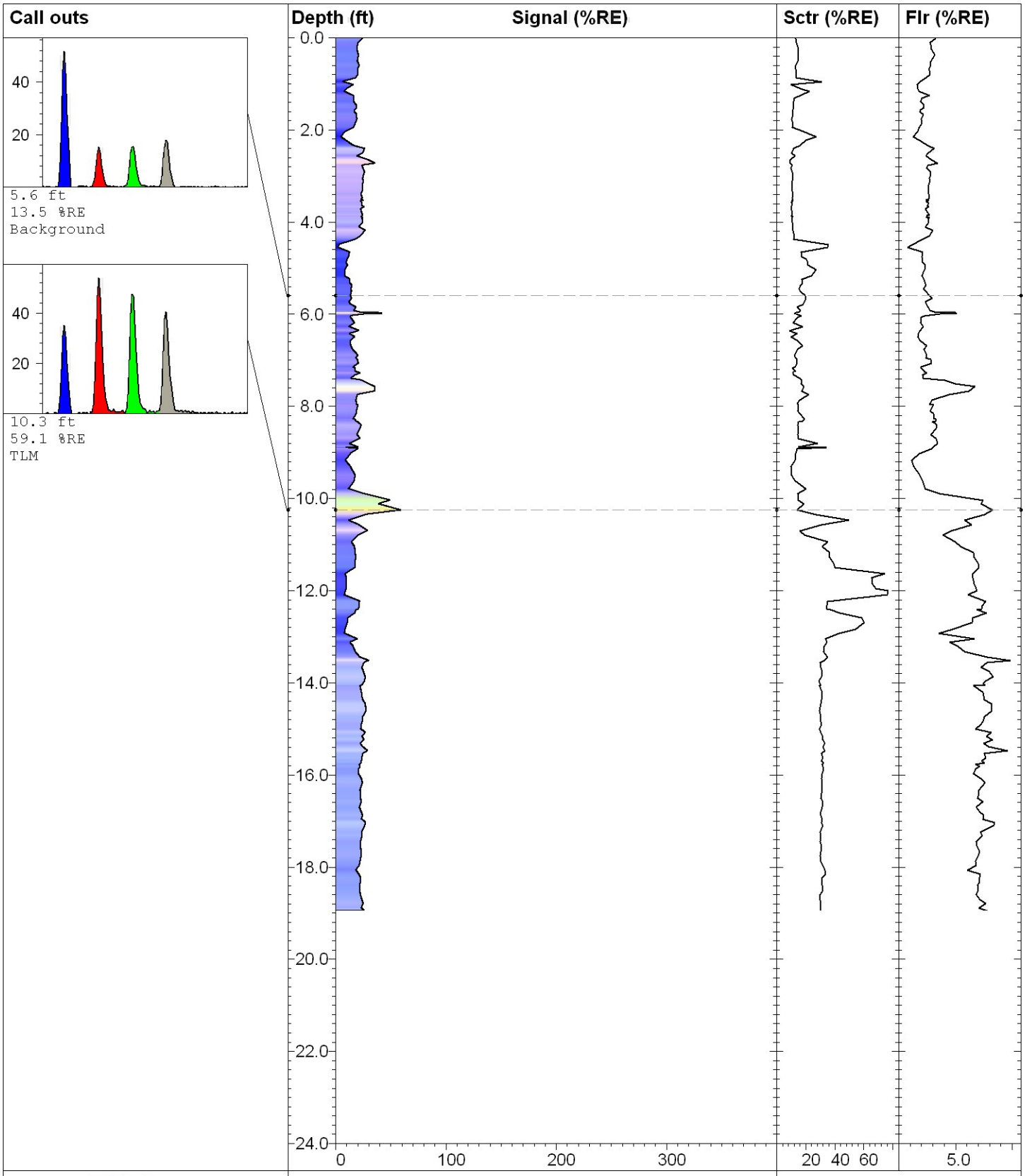


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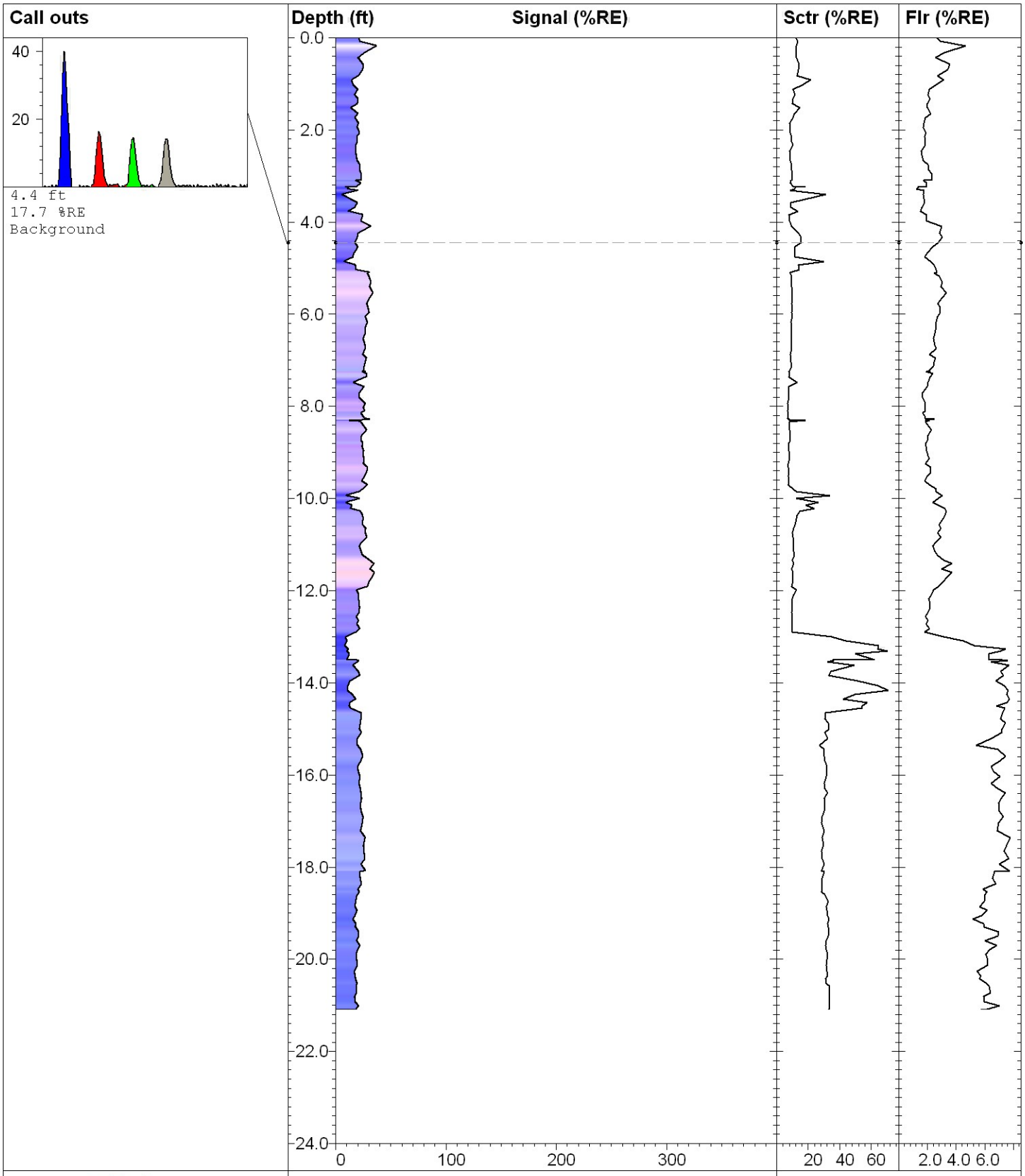
| | | |
|---|---|---|
| **WSSTG034** | | **TarGOST** |
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **18.94 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **59.1 % @ 10.25 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/21/2006 1:14:18 PM** |

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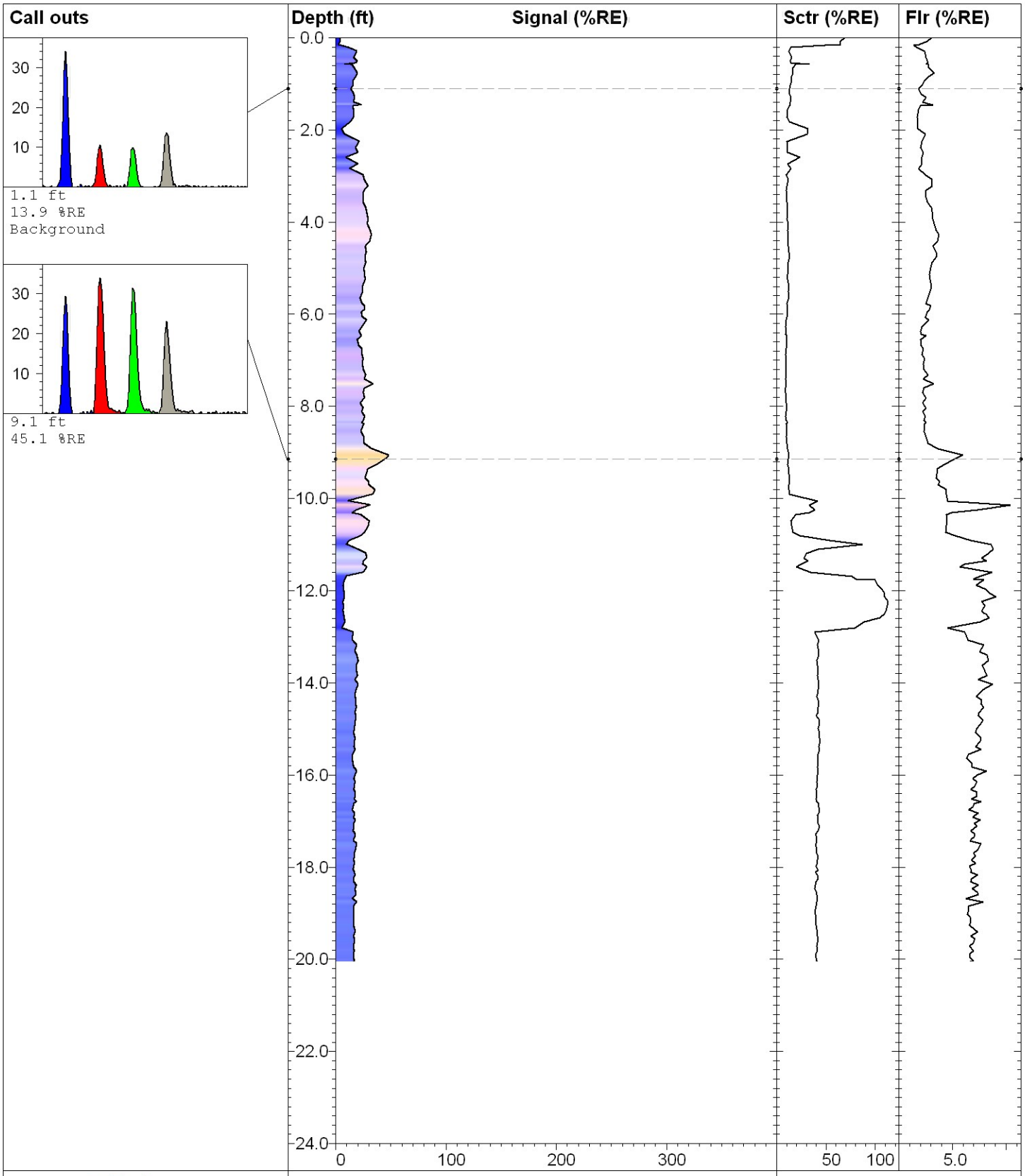
# WSSTG035

# TarGOST

| | | |
|---|---|---|
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **21.10 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **37.3 % @ 0.18 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/21/2006 1:53:36 PM** |

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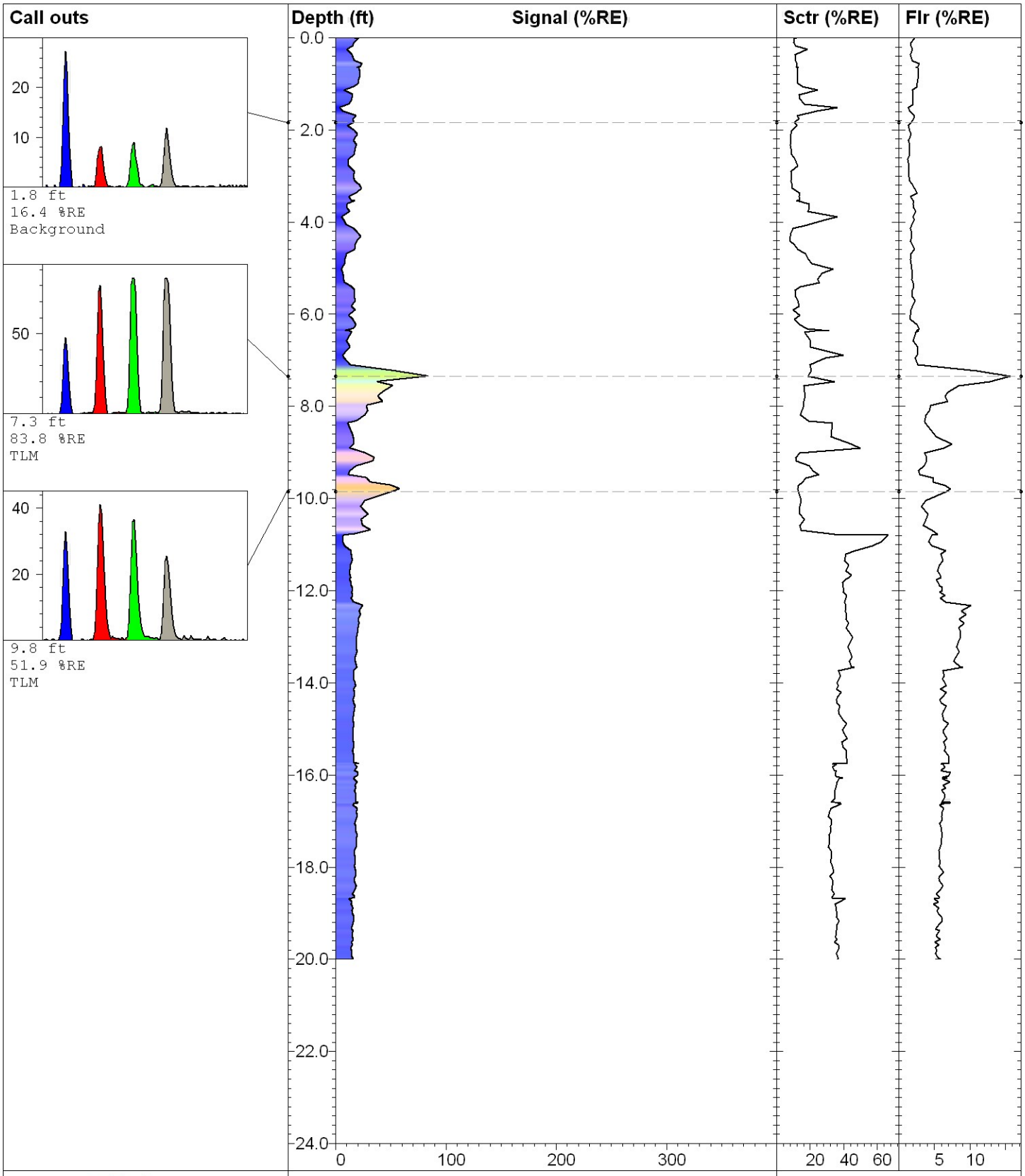
|---|---|---|
| **WSSTG036** | | **TarGOST** |
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **20.06 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **48.3 % @ 9.06 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/21/2006 2:43:23 PM** |

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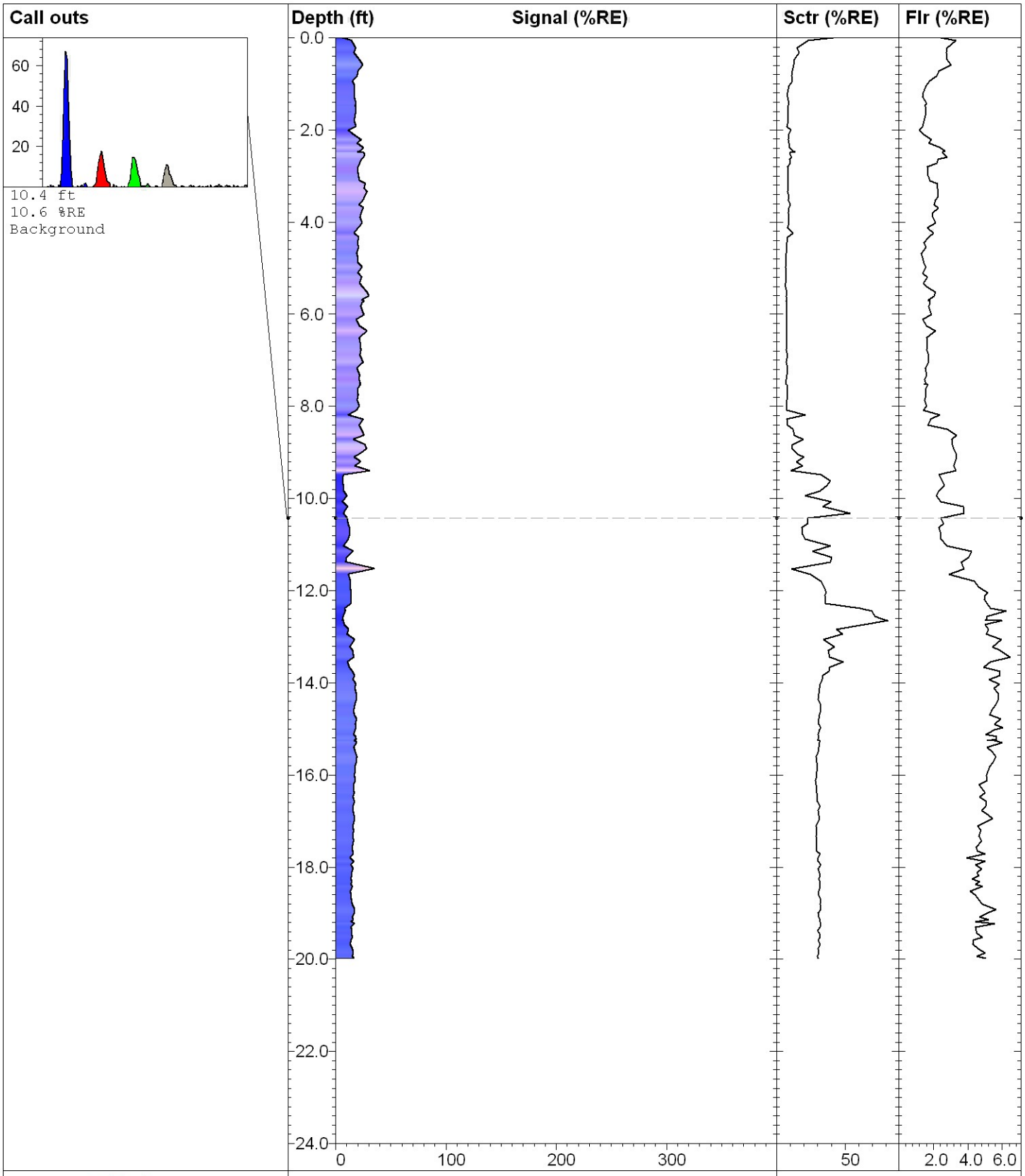
# WSSTG037

# TarGOST

| | | |
|---|---|---|
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **20.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **83.8 % @ 7.35 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/21/2006 3:23:47 PM** |

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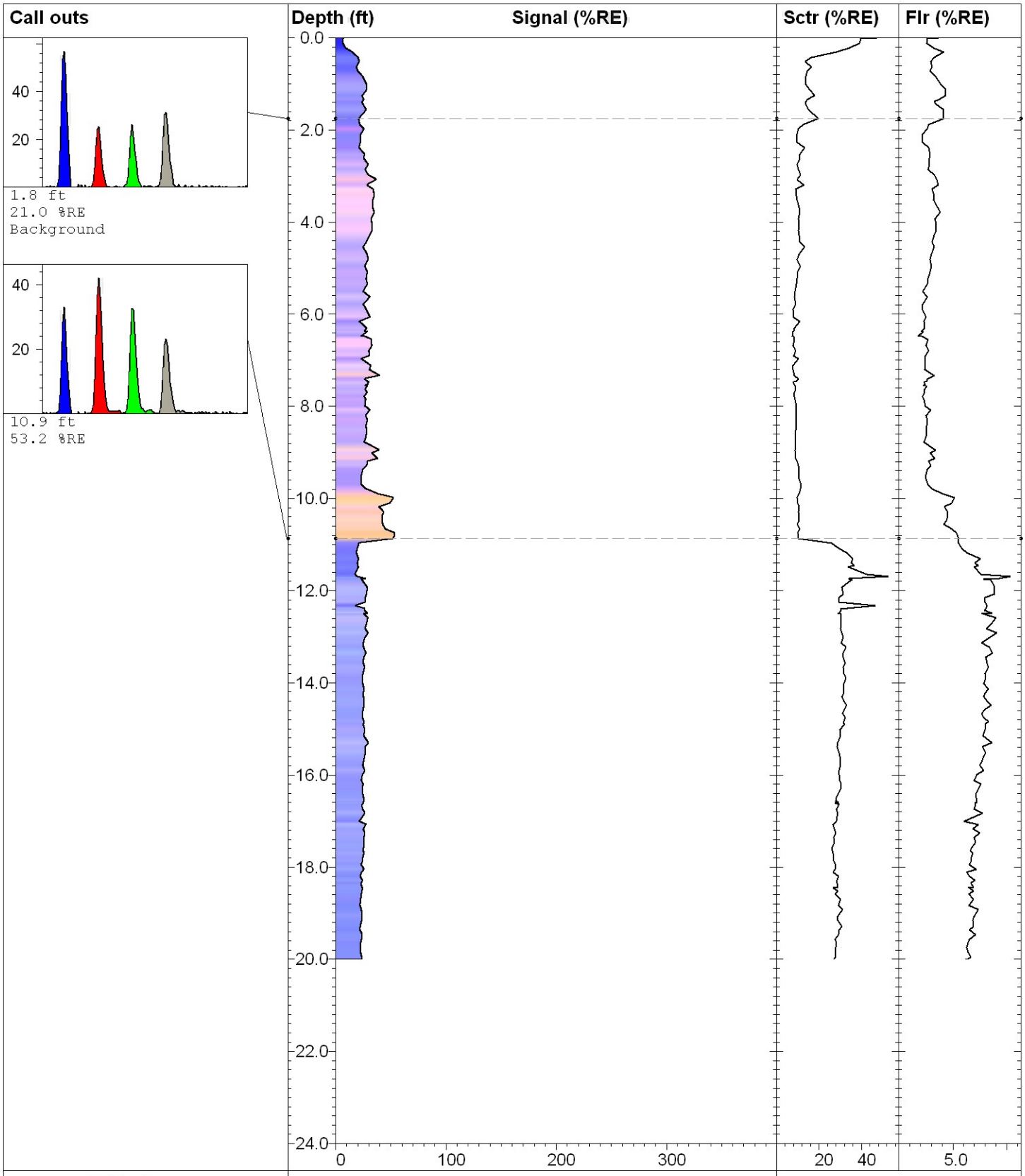
# WSSTG038

# TarGOST

| | | |
|---|---|---|
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **20.00 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **35.4 % @ 11.52 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/21/2006 4:04:49 PM** |

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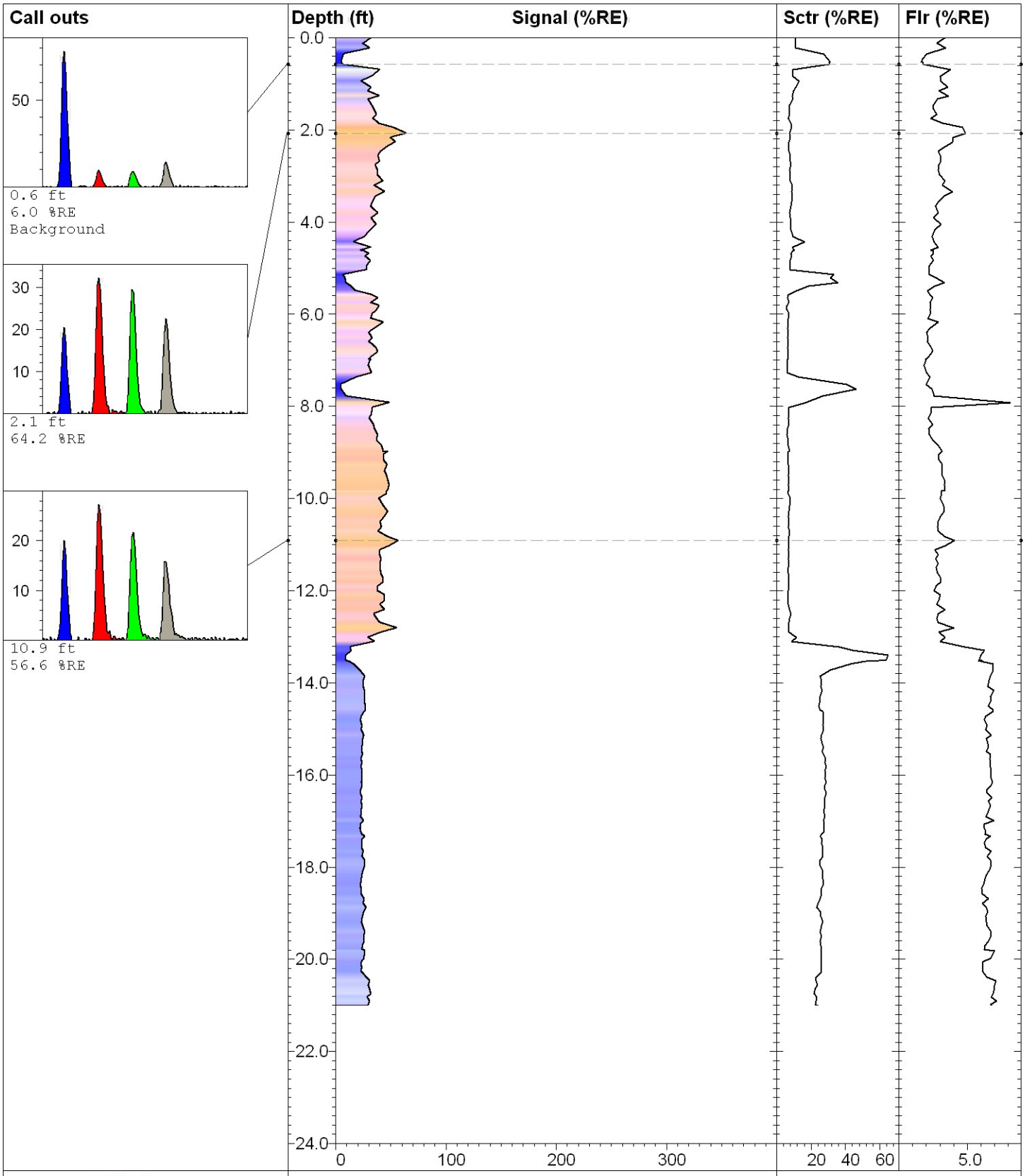
| | | |
|---|---|---|
| **WSSTG039** | | **TarGOST** |
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **20.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **53.4 % @ 10.74 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/22/2006 7:42:31 AM** |

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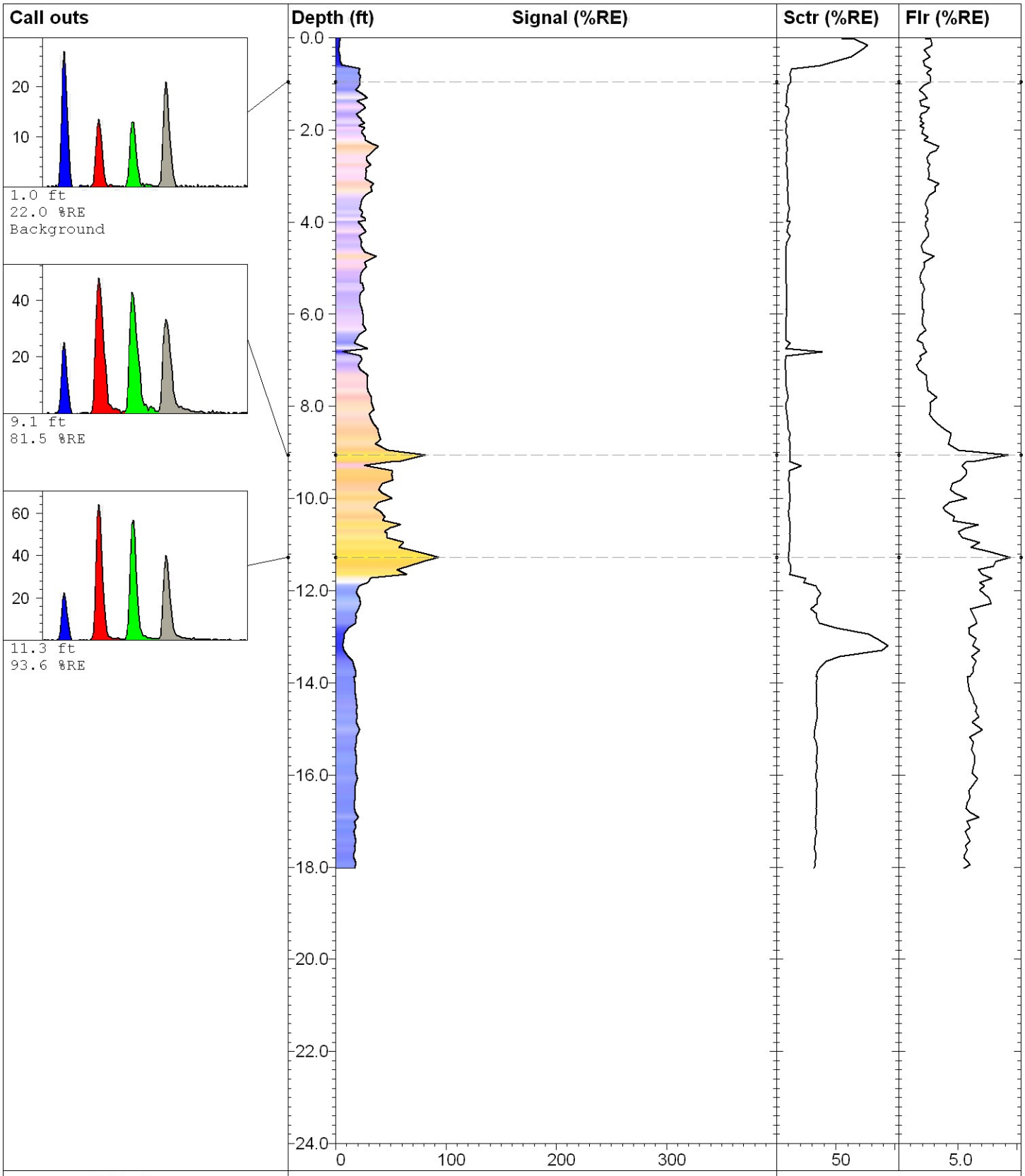
# WSSTG040

# TarGOST

| | | |
|---|---|---|
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **21.02 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **64.2 % @ 2.07 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/22/2006 8:21:49 AM** |





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# WSSTG041

# TarGOST

| | | |
|---|---|---|
| *Site:* **Willow Street- Chicago, IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **18.04 ft** |
| *Client:* **Burns & McDonnell** | *Longitude / Fix:* **Unavailable /** | *Max signal:* **93.6 % @ 11.28 ft** |
| *Job:* **09413-098** | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **6/22/2006 9:01:20 AM** |

