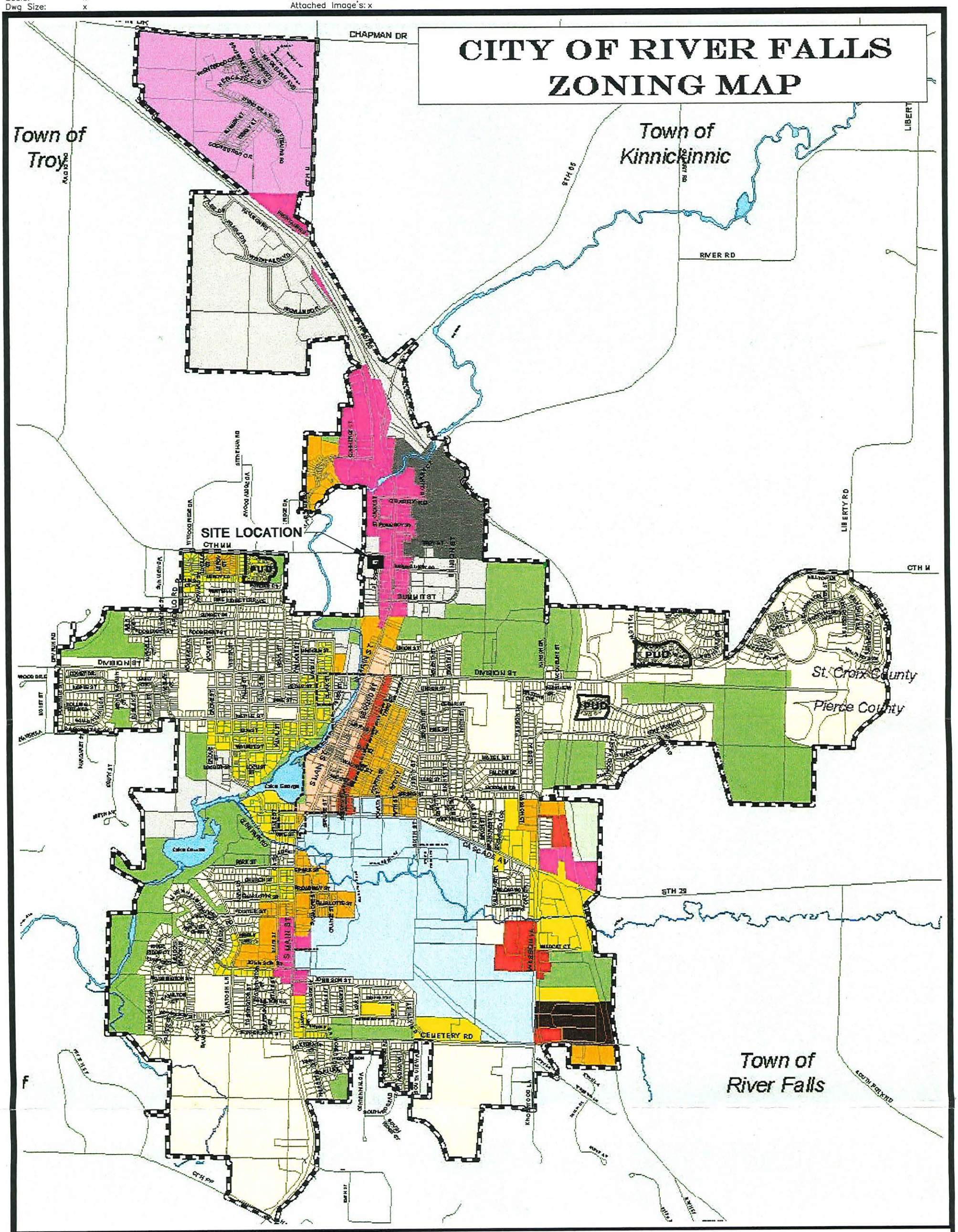
Dwg Size:	x	Attached Image's:	x

CITY OF RIVER FALLS ZONING MAP



- B1- General Commercial
- B2-Limited Business
- B3-Highway Commercial
- I1-Industrial
- I2-Heavy Industrial
- A-Agriculture
- C-Conservancy
- U-University
- PUD Planned Unit Development
- R1-Single Family (Low Density)
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- R3-Mulitple Family (High Density)
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- TND-Traditional Neighborhood Development
- Downtown Overlay District
- City Limits

0 1000 2000

SCALE: 1"= 1000'

PROJECT:	KOLPAK FACILITY CASE CLOSEOUT RIVER FALLS, WISCONSIN
SHEET TITLE:	ZONING MAP

DRAWN BY: MEYERHOC	SCALE:	PROJ. NO.	07193.03
CHECKED BY: THC	AS SHOWN	FILE NO.	71930301.DWG
APPROVED BY: DWH	DATE PRINTED:		
DATE: SEPTEMBER 2005			

RMT

744 Heartland Trail
Madison, WI 53717-1934

P.O. Box 8923 53708-8923
Phone: 608-831-4444
Fax: 608-831-3334

E3
Water Table Contour Maps

PLOT DATA
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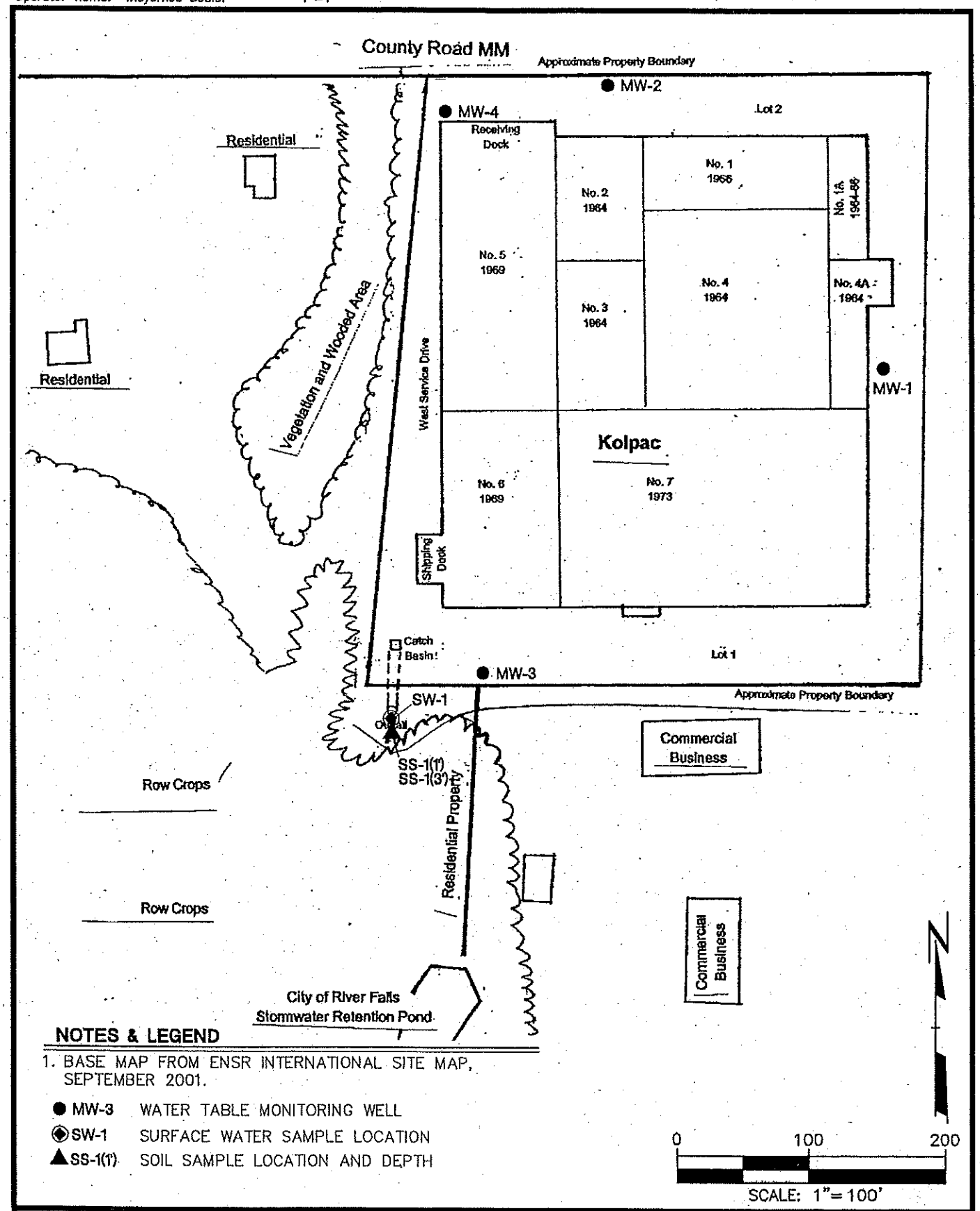
Operator Name: meyerhoc Scale: 1"=1'



NOTES & LEGEND

1. BASE MAP FROM ENSR INTERNATIONAL SITE MAP, SEPTEMBER 2001.

● MW-3 WATER TABLE MONITORING WELL
◈ SW-1 SURFACE WATER SAMPLE LOCATION
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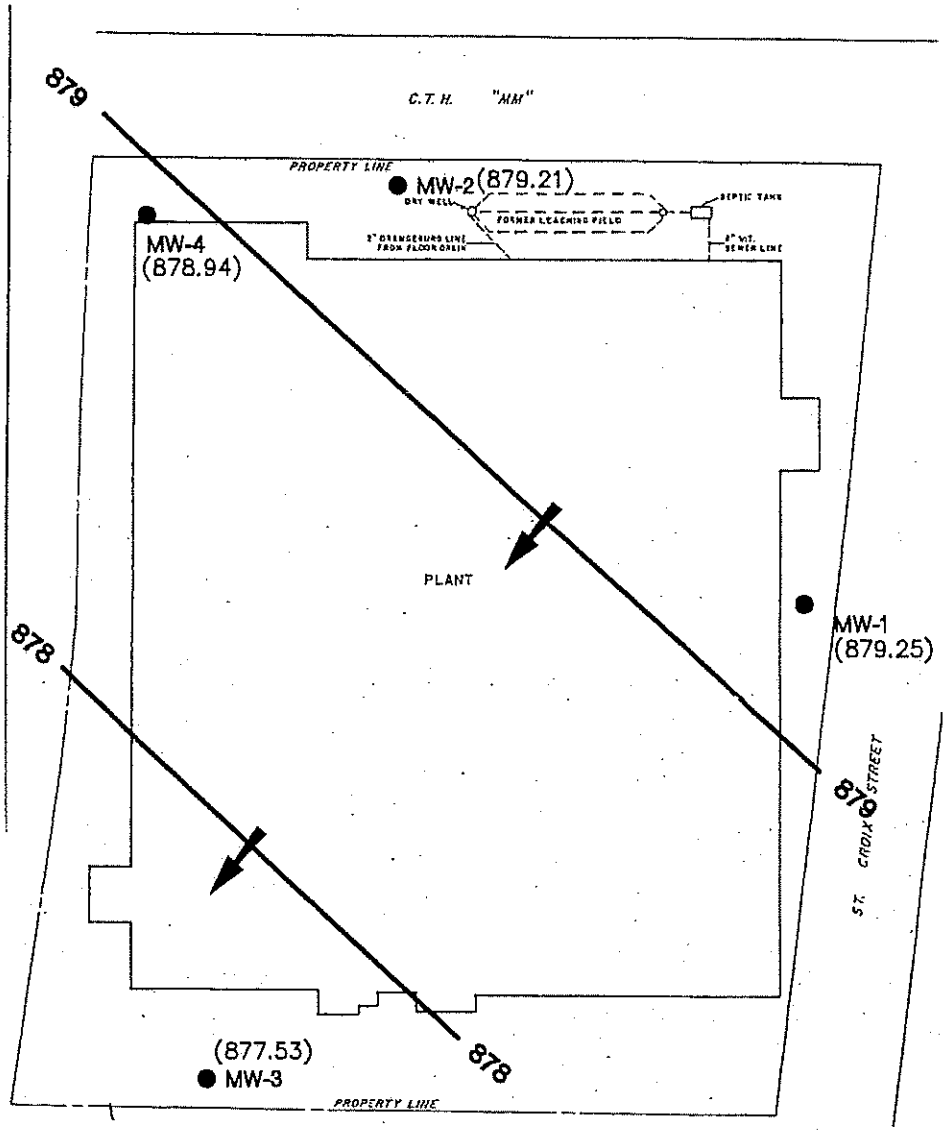
RMT

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

SITE FEATURES/SAMPLING LOCATION MAP

DRAWN BY:	FIEBRANT
APPROVED BY:	TH
PROJECT NO.	07193.03
FILE NO.	71930301.DWG
DATE:	SEPTEMBER 2005



NOTES & LEGEND

1. BASE MAP FROM CONESTOGA ROVERS & ASSOC., NOVEMBER 1991.

878 ———	WATER TABLE ELEVATION (1–FT CONTOUR INTERVAL)
◄	GROUNDWATER FLOW DIRECTION
● MW-3	WATER TABLE MONITORING WELL
(877.53)	GROUNDWATER ELEVATION

N

0 100 200

SCALE: 1"= 100'

RMT®

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

WATER TABLE CONTOUR MAP
9/26/2005

DRAWN BY:	FIEBRANT
APPROVED BY:	TH
PROJECT NO.	07193.03
FILE NO.	71930302.DWG
DATE:	SEPTEMBER 2005

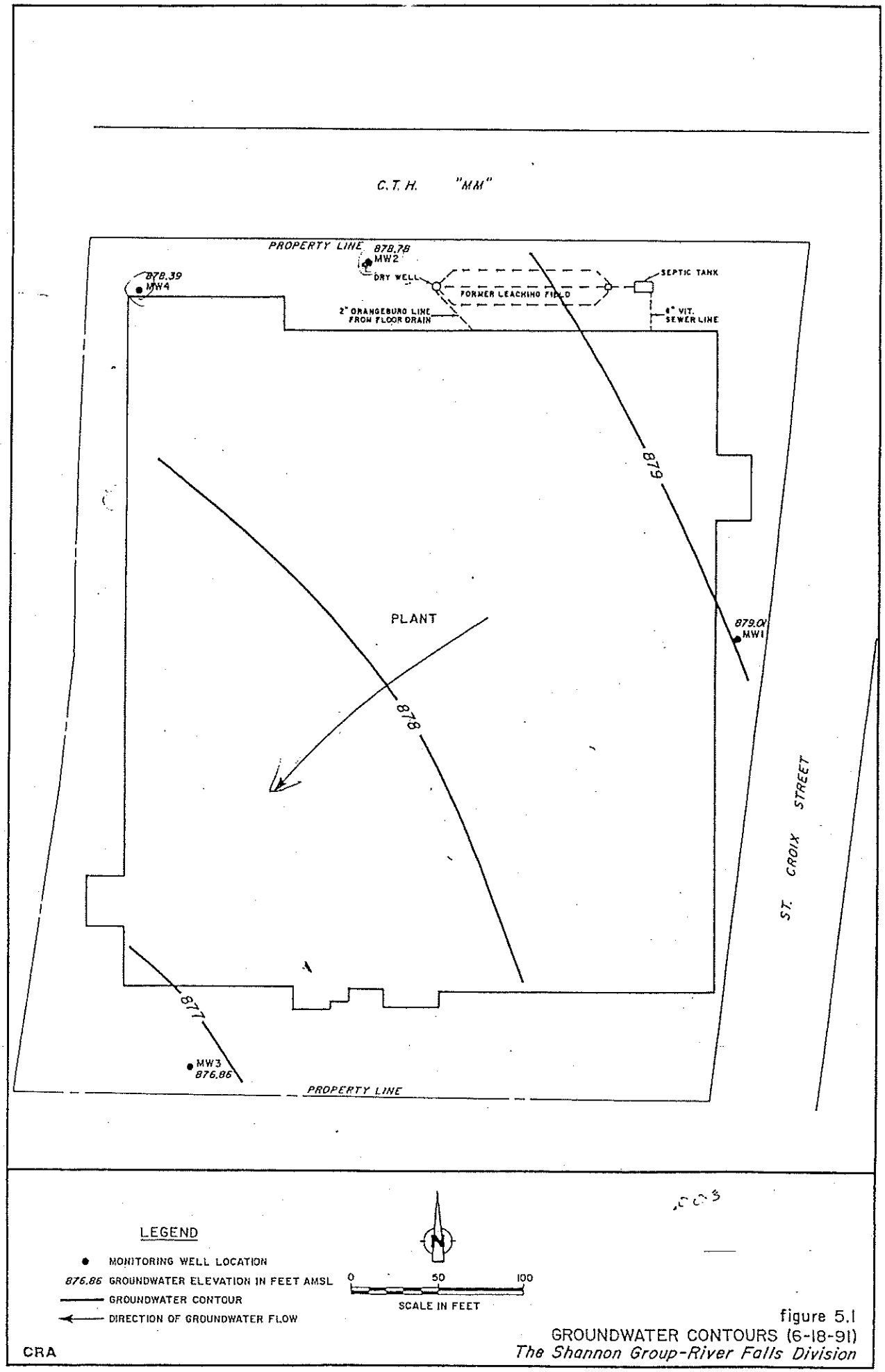


figure 5.1
GROUNDWATER CONTOURS (6-18-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

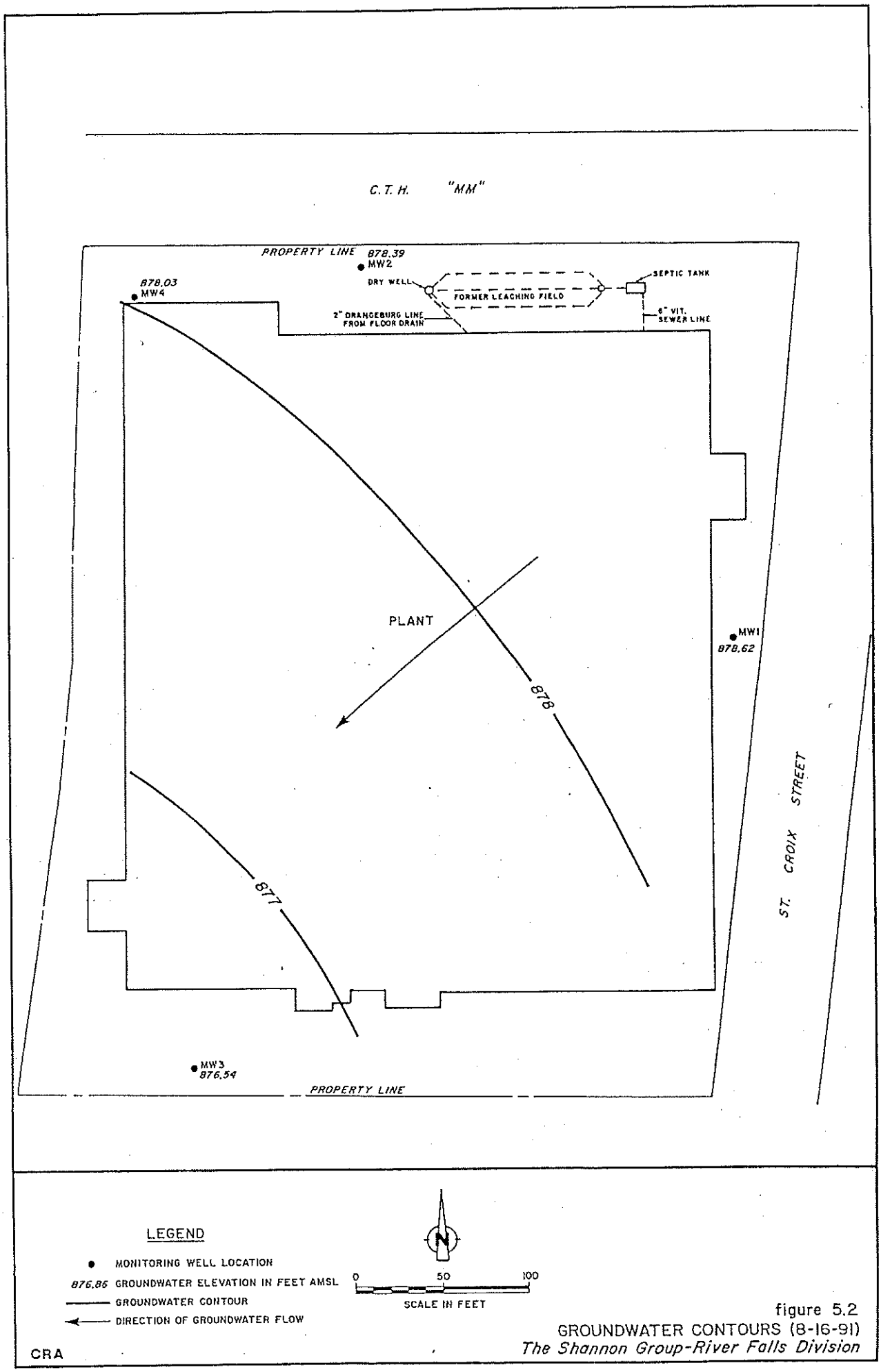
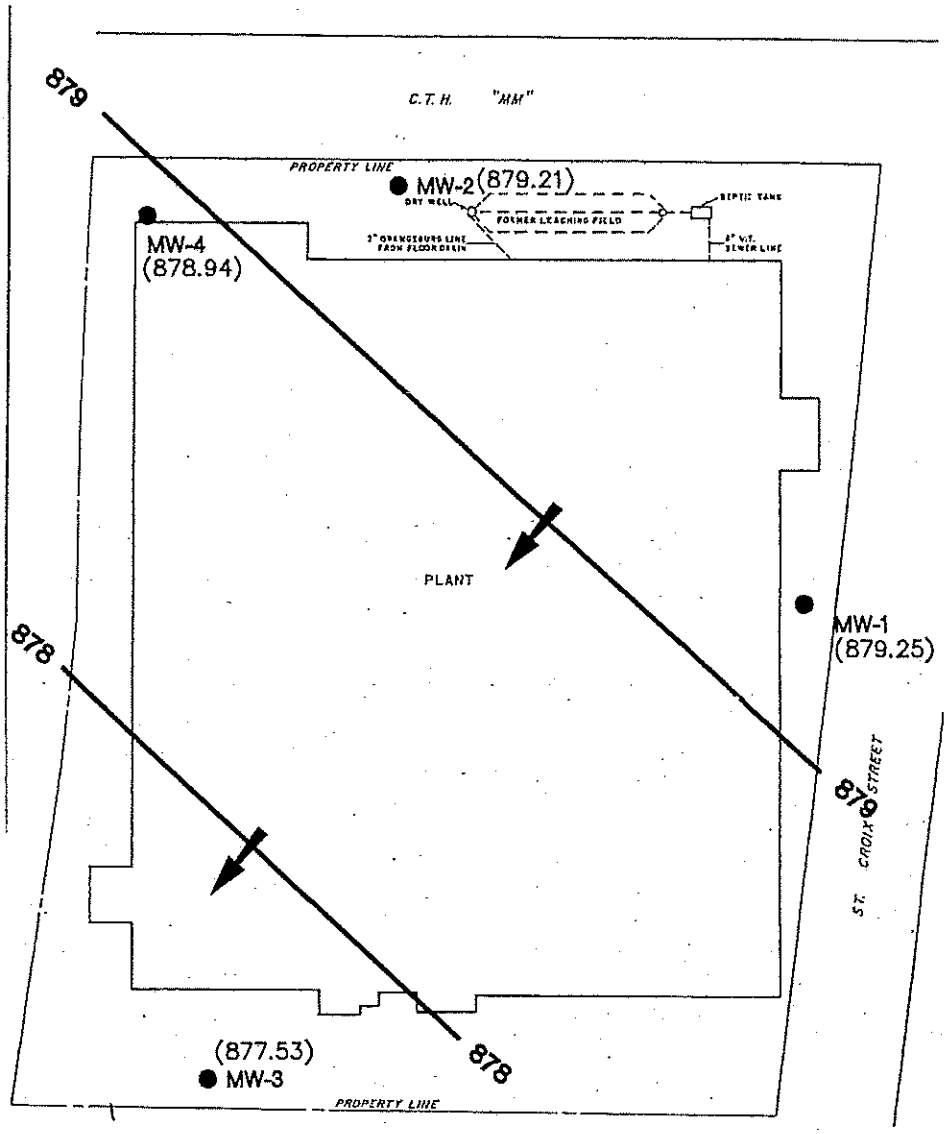


figure 5.2
GROUNDWATER CONTOURS (8-16-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M



NOTES & LEGEND

1. BASE MAP FROM CONESTOGA ROVERS & ASSOC., NOVEMBER 1991.

878 ———	WATER TABLE ELEVATION (1-FT CONTOUR INTERVAL)
←	GROUNDWATER FLOW DIRECTION
● MW-3	WATER TABLE MONITORING WELL
(877.53)	GROUNDWATER ELEVATION

N

0 100 200

SCALE: 1"= 100'

RMT®

KOLPAK FACILITY
CASE CLOSEOUT
RIVER FALLS, WISCONSIN

WATER TABLE CONTOUR MAP
9/26/2005

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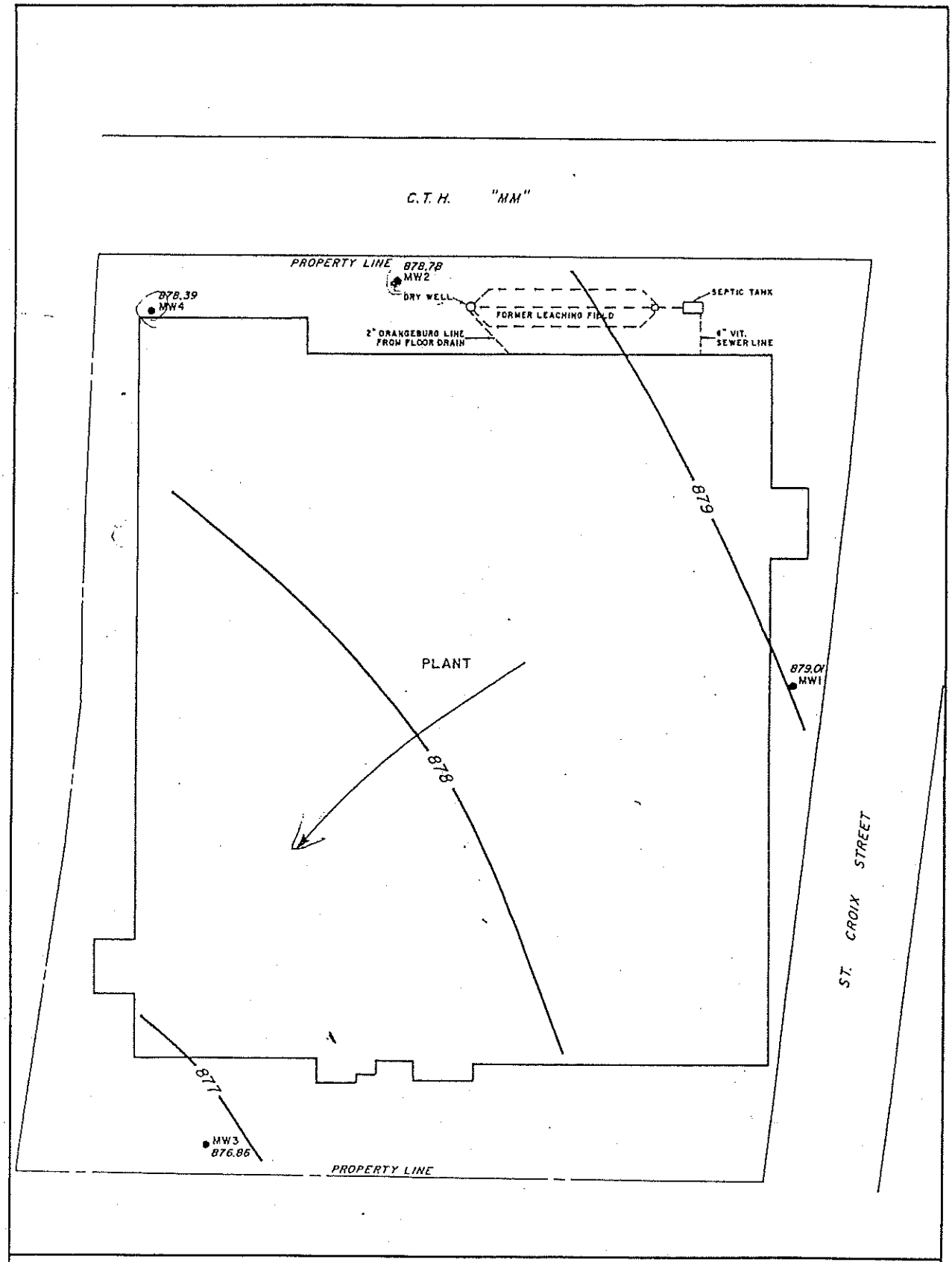

LEGEND

- ● MONITORING WELL LOCATION
- 876.86 GROUNDWATER ELEVATION IN FEET AMSL
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW

N

0 50 100

SCALE IN FEET

figure 5.1
GROUNDWATER CONTOURS (6-18-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

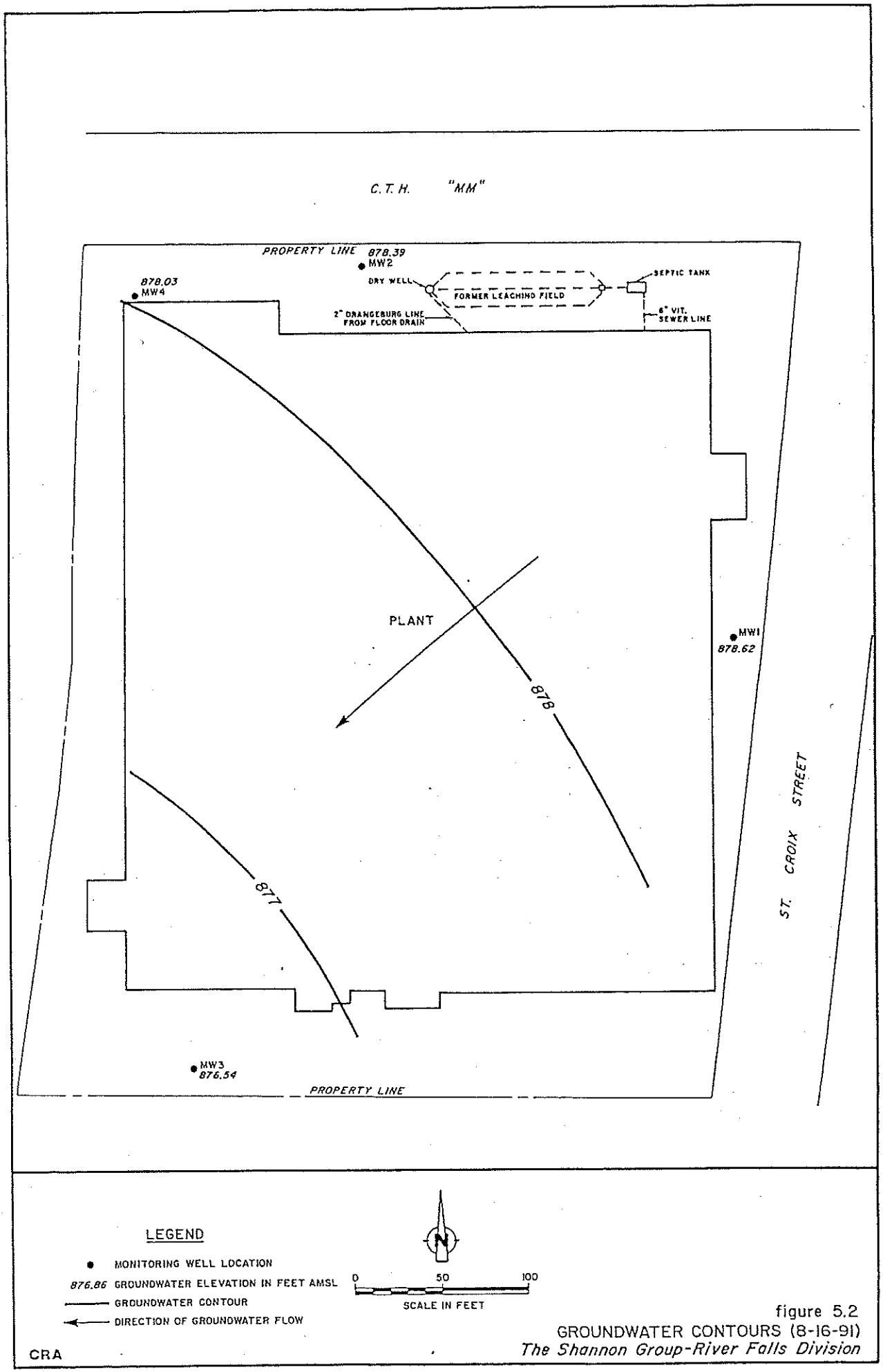

figure 5.2
GROUNDWATER CONTOURS (8-16-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

E4
Water Table Elevations & Well Completion Details

Summary of Water Table Elevations
The Manitowoc Company, Inc. – Kolpak
River Falls, Wisconsin
September 26, 2005

Well ID	Reference Elevation (ft. M.S.L)	Depth to Water (ft)	Water Table Elevation (ft. M.S.L.)
MW-1	897.04	17.79	879.25
MW-2	891.95	12.74	879.21
MW-3	892.66	15.13	877.53
MW-4	892.29	13.35	878.94

Notes:
ft. M.S.L. = feet above mean sea level.
ft. = feet below reference elevation.

TABLE 5.1

GROUNDWATER ELEVATIONS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Well	Reference Elevation (ft. AMSL)	Groundwater Elevation			
		6/6/91	6/17/91	6/18/91	8/16/91
MW1	897.04	879.32	879.04	879.01	878.62
MW2	891.95	879.16	878.80	878.78	878.39
MW3	892.49	877.23	876.91	876.86	876.54
MW4	892.29	878.78	878.43	878.39	878.03

Note:

AMSL = Above Mean Sea Level

TABLE 4.1

MONITORING WELL COMPLETION DETAILS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Monitoring Well	Date Installed	Total Depth (ft. BGS)[2]	Screen Length (ft.)	TOC[1] Elevation (ft. AMSL)[3]	Ground Elevation (ft. AMSL)	Mid Screen (ft. AMSL)
MW1	6/4/91	21	10	897.04	894.9	878.9
MW2	6/4/91	21	10	891.95[4]	892.4	876.4
MW3	6/5/91	23	10	892.66[4]	893.0	875.0
MW4	6/5/91	23	10	892.29[4]	892.8	874.8

[1]TOC = Top of Casing
[2]BGS = Below Ground Surface
[3]AMSL = Above Mean Sea Level
[4]Monitoring wells MW2, MW3 and MW4 are flush-mounted wells. TOC elevations are below ground elevation.

Collins, Patrick J.

From: Dan Hall [Dan.Hall@rmtinc.com]
Sent: Wednesday, September 21, 2005 4:01 PM
To: Collins, Patrick J.
Cc: Tim.Reis@manitowoc.com; Troy Clausen
Subject: River Falls Site

Kol-Pak File

email ~~mailed~~ off site copy

Pat, Manitowoc Company has requested that we ask that the River Falls facility file be copied and sent to us. RMT should also receive the bill for this coping work at the following address:

Daniel W. Hall
RMT, Inc.
744 Heartland Trail
Madison, Wisconsin 53717-1934
608-662-5313

Thanks much.

Outgoing messages, along with any attachments, are scanned for viruses prior to sending.

NOTICE-- This email may contain confidential and privileged information for the sole use of the intended recipient. Any review or distribution by others is strictly prohibited. If you are not the intended recipient, please contact the sender immediately and delete all copies.

Manitowoc

Timothy T. Reis
Director EH&S

The Manitowoc Company, Inc.
2400 South 44th Street, P.O. Box 66
Manitowoc, WI 54221-0066
Phone: 920-652-1751 Fax: 920-652-9776
Email: tim.reis@manitowoc.com
Website: www.manitowoc.com

RMT®
Integrated Environmental Solutions
www.rmtinc.com

Daniel W. Hall
Senior Client Executive

RMT, Inc.
744 Heartland Trail
Madison, WI 53717-1934
dan.hall@rmtinc.com
Direct: 608-662-5313
Office: 608-831-4444
Fax: 608-831-3334

CORRESPONDENCE/MEMORANDUM

State of Wisconsin

DATE: 9/7/05

FILE REF:

TO: File

FROM: PJC

SUBJECT: Kolpak, - Linda Freese

John Buck - ~~Mani~~ Manitowoc. - Oct. 2? 2001

Tim ~~Rose~~ Rice - Safety & Env. - 920-652-1751

Dennis McCloskey He will call me on ~~Wednesd~~ Monday 9/12/05

9/9/05 - Dan Hall - RMT
608 662-5313

9/12/05 - Jim Curtis - 952-920-0117
ENSR, (Nov 28-2001)
Closure Documents. -

9/12/05 Dan Hall - RMT,
H_2O & Soil Sampling to close
May meet @ site next monday 9/19

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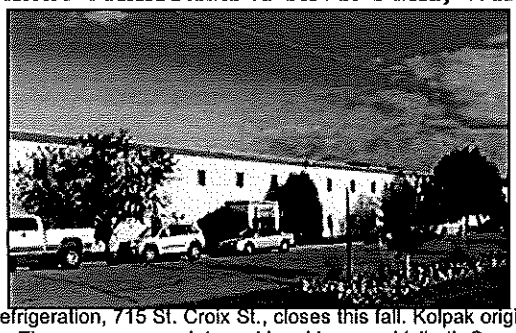
RIVER FALLS JOURNAL

Your online connection to River Falls, Wisconsin



Well over 100 people will be out of work when Kolpak Refrigeration, 715 St. Croix St., closes this fall. Kolpak originally opened under the name Erickson Industries in 1956 It was the first big manufacturer to locate in River Falls. The company was later sold and became Vollrath Corp. in 1969 before being sold again and renamed Kolpak in 1989. Phil Pfuehler photo

Big manufacturer to shut down

Thursday, September 01, 2005
By Phil Pfuehler, Editor, rfjeditor@rivertowns.net

Kolpak Refrigeration, the city's largest industry, will close Nov. 1.

The factory's closure will leave 131 people jobless. Kolpak already laid off 26 assembly workers in July when it shut down a second shift.

Kolpak employees were informed of the shutdown Monday.

"It's kind of hard when both husband and wife work here," said Rosie Christiansen, who constructs floors for Kolpak refrigeration units. Her husband Todd builds ceilings. "Two incomes – boom - gone like that."

Another Kolpak worker, Diane Hudson, said union employees were told they won't get a severance package because they were notified of their job loss 60 days in advance.

Hudson will stay at Kolpak until the end because she needs the income, but added: "We're open for any good-paying jobs."

Jobs at Kolpak range from sheet metal fabricators, assemblers, welders and plastic foam injectors. Others work in crating and shipping, inventory control and as foremen. Some are highly skilled jobs; most are semi-skilled.

Though operating under different names, the Kolpak plant has been in River Falls for almost 50 years. It produces walk-in refrigeration panels – coolers and freezers - used by schools, restaurants, and medical laboratories and vaccination rooms.

"We will be consolidating (the River Falls plant) with our facility in Parsons (Tennessee), " said Steve Kopecky, Kolpak's human services director. "This is a very solid, dedicated workforce we have in River Falls, and it should be recognized. This change has to do with capacity opportunities that are available at the other location."

City Administrator Bernie Van Osdale learned of the closure Tuesday morning. He said there was no advance notice from Kolpak.

"I'm shocked," he said. "Neither the city or the (River Falls) Economic Development Corporation was contacted. Obviously the job loss is significant.

"It's quite discouraging. From an economic standpoint, the city needs more of a commercial and industrial base, and this doesn't help."

Bill Rubin, executive director of the St. Croix County Economic Development Corp., said Kolpak's departure leaves a big industrial hole for River Falls and the county.

"The center of the stone in the pond is River Falls, but the affects ripple outward," Rubin said. "Kolpak was a magnet that drew employees from all over who commuted."

Rubin said that for the past five or six years American manufacturers, big and small, have faced fierce global competition.

"Kolpak's closing is symptomatic of what's going on in today's manufacturing world," he said. "The big keep getting bigger. You have mergers and consolidations. It's all about streamlining, cost-cutting measures and producing at a cheaper rate."

Rubin said his "thoughts go out to the Kolpak employees who have lost their jobs."

He said his office will work with local agencies and the state's Department of Commerce to make sure all possible "retraining opportunities" are made available.

Paul Erickson of River Falls, the founder of the company now called Kolpak, still operates his own company, Erickson Industries Inc., within the Kolpak plant. Erickson's company sells and markets Kolpak products.

"I was just told Monday afternoon. They kept it very quiet," said Erickson. "I didn't see it coming but it's not really a shock.

"Of course I feel sad and disappointed, but it's something I have no control over. I've seen these kinds of things happen before in manufacturing. It's part of the economic times. Look at Northwest Airlines and other industries. Everybody is looking at cutting out bucks and streamlining."

Erickson said lower wages and taxes in the south were surely a factor in Kolpak's decision to shift operations to Tennessee.

"And the efficiencies are also increased for them by having a centralized operation under one roof," Erickson said.

Erickson said that Kolpak had a couple of periods when "shop employment" rose well above 200.

"There was a peak year in 1998 when we were going like gangbusters," he said. "Another time was during the Vietnam War in the 1960s when we got a lot of government contract work."

Erickson's company will have to leave the Kolpak building and relocate. Erickson said he will continue doing business with Kolpak, but instead of walking down the hall to speak with people, more of it will be conducted by "phone, e-mail and fax."

Kopecky said Kolpak's decision to close the River Falls plant was thoroughly analyzed, but still one made only recently.

"No, it hasn't been planned for a long time," he said.

Kopecky added that Kolpak will maintain a local presence with a sales and engineering staff of 17. Kolpak is now trying to find a new, smaller site in River Falls to lease.

The current Kolpak factory building holds 155,000-square feet. Kopecky said the equipment will be removed and the building sold.

The city property value for the Kolpak plant is $1,824,300. The company's latest property tax bill was $33,886.

The Parsons, Tenn., plant will not only absorb the work done in River Falls, the city there is also the Kolpak headquarters.

Since 1995 Kolpak has been part of the Manitowoc Foodservice Group, a subsidiary of The Manitowoc Company. Before that Kolpak was operated by The Shannon Group, which was bought out by The Manitowoc Company.

The various Manitowoc Foodservice company brands, including the Kolpak name, make ice machines, ice/beverage dispensers and commercial refrigeration equipment.

Reporter Eric Ebert contributed to this story.

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BRAUN INTERTEC

Braun Intertec Corporation
6875 Washington Avenue South
Minneapolis, Minnesota 55439
612-941-5600 Fax: 833-4701

Engineers and Scientists Serving the Built and Natural Environments

December 14, 1999

Report	99-08262
Project	CVXX-99-177A
Laboratory	999462640

Attn: Pat Collins
WI Department of Natural Resources
990 Hillcrest Street
Baldwin, WI 54002

Dear Attn: Collins:

Re: 869 County MM

Braun Intertec Corporation received your analytical request on October 29, 1999. Analytical results are summarized on the following laboratory report.

Routine Braun Intertec Corporation QA/QC was followed. Quality control data have been reviewed.

When possible these samples will be held by the laboratory for 14 days from the date of this report. The process of disposing or returning the samples will occur at that time. Arrangements can be made for extended sample storage by contacting us at this time.

We appreciate the opportunity to meet your analytical needs. If you have any questions or would like additional information, please contact:

Project Manager:
William Scruton
612-942-4946
bscruton@brauncorp.com

Sampling Supplies:
Client Services
612-942-4930
labservices@brauncorp.com

Sincerely,

Mark D. Kurz for

William H. Scruton
Project Manager

Attachments
Chain of Custody
Laboratory Results

RECEIVED AT
DNR - BALDWIN
DEC 16 1999

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-01				

Client Sample ID/Description: MW-3

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-01				

Client Sample ID/Description: MW-3

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	108	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	94	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-02				

Client Sample ID/Description: MW-1

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-02				

Client Sample ID/Description: MW-1

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	108	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	94	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	99	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-03				

Client Sample ID/Description: MW-5

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-03				

Client Sample ID/Description: MW-5

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	107	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	98	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	94	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	98	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-04				

Client Sample ID/Description: MW-2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-04				

Client Sample ID/Description: MW-2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	107	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	92	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	100	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-05				

Client Sample ID/Description: MW-4

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-05				

Client Sample ID/Description: MW-4

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	107	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	94	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	100	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-06				

Client Sample ID/Description: KMW-3

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

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Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-06				

Client Sample ID/Description: KMW-3

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	102	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-07				

Client Sample ID/Description: KMW-4

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

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Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-07				

Client Sample ID/Description: KMW-4

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	104	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	93	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	98	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-08				

Client Sample ID/Description: KMW-2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-08				

Client Sample ID/Description: KMW-2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	107	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	98	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	99	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-09				

Client Sample ID/Description: Rental - Res #1

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Analysis performed by a contract laboratory									
1,1-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,1-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,2-Dibromoethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.39	<0.39	ug/l
Benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Bromobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
Bromochloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
Bromodichloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
Bromoform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.43	<0.43	ug/l
Bromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
n-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
sec-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
tert-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
Carbon tetrachloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Chlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Chloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.69	2.4	<2.4	ug/l
Chloroform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Chloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.66	<0.66	ug/l
2-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
4-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
1,2-Dibromo-3-chloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.54	<0.54	ug/l
Dibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
1,2-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
1,3-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
1,3-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Chlorodibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
1,4-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
cis-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.61	<0.61	ug/l
trans-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
Dichlorodifluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.64	<0.64	ug/l
1,1-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.47	<0.47	ug/l
1,2-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.46	<0.46	ug/l
1,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
1,3-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
2,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
Ethyl benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
Hexachlorobutadiene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Methylene chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
Methyl-tert-Butyl Ether	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Naphthalene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Styrene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.38	<0.38	ug/l
1,1,1,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.37	<0.37	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-09				

Client Sample ID/Description: Rental - Res #1

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
1,1,2,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.10	0.35	<0.35	ug/l
Tetrachloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
1,2,3-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,2,4-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,1,1-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
1,1,2-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Trichloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
Trichlorofluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.20	0.69	<0.69	ug/l
1,2,3-Trichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
1,2,4-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
1,3,5-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.43	<0.43	ug/l
Toluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Vinyl Chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
m,p-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.25	0.86	<0.86	ug/l
o-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
*** Volatile Organic Surrogates ***									
4-bromofluorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	113	% rec
1,2-Dichlorobenzene-d4	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	107	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-10				

Client Sample ID/Description: Maw House-Res #2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Analysis performed by a contract laboratory									
1,1-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,1-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,2-Dibromoethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.39	<0.39	ug/l
Benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Bromobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
Bromochloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
Bromodichloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
Bromoform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.43	<0.43	ug/l
Bromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
n-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
sec-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
tert-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
Carbon tetrachloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Chlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Chloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.69	2.4	<2.4	ug/l
Chloroform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Chloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.66	<0.66	ug/l
2-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
4-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
1,2-Dibromo-3-chloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.54	<0.54	ug/l
Dibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
1,2-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
1,3-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
1,3-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Chlorodibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
1,4-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
cis-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.61	<0.61	ug/l
trans-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
Dichlorodifluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.64	<0.64	ug/l
1,1-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.47	<0.47	ug/l
1,2-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.46	<0.46	ug/l
1,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
1,3-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
2,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
Ethyl benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
Hexachlorobutadiene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Methylene chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
Methyl-tert-Butyl Ether	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Naphthalene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Styrene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.38	<0.38	ug/l
1,1,1,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.37	<0.37	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-10				

Client Sample ID/Description: Maw House-Res #2

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
1,1,2,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.10	0.35	<0.35	ug/l
Tetrachloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
1,2,3-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,2,4-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,1,1-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
1,1,2-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Trichloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
Trichlorofluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.20	0.69	<0.69	ug/l
1,2,3-Trichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
1,2,4-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
1,3,5-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.43	<0.43	ug/l
Toluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Vinyl Chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
m,p-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.25	0.86	<0.86	ug/l
o-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
*** Volatile Organic Surrogates ***									
4-bromofluorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	114	% rec
1,2-Dichlorobenzene-d4	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	111	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-11				

Client Sample ID/Description: Duplicate

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-11				

Client Sample ID/Description: Duplicate

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	104	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	100	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	100	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-12				

Client Sample ID/Description: Field Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

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Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-12				

Client Sample ID/Description: Field Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	104	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	96	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	99	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-13				

Client Sample ID/Description: Trip Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/04/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-13				

Client Sample ID/Description: Trip Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	104	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	100	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	95	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/04/99	1.0	-	-	99	% rec
Analysis performed by a contract laboratory									
1,1-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,1-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,2-Dibromoethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.39	<0.39	ug/l
Benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Bromobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
Bromochloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
Bromodichloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
Bromoform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.43	<0.43	ug/l
Bromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
n-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
sec-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.48	<0.48	ug/l
tert-Butylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
Carbon tetrachloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Chlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Chloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.69	2.4	<2.4	ug/l
Chloroform	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Chloromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.66	<0.66	ug/l
2-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
4-Chlorotoluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
1,2-Dibromo-3-chloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.54	<0.54	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	10/27/99
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-13				

Client Sample ID/Description: Trip Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Dibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.41	<0.41	ug/l
1,2-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
1,3-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.65	<0.65	ug/l
1,3-Dichloropropylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
Chlorodibromomethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.44	<0.44	ug/l
1,4-Dichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
cis-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.61	<0.61	ug/l
trans-1,2-Dichloroethylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
Dichlorodifluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.19	0.64	<0.64	ug/l
1,1-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.47	<0.47	ug/l
1,2-Dichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.46	<0.46	ug/l
1,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
1,3-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
2,2-Dichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	<0.56	ug/l
Ethyl benzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
Hexachlorobutadiene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Methylene chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.56	0.98	ug/l
Methyl-tert-Butyl Ether	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Naphthalene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.58	<0.58	ug/l
Styrene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.38	<0.38	ug/l
1,1,1,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.11	0.37	<0.37	ug/l
1,1,2,2-Tetrachloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.10	0.35	<0.35	ug/l
Tetrachloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.50	<0.50	ug/l
1,2,3-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.51	<0.51	ug/l
1,2,4-Trichlorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.49	<0.49	ug/l
1,1,1-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
1,1,2-Trichloroethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.15	0.52	<0.52	ug/l
Trichloroethene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.14	0.50	<0.50	ug/l
Trichlorofluoromethane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.20	0.69	<0.69	ug/l
1,2,3-Trichloropropane	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.17	0.59	<0.59	ug/l
1,2,4-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.42	<0.42	ug/l
1,3,5-Trimethylbenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.43	<0.43	ug/l
Toluene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.13	0.45	<0.45	ug/l
Vinyl Chloride	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.16	0.55	<0.55	ug/l
m,p-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.25	0.86	<0.86	ug/l
o-Xylene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	0.12	0.40	<0.40	ug/l
*** Volatile Organic Surrogates ***									
4-bromofluorobenzene	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	102	% rec
1,2-Dichlorobenzene-d4	EPA 524.2	-	EPA 524.2	11/08/99	1.0	-	-	98	% rec

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-14				

Client Sample ID/Description: Method Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Volatile Organic Compounds (GC/MS)									
Acetone (2-Propanone)	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	1.3	20	<20	ug/l
Allyl Chloride (3-Chloropropylene)	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
Benzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Bromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
Bromodichloromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Bromoform	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	5.0	<5.0	ug/l
Bromomethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.3	1.0	<1.0	ug/l
Carbon Disulfide	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.09	1.0	<1.0	ug/l
Carbon Tetrachloride	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Chlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.07	1.0	<1.0	ug/l
Chloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.2	1.0	<1.0	ug/l
Chloroform	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
Chloromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.04	1.0	<1.0	ug/l
Chloroprene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
1,2-Dibromo-3-Chloropropane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
1,2-Dibromoethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
Dibromomethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
Dibromochloromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
1,3-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
1,4-Dichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
1,1-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.03	1.0	<1.0	ug/l
1,2-Dichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
1,1-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.09	1.0	<1.0	ug/l
trans-1,2-Dichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Dichlorodifluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
1,2-Dichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
cis-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
trans-1,3-Dichloropropylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
Ethyl Benzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.07	1.0	<1.0	ug/l
Ethyl Ether	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
Ethyl Methacrylate	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
Hexachlorobutadiene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.2	1.0	<1.0	ug/l
Iodomethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
Isopropylbenzene (cumene)	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
Methyl Butyl Ketone (2-Hexanone)	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.3	5.0	<5.0	ug/l
Methyl Ethyl Ketone (2-Butanone)	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	1.2	10	<10	ug/l
Methyl Isobutyl Ketone	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.09	5.0	<5.0	ug/l
Methylmethacrylate	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Methyl-tert-Butyl Ether	SW-846 5030	11/04/99	SW-846 8260	11/03/99	1.0	0.038	1.0	<1.0	ug/l
Methylene Chloride	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	5.0	<5.0	ug/l

(Report continued on next page)

Client:	WI Department of Natural Resources	**Laboratory:**	Braun Intertec Corporation	**Date Sampled:**	
Log-in:	99-08262	**Lab Contact/Phone:**	W. Scruton/612-942-4946	**Date Received:**	10/29/99
Project Number:	CVXX-99-177A	**Sampler:**	Client	**Date Reported:**	12/14/99
PO Number:		**% Moisture:**	Not Applicable	**Laboratory ID:**	999462640
Client Reference:	869 County MM	**MDL:**	Method Detection Limit		
Matrix:	Liquid	**RL:**	Reporting Limit		
Lab Sample ID:	99-08262-14				

Client Sample ID/Description: Method Blank

Compound	Extract Method	Extract Date	Analysis Method	Analysis Date	Dilution Factor	MDL	RL	Sample Result	
Naphthalene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
Styrene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.07	1.0	<1.0	ug/l
1,1,1,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.07	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
1,1,2,2-Tetrachloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Toluene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
1,2,4-Trichlorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.1	1.0	<1.0	ug/l
1,1,1-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.05	1.0	<1.0	ug/l
1,1,2-Trichloroethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.04	1.0	<1.0	ug/l
1,1,2-Trichloroethylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.06	1.0	<1.0	ug/l
Trichlorofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.04	1.0	<1.0	ug/l
1,2,3-Trichloropropane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
Vinyl Acetate	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.2	5.0	<5.0	ug/l
Vinyl Chloride	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.2	1.0	<1.0	ug/l
m,p-Xylenes	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.2	1.0	<1.0	ug/l
o-Xylene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	0.08	1.0	<1.0	ug/l
*** Volatile Organic Surrogates ***									
1,2-Dichloroethane-d4	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	-	-	104	% rec
Toluene-d8	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	-	-	97	% rec
4-Bromofluorobenzene	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	-	-	97	% rec
Dibromofluoromethane	SW 846 5030	11/04/99	SW 846 8260	11/03/99	1.0	-	-	97	% rec

(End of Report)

BRAUN INTERTEC℠
Braun Intertec Corporation
6875 Washington Ave. S.
Edina, MN 55439-0108

Bottle orders and sampling inquires:
labservices@brauncorp.com
Phone: 612-942-4930 Fax: 612-942-4844

REQUEST FOR LABORATORY ANALYTICAL SERVICES

IMPORTANT
Date Results Requested: _____
Time _____
Rush Charges Authorized? ____ Yes ____ No
Rush / Quote # _____

For Braun Intertec Use Only
Braun Intertec Project No.
CVXX-99-177A
99.08262

REPORT RESULTS TO
Contact Name: PAT COLLINS
Company: WI DNR
Mailing Address: 990 HILLCREST STREET
City, State, Zip: BALDWIN, WI 54002
Telephone #: 715 684-2914 Fax #: 715 684 5940

Project ID/Project Name: 869 COUNTY MM
P.O. #:

SEND INVOICE TO
Contact Name:
Company:
Address: SAME
City, State, Zip:
Telephone #:
Fax #:

Special Instructions and/or Specific Regulatory Requirements:
(method, limit of detection, petrofund, reporting units)

Circle metals that require low detection limits
Ag | As | Be | Cd | Cr | Pb | Ni | Sb | Se | Tl | V | Other

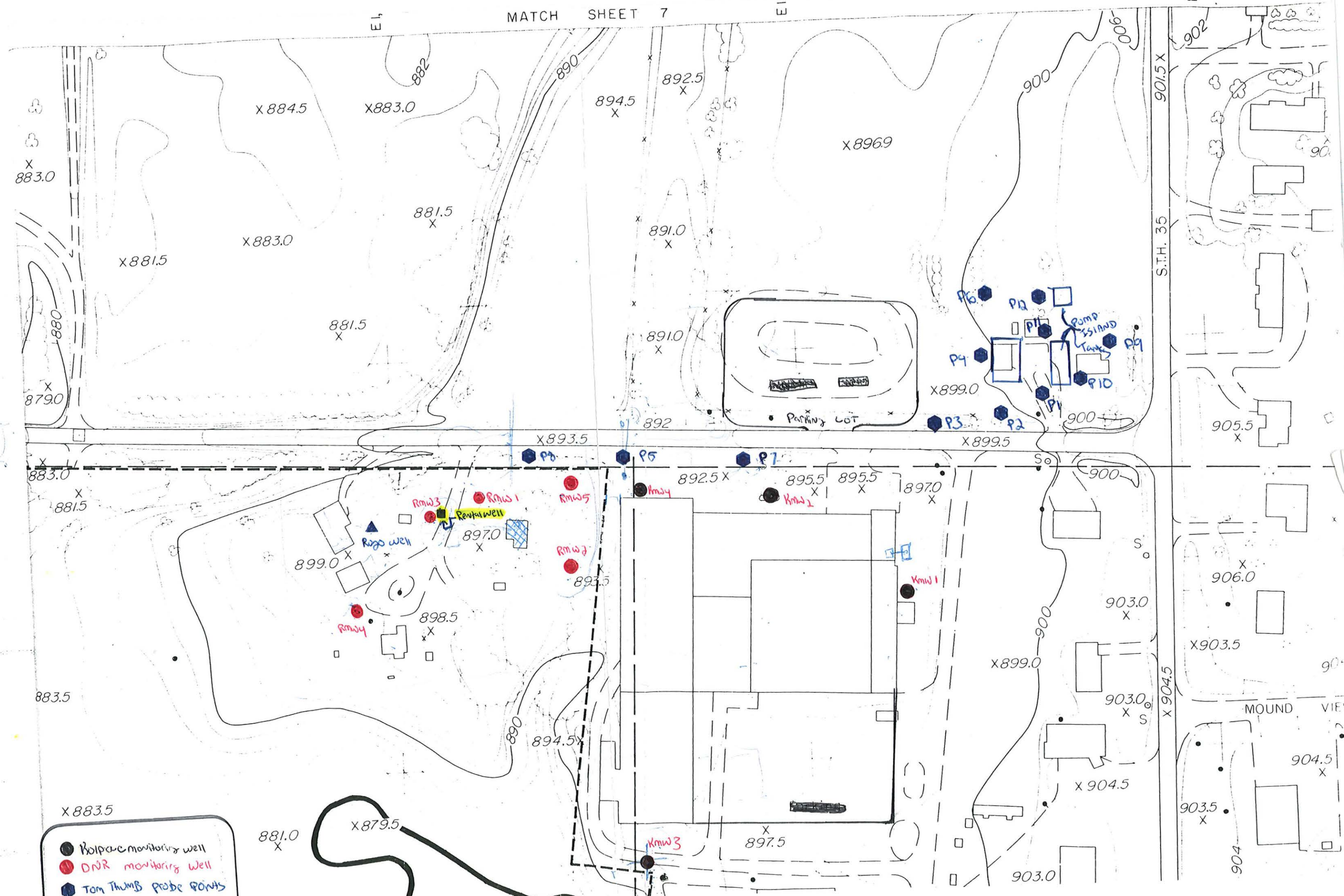
ANALYSIS REQUESTED
(Enter an 'X' in the box below to indicate request)

	CLIENT SAMPLE IDENTIFICATION	DATE SAMPLED	TIME SAMPLED	MATRIX/ MEDIA	AIR VOLUME (specify units)	Number of Containers	Metals Field Filtered Y/N	VOCs (Inclusive of MTBE, Meth 8260)	SW DR Metals 3014	(Gasoline Water Diesel) ACT-Compound List								FOR LAB USE ONLY
1	MW-3	10-27-99	11:21	H_2O		3	N	X										99.08262.01
2	MW-1		10:40			3	N	X										-02
3	MW-5		10:18			3	N	X										-03
4	MW-2		9:50			3	N	X										-04
5	MW-4		9:25			3	N	X										-05
6	KMW-3		12:09			3	N	X										-06
7	KMW-4		12:32			3	N	X										-07
8	KMW-2		12:53			3	N	X										-08
9	RENTAL - RES #1		11:28			3	N		X									-09
10	MAW HOUSE - RES #2		11:32			3	N		X									-10
11	DUPLICATE					3	N	X										-11
12	FIELD BLANK		9:10			3	N	X										-12
13	TRIP BLANK					4	N	X	X									-13
14																		
15																		

CHAIN OF CUSTODY
Collected by: *(Print)* SAMPLETECH
Collector's Signature: [signature]
Relinquished by: [signature] Date/Time 10-28-99 9:00
Received by: Date/Time
Relinquished by: Date/Time
Received Contents Not Verified: [signature] Date/Time 10/28/99 1610
Received Contents Verified: [signature] Date/Time 10/29/99 1045

Evidence Tape Intact ☐ Yes ☐ No ☒ N/A
Sample Condition Upon Receipt: ☒ Acceptable ☐ Other _____
Temperature _____ °C ☒ Received on Ice
Matrix Spike Samples Received: ☒ Yes ☐ No ☐ N/A

Comments:


MATCH SHEET 7
S.T.H. 35
MOUND VIEW
Parking LOT
Pump ISLAND
Tanks
P1
P2
P3
P4
P5
P6
P7
P8
P9
P10
P11
Rmw1
Rmw2
Rmw3
Rmw4
Rmw5
Rmw6
Rmw7
Kmw1
Kmw2
Kmw3
Kmw4
Rogo well
Rentwell
Kolpac monitoring well
DNR monitoring well
Tom Thumb probe points

THE SHANNON GROUP

Corporate Office
715 St. Croix Street
River Falls, WI 54022
(715) 425-6741
Fax: (715) 425-1928

RECEIVED
SEP 30 1993
Baldwin DNR

September 29, 1993

Mr. Patrick J. Collins
Hydrogeolist
State of Wisconsin
Department of Natural Resources
990 Hillcrest Street
Suite 104
Baldwin, WI 54002

Re: Monitoring Well Analytical Results

Dear Mr. Collins:

Enclosed are the final laboratory reports and data quality assessment and validation laboratory reports for water samples taken from out monitoring wells by Conestoga - Rovers & Associated in July 1993.

If you have any questions or comments regarding this information, please do not hesitate to contact me.

Sincerely,

Darryle Powers

Darryle Powers

DP:rmm

C: Mr John Paddock - WDMR

3944

Rec'd at CRA 09/07/93

Interpoll Laboratories, Inc.
4500 Ball Road N.E.
Circle Pines, Minnesota 55014-1819

TEL: (612) 786-6020
FAX: (612) 786-7854

ANALYTICAL RESULTS
FOR CONESTOGA-ROVERS & ASSOCIATES
CRA PROJECT #3944

Submitted to:

Conestoga-Rovers & Associates
1801 Old Highway 8, Suite 114
St. Paul, Minnesota 55112

Attention: Ruth Lewis

Approved By:

Jeannie F. O'Neil, Manager
Inorganic Chemistry Group

for Wayne A. Olson, Manager
Organic Chemistry Group

Final Laboratory Report #9485
August 30, 1993

PROJECT SUMMARY

The following laboratory report contains the analytical results for 5 water samples submitted to Interpoll Laboratories, Inc. (ILI) by Conestoge-Rovers & Associates (CRA) from the CRA Project #3944. The samples were received on July 16, 1993 according to Interpoll Labs documented sample acceptance procedures.

CRA Sample #	Sample Location	ILI Sample #
W-930716-PS-01	Not provided	9485-01
W-930716-PS-02	Not provided	9485-02
W-930716-PS-03	Not provided	9485-03
W-930716-PS-04	Not provided	9485-04
W-930716-PS-05	Not provided	9485-05

Interpoll Laboratories analyzed the samples 9485-01 through 9485-05 for VOCs by EPA Method 502.2; samples 9485-03 through 9485-05 were analyzed for Chromium by EPA Method SW-846, 6010 and Hexavalent chromium by EPA Method SW-846, 7196.

Abbreviations:

BDL = below detection limit

EXTR DATE = extraction date

ORIG RESULT = original result

RPD = relative percent difference

PCL = precision control limit

LCL = lower control limit

UCL = upper control limit

Footnotes:

*EPA method control limits were not available. Interpoll Laboratories has assigned 80% for the lower control limit, 120% for the upper control limit, and 10% for the precision control limit.

