# ***Forestville North Dye Trace***

September 5, 2008 to November 12, 2008

Jeffrey A. Green, Andrew J. Peters[1], Andrew J. Luhmann[2],
E. Calvin Alexander, Jr.[2] and Scott C. Alexander [2]

[1] Minnesota Department of Natural Resources, Division of Waters, 2300 Silver Creek Road NE,
Rochester, Minnesota, 55906; Phone (507) 285-7430; Fax (507) 285-7144;
emails: jeff.green@dnr.state.mn.us & andrew.peters@dnr.state.mn.us

[2] Geology & Geophysics Department, University of Minnesota, 310 Pillsbury Drive. SE.,
Minneapolis, Minnesota, 55455; Phone (612) 624-3517; Fax (612) 625-3819;
emails: luhm0031@umn.edu, alexa001@umn.edu & alexa017@umn.edu

## Introduction

A dye trace was conducted in an area near Forestville State Park in Minnesota from September 5, 2008 to November 12, 2008 (Figure 1). Numerous dye traces have been completed in this area in the past and this effort was made in order to better delineate the springsheds in this area due to the close proximity of numerous State of Minnesota designated trout streams. Achieving a better understanding of the connection of these sinkholes receiving surface water flow and their connectivity to springs that provide a cold water source for the designated trout streams in the area was the goal of this trace.

However, the goal of this trace was two-fold, one sinkhole that received dye, Minnesota Karst Feature Database number 23:D2474, had previously been studied and was shown to be connected to cold water sources for two trout streams. The previous dye trace was completed during wet, spring conditions and this trace was completed during a much drier time in the late fall. Completing the trace during these differing conditions may help to better understand the seasonal changes of the subsurface flow of groundwater.

Dye tracing entails using fluorescent dyes to track groundwater flow directions and travel times. The dye is poured into a sinkhole or sinking stream; from there, it flows through the karst conduit system until it re-emerges at a spring or springs. For this project, the dyes used were Eosine and Rhodamine WT. Both direct water samples and passive dye detectors were used and all the samples were analyzed at the University of Minnesota Geology Department using a scanning spectrofluorophotometer. The traces were designed and executed by Jeff Green and Andrew Peters of MNDNR Waters. E. Calvin Alexander, Jr., Andrew Luhmann, and Scott Alexander of the University of Minnesota Geology Department performed the sample analysis and interpretation.

## Results

The MNDNR Waters and the Fillmore County SWCD had previously contacted the landowners who owned the relevant sinkholes and springs. Prior to dye injection, bugs had been placed at all the sampling points to determine background levels of dyes. The dye trace began on September 5, 2008, using water provided by MNDNR. Table 1 summarizes the dye input information.

| Dye Inputs | | | | |
|---|---|---|---|---|
| Dye Input Point | Dye (type, quantity) | Time | Water Input (Est.) | Dye Detection Point |
| Sinkhole 23:D2474 | Eosine, 1,090 grams | 1423 hrs. | 500 Gallons | Springs 23:A002 and 23:A003 |
| Sinkhole 23:D2140 | Rhodamine WT, 632 grams | 1529 hrs. | 500 Gallons | Springs 23:A002 and 23:A003 |

**Table 1: Dye Inputs, Forestville North Dye Trace, Minnesota**

Direct water samples were collected and charcoal dye detectors were in placed at all sampling locations from the start of the trace until mid-November. Both dyes were detected at levels high enough for positive identification. The dyes, Rhodamine WT and Eosine, were detected in the charcoal detectors no more than 18 days later. This translates to a groundwater flow rate of no greater than approximately 0.20 to 0.25-mile per day. This is consistent with previous traces in this geologic setting (Ordovician Galena limestone).

The dye input points and their known connections from this dye trace in addition to previously completed traces are shown in Figure 2. Through this double trace, we have further delineated the springshed feeding springs 23:A002 & 23:A003. This new trace has expanded the known boundaries of that springshed. In addition, sinkhole 23:D2474 was shown in this trace to be connected only to springs 23:A002 & 23:A003 that are a cold water source for Forestville Creek. Previously this sinkhole was thought to be connected to two separate springs and respective trout streams. This trace has shown that the connection of subsurface water flows from sinkholes to springs in this area may be governed by seasonal fluctuations and the respective amount of subsurface waters during times of drought or, conversely, wet periods.

# Appendix 1

## Figures

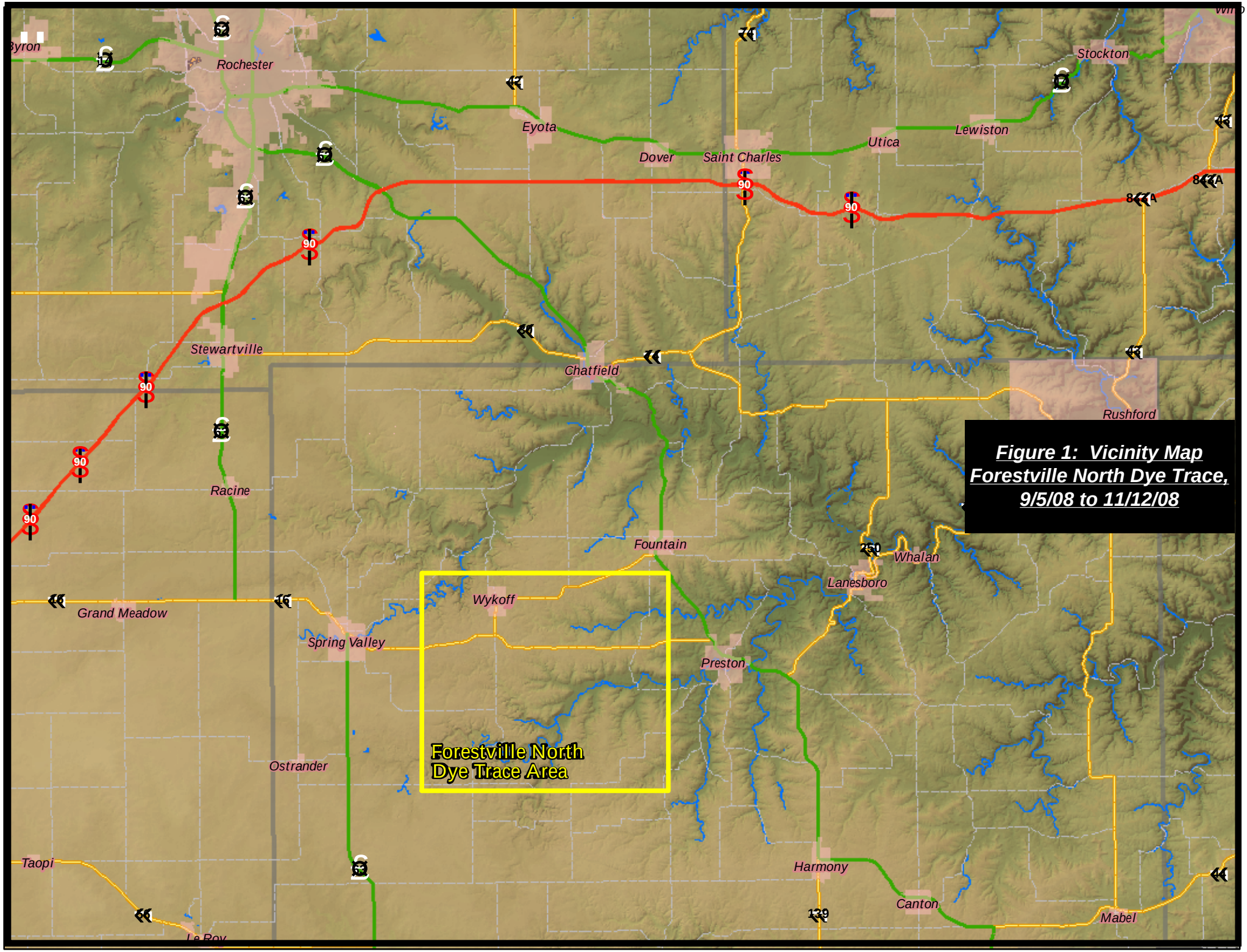



***Figure 1: Vicinity Map Forestville North Dye Trace, 9/5/08 to 11/12/08***

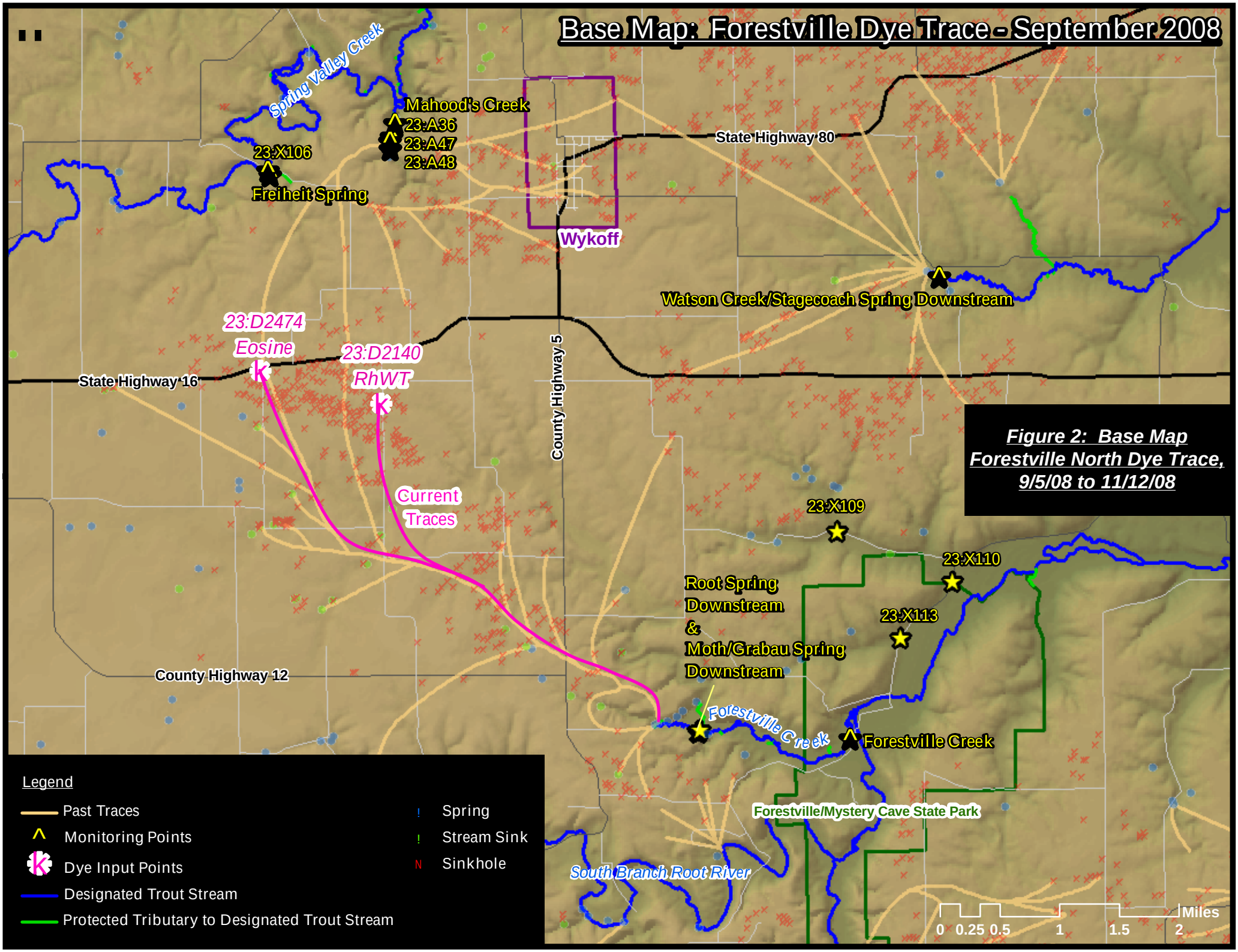



***Figure 2: Base Map Forestville North Dye Trace, 9/5/08 to 11/12/08***

# Appendix 2

## Dye Input

# ***Forestville North Dye Trace: September 5, 2008 to November 12, 2008***

## *Dye Input Points:*

**Input Point #1:**

| | |
|---|---|
| **Sinkhole D2474:** | **Minnesota Karst Feature Database Number - MN23:D2474** |
| **UTM:** | **554,847 E, 4,836,815 N** |
| **Township, Range, Section:** | **SE ¼ of the NW ¼ of Section 31, T103N, R12W** |
| **Elevation:** | **~1330 feet** |

At 1423 CDT on 5 September 2008, approximately 1,090 grams of Eosine dye solution was introduced into an open swallow hole in D2474 with approximately 500 gallons of water.

**Input Point #2:**

| | |
|---|---|
| **Sinkhole D2140:** | **Minnesota Karst Feature Database Number - MN23:D2140** |
| **UTM:** | **556,472 E, 4,836,376 N** |
| **Township, Range, Section:** | **NE ¼ of the SW ¼ of Section 32, T103N, R12W** |
| **Elevation:** | **~1345 feet** |

At 1529 CDT on 5 September 2008, approximately 632 grams of Rhodamine WT dye solution was introduced into an open swallow hole in D2140 with approximately 500 gallons of water.

Forestville North Trace 5 Sept 2008
Sunny, 70°F J.G. / AP

Sinkhole 554847 / 4836815 ± 197 ft
Chromatint Red Eosine 0143
Lot 020706 Chromatech
500 gal DNR tank 1.09 Kg
Dye @ 1423, Water start @
1419, end @ ≈ 1428
Water sinking in 3 small
swallets, no ponding
Sinkhole was traced from dye
1993-94 Fillmore Co. Atlas
Spring shed map tracing

Sinkhole 556472 / 4836376 ± 30 ft.
Rhodamine WT Chromatech
Chromatint Lot # 041807E
@ 529.5 gm
Crompton & Knowles Rh WT 10% 8 gm
Water start 1529, end 1536 ≈ 500 gal
from DNR tank
Dye @ 1531, no ponding
sinkhole has a 1m wide & 1m deep
collapse in bottom — Water spraying
in there, drained into a 10 cm hole.

# Appendix 3

Dye Receptors

# ***Forestville North Dye Trace: September 5, 2008 to November 12, 2008***

## *Dye Receptor Locations:*

**Dye Receptor #1:**

**Mahood's Creek** Minnesota Karst Feature Database Number - MN23:X???
**UTM:** 556,663 E, 4,840,146 N
**Notes:** Receptor located along the bank under the bridge

**Dye Receptor #2:**

**23:A36** Minnesota Karst Feature Database Number - MN23:A036
**UTM:** 556,619 E, 4,839,963 N
**Notes:** Receptor located downstream of discharge point under exposed tree roots

**Dye Receptor #3:**

**23:A47** Minnesota Karst Feature Database Number - MN23:A047
**UTM:** 556,600 E, 4,839,902 N
**Notes:** Receptor located on downstream side of stump downstream of discharge point

**Dye Receptor #4:**

**23:A48** Minnesota Karst Feature Database Number - MN23:A048
**UTM:** 556,602 E, 4,839,797 N
**Notes:** Receptor located under fallen tree near the discharge point

**Dye Receptor #5:**

**23:X106** Minnesota Karst Feature Database Number - MN23:X106
**UTM:** 554,954 E, 4,839,506 N
**Notes:** Receptor located on the north bank of the stream upstream of bridge

**Dye Receptor #6:**

**Freiheit Spring** Minnesota Karst Feature Database Number - MN23:A???
**UTM:** 554,982 E, 4,839,447 N
**Notes:** Receptor located under pile of rocks in the discharge point

**Dye Receptor #7:**

**Watson Creek/ Stagecoach Spring** Minnesota Karst Feature Database Number - MN23:X???

**UTM:** 564,007 E, 4,838,079 N

**Notes:** Receptor located on the downstream side of the bridge in between the culverts

**Dye Receptor #8:**

**Root Spring D.S.** Minnesota Karst Feature Database Number - MN23:A095

**UTM:** 560,774 E, 4,831,986 N

**Notes:** Receptor tethered to root of tree located just upstream of the crossing of tributary

**Dye Receptor #9:**

**Moth/Grabau Spring D.S.** Minnesota Karst Feature Database Number - MN23:A002 & MN23:A003

**UTM:** 560,749 E, 4,831,961 N

**Notes:** Receptor tethered to tree just upstream from the Root Spring confluence

**Dye Receptor #10:**

**23:X109** Minnesota Karst Feature Database Number - MN23:X109

**UTM:** 562,619 E, 4,834,668 N

**Notes:** Receptor tethered to fence on the south side, downstream side, of the culvert

**Dye Receptor #11:**

**23:X110** Minnesota Karst Feature Database Number - MN23:X110

**UTM:** 564,171 E, 4,833,986 N

**Notes:** Receptor tethered to bridge on the downstream side

**Dye Receptor #12:**

**23:X113** Minnesota Karst Feature Database Number - MN23:X113

**UTM:** 563,480 E, 4,833,223 N

**Notes:** Receptor tied to rebar under the rip rap

**Dye Receptor #13:**

**Forestville Creek** Minnesota Karst Feature Database Number - MN23:X???

**UTM:** 562,804 E, 4,831,852 N

**Notes:** Receptor tethered to tree upstream from horse crossing

# Appendix 4

## Summary of Analytical Results

| Forestville North Dye Trace: Summary of Analytical Results | | | | | | |
|---|---|---|---|---|---|---|
| **Sampling Location** | **9/11/08** | **9/23/08** | **10/6/08** | **10/14/08** | **10/29/08** | **11/12/08** |
| Mahood's Creek | None | None | None | None | None | None |
| 23:A36 | None | None | None | - | - | - |
| 23:A47 | None | None | None | None | None | None |
| 23:A48 | None | None | None | None | None | None |
| 23:X106 | None | - | None | None | None | None |
| Freiheit Spring | None | None | None | None | None | None |
| Watson Creek/Stagecoach Spring | None | None | None | None | None | None |
| Root Spring D.S. | None | None | None | None | None | None |
| Moth/Grabau Spring D.S. | None | **RhWT** | **Eosine, RhWT** | **Eosine, RhWT** | **Eosine, RhWT** | **Eosine, RhWT** |
| 23:X109 | None | None | None | None | None | None |
| 23:X110 | None | - | - | - | - | - |
| 23:X113 | None | None | None | None | None | None |
| Forestville Creek | None | **RhWT** | **Eosine, RhWT** | **Eosine, RhWT** | **Eosine, RhWT** | **Eosine, RhWT** |

*** RhWT – Rhodamine WT**

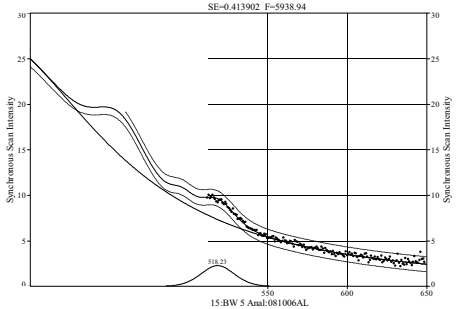
# Appendix 5

Scanning Spectrofluorophotometer Results

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Spring, In:080725 0909, Out:080903 1232

n VII Area 4 Peaks
SE=0.413902 F=5938.94




Description: Forestville North, Carbon, Freiheit Spring, In:080725 0909, Out:080903 1232
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnfs0903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99669945 | 0.99651983 | 0.41390191 | 5938.94041 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 7625.90857 | 369.055292 | 180.661712 | 1.05881144 |
| 2 | Pearson VII Area | 169.343358 | 456.563847 | 33.9615054 | 17.2309822 |
| 3 | Pearson VII Area | 18.1559762 | 495.469956 | 15.0026569 | 167.915051 |
| 4 | Pearson VII Area | 63.0132462 | 518.228627 | 24.9654241 | 7.37045237 |

**Measured Values**

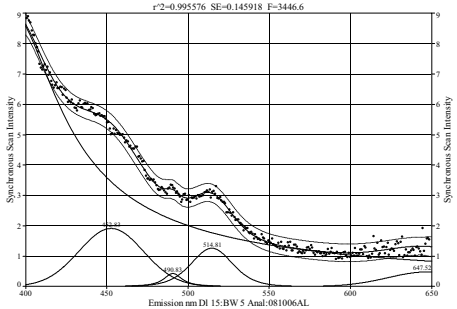
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 27.8856580 | 369.178082 | 180.662033 | 0.99728502 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.62799341 | 456.563847 | 33.9615054 | 1.00000004 | 69.6644509 | 1.00000002 |
| 3 | Pearson VII Area | 1.13552247 | 495.469954 | 15.0026569 | 1.00000045 | 30.1054922 | 1.00000025 |
| 4 | Pearson VII Area | 2.30198478 | 518.228627 | 24.9654241 | 1.00000000 | 52.9698954 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, 23:A48, In:080725 0828, Out:080903 1200