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**DRAFT**

**RIVER SEDIMENT INVESTIGATION**
**SEDIMENT BORING LOGS**

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# Drilling Log

**DRAFT**

Burns & McDonnell
SINCE 1898

| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB001/TG001 |
| Coordinates: N 1911651.673 E 1168240.836 | | Sediment Elevation (CCD): -10.70 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-28-06 To: 7-28-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -11 | 1 | greenish Black (5GY 2/1) organic SILT (OL), some concrete fragments, little fine gravel, trace coarse to fine sand, very loose, saturated | | SS | 1 | 2 1 2 6 | 3 | 0.5/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -12 | 2 | trace metal, little wood, very loose to loose | | SS | 2 | 6 5 2 3 | 7 | 1.2/2 | | 0 | |
| -13 | 3 | | | | | | | | | | |
| -14 | 4 | greenish Black (5GY 2/1) silty SAND (SM), trace fine gravel, loose, saturated | | SS | 3 | 5 3 2 1 | 5 | 0.4/2 | | 0 | |
| -15 | 5 | | | | | | | | | | |
| -16 | 6 | trace to little fine gravel | | SS | 4 | 7 5 2 1 | 7 | 0.8/2 | | 0 | |
| -17 | 7 | | | | | | | | | | |
| -18 | 8 | | | SS | 5 | 1 1 1 1 | 2 | 1.1/2 | | 0 | |
| -19 | 9 | little clay, trace brick, loose to very loose | | | | | | | | | |
| -20 | 10 | FILL: greenish Black (5GY 2/1) clay, trace coarse to fine sand, trace fine gravel, very soft, medium plasticity, wet | | SS | 6 | WOH WOH 1 1 | | 2/2 | <0.25 | 0 | Sampled 11.5-12 feet below top of sediment (001) Tar-like odor 11.6-12 feet below top of sediment; slight tar-like odor at 12 feet below top of sediment |
| -21 | 11 | | | | | | | | | | |
| -22 | 12 | | | SS | 7 | 5 5 6 8 | 11 | 2/2 | <0.25 2.25 | 0 | |
| -23 | 13 | | | | | | | | | | |
| -24 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | SS | 8 | 3 3 6 7 | 9 | 0.8/2 | 1.5 | 0 | |
| -25 | 15 | | | | | | | | | | |
| -26 | 16 | End of boring 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB002/TG002 |
| Coordinates: N 1911651.682 E 1168211.121 | | Sediment Elevation (CCD): -11.70 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-28-06 To: 7-28-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -12 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little wood, trace coarse to fine sand, very loose, saturated | | SS | 1 | 2 1 1 1 | 2 | 1.6/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -13 | 2 | | | | | | | | | | |
| -14 | 3 | trace clay | | SS | 2 | WOH WOH WOH WOH | | 1.7/2 | | 0 | |
| -15 | 4 | | | | | | | | | | |
| -16 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1.8/2 | | 0 | |
| -17 | 6 | | | | | | | | | | |
| -18 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -19 | 8 | | | | | | | | | | |
| -20 | 9 | | | SS | 5 | WOH 4 7 12 | 11 | 2/2 | 0.75 | 0 | |
| -21 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), some sand, medium stiff to stiff, low plasticity, wet | | | | | | | | | |
| -22 | 11 | | | SS | 6 | 1 1 4 7 | 5 | 0.9/2 | 2.0 | 0 | |
| -23 | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling

Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB003/TG003 |
| Coordinates: N 1911642.845 E 1168192 | | Sediment Elevation (CCD): -13.30 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-28-06 To: 7-28-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 / -15 | 1 / 2 | FILL: Black (N1) coal fragments, trace styrafoam, trace wood, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 0.5/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -16 / -17 | 3 / 4 | No Recovery | | SS | 2 | WOH WOH WOH WOH | | 0/2 | | | |
| -18 / -19 | 5 / 6 | FILL: Black (N1) coal fragments, trace styrafoam, trace wood, very loose, saturated; greenish Black (5GY 2/1) organic SILT (OL), trace wood, trace fine sand, trace fine gravel, very loose, saturated | | SS | 3 | WOH WOH WOH WOH | | 0.4/2 | | 0 | |
| -20 / -21 | 7 / 8 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 / -23 | 9 / 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff to very stiff, low plasticity, moist | | SS | 5 | WOH 2 3 7 | 5 | 1.8/2 | 1.5 | 0 | |
| -24 / -25 | 11 / 12 | | | SS | 6 | 3 6 6 8 | 12 | 0.8/2 | 2.25 | 0 | |
| | 13 / 14 / 15 / 16 | End of boring 12 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB004/TG004 |
| Coordinates: N 1911166.568 E 1168380.037 | | Sediment Elevation (CCD): -13.20 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2.2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-18-06 To: 7-18-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 / -15 | 1 / 2 | greenish Black (5GY 2/1) organic SILT (OL) with wood, some steel, little coal, very loose, saturated | | SS | 1 | WOH WOH 3 3 | | 0.8/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -16 / -17 | 3 / 4 | No Recovery | | SS | 2 | 1 1 1 1 | 2 | 0/2 | | | |
| -18 / -19 | 5 / 6 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, some fine gravel, very loose, saturated | | SS | 3 | 1 1 1 1 | 2 | 0.5/2 | | 0 | |
| -20 / -21 | 7 / 8 | | | SS | 4 | WOH WOH WOH WOH | | 0.5/2 | | 6.1 | |
| -22 / -23 | 9 / 10 | | | SS | 5 | WOH WOH WOH WOH | | 1.7/2 | | 4.5 / 16.9 | Slight tar-like odor 9-11.5 feet below top of sediment |
| -24 / -25 | 11 / 12 | | | SS | 6 | WOH WOH WOH WOH | | 2/2 | 2.5 | 30.6 / 4.0 | Sampled 9-10 feet below top of sediment (001) (0837) |
| -26 / -27 | 13 / 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little sand, trace fine gravel, very stiff to stiff, low plasticity, moist | | SS | 7 | 3 3 3 3 | 6 | 2/2 | 1.5 | 35.5 / 1.4 | |
| -28 / -29 | 15 / 16 | | | SS | 8 | 4 5 7 7 | 12 | 1.3/2 | 1.5 | 0 | |
| | | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB005/TG005 |
| Coordinates: N 1911163.479 E 1168357.968 | | Sediment Elevation (CCD): -14.70 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2.2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-18-06 To: 7-18-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -15 | | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | | | | | | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -16 | 1 | | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 6.4 | |
| -17 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 8.5 | |
| -18 | 3 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 6.2 3.8 | |
| -19 | 4 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 1.5 5.1 | |
| -20 | 5 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 1.4 5.7 | |
| -21 | 6 | | | SS | 6 | 2 2 4 6 | 6 | 2/2 | 1.75 | 9.3 0 | |
| -22 | 7 | | | | | | | | | | |
| -23 | 8 | | | | | | | | | | |
| -24 | 9 | | | | | | | | | | |
| -25 | 10 | | | | | | | | | | |
| -26 | 11 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little coarse to fine sand, trace fine gravel, stiff to very stiff, low plasticity, moist | | SS | 7 | 2 4 4 7 | 8 | 0.9/2 | | 0.4 | |
| -27 | 12 | | | | | | | | | | |
| -28 | 13 | | | | | | | | | | |
| -29 | 14 | | | SS | 8 | 4 7 7 9 | 14 | 2/2 | 2.5 4.5+ | 0.8 17.3 0.9 | |
| -30 | 15 | very stiff to hard | | | | | | | | | |
| | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB006/TG006 |
| Coordinates: N 1911163.176 E 1168327.301 | | Sediment Elevation (CCD): -16.80 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -3.3 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-18-06 To: 7-18-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -17 | | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | | | | | | | | Depth to water while drilling; Depth to water after drilling |
| -18 | 1 | | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -19 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 3 | | | | | | | | | | |
| -21 | 4 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 | 5 | | | | | | | | | | |
| -23 | 6 | | | SS | 4 | WOH WOH WOH WOH | | 1.8/2 | | 0 | |
| -24 | 7 | | | | | | | | | | |
| -25 | 8 | | | SS | 5 | 5 7 10 10 | 17 | 2/2 | 1.5 | 0 / 13.6 | Slight tar-like odor 9-9.5 feet below top of sediment Sampled 9-9.5 feet below top of sediment (001) (1220) |
| -26 | 9 | | | | | | | | | | |
| -27 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, trace fine gravel, stiff, low plasticity, moist | | SS | 6 | 4 4 7 9 | 11 | 2/2 | 2.0 | 0 | |
| -28 | 11 | | | | | | | | | | |
| -29 | 12 | | | SS | 7 | 5 7 10 10 | 17 | 1.5/2 | 1.5 | 0 | |
| -30 | 13 | | | | | | | | | | |
| | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

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# Drilling Log

**DRAFT**

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB007B/TG007B |
| Coordinates: N 1911204.487 E 1168374.748 | | Sediment Elevation (CCD): -12.30 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -3.3 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-18-06 To: 7-18-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13 / -14 | 1 / 2 | No Recovery | | SS | 1 | 15 17 20 20 | 37 | 0/2 | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 / -16 | 3 / 4 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 2 | 5 2 2 1 | 4 | 1.2/2 | | 0 | |
| -17 / -18 | 5 / 6 | | | SS | 3 | WOH 1 1 1 | 2 | 1.2/2 | | 0 | |
| -19 / -20 | 7 / 8 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -21 / -22 | 9 / 10 | | | SS | 5 | WOH 2 2 2 | 4 | 1.8/2 | | 0 | |
| -23 / -24 | 11 / 12 | very loose to loose<br>pale yellowish Brown (10YR 6/2) silt CLAY (CL), little coarse to fine sand, little fine gravel, soft, low plasticity, moist | | SS | 6 | 4 5 5 6 | 10 | 1.7/2 | 0.25 | 0 | |
| -25 / -26 | 13 / 14 | | | SS | 7 | 4 5 10 10 | 15 | 1.7/2 | 0.25 | 0 | |
| | 15 / 16 | End of boring at 14 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB008/TG008 |
| Coordinates: N 1911199.769 E 1168346.339 | | Sediment Elevation (CCD): -13.50 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-18-06 To: 7-18-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

Depth to water while drilling ▽
Depth to water after drilling ▼

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 0.4/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 0.4/2 | | 0 | |
| -17 | 4 | | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -19 | 6 | | | | | | | | | | |
| -20 | 7 | | | SS | 4 | 1 WOH WOH WOH | | 0.9/2 | | 0 | |
| -21 | 8 | | | | | | | | | | |
| -22 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -23 | 10 | | | | | | | | | | |
| -24 | 11 | | | SS | 6 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -25 | 12 | | | | | | | | | | |
| -26 | 13 | | | SS | 7 | WOH WOH WOH WOH | | 2/2 | 2.0 | 0 | |
| -27 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, stiff, low plasticity, moist | | | | | | | | | |
| -28 | 15 | | | SS | 8 | 2 4 6 8 | 10 | 2/2 | 2.0 | 0 13.4 | Sampled 15-15.6 feet below top of sediment (001) (1630) |
| -29 | 16 | | | | | | | | | | |
| -30 | | | | SS | 9 | 5 7 | 15 | 1.1/2 | 2.0 | 0 | |

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB008/TG008
Page: 2 of 2
Date: 7-18-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -31 | | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, stiff, low plasticity, moist | | SS | 9 | 8 8 | . 15 | 1.1/2 | 2.0 | 0 | |
| | 18 | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
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| | 33 | | | | | | | | | | |
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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB009/TG009 |
| Coordinates: N 1911195.309 E 1168327.638 | | Sediment Elevation (CCD): -15.50 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-19-06 To: 7-19-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

Depth to water while drilling ▽
Depth to water after drilling ▼

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 9.8 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -17 | 2 | | | | | | | | | | |
| -18 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 8.6 9.1 | |
| -19 | 4 | | | | | | | | | | |
| -20 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 7.6 5.8 | |
| -21 | 6 | | | | | | | | | | |
| -22 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 7.9 13.2 | |
| -23 | 8 | | | | | | | | | | |
| -24 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 7.8 24.7 | Slight tar-like odor 9.5-11.2 feet below top of sediment |
| -25 | 10 | | | | | | | | | | |
| -26 | 11 | | | SS | 6 | 4 5 5 8 | 10 | 2/2 | 2.25 | 14.5 0 | |
| -27 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -28 | 13 | | | SS | 7 | 5 7 9 10 | 16 | 2/2 | 2.0 | 24.9 0 | Sampled 12.5-13 feet below top of sediment (001) (0900) |
| -29 | 14 | very stiff to stiff | | | | | | | | | |
| -30 | 15 | | | SS | 8 | 7 8 8 10 | 16 | 1.2/2 | 1.5 | 0 | |
| -31 | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB009B/TG009B |
| Coordinates: N 191197.134 E 1168320.274 | | Sediment Elevation (CCD): -19.40 | Page: 1 of 2 |
| Total Depth (feet): 20 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.4 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-20-06 To: 7-20-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -20 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1.5/2 | | 0 1.2 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -21 | 2 | | | | | | | | | | |
| -22 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 1.4/2 | | 11.8 8.8 | |
| -23 | 4 | | | | | | | | | | |
| -24 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1.9/2 | | 17.5 12.3 | |
| -25 | 6 | | | | | | | | | | |
| -26 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 19.2 32.3 | Slight tar-like odor 7-11.1 feet below top of sediment |
| -27 | 8 | | | | | | | | | | |
| -28 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 1.1/2 | | 13.1 14.9 | |
| -29 | 10 | | | | | | | | | | |
| -30 | 11 | | | SS | 6 | 2 3 3 4 | 6 | 2/2 | 2.0 | 33.3 9.5 | |
| -31 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, very stiff, low plasticity, moist<br>No Recovery | | | | | | | | | |
| -32 | 13 | | | SS | 7 | 5 7 8 8 | 15 | 0/2 | | | |
| -33 | 14 | | | | | | | | | | |
| -34 | 15 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, medium stiff, low plasticity, moist | | SS | 8 | 3 5 7 9 | 12 | 0.3/2 | 1.0 | 0.3 | |
| -35 | 16 | | | | | | | | | | |
| -36 | | | | SS | 9 | 5 7 | 14 | 1.3/2 | 1.0 | 0.7 | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB009B/TG009B
Page: 2 of 2
Date: 7-20-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -37 | 18 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, medium stiff, low plasticity, moist | | SS | 9 | 7 8 | . 14 | 1.3/2 | 1.0 | 0.4 | |
| -38 | 19 | | | SS | 10 | 3 6 | 13 | 1/2 | 1.0 | 0 | |
| -39 | | | | | | 7 9 | | | | | |
| | 20 | End of boring at 20 feet below top of sediment | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
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| | 33 | | | | | | | | | | |
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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB009C/TG009C |
| Coordinates: N 1911204.306 E 1168328.656 | | Sediment Elevation (CCD): -15.50 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -1.9 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-27-06 To: 7-27-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 / -17 | 1 / 2 | greenish Black (5GY 2/1) organic SILT (OL), trace fine gravel, trace coarse to fine sand, trace scrap metal, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -18 / -19 | 3 / 4 | No Recovery | | SS | 2 | WOH WOH WOH WOH | | 0/2 | | 0 | |
| -20 / -21 | 5 / 6 | greenish Black (5GY 2/1) organic SILT (OL), trace fine gravel, trace coarse to fine sand, trace scrap metal, very loose, saturated | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 / -23 | 7 / 8 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -24 / -25 | 9 / 10 | trace scrap metal to no scrap metal, trace wood | | SS | 5 | WOH WOH 1 1 | | 1/2 | | 0 | |
| -26 / -27 | 11 / 12 | little coal fragments, trace metal | | SS | 6 | WOH WOH 1 1 | | 2/2 | | 0 | |
| -28 / -29 | 13 / 14 | greenish Black (5GY 2/1) to Black (N1) | | SS | 7 | WOH WOH 2 3 | | 2/2 | 3.0 | 3.2 2.3 | Tar-like odor 12-13.5 feet below top of sediment. Sampled 13-13.5 feet below top of sediment (001) (0843) |
| -30 / -31 | 15 / 16 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | SS | 8 | 1 2 4 8 | 6 | 0.8/2 | 2.25 | 0 | |
| -32 | | | | SS | 9 | 6 6 | 15 | 1.3/2 | 2.25 | 0 | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB009C/TG009C
Page: 2 of 2
Date: 7-27-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -33 | | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | SS | 9 | 9 11 | . 15 | 1.3/2 | 1.5 | 0 | |
| | 18 | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB010/TG010 |
| Coordinates: N 1911231.991 E 1168365.775 | | Sediment Elevation (CCD): -11.60 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-19-06 To: 7-19-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -12 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, dense, saturated | | SS | 1 | 15 19 20 20 | 39 | 0.3/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -13 | 2 | No Recovery | | SS | 2 | 14 29 30 36 | 59 | 0/2 | | | |
| -14 | 3 | | | | | | | | | | |
| -15 | 4 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose to loose, saturated | | SS | 3 | 1 1 1 1 | 2 | 0.4/2 | | 5.9 | |
| -16 | 5 | | | | | | | | | | |
| -17 | 6 | | | SS | 4 | WOH 4 5 6 | 9 | 2/2 | | 7.0 | |
| -18 | 7 | | | | | | | | | | Slight tar-like odor 7-7.5 feet below top of sediment |
| -19 | 8 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, soft, low plasticity, moist | | | | | | | | 2.1 | |
| -20 | 9 | | | SS | 5 | 1 2 3 3 | 5 | 0.7/2 | 0.25 | 0.9 | |
| -21 | 10 | | | | | | | | | | |
| -22 | 11 | | | SS | 6 | 1 2 2 6 | 4 | 1.3/2 | 0.25 | 0 | |
| -23 | 12 | soft to stiff | | | | | | | | | |
| -24 | 13 | | | SS | 7 | 6 7 9 10 | 16 | 2/2 | 1.5 3.5 | 0 | |
| -25 | 14 | stiff to very stiff | | | | | | | | | |
| | 15 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB011/TG011 |
| Coordinates: N 1911236.068 E 1168335.891 | | Sediment Elevation (CCD): -11.60 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-19-06 To: 7-19-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -12 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -13 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 0.9/2 | | 0 | |
| -14 | 3 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -15 | 4 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -16 | 5 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 0.8 6.4 | Slight-tar-like odor 9.5-10 feet below top of sediment |
| -17 | 6 | | | SS | 6 | WOH WOH WOH WOH | | 1.8/2 | | 0 | |
| -18 | 7 | | | SS | 7 | 3 3 5 8 | 8 | 1.7/2 | 3.0 | 0 | |
| -19 | 8 | | | SS | 8 | 5 7 8 10 | 15 | 2/2 | 2.5 | 0 1.4 | |
| -20 | 9 | | | | | | | | | | |
| -21 | 10 | | | | | | | | | | |
| -22 | 11 | | | | | | | | | | |
| -23 | 12 | | | | | | | | | | |
| -24 | 13 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -25 | 14 | | | | | | | | | | |
| -26 | 15 | | | | | | | | | | |
| -27 | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB012/TG012 |
| Coordinates: N 1911229.946 E 1168322.057 | | Sediment Elevation (CCD): -13.40 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.9 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-20-06 To: 7-20-06 | Logged By: Eric Hanis | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 0.4/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 0.4/2 | | 10.6 | |
| -17 | 4 | | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1/2 | | 17 11.7 | |
| -19 | 6 | | | | | | | | | | |
| -20 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 6.5 10.5 | |
| -21 | 8 | | | | | | | | | | |
| -22 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 10.7 14.2 | |
| -23 | 10 | | | | | | | | | | Slight tar-like odor with possible diesel-like odor 9.5-11.4 feet below top of sediment Sampled 9.5-10 feet below top of sediment (001) (1630) |
| -24 | 11 | | | SS | 6 | 6 6 6 6 | 12 | 2/2 | 2.0 | 14.7 19.6 | |
| -25 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -26 | 13 | | | SS | 7 | 3 5 6 7 | 11 | 1.3/2 | 2.0 | 20.1 4.0 | |
| -27 | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

**DRAFT**

Burns & McDonnell
SINCE 1898

| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB013/TG013 |
| Coordinates: N 1911297.655 E 1168348.477 | | Sediment Elevation (CCD): -12.10 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.6 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-21-06 To: 7-21-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13 | 1 | greenish Black (5GY 2/1) organic SILT (OL), some coal fragments, little wood, trace medium to fine sand, loose, saturated | | SS | 1 | 0 2 3 5 | 5 | 0.6/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 2 | | | | | | | | | | |
| -15 | 3 | | | SS | 2 | 3 3 3 3 | 6 | 0.4/2 | | 0 | |
| -16 | 4 | little metal | | | | | | | | | |
| -17 | 5 | | | SS | 3 | 5 4 2 2 | 6 | 0.5/2 | | 0 | |
| -18 | 6 | trace medium to fine sand to some coarse sand | | | | | | | | | |
| -19 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 0.5/2 | | 0 | |
| -20 | 8 | | | | | | | | | | Slight tar-like odor 8-9.2 feet below top of sediment |
| -21 | 9 | | | SS | 5 | WOH WOH WOH 3 | | 1.4/2 | 1.5 | 0 | |
| -22 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff, low plasticity, wet | | | | | | | | | |
| -23 | 11 | | | SS | 6 | 2 4 5 7 | 9 | 1.4/2 | 1.5 2.0 | 0 | |
| -24 | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB014B/TG014B |
| Coordinates: N 1911278.887 E 1168320.446 | | Sediment Elevation (CCD): -13.10 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.6 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-21-06 To: 7-21-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, trace wood, trace coal fragments, very loose, saturated | | SS | 1 | WOH 1 WOH WOH | | 2/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -17 | 4 | | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1.7/2 | | 0 | |
| -19 | 6 | | | | | | | | | | |
| -20 | 7 | little to trace coarse to fine sand, saturated to moist | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -21 | 8 | | | | | | | | | | |
| -22 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 1.6/2 | | 0 | |
| -23 | 10 | | | | | | | | | | |
| -24 | 11 | | | SS | 6 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -25 | 12 | | | | | | | | | | |
| -26 | 13 | | | SS | 7 | WOH WOH 2 4 | | 2/2 | | 0 2.75 | |
| -27 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, hard to very stiff, low plasticity, moist | | | | | | | | | |
| -28 | 15 | | | SS | 8 | 5 7 7 8 | 14 | 1.2/2 | 4.5 3.5 | 0 | |
| -29 | 16 | | | | | | | | | | |
| -30 | | | | SS | 9 | 6 6 | 16 | 1.1/2 | 2.0 | 0 | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB014B/TG014B
Page: 2 of 2
Date: 7-21-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -31 | 18 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, hard to very stiff, low plasticity, moist | | SS | 9 | 10 10 | . 16 | 1.1/2 | 2.0 | 0 | |
| | | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
| | 26 | | | | | | | | | | |
| | 27 | | | | | | | | | | |
| | 28 | | | | | | | | | | |
| | 29 | | | | | | | | | | |
| | 30 | | | | | | | | | | |
| | 31 | | | | | | | | | | |
| | 32 | | | | | | | | | | |
| | 33 | | | | | | | | | | |
| | 34 | | | | | | | | | | |
| | 35 | | | | | | | | | | |

SAMPLING

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# Drilling Log

**DRAFT**

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB015/TG015 |
| Coordinates: N 1911281.966 E 1168310.259 | | Sediment Elevation (CCD): -14.20 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.7 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-21-06 To: 7-21-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -15 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little wood, trace fine gravel, trace coarse to fine sand, very loose, saturated | | SS | 1 | WOH 50/2" | | 1.2/2 | | 0 | Sample intervals SS1 through SS5 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. At 1.8', wood in shoe blocking advancement of spoon |
| -16 | 2 | | | | | | | | | | |
| -17 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 1.7/2 | | 0 | |
| -18 | 4 | little wood to no wood | | | | | | | | | |
| -19 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 6 | trace scrap metal | | | | | | | | | |
| -21 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 1.6/2 | | 0 | |
| -22 | 8 | | | | | | | | | | |
| -23 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 1.4/2 | | 0 | |
| -24 | 10 | | | | | | | | | | |
| -25 | 11 | saturated to moist | | SS | 6 | WOH WOH 2 2 | | 2/2 | | 0 | |
| -26 | 12 | | | | | | | | | | |
| -27 | 13 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | SS | 7 | 8 7 12 12 | 19 | 2/2 | 2.5 | 0 | |
| -28 | 14 | | | | | | | | | | |
| -29 | 15 | | | SS | 8 | 5 7 11 12 | 18 | 1.6/2 | 2.25 3.5 | 0 | |
| -30 | 16 | very stiff to stiff | | | | | | | | | |
| -31 | | | | SS | 9 | 6 7 | 16 | 2/2 | 1.75 | 0 | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB015/TG015
Page: 2 of 2
Date: 7-21-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | SAMPLING: Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -32 | 18 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | SS | 9 | 9<br>9 | .<br>16 | 2/2 | 1.5 | 0 | |
| | | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
| | 26 | | | | | | | | | | |
| | 27 | | | | | | | | | | |
| | 28 | | | | | | | | | | |
| | 29 | | | | | | | | | | |
| | 30 | | | | | | | | | | |
| | 31 | | | | | | | | | | |
| | 32 | | | | | | | | | | |
| | 33 | | | | | | | | | | |
| | 34 | | | | | | | | | | |
| | 35 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB016/TG016 |
| Coordinates: N 1911326.88 E 1168337.08 | | Sediment Elevation (CCD): -12.30 | Page: 1 of 1 |
| Total Depth (feet): 2 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.8 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-21-06 To: 7-21-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13<br>-14 | 1<br>2 | greenish Black (5GY 2/1) organic SILT (OL), little medium to fine sand, little shells, trace wood, medium dense, saturated | | SS | 1 | WOH<br>WOH<br>17<br>26 | | 0.6/2 | | 0 | Sample interval SS1 collected with a 3" diameter split spoon; N-values are not applicable for density determination. |
| | | Refusal: Steel obstruction - End of boring at 2 feet below top of sediment | | | | | | | | | |
| | 3 | | | | | | | | | | |
| | 4 | | | | | | | | | | |
| | 5 | | | | | | | | | | |
| | 6 | | | | | | | | | | |
| | 7 | | | | | | | | | | |
| | 8 | | | | | | | | | | |
| | 9 | | | | | | | | | | |
| | 10 | | | | | | | | | | |
| | 11 | | | | | | | | | | |
| | 12 | | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

SAMPLING

Depth to water while drilling

Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB016B/TG016 |
| Coordinates: N 1911330.517 E 1168336.235 | | Sediment Elevation (CCD): -12.30 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -1.8 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-21-06 To: 7-21-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13 | 1 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, little wood, trace coal fragments, very loose, saturated | | SS | 1 | 1 1 1 1 | 2 | 0.7/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 2 | | | | | | | | | | |
| -15 | 3 | | | SS | 2 | 1 1 1 1 | 2 | 0.8/2 | | 0 | |
| -16 | 4 | trace clay | | | | | | | | | |
| -17 | 5 | some to trace coarse to fine sand | | SS | 3 | WOH WOH WOH WOH | | 0.2/2 | | 0 | |
| -18 | 6 | | | | | | | | | | |
| -19 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0.5 0 | very slight tar-like odor at 6 feet below top of sediment |
| -20 | 8 | | | | | | | | | | |
| -21 | 9 | wood with creosote odor on top of clay<br>pale yellowish Brown (10YR 6/2) sitly CLAY (CL), trace coarse to fine sand, medium stiff to soft, low plasticity, moist | | SS | 5 | WOH WOH 2 3 | | 1/2 | 0.75 | 0 | |
| -22 | 10 | | | | | | | | | | |
| -23 | 11 | soft to stiff | | SS | 6 | 3 4 6 6 | 10 | 1.4/2 | 0.25 1.25 | 0 | |
| -24 | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB017/TG017 |
| Coordinates: N 1911326.319 E 1168312.223 | | Sediment Elevation (CCD): -12.60 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-24-06 To: 7-24-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13 | 1 | greenish Black (5GY 2/1) organic SILT (OL), trace wood, trace fine gravel, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1.2/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 2 | | | | | | | | | | |
| -15 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 0.4/2 | | 0 | |
| -16 | 4 | | | | | | | | | | |
| -17 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1.2/2 | | 0 | |
| -18 | 6 | trace wood and fine gravel to no wood and fine gravel, trace coarse to fine sand, saturated to wet | | | | | | | | | |
| -19 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 8 | | | | | | | | | | |
| -21 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 0 0.1 | Sampled 8-8.5 feet below top of sediment (001) (1407) Tar-like odor 8.5-11 feet below top of sediment |
| -22 | 10 | | | | | | | | | | |
| -23 | 11 | | | SS | 6 | 1 1 3 4 | 4 | 2/2 | 1.5 | 37.3 3.8 | |
| -24 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff, low plasticity, moist No Recovery | | | | | | | | | |
| -25 | 13 | | | SS | 7 | WOH WOH 1 1 | | 0/2 | | | |
| -26 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff, low plasticity, moist | | | | | | | | | |
| -27 | 15 | | | SS | 8 | 4 5 6 9 | 11 | 0.9/2 | 1.5 | 0 | |
| -28 | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