JFO/WAO/cg

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-01
CRA SAMPLE ID: W-930716-PS-01
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

MW1

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	0.10	ug/L	0.26	502.2	7/19/93	7/19/93	93200-502.2-A
Chloromethane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Vinyl chloride	0.066	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoethane	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichlorofluoromethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethene	0.19	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Methylene chloride	0.35	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
trans-1,2-Dichloroethene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethane	0.088	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2,2-Dichloropropane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
cis-1,2-Dichloroethene	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromochloromethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroform	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1-Trichloroethane	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Carbon tetrachloride	0.15	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloro-1-propene	0.20	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloroethane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichloroethene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloropropane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromoethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromodichloromethane	0.038	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2-Trichloroethane	0.13	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Tetrachloroethene	0.034	ug/L	0.077	502.2	7/19/93	7/19/93	93200-502.2-A
1,3-Dichloropropane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromochloromethane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromoethane	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chlorobenzene	0.052	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1,2-Tetrachloroethane	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoform	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromobenzene	0.084	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichloropropane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2,2-Tetrachloroethane	0.12	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2-Chlorotoluene	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
4-Chlorotoluene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-01
CRA SAMPLE ID: W-930716-PS-01
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

MW1

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,4-Dichlorobenzene	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichlorobenzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromo-3-chloropropane	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Hexachlorobutadiene	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichlorobenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Benzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Toluene	0.62	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Ethylbenzene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
m/p-Xylene	0.092	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
o-Xylene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Styrene	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Isopropulbenzene	0.032	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Propylbenzene	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3,5-Trimethylbenzene	0.042	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
tert-Butylbenzene	0.082	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trimethylbenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
sec-Butylbenzene	0.046	ug/L	0.14	502.2	7/19/93	7/19/93	93200-502.2-A
p-Isopropyltoluene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Butylbenzene	0.054	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Naphthalene	0.11	ug/L	1.0	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-02
CRA SAMPLE ID: W-930716-PS-02
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

mw2

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
Dichlorodifluoromethane	0.10	ug/L	0.12	502.2	7/19/93	7/19/93	93200-502.2-A
Chloromethane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Vinyl chloride	0.066	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoethane	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichlorofluoromethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethene	0.19	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Methylene chloride	0.35	ug/L	0.78	502.2	7/19/93	7/19/93	93200-502.2-A
trans-1,2-Dichloroethene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethane	0.088	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2,2-Dichloropropane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
cis-1,2-Dichloroethene	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromochloromethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroform	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1-Trichloroethane	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Carbon tetrachloride	0.15	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloro-1-propene	0.20	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloroethane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichloroethene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloropropane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromoethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromodichloromethane	0.038	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2-Trichloroethane	0.13	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Tetrachloroethene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3-Dichloropropane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromochloromethane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromoethane	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chlorobenzene	0.052	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1,2-Tetrachloroethane	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoform	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromobenzene	0.084	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichloropropane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2,2-Tetrachloroethane	0.12	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2-Chlorotoluene	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
4-Chlorotoluene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-02
CRA SAMPLE ID: W-930716-PS-02
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

mw2

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,4-Dichlorobenzene	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichlorobenzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromo-3-chloropropane	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Hexachlorobutadiene	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichlorobenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Benzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Toluene	0.62	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Ethylbenzene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
m/p-Xylene	0.092	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
o-Xylene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Styrene	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Isopropulbenzene	0.032	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Propylbenzene	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3,5-Trimethylbenzene	0.042	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
tert-Butylbenzene	0.082	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trimethylbenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
sec-Butylbenzene	0.046	ug/L	0.24	502.2	7/19/93	7/19/93	93200-502.2-A
p-Isopropyltoluene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Butylbenzene	0.054	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Naphthalene	0.11	ug/L	2.0	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-03
CRA SAMPLE ID: W-930716-PS-03
MATRIX: WATER

mw3

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
Chromium	5	ug/L	50	6010	7/21/93	7/26/93	93207-6010-A
Hexavalent chromium	5	ug/L	50	7196	7/16/93	7/16/93	93197-7196-A
Dichlorodifluoromethane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloromethane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Vinyl chloride	0.066	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoethane	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichlorofluoromethane	0.18	ug/L	0.19	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethene	0.19	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Methylene chloride	0.35	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
trans-1,2-Dichloroethene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethane	0.088	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2,2-Dichloropropane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
cis-1,2-Dichloroethene	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromochloromethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroform	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1-Trichloroethane	0.044	ug/L	1.6	502.2	7/19/93	7/19/93	93200-502.2-A
Carbon tetrachloride	0.15	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloro-1-propene	0.20	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloroethane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichloroethene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloropropane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromoethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromodichloromethane	0.038	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2-Trichloroethane	0.13	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Tetrachloroethene	0.034	ug/L	0.099	502.2	7/19/93	7/19/93	93200-502.2-A
1,3-Dichloropropane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromochloromethane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromoethane	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chlorobenzene	0.052	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1,2-Tetrachloroethane	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoform	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromobenzene	0.084	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichloropropane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2,2-Tetrachloroethane	0.12	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2-Chlorotoluene	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
4-Chlorotoluene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-03
CRA SAMPLE ID: W-930716-PS-03
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

mw3

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,4-Dichlorobenzene	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichlorobenzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromo-3-chloropropane	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Hexachlorobutadiene	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichlorobenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Benzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Toluene	0.62	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Ethylbenzene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
m/p-Xylene	0.092	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
o-Xylene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Styrene	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Isopropulbenzene	0.032	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Propylbenzene	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3,5-Trimethylbenzene	0.042	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
tert-Butylbenzene	0.082	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trimethylbenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
sec-Butylbenzene	0.046	ug/L	0.22	502.2	7/19/93	7/19/93	93200-502.2-A
p-Isopropyltoluene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Butylbenzene	0.054	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Naphthalene	0.11	ug/L	2.2	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-04
CRA SAMPLE ID: W-930716-PS-04
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

mw4

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
Chromium	5	ug/L	BDL	6010	7/21/93	7/26/93	93207-6010-A
Hexavalent chromium	5	ug/L	BDL	7196	7/16/93	7/16/93	93197-7196-A
Dichlorodifluoromethane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloromethane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Vinyl chloride	0.066	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoethane	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichlorofluoromethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethene	0.19	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Methylene chloride	0.35	ug/L	0.38	502.2	7/19/93	7/19/93	93200-502.2-A
trans-1,2-Dichloroethene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethane	0.088	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2,2-Dichloropropane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
cis-1,2-Dichloroethene	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromochloromethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroform	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1-Trichloroethane	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Carbon tetrachloride	0.15	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloro-1-propene	0.20	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloroethane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichloroethene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloropropane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromoethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromodichloromethane	0.038	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2-Trichloroethane	0.13	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Tetrachloroethene	0.034	ug/L	0.058	502.2	7/19/93	7/19/93	93200-502.2-A
1,3-Dichloropropane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromochloromethane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromoethane	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chlorobenzene	0.052	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1,2-Tetrachloroethane	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoform	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromobenzene	0.084	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichloropropane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2,2-Tetrachloroethane	0.12	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2-Chlorotoluene	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
4-Chlorotoluene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-04
CRA SAMPLE ID: W-930716-PS-04
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

MW4

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,4-Dichlorobenzene	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichlorobenzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromo-3-chloropropane	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Hexachlorobutadiene	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichlorobenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Benzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Toluene	0.62	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Ethylbenzene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
m/p-Xylene	0.092	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
o-Xylene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Styrene	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Isopropulbenzene	0.032	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Propylbenzene	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3,5-Trimethylbenzene	0.042	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
tert-Butylbenzene	0.082	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trimethylbenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
sec-Butylbenzene	0.046	ug/L	0.39	502.2	7/19/93	7/19/93	93200-502.2-A
p-Isopropyltoluene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Butylbenzene	0.054	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Naphthalene	0.11	ug/L	3.8	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-05
CRA SAMPLE ID: W-930716-PS-05
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

MW3
R.B.

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
Chromium	5	ug/L	BDL	6010	7/21/93	7/26/93	93207-6010-A
Hexavalent chromium	5	ug/L	BDL	7196	7/16/93	7/16/93	93197-7196-A
Dichlorodifluoromethane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloromethane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Vinyl chloride	0.066	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoethane	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichlorofluoromethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethene	0.19	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Methylene chloride	0.35	ug/L	0.52	502.2	7/19/93	7/19/93	93200-502.2-A
trans-1,2-Dichloroethene	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloroethane	0.088	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2,2-Dichloropropane	0.10	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
cis-1,2-Dichloroethene	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromochloromethane	0.062	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chloroform	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1-Trichloroethane	0.044	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Carbon tetrachloride	0.15	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1-Dichloro-1-propene	0.20	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloroethane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Trichloroethene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichloropropane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromoethane	0.18	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromodichloromethane	0.038	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2-Trichloroethane	0.13	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Tetrachloroethene	0.034	ug/L	0.059	502.2	7/19/93	7/19/93	93200-502.2-A
1,3-Dichloropropane	0.064	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Dibromochloromethane	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromoethane	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Chlorobenzene	0.052	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,1,2-Tetrachloroethane	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromoform	0.074	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Bromobenzene	0.084	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichloropropane	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,1,2,2-Tetrachloroethane	0.12	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
2-Chlorotoluene	0.058	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
4-Chlorotoluene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

INTERPOLL LABORATORIES, INC.
(612)786-6020

LABORATORY LOG NO: 9485-05
CRA SAMPLE ID: W-930716-PS-05
MATRIX: WATER

CRA PROJECT: #3944
DATE RECEIVED: 7/30/93

MW3
R.B.

PARAMETER	DETECTION LIMIT	UNITS	RESULT	METHOD	EXTR DATE	ANALYSIS DATE	QC BATCH
1,3-Dichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,4-Dichlorobenzene	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dichlorobenzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2-Dibromo-3-chloropropane	0.068	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trichlorobenzene	0.050	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Hexachlorobutadiene	0.028	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,3-Trichlorobenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Benzene	0.040	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Toluene	0.62	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Ethylbenzene	0.10	ug/L	0.11	502.2	7/19/93	7/19/93	93200-502.2-A
m/p-Xylene	0.092	ug/L	0.42	502.2	7/19/93	7/19/93	93200-502.2-A
o-Xylene	0.050	ug/L	0.16	502.2	7/19/93	7/19/93	93200-502.2-A
Styrene	0.070	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Isopropulbenzene	0.032	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Propylbenzene	0.048	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,3,5-Trimethylbenzene	0.042	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
tert-Butylbenzene	0.082	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
1,2,4-Trimethylbenzene	0.060	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
sec-Butylbenzene	0.046	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
p-Isopropyltoluene	0.034	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
n-Butylbenzene	0.054	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A
Naphthalene	0.11	ug/L	BDL	502.2	7/19/93	7/19/93	93200-502.2-A

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): INTERPUL

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: SHANNON GROUP

SAMPLER'S SIGNATURE _____ (SIGN)

SEQ. Nº.	SAMPLE Nº.	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
W-C	30716-PS-01	7-16-93		MW1	GRNWTER	7	VOCs (502.2)
	02			2		2	VOCs
	03			3		4	VOCs (Hex + Tot Cr
	04			4		4	VOCs (Hex + Tot Cr
	05			rinse@MW3		4	VOCs (Hex + Tot Cr
							Note: all VOCs use method 502.2
							2-week turn-around
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 _____ (SIGN)	7-16-93 / 12:20:93	2 _____ (SIGN)
RELINQUISHED BY: 2 _____ (SIGN)	DATE/TIME /	RECEIVED BY: 3 _____ (SIGN)
RELINQUISHED BY: 3 _____ (SIGN)	DATE/TIME /	RECEIVED BY: 4 _____ (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME /

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 28829

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): INTERPUL

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: SHANNON GROUP

SAMPLER'S SIGNATURE: [signature] (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
W-4	30716-PS-01	7-16-93		MW1	GROUNDWATER	2	VOCs (502.2)
	02			2		2	VOCs
	03			3		4	VOCs / Hex + Tot Cr
	04			4		4	VOCs / Hex + Tot Cr
	05			rinse @ MW3		4	VOCs / Hex + Tot Cr
							Note: all VOCs use method 502.2
							2-week turn-around
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY:	DATE/TIME	RECEIVED BY:
1 [signature] (SIGN)	7-16-93 / 12:20 pm	2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN) [signature]	DATE/TIME 7-19-93 / [illegible]
CONDITION OF SEAL UPON RECEIPT:		COOLER OPENED BY: (SIGN)	DATE/TIME /
GENERAL CONDITION OF COOLER:			

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 28829

CRA
1801 Old Highway 8, Suite #114
St. Paul, Minnesota 55112
(612) 639-0913

MEMO

TO: Steve Mockenhaupt

REFERENCE NO: 3944

FROM: Amber L. Poffenberger ALP

DATE: September 1, 1993

RE: Data Quality Assessment and Validation for Five Water Samples Collected July 16, 1993 at the Shannon Group Site in River Falls, Wisconsin

---

The following details a data quality assessment and validation for five water samples collected July 16, 1993 from the Shannon Group Site in River Falls, Wisconsin. The samples are identified in Table 1. The samples were analyzed for the parameters listed in Table 2. All analyses were performed by Interpoll Laboratories, Incorporated (ILI) of Circle Pines, Minnesota. The quality assurance criteria were defined by the methods.[1]

Holding Time Periods

The holding time periods for the analyses are listed in Table 2. On the basis of sample collection dates on the chain-of -custody forms and analytical reports provided by ILI, the analyses were completed within the specified holding time period for all samples.

Method Blank Samples

Contamination of the samples contributed by laboratory conditions or procedures was monitored by the concurrent preparation and analysis of method blank samples. Method blank samples were reported to be free from detectable concentrations of target analytes, with the exception of chloroform (detected at 0.091 µg/L), indicating no significant laboratory contamination occurred. Since chloroform was not detected in any of the environmental samples, qualification of the data based on method blank results was not deemed necessary.

Check Sample Percent Recoveries

Check samples were examined to assess the accuracy of the laboratory procedures. The check sample recoveries were within the established control limits, with one exception, indicating an adequate level of accuracy was achieved. Bromochloromethane exceeded the control limits in the VOC check sample. The results are listed in Table 3. The associated sample data should be qualified as noted in the table.

---

1 Application of relevant quality assurance criteria was consistent with "National Functional Guidelines for Organic Data Review", December 1990 (Revised June 1991), and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1988.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Results

To assess the long term accuracy and precision of the analytical method on various matrices, MS/MSD percent recoveries and relative percent difference (RPD) of the recoveries were determined for VOC analyses. Since there was insufficient sample volume to perform the MS/MSD analysis on an environmental sample, a blank spike/blank spike duplicate (BS/BSD) set was analyzed. All recoveries and RPDs were within the established control limits, indicating the method achieved adequate accuracy and precision.

Matrix Spike/Laboratory Duplicate (MS/DUP) Results

To assess the long term accuracy and precision of the analytical method on various matrices, MS percent recoveries and relative percent differences of duplicate results were determined for hexavalent and total chromium analyses. All percent recovery and RPD data were within the established control limits, indicating the methods achieved adequate accuracy and precision.

Field QA/QC

The field QA/QC for this sampling event included one rinsate blank sample.

As a check on cleanliness of sampling equipment, a rinsate blank sample (W-930716-PS-05) was collected as an authentic sample for labeling and submission to ILI. Several target analytes were detected in the rinsate blank sample, of which only tetrachloroethene was detected in the associated environmental sample. The result for tetrachloroethene is listed in Table 4. The associated sample data should be qualified as noted in the table.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision pertaining to the above criteria, and may be used with the qualifications noted.

ALP/jm
Enc.
cc: Steve Day
Bob Martin

TABLE 1

SUMMARY OF SAMPLE IDENTIFICATION NUMBERS
SHANNON GROUP SITE
JULY 1993 SAMPLING EVENT

W-930716-PS-01
W-930716-PS-02
W-930716-PS-03
W-930716-PS-04
W-930716-PS-05

TABLE 2

SUMMARY OF ANALYTICAL PARAMETERS AND HOLDING TIME PERIODS SHANNON GROUP SITE JULY 1993 SAMPLING EVENT

*Analysis - Method**	*Holding Time***
Volatile Organic Compounds (VOC) - EPA 502.2	14 Days
Hexavalent Chromium - SW 7196	24 Hours
Total Chromium - SW 6010	6 Months

Notes:

* Methods were derived from:
EPA - "Methods for Chemical Analysis of Water and Wastes", EPA 600/4-88/039.
SW - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", EPA SW-846, 3rd edition, November 1986.

** Holding time periods are based from sample collection date to sample analysis date.

TABLE 3

OUTLYING CHECK SAMPLE RESULTS
SHANNON GROUP SITE
JULY 1993 SAMPLING EVENT

Analysis	*Analyte*	*% Recovery*	*% Recovery Limits*	*Qualifier**	*Associated Samples*
VOC	Bromochloromethane	75	81-122	J/UJ	W-930716-PS-01; W-930716-PS-02; W-930716-PS-03; W-930716-PS-04; W-930716-PS-05

Notes:

* Sample results should be qualified as:

J - The associated value is an estimated quantity for detected analytes.

UJ - The analyte was checked for, but not detected.
The associated value is an estimated quantitation limit.

TABLE 4

ANALYTES DETECTED IN RINSATE BLANKS
SHANNON GROUP SITE
JULY 1993 SAMPLING EVENT

Analysis	*Analyte*	*Sample ID*	*Qualifier**
VOC	Tetrachloroethene	W-930716-PS-03	0.099U

Notes:

* Sample results should be qualified as:
  U - The analyte is non-detect , with the associated value being the quantitation limit.

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

990 Hillcrest Street
Suite 104
Baldwin, Wisconsin 54002
TELEPHONE 715-684-2914

FILE

September 8, 1993

Mr. Darryle Powers
Shannon Group - River Falls Division
715 St. Croix St.
River Falls, WI 54022

Subject: Groundwater Contamination Investigation, Analytical Results

Dear Mr. Powers:

Enclosed please find copies of the analytical results for the water samples collected from the Rugo property and from the Shannon Group property on July 6 and July 12, 1993. As we discussed earlier, the WDNR is requesting copies of all environmental testing which has been performed on the Shannon Group property since the submittal of groundwater sample results collected in May, 1992. If you have any questions concerning these results or this request please call me at (715) 684-2914.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
John Paddock - WD

RECEIVED
JUL 21 1993
Baldwin DNR

LAW OFFICES
BRIGGS AND MORGAN
PROFESSIONAL ASSOCIATION

2400 IDS CENTER
MINNEAPOLIS, MINNESOTA 55402

TELEPHONE (612) 334-8400
FACSIMILE (612) 334-8650

SAINT PAUL OFFICE
2200 FIRST NATIONAL BANK BUILDING
SAINT PAUL, MINNESOTA 55101
TELEPHONE (612) 223-6600
FACSIMILE (612) 223-6450

WRITER'S DIRECT DIAL NUMBER
(612) 334-8531

July 20, 1993

Mr. Patrick J. Collins
Hydrogeologist
State of Wisconsin
Department of Natural Resources
990 Hillcrest Street
Suite 104
Baldwin, Wisconsin 54002

Re: Ground Water Contamination Investigation on Rugo/Hovde Property

Dear Mr. Collins:

Despite your representations to the contrary, the Wisconsin DNR obtained an inspection warrant on July 12, 1993, to gain access to the Shannon Group's property, and collected water samples on the same day. Please provide us with copies of all test results obtained from the property.

I am disappointed that you did not give us an opportunity to be heard in connection with the issuance of the warrant, despite my oral and written requests. It is difficult to understand why you misrepresented your intentions during our telephone conversation on Friday, July 9, 1993.

The inspection warrant you obtained did not comply with the statutory requirements and your affidavit submitted in support of the DNR's request was false and misleading. Repeated tests have failed to implicate the Shannon Group in connection with the alleged contamination of the neighbor's property. No evidence suggests that any spill of hazardous substances has occurred on the Shannon Group property, or that further testing was necessary to prevent any increased contamination of the neighbor's well. All available data establish that the alleged contamination was caused by a an intentional or accidental discharge on the neighbor's property.

As we have explained on several occasions, the Shannon Group is legitimately concerned that the present pattern of harassment in response to

unsubstantiated claims will continue. While the Shannon Group was not required to incur any expense this time, it has previously paid large amounts for testing in response to the DNR's requests, occasioned by the neighbor's complaints. Assuming the new tests do not establish a spill on the property, we trust that no further testing will be required. The Shannon Group will continue to resist unnecessary intrusions caused by questionable allegations by a disgruntled neighbor.

If you have any questions or comments in this regard, please do not hesitate to contact me.

Sincerely,

Torbjorn Svensson

cc: Mr. Darryle Powers
Timothy R. Thornton

AFFIDAVIT

STATE OF WISCONSIN
ST. CROIX COUNTY

Patrick J Collins, having been duly sworn, says that on July 12, 1993, at approximately 10:30 AM, in said County, in or upon the Shannon Group premises in the City of River Falls and more particularly described as follows: Shannon Group, River Falls Division, 715 St. Croix Street, River Falls, Wisconsin 54022, there now exists a necessity to determine if section 144.76, Wisconsin Statutes has been or is being violated.

The facts tending to establish the grounds for issuing a special inspection warrant are as follows:

1. I, Patrick J. Collins, am a hydrogeologist employed by the Wisconsin Department of Natural Resources, and part of my job responsibility is to enforce statutes and rules for the Department, including the hazardous substances spills statute in Chapter 144, Wisconsin Statutes.

2. Patrick J. Collins, hydrogeologist stationed at the Baldwin office in Baldwin, spoke to Mr. Darryle Powers by telephone on July 6, 1993. Mr. Powers is known by me as Director of Operations for the Shannon Group, River Falls Division, River Falls, Wisconsin.

3. I, Patrick J. Collins and my assignees intend to inspect Shannon Group the City of River Falls, on July 12, 1993. I have previously identified myself as an employee of the Department and asked to be allowed to enter for the purpose of determining compliance with hazardous substances spills statutes. I have been denied the right to collect groundwater samples from four monitoring wells at the facility. Section 144.76(8) Wisconsin Statutes authorizes representatives of the Department to enter the property for the purpose of ascertaining compliance with this section and to prevent increased damage to the waters of the state.

4. There now is a necessity to collect and analyze samples of ground water pertaining to the alleged discharge of chemicals to the soil and ground water at the Shannon Group, River Falls Division properties. It is therefore necessary to monitor the monitoring wells to determine if a chemical spill occurred and to determine if Shannon Group is complying with section 144.76(3), Wisconsin Statutes. Wherefore, the said Patrick J. Collins prays that a special inspection warrant be issued to search said premises for the above-stated purpose.

Patrick J. Collins
Patrick J. Collins

Subscribed and sworn to me this 12 day of July, 19~~88~~93

Thos. F. O'Brien
~~Notary Public~~ _____, ~~WI~~

~~My commission expires~~ St. Croix Co, Wis.
Circuit Judge

State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706
R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

---

Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry (#3 of 9 on 07/22/91, unseen)

Id: Point/Well/..: DTF Field #: 2 Route: SW64
Collection Date: 06/05/91 Time: 12:00 County: 56 (Saint Croix)
From: KOLPAK INC. RIVER FALLS OUTFALL SOIL SAMPLE
To: COLLINS
DNR Source: Soil
BALDWIN
Account number: SW037 Collected by: COLLINS
Split
Date Received: 06/06/91 Labslip #: IB097845 Reported: 07/19/91

CADMIUM DRY WT, ICP	<1.	MG/KG
CHROMIUM DRY WT, ICP	45.	MG/KG
COPPER DRY WT,ICP	30.	MG/KG
DIGESTION 750.1, RCRA SOLIDS, AND AS & SE ON ICP	DIG MET	
LEAD DRY WT, ICP	<5.	MG/KG
MERCURY DRY WT, AA COLD VAPOR	0.02	MG/KG
detected between 0.02 (LOD) and 0.07 (LOQ) MG/KG		
SAMPLE PREP/HAND II	SIEVE	
ZINC DRY WT, ICP	140.	MG/KG

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#10 of 10 on 07/30/93, unseen)

Id: Point/Well/..: MW-3 Field #: 004 Route: SW60
Collection Date: 07/12/93 Time: 14:55 County: 56 (Saint Croix)
From: KOL-PAK, MON. WELL 3, RIVER FALLS, WI
To: JEFF HARTMAN - DNR
P.O. BOX 4001 Source: Monitoring Well
EAU CLAIRE, WI 54702
Account number: SW063 Collected by: PJC
Date Received: 07/13/93 Labslip #: OE000121 Reported: 07/29/93

---- test: VOCS BY CAPILLARY COLUMN - EPA METHOD 502.2

BENZENE	ND (LOD=0.30 UG/L)
BROMOBENZENE	ND (LOD=0.30 UG/L)
BROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMODICHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMOFORM	ND (LOD=0.30 UG/L)
BROMOMETHANE	ND (LOD=0.60 UG/L)
N-BUTYLBENZENE	ND (LOD=0.30 UG/L)
SEC-BUTYLBENZENE	ND (LOD=0.30 UG/L)
TERT-BUTYLBENZENE	ND (LOD=0.30 UG/L)
CARBON TETRACHLORIDE	ND (LOD=0.30 UG/L)
CHLOROBENZENE	ND (LOD=0.30 UG/L)
CHLOROETHANE	ND (LOD=0.30 UG/L)
CHLOROFORM	ND (LOD=0.30 UG/L)
CHLOROMETHANE	ND (LOD=0.30 UG/L)
2-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
4-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
DIBROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
1,2-DIBROMO-3-CHLOROPROPANE	ND (LOD=0.50 UG/L)
1,2-DIBROMOETHANE (EDB)	ND (LOD=0.30 UG/L)
DIBROMOMETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,3-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,4-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
DICHLORODIFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
CIS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRANS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
1,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
... continuing Labslip # OE000121, Field # 004

1,3-DICHLOROPROPANE		ND (LOD=0.30 UG/L)
2,2-DICHLOROPROPANE		ND (LOD=0.30 UG/L)
1,1-DICHLOROPROPENE		ND (LOD=0.30 UG/L)
CIS-1,3-DICHLOROPROPENE		ND (LOD=0.30 UG/L)
TRANS-1,3-DICLOROPROPENE		ND (LOD=0.30 UG/L)
ETHYLBENZENE		ND (LOD=0.30 UG/L)
HEXACHLOROBUTADIENE		ND (LOD=0.30 UG/L)
ISOPROPYLBENZENE		ND (LOD=0.30 UG/L)
P-ISOPROPYLTOLUENE		ND (LOD=0.30 UG/L)
METHYLENE CHLORIDE		ND (LOD=0.30 UG/L)
NAPHTHALENE		ND (LOD=0.30 UG/L)
N-PROPYLBENZENE		ND (LOD=0.30 UG/L)
STYRENE		ND (LOD=0.30 UG/L)
1,1,1,2-TETRACHLOROETHANE		ND (LOD=0.30 UG/L)
1,1,2,2-TETRACHLOROETHANE		ND (LOD=0.30 UG/L)
TETRACHLOROETHYLENE		ND (LOD=0.30 UG/L)
TOLUENE		ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROBENZENE		ND (LOD=0.30 UG/L)
1,2,4-TRICHLOROBENZENE		ND (LOD=0.30 UG/L)
1,1,1-TRICHLOROETHANE	+	1.3 UG/L
1,1,2-TRICHLOROETHANE		ND (LOD=0.30 UG/L)
TRICHLOROETHYLENE		ND (LOD=0.30 UG/L)
TRICHLOROFLUOROMETHANE		ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROPROPANE		ND (LOD=0.30 UG/L)
1,2,4-TRIMETHYLBENZENE		ND (LOD=0.30 UG/L)
1,3,5-TRIMETHYLBENZENE		ND (LOD=0.30 UG/L)
VINYL CHLORIDE		ND (LOD=0.30 UG/L)
M/P-XYLENE		ND (LOD=0.30 UG/L)
O-XYLENE		ND (LOD=0.30 UG/L)
VOCS BY CAPILLARY COLUMN - EPA METHOD 502 - PREP		C

--- Footnotes ---
+: Positive results are prefixed by a plus sign.

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Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry

Id: Point/Well/..: MW-3 Field #: 004 Route: SW60
Collection Date: 07/12/93 Time: 14:55 County: 56 (Saint Croix)
From: KOL-PAK RIVER FALLS - MON. WELL 3
To: JEFF HARTMEN
DNR Source: Other
EAU CLAIRE
Account number: SW083 Collected by: PJC
Date Received: 07/17/93 Labslip #: IE001887 Reported:
Comment: Partial report; RESULTS ARE PROVISIONAL AND MAY CHANGE.

CHROMIUM HEXAVALENT	*58	UG/L	#1

--- Footnotes ---
Remark #1: HOLDING TIME EXCEEDED, RESULT APPROXIMATE

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#9 of 10 on 07/30/93, unseen)

Id: Point/Well/..: MW-1 Field #: 003 Route: SW60
Collection Date: 07/12/93 Time: 13:58 County: 56 (Saint Croix)
From: KOL-PAK, MON. WELL 1, RIVER FALLS, WI
To: JEFF HARTMAN - DNR
P.O. BOX 4001 Source: Monitoring Well
EAU CLAIRE, WI 54702
Account number: SW063 Collected by: PJC
Date Received: 07/13/93 Labslip #: OE000120 Reported: 07/29/93

---- test: VOCS BY CAPILLARY COLUMN - EPA METHOD 502.2

BENZENE	ND (LOD=0.30 UG/L)
BROMOBENZENE	ND (LOD=0.30 UG/L)
BROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMODICHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMOFORM	ND (LOD=0.30 UG/L)
BROMOMETHANE	ND (LOD=0.60 UG/L)
N-BUTYLBENZENE	ND (LOD=0.30 UG/L)
SEC-BUTYLBENZENE	ND (LOD=0.30 UG/L)
TERT-BUTYLBENZENE	ND (LOD=0.30 UG/L)
CARBON TETRACHLORIDE	ND (LOD=0.30 UG/L)
CHLOROBENZENE	ND (LOD=0.30 UG/L)
CHLOROETHANE	ND (LOD=0.30 UG/L)
CHLOROFORM	ND (LOD=0.30 UG/L)
CHLOROMETHANE	ND (LOD=0.30 UG/L)
2-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
4-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
DIBROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
1,2-DIBROMO-3-CHLOROPROPANE	ND (LOD=0.50 UG/L)
1,2-DIBROMOETHANE (EDB)	ND (LOD=0.30 UG/L)
DIBROMOMETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,3-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,4-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
DICHLORODIFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
CIS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRANS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
1,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
... continuing Labslip # OE000120, Field # 003

1,3-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
2,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
CIS-1,3-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
TRANS-1,3-DICLOROPROPENE	ND (LOD=0.30 UG/L)
ETHYLBENZENE	ND (LOD=0.30 UG/L)
HEXACHLOROBUTADIENE	ND (LOD=0.30 UG/L)
ISOPROPYLBENZENE	ND (LOD=0.30 UG/L)
P-ISOPROPYLTOLUENE	ND (LOD=0.30 UG/L)
METHYLENE CHLORIDE	ND (LOD=0.30 UG/L)
NAPHTHALENE	ND (LOD=0.30 UG/L)
N-PROPYLBENZENE	ND (LOD=0.30 UG/L)
STYRENE	ND (LOD=0.30 UG/L)
1,1,1,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
TETRACHLOROETHYLENE	ND (LOD=0.30 UG/L)
TOLUENE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,2,4-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,1,1-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
TRICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRICHLOROFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,2,4-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
1,3,5-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
VINYL CHLORIDE	ND (LOD=0.30 UG/L)
M/P-XYLENE	ND (LOD=0.30 UG/L)
O-XYLENE	ND (LOD=0.30 UG/L)
VOCS BY CAPILLARY COLUMN - EPA METHOD 502 - PREP	C

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#7 of 10 on 07/30/93, unseen)

Id: Point/Well/..: MW-2 Field #: 001 Route: SW60
Collection Date: 07/12/93 Time: 12:45 County: 56 (Saint Croix)
From: KOL-PAK, MON. WELL 2, RIVER FALLS, WI
To: JEFF HARTMAN - DNR
P.O. BOX 4001 Source: Monitoring Well
EAU CLAIRE, WI 54702
Account number: SW063 Collected by: PJC
Date Received: 07/13/93 Labslip #: OE000118 Reported: 07/29/93

---- test: VOCS BY CAPILLARY COLUMN - EPA METHOD 502.2

BENZENE	ND (LOD=0.30 UG/L)
BROMOBENZENE	ND (LOD=0.30 UG/L)
BROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMODICHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMOFORM	ND (LOD=0.30 UG/L)
BROMOMETHANE	ND (LOD=0.60 UG/L)
N-BUTYLBENZENE	ND (LOD=0.30 UG/L)
SEC-BUTYLBENZENE	ND (LOD=0.30 UG/L)
TERT-BUTYLBENZENE	ND (LOD=0.30 UG/L)
CARBON TETRACHLORIDE	ND (LOD=0.30 UG/L)
CHLOROBENZENE	ND (LOD=0.30 UG/L)
CHLOROETHANE	ND (LOD=0.30 UG/L)
CHLOROFORM	ND (LOD=0.30 UG/L)
CHLOROMETHANE	ND (LOD=0.30 UG/L)
2-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
4-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
DIBROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
1,2-DIBROMO-3-CHLOROPROPANE	ND (LOD=0.50 UG/L)
1,2-DIBROMOETHANE (EDB)	ND (LOD=0.30 UG/L)
DIBROMOMETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,3-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,4-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
DICHLORODIFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
CIS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRANS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
1,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
... continuing Labslip # OE000118, Field # 001

1,3-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
2,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
CIS-1,3-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
TRANS-1,3-DICLOROPROPENE	ND (LOD=0.30 UG/L)
ETHYLBENZENE	ND (LOD=0.30 UG/L)
HEXACHLOROBUTADIENE	ND (LOD=0.30 UG/L)
ISOPROPYLBENZENE	ND (LOD=0.30 UG/L)
P-ISOPROPYLTOLUENE	ND (LOD=0.30 UG/L)
METHYLENE CHLORIDE	ND (LOD=0.30 UG/L)
NAPHTHALENE	ND (LOD=0.30 UG/L)
N-PROPYLBENZENE	ND (LOD=0.30 UG/L)
STYRENE	ND (LOD=0.30 UG/L)
1,1,1,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
TETRACHLOROETHYLENE	ND (LOD=0.30 UG/L)
TOLUENE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,2,4-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,1,1-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
TRICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRICHLOROFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,2,4-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
1,3,5-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
VINYL CHLORIDE	ND (LOD=0.30 UG/L)
M/P-XYLENE	ND (LOD=0.30 UG/L)
O-XYLENE	ND (LOD=0.30 UG/L)
VOCS BY CAPILLARY COLUMN - EPA METHOD 502 - PREP	C

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
Organic chemistry (#8 of 10 on 07/30/93, unseen)

Id: Point/Well/..: MW-4 Field #: 002 Route: SW60
Collection Date: 07/12/93 Time: 13:25 County: 56 (Saint Croix)
From: KOL-PAK, MON. WELL 4, RIVER FALLS, WI
To: JEFF HARTMAN - DNR
P.O. BOX 4001 Source: Monitoring Well
EAU CLAIRE, WI 54702
Account number: SW063 Collected by: PJC
Date Received: 07/13/93 Labslip #: OE000119 Reported: 07/29/93

---- test: VOCS BY CAPILLARY COLUMN - EPA METHOD 502.2

BENZENE	ND (LOD=0.30 UG/L)
BROMOBENZENE	ND (LOD=0.30 UG/L)
BROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMODICHLOROMETHANE	ND (LOD=0.30 UG/L)
BROMOFORM	ND (LOD=0.30 UG/L)
BROMOMETHANE	ND (LOD=0.60 UG/L)
N-BUTYLBENZENE	ND (LOD=0.30 UG/L)
SEC-BUTYLBENZENE	ND (LOD=0.30 UG/L)
TERT-BUTYLBENZENE	ND (LOD=0.30 UG/L)
CARBON TETRACHLORIDE	ND (LOD=0.30 UG/L)
CHLOROBENZENE	ND (LOD=0.30 UG/L)
CHLOROETHANE	ND (LOD=0.30 UG/L)
CHLOROFORM	ND (LOD=0.30 UG/L)
CHLOROMETHANE	ND (LOD=0.30 UG/L)
2-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
4-CHLOROTOLUENE	ND (LOD=0.30 UG/L)
DIBROMOCHLOROMETHANE	ND (LOD=0.30 UG/L)
1,2-DIBROMO-3-CHLOROPROPANE	ND (LOD=0.50 UG/L)
1,2-DIBROMOETHANE (EDB)	ND (LOD=0.30 UG/L)
DIBROMOMETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,3-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,4-DICHLOROBENZENE	ND (LOD=0.30 UG/L)
DICHLORODIFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,2-DICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
CIS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRANS-1,2-DICHLOROETHYLENE	ND (LOD=0.30 UG/L)
1,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)

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R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

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Environmental Science Section (608) 262-2797 DNR LAB ID 113133790
... continuing Labslip # OE000119, Field # 002

1,3-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
2,2-DICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,1-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
CIS-1,3-DICHLOROPROPENE	ND (LOD=0.30 UG/L)
TRANS-1,3-DICLOROPROPENE	ND (LOD=0.30 UG/L)
ETHYLBENZENE	ND (LOD=0.30 UG/L)
HEXACHLOROBUTADIENE	ND (LOD=0.30 UG/L)
ISOPROPYLBENZENE	ND (LOD=0.30 UG/L)
P-ISOPROPYLTOLUENE	ND (LOD=0.30 UG/L)
METHYLENE CHLORIDE	ND (LOD=0.30 UG/L)
NAPHTHALENE	ND (LOD=0.30 UG/L)
N-PROPYLBENZENE	ND (LOD=0.30 UG/L)
STYRENE	ND (LOD=0.30 UG/L)
1,1,1,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2,2-TETRACHLOROETHANE	ND (LOD=0.30 UG/L)
TETRACHLOROETHYLENE	ND (LOD=0.30 UG/L)
TOLUENE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,2,4-TRICHLOROBENZENE	ND (LOD=0.30 UG/L)
1,1,1-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
1,1,2-TRICHLOROETHANE	ND (LOD=0.30 UG/L)
TRICHLOROETHYLENE	ND (LOD=0.30 UG/L)
TRICHLOROFLUOROMETHANE	ND (LOD=0.30 UG/L)
1,2,3-TRICHLOROPROPANE	ND (LOD=0.30 UG/L)
1,2,4-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
1,3,5-TRIMETHYLBENZENE	ND (LOD=0.30 UG/L)
VINYL CHLORIDE	ND (LOD=0.30 UG/L)
M/P-XYLENE	ND (LOD=0.30 UG/L)
O-XYLENE	ND (LOD=0.30 UG/L)
VOCS BY CAPILLARY COLUMN - EPA METHOD 502 - PREP	C

State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706
R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

---

Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry

Id: Point/Well/..: MW-4 Field #: 002 Route: SW60
Collection Date: 07/12/93 Time: 13:25 County: 56 (Saint Croix)
From: KOL-PAK RIVER FALLS - MON. WELL 4
To: JEFF HARTMEN
DNR Source: Other
EAU CLAIRE
Account number: SW083 Collected by: PJC
Date Received: 07/17/93 Labslip #: IE001886 Reported:
Comment: Partial report; RESULTS ARE PROVISIONAL AND MAY CHANGE.

CHROMIUM HEXAVALENT	*<20	UG/L	#1

--- Footnotes ---
Remark #1: HOLDING TIME EXCEEDED, RESULT APPROXIMATE

RECEIVED
JUL 12 1993
Baldwin DNR

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PROFESSIONAL ASSOCIATION

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FACSIMILE (612) 334-8650

SAINT PAUL OFFICE
2200 FIRST NATIONAL BANK BUILDING
SAINT PAUL, MINNESOTA 55101
TELEPHONE (612) 223-6600
FACSIMILE (612) 223-6450

WRITER'S DIRECT DIAL NUMBER
(612) 334-8531

July 9, 1993

Mr. Patrick J. Collins
Hydrogeologist
State of Wisconsin
Department of Natural Resources
990 Hillcrest Street
Suite 104
Baldwin, Wisconsin 54002

Re: Ground Water Contamination Investigation on Rugo/Hovde Property

Dear Mr. Collins:

This letter is to confirm our telephone conversation earlier today during which I informed you that the Shannon Group has decided to deny your request for access to its property for further testing. The Shannon Group does not believe there is a basis for further sampling at the property because numerous tests performed by the Shannon Group and by the DNR have determined the ground water is not contaminated.

If you decide to seek a court order to gain access to the property, the Shannon Group asks for an opportunity to be heard to allow the court to make an informed decision.

Sincerely,

Torbjorn Svensson

cc: Mr. Darryle Powers
Timothy R. Thornton, Esq.

WISCONSIN
DEPT. OF NATURAL RESOURCES

George E. Meyer
Secretary

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

990 Hillcrest Street
Suite 104
Baldwin, Wisconsin 54002
TELEPHONE 715-684-2914

July 8, 1993

Mr. Darryl Powers
Shannon Group - River Falls Division
715 St. Croix St.
River Falls, WI 54022

Subject: Groundwater Contamination Investigation in the SE 1/4, Sec 36, T.28N-R.19W, River Falls, WI

Dear Mr. Powers:

This letter is a follow up to my conversation yesterday with Mr. Doug Van Someran of your company. As you may be aware there is an ongoing investigation into the source of groundwater contamination adjacent to your property. As part of that investigation, the Wisconsin Department of Natural Resources (WDNR) is conducting groundwater sampling of wells on and adjacent to the affected property. To that end the WDNR requests access to the wells on your property for the purpose of: 1) measuring the depth to water to calculate the groundwater flow direction and 2) to collect and submit for laboratory analyses the water samples obtained from these wells.

The data collected will be provided to you at your request.

The WDNR has scheduled the sampling for Tuesday, July 6, 1993. Please call me at 715/684-2914 if you have any questions concerning this request.

Your cooperation in this matter is appreciated.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
John Paddock - WD
Sen. Alice Clausing
Rep. Sheila Harsdorf

PJC/rh

FAX Memo

Pages: 1

Date: 7/20/92 Time:

To: Kenneth Kreye

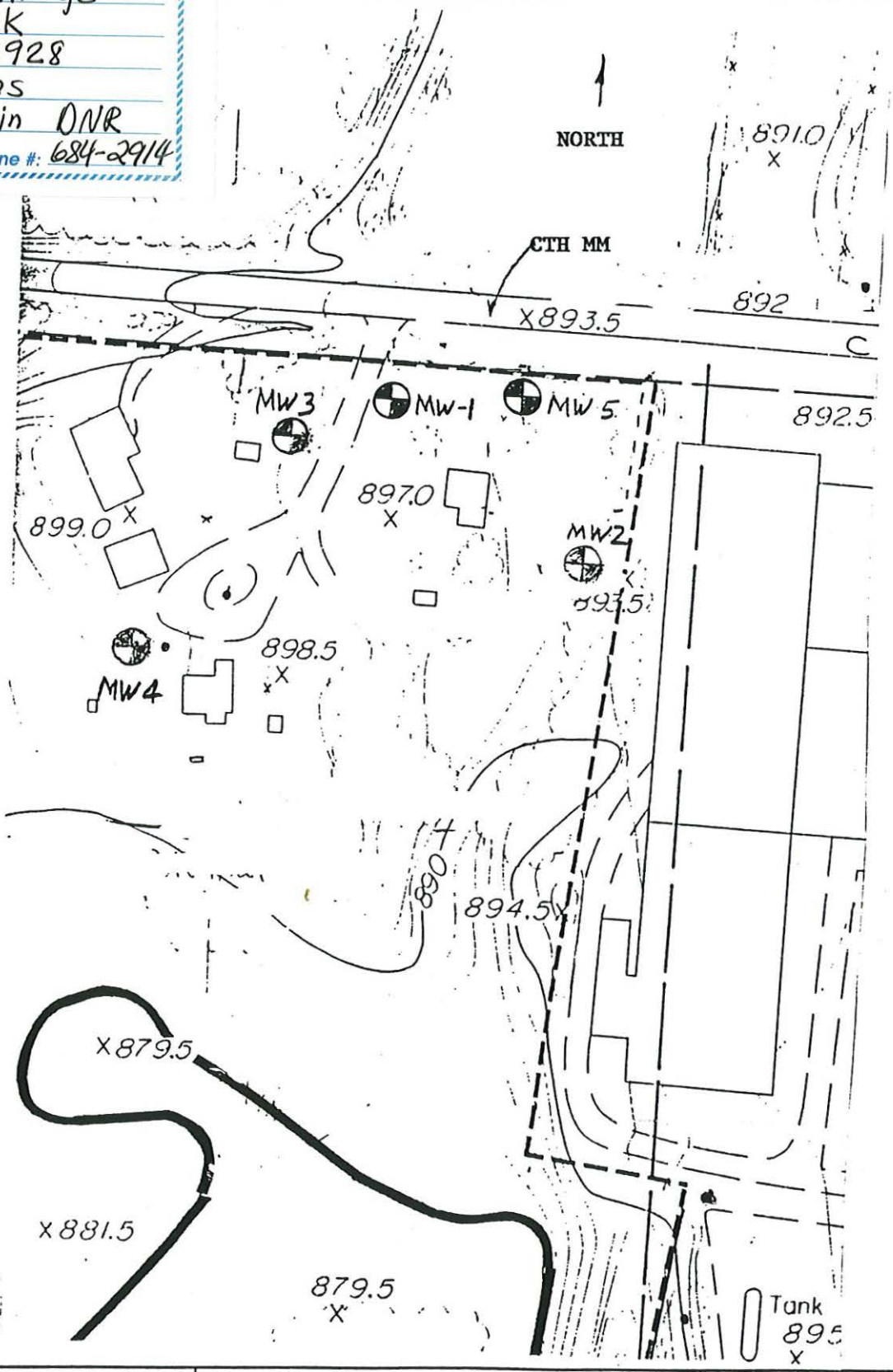
Location: Kol-Pak

FAX #: 1-425-1928

From: Pat Collins

Location: Baldwin DNR

FAX#: 684-2393 Phone #: 684-2914



midwest engineering services, inc.

FIGURE 1

Monitoring Well Location Diagram
Rugo Rentals
869 CTH MM
River Falls, WI

PROJECT NUMBER: 7-23010

DATE: 4-02-92

CRA
Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive,
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510

June 5, 1992

Reference No. 3944

RECEIVED
JUN 15 1992
Baldwin DNR

Mr. Patrick Collins
WISCONSIN DEPARTMENT OF
NATURAL RESOURCES
990 Hillcrest, Suite 105, Box 61
Baldwin, Wisconsin 54001

Dear Mr. Collins:

RE: Summary of Analytical and Groundwater Elevation Data

The Shannon Group has completed the third round of groundwater sampling and an additional round of water levels, as requested by the WDNR. This request was prompted by the detection of gasoline and benzene, toluene, ethylbenzene and xylenes (BTEX) compounds in the rental property well from samples taken by the WDNR. This letter presents the third round sampling results.

The third round of sampling was conducted on May 4, 1992. Each of the four monitoring wells were sampled and analyzed for volatile organic compounds (VOCs) using EPA Method 601/602. In addition, monitoring well MW3 was analyzed for total and hexavalent chromium. Each of the chromium samples were prepared for the laboratory using both filtered and unfiltered samples. The laboratory report is attached to this letter. On behalf of the Shannon Group, we would like to request copies of the laboratory reports for the samples the WDNR took both on the Rugo property and the split at MW3.

The results of the sampling during the third round are consistent with previous sampling events. The analytical results have indicated slightly elevated levels at only one monitoring well (MW3). The compounds detected are chromium and 1,1,1-trichloroethane. Table 1 presents a summary for MW3 of the compounds detected for the third round sampling. As shown on Table 1, the only VOC detected was 1,1,1-trichloroethane at 5.8 µg/L and 5.2 µg/L (Duplicate). The unfiltered metals sample showed total chromium and hexavalent chromium at 50 µg/L and 50 µg/L, respectively. The filtered metals sample showed total chromium at 40 µg/L and hexavalent chromium at 50 µg/L. Hexavalent chromium was analyzed using Method 7196 (colorimetric method) while total chromium was analyzed using Method 6010 (ICP). The discrepancy in the results between the hexavalent and total chromium analysis for the filtered sample may be attributed to using two distinct analytical methods. Although an analysis for BTEX was conducted at each of the monitoring wells, BTEX compounds were not detected.

The detection for 1,1,1-trichloroethane is below the Enforcement Standard of 200 µg/L. Chromium is at the Enforcement Standard of 50 µg/L for the unfiltered sample and below the Enforcement Standard for the filtered sample. Total chromium concentrations at MW3 are below the Federal MCL of 100 µg/L.

Conclusion:

The objective of the groundwater investigation was to determine if the Shannon Group's property was the source of gasoline and BTEX contamination detected at the neighboring property. Over the period of approximately one year, each of the wells have been sampled on three occasions. The hydrological and chemical data collected indicated no connection between the contamination found on the Rugo property and the Shannon Group's River Falls facility.

Groundwater from the Site flows southwesterly, toward Kinnickinnic River, and therefore, does not intercept the Rugo well. Likewise, no detections of the gasoline constituents were detected in the monitoring wells on the Shannon Group's property.

Given the above, we conclude that the objective of the investigation has been met and recommend that no additional monitoring be conducted relative to the Rugo contamination.

Should you have any questions, please do note hesitate to contact us at (612) 639-0913.

Yours Truly,

CONESTOGA-ROVERS & ASSOCIATES

Peter Storlie

PS/br
Enc.
cc: Ken Kreye, Shannon Group
Ron Frehner, CRA

State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706
R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

---

Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry (#1 of 27 on 07/15/92, unseen)

Id: Point/Well/..: Field #: KMW-3 Route: SW60
Collection Date: 05/04/92 Time: 14:10 County: 56 (Saint Croix)
From: RUGO - SPLIT RIVER FALLS KMW-3
To:
DNR Source: Other
EAU CLAIRE
Account number: SW051 Collected by: PJC
Date Received: 05/06/92 Labslip #: IC093864 Reported: 07/14/92

CADMIUM, AA FURNACE	0.5	UG/L
CHROMIUM, AA FURNACE	69.	UG/L
CHROMIUM HEXAVALENT	50.	UG/L
COPPER, AA FURNACE	34.	UG/L
DIGEST 730.1, LIQUIDS, EPTOX, ICP EXCEPT AS,AG,SE	DIG MET	
DIGESTION 740.1, LIQUIDS, FOR FURNACE	DIG MET	
LEAD, AA FURNACE	6.	UG/L
MERCURY, AA COLD VAPOR	**	UG/L #1
analysis rejected		
ZINC, ICP	39.	UG/L
detected between 10 (LOD) and 40 (LOQ) UG/L		

--- Footnotes ---
Remark #1: NO BOTTLE RECEIVED

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FACSIMILE (612) 334-8650

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SAINT PAUL OFFICE
2200 FIRST NATIONAL BANK BUILDING
SAINT PAUL, MINNESOTA 55101
TELEPHONE (612) 223-6600
FACSIMILE (612) 223-6450

WRITER'S DIRECT DIAL NUMBER

(612) 334-8550

April 8, 1992

Patrick J. Collins
Hydrogeologist
State of Wisconsin
Department of Natural Resources
990 Hillcrest Street
Suite 104
Baldwin, WI 54002

Re: Ground Water Contamination Investigation on Rugo/Hovde Property

Dear Mr. Collins:

Shannon Group has referred your March 11, 1992 request for additional ground water sampling to me. As Shannon informed you when we met last fall, it believes that there is no basis for further action or investigation regarding the Shannon Group property. Furthermore, the VOC sampling results on the Rugo/Hovde property seem to suggest exactly what we suspected and discussed in our previous meeting, namely there has been either tampering with the wells or water supply or a spill on the Rugo/Hovde property.

Based upon its own investigation Shannon Group has determined to take no further action in connection with this investigation on its property. In fact the company has done more than can be reasonably requested. Nevertheless, Shannon reluctantly agrees to conduct one more round of VOC sampling on Monday, April 13, 1992. That sampling will be done in connection with the DNR sampling on the Rugo/Hovde property. We request that you provide Shannon Group's contractor, CRA, splits of any sampling you take on the Rugo/Hovde property.

Shannon Group will go forward with this additional sampling as a good faith effort to bring this matter to close once and for all. Furthermore, if contamination shows up on the Rugo/Hovde property Shannon expects the DNR to take actions against the property owner and to protect Shannon from the spread of contamination or pollution. Someone has either intentionally or accidentally caused a spill on the Rugo/Hovde property. Therefore, the responsible parties, including the landowner, must be held responsible for cleanup.

Call me if you have any questions about the sampling Shannon Group is prepared to do. Please keep us informed about the actions that will be taken against our neighboring property owner as a result of the hazardous waste that is present on the property. We look forward to hearing from you.

Sincerely,

Timothy R. Thornton

TRT/je
cc: K. Kreye
S. Mockenhaupt

P.S. Since dictating this I have learned that the sampling has been postponed until early May. Shannon remains prepared to proceed upon the basis outlined in this letter. In the meantime, the delay should provide the DNR an opportunity to commence administrative or legal actions against the responsible property owner.

→ Volrath/Shannon file — Bill Byam

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

WISCONSIN
DEPT. OF NATURAL RESOURCES

Carroll D. Besadny
Secretary

990 Hillcrest Street
Suite 104
Baldwin, WI 54002
TELEPHONE 715-684-2914

WDNR-HRS
VOLRATH/SHANNON
REFERENCE #5

File Ref:

March 30, 1992

Mr. & Mrs. William Rugo
867 CTH "MM"
River Falls, WI 54022

Subject: Groundwater Contamination Investigation in SW 1/4, Sec 36, T28N R18W, River Falls

Dear Mr. and Mrs. Rugo:

Attached you will find the results of the groundwater samples which we collected on March 3, 1992 from monitoring wells installed on your property. A map showing the location of those wells is also enclosed. The results indicate that two of the samples had detectable levels of volatile organic compounds (VOCs). One was from water collected in the rental house which had benzene and 1,2-Dichloroethane at concentrations of 120 ug/L and 1.3 ug/L respectively. The second sample from Monitoring Well #3 had a detect of benzene at a concentration of 1.9 ug/L.

Confirmation sampling for VOC's and metals is scheduled for April 13, 1992. Please contact me if you have any questions.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
~~Dave Lundberg~~ - WD
John Paddock - WD
Fred Haerter - City of River Falls

PC/rh

RECEIVED
APR - 1 1992
DNR-WD

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

990 Hillcrest Street
Suite 104
Baldwin, WI 54002
TELEPHONE 715-684-2914

Carroll D. Besadny
Secretary

File Ref:

March 30, 1992

Mr. Kenneth Kreye
Shannon Group - River Falls Division
715 St. Croix St.
River Falls, WI 54022

Subject: Groundwater Contamination Investigation in SW 1/4, Sec 36, T28N R18W, River Falls

Dear Mr. Kreye:

Attached you will find the results of the groundwater samples which we collected on March 3, 1992 from monitoring wells installed on property adjacent to your plant site. A map showing the location of those wells is also enclosed. The results indicate that two of the samples had detectable levels of volatile organic compounds (VOCs). One was from water collected in the rental house which had benzene and 1,2-Dichloroethane at concentrations of 120 ug/L and 1.3 ug/L respectively. The second sample from Monitoring Well #3 had a detect of benzene at a concentration of 1.9 ug/L.

Confirmation sampling for VOC's and metals is scheduled for April 13, 1992. Please contact me when you have reviewed these results to coordinate sampling of the wells on your property at the time of our second round of sampling. My number is (715) 684-2914. Your cooperation in this matter will be appreciated.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
Dave Lundberg - WD
John Paddock - WD
Fred Haerter - City of River Falls

PC/rh

WISCONSIN
DEPT. OF NATURAL RESOURCES

State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

990 Hillcrest Street
Suite 104
Baldwin, WI 54002
TELEPHONE 715-684-2914

Carroll D. Besadny
Secretary

File Ref: 4440

March 11, 1992

Mr. Richard J. Rebone, President
Shannon Group - River Falls Division
715 St. Croix St.
River Falls, WI 54022

Subject: Request for Additional Groundwater Sampling of the Water Table Monitoring Wells on Shannon Group Property.

Dear Mr. Rebone:

As part of the continuing groundwater investigation in the vicinity of your facility and the Rugo/Hovde property, the Department of Natural Resources has recently installed five monitoring wells on the Rugo/Hovde property. These wells have been sampled once for volatile organic compounds (VOCs). The results of this sampling has not been finalized at this time. As part of our standard procedure, these wells will be sampled a second time to confirm the first round sampling results.

The Department is requesting that Shannon Group sample the four wells on their property at the same time the State collects their second round of samples. Coordination of these sampling events is essential to obtain comparative data. Sampling of the wells should include water level measurement, adequate purging of the wells and the collection of water samples for VOC and metal analysis.

Your cooperation in this matter will be appreciated. Please contact me as soon as possible so that a date can be established for the next round of sample collection. My number is (715) 684-2914.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
Dave Lundberg - WD
John Paddock - WD
Fred Haerter - City of River Falls

PC/rh

FILE

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Rugo -

SITE EVALUATION

The Shannon Group
River Falls, Wisconsin

PRINTED ON
NOV 20 1991

SITE EVALUATION

The Shannon Group
River Falls, Wisconsin

NOVEMBER 1991

REF. NO. 3944 (3)

CONESTOGA-ROVERS & ASSOCIATES

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1.0 INTRODUCTION

This report presents results of an environmental investigation undertaken for the Shannon Group at their River Falls, Wisconsin, facility (Site).

This investigation was requested by the Wisconsin Department of Natural Resources (WDNR) in response to volatile organic compounds (VOCs) being detected in a residential well west of the Site.

The WDNR raised a concern that properties near the residence, The Shannon Group and Tom Thumb (a fuel station) may be the source of VOCs being detected in the residential well and requested that both companies conduct a site evaluation of their properties.

Conestoga-Rovers and Associates (CRA) was retained by Briggs and Morgan to develop and implement a Work Plan, which was submitted to the WDNR on April 12, 1991. On April 25, 1991, representatives from The Shannon Group, CRA and the WDNR met to discuss the Work Plan, which was finalized in a letter to the WDNR on May 6, 1991. CRA conducted an investigation of soil and groundwater conditions at the Site during the summer of 1991 in according with the approved Work Plan.

This report presents the results of CRA's investigation conducted at The Shannon Group site.

2.0 STUDY OBJECTIVES

The objective of the environmental investigation was to evaluate whether or not The Shannon Group facility contributed to the VOC contamination in the off-site residential well.

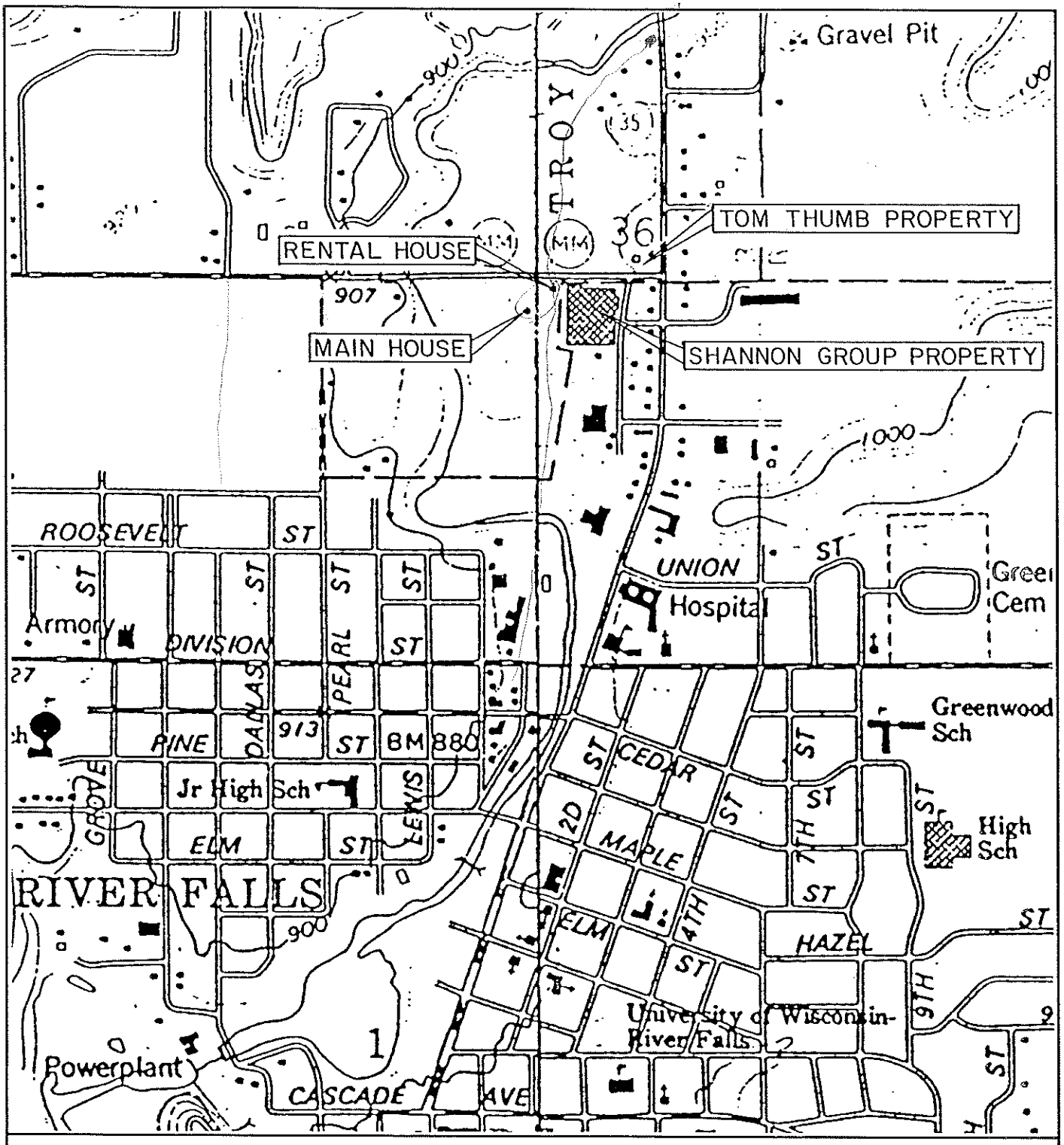
3.0 BACKGROUND

3.1 SITE AND VICINITY FEATURES

The Shannon Group facility is located in River Falls, Wisconsin. The property is approximately six acres in size and predominantly occupied by one large manufacturing building. The facility is currently being used as a refrigeration appliance manufacturing facility.

The Site is located in a light industrial area. North of the facility is an open field and parking lot which is owned by The Shannon Group. To the northeast of the Site, a Tom Thumb store exists which sells grocery goods and gasoline. To the east of the Site is comprised of an auto parts store, a restaurant and other various offices. The land to the southeast is currently used to store bulk propane gas and propane gas tanks. To the south is open, undeveloped land with a storm water collection pond located approximately 400 feet from the Site. The land west of the Site is comprised of residential and agricultural areas.

The area is drained by the Kinnickinnic River which is located approximately a quarter mile north, south and west of the Site. The Kinnickinnic River flows southwesterly and joins the St. Croix River located approximately seven miles to the southwest.



SOURCE: USGS TOPOGRAPHIC MAP
RIVER FALLS EAST, WISC. QUAD

SCALE: 1" = 1000'

figure 3.1
SITE LOCATION
The Shannon Group-River Falls Division

CRA

3944-22/10/91-M

TABLE 3.1

RESIDENTIAL WELL SAMPLING RESULTS
WISCONSIN DEPARTMENT OF NATURAL RESOURCES DATA
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location:	Rugor Rental				Main House	
Date:	10/23/90	10/29/90	1/15/91	2/11/91	10/29/90	1/8/91
Compounds Detected: ug/l						
Benzene	600	800	ND	ND	ND	ND
Toluene	3.4	3.8	ND	ND	ND	ND
Xylenes	9.5	9.2	ND	ND	ND	ND
1,2-dichloroethane	1.4	1.8	ND	ND	ND	ND

NOTES:

1. Samples were analyzed by State Laboratory of Hygiene University of Wisconsin Center for Health Sciences.
2. ND - Not Detected

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Regionally, the geology is dominated by glacial processes. Surficial features consist of glacial drift sediments (sands, gravels and boulders) which include lake and outwash deposits, end moraines and ground moraines.

Locally, the sediments observed (to a depth of 25 feet below ground surface) were medium to fine grained sand with trace silts and clays. Gravel (20 to 30 percent) was noted in the upper ten feet of the stratigraphy. Below ten feet from ground surface, a clean sand (light brown) with trace gravel (<10 percent) was observed. These sediments are typical of glacial outwash environments.

3.2 RESIDENTIAL WELLS

There are two residential wells west of the Site that are used as potable water supplies for two separate homes. The approximate locations of these homes are shown on Figure 3.1.

The main house well is located approximately 20 feet from the house. A well log supplied by the WDNR indicates that the well was installed in September 1959 and is 56 feet deep. The well is a six-inch diameter casing screened in sand and gravel.

The rental property well is thought to be about 25 feet deep. The location and construction are unknown. The owners thought that this well was a driven sandpoint.

VOC contamination was first observed at the rental property well on October 23, 1990. Benzene, toluene, xylenes and 1,2-dichloroethane were detected at concentrations of 600, 3.4, 9.5 and 1.4 $\mu g/l$, respectively. This well was resampled on October 29, 1990, and similar concentrations were detected. In addition, the main house well was also sampled on October 29, but no VOCs were detected.

The rental well was sampled two additional times in early 1991 and no VOCs were detected, which brings into question the validity of the 1990 results. The main house well was also resampled in early 1991 and no VOC were detected.

Table 3.1 summarizes the analytical data from this WDNR monitoring of the two residential wells.

3.3 INVESTIGATION AT THE TOM THUMB PROPERTY

Terracon Environmental Inc. (Terracon), on behalf of Tom Thumb, submitted a groundwater evaluation report to the WDNR in February 1991. This report summarized groundwater data taken from twelve temporary probes installed both on Tom Thumb property and to the west along County Highway MM.

CONESTOGA-ROVERS & ASSOCIATES

The report documents a spill of approximately 50 gallons of gasoline that was flushed into a ditch along County Highway MM. No discussion of Tom Thumb's cleanup efforts of the spill was noted in the Terracon report.

Groundwater data generated both on-site using a portable gas chromatograph and confirmatory data generated by an independent laboratory indicate that there is groundwater contamination in the form of total petroleum hydrocarbons as gasoline (THG). THG was detected in all groundwater samples taken and submitted to the independent laboratory for analysis.

The data generated by the on-site lab indicate that seven of the twelve probes had detections of THG. Temporary probe P-8, which is located adjacent to the residential property, had a reading of 58.9 μg/*l* as THG.

Terracon did not document sampling depth which raises a potential concern. Most gasoline constituents are lighter than water and would float at the groundwater surface. If the probe was advanced several feet below the water surface, the data collected may not be representative and the contaminants present on-site may be neglected.

There was no additional groundwater sampling done to confirm the round one sampling results and soil samples were not taken as part of this investigation to determine if any residual contaminants from the spill remain. The Terracon report recommends that, since analytical data does not

CONESTOGA-ROVERS & ASSOCIATES

indicate the presence of benzene, toluene, ethylbenzene or xylenes and that the detection of THG does not appear to warrant additional assessment, the WDNR be petitioned to close the project.

It is CRA's opinion that the Terracon report is based on very limited data and the results should only be considered preliminary since the detected TGH contamination was not further evaluated.