Pk=Pearson VII Area 5 Peaks
r^2=0.995576 SE=0.145918 F=3446.6




Description: Forestville North, Carbon, 23:A48, In:080725 0828, Out:080903 1200
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fna8903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99557592 | 0.99527082 | 0.14591765 | 3446.60280 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11330.7720 | 392.088783 | 88.2846342 | 0.52161702 |
| 2 | Pearson VII Area | 95.5839094 | 452.833575 | 46.8081642 | 86.8051364 |
| 3 | Pearson VII Area | 8.12554718 | 490.826571 | 13.3307358 | 1.18856662 |
| 4 | Pearson VII Area | 42.7095022 | 514.813949 | 29.9281726 | 3.90182261 |
| 5 | Pearson VII Area | 29.5921145 | 647.521138 | 57.4839954 | 167.779354 |

**Measured Values**

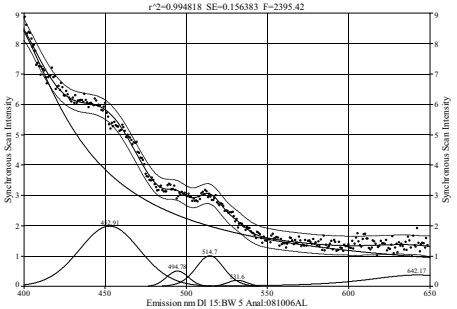
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 8.97828770 | 392.579909 | 88.3052684 | 0.97799803 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.91388184 | 452.833575 | 46.8081642 | 1.00000000 | 94.1473418 | 1.00000000 |
| 3 | Pearson VII Area | 0.42825493 | 490.826571 | 13.3307358 | 1.00000000 | 40.5075992 | 1.00000000 |
| 4 | Pearson VII Area | 1.26242420 | 514.813949 | 29.9281726 | 1.00000000 | 67.0771130 | 1.00000000 |
| 5 | Pearson VII Area | 0.48302870 | 647.521138 | 57.4839954 | 1.00000000 | 115.352065 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, 23:A36, In:080725 0821, Out:080903 1154

Pk=Pearson VII Area 6 Peaks
r^2=0.994818 SE=0.156383 F=2395.42




Description: Forestville North, Carbon, 23:A36, In:080725 0821, Out:080903 1154
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fna60903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99481778 | 0.99438290 | 0.15638349 | 2395.41895 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15585.3066 | 388.840751 | 100.951634 | 0.51782727 |
| 2 | Pearson VII Area | 94.5247603 | 452.911114 | 43.9780553 | 14.6811327 |
| 3 | Pearson VII Area | 8.62282604 | 494.779678 | 15.8806574 | 130.186548 |
| 4 | Pearson VII Area | 22.8781853 | 514.698415 | 20.4443316 | 5.95568321 |
| 5 | Pearson VII Area | 3.53475087 | 531.599316 | 14.5256502 | 167.943055 |
| 6 | Pearson VII Area | 36.1606157 | 642.173938 | 73.7043752 | 1.54811316 |

**Measured Values**

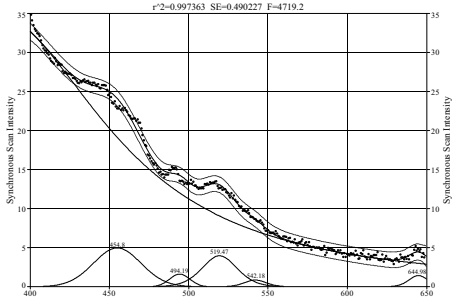
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 9.01227323 | 388.869863 | 100.951698 | 0.99884717 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.99054513 | 452.911114 | 43.9780553 | 1.00000000 | 90.6014195 | 1.00000000 |
| 3 | Pearson VII Area | 0.50929930 | 494.779677 | 15.8806574 | 1.00000019 | 31.8903040 | 1.00000011 |
| 4 | Pearson VII Area | 1.01273846 | 514.698415 | 20.4443316 | 1.00000000 | 44.0050749 | 1.00000000 |
| 5 | Pearson VII Area | 0.20326982 | 531.599316 | 14.5256502 | 1.00000000 | 29.1482816 | 1.00000000 |
| 6 | Pearson VII Area | 0.37945119 | 642.173938 | 73.7043752 | 1.00000000 | 200.950346 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, Mahoods Creek, In:080725 0847, Out:080903 1211

Pk=Pearson VII Area 6 Peaks
r^2=0.997363 SE=0.490227 F=4719.2




Description: Forestville North, Carbon, Mahoods Creek, In:080725 0847, Out:080903 1211
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnmc0903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99736283 | 0.99714152 | 0.49022655 | 4719.19921 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 9047.18276 | 376.843413 | 170.959394 | 1.06250608 |
| 2 | Pearson VII Area | 189.667149 | 454.795642 | 35.4145130 | 24.0136437 |
| 3 | Pearson VII Area | 26.4450678 | 494.188353 | 15.1955450 | 167.876573 |
| 4 | Pearson VII Area | 116.319128 | 519.470291 | 26.3669889 | 5.57234075 |
| 5 | Pearson VII Area | 15.9690454 | 542.183311 | 16.3840520 | 5.13482216 |
| 6 | Pearson VII Area | 22.7876308 | 644.983389 | 14.2790439 | 6.20706029 |

**Measured Values**

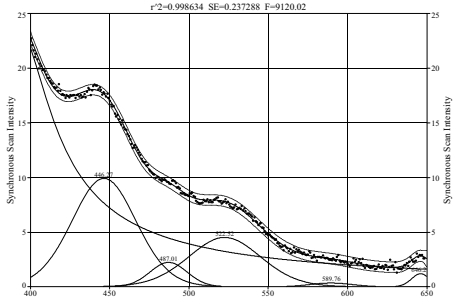
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 35.0338753 | 376.883562 | 170.959430 | 0.99906107 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.98818429 | 454.795642 | 35.4145130 | 1.00000002 | 72.1398976 | 1.00000001 |
| 3 | Pearson VII Area | 1.63294888 | 494.188354 | 15.1955450 | 0.99999958 | 30.4925737 | 0.99999977 |
| 4 | Pearson VII Area | 3.98110758 | 519.470291 | 26.3669889 | 1.00000000 | 57.0490232 | 1.00000000 |
| 5 | Pearson VII Area | 0.87621363 | 542.183311 | 16.3840520 | 1.00000005 | 35.6956532 | 1.00000002 |
| 6 | Pearson VII Area | 1.44666589 | 644.983391 | 14.2790439 | 0.99999946 | 30.6411545 | 0.99999972 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, Forestville Creek, In:080725 1014, Out:080903 1408

Pk=Pearson VII Area 6 Peaks
r^2=0.998634 SE=0.237288 F=9120.02




Description: Forestville North, Carbon, Forestville Creek, In:080725 1014, Out:080903 1408
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnfc0903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99863364 | 0.99851898 | 0.23728777 | 9120.01871 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 26134.1805 | 392.078126 | 65.0770306 | 0.51799127 |
| 2 | Pearson VII Area | 513.657289 | 446.273220 | 47.8193441 | 12.9615540 |
| 3 | Pearson VII Area | 66.1489153 | 487.011607 | 27.6336067 | 49.4006094 |
| 4 | Pearson VII Area | 265.234813 | 522.521841 | 54.1134922 | 11.8191140 |
| 5 | Pearson VII Area | 12.0482330 | 589.762964 | 32.0264146 | 167.428884 |
| 6 | Pearson VII Area | 17.6408248 | 646.204141 | 13.5204078 | 12.8419761 |

**Measured Values**

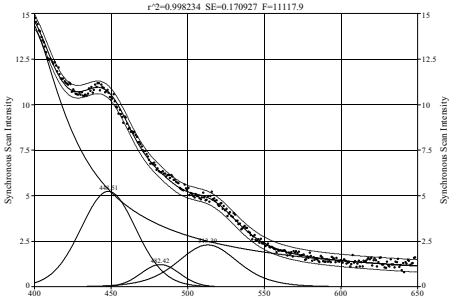
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 23.6467493 | 392.078128 | 65.0770306 | 0.99999994 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 9.92823624 | 446.273220 | 47.8193441 | 1.00000000 | 98.8987342 | 1.00000000 |
| 3 | Pearson VII Area | 2.23954088 | 487.011607 | 27.6336067 | 1.00000000 | 55.7841542 | 1.00000000 |
| 4 | Pearson VII Area | 4.52283344 | 522.521841 | 54.1134922 | 1.00000000 | 112.277079 | 1.00000000 |
| 5 | Pearson VII Area | 0.35298627 | 589.762964 | 32.0264146 | 0.99999998 | 64.2671450 | 0.99999999 |
| 6 | Pearson VII Area | 1.20576477 | 646.204143 | 13.5204078 | 0.99999950 | 27.9712204 | 0.99999973 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, 23:A47, In:080725 0840, Out:080903 1204

Pk=Pearson VII Area 4 Peaks
r^2=0.998234 SE=0.170927 F=11117.9




Description: Forestville North, Carbon, 23:A47, In:080725 0840, Out:080903 1204
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fna70903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99823420 | 0.99813810 | 0.17092725 | 11117.8580 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 23407.6305 | 395.358625 | 72.2916939 | 0.51372174 |
| 2 | Pearson VII Area | 242.336175 | 448.512016 | 42.6000754 | 11.2438196 |
| 3 | Pearson VII Area | 38.7848445 | 482.424084 | 29.6639968 | 167.897030 |
| 4 | Pearson VII Area | 121.084129 | 513.389416 | 46.2841453 | 3.63327106 |

**Measured Values**

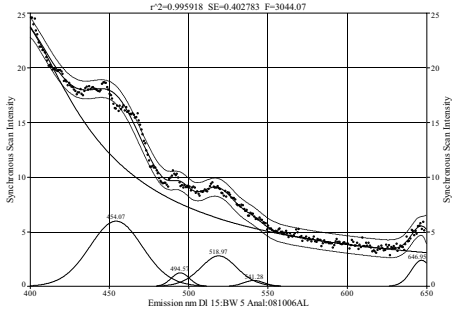
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 14.7349319 | 395.433790 | 72.2922964 | 0.99584970 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.24414491 | 448.512016 | 42.6000754 | 1.00000000 | 88.5543477 | 1.00000000 |
| 3 | Pearson VII Area | 1.22680811 | 482.424082 | 29.6639968 | 1.00000026 | 59.5260871 | 1.00000014 |
| 4 | Pearson VII Area | 2.30229516 | 513.389415 | 46.2841453 | 1.00000005 | 104.659083 | 1.00000003 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs

## Forestville North, Carbon, 23:X109, In:080725 1033, Out:080903 1421

Pk=Pearson VII Area 6 Peaks
r^2=0.995918 SE=0.402783 F=3044.07




Description: Forestville North, Carbon, 23:X109, In:080725 1033, Out:080903 1421
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnx90903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99591754 | 0.99557495 | 0.40278291 | 3044.07242 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 42516.6149 | 388.168139 | 119.183684 | 0.52166007 |
| 2 | Pearson VII Area | 255.050694 | 454.070129 | 39.4800849 | 13.8558316 |
| 3 | Pearson VII Area | 17.9854342 | 494.574841 | 13.4636184 | 167.765099 |
| 4 | Pearson VII Area | 85.6690045 | 518.970639 | 27.7826069 | 6.83533897 |
| 5 | Pearson VII Area | 9.27660449 | 541.279423 | 15.4168211 | 10.0375643 |
| 6 | Pearson VII Area | 40.0752764 | 646.945383 | 15.3700709 | 10.0669240 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 25.0059166 | 388.299087 | 119.184771 | 0.99561485 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.97758549 | 454.070129 | 39.4800849 | 1.00000000 | 81.4768272 | 1.00000000 |
| 3 | Pearson VII Area | 1.25343831 | 494.574841 | 13.4636184 | 1.00000013 | 27.0171985 | 1.00000007 |
| 4 | Pearson VII Area | 2.80521693 | 518.970639 | 27.7826069 | 1.00000000 | 59.2256304 | 1.00000000 |
| 5 | Pearson VII Area | 0.55337305 | 541.279423 | 15.4168211 | 1.00000007 | 32.1966644 | 1.00000004 |
| 6 | Pearson VII Area | 2.39802095 | 646.945383 | 15.3700709 | 0.99999998 | 32.0949697 | 0.99999999 |

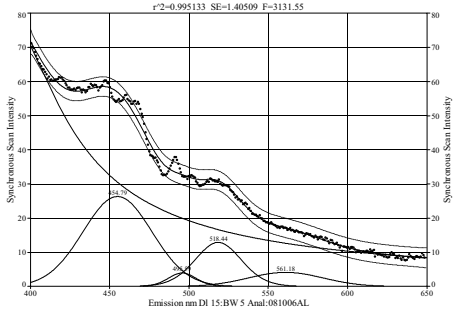

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu



Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs


## Forestville North, Carbon, 23:X113, In:080725 1045, Out:080903 1436

Pk=Pearson VII Area 5 Peaks
r^2=0.995133 SE=1.40509 F=3131.55




Description: Forestville North, Carbon, 23:X113, In:080725 1045, Out:080903 1436
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnx30903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99513300 | 0.99479734 | 1.40509095 | 3131.54857 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 2.1413e+05 | 386.022150 | 102.031470 | 0.51109609 |
| 2 | Pearson VII Area | 1448.46604 | 454.786709 | 51.4412068 | 56.1780471 |
| 3 | Pearson VII Area | 89.3497815 | 495.585473 | 20.7860778 | 11.2084619 |
| 4 | Pearson VII Area | 488.874439 | 518.435566 | 34.7525143 | 9.74509232 |
| 5 | Pearson VII Area | 245.099523 | 561.179057 | 55.4945207 | 167.918483 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 77.8670912 | 386.022150 | 102.031470 | 1.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 26.3566153 | 454.786709 | 51.4412068 | 1.00000000 | 103.738388 | 1.00000000 |
| 3 | Pearson VII Area | 3.96242025 | 495.585473 | 20.7860778 | 0.99999968 | 43.2140407 | 0.99999983 |
| 4 | Pearson VII Area | 12.9282817 | 518.435566 | 34.7525143 | 1.00000000 | 72.6721757 | 1.00000000 |
| 5 | Pearson VII Area | 4.14416154 | 561.179057 | 55.4945207 | 1.00000001 | 111.359593 | 1.00000000 |

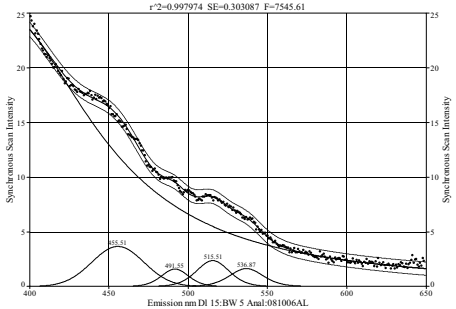

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu



Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs


## Forestville North, Carbon, Watson Creek/Stagecoach D.S., In:080725 0750, Out:080

Pk=Pearson VII Area 5 Peaks
r^2=0.997974 SE=0.303087 F=7545.61




Description: Forestville North, Carbon, Watson Creek/Stagecoach D.S., In:080725 0750, Out:080
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnwc0903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99797435 | 0.99783465 | 0.30308662 | 7545.61079 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 5646.06858 | 380.296149 | 142.766142 | 1.00637237 |
| 2 | Pearson VII Area | 151.228876 | 455.513220 | 38.6809292 | 167.891170 |
| 3 | Pearson VII Area | 35.5856029 | 491.549267 | 20.1753057 | 5.84813710 |
| 4 | Pearson VII Area | 64.1403528 | 515.511214 | 24.4677716 | 6.09132476 |
| 5 | Pearson VII Area | 45.6728727 | 536.866919 | 24.8451750 | 4.42466275 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 25.2866328 | 380.593607 | 142.768610 | 0.99170057 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.66844537 | 455.513219 | 38.6809292 | 1.00000016 | 77.6201730 | 1.00000009 |
| 3 | Pearson VII Area | 1.59504977 | 491.549267 | 20.1753057 | 1.00000000 | 43.4862959 | 1.00000000 |
| 4 | Pearson VII Area | 2.37455325 | 515.511214 | 24.4677716 | 1.00000002 | 52.5770074 | 1.00000001 |
| 5 | Pearson VII Area | 1.63938244 | 536.866920 | 24.8451750 | 0.99999988 | 54.9089717 | 0.99999994 |

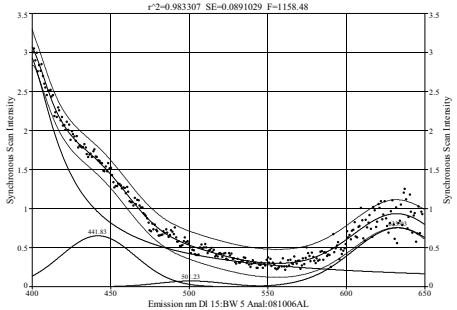

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu



Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs


## LCCMR, Water, Eluent Blank, Sampled:081006 1010

Pk=Pearson VII Area 4 Peaks
r^2=0.983307 SE=0.0891029 F=1158.48




Description: LCCMR, Water, Eluent Blank, Sampled:081006 1010
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\eb081006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.98330708 | 0.98239862 | 0.08910291 | 1158.47748 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 2027.52013 | 395.881123 | 53.9535689 | 0.52516303 |
| 2 | Pearson VII Area | 38.9839075 | 441.828079 | 55.8741118 | 167.794183 |
| 3 | Pearson VII Area | 4.08956003 | 501.232701 | 50.1401052 | 19.0260821 |
| 4 | Pearson VII Area | 54.8683817 | 633.025579 | 67.5662097 | 24.8656332 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 3.02783727 | 395.881135 | 53.9535689 | 0.99999910 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 0.65466430 | 441.828075 | 55.8741118 | 1.00000032 | 112.121517 | 1.00000017 |
| 3 | Pearson VII Area | 0.07579033 | 501.232701 | 50.1401052 | 1.00000000 | 102.611208 | 1.00000000 |
| 4 | Pearson VII Area | 0.75658063 | 633.025579 | 67.5662097 | 1.00000000 | 137.550176 | 1.00000000 |

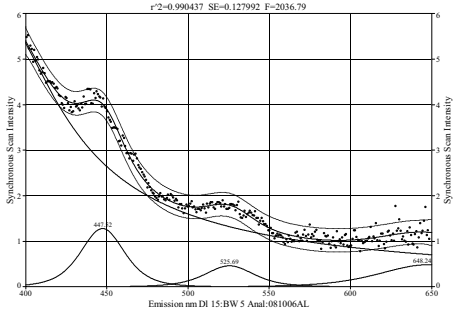

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu



Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs


## Forestville North, Carbon, 23:X106, In:080725 0913, Out:080903 1238

Pk=Pearson VII Area 4 Peaks
r^2=0.990437 SE=0.127992 F=2036.79




Description: Forestville North, Carbon, 23:X106, In:080725 0913, Out:080903 1238
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnx60903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99043664 | 0.98991619 | 0.12799185 | 2036.79407 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 12720.7783 | 383.588913 | 113.960138 | 0.51628278 |
| 2 | Pearson VII Area | 47.9594449 | 447.523220 | 31.9252666 | 2.61490378 |
| 3 | Pearson VII Area | 19.7035717 | 525.691926 | 35.8371739 | 2.35932117 |
| 4 | Pearson VII Area | 40.2103963 | 648.235867 | 71.8543103 | 3.24367291 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 5.97347276 | 385.159817 | 114.125842 | 0.94641644 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.28084613 | 447.523220 | 31.9252666 | 1.00000000 | 76.0029782 | 1.00000000 |
| 3 | Pearson VII Area | 0.46256226 | 525.691926 | 35.8371739 | 0.99999999 | 87.0807501 | 1.00000000 |
| 4 | Pearson VII Area | 0.48790429 | 648.235867 | 71.8543103 | 1.00000000 | 165.039947 | 1.00000000 |

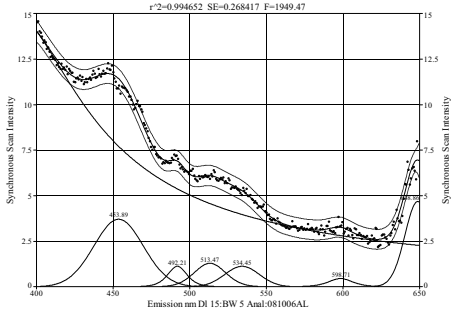

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu



Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007 and 13 March 2008 Inputs


## Forestville North, Carbon, 23:X110, In:080725 1039, Out:080903 1427

Pk=Pearson VII Area 7 Peaks
r^2=0.994652 SE=0.268417 F=1949.47




Description: Forestville North, Carbon, 23:X110, In:080725 1039, Out:080903 1427
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_and_080313\forestville080725-080903\fnx00903