**DRAFT**

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB018/TG018 |
| Coordinates: N 1911323.099 E 1168296.597 | | Sediment Elevation (CCD): -13.60 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-24-06 To: 7-24-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), trace coal fragments, trace roots, trace coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1.8/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 1.8/2 | | 0 | |
| -17 | 4 | | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -19 | 6 | | | | | | | | | | |
| -20 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 27.9 | Petroleum-like odor at 7.5 feet below top of sediment Sampled 7.5-8 feet below TOS (001) (1529) |
| -21 | 8 | | | | | | | | | | |
| -22 | 9 | saturated to moist | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -23 | 10 | | | | | | | | | | |
| -24 | 11 | | | SS | 6 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -25 | 12 | | | | | | | | | | |
| -26 | 13 | | | SS | 7 | 4 5 5 8 | 10 | 2/2 | 3.5 | 0 | |
| -27 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist<br>End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB019/TG019 |
| Coordinates: N 1911376.449 E 1168322.625 | | Sediment Elevation (CCD): -10.50 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-25-06 To: 7-25-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -11 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little wood, little fine gravel, trace coarse to fine sand, loose, saturated | | SS | 1 | WOH 3 3 4 | 6 | 1/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -12 | 2 | | | | | | | | | | |
| -13 | 3 | | | SS | 2 | 1 2 3 3 | 5 | 0.5/2 | | 0 | |
| -14 | 4 | | | | | | | | | | |
| -15 | 5 | | | SS | 3 | WOH 3 2 3 | 5 | 1.5/2 | | 19.0 25.1 | Tar-like odor 4-7.5 feet below top of sediment |
| -16 | 6 | loose to very loose | | | | | | | | | |
| -17 | 7 | | | SS | 4 | WOH WOH WOH 2 | | 2/2 | 0.5 | 14.1 9.0 | Sampled 7-7.5 feet below top of sediment (001) (0855) |
| -18 | 8 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, soft, low plasticity, wet to moist | | | | | | | | | |
| -19 | 9 | | | SS | 5 | WOH WOH 1 1 | | 0.7/2 | 0.5 | 2.9 | |
| -20 | 10 | | | | | | | | | | |
| -21 | 11 | | | SS | 6 | WOH WOH 3 3 | | 1.4/2 | 0.25 | 0 | |
| -22 | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB019B/TG019 |
| Coordinates: N 1911376.048 E 1168318.001 | | Sediment Elevation (CCD): -11.50 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-25-06 To: 7-25-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -12 | 1 | No Recovery | | SS | 1 | 100/5" | | 0/2 | | | Steel and wood in shoe, blocking advancement of spoon |
| -13 | 2 | | | | | | | | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 3 | | | SS | 2 | WOH 6 8 WOH | 14 | 0/2 | | | |
| -15 | 4 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, little fine gravel, loose, saturated | | SS | 3 | 5 5 5 5 | 10 | 0.3/2 | | 0 | |
| -16 | 5 | | | | | | | | | | |
| -17 | 6 | No Recovery | | SS | 4 | 1 1 1 1 | 2 | 0/2 | | | |
| -18 | 7 | | | | | | | | | | |
| -19 | 8 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, slight sheen, little fine gravel, loose to very loose, saturated | | SS | 5 | 1 1 1 1 | 2 | 1/2 | | 0 | |
| -20 | 9 | | | | | | | | | | |
| -21 | 10 | | | SS | 6 | WOH WOH WOH WOH | | 1.2/2 | | 4.3 | Petroleum-like odor 10-12 feet below top of sediment |
| -22 | 11 | | | | | | | | | | Sampled 10.5-11 feet below top of sediment (001) (0955) |
| -23 | 12 | | | SS | 7 | WOH WOH WOH 4 | | 1.6/2 | 0.5 | 0 | Slight petroleum-like odor 12-12.8 feet below top of sediment |
| -24 | 13 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, medium stiff to stiff, low plasticity, moist | | | | | | | | | |
| -25 | 14 | medium stiff to stiff | | SS | 8 | 2 2 5 9 | 7 | 1.2/2 | 1.5 | 0 | |
| -26 | 15 | | | | | | | | | | |
| -27 | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB019C/TG019 |
| Coordinates: N 1911369.69 E 1168323.901 | | Sediment Elevation (CCD): -10.50 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-25-06 To: 7-25-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -11 | 1 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, trace shells, trace wood, loose, saturated | | SS | 1 | 7 4 3 3 | 7 | 0.6/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -12 | 2 | trace fine gravel | | SS | 2 | 2 3 6 7 | 9 | 0.4/2 | | 0 | |
| -13 | 3 | | | | | | | | | | |
| -14 | 4 | trace brick, sheen | | SS | 3 | 2 3 4 4 | 7 | 0.5/2 | | 0 | |
| -15 | 5 | | | | | | | | | | |
| -16 | 6 | some clay, loose to very loose | | SS | 4 | 1 1 1 1 | 2 | 0.6/2 | | 0 | |
| -17 | 7 | | | | | | | | | | |
| -18 | 8 | | | | | | | | | | |
| -19 | 9 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, soft, low plasticity, moist | | SS | 5 | 2 3 5 9 | 8 | 2/2 | 0.5 | 0 | No tar-like impacts observed within split spoons; however, tar-like impacts were observed on auger cuttings (i.e. strong tar-like odor, some tar-like saturation) |
| -20 | 10 | | | | | | | | | | |
| -21 | 11 | | | SS | 6 | 2 2 2 3 | 4 | 2/2 | 0.25 0.5 | 0 | |
| -22 | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB019D/TG019 |
| Coordinates: N 1911384.031 E 1168321.431 | | Sediment Elevation (CCD): -10.30 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-25-06 To: 7-25-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

Depth to water while drilling
Depth to water after drilling

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -11 / -12 | 1 / 2 | greenish Black (5GY 2/1) organic SILT (OL), some coarse to fine sand, trace fine gravel, trace brick, trace wood, trace clay, very dense, saturated | | SS | 1 | 25 29 25 27 | 54 | 1.1/2 | | 0 | Sample intervals SS1 through SS2 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -13 / -14 | 3 / 4 | very dense to medium dense | | SS | 2 | 8 7 9 10 | 16 | 0.2/2 | | 0 | |
| -15 / -16 | 5 / 6 | some coal fragments, medium dense to very loose | | SS | 3 | WOH WOH WOH WOH | | 0.6/2 | | 0 | Sand pump used to collect soil 4-8 feet below top of sediment; N-values are not applicable for density determination. |
| -17 / -18 | 7 / 8 | | | SS | 4 | WOH WOH WOH WOH | | 0.4/2 | | 0 | |
| -19 / -20 | 9 / 10 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 4.3 / 0 | Strong tar-like odor 8-12 feet below top of sediment; Sampled 9.5-10 feet below top of sediment (001) (1358) |
| -21 / -22 | 11 / 12 | trace roots; pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, medium stiff, low plasticity, moist | | SS | 6 | 1 1 1 1 | 2 | 1.5/2 | | 0 / 16.8 | |
| -23 / -24 | 13 / 14 | | | SS | 7 | 1 1 2 3 | 3 | 0.7/2 | 0.5 | 0 | |
| -25 / -26 | 15 / 16 | | | SS | 8 | 2 1 1 2 | 2 | 0.9/2 | 0.25 | 0 | |
| | | End of boring at 16 feet below top of sediment | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB020B/TG020B |
| Coordinates: N 1911375.349 E 1168298.635 | | Sediment Elevation (CCD): -13.20 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.4 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little fine gravel, trace wood, trace coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1.6/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 4.1 | |
| -17 | 4 | | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 1.3 18.6 | |
| -19 | 6 | saturated to wet at 6 feet | | | | | | | | | |
| -20 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 12.4 6.1 | |
| -21 | 8 | | | | | | | | | | |
| -22 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 1.4 4.4 | |
| -23 | 10 | | | | | | | | | | |
| -24 | 11 | | | SS | 6 | 3 3 4 6 | 7 | 2/2 | 1.75 | 0 | Sampled 10.5-11 feet below top of sediment (001) |
| -25 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff, low plasticity, moist | | | | | | | | | |
| -26 | 13 | | | SS | 7 | 4 4 6 10 | 10 | 1.1/2 | 2.0 | 0 | |
| -27 | 14 | | | | | | | | | | |
| -28 | 15 | | | SS | 8 | 2 4 4 9 | 8 | 0.9/2 | 1.5 | 0 | |
| -29 | 16 | End of boring at 16 feet below top of sediment | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB021/TG021 |
| Coordinates: N 1911376.592 E 1168279.205 | | Sediment Elevation (CCD): -13.30 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.5 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | 1 | greenish Black (5GY 2/1) organic SILT (OL), trace coarse to fine sand, trace wood, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 1.7/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -15 | 2 | | | | | | | | | | |
| -16 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 0.7 | |
| -17 | 4 | trace camera film | | | | | | | | | |
| -18 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -19 | 6 | | | | | | | | | | |
| -20 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -21 | 8 | trace wood to no wood | | | | | | | | | |
| -22 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | | 0 1.9 | |
| -23 | 10 | | | | | | | | | | |
| -24 | 11 | | | SS | 6 | 3 5 5 7 | 10 | 2/2 | 2.5 | 0 | |
| -25 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, stiff, low plasticity, moist | | | | | | | | | |
| -26 | 13 | | | SS | 7 | 2 1 2 2 | 3 | 0.7/2 | 1.5 | 0 | |
| -27 | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB022/TG022 |
| Coordinates: N 1911425.303 E 1168309.991 | | Sediment Elevation (CCD): -12.00 | Page: 1 of 1 |
| Total Depth (feet): 10 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.5 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | ▽ Depth to water while drilling; ▼ Depth to water after drilling |
| -13 | 1 | greenish Black (5GY 2/1) organic SILT (OL), some fine gravel, little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH 1 2 | | 1/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 2 | trace scrap metal, trace clay | | | | | | | | | |
| -15 | 3 | | | SS | 2 | WOH WOH 3 1 | | 0.6/2 | | 0 | |
| -16 | 4 | | | | | | | | | | |
| -17 | 5 | little to some coarse to fine sand, trace to little clay | | SS | 3 | 1 1 1 1 | 2 | 2/2 | | 0 1.9 | |
| -18 | 6 | FILL: olive Gray (5Y 4/1) silty clay, slight sheen, some coarse to fine sand, little fine gravel, trace brick, trace metal, very soft, low plasticity, wet | | SS | 4 | WOH 2 2 2 | 4 | 2/2 | <0.25 | 1.1 1.3 | Tar-like odor 5.5-6 feet below top of sediment; Sampled 5.5-6 feet below top of sediment (001) (1009) |
| -19 | 7 | | | | | | | | | | |
| -20 | 8 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, medium stiff to stiff, low plasticity, moist | | SS | 5 | 4 5 7 10 | 12 | 1.7/2 | 0.5 2.0 | 0 | |
| -21 | 9 | | | | | | | | | | |
| -22 | 10 | End of boring at 10 feet below top of sediment | | | | | | | | | |
| | 11 | | | | | | | | | | |
| | 12 | | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB023/TG023 |
| Coordinates: N 1911424.913 E 1168283.636 | | Sediment Elevation (CCD): -9.90 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.4 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -10 | | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | | | | | | | | Depth to water while drilling; Depth to water after drilling; Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -11 | 1 | | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -12 | 2 | | | | | | | | | | |
| -13 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -14 | 4 | little to trace coarse to fine sand | | | | | | | | | |
| -15 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -16 | 6 | | | | | | | | | | |
| -17 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 / 1.4 | |
| -18 | 8 | | | | | | | | | | |
| -19 | 9 | | | SS | 5 | WOH WOH WOH 4 | | 2/2 | | 0 / 0.6 | |
| -20 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -21 | 11 | | | SS | 6 | 2 4 4 9 | 8 | 1.2/2 | 3.25 | 0 | |
| | 12 | End of boring at 12 feet below top of sediment | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB024/TG024 |
| Coordinates: N 1911418.91 E 1168253.967 | | Sediment Elevation (CCD): -15.90 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.4 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | | greenish Black (5GY 2/1) organic SILT (OL), some to little fine gravel, trace metal, trace plastic, trace shells, trace wood, very loose, saturated | | | | | | | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -17 | 1 | | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 1.7 | |
| -18 | 2 | saturated to wet at 2 feet below top of sediment | | | | | | | | | |
| -19 | 3 | little coarse sand at 3 feet below top of sediment | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 4 | | | | | | | | | | |
| -21 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 | 6 | little coarse to fine sand, trace coal | | | | | | | | | |
| -23 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | 2.5 | 0 | |
| -24 | 8 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist<br>No Recovery | | | | | | | | | |
| -25 | 9 | | | SS | 5 | 3 4 6 6 | 10 | 0/2 | | | |
| -26 | 10 | | | | | | | | | | |
| -27 | 11 | | | SS | 6 | 4 5 8 10 | 13 | 0/2 | | | |
| -28 | 12 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -29 | 13 | | | SS | 7 | 7 7 7 10 | 14 | 1.7/2 | 2.0 | 0 | |
| | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB024B/TG024 |
| Coordinates: N 1911414.881 E 1168259.216 | | Sediment Elevation (CCD): -15.70 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -1.9 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-27-06 To: 7-27-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | | greenish Black (5GY 2/1) organic SILT (OL), trace coarse to fine sand, trace wood, trace coal fragments, very loose, saturated | | | | | | | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -17 | 1 | | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 2.5 | |
| -18 | 2 | | | | | | | | | | |
| -19 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 0.6 | |
| -20 | 4 | trace to some coarse sand, saturated to wet | | | | | | | | | |
| -21 | 5 | trace glass | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 | 6 | | | | | | | | | | |
| -23 | 7 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plastaicity, moist | | SS | 4 | WOH WOH WOH WOH | | 1.7/2 | 1.25 | 10.7 4.0 | Sampled 6.5-7 feet below top of sediment (001) (1007); petroleum-like odor at 6.8 feet below top of sediment |
| -24 | 8 | | | | | | | | | | |
| -25 | 9 | | | SS | 5 | 6 6 13 20 | 19 | 0.8/2 | 2.0 | 7.4 | |
| -26 | 10 | | | | | | | | | | |
| -27 | 11 | | | SS | 6 | 1 1 4 6 | 5 | 0.8/2 | 2.0 | 0 | |
| -28 | 12 | | | | | | | | | | |
| -29 | 13 | | | SS | 7 | 1 1 4 9 | 5 | 1.8/2 | 2.25 | 4.3 | |
| | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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| | | | |
|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB025/TG025 |
| Coordinates: N 1911423.192 E 1168234.789 | | Sediment Elevation (CCD): -16.90 | Page: 1 of 1 |
| Total Depth (feet): 10 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.4 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -17 | | greenish Black (5GY 2/1) organic SILT (OL), trace rubber, trace coal fragments, trace coarse to fine sand, trace metal, very loose, saturated | | | | | | | | | Depth to water while drilling; Depth to water after drilling; Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -18 | 1 | | | SS | 1 | WOH WOH WOH 1 | | 2/2 | | 0 0.1 | |
| -19 | 2 | | | | | | | | | | |
| -20 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 0.5 | |
| -21 | 4 | | | | | | | | | | |
| -22 | 5 | | | SS | 3 | WOH WOH WOH 3 | | 2/2 | | 0 | |
| -23 | 6 | | | | | | | | | | |
| -24 | 7 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | SS | 4 | 3 4 6 9 | 10 | 2/2 | 3.0 | 0 | |
| -25 | 8 | | | | | | | | | | |
| -26 | 9 | | | SS | 5 | 2 2 4 6 | 6 | 0.8/2 | 2.0 | 0 | |
| | 10 | End of boring at 10 feet below top of sediment | | | | | | | | | |
| | 11 | | | | | | | | | | |
| | 12 | | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB026/TG026 |
| Coordinates: N 1911413.705 E 1168210.047 | | Sediment Elevation (CCD): -17.10 | Page: 1 of 1 |
| Total Depth (feet): 8 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.3 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SAMPLING | | | | | | | ▽ Depth to water while drilling; ▼ Depth to water after drilling |
| -18 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little wood, little coarse to fine sand, very loose, saturated<br>little to no wood | | SS | 1 | WOH<br>WOH<br>WOH<br>WOH | | 2/2 | | 0 | Sample intervals SS1 through SS2 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -19 | 2 | little coal fragments | | | | | | | | | |
| -20 | 3 | | | SS | 2 | WOH<br>WOH<br>WOH<br>WOH | | 1/2 | | 0 | |
| -21 | 4 | | | | | | | | | | |
| -22 | 5 | | | SS | 3 | WOH<br>6<br>10<br>6 | 16 | 2/2 | 2.25 | 0 | |
| -23 | 6 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff, low plasticity, moist | | | | | | | | | |
| -24 | 7 | | | SS | 4 | 1<br>6<br>8<br>9 | 14 | 0.9/2 | 2.75 | 0 | |
| -25 | 8 | End of boring at 8 feet below top of sediment | | | | | | | | | |
| | 9 | | | | | | | | | | |
| | 10 | | | | | | | | | | |
| | 11 | | | | | | | | | | |
| | 12 | | | | | | | | | | |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB029/TG029 |
| Coordinates: N 1911465.838 E 1168243.571 | | Sediment Elevation (CCD): -15.00 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -1.9 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-27-06 To: 7-27-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, little wood, trace coal fragments, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS1 through SS4, and SS6 were collected with a 3" split spoon; Sample interval SS5 was collected with a 3.5" diameter split spoon; N values are not applicable for density determination. 2" split spoon used to collect sample interval SS7. |
| -16 | 1 | | | | | | | | | | |
| -17 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -18 | 3 | | | | | | | | | | |
| -19 | 4 | trace scrap metal | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 5 | | | | | | | | | | |
| -21 | 6 | | | SS | 4 | WOH WOH 5 9 | | 2/2 | | 1.4 1.8 | |
| -22 | 7 | | | | | | | | | | |
| | | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | | | | | | | | |
| -23 | 8 | | | SS | 5 | 3 7 10 16 | 17 | 1/2 | 2.75 | 0 | |
| -24 | 9 | | | | | | | | | | |
| -25 | 10 | | | SS | 6 | 6 7 9 13 | 16 | 1.6/2 | 1.5 | 0 | |
| -26 | 11 | | | | | | | | | | |
| -27 | 12 | | | SS | 7 | 4 5 6 9 | 11 | 2/2 | 1.25 | 0 | |
| -28 | 13 | | | | | | | | | | |
| -29 | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling

Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB032/TG032 |
| Coordinates: N 1911519.434 E 1168254.536 | | Sediment Elevation (CCD): -12.80 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.3 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-26-06 To: 7-26-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -13 | | olive Gray (5Y 4/1) organic SILT (OL), trace wood, little coal fragments, trace coarse to fine sand, trace shells, very loose, saturated | | | | | | | | | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -14 | 1 | olive Gray (5Y 4/1) to greenish Black (5GY 2/1), little to trace coal fragments, trace to no shells | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -15 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -16 | 3 | | | | | | | | | | |
| -17 | 4 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -18 | 5 | | | | | | | | | | |
| -19 | 6 | trace coarse to fine sand to some medium to fine sand | | SS | 4 | WOH WOH WOH WOH | | 0.8/2 | | 0 | |
| -20 | 7 | | | | | | | | | | |
| -21 | 8 | little clay | | SS | 5 | WOH WOH WOH 2 | | 2/2 | | 0 | |
| -22 | 9 | | | | | | | | | | |
| -23 | 10 | | | SS | 6 | 5 6 7 9 | 13 | 2/2 | 3.5 | 0 | |
| -24 | 11 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | | | | | | | | |
| -25 | 12 | | | SS | 7 | 4 5 7 10 | 12 | 0.6/2 | 1.5 | 0 | |
| -26 | 13 | | | | | | | | | | |
| -27 | 14 | stiff to very stiff | | SS | 8 | 3 3 5 5 | 8 | 0.6/2 | 2.75 | 0 | |
| -28 | 15 | | | | | | | | | | |
| -29 | 16 | | | SS | 9 | 4 6 | 13 | 0.9/2 | 2.25 | 0 | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB032/TG032
Page: 2 of 2
Date: 7-26-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -30 | | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | SS | 9 | 7 11 | . 13 | 0.9/2 | 2.25 | 0 | |
| | 18 | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
| | 26 | | | | | | | | | | |
| | 27 | | | | | | | | | | |
| | 28 | | | | | | | | | | |
| | 29 | | | | | | | | | | |
| | 30 | | | | | | | | | | |
| | 31 | | | | | | | | | | |
| | 32 | | | | | | | | | | |
| | 33 | | | | | | | | | | |
| | 34 | | | | | | | | | | |
| | 35 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB032B/TG032 |
| Coordinates: N 1911515.541 E 1168253.796 | | Sediment Elevation (CCD): -13.90 | Page: 1 of 2 |
| Total Depth (feet): 18 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -1.9 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-27-06 To: 7-27-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

## River Sediment Investigation

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -14 | | | | | | | | | | | Depth to water while drilling; Depth to water after drilling |
| -15 | 1 | greenish Black (5GY 2/1) organic SILT (OL), trace coarse to fine sand, trace coal fragments, trace wood, trace scrap metal, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS1 through SS6 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -16 | 2 | | | | | | | | | | |
| -17 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -18 | 4 | | | | | | | | | | |
| -19 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 6 | | | | | | | | | | |
| -21 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -22 | 8 | trace to little coarse to medium sand, trace coal and scrap metal to no coal and scrap metal | | | | | | | | | |
| -23 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 1.9/2 | | 0 | |
| -24 | 10 | | | | | | | | | | |
| -25 | 11 | | | SS | 6 | WOH 1 1 1 | 2 | 2/2 | | 0 | |
| -26 | 12 | | | | | | | | | | |
| -27 | 13 | | | SS | 7 | WOH 6 10 15 | 16 | 2/2 | 2.5 | 0 | Sample intervals SS7 through SS9 were collected with a 3.5" diameter split spoon; N-values are not applicable for density determination. |
| -28 | 14 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | | | | | | | | |
| -29 | 15 | | | SS | 8 | 6 6 10 17 | 16 | 1.8/2 | 1.75 | 4.3 0.5 | |
| -30 | 16 | | | SS | 9 | 1 2 | 3 | 0.8/2 | 1.75 | 0 | |

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# Drilling Log, continued

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Project Name: Willow St. Station - River
Project Number: 32088

Boring/Monitoring Well Number: RSB032B/TG032
Page: 2 of 2
Date: 7-27-06

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -31 | | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, very stiff to stiff, low plasticity, moist | | SS | 9 | 1 4 | 3 | 0.8/2 | 1.75 | 0 | |
| | 18 | End of boring at 18 feet below top of sediment | | | | | | | | | |
| | 19 | | | | | | | | | | |
| | 20 | | | | | | | | | | |
| | 21 | | | | | | | | | | |
| | 22 | | | | | | | | | | |
| | 23 | | | | | | | | | | |
| | 24 | | | | | | | | | | |
| | 25 | | | | | | | | | | |
| | 26 | | | | | | | | | | |
| | 27 | | | | | | | | | | |
| | 28 | | | | | | | | | | |
| | 29 | | | | | | | | | | |
| | 30 | | | | | | | | | | |
| | 31 | | | | | | | | | | |
| | 32 | | | | | | | | | | |
| | 33 | | | | | | | | | | |
| | 34 | | | | | | | | | | |
| | 35 | | | | | | | | | | |

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB040/TG040 |
| Coordinates: N 1911323.706 E 1168273.545 | | Sediment Elevation (CCD): -14.40 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-24-06 To: 7-24-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -15 | 1 | greenish Black (5GY 2/1) organic SILT (OL), trace coarse to fine sand, trace brick, trace coal fragments, trace wood, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 0.9/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -16 | 2 | | | | | | | | | | |
| -17 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -18 | 4 | | | | | | | | | | |
| -19 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 0 | |
| -20 | 6 | | | | | | | | | | |
| -21 | 7 | | | SS | 4 | WOH WOH WOH WOH | | 1.5/2 | | 0 | |
| -22 | 8 | | | | | | | | | | |
| -23 | 9 | | | SS | 5 | WOH WOH WOH WOH | | 2/2 | 0.25 | 0 | |
| -24 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), trace coarse to fine sand, soft, medium plasticity, moist soft to very stiff | | | | | | | | | |
| -25 | 11 | | | SS | 6 | WOH 5 5 8 | 10 | 0.9/2 | 2.5 | 0 | |
| -26 | 12 | | | | | | | | | | |
| -27 | 13 | | | SS | 7 | 4 7 9 12 | 16 | 1.4/2 | 2.25 | 0 | |
| -28 | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

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# Drilling Log

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|---|---|---|---|
| Project Name: Willow St. Station - River | | Project No.: 32088 | Boring/Monitoring Well Number: RSB041/TG041 |
| Coordinates: N 1911202.289 E 1168303.946 | | Sediment Elevation (CCD): -16.60 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Bob Dreyer | River Elevation (CCD): -2.1 |
| Drilling Rig: CME 55 LC | | Drilling Company: Mateco | |
| Date: 7-19-06 To: 7-19-06 | Logged By: Kathi Wotal | Reviewed by: Paul Sponaugle | Approved by: Scott Letzel |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetro-meter (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -17 | 1 | greenish Black (5GY 2/1) organic SILT (OL), little coarse to fine sand, very loose, saturated | | SS | 1 | WOH WOH WOH WOH | | 0.7/2 | | 0 | Sample intervals SS1 through SS4 were collected with a 3" diameter split spoon; N-values are not applicable for density determination. 2" split spoon used to collect all other sample intervals. |
| -18 | 2 | | | SS | 2 | WOH WOH WOH WOH | | 1.8/2 | | 0 | |
| -19 | 3 | | | SS | 3 | 2 2 2 2 | 4 | 1.5/2 | | 0 | |
| -20 | 4 | | | SS | 4 | WOH WOH 2 3 | | 2/2 | 1.5 | 0 | |
| -21 | 5 | | | SS | 5 | 2 2 3 4 | 5 | 0/2 | | | |
| -22 | 6 | | | SS | 6 | 5 7 8 8 | 15 | 1.7/2 | 1.5 | 12.2 0 | |
| -23 | 7 | | | SS | 7 | 4 4 7 8 | 11 | 1/2 | 1.5 | 0 | |
| -24 | 8 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little fine gravel, little coarse to fine sand, stiff, low plasticity, moist<br>No Recovery | | | | | | | | | |
| -25 | 9 | | | | | | | | | | |
| -26 | 10 | pale yellowish Brown (10YR 6/2) silty CLAY (CL), little coarse to fine sand, little fine gravel, stiff, low plasticity, moist | | | | | | | | | |
| -27 | 11 | | | | | | | | | | |
| -28 | 12 | | | | | | | | | | |
| -29 | 13 | | | | | | | | | | |
| -30 | 14 | End of boring at 14 feet below top of sediment | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

*Privileged and Confidential*
*Subject to the Attorney Client Privilege*
*and Attorney Work Product Doctrines*

# DRAFT

**RIVER SEDIMENT INVESTIGATION**
**FORENSIC ANALYTICAL RESULTS**

# Environmental Laboratory Report

## Peoples Gas – Former Willow Street Station

**SDG:** BR060719, BR060720, BR060721, BR060725, BR060726, BR060727, BR060728, BR060731

*Report To:*

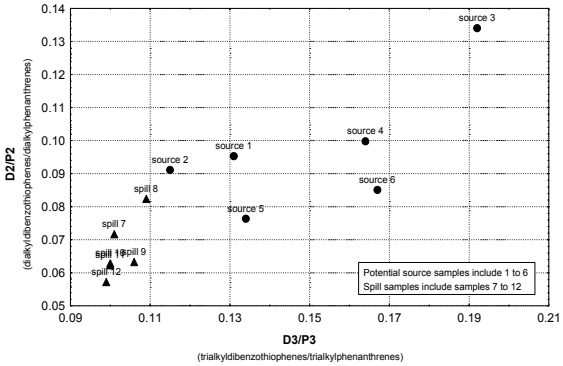
**Burns & Mcdonnell**
**1431 Opus Place, Suite 400**
**Downers Grove, Il 60515-1164**

*Report By:*

**META Environmental, Inc.**
**49 Clarendon Street**
**Watertown, MA 02472**

**August 17, 2006**

Figure 1. Double Ratio Plot




***Identifying and allocating sources of pollutants in complex environments.***

META Environmental, Inc.
ENGINEERING & CHEMISTRY

Final Laboratory Report

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

Phone: 617-923-4662
Fax: 617-923-4610
E-Mail meta@metaenv.com

## Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. Release of the data contained in this hardcopy data package has been authorized by the Senior Chemist and Quality Assurance Officer, as verified by the following signatures.

James A. Roush
Environmental Scientist, Laboratory Manager

8/18/06
Date

David M. Mauro
Senior Scientist, Quality Assurance Officer

8/18/06
Date

## Sample Delivery Group Narrative

| | |
|---|---|
| Project: | Peoples Gas – Former Willow Street Station |
| | Burns & Mcdonnell<br>1431 Opus Place, Suite 400<br>Downers Grove, Il 60515-1164 |
| Report Contact: | Diane Saftic |
| Dates of Receipt: | Samples Received between 07/19/06 and 07/31/06 |
| Sample Summary: | The samples received for this project are summarized in the attached sample login forms. |
| META Project Number: | B14006 |

## Chain of Custody

The samples were received in good condition. The internal temperature of the shipment containers were as follows:

| | | |
|---|---|---|
| Sample received: | 07/19/06 | 0.2°C |
| | 07/20/06 | 3.0°C |
| | 07/21/06 | 3.3°C |
| | 07/25/06 | 0.5°C |
| | 07/26/06 | 2.4°C |
| | 07/27/06 | 1.3°C |
| | 07/28/06 | 1.8°C |
| | 07/31/06 | 1.8°C |

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page. The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

## Methods

The soil samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) and GC/MS/SIM (EPA 8270M).

## Results

Sample results are presented in summary forms (CLP Form 1 equivalent) which follow this narrative.

## Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

The soil samples were extracted within holding times. The samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion with the following exceptions; eight samples including *WSS-RSB009-001 (12.5'-13')*, *WSS-RSB017-001(8'-8.5')*, *WSS-RSB018-001(7.5'-8')*, *WSS-RSB020B-001(10.5'-11')*, *WSS-RSB022-001(5.5'-6')*, *WSS-RSB009C-001(13'-13.5')*, *WSS-RSB024B-001(6.5'-7.0')* and the duplicate of *WSS-RSB019B-001(10.5'-11)* had over-recoveries for perylene-d12. These over-recoveries are due to sample matrix

interference compounded by dilution. In addition toluene-$d_8$ and phenanthrene-$d_{10}$ were low in *WSS-RSB018-001(7.5'-8')* (30% and 29% respectively). Fine particulate carbon like material was noted to be present in the extract which may be the cause of the low recoveries.

Blanks

Various compounds were detected at low levels in the laboratory soil blanks. All field samples had concentrations of these compounds at levels greater than 10 times the blank levels.

Blank Spikes

A blank spike sample was extracted with each soil batch. All spiked compounds were recovered within criteria with the following exceptions; dibenz[a,h]anthracene was under-recovered at 47% in blank spike BR060728-SBS. This exceedance is just outside the acceptable limits of 50-120%.

Duplicates

Samples *WSS*-RSB019B-*001 (10.5'-11')* and *WSS-RSB001-001 (11.5'-12')* were extracted in duplicate. Relative percent differences (RPDs) are presented on the Form 1 reports (Appendix C).