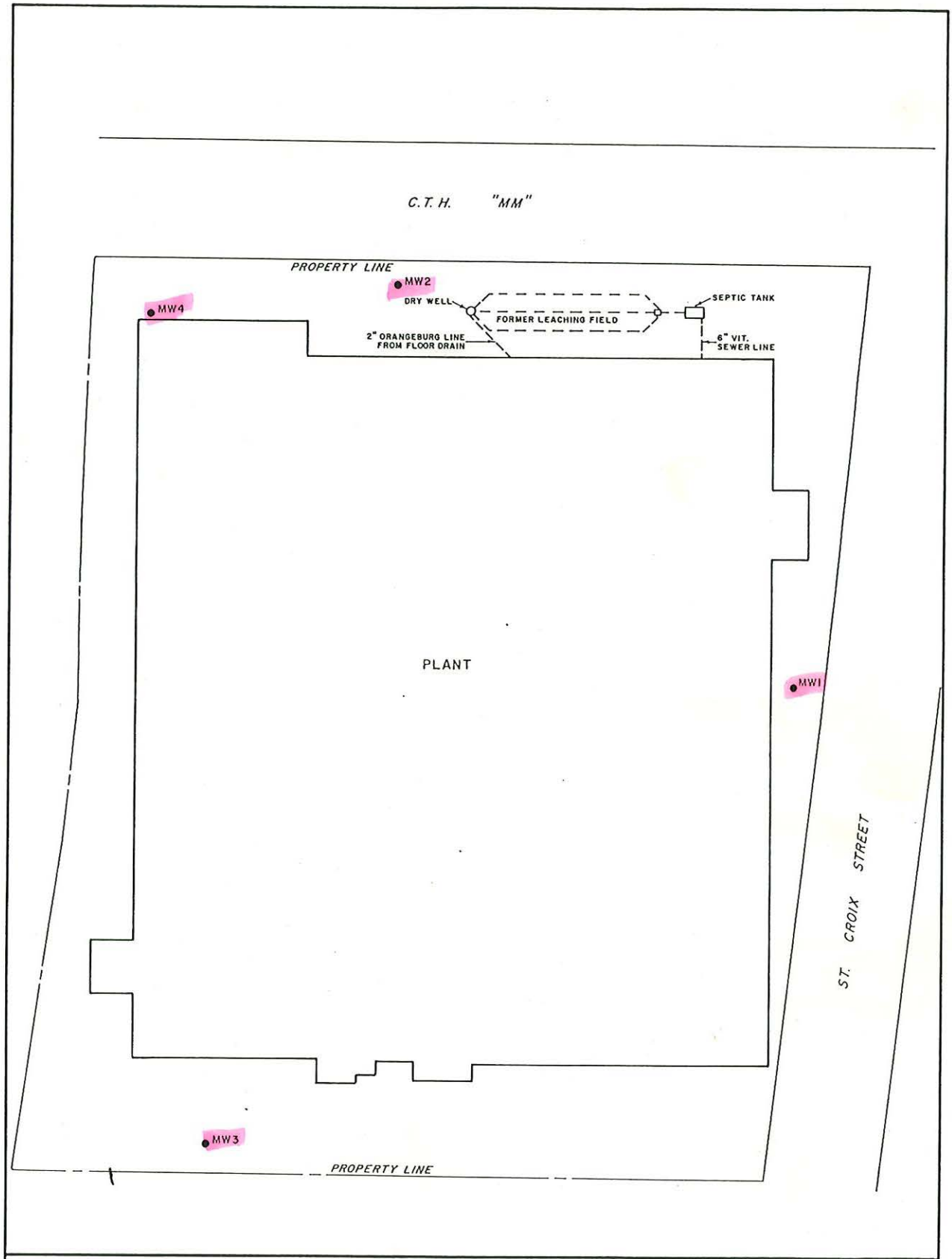
4.0 SCOPE OF WORK

4.1 DRILLING AND INSTALLATION PROCEDURES

Wisconsin Test Drilling (WTD), Division of Longyear, of Schofield, Wisconsin, was contracted to perform the drilling and well installations. The drilling program began on June 4, 1991, and was completed on June 5, 1991. All drilling was performed using a Deitrech D50 drilling rig.

Four monitoring wells were installed during the field investigation program for purposes of soil sampling, establishing groundwater flow patterns and evaluating groundwater quality. Figure 4.1 illustrates their locations. Each well was set to allow the well screen to intersect with the water table, which is the most likely location to find benzene contamination. A summary of the monitoring well construction details are presented in Table 4.1.

The monitoring wells were installed using 4-1/4 inch inside diameter (ID) hollow stem augers. Soil was collected with a two foot split spoon sampler in advance of the hollow stem augers. All drilling equipment was cleaned using a high pressure, hot water steam cleaner. Soil samples were collected for geologic interpretation and two samples from each borehole were selected for chemical analysis. Samples collected for chemical analysis are discussed in Section 4.2. Samples were field screened with an Hnu photoionization detector (Hnu) to monitor for organic vapors. All readings remained at background levels.



LEGEND

● MONITORING WELL LOCATION

0 50 100

SCALE IN FEET

figure 4.1
SITE PLAN-WELL LOCATIONS
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

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TABLE 4.1

MONITORING WELL COMPLETION DETAILS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Monitoring Well	Date Installed	Total Depth (ft. BGS)[2]	Screen Length (ft.)	TOC[1] Elevation (ft. AMSL)[3]	Ground Elevation (ft. AMSL)	Mid Screen (ft. AMSL)
MW1	6/4/91	21	10	897.04	894.9	878.9
MW2	6/4/91	21	10	891.95[4]	892.4	876.4
MW3	6/5/91	23	10	892.66[4]	893.0	875.0
MW4	6/5/91	23	10	892.29[4]	892.8	874.8

[1]TOC = Top of Casing
[2]BGS = Below Ground Surface
[3]AMSL = Above Mean Sea Level
[4]Monitoring wells MW2, MW3 and MW4 are flush-mounted wells. TOC elevations are below ground elevation.

Upon reaching the desired depth, the well screen and riser pipe were installed inside the augers. Sand pack was placed around and to a minimum depth of two feet above the well screen. A two-foot thick bentonite seal was placed above the sand pack. The remaining annulus was grouted to surface using portland cement with 3 percent bentonite. The well was secured with a lockable protective casing. Figure 4.1 shows the location of these monitoring wells.

Stratigraphic and instrumentation logs for the monitoring wells are presented in Appendix A.

4.1.1 Well Stabilization

Following installation, the monitoring wells were developed and stabilized. A minimum of four (4) saturated well volumes of water were removed during the well development. The objective of well development was to purge and surge around the well screen, thus increasing the natural porosity and permeability of the previously undisturbed sediment as well as to remove any incidental sediment which potentially may have been introduced during well installation. The wells were developed using a precleaned stainless steel bottom filling bailing and new nylon rope.

During development, all wells stabilized based on three consistent readings of pH, specific conductivity and temperature taken from extracted development waters. Table 4.2 summarizes the data collected.

TABLE 4.2

MONITORING WELL STABILIZATION SUMMARY
SHANNON GROUP, RIVER FALLS, WISCONSIN

Well	pH	Conductivity (umhos)	Temperature (°C)	Water Clarity	Total Volume Removed (gallons)
MW1	7.30	590	13	Silty	21.5
MW2	7.00	790	12	Very Silty	21.0
MW3	7.10	550	14	Very Silty	22.5
MW4	7.15	670	12	Very Silty	19.5

Well stabilization logs are provided in Appendix B.

4.2 SOIL SAMPLING PROCEDURES

At each monitoring well location, soil samples were collected at 2.5-foot intervals to the depth of the borehole. Each of the soil samples was placed in a glass jar and sealed with aluminum foil. After a minimum of 15 minutes, an Hnu photoionization probe was used to puncture the seal and measure any volatile gases collected in the headspace of the jar. Table 4.3 presents the results of field measurements of total organic vapors. It was intended to collect two samples exhibiting the highest Hnu readings from each borehole, however, no readings exceeded background levels. Therefore, the two samples collected from each borehole (above the water table) were randomly selected by CRA with concurrence by the WDNR. Table 4.3 summarizes the information recorded during sample collection.

Sampling protocols for soil were collected as follows:

1. A two foot split spoon sampler was used and cleaned between each sample interval using an alconox wash followed by a methanol, hexane, methanol rinse and then by a distilled water rinse.

2. Using a precleaned stainless steel knife, the side of the sample contacting the split spoon samples was cut away and the remaining material was collected in a laboratory-cleaned glass jar.

TABLE 4.3

SUMMARY OF HEADSPACE SCREENING AND SOIL SAMPLING

Borehole Location	ID Number	Depth (ft. BGS)	Headspace Reading (ppm)
MW1	-	0 - 2	ND
	-	3 - 5	ND
	-	5 - 7	ND
	S-060491-PS-01	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-02	12.5 - 14.5*	ND
	-	15 - 17	ND
	-	17.5 - 19.5	ND
MW2	-	2 - 4	ND
	-	5 - 7	ND
	S-060491-PS-03	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-04	12.5 - 14.5*	ND
	-	15 - 17	ND
MW3	-	2 - 4	ND
	-	5 - 7	ND
	S-060591-PS-05	7.5 - 9.5*	ND
	-	9.5 - 11.5	ND
	S-060591-PS-06	12.5 - 14.5*	ND
	-	15 - 17	ND
MW4	-	2 - 4	ND
	S-060591-PS-07	5 - 7*	ND
	-	7.5 - 9.5	ND
	-	10 - 12	ND
	S-060591-PS-08	12.5 - 14.5*	ND

NOTE: * - Sampled for chemical analysis
BGS = Below Ground Surface
ppm = part per million
ND = None Detected

3. The remainder of the sample not used for chemical analyses was retained for geologic records.

4. Each sample collected was analyzed for VOCs using EPA method 8010/8020 and metals included lead, mercury, cadmium, chromium, zinc and copper.

5. A new pair of nitrile gloves was used for each sample collection.

6. Soil samples were placed in coolers with ice, sealed and shipped to Spectrum Laboratories in New Brighton, Minnesota.

4.3 GROUNDWATER SAMPLING

Each of the four monitoring wells were sampled in two separate sampling rounds. Round one was completed on June 18, 1991, and the second one was completed on August 16, 1991. Tables 4.4 and 4.5 summarize the information collected during sampling and the following lists the protocols used:

1. A round of water levels to the nearest 0.01 foot was taken prior to sampling with an electric water level tape.

2. New disposable latex gloves were used when sampling each well. Additional glove changes were made for each sampling.

3. Prior to sampling, each well was purged using a stainless steel bottom filling bailer to remove a minimum of ten times the standing water volume in the

TABLE 4.4

GROUNDWATER SAMPLING SUMMARY (ROUND 1)
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location	ID Number	Date	Time	Sample Parameters
MW1	W-061891-PS-01	6/18/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW2	W-061891-PS-02	6/18/91	14:20	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW3	W-061891-PS-03	6/18/91	12:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW4	W-061891-PS-04	6/18/91	13:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Dup. of MW4	W-061891-PS-05	6/18/91	13:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (870 MM-Rental)	W-061891-PS-06	6/18/91	11:35	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (876 MM-Rugor)	W-061891-PS-07	6/18/91	11:45	601/602 + Freon

TABLE 4.5

GROUNDWATER SAMPLING SUMMARY (ROUND 2)
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location	ID Number	Date	Time	Sample Parameters
MW1	W-081691-PS-03	8/16/91	13:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW2	W-081691-PS-02	8/16/91	12:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW3	W-081691-PS-06	8/16/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Rinsate	W-081691-PS-05	8/16/91	15:00	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Duplicate	W-081691-PS-07	8/16/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW4	W-081691-PS-01	8/16/91	11:20	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (870 MM-Rental)	W-081691-PS-04	8/16/91	15:00	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (876 MM-Rugor)	--	8/16/91	--	Not Sampled

well. After the required volume had been removed, the well was allowed to recharge for no longer than one hour prior to sampling. Prior to use, the bailers were precleaned with an alconox wash water/methanol/hexane/ methanol and a final distilled water rinse sequence.

4. Samples were collected from each well for VOCs (601/602 method) and metals. Samples for VOCs were collected in three 40 ml glass septum vials. The vials were completely filled and free of air bubbles. Samples for metals included lead, mercury, cadmium, chromium, copper and zinc and were field filtered immediately upon collection and preserved with nitric acid. Metal samples were collected in 500 ml plastic jars. Samples were immediately placed in coolers and ice.

5. A rinsate sample was collected at a frequency of one per sample round during the second round only. During the first round of sampling, the bailers used for development were also used for sampling and, therefore, a rinsate was not collected.

6. A blind duplicate sample was collected at a frequency of one per sample round.

Field log sample collection sheets for each well during each round of sampling are presented in Appendix C.

4.4 RESIDENTIAL SAMPLING

Two residential wells were sampled during the round one sampling event on June 18, 1991. The location of the residences were at 870 MM and 876 MM. During the second round of sampling, only the 870 MM (rental property) residence was sampled on August 16, 1991.

The residential well samples were collected according to the following procedures:

1. The 870 MM residence was sampled from the kitchen faucet and the 876 MM residence was sampled from an outside spigot.

2. The faucet or spigot was allowed to purge a minimum of 15 minutes prior to sample collection.

3. Immediately upon purging, the water was collected in 40 ml glass vials for VOCs and Freon and completely free of air bubbles. Samples for metals were also collected and included lead, mercury, cadmium, chromium, copper and zinc. All metal samples were unfiltered.

4. At residence 876 MM, metals were not collected.

5. A new pair of vinyl or nitrile gloves were used at each sample location.

5.0 STUDY RESULTS

5.1 SITE HYDROGEOLOGY

The aquifer encountered during this investigation was found at 14 to 15 feet below ground surface. The depth of this investigation did not exceed 25 feet and a confining unit was not observed to that depth.

Four water level rounds were recorded and the elevations are presented in Table 5.1. From the water levels, the direction of groundwater flow was determined to be in a southwesterly direction toward the Kinnickinnic River. Figures 5.1 and 5.2 illustrate the direction of groundwater flow with respect to the Site.

Locally, the topography slopes in a west/southwesterly direction toward the Kinnickinnic River. Therefore, the direction of groundwater flow is influenced by both the Kinnickinnic River and the local topography.

5.2 SOIL SAMPLING RESULTS

Section 4.2 outlines the soil sampling procedures followed during the borehole/monitoring well installations. Two soil samples were taken at each borehole location and analyzed for VOCs and metals. Table 5.2 summarizes the results from these soil samples.

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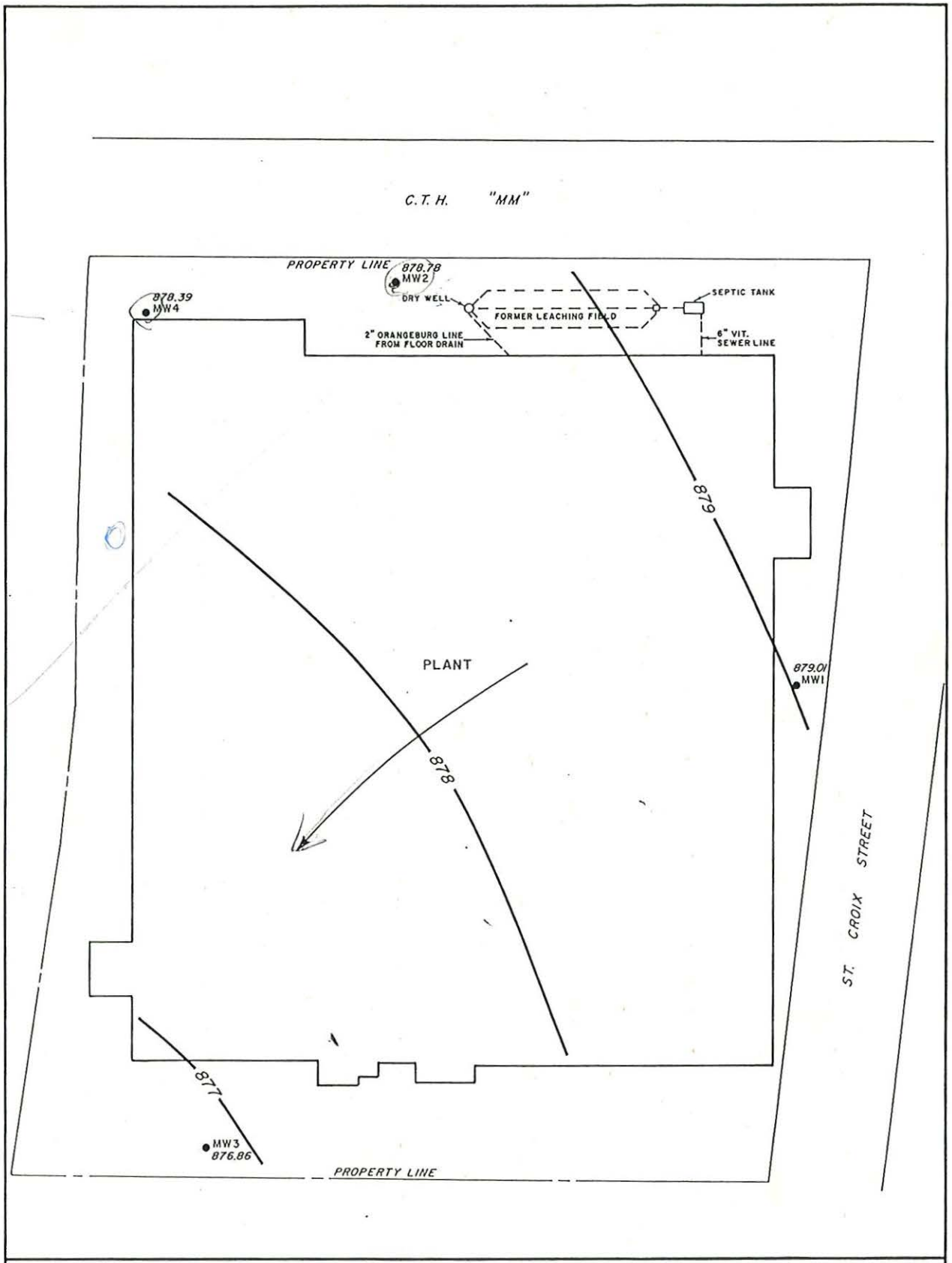
TABLE 5.1

GROUNDWATER ELEVATIONS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Well	Reference Elevation (ft. AMSL)	Groundwater Elevation			
		6/6/91	6/17/91	6/18/91	8/16/91
MW1	897.04	879.32	879.04	879.01	878.62
MW2	891.95	879.16	878.80	878.78	878.39
MW3	892.49	877.23	876.91	876.86	876.54
MW4	892.29	878.78	878.43	878.39	878.03

Note:

AMSL = Above Mean Sea Level



LEGEND

- ● MONITORING WELL LOCATION
- 876.86 GROUNDWATER ELEVATION IN FEET AMSL
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW

N

0 50 100

SCALE IN FEET

.003

figure 5.1
GROUNDWATER CONTOURS (6-18-91)
The Shannon Group-River Falls Division

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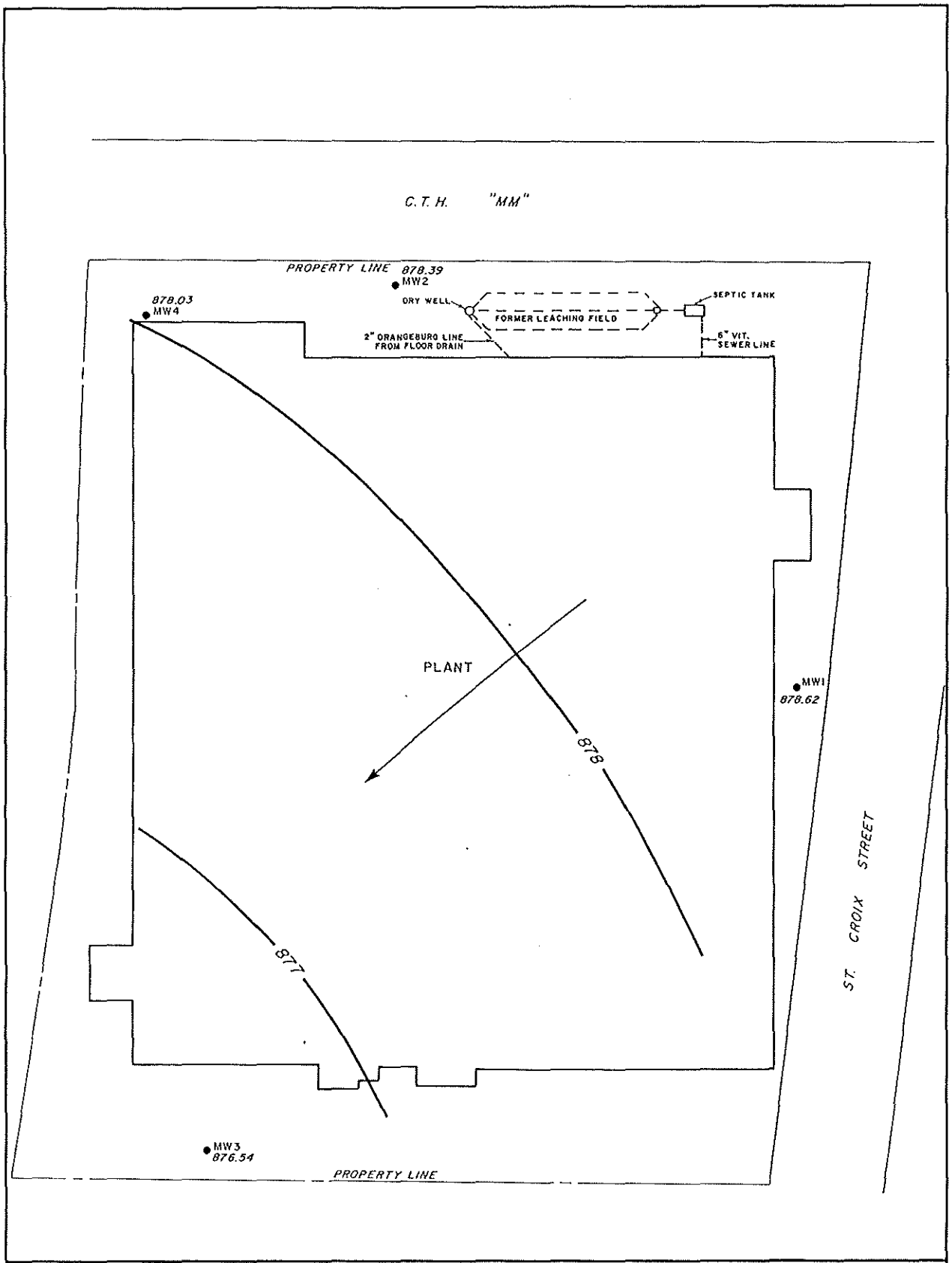

LEGEND

- ● MONITORING WELL LOCATION
- 876.86 GROUNDWATER ELEVATION IN FEET AMSL
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW

N

0 50 100

SCALE IN FEET

figure 5.2
GROUNDWATER CONTOURS (8-16-91)
The Shannon Group-River Falls Division

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TABLE 5.2
SOIL SAMPLING RESULTS
SHANNON GROUP

Location:	MW-1	MW-1	MW-2	MW-2	MW- 3	MW-3	MW-4	MW-4
Depth:(Ft)	7.5-9.5	12.5-14.5	7.5-9.5	12.5-14.5	7.5-9.5	12.5-14.5	5-7.	12.5-14.5
Compounds:(mg/kg)								
Chloromethane	0.11U	0.09U	0.155U	0.085U	0.1U	0.155U		
Bromomethane								0.255
Dichlorodifluoromethane				0.24		0.25	0.24	
Chloroethane					0.085			
Trichlorofluoromethane	0.44U	0.43U	0.455U	0.445U				0.235U
1,1-Dichloroethylene								
Methylene Chloride								
Chloroform								
1,1,1-Trichloroethane		0.165	0.165	0.205	0.185	0.235	0.21	
1,2-Dichloropropane								
Cis-1,3-Dichloro-1-Propene	0.225	0.16	0.155			0.17		
Benzene								
Dibromochloromethane								
1,1,2,2-Tetrachloroethylene		0.115			0.095	0.09	0.11	0.095
Toluene	0.095U	0.095U	0.095U	0.09U	0.1U	0.095U	0.1U	0.1U
Chlorobenzene	0.245	0.255	0.25	0.23	0.24	0.255		0.25
Ethylbenzene	0.07	0.07U			0.07U	0.08U	0.07U	0.07U
Xylenes, Total	0.096	0.092	0.092	0.09	0.097	0.115	0.095	0.1
1,3-Dichlorobenzene		0.06						
1,2-Dichlorobenzene		0.07			0.7	0.065		
1,4-Dichlorobenzene		0.07						
Dibromomethane	0.17U	0.18U	1.8	0.17U	0.19	0.18U	0.18U	0.18U
Lead	7.4		5	2.5	4.9			
Chromium	8.8	10	8.9	5.2	5.6	4.1	3.4	6.1
Copper	13	18	15	6	6.4	5.8	5.3	11
Zinc	17	17	20	7.4	10	5.8	5.8	11
Moisture Content	5.59%	4.02%	10.00%	10.90%	4.66%	3.06%	6.36%	8.24%

Notes: Blanks indicate none detected by laboratory
U = Initially detected by laboratory but determined to be non-detect through quality control check.

All of the soil samples showed very low levels of VOCs readings (less than 1 ppm). The results from soil samples taken at MW1, which is an upgradient location, were used to establish background conditions. When these background levels are compared to the results from the other borehole locations, it is evident that there is no significant VOC impact on The Shannon Group property. The detected VOCs are suspected to be background levels introduced through laboratory analysis.

Metals results also indicate that the soils on the Shannon Group property are at background levels and reflect naturally occurring concentrations in soil.

In addition to the soil samples taken during the well installations, two additional soil samples were taken during the abandonment of an underground storage tank. The location of this tank is shown on Figure 5.3. This tank was located along the east side of the building and served as an overflow tank for the flammable liquid storage area. The WDNR thought that this tank could have potentially contributed to the VOC contamination detected in the off-site residential well.

In order to determine if the tank had leaked, it was excavated and removed and two confirmation soil samples were collected.

After the tank was removed, it was thoroughly inspected for signs of deterioration or leakage. This visual inspection noted that the tank was in excellent condition and the protective coating was still intact. As a

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precautionary measure, two soil samples were taken at either end of the tank. These soil samples were scanned with a Hnu photoionization meter and no readings above background were noted.

The soil samples were submitted for VOCs and metals analysis. The results are presented in Table 5.3.

The metals results showed low level detections similar to those observed in the borehole soil results. The only VOCs detected was methylene chloride at concentrations less than 0.5 ppm. These results are suspect, as the lab indicated that these numbers could be a result of laboratory contamination. The actual lab data is presented in Appendix D.

The tank was disposed of by Waste Research and Reclamation Company, Inc. in Eau Claire, Wisconsin.

5.3 GROUNDWATER MONITORING RESULTS

Two rounds of groundwater monitoring were completed on all on-site monitoring wells. A detailed description of the sampling protocols are explained in Section 4.3. All groundwater samples were submitted, under chain-of-custody documentation, for VOCs and metals analysis. Table 5.4 summarizes the first sampling round data. Table 5.5 summarizes the second round of sampling data. The actual analytical reports and corresponding data validation are presented in Appendix D.

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TABLE 5.3
TANK SOIL SAMPLING RESULTS
SHANNON GROUP

Location:	Tank-North	Tank-South
Compounds:(mg/kg)		
Chloromethane		
Bromomethane		
Dichlorodifluoromethane		
Chloroethane		
Trichlorofluoromethane		
1,1-Dichloroethylene		
Methylene Chloride	0.41 (I)	0.33 (I)
Chloroform		
1,1,1-Trichloroethane		
1,2-Dichloropropane		
Cis-1,3-Dichloro-1-Propene		
Benzene		
Dibromochloromethane		
1,1,2,2-Tetrachloroethylene		
Toluene		
Chlorobenzene		
Ethylbenzene		
Xylenes, Total		
1,3-Dichlorobenzene		
1,2-Dichlorobenzene		
1,4-Dichlorobenzene		
Dibromomethane		
Lead	2.8	
Chromium	11.0	5.1
Copper	18.0	7.4
Zinc	23.0	6.7

Fig. 5.3
Tank Mission

Notes: Blanks indicate none detected by laboratory
U = None detected (validated data)
(I) = Probable laboratory contamination

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TABLE 5.4
GROUNDWATER SAMPLING RESULTS
SHANNON GROUP
ROUND NO. 1
JUNE 18, 1991

Location:	MW-1	MW-2	MW-3	MW-4	MW-4(DUP)	Rugor	Rental	Rugor
Compounds:(µg/l)								
Chloromethane	0.6U		0.8U			0.6U		0.7U
Dichlorodifluoromethane	1.8		3.5					
Chloroethane								
Trichlorofluoromethane			1.1					
1,1-Dichloroethylene		1.6U	1.4U					
Methylene Chloride								
Chloroform	2.1U	1.8U	3.2U	1.5U				1.7U
1,1,1-Trichloroethane			19.6					
1,2-Dichloropropane			0.7U					
Cis-1,3-Dichloro-1-Propene	3.4							
Benzene	1							
Dibromochloromethane			0.9					1.4
1,1,2,2-Tetrachloroethylene								
Toluene	1.1U		0.7U	0.6U				0.6U
Chlorobenzene								
Ethylbenzene	0.7							
Xylenes, Total	0.4							
1,3-Dichlorobenzene								
1,2-Dichlorobenzene	1U	1.0U	0.9U	0.9U				
1,4-Dichlorobenzene								
Dibromomethane	1							
Lead	1							
Chromium			51					
Copper								
Zinc						50		

Notes: Blanks indicate none detected by laboratory
U = Initially detected by laboratory, but determined to be non-detect through quality control check

TABLE 5.5
GROUNDWATER SAMPLING RESULTS
SHANNON GROUP
ROUND NO. 2
AUGUST 16, 1991

Location:	MW-1	MW-2	MW-3	MW-3 (DUP)	MW-4	Rugor Rental	Rinsate Blank
Compounds:(µg/l)							
Chloromethane							
Dichlorodifluoromethane							
Chloroethane							
Trichlorofluoromethane							
1,1-Dichloroethylene			0.6	0.4			
Methylene Chloride	1.2				1.8	1.2	
Chloroform							
1,1,1-Trichloroethane			14	19			2.5
1,2-Dichloropropane							
Cis-1,3-Dichloro-1-Propene							
Benzene							
Dibromochloromethane							
1,1,2,2-Tetrachloroethylene							
Toluene							
Chlorobenzene							
Ethylbenzene							
Xylenes, Total							
1,3-Dichlorobenzene							
1,2-Dichlorobenzene							
1,4-Dichlorobenzene							
Dibromomethane							
Cadmium	0.2					0.1	
Lead							
Chromium	1	1	1	41	1		
Copper							
Zinc	3		4			140	5

Notes: Blanks indicate none detected by laboratory
U=none detected (validated data)

The data generated during the first round of groundwater analysis showed that there was a problem with internal laboratory contamination.

Several VOCs detected in all of the monitoring wells were qualified as non-detect because of the internal quality control data generated by the laboratory. In an attempt to avoid this potential problem during the second round of analysis, the samples were sent to a different laboratory for analysis. This change was approved by the WDNR

The data generated during the first round of sampling shows that MW1 had some low level detections of dichlorodifluoromethane, *cis*-1,3-dichloro-1-propene, benzene, ethylbenzene and xylenes. MW2 and MW4 had no VOCs detected, but dichlorodifluoromethane, trichlorofluoromethene, 1,1,1-trichloroethane and dibromochloromethane were present in MW-3. The metals analysis shows that all wells are either non-detect or at background levels, with the exception of MW3, which had chromium detected at 51 µg/*l*.

The data generated during the second round of sampling shows similar results when compared to round one data. Methylene chloride was detected in wells MW1 and MW4. These detections are, more than likely, a result of laboratory contamination.

MW3 showed detectable levels of 1,1-dichloroethylene and 1,1,1-trichloroethane. All other VOCs in this well were below detection limits.

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The metals results from round two are similar to round one results. Chromium was detected at 41 μg/*l* in MW3.

When the groundwater data is compared to the State of Wisconsin's Ground Water Quality Standards, presented in NR 140.10 Wisconsin Administrative Code, the only exceedance of the Enforcement Standard during round one was chromium at MW3. The Enforcement Standard is 50 μg/*l* and the concentration of chromium at MW3 was 51 μg/*l*.

When comparing the data from round two, the chromium concentration was at 41 μg/*l*, which is below the Enforcement Standard. MW3 also had an exceedance of the Enforcement Standard for 1,1-dichloroethylene. The detected concentration in MW3 and MW3 (duplicate) was 0.6 and 0.4 μg/*l*, respectively. The Enforcement Standard for 1,1-dichloroethylene is 0.24 μg/*l*. The federal Maximum Contaminant Level (MCL) for 1,1-dichloroethylene is 7 μg/*l*.

5.4 RESIDENTIAL WELL SAMPLING RESULTS

During the groundwater monitoring conducted during this investigation, two rounds of sampling were completed on the off-site rental property well and one round of sampling was done on the main house well.

The analytical data for round one is presented on Table 5.4 and the data for round two is presented on Table 5.5.

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The round one data shows that no VOCs was detected in the rental property well and the only metal detected was zinc at 50 μg/*l*. The only VOCs reported in the main house well was dibromochloromethane at 1.4 μg/*l*. There is no reported Enforcement Standard for this compound. No metals were reported above detection limits.

The round two data shows reported values for the rental property well only. Access for sampling the main house well was denied. The data reported shows that methylene chloride was detected at 1.2 μg/*l*. This detection is more than likely due to laboratory contamination. This concentration is well below the Enforcement Standard of 150 μg/*l*. There is no federal MCL for methylene chloride. Dibromomethane was reported at 0.1 μg/*l*. There is no Enforcement Standard or MCL for this compound. Zinc was the only metal detected at 140 μg/*l*. The Enforcement Standard for zinc is 5 μg/*l* and the federal MCL is 5,000 μg/*l*.

This data agrees with the data generated by the WDNR, which is shown on Table 3.1. Benzene, toluene, ethylbenzene or xylenes have not been detected in these residential wells since October 1990.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The Shannon Group conducted a Site Evaluation to assess whether or not their facility was a source of VOC contamination that was detected in an off-site residential well. In addition, this Site Evaluation assessed soil and groundwater conditions at the Site.

The data presented in this report shows that the Shannon Group is not a source of VOC contamination observed in the off-site residential well at the Rugor rental property. In fact, the majority of data strongly supports CRA's conclusion that benzene contamination does not exist at the rental well..

The soil and groundwater analytical data from the Shannon site show that there has been little impact by the Shannon Group's on-site activities. The soil data generated during the investigation show that the Site soils are at typical background levels for an industrial setting.

The groundwater data shows that the groundwater under the Site is generally below WDNR Enforcement Standards and typical of groundwater in an industrial setting.

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6.2 RECOMMENDATIONS

The data generated during this investigation shows that the soil and groundwater under the Site are typical of an industrial setting. No significant contamination was found on the Shannon Group's property. Therefore, we recommend that no additional actions be undertaken and that additional investigation is not warranted.

All of Which is Respectfully Submitted,

CONESTOGA-ROVERS AND ASSOCIATES

Ronald Frehner, P. Eng

Stephen E. Mockenhaupt

APPENDIX A

STRATIGRAPHIC/INSTRUMENTATION LOGS

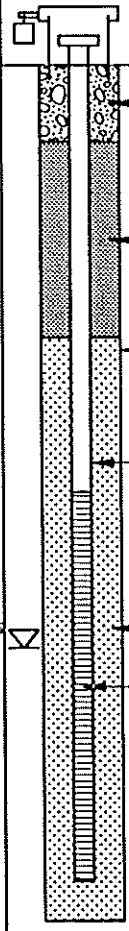
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW1
DATE COMPLETED: JUNE 4, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
	REFERENCE POINT (Top of Riser)	897.04					
	GROUND SURFACE	895.0					
	Topsoil, clay, silt and sand, roots, black	894.5	CONCRETE SEAL	1SS		15	0
	SP-SAND, little gravel, trace silt, medium grained, medium dense, brown, dry						
2.5				2SS	NR	11	0
5.0	SP-SAND, trace gravel, medium grained, medium dense, brown, moist to wet		BENTONITE CHIP SEAL	3SS		2	0
7.5			8"ø BOREHOLE	4SS		6	0
10.0			2"ø PVC PIPE	5SS		54	0
12.5	SP-SAND, little to some gravel, medium to coarse grained, medium dense, moist – same, except no gravel, medium to fine grained			6SS		19	0
15.0		879.5	SAND PACK; WELL SCREEN	7SS		10	0
17.5				8SS		6	0
20.0							
22.5	END OF HOLE @ 22.0 FT. BGS	873.0					
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
11.0 to 21.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –PVC
Sand pack interval:
7.0 to 22.0' BGS
Material –Fine/Coarse Sand/Native

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

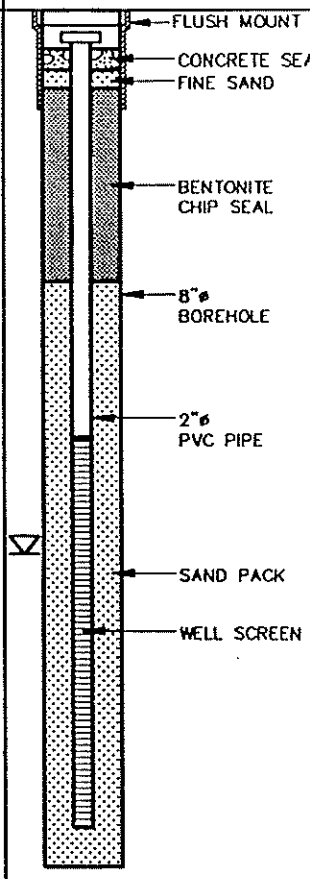
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-02)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW2
DATE COMPLETED: JUNE 4, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser) GROUND SURFACE	891.95 892.4					
2.5	SP-SAND, little gravel and silt, fine to medium grained, medium dense, moist to wet, brown			9SS		16	0
5.0	– gravelly layer, little sand			10SS		21	0
7.5				11SS		* 15	0
10.0	SP-SAND, no gravel, medium grained, medium dense, light brown, moist to wet			12SS		7	0
12.5		878.4		13SS		* 10	0
15.0	– little to trace small gravel			14SS		4	0
17.5	– becoming beach sand, trace gravel with depth						
20.0							
22.5	END OF HOLE @ 22.0 FT. BGS	870.4					
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
11.0 to 21.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –PVC
Sand pack interval:
7.0 to 22.0' BGS
Material –Fine/Coarse Sand/Native

* – 3" SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

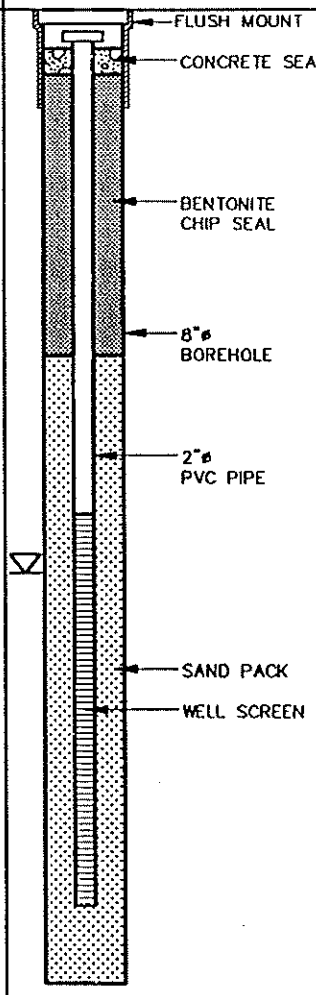
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-03)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW3
DATE COMPLETED: JUNE 5, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	892.66					
	GROUND SURFACE	892.9					
	Asphalt	892.7	FLUSH MOUNT; CONCRETE SEAL				
2.5	SP-SAND(FILL), some gravel, medium grained, loose, brown, dry			15SS		3	0
	Topsoil, sandy, black	888.9					
5.0	SP-SAND, some gravel, medium grained, brown, dry	887.9	BENTONITE CHIP SEAL	16SS		12	0
7.5			8"ø BOREHOLE	17SS	NR	* 53	0
10.0	SP-SAND, no gravel, fine grained, medium dense, light brown, dry			18SS		10	0
12.5	- same, with trace gravel, moist		2"ø PVC PIPE	19SS		7	0
		878.4					
15.0	- same, becoming coarse sand at 16.5' BGS, saturated			20SS		* 19	0
17.5			SAND PACK; WELL SCREEN				
20.0							
22.5							
25.0	END OF HOLE @ 25.0 FT. BGS	867.9					
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
13.0 to 23.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -PVC
Sand pack interval:
8.9 to 25.0' BGS
Material -Fine/Coarse Sand/Native

* - 3" SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

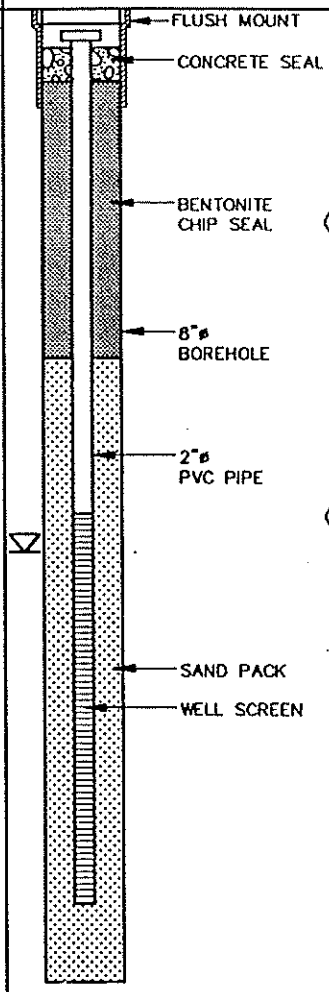
(L-04)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW4
DATE COMPLETED: JUNE 5, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL
	REFERENCE POINT (Top of Riser)	892.29
	GROUND SURFACE	892.8
	Asphalt	892.5
	SP-SAND(FILL), medium grained, dry, brown	
2.5		
5.0		
	SP-SAND, some gravel, medium to coarse grained, medium dense, moist	886.3
7.5	- silt layer (1" thick)	
10.0	- silt and clay layer, with wood fiber, wet (2" thick)	
12.5	- saturated	878.8
15.0		
17.5		
20.0		
22.5		
25.0	END OF HOLE @ 25.0 FT. BGS	867.8
27.5		
30.0		
32.5		

MONITOR INSTALLATION



SAMPLE

NUMBER	STATE	'N' VALUE	HNu (ppm)
21SS	X	5	0
(22SS)	X	* 20	0
23SS	X	13	0
24SS	X	9	0
(25SS)	X	* 15	0

SCREEN DETAILS:
Screened Interval:
13.0 to 23.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -PVC
Sand pack interval:
9.0 to 25.0' BGS
Material -Fine/Coarse Sand/Native

* - SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ( ) WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX B

WELL STABILIZATION LOGS

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW1

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 18.00

Well Depth 23' (fm TOC) Casing Diameter 2" Well Volume 0.8 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
16:40	7.05	600	13	Silty	--	12	Bail
16:45	7.15	590	13	Silty	--	13	Bail
16:47	7.20	580	13	Silty	--	15	Bail
16:48	7.25	590	13	Silty	--	17.5	Bail
16:50	7.30	590	13	Silty	--	19.0	Bail
16:51	7.30	590	13	Silty	18.01	21.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW2

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 13.15

Well Depth 21' Casing Diameter 2" Well Volume 1.3 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:24	7.30	750	12	Very Silty	--	15	Bail
17:25	7.20	750	12	Very Silty	--	16.5	Bail
17:27	7.00	800	12	Very Silty	--	18	Bail
17:28	7.00	800	12	Very Silty	--	19.5	Bail
	7.00	790	12	Very Silty	13.18	21	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW3

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 15.75

Well Depth 23' Casing Diameter 2" Well Volume 1.2 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:00	7.20	550	15	Very Silty	--	15.0	Bail
17:02	7.10	550	14	Very Silty	--	17	Bail
17:04	7.15	550	14	Very Silty	--	19	Bail
17:05	7.15	550	14	Very Silty	--	21	Bail
17:07	7.10	550	14	Very Silty	15.75	22.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW4

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 13.86

Well Depth 23' Casing Diameter 2" Well Volume 1.5 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:10	7.15	700	12	Very Silty	--	15	Bail
17:14	7.15	680	12	Very Silty	--	16.5	Bail
17:16	7.20	670	12	Very Silty	--	18	Bail
17:18	7.15	670	12	Very Silty	13.90	19.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

APPENDIX C

FIELD LOG SAMPLE COLLECTION SHEETS

FIELD LOG-SAMPLE COLLECTION SHEET

e: Aug 16, 1991
t Number: 3944
ect Name: River Falls

Well Name: MW1
Unique Sample No.: W-03
Sample Time: 13:30

que Well Name (if any): —
g/Screen Material: PVC
ing/Screen Diameter: 2"
Depth*: 23
e Well Volume: .73 Gallons

Reference Elevation*: 897.04
Water Level*: 18.57 [illegible] 1842
Water Elevation: 878.62
Screen Length: 10 [illegible]'
Five Well Volumes: 3.7 Gallons

ring Method: bail
Filtered?: (YES) NO
nple Parameters: VOCs + metals

Start Time:
Stop Time:
Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	7.05	490	16	Sl. silty	—	4	bail

emarks: ~~Rugo, Revical W-04~~
~~W-05 RT~~

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

:e: Aug 16, 1991 Well Name: MW2
:ect Number: 3944 Unique Sample No.: W-02
,ect Name: River Falls Sample Time: 12:30

ique Well Name (if any): — Reference Elevation*: 891.95
ng/Screen Material: PVC Water Level*: 13.71 Avg -.15 13.56
sing/Screen Diameter: 2" Water Elevation: 878.39
Depth*: 21 Screen Length: 10 ft
e Well Volume: 1.2 Gallons Five Well Volumes: 6 Gallons

rging Method: bail Start Time:
l Filtered?: YES NO Stop Time:
mple Parameters: VOCs + metals
Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	6.6	1900	15	V. silty	—	6	bail

emarks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

...e: Aug 16, 1991
...ject Number: 3944
...ect Name: River Falls

Well Name: MW3
Unique Sample No.: W-06 (see bottom)
Sample Time: 15:15

...ique Well Name (if any): —
...ng/Screen Material: PVC
...sing/Screen Diameter: 2"
...l Depth*: 23
... Well Volume: 1.1 Gallons

Reference Elevation*: 892.66
Water Level*: 16.27 ... 16.12
Water Elevation: 876.54
Screen Length: 10 ft
Five Well Volumes: 5.5 Gallons

...rging Method: bail
...d Filtered?: (YES) NO
...mple Parameters: VOCs & metals

Start Time:
Stop Time:
Samplers Name:

...me	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	6.85	650	16	V. Silty	—	5.5	bail

...marks: W-05 R Blank before MW3
W-06 Samp
W-07 Dup

...easurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

..: Aug 16, 1991
ject Number: 3944
ct Name: River Falls

Well Name: MW-4
Unique Sample No.: W-01
Sample Time: 11:20

ique Well Name (if any): —
ng/Screen Material: PVC
ing/Screen Diameter: 2"
Depth*: 23'
Well Volume: 1.4 Gallons

Reference Elevation*: 892.29
Water Level*: Plotted 14.30 (14.41) Bouy. .15 (14.26)
Water Elevation: 878.03
Screen Length: 10 ~~8~~'
Five Well Volumes: 7 Gallons

rging Method: bailed
Filtered?: (YES) NO
nple Parameters: Metals + 601/602

Start Time:
Stop Time:
Samplers Name:

..me	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
5	7.20	700	14.5	very silty		8 g	

arks:

..easurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

e. Aug 16, 1991
ject Number: 3944
ct Name: River Falls

Well Name: 876 MM Street
Unique Sample No.: NOT SAMPLED
Sample Time: "

ique Well Name (if any):
ng/Screen Material:
sing/Screen Diameter:
Depth*:
e Well Volume: Gallons

Reference Elevation*: No Sample
Water Level*:
Water Elevation: PUGOL
Screen Length:
Five Well Volumes: Gallons

rging Method:
Filtered?: YES NO
nple Parameters:

Start Time:
Stop Time: Sample
Samplers Name:

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

arks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

e: Aug 16 ,1991 Well Name: Rental (8[illegible] MM Street)
j :t Number: 3944 Unique Sample No.: 11-04
j :t Name: River Falls Sample Time: 15:00

que Well Name (if any): – Reference Elevation*: –
g/Screen Material: – Water Level*: –
ing/Screen Diameter: – Water Elevation: –
l Depth*: – Screen Length: –
e Well Volume: – Gallons ~~Five Well Volumes~~: Removed 60 Gallons

ring Method: Kitchen Sink Start Time: 14:45 @ ~ 4gpm
l Filtered?: YES NO Stop Time: 15:00
nple Parameters: VOCs, + metals
Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

arks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

221-8707
221-3060

ate: June 18, 1991
ject Number: 3944
ject Name: RIVER FALLS

Well Name: MW1
Unique Sample No.: W-061891-PS-01
Sample Time: 15:15

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
ll Depth*: 23
ne Well Volume: .8 Gallons

Reference Elevation*: 897.04
Water Level*: 18.03
Water Elevation: 879.01
Screen Length: 10'
~~Five~~ 4 Well Volumes: 3.2 Gallons

urging Method: bail
d Filtered?: (YES) NO
ample Parameters: 601/602 + Freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: —
Stop Time: —
Samplers Name: P. STORLIE

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
05	7.15	600	14°C	S. SILTY	—	3.2	bail

Remarks:

* Measurements taken from Top of Casing (TOC).

23
18/5
16/30 2041 0

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: MW2
Unique Sample No.: W-061891-PS-02
Sample Time: 14:20

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
ll Depth*: 21'
ne Well Volume: 1.3 Gallons

Reference Elevation*: 891.95
Water Level*: 13.17
Water Elevation: 878.78
Screen Length: 10'
~~Five~~ Four Well Volumes: 5.2 Gallons

urging Method: bail
d Filtered?: (YES) NO
ample Parameters: 601/602 + freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: —
Stop Time: —
Samplers Name: P. STURLIE

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
00	6.95	800	14°C	silty	—	5.2	bail

marks:

Measurements taken from Top of Casing (TOC).

21
13.2
7.8
.16
46.8
/4

1.3
4
5.2

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: MW3
Unique Sample No.: W-061891-PS-03
Sample Time: 12:30

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
ll Depth*: 23
ne Well Volume: 1.2 Gallons

Reference Elevation*: 892.66
Water Level*: 15.80
Water Elevation: 876.86
Screen Length: 10'
~~Five~~ Four Well Volumes: 4.8 Gallons

urging Method: bail
ld Filtered?: (YES) NO
ample Parameters: 601/602 + freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time:
Stop Time:
Samplers Name: P. STORLIE

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
:30	7.05	550	15	SILTY	—	5.0	bail

emarks:

Measurements taken from Top of Casing (TOC).

23
15.8
7.2
1.2
4
4.8

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: MW4
Unique Sample No.: W-061891-PS-04
Sample Time: 13:15

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
ll Depth*: 23'
ne Well Volume: 1.5 Gallons

Reference Elevation*: 892.29
Water Level*: 13.90
Water Elevation: 878.39
Screen Length: 10'
~~Five~~ Four Well Volumes: 6.0 Gallons

urging Method: bail
ld Filtered?: (YES) NO
ample Parameters: 601/602 List for VOCs, metals (Pb, Hg, Cd, Cr, Co, Zn)

Start Time:
Stop Time:
Samplers Name: P. STURLIE

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
00	7.30	690	15°C	silty	—	6.0	bail

Remarks: W-061891-PS-05 (DUPLICATE)

* Measurements taken from Top of Casing (TOC).

1.5
4

23.
13.9
9.1

9.1
.16
546
9.1
.56

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: Rugor (876 MM Street)
Unique Sample No.: W-061891-PS-07
Sample Time: 11:45

nique Well Name (if any): Residence
ing/Screen Material: —
asing/Screen Diameter: —
ll Depth*: —
ne Well Volume: — Gallons

Reference Elevation*: —
Water Level*: —
Water Elevation: —
Screen Length: —
~~Five Well Volumes~~: Removed 80 Gallons

urging Method: lawn spigot
ld Filtered?: ~~YES~~ ~~NO~~
ample Parameters: 601/602 + Freon

Start Time: 11:25 @ 4GPM
Stop Time: 11:45
Samplers Name:

..me	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

marks:

*Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
roject Number: 3944
ject Name: River Falls

Well Name: Rugor Rental (870 MM street
Unique Sample No.: W-061891-PS-06
Sample Time: 11:35

nique Well Name (if any): Residential
ing/Screen Material: —
asing/Screen Diameter: —
ll Depth*: —
ne Well Volume: — Gallons

Reference Elevation*: —
Water Level*: —
Water Elevation: —
Screen Length: —
~~Five Well Volumes:~~ Removed 60 Gallons

urging Method: Kitchen sink
d Filtered?: YES NO
ample Parameters: 601/602 + Freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: 11:15 @ 3GPM
Stop Time: 11:35
Samplers Name: P. STURLIE

me	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

marks:

Measurements taken from Top of Casing (TOC).

APPENDIX D

ANALYTICAL REPORTS

APPENDIX D.1

SOILS

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

#3944

LABORATORY ANALYSIS REPORT

DATE: July 10, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/4-5/91
RECEIVED DATE: 6/6/91
ANALYSIS DATE: 6/18/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024612 S-060491-PS-01 MW1 (7.5-9.5')
Chloromethane	0.050	0.110
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.440
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	ND
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.225
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.095
Chlorobenzene	0.050	0.245
Ethylbenzene	0.050	0.070

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
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(612) 633-0101 • FAX (612) 633-1402

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		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024612 S-060491-PS-01	ANALYSIS DATE
Xylenes, Total	0.050	0.096	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.17	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	7.4	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	8.8	6/14/91
Copper	0.50	13	6/14/91
Zinc	1.3	17	6/14/91
Moisture Content	0.01	5.59 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

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ANALYSIS	Sample No.: 9106024613 UNITS: mg/kg MDL	S-060491-PS-02 Mw1 (12-14')
Chloromethane	0.050	0.090
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.430
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.165
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.160
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.115
Toluene	0.038	0.095
Chlorobenzene	0.050	0.255
Ethylbenzene	0.050	0.070

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MDL means Minimum Detection Limit

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024613 S-060491-PS-02	ANALYSIS DATE
Xylenes, Total	0.050	0.092	6/18/91
1,3-Dichlorobenzene	0.050	0.060	
1,2-Dichlorobenzene	0.050	0.070	
1,4-Dichlorobenzene	0.038	0.070	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	10	6/14/91
Copper	0.50	18	6/14/91
Zinc	1.3	17	6/14/91
Moisture Content	0.01	4.02 %	6/18/91

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Report submitted by

Thomas Halverson
Laboratory Manager

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024614 S-060491-PS-03 MW2 7.5'
Chloromethane	0.050	0.155
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.455
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.165
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.155
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.095
Chlorobenzene	0.050	0.250
Ethylbenzene	0.050	ND

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MDL means Minimum Detection Limit

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024614 S-060491-PS-03	ANALYSIS DATE
Xylenes, Total	0.050	0.092	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	1.8	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	5.0	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	8.9	6/14/91
Copper	0.50	15	6/14/91
Zinc	1.3	20	6/14/91
Moisture Content	0.01	10.0 %	6/18/91

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ANALYSIS	Sample No.: 9106024615 UNITS: mg/kg MDL	S-060491-PS-04
Chloromethane	0.050	0.085
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.240
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.445
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.205
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.090
Chlorobenzene	0.050	0.230
Ethylbenzene	0.050	ND

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MDL means Minimum Detection Limit

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024615 S-060491-PS-04	ANALYSIS DATE
Xylenes, Total	0.050	0.090	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.17	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	2.5	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	5.2	6/14/91
Copper	0.50	6.0	6/14/91
Zinc	1.3	7.4	6/14/91
Moisture Content	0.01	10.9 %	6/18/91

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024616 S-060591-PS-05
Chloromethane	0.050	0.100
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	0.085
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.185
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.095
Toluene	0.038	0.100
Chlorobenzene	0.050	0.240
Ethylbenzene	0.050	0.070

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024616 S-060591-PS-05	ANALYSIS DATE
Xylenes, Total	0.050	0.097	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	0.70	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.19	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	4.9	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	5.6	6/14/91
Copper	0.50	6.4	6/14/91
Zinc	1.3	10	6/14/91
Moisture Content	0.01	4.66 %	6/18/91

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Report submitted by

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Laboratory Manager

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024617 S-060591-PS-06
Chloromethane	0.050	0.115
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.250
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.235
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.170
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.090
Toluene	0.038	0.095
Chlorobenzene	0.050	0.255
Ethylbenzene	0.050	0.080

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024617 S-060591-PS-06	ANALYSIS DATE
Xylenes, Total	0.050	0.115	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	0.065	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	4.1	6/14/91
Copper	0.50	5.8	6/14/91
Zinc	1.3	5.8	6/14/91
Moisture Content	0.01	3.06 %	6/18/91

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Report submitted by

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024618 S-060591-PS-07
Chloromethane	0.050	ND
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.240
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.210
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.110
Toluene	0.038	0.100
Chlorobenzene	0.050	ND
Ethylbenzene	0.050	0.070

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CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024618 S-060591-PS-07	ANALYSIS DATE
Xylenes, Total	0.050	0.095	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	3.4	6/14/91
Copper	0.50	5.3	6/14/91
Zinc	1.3	5.8	6/14/91
Moisture Content	0.01	6.36 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 10, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: 9106024619 UNITS: mg/kg MDL	S-060591-PS-08
Chloromethane	0.050	ND
Bromomethane	0.050	0.255
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.235
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	ND
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.095
Toluene	0.038	0.100
Chlorobenzene	0.050	0.250
Ethylbenzene	0.050	0.070

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 10, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024619 S-060591-PS-08	ANALYSIS DATE
Xylenes, Total	0.050	0.100	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	6.1	6/14/91
Copper	0.50	11	6/14/91
Zinc	1.3	11	6/14/91
Moisture Content	0.01	8.24 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): SPECTRUM LABS INC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: RIVER FALLS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	S-060491-PS-01	6-4-91	09:30	MW1 - 7½-9½'	SOIL	2	VOCS (8010/8020), Pb, Hg, Cr, Zn, Cu, Cd
	S-060491-PJ-02		09:45	12½-14½'		2	
	03		14:00	MW2 - 7½-9½'		2	
	04		14:15	12½-14½'		2	
	S-060591-PJ-05	6-5-91	09:35	MW3 - 7½-9½'		2	
	06		09:50	12½-14½'		2	
	07		14:00	MW4 - 5-7'		2	
	08		14:15	12½-14½'		2	
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 6-6-91 / 08:00	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: CRA	SHIPPED BY: Steve Mackenbaupt	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME /
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME /

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 013524

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: 7-8-91

Q.C. SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: Inorganic/Metals
Sample No's: 24612-24619
Date Rec.: 6-6-91

All samples were digested for metals analysis using EPA method 3050. Samples were analyzed for Pb, Hg, Cr, Zn, Cu, & Cd using EPA methodologies by Atomic Absorption Spectrophotometry. The Quality Control Reports enclosed summarize recoveries for quality control standards, spiked samples, duplicate spiked samples, and blank samples where applicable. All of the Q.C. data was within acceptable limits with the exception of for Mercury analysis where a matrix spike exhibited low recovery (68%). This low spike recovery was apparently due to a matrix interference. To eliminate the interference a lesser amount of soil would have been used which would have affected the detection limit adversely. Therefor the data was accepted based on an evaluation of the other Q.C. data within the run.

Laine J Warhol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Lead Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
EPA 1085	External Check	5.00	5.05	101
25033	Matrix Spike	0.714	0.720	101
25033	Matrix Spike/Dup	0.740	0.730	1.36
24831	Matrix Spike	1.00	0.97	97
24831	Matrix Spike/Dup	1.09	1.11	1.82
2.5 STD	Internal Check Std.	2.50	2.51	100
24618	Matrix Spike	1.00	0.97	97
24618	Matrix Spike/Dup	1.01	1.02	0.985
24619	Matrix Spike	2.00	1.93	96
24619	Matrix Spike/Dup	2.04	2.02	0.985
2.5 STD	Internal Check Std.	2.50	2.50	100

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Zinc Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.00	1.946	97
24381	Matrix Spike	0.600	0.577	96
24381	Matrix Spike/Dup	1.677	1.646	1.86
Spex ICV-1	External Check	2.00	2.00	100
24618	Matrix Spike	1.00	0.901	90
24618	Matrix Spike/Dup	1.023	1.017	0.588
24619	Matrix Spike	1.20	0.938	78
24619	Matrix Spike/Dup	1.388	1.364	1.74
Spex ICV-1	External Check	2.00	1.976	97
25742	Matrix Spike	1.00	0.952	95
25742	Matrix Spike/Dup	0.952	0.902	5.39
Spex ICV-1	External Check	2.00	1.954	98
24619	Matrix Spike	1.20	0.891	74

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Copper Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.50	2.50	100
24381	Matrix Spike	0.400	0.413	103
24831	Matrix Spike/Dup	1.742	1.702	2.32
Spex ICV-1	External Check	2.50	2.57	103
24618	Matrix Spike	1.00	1.02	102
24618	Matrix Spike/Dup	1.123	1.123	0
24619	Matrix Spike	0.80	0.647	81
24619	Matrix Spike/Dup	1.08	0.968	11.4
Spex ICV-1	External Check	2.50	2.50	100
Spex ICV-1	External Check	2.50	2.54	101
24619	Matrix Spike	0.80	0.668	84
Spex ICV-1	External Check	2.50	2.48	99

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Cadmium Flame AA
Run Date: 6-13-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	0.50	0.485	97
25033	Matrix Spike	0.714	0.708	98
25033	Matrix Spike/Dup	0.707	0.708	0.141
Spex ICV-1	External Check	0.500	0.499	100
24618	Matrix Spike	1.00	1.02	102
24618	Matrix Spike/Dup	1.023	1.022	0.098
24619	Matrix Spike	0.20	0.186	93
24619	Matrix Spike/Dup	0.194	0.192	1.04
Spex ICV-1	External Check	0.50	0.495	99

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Chromium Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	0.10	0.10	100
25033	Matrix Spike	0.714	0.751	105
25033	Matrix Spike/Dup	0.859	0.864	0.580
24381	Matrix Spike	0.20	0.187	94
24381	Matrix Spike/Dup	0.199	0.190	4.63
24618	Matrix Spike	1.0	0.836	84
24618	Matrix Spike/Dup	0.908	0.903	0.552
24619	Matrix Spike	0.40	0.326	82
24619	Matrix Spike/Dup	0.507	0.580	13.4
Spex ICV-1	External Check	0.10	0.105	105

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Mercury Cold Vapor AA
Run Date: 6-20-91
Analyst : KRC
Sample Matrix: Soil & Water
Sample # : 24612 - 24619
26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
APG 11-90	External Check	3.74	3.79	101
24610	Matrix Spike	5.00	4.93	99
24610	Matrix Spike/Dup	4.93	4.75	3.72
24619	Matrix Spike	5.00	3.40	68
24619	Matrix Spike/Dup	4.46	4.21	5.77
APG 11-90	External Check	3.74	3.96	106

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: July 8, 1991

QUALITY CONTROL SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: 8010/8020
Sample No's: 24612-24619
Date Rec.: 6-6-91

Samples were analyzed for volatile organic compounds using EPA method 8010-8020. The Quality Control Reports enclosed summarize recoveries for daily blanks, laboratory fortified blanks, daily check standards, matrix spikes and matrix spike duplicates. All of the Quality Control data was within acceptable limits with the exception of the following Q.C. data summarized in Table I (See attachment). Corrective measures have been initiated to investigate possible sources of contamination for chloroform during sample preparation on spiked samples. The check standard and laboratory fortified blank also exhibited high recoveries which may indicate the initial calibration response for chloroform may have changed. A new calibration has been initiated to investigate this. Spike recoveries were high which would indicate little or no loss of analyte. Since chloroform was not seen in the samples, the results were accepted and reported as not detected. High recoveries for 1,1,2-Tetrachloroethane were noted and the same corrective measures taken as with chloroform. Low Levels of Trichlorofluoromethane were found in the blank which indicates cross contamination from other areas in the laboratory. This has been noted and will be monitored closely to eleviate the problem. Chloroform and 1,1,2-Trichloroethane which exhibited high recoveries were not noted in the blank.

To summarize, excessive low recoveries were not seen. All of the compounds not within acceptable ranges exhibited high recoveries which indicates no loss of analyte. Sample values were accepted and reported. A follow up investigation involving calibration and spiking proceedures has been initiated and results and conclusions will be made available for review upon request.