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99465218 | 0.99412120 | 0.26841677 | 1949.47434 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 62965.7215 | 384.520195 | 144.101758 | 0.51024144 |
| 2 | Pearson VII Area | 150.061536 | 453.891395 | 37.9265515 | 167.837595 |
| 3 | Pearson VII Area | 19.6116126 | 492.214705 | 14.8275275 | 2.73222624 |
| 4 | Pearson VII Area | 33.8781785 | 513.474605 | 24.0575163 | 10.1048571 |
| 5 | Pearson VII Area | 31.8968386 | 534.452134 | 26.5035161 | 157.670553 |
| 6 | Pearson VII Area | 10.1976804 | 598.705085 | 18.7849314 | 2.35017213 |
| 7 | Pearson VII Area | 98.7135527 | 649.041699 | 19.6579403 | 28.3117600 |

**Measured Values**

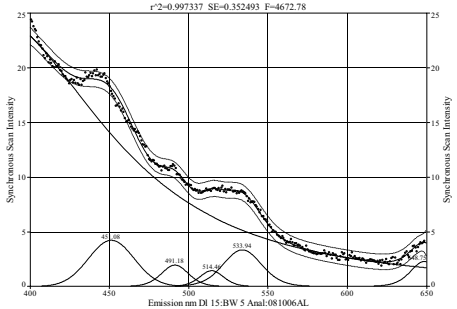
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15.0037445 | 384.589041 | 144.102014 | 0.99809079 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.71253104 | 453.891395 | 37.9265515 | 1.00000000 | 76.1064401 | 1.00000000 |
| 3 | Pearson VII Area | 1.13350267 | 492.214705 | 14.8275275 | 1.00000007 | 35.0169960 | 1.00000003 |
| 4 | Pearson VII Area | 1.29526364 | 513.474605 | 24.0575163 | 1.00000006 | 50.2274785 | 1.00000003 |
| 5 | Pearson VII Area | 1.12915696 | 534.452134 | 26.5035160 | 1.00000000 | 53.1925874 | 1.00000000 |
| 6 | Pearson VII Area | 0.45646812 | 598.705085 | 18.7849314 | 1.00000000 | 45.6830497 | 1.00000000 |
| 7 | Pearson VII Area | 4.68212708 | 648.858447 | 19.6614412 | 1.03798947 | 39.9376352 | 1.02037156 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Forestville Creek, In:080903 1403, Out:080911 0957

Pk=Pearson VII Area 6 Peaks
r^2=0.997337 SE=0.352493 F=4672.78




Description: Forestville North, Carbon, Forestville Creek, In:080903 1403, Out:080911 0957
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnfc0911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99733670 | 0.99711320 | 0.35249295 | 4672.77733 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 6024.05957 | 373.625927 | 173.156767 | 1.23969294 |
| 2 | Pearson VII Area | 152.652413 | 451.076244 | 33.8487987 | 167.865662 |
| 3 | Pearson VII Area | 44.0119035 | 491.181957 | 20.1528384 | 5.06777667 |
| 4 | Pearson VII Area | 29.0384595 | 514.462074 | 18.1071957 | 5.88379029 |
| 5 | Pearson VII Area | 105.818911 | 533.935530 | 28.5829923 | 6.08150668 |
| 6 | Pearson VII Area | 53.7532574 | 648.750259 | 20.7209856 | 3.75464158 |

**Measured Values**

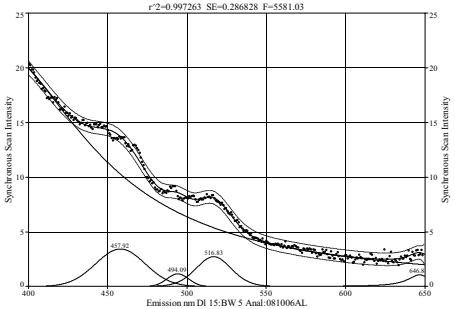
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 24.9082377 | 374.029680 | 173.160060 | 0.99071659 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.23159956 | 451.076243 | 33.8487987 | 1.00000005 | 67.9236681 | 1.00000003 |
| 3 | Pearson VII Area | 1.96202042 | 491.181957 | 20.1528384 | 1.00000000 | 43.9580838 | 1.00000000 |
| 4 | Pearson VII Area | 1.45061717 | 514.462074 | 18.1071957 | 1.00000000 | 39.0104750 | 1.00000000 |
| 5 | Pearson VII Area | 3.35330103 | 533.935530 | 28.5829923 | 1.00000000 | 61.4272016 | 1.00000000 |
| 6 | Pearson VII Area | 2.28857789 | 648.750178 | 20.7209856 | 1.00001578 | 46.6598021 | 1.00000772 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A48, In:080903 1200, Out:080911 0830

Pk=Pearson VII Area 5 Peaks
r^2=0.997263 SE=0.286828 F=5581.03




Description: Forestville North, Carbon, 23:A48, In:080903 1200, Out:080911 0830
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fna80911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99726325 | 0.99707451 | 0.28682762 | 5581.03248 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 6202.46688 | 375.927687 | 152.145687 | 0.83498917 |
| 2 | Pearson VII Area | 134.890383 | 457.920980 | 36.8516270 | 81.3257415 |
| 3 | Pearson VII Area | 19.7551275 | 494.086893 | 15.9243679 | 167.904637 |
| 4 | Pearson VII Area | 78.7419720 | 516.825686 | 26.3889696 | 9.14632237 |
| 5 | Pearson VII Area | 32.5628628 | 646.797021 | 18.4135015 | 0.92896028 |

**Measured Values**

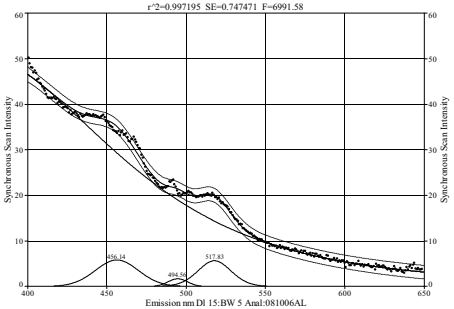
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 22.1267243 | 376.027397 | 152.145987 | 0.99738200 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.43010440 | 457.920980 | 36.8516270 | 1.00000001 | 74.1453733 | 1.00000000 |
| 3 | Pearson VII Area | 1.16402393 | 494.086892 | 15.9243679 | 1.00000014 | 31.9550737 | 1.00000008 |
| 4 | Pearson VII Area | 2.73809883 | 516.825686 | 26.3889696 | 1.00000000 | 55.3450228 | 1.00000000 |
| 5 | Pearson VII Area | 1.06441269 | 646.797021 | 18.4135015 | 1.00000000 | 64.2654041 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A36, In:080903 1154, Out:080911 0824

Pk=Pearson VII Area 4 Peaks
r^2=0.997195 SE=0.747471 F=6991.58




Description: Forestville North, Carbon, 23:A36, In:080903 1154, Out:080911 0824
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fna60911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99719498 | 0.99704233 | 0.74747052 | 6991.58274 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 13249.3043 | 363.269345 | 210.196157 | 1.95145886 |
| 2 | Pearson VII Area | 199.907244 | 456.135229 | 32.0142457 | 30.6670849 |
| 3 | Pearson VII Area | 26.3332814 | 494.562580 | 14.5369175 | 167.735382 |
| 4 | Pearson VII Area | 153.877980 | 517.833211 | 24.9422004 | 9.74643355 |

**Measured Values**

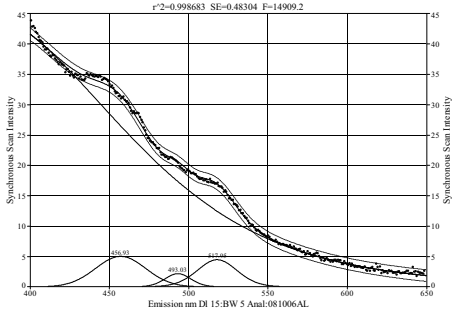
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 51.4186937 | 363.269345 | 468.367424 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.82696830 | 456.135228 | 32.0142457 | 1.00000006 | 64.9646885 | 1.00000003 |
| 3 | Pearson VII Area | 1.69971612 | 494.562580 | 14.5369175 | 1.00000000 | 29.1709811 | 1.00000000 |
| 4 | Pearson VII Area | 5.66986622 | 517.833211 | 24.9422004 | 1.00000000 | 52.1571703 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Freiheit Spring, In:080903 1232, Out:080911 0901

Pk=Pearson VII Area 4 Peaks
r^2=0.998683 SE=0.48304 F=14909.2




Description: Forestville North, Carbon, Freiheit Spring, In:080903 1232, Out:080911 0901
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnfs0911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99868264 | 0.99861095 | 0.48303971 | 14909.2210 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11391.6712 | 361.694280 | 217.304084 | 3.26627740 |
| 2 | Pearson VII Area | 198.979541 | 456.928645 | 37.1486145 | 167.913880 |
| 3 | Pearson VII Area | 45.4501456 | 493.025170 | 19.1722443 | 10.6723079 |
| 4 | Pearson VII Area | 145.217912 | 517.949900 | 29.8002002 | 9.90038564 |

**Measured Values**

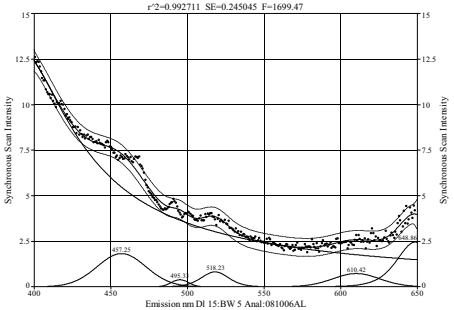
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 45.7335868 | 361.694281 | 470.346322 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.02585673 | 456.928645 | 37.1486145 | 1.00000001 | 74.5452856 | 1.00000001 |
| 3 | Pearson VII Area | 2.18306131 | 493.025170 | 19.1722443 | 1.00000000 | 39.9364861 | 1.00000000 |
| 4 | Pearson VII Area | 4.48011490 | 517.949900 | 29.8002002 | 1.00000000 | 62.2725126 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A95/Root Spring D.S., In:080903 1336, Out:080911 0

Pk=Pearson VII Area 6 Peaks
r^2=0.992711 SE=0.245045 F=1699.47




Description: Forestville North, Carbon, 23:A95/Root Spring D.S., In:080903 1336, Out:080911 0
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fna50911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99271108 | 0.99209942 | 0.24504457 | 1699.47126 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 20782.6773 | 389.276393 | 108.870562 | 0.52120045 |
| 2 | Pearson VII Area | 73.6379287 | 457.248134 | 37.5550280 | 28.2658736 |
| 3 | Pearson VII Area | 5.55071259 | 495.332773 | 13.2481732 | 167.667352 |
| 4 | Pearson VII Area | 19.4828889 | 518.231296 | 21.1139369 | 4.48931812 |
| 5 | Pearson VII Area | 28.6307715 | 610.422985 | 36.1621331 | 14.7857801 |
| 6 | Pearson VII Area | 80.5231804 | 648.983497 | 28.3935933 | 3.08016513 |

**Measured Values**

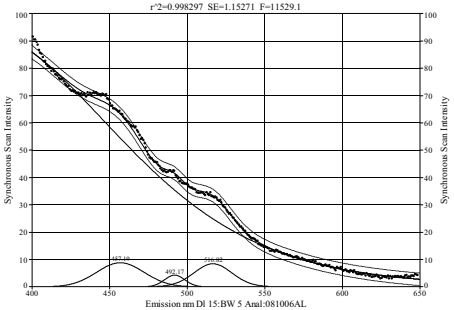
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 13.1154689 | 389.440639 | 108.872436 | 0.99398372 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.82868372 | 457.248134 | 37.5550280 | 1.00000000 | 76.2975235 | 1.00000000 |
| 3 | Pearson VII Area | 0.39313008 | 495.332773 | 13.2481732 | 1.00000000 | 26.5849069 | 1.00000000 |
| 4 | Pearson VII Area | 0.82360190 | 518.231296 | 21.1139369 | 1.00000001 | 46.5929514 | 1.00000000 |
| 5 | Pearson VII Area | 0.73330917 | 610.422985 | 36.1621331 | 0.99999999 | 74.4840289 | 0.99999999 |
| 6 | Pearson VII Area | 2.46068554 | 648.858447 | 28.3949727 | 1.01777223 | 65.7291786 | 1.00842825 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A47, In:080903 1204, Out:080911 0835

Pk=Pearson VII Area 4 Peaks
r^2=0.998297 SE=1.15271 F=11529.1




Description: Forestville North, Carbon, 23:A47, In:080903 1204, Out:080911 0835
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fna70911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99829707 | 0.99820439 | 1.15271370 | 11529.0627 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 22704.0343 | 362.301432 | 214.999373 | 4.46367330 |
| 2 | Pearson VII Area | 338.540218 | 457.185215 | 35.9495907 | 167.909833 |
| 3 | Pearson VII Area | 71.1165135 | 492.173290 | 15.4172931 | 40.1146102 |
| 4 | Pearson VII Area | 262.419390 | 516.819953 | 28.8453036 | 19.5602439 |

**Measured Values**

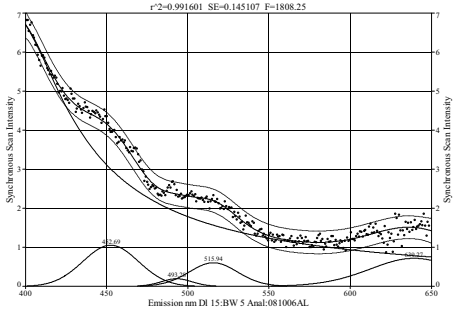
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 94.2223770 | 362.301437 | 469.801119 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.83609969 | 457.185215 | 35.9495907 | 1.00000001 | 72.1392360 | 1.00000001 |
| 3 | Pearson VII Area | 4.31136656 | 492.173287 | 15.4172931 | 1.00000055 | 31.1843420 | 1.00000030 |
| 4 | Pearson VII Area | 8.45622798 | 516.819953 | 28.8453036 | 1.00000000 | 58.9955303 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X113, In:080903 1432, Out:080911 1034

Pk=Pearson VII Area 5 Peaks
r^2=0.991601 SE=0.145107 F=1808.25




Description: Forestville North, Carbon, 23:X113, In:080903 1432, Out:080911 1034
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnx30911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99160118 | 0.99102195 | 0.14510676 | 1808.24945 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 16998.9719 | 392.212695 | 101.059633 | 0.51240434 |
| 2 | Pearson VII Area | 45.5089215 | 452.689321 | 40.3412695 | 167.898097 |
| 3 | Pearson VII Area | 4.93582419 | 493.281645 | 22.7571575 | 10.1588114 |
| 4 | Pearson VII Area | 23.3363716 | 515.939231 | 35.3951289 | 12.8746143 |
| 5 | Pearson VII Area | 51.5816177 | 639.266057 | 65.5291338 | 9.52691440 |

**Measured Values**

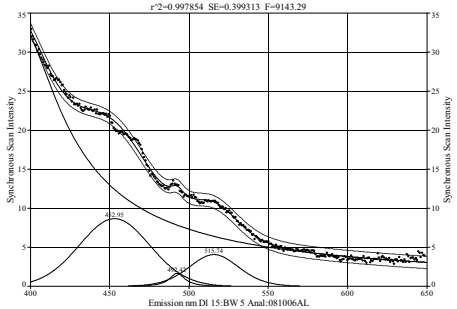
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 6.94476124 | 393.150685 | 101.126960 | 0.96357424 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.05850091 | 452.689320 | 40.3412695 | 1.00000012 | 80.9519331 | 1.00000006 |
| 3 | Pearson VII Area | 0.19951802 | 493.281645 | 22.7571575 | 1.00000000 | 47.5017094 | 1.00000000 |
| 4 | Pearson VII Area | 0.60931551 | 515.939231 | 35.3951289 | 1.00000000 | 73.2197357 | 1.00000000 |
| 5 | Pearson VII Area | 0.72303345 | 639.266057 | 65.5291338 | 1.00000000 | 137.170797 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Watson Creek/Stagecoach D.S., In:080903 1120, Out:080

Pk=Pearson VII Area 4 Peaks
r^2=0.997854 SE=0.399313 F=9143.29




Description: Forestville North, Carbon, Watson Creek/Stagecoach D.S., In:080903 1120, Out:080
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnwc0911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99785368 | 0.99773687 | 0.39931279 | 9143.28627 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 84040.1971 | 391.185413 | 83.9251588 | 0.51018518 |
| 2 | Pearson VII Area | 491.235356 | 452.952505 | 52.6628054 | 24.2923849 |
| 3 | Pearson VII Area | 29.7648676 | 492.420426 | 11.7009318 | 1.07061540 |
| 4 | Pearson VII Area | 169.179903 | 515.740190 | 37.3751447 | 5.89867913 |

**Measured Values**

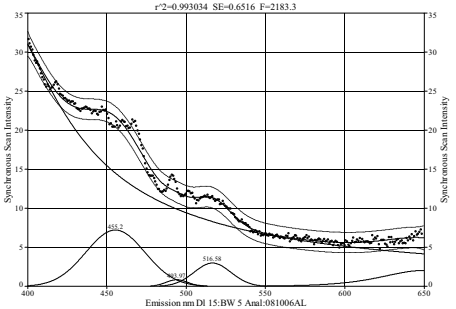
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 34.2014644 | 391.185413 | 83.9251588 | 1.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.68882720 | 452.952507 | 52.6628054 | 0.99999989 | 107.253200 | 0.99999994 |
| 3 | Pearson VII Area | 1.69167151 | 492.420426 | 11.7009318 | 1.00000000 | 37.5131415 | 1.00000000 |
| 4 | Pearson VII Area | 4.09488769 | 515.740190 | 37.3751447 | 1.00000000 | 80.5061790 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Mahood's Creek, In:080903 1211, Out:080911 0843

Pk=Pearson VII Area 5 Peaks
r^2=0.993034 SE=0.6516 F=2183.3




Description: Forestville North, Carbon, Mahood's Creek, In:080903 1211, Out:080911 0843
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnmc0911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99303391 | 0.99255349 | 0.65160025 | 2183.30440 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 74986.1222 | 381.859046 | 115.920719 | 0.51652213 |
| 2 | Pearson VII Area | 338.119626 | 455.201573 | 43.8711525 | 167.919993 |
| 3 | Pearson VII Area | 15.3765522 | 493.973962 | 16.4477810 | 18.4839175 |
| 4 | Pearson VII Area | 89.0949101 | 516.581987 | 27.6865096 | 65.8980223 |
| 5 | Pearson VII Area | 155.743815 | 650.347668 | 64.0483151 | 2.50423204 |

**Measured Values**

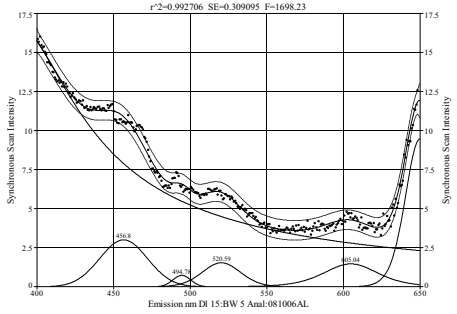
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 35.1385290 | 381.859046 | 115.920719 | 1.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 7.23162098 | 455.201572 | 43.8711525 | 1.00000008 | 88.0352427 | 1.00000004 |
| 3 | Pearson VII Area | 0.86842151 | 493.973962 | 16.4477810 | 1.00000000 | 33.6823444 | 1.00000000 |
| 4 | Pearson VII Area | 3.01377990 | 516.581987 | 27.6865096 | 1.00000000 | 55.7723273 | 1.00000000 |
| 5 | Pearson VII Area | 2.06083941 | 649.429224 | 64.0830461 | 1.05902012 | 153.774642 | 1.02672375 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X106, In:080903 1236, Out:080911 0905

Pk=Pearson VII Area 6 Peaks
r^2=0.992706 SE=0.309095 F=1698.23




Description: Forestville North, Carbon, 23:X106, In:080903 1236, Out:080911 0905
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnx60911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99270579 | 0.99209368 | 0.30909538 | 1698.22826 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 43279.6811 | 384.644484 | 131.400118 | 0.51565468 |
| 2 | Pearson VII Area | 117.334793 | 456.802714 | 36.5739102 | 167.886754 |
| 3 | Pearson VII Area | 10.8213888 | 494.775746 | 13.6471850 | 26.4945212 |
| 4 | Pearson VII Area | 49.5897571 | 520.590681 | 29.5274303 | 9.96074491 |
| 5 | Pearson VII Area | 71.4049147 | 605.037855 | 41.9883952 | 3.03785414 |
| 6 | Pearson VII Area | 234.068987 | 650.165715 | 22.4471335 | 6.69362814 |