**Attachments:**

Appendix A: Chains of Custody
Appendix B: GC/FID Chromatograms
Appendix C: MAH/PAH Concentrations
Appendix D: Extended MAH/PAH Profiles – Histograms
Appendix E: Extracted Ion Current Profiles (EICPs)

# Appendix A

# Chains of Custody

Burns & McDonnell
SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-385-2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Sample Number | | | Sample Event | | Sample Depth (in feet) | | Sample Collected | | Matrix | | | Number of Containers | Parameter/Method Code: Fingerprint | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group or SWMU Name | Sample Point | Sample Designator | Round | Year | From | To | Date | Time | Liquid | Solid | Gas | | | | | | | | |
| WSS | RSB004 | 001 | — | — | 9 | 10 | 7/18/06 | 0837 | | X | | 1 | X | | | | | | BR060719-01 |
| WSS | RSB006 | 001 | — | — | 9 | 9.5 | 7/18/06 | 1220 | | X | | 1 | X | | | | | | -02 |
| WSS | RSB008 | 001 | — | — | 15 | 15.6 | 7/18/06 | 1630 | | X | | 1 | X | | | | | | -03 |

ALH
7-18-06

Sampler (signature): Amy Hanrahan
Sampler (signature):
Custody Seal Number: 115501, 115502
FedEx # 857435698620
Special Instructions:

Relinquished By (signature): 1. Amy Hanrahan
Date/Time: 7/18/06 1800
Received By (signature): Fed Ex
Date/Time:

Relinquished By (signature): 2.
Date/Time:
Received By (signature): Laurie A Lunkin
Date/Time: 7/19/06 10:00

Ice Present in Container: Yes [X] No [ ]
Temperature Upon Receipt: 0.2 °C
Laboratory Comments: samples recvd in good condition

061301 Form WCD-KC1-CHI

# META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060719-01 | WSS-RSB004-001 (9'-10') | Soil | 2508 | | 4007/4008 | 7/18/2006 | 7/19/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060719-02 | WSS-RSB006-001 (9'-9.5') | Soil | 2508 | | 4007/4008 | 7/18/2006 | 7/19/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060719-03 | WSS-RSB008-001 (15'-15.6') | Soil | 2508 | | 4007/4008 | 7/18/2006 | 7/19/2006 | B14002-60 | 1x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: U

Date: 7/19/2006



Reviewed By: JM

Date: 7/19/06

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-3860-2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Sample Number | | | Sample Event | | Sample Depth (in feet) | | Sample Collected | | Matrix | | | Number of Containers | Parameter/Method Code: Fingerprint | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group or SWMU Name | Sample Point | Sample Designator | Round | Year | From | To | Date | Time | Liquid | Solid | Gas | | | | | | | | |
| WSS | PSB009 | 001 | — | — | 12.5 | 13 | 7/19/06 | 0900 | | X | | 1 | X | | | | | | BR060720-01 |

ALH 7/19/06

Sampler (signature): Amy Hamrahan

Sampler (signature):

Custody Seal Number: 115503, 115504

Fed Ex #: 8574 3569 8550

Special Instructions:

Relinquished By (signature): 1. Amy Hamrahan — Date/Time: 1700 7/19/06

Received By (signature): Fed Ex — Date/Time:

Ice Present in Container: Yes [X] No [ ]

Temperature Upon Receipt: ~ 0.4°C 3.0°C

Relinquished By (signature): 2. — Date/Time:

Received By (signature): Laurie A Tarkin — Date/Time: 7/20/06 10:00 AM

Laboratory Comments: Sample recvd in good condition

061301 Form WCD-KC1-CHI

**META Environmental, Inc.**

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060720-01 | WSS-RSB009-001 (12.5'-13') | Soil | 2508 | | 4007/4008 | 7/19/2006 | 7/20/2006 | B14002-60 | 1 x 6 0z jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: W

Date: 7/20/2006



Reviewed By: JK

Date: 7/20/06

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-387-2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Sample Number | | | Sample Event | | Sample Depth (in feet) | | Sample Collected | | Sample Type | | | Number of Containers | Parameter/Method Code | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group or SWMU Name | Sample Point | Sample Designator | Round | Year | From | To | Date | Time | Liquid | Solid | Gas | | Fingerprint | | | | | | |
| WSS | PSB012 | 001 | — | — | 9.5 | 10 | 7/24/06 | 1630 | | X | | 1 | X | | | | | | BR060721-01 |

AH
7-20-06

Sampler (signature): Amy Hanrahan

Sampler (signature):

Custody Seal Number: 115505, 115506

Special Instructions: FedEx 8574 3569 8561

Relinquished By (signature): Amy Hanrahan — Date/Time: 7/20/06 1730

Received By (signature): FedEx — Date/Time:

Relinquished By (signature): — Date/Time:

Received By (signature): Laurie A Larkin — Date/Time: 7/21/06

Ice Present in Container: Yes [X] No [ ]

Temperature Upon Receipt:

Laboratory Comments: 3.3°C Sample rcvd in good condition

061301 Form WCD-KC1-CHI

**META Environmental, Inc.**

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060721-01 | WSS-RSB012-001 (9.5'-10') | Soil | 2508 | | 4007/4008 | 7/20/2006 | 7/21/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: W

Date: 7/21/2006



Reviewed By: JW

Date: 7/21/06

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-388 -2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03

Site Name: Peoples Gas - Willow Street Station

| Sample Number | | | Sample Event | | Sample Depth (in feet) | | Sample Collected | | Sample Type: Matrix | | | Number of Containers | Parameter/Method Code: FINGERPRINT | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Group or SWMU Name | Sample Point | Sample Designator | Round | Year | From | To | Date | Time | Liquid | Solid | Gas | | | | | | | | |
| WSS- | RSB017- | 001 | — | — | 8 | 8.5 | 7/24/06 | 1407 | | X | | 1 | X | | | | | | BR060725-01 |
| WSS- | RSB018- | 001 | — | — | 7.5 | 8 | ↓ | 1529 | | X | | 1 | X | | | | | | 1 -02 |

Kathi Wetzel

Sampler (signature): Kathi Wetzel

Sampler (signature): Margaret Ramos

Custody Seal Number: 115507, 115508

Special Instructions: FED EX 8574 3569 8572

| Relinquished By (signature): | Date/Time | Received By (signature): | Date/Time |
|---|---|---|---|
| 1. Margaret Ramos | | Raymond Sugerin | 7/25/06 9:45 |
| Relinquished By (signature): | Date/Time | Received By (signature): | Date/Time |
| 2. | | | |

Ice Present in Container: Yes [X] No [ ]

Temperature Upon Receipt: 0.5°C

Laboratory Comments:

061301 Form WCD-KC1-CHI

## META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060725-01 | WSS-RSB017-001 (8'-8.5') | Soil | 2508 | | 4007/4008 | 7/24/2006 | 7/25/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060725-02 | WSS-RSB018-001 (7.5' - 8') | Soil | 2508 | | 4007/4008 | 7/24/2006 | 7/25/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: MS

Date: 7/25/06



Reviewed By: JK

Date: 7/25/06

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-389 -2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Sample Number: Group or SWMU Name | Sample Number: Sample Point | Sample Number: Sample Designator | Sample Event: Round | Sample Event: Year | Sample Depth (in feet): From | Sample Depth (in feet): To | Sample Collected: Date | Sample Collected: Time | Sample Type: Matrix: Liquid | Sample Type: Matrix: Solid | Sample Type: Matrix: Gas | Number of Containers | Parameter/Method Code: FINGERPRINT | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSS- | RSB019- | 001 | — | — | 7 | 7.5 | 7/25/06 | 0855 | | X | | 1 | X | | | | | | BRD0726-01 |
| WSS- | RSB019B- | 001 | — | — | 10.5 | 11 | | 0955 | | X | | 1 | X | | | | | | -02 |
| WSS- | RSB019D | -001 | — | — | 9.5 | 10 | | 1358 | | X | | 1 | X | | | | | | -03 |

Kathi Wetzel 7/25/06

Sampler (signature): Kathi Wetzel

Sampler (signature):

Custody Seal Number: 115509 115510

Special Instructions: FED EX 8574 3569 8583

Relinquished By (signature): 1.
Date/Time: 7/25/06 1515

Received By (signature): Laurie Lanskin
Date/Time: 7/26/06 11:50

Ice Present in Container: Yes ☑ No ☐

Temperature Upon Receipt: See Comments

Relinquished By (signature): 2.
Date/Time:

Received By (signature):
Date/Time:

Laboratory Comments: Samples Rec'd in good condition avg temp 2.4°C

061301 Form WCD-KC1-CHI

# META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060726-01 | WSS-RSB019-001 (7'-7.5) | Soil | 2508 | | 4007/4008 | 7/25/2006 | 7/26/2006 | B14002-60 | 1 x 6 oz jar | Hold - Do not extract | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060726-02 | WSS-RSB019B-001 (10.5'-11') | Soil | 2508 | | 4007/4008 | 7/25/2006 | 7/26/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060726-03 | WSS-RSB019D-001 (9.5'-10') | Soil | 2508 | | 4007/4008 | 7/25/2006 | 7/26/2006 | B14002-60 | 1 x 6 oz jar | Hold - Do not extract | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: [illegible]

Date: 7/26/2006



Reviewed By: [illegible]

Date: 7/26/06

Burns & McDonnell
SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-390-2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Sample Number: Group or SWMU Name | Sample Number: Sample Point | Sample Number: Sample Designator | Sample Event: Round | Sample Event: Year | Sample Depth (in feet): From | Sample Depth (in feet): To | Sample Collected: Date | Sample Collected: Time | Sample Type: Matrix: Liquid | Sample Type: Matrix: Solid | Sample Type: Matrix: Gas | Number of Containers | Parameter/Method Code: FINGERPRINT | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSS- | RSB022B- | 001 | — | — | 10.5 | 11 | 7/26/06 | 0801 | | X | | 1 | X | | | | | | BR060727-01 |
| WSS- | RSB022- | 001 | — | — | 5.5 | 6 | ↓ | 1009 | | X | | 1 | X | | | | | | ↓ -02 |

KLW 7/26/06

Sampler (signature): Kathi Wotzl
Sampler (signature): M Renas
Custody Seal Number: 115511, 115512
Special Instructions: FED EX 8574 3569 8594

Relinquished By (signature): 1. M Renas
Date/Time: 7/26/06 1730
Received By (signature): Lauri A Tarabini
Date/Time: 7/27/2006 9:50 AM

Relinquished By (signature): 2.
Date/Time:
Received By (signature):
Date/Time:

Ice Present in Container: Yes ☑ No ☐
Temperature Upon Receipt: 1.3°C

Laboratory Comments: samples recv'd in good condition

061301 Form WCD-KC1-CHI

# META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060727-01 | WSS-RSB020B-001 (10.5'-11') | Soil | 2508 | | 4007/4008 | 7/26/2006 | 7/27/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060727-02 | WSS-RSB022-001 (5.5'-6') | Soil | 2508 | | 4007/4008 | 7/26/2006 | 7/27/2006 | B14002-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: W

Date: 7/27/2006



Reviewed By: JM

Date: 7/27/06

Burns & McDonnell
SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS- 391 -2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03

Site Name: Peoples Gas - Willow Street Station

| Sample Number: Group or SWMU Name | Sample Number: Sample Point | Sample Number: Sample Designator | Sample Event: Round | Sample Event: Year | Sample Depth (in feet): From | Sample Depth (in feet): To | Sample Collected: Date | Sample Collected: Time | Sample Type: Matrix: Liquid | Sample Type: Matrix: Solid | Sample Type: Matrix: Gas | Number of Containers | Parameter/Method Code: FINGERPRINT | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSS - | RSB009C | -001 | — | — | 13 | 13.5 | 7/27/06 | 0843 | | X | | 1 | X | | | | | | BR060728-01 |
| WSS - | RSB024B | -001 | — | — | 6.5 | 7.0 | ↓ | 1007 | | X | | 1 | X | | | | | | ↓ -02 |

KLW 7/27/06

Sampler (signature): Kathi Wotal

Sampler (signature): M. Renas

Custody Seal Number: 115513 115514

Special Instructions: FED EX 8574 3569 8609

Relinquished By (signature): 1. M Renas — Date/Time: 7/27/06

Received By (signature): Laurie Larkin — Date/Time: 7/28/2006 10:20 AM

Relinquished By (signature): 2. — Date/Time:

Received By (signature): — Date/Time:

Ice Present in Container: Yes ✓ No

Temperature Upon Receipt: 1.8°C

Laboratory Comments: samples recvd in good condition

061301 Form WCD-KC1-CHI

# META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060728-01 | WSS-RSB009C-001 (13'-13.5') | Soil | 2508 | | 4007/4008 | 7/27/2006 | 7/28/2006 | B14006-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |
| BR060728-02 | WSS-RSB024B-001 (6.5'-7.0') | Soil | 2508 | | 4007/4008 | 7/27/2006 | 7/28/2006 | B14006-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: U

Date: 7/28/2006



Reviewed By: JM

Date: 7/28/06

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record

Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Diane Saftic

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: WSS-392-2006
Lab. Reference No. or Episode No.:

Project Number: 32088-3.03
Site Name: Peoples Gas - Willow Street Station

| Group or SWMU Name | Sample Point | Sample Designator | Sample Event Round | Sample Event Year | Sample Depth (in feet) From | Sample Depth (in feet) To | Sample Collected Date | Sample Collected Time | Matrix Liquid | Matrix Solid | Matrix Gas | Number of Containers | Parameter/Method Code FINGERPRINT | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| WSS - | RSB001 - | 001 | — | — | 11.5 | 12 | 7/28/06 | 0845 | | X | | 1 | X | | | | | | BR060731-01 |

KLW 7/28/06

Sampler (signature): Kathi Wetzel
Sampler (signature): M Renas
Custody Seal Number: 115515, 115516
Special Instructions: FED EX # 8574 3569 8610

Relinquished By (signature): 1. M Renas — Date/Time 7/28/06 1500
Received By (signature): Laurie Hankins — Date/Time 7/31/2006 10:00 AM
Relinquished By (signature): 2. — Date/Time
Received By (signature): — Date/Time

Ice Present in Container: Yes ☑ No ☐
Temperature Upon Receipt: 22.7 (1)

Laboratory Comments: Sample recvd in good condition, ice was completely melted, sample @ room temp.

(1) PROCESS PER PM REQUEST. MAL 7/31/06

061301 Form WCD-KC1-CHI

## META Environmental, Inc.

Sample Recipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Clent Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR060731-01 | WSS-RSB001-001 (11.5'-12') | Soil | 2508 | | 4007/4008 | 7/28/2006 | 7/31/2006 | B14006-60 | 1 x 6 oz jar | | Burns & McDonnell | Peoples Gas-Willow Street Station |

Logged By: N

Date: 7/31/2006



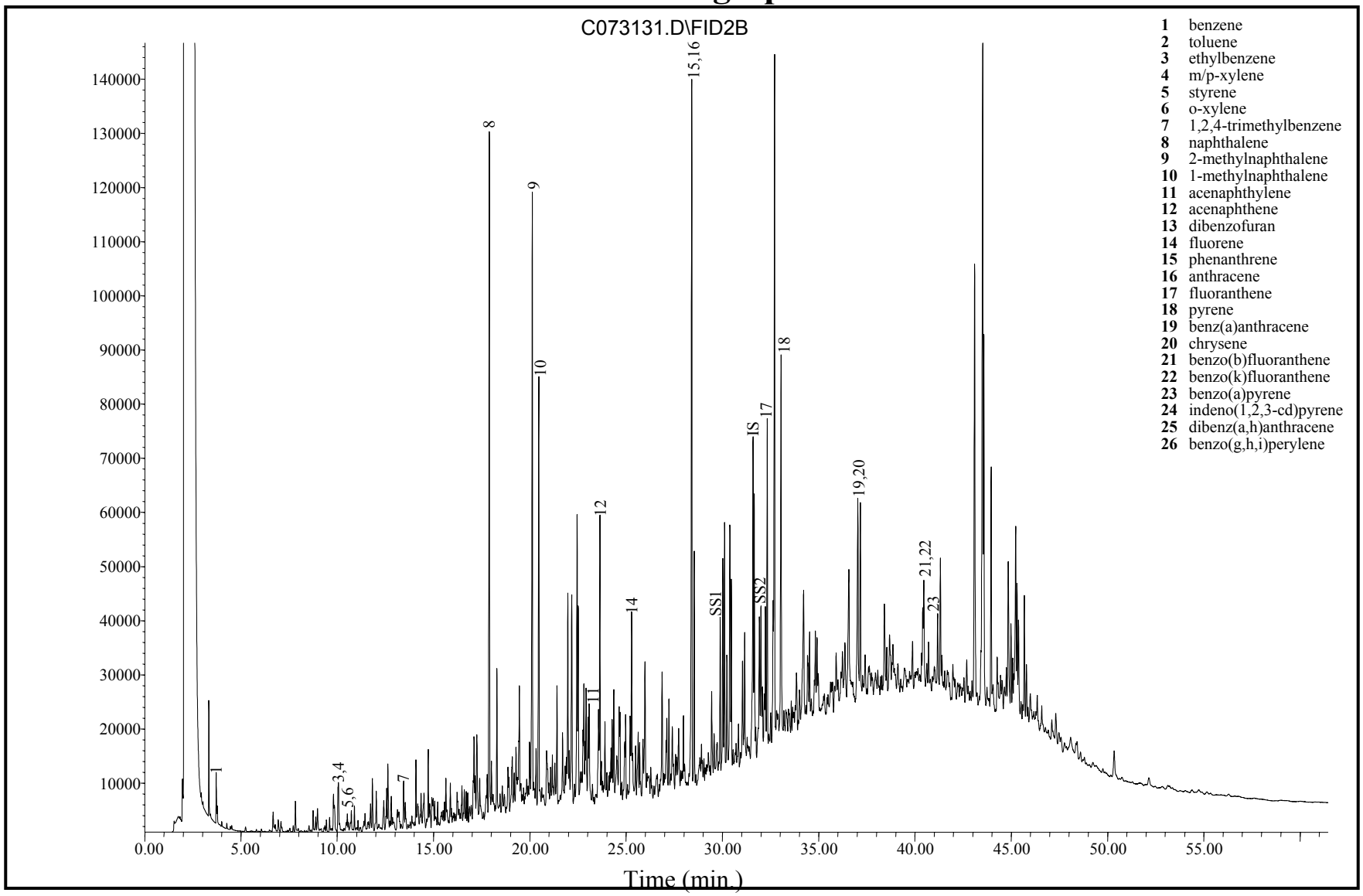
Reviewed By: JM

Date: 7/31/06

# Appendix B

# GC/FID Fingerprints

# GC/FID Fingerprint



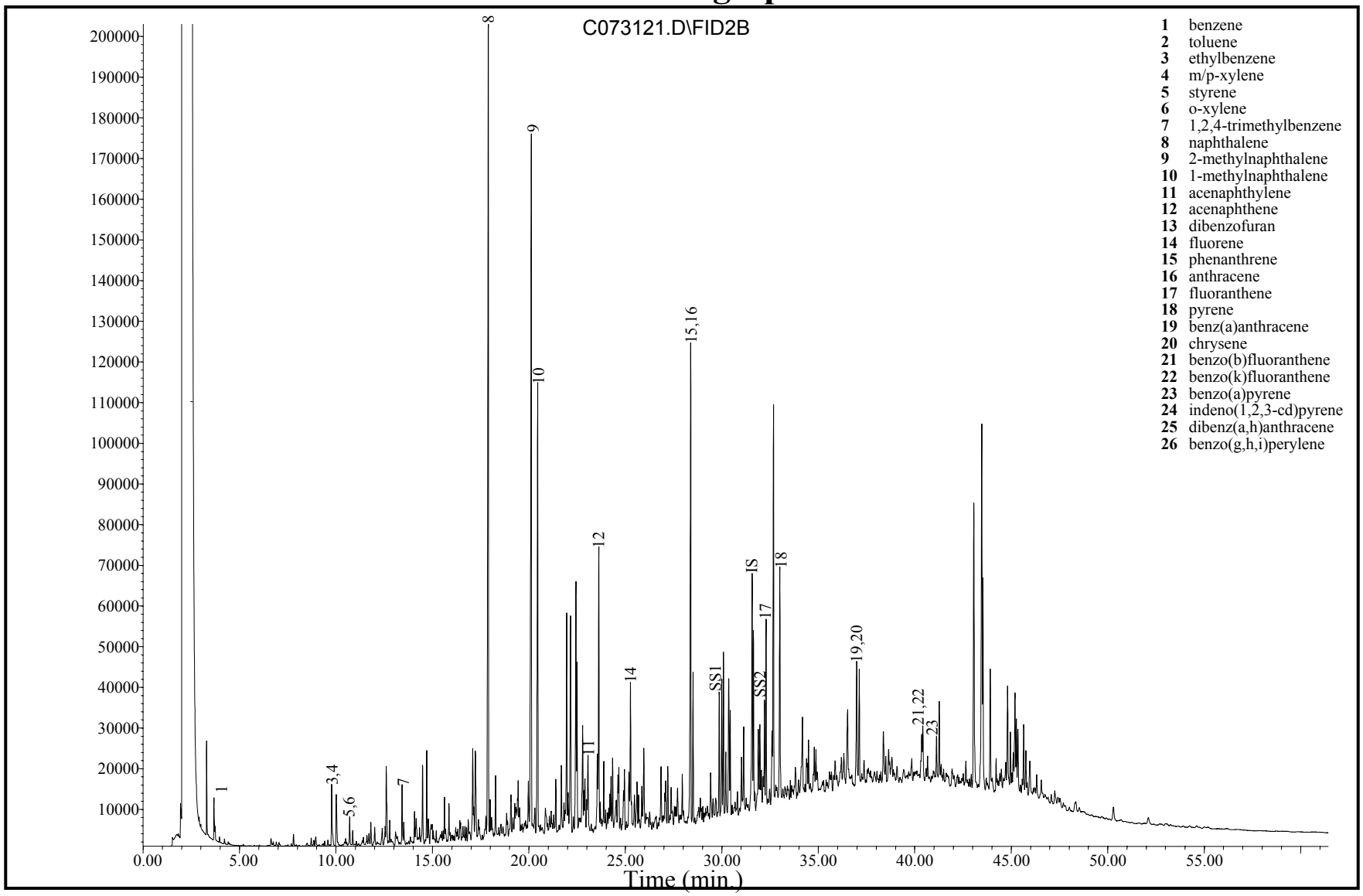

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB004-001 (9.0'-10.0') |
| Laboratory ID: | BR060719-01 |
| Method: | EPA 8100 mod. |



META

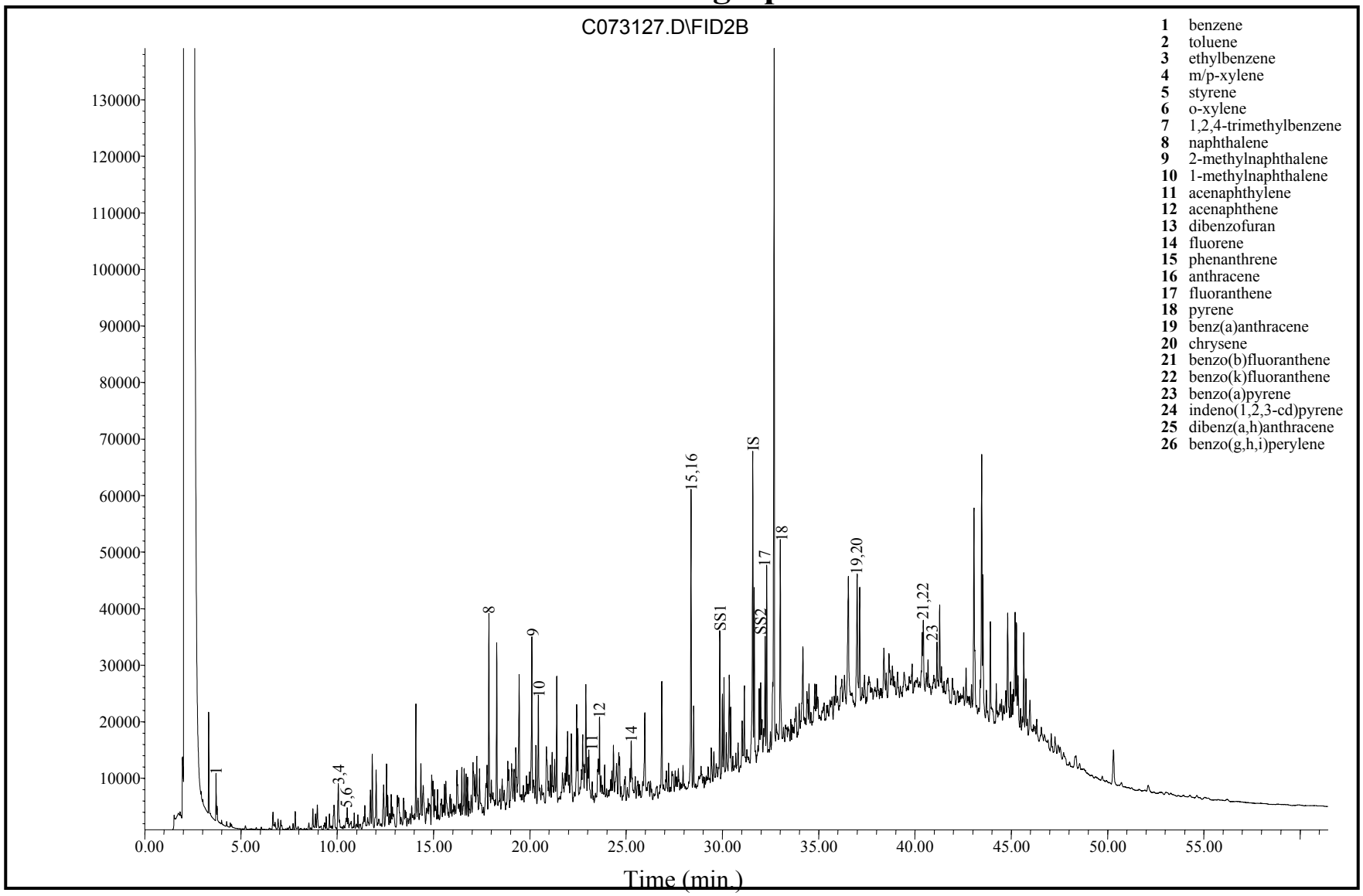
# GC/FID Fingerprint




*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB006-001 (9.0'-9.5') |
| Laboratory ID: | BR060719-02 |
| Method: | EPA 8100 mod. |

# GC/FID Fingerprint



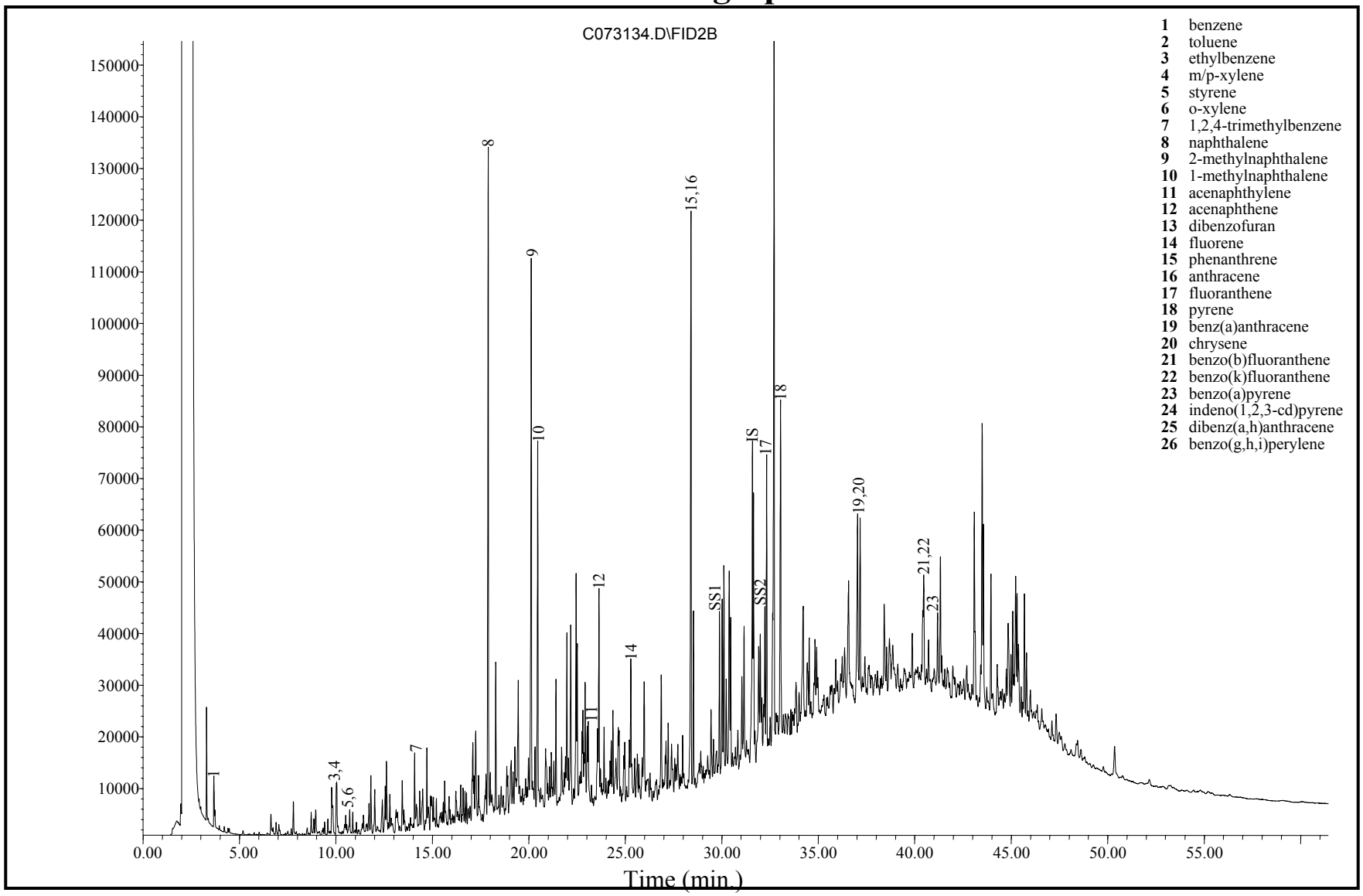

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB008-001 (15.0'-15.6') |
| Laboratory ID: | BR060719-03 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



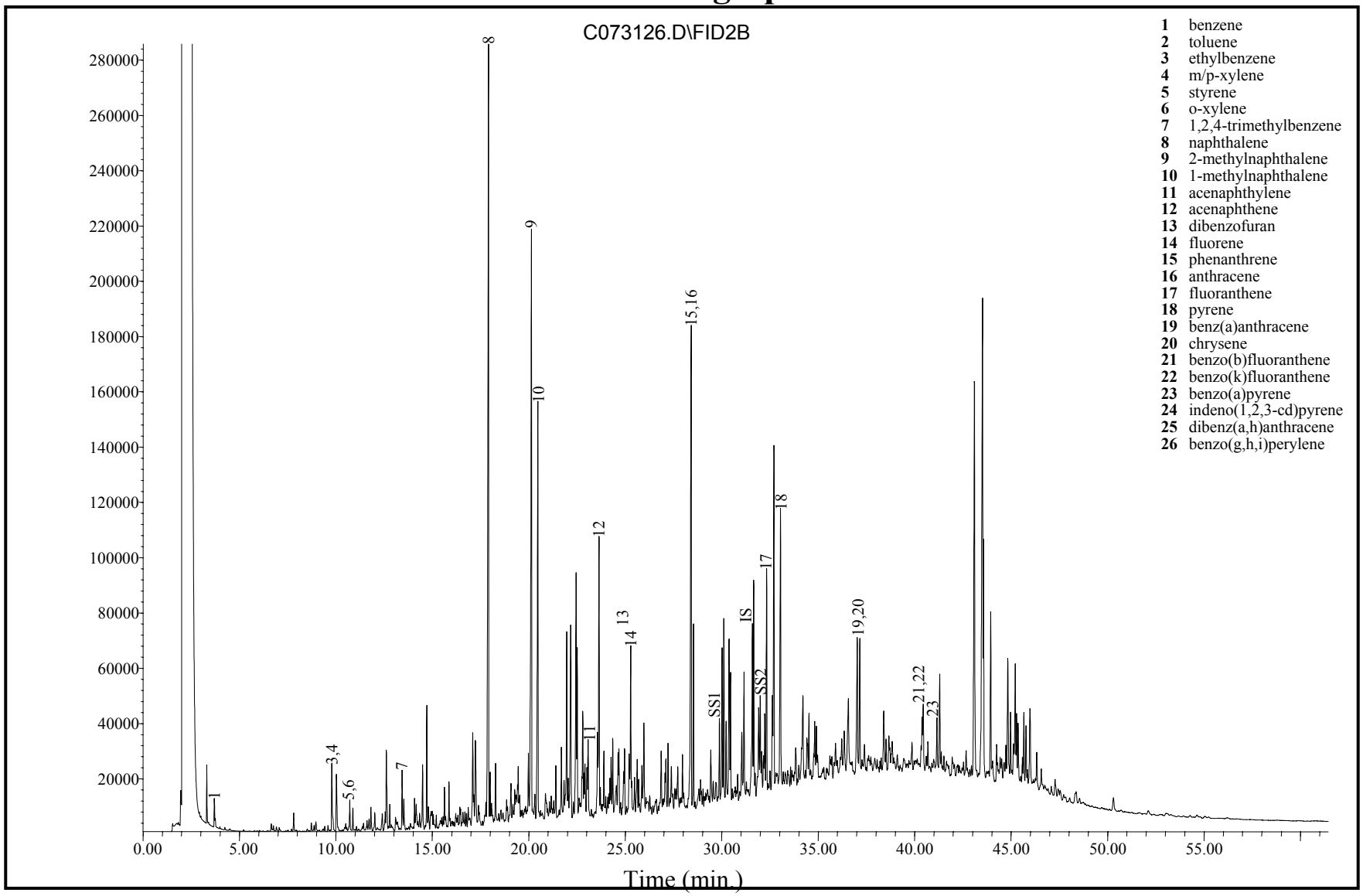

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB009-001 (12.5'-13') |
| Laboratory ID: | BR060720-01 |
| Method: | EPA 8100 mod. |