Paine J Warhol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

TABLE I

Parameter	Q.C. Type	% Rec./RPD
Chloroform	Matrix Spike	242
Chloroform	Matrix Spike/Dup	31.6
Chloroform	Daily Check Std.	151
Chloroform	LFB	142
Trichlorofluoromethane	Daily Check Std.	166
1,1,2-Trichloroethane	Daily Check Std.	137
1,1,2-Trichloroethane	LFB	143

CHECK STANDARD MATRIX: SOILS
8010-8020

PARAMETER	DATE	PPB	ACT PPB	% REC
DICHLORODIFLUOROMETHANE	18-Jun-91	10.00	7.947	79.47
CHLOROMETHANE	18-Jun-91	10.00	9.809	98.09
VINYL CHLORIDE	18-Jun-91	10.00	11.028	110.28
BROMOMETHANE	18-Jun-91	10.00	9.726	97.26
CHLOROETHANE	18-Jun-91	10.00	9.486	94.86
TRICHLOROFLUOROMETHANE	18-Jun-91	10.00	16.586	165.86
ALLYL CHLORIDE	18-Jun-91	10.00	11.193	111.93
METHYLENE CHLORIDE	18-Jun-91	10.00	10.615	106.15
TRANS-1,2-DICHLOROETHENE	18-Jun-91	10.00	10.211	102.11
1,1-DICHLOROETHANE	18-Jun-91	10.00	10.152	101.52
CHLOROFORM	18-Jun-91	10.00	15.095	150.95
1,1,1-TRICHLOROETHANE	18-Jun-91	10.00	12.059	120.59
CARBON TETRACHLORIDE	18-Jun-91	10.00	11.464	114.64
1,2-DICHLOROETHANE	18-Jun-91	10.00	10.782	107.82
TRICHLOROETHYLENE	18-Jun-91	10.00	10.988	109.88
1,2-DICHLOROPROPANE	18-Jun-91	10.00	11.157	111.57
DIBROMOMETHANE	18-Jun-91	10.00	10.269	102.69
BROMODICHLOROMETHANE	18-Jun-91	10.00	10.103	101.03
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	12.604	126.04
CIS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	10.684	106.84
TRANS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	9.305	93.05
1,1,2-TRICHLORORETHANE	18-Jun-91	10.00	13.731	137.31
TETRACHLOROETHYLENE	18-Jun-91	10.00	11.221	112.21
DIBROMOCHLOROMETHANE	18-Jun-91	10.00	10.288	102.88
1,2-DIBROMOMETHANE	18-Jun-91	10.00	9.979	99.79
CHLOROBENZENE	18-Jun-91	10.00	9.610	96.10
1,1,1,2-TETRACHLOROETHANE	18-Jun-91	10.00	10.413	104.13
BROMOFORM	18-Jun-91	10.00	9.158	91.58
1,1,2,2-TETRACHLOROETHANE	18-Jun-91	10.00	12.743	127.43
1,2,3-TRICHLOROPROPANE	18-Jun-91	10.00	12.442	124.42
1,3-DICHLOROBENZENE	18-Jun-91	10.00	10.344	103.44
1,4-DICHLOROBENZENE	18-Jun-91	10.00	10.903	109.03
1,2-DICHLOROBENZENE	18-Jun-91	10.00	10.627	106.27
1,2-DIBROMO-3-CHLOROPROPANE	18-Jun-91	10.00	9.827	98.27
VINYL CHLORIDE P	18-Jun-91	10.00	10.859	108.59
1,1-DICHLOROETHENE P	18-Jun-91	10.00	10.108	101.08
TRANS-1,2-DICHLOROETHENE P	18-Jun-91	10.00	9.750	97.50
BENZENE	18-Jun-91	10.00	9.295	92.95
TRICHLOROETHYLENE P	18-Jun-91	10.00	9.250	92.50
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	8.689	86.89
CIS-1,3-DICHLOROPROPANE P	18-Jun-91	10.00	9.197	91.97
TOLUENE	18-Jun-91	10.00	9.312	93.12
TRANS-1,3-DICHLOROPROPANE P	18-Jun-91	10.00	9.061	90.61
TETRACHLOROETHYLENE P	18-Jun-91	10.00	9.337	93.37
CHLOROBENZENE P	18-Jun-91	10.00	10.529	105.29
ETHYLBENZENE	18-Jun-91	10.00	9.172	91.72
M & P-XYLENES	18-Jun-91	10.00	9.452	94.52
STYRENE & O-XYLENE	18-Jun-91	10.00	9.564	95.64
1,3-DICHLOROBENZENE P	18-Jun-91	10.00	9.063	90.63
1,4-DICHLOROBENZENE P	18-Jun-91	10.00	9.093	90.93
1,2-DICHLOROBENZENE P	18-Jun-91	10.00	9.041	90.41

LABORATORY FORTIFIED BLANK MATRIX: SOILS
601-602 MIX

PARAMETER	DATE	PPB	ACT PPB	% REC
TRICHLOROFLUOROMETHANE	18-Jun-91	10.00	10.722	107.22
1,1-DICHLOROETHENE	18-Jun-91	10.00	12.937	129.37
METHYLENE CHLORIDE	18-Jun-91	10.00	8.286	82.86
TRANS-1,2-DICHLOROETHENE	18-Jun-91	10.00	9.222	92.22
1,1-DICHLOROETHANE	18-Jun-91	10.00	9.842	98.42
CHLOROFORM	18-Jun-91	10.00	14.156	141.56
1,1,1-TRICHLOROETHANE	18-Jun-91	10.00	11.169	111.69
CARBON TETRACHLORIDE	18-Jun-91	10.00	10.694	106.94
1,2-DICHLOROETHANE	18-Jun-91	10.00	10.495	104.95
TRICHLOROETHYLENE	18-Jun-91	10.00	11.157	111.57
1,2-DICHLOROPROPANE	18-Jun-91	10.00	12.695	126.95
BROMODICHLOROMETHANE	18-Jun-91	10.00	9.104	91.04
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	12.257	122.57
CIS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	10.490	104.90
TRANS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	9.664	96.64
1,1,2-TRICHLORORETHANE	18-Jun-91	10.00	14.370	143.70
TETRACHLOROETHYLENE	18-Jun-91	10.00	10.788	107.88
DIBROMOCHLOROMETHANE	18-Jun-91	10.00	13.210	132.10
BROMOFORM	18-Jun-91	10.00	9.257	92.57
1,1,2,2-TETRACHLOROETHANE	18-Jun-91	10.00	8.029	80.29
CHLOROBENZENE	18-Jun-91	10.00	10.178	101.78
1,3-DICHLOROBENZENE	18-Jun-91	10.00	10.271	102.71
1,4-DICHLOROBENZENE	18-Jun-91	10.00	10.847	108.47
1,2-DICHLOROBENZENE	18-Jun-91	10.00	11.705	117.05
BENZENE	18-Jun-91	10.00	9.115	91.15
TOLUENE	18-Jun-91	10.00	8.886	88.86
ETHYLBENZENE	18-Jun-91	10.00	8.879	88.79

QUALITY CONTROL DATA MATRIX: SOILS
MATRIX SPIKE

AMETER	SAMPLE #	DATE	SAMPLE	SPIKE	T.V.	SPIKE CON	% REC
YL CHLORIDE	9106024619	18-Jun-91	0.000	15.756	20.000	20.000	78.78
,1-DICHLOROETHENE	9106024619	18-Jun-91	0.000	25.711	20.000	20.000	128.56
OROFORM	9106024619	18-Jun-91	0.000	48.408	20.000	20.000	242.04
,1-TRICHLOROETHANE	9106024619	18-Jun-91	0.000	21.321	20.000	20.000	106.61
ARBON TETRACHLORIDE	9106024619	18-Jun-91	0.000	19.455	20.000	20.000	97.27
-DICHLOROETHANE	9106024619	18-Jun-91	0.000	27.327	20.000	20.000	136.64
CHLOROETHENE	9106024619	18-Jun-91	0.000	19.058	20.000	20.000	95.29
OMODICHLOROMETHANE	9106024619	18-Jun-91	0.000	15.986	20.000	20.000	79.93
IBROMOCHLOROMETHANE	9106024619	18-Jun-91	0.000	18.117	20.000	20.000	90.59
OMOFORM	9106024619	18-Jun-91	0.000	17.689	20.000	20.000	88.45
ZENE	9106024619	18-Jun-91	0.000	17.680	20.000	20.000	88.40
,4-DICHLOROBENZENE	9106024619	18-Jun-91	0.000	15.485	20.000	20.000	77.43

QUALITY CONTROL DATA
MATRIX DUPLICATES

MATRIX: SOILS

PARAMETER	DATE	SAMPLE	DUPE	S+D	S-D	% DIFF.
NYL CHLORIDE	18-Jun-91	15.756	16.516	16.136	-0.760	-4.71
,1-DICHLOROETHENE	18-Jun-91	25.711	24.320	25.016	1.391	5.56
LOROFORM	18-Jun-91	48.408	66.548	57.478	-18.140	-31.56
,1-TRICHLOROETHANE	18-Jun-91	21.321	21.511	21.416	-0.190	-0.89
ARBON TETRACHLORIDE	18-Jun-91	19.455	20.042	19.749	-0.587	-2.97
2-DICHLOROETHANE	18-Jun-91	27.327	19.253	23.290	8.074	34.67
OMODICHLOROMETHANE	18-Jun-91	15.986	20.923	18.455	-4.937	-26.75
IBROMOCHLOROMETHANE	18-Jun-91	18.117	19.653	18.885	1.003	5.31
ROMOFORM	18-Jun-91	17.689	17.749	17.719	-0.060	-0.34
NZENE	18-Jun-91	17.680	18.463	18.072	0.038	0.21
,4-DICHLOROBENZENE	18-Jun-91	15.485	16.251	15.868	0.520	3.28

Matrix: Soils

External Standard Report

a File Name	: C:\HPCHEM\2\DATA\06-18-91\001R0101.D		
erator	: WAYNE FORSBERG	Instrument	: #2
quired on	: 18 Jun 91 09:46 AM	Vial Number	: 1
ple Name	: BLANK #1	Injection Number	: 1
Time Bar Code:		Sequence Line	: 1
strument Method:	8010SIG1.MTH	Sample Amount	: 0
lysis Method	: 8010SIG2.MTH	ISTD Amount	
tiplier	: 1		
st Recalib	: 13 JUN 91 10:54 AM		

. 2 in C:\HPCHEM\2\DATA\06-18-91\001R0101.D

Time	Area	Type	Width	Ref#	UG/L	Name
3.447	* not found *			1		DICHLORODIFLUOROMETHANE
3.624	1727	VV	0.048	1	0.625	CHLOROMETHANE
3.884	* not found *			1		VINYL CHLORIDE
4.540	* not found *			1		BROMOMETHANE
4.738	* not found *			1		CHLOROETHANE
5.305	88431	BV	0.138	1	2.591	TRICHLOROFLUOROMETHANE
6.581	191710	BV	0.175	1	3.109	1,1-DICHLOROETHENE
6.920	* not found *			1		METHYL IODIDE
7.486	* not found *			1		ALLYL CHLORIDE
7.952	13692	PV	0.158	1	0.278	METHYLENE CHLORIDE
8.649	* not found *			1		TRANS-1,2-DICHLOROETHENE
9.782	* not found *			1		1,1-DICHLOROETHANE
11.710	1122322	BV	0.094	1	-19.980	BROMOCHLOROMETHANE
11.842	* not found *			1		CHLOROFORM
12.222	94802	VV	0.169	1	0.947	1,1,1-TRICHLOROETHANE
12.491	* not found *			1		CARBON TETRACHLORIDE
12.950	* not found *			1		1,2-DICHLOROETHANE
13.119	2073	BV	0.082	1	0.0426	TRICHLOROETHENE
13.471	* not found *			1		1,2-DICHLOROPROPANE
14.629	12994	PV	0.123	1	1.217	DIBROMOMETHANE
15.953	* not found *			1		BROMODICHLOROMETHANE
15.461	* not found *			1		2-CHLOROETHYL VINYL ETHER
15.682	* not found *			1		CIS-1,3-DICHLOROPROPENE
16.573	* not found *			1		TRANS-1,3-DICHLOROPROPENE
17.772	1035258	BV	0.090	1	- 21.612	2-BROMO-1-CHLOROPROPANE
16.890	* not found *			1		1,1,2-TRICHLOROETHANE
17.080	* not found *			1		TETRACHLOROETHENE
17.499	* not found *			1		DIBROMOCHLOROMETHANE
17.686	* not found *			1		1,2-DIBROMOETHANE
18.456	1306	BV	0.081	1	0.622	CHLOROBENZENE
18.539	* not found *			1		1,1,1,2-TETRACHLOROETHANE
19.704	* not found *			1		BROMOFORM
20.109	1065718	BV	0.075	1	- 20.070	1,4-DICHLOROBUTANE
20.367	* not found *			1		1,1,2,2-TETRACHLOROETHANE
21.440	* not found *			1		1,2,3-TRICHLOROPROPANE
21.811	* not found *			1		1,3-DICHLOROBENZENE
21.939	* not found *			1		1,4-DICHLOROBENZENE
22.512	* not found *			1		1,2-DICHLOROBENZENE
23.691	* not found *			1		1,2-DIBROMO-3-CHLOROPROPANE

all calibrated peaks were found

External Standard Report

File Name : C:\HPCHEM\2\DATA\06-18-91\001F0101.D
rator : WAYNE FORSBERG
red on : 18 Jun 91 09:46 AM
e Name : BLANK #1
Time Bar Code:
trument Method: 8010SIG1.MTH
sis Method : 8010SIG1.MTH
plier : 1
t Recalib : 13 JUN 91 10:36 AM

Instrument . #2
Vial Number . 1
Injection Number: 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

1 in C:\HPCHEM\2\DATA\06-18-91\001F0101.D

Time	Area	Type	Width	Ref#	UG/L	Name
854	* not found *			1		VINYL CHLORIDE
.438	* not found *			1		1,1-DICHLOROETHENE
.829	* not found *			1		METHYL IODIDE
602	* not found *			1		TRANS-1,2-DICHLOROETHENE
847	* not found *			1		BENZENE
.404	* not found *			1		FLUOROBENZENE
034	* not found *			1		TRICHLOROETHENE
577	4846	BB	0.062	1	20.743	TRIFLUOROTOLUENE
.529	200	BB	0.055	1	1.710	2-CHLOROETHYL VINYL ETHER
643	* not found *			1		CIS-1,3-DICHLOROPROPENE
212	141	BB	0.053	1	0.661	TOLUENE
.533	* not found *			1		TRANS-1,3-DICHLOROPROPENE
.040	* not found *			1		TETRACHLOROETHENE
397	* not found *			1		CHLOROBENZENE
526	* not found *			1		ETHYLBENZENZE
.737	73	BB	0.051	1	0.315	M & P XYLENES
326	* not found *			1		STYRENE & O-XYLENE
771	* not found *			1		1,3-DICHLOROBENZENE
.902	* not found *			1		1,4-DICHLOROBENZENE
.473	* not found *			1		1,2-DICHLOROBENZENE

all calibrated peaks were found

APPENDIX D.2

GROUNDWATER

MEMORANDUM

TO: Steve Mockenhaupt REFERENCE NO. 3944

FROM: David Dempsey DD DATE: July 26, 1991

RE: Data Quality Assessment and Validation for Eight Soil and Seven Groundwater Samples Collected During the June 1991 Sampling Event at the River Falls Site

---

The following details a data quality assessment and validation for eight soil and seven groundwater samples collected June 4 through June 18, 1991 at the River Falls site. Samples were analyzed for selected volatile organic compounds (VOC) and metals by Spectrum Labs.[1] Quality assurance/quality control criteria are established in the analytical methods.[2]

Holding Time Periods

Holding time periods are defined in analytical methods and are summarized below:

VOC - 14 days from sample collection to completion of analysis

Metals - 6 months from sample collection to completion of analysis

Examining analysis dates reveal all samples were analyzed within holding time periods.

Method Blank Samples

Method blank samples are used to assess lab contamination. The metals method blank samples are free of analytes. However, the VOC method blank samples contained several analytes at low concentrations. These analytes are listed in Table 1. Samples listed in Table 1 have analyte datum qualified as non detect (U) based upon the method blank samples data.

Surrogate Compounds Percent Recoveries

Surrogate compounds are used to assess individual VOC analyses. As the surrogate compounds recoveries are within limits set by Spectrum, these methods are in control.

---

[1] Analytical methods are from "Test Methods for Evaluating Solid Waste", SW-846, third edition, revision I, December 1987 and are summarized below:

VOC - 8010/8020
Metals - 6010/7000 series

[2] Application of quality assurance/quality control criteria is consistent with "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses", February 1, 1988 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1, 1988.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

Matrix effects are checked for using MS/MSD analyses. However, the reported VOC matrix spike data are associated with in house samples. Thus, these VOC matrix spike data cannot be used to assess matrix effects.

The soil metals MS/MSD analyses were performed using sample S-060591-PS-08. Percent recoveries indicate no significant matrix effects. Sample W-061891-PS-06 underwent MS/MSD analyses for cadmium and zinc, while sample W-061891-PS-01 underwent MS/MSD analyses for lead. Percent recoveries indicate no significant matrix effects.

Copper and chromium aqueous MS/MSD analyses were performed using in house samples. Therefore, these data cannot be used to assess matrix effects. These data demonstrate the methods are precise.

Duplicate Analyses

Duplicate VOC analyses are used to assess the VOC method precision. The aqueous VOC duplicate analysis was performed using an in house sample. Agreement between these analyses indicate the method is precise.

Duplicate soil VOC analysis was also performed using an in house sample. Chloroform and 1,2-dichloroethane have low precision. Therefore, these analytes data are qualified as estimated (UJ). Based on the duplicate analysis, the remaining analytes for all soil samples precisions are acceptable.

Control Samples

Control samples are used to assess methods overall accuracy. Both metal control sample data show the methods are accurate. For the soil VOC control sample, chloroform and 1,1,2-trichloroethane have high recoveries. For the aqueous VOC control sample, methylene chloride and chlorobenzene have high recoveries. As none of these analytes are detected in any samples, no action upon the data are necessary.

Quality Assurance Blank Samples

Quality assurance blank samples (i.e., rinsate, field blank and trip blank samples) are used to assess contamination due to decontamination procedures, ambient conditions and shipping conditions. However, no such samples were collected during the sampling events.

Field Duplicate Samples

Overall precision for these events is checked using field duplicate samples. No field duplicate samples were collected during the soil sampling event. Precision for these samples is limited to duplicate analyses performed in the lab.

Field duplicate samples W-061891-PS-04 and W-061891-PS-05 were collected to assess groundwater sampling precision. Based on these data, the overall groundwater sampling precision is acceptable.

Overall Assessment

Based on method blank sample data, analytes listed in Table 1 have data from samples listed in Table 1 qualified as non-detect (U). Based on poor agreement between duplicate analyses, chloromethane and 1,2-dichloroethane soil data are qualified as estimated (UJ). The remaining data are accurate and precise, based upon the data package. These unqualified data may be used to quantitatively assess analyte concentrations.

TABLE 1

ANALYTES DETECTED IN VOC
METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Soil	Chloromethane	0.078 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-05; S-060591-PS-06
	Trifluorotoluene	0.324 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-08
	1,1-dichloroethene	0.389 mg/kg	
	Toluene	0.083 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-03; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Ethylbenzene	0.070 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Dibromomethane	0.017 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
Water	Chloromethane	0.866 µg/*l*	W-061891-PS-01; W-061891-PS-03; W-061891-PS-06; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

TABLE 1 (CONT'D)

ANALYTES DETECTED IN VOC
METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Water	1,1-dichloroethene	1.639 µg/*l*	W-061891-PS-02; W-061891-PS-03
	Chloroform	0.498 µg/*l*	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07
	Trichloroethene	0.0376 µg/*l*	
	1,2-dichloropropane	0.348 µg/*l*	W-061891-PS-03
	trans-1,3-dichloropropane	9.367 µg/*l*	
	1,2-dichlorobenzene	0.955 µg/*l*	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04
	Toluene	0.702 µg/*l*	W-061891-PS-01; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

#3944

LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/2/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026407 W-061891-PS-01 MW1
Chloromethane	0.4	0.6
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	1.8
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	2.1
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	3.4
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	1.0
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	1.1
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	0.7

ND means Not Detected
MDL means Minimum Detection Limit

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026407 W-061891-PS-01 MW1	ANALYSIS DATE
Xylenes, Total	0.4	0.4	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	1.0	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	1.0	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	1	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/03/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
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LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/2/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026408 W-061891-PS-02 MW2
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	1.6
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.8
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt	PROJECT NO.:	061891-200153
	Conestoga-Rovers & Associates	COLLECTED BY:	Client
	382 West County Rd. D	COLLECTION DATE:	6/18/91
	St. Paul, MN 55112	RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026408 W-061891-PS-02 MW2	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	1.0	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/2/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026409 W-061891-PS-03 MW3
Chloromethane	0.4	0.8
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	3.5
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	1.1
1,1-Dichloroethylene	1.0	1.4
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	3.2
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	19.6
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	0.7
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	0.9
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.7
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026409 W-061891-PS-03 MW3	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	0.9	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	51	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/02/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026410 W-061891-PS-04 MW4
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.5
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.6
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.: COLLECTED BY: COLLECTION DATE: RECEIVED DATE: PROJECT DESCP:	061891-200153 Client 6/18/91 6/18/91 River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026410 W-061891-PS-04 MW4	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	0.9	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

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MDL means Minimum Detection Limit

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Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/02/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026411 W-061891-PS-05 MW5 (MW4 Dup)
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	ND
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026411 W-061891-PS-05 MW5	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

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MDL means Minimum Detection Limit

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Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/02/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026412 W-061891-PS-06 Rugor Rental
Chloromethane	0.4	0.6
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	ND
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026412 W-061891-PS-06 Rugor Rental	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	50	6/27/91

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Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/02/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026413 W-061891-PS-07 (Rugor)
Chloromethane	0.4	0.7
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.7
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	1.4
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.6
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026413 W-061891-PS-07 (Rugor)	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): SPECTRUM LAB

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: RIVER FALLS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	W-061891-PS-01	6-18-91	15:15	MW 1	Water	4	601/602 + Freon, metals
	02		14:20	MW 2		4	
	03		12:30	MW 3		4	
	04		13:15	MW 4		4	
	05		13:30	MW 5		4	
	06		11:35	Rugor Rental		4	
	07		11:45	Rugor		3	601/602 + Freon
							metals: Pb, Hg, Cd, Cr, Cu, Zn
				TOTAL NUMBER OF CONTAINERS		27	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 6-18-91 / 16:45	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: P.S.	SHIPPED BY: P.S.	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME 6/18
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME /

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 013478

SPECTRUM
LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: 7-8-91

Q.C. SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: Inorganic/Metals
Sample No's: 26407-26412
Date Rec.: 6-18-91

Samples were analyzed for Pb, Hg, Cr, Zn, Cu, & Cd using EPA methodologies by Atomic Absorption Spectrophotometry. The Quality Control Reports enclosed summarize recoveries for quality control standards, spiked samples, duplicate spiked samples, and blank samples where applicable. All of the Q.C. data was within acceptable limits.

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Cadmium Furnace AA
Run Date: 7-3-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
ERA 9932	External Check	0.85	0.848	100
ERA 9932	External Check	0.85	0.844	99
25907	Matrix Spike	1.00	0.982	98
25907	Matrix Spike/Dup	0.993	0.971	2.24
ERA 9932	External Check	0.85	0.867	102
26412	Matrix Spike	1.00	0.989	99
26412	Matrix spike/Dup	1.03	1.05	2.97
ERA 9932	External Check	0.85	0.889	104

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Zinc Flame AA
Run Date: 6-27-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.00	1.996	100
26584	Matrix Spike	1.00	1.01	101
26584	Matrix Spike/Dup	1.039	1.005	3.33
26412	Matrix Spike	1.00	1.07	107
26412	Matrix Spike/Dup	1.096	1.069	2.49
25736	Matrix Spike	0.60	0.547	91
25736	Matrix Spike/Dup	0.961	0.951	1.05
26790	Matrix Spike	1.00	0.952	95
Spex ICV-1	External Check	2.00	2.04	102

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
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July 8,1991

QUALITY CONTROL REPORT

Parameter: Copper Flame AA
Run Date: 6-26-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.50	2.68	100
25551	Matrix Spike	1.00	1.08	108
25551	Matrix Spike/Dup	1.075	1.082	0.649
25933	Matrix Spike	1.00	1.06	106
25933	Matrix Spike/Dup	1.09	1.09	0
26406	Matrix Spike	1.00	1.04	108
26406	Matrix Spike/Dup	1.51	1.38	4.42
26803	Matrix Spike	1.00	1.11	111
26803	Matrix Spike/Dup	1.19	1.17	1.78
27116	Matrix Spike	1.00	1.03	103
27116	Matrix Spike/Dup	1.05	1.05	0
25306	Matrix Spike	1.00	0.992	99
25306	Matrix Spike/Dup	0.992	0.985	0.708
26261	Matrix Spike	1.00	0.981	98
26261	Matrix Spike/Dup	0.981	0.983	0.203
Spex ICV-1	External Check	2.50	2.45	98

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Chromium Furnace AA
Run Date: 7-3-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
ERA 9932	External Check	2.19	2.08	95
ERA 9932	External Check	2.19	2.09	95
26412	Matrix Spike	5.00	5.00	100
25933	Matrix Spike/Dup	5.29	5.49	3.65
ERA 9932	External Check	2.19	2.20	101

Report submitted by,

Daniel G. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Lead Furnace AA
Run Date: 6-26-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
EPA TMA 989	External Check	50.0	48.0	96
26407	Matrix Spike	40.0	38.5	96
26407	Matrix Spike/Dup	39.9	40.0	0.325
EPA TMA 989	External Check	50.0	48.3	97
EPA TMA 989	External Check	50.0	49.5	99
27525	Matrix Spike	40.0	37.6	94
27525	Matrix Spike/dup	43.7	37.6	15.2
EPA TMA 989	External Check	50.0	49.4	98.7

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: July 8, 1991

QUALITY CONTROL SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: 8010/8020
Sample No's: 26407-26413
Date Rec.: 6-18-91

Samples were analyzed for volatile organic compounds using EPA method 8010-8020. The Quality Control Reports enclosed summarize recoveries for daily blanks, laboratory fortified blanks, daily check standards, matrix spikes and matrix spike duplicates. All of the Quality Control data was within acceptable limits with the exception of the following Q.C. data summarized in Table I . Corrective measures have been initiated to investigate possible sources of contamination for Chloroform and Carbontetrachloride during sample preparation on spiked samples. The check standard also exhibited high recoveries for Chloromethane, Chloroethane, Chloroethane, Chloroform, and 1,1,2-Trichloroethane which may indicate the initial calibration response may have changed. High recoveries were also noted for Methylene Chloride and Chlorobenzene in the laboratory fortified blank. A new calibration has been initiated to investigate this. Since recoveries were high this would indicate little or no loss of analyte. Surrogate compounds spiked into deionized water at the beginning of the run exhibited low recovery which was due to maintanance needed on detectors. This was corrected and the run was continued. Low Levels of Trichlorofluoromethane, Chloromethane, 1,1-Dichloroethene, Bromochloromethane, and Toluene were found in the blank which indicates cross contamination from other areas in the laboratory. This has been noted and will be monitored closely to eleviate the problem. Benzene, Toluene, and Ethylbenzene show low recovery in the laboratory fortified blank. This apparently due to a problem in the preparation of the spike, the problem is not seen on the daily check standard and the matrix spike.
To summarize, excessive low recoveries were not seen. Sample values were accepted and reported. A follow up investigation involving calibration and spiking proceedures has been initiated and results and conclusions will be made available for review upon request.

Jaime L Wachol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Table I

Parameter	Q.C. Type	% Rec./RPD
Chloroform	Matrix Spike	363
Chloroform	Daily Check Std.	168
Carbon Tetrachloride	Matrix Spike	252
Dichlorodifluoromethane	Daily Check Std.	47.5
Chloromethane	Daily Check Std.	197
Chloroethane	Daily Check Std.	133
1,1,2-Trichloroethane	Daily Check Std.	133
Methylene Chloride	LFB	180
Chlorobenzene	LFB	169

CHECK STANDARD MATRIX: WATER
8010-8020

PARAMETER	DATE	PPB	ACT PPB	% REC
DICHLORODIFLUOROMETHANE	02-Jul-91	10.00	4.750	47.50
CHLOROMETHANE	02-Jul-91	10.00	19.682	196.82
BROMOMETHANE	02-Jul-91	10.00	8.800	88.00
CHLOROETHANE	02-Jul-91	10.00	13.363	133.63
TRICHLOROFLUOROMETHANE	02-Jul-91	10.00	10.410	104.10
1,1-DICHLOROETHENE	02-Jul-91	10.00	12.691	126.91
ALLYL CHLORIDE	02-Jul-91	10.00	12.355	123.55
METHYLENE CHLORIDE	02-Jul-91	10.00	12.083	120.83
TRANS-1,2-DICHLOROETHENE	02-Jul-91	10.00	11.528	115.28
1,1-DICHLOROETHANE	02-Jul-91	10.00	10.316	103.16
CHLOROFORM	02-Jul-91	10.00	16.836	168.36
1,1,1-TRICHLOROETHANE	02-Jul-91	10.00	12.122	121.22
CARBON TETRACHLORIDE	02-Jul-91	10.00	11.616	116.16
1,2-DICHLOROETHANE	02-Jul-91	10.00	10.622	106.22
TRICHLOROETHYLENE	02-Jul-91	10.00	10.111	101.11
1,2-DICHLOROPROPANE	02-Jul-91	10.00	10.641	106.41
DIBROMOMETHANE	02-Jul-91	10.00	9.058	90.58
BROMODICHLOROMETHANE	02-Jul-91	10.00	9.413	94.13
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00	12.413	124.13
CIS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	10.103	101.03
TRANS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	7.721	77.21
1,1,2-TRICHLORORETHANE	02-Jul-91	10.00	13.329	133.29
TETRACHLOROETHYLENE	02-Jul-91	10.00	11.122	111.22
DIBROMOCHLOROMETHANE	02-Jul-91	10.00	8.800	88.00
1,2-DIBROMOMETHANE	02-Jul-91	10.00	9.258	92.58
CHLOROBENZENE	02-Jul-91	10.00	8.353	83.53
1,1,1,2-TETRACHLOROETHANE	02-Jul-91	10.00	10.042	100.42
BROMOFORM	02-Jul-91	10.00	7.056	70.56
1,1,2,2-TETRACHLOROETHANE	02-Jul-91	10.00	10.961	109.61
1,2,3-TRICHLOROPROPANE	02-Jul-91	10.00	12.231	122.31
1,2-DIBROMO-3-CHLOROPROPANE	02-Jul-91	10.00	8.775	87.75
VINYL CHLORIDE P	02-Jul-91	10.00	7.294	72.94
1,1-DICHLOROETHENE P	02-Jul-91	10.00	7.733	77.33
TRANS-1,2-DICHLOROETHENE P	02-Jul-91	10.00	7.598	75.98
BENZENE	02-Jul-91	10.00	7.591	75.91
TRICHLOROETHYLENE P	02-Jul-91	10.00	7.286	72.86
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00	7.536	75.36
CIS-1,3-DICHLOROPROPANE P	02-Jul-91	10.00	7.087	70.87
TOLUENE	02-Jul-91	10.00	7.488	74.88
TRANS-1,3-DICHLOROPROPANE P	02-Jul-91	10.00	7.151	71.51
TETRACHLOROETHYLENE P	02-Jul-91	10.00	7.335	73.35
CHLOROBENZENE P	02-Jul-91	10.00	8.759	87.59
ETHYLBENZENE	02-Jul-91	10.00	7.522	75.22
M & P-XYLENES	02-Jul-91	10.00	7.656	76.56
STYRENE & O-XYLENE	02-Jul-91	10.00	7.802	78.02
1,3-DICHLOROBENZENE P	02-Jul-91	10.00	7.334	73.34
1,4-DICHLOROBENZENE P	02-Jul-91	10.00	7.399	73.99
1,2-DICHLOROBENZENE P	02-Jul-91	10.00	7.742	77.42

LABORATORY FORTIFIED BLANK MATRIX: WATER
601-602 MIX

PARAMETER	DATE	PPB	ACT PPB	% REC
TRICHLOROFLUOROMETHANE	02-Jul-91	10.00	10.931	109.31
1,1-DICHLOROETHENE	02-Jul-91	10.00	10.446	104.46
METHYLENE CHLORIDE	02-Jul-91	10.00	18.037	180.37
TRANS-1,2-DICHLOROETHENE	02-Jul-91	10.00	9.845	98.45
1,1-DICHLOROETHANE	02-Jul-91	10.00	9.134	91.34
CHLOROFORM	02-Jul-91	10.00	11.448	114.48
1,1,1-TRICHLOROETHANE	02-Jul-91	10.00	10.323	103.23
CARBON TETRACHLORIDE	02-Jul-91	10.00	9.845	98.45
1,2-DICHLOROETHANE	02-Jul-91	10.00	9.655	96.55
TRICHLOROETHYLENE	02-Jul-91	10.00	9.087	90.87
1,2-DICHLOROPROPANE	02-Jul-91	10.00	9.901	99.01
BROMODICHLOROMETHANE	02-Jul-91	10.00	8.652	86.52
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00		0.00
CIS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	11.712	117.12
TRANS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	9.664	96.64
1,1,2-TRICHLORORETHANE	02-Jul-91	10.00	13.210	132.10
TETRACHLOROETHYLENE	02-Jul-91	10.00	9.677	96.77
DIBROMOCHLOROMETHANE	02-Jul-91	10.00	9.272	92.72
BROMOFORM	02-Jul-91	10.00	8.382	83.82
1,1,2,2-TETRACHLOROETHANE	02-Jul-91	10.00	8.826	88.26
CHLOROBENZENE	02-Jul-91	10.00	16.916	169.16
1,3-DICHLOROBENZENE	02-Jul-91	10.00	8.402	84.02
1,4-DICHLOROBENZENE	02-Jul-91	10.00	8.596	85.96
1,2-DICHLOROBENZENE	02-Jul-91	10.00	7.971	79.71
BENZENE	02-Jul-91	10.00	6.426	64.26
TOLUENE	02-Jul-91	10.00	6.438	64.38
ETHYLBENZENE	02-Jul-91	10.00	6.557	65.57

SURROGATES MATRIX: WATER
8010-8020

PARAMETER	SAMPLE #	DATE	PPB	ACT PPB	% REC
TRIFLUOROTOLUENE	BLANK	02-Jul-91	20.00	7.360	36.80
BROMOCHLOROMETHANE	BLANK	02-Jul-91	20.00	4.374	21.87
2-BROMO-1-CHLOROPROPANE	BLANK	02-Jul-91	20.00	9.367	46.84
1,4-DICHLOROBUTANE	BLANK	02-Jul-91	20.00	11.494	57.47
TRIFLUOROTOLUENE	8010 MIX	02-Jul-91	20.00	16.423	82.12
BROMOCHLOROMETHANE	8010 MIX	02-Jul-91	20.00	15.929	79.65
2-BROMO-1-CHLOROPROPANE	8010 MIX	02-Jul-91	20.00	18.816	94.08
1,4-DICHLOROBUTANE	8010 MIX	02-Jul-91	20.00	18.718	93.59
TRIFLUOROTOLUENE	8020 MIX	02-Jul-91	20.00	16.168	80.84
BROMOCHLOROMETHANE	8020 MIX	02-Jul-91	20.00	14.897	74.49
2-BROMO-1-CHLOROPROPANE	8020 MIX	02-Jul-91	20.00	18.955	94.77
1,4-DICHLOROBUTANE	8020 MIX	02-Jul-91	20.00	18.377	91.88
TRIFLUOROTOLUENE	9106026407	02-Jul-91	20.00	16.520	82.60
BROMOCHLOROMETHANE	9106026407	02-Jul-91	20.00	16.215	81.08
2-BROMO-1-CHLOROPROPANE	9106026407	02-Jul-91	20.00	17.865	89.32
1,4-DICHLOROBUTANE	9106026407	02-Jul-91	20.00	17.488	87.44
TRIFLUOROTOLUENE	9106026408	02-Jul-91	20.00	16.021	80.11
BROMOCHLOROMETHANE	9106026408	02-Jul-91	20.00	17.322	86.61
2-BROMO-1-CHLOROPROPANE	9106026408	02-Jul-91	20.00	18.776	93.88
1,4-DICHLOROBUTANE	9106026408	02-Jul-91	20.00	18.614	93.07
TRIFLUOROTOLUENE	9106026409	02-Jul-91	20.00	15.673	78.37
BROMOCHLOROMETHANE	9106026409	02-Jul-91	20.00	17.463	87.32
2-BROMO-1-CHLOROPROPANE	9106026409	02-Jul-91	20.00	18.051	90.26
1,4-DICHLOROBUTANE	9106026409	02-Jul-91	20.00	18.187	90.94
TRIFLUOROTOLUENE	9106026410	02-Jul-91	20.00	15.450	77.25
BROMOCHLOROMETHANE	9106026410	02-Jul-91	20.00	17.472	87.36
2-BROMO-1-CHLOROPROPANE	9106026410	02-Jul-91	20.00	19.836	99.18
1,4-DICHLOROBUTANE	9106026410	02-Jul-91	20.00	18.327	91.64
TRIFLUOROTOLUENE	9106026411	02-Jul-91	20.00	15.526	77.63
BROMOCHLOROMETHANE	9106026411	02-Jul-91	20.00	20.243	101.21
2-BROMO-1-CHLOROPROPANE	9106026411	02-Jul-91	20.00	20.529	102.65
1,4-DICHLOROBUTANE	9106026411	02-Jul-91	20.00	18.595	92.98
TRIFLUOROTOLUENE	9106026412	02-Jul-91	20.00	14.750	73.75
BROMOCHLOROMETHANE	9106026412	02-Jul-91	20.00	19.280	96.40
2-BROMO-1-CHLOROPROPANE	9106026412	02-Jul-91	20.00	17.861	89.31
1,4-DICHLOROBUTANE	9106026412	02-Jul-91	20.00	17.483	87.42
TRIFLUOROTOLUENE	9106026413	02-Jul-91	20.00	14.244	71.22
BROMOCHLOROMETHANE	9106026413	02-Jul-91	20.00	16.908	84.54
2-BROMO-1-CHLOROPROPANE	9106026413	02-Jul-91	20.00	17.921	89.61
1,4-DICHLOROBUTANE	9106026413	02-Jul-91	20.00	17.245	86.23
TRIFLUOROTOLUENE	LFB #1	02-Jul-91	20.00	14.086	70.43
BROMOCHLOROMETHANE	LFB #1	02-Jul-91	30.00	29.313	97.71
2-BROMO-1-CHLOROPROPANE	LFB #1	02-Jul-91	20.00	20.271	101.36
1,4-DICHLOROBUTANE	LFB #1	02-Jul-91	20.00	18.556	92.78
TRIFLUOROTOLUENE	LFB #2	02-Jul-91	20.00	13.864	69.32
BROMOCHLOROMETHANE	LFB #2	02-Jul-91	30.00	29.993	99.98
2-BROMO-1-CHLOROPROPANE	LFB #2	02-Jul-91	20.00	20.488	102.44
1,4-DICHLOROBUTANE	LFB #2	02-Jul-91	20.00	18.723	93.62

QUALITY CONTROL DATA MATRIX: WATER
MATRIX SPIKE

RAMETER	SAMPLE #	DATE	SAMPLE	SPIKE	T.V.	SPIKE CON	% REC
NYL CHLORIDE	9106026615	02-Jul-91	0.000	21.220	20.000	20.000	106.10
1,1-DICHLOROETHENE	9106026615	02-Jul-91	0.000	15.975	20.000	20.000	79.88
LOROFORM	9106026615	02-Jul-91	3.452	85.167	23.452	20.000	363.15
1,1-TRICHLOROETHANE	9106026615	02-Jul-91	0.899	23.042	20.899	20.000	110.25
ARBON TETRACHLORIDE	9106026615	02-Jul-91	0.000	50.502	20.000	20.000	252.51
1,2-DICHLOROETHANE	9106026615	02-Jul-91	0.000	20.156	20.000	20.000	100.78
CHLOROETHENE	9106026615	02-Jul-91	24.790	55.653	44.790	20.000	124.25
OMODICHLOROMETHANE	9106026615	02-Jul-91	0.000	17.808	20.000	20.000	89.04
DIBROMOCHLOROMETHANE	9106026615	02-Jul-91	0.000	18.743	20.000	20.000	93.71
OMOFORM	9106026615	02-Jul-91	0.000	17.995	20.000	20.000	89.98
NZENE	9106026615	02-Jul-91	0.000	14.242	20.000	20.000	71.21
1,4-DICHLOROBENZENE	9106026615	02-Jul-91	0.000	16.300	20.000	20.000	81.50

QUALITY CONTROL DATA
MATRIX DUPLICATES

PARAMETER	DATE	SAMPLE	DUPE	S+D	S-D	% DIFF.
NYL CHLORIDE	02-Jul-91	21.220	21.071	21.146	0.149	0.70
1-DICHLOROETHENE	02-Jul-91	15.975	15.234	15.605	0.741	4.75
LOROFORM	02-Jul-91	85.167	89.949	87.558	-4.782	-5.46
1,1-TRICHLOROETHANE	02-Jul-91	23.042	23.504	23.273	-0.462	-1.99
ARBON TETRACHLORIDE	02-Jul-91	50.502	54.382	52.442	-3.880	-7.40
2-DICHLOROETHANE	02-Jul-91	20.156	19.467	19.812	0.689	3.48
ICHLOROETHENE	02-Jul-91	55.653	56.561	56.107	-0.908	-1.62
ROMODICHLOROMETHANE	02-Jul-91	17.808	18.107	17.958	-0.299	-1.67
IBROMOCHLOROMETHANE	02-Jul-91	18.743	19.168	18.956	1.003	5.29
OMOFORM	02-Jul-91	17.995	19.272	18.634	-1.277	-6.85
NZENE	02-Jul-91	14.242	14.429	14.336	0.038	0.27
1,4-DICHLOROBENZENE	02-Jul-91	16.300	16.084	16.192	0.520	3.21

Matrix: Water

External Standard Report

ta File Name : C:\HPCHEM\2\DATA\07-02-91\001R0101.D
perator : WAYNE FORSBERG
cquired on : 02 Jul 91 11:44 AM
mple Name : 8LANK
n Time Bar Code:
nstrument Method: 8010SIG1.MTH
alysis Method : 8010SIG2.MTH
ltiplier : 1
ast Recalib : 13 JUN 91 10:54 AM

Instrument : #2
Vial Number : 1
Injection Number : 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

3. 2 in C:\HPCHEM\2\DATA\07-02-91\001R0101.D

c Time	Area	Type	Width	Ref#	UG/L	Name
3.447	* not found *			1		DICHLORODIFLUOROMETHANE
3.589	7359	BB	0.153	1	0.866	CHLOROMETHANE
3.884	* not found *			1		VINYL CHLORIDE
4.540	* not found *			1		BROMOMETHANE
4.738	* not found *			1		CHLOROETHANE
5.200	29212	BV	0.131	1	0.908	TRICHLOROFLUOROMETHANE
6.431	92511	BV	0.158	1	1.639	1,1-DICHLOROETHENE
6.920	* not found *			1		METHYL IODIDIE
7.486	* not found *			1		ALLYL CHLORIDE
7.867	* not found *			1		METHYLENE CHLORIDE
8.649	* not found *			1		TRANS-1,2-DICHLOROETHENE
9.782	* not found *			1		1,1-DICHLOROETHANE
11.673	197595	VV	0.115	1	4.374	BROMOCHLOROMETHANE
12.000	52816	VV	0.168	1	0.498	CHLOROFORM
2.172	* not found *			1		1,1,1-TRICHLOROETHANE
12.491	* not found *			1		CARBON TETRACHLORIDE
12.950	* not found *			1		1,2-DICHLOROETHANE
3.892	1615	BB	0.089	1	0.0376	TRICHLOROETHENE
4.416	6777	BV	0.112	1	0.348	1,2-DICHLOROPROPANE
14.690	* not found *			1		DIBROMOMETHANE
4.953	* not found *			1		BROMODICHLOROMETHANE
5.461	* not found *			1		2-CHLOROETHYL VINYL ETHER
15.682	* not found *			1		CIS-1,3-DICHLOROPROPENE
16.615	575169	BV	0.099	1	9.367	TRANS-1,3-DICHLOROPROPENE
5.729	* not found *			1		2-BROMO-1-CHLOROPROPANE
16.890	* not found *			1		1,1,2-TRICHLOROETHANE
17.080	* not found *			1		TETRACHLOROETHENE
7.499	* not found *			1		DIBROMOCHLOROMETHANE
7.686	* not found *			1		1,2-DIBROMOETHANE
18.419	* not found *			1		CHLOROBENZENE
3.539	* not found *			1		1,1,1,2-TETRACHLOROETHANE
9.704	* not found *			1		BROMOFORM
20.001	595725	PV	0.082	1	11.494	1,4-DICHLOROBUTANE
20.367	* not found *			1		1,1,2,2-TETRACHLOROETHANE
1.440	* not found *			1		1,2,3-TRICHLOROPROPANE
1.811	* not found *			1		1,3-DICHLOROBENZENE
21.939	* not found *			1		1,4-DICHLOROBENZENE
2.445	15289	BV	0.095	1	0.0105	1,2-DICHLOROBENZENE
4.691	* not found *			1		1,2-DIBROMO-3-CHLOROPROPANE

all calibrated peaks were found

External Standard Report

ta File Name : C:\HPCHEM\2\DATA\07-02-91\001F0101.D
perator : WAYNE FORSBERG
cquired on : 02 Jul 91 11:44 AM
mple Name : BLANK
n Time Bar Code:
nstrument Method: 8010SIG1.MTH
alysis Method : 8010SIG1.MTH
ltiplier : 1
ast Recalib : 19 JUN 91 02:11 PM

Instrument : #2
Vial Number : 1
Injection Number: 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

g. 1 in C:\HPCHEM\2\DATA\07-02-91\001F0101.D

et Time	Area	Type	Width	Ref#	UG/L	Name
3.854	* not found *			1		VINYL CHLORIDE
6.438	* not found *			1		1,1-DICHLOROETHENE
6.829	* not found *			1		METHYL IODIDE
8.602	* not found *			1		TRANS-1,2-DICHLOROETHENE
1.190	* not found *			1		METHYL ETHYL KETONE
12.847	* not found *			1		BENZENE
13.404	* not found *			1		FLUOROBENZENE
4.034	* not found *			1		TRICHLOROETHENE
14.358	1663	BB	0.066	1	7.360	TRIFLUOROTOLUENE
15.423	* not found *			1		2-CHLOROETHYL VINYL ETHER
5.643	* not found *			1		CIS-1,3-DICHLOROPROPENE
6.029	172	BB	0.054	1	0.702	TOLUENE
16.533	* not found *			1		TRANS-1,3-DICHLOROPROPENE
7.040	* not found *			1		TETRACHLOROETHENE
8.397	* not found *			1		CHLOROBENZENE
18.526	* not found *			1		ETHYLBENZENZE
18.701	* not found *			1		M & P XYLENES
9.326	* not found *			1		STYRENE & O-XYLENE
21.771	* not found *			1		1,3-DICHLOROBENZENE
21.902	* not found *			1		1,4-DICHLOROBENZENE
2.399	319	BB	0.052	1	0.955	1,2-DICHLOROBENZENE

+ all calibrated peaks were found

MEMORANDUM

TO: Steve Mockenhaupt

REFERENCE NO. 3944

FROM: David Dempsey

DATE: October 21, 1991

RE: Data Quality Assessment and Validation for Seven Groundwater and Two Soil Samples Collected during the August 1991 Sampling Event at the River Falls Wisconsin Site

---

The following details a data quality assessment and validation for seven groundwater and two soil samples collected during the August 1991 sampling event at the River Falls Wisconsin Site. The samples were analyzed for target volatile organic compounds (VOC) and metals by Pace Laboratories.[1] Quality assurance/quality control criteria are established in the analytical methods.[2]

Holding Time Periods

Holding time periods are defined in the analytical methods. Examining the analysis dates reveals all samples were analyzed within these holding time periods.

Method Blank Samples

Method blank samples are used to assess lab contamination of samples. As the method blank samples are analyte free, no direct evidence of lab contamination exists.

However, the lab reported that other samples analyzed with these investigative samples contained methylene chloride. Therefore, the methylene chloride results for the investigative samples are most likely carryover from these other samples. The detected methylene chloride results are, therefore, qualified as non detect (U).

Control Samples

Control samples are used to assess overall analytical accuracy. As the reported VOC and metals control sample recoveries are within limits, both methods are considered to be accurate.

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[1] Analytical methods are from "Test Methods for Evaluating Solid Wastes", SW-846, third edition, revision I, December 1987 and are summarized below:

VOC	-	8010/8020
metals	-	6010/7000 series

[2] Application of quality assurance/quality control criteria is consistent with "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses", February 1, 1988 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1, 1988.

Surrogate Compounds Percent Recoveries

Surrogate compounds are used to assess VOC data on a individual sample basis. However, surrogate compound data for samples W-01, W-02, W-03 and W-04 are not reported. As the method blank samples, soil samples and remaining groundwater samples surrogate recoveries are within limits, the method is considered to be in control.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

Matrix effects upon the data due to sample matrices are assessed using MS/MSD analyses. Sample W-02 underwent VOC MS/MSD analyses, while samples W-01, W-06 and W-07 underwent metals matrix spike analyses. Outlying recoveries are given in Table 1. The cadmium and copper data for sample W-01 are qualified as estimated (UJ), based on low matrix spike recoveries. Based on reviewing the remaining MS/MSD recoveries, no significant matrix effects are suspected.

Laboratory Duplicate Analyses

Duplicate metals analyses are used to assess precision of metals analyses. Samples W-01, W-07 and in house samples underwent duplicate analyses for all analytes, excluding lead. Agreement between these duplicate analyses show the methods were precise. Precision for lead analyses will be assessed using field duplicate samples.

Rinsate Sample

Sample W-05 is a rinsate sample used to assess cleanliness of sampling equipment. Zinc and 1,1,1-trichloroethane were detected in this sample at concentrations of 5 and 2.5 $\mu g/l$, respectively. As a result, the zinc data for samples W-03 and W-06 are qualified as estimated (J). No action on the 1,1,1-trichloroethane data is necessary.

Field Duplicate Samples

Overall precision for this event is assessed using field duplicate samples W-06 and W-07. As these data are in agreement, the overall precision is acceptable.

Overall Assessment

Detected methylene chloride data are most likely carryover from other samples and are qualified as non-detect (U). The cadmium and copper data for sample W-01 are qualified as estimated (UJ) based on low matrix spike recoveries. The zinc data for samples W-03 and W-06 are qualified as estimated (J) based on the rinsate sample data. The remaining data are accurate and precise, based on information in the data package.

TABLE 1

OUTLYING MS/MSD AND MATRIX SPIKE RECOVERIES

Sample ID	Analysis	Analyte	Percent Recovery MSD	MSD	Limits[1]	Qualifier[2]
W-01	Metals	Cadmium	71	-	75-125	UJ
		Copper	57	57	75-125	UJ
W-02	VOC	Chloromethane	165	176	17-152	NR
		Trichlorofluoromethane	190	189	47-85	NR
		1,1-dichloroethane	139	138	72-127	NR

[1] Limits set by Pace.
[2] Analyte datum for sample qualified as:

UJ - The analyte was checked for, but not detected. The associated value is an estimate.
NR - No qualifiers are required.

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MN. FILE COPY
REPORT OF LABORATORY ANALYSIS

#3944

CRA

OCT 03 91

September 27, 1991

Mr. David Dempsey
Conestoga, Rovers & Associates
382 W. County Rd. D
St. Paul, MN 55112

RE: PACE Project No. 910817.500
Client Reference: River Falls 3944

Dear Mr. Dempsey:

Enclosed is the revised report of laboratory analyses for samples received August 16, 1991.

For PACE sample numbers, 29063.7 and 29064.5, the method blank associated with these samples does not show methylene chloride above the MDL. However, there is some indication of methylene chloride contamination from other samples during that analytical run that may be in the range of two to three times the MDL. Because the level is similar to the amount detected in these samples, the possibility of contamination from laboratory sources cannot be ruled out.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Karen J. Reilly

Karen J. Reilly
Project Manager

Enclosures

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

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REPORT OF LABORATORY ANALYSIS

Conestoga Rovers & Associates
382 West County Road D
St. Paul, MN 55112

September 27, 1991
PACE Project Number: 910817500

Attn: Mr. David Dempsey

Client Reference: River Falls 3944

			MW4	MW2	MW1
PACE Sample Number:			10 0290564	10 0290572	10 0290580
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-01	W-02	W-03
Parameter	Units	MDL			
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Cadmium	ug/L	0.10	ND	ND	.2
Chromium	ug/L	1.0	1	1	1
Copper	ug/L	5.0	ND	ND	ND
Lead	ug/L	2.0	ND	ND	ND
Mercury	ug/L	0.2	ND	ND	ND
Zinc	mg/L	0.002	ND	ND	0.003
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
Date Analyzed			D 08/27/71	D 08/27/91	D 08/27/81
Chloromethane	ug/L	1.0	ND	ND	ND
Bromomethane	ug/L	1.5	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.5	ND	ND	ND
Vinyl chloride	ug/L	1.5	ND	ND	ND
Chloroethane	ug/L	1.0	ND	ND	ND
Methylene chloride	ug/L	1.0	1.8	ND	1.2
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.3	ND	ND	ND
1,1-Dichloroethane	ug/L	0.2	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.2	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.5	ND	ND	ND
Carbon tetrachloride	ug/L	0.3	ND	ND	ND
Bromodichloromethane	ug/L	0.2	ND	ND	ND
1,2-Dichloropropane	ug/L	0.2	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			MW4	MW2	MW4
PACE Sample Number:			10 0290564	10 0290572	10 0290580
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-01	W-02	W-03
Parameter	Units	MDL			
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND	ND	ND
Benzene	ug/L	1.0	ND	ND	ND
Dibromochloromethane	ug/L	1.0	ND	ND	ND
1,1,2-Trichloroethane	ug/L	1.0	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND	ND	ND
Bromoform	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	ND	ND
Toluene	ug/L	1.0	ND	ND	ND
Chlorobenzene	ug/L	1.0	ND	ND	ND
Ethyl benzene	ug/L	1.0	ND	ND	ND
1,3-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,2-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,4-Dichlorobenzene	ug/L	4.0	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			Rental	RB	MW3
PACE Sample Number:			10 0290599	10 0290602	10 0290610
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-04	W-05	W-06
Parameter	Units	MDL			
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Cadmium	ug/L	0.10	.1	ND	ND
Chromium	ug/L	1.0	ND	ND	41
Copper	ug/L	5.0	ND	ND	ND
Lead	ug/L	2.0	ND	ND	ND
Mercury	ug/L	0.2	-	ND	ND
Mercury	ug/L	0.20	ND	-	-
Zinc	mg/L	0.002	0.14	0.005	0.004
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
Date Analyzed			D 08/27/91	D 08/29/91	D 08/29/91
Chloromethane	ug/L	1.0	ND	ND	ND
Bromomethane	ug/L	1.5	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.5	ND	ND	ND
Vinyl chloride	ug/L	1.5	ND	ND	ND
Chloroethane	ug/L	1.0	ND	ND	ND
Methylene chloride	ug/L	1.0	1.2	ND	ND
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.3	ND	ND	0.6
1,1-Dichloroethane	ug/L	0.2	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.2	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.5	ND	2.5	14
Carbon tetrachloride	ug/L	0.3	ND	ND	ND
Bromodichloromethane	ug/L	0.2	ND	ND	ND
1,2-Dichloropropane	ug/L	0.2	ND	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			Rental	RB	MW3
PACE Sample Number:			10 0290599	10 0290602	10 0290610
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-04	W-05	W-06
Parameter	Units	MDL			
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
1,1,2-Trichloroethylene	ug/L	0.5	ND	ND	ND
Benzene	ug/L	1.0	ND	ND	ND
Dibromochloromethane	ug/L	1.0	ND	ND	ND
1,1,2-Trichloroethane	ug/L	1.0	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND	ND	ND
Bromoform	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	ND	ND
Toluene	ug/L	1.0	ND	ND	ND
Chlorobenzene	ug/L	1.0	ND	ND	ND
Ethyl benzene	ug/L	1.0	ND	ND	ND
1,3-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,2-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,4-Dichlorobenzene	ug/L	4.0	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MW3

PACE Sample Number:			10 0290629
Date Collected:			08/16/91
Date Received:			08/16/91
Client Sample ID:			W-07
Parameter	Units	MDL	
INORGANIC ANALYSIS			
INDIVIDUAL PARAMETERS			
Cadmium	ug/L	0.10	ND
Chromium	ug/L	1.0	41
Copper	ug/L	5.0	ND
Lead	ug/L	2.0	ND
Mercury	ug/L	0.2	ND
Zinc	mg/L	0.002	ND
ORGANIC ANALYSIS			
PURGEABLE HALOCARBONS AND AROMATICS			
Date Analyzed			D 08/29/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Trichlorofluoromethane	ug/L	0.4	ND
1,1-Dichloroethylene	ug/L	0.3	0.4
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,2-Dichloroethane	ug/L	0.2	ND
1,1,1-Trichloroethane	ug/L	0.5	19
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
1,2-Dichloropropane	ug/L	0.2	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MW3

PACE Sample Number:			10 0290629
Date Collected:			08/16/91
Date Received:			08/16/91
Client Sample ID:			W-07
Parameter	Units	MDL	
ORGANIC ANALYSIS			
PURGEABLE HALOCARBONS AND AROMATICS			
Benzene	ug/L	1.0	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

Tank Samples

PACE Sample Number:			10 0290637	10 0290645
Date Collected:			08/16/91	08/16/91
Date Received:			08/16/91	08/16/91
Client Sample ID:			S-North	S-South
Parameter	Units	MDL		
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cadmium	mg/kg	0.4	ND	ND
Chromium	mg/kg	0.6	11	5.1
Copper	mg/kg	0.7	18	7.4
Lead	mg/kg	1.6	2.8	ND
Mercury	ug/g	0.02	ND	ND
Zinc	mg/kg	0.2	23	6.7
ORGANIC ANALYSIS				
8010 & 8020 VOLATILES				
Date Analyzed			D 08/29/91	D 08/29/91
Chloromethane	ug/kg	120	ND	ND
Bromomethane	ug/kg	190	ND	ND
Dichlorodifluoromethane	ug/kg	190	ND	ND
Vinyl chloride	ug/kg	190	ND	ND
Chloroethane	ug/kg	120	ND	ND
Methylene Chloride	ug/kg	120	410	330
Trichlorofluoromethane	ug/kg	50	ND	ND
1,1-Dichloroethylene	ug/kg	38	ND	ND
1,1-Dichloroethane	ug/kg	25	ND	ND
trans-1,2-Dichloroethylene	ug/kg	38	ND	ND
Chloroform	ug/kg	62	ND	ND
1,2-Dichloroethane	ug/kg	25	ND	ND
1,1,1-Trichloroethane	ug/kg	62	ND	ND
Carbon tetrachloride	ug/kg	38	ND	ND
Bromodichloromethane	ug/kg	25	ND	ND
1,2-Dichloropropane	ug/kg	25	ND	ND
cis-1,3-Dichloro-1-propene	ug/kg	62	ND	ND
1,1,2-Trichloroethylene	ug/kg	62	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PACE Sample Number:			10 0290637	10 0290645
Date Collected:			08/16/91	08/16/91
Date Received:			08/16/91	08/16/91
Client Sample ID:			S-North	S-South
Parameter	Units	MDL		
ORGANIC ANALYSIS				
8010 & 8020 VOLATILES				
Benzene	ug/kg	120	ND	ND
Dibromochloromethane	ug/kg	120	ND	ND
1,1,2-Trichloroethane	ug/kg	120	ND	ND
trans-1,3-Dichloro-1-propene	ug/kg	38	ND	ND
2-Chloroethylvinyl ether	ug/kg	620	ND	ND
Bromoform	ug/kg	120	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	120	ND	ND
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND	ND
Toluene	ug/kg	120	ND	ND
Chlorobenzene	ug/kg	120	ND	ND
Ethylbenzene	ug/kg	120	ND	ND
Xylenes,total	ug/kg	120	ND	ND
1,3-Dichlorobenzene	ug/kg	500	ND	ND
1,2-Dichlorobenzene	ug/kg	500	ND	ND
1,4-Dichlorobenzene	ug/kg	500	ND	ND
cis-1,2-Dichloroethylene	ug/kg	62	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

These data have been reviewed and are approved for release.

Starla Enger
Inorganic Chemistry Manager

Liesa Shanahan
Organic Chemistry Manager

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

Summary List of Samples Analyzed

Sample Number	Date of Receipt	Date of Extraction	Date of Analysis
10 029056.4	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029057.2	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029058.0	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029059.9	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029060.2	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029061.0	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029062.9	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029063.7	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029064.5	8-16-91		601/602 8-29-91 (D) metals see sheet

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Metals : Dates Analyzed

Sample # 29056.4

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29057.2

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29058.0

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Metals : Dates Analyzed

Sample # 29059.9

Hg	9-3-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29060.2

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29061.0

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Metals : Dates Analyzed

Sample # 29062.9

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29063.7

Hg	9-4-91
ZN	9-4-91
Pb	9-4-91
Cd	9-4-91
Cr	9-4-91
Cu	9-4-91

Sample # 29064.5

Hg	9-4-91
ZN	9-4-91
Pb	9-4-91
Cd	9-4-91
Cr	9-4-91
Cu	9-4-91

Mr. David Dempsey
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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/27/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Trichlorofluoromethane	ug/L	0.4	ND
1,1-Dichloroethylene	ug/L	0.3	ND
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,2-Dichloroethane	ug/L	0.2	ND
1,1,1-Trichloroethane	ug/L	0.5	ND
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
1,2-Dichloropropane	ug/L	0.2	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND
Benzene	ug/L	1.0	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
PURGEABLE HALOCARBONS AND AROMATICS			
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0290572 W-02	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/L	1.0	ND	20.00	165%	176%	6%
Bromomethane	ug/L	1.5	ND	20.00	93%	90%	3%
Vinyl chloride	ug/L	1.5	ND	20.00	79%	81%	2%
Chloroethane	ug/L	1.0	ND	20.00	131%	130%	0%
Methylene chloride	ug/L	1.0	ND	20.00	114%	114%	0%
Trichlorofluoromethane	ug/L	0.4	ND	20.00	190%	189%	0%
1,1-Dichloroethylene	ug/L	0.3	ND	20.00	147%	145%	1%
1,1-Dichloroethane	ug/L	0.2	ND	20.00	139%	138%	0%
Chloroform	ug/L	0.5	ND	20.00	121%	121%	0%
Carbon tetrachloride	ug/L	0.3	ND	20.00	101%	100%	0%
1,2-Dichloropropane	ug/L	0.2	ND	20.00	115%	115%	0%
1,1,2-Trichloroethylene	ug/L	0.5	ND	20.00	115%	115%	0%
Benzene	ug/L	1.0	ND	20.00	104%	107%	2%
Dibromochloromethane	ug/L	1.0	ND	20.00	107%	109%	1%
1,1,2-Trichloroethane	ug/L	1.0	ND	20.00	96%	98%	2%
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	20.00	101%	101%	0%
Chlorobenzene	ug/L	1.0	ND	20.00	96%	98%	2%
1,3-Dichlorobenzene	ug/L	4.0	ND	20.00	79%	80%	1%
1,4-Dichlorobenzene	ug/L	4.0	ND	20.00	78%	80%	2%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/29/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Acetone	ug/L	40	ND
Trichlorofluoromethane	ug/L	0.4	ND
Allyl chloride	ug/L	4.0	ND
1,1-Dichloroethylene	ug/L	0.3	ND
Tetrahydrofuran	ug/L	15	ND
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND
Ethyl ether	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.7	ND
Methyl ethyl ketone	ug/L	20	ND
1,2-Dichloroethane	ug/L	0.2	ND
Dibromomethane	ug/L	1.5	ND
1,1,1-Trichloroethane	ug/L	0.5	ND
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
Dichloroacetonitrile	ug/L	1.0	ND
2,3-Dichloro-1-propene	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.2	ND
1,1-Dichloro-1-propene	ug/L	1.0	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

METHOD BLANK:

Parameter	Units	MDL	Method Blank
MDH VOLATILE ORGANICS-465C			
Benzene	ug/L	1.0	ND
1,3-Dichloropropane	ug/L	0.6	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
1,2-Dibromoethane	ug/L	4.0	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	ND
Methyl isobutyl ketone	ug/L	1.0	ND
1,2,3-Trichloropropane	ug/L	4.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Pentachloroethane	ug/L	2.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND
Cumene	ug/L	1.0	ND
m-Xylene	ug/L	1.0	ND
p-Xylene	ug/L	1.0	ND
o-Xylene	ug/L	1.0	ND
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
Dichlorofluoromethane	ug/L	1.0	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/29/91
Chloromethane	ug/kg	120	ND
Bromomethane	ug/kg	190	ND
Dichlorodifluoromethane	ug/kg	190	ND
Vinyl chloride	ug/kg	190	ND
Chloroethane	ug/kg	120	ND
Methylene Chloride	ug/kg	120	ND
Acetone	ug/kg	5000	ND
Trichlorofluoromethane	ug/kg	50	ND
Allyl chloride	ug/kg	500	ND
1,1-Dichloroethylene	ug/kg	38	ND
Tetrahydrofuran	ug/kg	1800	ND
1,1-Dichloroethane	ug/kg	25	ND
trans-1,2-Dichloroethylene	ug/kg	38	ND
cis-1,2-Dichloroethylene	ug/kg	62	ND
Ethyl ether	ug/kg	38	ND
Chloroform	ug/kg	62	ND
1,1,2-Trichlorotrifluoroethane	ug/kg	88	ND
Methyl ethyl ketone	ug/kg	2500	ND
1,2-Dichloroethane	ug/kg	25	ND
Dibromomethane	ug/kg	180	ND
1,1,1-Trichloroethane	ug/kg	62	ND
Carbon tetrachloride	ug/kg	38	ND
Bromodichloromethane	ug/kg	25	ND
Dichloroacetonitrile	ug/kg	10000	ND
2,3-Dichloro-1-propene	ug/kg	62	ND
1,2-Dichloropropane	ug/kg	25	ND
1,1-Dichloro-1-propene	ug/kg	120	ND
cis-1,3-Dichloro-1-propene	ug/kg	62	ND
1,1,2-Trichloroethylene	ug/kg	62	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

METHOD BLANK:

Parameter	Units	MDL	Method Blank
MDH VOLATILE ORGANICS SOIL EXTRACT-465C			
Benzene	ug/kg	120	ND
1,3-Dichloropropane	ug/kg	75	ND
Dibromochloromethane	ug/kg	120	ND
1,1,2-Trichloroethane	ug/kg	120	ND
trans-1,3-Dichloro-1-propene	ug/kg	38	ND
1,2-Dibromoethane	ug/kg	500	ND
2-Chloroethylvinyl ether	ug/kg	620	ND
Bromoform	ug/kg	120	ND
1,1,1,2-Tetrachloroethane	ug/kg	38	ND
Methyl isobutyl ketone	ug/kg	120	ND
1,2,3-Trichloropropane	ug/kg	500	ND
1,1,2,2-Tetrachloroethane	ug/kg	120	ND
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND
Pentachloroethane	ug/kg	250	ND
Toluene	ug/kg	120	ND
Chlorobenzene	ug/kg	120	ND
Ethylbenzene	ug/kg	120	ND
Cumene	ug/kg	120	ND
m-Xylene	ug/kg	120	ND
p-Xylene	ug/kg	120	ND
o-Xylene	ug/kg	120	ND
1,3-Dichlorobenzene	ug/kg	500	ND
1,2-Dichlorobenzene	ug/kg	500	ND
1,4-Dichlorobenzene	ug/kg	500	ND
Dichlorofluoromethane	ug/kg	120	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

Mercury
BLK - ND
STD - 104% Recovery

Lead
(8-27-91)
BLK - ND
STD - 103% Recovery

Cadmium
(8-22-91)
BLK - ND
STD - 99% Recovery

Chromium
(8-23-91)
BLK - 0.03 ug/L
STD - 96% Recovery

Copper
(8-23-91)
BLK - ND
STD - 111% Recovery

Zinc
BLK - <0.002 mg/L
STD - 107% recovery

Cadmium
(9-4-91)
BLK - <0.004 mg/L
STD - 103% Recovery

Chromium (9-4-91)

BLK - <0.006 ug/L
STD - 102 % Recovery

Copper (9-4-91)

BLK - <0.007 ug/L
STD - 102 % Recovery

Lead (9-4-91)

BLK - <0.016 ug/L
STD - 104 % Recovery

SUBSET ABBREVIATION: 465C

SUBSET CATEGORY: Q

SUBSET NAME: MDH VOLATILE ORGANICS-465C

DATE COLLECTED: _____

CLIENT NAME: _____

DATE RECEIVED: _____

PROJECT NUMBER: _____

MATRIX: _____

DATA REVIEWED BY: _____

DATE EXTRACTED/BY: _____

ENTERED BY: _____

INITIAL VOL: _____

SAMPLE NAME: _____

FINAL VOL: _____

SAMPLE NUMBER: Daily Calibration Check

ANALYZED BY: TAW

PARAMETER NAME	ABBREV.	MDL (UNITS: ug/L)	Calib Stds DATE: 8/29/91 DIL: 5ml INST: C	True Value DATE: DIL: INST: C	Method Blank 8/29/91 FINAL RESULTS C/20
Date Analyzed	465C DA				
Chloromethane	CHLOROMETH	1.0	20.4	20.0	ND
Bromomethane	BROMOMETH	1.5	* 47.4	↓	↓
Dichlorodifluoromethane	FREON12	1.5	20.0	↓	↓
Vinyl chloride	VINYLCHLOR	1.5	21.2	↓	↓
Chloroethane	CHLOROETH	1.0	* 71.7	↓	↓
Methylene chloride	MECL	1.0	26.2	↓	↓
Acetone	ACETONE	40	451	200	↓
Trichlorofluoromethane	FREON11	0.4	24.7	20.0	↓
Allyl chloride	ALLYL CHL	4.0	20.1	↓	↓
1,1-Dichloroethylene	11DCEENE	0.3	27.9	↓	↓
Tetrahydrofuran	THF	15	229	200	↓
1,1-Dichloroethane	11DCEANE	0.2	25.8	20.0	↓
Trans-1,2-Dichloroethylene	TRANS12DCE	0.3	26.3	↓	↓
Cis-1,2-Dichloroethylene	CIS12DCE	0.5	22.6	↓	↓
Methyl ether	ETHYLETHER	0.3	46.1	↓	↓
Chloroform	CHLOROFORM	0.5	23.1	↓	↓
1,1,2-Trichlorotrifluoroethane	FREON113	0.7	17.6	↓	↓
Methyl ethyl ketone	MEK	20	97.9	200	↓
1,2-Dichloroethane	12DCEANE	0.2	20.0	20.0	↓
Dibromomethane	DIBROMETH	1.5	20.0	↓	↓
1,1,1-Trichloroethane	111TCEANE	0.5	23.4	↓	↓
Carbon tetrachloride	CARBONTET	0.3	24.3	↓	↓
Bromodichloromethane	BDCMETHANE	0.2	20.2	↓	↓

COMMENTS: * coelutes

DATE: 05/07/91

PARAMETER NAME	ABBREV.	MDL	UNITS: ug/L DATE: DIL: INST:	DATE: DIL: INST:	FINAL RESULTS
Dichloroacetonitrile	DCACETONIT	1.0	81.6	80.0	ND
2,3-Dichloro-1-propene	23DCPENE	0.5	18.2	20.0	
2-Dichloropropane	12DCPANE	0.2	25.5	↓	
1-Dichloro-1-propene	11DCPENE	1.0	19.4	↓	
cis-1,3-Dichloro-1-propene	CIS13DCP	0.5	21.7	30.0	
1,2-Trichloroethylene	TCE	0.5	22.7	20.0	
benzene	BENZENE	1.0	18.9	↓	
1,3-Dichloropropane	13DCPANE	0.6	21.9	↓	
bromochloromethane	DBCMETHANE	1.0	21.4	40.0	
1,2-Trichloroethane	112TCEANE	1.0	21.5	40.0	
trans-1,3-Dichloro-1-propene	TRANS13DCP	0.3	25.6	10.0	
2-Dibromoethane	EDB	4.0	20.3	20.0	
2-Chloroethylvinyl ether	2CEVETHER	5.0	—	↓	
Bromoform	BROMOFORM	1.0	23.3	↓	
1,1,2-Tetrachloroethane	1112TTEANE	0.3	20.6	↓	
methyl isobutyl ketone	MIBK	1.0	23.7	↓	
1,2,3-Trichloropropane	123TCPANE	4.0	21.1	↓	
1,2,2-Tetrachloroethane	1122TTEANE	1.0	24.5	↓	
1,1,2,2-Tetrachloroethylene	1122TTEENE	1.0	22.4	↓	
Pentachloroethane	PENTACEANE	2.0	23.7	↓	
Toluene	TOLUENE	1.0	20.0	↓	
Chlorobenzene	CHLOROBENZ	1.0	20.6	↓	
Ethyl benzene	ETHYLBENZ	1.0	20.4	↓	
Cumene	CUMENE	1.0	24.6	↓	
m-Xylene	M-XYLENE	1.0	20.5	↓	
p-Xylene	P-XYLENE	1.0	25.0	↓	
o-Xylene	O-XYLENE	1.0	24.7	↓	
1,3-Dichlorobenzene	13DCBENZ	4.0	24.7	↓	
1,2-Dichlorobenzene	12DCBENZ	4.0	21.0	↓	
1,4-Dichlorobenzene	14DCBENZ	4.0	18.7	↓	
Dichlorofluoromethane	FREON21	1.0	19.8	↓	↓

DRL
5/13/91

COMMENTS:

DATE: 05/07/91

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
PURGEABLE HALOCARBONS AND AROMATICS			
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0290572 W-02	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/L	1.0	ND	20.00	165%	176%	6%
Bromomethane	ug/L	1.5	ND	20.00	93%	90%	3%
Vinyl chloride	ug/L	1.5	ND	20.00	79%	81%	2%
Chloroethane	ug/L	1.0	ND	20.00	131%	130%	0%
Methylene chloride	ug/L	1.0	ND	20.00	114%	114%	0%
Trichlorofluoromethane	ug/L	0.4	ND	20.00	190%	189%	0%
1,1-Dichloroethylene	ug/L	0.3	ND	20.00	147%	145%	1%
1,1-Dichloroethane	ug/L	0.2	ND	20.00	139%	138%	0%
Chloroform	ug/L	0.5	ND	20.00	121%	121%	0%
Carbon tetrachloride	ug/L	0.3	ND	20.00	101%	100%	0%
1,2-Dichloropropane	ug/L	0.2	ND	20.00	115%	115%	0%
1,1,2-Trichloroethylene	ug/L	0.5	ND	20.00	115%	115%	0%
Benzene	ug/L	1.0	ND	20.00	104%	107%	2%
Dibromochloromethane	ug/L	1.0	ND	20.00	107%	109%	1%
1,1,2-Trichloroethane	ug/L	1.0	ND	20.00	96%	98%	2%
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	20.00	101%	101%	0%
Chlorobenzene	ug/L	1.0	ND	20.00	96%	98%	2%
1,3-Dichlorobenzene	ug/L	4.0	ND	20.00	79%	80%	1%
1,4-Dichlorobenzene	ug/L	4.0	ND	20.00	78%	80%	2%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0293105	Spike	Spike Recv	Spike Dupl Recv	RPD
Dichlorodifluoromethane	ug/L	1.5	ND	20.00	25%	26%	3%
trans-1,2-Dichloroethylene	ug/L	0.3	ND	20.00	128%	138%	7%
1,2-Dichloroethane	ug/L	0.2	0.2	20.00	98%	102%	4%
1,1,1-Trichloroethane	ug/L	0.5	ND	20.00	129%	135%	4%
Bromodichloromethane	ug/L	0.2	ND	20.00	100%	103%	2%
2,3-Dichloro-1-propene	ug/L	0.5	ND	20.00	83%	85%	2%
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	33.4	120%	121%	0%
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	7.84	144%	147%	2%
1,2-Dibromoethane	ug/L	4.0	ND	20.00	96%	100%	4%
Bromoform	ug/L	1.0	ND	20.00	125%	128%	2%
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	20.00	148%	149%	0%
Toluene	ug/L	1.0	1.6	20.00	97%	101%	4%
Ethyl benzene	ug/L	1.0	ND	20.00	99%	104%	4%
m-Xylene	ug/L	1.0	ND	20.00	110%	114%	3%
o-Xylene	ug/L	1.0	ND	20.00	111%	117%	5%
1,2-Dichlorobenzene	ug/L	4.0	ND	20.00	101%	105%	3%
Dichlorofluoromethane	ug/L	1.0	ND	20.00	126%	134%	6%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0285129	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/kg	120	ND(HT)	2500.00			
Bromomethane	ug/kg	190	ND	2500.00	120%	120%	0%
Vinyl chloride	ug/kg	190	ND	2500.00	64%	64%	0%
Chloroethane	ug/kg	120	ND	2500.00	120%	120%	0%
Methylene Chloride	ug/kg	120	160(B)	2500.00			
Trichlorofluoromethane	ug/kg	50	ND	2500.00	172%	156%	9%
1,1-Dichloroethylene	ug/kg	38	ND	2500.00	168%	164%	2%
1,1-Dichloroethane	ug/kg	25	ND	2500.00	128%	140%	8%
Chloroform	ug/kg	62	ND	2500.00	116%	120%	3%
Carbon tetrachloride	ug/kg	38	ND	2500.00	136%	136%	0%
1,2-Dichloropropane	ug/kg	25	ND	2500.00	148%	152%	2%
1,1,2-Trichloroethylene	ug/kg	62	ND	2500.00	116%	116%	0%
Benzene	ug/kg	120	ND	2500.00	108%	112%	3%
Dibromochloromethane	ug/kg	120	ND	5000.00	58%	58%	0%
1,1,2-Trichloroethane	ug/kg	120	ND	5000.00	52%	52%	0%
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND	2500.00	124%	120%	3%
Chlorobenzene	ug/kg	120	ND	2500.00	112%	108%	3%
1,3-Dichlorobenzene	ug/kg	500	ND	2500.00	140%	136%	2%
1,4-Dichlorobenzene	ug/kg	500	ND	2500.00	80%	76%	5%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference
B Compound also present in method blank.