**Measured Values**

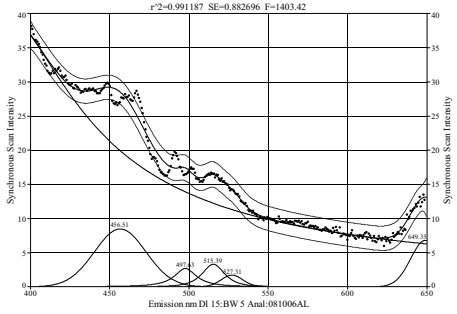
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 16.9976426 | 384.874429 | 131.403205 | 0.99302472 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.01022969 | 456.802714 | 36.5739102 | 1.00000000 | 73.3920688 | 1.00000000 |
| 3 | Pearson VII Area | 0.73914391 | 494.775746 | 13.6471850 | 1.00000027 | 27.7536398 | 1.00000014 |
| 4 | Pearson VII Area | 1.54423947 | 520.590681 | 29.5274303 | 1.00000000 | 61.6860614 | 1.00000000 |
| 5 | Pearson VII Area | 1.47367701 | 605.037855 | 41.9883952 | 0.99999997 | 97.4100222 | 0.99999999 |
| 6 | Pearson VII Area | 9.46814494 | 649.714612 | 22.4672337 | 1.08367311 | 47.9265322 | 1.04230192 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X110, In:080903 1427, Out:080911 1030

Pk=Pearson VII Area 6 Peaks
r^2=0.991187 SE=0.882696 F=1403.42




Description: Forestville North, Carbon, 23:X110, In:080903 1427, Out:080911 1030
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnx00911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99118705 | 0.99044750 | 0.88269570 | 1403.42153 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1.6738e+05 | 379.781663 | 149.673855 | 0.51086039 |
| 2 | Pearson VII Area | 345.647808 | 456.506646 | 38.2235992 | 96.2117070 |
| 3 | Pearson VII Area | 68.8749149 | 497.634190 | 16.7199535 | 1.03644960 |
| 4 | Pearson VII Area | 70.9595604 | 515.386096 | 16.9135885 | 1.69349557 |
| 5 | Pearson VII Area | 30.1477228 | 527.313456 | 15.9743010 | 8.64099361 |
| 6 | Pearson VII Area | 160.379902 | 649.346838 | 22.0461503 | 167.800963 |

**Measured Values**

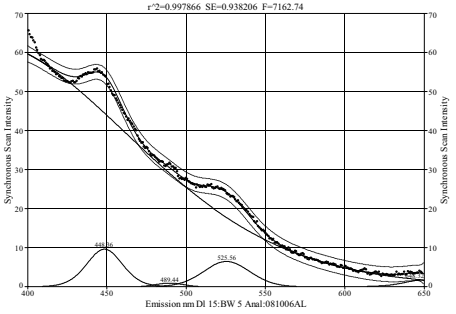
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 40.6403486 | 379.781669 | 149.673855 | 0.99999985 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.47723218 | 456.506646 | 38.2235992 | 0.99999999 | 76.8446455 | 1.00000000 |
| 3 | Pearson VII Area | 2.68553536 | 497.634190 | 16.7199535 | 0.99999998 | 54.5832150 | 0.99999999 |
| 4 | Pearson VII Area | 3.32095092 | 515.386096 | 16.9135885 | 1.00000000 | 44.7697565 | 1.00000000 |
| 5 | Pearson VII Area | 1.72926171 | 527.313456 | 15.9743010 | 0.99999999 | 33.5965250 | 0.99999999 |
| 6 | Pearson VII Area | 6.82591896 | 649.346836 | 22.0461503 | 1.00000043 | 44.2395856 | 1.00000024 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Moth/Grabau Spring D.S., In:080903 1344, Out:080911 -

Pk=Pearson VII Area 5 Peaks
r^2=0.997866 SE=0.938206 F=7162.74




Description: Forestville North, Carbon, Moth/Grabau Spring D.S., In:080903 1344, Out:080911 -
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnmg0911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99786630 | 0.99771915 | 0.93820644 | 7162.73715 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15983.1699 | 366.186580 | 232.018014 | 10.4043448 |
| 2 | Pearson VII Area | 282.358349 | 448.364412 | 26.5136459 | 6.31060136 |
| 3 | Pearson VII Area | 21.2900298 | 489.438102 | 20.6015605 | 167.865261 |
| 4 | Pearson VII Area | 243.127895 | 525.560274 | 34.5762508 | 14.1326221 |
| 5 | Pearson VII Area | 55.8988912 | 648.316251 | 27.2270138 | 2.23399732 |

**Measured Values**

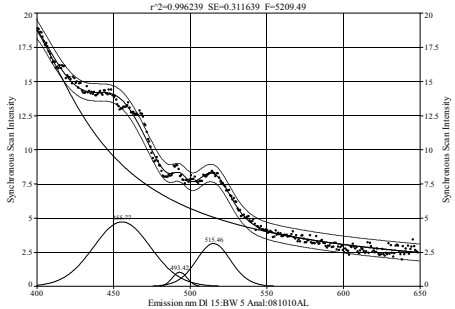
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 63.4029041 | 366.186580 | 482.195587 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 9.66000974 | 448.364412 | 26.5136459 | 1.00000000 | 56.8279370 | 1.00000000 |
| 3 | Pearson VII Area | 0.96966183 | 489.438102 | 20.6015605 | 1.00000000 | 41.3407159 | 1.00000000 |
| 4 | Pearson VII Area | 6.50831593 | 525.560274 | 34.5762508 | 1.00000000 | 71.3132148 | 1.00000000 |
| 5 | Pearson VII Area | 1.71357289 | 648.316251 | 27.2270138 | 1.00000000 | 66.9507137 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A48, In:080911 0830, Out:080923 1013

Pk=Pearson VII Area 4 Peaks
r^2=0.996239 SE=0.311639 F=5209.49




Description: Forestville North, Carbon, 23:A48, In:080911 0830, Out:080923 1013
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fna80923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99623904 | 0.99603436 | 0.31163867 | 5209.49380 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 59177.6609 | 387.993725 | 117.841177 | 0.51187591 |
| 2 | Pearson VII Area | 225.470258 | 455.774092 | 44.2111672 | 16.5362306 |
| 3 | Pearson VII Area | 12.6765488 | 493.418022 | 11.3531669 | 167.860582 |
| 4 | Pearson VII Area | 91.9008513 | 515.462334 | 26.5638739 | 6.92002821 |

**Measured Values**

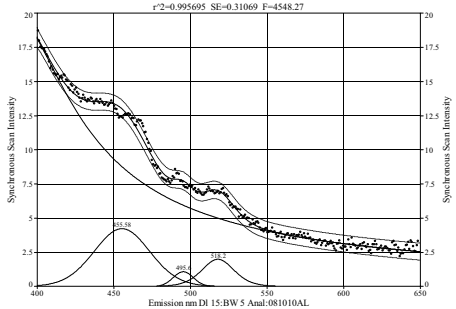
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 19.8931877 | 388.013699 | 117.841204 | 0.99932225 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.73086123 | 455.774092 | 44.2111672 | 1.00000000 | 90.7839251 | 1.00000000 |
| 3 | Pearson VII Area | 1.04767878 | 493.418022 | 11.3531669 | 1.00000000 | 22.7821615 | 1.00000000 |
| 4 | Pearson VII Area | 3.14868468 | 515.462333 | 26.5638739 | 1.00000012 | 56.5825423 | 1.00000006 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A36, In:080911 0824, Out:080923 1007

Pk=Pearson VII Area 4 Peaks
r^2=0.995695 SE=0.31069 F=4548.27




Description: Forestville North, Carbon, 23:A36, In:080911 0824, Out:080923 1007
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fna60923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99569463 | 0.99546032 | 0.31068993 | 4548.27050 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 64943.4159 | 383.603755 | 121.612592 | 0.51123564 |
| 2 | Pearson VII Area | 195.659149 | 455.579121 | 42.8718853 | 16.6867442 |
| 3 | Pearson VII Area | 17.7552443 | 495.603405 | 15.3695732 | 167.103424 |
| 4 | Pearson VII Area | 55.6576284 | 518.200574 | 24.8049550 | 4.23862175 |

**Measured Values**

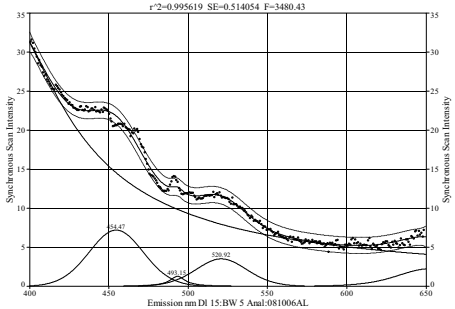
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 20.0540641 | 383.603755 | 121.612592 | 1.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.23410569 | 455.579121 | 42.8718853 | 1.00000000 | 88.0132872 | 1.00000000 |
| 3 | Pearson VII Area | 1.08394338 | 495.603405 | 15.3695732 | 1.00000000 | 30.8421469 | 1.00000000 |
| 4 | Pearson VII Area | 1.99579728 | 518.200574 | 24.8049550 | 1.00000000 | 55.0715023 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X109, In:080903 1421, Out:080911 1011

Pk=Pearson VII Area 5 Peaks
r^2=0.995619 SE=0.514054 F=3480.43




Description: Forestville North, Carbon, 23:X109, In:080903 1421, Out:080911 1011
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\fnx90911

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99561873 | 0.99531658 | 0.51405396 | 3480.42917 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 86050.4263 | 382.974093 | 113.318328 | 0.51395669 |
| 2 | Pearson VII Area | 314.955034 | 454.468573 | 40.4921840 | 17.8284414 |
| 3 | Pearson VII Area | 30.1831181 | 493.151826 | 11.9548200 | 0.80689699 |
| 4 | Pearson VII Area | 149.824088 | 520.916664 | 38.6261131 | 7.82045832 |
| 5 | Pearson VII Area | 124.532638 | 651.841985 | 47.3784229 | 2.89669380 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 35.1228894 | 382.974094 | 113.318328 | 0.99999997 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 7.22221984 | 454.468573 | 40.4921840 | 1.00000001 | 82.9917219 | 1.00000001 |
| 3 | Pearson VII Area | 1.31590006 | 493.151825 | 11.9548200 | 1.00000047 | 46.1397776 | 1.00000014 |
| 4 | Pearson VII Area | 3.54409745 | 520.916665 | 38.6261131 | 0.99999993 | 81.6719800 | 0.99999996 |
| 5 | Pearson VII Area | 2.24857045 | 649.429224 | 47.6895776 | 1.22515478 | 110.971259 | 1.10070034 |

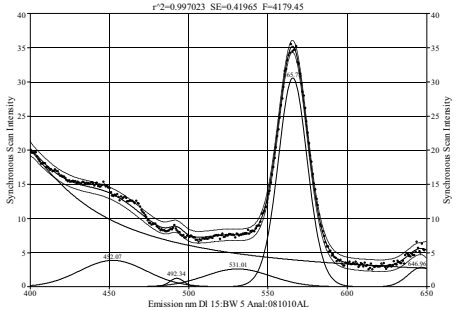
| Peak | Type | Anlytc Area | % Area | Int Area | % Area | Centroid | Moment2 |
|---|---|---|---|---|---|---|---|


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Forestville Creek, In:080911 0955, Out:080923 0920

Pk=Pearson VII Area 6 Peaks
r^2=0.997023 SE=0.41965 F=4179.45




Description: Forestville North, Carbon, Forestville Creek, In:080911 0955, Out:080923 0920
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnfc0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99702326 | 0.99677347 | 0.41965008 | 4179.44838 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 67596.7100 | 380.479131 | 113.229559 | 0.51169574 |
| 2 | Pearson VII Area | 204.174719 | 452.066663 | 49.4073769 | 167.912734 |
| 3 | Pearson VII Area | 14.8412615 | 492.340517 | 10.8469799 | 10.0245052 |
| 4 | Pearson VII Area | 138.225839 | 531.009670 | 49.2325984 | 49.7684033 |
| 5 | Pearson VII Area | 718.576794 | 565.780628 | 21.5498252 | 8.92758416 |
| 6 | Pearson VII Area | 61.9011016 | 646.957112 | 20.0620398 | 17.6483935 |

**Measured Values**

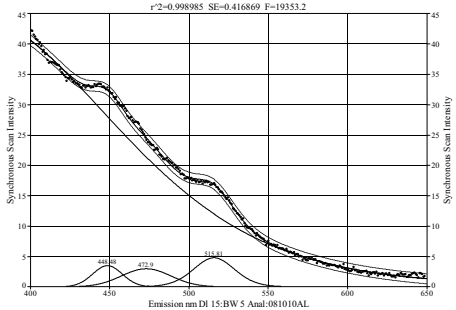
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 23.3031777 | 380.479129 | 113.229559 | 1.00000006 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.87752375 | 452.066663 | 49.4073769 | 1.00000000 | 99.1446689 | 1.00000000 |
| 3 | Pearson VII Area | 1.25826764 | 492.340517 | 10.8469799 | 1.00000001 | 22.6542366 | 1.00000001 |
| 4 | Pearson VII Area | 2.62678016 | 531.009670 | 49.2325984 | 1.00000000 | 99.3799486 | 1.00000000 |
| 5 | Pearson VII Area | 30.5793542 | 565.780628 | 21.5498252 | 1.00000001 | 45.2490096 | 1.00000000 |
| 6 | Pearson VII Area | 2.86459465 | 646.957112 | 20.0620398 | 0.99999999 | 41.1286789 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A47, In:080911 0835, Out:080923 1017

Pk=Pearson VII Area 4 Peaks
r^2=0.998985 SE=0.416869 F=19353.2




Description: Forestville North, Carbon, 23:A47, In:080911 0835, Out:080923 1017
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fna70923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99898484 | 0.99892959 | 0.41686863 | 19353.2205 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11036.6910 | 359.109129 | 219.122520 | 4.59967621 |
| 2 | Pearson VII Area | 81.9099555 | 448.483959 | 22.0102769 | 92.3153192 |
| 3 | Pearson VII Area | 116.436503 | 472.895751 | 36.6265428 | 167.850168 |
| 4 | Pearson VII Area | 162.200561 | 515.814880 | 30.8794653 | 7.64324922 |

**Measured Values**

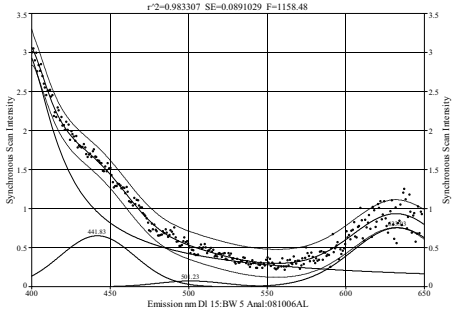
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 45.0181944 | 359.189498 | 468.670423 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.49221570 | 448.483959 | 22.0102769 | 1.00000000 | 44.2575275 | 1.00000000 |
| 3 | Pearson VII Area | 2.98289062 | 472.895751 | 36.6265428 | 1.00000000 | 73.4977253 | 1.00000000 |
| 4 | Pearson VII Area | 4.79607947 | 515.814879 | 30.8794653 | 1.00000013 | 65.3777719 | 1.00000007 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## LCCMR, Water, Eluent Blank, Sampled:081006 1010

Pk=Pearson VII Area 4 Peaks
r^2=0.983307 SE=0.0891029 F=1158.48




Description: LCCMR, Water, Eluent Blank, Sampled:081006 1010
X Variable: Emission nm Δλ 15:BW 5 Anal:081006AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080903-080911\eb081006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.98330708 | 0.98239862 | 0.08910291 | 1158.47748 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 2027.52013 | 395.881123 | 53.9535689 | 0.52516303 |
| 2 | Pearson VII Area | 38.9839075 | 441.828079 | 55.8741118 | 167.794183 |
| 3 | Pearson VII Area | 4.08956003 | 501.232701 | 50.1401052 | 19.0260821 |
| 4 | Pearson VII Area | 54.8683817 | 633.025579 | 67.5662097 | 24.8656332 |

**Measured Values**

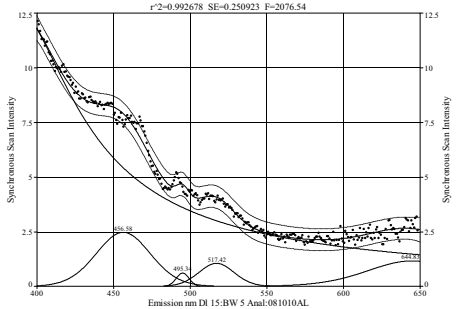
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 3.02783727 | 395.881135 | 53.9535689 | 0.99999910 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 0.65466430 | 441.828075 | 55.8741118 | 1.00000032 | 112.121517 | 1.00000017 |
| 3 | Pearson VII Area | 0.07579033 | 501.232701 | 50.1401052 | 1.00000000 | 102.611208 | 1.00000000 |
| 4 | Pearson VII Area | 0.75658063 | 633.025579 | 67.5662097 | 1.00000000 | 137.550176 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## F.N., Carbon, Watson Creek/Stagecoach DS, In:080911 1059, Out:080923 0759

Pk=Pearson VII Area 5 Peaks
r^2=0.992678 SE=0.250923 F=2076.54




Description: F.N., Carbon, Watson Creek/Stagecoach DS, In:080911 1059, Out:080923 0759
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnwc0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99267839 | 0.99217345 | 0.25092287 | 2076.54439 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11965.8783 | 387.102719 | 115.907838 | 0.53983154 |
| 2 | Pearson VII Area | 111.868040 | 456.576344 | 41.7262364 | 13.4634066 |
| 3 | Pearson VII Area | 6.54115813 | 495.339269 | 9.96155935 | 166.312700 |
| 4 | Pearson VII Area | 31.1696656 | 517.423781 | 27.0832210 | 12.2307460 |
| 5 | Pearson VII Area | 89.3378188 | 644.833977 | 69.0674706 | 6.08870593 |

**Measured Values**

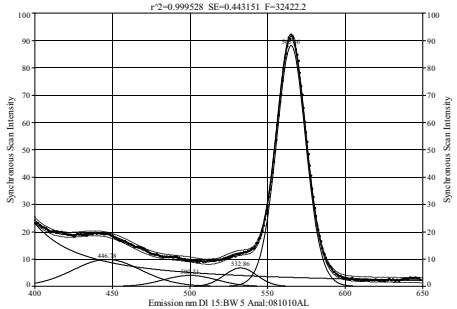
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 12.6063434 | 387.102719 | 115.907838 | 1.00000003 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.47955528 | 456.576342 | 41.7262364 | 1.00000018 | 86.1902883 | 1.00000009 |
| 3 | Pearson VII Area | 0.61612179 | 495.339269 | 9.96155935 | 1.00000000 | 19.9901140 | 1.00000000 |
| 4 | Pearson VII Area | 1.06265385 | 517.423782 | 27.0832210 | 0.99999984 | 56.1243496 | 0.99999991 |
| 5 | Pearson VII Area | 1.17165381 | 644.833977 | 69.0674706 | 1.00000000 | 148.418740 | 1.00000000 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Moth/Grabau Spring D.S., In:080911 0940, Out:080923 0

Pk=Pearson VII Area 5 Peaks
r^2=0.999528 SE=0.443151 F=32422.2




Description: Forestville North, Carbon, Moth/Grabau Spring D.S., In:080911 0940, Out:080923 0
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnmg0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99952784 | 0.99949527 | 0.44315104 | 32422.2025 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 34783.0577 | 375.877889 | 55.7758221 | 0.52074311 |
| 2 | Pearson VII Area | 556.383625 | 446.782631 | 51.9816378 | 16.2534522 |
| 3 | Pearson VII Area | 173.929072 | 500.312755 | 40.0716390 | 167.919409 |
| 4 | Pearson VII Area | 179.266954 | 532.856474 | 24.6902495 | 114.689767 |
| 5 | Pearson VII Area | 2135.82004 | 565.461298 | 22.1873187 | 8.49212487 |

**Measured Values**

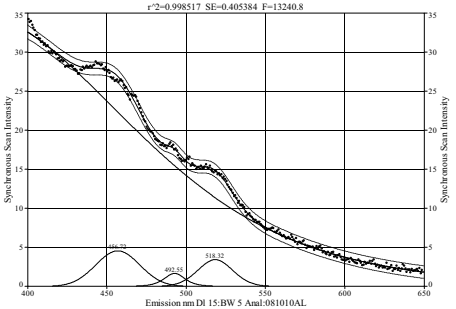
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 41.9795701 | 376.027397 | 55.7788559 | 0.98933567 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 9.92678201 | 446.782631 | 51.9816378 | 1.00000001 | 106.787994 | 1.00000000 |
| 3 | Pearson VII Area | 4.07267160 | 500.312755 | 40.0716390 | 1.00000002 | 80.4108462 | 1.00000001 |
| 4 | Pearson VII Area | 6.80886798 | 532.856474 | 24.6902495 | 0.99999992 | 49.6025252 | 0.99999995 |
| 5 | Pearson VII Area | 88.1626733 | 565.461298 | 22.1873187 | 0.99999997 | 46.7050663 | 0.99999999 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Freiheit Spring, In:080911 0901, Out:080923 0948