META

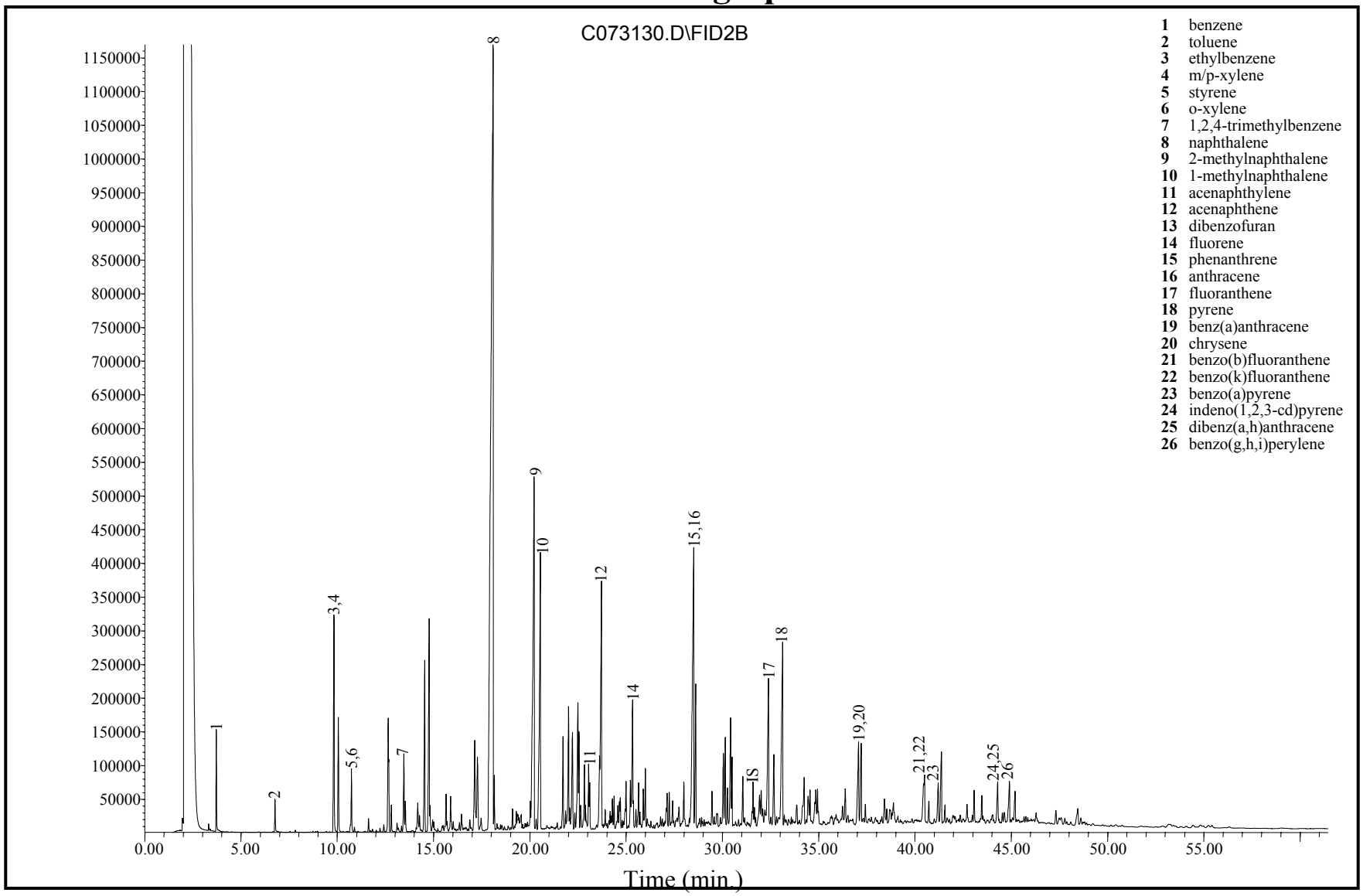
# GC/FID Fingerprint




*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB012-001 (9.5'-10') |
| Laboratory ID: | BR060721-01 |
| Method: | EPA 8100 mod. |

# GC/FID Fingerprint




**1** benzene
**2** toluene
**3** ethylbenzene
**4** m/p-xylene
**5** styrene
**6** o-xylene
**7** 1,2,4-trimethylbenzene
**8** naphthalene
**9** 2-methylnaphthalene
**10** 1-methylnaphthalene
**11** acenaphthylene
**12** acenaphthene
**13** dibenzofuran
**14** fluorene
**15** phenanthrene
**16** anthracene
**17** fluoranthene
**18** pyrene
**19** benz(a)anthracene
**20** chrysene
**21** benzo(b)fluoranthene
**22** benzo(k)fluoranthene
**23** benzo(a)pyrene
**24** indeno(1,2,3-cd)pyrene
**25** dibenz(a,h)anthracene
**26** benzo(g,h,i)perylene

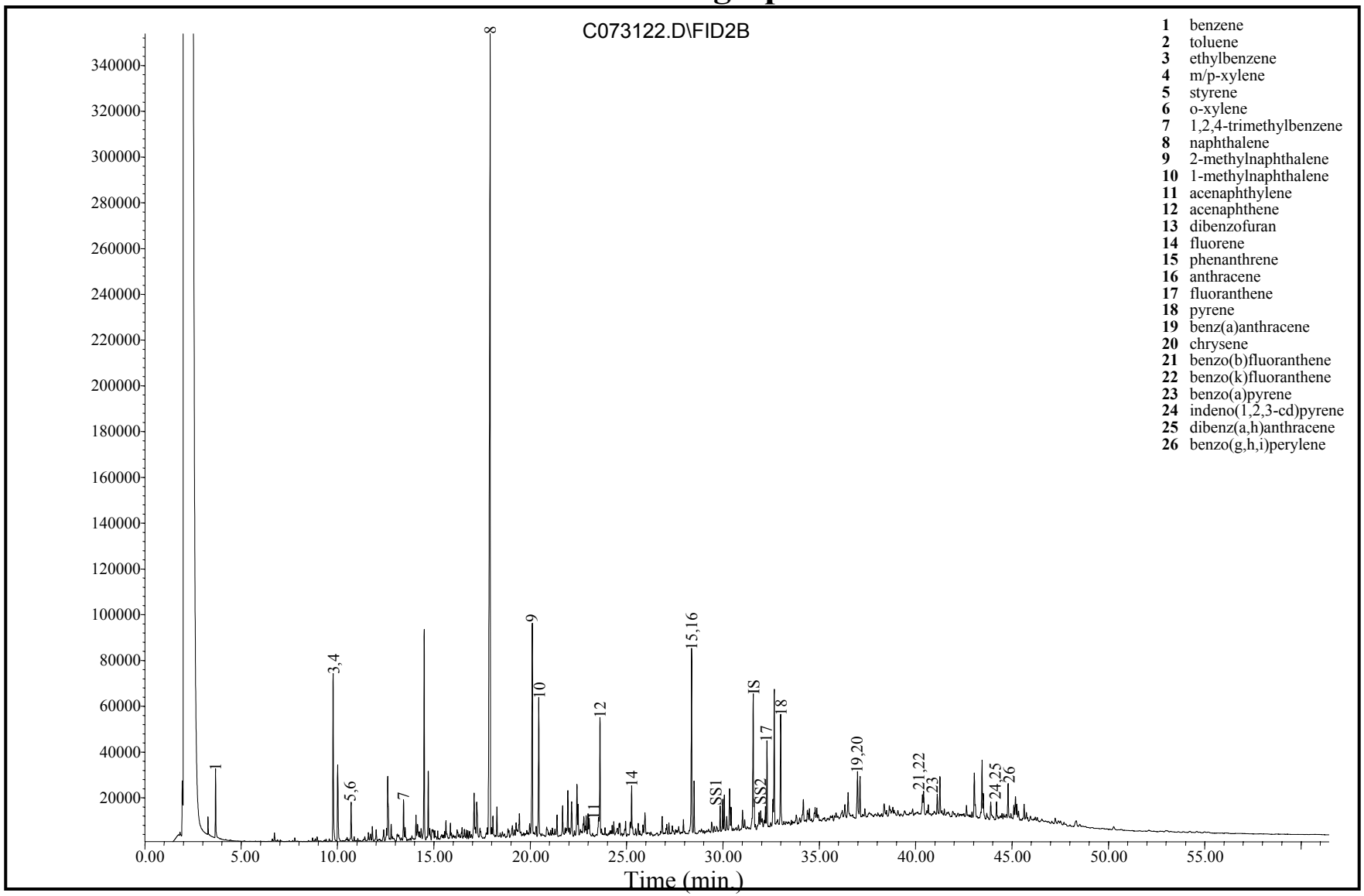
*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB017-001 (8'-8.5') |
| Laboratory ID: | BR060725-01 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



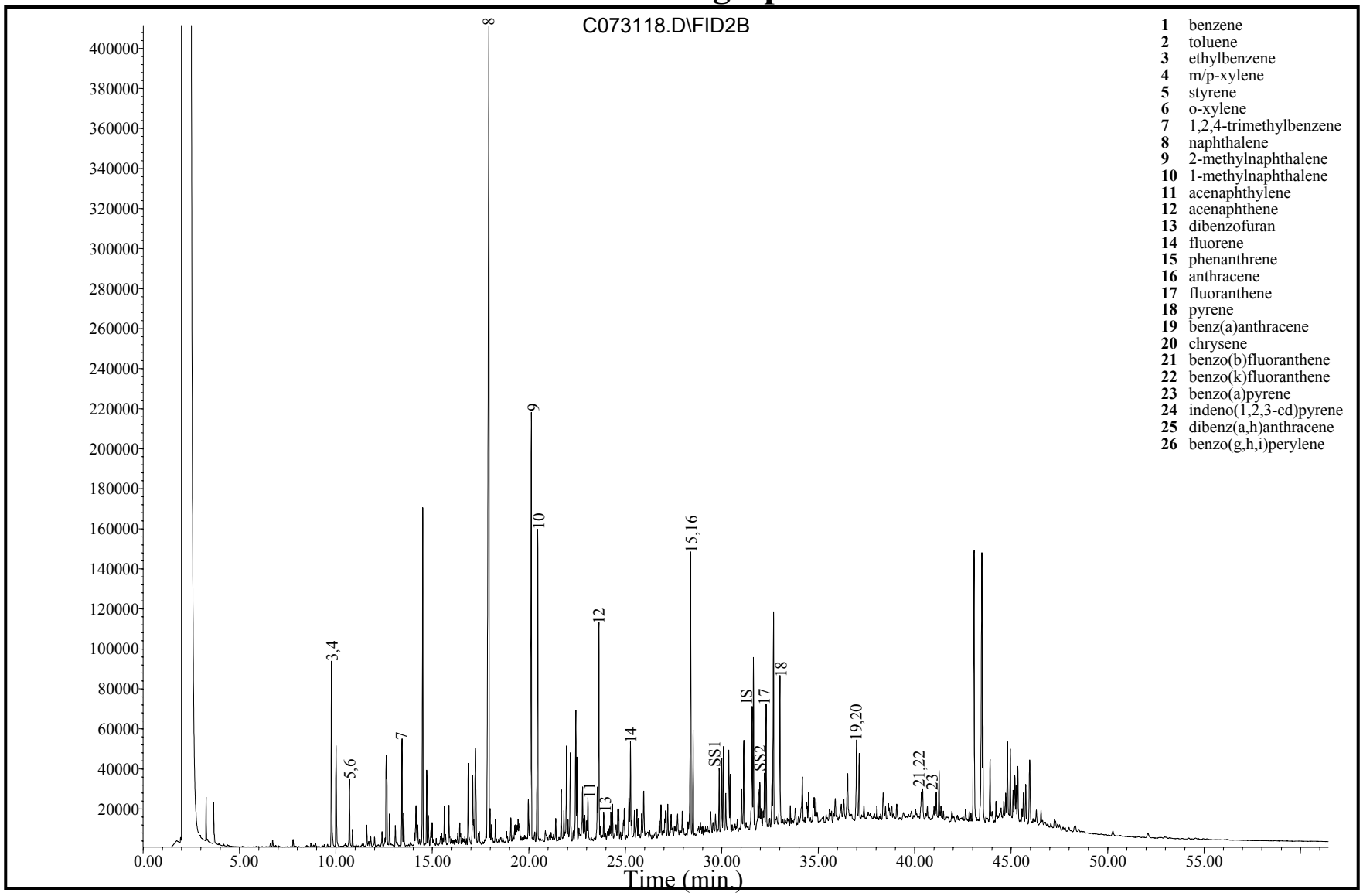

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB018-001 (7.5' - 8') |
| Laboratory ID: | BR060725-02 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



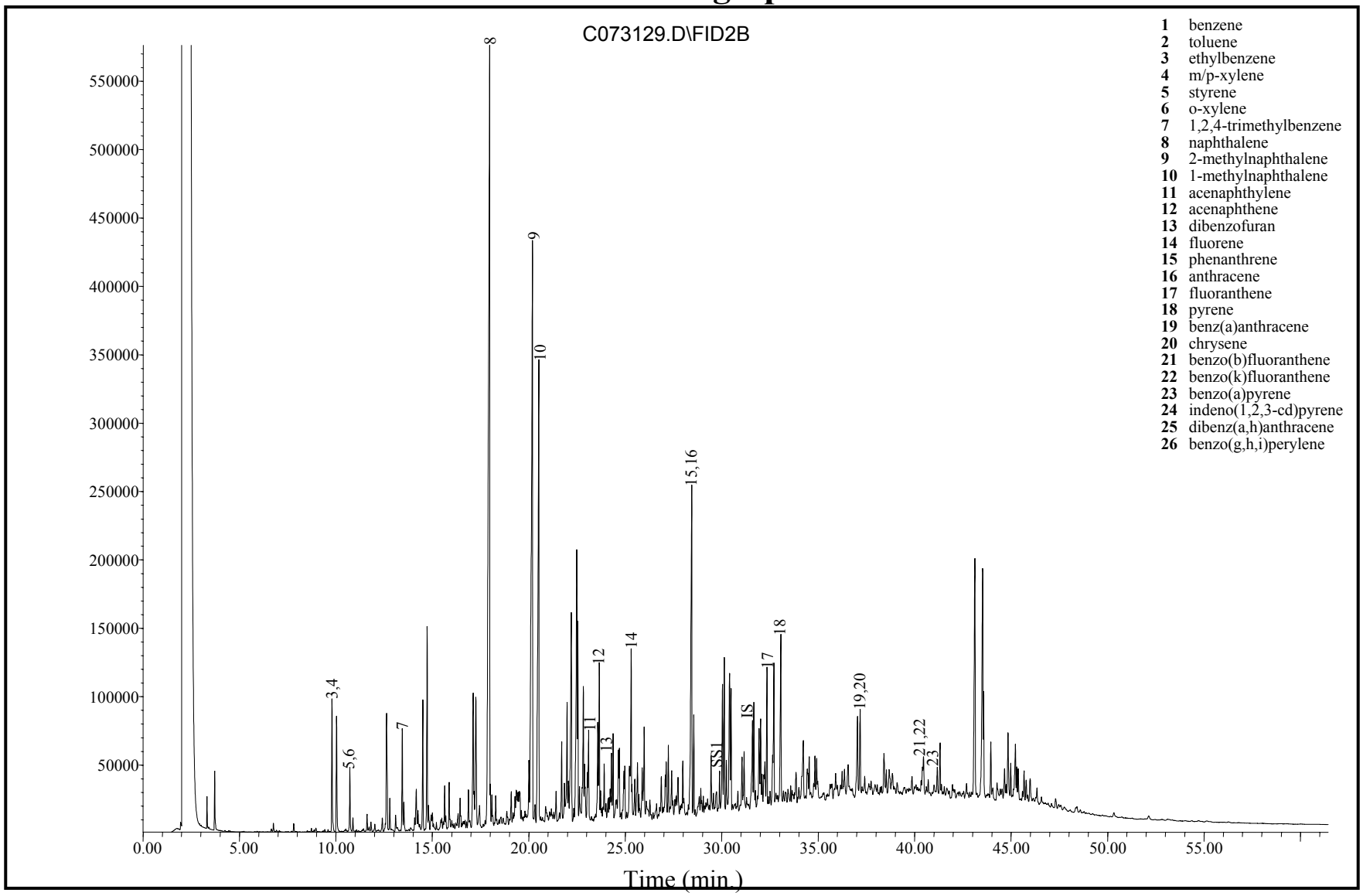

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB019B-001 (10.5'-11') |
| Laboratory ID: | BR060726-02 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



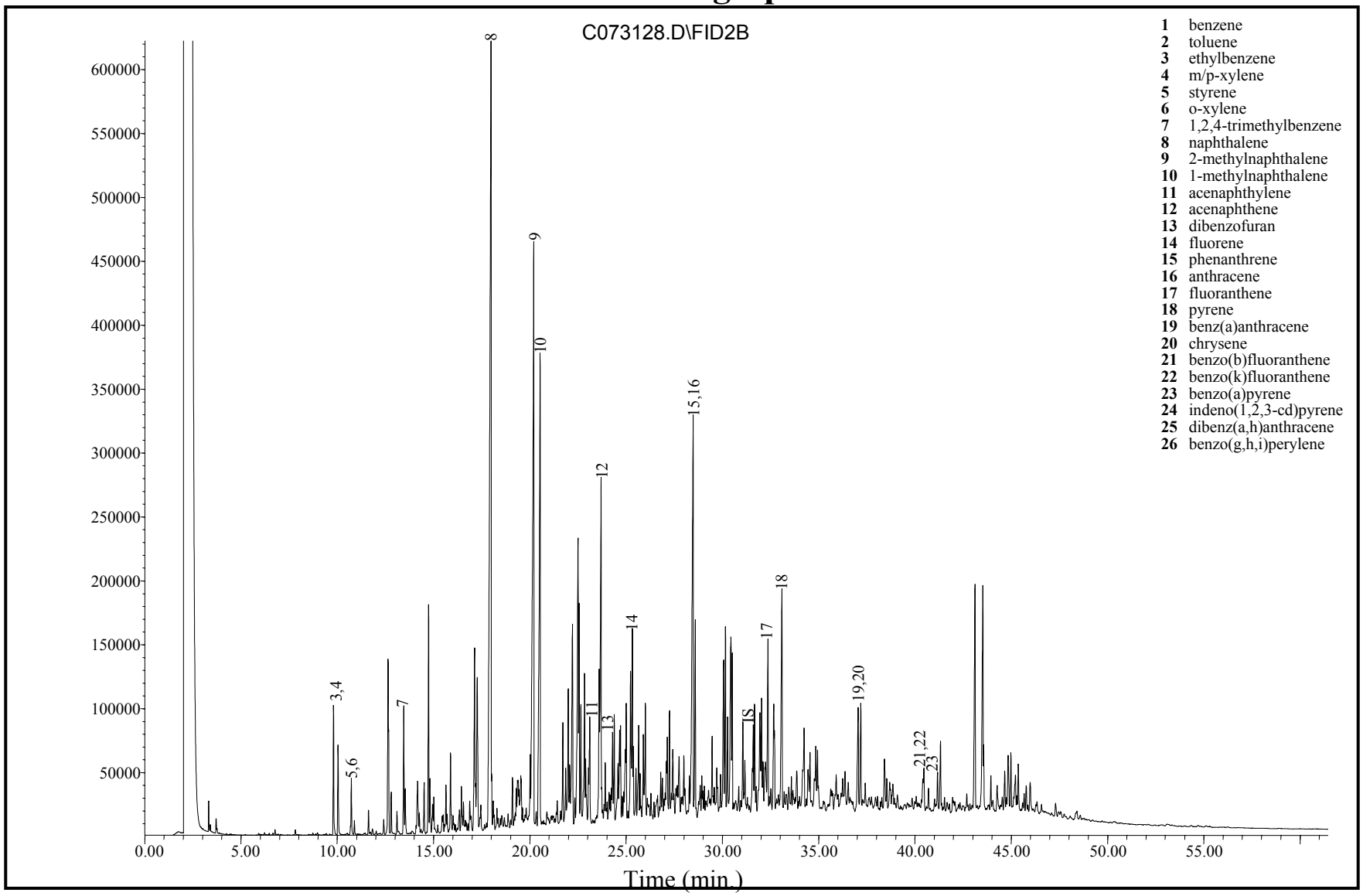

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB020B-001 (10.5'-11') |
| Laboratory ID: | BR060727-01 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



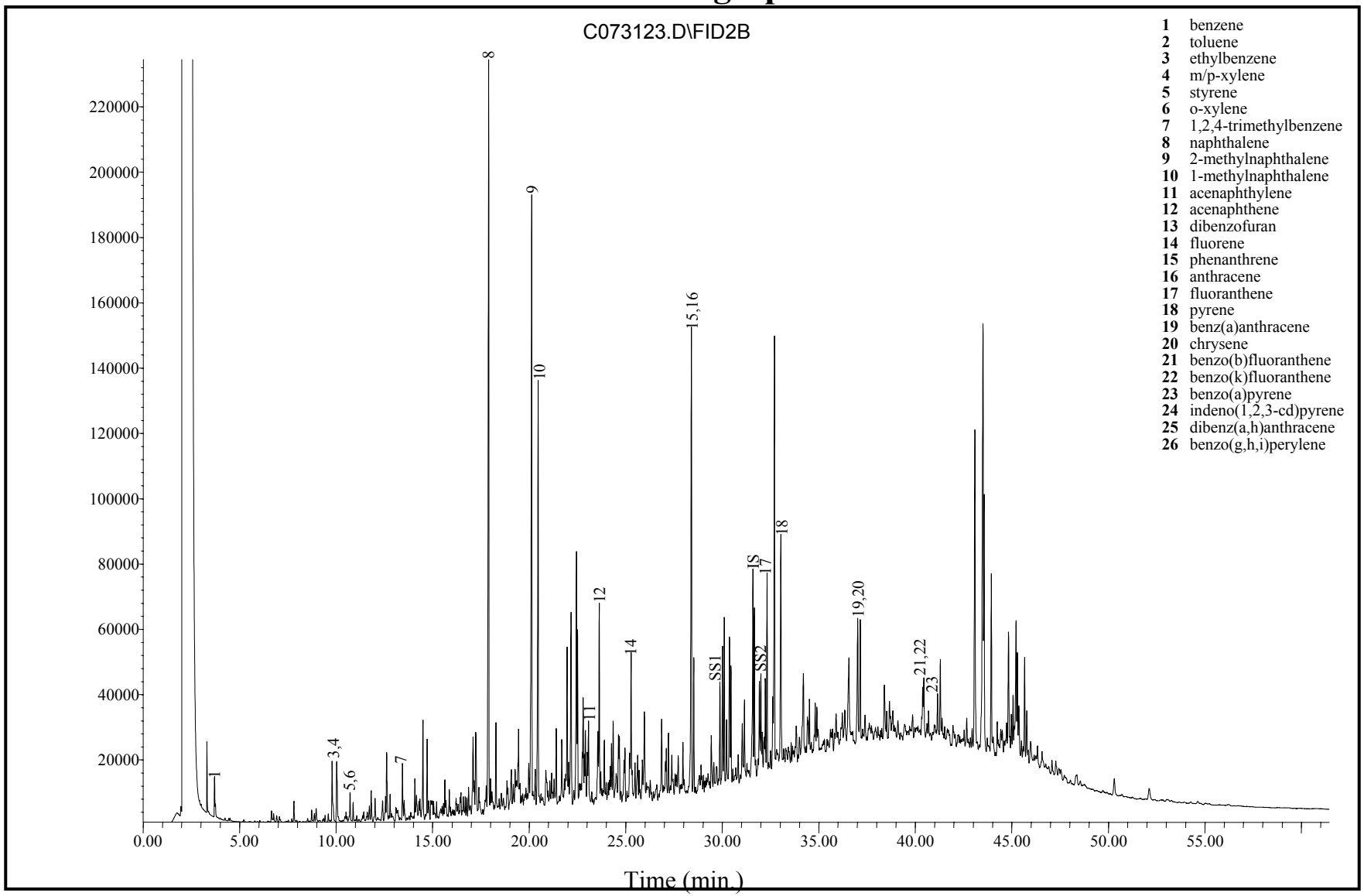

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB022-001 (5.5'-6') |
| Laboratory ID: | BR060727-02 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



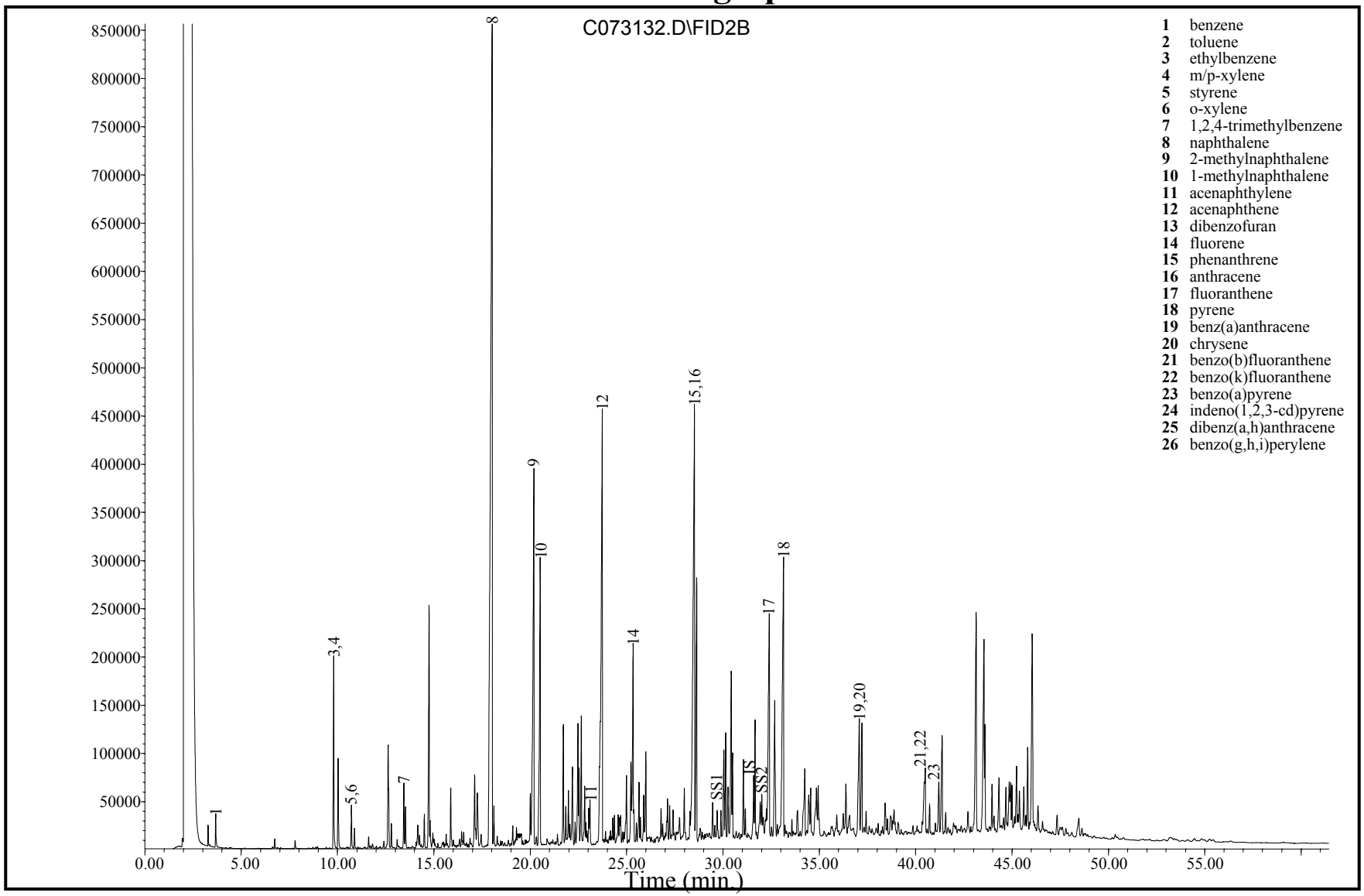

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB009C-001 (13'-13.5') |
| Laboratory ID: | BR060728-01 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint



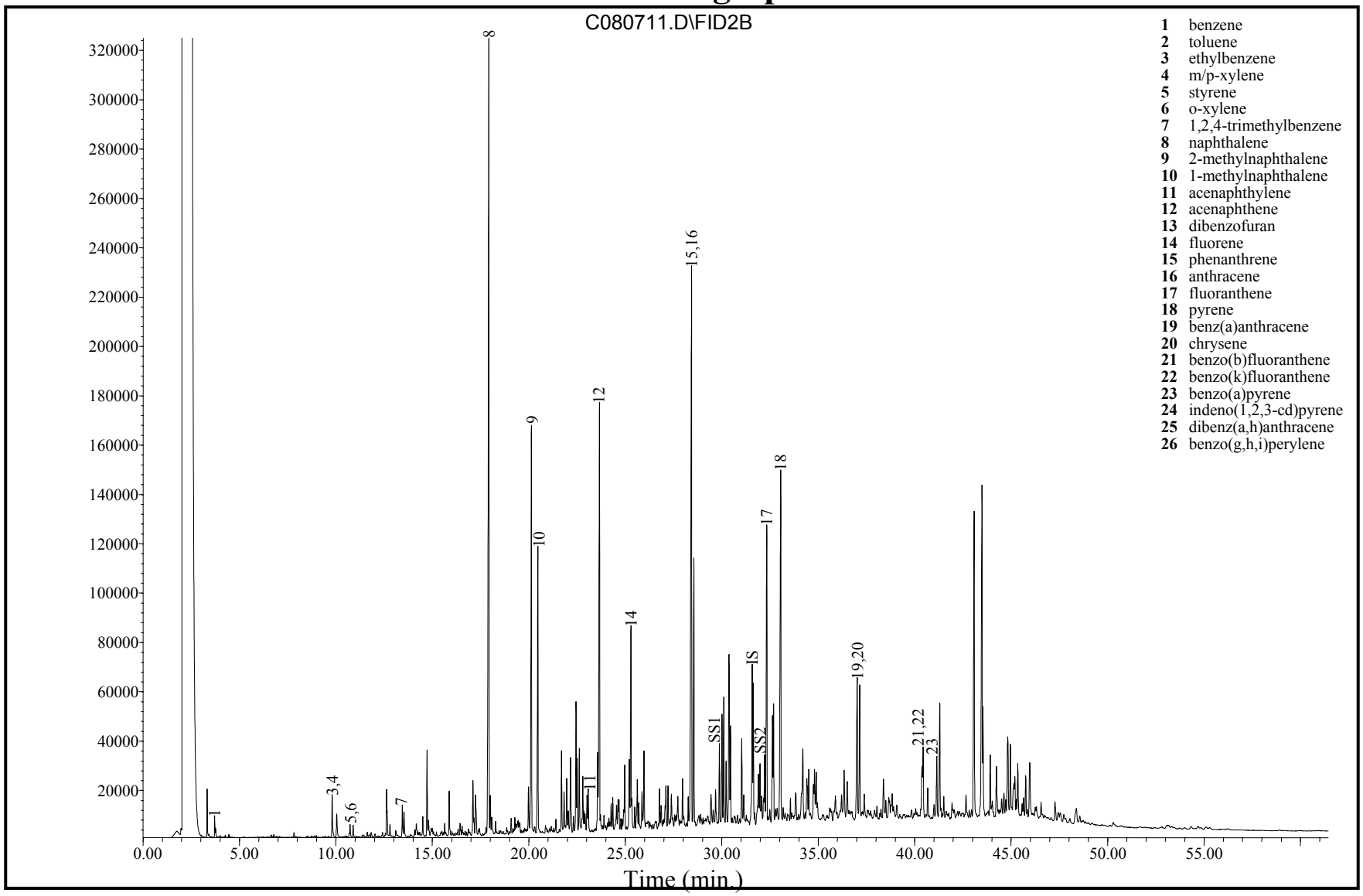

*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB024B-001 (6.5'-7.0') |
| Laboratory ID: | BR060728-02 |
| Method: | EPA 8100 mod. |