Mercury

MS - 60%
(29125)

RPD - 8.3%
(29125)

Lead
(8-22-91)

MS - 81%
(29056)

MS - 78%
(29061)

Cadmium
(8.22.91)

MS - 71%
(29056)

MS - 89%
(29062)
Duplicate (295760) RPD - 13%

Chromium
(8-23-91)

MS - 115%
(29056)

RPD - 1.3%
(29125)

Copper
(8.23.91)

MS - 57%
(29056)

MS - 57%
(29056)
Duplicate (29576.0) RPD - 9%

Zinc	RPD - 1.04 (29056)
	MS - 104 % (29056)
Cadmium (9-4-91)	MS - 96% (29114)
Chromium (9-4-91)	MS - 104 % (29114)
Copper (9-4-91)	MS - 96% (29114)
Lead (9-4-91)	MS - 92% (29114)

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ANALYSIS: 601/602/465B
INSTRUMENT: ~~F~~ (D)
STANDARD: A
SAMPLE SPIKED: 29054.8
SAMPLE MATRIX: water

FILE NUMBER: Batch# 10 11666
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TAW
DATE ANALYZED: 8/29/91

CLIENT NAME: NA
PROJECT NAME: ↓
PROJECT NUMBER: ↓

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
HLOROMETHANE	20.0	ND	19.6	98.0	19.0	95.0	3.1	152 - 17	27	29054.8
ROMOMETHANE	↓	↓	13.8	* 69.0	13.0	*65.0	6.0	131 - 74	23	28887.0
INYL CHLORIDE			25.8	129	22.6	113	13	136 - 71	24	29050.5
HLOROETHANE			14.7	73.5	12.2	* 61.0	18	185 - 74	28	29361.0
ETHYLENE CHLORIDE			27.1	* TAW 136	26.3	132	3.0	136 - 33	28	29363.6
UCHLOROFLUOROMETHANE			18.9	94.5	17.3	86.5	8.8	85 - 47	30	29364.4
-DICHLOROETHYLENE			26.9	134	25.9	130	3.8	159 - 24	24	29366.0
-DICHLOROETHANE			31.9	*160	31.1	* 156	2.5	128 - 72	25	29368.7
ILOROFORM			27.5	138	26.0	130	5.6	150 - 51	23	29370.9
RBON TETRACHLORIDE			25.7	129	23.0	115	11	155 - 44	20	29369.5
-DICHLOROPROPANE			14.4	72.0	14.5	72.5	0.7	131 - 63	20	29053.0
2-TRICHLOROETHYLENE			23.0	115	21.8	109	5.4	128 - 61	53	
NZENE			21.2	106	21.4	107	0.9	133 - 68	15	
BROMOCHLORO METHANE	↓	↓	14.3	71.5	14.9	74.5	4.1	133 - 64	22	

M. Blank : 8102155
MS : 8102163
MSD : 8102171

SOILS

Cadmium	MS on # 29359.8	122%
	MS # 29114.5	96%
Chromium	MS # 29359.8	107%
	MS # 29114.5	104%
Copper	MS # 29359.8	104%
	MS # 29114.5	96%
Nickel	MS # 29359.8	115%
	MS # 29114.5	96%
Lead	MS # 29359.8	129%
	MS # 29114.5	92%
Zinc	MS # 29359.8	135%
	MS # 29114.5	97%

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

LYSIS: 601/602/465B
RUMENT: C
DARD: B
LE SPIKED: 29310.5
LE MATRIX: Water

FILE NUMBER: Batch # 10118B
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TAW
DATE ANALYZED: 8/29/91

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
ROMOMETHANE	20.0	ND	4.90	*24.5	5.16	*25.8	5.2	126 - 43	31	29060.2
ORIDE			25.2	* 126	26.8	*134	6.2	102 - 48	26	29310.5
2-DICHLOROETHYLENE		↓	25.6	*128	27.5	*140	7.2	121 - 59	17	29061.0
LOROETHANE		0.22	19.7	97.4	20.5	102	4.0	131 - 47	18	29062.9
TRICHLOROETHANE		ND	25.8	* 129	27.0	*135	4.5	119 - 63	22	29301.6
LOROMETHANE			19.9	99.5	20.5	102	3.0	116 - 73	14	29302.4
LORO-1-PROPENE	↓		16.6	83.0	17.0	85.0	2.4	118 - 61	14	29919.1
DICHLORO-1-PROPENE	33.4		40.0	120	40.5	119	1.2	124 - 46	18	29975.8
3-DICHLORO-1-PROPENE	7.84		11.3	*144	11.5	*147	0.9	114 - 65	33	29976.6
OMOETHANE	20.0		19.2	96.0	19.9	99.5	3.6	135 - 76	54	29978.2
ZENE			25.0	125	25.5	*128	2.0	127 - 64	71	
-TETRACHLOROETHANE	↓	↓	29.5	*148	29.7	*148	0.7	124 - 42	35	

of 2

MB 805570
MS ~~805589~~ 805600
MSD ~~805596~~ 805618

9/13/91

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

NALYSIS: 601/602/465B
NSTRUMENT: C
TANDARD: B
AMPLE SPIKED:
AMPLE MATRIX:

FILE NUMBER:
PREPED BY:
DATE PREPED:
ANALYZED BY:
DATE ANALYZED:

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
LUENE	20.0	1.56	20.9	96.7	21.3	102	4.2	123 - 68	8	
NZENE		ND	19.8	99.0	20.8	104	4.9	117 - 49	7	
XYLENE			21.9	110	22.7	114	3.6	126 - 69	10	
YLENE			22.1	110	23.3	116	5.3	124 - 78	8	
2-DICHLOROBENZENE			20.1	100	20.9	104	3.9	126 - 78	21	

Asterisked Values are outside QC Limits.

D: VOAs _____ out of ____ outside of QC Limits.

COVERY: VOAs _____ out of ____ outside of QC Limits.

ank: _____

mments: Low DCBF may indicate degradation of spike solution - watch for trend. This system was recently converted to cap column - limits have not been established

QC Reviewed by: DRd 9/13/91

DATE: 9/13/91

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ALYSIS: 601/602/465B
STRUMENT: C
ANDARD: A
MPLE SPIKED: 28512.9
MPLE MATRIX: soil

FILE NUMBER: Batch # ~~1012036~~ 1012040
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TM
DATE ANALYZED: 8/29/91

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
OROMETHANE	2500	ND	1200	50.0	880	35.2	30.8	146 - 59	16	28512.9
LOMETHANE	↓	↓	3000	120	3000	119	0.0	140 - 85	28	28828.4
YL CHLORIDE	↓	↓	1600	64.0	1600	64.0	0.0	148 - 83	22	28829.2
OROETHANE	↓	↓	3000	~~120~~ 118	3000	119	0.0	134 - 96	22	30007.1
THYLENE CHLORIDE	↓	160	3400	~~125~~ 130	3400	130	0.0	152 - 31	22	30008.0
CHLOROFLUOROMETHANE	↓	ND	4300	171	3900	156	9.7	124 - 46	30	28501.5
1-DICHLOROETHYLENE	↓	↓	4200	170	4100	166	2.4	132 - 40	18	29113.7
2-DICHLOROETHANE	↓	↓	3200	128	3500	139	9.0	126 - 61	13	29114.5
OROFORM	↓	↓	2900	116	3000	118	3.4	122 - 67	18	29115.3
BON TETRACHLORIDE	↓	↓	3400	136	3400	134	0.0	136 - 59	28	29116.1
2-DICHLOROPROPANE	↓	↓	3700	150	3800	150	2.7	127 - 63	23	29063.7
1, 2-TRICHLOROETHYLENE	↓	↓	2900	116	2900	116	0.0	117 - 72	20	29064.5
NZENE	↓	↓	2700	109	2800	112	3.6	120 - 79	20	
ROMOCHLORO METHANE	↓	↓	2900	117	2900	116	0.0	151 - 55	19	

8/29/91

MB ~~8105464~~ 8105626
MS 8105472
MSD 8105480

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ANALYSIS: 601/602/465B
INSTRUMENT: C
STANDARD: A
SAMPLE SPIKED:
SAMPLE MATRIX:

FILE NUMBER:
PREPED BY:
DATE PREPED:
ANALYZED BY:
DATE ANALYZED:

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
1, 1, 2-TRICHLOROETHANE	2500	ND	2600	104	2600	104	1.0	151 - 55	19	
2-CHLOROETHYLVINYL ETHER								145 - 82	30	
TETRACHLOROETHYLENE			3100	124	3000	120	1.6	122 - 60	16	
CHLOROBENZENE			2800	112	2700	108	3.2	141 - 32	17	
1, 3-DICHLOROBENZENE			3500	140	3400	136	4.4	150 - 46	10	
1, 4-DICHLOROBENZENE			2000	80.0	1900	76.0	6.5	111 - 70	11	

* Asterisked Values are outside QC Limits.

RPD: VOAs _____ out of ____ outside of QC Limits.
RECOVERY: VOAs _____ out of ____ outside of QC Limits.
Blank _____
Comments: _____

QC Reviewed by: _____
DATE: _____

VOLATILE ORGANICS BY GC

INSTRUMENT: (c)

ANALYZED BY: TKW

STANDARD:

DATE ANALYZED: 8/29/91

SAMPLE MATRIX: Soil

	LAB SAMPLE NO.	FLUORO-BENZENE	#
01	29063.7	100.3	
02	29064.5	99.4	
03			
04			
05			
06			
07			
08			
09			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Advisory QC Limits
± 20%

Sample = Fluorobenzene

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

VOLATILE ORGANICS BY GC

INSTRUMENT: ~~F~~ ~~D~~ (C)

ANALYZED BY: TAW

STANDARD: α,α,α-TRIFLUOROTOLUENE

DATE ANALYZED: 8/29/91

SAMPLE MATRIX: WATER

	LAB SAMPLE NO.	α,α,α-TRIFLUOROTOLUENE	#	
01	29310.5	104		
02	29063.7	101		
03	29061.0	99.4		w-06
04	29060.2	103		w-08
05	29061.0	103		
06	29062.9	100		w-07
07	293016	102		
08	296302.4	103		
09	28919.1	98.2		
11	29308.3	97.3		
12	29309.1	67.9	✓	
13	29975.3	98.9		
14	29976.6	102		
15	29977.4	104		
16	29979.2	108		
17	MeOH Blk	106		
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Advisory QC Limits
± 20%*

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Suite 104, 990 Hillcrest
Baldwin, WI 54002

Carroll D. Besadny
Secretary

File Ref:

May 20, 1991

Mr. Steve Mockenhaupt
CRA
382 W. Co. Rd. D.
St. Paul, MN 55112

SUBJECT: Exception Request for the Installation of Flush Grade Monitoring Wells Located at The Shannon Group facility--River Falls, WI.

Dear Mr. Mockenhaupt:

You have requested an exception to NR 141.13(3), (b), Wisconsin Administrative Code. When compliance with certain provisions of NR 141 are not practical, an exception must be granted pursuant to NR 141.31.

Flush-grade monitoring wells have been proposed for the above referenced site. Approval to construct these flush-grade monitoring wells is granted subject to the following conditions:

1. Flush-grade wells should <u>not</u> be constructed in topographically low areas where surface water ponds or flows during runoff events.

2. All flush-grade well casings (risers) should be capped with a 100% water tight lockable cap to prevent infiltration of contaminants into the well.

If you have any questions concerning this letter, please contact me at (715) 684-2914.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

CC: Bill Evans - WD
Dave Lundberg - WD

PJC/rh

CRA
Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510

RECEIVED
DEC 26 1991
Baldwin DNR

December 13, 1991

Reference No. 3944

Mr. Pat Collins
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
990 Hillcrest, Suite 105, Box 61
Baldwin, Wisconsin 54002

Dear Mr. Collins:

RE: The Shannon Group - River Falls Facility

After reviewing the Site Evaluation Report submitted to you on November 21, 1991, we discovered a potential error in some of the reports. Table 5.5 of this report was changed and may not have been inserted in all of the final reports.

Attached to this letter is the corrected Table 5.5 that should replace the Table 5.5 in your copies of the report.

If you have any questions, please contact us.

Yours Truly,

CONESTOGA-ROVERS & ASSOCIATES

S. E. Mockenhaupt

Stephen E. Mockenhaupt

Enc.
cc: Ken Kreye; The Shannon Group
Tim Thornton; Briggs & Morgan
Ron Frehner; CRA
SEM/jm

BRIGGS AND MORGAN

Professional Association
2400 IDS CENTER, 80 South 8th Street
Minneapolis, Minnesota 55402
Telephone (612) 334-8400

Fax Numbers: (612) 334-8650

Please deliver the following 7 pages (This count includes this cover sheet)

DATE: August 9, 1991

TO:

Pat Collins	(715) 684-2393
(Name)	(Fax Number)
(Company)	(Telephone Number)

FROM:

Timothy R. Thornton	(612) 334-8550
(Name of Sender)	(Telephone Number)

Instructions or Comments: ____

If you have any problems receiving these pages, please contact us at (612) 334-8520 and ask to speak with the FAX operator.

Data qualified as non-detect (U) are considered lab contamination, and are not in the samples. The Chloromethane and ~~[illegible]~~ 1,2-dichloroethane data are estimated due to poor analytical precision. The remaining data are acceptable.

Please call with any questions

District

Volrath / Shannon file
River Falls (St. Croix Co.)

RECEIVED
NOV 21 1991
Baldwin DNR

SITE EVALUATION

The Shannon Group
River Falls, Wisconsin

02-56-000046

PRINTED ON
NOV 20 1991

SITE EVALUATION

The Shannon Group
River Falls, Wisconsin

NOVEMBER 1991

REF. NO. 3944 (3)

CONESTOGA-ROVERS & ASSOCIATES

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1.0 INTRODUCTION

This report presents results of an environmental investigation undertaken for the Shannon Group at their River Falls, Wisconsin, facility (Site).

This investigation was requested by the Wisconsin Department of Natural Resources (WDNR) in response to volatile organic compounds (VOCs) being detected in a residential well west of the Site.

The WDNR raised a concern that properties near the residence, The Shannon Group and Tom Thumb (a fuel station) may be the source of VOCs being detected in the residential well and requested that both companies conduct a site evaluation of their properties.

Conestoga-Rovers and Associates (CRA) was retained by Briggs and Morgan to develop and implement a Work Plan, which was submitted to the WDNR on April 12, 1991. On April 25, 1991, representatives from The Shannon Group, CRA and the WDNR met to discuss the Work Plan, which was finalized in a letter to the WDNR on May 6, 1991. CRA conducted an investigation of soil and groundwater conditions at the Site during the summer of 1991 in according with the approved Work Plan.

This report presents the results of CRA's investigation conducted at The Shannon Group site.

2.0 STUDY OBJECTIVES

The objective of the environmental investigation was to evaluate whether or not The Shannon Group facility contributed to the VOC contamination in the off-site residential well.

3.0 BACKGROUND

3.1 SITE AND VICINITY FEATURES

The Shannon Group facility is located in River Falls, Wisconsin. The property is approximately six acres in size and predominantly occupied by one large manufacturing building. The facility is currently being used as a refrigeration appliance manufacturing facility.

The Site is located in a light industrial area. North of the facility is an open field and parking lot which is owned by The Shannon Group. To the northeast of the Site, a Tom Thumb store exists which sells grocery goods and gasoline. To the east of the Site is comprised of an auto parts store, a restaurant and other various offices. The land to the southeast is currently used to store bulk propane gas and propane gas tanks. To the south is open, undeveloped land with a storm water collection pond located approximately 400 feet from the Site. The land west of the Site is comprised of residential and agricultural areas.

The area is drained by the Kinnickinnic River which is located approximately a quarter mile north, south and west of the Site. The Kinnickinnic River flows southwesterly and joins the St. Croix River located approximately seven miles to the southwest.

Regionally, the geology is dominated by glacial processes. Surficial features consist of glacial drift sediments (sands, gravels and boulders) which include lake and outwash deposits, end moraines and ground moraines.

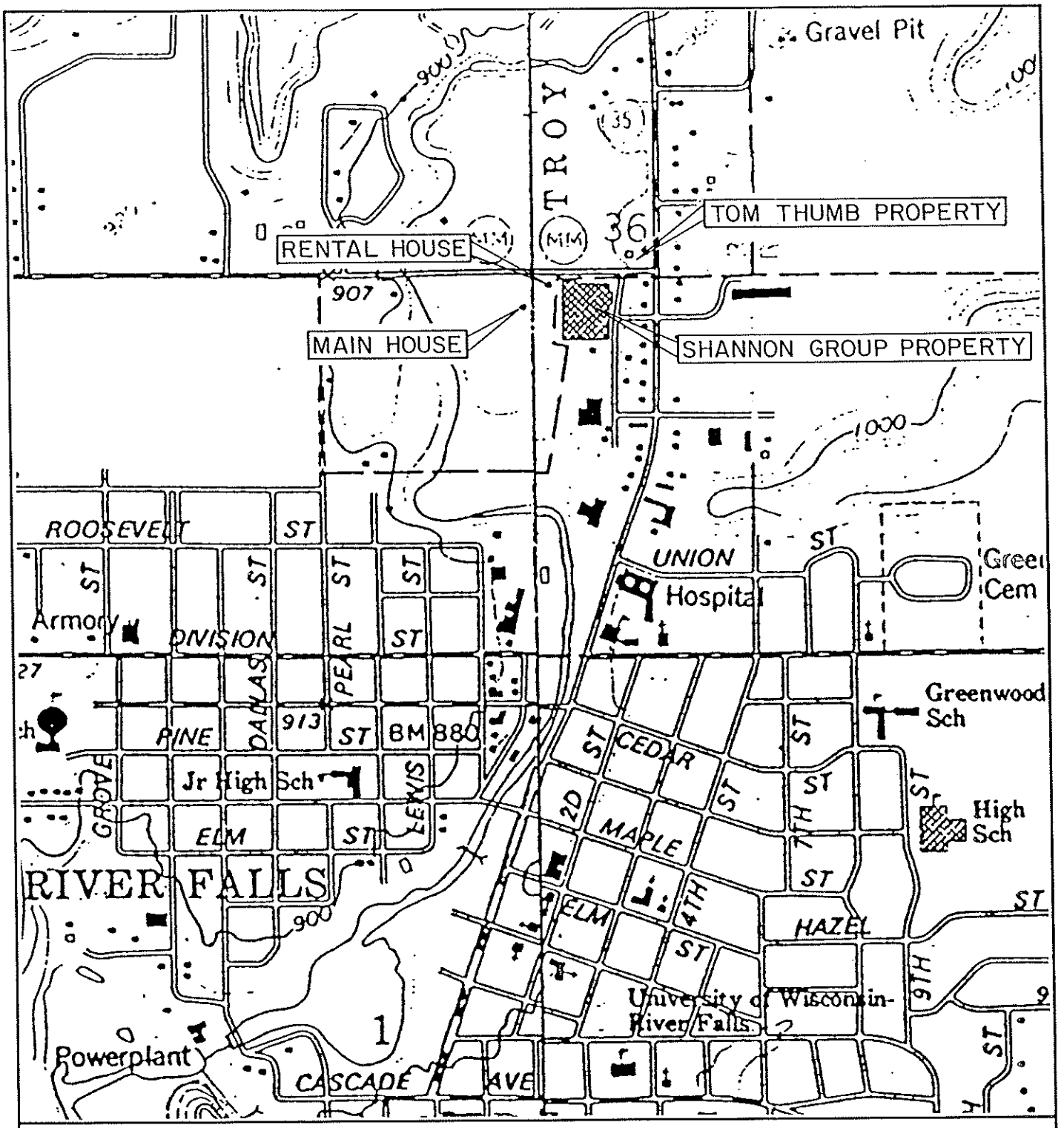
Locally, the sediments observed (to a depth of 25 feet below ground surface) were medium to fine grained sand with trace silts and clays. Gravel (20 to 30 percent) was noted in the upper ten feet of the stratigraphy. Below ten feet from ground surface, a clean sand (light brown) with trace gravel (<10 percent) was observed. These sediments are typical of glacial outwash environments.

3.2 RESIDENTIAL WELLS

There are two residential wells west of the Site that are used as potable water supplies for two separate homes. The approximate locations of these homes are shown on Figure 3.1.

The main house well is located approximately 20 feet from the house. A well log supplied by the WDNR indicates that the well was installed in September 1959 and is 56 feet deep. The well is a six-inch diameter casing screened in sand and gravel.

The rental property well is thought to be about 25 feet deep. The location and construction are unknown. The owners thought that this well was a driven sandpoint.



SOURCE: USGS TOPOGRAPHIC MAP
RIVER FALLS EAST, WISC. QUAD

N

SCALE: 1" = 1000'

figure 3.1
SITE LOCATION
The Shannon Group-River Falls Division

CRA

3944-22/10/91-M

VOC contamination was first observed at the rental property well on October 23, 1990. Benzene, toluene, xylenes and 1,2-dichloroethane were detected at concentrations of 600, 3.4, 9.5 and 1.4 μg/*l*, respectively. This well was resampled on October 29, 1990, and similar concentrations were detected. In addition, the main house well was also sampled on October 29, but no VOCs were detected.

The rental well was sampled two additional times in early 1991 and no VOCs were detected, which brings into question the validity of the 1990 results. The main house well was also resampled in early 1991 and no VOC were detected.

Table 3.1 summarizes the analytical data from this WDNR monitoring of the two residential wells.

3.3 INVESTIGATION AT THE TOM THUMB PROPERTY

Terracon Environmental Inc. (Terracon), on behalf of Tom Thumb, submitted a groundwater evaluation report to the WDNR in February 1991. This report summarized groundwater data taken from twelve temporary probes installed both on Tom Thumb property and to the west along County Highway MM.

TABLE 3.1

RESIDENTIAL WELL SAMPLING RESULTS
WISCONSIN DEPARTMENT OF NATURAL RESOURCES DATA
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location:	Rugor Rental				Main House	
Date:	10/23/90	10/29/90	1/15/91	2/11/91	10/29/90	1/8/91
Compounds Detected: ug/*l*						
Benzene	600	800	ND	ND	ND	ND
Toluene	3.4	3.8	ND	ND	ND	ND
Xylenes	9.5	9.2	ND	ND	ND	ND
1,2-dichloroethane	1.4	1.8	ND	ND	ND	ND

NOTES:

1. Samples were analyzed by State Laboratory of Hygiene University of Wisconsin Center for Health Sciences.
2. ND - Not Detected

The report documents a spill of approximately 50 gallons of gasoline that was flushed into a ditch along County Highway MM. No discussion of Tom Thumb's cleanup efforts of the spill was noted in the Terracon report.

Groundwater data generated both on-site using a portable gas chromatograph and confirmatory data generated by an independent laboratory indicate that there is groundwater contamination in the form of total petroleum hydrocarbons as gasoline (THG). THG was detected in all groundwater samples taken and submitted to the independent laboratory for analysis.

The data generated by the on-site lab indicate that seven of the twelve probes had detections of THG. Temporary probe P-8, which is located adjacent to the residential property, had a reading of 58.9 $\mu g/l$ as THG.

Terracon did not document sampling depth which raises a potential concern. Most gasoline constituents are lighter than water and would float at the groundwater surface. If the probe was advanced several feet below the water surface, the data collected may not be representative and the contaminants present on-site may be neglected.

There was no additional groundwater sampling done to confirm the round one sampling results and soil samples were not taken as part of this investigation to determine if any residual contaminants from the spill remain. The Terracon report recommends that, since analytical data does not

indicate the presence of benzene, toluene, ethylbenzene or xylenes and that the detection of THG does not appear to warrant additional assessment, the WDNR be petitioned to close the project.

It is CRA's opinion that the Terracon report is based on very limited data and the results should only be considered preliminary since the detected TGH contamination was not further evaluated.

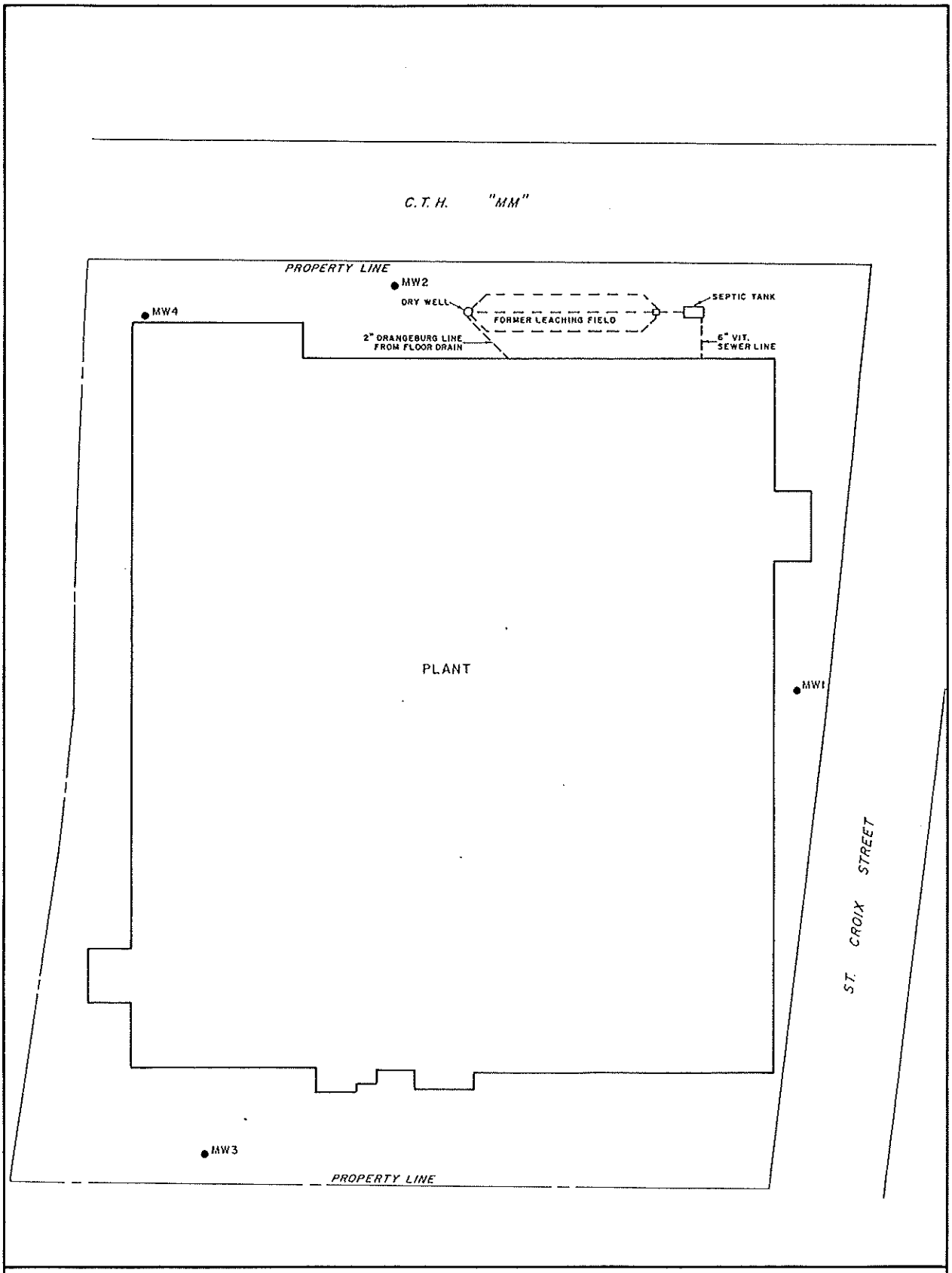
4.0 SCOPE OF WORK

4.1 DRILLING AND INSTALLATION PROCEDURES

Wisconsin Test Drilling (WTD), Division of Longyear, of Schofield, Wisconsin, was contracted to perform the drilling and well installations. The drilling program began on June 4, 1991, and was completed on June 5, 1991. All drilling was performed using a Deitrech D50 drilling rig.

Four monitoring wells were installed during the field investigation program for purposes of soil sampling, establishing groundwater flow patterns and evaluating groundwater quality. Figure 4.1 illustrates their locations. Each well was set to allow the well screen to intersect with the water table, which is the most likely location to find benzene contamination. A summary of the monitoring well construction details are presented in Table 4.1.

The monitoring wells were installed using 4-1/4 inch inside diameter (ID) hollow stem augers. Soil was collected with a two foot split spoon sampler in advance of the hollow stem augers. All drilling equipment was cleaned using a high pressure, hot water steam cleaner. Soil samples were collected for geologic interpretation and two samples from each borehole were selected for chemical analysis. Samples collected for chemical analysis are discussed in Section 4.2. Samples were field screened with an Hnu photoionization detector (Hnu) to monitor for organic vapors. All readings remained at background levels.



LEGEND

● MONITORING WELL LOCATION

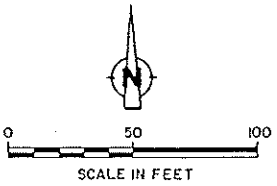


figure 4.1
SITE PLAN-WELL LOCATIONS
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

TABLE 4.1

MONITORING WELL COMPLETION DETAILS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Monitoring Well	Date Installed	Total Depth (ft. BGS)[2]	Screen Length (ft.)	TOC[1] Elevation (ft. AMSL)[3]	Ground Elevation (ft. AMSL)	Mid Screen (ft. AMSL)
MW1	6/4/91	21	10	897.04	894.9	878.9
MW2	6/4/91	21	10	891.95[4]	892.4	876.4
MW3	6/5/91	23	10	892.66[4]	893.0	875.0
MW4	6/5/91	23	10	892.29[4]	892.8	874.8

[1]TOC = Top of Casing
[2]BGS = Below Ground Surface
[3]AMSL = Above Mean Sea Level
[4]Monitoring wells MW2, MW3 and MW4 are flush-mounted wells. TOC elevations are below ground elevation.

TABLE 4.1

MONITORING WELL COMPLETION DETAILS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Monitoring Well	Date Installed	Total Depth (ft. BGS)[2]	Screen Length (ft.)	TOC[1] Elevation (ft. AMSL)[3]	Ground Elevation (ft. AMSL)	Mid Screen (ft. AMSL)
MW1	6/4/91	21	10	897.04	894.9	878.9
MW2	6/4/91	21	10	891.95[4]	892.4	876.4
MW3	6/5/91	23	10	892.66[4]	893.0	875.0
MW4	6/5/91	23	10	892.29[4]	892.8	874.8

[1]TOC = Top of Casing
[2]BGS = Below Ground Surface
[3]AMSL = Above Mean Sea Level
[4]Monitoring wells MW2, MW3 and MW4 are flush-mounted wells. TOC elevations are below ground elevation.

Upon reaching the desired depth, the well screen and riser pipe were installed inside the augers. Sand pack was placed around and to a minimum depth of two feet above the well screen. A two-foot thick bentonite seal was placed above the sand pack. The remaining annulus was grouted to surface using portland cement with 3 percent bentonite. The well was secured with a lockable protective casing. Figure 4.1 shows the location of these monitoring wells.

Stratigraphic and instrumentation logs for the monitoring wells are presented in Appendix A.

4.1.1 Well Stabilization

Following installation, the monitoring wells were developed and stabilized. A minimum of four (4) saturated well volumes of water were removed during the well development. The objective of well development was to purge and surge around the well screen, thus increasing the natural porosity and permeability of the previously undisturbed sediment as well as to remove any incidental sediment which potentially may have been introduced during well installation. The wells were developed using a precleaned stainless steel bottom filling bailing and new nylon rope.

During development, all wells stabilized based on three consistent readings of pH, specific conductivity and temperature taken from extracted development waters. Table 4.2 summarizes the data collected.

TABLE 4.2

MONITORING WELL STABILIZATION SUMMARY
SHANNON GROUP, RIVER FALLS, WISCONSIN

Well	pH	Conductivity (umhos)	Temperature (°C)	Water Clarity	Total Volume Removed (gallons)
MW1	7.30	590	13	Silty	21.5
MW2	7.00	790	12	Very Silty	21.0
MW3	7.10	550	14	Very Silty	22.5
MW4	7.15	670	12	Very Silty	19.5

Well stabilization logs are provided in Appendix B.

4.2 SOIL SAMPLING PROCEDURES

At each monitoring well location, soil samples were collected at 2.5-foot intervals to the depth of the borehole. Each of the soil samples was placed in a glass jar and sealed with aluminum foil. After a minimum of 15 minutes, an Hnu photoionization probe was used to puncture the seal and measure any volatile gases collected in the headspace of the jar. Table 4.3 presents the results of field measurements of total organic vapors. It was intended to collect two samples exhibiting the highest Hnu readings from each borehole, however, no readings exceeded background levels. Therefore, the two samples collected from each borehole (above the water table) were randomly selected by CRA with concurrence by the WDNR. Table 4.3 summarizes the information recorded during sample collection.

Sampling protocols for soil were collected as follows:

1. A two foot split spoon sampler was used and cleaned between each sample interval using an alconox wash followed by a methanol, hexane, methanol rinse and then by a distilled water rinse.

2. Using a precleaned stainless steel knife, the side of the sample contacting the split spoon samples was cut away and the remaining material was collected in a laboratory-cleaned glass jar.

TABLE 4.3

SUMMARY OF HEADSPACE SCREENING AND SOIL SAMPLING

Borehole Location	ID Number	Depth (ft. BGS)	Headspace Reading (ppm)
MW1	-	0 - 2	ND
	-	3 - 5	ND
	-	5 - 7	ND
	S-060491-PS-01	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-02	12.5 - 14.5*	ND
	-	15 - 17	ND
	-	17.5 - 19.5	ND
MW2	-	2 - 4	ND
	-	5 - 7	ND
	S-060491-PS-03	7.5 - 9.5*	ND
	-	10 - 12	ND
	S-060491-PS-04	12.5 - 14.5*	ND
	-	15 - 17	ND
MW3	-	2 - 4	ND
	-	5 - 7	ND
	S-060591-PS-05	7.5 - 9.5*	ND
	-	9.5 - 11.5	ND
	S-060591-PS-06	12.5 - 14.5*	ND
	-	15 - 17	ND
MW4	-	2 - 4	ND
	S-060591-PS-07	5 - 7*	ND
	-	7.5 - 9.5	ND
	-	10 - 12	ND
	S-060591-PS-08	12.5 - 14.5*	ND

NOTE: * - Sampled for chemical analysis
BGS = Below Ground Surface
ppm = part per million
ND = None Detected

3. The remainder of the sample not used for chemical analyses was retained for geologic records.

4. Each sample collected was analyzed for VOCs using EPA method 8010/8020 and metals included lead, mercury, cadmium, chromium, zinc and copper.

5. A new pair of nitrile gloves was used for each sample collection.

6. Soil samples were placed in coolers with ice, sealed and shipped to Spectrum Laboratories in New Brighton, Minnesota.

4.3 GROUNDWATER SAMPLING

Each of the four monitoring wells were sampled in two separate sampling rounds. Round one was completed on June 18, 1991, and the second one was completed on August 16, 1991. Tables 4.4 and 4.5 summarize the information collected during sampling and the following lists the protocols used:

1. A round of water levels to the nearest 0.01 foot was taken prior to sampling with an electric water level tape.

2. New disposable latex gloves were used when sampling each well. Additional glove changes were made for each sampling.

3. Prior to sampling, each well was purged using a stainless steel bottom filling bailer to remove a minimum of ten times the standing water volume in the

TABLE 4.4

GROUNDWATER SAMPLING SUMMARY (ROUND 1)
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location	ID Number	Date	Time	Sample Parameters
MW1	W-061891-PS-01	6/18/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW2	W-061891-PS-02	6/18/91	14:20	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW3	W-061891-PS-03	6/18/91	12:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW4	W-061891-PS-04	6/18/91	13:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Dup. of MW4	W-061891-PS-05	6/18/91	13:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (870 MM-Rental)	W-061891-PS-06	6/18/91	11:35	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (876 MM-Rugor)	W-061891-PS-07	6/18/91	11:45	601/602 + Freon

TABLE 4.5

GROUNDWATER SAMPLING SUMMARY (ROUND 2)
SHANNON GROUP, RIVER FALLS, WISCONSIN

Location	ID Number	Date	Time	Sample Parameters
MW1	W-081691-PS-03	8/16/91	13:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW2	W-081691-PS-02	8/16/91	12:30	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW3	W-081691-PS-06	8/16/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Rinsate	W-081691-PS-05	8/16/91	15:00	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Duplicate	W-081691-PS-07	8/16/91	15:15	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
MW4	W-081691-PS-01	8/16/91	11:20	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (870 MM-Rental)	W-081691-PS-04	8/16/91	15:00	601/602 + Freon, Pb, Hg, Cd, Cr, Cu, Zn
Residential (876 MM-Rugor)	--	8/16/91	--	Not Sampled

well. After the required volume had been removed, the well was allowed to recharge for no longer than one hour prior to sampling. Prior to use, the bailers were precleaned with an alconox wash water/methanol/hexane/ methanol and a final distilled water rinse sequence.

4. Samples were collected from each well for VOCs (601/602 method) and metals. Samples for VOCs were collected in three 40 ml glass septum vials. The vials were completely filled and free of air bubbles. Samples for metals included lead, mercury, cadmium, chromium, copper and zinc and were field filtered immediately upon collection and preserved with nitric acid. Metal samples were collected in 500 ml plastic jars. Samples were immediately placed in coolers and ice.

5. A rinsate sample was collected at a frequency of one per sample round during the second round only. During the first round of sampling, the bailers used for development were also used for sampling and, therefore, a rinsate was not collected.

6. A blind duplicate sample was collected at a frequency of one per sample round.

Field log sample collection sheets for each well during each round of sampling are presented in Appendix C.

4.4 RESIDENTIAL SAMPLING

Two residential wells were sampled during the round one sampling event on June 18, 1991. The location of the residences were at 870 MM and 876 MM. During the second round of sampling, only the 870 MM (rental property) residence was sampled on August 16, 1991.

The residential well samples were collected according to the following procedures:

1. The 870 MM residence was sampled from the kitchen faucet and the 876 MM residence was sampled from an outside spigot.

2. The faucet or spigot was allowed to purge a minimum of 15 minutes prior to sample collection.

3. Immediately upon purging, the water was collected in 40 ml glass vials for VOCs and Freon and completely free of air bubbles. Samples for metals were also collected and included lead, mercury, cadmium, chromium, copper and zinc. All metal samples were unfiltered.

4. At residence 876 MM, metals were not collected.

5. A new pair of vinyl or nitrile gloves were used at each sample location.

5.0 STUDY RESULTS

5.1 SITE HYDROGEOLOGY

The aquifer encountered during this investigation was found at 14 to 15 feet below ground surface. The depth of this investigation did not exceed 25 feet and a confining unit was not observed to that depth.

Four water level rounds were recorded and the elevations are presented in Table 5.1. From the water levels, the direction of groundwater flow was determined to be in a southwesterly direction toward the Kinnickinnic River. Figures 5.1 and 5.2 illustrate the direction of groundwater flow with respect to the Site.

Locally, the topography slopes in a west/southwesterly direction toward the Kinnickinnic River. Therefore, the direction of groundwater flow is influenced by both the Kinnickinnic River and the local topography.

5.2 SOIL SAMPLING RESULTS

Section 4.2 outlines the soil sampling procedures followed during the borehole/monitoring well installations. Two soil samples were taken at each borehole location and analyzed for VOCs and metals. Table 5.2 summarizes the results from these soil samples.

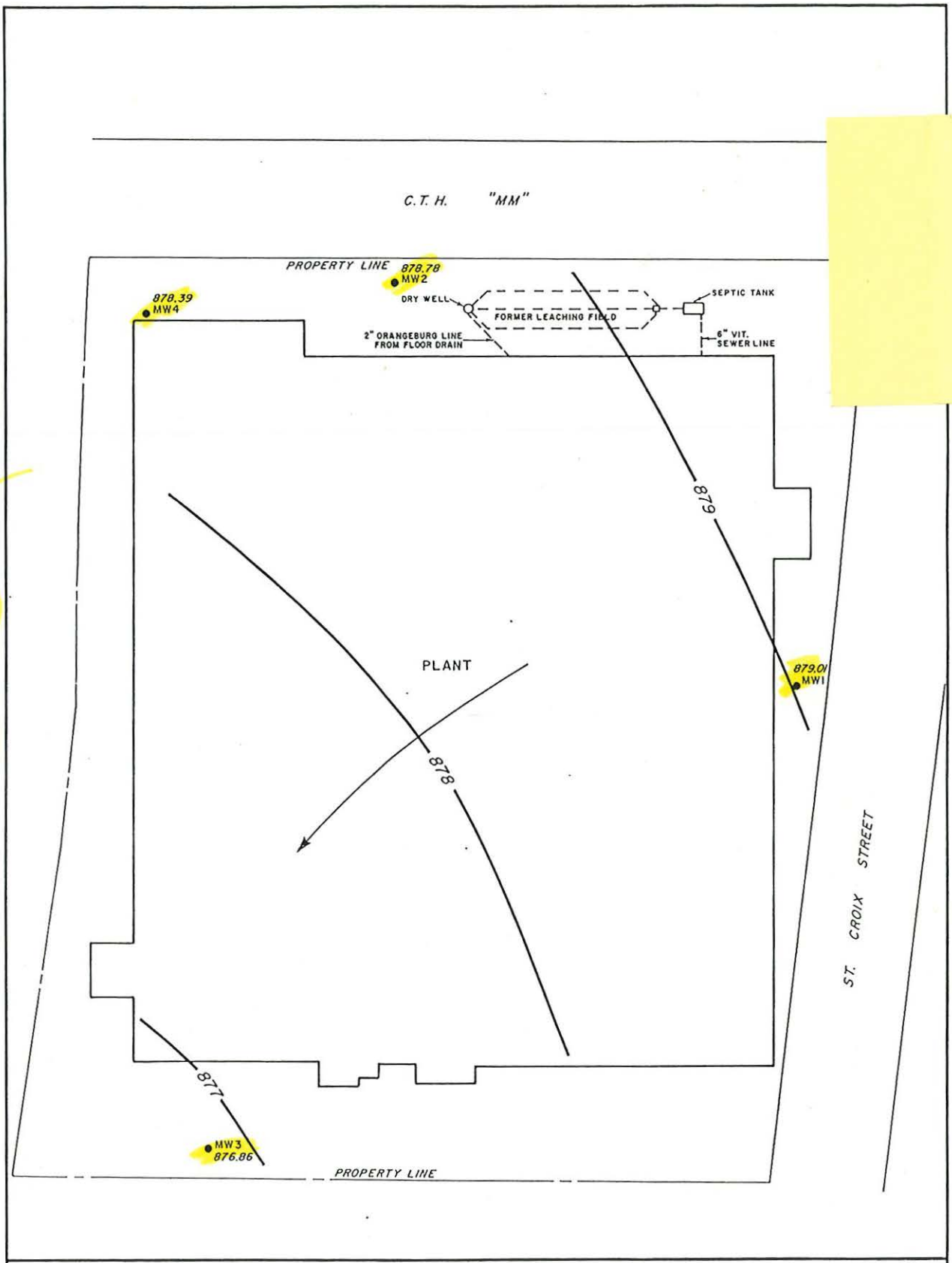
TABLE 5.1

GROUNDWATER ELEVATIONS
SHANNON GROUP, RIVER FALLS, WISCONSIN

Well	Reference Elevation (ft. AMSL)	Groundwater Elevation			
		6/6/91	6/17/91	6/18/91	8/16/91
MW1	897.04	879.32	879.04	879.01	878.62
MW2	891.95	879.16	878.80	878.78	878.39
MW3	892.49	877.23	876.91	876.86	876.54
MW4	892.29	878.78	878.43	878.39	878.03

Note:

AMSL = Above Mean Sea Level



LEGEND

- ● MONITORING WELL LOCATION
- 876.86 GROUNDWATER ELEVATION IN FEET AMSL
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW

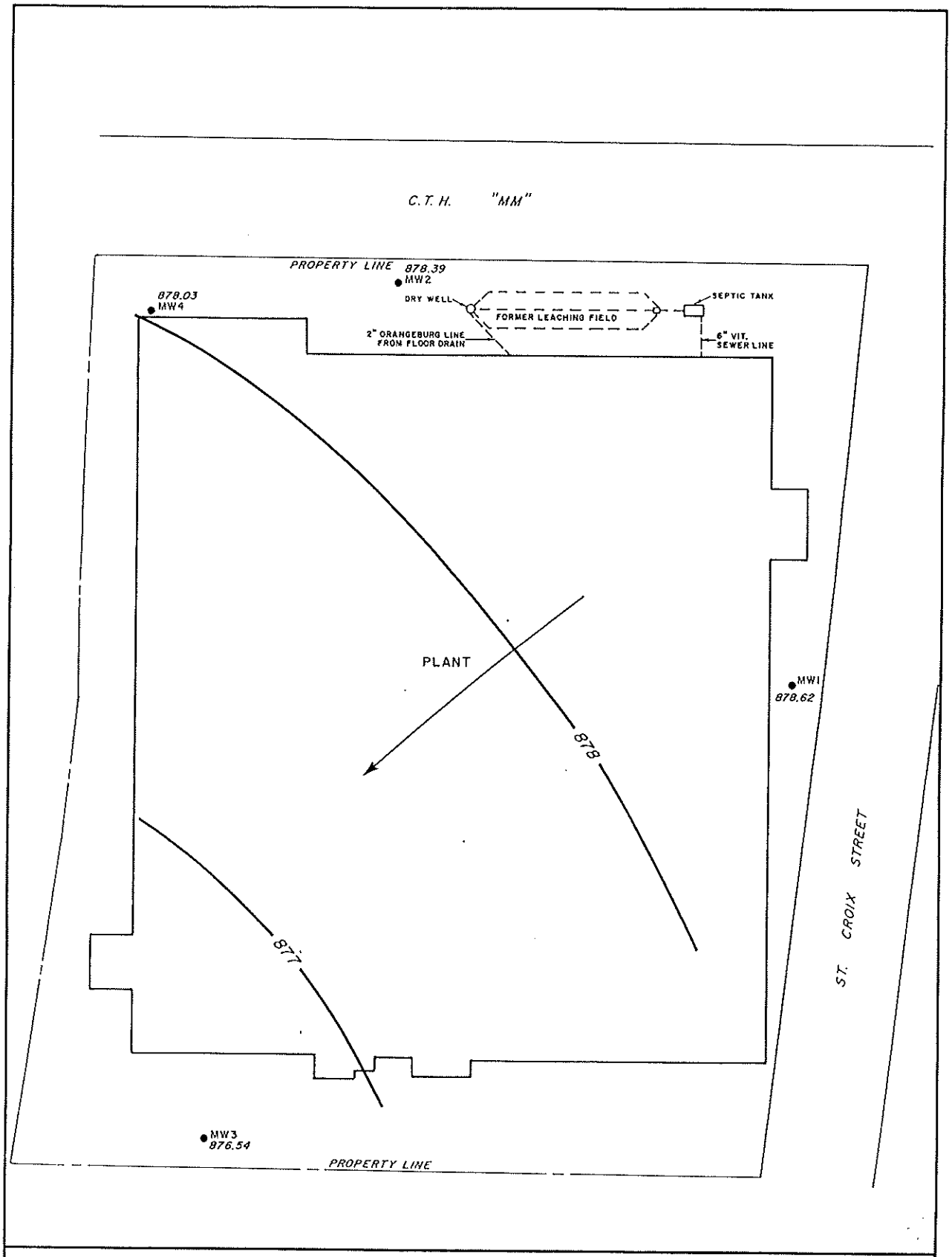
N

0 50 100
SCALE IN FEET

figure 5.1
GROUNDWATER CONTOURS (6-18-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M



LEGEND

- ● MONITORING WELL LOCATION
- 876.86 GROUNDWATER ELEVATION IN FEET AMSL
- GROUNDWATER CONTOUR
- DIRECTION OF GROUNDWATER FLOW

N

0 50 100

SCALE IN FEET

figure 5.2
GROUNDWATER CONTOURS (8-16-91)
The Shannon Group-River Falls Division

CRA

3944-21/10/91-M

TABLE 5.2
SOIL SAMPLING RESULTS
SHANNON GROUP

Location:	MW-1	MW-1	MW-2	MW-2	MW- 3	MW-3	MW-4	MW-4
Depth:(Ft)	7.5-9.5	12.5-14.5	7.5-9.5	12.5-14.5	7.5-9.5	12.5-14.5	5-7.	12.5-14.5
Compounds:(mg/kg)								
Chloromethane	0.11U	0.09U	0.155U	0.085U	0.1U	0.155U		
Bromomethane								0.255
Dichlorodifluoromethane				0.24		0.25	0.24	
Chloroethane					0.085			
Trichlorofluoromethane	0.44U	0.43U	0.455U	0.445U				0.235U
1,1-Dichloroethylene								
Methylene Chloride								
Chloroform								
1,1,1-Trichloroethane		0.165	0.165	0.205	0.185	0.235	0.21	
1,2-Dichloropropane								
Cis-1,3-Dichloro-1-Propene	0.225	0.16	0.155			0.17		
Benzene								
Dibromochloromethane								
1,1,2,2-Tetrachloroethylene		0.115			0.095	0.09	0.11	0.095
Toluene	0.095U	0.095U	0.095U	0.09U	0.1U	0.095U	0.1U	0.1U
Chlorobenzene	0.245	0.255	0.25	0.23	0.24	0.255		0.25
Ethylbenzene	0.07	0.07U			0.07U	0.08U	0.07U	0.07U
Xylenes, Total	0.096	0.092	0.092	0.09	0.097	0.115	0.095	0.1
1,3-Dichlorobenzene		0.06						
1,2-Dichlorobenzene		0.07			0.7	0.065		
1,4-Dichlorobenzene		0.07						
Dibromomethane	0.17U	0.18U	1.8	0.17U	0.19	0.18U	0.18U	0.18U
Lead	7.4		5	2.5	4.9			
Chromium	8.8	10	8.9	5.2	5.6	4.1	3.4	6.1
Copper	13	18	15	6	6.4	5.8	5.3	11
Zinc	17	17	20	7.4	10	5.8	5.8	11
Moisture Content	5.59%	4.02%	10.00%	10.90%	4.66%	3.06%	6.36%	8.24%

Notes: Blanks indicate none detected by laboratory
U = Initially detected by laboratory but determined to be non-detect through quality control check.

All of the soil samples showed very low levels of VOCs readings (less than 1 ppm). The results from soil samples taken at MW1, which is an upgradient location, were used to establish background conditions. When these background levels are compared to the results from the other borehole locations, it is evident that there is no significant VOC impact on The Shannon Group property. The detected VOCs are suspected to be background levels introduced through laboratory analysis.

Metals results also indicate that the soils on the Shannon Group property are at background levels and reflect naturally occurring concentrations in soil.

In addition to the soil samples taken during the well installations, two additional soil samples were taken during the abandonment of an underground storage tank. The location of this tank is shown on Figure 5.3. This tank was located along the east side of the building and served as an overflow tank for the flammable liquid storage area. The WDNR thought that this tank could have potentially contributed to the VOC contamination detected in the off-site residential well.

In order to determine if the tank had leaked, it was excavated and removed and two confirmation soil samples were collected.

After the tank was removed, it was thoroughly inspected for signs of deterioration or leakage. This visual inspection noted that the tank was in excellent condition and the protective coating was still intact. As a

precautionary measure, two soil samples were taken at either end of the tank. These soil samples were scanned with a Hnu photoionization meter and no readings above background were noted.

The soil samples were submitted for VOCs and metals analysis. The results are presented in Table 5.3.

The metals results showed low level detections similar to those observed in the borehole soil results. The only VOCs detected was methylene chloride at concentrations less than 0.5 ppm. These results are suspect, as the lab indicated that these numbers could be a result of laboratory contamination. The actual lab data is presented in Appendix D.

The tank was disposed of by Waste Research and Reclamation Company, Inc. in Eau Claire, Wisconsin.

5.3 GROUNDWATER MONITORING RESULTS

Two rounds of groundwater monitoring were completed on all on-site monitoring wells. A detailed description of the sampling protocols are explained in Section 4.3. All groundwater samples were submitted, under chain-of-custody documentation, for VOCs and metals analysis. Table 5.4 summarizes the first sampling round data. Table 5.5 summarizes the second round of sampling data. The actual analytical reports and corresponding data validation are presented in Appendix D.

TABLE 5.3
TANK SOIL SAMPLING RESULTS
SHANNON GROUP

Location:	Tank-North	Tank-South
Compounds:(mg/kg)		
Chloromethane		
Bromomethane		
Dichlorodifluoromethane		
Chloroethane		
Trichlorofluoromethane		
1,1-Dichloroethylene		
Methylene Chloride	0.41 (I)	0.33 (I)
Chloroform		
1,1,1-Trichloroethane		
1,2-Dichloropropane		
Cis-1,3-Dichloro-1-Propene		
Benzene		
Dibromochloromethane		
1,1,2,2-Tetrachloroethylene		
Toluene		
Chlorobenzene		
Ethylbenzene		
Xylenes, Total		
1,3-Dichlorobenzene		
1,2-Dichlorobenzene		
1,4-Dichlorobenzene		
Dibromomethane		
Lead	2.8	
Chromium	11.0	5.1
Copper	18.0	7.4
Zinc	23.0	6.7

Notes: Blanks indicate none detected by laboratory
U = None detected (validated data)
(I) = Probable laboratory contamination

TABLE 5.4
GROUNDWATER SAMPLING RESULTS
SHANNON GROUP
ROUND NO. 1
JUNE 18, 1991

Location:	MW-1	MW-2	MW-3	MW-4	MW-4(DUP)	Rugor Rental	Rugor
Compounds:(µg/l)							
Chloromethane	0.6U		0.8U			0.6U	0.7U
Dichlorodifluoromethane	1.8		3.5				
Chloroethane							
Trichlorofluoromethane			1.1				
1,1-Dichloroethylene		1.6U	1.4U				
Methylene Chloride							
Chloroform	2.1U	1.8U	3.2U	1.5U			1.7U
1,1,1-Trichloroethane			19.6				
1,2-Dichloropropane			0.7U				
Cis-1,3-Dichloro-1-Propene	3.4						
Benzene	1						
Dibromochloromethane			0.9				1.4
1,1,2,2-Tetrachloroethylene							
Toluene	1.1U		0.7U	0.6U			0.6U
Chlorobenzene							
Ethylbenzene	0.7						
Xylenes, Total	0.4						
1,3-Dichlorobenzene							
1,2-Dichlorobenzene	1U	1.0U	0.9U	0.9U			
1,4-Dichlorobenzene							
Dibromomethane	1						
Lead	1						
Chromium			51				
Copper							
Zinc						50	

Notes: Blanks indicate none detected by laboratory
U = Initially detected by laboratory, but determined to be non-detect through quality control check

TABLE 5.5
GROUNDWATER SAMPLING RESULTS
SHANNON GROUP
ROUND NO. 2
AUGUST 16, 1991

Location:	MW-1	MW-2	MW-3	MW-3 (DUP)	MW-4	Rugor Rental	Rinsate Blank
Compounds:(µg/l)							
Chloromethane							
Dichlorodifluoromethane							
Chloroethane							
Trichlorofluoromethane							
1,1-Dichloroethylene			0.6	0.4			
Methylene Chloride	1.2				1.8	1.2	
Chloroform							
1,1,1-Trichloroethane			14	19			2.5
1,2-Dichloropropane							
Cis-1,3-Dichloro-1-Propene							
Benzene							
Dibromochloromethane							
1,1,2,2-Tetrachloroethylene							
Toluene							
Chlorobenzene							
Ethylbenzene							
Xylenes, Total							
1,3-Dichlorobenzene							
1,2-Dichlorobenzene							
1,4-Dichlorobenzene							
Dibromomethane							
Cadmium	0.2					0.1	
Lead							
Chromium	1	1	41	41	1		
Copper							
Zinc	3		4			140	5

Notes: Blanks indicate none detected by laboratory
U=none detected (validated data)

The data generated during the first round of groundwater analysis showed that there was a problem with internal laboratory contamination.

Several VOCs detected in all of the monitoring wells were qualified as non-detect because of the internal quality control data generated by the laboratory. In an attempt to avoid this potential problem during the second round of analysis, the samples were sent to a different laboratory for analysis. This change was approved by the WDNR

The data generated during the first round of sampling shows that MW1 had some low level detections of dichlorodifluoromethane, *cis*-1,3-dichloro-1-propene, benzene, ethylbenzene and xylenes. MW2 and MW4 had no VOCs detected, but dichlorodifluoromethane, trichlorofluoromethene, 1,1,1-trichloroethane and dibromochloromethane were present in MW-3. The metals analysis shows that all wells are either non-detect or at background levels, with the exception of MW3, which had chromium detected at 51 $\mu g/l$.

The data generated during the second round of sampling shows similar results when compared to round one data. Methylene chloride was detected in wells MW1 and MW4. These detections are, more than likely, a result of laboratory contamination.

MW3 showed detectable levels of 1,1-dichloroethylene and 1,1,1-trichloroethane. All other VOCs in this well were below detection limits.

The metals results from round two are similar to round one results. Chromium was detected at 41 μg/*l* in MW3.

When the groundwater data is compared to the State of Wisconsin's Ground Water Quality Standards, presented in NR 140.10 Wisconsin Administrative Code, the only exceedance of the Enforcement Standard during round one was chromium at MW3. The Enforcement Standard is 50 μg/*l* and the concentration of chromium at MW3 was 51 μg/*l*.

When comparing the data from round two, the chromium concentration was at 41 μg/*l*, which is below the Enforcement Standard. MW3 also had an exceedance of the Enforcement Standard for 1,1-dichloroethylene. The detected concentration in MW3 and MW3 (duplicate) was 0.6 and 0.4 μg/*l*, respectively. The Enforcement Standard for 1,1-dichloroethylene is 0.24 μg/*l*. The federal Maximum Contaminant Level (MCL) for 1,1-dichloroethylene is 7 μg/*l*.

5.4 RESIDENTIAL WELL SAMPLING RESULTS

During the groundwater monitoring conducted during this investigation, two rounds of sampling were completed on the off-site rental property well and one round of sampling was done on the main house well.

The analytical data for round one is presented on Table 5.4 and the data for round two is presented on Table 5.5.

The round one data shows that no VOCs was detected in the rental property well and the only metal detected was zinc at 50 μg/*l*. The only VOCs reported in the main house well was dibromochloromethane at 1.4 μg/*l*. There is no reported Enforcement Standard for this compound. No metals were reported above detection limits.

The round two data shows reported values for the rental property well only. Access for sampling the main house well was denied. The data reported shows that methylene chloride was detected at 1.2 μg/*l*. This detection is more than likely due to laboratory contamination. This concentration is well below the Enforcement Standard of 150 μg/*l*. There is no federal MCL for methylene chloride. Dibromomethane was reported at 0.1 μg/*l*. There is no Enforcement Standard or MCL for this compound. Zinc was the only metal detected at 140 μg/*l*. The Enforcement Standard for zinc is 5 μg/*l* and the federal MCL is 5,000 μg/*l*.

This data agrees with the data generated by the WDNR, which is shown on Table 3.1. Benzene, toluene, ethylbenzene or xylenes have not been detected in these residential wells since October 1990.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The Shannon Group conducted a Site Evaluation to assess whether or not their facility was a source of VOC contamination that was detected in an off-site residential well. In addition, this Site Evaluation assessed soil and groundwater conditions at the Site.

The data presented in this report shows that the Shannon Group is not a source of VOC contamination observed in the off-site residential well at the Rugor rental property. In fact, the majority of data strongly supports CRA's conclusion that benzene contamination does not exist at the rental well..

The soil and groundwater analytical data from the Shannon site show that there has been little impact by the Shannon Group's on-site activities. The soil data generated during the investigation show that the Site soils are at typical background levels for an industrial setting.

The groundwater data shows that the groundwater under the Site is generally below WDNR Enforcement Standards and typical of groundwater in an industrial setting.