Pk=Pearson VII Area 4 Peaks
r^2=0.998517 SE=0.405384 F=13240.8




Description: Forestville North, Carbon, Freiheit Spring, In:080911 0901, Out:080923 0948
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnfs0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99851689 | 0.99843618 | 0.40538352 | 13240.7953 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 9424.98370 | 362.814477 | 236.600252 | 3.71692884 |
| 2 | Pearson VII Area | 158.969586 | 456.720742 | 32.6602901 | 167.832990 |
| 3 | Pearson VII Area | 31.3720227 | 492.547765 | 15.4865992 | 2.14999307 |
| 4 | Pearson VII Area | 97.6853502 | 518.324240 | 26.1905062 | 13.5549761 |

**Measured Values**

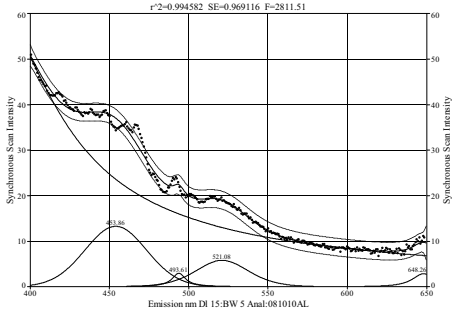
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 35.1167376 | 362.899543 | 481.114640 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.56707405 | 456.720742 | 32.6602901 | 1.00000001 | 65.5387448 | 1.00000001 |
| 3 | Pearson VII Area | 1.68065100 | 492.547765 | 15.4865992 | 1.00000000 | 38.4185407 | 1.00000000 |
| 4 | Pearson VII Area | 3.44993067 | 518.324241 | 26.1905062 | 0.99999975 | 54.0877875 | 0.99999987 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X113, In:080911 1032, Out:080923 0821

Pk=Pearson VII Area 5 Peaks
r^2=0.994582 SE=0.969116 F=2811.51




Description: Forestville North, Carbon, 23:X113, In:080911 1032, Out:080923 0821
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnx30923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99458198 | 0.99420832 | 0.96911577 | 2811.50743 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1.6662e+05 | 379.714289 | 111.779298 | 0.51195810 |
| 2 | Pearson VII Area | 655.508926 | 453.857408 | 45.9602577 | 27.3649024 |
| 3 | Pearson VII Area | 55.9581421 | 493.609121 | 10.4173301 | 0.85834020 |
| 4 | Pearson VII Area | 257.210670 | 521.084155 | 39.5399121 | 4.72300301 |
| 5 | Pearson VII Area | 69.1051733 | 648.262675 | 16.8471550 | 1.18899762 |

**Measured Values**

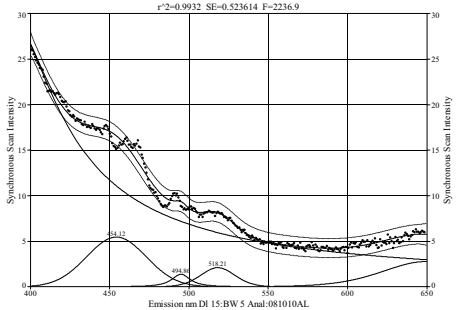
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 59.4409645 | 379.737443 | 111.779335 | 0.99917179 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 13.2982643 | 453.857406 | 45.9602577 | 1.00000016 | 93.4197558 | 1.00000008 |
| 3 | Pearson VII Area | 3.00371819 | 493.609121 | 10.4173301 | 1.00000000 | 38.3854523 | 1.00000000 |
| 4 | Pearson VII Area | 5.82272483 | 521.084155 | 39.5399121 | 1.00000000 | 86.8143700 | 1.00000000 |
| 5 | Pearson VII Area | 2.88244866 | 648.262675 | 16.8471550 | 1.00000004 | 51.1838944 | 1.00000002 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Root Spring D.S./23:A95, In:080911 0935, Out:080923 0

Pk=Pearson VII Area 5 Peaks
r^2=0.9932 SE=0.523614 F=2236.9




Description: Forestville North, Carbon, Root Spring D.S./23:A95, In:080911 0935, Out:080923 0
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnrs0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99319968 | 0.99273069 | 0.52361397 | 2236.90000 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 67437.3505 | 385.910673 | 95.1130107 | 0.51264577 |
| 2 | Pearson VII Area | 257.188707 | 454.121107 | 44.1205793 | 167.889747 |
| 3 | Pearson VII Area | 28.2061567 | 494.857629 | 13.9460899 | 1.13851396 |
| 4 | Pearson VII Area | 59.6392122 | 518.214821 | 25.8167281 | 7.97968463 |
| 5 | Pearson VII Area | 206.644264 | 650.126183 | 66.1281264 | 4.56107114 |

**Measured Values**

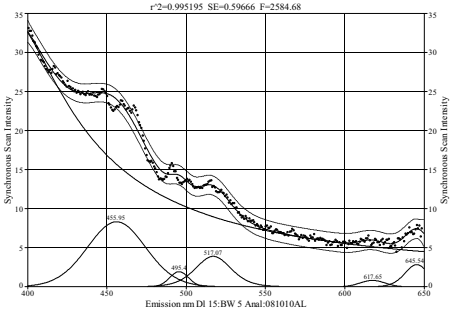
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 29.8357191 | 385.910672 | 95.1130107 | 1.00000002 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.46959177 | 454.121107 | 44.1205793 | 1.00000000 | 88.5358015 | 1.00000000 |
| 3 | Pearson VII Area | 1.39132400 | 494.857629 | 13.9460899 | 1.00000000 | 43.2867049 | 1.00000000 |
| 4 | Pearson VII Area | 2.11200112 | 518.214821 | 25.8167281 | 1.00000000 | 54.5261467 | 1.00000000 |
| 5 | Pearson VII Area | 2.79075563 | 649.429224 | 66.1452266 | 1.04305451 | 145.701540 | 1.02129818 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu


Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Mahood's Creek, In:080911 0841, Out:080923 1023

Pk=Pearson VII Area 6 Peaks
r^2=0.995195 SE=0.59666 F=2584.68




Description: Forestville North, Carbon, Mahood's Creek, In:080911 0841, Out:080923 1023
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnmc0923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99519543 | 0.99479225 | 0.59666048 | 2584.68473 |

| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1.0284e+05 | 385.561120 | 121.973418 | 0.51252424 |
| 2 | Pearson VII Area | 391.025995 | 455.952821 | 43.4299283 | 14.8846831 |
| 3 | Pearson VII Area | 29.0339462 | 495.397630 | 13.9504193 | 82.2689324 |
| 4 | Pearson VII Area | 118.236246 | 517.066482 | 26.7579050 | 4.07904749 |
| 5 | Pearson VII Area | 16.3681001 | 617.654016 | 18.6032974 | 167.504862 |
| 6 | Pearson VII Area | 56.1682466 | 645.541830 | 17.7874314 | 5.68205660 |

**Measured Values**

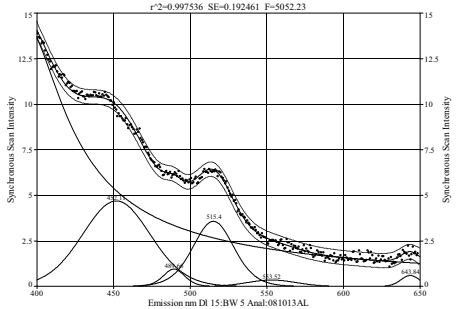
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 35.1523523 | 385.561120 | 121.973418 | 0.99999998 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.34002099 | 455.952821 | 43.4299283 | 1.00000000 | 89.4364358 | 1.00000000 |
| 3 | Pearson VII Area | 1.95035804 | 495.397630 | 13.9504193 | 1.00000000 | 28.0665512 | 1.00000000 |
| 4 | Pearson VII Area | 3.92068481 | 517.066482 | 26.7579050 | 1.00000000 | 59.6618884 | 1.00000000 |
| 5 | Pearson VII Area | 0.82556517 | 617.654016 | 18.6032974 | 0.99999989 | 37.3310429 | 0.99999994 |
| 6 | Pearson VII Area | 2.85209025 | 645.541830 | 17.7874314 | 0.99999999 | 38.4257535 | 0.99999999 |


Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A48, In:080923 1017, Out:081006 1021

Pk=Pearson VII Area 6 Peaks
r^2=0.997536 SE=0.192461 F=5052.23




Description: Forestville North, Carbon, 23:A48, In:080923 1017, Out:081006 1021
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fna81006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99753623 | 0.99732948 | 0.19246053 | 5052.23163 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 28383.2326 | 391.571291 | 81.6893513 | 0.51258863 |
| 2 | Pearson VII Area | 265.441797 | 452.109225 | 52.2821869 | 13.8553927 |
| 3 | Pearson VII Area | 17.9090924 | 489.658148 | 16.5497164 | 4.19362603 |
| 4 | Pearson VII Area | 125.697876 | 515.399187 | 31.6015426 | 5.30729951 |
| 5 | Pearson VII Area | 14.3794807 | 553.517144 | 38.1852475 | 167.450191 |
| 6 | Pearson VII Area | 9.53760476 | 643.839310 | 14.4129130 | 9.66286538 |

**Measured Values**

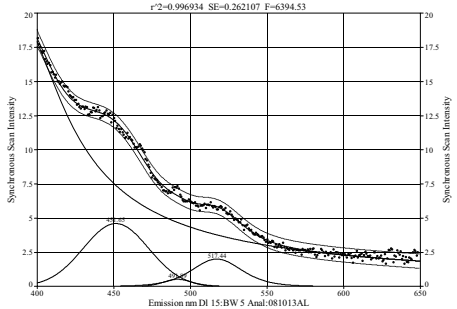
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 14.5570882 | 391.723744 | 81.6915512 | 0.99256292 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.69778038 | 452.109225 | 52.2821869 | 1.00000000 | 107.897207 | 1.00000000 |
| 3 | Pearson VII Area | 0.96188190 | 489.658148 | 16.5497164 | 1.00000000 | 36.7864159 | 1.00000000 |
| 4 | Pearson VII Area | 3.58148445 | 515.399188 | 31.6015426 | 0.99999996 | 68.6523724 | 0.99999998 |
| 5 | Pearson VII Area | 0.35333808 | 553.517144 | 38.1852475 | 1.00000000 | 76.6260004 | 1.00000000 |
| 6 | Pearson VII Area | 0.60803865 | 643.839310 | 14.4129130 | 1.00000001 | 30.1508186 | 1.00000001 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A36, In:080923 1007, Out:081006 1008

Pk=Pearson VII Area 4 Peaks
r^2=0.996934 SE=0.262107 F=6394.53




Description: Forestville North, Carbon, 23:A36, In:080923 1007, Out:081006 1008
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fna61006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99693388 | 0.99676702 | 0.26210672 | 6394.52868 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 44138.2321 | 388.853545 | 89.5338991 | 0.51187357 |
| 2 | Pearson VII Area | 247.057828 | 451.654329 | 50.2908549 | 167.890884 |
| 3 | Pearson VII Area | 12.5053423 | 491.894982 | 21.6894274 | 9.99981659 |
| 4 | Pearson VII Area | 88.8053827 | 517.442746 | 38.4516270 | 3.18056897 |

**Measured Values**

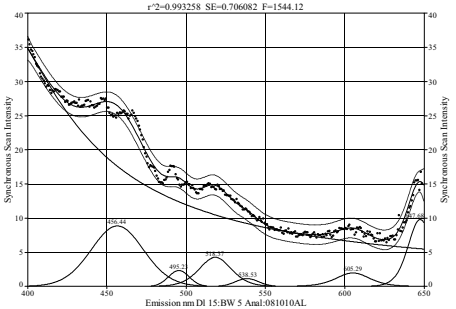
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 19.5248918 | 388.853564 | 89.5338991 | 0.99999917 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.60950010 | 451.654329 | 50.2908549 | 1.00000000 | 100.917557 | 1.00000000 |
| 3 | Pearson VII Area | 0.53019345 | 491.894982 | 21.6894274 | 1.00000000 | 45.3038665 | 1.00000000 |
| 4 | Pearson VII Area | 2.01004434 | 517.442746 | 38.4516270 | 1.00000000 | 88.5763122 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X109, In:080911 1011, Out:080923 0830

Pk=Pearson VII Area 7 Peaks
r^2=0.993258 SE=0.706082 F=1544.12




Description: Forestville North, Carbon, 23:X109, In:080911 1011, Out:080923 0830
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\fnx90923

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99325776 | 0.99258832 | 0.70608222 | 1544.11785 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1.2143e+05 | 377.344715 | 133.480934 | 0.51334016 |
| 2 | Pearson VII Area | 372.895169 | 456.439566 | 38.9284211 | 14.6280385 |
| 3 | Pearson VII Area | 38.4239406 | 495.233195 | 15.3799506 | 167.893225 |
| 4 | Pearson VII Area | 115.545011 | 518.370187 | 24.2744579 | 5.11530568 |
| 5 | Pearson VII Area | 21.5192734 | 538.533261 | 17.1697051 | 22.1131522 |
| 6 | Pearson VII Area | 57.5742302 | 605.288439 | 25.1778076 | 3.14915433 |
| 7 | Pearson VII Area | 196.234342 | 647.684810 | 17.9219768 | 4.85936307 |

**Measured Values**

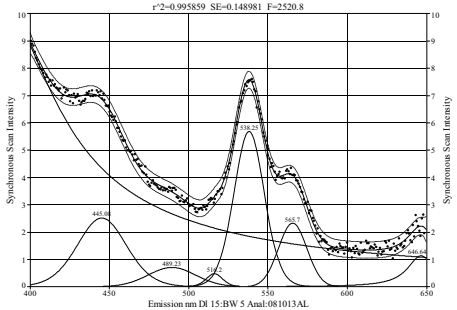
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 40.2961908 | 377.344714 | 133.480934 | 1.00000003 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.87072295 | 456.439566 | 38.9284211 | 1.00000000 | 80.2069244 | 1.00000000 |
| 3 | Pearson VII Area | 2.34418130 | 495.233195 | 15.3799506 | 1.00000001 | 30.8626090 | 1.00000001 |
| 4 | Pearson VII Area | 4.27831311 | 518.370187 | 24.2744579 | 1.00000000 | 52.9041994 | 1.00000000 |
| 5 | Pearson VII Area | 1.16645218 | 538.533258 | 17.1697051 | 1.00000061 | 35.0281076 | 1.00000033 |
| 6 | Pearson VII Area | 1.98836143 | 605.288440 | 25.1778076 | 0.99999989 | 58.0860004 | 0.99999995 |
| 7 | Pearson VII Area | 9.81575875 | 647.684810 | 17.9219768 | 0.99999994 | 39.2430508 | 0.99999997 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Forestville Creek, In:080923 0916, Out:081006 0931

Pk=Pearson VII Area 7 Peaks
r^2=0.995859 SE=0.148981 F=2520.8




Description: Forestville North, Carbon, Forestville Creek, In:080923 0916, Out:081006 0931
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnfc1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99585921 | 0.99544807 | 0.14898127 | 2520.79717 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 30456.1157 | 383.797795 | 101.631769 | 0.51001702 |
| 2 | Pearson VII Area | 100.723910 | 445.080910 | 36.5451213 | 7.85940156 |
| 3 | Pearson VII Area | 27.2276774 | 489.228377 | 35.4717808 | 16.1628344 |
| 4 | Pearson VII Area | 6.80506652 | 516.200695 | 12.5735845 | 5.12972564 |
| 5 | Pearson VII Area | 139.763953 | 538.248305 | 22.5292469 | 8.78385647 |
| 6 | Pearson VII Area | 52.4384403 | 565.702495 | 21.1025579 | 167.844173 |
| 7 | Pearson VII Area | 37.4973348 | 646.642337 | 20.8411781 | 0.99164200 |

**Measured Values**

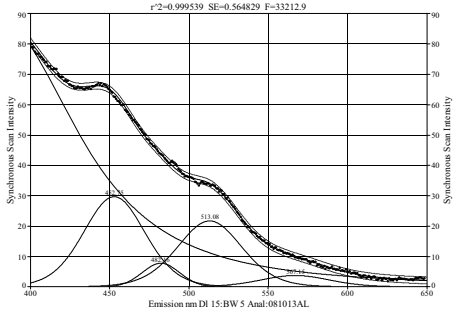
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 10.0712260 | 384.018265 | 101.635492 | 0.99136060 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.51867675 | 445.080910 | 36.5451213 | 1.00000001 | 77.2502928 | 1.00000000 |
| 3 | Pearson VII Area | 0.71183491 | 489.228378 | 35.4717808 | 0.99999995 | 72.8818815 | 0.99999998 |
| 4 | Pearson VII Area | 0.48652418 | 516.200695 | 12.5735845 | 1.00000026 | 27.3962606 | 1.00000013 |
| 5 | Pearson VII Area | 5.68675656 | 538.248306 | 22.5292469 | 0.99999986 | 47.3435409 | 0.99999993 |
| 6 | Pearson VII Area | 2.33162524 | 565.702493 | 21.1025579 | 1.00000041 | 42.3460699 | 1.00000023 |
| 7 | Pearson VII Area | 1.13869015 | 646.642337 | 20.8411781 | 1.00000001 | 69.8205032 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:A47, In:080923 1017, Out:081006 1018

Pk=Pearson VII Area 5 Peaks
r^2=0.999539 SE=0.564829 F=33212.9




Description: Forestville North, Carbon, 23:A47, In:080923 1017, Out:081006 1018
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fna71006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99953907 | 0.99950728 | 0.56482935 | 33212.8772 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 13397.0628 | 381.616282 | 113.822064 | 1.34130353 |
| 2 | Pearson VII Area | 1485.99009 | 452.746778 | 45.6770244 | 7.62943809 |
| 3 | Pearson VII Area | 229.901292 | 482.164221 | 27.7205211 | 167.897118 |
| 4 | Pearson VII Area | 1154.97944 | 513.076151 | 48.3212785 | 6.65942102 |
| 5 | Pearson VII Area | 210.331343 | 567.152515 | 51.3304812 | 7.83706149 |

**Measured Values**

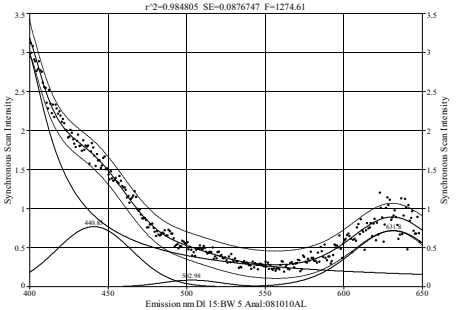
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 86.9454926 | 381.616283 | 113.822064 | 0.99999997 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 29.7028274 | 452.746780 | 45.6770244 | 0.99999984 | 96.7171694 | 0.99999992 |
| 3 | Pearson VII Area | 7.78187534 | 482.164221 | 27.7205211 | 0.99999999 | 55.6261573 | 1.00000000 |
| 4 | Pearson VII Area | 21.7245223 | 513.076151 | 48.3212785 | 1.00000002 | 103.186323 | 1.00000001 |
| 5 | Pearson VII Area | 3.74421823 | 567.152515 | 51.3304812 | 1.00000000 | 108.521434 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## LCCMR, Water, Eluent Blank, Sampled:081010 1020

Pk=Pearson VII Area 4 Peaks
r^2=0.984805 SE=0.0876747 F=1274.61




Description: LCCMR, Water, Eluent Blank, Sampled:081010 1020
X Variable: Emission nm Δλ 15:BW 5 Anal:081010AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville080911-080923\eb081010

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.98480487 | 0.98397793 | 0.08767472 | 1274.60774 |

| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 2107.08488 | 394.823757 | 48.7419407 | 0.52286596 |
| 2 | Pearson VII Area | 47.0648571 | 440.849148 | 56.9375717 | 40.2030125 |
| 3 | Pearson VII Area | 4.10575909 | 502.977317 | 44.3862627 | 167.861546 |
| 4 | Pearson VII Area | 49.4618675 | 631.795815 | 62.5897159 | 7.65503303 |

**Measured Values**

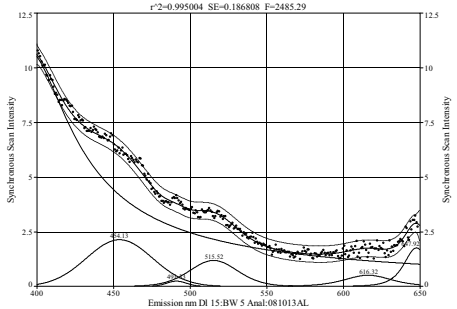
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 3.18724929 | 394.863014 | 48.7421788 | 0.99678357 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 0.77260118 | 440.849148 | 56.9375717 | 1.00000000 | 115.164170 | 1.00000000 |
| 3 | Pearson VII Area | 0.08679386 | 502.977317 | 44.3862627 | 1.00000000 | 89.0689796 | 1.00000000 |
| 4 | Pearson VII Area | 0.72159218 | 631.795815 | 62.5897159 | 1.00000000 | 132.502690 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## F.N., Carbon, Watson Creek/Stagecoach DS, In:080923 0759, Out:081006 1147