META

# GC/FID Fingerprint




*IS – 5-a-androstane*
*SS1 – o-Terphenyl*
*SS2 – 1-Chlorooctadecane*

| | |
|---|---|
| Field ID: | WSS-RSB001-001 (11.5'-12') |
| Laboratory ID: | BR060731-01 |
| Method: | EPA 8100 mod. |

# Appendix C

# MAH/PAH Concentrations

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB004-001 (9'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-01-D | | |
| File ID: | E072715.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 2.92 | | 1.72 | 0.860 | |
| Toluene | 1.56 | J | 1.72 | 0.860 | |
| Ethylbenzene | 6.06 | | 0.344 | 0.172 | |
| m/p-Xylenes | 7.05 | | 0.344 | 0.172 | |
| Styrene | 2.49 | B | 0.344 | 0.172 | |
| o-Xylene | 3.12 | | 0.344 | 0.172 | |
| Isopropylbenzene | 1.1 | | 0.344 | 0.172 | |
| n-Propylbenzene | 0.695 | | 0.344 | 0.172 | |
| 1,3,5-Trimethylbenzene | 2.02 | | 0.344 | 0.172 | |
| 1,2,4-Trimethylbenzene | 6.64 | | 0.344 | 0.172 | |
| t-Butylbenzene | 0.947 | | 0.344 | 0.172 | |
| sec-Butylbenzene | 0.177 | J | 0.344 | 0.172 | |
| p-Isopropyltoluene | 1.54 | | 0.344 | 0.172 | |
| n-Butylbenzene | 1.28 | B | 0.344 | 0.172 | |
| C1 - Benzene | 1.17 | J | 1.72 | 0.860 | |
| C2 - Benzene | 7.56 | | 0.344 | 0.172 | |
| C3 - Benzene | 11.1 | | 0.344 | 0.172 | |
| C4 - Benzene | 10.7 | | 0.344 | 0.172 | |
| C5 - Benzene | 6.06 | | 0.344 | 0.172 | |
| trans-Decalin | 2.41 | | 0.344 | 0.172 | |
| cis-Decalin | 0.208 | J | 0.344 | 0.172 | |
| Naphthalene | 115 | B | 0.344 | 0.172 | |
| 2-Methylnaphthalene | 120 | | 0.344 | 0.172 | |
| 1-Methylnaphthalene | 78.0 | | 0.344 | 0.172 | |
| C1 - Naphthalene | 125 | | 0.344 | 0.172 | |
| C2 - Naphthalene | 107 | | 0.344 | 0.172 | |
| C3- Naphthalene | 52.2 | | 0.344 | 0.172 | |
| C4- Naphthalene | 18.7 | | 0.344 | 0.172 | |
| Acenaphthylene | 19.6 | | 0.344 | 0.172 | |
| Acenaphthene | 48.9 | | 0.344 | 0.172 | |
| Dibenzofuran | 4.52 | | 0.344 | 0.172 | |
| Fluorene | 32.2 | | 0.344 | 0.172 | |
| C1 - Fluorene | 33.8 | | 0.344 | 0.172 | |
| C2 - Fluorene | 26.8 | | 0.344 | 0.172 | |
| C3 - Fluorene | 11.9 | | 0.344 | 0.172 | |
| Phenanthrene | 138 | | 0.344 | 0.172 | |
| Anthracene | 50.6 | | 0.344 | 0.172 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB004-001 (9'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-01-D | | |
| File ID: | E072715.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 132 | 0.344 | 0.172 | |
| C2 - Phenanthrene/Anthracene | 62.8 | 0.344 | 0.172 | |
| C3 - Phenanthrene/Anthracene | 24.3 | 0.344 | 0.172 | |
| C4 - Phenanthrene/Anthracene | 8.26 | 0.344 | 0.172 | |
| Dibenzothiophene | 14.7 | 0.344 | 0.172 | |
| C1 - Dibenzothiophene | U | 0.344 | 0.172 | |
| C2 - Dibenzothiophene | 25.0 | 0.344 | 0.172 | |
| C3 - Dibenzothiophene | 14.3 | 0.344 | 0.172 | |
| C4 - Dibenzothiophene | 5.4 | 0.344 | 0.172 | |
| Benzo(b)naphtho(2,1-d)thiophene | 8.27 | 0.344 | 0.172 | |
| Fluoranthene | 61.9 | 0.344 | 0.172 | |
| Pyrene | 82.2 | 0.344 | 0.172 | |
| C1 - Fluoranthene/Pyrene | 93.0 | 0.344 | 0.172 | |
| C2 - Fluoranthene/Pyrene | 37.4 | 0.344 | 0.172 | |
| C3 - Fluoranthene/Pyrene | 12.8 | 0.344 | 0.172 | |
| Benz[a]anthracene | 36.8 | 0.344 | 0.172 | |
| Chrysene* | 40.6 | 0.344 | 0.172 | |
| C1 - Benz(a)anthracene/Chrysene | 34.9 | 0.344 | 0.172 | |
| C2 - Benz(a)anthracene/Chrysene | 16.5 | 0.344 | 0.172 | |
| C3 - Benz(a)anthracene/Chrysene | 7.16 | 0.344 | 0.172 | |
| C4 - Benz(a)anthracene/Chrysene | 4.78 | 0.344 | 0.172 | |
| Benzo[b]fluoranthene | 15.8 | 0.344 | 0.172 | |
| Benzo[j/k]fluoranthene | 18.9 | 0.344 | 0.172 | |
| Benzo(e)pyrene | 16.2 | 0.344 | 0.172 | |
| Benzo[a]pyrene | 28.3 | 0.344 | 0.172 | |
| Perylene | 4.38 | 0.344 | 0.172 | |
| Indeno[1,2,3-cd]pyrene | 12.6 | 0.344 | 0.172 | |
| Dibenz[a,h]anthracene | 4.27 | 0.344 | 0.172 | |
| Benzo[g,h,i]perylene | 11.6 | 0.344 | 0.172 | |
| Coronene | 3.3 | 0.344 | 0.172 | |
| Retene | 6.78 | 0.344 | 0.172 | |
| Benzo(b/c)fluorenes | 12.6 | 0.344 | 0.172 | |
| 2-Methylpyrene | 11.5 | 0.344 | 0.172 | |
| 4-Methylpyrene | 11.5 | 0.344 | 0.172 | |
| 1-Methylpyrene | 13.3 | 0.344 | 0.172 | |
| Heptadecane | 3.69 | 0.344 | 0.172 | |
| Pristane | 24.7 | 0.344 | 0.172 | |
| Octadecane | 1.85 B | 0.344 | 0.172 | |
| Phytane | 15.3 | 0.344 | 0.172 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB004-001 (9'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-01-D | | |
| File ID: | E072715.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 16.5 | 0.344 | 0.172 | |
| 2,6,10-trimethyltridecane | 20.1 | 0.344 | 0.172 | |
| Norpristane | 14.1 | 0.344 | 0.172 | |
| Total PAH (16) | 717 | 0.344 | 0.172 | |
| Total PAH (42) | 1,610 | 0.344 | 0.172 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 62 | 50 - 120 |
| Phenanthrene-d10 | 59 | 50 - 120 |
| Perylene-d12 | 116 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB006-001 (9'-9.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-02-D | | |
| File ID: | E072716.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 62% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 3.38 | | 1.6 | 0.800 | |
| Toluene | 1.42 | J | 1.6 | 0.800 | |
| Ethylbenzene | 12.6 | | 0.320 | 0.160 | |
| m/p-Xylenes | 11.3 | | 0.320 | 0.160 | |
| Styrene | 1.22 | B | 0.320 | 0.160 | |
| o-Xylene | 5.6 | | 0.320 | 0.160 | |
| Isopropylbenzene | 1.84 | | 0.320 | 0.160 | |
| n-Propylbenzene | 0.980 | | 0.320 | 0.160 | |
| 1,3,5-Trimethylbenzene | 3.22 | | 0.320 | 0.160 | |
| 1,2,4-Trimethylbenzene | 10.7 | | 0.320 | 0.160 | |
| t-Butylbenzene | 1.39 | | 0.320 | 0.160 | |
| sec-Butylbenzene | | U | 0.320 | 0.160 | |
| p-Isopropyltoluene | 1.84 | | 0.320 | 0.160 | |
| n-Butylbenzene | 1.69 | B | 0.320 | 0.160 | |
| C1 - Benzene | 0.893 | J | 1.6 | 0.800 | |
| C2 - Benzene | 13.2 | | 0.320 | 0.160 | |
| C3 - Benzene | 17.8 | | 0.320 | 0.160 | |
| C4 - Benzene | 14.6 | | 0.320 | 0.160 | |
| C5 - Benzene | 6.17 | | 0.320 | 0.160 | |
| trans-Decalin | 1.42 | | 0.320 | 0.160 | |
| cis-Decalin | | U | 0.320 | 0.160 | |
| Naphthalene | 197 | B | 0.320 | 0.160 | |
| 2-Methylnaphthalene | 189 | | 0.320 | 0.160 | |
| 1-Methylnaphthalene | 107 | | 0.320 | 0.160 | |
| C1 - Naphthalene | 187 | | 0.320 | 0.160 | |
| C2 - Naphthalene | 124 | | 0.320 | 0.160 | |
| C3- Naphthalene | 43.7 | | 0.320 | 0.160 | |
| C4- Naphthalene | 13.4 | | 0.320 | 0.160 | |
| Acenaphthylene | 11.2 | | 0.320 | 0.160 | |
| Acenaphthene | 61.6 | | 0.320 | 0.160 | |
| Dibenzofuran | 4.6 | | 0.320 | 0.160 | |
| Fluorene | 31.1 | | 0.320 | 0.160 | |
| C1 - Fluorene | 26.3 | | 0.320 | 0.160 | |
| C2 - Fluorene | 19.1 | | 0.320 | 0.160 | |
| C3 - Fluorene | 8.63 | | 0.320 | 0.160 | |
| Phenanthrene | 115 | | 0.320 | 0.160 | |
| Anthracene | 38.6 | | 0.320 | 0.160 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB006-001 (9'-9.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-02-D | | |
| File ID: | E072716.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 62% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 93.8 | 0.320 | 0.160 | |
| C2 - Phenanthrene/Anthracene | 44.0 | 0.320 | 0.160 | |
| C3 - Phenanthrene/Anthracene | 15.8 | 0.320 | 0.160 | |
| C4 - Phenanthrene/Anthracene | 5.51 | 0.320 | 0.160 | |
| Dibenzothiophene | 12.2 | 0.320 | 0.160 | |
| C1 - Dibenzothiophene | 14.8 | 0.320 | 0.160 | |
| C2 - Dibenzothiophene | 15.9 | 0.320 | 0.160 | |
| C3 - Dibenzothiophene | 8.77 | 0.320 | 0.160 | |
| C4 - Dibenzothiophene | 3.36 | 0.320 | 0.160 | |
| Benzo(b)naphtho(2,1-d)thiophene | 5.39 | 0.320 | 0.160 | |
| Fluoranthene | 41.4 | 0.320 | 0.160 | |
| Pyrene | 57.9 | 0.320 | 0.160 | |
| C1 - Fluoranthene/Pyrene | 59.7 | 0.320 | 0.160 | |
| C2 - Fluoranthene/Pyrene | 25.0 | 0.320 | 0.160 | |
| C3 - Fluoranthene/Pyrene | 8.54 | 0.320 | 0.160 | |
| Benz[a]anthracene | 24.2 | 0.320 | 0.160 | |
| Chrysene* | 26.8 | 0.320 | 0.160 | |
| C1 - Benz(a)anthracene/Chrysene | 23.6 | 0.320 | 0.160 | |
| C2 - Benz(a)anthracene/Chrysene | 11.7 | 0.320 | 0.160 | |
| C3 - Benz(a)anthracene/Chrysene | 4.54 | 0.320 | 0.160 | |
| C4 - Benz(a)anthracene/Chrysene | 2.98 | 0.320 | 0.160 | |
| Benzo[b]fluoranthene | 9.76 | 0.320 | 0.160 | |
| Benzo[j/k]fluoranthene | 12.2 | 0.320 | 0.160 | |
| Benzo(e)pyrene | 11.2 | 0.320 | 0.160 | |
| Benzo[a]pyrene | 19.2 | 0.320 | 0.160 | |
| Perylene | 2.93 | 0.320 | 0.160 | |
| Indeno[1,2,3-cd]pyrene | 8.12 | 0.320 | 0.160 | |
| Dibenz[a,h]anthracene | 2.56 | 0.320 | 0.160 | |
| Benzo[g,h,i]perylene | 7.9 | 0.320 | 0.160 | |
| Coronene | 2.37 | 0.320 | 0.160 | |
| Retene | 5.19 | 0.320 | 0.160 | |
| Benzo(b/c)fluorenes | 8.48 | 0.320 | 0.160 | |
| 2-Methylpyrene | 8.61 | 0.320 | 0.160 | |
| 4-Methylpyrene | 7.57 | 0.320 | 0.160 | |
| 1-Methylpyrene | 8.49 | 0.320 | 0.160 | |
| Heptadecane | 2.48 | 0.320 | 0.160 | |
| Pristane | 13.6 | 0.320 | 0.160 | |
| Octadecane | 1.63 B | 0.320 | 0.160 | |
| Phytane | 8.88 | 0.320 | 0.160 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB006-001 (9'-9.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-02-D | | |
| File ID: | E072716.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 62% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 8.65 | 0.320 | 0.160 | |
| 2,6,10-trimethyltridecane | 10.9 | 0.320 | 0.160 | |
| Norpristane | 7.43 | 0.320 | 0.160 | |
| Total PAH (16) | 664 | 0.320 | 0.160 | |
| Total PAH (42) | 1,460 | 0.320 | 0.160 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 62 | 50 - 120 |
| Phenanthrene-d10 | 63 | 50 - 120 |
| Perylene-d12 | 111 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB008-001 (15'-15.6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-03-D | | |
| File ID: | E072717.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 49% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | |
| Benzene | 1.75 J | 2.01 | 1.0 | |
| Toluene | 1.86 J | 2.01 | 1.0 | |
| Ethylbenzene | 2.26 | 0.401 | 0.200 | |
| m/p-Xylenes | 4.15 | 0.401 | 0.200 | |
| Styrene | 1.58 B | 0.401 | 0.200 | |
| o-Xylene | 1.29 | 0.401 | 0.200 | |
| Isopropylbenzene | 0.434 | 0.401 | 0.200 | |
| n-Propylbenzene | 0.435 | 0.401 | 0.200 | |
| 1,3,5-Trimethylbenzene | 1.07 | 0.401 | 0.200 | |
| 1,2,4-Trimethylbenzene | 3.22 | 0.401 | 0.200 | |
| t-Butylbenzene | 0.487 | 0.401 | 0.200 | |
| sec-Butylbenzene | 0.278 J | 0.401 | 0.200 | |
| p-Isopropyltoluene | 1.01 | 0.401 | 0.200 | |
| n-Butylbenzene | 1.09 B | 0.401 | 0.200 | |
| C1 - Benzene | 1.24 J | 2.01 | 1.0 | |
| C2 - Benzene | 3.68 | 0.401 | 0.200 | |
| C3 - Benzene | 5.31 | 0.401 | 0.200 | |
| C4 - Benzene | 7.08 | 0.401 | 0.200 | |
| C5 - Benzene | 7.15 | 0.401 | 0.200 | |
| trans-Decalin | 4.81 | 0.401 | 0.200 | |
| cis-Decalin | 0.347 J | 0.401 | 0.200 | |
| Naphthalene | 31.3 B | 0.401 | 0.200 | |
| 2-Methylnaphthalene | 32.7 | 0.401 | 0.200 | |
| 1-Methylnaphthalene | 20.2 | 0.401 | 0.200 | |
| C1 - Naphthalene | 33.6 | 0.401 | 0.200 | |
| C2 - Naphthalene | 34.9 | 0.401 | 0.200 | |
| C3- Naphthalene | 22.3 | 0.401 | 0.200 | |
| C4- Naphthalene | 10.9 | 0.401 | 0.200 | |
| Acenaphthylene | 9.93 | 0.401 | 0.200 | |
| Acenaphthene | 12.7 | 0.401 | 0.200 | |
| Dibenzofuran | 1.62 | 0.401 | 0.200 | |
| Fluorene | 9.9 | 0.401 | 0.200 | |
| C1 - Fluorene | 10.9 | 0.401 | 0.200 | |
| C2 - Fluorene | 12.0 | 0.401 | 0.200 | |
| C3 - Fluorene | 6.92 | 0.401 | 0.200 | |
| Phenanthrene | 51.2 | 0.401 | 0.200 | |
| Anthracene | 19.5 | 0.401 | 0.200 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB008-001 (15'-15.6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-03-D | | |
| File ID: | E072717.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 49% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 53.2 | 0.401 | 0.200 | |
| C2 - Phenanthrene/Anthracene | 31.0 | 0.401 | 0.200 | |
| C3 - Phenanthrene/Anthracene | 15.9 | 0.401 | 0.200 | |
| C4 - Phenanthrene/Anthracene | 7.11 | 0.401 | 0.200 | |
| Dibenzothiophene | 5.28 | 0.401 | 0.200 | |
| C1 - Dibenzothiophene | 9.3 | 0.401 | 0.200 | |
| C2 - Dibenzothiophene | 13.8 | 0.401 | 0.200 | |
| C3 - Dibenzothiophene | 10.0 | 0.401 | 0.200 | |
| C4 - Dibenzothiophene | 4.78 | 0.401 | 0.200 | |
| Benzo(b)naphtho(2,1-d)thiophene | 4.84 | 0.401 | 0.200 | |
| Fluoranthene | 35.7 | 0.401 | 0.200 | |
| Pyrene | 43.7 | 0.401 | 0.200 | |
| C1 - Fluoranthene/Pyrene | 48.0 | 0.401 | 0.200 | |
| C2 - Fluoranthene/Pyrene | 20.4 | 0.401 | 0.200 | |
| C3 - Fluoranthene/Pyrene | 7.66 | 0.401 | 0.200 | |
| Benz[a]anthracene | 21.7 | 0.401 | 0.200 | |
| Chrysene* | 24.0 | 0.401 | 0.200 | |
| C1 - Benz(a)anthracene/Chrysene | 20.0 | 0.401 | 0.200 | |
| C2 - Benz(a)anthracene/Chrysene | 10.2 | 0.401 | 0.200 | |
| C3 - Benz(a)anthracene/Chrysene | 4.62 | 0.401 | 0.200 | |
| C4 - Benz(a)anthracene/Chrysene | 3.48 | 0.401 | 0.200 | |
| Benzo[b]fluoranthene | 11.8 | 0.401 | 0.200 | |
| Benzo[j/k]fluoranthene | 13.2 | 0.401 | 0.200 | |
| Benzo(e)pyrene | 11.4 | 0.401 | 0.200 | |
| Benzo[a]pyrene | 19.0 | 0.401 | 0.200 | |
| Perylene | 3.18 | 0.401 | 0.200 | |
| Indeno[1,2,3-cd]pyrene | 9.38 | 0.401 | 0.200 | |
| Dibenz[a,h]anthracene | 3.01 | 0.401 | 0.200 | |
| Benzo[g,h,i]perylene | 8.59 | 0.401 | 0.200 | |
| Coronene | 2.55 | 0.401 | 0.200 | |
| Retene | 6.24 | 0.401 | 0.200 | |
| Benzo(b/c)fluorenes | 7.29 | 0.401 | 0.200 | |
| 2-Methylpyrene | 5.9 | 0.401 | 0.200 | |
| 4-Methylpyrene | 6.19 | 0.401 | 0.200 | |
| 1-Methylpyrene | 6.12 | 0.401 | 0.200 | |
| Heptadecane | 3.34 | 0.401 | 0.200 | |
| Pristane | 27.5 | 0.401 | 0.200 | |
| Octadecane | 1.51 B | 0.401 | 0.200 | |
| Phytane | 17.0 | 0.401 | 0.200 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB008-001 (15'-15.6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060719-03-D | | |
| File ID: | E072717.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/18/2006 | Decanted: | None |
| Date Received: | 7/19/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 49% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 19.6 | 0.401 | 0.200 | |
| 2,6,10-trimethyltridecane | 23.2 | 0.401 | 0.200 | |
| Norpristane | 15.4 | 0.401 | 0.200 | |
| Total PAH (16) | 325 | 0.401 | 0.200 | |
| Total PAH (42) | 737 | 0.401 | 0.200 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 55 | 50 - 120 |
| Phenanthrene-d10 | 53 | 50 - 120 |
| Perylene-d12 | 103 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009-001 (12.5'-13')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060720-01-D | | |
| File ID: | E072718.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/19/2006 | Decanted: | None |
| Date Received: | 7/20/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 3.76 | | 1.75 | 0.875 | |
| Toluene | 1.76 | | 1.75 | 0.875 | |
| Ethylbenzene | 8.1 | | 0.351 | 0.176 | |
| m/p-Xylenes | 8.42 | | 0.351 | 0.176 | |
| Styrene | 2.46 | B | 0.351 | 0.176 | |
| o-Xylene | 4.09 | | 0.351 | 0.176 | |
| Isopropylbenzene | 1.29 | | 0.351 | 0.176 | |
| n-Propylbenzene | 0.764 | | 0.351 | 0.176 | |
| 1,3,5-Trimethylbenzene | 2.37 | | 0.351 | 0.176 | |
| 1,2,4-Trimethylbenzene | 7.72 | | 0.351 | 0.176 | |
| t-Butylbenzene | | U | 0.351 | 0.176 | |
| sec-Butylbenzene | 0.188 | J | 0.351 | 0.176 | |
| p-Isopropyltoluene | 1.6 | | 0.351 | 0.176 | |
| n-Butylbenzene | 1.36 | B | 0.351 | 0.176 | |
| C1 - Benzene | 1.23 | J | 1.75 | 0.875 | |
| C2 - Benzene | 9.54 | | 0.351 | 0.176 | |
| C3 - Benzene | 12.6 | | 0.351 | 0.176 | |
| C4 - Benzene | 11.6 | | 0.351 | 0.176 | |
| C5 - Benzene | 6.76 | | 0.351 | 0.176 | |
| trans-Decalin | 3.04 | | 0.351 | 0.176 | |
| cis-Decalin | 0.229 | J | 0.351 | 0.176 | |
| Naphthalene | 124 | B | 0.351 | 0.176 | |
| 2-Methylnaphthalene | 115 | | 0.351 | 0.176 | |
| 1-Methylnaphthalene | 70.9 | | 0.351 | 0.176 | |
| C1 - Naphthalene | 118 | | 0.351 | 0.176 | |
| C2 - Naphthalene | 92.5 | | 0.351 | 0.176 | |
| C3- Naphthalene | 46.1 | | 0.351 | 0.176 | |
| C4- Naphthalene | 18.5 | | 0.351 | 0.176 | |
| Acenaphthylene | 19.4 | | 0.351 | 0.176 | |
| Acenaphthene | 37.5 | | 0.351 | 0.176 | |
| Dibenzofuran | 3.93 | | 0.351 | 0.176 | |
| Fluorene | 26.0 | | 0.351 | 0.176 | |
| C1 - Fluorene | 28.8 | | 0.351 | 0.176 | |
| C2 - Fluorene | 24.9 | | 0.351 | 0.176 | |
| C3 - Fluorene | 12.7 | | 0.351 | 0.176 | |
| Phenanthrene | 117 | | 0.351 | 0.176 | |
| Anthracene | 41.9 | | 0.351 | 0.176 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009-001 (12.5'-13')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060720-01-D | | |
| File ID: | E072718.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/19/2006 | Decanted: | None |
| Date Received: | 7/20/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 118 | 0.351 | 0.176 | |
| C2 - Phenanthrene/Anthracene | 60.8 | 0.351 | 0.176 | |
| C3 - Phenanthrene/Anthracene | 25.0 | 0.351 | 0.176 | |
| C4 - Phenanthrene/Anthracene | 9.46 | 0.351 | 0.176 | |
| Dibenzothiophene | 12.1 | 0.351 | 0.176 | |
| C1 - Dibenzothiophene | 19.8 | 0.351 | 0.176 | |
| C2 - Dibenzothiophene | 24.5 | 0.351 | 0.176 | |
| C3 - Dibenzothiophene | 15.2 | 0.351 | 0.176 | |
| C4 - Dibenzothiophene | 5.97 | 0.351 | 0.176 | |
| Benzo(b)naphtho(2,1-d)thiophene | 8.39 | 0.351 | 0.176 | |
| Fluoranthene | 60.6 | 0.351 | 0.176 | |
| Pyrene | 80.1 | 0.351 | 0.176 | |
| C1 - Fluoranthene/Pyrene | 94.9 | 0.351 | 0.176 | |
| C2 - Fluoranthene/Pyrene | 39.9 | 0.351 | 0.176 | |
| C3 - Fluoranthene/Pyrene | 14.8 | 0.351 | 0.176 | |
| Benz[a]anthracene | 37.8 | 0.351 | 0.176 | |
| Chrysene* | 41.0 | 0.351 | 0.176 | |
| C1 - Benz(a)anthracene/Chrysene | 33.0 | 0.351 | 0.176 | |
| C2 - Benz(a)anthracene/Chrysene | 18.7 | 0.351 | 0.176 | |
| C3 - Benz(a)anthracene/Chrysene | 8.25 | 0.351 | 0.176 | |
| C4 - Benz(a)anthracene/Chrysene | 5.31 | 0.351 | 0.176 | |
| Benzo[b]fluoranthene | 17.9 | 0.351 | 0.176 | |
| Benzo[j/k]fluoranthene | 21.1 | 0.351 | 0.176 | |
| Benzo(e)pyrene | 18.7 | 0.351 | 0.176 | |
| Benzo[a]pyrene | 33.0 | 0.351 | 0.176 | |
| Perylene | 4.78 | 0.351 | 0.176 | |
| Indeno[1,2,3-cd]pyrene | 14.8 | 0.351 | 0.176 | |
| Dibenz[a,h]anthracene | 4.55 | 0.351 | 0.176 | |
| Benzo[g,h,i]perylene | 13.8 | 0.351 | 0.176 | |
| Coronene | 4.07 | 0.351 | 0.176 | |
| Retene | 8.32 | 0.351 | 0.176 | |
| Benzo(b/c)fluorenes | 13.4 | 0.351 | 0.176 | |
| 2-Methylpyrene | 11.9 | 0.351 | 0.176 | |
| 4-Methylpyrene | 12.0 | 0.351 | 0.176 | |
| 1-Methylpyrene | 13.1 | 0.351 | 0.176 | |
| Heptadecane | 3.67 | 0.351 | 0.176 | |
| Pristane | 27.0 | 0.351 | 0.176 | |
| Octadecane | 1.75 B | 0.351 | 0.176 | |
| Phytane | 16.8 | 0.351 | 0.176 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009-001 (12.5'-13')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060720-01-D | | |
| File ID: | E072718.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/19/2006 | Decanted: | None |
| Date Received: | 7/20/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.03 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 18.7 | 0.351 | 0.176 | |
| 2,6,10-trimethyltridecane | 22.8 | 0.351 | 0.176 | |
| Norpristane | 15.7 | 0.351 | 0.176 | |
| Total PAH (16) | 690 | 0.351 | 0.176 | |
| Total PAH (42) | 1,560 | 0.351 | 0.176 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 71 | 50 - 120 |
| Phenanthrene-d10 | 69 | 50 - 120 |
| Perylene-d12 | 132 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB012-001 (9.5'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060721-01-D | | |
| File ID: | E072719.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/20/2006 | Decanted: | None |
| Date Received: | 7/21/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 54% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 4.8 | | 1.71 | 0.855 | |
| Toluene | 2.42 | | 1.71 | 0.855 | |
| Ethylbenzene | 21.2 | | 0.342 | 0.171 | |
| m/p-Xylenes | 18.6 | | 0.342 | 0.171 | |
| Styrene | 2.52 | B | 0.342 | 0.171 | |
| o-Xylene | 8.98 | | 0.342 | 0.171 | |
| Isopropylbenzene | 2.79 | | 0.342 | 0.171 | |
| n-Propylbenzene | 1.5 | | 0.342 | 0.171 | |
| 1,3,5-Trimethylbenzene | 4.81 | | 0.342 | 0.171 | |
| 1,2,4-Trimethylbenzene | 16.2 | | 0.342 | 0.171 | |
| t-Butylbenzene | | U | 0.342 | 0.171 | |
| sec-Butylbenzene | 0.194 | J | 0.342 | 0.171 | |
| p-Isopropyltoluene | 2.64 | | 0.342 | 0.171 | |
| n-Butylbenzene | 2.25 | B | 0.342 | 0.171 | |
| C1 - Benzene | 1.6 | J | 1.71 | 0.855 | |
| C2 - Benzene | 21.8 | | 0.342 | 0.171 | |
| C3 - Benzene | 26.5 | | 0.342 | 0.171 | |
| C4 - Benzene | 20.3 | | 0.342 | 0.171 | |
| C5 - Benzene | 8.6 | | 0.342 | 0.171 | |
| trans-Decalin | 2.13 | | 0.342 | 0.171 | |
| cis-Decalin | 0.175 | J | 0.342 | 0.171 | |
| Naphthalene | 306 | B | 0.342 | 0.171 | |
| 2-Methylnaphthalene | 252 | | 0.342 | 0.171 | |
| 1-Methylnaphthalene | 156 | | 0.342 | 0.171 | |
| C1 - Naphthalene | 257 | | 0.342 | 0.171 | |
| C2 - Naphthalene | 186 | | 0.342 | 0.171 | |
| C3- Naphthalene | 73.1 | | 0.342 | 0.171 | |
| C4- Naphthalene | 23.6 | | 0.342 | 0.171 | |
| Acenaphthylene | 23.7 | | 0.342 | 0.171 | |
| Acenaphthene | 101 | | 0.342 | 0.171 | |
| Dibenzofuran | 6.75 | | 0.342 | 0.171 | |
| Fluorene | 56.4 | | 0.342 | 0.171 | |
| C1 - Fluorene | 47.8 | | 0.342 | 0.171 | |
| C2 - Fluorene | 36.1 | | 0.342 | 0.171 | |
| C3 - Fluorene | 15.6 | | 0.342 | 0.171 | |
| Phenanthrene | 208 | | 0.342 | 0.171 | |
| Anthracene | 76.5 | | 0.342 | 0.171 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB012-001 (9.5'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060721-01-D | | |
| File ID: | E072719.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/20/2006 | Decanted: | None |
| Date Received: | 7/21/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 54% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 176 | 0.342 | 0.171 | |
| C2 - Phenanthrene/Anthracene | 84.5 | 0.342 | 0.171 | |
| C3 - Phenanthrene/Anthracene | 29.1 | 0.342 | 0.171 | |
| C4 - Phenanthrene/Anthracene | 9.39 | 0.342 | 0.171 | |
| Dibenzothiophene | 21.0 | 0.342 | 0.171 | |
| C1 - Dibenzothiophene | 26.2 | 0.342 | 0.171 | |
| C2 - Dibenzothiophene | 27.8 | 0.342 | 0.171 | |
| C3 - Dibenzothiophene | 14.8 | 0.342 | 0.171 | |
| C4 - Dibenzothiophene | 5.31 | 0.342 | 0.171 | |
| Benzo(b)naphtho(2,1-d)thiophene | 10.1 | 0.342 | 0.171 | |
| Fluoranthene | 81.0 | 0.342 | 0.171 | |
| Pyrene | 118 | 0.342 | 0.171 | |
| C1 - Fluoranthene/Pyrene | 122 | 0.342 | 0.171 | |
| C2 - Fluoranthene/Pyrene | 48.4 | 0.342 | 0.171 | |
| C3 - Fluoranthene/Pyrene | 16.2 | 0.342 | 0.171 | |
| Benz[a]anthracene | 49.6 | 0.342 | 0.171 | |
| Chrysene* | 52.1 | 0.342 | 0.171 | |
| C1 - Benz(a)anthracene/Chrysene | 44.0 | 0.342 | 0.171 | |
| C2 - Benz(a)anthracene/Chrysene | 21.5 | 0.342 | 0.171 | |