6.2 RECOMMENDATIONS

The data generated during this investigation shows that the soil and groundwater under the Site are typical of an industrial setting. No significant contamination was found on the Shannon Group's property. Therefore, we recommend that no additional actions be undertaken and that additional investigation is not warranted.

All of Which is Respectfully Submitted,

CONESTOGA-ROVERS AND ASSOCIATES

Ronald Frehner, P. Eng

Stephen E. Mockenhaupt

APPENDIX A

STRATIGRAPHIC/INSTRUMENTATION LOGS

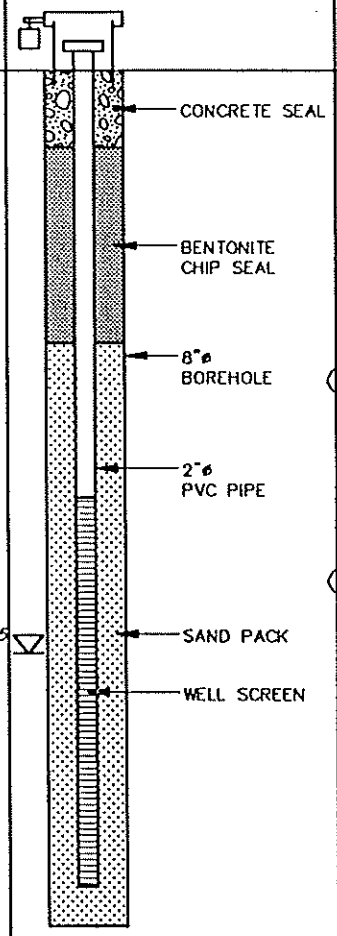
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-01)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW1
DATE COMPLETED: JUNE 4, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	STATE	'N' VALUE	HNu (ppm)
	REFERENCE POINT (Top of Riser)	897.04				
	GROUND SURFACE	895.0				
	Topsoil, clay, silt and sand, roots, black	894.5	1SS		15	0
	SP-SAND, little gravel, trace silt, medium grained, medium dense, brown, dry					
2.5			2SS	NR	11	0
5.0	SP-SAND, trace gravel, medium grained, medium dense, brown, moist to wet		3SS		2	0
7.5			4SS		6	0
10.0			5SS		54	0
12.5	SP-SAND, little to some gravel, medium to coarse grained, medium dense, moist – same, except no gravel, medium to fine grained		6SS		19	0
15.0		879.5	7SS		10	0
17.5			8SS		6	0
20.0						
22.5	END OF HOLE @ 22.0 FT. BGS	873.0				
25.0						
27.5						
30.0						
32.5						



SCREEN DETAILS:
Screened Interval:
11.0 to 21.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –PVC
Sand pack interval:
7.0 to 22.0' BGS
Material –Fine/Coarse Sand/Native

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ⬭ WATER FOUND ▽ STATIC WATER LEVEL ▼

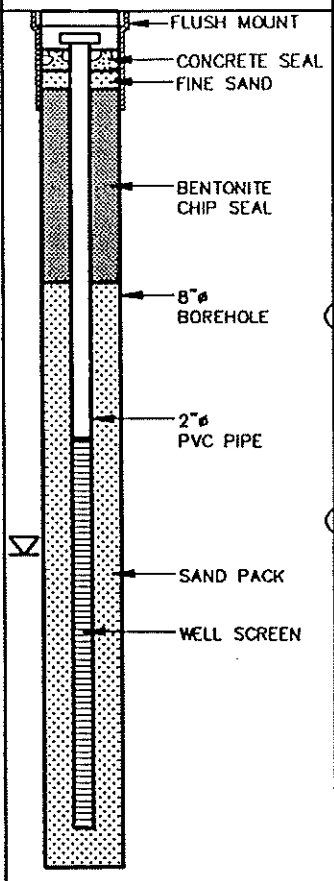
STRATIGRAPHIC AND INSTRUMENTATION LOG
(OVERBURDEN)

(L-02)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW2
DATE COMPLETED: JUNE 4, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	891.95					
	GROUND SURFACE	892.4					
2.5	SP-SAND, little gravel and silt, fine to medium grained, medium dense, moist to wet, brown		FLUSH MOUNT; CONCRETE SEAL; FINE SAND	9SS	X	16	0
5.0	– gravelly layer, little sand		BENTONITE CHIP SEAL	10SS	X	21	0
7.5			8"ø BOREHOLE	11SS	X	* 15	0
10.0	SP-SAND, no gravel, medium grained, medium dense, light brown, moist to wet		2"ø PVC PIPE	12SS	X	7	0
12.5		878.4		13SS	X	* 10	0
15.0	– little to trace small gravel		SAND PACK; WELL SCREEN	14SS	X	4	0
17.5	– becoming beach sand, trace gravel with depth						
20.0							
22.5	END OF HOLE @ 22.0 FT. BGS	870.4					
25.0							
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
11.0 to 21.0' BGS
Length –10.0'
Diameter –2.0"
Slot # 10
Material –PVC
Sand pack interval:
7.0 to 22.0' BGS
Material –Fine/Coarse Sand/Native

* – 3" SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

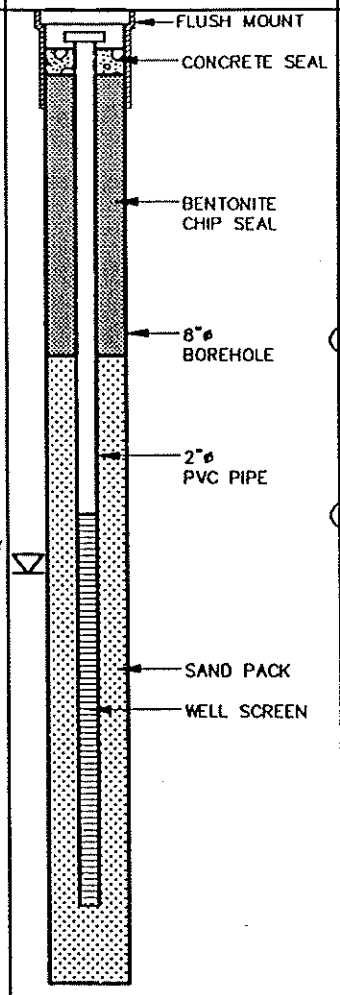
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-03)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW3
DATE COMPLETED: JUNE 5, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	SAMPLE NUMBER	STATE	'N' VALUE	HNU (ppm)
	REFERENCE POINT (Top of Riser)	892.66				
	GROUND SURFACE	892.9				
	Asphalt	892.7				
	SP-SAND(FILL), some gravel, medium grained, loose, brown, dry		15SS		3	0
2.5						
	Topsoil, sandy, black	888.9				
5.0	SP-SAND, some gravel, medium grained, brown, dry	887.9	16SS		12	0
7.5						
			17SS	NR	* 53	0
10.0	SP-SAND, no gravel, fine grained, medium dense, light brown, dry		18SS		10	0
12.5	- same, with trace gravel, moist		19SS		7	0
		878.4				
15.0	- same, becoming coarse sand at 16.5' BGS, saturated		20SS		* 19	0
17.5						
20.0						
22.5						
25.0	END OF HOLE @ 25.0 FT. BGS	867.9				
27.5						
30.0						
32.5						



SCREEN DETAILS:
Screened Interval:
13.0 to 23.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -PVC
Sand pack interval:
8.9 to 25.0' BGS
Material -Fine/Coarse Sand/Native

* - 3" SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

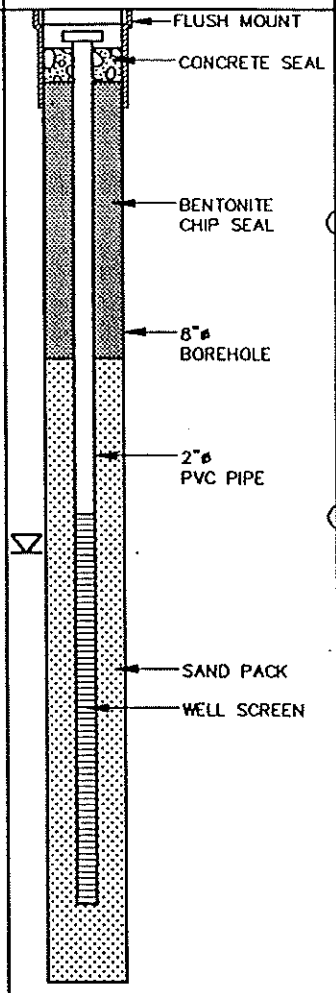
STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

(L-04)

PROJECT NAME: RIVER FALLS
PROJECT NO.: 3944
CLIENT: THE SHANNON GROUP
LOCATION: RIVER FALLS, WI

HOLE DESIGNATION: MW4
DATE COMPLETED: JUNE 5, 1991
DRILLING METHOD: 4 1/4" ID HSA
CRA SUPERVISOR: P. STORLIE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEVATION ft AMSL	MONITOR INSTALLATION	SAMPLE NUMBER	SAMPLE STATE	SAMPLE 'N' VALUE	SAMPLE HNu (ppm)
	REFERENCE POINT (Top of Riser)	892.29					
	GROUND SURFACE	892.8					
	Asphalt	892.5	FLUSH MOUNT; CONCRETE SEAL				
	SP-SAND(FILL), medium grained, dry, brown						
2.5				21SS	X	5	0
5.0			BENTONITE CHIP SEAL	22SS	X	* 20	0
	SP-SAND, some gravel, medium to coarse grained, medium dense, moist	886.3					
7.5	- silt layer (1" thick)		8"ø BOREHOLE	23SS	X	13	0
10.0	- silt and clay layer, with wood fiber, wet (2" thick)			24SS	X	9	0
			2"ø PVC PIPE				
12.5	- saturated	878.8		25SS	X	* 15	0
15.0							
17.5			SAND PACK; WELL SCREEN				
20.0							
22.5							
25.0	END OF HOLE @ 25.0 FT. BGS	867.8					
27.5							
30.0							
32.5							



SCREEN DETAILS:
Screened Interval:
13.0 to 23.0' BGS
Length -10.0'
Diameter -2.0"
Slot # 10
Material -PVC
Sand pack interval:
9.0 to 25.0' BGS
Material -Fine/Coarse Sand/Native

* - SPLIT SPOON

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

CHEMICAL ANALYSIS ◯ WATER FOUND ▽ STATIC WATER LEVEL ▼

APPENDIX B

WELL STABILIZATION LOGS

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW1

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 18.00

Well Depth 23' (fm TOC) Casing Diameter 2" Well Volume 0.8 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
16:40	7.05	600	13	Silty	--	12	Bail
16:45	7.15	590	13	Silty	--	13	Bail
16:47	7.20	580	13	Silty	--	15	Bail
16:48	7.25	590	13	Silty	--	17.5	Bail
16:50	7.30	590	13	Silty	--	19.0	Bail
16:51	7.30	590	13	Silty	18.01	21.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW2

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 13.15

Well Depth 21' Casing Diameter 2" Well Volume 1.3 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:24	7.30	750	12	Very Silty	--	15	Bail
17:25	7.20	750	12	Very Silty	--	16.5	Bail
17:27	7.00	800	12	Very Silty	--	18	Bail
17:28	7.00	800	12	Very Silty	--	19.5	Bail
	7.00	790	12	Very Silty	13.18	21	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW3

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 15.75

Well Depth 23' Casing Diameter 2" Well Volume 1.2 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:00	7.20	550	15	Very Silty	--	15.0	Bail
17:02	7.10	550	14	Very Silty	--	17	Bail
17:04	7.15	550	14	Very Silty	--	19	Bail
17:05	7.15	550	14	Very Silty	--	21	Bail
17:07	7.10	550	14	Very Silty	15.75	22.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

STABILIZATION TEST

Site River Falls

Job. No. 3944

Well No. MW4

Date 6/17/91

Water level before pumping (nearest 0.01 ft. below top of casing) 13.86

Well Depth 23' Casing Diameter 2" Well Volume 1.5 gallons

Approximate Well Location

Weather Conditions

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min
17:10	7.15	700	12	Very Silty	--	15	Bail
17:14	7.15	680	12	Very Silty	--	16.5	Bail
17:16	7.20	670	12	Very Silty	--	18	Bail
17:18	7.15	670	12	Very Silty	13.90	19.5	Bail

Comments:

CONESTOGA-ROVERS & ASSOCIATES

APPENDIX C

FIELD LOG SAMPLE COLLECTION SHEETS

FIELD LOG-SAMPLE COLLECTION SHEET

e: Aug 16, 1991
t Number: 3944
ct Name: River Falls

Well Name: MW1
Unique Sample No.: W-03
Sample Time: 13:30

que Well Name (if any): —
g/Screen Material: PVC
ing/Screen Diameter: 2"
Depth*: 23
e Well Volume: .73 Gallons

Reference Elevation*: 897.04
Water Level*: 18.57 [illegible] 1642
Water Elevation: 878.62
Screen Length: 10 [illegible]
Five Well Volumes: 3.7 Gallons

ring Method: bail
Filtered?: (YES) NO
nple Parameters: VOCs + metals

Start Time:
Stop Time:
Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	7.05	490	16	Sl. silty	—	4	bail

emarks: Rugo ~~Rental~~ ~~W-04~~
~~W-05 RT~~

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

te: Aug 16, 1991 Well Name: MW2

ct Number: 3944 Unique Sample No.: W-02

ject Name: River Falls Sample Time: 12:30

---

ique Well Name (if any): — Reference Elevation*: 891.95

g/Screen Material: PVC Water Level*: 13.71 Temp -.15 1356

sing/Screen Diameter: 2" Water Elevation: 878.39

Depth*: 21 Screen Length: 10 ft

e Well Volume: 1.2 Gallons Five Well Volumes: 6 Gallons

---

ring Method: bail Start Time:

Filtered?: YES NO Stop Time:

mple Parameters: VOCs + metals

Samplers Name:

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
0	6.6	1900	15	V. silty	—	6	bail

emarks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

ıe: Aug 16, 1991
ect Number: 3944
ect Name: River Falls

Well Name: MW3
Unique Sample No.: W-06 (see bottom)
Sample Time: 15:15

ique Well Name (if any): —
ng/Screen Material: PVC
sing/Screen Diameter: 2"
Depth*: 23
e Well Volume: 1.1 Gallons

Reference Elevation*: 892.66
Water Level*: 16.27 [illegible] 16.12
Water Elevation: 876.54
Screen Length: 10 ft
Five Well Volumes: 5.5 Gallons

rging Method: bail
l Filtered?: (YES) NO
mple Parameters: VOCs & metals

Start Time:
Stop Time:
Samplers Name:

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	6.85	650	16	V. Silty	—	5.5	bail

arks: W-05 R Blank below MW3
W-06 Samp
W-07 Dup

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

e: Aug 16, 1991 — Well Name: MW-4
ct Number: 3944 — Unique Sample No.: W-01
ct Name: River Falls — Sample Time: 11:20

que Well Name (if any): — — Reference Elevation*: 892.29
ıg/Screen Material: PVC — Water Level*: Plug 14.30 (14.41) bucks .15 (14.26)
ing/Screen Diameter: 2" — Water Elevation: 878.03
Depth*: 23' — Screen Length: 10'
e Well Volume: 1.4 Gallons — Five Well Volumes: 7 Gallons

ɔing Method: bailed — Start Time:
Filtered?: (YES) NO — Stop Time:
nple Parameters: Metals + 601/602
Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
s	7.20	700	14.5	Very silty		8 g	

ɜ.ıarks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

:e: Aug 16, 1991
: ct Number: 3944
j..ct Name: River Falls

Well Name: 876 MM Street
Unique Sample No.: NOT SAMPLED
Sample Time: "

ique Well Name (if any):
: ıg/Screen Material:
sing/Screen Diameter:
: Depth*:
e Well Volume: Gallons

Reference Elevation*: No Sample
Water Level*:
Water Elevation: DUGOUT
Screen Length:
Five Well Volumes: Gallons

roing Method:
. Filtered?: YES NO
nple Parameters:

Start Time:
Stop Time: Sample

Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

:marks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

e: Aug 16, 1991 — Well Name: Rintal (8[illegible] MM Street)

ct Number: 3944 — Unique Sample No.: W-04

ct Name: River Falls — Sample Time: 15:00

que Well Name (if any): – — Reference Elevation*: –

g/Screen Material: – — Water Level*: –

ing/Screen Diameter: – — Water Elevation: –

l Depth*: – — Screen Length: –

Well Volume: – Gallons — ~~Five Well Volumes~~: Removed 60 Gallons

ging Method: Kitchen Sink — Start Time: 14:45 @ ~ 4gpm

l Filtered?: YES (NO) — Stop Time: 15:00

nple Parameters: VOCs, + metals — Samplers Name:

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

emarks:

Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

221-8703
221-3060

ate: June 18, 1991
ect Number: 3944
oject Name: RIVER FALLS

Well Name: MW1
Unique Sample No.: W-061891-PS-01
Sample Time: 15:15

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
l Depth*: 23
ne Well Volume: .8 Gallons

Reference Elevation*: 897.04
Water Level*: 18.03
Water Elevation: 879.01
Screen Length: 10'
~~Five~~ 4 Well Volumes: 3.2 Gallons

ging Method: bail
d Filtered?: (YES) NO
ample Parameters: 601/602 + Freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: —
Stop Time: —
Samplers Name: P. STORLIE

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
5:05	7.15	600	14°C	S. SILTY	—	3.2	bail

Remarks:

Measurements taken from Top of Casing (TOC).

23
18
5
16/30 20 1/0

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ect Number: 3944
ject Name: River Falls

Well Name: MW2
Unique Sample No.: W-061891-PS-02
Sample Time: 14:20

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
l Depth*: 21'
ne Well Volume: 1.3 Gallons

Reference Elevation*: 891.95
Water Level*: 13.17
Water Elevation: 878.78
Screen Length: 10'
~~Five~~ Four Well Volumes: 5.2 Gallons

urging Method: bail
d Filtered?: (YES) NO
ample Parameters: 601/602 + freon, Metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: —
Stop Time: —
Samplers Name: P. STURLIE

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
00	6.95	800	14°C	silty	—	5.2	bail

Remarks:

* Measurements taken from Top of Casing (TOC).

21
13.2
7.8
.16
4.8
/6

1.3
4
5.2

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991 Well Name: MW3

ect Number: 3944 Unique Sample No.: W-061891-PS-03

oject Name: River Falls Sample Time: 12:30

nique Well Name (if any): — Reference Elevation*: 892.66

ing/Screen Material: PVC Water Level*: 15.80

asing/Screen Diameter: 2" Water Elevation: 876.86

ll Depth*: 23 Screen Length: 10'

ne Well Volume: 1.2 Gallons ~~Five~~ Four Well Volumes: 4.8 Gallons

rging Method: bail Start Time:

d Filtered?: (YES) NO Stop Time:

ample Parameters: 601/602 + freon, metals (Pb, Hg, Cd, Cr, Cu, Zn) Samplers Name: P. STORLIE

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
30	7.05	550	15	SILTY	—	5.0	bail

Remarks:

* Measurements taken from Top of Casing (TOC).

23
15.8
7.2
.16
4.8

1.2
4
4.8

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: MW4
Unique Sample No.: W-061891-PS-04
Sample Time: 13:15

nique Well Name (if any): —
ing/Screen Material: PVC
asing/Screen Diameter: 2"
ll Depth*: 23'
ne Well Volume: 1.5 Gallons

Reference Elevation*: 892.29
Water Level*: 13.90
Water Elevation: 878.39
Screen Length: 10'
~~Five~~ Well Volumes: 6.0 Gallons
four

urging Method: bail
d Filtered?: (YES) NO
ample Parameters: 601/602 List for VOCs, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time:
Stop Time:
Samplers Name: P. STURLIE

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.
00	7.30	690	15°C	silty	—	6.0	bail

Remarks: W-061891-PS-05 (DUPLICATE)

* Measurements taken from Top of Casing (TOC).

1.5
4

23.
13.9
9.1

9.1
.16
5.46
9.1
.56

FIELD LOG-SAMPLE COLLECTION SHEET

ate: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: Rugor (876 MM Street)
Unique Sample No.: W-061891-PS-07
Sample Time: 11:45

nique Well Name (if any): Residence
ing/Screen Material: —
asing/Screen Diameter: —
ll Depth*: —
ne Well Volume: — Gallons

Reference Elevation*: —
Water Level*: —
Water Elevation: —
Screen Length: —
~~Five Well Volumes~~: Removed 80 Gallons

rging Method: lawn spigot
ld Filtered?: ~~YES~~ ~~NO~~
ample Parameters: 601/602 + Freon

Start Time: 11:25 @ 4GPM
Stop Time: 11:45
Samplers Name:

Time	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

Remarks:

* Measurements taken from Top of Casing (TOC).

FIELD LOG-SAMPLE COLLECTION SHEET

are: June 18, 1991
ject Number: 3944
ject Name: River Falls

Well Name: Rugor Rental (870 MM street
Unique Sample No.: WS-061891-PS-06
Sample Time: 11:35

nique Well Name (if any): Residential
ing/Screen Material: —
asing/Screen Diameter: —
ll Depth*: —
ne Well Volume: — Gallons

Reference Elevation*: —
Water Level*: —
Water Elevation: —
Screen Length: —
~~Five Well Volumes:~~ Removed 60 Gallons

urging Method: Kitchen sink
d Filtered?: YES NO
ample Parameters: 601/602 + Freon, metals (Pb, Hg, Cd, Cr, Cu, Zn)

Start Time: 11:15 @ 36PM
Stop Time: 11:35
Samplers Name: P. STURLIE

ime	pH	Conductivity (umhos)	Temp. (°C)	Water Clarity	Water Level Nearest 0.01 Ft.	Cumulative Volume of Water Removed from Well (gallons)	Pumping Rate G/Min.

Remarks:

Measurements taken from Top of Casing (TOC).

APPENDIX D

ANALYTICAL REPORTS

APPENDIX D.1

SOILS

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

#3944

LABORATORY ANALYSIS REPORT

DATE: July 10, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/4-5/91
RECEIVED DATE: 6/6/91
ANALYSIS DATE: 6/18/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024612 S-060491-PS-01 MW1 (7.5-9.5')
Chloromethane	0.050	0.110
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.440
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	ND
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.225
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.095
Chlorobenzene	0.050	0.245
Ethylbenzene	0.050	0.070

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
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(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

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CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/4-5/91
RECEIVED DATE: 6/6/91
ANALYSIS DATE: 6/18/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024612 S-060491-PS-01	ANALYSIS DATE
Xylenes, Total	0.050	0.096	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.17	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	7.4	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	8.8	6/14/91
Copper	0.50	13	6/14/91
Zinc	1.3	17	6/14/91
Moisture Content	0.01	5.59 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024613 S-060491-PS-02 Mw1 (12-14.5')
Chloromethane	0.050	0.090
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.430
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.165
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.160
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.115
Toluene	0.038	0.095
Chlorobenzene	0.050	0.255
Ethylbenzene	0.050	0.070

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MDL means Minimum Detection Limit

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RECEIVED DATE: 6/6/91
ANALYSIS DATE: 6/18/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024613 S-060491-PS-02	ANALYSIS DATE
Xylenes, Total	0.050	0.092	6/18/91
1,3-Dichlorobenzene	0.050	0.060	
1,2-Dichlorobenzene	0.050	0.070	
1,4-Dichlorobenzene	0.038	0.070	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	10	6/14/91
Copper	0.50	18	6/14/91
Zinc	1.3	17	6/14/91
Moisture Content	0.01	4.02 %	6/18/91

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Report submitted by

Thomas Halverson
Laboratory Manager

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024614 S-060491-PS-03 MW2 7.5 ft.
Chloromethane	0.050	0.155
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.455
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.165
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.155
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.095
Chlorobenzene	0.050	0.250
Ethylbenzene	0.050	ND

ND means Not Detected
MDL means Minimum Detection Limit

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024614 S-060491-PS-03	ANALYSIS DATE
Xylenes, Total	0.050	0.092	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	1.8	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	5.0	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	8.9	6/14/91
Copper	0.50	15	6/14/91
Zinc	1.3	20	6/14/91
Moisture Content	0.01	10.0 %	6/18/91

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024615 S-060491-PS-04
Chloromethane	0.050	0.085
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.240
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.445
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.205
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	ND
Toluene	0.038	0.090
Chlorobenzene	0.050	0.230
Ethylbenzene	0.050	ND

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MDL means Minimum Detection Limit

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ANALYSIS DATE: 6/18/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024615 S-060491-PS-04	ANALYSIS DATE
Xylenes, Total	0.050	0.090	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.17	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	2.5	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	5.2	6/14/91
Copper	0.50	6.0	6/14/91
Zinc	1.3	7.4	6/14/91
Moisture Content	0.01	10.9 %	6/18/91

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: 9106024616 UNITS: mg/kg MDL	S-060591-PS-05
Chloromethane	0.050	0.100
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	0.085
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.185
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.095
Toluene	0.038	0.100
Chlorobenzene	0.050	0.240
Ethylbenzene	0.050	0.070

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MDL means Minimum Detection Limit

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024616 S-060591-PS-05	ANALYSIS DATE
Xylenes, Total	0.050	0.097	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	0.70	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.19	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	4.9	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	5.6	6/14/91
Copper	0.50	6.4	6/14/91
Zinc	1.3	10	6/14/91
Moisture Content	0.01	4.66 %	6/18/91

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Report submitted by

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024617 S-060591-PS-06
Chloromethane	0.050	0.115
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.250
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.235
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	0.170
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.090
Toluene	0.038	0.095
Chlorobenzene	0.050	0.255
Ethylbenzene	0.050	0.080

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		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024617 S-060591-PS-06	ANALYSIS DATE
Xylenes, Total	0.050	0.115	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	0.065	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	4.1	6/14/91
Copper	0.50	5.8	6/14/91
Zinc	1.3	5.8	6/14/91
Moisture Content	0.01	3.06 %	6/18/91

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Report submitted by

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ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024618 S-060591-PS-07
Chloromethane	0.050	ND
Bromomethane	0.050	ND
Dichlorodifluoromethane	0.075	0.240
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	ND
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	0.210
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.110
Toluene	0.038	0.100
Chlorobenzene	0.050	ND
Ethylbenzene	0.050	0.070

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LABORATORY ANALYSIS REPORT

DATE:	July 10, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024618 S-060591-PS-07	ANALYSIS DATE
Xylenes, Total	0.050	0.095	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	3.4	6/14/91
Copper	0.50	5.3	6/14/91
Zinc	1.3	5.8	6/14/91
Moisture Content	0.01	6.36 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 10, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024619 S-060591-PS-08
Chloromethane	0.050	ND
Bromomethane	0.050	0.255
Dichlorodifluoromethane	0.075	ND
Vinyl Chloride	0.075	ND
Chloroethane	0.075	ND
Methylene Chloride	0.088	ND
Trichlorofluoromethane	0.100	0.235
1,1-Dichloroethylene	0.125	ND
1,1-Dichloroethane	0.100	ND
Trans-1,2-Dichloroethylene	0.063	ND
Chloroform	0.075	ND
1,2-Dichloroethane	0.100	ND
1,1,1-Trichloroethane	0.163	ND
Carbon Tetrachloride	0.100	ND
Bromodichloromethane	0.063	ND
1,2-Dichloropropane	0.075	ND
Cis-1,3-Dichloro-1-Propene	0.075	ND
1,1,2-Trichloroethylene	0.100	ND
Benzene	0.063	ND
Dibromochloromethane	0.063	ND
1,1,2-Trichloroethane	0.075	ND
Trans-1,3-Dichloro-Propene	0.063	ND
2-Chloroethylvinyl ether	0.625	ND
Bromoform	0.063	ND
1,1,2,2-Tetrachloroethane	0.050	ND
1,1,2,2-Tetrachloroethylene	0.088	0.095
Toluene	0.038	0.100
Chlorobenzene	0.050	0.250
Ethylbenzene	0.050	0.070

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 10, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/4-5/91
		RECEIVED DATE:	6/6/91
		ANALYSIS DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: mg/kg MDL	9106024619 S-060591-PS-08	ANALYSIS DATE
Xylenes, Total	0.050	0.100	6/18/91
1,3-Dichlorobenzene	0.050	ND	
1,2-Dichlorobenzene	0.050	ND	
1,4-Dichlorobenzene	0.038	ND	
Bromobenzene	0.038	ND	
Dibromomethane	0.050	0.18	
1,1,1,2-Tetracholoroethane	0.088	ND	
1,2,3-Trichloropropane	0.038	ND	
Lead	2.5	ND	6/14/91
Mercury	0.05	ND	6/24/91
Cadmium	0.25	ND	6/13/91
Chromium	1.3	6.1	6/14/91
Copper	0.50	11	6/14/91
Zinc	1.3	11	6/14/91
Moisture Content	0.01	8.24 %	6/18/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): SPECTRUM LABS INC

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: RIVER FALLS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	S-060491-PJ-01	6-4-91	09:30	MW1 - 7½-9½'	SOIL	2	VOCs (8010/8020), Pb, Hg, Cr, Zn, Cu, Cd
	S-060491-PJ-02		09:45	12½-14½'		2	
	03		14:00	MW2 - 7½-9½'		2	
	04		14:15	12½-14½'		2	
	S-060591-PJ-05	6-5-91	09:35	MW3 - 7½-9½'		2	
	06		09:50	12½-14½'		2	
	07		14:00	MW4 - 5-7'		2	
	08		14:15	12½-14½'		2	
				TOTAL NUMBER OF CONTAINERS		16	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 6-6-91 / 08:00	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT: CRA	SHIPPED BY: Steve Mackenbaugh	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME /
CONDITION OF SEAL UPON RECEIPT: GENERAL CONDITION OF COOLER:		COOLER OPENED BY: (SIGN)	DATE/TIME /

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 013524

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: 7-8-91

Q.C. SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: Inorganic/Metals
Sample No's: 24612-24619
Date Rec.: 6-6-91

All samples were digested for metals analysis using EPA method 3050. Samples were analyzed for Pb, Hg, Cr, Zn, Cu, & Cd using EPA methodologies by Atomic Absorption Spectrophotometry. The Quality Control Reports enclosed summarize recoveries for quality control standards, spiked samples, duplicate spiked samples, and blank samples where applicable. All of the Q.C. data was within acceptable limits with the exception of for Mercury analysis where a matrix spike exhibited low recovery (68%). This low spike recovery was apparently due to a matrix interference. To eliminate the interference a lesser amount of soil would have been used which would have affected the detection limit adversely. Therefor the data was accepted based on an evaluation of the other Q.C. data within the run.

Paine J Warhol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Lead Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
EPA 1085	External Check	5.00	5.05	101
25033	Matrix Spike	0.714	0.720	101
25033	Matrix Spike/Dup	0.740	0.730	1.36
24831	Matrix Spike	1.00	0.97	97
24831	Matrix Spike/Dup	1.09	1.11	1.82
2.5 STD	Internal Check Std.	2.50	2.51	100
24618	Matrix Spike	1.00	0.97	97
24618	Matrix Spike/Dup	1.01	1.02	0.985
24619	Matrix Spike	2.00	1.93	96
24619	Matrix Spike/Dup	2.04	2.02	0.985
2.5 STD	Internal Check Std.	2.50	2.50	100

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Zinc Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.00	1.946	97
24381	Matrix Spike	0.600	0.577	96
24381	Matrix Spike/Dup	1.677	1.646	1.86
Spex ICV-1	External Check	2.00	2.00	100
24618	Matrix Spike	1.00	0.901	90
24618	Matrix Spike/Dup	1.023	1.017	0.588
24619	Matrix Spike	1.20	0.938	78
24619	Matrix Spike/Dup	1.388	1.364	1.74
Spex ICV-1	External Check	2.00	1.976	97
25742	Matrix Spike	1.00	0.952	95
25742	Matrix Spike/Dup	0.952	0.902	5.39
Spex ICV-1	External Check	2.00	1.954	98
24619	Matrix Spike	1.20	0.891	74

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Copper Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.50	2.50	100
24381	Matrix Spike	0.400	0.413	103
24831	Matrix Spike/Dup	1.742	1.702	2.32
Spex ICV-1	External Check	2.50	2.57	103
24618	Matrix Spike	1.00	1.02	102
24618	Matrix Spike/Dup	1.123	1.123	0
24619	Matrix Spike	0.80	0.647	81
24619	Matrix Spike/Dup	1.08	0.968	11.4
Spex ICV-1	External Check	2.50	2.50	100
Spex ICV-1	External Check	2.50	2.54	101
24619	Matrix Spike	0.80	0.668	84
Spex ICV-1	External Check	2.50	2.48	99

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Cadmium Flame AA
Run Date: 6-13-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	0.50	0.485	97
25033	Matrix Spike	0.714	0.708	98
25033	Matrix Spike/Dup	0.707	0.708	0.141
Spex ICV-1	External Check	0.500	0.499	100
24618	Matrix Spike	1.00	1.02	102
24618	Matrix Spike/Dup	1.023	1.022	0.098
24619	Matrix Spike	0.20	0.186	93
24619	Matrix Spike/Dup	0.194	0.192	1.04
Spex ICV-1	External Check	0.50	0.495	99

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Chromium Flame AA
Run Date: 6-14-91
Analyst : KRC
Sample Matrix: Soil
Sample # : 24612 - 24619

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	0.10	0.10	100
25033	Matrix Spike	0.714	0.751	105
25033	Matrix Spike/Dup	0.859	0.864	0.580
24381	Matrix Spike	0.20	0.187	94
24381	Matrix Spike/Dup	0.199	0.190	4.63
24618	Matrix Spike	1.0	0.836	84
24618	Matrix Spike/Dup	0.908	0.903	0.552
24619	Matrix Spike	0.40	0.326	82
24619	Matrix Spike/Dup	0.507	0.580	13.4
Spex ICV-1	External Check	0.10	0.105	105

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Mercury Cold Vapor AA
Run Date: 6-20-91
Analyst : KRC
Sample Matrix: Soil & Water
Sample # : 24612 - 24619
26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
APG 11-90	External Check	3.74	3.79	101
24610	Matrix Spike	5.00	4.93	99
24610	Matrix Spike/Dup	4.93	4.75	3.72
24619	Matrix Spike	5.00	3.40	68
24619	Matrix Spike/Dup	4.46	4.21	5.77
APG 11-90	External Check	3.74	3.96	106

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: July 8, 1991

QUALITY CONTROL SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: 8010/8020
Sample No's: 24612-24619
Date Rec.: 6-6-91

Samples were analyzed for volatile organic compounds using EPA method 8010-8020. The Quality Control Reports enclosed summarize recoveries for daily blanks, laboratory fortified blanks, daily check standards, matrix spikes and matrix spike duplicates. All of the Quality Control data was within acceptable limits with the exception of the following Q.C. data summarized in Table I (See attachment). Corrective measures have been initiated to investigate possible sources of contamination for chloroform during sample preparation on spiked samples. The check standard and laboratory fortified blank also exhibited high recoveries which may indicate the initial calibration response for chloroform may have changed. A new calibration has been initiated to investigate this. Spike recoveries were high which would indicate little or no loss of analyte. Since chloroform was not seen in the samples, the results were accepted and reported as not detected. High recoveries for 1,1,2-Tetrachloroethane were noted and the same corrective measures taken as with chloroform. Low Levels of Trichlorofluoromethane were found in the blank which indicates cross contamination from other areas in the laboratory. This has been noted and will be monitored closely to eleviate the problem. Chloroform and 1,1,2-Trichloroethane which exhibited high recoveries were not noted in the blank.

To summarize, excessive low recoveries were not seen. All of the compounds not within acceptable ranges exhibited high recoveries which indicates no loss of analyte. Sample values were accepted and reported. A follow up investigation involving calibration and spiking proceedures has been initiated and results and conclusions will be made available for review upon request.

Jaine L Warhol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

TABLE I

Parameter	Q.C. Type	% Rec./RPD
Chloroform	Matrix Spike	242
Chloroform	Matrix Spike/Dup	31.6
Chloroform	Daily Check Std.	151
Chloroform	LFB	142
Trichlorofluoromethane	Daily Check Std.	166
1,1,2-Trichloroethane	Daily Check Std.	137
1,1,2-Trichloroethane	LFB	143

CHECK STANDARD MATRIX: SOILS
8010-8020

PARAMETER	DATE	PPB	ACT PPB	% REC
DICHLORODIFLUOROMETHANE	18-Jun-91	10.00	7.947	79.47
CHLOROMETHANE	18-Jun-91	10.00	9.809	98.09
VINYL CHLORIDE	18-Jun-91	10.00	11.028	110.28
BROMOMETHANE	18-Jun-91	10.00	9.726	97.26
CHLOROETHANE	18-Jun-91	10.00	9.486	94.86
TRICHLOROFLUOROMETHANE	18-Jun-91	10.00	16.586	165.86
ALLYL CHLORIDE	18-Jun-91	10.00	11.193	111.93
METHYLENE CHLORIDE	18-Jun-91	10.00	10.615	106.15
TRANS-1,2-DICHLOROETHENE	18-Jun-91	10.00	10.211	102.11
1,1-DICHLOROETHANE	18-Jun-91	10.00	10.152	101.52
CHLOROFORM	18-Jun-91	10.00	15.095	150.95
1,1,1-TRICHLOROETHANE	18-Jun-91	10.00	12.059	120.59
CARBON TETRACHLORIDE	18-Jun-91	10.00	11.464	114.64
1,2-DICHLOROETHANE	18-Jun-91	10.00	10.782	107.82
TRICHLOROETHYLENE	18-Jun-91	10.00	10.988	109.88
1,2-DICHLOROPROPANE	18-Jun-91	10.00	11.157	111.57
DIBROMOMETHANE	18-Jun-91	10.00	10.269	102.69
BROMODICHLOROMETHANE	18-Jun-91	10.00	10.103	101.03
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	12.604	126.04
CIS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	10.684	106.84
TRANS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	9.305	93.05
1,1,2-TRICHLORORETHANE	18-Jun-91	10.00	13.731	137.31
TETRACHLOROETHYLENE	18-Jun-91	10.00	11.221	112.21
DIBROMOCHLOROMETHANE	18-Jun-91	10.00	10.288	102.88
1,2-DIBROMOMETHANE	18-Jun-91	10.00	9.979	99.79
CHLOROBENZENE	18-Jun-91	10.00	9.610	96.10
1,1,1,2-TETRACHLOROETHANE	18-Jun-91	10.00	10.413	104.13
BROMOFORM	18-Jun-91	10.00	9.158	91.58
1,1,2,2-TETRACHLOROETHANE	18-Jun-91	10.00	12.743	127.43
1,2,3-TRICHLOROPROPANE	18-Jun-91	10.00	12.442	124.42
1,3-DICHLOROBENZENE	18-Jun-91	10.00	10.344	103.44
1,4-DICHLOROBENZENE	18-Jun-91	10.00	10.903	109.03
1,2-DICHLOROBENZENE	18-Jun-91	10.00	10.627	106.27
1,2-DIBROMO-3-CHLOROPROPANE	18-Jun-91	10.00	9.827	98.27
VINYL CHLORIDE P	18-Jun-91	10.00	10.859	108.59
1,1-DICHLOROETHENE P	18-Jun-91	10.00	10.108	101.08
TRANS-1,2-DICHLOROETHENE P	18-Jun-91	10.00	9.750	97.50
BENZENE	18-Jun-91	10.00	9.295	92.95
TRICHLOROETHYLENE P	18-Jun-91	10.00	9.250	92.50
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	8.689	86.89
CIS-1,3-DICHLOROPROPANE P	18-Jun-91	10.00	9.197	91.97
TOLUENE	18-Jun-91	10.00	9.312	93.12
TRANS-1,3-DICHLOROPROPANE P	18-Jun-91	10.00	9.061	90.61
TETRACHLOROETHYLENE P	18-Jun-91	10.00	9.337	93.37
CHLOROBENZENE P	18-Jun-91	10.00	10.529	105.29
ETHYLBENZENE	18-Jun-91	10.00	9.172	91.72
M & P-XYLENES	18-Jun-91	10.00	9.452	94.52
STYRENE & O-XYLENE	18-Jun-91	10.00	9.564	95.64
1,3-DICHLOROBENZENE P	18-Jun-91	10.00	9.063	90.63
1,4-DICHLOROBENZENE P	18-Jun-91	10.00	9.093	90.93
1,2-DICHLOROBENZENE P	18-Jun-91	10.00	9.041	90.41

LABORATORY FORTIFIED BLANK MATRIX: SOILS
601-602 MIX

PARAMETER	DATE	PPB	ACT PPB	% REC
TRICHLOROFLUOROMETHANE	18-Jun-91	10.00	10.722	107.22
1,1-DICHLOROETHENE	18-Jun-91	10.00	12.937	129.37
METHYLENE CHLORIDE	18-Jun-91	10.00	8.286	82.86
TRANS-1,2-DICHLOROETHENE	18-Jun-91	10.00	9.222	92.22
1,1-DICHLOROETHANE	18-Jun-91	10.00	9.842	98.42
CHLOROFORM	18-Jun-91	10.00	14.156	141.56
1,1,1-TRICHLOROETHANE	18-Jun-91	10.00	11.169	111.69
CARBON TETRACHLORIDE	18-Jun-91	10.00	10.694	106.94
1,2-DICHLOROETHANE	18-Jun-91	10.00	10.495	104.95
TRICHLOROETHYLENE	18-Jun-91	10.00	11.157	111.57
1,2-DICHLOROPROPANE	18-Jun-91	10.00	12.695	126.95
BROMODICHLOROMETHANE	18-Jun-91	10.00	9.104	91.04
2-CHLOROETHYL VINYL ETHER	18-Jun-91	10.00	12.257	122.57
CIS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	10.490	104.90
TRANS-1,3-DICHLOROPROPANE	18-Jun-91	10.00	9.664	96.64
1,1,2-TRICHLORORETHANE	18-Jun-91	10.00	14.370	143.70
TETRACHLOROETHYLENE	18-Jun-91	10.00	10.788	107.88
DIBROMOCHLOROMETHANE	18-Jun-91	10.00	13.210	132.10
BROMOFORM	18-Jun-91	10.00	9.257	92.57
1,1,2,2-TETRACHLOROETHANE	18-Jun-91	10.00	8.029	80.29
CHLOROBENZENE	18-Jun-91	10.00	10.178	101.78
1,3-DICHLOROBENZENE	18-Jun-91	10.00	10.271	102.71
1,4-DICHLOROBENZENE	18-Jun-91	10.00	10.847	108.47
1,2-DICHLOROBENZENE	18-Jun-91	10.00	11.705	117.05
BENZENE	18-Jun-91	10.00	9.115	91.15
TOLUENE	18-Jun-91	10.00	8.886	88.86
ETHYLBENZENE	18-Jun-91	10.00	8.879	88.79

QUALITY CONTROL DATA MATRIX: SOILS
MATRIX SPIKE

AMETER	SAMPLE #	DATE	SAMPLE	SPIKE	T.V.	SPIKE CON	% REC
YL CHLORIDE	9106024619	18-Jun-91	0.000	15.756	20.000	20.000	78.78
,1-DICHLOROETHENE	9106024619	18-Jun-91	0.000	25.711	20.000	20.000	128.56
LOROFORM	9106024619	18-Jun-91	0.000	48.408	20.000	20.000	242.04
,1-TRICHLOROETHANE	9106024619	18-Jun-91	0.000	21.321	20.000	20.000	106.61
ARBON TETRACHLORIDE	9106024619	18-Jun-91	0.000	19.455	20.000	20.000	97.27
2-DICHLOROETHANE	9106024619	18-Jun-91	0.000	27.327	20.000	20.000	136.64
CHLOROETHENE	9106024619	18-Jun-91	0.000	19.058	20.000	20.000	95.29
ROMODICHLOROMETHANE	9106024619	18-Jun-91	0.000	15.986	20.000	20.000	79.93
IBROMOCHLOROMETHANE	9106024619	18-Jun-91	0.000	18.117	20.000	20.000	90.59
OMOFORM	9106024619	18-Jun-91	0.000	17.689	20.000	20.000	88.45
ZENE	9106024619	18-Jun-91	0.000	17.680	20.000	20.000	88.40
,4-DICHLOROBENZENE	9106024619	18-Jun-91	0.000	15.485	20.000	20.000	77.43

QUALITY CONTROL DATA MATRIX: SOILS
MATRIX DUPLICATES

PARAMETER	DATE	SAMPLE	DUPE	S+D	S-D	% DIFF.
YL CHLORIDE	18-Jun-91	15.756	16.516	16.136	-0.760	-4.71
,1-DICHLOROETHENE	18-Jun-91	25.711	24.320	25.016	1.391	5.56
OROFORM	18-Jun-91	48.408	66.548	57.478	-18.140	-31.56
,1-TRICHLOROETHANE	18-Jun-91	21.321	21.511	21.416	-0.190	-0.89
ARBON TETRACHLORIDE	18-Jun-91	19.455	20.042	19.749	-0.587	-2.97
2-DICHLOROETHANE	18-Jun-91	27.327	19.253	23.290	8.074	34.67
OMODICHLOROMETHANE	18-Jun-91	15.986	20.923	18.455	-4.937	-26.75
BROMOCHLOROMETHANE	18-Jun-91	18.117	19.653	18.885	1.003	5.31
ROMOFORM	18-Jun-91	17.689	17.749	17.719	-0.060	-0.34
ZENE	18-Jun-91	17.680	18.463	18.072	0.038	0.21
,4-DICHLOROBENZENE	18-Jun-91	15.485	16.251	15.868	0.520	3.28

Matrix: Soils

External Standard Report

a File Name : C:\HPCHEM\2\DATA\06-18-91\001R0101.D
rator : WAYNE FORSBERG
quired on : 18 Jun 91 09:46 AM
ple Name : BLANK #1
Time Bar Code:
nstrument Method: 8010SIG1.MTH
rlysis Method : 8010SIG2.MTH
tiplier : 1
st Recalib : 13 JUN 91 10:54 AM

Instrument . #2
Vial Number . 1
Injection Number . 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount

. 2 in C:\HPCHEM\2\DATA\06-18-91\001R0101.D

L Time	Area	Type	Width	Ref#	UG/L	Name
3.447	* not found *			1		DICHLORODIFLUOROMETHANE
3.624	1727	VV	0.048	1	0.625	CHLOROMETHANE
3.884	* not found *			1		VINYL CHLORIDE
4.540	* not found *			1		BROMOMETHANE
4.738	* not found *			1		CHLOROETHANE
5.305	38431	BV	0.138	1	2.591	TRICHLOROFLUOROMETHANE
6.581	191710	BV	0.175	1	3.109	1,1-DICHLOROETHENE
6.920	* not found *			1		METHYL IODIDE
7.486	* not found *			1		ALLYL CHLORIDE
7.952	13692	PV	0.158	1	0.278	METHYLENE CHLORIDE
8.649	* not found *			1		TRANS-1,2-DICHLOROETHENE
9.782	* not found *.			1		1,1-DICHLOROETHANE
11.710	1122322	BV	0.094	1	19.980	BROMOCHLOROMETHANE
11.842	* not found *			1		CHLOROFORM
12.222	94802	VV	0.169	1	0.947	1,1,1-TRICHLOROETHANE
12.491	* not found *			1		CARBON TETRACHLORIDE
12.950	* not found *			1		1,2-DICHLOROETHANE
1.119	2073	BV	0.082	1	0.0426	TRICHLOROETHENE
.471	* not found *			1		1,2-DICHLOROPROPANE
14.629	12994	PV	0.123	1	1.217	DIBROMOMETHANE
.953	* not found *			1		BROMODICHLOROMETHANE
.461	* not found *			1		2-CHLOROETHYL VINYL ETHER
15.682	* not found *			1		CIS-1,3-DICHLOROPROPENE
16.573	* not found *			1		TRANS-1,3-DICHLOROPROPENE
.772	1035258	BV	0.090	1	21.612	2-BROMO-1-CHLOROPROPANE
.890	* not found *			1		1,1,2-TRICHLOROETHANE
17.080	* not found *			1		TETRACHLOROETHENE
.499	* not found *			1		DIBROMOCHLOROMETHANE
.686	* not found *			1		1,2-DIBROMOETHANE
18.456	1306	BV	0.081	1	0.622	CHLOROBENZENE
.539	* not found *			1		1,1,1,2-TETRACHLOROETHANE
.704	* not found *			1		BROMOFORM
20.109	1065718	BV	0.075	1	20.070	1,4-DICHLOROBUTANE
20.367	* not found *			1		1,1,2,2-TETRACHLOROETHANE
.440	* not found *			1		1,2,3-TRICHLOROPROPANE
.811	* not found *			1		1,3-DICHLOROBENZENE
21.939	* not found *			1		1,4-DICHLOROBENZENE
.512	* not found *			1		1,2-DICHLOROBENZENE
.691	* not found *			1		1,2-DIBROMO-3-CHLOROPROPANE

t all calibrated peaks were found

External Standard Report

File Name : C:\HPCHEM\2\DATA\06-18-91\001F0101.D
ator : WAYNE FORSBERG
red on : 18 Jun 91 09:46 AM
e Name : BLANK #1
Time Bar Code:
rument Method: 8010SIG1.MTH
sis Method : 8010SIG1.MTH
plier : 1
Recalib : 13 JUN 91 10:36 AM

Instrument : #2
Vial Number : 1
Injection Number: 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

1 in C:\HPCHEM\2\DATA\06-18-91\001F0101.D

Time	Area	Type	Width	Ref#	UG/L	Name
854	* not found *			1		VINYL CHLORIDE
.438	* not found *			1		1,1-DICHLOROETHENE
.829	* not found *			1		METHYL IODIDE
602	* not found *			1		TRANS-1,2-DICHLOROETHENE
847	* not found *			1		BENZENE
.404	* not found *			1		FLUOROBENZENE
034	* not found *			1		TRICHLOROETHENE
577	4846	BB	0.062	1	20.743	TRIFLUOROTOLUENE
.529	200	BB	0.055	1	1.710	2-CHLOROETHYL VINYL ETHER
643	* not found *			1		CIS-1,3-DICHLOROPROPENE
212	141	BB	0.053	1	0.661	TOLUENE
.533	* not found *			1		TRANS-1,3-DICHLOROPROPENE
.040	* not found *			1		TETRACHLOROETHENE
397	* not found *			1		CHLOROBENZENE
526	* not found *			1		ETHYLBENZENZE
.737	73	BB	0.051	1	0.315	M & P XYLENES
326	* not found *			1		STYRENE & O-XYLENE
771	* not found *			1		1,3-DICHLOROBENZENE
.902	* not found *			1		1,4-DICHLOROBENZENE
.473	* not found *			1		1,2-DICHLOROBENZENE

all calibrated peaks were found

APPENDIX D.2

GROUNDWATER

MEMORANDUM

TO: Steve Mockenhaupt REFERENCE NO. 3944

FROM: David Dempsey DD DATE: July 26, 1991

RE: Data Quality Assessment and Validation for Eight Soil and Seven Groundwater Samples Collected During the June 1991 Sampling Event at the River Falls Site

---

The following details a data quality assessment and validation for eight soil and seven groundwater samples collected June 4 through June 18, 1991 at the River Falls site. Samples were analyzed for selected volatile organic compounds (VOC) and metals by Spectrum Labs.[1] Quality assurance/quality control criteria are established in the analytical methods.[2]

Holding Time Periods

Holding time periods are defined in analytical methods and are summarized below:

VOC - 14 days from sample collection to completion of analysis

Metals - 6 months from sample collection to completion of analysis

Examining analysis dates reveal all samples were analyzed within holding time periods.

Method Blank Samples

Method blank samples are used to assess lab contamination. The metals method blank samples are free of analytes. However, the VOC method blank samples contained several analytes at low concentrations. These analytes are listed in Table 1. Samples listed in Table 1 have analyte datum qualified as non detect (U) based upon the method blank samples data.

Surrogate Compounds Percent Recoveries

Surrogate compounds are used to assess individual VOC analyses. As the surrogate compounds recoveries are within limits set by Spectrum, these methods are in control.

---

[1] Analytical methods are from "Test Methods for Evaluating Solid Waste", SW-846, third edition, revision I, December 1987 and are summarized below:

VOC - 8010/8020
Metals - 6010/7000 series

[2] Application of quality assurance/quality control criteria is consistent with "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses", February 1, 1988 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1, 1988.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

Matrix effects are checked for using MS/MSD analyses. However, the reported VOC matrix spike data are associated with in house samples. Thus, these VOC matrix spike data cannot be used to assess matrix effects.

The soil metals MS/MSD analyses were performed using sample S-060591-PS-08. Percent recoveries indicate no significant matrix effects. Sample W-061891-PS-06 underwent MS/MSD analyses for cadmium and zinc, while sample W-061891-PS-01 underwent MS/MSD analyses for lead. Percent recoveries indicate no significant matrix effects.

Copper and chromium aqueous MS/MSD analyses were performed using in house samples. Therefore, these data cannot be used to assess matrix effects. These data demonstrate the methods are precise.

Duplicate Analyses

Duplicate VOC analyses are used to assess the VOC method precision. The aqueous VOC duplicate analysis was performed using an in house sample. Agreement between these analyses indicate the method is precise.

Duplicate soil VOC analysis was also performed using an in house sample. Chloroform and 1,2-dichloroethane have low precision. Therefore, these analytes data are qualified as estimated (UJ). Based on the duplicate analysis, the remaining analytes for all soil samples precisions are acceptable.

Control Samples

Control samples are used to assess methods overall accuracy. Both metal control sample data show the methods are accurate. For the soil VOC control sample, chloroform and 1,1,2-trichloroethane have high recoveries. For the aqueous VOC control sample, methylene chloride and chlorobenzene have high recoveries. As none of these analytes are detected in any samples, no action upon the data are necessary.

Quality Assurance Blank Samples

Quality assurance blank samples (i.e., rinsate, field blank and trip blank samples) are used to assess contamination due to decontamination procedures, ambient conditions and shipping conditions. However, no such samples were collected during the sampling events.

Field Duplicate Samples

Overall precision for these events is checked using field duplicate samples. No field duplicate samples were collected during the soil sampling event. Precision for these samples is limited to duplicate analyses performed in the lab.

Field duplicate samples W-061891-PS-04 and W-061891-PS-05 were collected to assess groundwater sampling precision. Based on these data, the overall groundwater sampling precision is acceptable.

Overall Assessment

Based on method blank sample data, analytes listed in Table 1 have data from samples listed in Table 1 qualified as non-detect (U). Based on poor agreement between duplicate analyses, chloromethane and 1,2-dichloroethane soil data are qualified as estimated (UJ). The remaining data are accurate and precise, based upon the data package. These unqualified data may be used to quantitatively assess analyte concentrations.

TABLE 1

ANALYTES DETECTED IN VOC
METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Soil	Chloromethane	0.078 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-05; S-060591-PS-06
	Trifluorotoluene	0.324 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-08
	1,1-dichloroethene	0.389 mg/kg	
	Toluene	0.083 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-03; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Ethylbenzene	0.070 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Dibromomethane	0.017 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
Water	Chloromethane	0.866 µg/*l*	W-061891-PS-01; W-061891-PS-03; W-061891-PS-06; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

TABLE 1 (CONT'D)

ANALYTES DETECTED IN VOC
METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Water	1,1-dichloroethene	1.639 µg/*l*	W-061891-PS-02; W-061891-PS-03
	Chloroform	0.498 µg/*l*	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07
	Trichloroethene	0.0376 µg/*l*	
	1,2-dichloropropane	0.348 µg/*l*	W-061891-PS-03
	trans-1,3-dichloropropane	9.367 µg/*l*	
	1,2-dichlorobenzene	0.955 µg/*l*	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04
	Toluene	0.702 µg/*l*	W-061891-PS-01; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

#3944

LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/2/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026407 W-061891-PS-01 MW1
Chloromethane	0.4	0.6
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	1.8
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	2.1
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	3.4
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	1.0
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	1.1
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	0.7

ND means Not Detected
MDL means Minimum Detection Limit

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026407 W-061891-PS-01 MW1	ANALYSIS DATE
Xylenes, Total	0.4	0.4	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	1.0	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	1.0	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	1	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/03/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
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LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/2/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026408 W-061891-PS-02 MW2
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	1.6
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.8
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

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MDL means Minimum Detection Limit

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026408 W-061891-PS-02 MW2	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	1.0	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/2/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026409 W-061891-PS-03 MW3
Chloromethane	0.4	0.8
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	3.5
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	1.1
1,1-Dichloroethylene	1.0	1.4
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	3.2
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	19.6
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	0.7
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	0.9
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.7
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026409 W-061891-PS-03 MW3	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	0.9	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	51	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/02/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026410 W-061891-PS-04 MW4
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.5
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.6
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026410 W-061891-PS-04 MW4	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	0.9	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

ND means Not Detected
MDL means Minimum Detection Limit

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Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/02/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026411 W-061891-PS-05 MW5 (MW4 Dup)
Chloromethane	0.4	ND
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	ND
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026411 W-061891-PS-05 MW5	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	ND	6/27/91

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MDL means Minimum Detection Limit

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Report submitted by

Thomas Halverson
Laboratory Manager

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LABORATORY ANALYSIS REPORT

DATE: July 3, 1991

PAGE: 1 of 2

CLIENT: Steven Mockenhaupt
Conestoga-Rovers & Associates
382 West County Rd. D
St. Paul, MN 55112

PROJECT NO.: 061891-200153
COLLECTED BY: Client
COLLECTION DATE: 6/18/91
RECEIVED DATE: 6/18/91
ANALYSIS DATE: 7/02/91
PROJECT DESCP: River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026412 W-061891-PS-06 Rugor Rental
Chloromethane	0.4	0.6
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	ND
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	ND
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	ND
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: 9106026412 UNITS: ug/l MDL	W-061891-PS-06 Rugor Rental	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	
Lead	1	ND	6/26/91
Mercury	1	ND	6/24/91
Cadmium	0.2	ND	6/28/91
Chromium	1	ND	7/3/91
Copper	20	ND	6/26/91
Zinc	10	50	6/27/91

ND means Not Detected
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All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	1 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		ANALYSIS DATE:	7/02/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026413 W-061891-PS-07 (Rugor)
Chloromethane	0.4	0.7
Bromomethane	0.4	ND
Dichlorodifluoromethane	0.6	ND
Vinyl Chloride	0.6	ND
Chloroethane	0.6	ND
Methylene Chloride	0.7	ND
Trichlorofluoromethane	0.8	ND
1,1-Dichloroethylene	1.0	ND
1,1-Dichloroethane	0.8	ND
Trans-1,2-Dichloroethylene	0.5	ND
Chloroform	0.6	1.7
1,2-Dichloroethane	0.8	ND
1,1,1-Trichloroethane	1.3	ND
Carbon Tetrachloride	0.8	ND
Bromodichloromethane	0.7	ND
1,2-Dichloropropane	0.6	ND
Cis-1,3-Dichloro-1-Propene	0.5	ND
1,1,2-Trichloroethylene	0.8	ND
Benzene	0.5	ND
Dibromochloromethane	0.5	1.4
1,1,2-Trichloroethane	1.3	ND
Trans-1,3-Dichloro-Propene	0.5	ND
2-Chloroethylvinyl ether	5.0	ND
Bromoform	0.5	ND
1,1,2,2-Tetrachloroethane	0.4	ND
1,1,2,2-Tetrachloroethylene	0.7	ND
Toluene	0.3	0.6
Chlorobenzene	0.4	ND
Ethylbenzene	0.4	ND

ND means Not Detected
MDL means Minimum Detection Limit

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
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LABORATORY ANALYSIS REPORT

DATE:	July 3, 1991	PAGE:	2 of 2
CLIENT:	Steven Mockenhaupt Conestoga-Rovers & Associates 382 West County Rd. D St. Paul, MN 55112	PROJECT NO.:	061891-200153
		COLLECTED BY:	Client
		COLLECTION DATE:	6/18/91
		RECEIVED DATE:	6/18/91
		PROJECT DESCP:	River Falls #3944

ANALYSIS	Sample No.: UNITS: ug/l MDL	9106026413 W-061891-PS-07 (Rugor)	ANALYSIS DATE
Xylenes, Total	0.4	ND	7/02/91
1,3-Dichlorobenzene	0.4	ND	
1,2-Dichlorobenzene	0.4	ND	
1,4-Dichlorobenzene	0.3	ND	
Bromobenzene	0.6	ND	
Dibromomethane	0.5	ND	
1,1,1,2-Tetrachloroethane	1.0	ND	
1,2,3-Trichloropropane	0.5	ND	

ND means Not Detected
MDL means Minimum Detection Limit

All analysis were performed under my direct supervision using EPA or other accepted methodologies. Please contact me if you have any questions regarding this report.

Report submitted by

Thomas Halverson
Laboratory Manager

CRA Consulting Engineers
CONESTOGA-ROVERS & ASSOCIATES
651 Colby Drive, Waterloo, Ontario Canada N2V 1C2

SHIPPED TO (Laboratory name): SPECTRUM LAB

CHAIN OF CUSTODY RECORD

PROJECT Nº: 3944

PROJECT NAME: RIVER FALLS

SAMPLER'S SIGNATURE: (SIGN)

SEQ. Nº	SAMPLE Nº	DATE	TIME	SAMPLE LOCATOIN	SAMPLE TYPE	Nº OF CONTAINERS	REMARKS
	W-061991-PS-01	6-18-91	15:15	MW 1	Water	4	601/602+Freon, metals
	02		14:20	MW 2		4	
	03		12:30	MW 3		4	
	04		13:15	MW 4		4	
	05		13:30	MW 5		4	
	06		11:35	Rugor Rental		4	
	07		11:45	Rugor		3	601/602 + Freon
							metals: Pb, Hg, Cd, Cr, Cu, Zn
				TOTAL NUMBER OF CONTAINERS		27	

ANTICIPATED CHEMICAL HAZARDS:

RELINQUISHED BY: 1 (SIGN)	DATE/TIME 6-18-91 / 16:45	RECEIVED BY: 2 (SIGN)
RELINQUISHED BY: 2 (SIGN)	DATE/TIME /	RECEIVED BY: 3 (SIGN)
RELINQUISHED BY: 3 (SIGN)	DATE/TIME /	RECEIVED BY: 4 (SIGN)
ADDITIONAL SIGNATURE SHEET REQUIRED ☐		

METHOD OF SHIPMENT:	SHIPPED BY:	RECEIVED FOR LABORATORY BY: (SIGN)	DATE/TIME
P.S.	P.S.		6/18

CONDITION OF SEAL UPON RECEIPT:	COOLER OPENED BY: (SIGN)	DATE/TIME /
GENERAL CONDITION OF COOLER:		

WHITE – CRA OFFICE COPY
YELLOW – RECEIVING LABORATORY COPY
PINK – CRA LABORATORY COPY
GOLDEN ROD – SHIPPERS

Nº 013478

SPECTRUM
LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: 7-8-91

Q.C. SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: Inorganic/Metals
Sample No's: 26407-26412
Date Rec.: 6-18-91

Samples were analyzed for Pb, Hg, Cr, Zn, Cu, & Cd using EPA methodologies by Atomic Absorption Spectrophotometry. The Quality Control Reports enclosed summarize recoveries for quality control standards, spiked samples, duplicate spiked samples, and blank samples where applicable. All of the Q.C. data was within acceptable limits.

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Cadmium Furnace AA
Run Date: 7-3-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
ERA 9932	External Check	0.85	0.848	100
ERA 9932	External Check	0.85	0.844	99
25907	Matrix Spike	1.00	0.982	98
25907	Matrix Spike/Dup	0.993	0.971	2.24
ERA 9932	External Check	0.85	0.867	102
26412	Matrix Spike	1.00	0.989	99
26412	Matrix spike/Dup	1.03	1.05	2.97
ERA 9932	External Check	0.85	0.889	104

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Zinc Flame AA
Run Date: 6-27-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.00	1.996	100
26584	Matrix Spike	1.00	1.01	101
26584	Matrix Spike/Dup	1.039	1.005	3.33
26412	Matrix Spike	1.00	1.07	107
26412	Matrix Spike/Dup	1.096	1.069	2.49
25736	Matrix Spike	0.60	0.547	91
25736	Matrix Spike/Dup	0.961	0.951	1.05
26790	Matrix Spike	1.00	0.952	95
Spex ICV-1	External Check	2.00	2.04	102

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Copper Flame AA
Run Date: 6-26-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
Spex ICV-1	External Check	2.50	2.68	100
25551	Matrix Spike	1.00	1.08	108
25551	Matrix Spike/Dup	1.075	1.082	0.649
25933	Matrix Spike	1.00	1.06	106
25933	Matrix Spike/Dup	1.09	1.09	0
26406	Matrix Spike	1.00	1.04	108
26406	Matrix Spike/Dup	1.51	1.38	4.42
26803	Matrix Spike	1.00	1.11	111
26803	Matrix Spike/Dup	1.19	1.17	1.78
27116	Matrix Spike	1.00	1.03	103
27116	Matrix Spike/Dup	1.05	1.05	0
25306	Matrix Spike	1.00	0.992	99
25306	Matrix Spike/Dup	0.992	0.985	0.708
26261	Matrix Spike	1.00	0.981	98
26261	Matrix Spike/Dup	0.981	0.983	0.203
Spex ICV-1	External Check	2.50	2.45	98

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Chromium Furnace AA
Run Date: 7-3-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
ERA 9932	External Check	2.19	2.08	95
ERA 9932	External Check	2.19	2.09	95
26412	Matrix Spike	5.00	5.00	100
25933	Matrix Spike/Dup	5.29	5.49	3.65
ERA 9932	External Check	2.19	2.20	101

Report submitted by,

Daniel G. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

July 8,1991

QUALITY CONTROL REPORT

Parameter: Lead Furnace AA
Run Date: 6-26-91
Analyst : KRC
Sample Matrix: Water
Sample # : 26407 - 26412

Sample	Q.C. Type	Conc.	Result	%Rec./RPD
EPA TMA 989	External Check	50.0	48.0	96
26407	Matrix Spike	40.0	38.5	96
26407	Matrix Spike/Dup	39.9	40.0	0.325
EPA TMA 989	External Check	50.0	48.3	97
EPA TMA 989	External Check	50.0	49.5	99
27525	Matrix Spike	40.0	37.6	94
27525	Matrix Spike/dup	43.7	37.6	15.2
EPA TMA 989	External Check	50.0	49.4	98.7

Report submitted by,

Daniel J. Warhol
Quality Assurance Manager

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Date: July 8, 1991

QUALITY CONTROL SUMMARY/NARRATIVE

Client: Conestoga-Rovers & Associates
Project: River Falls 3944
Parameters: 8010/8020
Sample No's: 26407-26413
Date Rec.: 6-18-91

Samples were analyzed for volatile organic compounds using EPA method 8010-8020. The Quality Control Reports enclosed summarize recoveries for daily blanks, laboratory fortified blanks, daily check standards, matrix spikes and matrix spike duplicates. All of the Quality Control data was within acceptable limits with the exception of the following Q.C. data summarized in Table I . Corrective measures have been initiated to investigate possible sources of contamination for Chloroform and Carbontetrachloride during sample preparation on spiked samples. The check standard also exhibited high recoveries for Chloromethane, Chloroethane, Chloroethane, Chloroform, and 1,1,2-Trichloroethane which may indicate the initial calibration response may have changed. High recoveries were also noted for Methylene Chloride and Chlorobenzene in the laboratory fortified blank. A new calibration has been initiated to investigate this. Since recoveries were high this would indicate little or no loss of analyte. Surrogate compounds spiked into deionized water at the beginning of the run exhibited low recovery which was due to maintanance needed on detectors. This was corrected and the run was continued. Low Levels of Trichlorofluoromethane, Chloromethane, 1,1-Dichloroethene, Bromochloromethane, and Toluene were found in the blank which indicates cross contamination from other areas in the laboratory. This has been noted and will be monitored closely to eleviate the problem. Benzene, Toluene, and Ethylbenzene show low recovery in the laboratory fortified blank. This apparently due to a problem in the preparation of the spike, the problem is not seen on the daily check standard and the matrix spike.
To summarize, excessive low recoveries were not seen. Sample values were accepted and reported. A follow up investigation involving calibration and spiking proceedures has been initiated and results and conclusions will be made available for review upon request.