Pk=Pearson VII Area 6 Peaks
r^2=0.995004 SE=0.186808 F=2485.29




Description: F.N., Carbon, Watson Creek/Stagecoach DS, In:080923 0759, Out:081006 1147
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnwc1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99500423 | 0.99458501 | 0.18680844 | 2485.28731 |

| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 18354.8326 | 394.113900 | 87.8303252 | 0.51569183 |
| 2 | Pearson VII Area | 115.923739 | 454.133962 | 50.8047156 | 167.890058 |
| 3 | Pearson VII Area | 4.17088032 | 491.329840 | 15.6444666 | 10.2412363 |
| 4 | Pearson VII Area | 48.7198884 | 515.518968 | 37.0001859 | 6.16885847 |
| 5 | Pearson VII Area | 22.2468812 | 616.324052 | 36.3440370 | 2.42961278 |
| 6 | Pearson VII Area | 40.6279426 | 647.916868 | 18.8962788 | 2.02599427 |

**Measured Values**

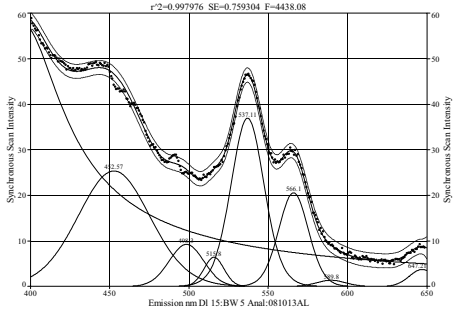
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 10.8089390 | 394.292237 | 87.8331024 | 0.99191118 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.14097985 | 454.133962 | 50.8047156 | 1.00000000 | 101.948711 | 1.00000000 |
| 3 | Pearson VII Area | 0.24529296 | 491.329841 | 15.6444666 | 0.99999974 | 32.6439160 | 0.99999986 |
| 4 | Pearson VII Area | 1.19334318 | 515.518968 | 37.0001859 | 1.00000000 | 79.4335346 | 1.00000000 |
| 5 | Pearson VII Area | 0.51706024 | 616.324053 | 36.3440370 | 0.99999991 | 87.7758140 | 0.99999996 |
| 6 | Pearson VII Area | 1.76593701 | 647.916868 | 18.8962788 | 0.99999937 | 47.5605419 | 0.99999999 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## F.N., Carbon, Moth/Grabau Spring DS, In:080923 0845, Out:081006 0904

Pk=Pearson VII Area 8 Peaks
r^2=0.997976 SE=0.759304 F=4438.08




Description: F.N., Carbon, Moth/Grabau Spring DS, In:080923 0845, Out:081006 0904
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnmg1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99797620 | 0.99774324 | 0.75930353 | 4438.07992 |

| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1.095e+05 | 395.175899 | 79.6338013 | 0.51259176 |
| 2 | Pearson VII Area | 1471.44367 | 452.574289 | 53.6532950 | 13.6170070 |
| 3 | Pearson VII Area | 254.558925 | 498.303258 | 25.7123944 | 36.2412847 |
| 4 | Pearson VII Area | 104.526123 | 515.795354 | 15.1624617 | 44.1911807 |
| 5 | Pearson VII Area | 997.443260 | 537.112958 | 24.5933272 | 7.22115035 |
| 6 | Pearson VII Area | 493.182007 | 566.096194 | 22.1012000 | 11.8555099 |
| 7 | Pearson VII Area | 31.6746831 | 589.803495 | 21.5389760 | 25.4930361 |
| 8 | Pearson VII Area | 76.1688423 | 647.205276 | 19.0276216 | 43.5719706 |

**Measured Values**

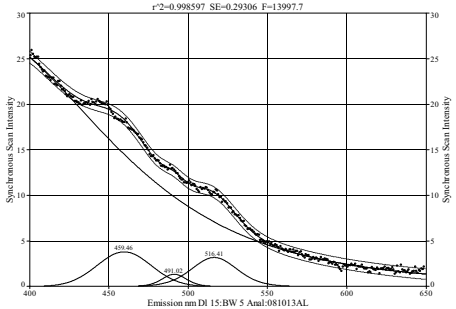
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 57.6214236 | 395.433790 | 79.6402587 | 0.98713057 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 25.3690433 | 452.574289 | 53.6532950 | 1.00000000 | 110.787028 | 1.00000000 |
| 3 | Pearson VII Area | 9.24821522 | 498.303260 | 25.7123944 | 0.99999972 | 52.0664597 | 0.99999985 |
| 4 | Pearson VII Area | 6.44636278 | 515.795354 | 15.1624617 | 1.00000015 | 30.6392587 | 1.00000008 |
| 5 | Pearson VII Area | 36.9651844 | 537.112959 | 24.5933272 | 0.99999994 | 52.2452740 | 0.99999997 |
| 6 | Pearson VII Area | 20.5921675 | 566.096194 | 22.1012000 | 1.00000000 | 45.8514012 | 1.00000000 |
| 7 | Pearson VII Area | 1.37037864 | 589.803496 | 21.5389760 | 0.99999991 | 43.8303112 | 0.99999995 |
| 8 | Pearson VII Area | 3.74303211 | 647.205278 | 19.0276216 | 0.99999945 | 38.4549047 | 0.99999970 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Freiheit Spring, In:080923 0946, Out:081006 1110

Pk=Pearson VII Area 4 Peaks
r^2=0.998597 SE=0.29306 F=13997.7




Description: Forestville North, Carbon, Freiheit Spring, In:080923 0946, Out:081006 1110
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnfs1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99859698 | 0.99852063 | 0.29305968 | 13997.7178 |

| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 6923.56827 | 360.676519 | 201.261489 | 2.10309447 |
| 2 | Pearson VII Area | 163.328841 | 459.458504 | 40.2375681 | 167.905133 |
| 3 | Pearson VII Area | 27.3001302 | 491.022463 | 18.2815747 | 5.38188427 |
| 4 | Pearson VII Area | 119.358711 | 516.412598 | 33.9678850 | 6.64621350 |

**Measured Values**

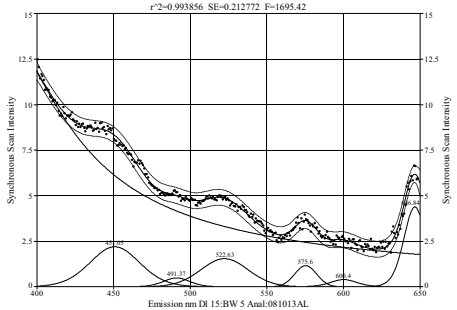
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 28.4371253 | 360.901826 | 461.307614 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 3.80868828 | 459.458504 | 40.2375681 | 1.00000000 | 80.7438293 | 1.00000000 |
| 3 | Pearson VII Area | 1.34548285 | 491.022461 | 18.2815747 | 1.00000026 | 39.6686550 | 1.00000013 |
| 4 | Pearson VII Area | 3.19351493 | 516.412598 | 33.9678850 | 1.00000000 | 72.5454136 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, 23:X106, In:080923 0938, Out:081006 1115

Pk=Pearson VII Area 7 Peaks
r^2=0.993856 SE=0.212772 F=1695.42




Description: Forestville North, Carbon, 23:X106, In:080923 0938, Out:081006 1115
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnx61006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99385574 | 0.99324567 | 0.21277247 | 1695.41564 |

| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 39964.1381 | 376.786529 | 124.544440 | 0.51318347 |
| 2 | Pearson VII Area | 91.8564457 | 451.051530 | 38.2159607 | 8.85132484 |
| 3 | Pearson VII Area | 11.1407737 | 491.368445 | 20.5748179 | 5.93596986 |
| 4 | Pearson VII Area | 60.7489497 | 522.630701 | 36.4050863 | 18.0776331 |
| 5 | Pearson VII Area | 20.9339824 | 575.601264 | 16.8531106 | 167.766014 |
| 6 | Pearson VII Area | 9.33398451 | 600.403012 | 20.5244838 | 3.76061762 |
| 7 | Pearson VII Area | 81.4215177 | 646.837726 | 16.8570847 | 6.68169998 |

**Measured Values**

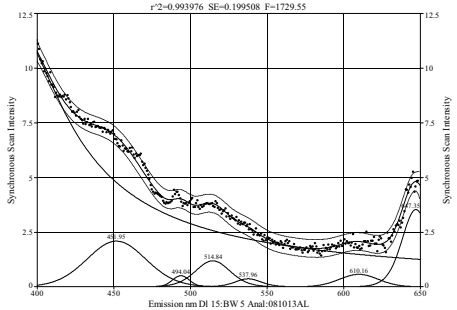
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 14.0532227 | 376.883562 | 124.545024 | 0.99688845 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.20377656 | 451.051530 | 38.2159607 | 1.00000000 | 80.2774733 | 1.00000000 |
| 3 | Pearson VII Area | 0.48996916 | 491.368445 | 20.5748179 | 1.00000000 | 44.2970273 | 1.00000000 |
| 4 | Pearson VII Area | 1.54968077 | 522.630701 | 36.4050863 | 1.00000000 | 74.5902955 | 1.00000000 |
| 5 | Pearson VII Area | 1.16550898 | 575.601264 | 16.8531106 | 1.00000009 | 33.8188303 | 1.00000005 |
| 6 | Pearson VII Area | 0.40125139 | 600.403012 | 20.5244838 | 1.00000001 | 46.2081611 | 1.00000000 |
| 7 | Pearson VII Area | 4.39059342 | 646.837729 | 16.8570847 | 0.99999937 | 35.9889632 | 0.99999967 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## F.N., Carbon, Root Spring D.S./23:A95, In:080923 0845, Out:081006 0859

Pk=Pearson VII Area 7 Peaks
r^2=0.993976 SE=0.199508 F=1729.55




Description: F.N., Carbon, Root Spring D.S./23:A95, In:080923 0845, Out:081006 0859
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnrs1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99397629 | 0.99337819 | 0.19950769 | 1729.55487 |

| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 24839.1316 | 385.701194 | 100.801284 | 0.51464829 |
| 2 | Pearson VII Area | 102.216472 | 451.952085 | 45.2460757 | 15.7481409 |
| 3 | Pearson VII Area | 7.14512172 | 494.040077 | 13.1418985 | 167.836853 |
| 4 | Pearson VII Area | 35.0564021 | 514.841464 | 26.6901731 | 6.57839703 |
| 5 | Pearson VII Area | 8.42629544 | 537.961582 | 20.0729791 | 3.86287260 |
| 6 | Pearson VII Area | 18.4502113 | 610.163569 | 29.9783506 | 24.8415827 |
| 7 | Pearson VII Area | 84.2998283 | 647.350549 | 21.4763230 | 5.43932305 |

**Measured Values**

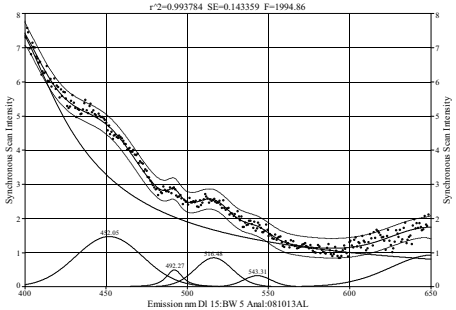
| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11.9365196 | 385.730594 | 100.801350 | 0.99883405 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.09429723 | 451.952085 | 45.2460757 | 1.00000000 | 93.0294522 | 1.00000000 |
| 3 | Pearson VII Area | 0.51014729 | 494.040077 | 13.1418985 | 0.99999995 | 26.3715809 | 0.99999997 |
| 4 | Pearson VII Area | 1.19326707 | 514.841465 | 26.6901731 | 0.99999984 | 57.0417792 | 0.99999992 |
| 5 | Pearson VII Area | 0.37109164 | 537.961584 | 20.0729791 | 0.99999957 | 45.0432264 | 0.99999979 |
| 6 | Pearson VII Area | 0.57339337 | 610.163568 | 29.9783506 | 1.00000008 | 61.0304386 | 1.00000004 |
| 7 | Pearson VII Area | 3.53839555 | 647.350550 | 21.4763230 | 0.99999981 | 46.5595109 | 0.99999990 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs

## Forestville North, Carbon, Mahood's Creek, In:080923 1023, Out:081006 1033

Pk=Pearson VII Area 6 Peaks
r^2=0.993784 SE=0.143359 F=1994.86




Description: Forestville North, Carbon, Mahood's Creek, In:080923 1023, Out:081006 1033
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: I:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnmc1006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99378368 | 0.99326203 | 0.14335862 | 1994.85948 |

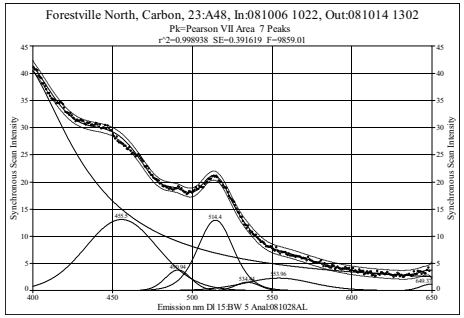
| Peak | Type | a0 | a1 | a2 | a3 |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15340.0056 | 389.420932 | 97.4672196 | 0.51512303 |
| 2 | Pearson VII Area | 76.2217287 | 452.053396 | 48.5322728 | 167.906142 |
| 3 | Pearson VII Area | 8.09042367 | 492.271931 | 11.7783102 | 1.28330492 |
| 4 | Pearson VII Area | 25.0460194 | 516.483383 | 27.2095788 | 13.9141020 |
| 5 | Pearson VII Area | 7.29804467 | 543.314944 | 20.4290934 | 8.84300158 |
| 6 | Pearson VII Area | 62.8038635 | 651.426238 | 62.3049629 | 16.2630209 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 7.85888614 | 389.726027 | 97.4745548 | 0.99755788 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 1.47364353 | 452.053396 | 48.5322728 | 1.00000000 | 97.3886267 | 1.00000000 |
| 3 | Pearson VII Area | 0.49889328 | 492.271933 | 11.7783102 | 0.99999930 | 34.5540247 | 0.99999973 |
| 4 | Pearson VII Area | 0.85177131 | 516.483381 | 27.2095788 | 1.00000027 | 56.1463338 | 1.00000015 |
| 5 | Pearson VII Area | 0.32752882 | 543.314943 | 20.4290934 | 1.00000009 | 42.9159015 | 1.00000005 |
| 6 | Pearson VII Area | 0.93038369 | 648.858447 | 62.5254427 | 1.17897170 | 128.072183 | 1.09216633 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, 23:A48, In:081006 1022, Out:081014 1302
X Variable: Emission nm Δλ 15:BW 5 Anal:081028AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081006-081014\fna81014

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99893799 | 0.99883254 | 0.39161918 | 9859.00641 |

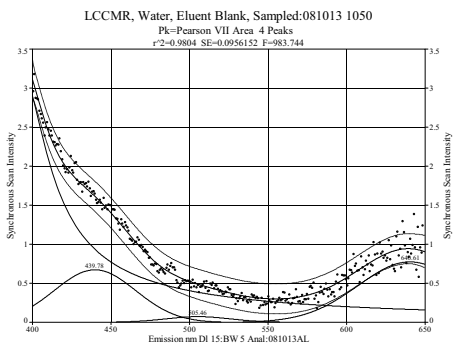
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 9418.85709 | 389.643959 | 91.9509659 | 0.70343747 |
| 2 | Pearson VII Area | 757.440183 | 455.503416 | 53.5525521 | 14.7853848 |
| 3 | Pearson VII Area | 78.2177748 | 490.937937 | 19.0527361 | 13.7374701 |
| 4 | Pearson VII Area | 381.907732 | 514.403759 | 26.3403485 | 4.76133447 |
| 5 | Pearson VII Area | 29.3769288 | 534.436411 | 17.7425347 | 167.907207 |
| 6 | Pearson VII Area | 129.052092 | 553.961520 | 50.3485592 | 5.70738423 |
| 7 | Pearson VII Area | 21.4281084 | 649.597120 | 16.4011912 | 13.7804248 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 42.9339011 | 389.873418 | 91.9540336 | 0.99006811 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 13.1001450 | 455.503416 | 53.5525521 | 1.00000000 | 110.303586 | 1.00000000 |
| 3 | Pearson VII Area | 3.79809905 | 490.937937 | 19.0527361 | 1.00000000 | 39.3305066 | 1.00000000 |
| 4 | Pearson VII Area | 12.9837532 | 514.403759 | 26.3403485 | 1.00000001 | 57.7881597 | 1.00000001 |
| 5 | Pearson VII Area | 1.55358496 | 534.436411 | 17.7425347 | 1.00000000 | 35.6035470 | 1.00000000 |
| 6 | Pearson VII Area | 2.31551368 | 553.961520 | 50.3485592 | 1.00000000 | 108.728504 | 1.00000000 |
| 7 | Pearson VII Area | 1.20810676 | 649.367089 | 16.4079751 | 1.05769558 | 33.8560904 | 1.03032806 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: LCCMR, Water, Eluent Blank, Sampled:081013 1050
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\eb081013

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.98040018 | 0.97933352 | 0.09561515 | 983.743736 |

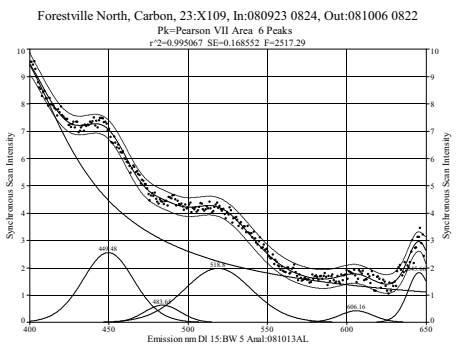
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 1596.09569 | 392.734789 | 50.8931636 | 0.53284665 |
| 2 | Pearson VII Area | 44.0003219 | 439.777139 | 61.1380345 | 167.893860 |
| 3 | Pearson VII Area | 4.17259306 | 505.455611 | 50.1749991 | 5.58722136 |
| 4 | Pearson VII Area | 65.0299931 | 640.614607 | 78.1700704 | 37.2627837 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 3.21663001 | 393.721461 | 51.0334658 | 0.92554376 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 0.67528736 | 439.777143 | 61.1380345 | 0.99999971 | 122.684349 | 0.99999984 |
| 3 | Pearson VII Area | 0.07505565 | 505.455611 | 50.1749991 | 0.99999997 | 108.537896 | 0.99999998 |
| 4 | Pearson VII Area | 0.77723738 | 640.614607 | 78.1700704 | 1.00000000 | 158.240513 | 1.00000000 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, 23:X109, In:080923 0824, Out:081006 0822
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnx91006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99506742 | 0.99465350 | 0.16855190 | 2517.28696 |

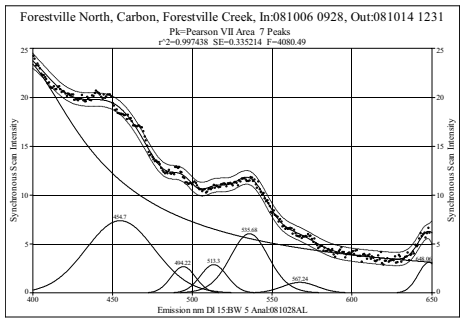
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 29898.7188 | 389.632662 | 104.725900 | 0.51039533 |
| 2 | Pearson VII Area | 105.953602 | 449.484912 | 38.1004205 | 10.5504002 |
| 3 | Pearson VII Area | 18.2015095 | 483.647642 | 26.9082577 | 167.181053 |
| 4 | Pearson VII Area | 109.062205 | 518.801756 | 50.8354931 | 12.8357013 |
| 5 | Pearson VII Area | 11.7964293 | 606.159505 | 25.1867110 | 8.74256615 |
| 6 | Pearson VII Area | 34.5529863 | 645.659355 | 17.1120735 | 5.95199415 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 9.94554628 | 389.726027 | 104.726547 | 0.99644027 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.56025907 | 449.484912 | 38.1004205 | 1.00000000 | 79.4019071 | 1.00000000 |
| 3 | Pearson VII Area | 0.63469318 | 483.647640 | 26.9082577 | 1.00000029 | 53.9967805 | 1.00000016 |
| 4 | Pearson VII Area | 1.98260904 | 518.801756 | 50.8354931 | 1.00000000 | 105.170949 | 1.00000000 |
| 5 | Pearson VII Area | 0.42928090 | 606.159503 | 25.1867110 | 1.00000032 | 52.9404808 | 1.00000017 |
| 6 | Pearson VII Area | 1.82734496 | 645.659356 | 17.1120735 | 0.99999994 | 36.8343301 | 0.99999997 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, Forestville Creek, In:081006 0928, Out:081014 1231
X Variable: Emission nm Δλ 15:BW 5 Anal:081028AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081006-081014\fnfc1014