| C3 - Benz(a)anthracene/Chrysene | 8.31 | 0.342 | 0.171 | |
| C4 - Benz(a)anthracene/Chrysene | 4.95 | 0.342 | 0.171 | |
| Benzo[b]fluoranthene | 18.7 | 0.342 | 0.171 | |
| Benzo[j/k]fluoranthene | 23.4 | 0.342 | 0.171 | |
| Benzo(e)pyrene | 21.5 | 0.342 | 0.171 | |
| Benzo[a]pyrene | 38.9 | 0.342 | 0.171 | |
| Perylene | 5.55 | 0.342 | 0.171 | |
| Indeno[1,2,3-cd]pyrene | 15.5 | 0.342 | 0.171 | |
| Dibenz[a,h]anthracene | 4.78 | 0.342 | 0.171 | |
| Benzo[g,h,i]perylene | 15.1 | 0.342 | 0.171 | |
| Coronene | 4.44 | 0.342 | 0.171 | |
| Retene | 7.04 | 0.342 | 0.171 | |
| Benzo(b/c)fluorenes | 16.0 | 0.342 | 0.171 | |
| 2-Methylpyrene | 16.3 | 0.342 | 0.171 | |
| 4-Methylpyrene | 14.8 | 0.342 | 0.171 | |
| 1-Methylpyrene | 18.2 | 0.342 | 0.171 | |
| Heptadecane | 3.96 | 0.342 | 0.171 | |
| Pristane | 21.4 | 0.342 | 0.171 | |
| Octadecane | 2.4 B | 0.342 | 0.171 | |
| Phytane | 13.5 | 0.342 | 0.171 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB012-001 (9.5'-10')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060721-01-D | | |
| File ID: | E072719.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/20/2006 | Decanted: | None |
| Date Received: | 7/21/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 54% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 13.0 | 0.342 | 0.171 | |
| 2,6,10-trimethyltridecane | 17.1 | 0.342 | 0.171 | |
| Norpristane | 11.6 | 0.342 | 0.171 | |
| Total PAH (16) | 1,190 | 0.342 | 0.171 | |
| Total PAH (42) | 2,520 | 0.342 | 0.171 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 59 | 50 - 120 |
| Phenanthrene-d10 | 61 | 50 - 120 |
| Perylene-d12 | 120 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB017-001 (8'-8.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-01-D | | |
| File ID: | E072720.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 272 | | 4.42 | 2.21 | |
| Toluene | 112 | | 4.42 | 2.21 | |
| Ethylbenzene | 762 | | 0.884 | 0.442 | |
| m/p-Xylenes | 418 | | 0.884 | 0.442 | |
| Styrene | 51.9 | B | 0.884 | 0.442 | |
| o-Xylene | 200 | | 0.884 | 0.442 | |
| Isopropylbenzene | 43.3 | | 0.884 | 0.442 | |
| n-Propylbenzene | 17.9 | | 0.884 | 0.442 | |
| 1,3,5-Trimethylbenzene | 81.6 | | 0.884 | 0.442 | |
| 1,2,4-Trimethylbenzene | 255 | | 0.884 | 0.442 | |
| t-Butylbenzene | | U | 0.884 | 0.442 | |
| sec-Butylbenzene | 1.19 | | 0.884 | 0.442 | |
| p-Isopropyltoluene | 29.8 | | 0.884 | 0.442 | |
| n-Butylbenzene | 17.0 | B | 0.884 | 0.442 | |
| C1 - Benzene | 76.2 | | 4.42 | 2.21 | |
| C2 - Benzene | 630 | | 0.884 | 0.442 | |
| C3 - Benzene | 453 | | 0.884 | 0.442 | |
| C4 - Benzene | 196 | | 0.884 | 0.442 | |
| C5 - Benzene | 40.0 | | 0.884 | 0.442 | |
| trans-Decalin | 3.9 | | 0.884 | 0.442 | |
| cis-Decalin | 0.508 | J | 0.884 | 0.442 | |
| Naphthalene | 13,000 | DB | 0.884 | 0.442 | |
| 2-Methylnaphthalene | 3,770 | D | 0.884 | 0.442 | |
| 1-Methylnaphthalene | 2,280 | D | 0.884 | 0.442 | |
| C1 - Naphthalene | 3,820 | D | 0.884 | 0.442 | |
| C2 - Naphthalene | 1,220 | | 0.884 | 0.442 | |
| C3- Naphthalene | 332 | | 0.884 | 0.442 | |
| C4- Naphthalene | 81.2 | | 0.884 | 0.442 | |
| Acenaphthylene | 328 | | 0.884 | 0.442 | |
| Acenaphthene | 1,310 | | 0.884 | 0.442 | |
| Dibenzofuran | 61.4 | | 0.884 | 0.442 | |
| Fluorene | 613 | | 0.884 | 0.442 | |
| C1 - Fluorene | 304 | | 0.884 | 0.442 | |
| C2 - Fluorene | 164 | | 0.884 | 0.442 | |
| C3 - Fluorene | 55.3 | | 0.884 | 0.442 | |
| Phenanthrene | 1,840 | E | 0.884 | 0.442 | |
| Anthracene | 724 | | 0.884 | 0.442 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB017-001 (8'-8.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-01-D | | |
| File ID: | E072720.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 1,010 | | 0.884 | 0.442 | |
| C2 - Phenanthrene/Anthracene | 369 | | 0.884 | 0.442 | |
| C3 - Phenanthrene/Anthracene | 104 | | 0.884 | 0.442 | |
| C4 - Phenanthrene/Anthracene | 26.6 | | 0.884 | 0.442 | |
| Dibenzothiophene | 195 | | 0.884 | 0.442 | |
| C1 - Dibenzothiophene | 178 | | 0.884 | 0.442 | |
| C2 - Dibenzothiophene | 116 | | 0.884 | 0.442 | |
| C3 - Dibenzothiophene | 49.9 | | 0.884 | 0.442 | |
| C4 - Dibenzothiophene | 14.2 | | 0.884 | 0.442 | |
| Benzo(b)naphtho(2,1-d)thiophene | 59.9 | | 0.884 | 0.442 | |
| Fluoranthene | 839 | | 0.884 | 0.442 | |
| Pyrene | 1,160 | | 0.884 | 0.442 | |
| C1 - Fluoranthene/Pyrene | 797 | | 0.884 | 0.442 | |
| C2 - Fluoranthene/Pyrene | 221 | | 0.884 | 0.442 | |
| C3 - Fluoranthene/Pyrene | 63.6 | | 0.884 | 0.442 | |
| Benz[a]anthracene | 409 | | 0.884 | 0.442 | |
| Chrysene* | 401 | | 0.884 | 0.442 | |
| C1 - Benz(a)anthracene/Chrysene | 215 | | 0.884 | 0.442 | |
| C2 - Benz(a)anthracene/Chrysene | 78.1 | | 0.884 | 0.442 | |
| C3 - Benz(a)anthracene/Chrysene | 25.8 | | 0.884 | 0.442 | |
| C4 - Benz(a)anthracene/Chrysene | 15.8 | | 0.884 | 0.442 | |
| Benzo[b]fluoranthene | 182 | | 0.884 | 0.442 | |
| Benzo[j/k]fluoranthene | 248 | | 0.884 | 0.442 | |
| Benzo(e)pyrene | 228 | | 0.884 | 0.442 | |
| Benzo[a]pyrene | 456 | | 0.884 | 0.442 | |
| Perylene | 67.7 | | 0.884 | 0.442 | |
| Indeno[1,2,3-cd]pyrene | 212 | | 0.884 | 0.442 | |
| Dibenz[a,h]anthracene | 45.6 | | 0.884 | 0.442 | |
| Benzo[g,h,i]perylene | 235 | | 0.884 | 0.442 | |
| Coronene | 77.7 | | 0.884 | 0.442 | |
| Retene | 5.2 | | 0.884 | 0.442 | |
| Benzo(b/c)fluorenes | 120 | | 0.884 | 0.442 | |
| 2-Methylpyrene | 95.7 | | 0.884 | 0.442 | |
| 4-Methylpyrene | 92.3 | | 0.884 | 0.442 | |
| 1-Methylpyrene | 122 | | 0.884 | 0.442 | |
| Heptadecane | 37.4 | | 0.884 | 0.442 | |
| Pristane | 24.2 | | 0.884 | 0.442 | |
| Octadecane | 31.3 | B | 0.884 | 0.442 | |
| Phytane | 15.7 | | 0.884 | 0.442 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB017-001 (8'-8.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-01-D | | |
| File ID: | E072720.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.04 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 15.2 | 0.884 | 0.442 | |
| 2,6,10-trimethyltridecane | 20.5 | 0.884 | 0.442 | |
| Norpristane | 15.9 | 0.884 | 0.442 | |
| Total PAH (16) | 22,000 | 0.884 | 0.442 | |
| Total PAH (42) | 31,800 | 0.884 | 0.442 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 57 | 50 - 120 |
| Phenanthrene-d10 | 58 | 50 - 120 |
| Perylene-d12 | 235 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB018-001 (7.5'-8')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-02-D | | |
| File ID: | E072723.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 48% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 35.6 | | 5.1 | 2.55 | |
| Toluene | 5.86 | | 5.1 | 2.55 | |
| Ethylbenzene | 99.3 | | 1.02 | 0.510 | |
| m/p-Xylenes | 49.9 | | 1.02 | 0.510 | |
| Styrene | 2.46 | B | 1.02 | 0.510 | |
| o-Xylene | 22.4 | | 1.02 | 0.510 | |
| Isopropylbenzene | 4.66 | | 1.02 | 0.510 | |
| n-Propylbenzene | 1.62 | | 1.02 | 0.510 | |
| 1,3,5-Trimethylbenzene | 6.65 | | 1.02 | 0.510 | |
| 1,2,4-Trimethylbenzene | 21.2 | | 1.02 | 0.510 | |
| t-Butylbenzene | | U | 1.02 | 0.510 | |
| sec-Butylbenzene | | U | 1.02 | 0.510 | |
| p-Isopropyltoluene | 2.48 | | 1.02 | 0.510 | |
| n-Butylbenzene | | BU | 1.02 | 0.510 | |
| C1 - Benzene | 3.99 | J | 5.1 | 2.55 | |
| C2 - Benzene | 74.6 | | 1.02 | 0.510 | |
| C3 - Benzene | 38.2 | | 1.02 | 0.510 | |
| C4 - Benzene | 14.5 | | 1.02 | 0.510 | |
| C5 - Benzene | 5.75 | | 1.02 | 0.510 | |
| trans-Decalin | 3.3 | | 1.02 | 0.510 | |
| cis-Decalin | | U | 1.02 | 0.510 | |
| Naphthalene | 668 | B | 1.02 | 0.510 | |
| 2-Methylnaphthalene | 147 | | 1.02 | 0.510 | |
| 1-Methylnaphthalene | 90.6 | | 1.02 | 0.510 | |
| C1 - Naphthalene | 149 | | 1.02 | 0.510 | |
| C2 - Naphthalene | 64.8 | | 1.02 | 0.510 | |
| C3- Naphthalene | 21.6 | | 1.02 | 0.510 | |
| C4- Naphthalene | 8.07 | | 1.02 | 0.510 | |
| Acenaphthylene | 18.0 | | 1.02 | 0.510 | |
| Acenaphthene | 73.6 | | 1.02 | 0.510 | |
| Dibenzofuran | 3.36 | | 1.02 | 0.510 | |
| Fluorene | 31.0 | | 1.02 | 0.510 | |
| C1 - Fluorene | 16.4 | | 1.02 | 0.510 | |
| C2 - Fluorene | 10.2 | | 1.02 | 0.510 | |
| C3 - Fluorene | 5.52 | | 1.02 | 0.510 | |
| Phenanthrene | 119 | | 1.02 | 0.510 | |
| Anthracene | 39.3 | | 1.02 | 0.510 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB018-001 (7.5'-8')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-02-D | | |
| File ID: | E072723.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 48% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 61.5 | 1.02 | 0.510 | |
| C2 - Phenanthrene/Anthracene | 27.6 | 1.02 | 0.510 | |
| C3 - Phenanthrene/Anthracene | 10.7 | 1.02 | 0.510 | |
| C4 - Phenanthrene/Anthracene | 3.89 | 1.02 | 0.510 | |
| Dibenzothiophene | 10.4 | 1.02 | 0.510 | |
| C1 - Dibenzothiophene | 9.58 | 1.02 | 0.510 | |
| C2 - Dibenzothiophene | 10.7 | 1.02 | 0.510 | |
| C3 - Dibenzothiophene | 6.55 | 1.02 | 0.510 | |
| C4 - Dibenzothiophene | 2.95 | 1.02 | 0.510 | |
| Benzo(b)naphtho(2,1-d)thiophene | 4.56 | 1.02 | 0.510 | |
| Fluoranthene | 57.4 | 1.02 | 0.510 | |
| Pyrene | 77.8 | 1.02 | 0.510 | |
| C1 - Fluoranthene/Pyrene | 50.6 | 1.02 | 0.510 | |
| C2 - Fluoranthene/Pyrene | 16.9 | 1.02 | 0.510 | |
| C3 - Fluoranthene/Pyrene | 5.51 | 1.02 | 0.510 | |
| Benz[a]anthracene | 26.7 | 1.02 | 0.510 | |
| Chrysene* | 28.1 | 1.02 | 0.510 | |
| C1 - Benz(a)anthracene/Chrysene | 17.1 | 1.02 | 0.510 | |
| C2 - Benz(a)anthracene/Chrysene | 8.13 | 1.02 | 0.510 | |
| C3 - Benz(a)anthracene/Chrysene | 3.14 | 1.02 | 0.510 | |
| C4 - Benz(a)anthracene/Chrysene | 2.42 | 1.02 | 0.510 | |
| Benzo[b]fluoranthene | 13.2 | 1.02 | 0.510 | |
| Benzo[j/k]fluoranthene | 16.5 | 1.02 | 0.510 | |
| Benzo(e)pyrene | 14.7 | 1.02 | 0.510 | |
| Benzo[a]pyrene | 27.2 | 1.02 | 0.510 | |
| Perylene | 4.02 | 1.02 | 0.510 | |
| Indeno[1,2,3-cd]pyrene | 12.3 | 1.02 | 0.510 | |
| Dibenz[a,h]anthracene | 2.72 | 1.02 | 0.510 | |
| Benzo[g,h,i]perylene | 12.9 | 1.02 | 0.510 | |
| Coronene | 3.99 | 1.02 | 0.510 | |
| Retene | 3.11 | 1.02 | 0.510 | |
| Benzo(b/c)fluorenes | 7.76 | 1.02 | 0.510 | |
| 2-Methylpyrene | 6.43 | 1.02 | 0.510 | |
| 4-Methylpyrene | 6.1 | 1.02 | 0.510 | |
| 1-Methylpyrene | 7.16 | 1.02 | 0.510 | |
| Heptadecane | 2.92 | 1.02 | 0.510 | |
| Pristane | 12.8 | 1.02 | 0.510 | |
| Octadecane | 1.9 B | 1.02 | 0.510 | |
| Phytane | 8.02 | 1.02 | 0.510 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB018-001 (7.5'-8')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-02-D | | |
| File ID: | E072723.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/24/2006 | Decanted: | None |
| Date Received: | 7/25/2006 | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 48% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 5000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 10.2 | 1.02 | 0.510 | |
| 2,6,10-trimethyltridecane | 11.8 | 1.02 | 0.510 | |
| Norpristane | 7.27 | 1.02 | 0.510 | |
| Total PAH (16) | 1,220 | 1.02 | 0.510 | |
| Total PAH (42) | 1,770 | 1.02 | 0.510 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 30 | 50 - 120 |
| Phenanthrene-d10 | 29 | 50 - 120 |
| Perylene-d12 | 137 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB019B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02-D | | |
| File ID: | E080309.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.05 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 19.0 | B | 1.76 | 0.880 | |
| Toluene | 4.93 | | 1.76 | 0.880 | |
| Ethylbenzene | 111 | | 0.352 | 0.176 | |
| m/p-Xylenes | 67.0 | | 0.352 | 0.176 | |
| Styrene | 3.42 | B | 0.352 | 0.176 | |
| o-Xylene | 38.7 | | 0.352 | 0.176 | |
| Isopropylbenzene | 12.2 | | 0.352 | 0.176 | |
| n-Propylbenzene | 4.98 | | 0.352 | 0.176 | |
| 1,3,5-Trimethylbenzene | 16.0 | | 0.352 | 0.176 | |
| 1,2,4-Trimethylbenzene | 57.3 | | 0.352 | 0.176 | |
| t-Butylbenzene | 7.35 | | 0.352 | 0.176 | |
| sec-Butylbenzene | 0.350 | J | 0.352 | 0.176 | |
| p-Isopropyltoluene | 7.07 | | 0.352 | 0.176 | |
| n-Butylbenzene | 5.12 | | 0.352 | 0.176 | |
| C1 - Benzene | 3.34 | | 1.76 | 0.880 | |
| C2 - Benzene | 96.1 | B | 0.352 | 0.176 | |
| C3 - Benzene | 87.2 | B | 0.352 | 0.176 | |
| C4 - Benzene | 43.6 | | 0.352 | 0.176 | |
| C5 - Benzene | 10.2 | | 0.352 | 0.176 | |
| trans-Decalin | 1.72 | | 0.352 | 0.176 | |
| cis-Decalin | | U | 0.352 | 0.176 | |
| Naphthalene | 855 | DB | 0.352 | 0.176 | |
| 2-Methylnaphthalene | 335 | B | 0.352 | 0.176 | |
| 1-Methylnaphthalene | 215 | B | 0.352 | 0.176 | |
| C1 - Naphthalene | 347 | B | 0.352 | 0.176 | |
| C2 - Naphthalene | 163 | B | 0.352 | 0.176 | |
| C3- Naphthalene | 56.4 | B | 0.352 | 0.176 | |
| C4- Naphthalene | 17.2 | | 0.352 | 0.176 | |
| Acenaphthylene | 16.5 | | 0.352 | 0.176 | |
| Acenaphthene | 142 | B | 0.352 | 0.176 | |
| Dibenzofuran | 6.13 | | 0.352 | 0.176 | |
| Fluorene | 57.4 | B | 0.352 | 0.176 | |
| C1 - Fluorene | 43.3 | | 0.352 | 0.176 | |
| C2 - Fluorene | 29.4 | | 0.352 | 0.176 | |
| C3 - Fluorene | 12.0 | | 0.352 | 0.176 | |
| Phenanthrene | 199 | B | 0.352 | 0.176 | |
| Anthracene | 71.5 | | 0.352 | 0.176 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB019B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02-D | | |
| File ID: | E080309.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.05 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 138 | B | 0.352 | 0.176 | |
| C2 - Phenanthrene/Anthracene | 62.8 | | 0.352 | 0.176 | |
| C3 - Phenanthrene/Anthracene | 22.2 | | 0.352 | 0.176 | |
| C4 - Phenanthrene/Anthracene | 7.63 | | 0.352 | 0.176 | |
| Dibenzothiophene | 16.6 | | 0.352 | 0.176 | |
| C1 - Dibenzothiophene | 18.7 | | 0.352 | 0.176 | |
| C2 - Dibenzothiophene | 18.6 | | 0.352 | 0.176 | |
| C3 - Dibenzothiophene | 9.89 | | 0.352 | 0.176 | |
| C4 - Dibenzothiophene | 3.45 | | 0.352 | 0.176 | |
| Benzo(b)naphtho(2,1-d)thiophene | 6.92 | | 0.352 | 0.176 | |
| Fluoranthene | 72.4 | | 0.352 | 0.176 | |
| Pyrene | 105 | | 0.352 | 0.176 | |
| C1 - Fluoranthene/Pyrene | 90.5 | B | 0.352 | 0.176 | |
| C2 - Fluoranthene/Pyrene | 32.4 | | 0.352 | 0.176 | |
| C3 - Fluoranthene/Pyrene | 11.4 | | 0.352 | 0.176 | |
| Benz[a]anthracene | 36.7 | | 0.352 | 0.176 | |
| Chrysene* | 38.3 | | 0.352 | 0.176 | |
| C1 - Benz(a)anthracene/Chrysene | 28.4 | | 0.352 | 0.176 | |
| C2 - Benz(a)anthracene/Chrysene | 13.2 | | 0.352 | 0.176 | |
| C3 - Benz(a)anthracene/Chrysene | 4.95 | | 0.352 | 0.176 | |
| C4 - Benz(a)anthracene/Chrysene | 3.73 | | 0.352 | 0.176 | |
| Benzo[b]fluoranthene | 14.4 | | 0.352 | 0.176 | |
| Benzo[j/k]fluoranthene | 18.0 | | 0.352 | 0.176 | |
| Benzo(e)pyrene | 17.0 | | 0.352 | 0.176 | |
| Benzo[a]pyrene | 28.6 | | 0.352 | 0.176 | |
| Perylene | 4.57 | | 0.352 | 0.176 | |
| Indeno[1,2,3-cd]pyrene | 11.8 | | 0.352 | 0.176 | |
| Dibenz[a,h]anthracene | 3.58 | | 0.352 | 0.176 | |
| Benzo[g,h,i]perylene | 12.3 | | 0.352 | 0.176 | |
| Coronene | 3.77 | | 0.352 | 0.176 | |
| Retene | 9.57 | | 0.352 | 0.176 | |
| Benzo(b/c)fluorenes | 12.0 | | 0.352 | 0.176 | |
| 2-Methylpyrene | 12.3 | | 0.352 | 0.176 | |
| 4-Methylpyrene | 11.9 | | 0.352 | 0.176 | |
| 1-Methylpyrene | 13.0 | | 0.352 | 0.176 | |
| Heptadecane | 10.0 | | 0.352 | 0.176 | |
| Pristane | 21.0 | | 0.352 | 0.176 | |
| Octadecane | 6.56 | B | 0.352 | 0.176 | |
| Phytane | 12.4 | | 0.352 | 0.176 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB019B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02-D | | |
| File ID: | E080309.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.05 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 9.82 | 0.352 | 0.176 | |
| 2,6,10-trimethyltridecane | 13.8 | 0.352 | 0.176 | |
| Norpristane | 11.6 | 0.352 | 0.176 | |
| Total PAH (16) | 1,680 | 0.352 | 0.176 | |
| Total PAH (42) | 2,860 | 0.352 | 0.176 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 81 | 50 - 120 |
| Phenanthrene-d10 | 80 | 50 - 120 |
| Perylene-d12 | 114 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB-020B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-01-D | | |
| File ID: | E080315.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 52% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 39.5 | B | 1.77 | 0.885 | |
| Toluene | 8.1 | | 1.77 | 0.885 | |
| Ethylbenzene | 112 | | 0.354 | 0.177 | |
| m/p-Xylenes | 106 | | 0.354 | 0.177 | |
| Styrene | 7.9 | B | 0.354 | 0.177 | |
| o-Xylene | 52.5 | | 0.354 | 0.177 | |
| Isopropylbenzene | 14.2 | | 0.354 | 0.177 | |
| n-Propylbenzene | 6.73 | | 0.354 | 0.177 | |
| 1,3,5-Trimethylbenzene | 24.1 | | 0.354 | 0.177 | |
| 1,2,4-Trimethylbenzene | 83.2 | | 0.354 | 0.177 | |
| t-Butylbenzene | | U | 0.354 | 0.177 | |
| sec-Butylbenzene | 0.606 | | 0.354 | 0.177 | |
| p-Isopropyltoluene | 10.9 | | 0.354 | 0.177 | |
| n-Butylbenzene | 7.21 | | 0.354 | 0.177 | |
| C1 - Benzene | 5.53 | | 1.77 | 0.885 | |
| C2 - Benzene | 123 | B | 0.354 | 0.177 | |
| C3 - Benzene | 131 | B | 0.354 | 0.177 | |
| C4 - Benzene | 77.8 | | 0.354 | 0.177 | |
| C5 - Benzene | 24.8 | | 0.354 | 0.177 | |
| trans-Decalin | 2.56 | | 0.354 | 0.177 | |
| cis-Decalin | 0.288 | J | 0.354 | 0.177 | |
| Naphthalene | 1,550 | DB | 0.354 | 0.177 | |
| 2-Methylnaphthalene | 1,210 | DB | 0.354 | 0.177 | |
| 1-Methylnaphthalene | 765 | DB | 0.354 | 0.177 | |
| C1 - Naphthalene | 1,250 | DB | 0.354 | 0.177 | |
| C2 - Naphthalene | 646 | B | 0.354 | 0.177 | |
| C3- Naphthalene | 234 | B | 0.354 | 0.177 | |
| C4- Naphthalene | 66.4 | | 0.354 | 0.177 | |
| Acenaphthylene | 85.6 | | 0.354 | 0.177 | |
| Acenaphthene | 163 | B | 0.354 | 0.177 | |
| Dibenzofuran | 21.8 | | 0.354 | 0.177 | |
| Fluorene | 166 | B | 0.354 | 0.177 | |
| C1 - Fluorene | 143 | | 0.354 | 0.177 | |
| C2 - Fluorene | 102 | | 0.354 | 0.177 | |
| C3 - Fluorene | 41.5 | | 0.354 | 0.177 | |
| Phenanthrene | 483 | B | 0.354 | 0.177 | |
| Anthracene | 122 | | 0.354 | 0.177 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB-020B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-01-D | | |
| File ID: | E080315.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 52% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 431 | B | 0.354 | 0.177 | |
| C2 - Phenanthrene/Anthracene | 198 | | 0.354 | 0.177 | |
| C3 - Phenanthrene/Anthracene | 67.7 | | 0.354 | 0.177 | |
| C4 - Phenanthrene/Anthracene | 19.1 | | 0.354 | 0.177 | |
| Dibenzothiophene | 57.2 | | 0.354 | 0.177 | |
| C1 - Dibenzothiophene | 72.0 | | 0.354 | 0.177 | |
| C2 - Dibenzothiophene | 69.9 | | 0.354 | 0.177 | |
| C3 - Dibenzothiophene | 35.8 | | 0.354 | 0.177 | |
| C4 - Dibenzothiophene | 11.2 | | 0.354 | 0.177 | |
| Benzo(b)naphtho(2,1-d)thiophene | 20.7 | | 0.354 | 0.177 | |
| Fluoranthene | 131 | | 0.354 | 0.177 | |
| Pyrene | 193 | | 0.354 | 0.177 | |
| C1 - Fluoranthene/Pyrene | 251 | B | 0.354 | 0.177 | |
| C2 - Fluoranthene/Pyrene | 110 | | 0.354 | 0.177 | |
| C3 - Fluoranthene/Pyrene | 33.9 | | 0.354 | 0.177 | |
| Benz[a]anthracene | 81.9 | | 0.354 | 0.177 | |
| Chrysene* | 93.7 | | 0.354 | 0.177 | |
| C1 - Benz(a)anthracene/Chrysene | 91.7 | | 0.354 | 0.177 | |
| C2 - Benz(a)anthracene/Chrysene | 45.4 | | 0.354 | 0.177 | |
| C3 - Benz(a)anthracene/Chrysene | 17.6 | | 0.354 | 0.177 | |
| C4 - Benz(a)anthracene/Chrysene | 12.4 | | 0.354 | 0.177 | |
| Benzo[b]fluoranthene | 28.4 | | 0.354 | 0.177 | |
| Benzo[j/k]fluoranthene | 34.5 | | 0.354 | 0.177 | |
| Benzo(e)pyrene | 31.3 | | 0.354 | 0.177 | |
| Benzo[a]pyrene | 57.8 | | 0.354 | 0.177 | |
| Perylene | 9.1 | | 0.354 | 0.177 | |
| Indeno[1,2,3-cd]pyrene | 22.2 | | 0.354 | 0.177 | |
| Dibenz[a,h]anthracene | 8.8 | | 0.354 | 0.177 | |
| Benzo[g,h,i]perylene | 20.1 | | 0.354 | 0.177 | |
| Coronene | 5.71 | | 0.354 | 0.177 | |
| Retene | 10.7 | | 0.354 | 0.177 | |
| Benzo(b/c)fluorenes | 32.8 | | 0.354 | 0.177 | |
| 2-Methylpyrene | 30.4 | | 0.354 | 0.177 | |
| 4-Methylpyrene | 33.5 | | 0.354 | 0.177 | |
| 1-Methylpyrene | 38.8 | | 0.354 | 0.177 | |
| Heptadecane | 12.0 | | 0.354 | 0.177 | |
| Pristane | 38.2 | | 0.354 | 0.177 | |
| Octadecane | 6.65 | B | 0.354 | 0.177 | |
| Phytane | 22.7 | | 0.354 | 0.177 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB-020B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-01-D | | |
| File ID: | E080315.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.16 |
| Date Cleanup: | NA | Percent Solid: | 52% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 21.0 | 0.354 | 0.177 | |
| 2,6,10-trimethyltridecane | 29.1 | 0.354 | 0.177 | |
| Norpristane | 21.7 | 0.354 | 0.177 | |
| Total PAH (16) | 3,240 | 0.354 | 0.177 | |
| Total PAH (42) | 7,310 | 0.354 | 0.177 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 77 | 50 - 120 |
| Phenanthrene-d10 | 81 | 50 - 120 |
| Perylene-d12 | 146 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB022-001 (5.5'-6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-02-D | | |
| File ID: | E080317.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.19 |
| Date Cleanup: | NA | Percent Solid: | 61% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 5.68 | B | 1.49 | 0.745 | |
| Toluene | 4.78 | | 1.49 | 0.745 | |
| Ethylbenzene | 98.0 | | 0.298 | 0.149 | |
| m/p-Xylenes | 73.7 | | 0.298 | 0.149 | |
| Styrene | 14.2 | B | 0.298 | 0.149 | |
| o-Xylene | 40.7 | | 0.298 | 0.149 | |
| Isopropylbenzene | 18.0 | | 0.298 | 0.149 | |
| n-Propylbenzene | 8.19 | | 0.298 | 0.149 | |
| 1,3,5-Trimethylbenzene | 28.9 | | 0.298 | 0.149 | |
| 1,2,4-Trimethylbenzene | 94.4 | | 0.298 | 0.149 | |
| t-Butylbenzene | | U | 0.298 | 0.149 | |
| sec-Butylbenzene | 0.853 | | 0.298 | 0.149 | |
| p-Isopropyltoluene | 15.0 | | 0.298 | 0.149 | |
| n-Butylbenzene | 12.5 | | 0.298 | 0.149 | |
| C1 - Benzene | 3.23 | | 1.49 | 0.745 | |
| C2 - Benzene | 95.9 | B | 0.298 | 0.149 | |
| C3 - Benzene | 167 | B | 0.298 | 0.149 | |
| C4 - Benzene | 111 | | 0.298 | 0.149 | |
| C5 - Benzene | 34.7 | | 0.298 | 0.149 | |
| trans-Decalin | 1.62 | | 0.298 | 0.149 | |
| cis-Decalin | | U | 0.298 | 0.149 | |
| Naphthalene | 1,400 | DB | 0.298 | 0.149 | |
| 2-Methylnaphthalene | 1,050 | DB | 0.298 | 0.149 | |
| 1-Methylnaphthalene | 721 | DB | 0.298 | 0.149 | |
| C1 - Naphthalene | 663 | DB | 0.298 | 0.149 | |
| C2 - Naphthalene | 640 | B | 0.298 | 0.149 | |
| C3- Naphthalene | 271 | B | 0.298 | 0.149 | |
| C4- Naphthalene | 6.23 | | 0.298 | 0.149 | |
| Acenaphthylene | 68.5 | | 0.298 | 0.149 | |
| Acenaphthene | 418 | B | 0.298 | 0.149 | |
| Dibenzofuran | 18.9 | | 0.298 | 0.149 | |
| Fluorene | 183 | B | 0.298 | 0.149 | |
| C1 - Fluorene | 217 | | 0.298 | 0.149 | |
| C2 - Fluorene | 153 | | 0.298 | 0.149 | |
| C3 - Fluorene | 60.0 | | 0.298 | 0.149 | |