Janice Wachol

SPECTRUM LABS INC
301 West County Road E2 • New Brighton, MN 55112
(612) 633-0101 • FAX (612) 633-1402

Table I

Parameter	Q.C. Type	% Rec./RPD
Chloroform	Matrix Spike	363
Chloroform	Daily Check Std.	168
Carbon Tetrachloride	Matrix Spike	252
Dichlorodifluoromethane	Daily Check Std.	47.5
Chloromethane	Daily Check Std.	197
Chloroethane	Daily Check Std.	133
1,1,2-Trichloroethane	Daily Check Std.	133
Methylene Chloride	LFB	180
Chlorobenzene	LFB	169

CHECK STANDARD MATRIX: WATER
8010-8020

PARAMETER	DATE	PPB	ACT PPB	% REC
DICHLORODIFLUOROMETHANE	02-Jul-91	10.00	4.750	47.50
CHLOROMETHANE	02-Jul-91	10.00	19.682	196.82
BROMOMETHANE	02-Jul-91	10.00	8.800	88.00
CHLOROETHANE	02-Jul-91	10.00	13.363	133.63
TRICHLOROFLUOROMETHANE	02-Jul-91	10.00	10.410	104.10
1,1-DICHLOROETHENE	02-Jul-91	10.00	12.691	126.91
ALLYL CHLORIDE	02-Jul-91	10.00	12.355	123.55
METHYLENE CHLORIDE	02-Jul-91	10.00	12.083	120.83
TRANS-1,2-DICHLOROETHENE	02-Jul-91	10.00	11.528	115.28
1,1-DICHLOROETHANE	02-Jul-91	10.00	10.316	103.16
CHLOROFORM	02-Jul-91	10.00	16.836	168.36
1,1,1-TRICHLOROETHANE	02-Jul-91	10.00	12.122	121.22
CARBON TETRACHLORIDE	02-Jul-91	10.00	11.616	116.16
1,2-DICHLOROETHANE	02-Jul-91	10.00	10.622	106.22
TRICHLOROETHYLENE	02-Jul-91	10.00	10.111	101.11
1,2-DICHLOROPROPANE	02-Jul-91	10.00	10.641	106.41
DIBROMOMETHANE	02-Jul-91	10.00	9.058	90.58
BROMODICHLOROMETHANE	02-Jul-91	10.00	9.413	94.13
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00	12.413	124.13
CIS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	10.103	101.03
TRANS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	7.721	77.21
1,1,2-TRICHLORORETHANE	02-Jul-91	10.00	13.329	133.29
TETRACHLOROETHYLENE	02-Jul-91	10.00	11.122	111.22
DIBROMOCHLOROMETHANE	02-Jul-91	10.00	8.800	88.00
1,2-DIBROMOMETHANE	02-Jul-91	10.00	9.258	92.58
CHLOROBENZENE	02-Jul-91	10.00	8.353	83.53
1,1,1,2-TETRACHLOROETHANE	02-Jul-91	10.00	10.042	100.42
BROMOFORM	02-Jul-91	10.00	7.056	70.56
1,1,2,2-TETRACHLOROETHANE	02-Jul-91	10.00	10.961	109.61
1,2,3-TRICHLOROPROPANE	02-Jul-91	10.00	12.231	122.31
1,2-DIBROMO-3-CHLOROPROPANE	02-Jul-91	10.00	8.775	87.75
VINYL CHLORIDE P	02-Jul-91	10.00	7.294	72.94
1,1-DICHLOROETHENE P	02-Jul-91	10.00	7.733	77.33
TRANS-1,2-DICHLOROETHENE P	02-Jul-91	10.00	7.598	75.98
BENZENE	02-Jul-91	10.00	7.591	75.91
TRICHLOROETHYLENE P	02-Jul-91	10.00	7.286	72.86
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00	7.536	75.36
CIS-1,3-DICHLOROPROPANE P	02-Jul-91	10.00	7.087	70.87
TOLUENE	02-Jul-91	10.00	7.488	74.88
TRANS-1,3-DICHLOROPROPANE P	02-Jul-91	10.00	7.151	71.51
TETRACHLOROETHYLENE P	02-Jul-91	10.00	7.335	73.35
CHLOROBENZENE P	02-Jul-91	10.00	8.759	87.59
ETHYLBENZENE	02-Jul-91	10.00	7.522	75.22
M & P-XYLENES	02-Jul-91	10.00	7.656	76.56
STYRENE & O-XYLENE	02-Jul-91	10.00	7.802	78.02
1,3-DICHLOROBENZENE P	02-Jul-91	10.00	7.334	73.34
1,4-DICHLOROBENZENE P	02-Jul-91	10.00	7.399	73.99
1,2-DICHLOROBENZENE P	02-Jul-91	10.00	7.742	77.42

LABORATORY FORTIFIED BLANK MATRIX: WATER
601-602 MIX

PARAMETER	DATE	PPB	ACT PPB	% REC
TRICHLOROFLUOROMETHANE	02-Jul-91	10.00	10.931	109.31
1,1-DICHLOROETHENE	02-Jul-91	10.00	10.446	104.46
METHYLENE CHLORIDE	02-Jul-91	10.00	18.037	180.37
TRANS-1,2-DICHLOROETHENE	02-Jul-91	10.00	9.845	98.45
1,1-DICHLOROETHANE	02-Jul-91	10.00	9.134	91.34
CHLOROFORM	02-Jul-91	10.00	11.448	114.48
1,1,1-TRICHLOROETHANE	02-Jul-91	10.00	10.323	103.23
CARBON TETRACHLORIDE	02-Jul-91	10.00	9.845	98.45
1,2-DICHLOROETHANE	02-Jul-91	10.00	9.655	96.55
TRICHLOROETHYLENE	02-Jul-91	10.00	9.087	90.87
1,2-DICHLOROPROPANE	02-Jul-91	10.00	9.901	99.01
BROMODICHLOROMETHANE	02-Jul-91	10.00	8.652	86.52
2-CHLOROETHYL VINYL ETHER	02-Jul-91	10.00		0.00
CIS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	11.712	117.12
TRANS-1,3-DICHLOROPROPANE	02-Jul-91	10.00	9.664	96.64
1,1,2-TRICHLORORETHANE	02-Jul-91	10.00	13.210	132.10
TETRACHLOROETHYLENE	02-Jul-91	10.00	9.677	96.77
DIBROMOCHLOROMETHANE	02-Jul-91	10.00	9.272	92.72
BROMOFORM	02-Jul-91	10.00	8.382	83.82
1,1,2,2-TETRACHLOROETHANE	02-Jul-91	10.00	8.826	88.26
CHLOROBENZENE	02-Jul-91	10.00	16.916	169.16
1,3-DICHLOROBENZENE	02-Jul-91	10.00	8.402	84.02
1,4-DICHLOROBENZENE	02-Jul-91	10.00	8.596	85.96
1,2-DICHLOROBENZENE	02-Jul-91	10.00	7.971	79.71
BENZENE	02-Jul-91	10.00	6.426	64.26
TOLUENE	02-Jul-91	10.00	6.438	64.38
ETHYLBENZENE	02-Jul-91	10.00	6.557	65.57

SURROGATES MATRIX: WATER
8010-8020

PARAMETER	SAMPLE #	DATE	PPB	ACT PPB	% REC
TRIFLUOROTOLUENE	BLANK	02-Jul-91	20.00	7.360	36.80
BROMOCHLOROMETHANE	BLANK	02-Jul-91	20.00	4.374	21.87
2-BROMO-1-CHLOROPROPANE	BLANK	02-Jul-91	20.00	9.367	46.84
1,4-DICHLOROBUTANE	BLANK	02-Jul-91	20.00	11.494	57.47
TRIFLUOROTOLUENE	8010 MIX	02-Jul-91	20.00	16.423	82.12
BROMOCHLOROMETHANE	8010 MIX	02-Jul-91	20.00	15.929	79.65
2-BROMO-1-CHLOROPROPANE	8010 MIX	02-Jul-91	20.00	18.816	94.08
1,4-DICHLOROBUTANE	8010 MIX	02-Jul-91	20.00	18.718	93.59
TRIFLUOROTOLUENE	8020 MIX	02-Jul-91	20.00	16.168	80.84
BROMOCHLOROMETHANE	8020 MIX	02-Jul-91	20.00	14.897	74.49
2-BROMO-1-CHLOROPROPANE	8020 MIX	02-Jul-91	20.00	18.955	94.77
1,4-DICHLOROBUTANE	8020 MIX	02-Jul-91	20.00	18.377	91.88
TRIFLUOROTOLUENE	9106026407	02-Jul-91	20.00	16.520	82.60
BROMOCHLOROMETHANE	9106026407	02-Jul-91	20.00	16.215	81.08
2-BROMO-1-CHLOROPROPANE	9106026407	02-Jul-91	20.00	17.865	89.32
1,4-DICHLOROBUTANE	9106026407	02-Jul-91	20.00	17.488	87.44
TRIFLUOROTOLUENE	9106026408	02-Jul-91	20.00	16.021	80.11
BROMOCHLOROMETHANE	9106026408	02-Jul-91	20.00	17.322	86.61
2-BROMO-1-CHLOROPROPANE	9106026408	02-Jul-91	20.00	18.776	93.88
1,4-DICHLOROBUTANE	9106026408	02-Jul-91	20.00	18.614	93.07
TRIFLUOROTOLUENE	9106026409	02-Jul-91	20.00	15.673	78.37
BROMOCHLOROMETHANE	9106026409	02-Jul-91	20.00	17.463	87.32
2-BROMO-1-CHLOROPROPANE	9106026409	02-Jul-91	20.00	18.051	90.26
1,4-DICHLOROBUTANE	9106026409	02-Jul-91	20.00	18.187	90.94
TRIFLUOROTOLUENE	9106026410	02-Jul-91	20.00	15.450	77.25
BROMOCHLOROMETHANE	9106026410	02-Jul-91	20.00	17.472	87.36
2-BROMO-1-CHLOROPROPANE	9106026410	02-Jul-91	20.00	19.836	99.18
1,4-DICHLOROBUTANE	9106026410	02-Jul-91	20.00	18.327	91.64
TRIFLUOROTOLUENE	9106026411	02-Jul-91	20.00	15.526	77.63
BROMOCHLOROMETHANE	9106026411	02-Jul-91	20.00	20.243	101.21
2-BROMO-1-CHLOROPROPANE	9106026411	02-Jul-91	20.00	20.529	102.65
1,4-DICHLOROBUTANE	9106026411	02-Jul-91	20.00	18.595	92.98
TRIFLUOROTOLUENE	9106026412	02-Jul-91	20.00	14.750	73.75
BROMOCHLOROMETHANE	9106026412	02-Jul-91	20.00	19.280	96.40
2-BROMO-1-CHLOROPROPANE	9106026412	02-Jul-91	20.00	17.861	89.31
1,4-DICHLOROBUTANE	9106026412	02-Jul-91	20.00	17.483	87.42
TRIFLUOROTOLUENE	9106026413	02-Jul-91	20.00	14.244	71.22
BROMOCHLOROMETHANE	9106026413	02-Jul-91	20.00	16.908	84.54
2-BROMO-1-CHLOROPROPANE	9106026413	02-Jul-91	20.00	17.921	89.61
1,4-DICHLOROBUTANE	9106026413	02-Jul-91	20.00	17.245	86.23
TRIFLUOROTOLUENE	LFB #1	02-Jul-91	20.00	14.086	70.43
BROMOCHLOROMETHANE	LFB #1	02-Jul-91	30.00	29.313	97.71
2-BROMO-1-CHLOROPROPANE	LFB #1	02-Jul-91	20.00	20.271	101.36
1,4-DICHLOROBUTANE	LFB #1	02-Jul-91	20.00	18.556	92.78
TRIFLUOROTOLUENE	LFB #2	02-Jul-91	20.00	13.864	69.32
BROMOCHLOROMETHANE	LFB #2	02-Jul-91	30.00	29.993	99.98
2-BROMO-1-CHLOROPROPANE	LFB #2	02-Jul-91	20.00	20.488	102.44
1,4-DICHLOROBUTANE	LFB #2	02-Jul-91	20.00	18.723	93.62

QUALITY CONTROL DATA MATRIX: WATER
MATRIX SPIKE

RAMETER	SAMPLE #	DATE	SAMPLE	SPIKE	T.V.	SPIKE CON	% REC
NYL CHLORIDE	9106026615	02-Jul-91	0.000	21.220	20.000	20.000	106.10
,1-DICHLOROETHENE	9106026615	02-Jul-91	0.000	15.975	20.000	20.000	79.88
LOROFORM	9106026615	02-Jul-91	3.452	85.167	23.452	20.000	363.15
1,1-TRICHLOROETHANE	9106026615	02-Jul-91	0.899	23.042	20.899	20.000	110.25
ARBON TETRACHLORIDE	9106026615	02-Jul-91	0.000	50.502	20.000	20.000	252.51
,2-DICHLOROETHANE	9106026615	02-Jul-91	0.000	20.156	20.000	20.000	100.78
ICHLOROETHENE	9106026615	02-Jul-91	24.790	55.653	44.790	20.000	124.25
OMODICHLOROMETHANE	9106026615	02-Jul-91	0.000	17.808	20.000	20.000	89.04
DIBROMOCHLOROMETHANE	9106026615	02-Jul-91	0.000	18.743	20.000	20.000	93.71
OMOFORM	9106026615	02-Jul-91	0.000	17.995	20.000	20.000	89.98
NZENE	9106026615	02-Jul-91	0.000	14.242	20.000	20.000	71.21
,4-DICHLOROBENZENE	9106026615	02-Jul-91	0.000	16.300	20.000	20.000	81.50

QUALITY CONTROL DATA
MATRIX DUPLICATES

PARAMETER	DATE	SAMPLE	DUPE	S+D	S-D	% DIFF.
NYL CHLORIDE	02-Jul-91	21.220	21.071	21.146	0.149	0.70
,1-DICHLOROETHENE	02-Jul-91	15.975	15.234	15.605	0.741	4.75
LOROFORM	02-Jul-91	85.167	89.949	87.558	-4.782	-5.46
,1,1-TRICHLOROETHANE	02-Jul-91	23.042	23.504	23.273	-0.462	-1.99
ARBON TETRACHLORIDE	02-Jul-91	50.502	54.382	52.442	-3.880	-7.40
2-DICHLOROETHANE	02-Jul-91	20.156	19.467	19.812	0.689	3.48
ICHLOROETHENE	02-Jul-91	55.653	56.561	56.107	-0.908	-1.62
ROMODICHLOROMETHANE	02-Jul-91	17.808	18.107	17.958	-0.299	-1.67
IBROMOCHLOROMETHANE	02-Jul-91	18.743	19.168	18.956	1.003	5.29
OMOFORM	02-Jul-91	17.995	19.272	18.634	-1.277	-6.85
NZENE	02-Jul-91	14.242	14.429	14.336	0.038	0.27
,4-DICHLOROBENZENE	02-Jul-91	16.300	16.084	16.192	0.520	3.21

Matrix: Water

External Standard Report

ta File Name : C:\HPCHEM\2\DATA\07-02-91\001R0101.D
perator : WAYNE FORSBERG
cquired on : 02 Jul 91 11:44 AM
mple Name : BLANK
n Time Bar Code:
nstrument Method: 8010SIG1.MTH
alysis Method : 8010SIG2.MTH
ltiplier : 1
ast Recalib : 13 JUN 91 10:54 AM

Instrument : #2
Vial Number : 1
Injection Number: 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

g. 2 in C:\HPCHEM\2\DATA\07-02-91\001R0101.D

c Time	Area	Type	Width	Ref#	UG/L	Name
3.447	* not found *			1		DICHLORODIFLUOROMETHANE
3.589	7359	BB	0.153	1	0.866	CHLOROMETHANE
3.884	* not found *			1		VINYL CHLORIDE
4.540	* not found *			1		BROMOMETHANE
4.738	* not found *			1		CHLOROETHANE
5.200	29212	BV	0.131	1	0.908	TRICHLOROFLUOROMETHANE
6.431	92511	BV	0.158	1	1.639	1,1-DICHLOROETHENE
6.920	* not found *			1		METHYL IODIDIE
7.486	* not found *			1		ALLYL CHLORIDE
7.867	* not found *			1		METHYLENE CHLORIDE
8.649	* not found *			1		TRANS-1,2-DICHLOROETHENE
9.782	* not found *			1		1,1-DICHLOROETHANE
11.673	197595	VV	0.115	1	4.374	BROMOCHLOROMETHANE
12.000	52816	VV	0.168	1	0.498	CHLOROFORM
2.172	* not found *			1		1,1,1-TRICHLOROETHANE
12.491	* not found *			1		CARBON TETRACHLORIDE
12.950	* not found *			1		1,2-DICHLOROETHANE
3.892	1615	BB	0.089	1	0.0376	TRICHLOROETHENE
4.416	6777	BV	0.112	1	0.348	1,2-DICHLOROPROPANE
14.690	* not found *			1		DIBROMOMETHANE
1.953	* not found *			1		BROMODICHLOROMETHANE
5.461	* not found *			1		2-CHLOROETHYL VINYL ETHER
15.682	* not found *			1		CIS-1,3-DICHLOROPROPENE
16.615	575169	BV	0.099	1	9.367	TRANS-1,3-DICHLOROPROPENE
.729	* not found *			1		2-BROMO-1-CHLOROPROPANE
16.890	* not found *			1		1,1,2-TRICHLOROETHANE
17.080	* not found *			1		TETRACHLOROETHENE
7.499	* not found *			1		DIBROMOCHLOROMETHANE
.686	* not found *			1		1,2-DIBROMOETHANE
18.419	* not found *			1		CHLOROBENZENE
3.539	* not found *			1		1,1,1,2-TETRACHLOROETHANE
.704	* not found *			1		BROMOFORM
20.001	595725	PV	0.082	1	11.494	1,4-DICHLOROBUTANE
20.367	* not found *			1		1,1,2,2-TETRACHLOROETHANE
.440	* not found *			1		1,2,3-TRICHLOROPROPANE
.811	* not found *			1		1,3-DICHLOROBENZENE
21.939	* not found *			1		1,4-DICHLOROBENZENE
.445	15289	BV	0.095	1	0.0105	1,2-DICHLOROBENZENE
.691	* not found *			1		1,2-DIBROMO-3-CHLOROPROPANE

all calibrated peaks were found

External Standard Report

ta File Name : C:\HPCHEM\2\DATA\07-02-91\001F0101.D
perator : WAYNE FORSBERG
cquired on : 02 Jul 91 11:44 AM
mple Name : BLANK
.. Time Bar Code:
nstrument Method: 8010SIG1.MTH
lysis Method : 8010SIG1.MTH
tiplier : 1
ast Recalib : 19 JUN 91 02:11 PM

Instrument : B2
Vial Number : 1
Injection Number: 1
Sequence Line : 1
Sample Amount : 0
ISTD Amount :

1. 1 in C:\HPCHEM\2\DATA\07-02-91\001F0101.D

t Time	Area	Type	Width	Ref#	UG/L	Name
3.854	* not found *			1		VINYL CHLORIDE
6.438	* not found *			1		1,1-DICHLOROETHENE
6.829	* not found *			1		METHYL IODIDE
8.602	* not found *			1		TRANS-1,2-DICHLOROETHENE
1.190	* not found *			1		METHYL ETHYL KETONE
12.847	* not found *			1		BENZENE
13.404	* not found *			1		FLUOROBENZENE
4.034	* not found *			1		TRICHLOROETHENE
14.358	1663	BB	0.066	1	7.360	TRIFLUOROTOLUENE
15.423	* not found *			1		2-CHLOROETHYL VINYL ETHER
5.643	* not found *			1		CIS-1,3-DICHLOROPROPENE
6.029	172	BB	0.054	1	0.702	TOLUENE
16.533	* not found *			1		TRANS-1,3-DICHLOROPROPENE
7.040	* not found *			1		TETRACHLOROETHENE
3.397	* not found *			1		CHLOROBENZENE
18.526	* not found *			1		ETHYLBENZENZE
18.701	* not found *			1		M & P XYLENES
9.326	* not found *			1		STYRENE & O-XYLENE
21.771	* not found *			1		1,3-DICHLOROBENZENE
21.902	* not found *			1		1,4-DICHLOROBENZENE
2.399	319	BB	0.052	1	0.955	1,2-DICHLOROBENZENE

all calibrated peaks were found

MEMORANDUM

TO: Steve Mockenhaupt

REFERENCE NO. 3944

FROM: David Dempsey

DATE: October 21, 1991

RE: Data Quality Assessment and Validation for Seven Groundwater and Two Soil Samples Collected during the August 1991 Sampling Event at the River Falls Wisconsin Site

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The following details a data quality assessment and validation for seven groundwater and two soil samples collected during the August 1991 sampling event at the River Falls Wisconsin Site. The samples were analyzed for target volatile organic compounds (VOC) and metals by Pace Laboratories.[1] Quality assurance/quality control criteria are established in the analytical methods.[2]

Holding Time Periods

Holding time periods are defined in the analytical methods. Examining the analysis dates reveals all samples were analyzed within these holding time periods.

Method Blank Samples

Method blank samples are used to assess lab contamination of samples. As the method blank samples are analyte free, no direct evidence of lab contamination exists.

However, the lab reported that other samples analyzed with these investigative samples contained methylene chloride. Therefore, the methylene chloride results for the investigative samples are most likely carryover from these other samples. The detected methylene chloride results are, therefore, qualified as non detect (U).

Control Samples

Control samples are used to assess overall analytical accuracy. As the reported VOC and metals control sample recoveries are within limits, both methods are considered to be accurate.

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[1] Analytical methods are from "Test Methods for Evaluating Solid Wastes", SW-846, third edition, revision I, December 1987 and are summarized below:

VOC	-	8010/8020
metals	-	6010/7000 series

[2] Application of quality assurance/quality control criteria is consistent with "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses", February 1, 1988 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1, 1988.

Surrogate Compounds Percent Recoveries

Surrogate compounds are used to assess VOC data on a individual sample basis. However, surrogate compound data for samples W-01, W-02, W-03 and W-04 are not reported. As the method blank samples, soil samples and remaining groundwater samples surrogate recoveries are within limits, the method is considered to be in control.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analyses

Matrix effects upon the data due to sample matrices are assessed using MS/MSD analyses. Sample W-02 underwent VOC MS/MSD analyses, while samples W-01, W-06 and W-07 underwent metals matrix spike analyses. Outlying recoveries are given in Table 1. The cadmium and copper data for sample W-01 are qualified as estimated (UJ), based on low matrix spike recoveries. Based on reviewing the remaining MS/MSD recoveries, no significant matrix effects are suspected.

Laboratory Duplicate Analyses

Duplicate metals analyses are used to assess precision of metals analyses. Samples W-01, W-07 and in house samples underwent duplicate analyses for all analytes, excluding lead. Agreement between these duplicate analyses show the methods were precise. Precision for lead analyses will be assessed using field duplicate samples.

Rinsate Sample

Sample W-05 is a rinsate sample used to assess cleanliness of sampling equipment. Zinc and 1,1,1-trichloroethane were detected in this sample at concentrations of 5 and 2.5 $\mu g/l$, respectively. As a result, the zinc data for samples W-03 and W-06 are qualified as estimated (J). No action on the 1,1,1-trichloroethane data is necessary.

Field Duplicate Samples

Overall precision for this event is assessed using field duplicate samples W-06 and W-07. As these data are in agreement, the overall precision is acceptable.

Overall Assessment

Detected methylene chloride data are most likely carryover from other samples and are qualified as non-detect (U). The cadmium and copper data for sample W-01 are qualified as estimated (UJ) based on low matrix spike recoveries. The zinc data for samples W-03 and W-06 are qualified as estimated (J) based on the rinsate sample data. The remaining data are accurate and precise, based on information in the data package.

TABLE 1

OUTLYING MS/MSD AND MATRIX SPIKE RECOVERIES

Sample ID	Analysis	Analyte	Percent Recovery MSD	MSD	Limits[1]	Qualifier[2]
W-01	Metals	Cadmium	71	-	75-125	UJ
		Copper	57	57	75-125	UJ
W-02	VOC	Chloromethane	165	176	17-152	NR
		Trichlorofluoromethane	190	189	47-85	NR
		1,1-dichloroethane	139	138	72-127	NR

[1] Limits set by Pace.
[2] Analyte datum for sample qualified as:

UJ - The analyte was checked for, but not detected. The associated value is an estimate.
NR - No qualifiers are required.

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REPORT OF LABORATORY ANALYSIS

#3944

CRA

OCT 03 91

September 27, 1991

Mr. David Dempsey
Conestoga, Rovers & Associates
382 W. County Rd. D
St. Paul, MN 55112

RE: PACE Project No. 910817.500
Client Reference: River Falls 3944

Dear Mr. Dempsey:

Enclosed is the revised report of laboratory analyses for samples received August 16, 1991.

For PACE sample numbers, 29063.7 and 29064.5, the method blank associated with these samples does not show methylene chloride above the MDL. However, there is some indication of methylene chloride contamination from other samples during that analytical run that may be in the range of two to three times the MDL. Because the level is similar to the amount detected in these samples, the possibility of contamination from laboratory sources cannot be ruled out.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Karen J. Reilly

Karen J. Reilly
Project Manager

Enclosures

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REPORT OF LABORATORY ANALYSIS

Conestoga Rovers & Associates
382 West County Road D
St. Paul, MN 55112

September 27, 1991
PACE Project Number: 910817500

Attn: Mr. David Dempsey

Client Reference: River Falls 3944

			MW4	MW2	MW1 MW-1
PACE Sample Number:			10 0290564	10 0290572	10 0290580
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-01	W-02	W-03
Parameter	Units	MDL			
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Cadmium	ug/L	0.10	ND	ND	.2
Chromium	ug/L	1.0	1	1	1
Copper	ug/L	5.0	ND	ND	ND
Lead	ug/L	2.0	ND	ND	ND
Mercury	ug/L	0.2	ND	ND	ND
Zinc	mg/L	0.002	ND	ND	0.003
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
Date Analyzed			D 08/27/71	D 08/27/91	D 08/27/81
Chloromethane	ug/L	1.0	ND	ND	ND
Bromomethane	ug/L	1.5	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.5	ND	ND	ND
Vinyl chloride	ug/L	1.5	ND	ND	ND
Chloroethane	ug/L	1.0	ND	ND	ND
Methylene chloride	ug/L	1.0	1.8	ND	1.2
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.3	ND	ND	ND
1,1-Dichloroethane	ug/L	0.2	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.2	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.5	ND	ND	ND
Carbon tetrachloride	ug/L	0.3	ND	ND	ND
Bromodichloromethane	ug/L	0.2	ND	ND	ND
1,2-Dichloropropane	ug/L	0.2	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			MW4	MW2	MW4
PACE Sample Number:			10 0290564	10 0290572	10 0290580
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-01	W-02	W-03
Parameter	Units	MDL			
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND	ND	ND
Benzene	ug/L	1.0	ND	ND	ND
Dibromochloromethane	ug/L	1.0	ND	ND	ND
1,1,2-Trichloroethane	ug/L	1.0	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND	ND	ND
Bromoform	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	ND	ND
Toluene	ug/L	1.0	ND	ND	ND
Chlorobenzene	ug/L	1.0	ND	ND	ND
Ethyl benzene	ug/L	1.0	ND	ND	ND
1,3-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,2-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,4-Dichlorobenzene	ug/L	4.0	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			Rental	RB	MW3
PACE Sample Number:			10 0290599	10 0290602	10 0290610
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-04	W-05	W-06
Parameter	Units	MDL			
INORGANIC ANALYSIS					
INDIVIDUAL PARAMETERS					
Cadmium	ug/L	0.10	.1	ND	ND
Chromium	ug/L	1.0	ND	ND	41
Copper	ug/L	5.0	ND	ND	ND
Lead	ug/L	2.0	ND	ND	ND
Mercury	ug/L	0.2	-	ND	ND
Mercury	ug/L	0.20	ND	-	-
Zinc	mg/L	0.002	0.14	0.005	0.004
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
Date Analyzed			D 08/27/91	D 08/29/91	D 08/29/91
Chloromethane	ug/L	1.0	ND	ND	ND
Bromomethane	ug/L	1.5	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.5	ND	ND	ND
Vinyl chloride	ug/L	1.5	ND	ND	ND
Chloroethane	ug/L	1.0	ND	ND	ND
Methylene chloride	ug/L	1.0	1.2	ND	ND
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.3	ND	ND	0.6
1,1-Dichloroethane	ug/L	0.2	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.2	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.5	ND	2.5	14
Carbon tetrachloride	ug/L	0.3	ND	ND	ND
Bromodichloromethane	ug/L	0.2	ND	ND	ND
1,2-Dichloropropane	ug/L	0.2	ND	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			Rental	RB	MW3
PACE Sample Number:			10 0290599	10 0290602	10 0290610
Date Collected:			08/16/91	08/16/91	08/16/91
Date Received:			08/16/91	08/16/91	08/16/91
Client Sample ID:			W-04	W-05	W-06
Parameter	Units	MDL			
ORGANIC ANALYSIS					
PURGEABLE HALOCARBONS AND AROMATICS					
1,1,2-Trichloroethylene	ug/L	0.5	ND	ND	ND
Benzene	ug/L	1.0	ND	ND	ND
Dibromochloromethane	ug/L	1.0	ND	ND	ND
1,1,2-Trichloroethane	ug/L	1.0	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND	ND	ND
Bromoform	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	ND	ND
Toluene	ug/L	1.0	ND	ND	ND
Chlorobenzene	ug/L	1.0	ND	ND	ND
Ethyl benzene	ug/L	1.0	ND	ND	ND
1,3-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,2-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,4-Dichlorobenzene	ug/L	4.0	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

			MW3
PACE Sample Number:			10 0290629
Date Collected:			08/16/91
Date Received:			08/16/91
Client Sample ID:			W-07
Parameter	Units	MDL	
INORGANIC ANALYSIS			
INDIVIDUAL PARAMETERS			
Cadmium	ug/L	0.10	ND
Chromium	ug/L	1.0	41
Copper	ug/L	5.0	ND
Lead	ug/L	2.0	ND
Mercury	ug/L	0.2	ND
Zinc	mg/L	0.002	ND
ORGANIC ANALYSIS			
PURGEABLE HALOCARBONS AND AROMATICS			
Date Analyzed			D 08/29/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Trichlorofluoromethane	ug/L	0.4	ND
1,1-Dichloroethylene	ug/L	0.3	0.4
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,2-Dichloroethane	ug/L	0.2	ND
1,1,1-Trichloroethane	ug/L	0.5	19
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
1,2-Dichloropropane	ug/L	0.2	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PACE Sample Number:			10 0290629
Date Collected:			08/16/91
Date Received:			08/16/91
Client Sample ID:			W-07
Parameter	Units	MDL	
ORGANIC ANALYSIS			
PURGEABLE HALOCARBONS AND AROMATICS			
Benzene	ug/L	1.0	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

Tank Samples

PACE Sample Number:			10 0290637	10 0290645
Date Collected:			08/16/91	08/16/91
Date Received:			08/16/91	08/16/91
Client Sample ID:			S-North	S-South
Parameter	Units	MDL		
INORGANIC ANALYSIS				
INDIVIDUAL PARAMETERS				
Cadmium	mg/kg	0.4	ND	ND
Chromium	mg/kg	0.6	11	5.1
Copper	mg/kg	0.7	18	7.4
Lead	mg/kg	1.6	2.8	ND
Mercury	ug/g	0.02	ND	ND
Zinc	mg/kg	0.2	23	6.7
ORGANIC ANALYSIS				
8010 & 8020 VOLATILES				
Date Analyzed			D 08/29/91	D 08/29/91
Chloromethane	ug/kg	120	ND	ND
Bromomethane	ug/kg	190	ND	ND
Dichlorodifluoromethane	ug/kg	190	ND	ND
Vinyl chloride	ug/kg	190	ND	ND
Chloroethane	ug/kg	120	ND	ND
Methylene Chloride	ug/kg	120	410	330
Trichlorofluoromethane	ug/kg	50	ND	ND
1,1-Dichloroethylene	ug/kg	38	ND	ND
1,1-Dichloroethane	ug/kg	25	ND	ND
trans-1,2-Dichloroethylene	ug/kg	38	ND	ND
Chloroform	ug/kg	62	ND	ND
1,2-Dichloroethane	ug/kg	25	ND	ND
1,1,1-Trichloroethane	ug/kg	62	ND	ND
Carbon tetrachloride	ug/kg	38	ND	ND
Bromodichloromethane	ug/kg	25	ND	ND
1,2-Dichloropropane	ug/kg	25	ND	ND
cis-1,3-Dichloro-1-propene	ug/kg	62	ND	ND
1,1,2-Trichloroethylene	ug/kg	62	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PACE Sample Number:			10 0290637	10 0290645
Date Collected:			08/16/91	08/16/91
Date Received:			08/16/91	08/16/91
Client Sample ID:			S-North	S-South
Parameter	Units	MDL		
ORGANIC ANALYSIS				
8010 & 8020 VOLATILES				
Benzene	ug/kg	120	ND	ND
Dibromochloromethane	ug/kg	120	ND	ND
1,1,2-Trichloroethane	ug/kg	120	ND	ND
trans-1,3-Dichloro-1-propene	ug/kg	38	ND	ND
2-Chloroethylvinyl ether	ug/kg	620	ND	ND
Bromoform	ug/kg	120	ND	ND
1,1,2,2-Tetrachloroethane	ug/kg	120	ND	ND
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND	ND
Toluene	ug/kg	120	ND	ND
Chlorobenzene	ug/kg	120	ND	ND
Ethylbenzene	ug/kg	120	ND	ND
Xylenes,total	ug/kg	120	ND	ND
1,3-Dichlorobenzene	ug/kg	500	ND	ND
1,2-Dichlorobenzene	ug/kg	500	ND	ND
1,4-Dichlorobenzene	ug/kg	500	ND	ND
cis-1,2-Dichloroethylene	ug/kg	62	ND	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

These data have been reviewed and are approved for release.

Starla Enger
Inorganic Chemistry Manager

Liesa Shanahan
Organic Chemistry Manager

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

Summary List of Samples Analyzed

Sample Number	Date of Receipt	Date of Extraction	Date of Analysis
10 029056.4	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029057.2	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029058.0	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029059.9	8-16-91		601/602 8-27-91 (D)
			metals see sheet
10 029060.2	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029061.0	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029062.9	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029063.7	8-16-91		601/602 8-29-91 (D)
			metals see sheet
10 029064.5	8-16-91		601/602 8-29-91 (D) metals see sheet

254LABFM

Metals : Dates Analyzed

Sample # 29056.4

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29057.2

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29058.0

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Metals : Dates Analyzed

Sample # 29059.9

Hg	9-3-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29060.2

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29061.0

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Metals : Dates Analyzed

Sample # 29062.9

Hg	9-4-91
ZN	9-4-91
Pb	8-27-91
Cd	8-22-91
Cr	8-23-91
Cu	8-23-91

Sample # 29063.7

Hg	9-4-91
ZN	9-4-91
Pb	9-4-91
Cd	9-4-91
Cr	9-4-91
Cu	9-4-91

Sample # 29064.5

Hg	9-4-91
ZN	9-4-91
Pb	9-4-91
Cd	9-4-91
Cr	9-4-91
Cu	9-4-91

Mr. David Dempsey
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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/27/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Trichlorofluoromethane	ug/L	0.4	ND
1,1-Dichloroethylene	ug/L	0.3	ND
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,2-Dichloroethane	ug/L	0.2	ND
1,1,1-Trichloroethane	ug/L	0.5	ND
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
1,2-Dichloropropane	ug/L	0.2	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND
Benzene	ug/L	1.0	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
PURGEABLE HALOCARBONS AND AROMATICS			
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0290572 W-02	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/L	1.0	ND	20.00	165%	176%	6%
Bromomethane	ug/L	1.5	ND	20.00	93%	90%	3%
Vinyl chloride	ug/L	1.5	ND	20.00	79%	81%	2%
Chloroethane	ug/L	1.0	ND	20.00	131%	130%	0%
Methylene chloride	ug/L	1.0	ND	20.00	114%	114%	0%
Trichlorofluoromethane	ug/L	0.4	ND	20.00	190%	189%	0%
1,1-Dichloroethylene	ug/L	0.3	ND	20.00	147%	145%	1%
1,1-Dichloroethane	ug/L	0.2	ND	20.00	139%	138%	0%
Chloroform	ug/L	0.5	ND	20.00	121%	121%	0%
Carbon tetrachloride	ug/L	0.3	ND	20.00	101%	100%	0%
1,2-Dichloropropane	ug/L	0.2	ND	20.00	115%	115%	0%
1,1,2-Trichloroethylene	ug/L	0.5	ND	20.00	115%	115%	0%
Benzene	ug/L	1.0	ND	20.00	104%	107%	2%
Dibromochloromethane	ug/L	1.0	ND	20.00	107%	109%	1%
1,1,2-Trichloroethane	ug/L	1.0	ND	20.00	96%	98%	2%
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	20.00	101%	101%	0%
Chlorobenzene	ug/L	1.0	ND	20.00	96%	98%	2%
1,3-Dichlorobenzene	ug/L	4.0	ND	20.00	79%	80%	1%
1,4-Dichlorobenzene	ug/L	4.0	ND	20.00	78%	80%	2%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/29/91
Chloromethane	ug/L	1.0	ND
Bromomethane	ug/L	1.5	ND
Dichlorodifluoromethane	ug/L	1.5	ND
Vinyl chloride	ug/L	1.5	ND
Chloroethane	ug/L	1.0	ND
Methylene chloride	ug/L	1.0	ND
Acetone	ug/L	40	ND
Trichlorofluoromethane	ug/L	0.4	ND
Allyl chloride	ug/L	4.0	ND
1,1-Dichloroethylene	ug/L	0.3	ND
Tetrahydrofuran	ug/L	15	ND
1,1-Dichloroethane	ug/L	0.2	ND
trans-1,2-Dichloroethylene	ug/L	0.3	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND
Ethyl ether	ug/L	0.3	ND
Chloroform	ug/L	0.5	ND
1,1,2-Trichlorotrifluoroethane	ug/L	0.7	ND
Methyl ethyl ketone	ug/L	20	ND
1,2-Dichloroethane	ug/L	0.2	ND
Dibromomethane	ug/L	1.5	ND
1,1,1-Trichloroethane	ug/L	0.5	ND
Carbon tetrachloride	ug/L	0.3	ND
Bromodichloromethane	ug/L	0.2	ND
Dichloroacetonitrile	ug/L	1.0	ND
2,3-Dichloro-1-propene	ug/L	0.5	ND
1,2-Dichloropropane	ug/L	0.2	ND
1,1-Dichloro-1-propene	ug/L	1.0	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

METHOD BLANK:

Parameter	Units	MDL	Method Blank
MDH VOLATILE ORGANICS-465C			
Benzene	ug/L	1.0	ND
1,3-Dichloropropane	ug/L	0.6	ND
Dibromochloromethane	ug/L	1.0	ND
1,1,2-Trichloroethane	ug/L	1.0	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND
1,2-Dibromoethane	ug/L	4.0	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND
Bromoform	ug/L	1.0	ND
1,1,1,2-Tetrachloroethane	ug/L	0.3	ND
Methyl isobutyl ketone	ug/L	1.0	ND
1,2,3-Trichloropropane	ug/L	4.0	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND
Pentachloroethane	ug/L	2.0	ND
Toluene	ug/L	1.0	ND
Chlorobenzene	ug/L	1.0	ND
Ethyl benzene	ug/L	1.0	ND
Cumene	ug/L	1.0	ND
m-Xylene	ug/L	1.0	ND
p-Xylene	ug/L	1.0	ND
o-Xylene	ug/L	1.0	ND
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
Dichlorofluoromethane	ug/L	1.0	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			8/29/91
Chloromethane	ug/kg	120	ND
Bromomethane	ug/kg	190	ND
Dichlorodifluoromethane	ug/kg	190	ND
Vinyl chloride	ug/kg	190	ND
Chloroethane	ug/kg	120	ND
Methylene Chloride	ug/kg	120	ND
Acetone	ug/kg	5000	ND
Trichlorofluoromethane	ug/kg	50	ND
Allyl chloride	ug/kg	500	ND
1,1-Dichloroethylene	ug/kg	38	ND
Tetrahydrofuran	ug/kg	1800	ND
1,1-Dichloroethane	ug/kg	25	ND
trans-1,2-Dichloroethylene	ug/kg	38	ND
cis-1,2-Dichloroethylene	ug/kg	62	ND
Ethyl ether	ug/kg	38	ND
Chloroform	ug/kg	62	ND
1,1,2-Trichlorotrifluoroethane	ug/kg	88	ND
Methyl ethyl ketone	ug/kg	2500	ND
1,2-Dichloroethane	ug/kg	25	ND
Dibromomethane	ug/kg	180	ND
1,1,1-Trichloroethane	ug/kg	62	ND
Carbon tetrachloride	ug/kg	38	ND
Bromodichloromethane	ug/kg	25	ND
Dichloroacetonitrile	ug/kg	10000	ND
2,3-Dichloro-1-propene	ug/kg	62	ND
1,2-Dichloropropane	ug/kg	25	ND
1,1-Dichloro-1-propene	ug/kg	120	ND
cis-1,3-Dichloro-1-propene	ug/kg	62	ND
1,1,2-Trichloroethylene	ug/kg	62	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

METHOD BLANK:

Parameter	Units	MDL	Method Blank
MDH VOLATILE ORGANICS SOIL EXTRACT-465C			
Benzene	ug/kg	120	ND
1,3-Dichloropropane	ug/kg	75	ND
Dibromochloromethane	ug/kg	120	ND
1,1,2-Trichloroethane	ug/kg	120	ND
trans-1,3-Dichloro-1-propene	ug/kg	38	ND
1,2-Dibromoethane	ug/kg	500	ND
2-Chloroethylvinyl ether	ug/kg	620	ND
Bromoform	ug/kg	120	ND
1,1,1,2-Tetrachloroethane	ug/kg	38	ND
Methyl isobutyl ketone	ug/kg	120	ND
1,2,3-Trichloropropane	ug/kg	500	ND
1,1,2,2-Tetrachloroethane	ug/kg	120	ND
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND
Pentachloroethane	ug/kg	250	ND
Toluene	ug/kg	120	ND
Chlorobenzene	ug/kg	120	ND
Ethylbenzene	ug/kg	120	ND
Cumene	ug/kg	120	ND
m-Xylene	ug/kg	120	ND
p-Xylene	ug/kg	120	ND
o-Xylene	ug/kg	120	ND
1,3-Dichlorobenzene	ug/kg	500	ND
1,2-Dichlorobenzene	ug/kg	500	ND
1,4-Dichlorobenzene	ug/kg	500	ND
Dichlorofluoromethane	ug/kg	120	ND

MDL Method Detection Limit
ND Not detected at or above the MDL.

Mercury	BLK - ND STD - 104% Recovery
Lead (8-27-91)	BLK - ND STD - 103% Recovery
Cadmium (8-22-91)	BLK - ND STD - 99% Recovery
Chromium (8-23-91)	BLK - 0.03 ug/L STD - 96% Recovery
Copper (8-23-91)	BLK - ND STD - 111% Recovery
Zinc	BLK - <0.002 mg/L STD - 107% recovery
Cadmium (9-4-91)	BLK - <0.004 mg/L STD - 103% Recovery

Chromium (9-4-91)

BLK - <0.006 ug/L
STD - 102 % Recovery

Copper (9-4-91)

BLK - <0.007 ug/L
STD - 102 % Recovery

Lead (9-4-91)

BLK - <0.016 ug/L
STD - 104 % Recovery

SUBSET ABBREVIATION: 465C

SUBSET CATEGORY: Q

SUBSET NAME: MDH VOLATILE ORGANICS-465C

DATE COLLECTED: _____

CLIENT NAME: _____

DATE RECEIVED: _____

PROJECT NUMBER: _____

MATRIX: _____

DATA REVIEWED BY: _____

DATE EXTRACTED/BY: _____

ENTERED BY: _____

INITIAL VOL: _____

SAMPLE NAME: _____

FINAL VOL: _____

SAMPLE NUMBER: Daily Calibration Check

ANALYZED BY: TAW

PARAMETER NAME	ABBREV.	MDL (UNITS: ug/L)	Calib Stds DATE: 8/29/91 DIL: 5ml INST: C	True Value DATE: DIL: INST: C	Method Blank 8/29/91 FINAL RESULTS 6/20
Date Analyzed	465C DA				
Chloromethane	CHLOROMETH	1.0	20.4	20.0	ND
Bromomethane	BROMOMETH	1.5	* 47.4		
Dichlorodifluoromethane	FREON12	1.5	20.0		
Vinyl chloride	VINYLCHLOR	1.5	21.2		
Chloroethane	CHLOROETH	1.0	* 71.7		
Methylene chloride	MECL	1.0	26.2		
Acetone	ACETONE	40	451	200	
Trichlorofluoromethane	FREON11	0.4	24.7	20.0	
Allyl chloride	ALLYL CHL	4.0	20.1		
1,1-Dichloroethylene	11DCEENE	0.3	27.9		
Tetrahydrofuran	THF	15	229	200	
1,1-Dichloroethane	11DCEANE	0.2	25.8	20.0	
Trans-1,2-Dichloroethylene	TRANS12DCE	0.3	26.3		
Cis-1,2-Dichloroethylene	CIS12DCE	0.5	22.6		
Methyl ether	ETHYLETHER	0.3	46.1		
Chloroform	CHLOROFORM	0.5	23.1		
1,1,2-Trichlorotrifluoroethane	FREON113	0.7	17.6		
Methyl ethyl ketone	MEK	20	97.9	200	
1,2-Dichloroethane	12DCEANE	0.2	20.0	20.0	
Dibromomethane	DIBROMETH	1.5	20.0		
1,1,1-Trichloroethane	111TCEANE	0.5	23.4		
Carbon tetrachloride	CARBONTET	0.3	24.3		
Bromodichloromethane	BDCMETHANE	0.2	20.2		

COMMENTS: * coeluters

DATE: 05/07/91

PARAMETER NAME	ABBREV.	MDL	UNITS: ug/L DATE: DIL: INST:	DATE: DIL: INST:	FINAL RESULTS
L.chloroacetonitrile	DCACETONIT	1.0	81.6	80.0	ND
2,3-Dichloro-1-propene	23DCPENE	0.5	18.2	20.0	
1 2-Dichloropropane	12DCPANE	0.2	25.5	↓	
1 1-Dichloro-1-propene	11DCPENE	1.0	19.4	↓	
cis-1,3-Dichloro-1-propene	CIS13DCP	0.5	21.7	30.0	
1 1,2-Trichloroethylene	TCE	0.5	22.7	20.0	
Benzene	BENZENE	1.0	18.9	↓	
1.3-Dichloropropane	13DCPANE	0.6	21.9	↓	
bromochloromethane	DBCMETHANE	1.0	21.4	40.0	
1,1,2-Trichloroethane	112TCEANE	1.0	21.5	40.0	
trans-1,3-Dichloro-1-propene	TRANS13DCP	0.3	25.6	10.0	
1 2-Dibromoethane	EDB	4.0	20.3	20.0	
2-Chloroethylvinyl ether	2CEVETHER	5.0	—	↓	
Bromoform	BROMOFORM	1.0	23.3	↓	
1 1,1,2-Tetrachloroethane	1112TTEANE	0.3	20.6	↓	
Methyl isobutyl ketone	MIBK	1.0	23.7	↓	
1.2,3-Trichloropropane	123TCPANE	4.0	21.1	↓	
1 1,2,2-Tetrachloroethane	1122TTEANE	1.0	24.5	↓	
1,1,2,2-Tetrachloroethylene	1122TTEENE	1.0	22.4	↓	
Pentachloroethane	PENTACEANE	2.0	23.7	↓	
1 luene	TOLUENE	1.0	20.0	↓	
Chlorobenzene	CHLOROBENZ	1.0	20.6	↓	
Ethyl benzene	ETHYLBENZ	1.0	20.4	↓	
C mene	CUMENE	1.0	24.6	↓	
m-Xylene	M-XYLENE	1.0	20.5	↓	
p Xylene	P-XYLENE	1.0	25.0	↓	
o Xylene	O-XYLENE	1.0	24.7	↓	
1,3-Dichlorobenzene	13DCBENZ	4.0	24.7	↓	
1 2-Dichlorobenzene	12DCBENZ	4.0	21.0	↓	
1 4-Dichlorobenzene	14DCBENZ	4.0	18.7	↓	
Dichlorofluoromethane	FREON21	1.0	19.8	↓	↓

DRL
5/13/91

COMMENTS:

DATE: 05/07/91

QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

PURGEABLE HALOCARBONS AND AROMATICS
Batch: 10 11575
Samples: 10 0290564, 10 0290572, 10 0290580, 10 0290599

METHOD BLANK:

Parameter	Units	MDL	Method Blank
PURGEABLE HALOCARBONS AND AROMATICS			
1,3-Dichlorobenzene	ug/L	4.0	ND
1,2-Dichlorobenzene	ug/L	4.0	ND
1,4-Dichlorobenzene	ug/L	4.0	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0290572 W-02	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/L	1.0	ND	20.00	165%	176%	6%
Bromomethane	ug/L	1.5	ND	20.00	93%	90%	3%
Vinyl chloride	ug/L	1.5	ND	20.00	79%	81%	2%
Chloroethane	ug/L	1.0	ND	20.00	131%	130%	0%
Methylene chloride	ug/L	1.0	ND	20.00	114%	114%	0%
Trichlorofluoromethane	ug/L	0.4	ND	20.00	190%	189%	0%
1,1-Dichloroethylene	ug/L	0.3	ND	20.00	147%	145%	1%
1,1-Dichloroethane	ug/L	0.2	ND	20.00	139%	138%	0%
Chloroform	ug/L	0.5	ND	20.00	121%	121%	0%
Carbon tetrachloride	ug/L	0.3	ND	20.00	101%	100%	0%
1,2-Dichloropropane	ug/L	0.2	ND	20.00	115%	115%	0%
1,1,2-Trichloroethylene	ug/L	0.5	ND	20.00	115%	115%	0%
Benzene	ug/L	1.0	ND	20.00	104%	107%	2%
Dibromochloromethane	ug/L	1.0	ND	20.00	107%	109%	1%
1,1,2-Trichloroethane	ug/L	1.0	ND	20.00	96%	98%	2%
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	20.00	101%	101%	0%
Chlorobenzene	ug/L	1.0	ND	20.00	96%	98%	2%
1,3-Dichlorobenzene	ug/L	4.0	ND	20.00	79%	80%	1%
1,4-Dichlorobenzene	ug/L	4.0	ND	20.00	78%	80%	2%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS-465C
Batch: 10 11878
Samples: 10 0290602, 10 0290610, 10 0290629

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0293105	Spike	Spike Recv	Spike Dupl Recv	RPD
Dichlorodifluoromethane	ug/L	1.5	ND	20.00	25%	26%	3%
trans-1,2-Dichloroethylene	ug/L	0.3	ND	20.00	128%	138%	7%
1,2-Dichloroethane	ug/L	0.2	0.2	20.00	98%	102%	4%
1,1,1-Trichloroethane	ug/L	0.5	ND	20.00	129%	135%	4%
Bromodichloromethane	ug/L	0.2	ND	20.00	100%	103%	2%
2,3-Dichloro-1-propene	ug/L	0.5	ND	20.00	83%	85%	2%
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	33.4	120%	121%	0%
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	7.84	144%	147%	2%
1,2-Dibromoethane	ug/L	4.0	ND	20.00	96%	100%	4%
Bromoform	ug/L	1.0	ND	20.00	125%	128%	2%
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	20.00	148%	149%	0%
Toluene	ug/L	1.0	1.6	20.00	97%	101%	4%
Ethyl benzene	ug/L	1.0	ND	20.00	99%	104%	4%
m-Xylene	ug/L	1.0	ND	20.00	110%	114%	3%
o-Xylene	ug/L	1.0	ND	20.00	111%	117%	5%
1,2-Dichlorobenzene	ug/L	4.0	ND	20.00	101%	105%	3%
Dichlorofluoromethane	ug/L	1.0	ND	20.00	126%	134%	6%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

REPORT OF LABORATORY ANALYSIS

Mr. David Dempsey
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QUALITY CONTROL DATA

September 27, 1991
PACE Project Number: 910817500

Client Reference: River Falls 3944

MDH VOLATILE ORGANICS SOIL EXTRACT-465C
Batch: 10 12040
Samples: 10 0290637, 10 0290645

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	10 0285129	Spike	Spike Recv	Spike Dupl Recv	RPD
Chloromethane	ug/kg	120	ND(HT)	2500.00			
Bromomethane	ug/kg	190	ND	2500.00	120%	120%	0%
Vinyl chloride	ug/kg	190	ND	2500.00	64%	64%	0%
Chloroethane	ug/kg	120	ND	2500.00	120%	120%	0%
Methylene Chloride	ug/kg	120	160(B)	2500.00			
Trichlorofluoromethane	ug/kg	50	ND	2500.00	172%	156%	9%
1,1-Dichloroethylene	ug/kg	38	ND	2500.00	168%	164%	2%
1,1-Dichloroethane	ug/kg	25	ND	2500.00	128%	140%	8%
Chloroform	ug/kg	62	ND	2500.00	116%	120%	3%
Carbon tetrachloride	ug/kg	38	ND	2500.00	136%	136%	0%
1,2-Dichloropropane	ug/kg	25	ND	2500.00	148%	152%	2%
1,1,2-Trichloroethylene	ug/kg	62	ND	2500.00	116%	116%	0%
Benzene	ug/kg	120	ND	2500.00	108%	112%	3%
Dibromochloromethane	ug/kg	120	ND	5000.00	58%	58%	0%
1,1,2-Trichloroethane	ug/kg	120	ND	5000.00	52%	52%	0%
1,1,2,2-Tetrachloroethylene	ug/kg	120	ND	2500.00	124%	120%	3%
Chlorobenzene	ug/kg	120	ND	2500.00	112%	108%	3%
1,3-Dichlorobenzene	ug/kg	500	ND	2500.00	140%	136%	2%
1,4-Dichlorobenzene	ug/kg	500	ND	2500.00	80%	76%	5%

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference
B Compound also present in method blank.

INORGANIC

(1)

Mercury

MS - 60%
(29125)

RPD - 8.3%
(29125)

Lead
(8-27-91)

MS - 81%
(29056)

MS - 78%
(29061)

Cadmium
(8.22.91)

MS - 71%
(29056)

MS - 89%
(29062)
Duplicate (29576.0) RPD - 13%

Chromium
(8-23-91)

MS - 115%
(29056)

RPD - 1.3%
(29125)

Copper
(8.23.91)

MS - 57%
(29056)

MS - 57%
(29056)
Duplicate (29576.0) RPD - 9%

Zinc	RPD - (29056)	1.04
	MS - (29056)	104 %
Cadmium (9-4-91)	MS - (29114)	96%
Chromium (9-4-91)	MS - (29114)	104 %
Copper (9-4-91)	MS - (29114)	96%
Lead (9-4-91)	MS - (29114)	92%

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ANALYSIS: 601/602/465B
INSTRUMENT: F (D)
STANDARD: A
SAMPLE SPIKED: 29054.9
SAMPLE MATRIX: water

FILE NUMBER: Batch# 10 11666
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TAW
DATE ANALYZED: 8/29/91

CLIENT NAME: NA
PROJECT NAME: ↓
PROJECT NUMBER: ↓

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
HLOROMETHANE	20.0	ND	19.6	98.0	19.0	95.0	3.1	152 - 17	27	29054.9
ROMOMETHANE	↓	↓	13.8	* 69.0	13.0	*65.0	6.0	131 - 74	23	28887.0
INYL CHLORIDE			25.8	129	22.6	113	13	136 - 71	24	29050.5
HLOROETHANE			14.7	73.5	12.2	* 61.0	18	185 - 74	28	29361.0
ETHYLENE CHLORIDE			27.1	* 136	26.3	132	3.0	136 - 33	28	29363.6
RICHLOROFLUOROMETHANE			18.9	94.5	17.3	86.5	8.8	85 - 47	30	29364.4
1-DICHLOROETHYLENE			26.9	134	25.9	130	3.9	159 - 24	24	29366.0
1-DICHLOROETHANE			31.9	*160	31.1	*156	2.5	128 - 72	25	29368.7
HLOROFORM			27.5	138	26.0	130	5.6	150 - 51	23	29370.9
ARBON TETRACHLORIDE			25.7	128	23.0	115	11	155 - 44	20	29369.5
2-DICHLOROPROPANE			14.4	72.0	14.5	72.5	0.7	131 - 63	20	29053.0
1,2-TRICHLOROETHYLENE			23.0	115	21.8	109	5.4	128 - 61	53	
ENZENE			21.2	106	21.4	107	0.9	133 - 68	15	
BROMOCHLORO METHANE	↓	↓	14.3	71.5	14.9	74.5	4.1	133 - 64	22	

M. Blank: 8102155
MS : 8102163
MSD : 8102171

SOILS

Cadmium	MS on # 29359.8	122%
	MS # 29114.5	96%
Chromium	MS # 29359.8	107%
	MS # 29114.5	104%
Copper	MS # 29359.8	104%
	MS # 29114.5	96%
Nickel	MS # 29359.8	115%
	MS # 29114.5	96%
Lead	MS # 29359.8	129%
	MS # 29114.5	92%
Zinc	MS # 29359.8	135%
	MS # 29114.5	97%

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

LYSIS 601/602/465B
RUMENT: C
DARD: B
PLE SPIKED: 29310.5
PLE MATRIX: Water

FILE NUMBER: Batch # 10118B
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TAW
DATE ANALYZED: 8/29/91

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
ROMOFLUOROMETHANE	20.0	ND	4.90	*24.5	5.16	*25.8	5.2	126 - 43	31	29060.2
ORFLUOROMETHANE			25.2	*126	26.8	*134	6.2	102 - 48	26	29310.5
2-DICHLOROETHYLENE		↓	25.6	*128	27.5	*140	7.2	121 - 59	17	29061.0
LOROETHANE		0.22	19.7	97.4	20.5	102	4.0	131 - 47	18	29062.9
RICHLOROETHANE		ND	25.8	*129	27.0	*135	4.5	119 - 63	22	29301.6
LOROMETHANE			19.9	99.5	20.5	102	3.0	116 - 73	14	29302.4
LORO-1-PROPENE	↓		16.6	83.0	17.0	85.0	2.4	118 - 61	14	29919.1
DICHLORO-1-PROPENE	33.4		40.0	120	40.5	119	1.2	124 - 46	18	29975.8
3-DICHLORO-1-PROPENE	7.84		11.3	*144	11.5	*147	0.9	114 - 65	33	29976.6
OMOETHANE	20.0		19.2	96.0	19.9	99.5	3.6	135 - 76	54	29978.2
M			25.0	125	25.5	*128	2.0	127 - 64	71	
-TETRACHLOROETHANE	↓	↓	29.5	*148	29.7	*148	0.7	124 - 42	35	

of 2

MB 810570
MS ~~810588~~ 810560
MSD ~~810590~~ 810618

SRD
9/13/91

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

NALYSIS: 601/602/465B
NSTRUMENT: C
TANDARD: B
AMPLE SPIKED:
AMPLE MATRIX:

FILE NUMBER:
PREPED BY:
DATE PREPED:
ANALYZED BY:
DATE ANALYZED:

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
LUENE	20.0	1.56	20.9	96.7	21.3	102	4.2	123 - 68	8	
ITL BENZENE		ND	19.8	99.0	20.8	104	4.9	117 - 49	7	
XYLENE			21.9	110	22.7	114	3.6	126 - 69	10	
XYLENE			22.1	110	23.3	116	5.3	124 - 78	8	
2-DICHLOROBENZENE			20.1	100	20.9	104	3.9	126 - 78	21	

Asterisked Values are outside QC Limits.

D: VOAs _____ out of ____ outside of QC Limits.

COVERY: VOAs _____ out of ____ outside of QC Limits.

QC Reviewed by: DRD 9/13/91

DATE: 9/13/91

nk:

mments: Low DCDF may indicate degradation of spike solution - watch for trend. This system was recently converted to cap column - limits have not been established

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ALYSIS: 601/602/405B
STRUMENT: C
ANDARD: A
MPLE SPIKED: 28512.9
MPLE MATRIX: soil

FILE NUMBER: Batch # ~~1012036~~ 1012040
PREPED BY: NA
DATE PREPED: ↓
ANALYZED BY: TW
DATE ANALYZED: 8/28/91

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
LOROMETHANE	2500	ND	1200	50.0	880	35.2	30.8	146 - 59	16	28512.9
LOROMETHANE	↓	↓	3000	120	3000	119	0.0	140 - 85	28	29828.4
YL CHLORIDE	↓	↓	1600	64.0	1600	64.0	0.0	148 - 83	22	29829.2
LOROETHANE	↓	↓	3000	~~120~~ 118	3000	119	0.0	134 - 96	22	30007.1
THYLENE CHLORIDE	↓	160	3400	~~125~~ 130	3400	130	0.0	152 - 31	22	30008.0
CHLOROFLUOROMETHANE	↓	ND	4300	171	3900	156	9.7	124 - 46	30	28501.5
1-DICHLOROETHYLENE	↓	↓	4200	170	4100	166	2.4	132 - 40	18	29113.7
1-DICHLOROETHANE	↓	↓	3200	128	3500	139	9.0	126 - 61	13	29114.5
LOROFORM	↓	↓	2900	116	3000	118	3.4	122 - 67	18	29115.3
RBON TETRACHLORIDE	↓	↓	3400	136	3400	134	0.0	136 - 59	28	29116.1
2-DICHLOROPROPANE	↓	↓	3700	150	3900	150	2.7	127 - 63	23	29063.7
1, 2-TRICHLOROETHYLENE	↓	↓	2900	116	2900	116	0.0	117 - 72	20	29064.5
ENZENE	↓	↓	2700	109	2900	117	3.6	120 - 79	20	
THYLOROCHLORO METHANE	↓	↓	2900	117	2900	116	0.0	151 - 55	19	

8/29/91

MB ~~8105464~~ 8105626
MS 8105472
MSD 8105480

DAILY MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

ANALYSIS: 601/602/465B
INSTRUMENT: C
STANDARD: A
SAMPLE SPIKED:
SAMPLE MATRIX:

FILE NUMBER:
PREPED BY:
DATE PREPED:
ANALYZED BY:
DATE ANALYZED:

CLIENT NAME:
PROJECT NAME:
PROJECT NUMBER:

COMPOUND	TRUE VALUE	SAMPLE RESULT	MS	% REC	MSD	% REC	RPD	ACCURACY LIMITS	PRECISION LIMIT	ASSOCIATED SAMPLES
1, 1, 2-TRICHLOROETHANE	2500	ND	2600	104	2600	104	1.0	151 - 55	19	
2-CHLOROETHYLVINYL ETHER								145 - 82	30	
TETRACHLOROETHYLENE			3100	124	3000	120	1.6	122 - 60	16	
CHLOROBENZENE			2800	112	2700	108	3.2	141 - 32	17	
1, 3-DICHLOROBENZENE			3500	140	3400	136	4.4	150 - 46	10	
1, 4-DICHLOROBENZENE			2000	80.0	1900	76.0	6.5	111 - 70	11	

* Asterisked Values are outside QC Limits.

RPD: VOAs _____ out of _____ outside of QC Limits.
RECOVERY: VOAs _____ out of _____ outside of QC Limits.
Blank _____
Comments: _____

QC Reviewed by: _____
DATE: _____

VOLATILE ORGANICS BY GC

INSTRUMENT: (c)

ANALYZED BY: TKW

STANDARD:

DATE ANALYZED: 8/29/91

SAMPLE MATRIX: Solid

	LAB SAMPLE NO.	FLUORO-BENZENE	#
01	29063.7	100.9	
02	29064.5	99.4	
03			
04			
05			
06			
07			
08			
09			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			

Advisory QC Limits
± 20%

Sample = Fluorobenzene

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

VOLATILE ORGANICS BY GC

INSTRUMENT: ~~F~~ ~~D~~ (C)

ANALYZED BY: JAW

STANDARD: α,α,α-TRIFLUOROTOLUENE

DATE ANALYZED: 8/29/91

SAMPLE MATRIX: WATER

	LAB SAMPLE NO.	α,α,α-TRIFLUOROTOLUENE	#	
01	29310.5	104		
02	29063.7	101		
03	29061.0	99.4		w-06
04	29060.2	103		w-09
05	29061.0	103		
06	29062.9	100		w-07
07	293016	102		
08	296302.4	103		
09	28919.1	98.2		
11	29308.3	97.3		
12	29309.1	67.9	✓	
13	29975.3	98.3		
14	29976.6	102		
15	29977.4	104		
16	29978.2	109		
17	MeOH Blk	106		
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				

Advisory QC Limits
± 20%*

Column to be used to flag recovery values
* Values outside of QC limits
D Surrogates diluted out

DRAFT

MEMORANDUM

TO: Steve Mockenhaupt REFERENCE NO. 3944

FROM: David Dempsey DATE: July 26, 1991

RE: Data Quality Assessment and Validation for Eight Soil and Seven Groundwater Samples Collected During the June 1991 Sampling Event at the River Falls Site

---

The following details a data quality assessment and validation for eight soil and seven groundwater samples collected June 4 through June 18, 1991 at the River Falls site. Samples were analyzed for selected volatile organic compounds (VOC) and metals by Spectrum Labs.[1] Quality assurance/quality control criteria are established in the analytical methods.[2]

Holding Time Periods

Holding time periods are defined in analytical methods and are summarized below:

VOC - 14 days from sample collection to completion of analysis

Metals - 6 months from sample collection to completion of analysis

Examining analysis dates reveal all samples were analyzed within holding time periods.

Method Blank Samples

Method blank samples are used to assess lab contamination. The metals method blank samples are free of analytes. However, the VOC method blank samples contained several analytes at low concentrations. These analytes are listed in Table 1. Samples listed in Table 1 have analyte datum qualified as non detect (U) based upon the method blank samples data.

Surrogate Compounds Percent Recoveries

Surrogate compounds are used to assess individual VOC analyses. As the surrogate compounds recoveries are within limits set by Spectrum, these methods are in control.

---

[1] Analytical methods are from "Test Methods for Evaluating Solid Waste", SW-846, third edition, revision I, December 1987 and are summarized below:

VOC - 8010/8020
Metals - 6010/7000 series

[2] Application of quality assurance/quality control criteria is consistent with "Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses", February 1, 1988 and "Laboratory Data Validation Functional Guidelines for Evaluating Inorganics Analyses", July 1, 1988.