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99743790 | 0.99718351 | 0.33521374 | 4080.48913 |

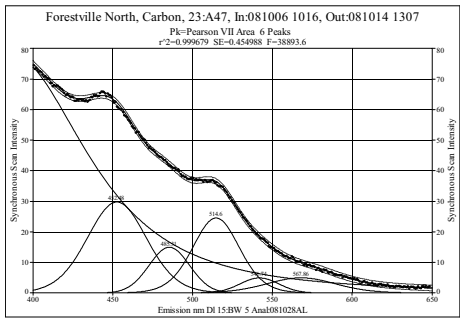
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 80240.7488 | 390.055736 | 120.396928 | 0.51091663 |
| 2 | Pearson VII Area | 400.459356 | 454.695387 | 50.7025288 | 67.0651920 |
| 3 | Pearson VII Area | 51.9745952 | 494.223965 | 18.0754118 | 167.902069 |
| 4 | Pearson VII Area | 61.5166086 | 513.304766 | 19.7573965 | 26.2295734 |
| 5 | Pearson VII Area | 189.110510 | 535.680591 | 28.5112170 | 7.99900434 |
| 6 | Pearson VII Area | 30.3069753 | 567.238503 | 25.7865525 | 20.0317270 |
| 7 | Pearson VII Area | 52.9915248 | 648.063754 | 15.8047764 | 55.5960989 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 24.3396922 | 390.506329 | 120.410024 | 0.98514257 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 7.39740178 | 454.695386 | 50.7025288 | 1.00000009 | 102.125020 | 1.00000005 |
| 3 | Pearson VII Area | 2.69803251 | 494.223965 | 18.0754118 | 1.00000000 | 36.2715269 | 1.00000000 |
| 4 | Pearson VII Area | 2.90213008 | 513.304764 | 19.7573965 | 1.00000037 | 40.1861747 | 1.00000020 |
| 5 | Pearson VII Area | 6.06448552 | 535.680590 | 28.5112170 | 1.00000013 | 60.2090055 | 1.00000007 |
| 6 | Pearson VII Area | 1.09274005 | 567.238503 | 25.7865525 | 1.00000000 | 52.7126416 | 1.00000000 |
| 7 | Pearson VII Area | 3.13829577 | 648.063754 | 15.8047764 | 0.99999997 | 31.8750321 | 0.99999998 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, 23:A47, In:081006 1016, Out:081014 1307
X Variable: Emission nm Δλ 15:BW 5 Anal:081028AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081006-081014\fna71014

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.9996927 | 0.99965236 | 0.45498757 | 38893.5973 |

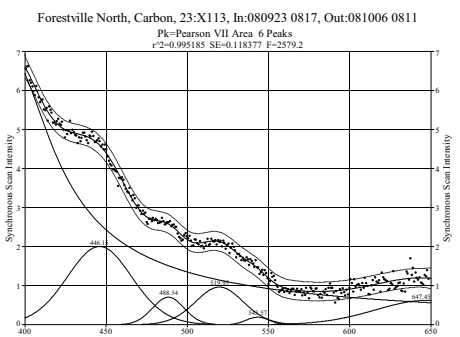
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 11601.2986 | 386.201774 | 112.393351 | 1.43294515 |
| 2 | Pearson VII Area | 1414.75532 | 452.476048 | 43.6844046 | 9.94503014 |
| 3 | Pearson VII Area | 476.056197 | 485.312539 | 29.8145623 | 116.462207 |
| 4 | Pearson VII Area | 932.738640 | 514.597244 | 34.6109854 | 7.10441254 |
| 5 | Pearson VII Area | 151.051653 | 541.740688 | 28.6416762 | 167.903391 |
| 6 | Pearson VII Area | 277.908481 | 567.855628 | 50.8878187 | 7.71322696 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 77.9991955 | 386.392405 | 112.394400 | 0.99323858 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 29.7774594 | 452.476048 | 43.6844046 | 1.00000000 | 91.2678512 | 1.00000000 |
| 3 | Pearson VII Area | 14.9741327 | 485.312539 | 29.8145623 | 0.99999998 | 59.8939131 | 0.99999999 |
| 4 | Pearson VII Area | 24.5490115 | 514.597244 | 34.6109854 | 1.00000000 | 73.6006848 | 1.00000000 |
| 5 | Pearson VII Area | 4.94847429 | 541.740691 | 28.6416762 | 0.99999962 | 57.4746136 | 0.99999979 |
| 6 | Pearson VII Area | 4.98783967 | 567.855628 | 50.8878187 | 0.99999995 | 107.682856 | 0.99999998 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, 23:X113, In:080923 0817, Out:081006 0811
X Variable: Emission nm Δλ 15:BW 5 Anal:081013AL
Y Variable: Synchronous Scan Intensity
File Source: f:\dyetracing\forestvillenorth071023_080313_080905\forestville080923-081006\fnx31006

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99518527 | 0.99478123 | 0.11837663 | 2579.20396 |

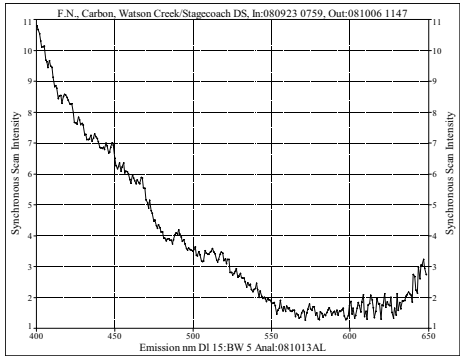
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15598.5720 | 392.609235 | 77.1050986 | 0.51000000 |
| 2 | Pearson VII Area | 102.974467 | 446.152206 | 47.3392218 | 12.3912975 |
| 3 | Pearson VII Area | 17.4813645 | 488.535917 | 22.9579691 | 23.1832251 |
| 4 | Pearson VII Area | 36.7463039 | 519.948218 | 34.9750546 | 11.8438645 |
| 5 | Pearson VII Area | 3.54909054 | 543.570791 | 16.8618978 | 167.838047 |
| 6 | Pearson VII Area | 50.9582604 | 647.451844 | 75.3586627 | 19.4480181 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 6.78746570 | 392.865297 | 77.1117188 | 0.99680498 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 2.00895529 | 446.152206 | 47.3392218 | 1.00000000 | 98.0558340 | 1.00000000 |
| 3 | Pearson VII Area | 0.70898387 | 488.535917 | 22.9579691 | 1.00000000 | 46.7953268 | 1.00000000 |
| 4 | Pearson VII Area | 0.96952264 | 519.948218 | 34.9750546 | 1.00000000 | 72.5622491 | 1.00000000 |
| 5 | Pearson VII Area | 0.19749436 | 543.570790 | 16.8618978 | 1.00000000 | 33.8364274 | 1.00000000 |
| 6 | Pearson VII Area | 0.62850666 | 647.451844 | 75.3586627 | 1.00000000 | 154.145818 | 1.00000000 |

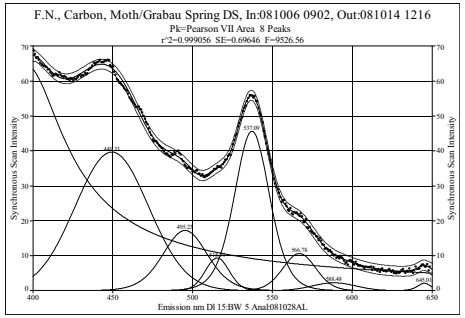
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: F.N., Carbon, Moth/Grabau Spring DS, In:081006 0902, Out:081014 1216
X Variable: Emission nm Δλ 15:BW 5 Anal:081028AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081006-081014\fnmg1014

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99905616 | 0.99894752 | 0.69646032 | 9526.56243 |

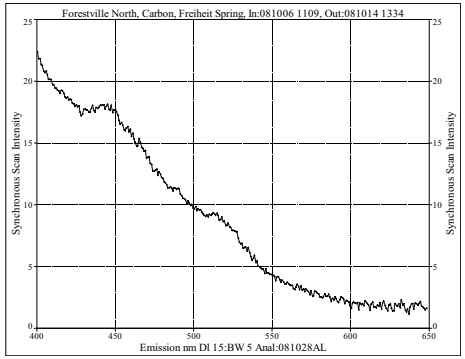
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 67864.0071 | 396.021588 | 73.9095958 | 0.52166929 |
| 2 | Pearson VII Area | 2299.23615 | 449.332755 | 54.2708881 | 73.2053504 |
| 3 | Pearson VII Area | 625.381254 | 495.233292 | 32.7579369 | 5.71972128 |
| 4 | Pearson VII Area | 178.398327 | 515.343193 | 17.6932616 | 17.7019916 |
| 5 | Pearson VII Area | 1316.34664 | 537.090050 | 25.8088265 | 4.69567925 |
| 6 | Pearson VII Area | 280.136731 | 566.776470 | 24.2838988 | 11.6941923 |
| 7 | Pearson VII Area | 77.0807031 | 588.476876 | 31.9900589 | 163.829011 |
| 8 | Pearson VII Area | 25.2189903 | 645.014046 | 9.93468539 | 2.39959600 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 64.3873026 | 396.202532 | 73.9129413 | 0.99025543 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 39.6897530 | 449.332755 | 54.2708881 | 1.00000000 | 109.255199 | 1.00000000 |
| 3 | Pearson VII Area | 17.2479762 | 495.233293 | 32.7579369 | 0.99999994 | 70.7292406 | 0.99999997 |
| 4 | Pearson VII Area | 9.36135681 | 515.343193 | 17.6932616 | 1.00000000 | 36.2698499 | 1.00000000 |
| 5 | Pearson VII Area | 45.6391129 | 537.090047 | 25.8088265 | 1.00000042 | 56.6981707 | 1.00000021 |
| 6 | Pearson VII Area | 10.6426554 | 566.776470 | 24.2838988 | 1.00000000 | 50.4050173 | 1.00000000 |
| 7 | Pearson VII Area | 2.26079836 | 588.476876 | 31.9900589 | 1.00000000 | 64.1977030 | 1.00000000 |
| 8 | Pearson VII Area | 2.14066493 | 645.014046 | 9.93468539 | 1.00000007 | 24.0550126 | 1.00000003 |

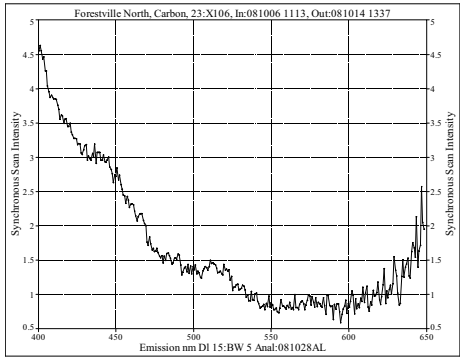
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



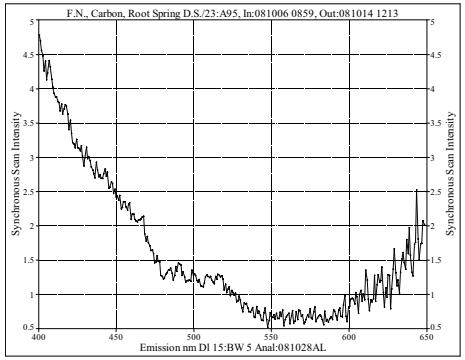

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



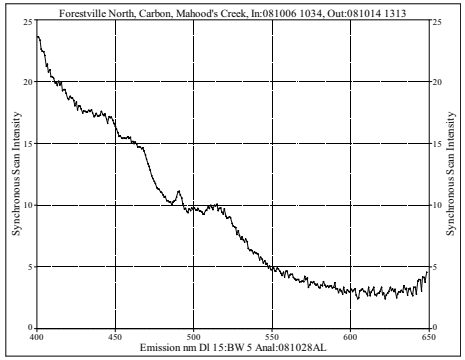

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



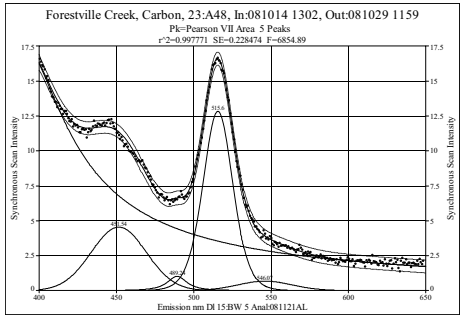

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville Creek, Carbon, 23:A48, In:081014 1302, Out:081029 1159
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081014-081029\fna81029

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99777069 | 0.99761695 | 0.22847446 | 6854.88784 |

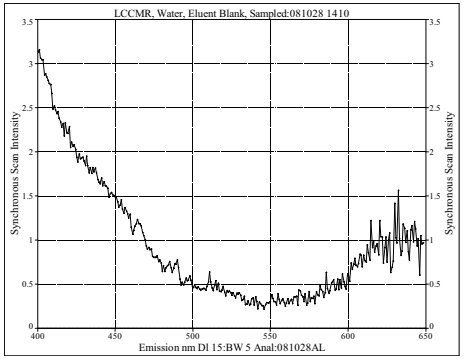
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 46225.0261 | 387.610191 | 90.7910284 | 0.51052760 |
| 2 | Pearson VII Area | 203.182020 | 451.543148 | 41.9194920 | 167.869467 |
| 3 | Pearson VII Area | 21.7036630 | 489.239270 | 15.0542666 | 1.22190395 |
| 4 | Pearson VII Area | 324.331852 | 515.602752 | 22.6423851 | 4.81620138 |
| 5 | Pearson VII Area | 30.6238315 | 546.073891 | 41.3324487 | 13.3070690 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 17.9359264 | 388.818807 | 90.9160283 | 0.94820214 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.54792636 | 451.543148 | 41.9194920 | 1.00000000 | 84.1189530 | 1.00000000 |
| 3 | Pearson VII Area | 1.02575296 | 489.239270 | 15.0542666 | 1.00000000 | 45.1510796 | 1.00000000 |
| 4 | Pearson VII Area | 12.8350414 | 515.602752 | 22.6423851 | 1.00000004 | 49.6209059 | 1.00000002 |
| 5 | Pearson VII Area | 0.68511285 | 546.073891 | 41.3324487 | 0.99999995 | 85.4089585 | 0.99999997 |

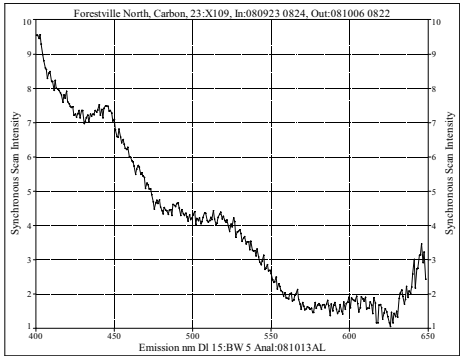
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



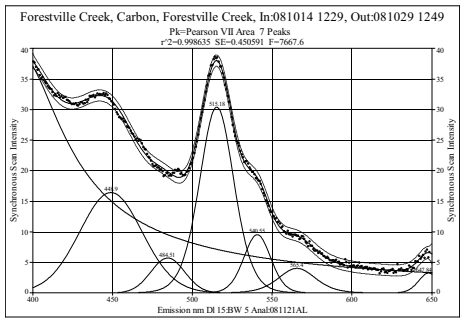

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville Creek, Carbon, Forestville Creek, In:081014 1229, Out:081029 1249
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081014-081029\fnfc1029

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99863488 | 0.99849934 | 0.45059146 | 7667.60049 |

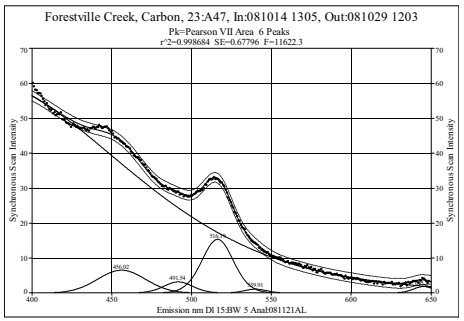
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 34424.2189 | 392.221750 | 83.5246236 | 0.52988406 |
| 2 | Pearson VII Area | 819.038152 | 448.903352 | 46.3245655 | 20.7961339 |
| 3 | Pearson VII Area | 152.248361 | 484.505840 | 24.9329020 | 167.919742 |
| 4 | Pearson VII Area | 857.264170 | 515.183696 | 25.3909121 | 5.39283421 |
| 5 | Pearson VII Area | 207.307348 | 540.549780 | 19.8923586 | 8.31910083 |
| 6 | Pearson VII Area | 125.390187 | 565.403066 | 27.5030524 | 4.00643849 |
| 7 | Pearson VII Area | 52.8856079 | 647.842470 | 14.7779640 | 7.76563966 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 38.8824787 | 392.259174 | 83.5247477 | 0.99820934 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 16.4448657 | 448.903352 | 46.3245655 | 1.00000006 | 94.6223644 | 1.00000003 |
| 3 | Pearson VII Area | 5.72959749 | 484.505838 | 24.9329020 | 1.00000035 | 50.0322870 | 1.00000019 |
| 4 | Pearson VII Area | 30.4231605 | 515.183694 | 25.3909121 | 1.00000024 | 55.0855955 | 1.00000012 |
| 5 | Pearson VII Area | 9.53910085 | 540.549780 | 19.8923586 | 1.00000000 | 41.9191748 | 1.00000000 |
| 6 | Pearson VII Area | 4.04043782 | 565.403067 | 27.5030524 | 0.99999989 | 61.4500153 | 0.99999994 |
| 7 | Pearson VII Area | 3.26916101 | 647.842470 | 14.7779640 | 0.99999992 | 31.2593268 | 0.99999996 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville Creek, Carbon, 23:A47, In:081014 1305, Out:081029 1203
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081014-081029\fna71029

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99868394 | 0.99859318 | 0.67796026 | 11622.3090 |

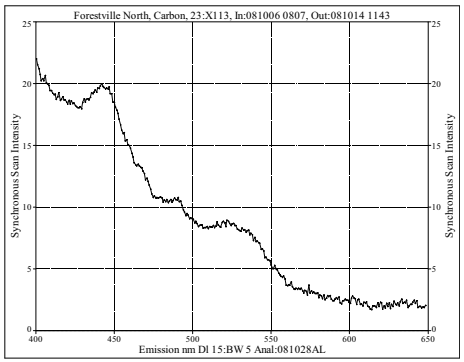
| Peak | Type | a₀ | a₁ | a₂ | a₃ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 15324.8000 | 360.651638 | 223.562243 | 5.48120200 |
| 2 | Pearson VII Area | 245.772640 | 456.024137 | 35.2867606 | 167.909027 |
| 3 | Pearson VII Area | 74.2025054 | 491.538404 | 21.2846683 | 8.87694968 |
| 4 | Pearson VII Area | 387.666262 | 516.191548 | 23.1813509 | 9.75504948 |
| 5 | Pearson VII Area | 20.3563120 | 539.908260 | 16.6284400 | 10.0000000 |
| 6 | Pearson VII Area | 31.1366642 | 645.215248 | 15.2212886 | 7.11433289 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 61.8141428 | 360.651635 | 472.432760 | 0.00000000 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 6.53530753 | 456.024137 | 35.2867606 | 1.00000000 | 70.8091505 | 1.00000000 |
| 3 | Pearson VII Area | 3.19658971 | 491.538404 | 21.2846683 | 1.00000000 | 44.7047582 | 1.00000000 |
| 4 | Pearson VII Area | 15.3694842 | 516.191546 | 23.1813509 | 1.00000035 | 48.4731047 | 1.00000018 |
| 5 | Pearson VII Area | 1.12573101 | 539.908262 | 16.6284400 | 0.99999945 | 34.7326837 | 0.99999971 |
| 6 | Pearson VII Area | 1.86349774 | 645.215247 | 15.2212886 | 1.00000020 | 32.3654389 | 1.00000010 |

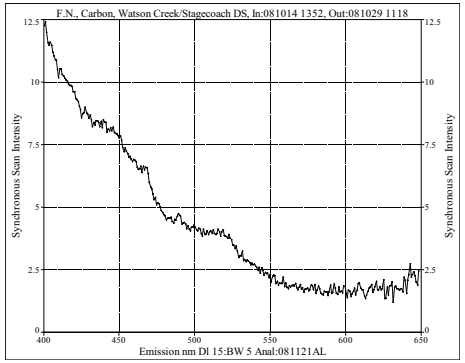
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