FROM BRIGGS & MORGAN (FRI) 8. 9.'91 11:32 NO.2060667837 PAGE 3

DRAFT

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recoveries

Matrix effects are checked for using MS/MSD analyses. However, the reported VOC matrix spike data are associated with in house samples. Thus, these VOC matrix spike data cannot be used to assess matrix effects.

The soil metals MS/MSD analyses were performed using sample S-060591-PS-08. Percent recoveries indicate no significant matrix effects. Sample W-061891-PS-06 underwent MS/MSD analyses for cadmium and zinc, while sample W-061891-PS-01 underwent MS/MSD analyses for lead. Percent recoveries indicate no significant matrix effects.

Copper and chromium aqueous MS/MSD analyses were performed using in house samples. Therefore, these data cannot be used to assess matrix effects. These data demonstrate the methods are precise.

Duplicate Analyses

Duplicate VOC analyses are used to assess the VOC method precision. The aqueous VOC duplicate analysis was performed using an in house sample. Agreement between these analyses indicate the method is precise.

Duplicate soil VOC analysis was also performed using an in house sample. Chloroform and 1,2-dichloroethane have low precision. Therefore, these analytes data are qualified as estimated (UJ). Based on the duplicate analysis, the remaining analytes for all soil samples precisions are acceptable.

Control Samples

Control samples are used to assess methods overall accuracy. Both metal control sample data show the methods are accurate. For the soil VOC control sample, chloroform and 1,1,2-trichloroethane have high recoveries. For the aqueous VOC control sample, methylene chloride and chlorobenzene have high recoveries. As none of these analytes are detected in any samples, no action upon the data are necessary.

Quality Assurance Blank Samples

Quality assurance blank samples (i.e., rinsate, field blank and trip blank samples) are used to assess contamination due to decontamination procedures, ambient conditions and shipping conditions. However, no such samples were collected during the sampling events.

Field Duplicate Samples

Overall precision for these events is checked using field duplicate samples. No field duplicate samples were collected during the soil sampling event. Precision for these samples is limited to duplicate analyses performed in the lab.

Field duplicate samples W-061891-PS-04 and W-061891-PS-05 were collected to assess groundwater sampling precision. Based on these data, the overall groundwater sampling precision is acceptable.

Overall Assessment

Based on method blank sample data, analytes listed in Table 1 have data from samples listed in Table 1 qualified as non-detect (U). Based on poor agreement between duplicate analyses, chloromethane and 1,2-dichloroethane soil data are qualified as estimated (UJ). The remaining data are accurate and precise, based upon the data package. These unqualified data may be used to quantitatively assess analyte concentrations.

TABLE 1

ANALYTES DETECTED IN VOC METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Soil	Chloromethane	0.078 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-05; S-060591-PS-06
	Trifluorotoluene	0.324 mg/kg	S-060491-PS-01; S-060491-PS-02; S-060491-PS-03; S-060491-PS-04; S-060591-PS-08
	1,1-dichloroethene	0.389 mg/kg	
	Toluene	0.083 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-03; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Ethylbenzene	0.070 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
	Dibromomethane	0.017 mg/kg	W-060491-PS-01; W-060491-PS-02; W-060491-PS-04; W-060591-PS-05; W-060591-PS-06; W-060591-PS-07; W-060591-PS-08
Water	Chloromethane	0.866 µg/l	W-061891-PS-01; W-061891-PS-03; W-061891-PS-06; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

FROM BRIGGS & MORGAN (FRI) 8. 9.'91 11:33 NO.2060667837 PAGE 6

DRAFT

TABLE 1 (CONT'D)

ANALYTES DETECTED IN VOC METHOD BLANK SAMPLES

Matrix	Analyte	Concentrations	Associated Samples[1]
Water	1,1-dichloroethene	1.639 µg/l	W-061891-PS-02; W-061891-PS-03
	Chloroform	0.498 µg/l 1.6 .5 1.0	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07
	Trichloroethene	0.0376 µg/l	
	1,2-dichloropropane	0.348 µg/l	W-061891-PS-03
	trans-1,3-dichloropropane	9.367 µg/l	
	1,2-dichlorobenzene	0.955 µg/l	W-061891-PS-01; W-061891-PS-02; W-061891-PS-03; W-061891-PS-04
	Toluene	0.702 µg/l	W-061891-PS-01; W-061891-PS-03; W-061891-PS-04; W-061891-PS-07

[1] Analyte datum from associated samples is qualified as non-detect (U).

State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706
R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

---

Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry (#3 of 9 on 07/22/91, unseen)

Id: Point/Well/..: DTF Field #: 2 Route: SW64
Collection Date: 06/05/91 Time: 12:00 County: 56 (Saint Croix)
From: KOLPAK INC. RIVER FALLS OUTFALL SOIL SAMPLE
To: COLLINS
DNR
BALDWIN
Source: Soil
Account number: SW037 Collected by: COLLINS
Split
Date Received: 06/06/91 Labslip #: IB097845 Reported: 07/19/91

CADMIUM DRY WT, ICP	<1.	MG/KG
CHROMIUM DRY WT, ICP	45.	MG/KG
COPPER DRY WT,ICP	30.	MG/KG
DIGESTION 750.1, RCRA SOLIDS, AND AS & SE ON ICP	DIG MET	
LEAD DRY WT, ICP	<5.	MG/KG
MERCURY DRY WT, AA COLD VAPOR	0.02	MG/KG
detected between 0.02 (LOD) and 0.07 (LOQ) MG/KG		
SAMPLE PREP/HAND II	SIEVE	
ZINC DRY WT, ICP	140.	MG/KG

MW - outfall

Inorganic

State Laboratory of Hygiene
of Wisconsin Center for Health Sciences
5 Henry Mall, Madison, WI 53706
., Director S.L. Inhorn, M.D., Medical Director

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nce Section (608) 262-3458 DNR LAB ID 113133790
hemistry (#1 of 9 on 07/22/91, unseen)

Id: Point/Well/..: MW-2 Field #: 1 Route: SW64
Collection Date: 06/04/91 Time: 14:30 County: 56 (Saint Croix)
From: KOLPAK INC. RIVER FALLS MW-2 12.5' - 14.5' SOIL SAMPLE
To: COLLINS
DNR Source: Soil
BALDWIN
Account number: SW037 Collected by: COLLINS
Split
Date Received: 06/06/91 Labslip #: IB097846 Reported: 07/19/91

CADMIUM DRY WT, ICP	<1.	MG/KG
CHROMIUM DRY WT, ICP	10.	MG/KG
COPPER DRY WT,ICP	9.	MG/KG
DIGESTION 750.1, RCRA SOLIDS, AND AS & SE ON ICP	DIG MET	
LEAD DRY WT, ICP	<5.	MG/KG
MERCURY DRY WT, AA COLD VAPOR	ND (LOD=0.02 MG/KG)	
SAMPLE PREP/HAND II	SIEVE	
ZINC DRY WT, ICP	12.	MG/KG

State Laboratory of Hygiene
University of Wisconsin Center for Health Sciences
465 Henry Mall, Madison, WI 53706
R.H. Laessig, Ph.D., Director S.L. Inhorn, M.D., Medical Director

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Environmental Science Section (608) 262-3458 DNR LAB ID 113133790
Inorganic chemistry (#2 of 9 on 07/22/91, unseen)

Id: Point/Well/..: MW4 Field #: 3 Route: SW64
Collection Date: 06/05/91 Time: 15:00 County: 56 (Saint Croix)
From: KOLPAK INC. RIVER FALLS MW4 12.5' - 14.5' SOIL SAMPLE
To: COLLINS
DNR Source: Soil
BALDWIN
Account number: SW037 Collected by: COLLINS
Split
Date Received: 06/06/91 Labslip #: IB097844 Reported: 07/19/91

CADMIUM DRY WT, ICP	<1.	MG/KG
CHROMIUM DRY WT, ICP	8.	MG/KG
COPPER DRY WT,ICP	7.	MG/KG
DIGESTION 750.1, RCRA SOLIDS, AND AS & SE ON ICP	DIG MET	
LEAD DRY WT, ICP	<5.	MG/KG
MERCURY DRY WT, AA COLD VAPOR	ND (LOD=0.02 MG/KG)	
SAMPLE PREP/HAND II	SIEVE	
ZINC DRY WT, ICP	10.	MG/KG

CRA
Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510

May 6, 1991

Reference No. 3944

RECEIVED
MAY 1 5 1991
Baldwin DNR

Mr. Pat Collins
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
990 Hillcrest, Suite 105, Box 61
Baldwin, Wisconsin 54002

Dear Mr. Collins:

RE: The Shannon Group - River Falls Facility
Work Plan Addendum

In response to our meeting on April 25, 1991, the following modifications to the Work Plan are presented. These modifications, combined with the Work Plan you have already received, represent the proposed scope of work for this Site.

Soil Borings/Monitoring Wells

The proposed monitoring wells will be installed at locations presented on Figure 1. Monitoring well MW4 may be located further north or south, depending on water level elevations calculated on MW1, MW2 and MW3. All elevations will be surveyed using existing USGS datum.

Due to the location of the building in relation to the property lines, the location of MW2, MW3 and MW4 will be in high vehicular traffic areas. Thus, CRA is requesting a monitoring well variance for these wells to allow for flush mounted protective covers. The monitoring well variance application is attached to this letter.

During the borehole installations, split spoon samples will be taken at 2-1/2 foot intervals to total depth of the borehole. Two soil samples per borehole will be submitted for chemical analysis. If elevated readings are detected, the sample with the highest reading will be submitted for chemical analysis. If no sample shows elevated readings, a representative sample of native soils will be submitted. In addition, one soil sample at the soil/water interface will also be submitted for chemical analysis.

A 10-foot well screen will be used and the annular space will be sealed with a mixture of granular bentonite (minimum of 50 percent) and drill cuttings. If the drill cuttings are determined to be contaminated, a bentonite or cement/bentonite grout will be used as an annular seal. Any monitoring well(s) completed above ground will have three bumper posts installed around the well(s).

Monitoring Well Development/Sampling

The monitoring wells will be developed and stabilized immediately after installation. If a cement grout was used to seal the annular space, a waiting period of 12 hours shall pass prior to development.

Before groundwater samples are taken, the wells will be allowed to set for a minimum of 24 hours prior to the sampling.

On the same day the monitoring wells are being sampled, representative samples will be taken from the two residential wells west of the Site. Both of these wells will be sampled for VOCs. In addition, the shallow well will also be sampled for the target metals list.

Once the data from the first groundwater sampling has been reviewed and validated, a second confirmatory round of sampling will be conducted.

Please review these modifications and if you have any questions, please contact us.

Yours Truly,

CONESTOGA-ROVERS & ASSOCIATES

S.E. Mockenhaupt

Steve Mockenhaupt

SEM/kk
cc: Ken Kreye; The Shannon Group
Tim Thornton; Briggs & Morgan
Ron Frehner; CRA
Pete Storlie; CRA

Monitoring Well Variance Application

This is a request for a variance to Department of Natural Resources Chapter NR 141 Groundwater Monitoring Well Requirements.

1) This request is being made by Steve Mockenhaupt (Representative) of Conestoga-Rovers & Assoc. (Firm Name) on behalf of the Shannon Group - River Falls Division. (Facility or Project Name Where Wells Are Being Installed)

a) Representative Phone Number: 612-639-0913

b) Representative Fax Number: 612-639-0923

c) Firm's Address: 382 W. Co. Rd. D, St Paul, Mn. 55112

2) This facility (project) is located at:

Name: The Shannon Group - River Falls Division

Address: 715 St. Croix Street, River Falls, WI, 54022

Location: ___¼, ___¼, ___¼, Section 36, T 28N, R 19W

Township Name: _____

City: River Falls

County: St. Croix County

3) Variance Type (indicate all wells, as it is the well and not the site that is affected):

Shallow groundwater yes/no	number of wells ____	well names (Well Name, etc)	_____
Flush mount yes/no	number of wells 3	well names (Well Name, etc)	MW2, MW3, MW4
Other (described below)	number of wells ____	well names (Well Name, etc)	_____

Monitoring Well Variance Application
WDNR

4) Anticipated date of well installation: May 15, 1991

The Department of Natural Resources has recently (November 1990) requested a hearing to revise some existing requirements in NR 141. These revisions, if enacted, set the requirements for shallow groundwater monitoring wells, flush-mount constructions, bentonite chips, and several other items. If you do not have a copy of the proposed amendment to Chapter NR 141, please request one for use with this variance request.

5) Specify by number which section(s) within the existing NR 141 the variance is for and which section(s) of the amended version satisfies that requirement.

Example for flush-mount and shallow water table variance request:

Variance Request	Existing NR 141 Section Number(s)	Proposed Amendment NR 141 Section Number(s)
Flush-Mount	NR 141.13(3)	NR 141.13(4)
Shallow Water Table	NR 141.11(2) NR 141.13(1) NR 141.13(2) NR 141.13(3)(a)(b)	NR 141.11(2) NR 141.13(1) NR 141.13(2) NR 141.13(3)(a)(b)

Variance Request	Existing NR 141 Section Number(s)	Proposed Amendment NR 141 Section Number(s)
Flush. Mount	NR 141.13(3)	NR 141.13(4)

6) If your well can be constructed within the requirements of the proposed Amendment NR 141, submit this completed form. It will be given rapid signature approval and a copy will be returned with attachments to constitute your variance.

CRA
Consulting Engineers

CONESTOGA-ROVERS & ASSOCIATES LIMITED
651 Colby Drive
Waterloo, Ontario, Canada N2V 1C2
(519) 884-0510

May 6, 1991

Reference No. 3944

Mr. Pat Collins
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
990 Hillcrest, Suite 105, Box 61
Baldwin, Wisconsin 54002

Dear Mr. Collins:

RE: The Shannon Group - River Falls Facility
Work Plan Addendum

In response to our meeting on April 25, 1991, the following modifications to the Work Plan are presented. These modifications, combined with the Work Plan you have already received, represent the proposed scope of work for this Site.

Soil Borings/Monitoring Wells

The proposed monitoring wells will be installed at locations presented on Figure 1. Monitoring well MW4 may be located further north or south, depending on water level elevations calculated on MW1, MW2 and MW3. All elevations will be surveyed using existing USGS datum.

Due to the location of the building in relation to the property lines, the location of MW2, MW3 and MW4 will be in high vehicular traffic areas. Thus, CRA is requesting a monitoring well variance for these wells to allow for flush mounted protective covers. The monitoring well variance application is attached to this letter.

During the borehole installations, split spoon samples will be taken at 2-1/2 foot intervals to total depth of the borehole. Two soil samples per borehole will be submitted for chemical analysis. If elevated readings are detected, the sample with the highest reading will be submitted for chemical analysis. If no sample shows elevated readings, a representative sample of native soils will be submitted. In addition, one soil sample at the soil/water interface will also be submitted for chemical analysis.

A 10-foot well screen will be used and the annular space will be sealed with a mixture of granular bentonite (minimum of 50 percent) and drill cuttings. If the drill cuttings are determined to be contaminated, a bentonite or cement/bentonite grout will be used as an annular seal. Any monitoring well(s) completed above ground will have three bumper posts installed around the well(s).

CONESTOGA-ROVERS & ASSOCIATES LIMITED
Consulting Engineers

Monitoring Well Development/Sampling

The monitoring wells will be developed and stabilized immediately after installation. If a cement grout was used to seal the annular space, a waiting period of 12 hours shall pass prior to development.

Before groundwater samples are taken, the wells will be allowed to set for a minimum of 24 hours prior to the sampling.

On the same day the monitoring wells are being sampled, representative samples will be taken from the two residential wells west of the Site. Both of these wells will be sampled for VOCs. In addition, the shallow well will also be sampled for the target metals list.

Once the data from the first groundwater sampling has been reviewed and validated, a second confirmatory round of sampling will be conducted.

Please review these modifications and if you have any questions, please contact us.

Yours Truly,

CONESTOGA-ROVERS & ASSOCIATES

S.E. Mockenhaupt

Steve Mockenhaupt

SEM/kk
cc: Ken Kreye; The Shannon Group
Tim Thornton; Briggs & Morgan
Ron Frehner; CRA
Pete Storlie; CRA

Monitoring Well Variance Application

This is a request for a variance to Department of Natural Resources Chapter NR 141 Groundwater Monitoring Well Requirements.

1) This request is being made by Steve Mockenhaupt (Representative) of Conestoga-Rovers & Assoc. (Firm Name) on behalf of the Shannon Group - River Falls Division. (Facility or Project Name Where Wells Are Being Installed)

a) Representative Phone Number: 612-639-0913

b) Representative Fax Number: 612-639-0923

c) Firm's Address: 382 W. Co. Rd. D, St Paul, Mn. 55112

2) This facility (project) is located at:

Name: The Shannon Group - River Falls Division

Address: 715 St. Croix Street, River Falls, WI, 54022

Location: ___ ¼, ___ ¼, ___ ¼, Section 36, T 28N, R 19W

Township Name: ___

City: River Falls

County: St. Croix County

3) Variance Type (indicate all wells, as it is the well and not the site that is enhanced):

Shallow groundwater yes/no	number of wells ___	well names (e.g., MW-1, MW-2)	___
Flush mount: yes/no	number of wells 3	well names (e.g. MW-1, MW-2)	MW2, MW3, MW4
Other (described below)	number of wells ___	well names (e.g. MW-1, MW-2)	___

Monitoring Well Variance Application
WDNR

4) Anticipated date of well installation: May 15, 1991

The Department of Natural Resources has recently (November 1990) requested a hearing to revise some existing requirements in NR 141. These revisions, if enacted, set the requirements for shallow groundwater monitoring wells, flush-mount constructions, bentonite chips, and several other items. If you do not have a copy of the proposed amendment to Chapter NR 141, please request one for use with this variance request.

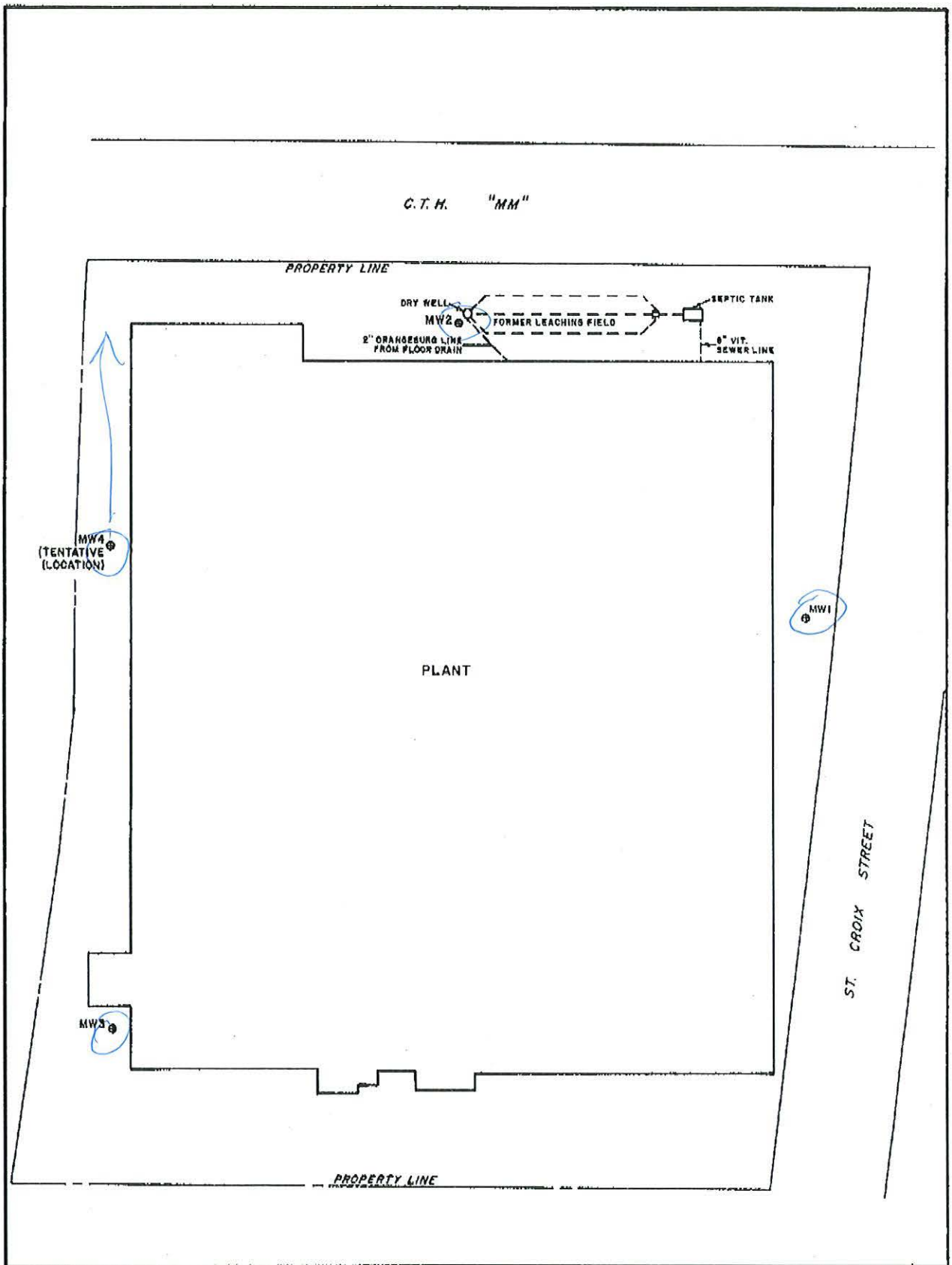
5) Specify by number which section(s) within the existing NR 141 the variance is for and which section(s) of the amended version satisfies that requirement.

Example for flush-mount and shallow water table variance request:

Variance Request	Existing NR 141 Section Number(s)	Proposed Amendment NR 141 Section Number(s)
Flush-Mount	NR 141.13(3)	NR 141.13(4)
Shallow Water Table	NR 141.11(2) NR 141.13(1) NR 141.13(2) NR 141.13(3)(a)(b)	NR 141.11(2) NR 141.13(1) NR 141.13(2) NR 141.13(3)(a)(b)

Variance Request	Existing NR 141 Section Number(s)	Proposed Amendment NR 141 Section Number(s)
Flush Mount	NR 141.13 (3)	NR 141.13 (4)

6) If your well can be constructed within the requirements of the proposed Amendment NR 141, submit this completed form. It will be given rapid signature approval and a copy will be returned with attachments to constitute your variance.



LEGEND

⊕ PROPOSED MONITORING WELL LOCATION

N

0 50 100

SCALE IN FEET

figure 1

PROPOSED MONITORING WELL LOCATIONS

The Shannon Group-River Falls Division

CRA

3944-6/05/91-M

LAW OFFICES
BRIGGS AND MORGAN
PROFESSIONAL ASSOCIATION

2400 IDS CENTER
MINNEAPOLIS, MINNESOTA 55402

TELEPHONE (612) 339-0661
TELECOPIER (612) 375-1078

INCLUDING THE FORMER FIRM OF
LEVITT, PALMER, BOWEN, ROTMAN & SHARE

WRITER'S DIRECT DIAL NUMBER: 334-8550

RECEIVED
APR 16 1991
Baldwin DNR

April 15, 1991

Mr. Patrick J. Collins
Wisconsin Department of Natural Resources
990 Hillcrest, Suite 104
Baldwin, WI 54002

Re: The Shannon Group, River Falls Division Work Plan

Dear Mr. Collins:

In response to your request that The Shannon Group conduct an investigation on property owned by it in River Falls, Wisconsin, I enclose the Work Plan developed by Conestoga-Rovers & Associates for an investigation of that property. CRA will proceed with the work described in this Work Plan.

Sincerely,

Timothy R. Thornton

cc: Kenneth J. Kreye

WORK PLAN

ENVIRONMENTAL INVESTIGATION
RIVER FALLS FACILITY

THE SHANNON GROUP

APRIL 1991

REF. NO. 3944 (2)

CONESTOGA-ROVERS & ASSOCIATES

TABLE OF CONTENTS

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1.0 INTRODUCTION

Conestoga-Rovers and Associates (CRA) has been retained by Briggs and Morgan (representing The Shannon Group) to conduct a remedial investigation on soil and groundwater at The Shannon Group's River Falls, Wisconsin, facility (Site). The investigation was prompted by a request from the Wisconsin Department of Natural Resources (WDNR). The WDNR claims that volatile organic compounds (VOCs) have been detected in a private well located west of the Site and in a sample taken on the Site.

The Site, located in River Falls, Wisconsin, is a refrigeration appliance manufacturer. The property is approximately six acres in size and most of the property is occupied by the manufacturing facility.

On March 13, 1991, CRA toured the Site with a representative of The Shannon Group.

This Work Plan was prepared based on information provided by The Shannon Group and information obtained during the Site visit. Section 3 provides a discussion of the project team that would be utilized to implement the scope of work. Section 4 provides a schedule for the investigation.

2.0 SCOPE OF WORK

This investigation involves the following field activities:

- Site inspection/assessment,
- completion of four soil borings,
- installation of four monitoring wells,
- soil and groundwater sample analysis,
- evaluation of soils by HNu photoionization detector,
- description of geological conditions present at the Site, and
- private well inventory near the Site.

The scope of work for the field activities is as follows:

2.1 SITE INSPECTION/ASSESSMENT

The Site inspection/assessment will be conducted in conjunction with the preinvestigation meeting and prior to commencing field activities. The Site inspection will typically include:

- review of Site history,
- general facility review,
- review of existing aerial photographs,
- employee interviews (if necessary),
- waste disposal practices.

These first five items will provide additional information which could further identify other potential contaminant source areas. This information would allow key placement of soil borings and monitoring wells. In addition, the Site inspection would also include:

- finalize contractor access,
- ensure that drilling company has cleared utilities,
- address any traffic and safety concerns,
- field locate boring locations and monitoring sites with The Shannon Group engineer, and
- fine tune the project schedule to meet The Shannon Group's needs.

2.2 WELL SEARCH/INVENTORY

CRA will request available well records from the Wisconsin Geological Survey (WGS), the WDNR and St. Croix County. A copy of all documents obtained will be provided with the project report along with a map indicating well locations determined.

Other property assessment methods commonly used by CRA will also be discussed with The Shannon Group and may be provided as an addition to the Scope of Work should The Shannon Group require additional information.

2.3 DRILLING PROCEDURES/SOIL BORINGS

Four soil borings will be conducted using hollow stem auger drilling methods. The boreholes will be advanced using a minimum 4-1/4 inch I.D. hollow stem auger. Undisturbed soil samples will be taken by split spoon sampling at 5 foot intervals to define the subsurface soil stratigraphy. All boreholes are expected to extend 5 to 10 feet into the water table. The water table is expected to be approximately 15 to 20 feet below grade. This proposal assumes that the borings and wells will be completed to an average depth of 25 feet.

Known public utilities will be cleared by the drilling subcontractor. The Shannon Group will provide clearing of private utilities at the drilling locations selected.

Drill cuttings will be left on-Site at or near the well location and all drilling activities will not require safety protection for on-Site personnel beyond Level D personal protective equipment.

2.4 SOIL SAMPLING

At each boring location undisturbed soil samples will be collected at five foot intervals in accordance with ASTM methods. Between each

sampling interval, sample equipment will be cleaned using the following sequence of: removal of visible dirt and solvent rinse with methanol, hexane, methanol, followed by a distilled water rinse.

Soil samples collected from the split spoons will be described and classified according to the Unified Soil Classification System by a CRA geologist and stored in glass jars.

During sampling, HNu headspace readings will be taken at five foot intervals to the water table and recorded as an indication of volatile organic contamination. Headspace readings will be collected as follows: a portion of the soil sample will be placed in a ziplock baggie or glass jar and the mouth of the jar will be sealed with aluminum foil. After a period of 15 to 20 minutes, an HNu photoionization probe will puncture the seal in the jar or ziplock baggie to detect any volatile gases emitting from the soil.

The soil sample indicating the highest HNu reading from each boring will be prepared for chemical analysis. If elevated HNu readings are not recorded, a soil sample will be collected at the five foot below ground surface (BGS) interval and submitted for chemical analysis. A minimum of one soil sample per boring location will be submitted for VOC and metals analysis for a total of four (4) samples. Additional samples may be taken and held for analysis following consultation with The Shannon Group.

Soil samples for chemical analysis will be placed in containers, sealed, labelled, packed in coolers and sent under chain-of-custody procedures to a contract laboratory for the following analyses:

- Volatile Organic Compounds (VOCs), EPA Method 8010/8020 for Halogenated and Aromatic VOCs,

- Metals: lead, mercury, cadmium, chromium, zinc and copper.

These metals were common constituents in paint for many years. If documentation exists on the paints used at this facility in the past, this metals list could be reduced, thus reducing the analytical costs.

2.5 MONITORING WELL INSTALLATION

All wells will be installed in accordance with the Wisconsin Administrative Code: s.NR 141. Four groundwater monitoring wells will be installed. Three of these monitoring wells are necessary to determine groundwater flow direction. Once the flow direction has been determined, a fourth monitoring well will be installed directly downgradient of the Site. Data obtained form these monitoring wells can be used to determine groundwater flow direction, rate of groundwater flow and the presence of contamination. The depth of these wells is expected to be 25 feet BGS. The final locations will be determined after the initial Site assessment has been completed.

CORBISTOGA-DOVIBIS & ASSOCIATES

The monitoring wells will be completed at the soil boring locations as described in Section 2.2. Groundwater monitoring well locations chosen will provide information in the area being investigated as no present Site wells exist.

The monitoring wells will be constructed of 5 feet, 10 slot, 2 inch diameter PVC well screen attached to threaded PVC riser pipe. The top of the well screen will be positioned such that it is a minimum of two feet below water table. This will allow for possible water table fluctuations. Silica sand pack will be placed between the annulus and well screen a minimum of two feet above the well screen. A three foot thick bentonite pellet seal will be placed above the sand pack. The pellets will by hydrated by adding distilled water to the annulus (if necessary), thereby allowing them to hydrate prior to adding a neat bentonite-cement grout to the remaining annulus up to the ground surface. Surface protection will consist of a four inch diameter steel casing with lockable cap. The top of well casing elevation will be determined by level survey from existing Site datum.

2.6 GROUNDWATER SAMPLING

Groundwater samples will be collected from each groundwater monitoring well. Prior to sampling, each monitoring well will be developed and stabilized.

The groundwater monitoring wells will be developed using a precleaned stainless steel bailer (methanol/hexane/methanol followed by distilled water rinse) until a relatively silt-free condition exists, or until a maximum of 10 well volumes has been removed. During development, pH, specific conductivity and temperature will be recorded.

One round of groundwater samples will be collected following well development using a precleaned stainless bailer (methanol/ hexane/methanol followed by distilled water rinse) attached to a new nylon rope. Prior to sample collection, the well will be bailed to remove a minimum of four well volumes, or until the well bails dry. Samples will be placed in containers, labeled and preserved according to the prescribed EPA methods and sent under chain-of-custody procedures and analyzed for the following parameters:

- VOCs, EPA Method 601/602 modified to include Freon,
- Metals: lead, mercury, cadmium, chromium, copper and zinc.

The above sampling round will include one rinsate blank sample and one blind duplicate. These quality assurance/quality control samples are necessary to properly review and validate the data generated.

It is recommended that an additional sample be obtained from the private well west of the Site during the on-Site groundwater monitoring. This sample will evaluate the potential for VOCs present in this well.

2.7 REPORTING

Following completion of field activities and receipt of laboratory results, a report will be prepared that will at a minimum include:

- boring logs,
- well construction logs,
- chain-of-custody documents for all samples,
- analytical reports from laboratories,
- summary table of results for soil borings and groundwater samples, including comparison of actual results to any established regulatory "action levels",
- discussion of procedures,
- site drawings with sample locations and groundwater elevations,
- presentation of the well search/inventory,
- determination of VOCs present in residential wells,
- conclusions based on the data obtained during this investigation, and
- recommendations for additional work (if required).

3.0 PROJECT ORGANIZATION

3.1 PROJECT TEAM AND ORGANIZATION

3.1.1 CRA Staff

Key staff members who will be assigned to this project are introduced in this section. The role of each of the key personnel for this project is also described. This project would be managed and staffed from CRA's St. Paul, Minnesota, office.

Project Manager - Ron Frehner

The Project Manager is responsible for maintaining the Project Schedule, budget control, preparing reports, attending project meetings and providing technical representation with the WDNR.

Mr. Ron Frehner will be CRA's Project Manager for this project. Mr. Frehner has ten years experience in environmental engineering and regulatory compliance and has worked in a similar capacity on numerous projects in the past for CRA. Mr. Frehner is currently working on several similar projects involving site environmental investigations and monitoring of VOC and petroleum related product contamination which are being conducted across the United States.

As an associate of the firm, Mr. Frehner has access to staff and resources throughout the company to supplement the resources under his direct control should the need arise.

Project Coordinator - Steve Mockenhaupt

The Project Coordinator is primarily responsible for day to day activities of the project team. The Project Coordinator's responsibilities include: subcontractor coordination, supervision of field staff and hydrogeologic and chemical data interpretation. The Project Coordinator reports to the Project Manager.

Mr. Steve Mockenhaupt will be CRA's Project Coordinator for this study. Mr. Mockenhaupt is a biologist with seven years of experience in environmental site work, primarily in Minnesota and Wisconsin. Mr. Mockenhaupt is currently involved in a extensive remedial investigation in northern Wisconsin and is very familiar with WDNR policies and regulations.

Project Geologist - Peter Storlie

The Project Geologist will be responsible for the supervision of subcontractors, sample collection, field QA, and health and safety. The Project Geologist also participates in final report preparation and hydrogeologic interpretation. The Project Geologist reports to the Project Coordinator.

Mr. Peter Storlie will be the Project Geologist. Mr. Storlie has five years of experience in the environmental field.

All members of the project team have ready access to the resources and experience throughout the company to supplement the resources of the Minnesota office if needed.

3.1.2 Subcontractors

This project would require the use of two subcontractors for the installation of the monitoring wells and for the analytical portion of this project.

Drilling

CRA has selected WTD (formerly Wisconsin Test Drilling) as the drilling subcontractor for this project. CRA has a long standing successful working relationship with WTD. WTD has extensive experience in the area of monitoring well installations.

Analytical

CRA has selected Pace Laboratories Inc. (Pace) of Minneapolis, Minnesota, as analytical subcontractor. Pace has a modern, well equipped laboratory offering a high level of reliability and service and is certified by the State of Wisconsin. CRA has used Pace in a similar function on many projects with much success and receives a corporate discount on analytical services. This discount will be passed on to The Shannon Group..

4.0 SCHEDULE

The following time line is provided for the tasks presented in Section 2.0 (Scope of Work). The time schedule indicates a total time period of approximately ten weeks and is itemized as follows:

Task	Time Required
Preinvestigation Meeting with The Shannon Group	1 Day
Drilling and Well Installation	2 Days
Monitoring and Lab Analysis	6 Weeks
Data Interpretation and Evaluation	1/2 Week
Draft Report	1/2 Week
Client Review	2 Weeks
Final Report	1 Week
TOTAL	10-1/2 Weeks

The above schedule has been prepared to indicate the number of weeks necessary to complete project tasks on a priority basis.

RECEIVED
FEB 6 1991
Baldwin DNR

LAW OFFICES
BRIGGS AND MORGAN
PROFESSIONAL ASSOCIATION

2400 IDS CENTER
MINNEAPOLIS, MINNESOTA 55402

TELEPHONE (612) 339-0661
TELECOPIER (612) 375-1078

INCLUDING THE FORMER FIRM OF
LEVITT, PALMER, BOWEN, ROTMAN & SHARE

WRITER'S DIRECT DIAL NUMBER: 334-8550

February 4, 1991

1-(612) 299-1215

Mr. Patrick J. Collins
Wisconsin Department of Natural Resources
990 Hillcrest, Suite 104
Box 61
Baldwin, WI 54002

Re: <u>The Shannon Group, River Falls Division Groundwater Test Results</u>

Dear Mr. Collins:

Pursuant to your request, I enclosed the preliminary lab results from a water sample taken from an old overflow tank for a floor drain at what is now The Shannon Group, Kolpak plant property in River Falls, Wisconsin.

Please note that these test results are only for a sample taken from the tank located on the property. The results cannot be extrapolated to the groundwater situated under the property. In addition, the test results contain certain questionable readings. In particular, the result indicating the presence of methylene chloride is either completely erroneous or overstated because of the presence of that substance in the method blank. Moreover, the test results do not prove that any substances have migrated off site or have contaminated the groundwater of neighboring properties. Accordingly, The Shannon Group does not believe these tests identify it as the source of contamination of the private well west of its property. We, therefore, request that the Wisconsin Department of Natural Resources seek to identify other parties and properties potentially responsible for the contamination.

If you have any further requests or correspondence regarding the River Falls property owned by The Shannon Group, please direct a copy of those requests to me. Thank you for your cooperation.

Sincerely,

Timothy R. Thornton

TRT:dh
Enclosure
cc: Kenneth J. Kreye

VOLATILE ORGANIC ANALYSIS

Compound	Method Blank	#1 Direct from tank		MDL (ug/L)
Acetone	ND	ND	ND	10
Ethyl ether	ND	ND	ND	5
Benzene	ND	~~ND~~ 8	ND	1
Toluene	ND	ND	ND	1
Cumene	ND	ND	ND	1
o-Xylene	ND	~~ND~~ 4,900	ND	1
p-m-Xylenes[1]	ND	~~ND~~ 21,000	ND	1
Tetrahydrofuran	ND	ND	ND	5
Methyl ethyl ketone	ND	ND	ND	5
Ethyl benzene	ND	ND	ND	1
Methyl isobutyl ketone	ND	ND	ND	1
Chloromethane	NP	NP	NP	P/NP
Vinyl chloride	NP	NP	NP	P/NP
Chloroethane	NP	NP	NP	P/NP
Methylene chloride	~~ND~~ 1	~~ND~~ 200	ND	1
Allyl chloride	ND	ND	ND	1
1,1-Dichloroethane	ND	ND	ND	1
Cis-1,2-dichloroethylene	ND	ND	ND	1
1,2-Dichloroethane	ND	~~ND~~ 15	ND	1
1,1,1-Trichloroethane	ND	ND	ND	1
Bromodichloromethane	ND	ND	ND	1
2,3-Dichloro-1-propene	ND	ND	ND	1
1,1-Dichloro-1-propene	ND	ND	ND	1
Trichloroethylene	ND	ND	ND	1
Chlorodibromoethane	ND	ND	ND	1
Cis-1,3-dichloro-1-propene	ND	ND	ND	1
2-Chloroethyl vinyl ether	ND	ND	ND	2
1,1,1,2-Tetrachloroethane	ND	ND	ND	1
1,1,2,2-Tetrachloroethane	ND	ND	ND	1
Pentachloroethane	ND	ND	ND	2
1,1,2-Trichlorotrifluoroethane	ND	ND	ND	1
Dichlorodifluoromethane	NP	NP	NP	P/NP
Bromomethane	NP	NP	NP	P/NP
Dichlorofluoromethane	NP	NP	NP	P/NP
Trichlorofluoromethane	ND	ND	ND	5
1,1-Dichloroethylene	ND	ND	ND	1

[1] Compounds not separated by this method.

All values are in ~~ug/kg~~ ug/L which is ~~equal~~ equivalent to parts-per-billion (ppb).

P/NP - Present/Not Present
~~NA - Not Analyzed~~
ND - Not Detected
MDL - Method Detection Limit

Laboratory No. 4410 91 - 1363

twin city testing corporation

VOLATILE ORGANIC ANALYSIS
(Continued)

Compound	Method Blank	#1 Direct from Tank		MDL (ug/L)
Trans-1,2-Dichloroethylene	ND	ND	ND	1
Chloroform	ND	ND	ND	1
Dibromomethane	ND	ND	ND	5
Carbon tetrachloride	ND	ND	ND	1
Dichloroacetonitrile	ND	ND	ND	2
1,2-Dichloropropane	ND	ND	ND	1
Trans-1,3-dichloro-1-propene	ND	ND	ND	1
1,3-Dichloropropane	ND	ND	ND	1
1,1,2-Trichloroethane	ND	ND	ND	1
1,2-Dibromoethane	ND	ND	ND	1
Bromoform	ND	ND	ND	5
1,2,3-Trichloropropane	ND	ND	ND	1
Tetrachloroethylene	ND	ND	ND	1
Chlorobenzene	ND	ND	ND	1
1,2-Dichlorobenzene	ND	ND	ND	1
1,3-Dichlorobenzene	ND	ND	ND	1
1,4-Dichlorobenzene	ND	ND	ND	1

TCT Sample# — 233445

All values are in ~~ug/kg~~ ug/L which is ~~equal~~ equivalent to parts-per-billion (ppb).

~~NA - Not Analyzed~~
ND - Not Detected
MDL - Method Detection Limit

~~Date Extracted:~~

Date Analyzed: 1/10/91

Laboratory No. 4410 91 - 1363

THE SHANNON GROUP
River Falls Division

P.O. Box 137
715 St. Croix Street
River Falls, WI 54022
Phone: (715) 425-6741

RECEIVED
JAN 3 1991
Baldwin DNR

January 2, 1991

Mr. Patrick J. Collins
State of Wisconsin
Department of Natural Resources
990 Hillcrest, Suite 104
Baldwin, Wisconsin 54002

Re: Groundwater Contamination Investigation
Letter Dated Decemember 14, 1990

Dear Mr. Collins:

Shannon Refrigeration, Inc. requests a copy of the guidelines for conducting the remedial investigation as requested by the Wisconsin DNR.

Also requested, is the information that identifies the specific chemical detected from the groundwater sample, and the sample location, you have indicated taken from Shannon Refrigeration's property.

As soon as this information is received, we will proceed with this matter.

Sincerely,

Kenneth J. Kreye
Director Factory Operations

KJK/rw

cc: R.J. Rebone
W.A. Schmidbauer

State of Wisconsin \ **DEPARTMENT OF NATURAL RESOURCES**

Suite 104, 990 Hillcrest
Baldwin, WI 54002

Carroll D. Besadny
Secretary

File Ref: 4440

December 14, 1990

Mr. Kenneth Kreye
Shannon Group - River Falls Division
715 St. Croix St.
River Falls, WI 54022

RE: Groundwater Contamination Investigation in the ~~SW~~ SE 1/4, Sec. 36, T28N-R18W, River Falls, Wisconsin.

Dear Mr. Kreye,

As part of a groundwater contamination investigation at the above referenced location, the Wisconsin Department of Natural Resources is requesting that the Shannon Group - River Falls Division retain an environmental consultant to conduct a remedial investigation on and near their property located at the corner of St. Croix St. and CTH "MM". Volatile Organic Compounds have been detected in a private well west of your property and in a groundwater sample collected on your property as part of this investigation. This investigation is an attempt to identify the source/s of the contamination. Your consultant should contact this office to obtain our guidelines for conducting a remedial investigation.

Your cooperation in this matter is greatly appreciated. If you have any questions regarding this matter, please feel free to contact me at (715) 684-2914.

Sincerely,

Patrick J. Collins

Patrick J. Collins
Hydrogeologist

cc: Bill Evans - WD
Dave Lundberg - WD

PJC/rh

Department of Natural Resources

SEWAGE AND INDUSTRIAL WASTE
FORM 3200-33

Collected By	Field No.	Basin No.	Sta. Est. Form Required
999 J. ROSS	002		Yes [ ] No [ ]

Sample Description: Vollrath Refrig Inc., River Falls grab on river bottom muck
IWW

BOD Estimate _____ MFFCC Estimate _____

Send Report To: 715-839-3775
Name: J. ROSS
Address: 2004 Highland Ave
City, State, Zip Code: Eau Claire WI 54701

WA

Shaded Areas for Lab Use Only: 050040

Primary Sta. No.: 56M156

Collection Date (beginning or grab): 870218 (Y Y M M D D)

Collection Date (ending): (Y Y M M D D)

Time (24 Hr. Clock) (beginning or grab): 16:00

Time (24 Hr. Clock) (ending): :

Sample Location (See reverse for Code): F

131	Temp. (°C) Field	
091	DO Field	
096	pH Field	
038	Residual Chlorine	
130	Flow Rate MGD	
129	or GPM	

GTB

Field Inspection Form? (circle one) 1-Yes 0-No

5/11/87 Please call results to Joan Ross at 715-839-3775. MTB

[ ] 026	BOD-5 Total	
[ ] 137	BOD-5 Diss	
[ ] 134	MFFCC*	
[ ] 148	Fecal Strep	
[ ] 097	pH (su) Lab	
[ ] 138	Total Solids	
[ ] 107	Vol. Total Solids	
[ ] 106	Suspended Solids	
[ ] 109	Vol. Susp. Solids	
[ ] 100	Total-P	
[ ] 136	Diss-P	
[ ] 087	Tot Kjeldahl-N	
[ ] 086	Ammonia-N	
[ ] 085	NO_2 - N + NO_3 - N	
[ ] 034	COD	
[ ] 089	Oil & Grease	
[x] 031	Cadmium	4.5 ug/l
[x] 040	Cromium	220,000 ug/L
[ ] 316	SACd	
[ ] 316	SACd	

result called 5/13/87 MTB

All analyses reported in mg/L unless otherwise specified.
*Samples for both water chemistry and water bacteriology should be submitted in separate bottles.

Date Received _____
Lab. No. FEB 1987 084534
Date Reported MAY 5 1987

R. H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706 Rev 5-81

F-2696

Department of Natural Resources

SEWAGE AND INDUSTRIAL WASTE
FORM 3200-33

Collected By	Field No.	Basin No.	Sta. Est. Form Required
999 J. ROSS	001		Yes [ ] No [ ]

Sample Description: grab sample, Volrath Refrig. Inc. River Falls. discharge to ~~sewer~~ storm sewer

BOD Estimate 10-50 MFFCC Estimate —

Send Report To:
Name: J. ROSS
Address: 2004 Highland Ave
City, State, Zip Code: Eau Claire, WI 54701

RECEIVED APR 22 1987 DNR-ECA

WA

Shaded Areas for Lab Use Only: 050040

Primary Sta. No.: 56M156

Collection Date (beginning or grab): 870218 (Y Y M M D D)

Collection Date (ending): (Y Y M M D D)

Time (24 Hr. Clock) (beginning or grab): 16:00

Time (24 Hr. Clock) (ending): ~~16~~:

Sample Location (See reverse for Code): F

131	Temp. (°C) Field	
091	DO Field	
096	pH Field	
038	Residual Chlorine	
130	Flow Rate MGD	
129	or GPM	

Field Inspection Form? (circle one) 1-Yes 0-No

[x] 026	BOD-5 Total	2.8
[ ] 137	BOD-5 Diss	
[ ] 134	MFFCC*	
[ ] 148	Fecal Strep	
[ ] 097	pH (su) Lab	
[ ] 138	Total Solids	
[ ] 107	Vol. Total Solids	
[x] 106	Suspended Solids	3
[ ] 109	Vol. Susp. Solids	
[ ] 100	Total-P	
[ ] 136	Diss-P	
[ ] 087	Tot Kjeldahl-N	
[ ] 086	Ammonia-N	
[ ] 085	NO_2 - N + NO_3 - N	
[ ] 034	COD	
[ ] 089	Oil & Grease	
[x] 040	Chromium	42. ug/L
[x] 031	Cadmium	<0.2 ug/l
[x] 074	lead	<3 ug/l
[x] 316	SA Cr	

BAS

All analyses reported in mg/L unless otherwise specified.
*Samples for both water chemistry and water bacteriology should be submitted in separate bottles.

Date Received _____
Lab. No. FEB 1987 064533
Date Reported APR 3 1987

R. H. Laessig, Ph.D., Director
Wisconsin State Laboratory of Hygiene
Madison, Wisconsin 53706 Rev 5-81

F-2696

46

Department of Natural Resources

ENVIRONMENTAL REPAIR PROGRAM CASE TRACKING FOR
FOR VER. 1.81

Form 4400-144

Site Name: Vorath / Shannon Croup

Case No.: PMN FID:

Proj. Mgr: Pat Collins

Support Person:

District: WCD County: St. Croix

Address: 715 St. Croix River Falls 54022

T-V-C Legal Municipality:

Legal Desc: NW 1/4 SE 1/4 Sec 36, T 29N R 19WE

Lat: N ___ ° ___ . ___ ' Long: W ___ ° ___ . ___

Date of Initial Contact: ___ / ___ / ___

Date of Letter: ___ / ___ / ___

STATUS:
___ 1 = State Lead
✓ 2 = RP Lead
___ 3 = EPA Lead

PRIORITY SCREENING:
___ 1 = High
___ 3 = Low
___ 4 = Unknown

FUNDING SOURCE:
✓ 1 = RP
___ 2 = LTF
___ 3 = EF
___ 4 = SF
___ 5 = None
___ 6 = Other (Describe In Comments)
___ 7 = EPA (Emergency Resp.)

Started out in Lust.

ENFORCEMENT AUTHORITY:
___ 1 = Spill Law s. 144.76, Wis. Stats.
✓ 2 = Envir Repair Law s. 144.442, Wis. Sta
___ 3 = Hazardous Waste Rules
___ 4 = Solid Waste Rules
___ 5 = CERCLA
___ 6 = Abandoned Container
___ 7 = Other (Describe in Comments)

Pre-score: 16.20

Date Site Closure Approved: ___ / ___ / ___

(√ As Appropriate)		DATE INITATED	ERP CASE STATUS DATE COMPLETED	PROJECT COST	ACTUAL COST
___ No Action Taken	(N)				
___ Emergency	(E)	___ / ___ / ___	___ / ___ / ___		
___ Work Plan App	(WPA)	___ / ___ / ___	___ / ___ / ___		
___ Field Invest P1	(FIP1)	___ / ___ / ___	___ / ___ / ___		
___ Field Invest P2	(FIP2)	___ / ___ / ___	___ / ___ / ___		
___ Rem Plan App	(RPA)	___ / ___ / ___	___ / ___ / ___		
___ Rem Action P1	(RAP1)	___ / ___ / ___	___ / ___ / ___		
___ O & M P1	(OMP1)	___ / ___ / ___	___ / ___ / ___		
___ Rem Action P2	(RAP2)	___ / ___ / ___	___ / ___ / ___		
___ O & M P2	(OMP2)	___ / ___ / ___	___ / ___ / ___		
___ Long Term Mont	(L)	___ / ___ / ___	___ / ___ / ___		

Case Status Description:

Investigation - starting soon
RA - Stpaul - Consulting firm

RESPONSIBLE PARTY:
Name: Kolpak
Address: 715 St. Croix
River Falls, WI 54022
Phone: ___ / ___
(list additional on separate list & attach.)

Name:
Address:
Phone: ___ / ___

		KNOWN IMPACTS (√)	POTENTIAL IMPACTS (√)
Fire/Explosion threat	(1)		
Contaminated Private Well	(2)	✓	
Contaminated Public Well	(3)		
Groundwater Contamination	(4)	✓	
Soil Contamination	(5)		
Other ___	(6)		

CASE COMMENTS:
Request from DNR for Kolpak to do a groundwater investigation.

refrigeration - manufacturer
LUST - underground tank

ENVIRONMENTAL REPAIR PROGRAM-PRIORITY RANKING WORKSHEET

I. GROUNDWATER ROUTE WORKSHEET

Rating Factor	Assigned Value (circle one)	Multiplier	Score	Max. Score	Ref. Section
(1) Observed Release	0 (45)	1	(45)	45	sub.
If observed release is given a score of 45, proceed to line (4).					
If observed release is given a score of 0, proceed to line (2).					
(2) Route Characteristics					sub.
Depth to Groundwater	0 1 2 (3)	2	6	6	
Infiltration Potential	0 1 2 (3)	1	3	3	
Permeability of the Unsaturated Zone	0 1 2 (3)	1	3	3	
Physical State	0 1 2 (3)	1	3	3	
	Total Route Characteristics Score		(16)	15	
(3) Containment	0 1 2 (3)	1 (3)		3	sub.
(4) Waste Characteristics					sub.
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Leachate Strength	0 2 4 6 8 10	1		10	
~~Water~~ Quantity/Hazardous Waste Quantity	0 1 (2) 3 4 5 6 7 8	1	2	8	
Waste	Total Waste Characteristics Score		(20)	26	
(5) Potential Impacts					sub.
Groundwater Use	0 1 (2) 3	3	6	9	
Distance to Nearest Well/Population Served	0 4 6 8 (10) 12 16 18 20 24 30 32 38 40	1	10	40	
	Total Potential Impacts		(16)	49	
(6) If line (1) is 45, multiply (1) X (4) X (5) If line (1) is 0, multiply (2) X (3) X (4) X (5)	45 X 20 X 16 = 14400 / 57,330 X 100 = 25.117 ~ 25.12			57,330	
(7) Divide line (6) by 57,330 and multiply by 100			S_{gw} =		

II. SURFACE WATER ROUTE WORKSHEET

Rating Factor	Assigned Value (circle one)	Multiplier	Score	Max. Score	Ref. Section
(1) Observed Release	(0) 45	1	(0)	45	sub.
If observed release is given a score of 45, proceed to line (4).					
If observed release is given a score of 0, proceed to line (2).					
(2) Route Characteristics					sub.
Facility Slope and Intervening Terrain	(0) 1 2 3	1	0	3	
Run-off Potential	0 1 (2) 3	1	2	3	
Distance to Nearest Surface Water	0 1 2 (3)	2	6	6	
Physical State	0 1 2 (3)	1	3	3	
	Total Route Characteristics Score		(11)	15	
(3) Containment	0 1 2 (3)	1 (3)		3	sub.
(4) ~~Water~~ Waste Characteristics					sub.
Toxicity/Persistence	0 3 6 9 12 15 (18)	1	18	18	
Leachate Strength	0 2 4 6 8 10	1		10	
Hazardous Waste Quantity/Total Waste Quantity	0 1 (2) 3 4 5 6 7 8	1	2	8	
	Total Waste Characteristics Score		(20)	26	
(5) Potential Impacts					sub.
Surface Water Use	0 1 (2) 3	3	6	9	
Distance to a Sensitive Environment	0 1 2 (3)	2	6	6	
Population Served/ Distance to Water	(0) 2 6 8 10 12 16 18 20 24 30 32 35 40	1	0	40	
Intake Downstream					
	Total Potential Impacts		(12)	55	
(6) If line (1) is 45, multiply (1) X (4) X (5) If line (1) is 0, multiply (2) X (3) X (4) X (5)	11 X 3 X 20 X 12 = 7920 / 64,350 X 100 =		12.31	64,350	
(7) Divide line (6) by 64,350 and multiply by 100			S_{sw} =		

III. AIR ROUTE WORKSHEET

Rating Factor	Assigned Value (circle one)	Multiplier	Score	Max. Score	Ref. Section
(1) Observed Release	(0) 45	1	(0)	45	sub.
Date and Location:					
Sampling Procedures:					
If line (1) is 0, then S_a = 0, Enter on line (5).					
If line (1) is 45, then proceed to line (2).					
(2) Waste Characteristics					sub.
Reactivity and Incompatibility	0 1 2 3	1		3	
Toxicity	0 1 2 3	3		9	
Hazardous Waste Quantity/Total Waste Quantity	0 1 2 3 4 5 6 7 8	1		8	
	Total Route Characteristics Score			20	
(3) Potential Impacts					sub.
Population Within 4-Mile Radius	0 9 12 15 18 21 24 27 30	1		30	
Distance to Sensitive Environment	0 1 2 3	2		6	
Land Use	0 1 2 3	1		3	
	Total Potential Impact Score			39	
(4) Multiply (1) X (2) X (3)				35,100	
(5) Divide line (4) by 35,100 and multiply by 100			S_a = (0)		

$$S_M = \frac{1}{1.73}(S_{gw}^2 + S_{sw}^2 + S_a^2)^{0.5} = \frac{\sqrt{(25.12)^2 + (12.31)^2}}{1.73} = (631.0144 + 151.5361)^{0.5} = 16.20$$

SCORE

EPA HAZARDOUS SUBSTANCES

(Code)	TYPE	DISCHARGED	TREATED	STORED	DISPOSED	CITY	STATE	ZIP
Leaded (1)								
Unleaded (2)								
Diesel (3)								
Fuel Oil (4)								
Leachate (9)								
Unk Hydro (5)								
VOCs (6)	✓							
Pest (7)								
PAHS (10)								
Metals (11)								
Other (8)	benzene - high levels							

CONSULTANTS

(√ as appropriate)		CONSULTANT (Company)	TELEPHONE NUMBER	CONTACT PERSON	ADDRESS	AMOUNT COMMITTED	AMOUNT SPENT
	Emergency	Conestoga - Rovers + Associates	612/639-0913	Steve Mockenhaupt	382 W. County Road St. Paul MN. 55112		
	Work Plan App		/				
X	Field Invest P1	Site Evaluation Plan Conestoga Rovers + Assoc.	612/639-0913		382 W. County Road. St. Paul, MN. 55112		
	Field Invest P2		/				
	Rem Plan App		/				
	Rem Action P1		/				
	O & M P1		/				
	Rem Action P2		/				
	O & M P2		/				
	Long Term Mont		/				

ENFORCEMENT ACTION TAKEN

01 = Inf Contact, Resp Initiated
02 = RP Letter, Resp Init
03 = NTC of Non Compl
04 = Inf Conf, Resp Initiated
05 = Follow-up Enf Insp
06 = Inspection Letter
07 = Response Rec'd
08 = Adequate Resp
09 = Progress Being Made
10 = Defer Enforcement
11 = Close Out
12 = Recommend NFA
13 = FWD to Secondary Enf
14 = Notice of Violation
15 = Formal Enf Conf
16 = Enforcement Conf LTR
17 = Admin Order Proposed
18 = Admin Order Final
19 = Admin Order Modified
20 = Admin Order Cancelled
21 = Contest Case Hearing
22 = Draft Referral
23 = Referral to DOJ
24 = Referral to DA
25 = Referral to EP
26 = Cont Violation
27 = See Next Viol
28 = Site Inspec
99 = Other

ACTION (see from above)	DATE	COMMENT
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	
	/ /	

Please provide as much of the following information per site as you can.

RU60 WELL

* Name Volrath / Shannon Group
  Case No. 533
  PMN
  FID

* Location (complete to 1/4-1/4 or latitude and longitude)
  District WD
  County ST CROIX
  Legal Municipality River Falls
  Legal Description NW 1/4, SE 1/4, Sec. 36, T 28 .
  R 19, E/W
  Lat: N ___"___.___' Long:W___"___.___'

* Date of Discovery 10 / 22 / 90

* Date of RP Contact ____/____/____

* Who is paying for the clean-up - is it the Responsible Party, State Funding, Environmental Funds, Super Fund, EPA, none, or other, explain.

  Volrath

* Please list appropriate enforcement authority, (statute such as, 147 (wastewater), 144.766(spills), 144.442(Environmental Repair).

* Programs Involved: (L = lead, S = support)
  ____Abandoned Containers
  X LUST non Federal
  ____NR600 Hazardous Waste
  X NR500 Solid Waste
  X Spills
  ____Super Fund
  ____Water Supply
  ____Water Resources Mgt.
  ____Env. Repair

* Responsible Party UNDetermined

Business Name:
Owner/Mgr.
Address:
Phone:
Contact Person:

* Case Status - what has been done to date (work plan, field investigation, remedial action, discovery only)

* Consultant or Contact person (if any).
Company CONESTOGA-ROVERS + Associates
Contact Person Steve MOCKenhapt
Address 382 W County Road D ST. PAUL MN 55112
Phone 612-639-0913

* Enforcement Action Taken If any

Please write in or circle appropriate answer where necessary.

GROUNDWATER

A. Is there a groundwater release? (sampling indicating groundwater contamination, or visible contamination)? If sampled what is the highest concentration in groundwater?

(Yes) No

If yes skip to H and continue. If no continue to answer the questions as follows:

B. Depth to Groundwater

> 150 feet
76 to 150 feet
21 to 75 feet
< 21 feet

C. Infiltration Potential Paved area over sands and Gravel

What is the vegetative cover - none, poorly established, established, well established? Potential Discharge is Pipe over sands + Gravel

What is the site slope, is it (<3%) 3-5%, 5-8%, or >8%?

D. What is the surface Soil Type?

(Sand)	Sandy loam	peaty topsoil	silty clay
silty sand	silty loam	clay loam	clay

Glacial Sands and Gravels

Groundwater Continued.

E. What are the underlying geological materials in unsaturated zone? Circle the least permeable that is present.

1. unfractured clay, cemented till, shale; unfractured metamorphic and igneous rocks - (10 -7 cm/sec)

2. silt, loess, silty clays, silty loams, clay loams; less permeable limestone, dolomite, and sandstone, moderately permeable till; fractured clay (10 -5 to 10 - 7 cm/sec)

3. Fine sand and silty sand; sandy loams; moderately permeable limestone, dolomite, and sandstone (no karst); moderately fractured igneous and metamorphic rocks, some coarse till (10 -3 to 10 -5 cm/sec)

4. Gravel, sand; highly fractured igneous and metamorphic rocks; permeable basalt and lavas; karst limestone and dolomite (10 -3 cm/sec)

F. What is the physical state of the waste? Please circle one of the assigned values.

Physical State	Assigned Value
UnDetermined Liquid?	
Solid, consolidated or stabilized	0
Solid, unconsolidated or unstabilized	1
Powder or fine material	2
Liquid sludge or gas	3

G. Containment is a measure of the natural or artificial means that have been used to minimize or prevent a substance from entering groundwater. Please circle one of the following.

Sound liner

Moderately permeable liner

No liner

H. Waste Characteristic

Contaminants of concern for ground water, surface water, air, (list contaminants and concentrations found in waste if known).

From Investigation at Rolpec plant

Parameter	Concentration
1, 1, 1 TCA	16 ug/l
Freon 11	1.2 ug/l
CHROMIUM	47 mg/KG
Copper	30 mg/kg

RUGO Retail Highest Hit

800 ug/l Benzene

I. What is the waste quantity (gallons/day, drums, tons or yds cubed)?

UNKNOWN

J. What is the groundwater use within 3 miles of the substance of concern? Please circle one of the following.

1. Commercial, industrial or irrigation; and an alternate water source presently available; groundwater not used for drinking, but could be used for drinking water.

2. a.) Drinking water with municipal water from alternate unthreatened sources presently available; (i.e., minimal hookup requirements); or commercial, industrial or irrigation with no alternate water source presently available. (e.g., deeper aquifer not available).

3. Drinking water; no municipal water from alternate unthreatened sources presently available.

K. What is the distance to nearest drinking water measured from the observed substance of concern.

>3 miles	1-2 miles	<2000 feet
2-3 miles	2000' - 1 mile	

L. Population served -

0 1-100 101-700 701-1500 1501-5000 >5000

Surface Water

A. Is there an observed release?
(Hazardous substance in contact with surface water is a release to surface water, and a storm sewer is to be considered a surface water).

Yes No

If yes, please continue on at G. If no, continue to answer the following questions.

B. What is the facility slope and the slope of the intervening terrain? Please circle one from each column.

Facility	Intervening Terrain
closed basin	<3%
average slope <3%	3-5%
average slope 3-5%	5-8%
average slope 5-8%	>8%
average slope >8%	site in surface water

Surface Water Continued.

B. What is the runoff potential for the site? Please circle one from each column.

Soil Type	Vegetative Cover
sand	none
silty sand	sparse cover
sandy loam	good cover
silty loam	lush
peaty topsoil	
clay loam	
silty clay	
clay	

Pavement

No cover in outfall site.

C. What is the distance to the nearest surface water?

>2 miles
1-2 miles
1000' to 1 mile
<1000 feet

D. What is the physical state of the waste? Is it solid, consolidated or stabilized, solid, unconsolidated or unstabilized, powder or fine material, liquid sludge or gas? Former water discharge site

E. What is the physical state of the waste? Please circle one of the assigned values.

Physical State	Assigned Value
Solid, consolidated or stabilized	0
Solid, unconsolidated or unstabilized	1
Powder or fine material	2
Liquid sludge or gas	3

F. Containment is a measure of the natural or artificial means that have been used to minimize or prevent a substance from entering groundwater. Please circle one of the following.

Sound liner

Moderately permeable liner

No liner

G. What is the waste constituent(s), and waste quantity (gallons per day, drums, tons, or yds cubed)? Waste quantity includes all hazardous and nonhazardous substances received at a site or facility. Do not include amounts of contaminated soil or water; in such cases, the substance may be estimated.

Undetermined.

Surface Water Continued.

Hazardous Substance Quantity (please circle one)

Drums	or	Tons or yd3
0		0
1-500		1-125
501-2000		126-500
2001-8000		501-2000 UNKNOWN
>8000		>2000

Total Waste Quantity (please circle one)

Drums	or	Tons or yd3
0		0 UNKNOWN
1-500		1-125
501-2000		126-500
2001-8000		501-2000
>8000		>2000

H. What is the surface water use?

not currently used
commercial or industrial
irrigation, economically important resources commercial
food preparation, or recreation
drinking water

I. What is the distance to sensitive environments?

wetlands or critical habitats of endangered species_____
national or state wildlife refuge, or state fish refuge_____
wild or scenic river_____
designated scientific area_____
designated natural area_____

Discharg less than 1000 ft to Trout stream

AIR (answer only if there is a contaminant of concern).

A. Is there an observed air release? Data showing that levels of a contaminant at or in the vicinity of the site or facility that significantly exceed background levels, regardless of the frequency of occurrence. Metals contamination of surface soils is to be considered a release to the air if the area is sparsely vegetated or there is a possibility of fugitive dust from the area.

Yes (No)

If yes continue on if no please stop.

Air Route Continued.

B. What is the waste constituent(s)?

C. What is the waste quantity (gallons per day, drums, tons, or cubic yards)?

D. What is the estimated population within a 4-mile radius? Please circle the highest value. An example might be that the population of Fountain City Wisconsin is 1000, 1/4 to 1/2 mile from the location of the substances, not from the site or facility boundary. Consequently you would circle 18.

Pop.	(0-1/4 mi)	(1/4 to 1/2 mi)	(1/2 to 1 mi)	(1-4mi)
0	0	0	0	0
1-100	9	12	15	18
101-700	12	15	18	21
701-1500	15	18	21	24
1501-5000	18	21	24	27
>5000	21	24	27	30

E. What is the distance to sensitive environment? Please see sensitive environment above under surface water.

Land Use:

F. What is the distance to commercial/industrial (>1mi), (1/2 to 1 mi), (1/4 to 1/2 mi), (<1/4 mi)?

G. What is the distance to National /St. Parks, Forests, Wildlife Reserves, Scientific and Natural Areas, Wetlands and Residential areas, (>2 mi), (1 to 2 mi), (1/2 to 1 mi), (<1/2 mi)?

H. What is the distance to Agricultural Lands (in production within 5 years)? Answer below.

Ag Land, (>1 mi), (1/2 to 1 mi), (1/4 to 1/2 mi), (<1/4 mi)

Prime Ag Land, (>2 mi), (1 to 2 mi), (1/2 to 1 mi), (<1/2 mi)

I. What is the distance to Historic/Landmark Sites (National Register of Historic Places and National Natural Landmarks)? Within view of site or if site is subject to significant impacts.

Thank-you!!!!!