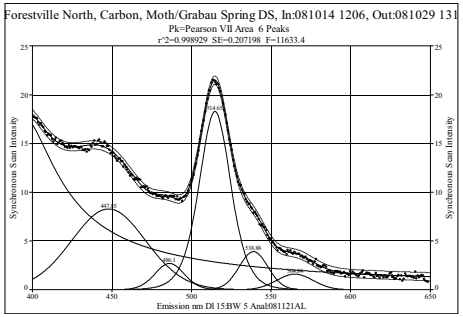

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, Moth/Grabau Spring DS, In:081014 1206, Out:081029 131
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081014-081029\fnmg1029

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99892852 | 0.99883861 | 0.20719821 | 11633.3548 |

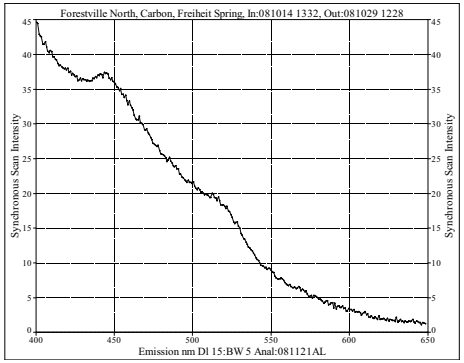
| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 34793.5958 | 393.166107 | 69.5043480 | 0.51066337 |
| 2 | Pearson VII Area | 490.165188 | 447.847860 | 55.0085430 | 22.5606191 |
| 3 | Pearson VII Area | 63.6670198 | 486.099342 | 21.6220853 | 10.5861471 |
| 4 | Pearson VII Area | 483.124138 | 514.652303 | 23.2355700 | 3.61860901 |
| 5 | Pearson VII Area | 88.8107069 | 538.884315 | 21.1825005 | 32.2509567 |
| 6 | Pearson VII Area | 45.9657613 | 564.839533 | 26.7644127 | 167.894510 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 17.8735240 | 393.166107 | 69.5043480 | 1.00000003 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 8.29463335 | 447.847860 | 55.0085430 | 1.00000000 | 112.180811 | 1.00000000 |
| 3 | Pearson VII Area | 2.71110382 | 486.099342 | 21.6220853 | 1.00000000 | 45.0545178 | 1.00000000 |
| 4 | Pearson VII Area | 18.2926707 | 514.652303 | 23.2355700 | 1.00000000 | 52.5685049 | 1.00000000 |
| 5 | Pearson VII Area | 3.91373102 | 538.884315 | 21.1825005 | 1.00000000 | 42.9554013 | 1.00000000 |
| 6 | Pearson VII Area | 1.61146538 | 564.839533 | 26.7644127 | 1.00000000 | 53.7075577 | 1.00000000 |

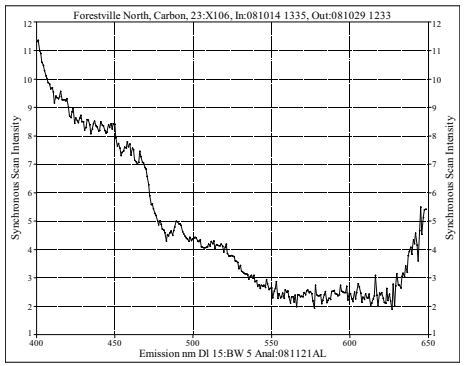
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



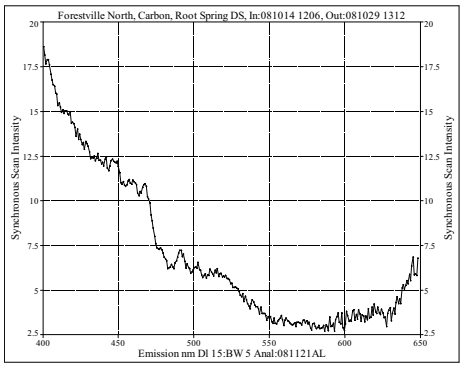

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



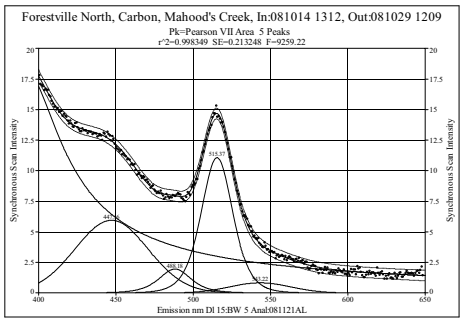

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, Mahood's Creek, In:081014 1312, Out:081029 1209
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081014-081029\fnmc1029

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99834862 | 0.99823473 | 0.21324843 | 9259.22050 |

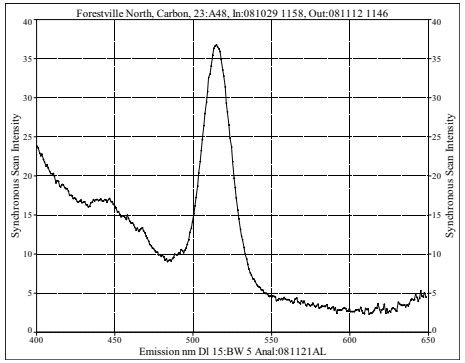
| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 36840.0630 | 391.644659 | 73.3764743 | 0.51080303 |
| 2 | Pearson VII Area | 353.068112 | 447.164266 | 55.6142132 | 95.0878041 |
| 3 | Pearson VII Area | 57.5059563 | 488.178408 | 24.5234798 | 2.26831223 |
| 4 | Pearson VII Area | 304.280846 | 515.368070 | 24.0207731 | 3.33775927 |
| 5 | Pearson VII Area | 41.3512970 | 543.221989 | 46.3485247 | 167.903112 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 18.1529419 | 391.644661 | 73.3764743 | 0.99999991 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 5.95132485 | 447.164266 | 55.6142132 | 1.00000000 | 111.812439 | 1.00000000 |
| 3 | Pearson VII Area | 1.96166771 | 488.178409 | 24.5234798 | 0.99999988 | 60.0981576 | 0.99999994 |
| 4 | Pearson VII Area | 11.0718066 | 515.368071 | 24.0207731 | 0.99999991 | 54.9451079 | 0.99999995 |
| 5 | Pearson VII Area | 0.83713883 | 543.221989 | 46.3485247 | 1.00000000 | 93.0065524 | 1.00000000 |

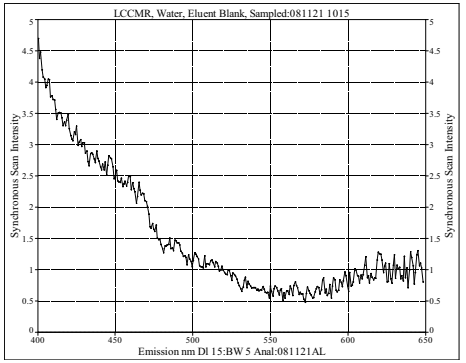
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



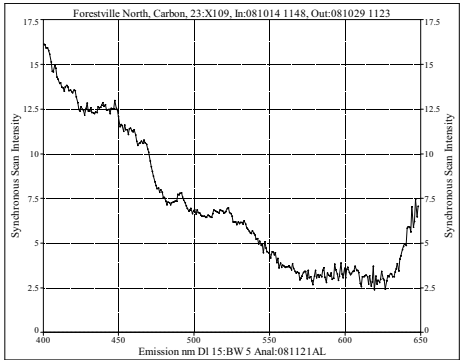

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



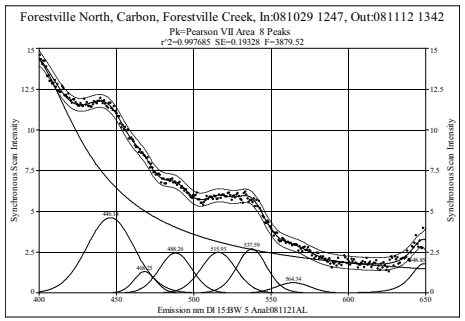

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, Forestville Creek, In:081029 1247, Out:081112 1342
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081029-081112\finfc1112

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99768550 | 0.99741908 | 0.19328041 | 3879.52116 |

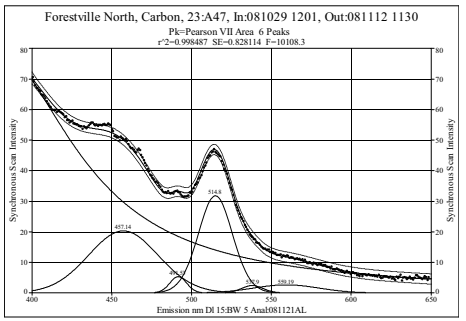
| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 19785.3991 | 393.779526 | 95.4809637 | 0.52188356 |
| 2 | Pearson VII Area | 180.521770 | 446.136751 | 36.2362302 | 17.4465315 |
| 3 | Pearson VII Area | 23.2640637 | 468.248330 | 16.4490169 | 19.7037301 |
| 4 | Pearson VII Area | 64.9634419 | 488.262707 | 24.5990351 | 25.5938155 |
| 5 | Pearson VII Area | 71.1119669 | 515.931131 | 26.4830631 | 20.6853794 |
| 6 | Pearson VII Area | 66.9009225 | 537.593056 | 22.6415614 | 8.66956300 |
| 7 | Pearson VII Area | 17.3160684 | 564.340703 | 25.5514174 | 152.915289 |
| 8 | Pearson VII Area | 44.3809032 | 648.884942 | 19.7437770 | 1.81487998 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 14.6654061 | 393.779527 | 95.4809637 | 0.99999996 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 4.62450403 | 446.136751 | 36.2362302 | 0.99999999 | 74.3077776 | 1.00000000 |
| 3 | Pearson VII Area | 1.31472849 | 468.248330 | 16.4490169 | 1.00000000 | 33.6368323 | 1.00000000 |
| 4 | Pearson VII Area | 2.46103879 | 488.262705 | 24.5990351 | 1.00000026 | 50.0540431 | 1.00000014 |
| 5 | Pearson VII Area | 2.49740052 | 515.931131 | 26.4830631 | 1.00000000 | 54.1001179 | 1.00000000 |
| 6 | Pearson VII Area | 2.70764638 | 537.593054 | 22.6415614 | 1.00000027 | 47.6108814 | 1.00000014 |
| 7 | Pearson VII Area | 0.63580957 | 564.340704 | 25.5514174 | 0.99999978 | 51.2859422 | 0.99999988 |
| 8 | Pearson VII Area | 1.80723884 | 648.853211 | 19.7439264 | 1.00644921 | 51.1888474 | 1.00274582 |

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, 23:A47, In:081029 1201, Out:081112 1130
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081029-081112\fna71112

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99848712 | 0.99838278 | 0.82811444 | 10108.2606 |

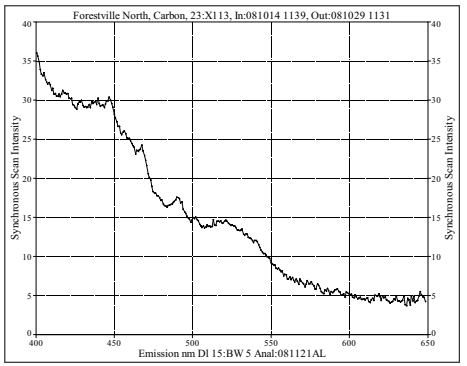
| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 16643.5871 | 378.081920 | 121.481519 | 0.88555208 |
| 2 | Pearson VII Area | 1121.07049 | 457.140415 | 51.5440249 | 40.3059648 |
| 3 | Pearson VII Area | 72.0676631 | 491.531288 | 12.4559259 | 19.6657690 |
| 4 | Pearson VII Area | 868.873077 | 514.804063 | 25.3104337 | 15.3208029 |
| 5 | Pearson VII Area | 42.8822625 | 537.901376 | 16.0550459 | 10.0000000 |
| 6 | Pearson VII Area | 138.785762 | 559.186816 | 48.4303864 | 61.4643859 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 79.0178135 | 378.497706 | 121.487745 | 0.98640326 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 20.3290872 | 457.140415 | 51.5440249 | 0.99999997 | 104.252184 | 0.99999998 |
| 3 | Pearson VII Area | 5.37830927 | 491.531288 | 12.4559259 | 1.00000000 | 25.4723653 | 1.00000000 |
| 4 | Pearson VII Area | 31.8117889 | 514.804064 | 25.3104337 | 0.99999997 | 52.0797331 | 0.99999998 |
| 5 | Pearson VII Area | 2.45614035 | 537.901376 | 16.0550459 | 1.00000000 | 33.5350057 | 1.00000000 |
| 6 | Pearson VII Area | 2.68321949 | 559.186816 | 48.4303864 | 1.00000000 | 97.6039993 | 1.00000000 |

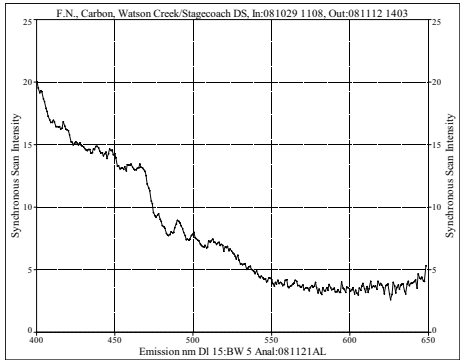
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



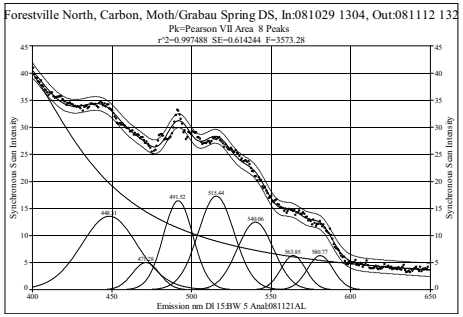

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Description: Forestville North, Carbon, Moth/Grabau Spring DS, In:081029 1304, Out:081112 132
X Variable: Emission nm Δλ 15:BW 5 Anal:081121AL
Y Variable: Synchronous Scan Intensity
File Source: g:\dyetracing\forestvillenorth071023_080313_080905\forestville081029-081112\fnmg1112

**Fitted Parameters**

| r² Coef Det | DF Adj r² | Fit Std Err | F-value |
|---|---|---|---|
| 0.99748763 | 0.99719844 | 0.61424369 | 3573.27930 |

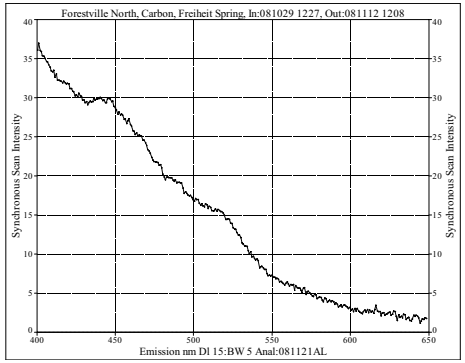
| Peak | Type | $a_0$ | $a_1$ | $a_2$ | $a_3$ |
|---|---|---|---|---|---|
| 1 | Pearson VII Area | 13389.1524 | 384.450476 | 113.999484 | 0.66635143 |
| 2 | Pearson VII Area | 616.639163 | 448.309003 | 41.7667987 | 10.6810337 |
| 3 | Pearson VII Area | 107.123073 | 471.276231 | 19.9416748 | 167.888886 |
| 4 | Pearson VII Area | 389.244037 | 491.518658 | 21.9892369 | 19.0918707 |
| 5 | Pearson VII Area | 501.387039 | 515.435616 | 26.8474481 | 14.0979734 |
| 6 | Pearson VII Area | 357.042817 | 540.055270 | 26.6989021 | 37.5774747 |
| 7 | Pearson VII Area | 124.007582 | 563.853718 | 18.4007640 | 167.791139 |
| 8 | Pearson VII Area | 129.733055 | 580.773114 | 19.1216740 | 22.8381328 |

**Measured Values**

| Peak | Type | Amplitude | Center | FWHM | Asym50 | FW Base | Asym10 |
|---|---|---|---|---|---|---|---|
| 1 | Pearson VII Area | 43.5422380 | 384.450476 | 113.999484 | 1.00000002 | 0.00000000 | 0.00000000 |
| 2 | Pearson VII Area | 13.5959947 | 448.309003 | 41.7667987 | 1.00000000 | 86.9988769 | 1.00000000 |
| 3 | Pearson VII Area | 5.04040711 | 471.276231 | 19.9416748 | 0.99999995 | 40.0165231 | 0.99999997 |
| 4 | Pearson VII Area | 16.4494401 | 491.518657 | 21.9892369 | 1.00000015 | 44.9972734 | 1.00000008 |
| 5 | Pearson VII Area | 17.2848378 | 515.435616 | 26.8474481 | 1.00000000 | 55.3767657 | 1.00000000 |
| 6 | Pearson VII Area | 12.4947529 | 540.055270 | 26.6989021 | 0.99999999 | 54.0417603 | 0.99999999 |
| 7 | Pearson VII Area | 6.32348220 | 563.853719 | 18.4007640 | 0.99999985 | 36.9244646 | 0.99999992 |
| 8 | Pearson VII Area | 6.31624877 | 580.773111 | 19.1216740 | 1.00000059 | 38.9865720 | 1.00000032 |

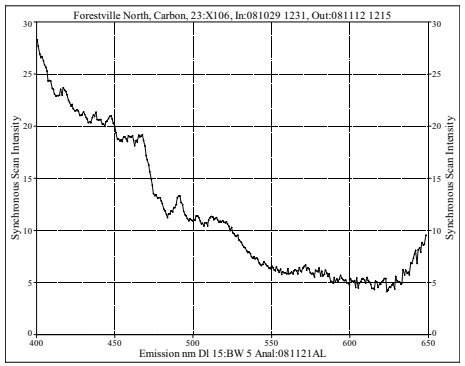
Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



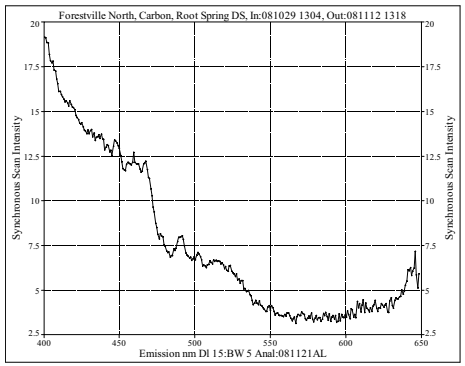

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



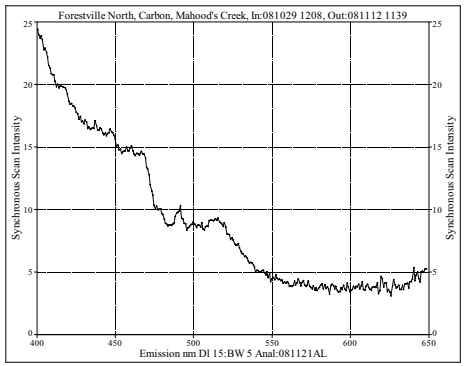

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



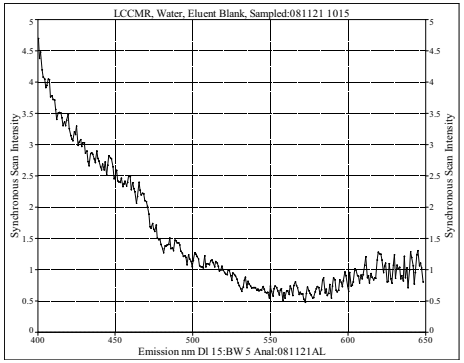

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



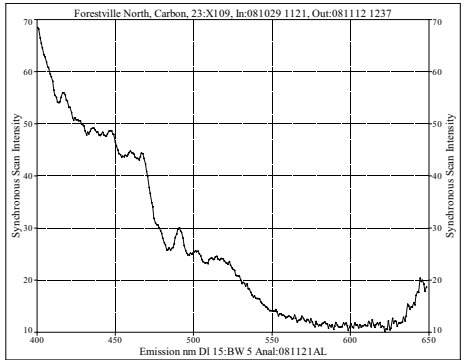

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs



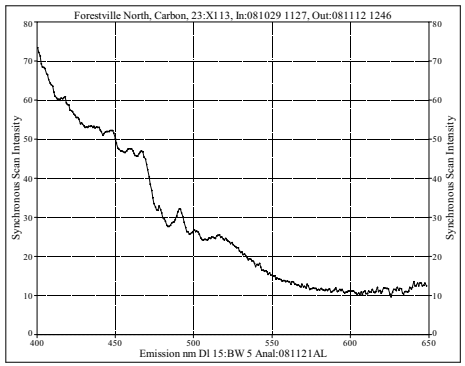

Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu

Scanning Spectrofluorophotometer Results – Shimadzu RF-5000 and PeakFit V4.0
Forestville North Trace 23 October 2007, 13 March 2008, and 5 September 2008 Inputs




Hydrogeochemistry Laboratory
Dept. of Geology & Geophysics, University of Minnesota
alexa017@umn.edu