| Phenanthrene | 570 | B | 0.298 | 0.149 | |
| Anthracene | 225 | | 0.298 | 0.149 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB022-001 (5.5'-6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-02-D | | |
| File ID: | E080317.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.19 |
| Date Cleanup: | NA | Percent Solid: | 61% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 542 | B | 0.298 | 0.149 | |
| C2 - Phenanthrene/Anthracene | 270 | | 0.298 | 0.149 | |
| C3 - Phenanthrene/Anthracene | 90.8 | | 0.298 | 0.149 | |
| C4 - Phenanthrene/Anthracene | 22.6 | | 0.298 | 0.149 | |
| Dibenzothiophene | 52.7 | | 0.298 | 0.149 | |
| C1 - Dibenzothiophene | 71.6 | | 0.298 | 0.149 | |
| C2 - Dibenzothiophene | 78.0 | | 0.298 | 0.149 | |
| C3 - Dibenzothiophene | 39.7 | | 0.298 | 0.149 | |
| C4 - Dibenzothiophene | 11.7 | | 0.298 | 0.149 | |
| Benzo(b)naphtho(2,1-d)thiophene | 19.0 | | 0.298 | 0.149 | |
| Fluoranthene | 161 | | 0.298 | 0.149 | |
| Pyrene | 250 | | 0.298 | 0.149 | |
| C1 - Fluoranthene/Pyrene | 314 | B | 0.298 | 0.149 | |
| C2 - Fluoranthene/Pyrene | 138 | | 0.298 | 0.149 | |
| C3 - Fluoranthene/Pyrene | 45.0 | | 0.298 | 0.149 | |
| Benz[a]anthracene | 97.9 | | 0.298 | 0.149 | |
| Chrysene* | 103 | | 0.298 | 0.149 | |
| C1 - Benz(a)anthracene/Chrysene | 101 | | 0.298 | 0.149 | |
| C2 - Benz(a)anthracene/Chrysene | 52.7 | | 0.298 | 0.149 | |
| C3 - Benz(a)anthracene/Chrysene | 20.0 | | 0.298 | 0.149 | |
| C4 - Benz(a)anthracene/Chrysene | 9.1 | | 0.298 | 0.149 | |
| Benzo[b]fluoranthene | 30.1 | | 0.298 | 0.149 | |
| Benzo[j/k]fluoranthene | 37.8 | | 0.298 | 0.149 | |
| Benzo(e)pyrene | 37.9 | | 0.298 | 0.149 | |
| Benzo[a]pyrene | 72.7 | | 0.298 | 0.149 | |
| Perylene | 10.2 | | 0.298 | 0.149 | |
| Indeno[1,2,3-cd]pyrene | 26.6 | | 0.298 | 0.149 | |
| Dibenz[a,h]anthracene | 10.2 | | 0.298 | 0.149 | |
| Benzo[g,h,i]perylene | 26.0 | | 0.298 | 0.149 | |
| Coronene | 7.38 | | 0.298 | 0.149 | |
| Retene | 6.82 | | 0.298 | 0.149 | |
| Benzo(b/c)fluorenes | 38.5 | | 0.298 | 0.149 | |
| 2-Methylpyrene | 36.1 | | 0.298 | 0.149 | |
| 4-Methylpyrene | 42.1 | | 0.298 | 0.149 | |
| 1-Methylpyrene | 46.2 | | 0.298 | 0.149 | |
| Heptadecane | 37.5 | | 0.298 | 0.149 | |
| Pristane | 27.7 | | 0.298 | 0.149 | |
| Octadecane | 32.1 | B | 0.298 | 0.149 | |
| Phytane | 17.1 | | 0.298 | 0.149 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB022-001 (5.5'-6')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060727-02-D | | |
| File ID: | E080317.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/26/2006 | Decanted: | None |
| Date Received: | 7/27/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.19 |
| Date Cleanup: | NA | Percent Solid: | 61% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 12.1 | 0.298 | 0.149 | |
| 2,6,10-trimethyltridecane | 18.4 | 0.298 | 0.149 | |
| Norpristane | 18.0 | 0.298 | 0.149 | |
| Total PAH (16) | 3,680 | 0.298 | 0.149 | |
| Total PAH (42) | 7,620 | 0.298 | 0.149 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 77 | 50 - 120 |
| Phenanthrene-d10 | 80 | 50 - 120 |
| Perylene-d12 | 153 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009C-001 (13'-13.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-01-D | | |
| File ID: | E080319.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.18 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 10.8 | B | 1.85 | 0.925 | |
| Toluene | 4.11 | | 1.85 | 0.925 | |
| Ethylbenzene | 24.1 | | 0.370 | 0.185 | |
| m/p-Xylenes | 23.9 | | 0.370 | 0.185 | |
| Styrene | 3.58 | B | 0.370 | 0.185 | |
| o-Xylene | 10.8 | | 0.370 | 0.185 | |
| Isopropylbenzene | 3.02 | | 0.370 | 0.185 | |
| n-Propylbenzene | 1.9 | | 0.370 | 0.185 | |
| 1,3,5-Trimethylbenzene | 5.4 | | 0.370 | 0.185 | |
| 1,2,4-Trimethylbenzene | 18.6 | | 0.370 | 0.185 | |
| t-Butylbenzene | | U | 0.370 | 0.185 | |
| sec-Butylbenzene | 0.288 | J | 0.370 | 0.185 | |
| p-Isopropyltoluene | 3.1 | | 0.370 | 0.185 | |
| n-Butylbenzene | 2.63 | | 0.370 | 0.185 | |
| C1 - Benzene | 2.77 | | 1.85 | 0.925 | |
| C2 - Benzene | 26.8 | B | 0.370 | 0.185 | |
| C3 - Benzene | 30.7 | B | 0.370 | 0.185 | |
| C4 - Benzene | 24.9 | | 0.370 | 0.185 | |
| C5 - Benzene | 12.2 | | 0.370 | 0.185 | |
| trans-Decalin | 3.27 | | 0.370 | 0.185 | |
| cis-Decalin | 0.397 | | 0.370 | 0.185 | |
| Naphthalene | 346 | B | 0.370 | 0.185 | |
| 2-Methylnaphthalene | 310 | B | 0.370 | 0.185 | |
| 1-Methylnaphthalene | 187 | B | 0.370 | 0.185 | |
| C1 - Naphthalene | 315 | B | 0.370 | 0.185 | |
| C2 - Naphthalene | 226 | B | 0.370 | 0.185 | |
| C3- Naphthalene | 92.7 | B | 0.370 | 0.185 | |
| C4- Naphthalene | 31.0 | | 0.370 | 0.185 | |
| Acenaphthylene | 35.9 | | 0.370 | 0.185 | |
| Acenaphthene | 79.3 | B | 0.370 | 0.185 | |
| Dibenzofuran | 8.51 | | 0.370 | 0.185 | |
| Fluorene | 59.3 | B | 0.370 | 0.185 | |
| C1 - Fluorene | 58.8 | | 0.370 | 0.185 | |
| C2 - Fluorene | 43.9 | | 0.370 | 0.185 | |
| C3 - Fluorene | 18.6 | | 0.370 | 0.185 | |
| Phenanthrene | 213 | B | 0.370 | 0.185 | |
| Anthracene | 66.1 | | 0.370 | 0.185 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009C-001 (13'-13.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-01-D | | |
| File ID: | E080319.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.18 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 185 | B | 0.370 | 0.185 | |
| C2 - Phenanthrene/Anthracene | 95.4 | | 0.370 | 0.185 | |
| C3 - Phenanthrene/Anthracene | 36.0 | | 0.370 | 0.185 | |
| C4 - Phenanthrene/Anthracene | 14.8 | | 0.370 | 0.185 | |
| Dibenzothiophene | 23.5 | | 0.370 | 0.185 | |
| C1 - Dibenzothiophene | 31.4 | | 0.370 | 0.185 | |
| C2 - Dibenzothiophene | 35.1 | | 0.370 | 0.185 | |
| C3 - Dibenzothiophene | 21.2 | | 0.370 | 0.185 | |
| C4 - Dibenzothiophene | 8.34 | | 0.370 | 0.185 | |
| Benzo(b)naphtho(2,1-d)thiophene | 11.1 | | 0.370 | 0.185 | |
| Fluoranthene | 78.7 | | 0.370 | 0.185 | |
| Pyrene | 108 | | 0.370 | 0.185 | |
| C1 - Fluoranthene/Pyrene | 131 | B | 0.370 | 0.185 | |
| C2 - Fluoranthene/Pyrene | 56.6 | | 0.370 | 0.185 | |
| C3 - Fluoranthene/Pyrene | 19.2 | | 0.370 | 0.185 | |
| Benz[a]anthracene | 48.3 | | 0.370 | 0.185 | |
| Chrysene* | 54.1 | | 0.370 | 0.185 | |
| C1 - Benz(a)anthracene/Chrysene | 50.2 | | 0.370 | 0.185 | |
| C2 - Benz(a)anthracene/Chrysene | 27.2 | | 0.370 | 0.185 | |
| C3 - Benz(a)anthracene/Chrysene | 9.37 | | 0.370 | 0.185 | |
| C4 - Benz(a)anthracene/Chrysene | 7.57 | | 0.370 | 0.185 | |
| Benzo[b]fluoranthene | 20.9 | | 0.370 | 0.185 | |
| Benzo[j/k]fluoranthene | 24.4 | | 0.370 | 0.185 | |
| Benzo(e)pyrene | 21.5 | | 0.370 | 0.185 | |
| Benzo[a]pyrene | 37.5 | | 0.370 | 0.185 | |
| Perylene | 6.16 | | 0.370 | 0.185 | |
| Indeno[1,2,3-cd]pyrene | 16.8 | | 0.370 | 0.185 | |
| Dibenz[a,h]anthracene | 6.19 | | 0.370 | 0.185 | |
| Benzo[g,h,i]perylene | 15.0 | | 0.370 | 0.185 | |
| Coronene | 4.69 | | 0.370 | 0.185 | |
| Retene | 10.2 | | 0.370 | 0.185 | |
| Benzo(b/c)fluorenes | 18.4 | | 0.370 | 0.185 | |
| 2-Methylpyrene | 16.0 | | 0.370 | 0.185 | |
| 4-Methylpyrene | 16.8 | | 0.370 | 0.185 | |
| 1-Methylpyrene | 19.0 | | 0.370 | 0.185 | |
| Heptadecane | 5.46 | | 0.370 | 0.185 | |
| Pristane | 34.1 | | 0.370 | 0.185 | |
| Octadecane | 2.68 | B | 0.370 | 0.185 | |
| Phytane | 23.1 | | 0.370 | 0.185 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB009C-001 (13'-13.5')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-01-D | | |
| File ID: | E080319.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.18 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 24.2 | 0.370 | 0.185 | |
| 2,6,10-trimethyltridecane | 29.9 | 0.370 | 0.185 | |
| Norpristane | 19.0 | 0.370 | 0.185 | |
| Total PAH (16) | 1,210 | 0.370 | 0.185 | |
| Total PAH (42) | 2,780 | 0.370 | 0.185 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 91 | 50 - 120 |
| Phenanthrene-d10 | 85 | 50 - 120 |
| Perylene-d12 | 141 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB024B-001 (6.5'-7.0')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-02-D | | |
| File ID: | E080321.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 63% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 29.0 | B | 1.52 | 0.760 | |
| Toluene | 11.9 | | 1.52 | 0.760 | |
| Ethylbenzene | 213 | | 0.303 | 0.152 | |
| m/p-Xylenes | 106 | | 0.303 | 0.152 | |
| Styrene | 5.54 | B | 0.303 | 0.152 | |
| o-Xylene | 44.9 | | 0.303 | 0.152 | |
| Isopropylbenzene | 11.8 | | 0.303 | 0.152 | |
| n-Propylbenzene | 4.75 | | 0.303 | 0.152 | |
| 1,3,5-Trimethylbenzene | 22.6 | | 0.303 | 0.152 | |
| 1,2,4-Trimethylbenzene | 65.1 | | 0.303 | 0.152 | |
| t-Butylbenzene | | U | 0.303 | 0.152 | |
| sec-Butylbenzene | 0.391 | | 0.303 | 0.152 | |
| p-Isopropyltoluene | 7.67 | | 0.303 | 0.152 | |
| n-Butylbenzene | 5.76 | | 0.303 | 0.152 | |
| C1 - Benzene | 8.09 | | 1.52 | 0.760 | |
| C2 - Benzene | 161 | B | 0.303 | 0.152 | |
| C3 - Benzene | 119 | B | 0.303 | 0.152 | |
| C4 - Benzene | 52.4 | | 0.303 | 0.152 | |
| C5 - Benzene | 14.2 | | 0.303 | 0.152 | |
| trans-Decalin | 1.43 | | 0.303 | 0.152 | |
| cis-Decalin | | U | 0.303 | 0.152 | |
| Naphthalene | 2,580 | DB | 0.303 | 0.152 | |
| 2-Methylnaphthalene | 856 | DB | 0.303 | 0.152 | |
| 1-Methylnaphthalene | 542 | DB | 0.303 | 0.152 | |
| C1 - Naphthalene | 882 | DB | 0.303 | 0.152 | |
| C2 - Naphthalene | 295 | B | 0.303 | 0.152 | |
| C3- Naphthalene | 88.4 | B | 0.303 | 0.152 | |
| C4- Naphthalene | 25.4 | | 0.303 | 0.152 | |
| Acenaphthylene | 59.7 | | 0.303 | 0.152 | |
| Acenaphthene | 1,070 | DB | 0.303 | 0.152 | |
| Dibenzofuran | 13.0 | | 0.303 | 0.152 | |
| Fluorene | 323 | B | 0.303 | 0.152 | |
| C1 - Fluorene | 108 | | 0.303 | 0.152 | |
| C2 - Fluorene | 52.7 | | 0.303 | 0.152 | |
| C3 - Fluorene | 17.3 | | 0.303 | 0.152 | |
| Phenanthrene | 1,270 | DB | 0.303 | 0.152 | |
| Anthracene | 483 | | 0.303 | 0.152 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB024B-001 (6.5'-7.0')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-02-D | | |
| File ID: | E080321.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 63% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 396 | B | 0.303 | 0.152 | |
| C2 - Phenanthrene/Anthracene | 122 | | 0.303 | 0.152 | |
| C3 - Phenanthrene/Anthracene | 36.9 | | 0.303 | 0.152 | |
| C4 - Phenanthrene/Anthracene | 10.7 | | 0.303 | 0.152 | |
| Dibenzothiophene | 75.6 | | 0.303 | 0.152 | |
| C1 - Dibenzothiophene | 40.3 | | 0.303 | 0.152 | |
| C2 - Dibenzothiophene | 29.3 | | 0.303 | 0.152 | |
| C3 - Dibenzothiophene | 14.4 | | 0.303 | 0.152 | |
| C4 - Dibenzothiophene | 4.76 | | 0.303 | 0.152 | |
| Benzo(b)naphtho(2,1-d)thiophene | 23.0 | | 0.303 | 0.152 | |
| Fluoranthene | 434 | | 0.303 | 0.152 | |
| Pyrene | 608 | | 0.303 | 0.152 | |
| C1 - Fluoranthene/Pyrene | 357 | B | 0.303 | 0.152 | |
| C2 - Fluoranthene/Pyrene | 82.2 | | 0.303 | 0.152 | |
| C3 - Fluoranthene/Pyrene | 19.8 | | 0.303 | 0.152 | |
| Benz[a]anthracene | 188 | | 0.303 | 0.152 | |
| Chrysene* | 171 | | 0.303 | 0.152 | |
| C1 - Benz(a)anthracene/Chrysene | 79.2 | | 0.303 | 0.152 | |
| C2 - Benz(a)anthracene/Chrysene | 28.3 | | 0.303 | 0.152 | |
| C3 - Benz(a)anthracene/Chrysene | 8.36 | | 0.303 | 0.152 | |
| C4 - Benz(a)anthracene/Chrysene | 8.75 | | 0.303 | 0.152 | |
| Benzo[b]fluoranthene | 73.6 | | 0.303 | 0.152 | |
| Benzo[j/k]fluoranthene | 103 | | 0.303 | 0.152 | |
| Benzo(e)pyrene | 90.7 | | 0.303 | 0.152 | |
| Benzo[a]pyrene | 186 | | 0.303 | 0.152 | |
| Perylene | 25.7 | | 0.303 | 0.152 | |
| Indeno[1,2,3-cd]pyrene | 81.4 | | 0.303 | 0.152 | |
| Dibenz[a,h]anthracene | 21.3 | | 0.303 | 0.152 | |
| Benzo[g,h,i]perylene | 84.3 | | 0.303 | 0.152 | |
| Coronene | 26.8 | | 0.303 | 0.152 | |
| Retene | 6.58 | | 0.303 | 0.152 | |
| Benzo(b/c)fluorenes | 56.9 | | 0.303 | 0.152 | |
| 2-Methylpyrene | 40.1 | | 0.303 | 0.152 | |
| 4-Methylpyrene | 43.6 | | 0.303 | 0.152 | |
| 1-Methylpyrene | 54.3 | | 0.303 | 0.152 | |
| Heptadecane | 37.8 | | 0.303 | 0.152 | |
| Pristane | 19.8 | | 0.303 | 0.152 | |
| Octadecane | 27.7 | B | 0.303 | 0.152 | |
| Phytane | 12.2 | | 0.303 | 0.152 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB024B-001 (6.5'-7.0')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-02-D | | |
| File ID: | E080321.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/27/2006 | Decanted: | None |
| Date Received: | 7/28/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 63% |
| Date Analyzed: | 8/6/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 8.66 | 0.303 | 0.152 | |
| 2,6,10-trimethyltridecane | 14.8 | 0.303 | 0.152 | |
| Norpristane | 12.7 | 0.303 | 0.152 | |
| Total PAH (16) | 7,740 | 0.303 | 0.152 | |
| Total PAH (42) | 10,600 | 0.303 | 0.152 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 77 | 50 - 120 |
| Phenanthrene-d10 | 79 | 50 - 120 |
| Perylene-d12 | 149 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB001-001 (11.5'-12')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01 | | |
| File ID: | E081012.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.24 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 0.737 | | 0.076 | 0.038 | |
| Toluene | 1.73 | | 0.076 | 0.038 | |
| Ethylbenzene | 17.6 | | 0.015 | 0.008 | |
| m/p-Xylenes | 15.1 | | 0.015 | 0.008 | |
| Styrene | 2.91 | B | 0.015 | 0.008 | |
| o-Xylene | 5.32 | | 0.015 | 0.008 | |
| Isopropylbenzene | 2.17 | | 0.015 | 0.008 | |
| n-Propylbenzene | 1.06 | | 0.015 | 0.008 | |
| 1,3,5-Trimethylbenzene | 4.55 | | 0.015 | 0.008 | |
| 1,2,4-Trimethylbenzene | 13.6 | | 0.015 | 0.008 | |
| t-Butylbenzene | | U | 0.015 | 0.008 | |
| sec-Butylbenzene | 0.115 | | 0.015 | 0.008 | |
| p-Isopropyltoluene | 2.3 | | 0.015 | 0.008 | |
| n-Butylbenzene | 1.66 | | 0.015 | 0.008 | |
| C1 - Benzene | 1.25 | | 0.076 | 0.038 | |
| C2 - Benzene | 18.0 | B | 0.015 | 0.008 | |
| C3 - Benzene | 24.6 | | 0.015 | 0.008 | |
| C4 - Benzene | 15.9 | | 0.015 | 0.008 | |
| C5 - Benzene | 4.91 | | 0.015 | 0.008 | |
| trans-Decalin | 0.615 | | 0.015 | 0.008 | |
| cis-Decalin | 0.059 | | 0.015 | 0.008 | |
| Naphthalene | 498 | D | 0.015 | 0.008 | |
| 2-Methylnaphthalene | 228 | D | 0.015 | 0.008 | |
| 1-Methylnaphthalene | 148 | D | 0.015 | 0.008 | |
| C1 - Naphthalene | 239 | D | 0.015 | 0.008 | |
| C2 - Naphthalene | 111 | | 0.015 | 0.008 | |
| C3- Naphthalene | 45.3 | | 0.015 | 0.008 | |
| C4- Naphthalene | 14.9 | | 0.015 | 0.008 | |
| Acenaphthylene | 21.2 | | 0.015 | 0.008 | |
| Acenaphthene | 247 | D | 0.015 | 0.008 | |
| Dibenzofuran | 6.07 | | 0.015 | 0.008 | |
| Fluorene | 101 | D | 0.015 | 0.008 | |
| C1 - Fluorene | 52.1 | | 0.015 | 0.008 | |
| C2 - Fluorene | 29.6 | | 0.015 | 0.008 | |
| C3 - Fluorene | 9.81 | | 0.015 | 0.008 | |
| Phenanthrene | 410 | D | 0.015 | 0.008 | |
| Anthracene | 160 | D | 0.015 | 0.008 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB001-001 (11.5'-12')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01 | | |
| File ID: | E081012.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.24 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 175 | D | 0.015 | 0.008 | |
| C2 - Phenanthrene/Anthracene | 68.8 | | 0.015 | 0.008 | |
| C3 - Phenanthrene/Anthracene | 22.2 | | 0.015 | 0.008 | |
| C4 - Phenanthrene/Anthracene | 6.33 | | 0.015 | 0.008 | |
| Dibenzothiophene | 25.8 | | 0.015 | 0.008 | |
| C1 - Dibenzothiophene | 19.4 | | 0.015 | 0.008 | |
| C2 - Dibenzothiophene | 16.0 | | 0.015 | 0.008 | |
| C3 - Dibenzothiophene | 7.91 | | 0.015 | 0.008 | |
| C4 - Dibenzothiophene | 2.62 | | 0.015 | 0.008 | |
| Benzo(b)naphtho(2,1-d)thiophene | 10.9 | | 0.015 | 0.008 | |
| Fluoranthene | 169 | D | 0.015 | 0.008 | |
| Pyrene | 230 | D | 0.015 | 0.008 | |
| C1 - Fluoranthene/Pyrene | 147 | | 0.015 | 0.008 | |
| C2 - Fluoranthene/Pyrene | 43.6 | | 0.015 | 0.008 | |
| C3 - Fluoranthene/Pyrene | 12.3 | | 0.015 | 0.008 | |
| Benz[a]anthracene | 70.2 | D | 0.015 | 0.008 | |
| Chrysene* | 69.7 | D | 0.015 | 0.008 | |
| C1 - Benz(a)anthracene/Chrysene | 41.4 | | 0.015 | 0.008 | |
| C2 - Benz(a)anthracene/Chrysene | 15.9 | | 0.015 | 0.008 | |
| C3 - Benz(a)anthracene/Chrysene | 5.54 | | 0.015 | 0.008 | |
| C4 - Benz(a)anthracene/Chrysene | 3.65 | | 0.015 | 0.008 | |
| Benzo[b]fluoranthene | 25.9 | D | 0.015 | 0.008 | |
| Benzo[j/k]fluoranthene | 35.2 | D | 0.015 | 0.008 | |
| Benzo(e)pyrene | 31.6 | D | 0.015 | 0.008 | |
| Benzo[a]pyrene | 63.1 | D | 0.015 | 0.008 | |
| Perylene | 11.1 | | 0.015 | 0.008 | |
| Indeno[1,2,3-cd]pyrene | 25.7 | D | 0.015 | 0.008 | |
| Dibenz[a,h]anthracene | 10.2 | | 0.015 | 0.008 | |
| Benzo[g,h,i]perylene | 26.6 | D | 0.015 | 0.008 | |
| Coronene | 9.53 | | 0.015 | 0.008 | |
| Retene | 3.33 | | 0.015 | 0.008 | |
| Benzo(b/c)fluorenes | 23.0 | | 0.015 | 0.008 | |
| 2-Methylpyrene | 17.8 | | 0.015 | 0.008 | |
| 4-Methylpyrene | 17.6 | | 0.015 | 0.008 | |
| 1-Methylpyrene | 21.7 | | 0.015 | 0.008 | |
| Heptadecane | 19.9 | | 0.015 | 0.008 | |
| Pristane | 10.6 | | 0.015 | 0.008 | |
| Octadecane | 14.0 | | 0.015 | 0.008 | |
| Phytane | 7.73 | | 0.015 | 0.008 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: WSS-RSB001-001 (11.5'-12')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01 | | |
| File ID: | E081012.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.24 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 4.57 | 0.015 | 0.008 | |
| 2,6,10-trimethyltridecane | 7.91 | 0.015 | 0.008 | |
| Norpristane | 7.0 | 0.015 | 0.008 | |
| Total PAH (16) | 2,160 | 0.015 | 0.008 | |
| Total PAH (42) | 3,330 | 0.015 | 0.008 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 72 | 50 - 120 |
| Phenanthrene-d10 | 93 | 50 - 120 |
| Perylene-d12 | 108 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SB | | |
| File ID: | E072713.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | |
| Benzene | U | 0.050 | 0.025 | |
| Toluene | U | 0.050 | 0.025 | |
| Ethylbenzene | U | 0.010 | 0.005 | |
| m/p-Xylenes | U | 0.010 | 0.005 | |
| Styrene | 0.006 J | 0.010 | 0.005 | |
| o-Xylene | U | 0.010 | 0.005 | |
| Isopropylbenzene | U | 0.010 | 0.005 | |
| n-Propylbenzene | U | 0.010 | 0.005 | |
| 1,3,5-Trimethylbenzene | U | 0.010 | 0.005 | |
| 1,2,4-Trimethylbenzene | U | 0.010 | 0.005 | |
| t-Butylbenzene | U | 0.010 | 0.005 | |
| sec-Butylbenzene | U | 0.010 | 0.005 | |
| p-Isopropyltoluene | U | 0.010 | 0.005 | |
| n-Butylbenzene | 0.010 J | 0.010 | 0.005 | |
| C1 - Benzene | U | 0.050 | 0.025 | |
| C2 - Benzene | U | 0.010 | 0.005 | |
| C3 - Benzene | U | 0.010 | 0.005 | |
| C4 - Benzene | U | 0.010 | 0.005 | |
| C5 - Benzene | U | 0.010 | 0.005 | |
| trans-Decalin | U | 0.010 | 0.005 | |
| cis-Decalin | U | 0.010 | 0.005 | |
| Naphthalene | 0.006 J | 0.010 | 0.005 | |
| 2-Methylnaphthalene | U | 0.010 | 0.005 | |
| 1-Methylnaphthalene | U | 0.010 | 0.005 | |
| C1 - Naphthalene | U | 0.010 | 0.005 | |
| C2 - Naphthalene | U | 0.010 | 0.005 | |
| C3- Naphthalene | U | 0.010 | 0.005 | |
| C4- Naphthalene | U | 0.010 | 0.005 | |
| Acenaphthylene | U | 0.010 | 0.005 | |
| Acenaphthene | U | 0.010 | 0.005 | |
| Dibenzofuran | U | 0.010 | 0.005 | |
| Fluorene | U | 0.010 | 0.005 | |
| C1 - Fluorene | U | 0.010 | 0.005 | |
| C2 - Fluorene | U | 0.010 | 0.005 | |
| C3 - Fluorene | U | 0.010 | 0.005 | |
| Phenanthrene | U | 0.010 | 0.005 | |
| Anthracene | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SB | | |
| File ID: | E072713.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| Dibenzothiophene | U | 0.010 | 0.005 | |
| C1 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | U | 0.010 | 0.005 | |
| Fluoranthene | U | 0.010 | 0.005 | |
| Pyrene | U | 0.010 | 0.005 | |
| C1 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| Benz[a]anthracene | U | 0.010 | 0.005 | |
| Chrysene* | U | 0.010 | 0.005 | |
| C1 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | U | 0.010 | 0.005 | |
| Benzo[j/k]fluoranthene | U | 0.010 | 0.005 | |
| Benzo(e)pyrene | U | 0.010 | 0.005 | |
| Benzo[a]pyrene | U | 0.010 | 0.005 | |
| Perylene | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | U | 0.010 | 0.005 | |
| Dibenz[a,h]anthracene | U | 0.010 | 0.005 | |
| Benzo[g,h,i]perylene | U | 0.010 | 0.005 | |
| Coronene | U | 0.010 | 0.005 | |
| Retene | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | U | 0.010 | 0.005 | |
| 2-Methylpyrene | U | 0.010 | 0.005 | |
| 4-Methylpyrene | U | 0.010 | 0.005 | |
| 1-Methylpyrene | U | 0.010 | 0.005 | |
| Heptadecane | U | 0.010 | 0.005 | |
| Pristane | U | 0.010 | 0.005 | |
| Octadecane | 0.007 J | 0.010 | 0.005 | |
| Phytane | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SB | | |
| File ID: | E072713.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |
| Total PAH (16) | 0.006 | 0.010 | 0.005 | |
| Total PAH (42) | 0.006 | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 79 | 50 - 120 |
| Phenanthrene-d10 | 77 | 50 - 120 |
| Perylene-d12 | 59 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SBS | | |
| File ID: | E072714.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | Spike Amount | | | | | % Recovery |
| Benzene | 1.00 | 0.775 | | 0.050 | 0.025 | 78 % |
| Toluene | 1.00 | 0.724 | | 0.050 | 0.025 | 72 % |
| Ethylbenzene | 1.00 | 0.748 | | 0.010 | 0.005 | 75 % |
| m/p-Xylenes | 1.00 | 0.724 | | 0.010 | 0.005 | 72 % |
| Styrene | 1.00 | 0.704 | B | 0.010 | 0.005 | 70 % |
| o-Xylene | 1.00 | 0.759 | | 0.010 | 0.005 | 76 % |
| Isopropylbenzene | 1.00 | 0.709 | | 0.010 | 0.005 | 71 % |
| n-Propylbenzene | 1.00 | 0.749 | | 0.010 | 0.005 | 75 % |
| 1,3,5-Trimethylbenzene | 1.00 | 0.741 | | 0.010 | 0.005 | 74 % |
| 1,2,4-Trimethylbenzene | 1.00 | 0.720 | | 0.010 | 0.005 | 72 % |
| t-Butylbenzene | | | U | 0.010 | 0.005 | |
| sec-Butylbenzene | 1.00 | 0.754 | | 0.010 | 0.005 | 75 % |
| p-Isopropyltoluene | 1.00 | 0.721 | | 0.010 | 0.005 | 72 % |
| n-Butylbenzene | 1.00 | 0.741 | B | 0.010 | 0.005 | 74 % |
| C1 - Benzene | | | U | 0.050 | 0.025 | |
| C2 - Benzene | | | U | 0.010 | 0.005 | |
| C3 - Benzene | | | U | 0.010 | 0.005 | |
| C4 - Benzene | | | U | 0.010 | 0.005 | |
| C5 - Benzene | | | U | 0.010 | 0.005 | |
| trans-Decalin | | | U | 0.010 | 0.005 | |
| cis-Decalin | | | U | 0.010 | 0.005 | |
| Naphthalene | 1.00 | 0.753 | B | 0.010 | 0.005 | 75 % |
| 2-Methylnaphthalene | 1.00 | 0.745 | | 0.010 | 0.005 | 75 % |
| 1-Methylnaphthalene | 1.00 | 0.761 | | 0.010 | 0.005 | 76 % |
| C1 - Naphthalene | | | U | 0.010 | 0.005 | |
| C2 - Naphthalene | | | U | 0.010 | 0.005 | |
| C3- Naphthalene | | | U | 0.010 | 0.005 | |
| C4- Naphthalene | | | U | 0.010 | 0.005 | |
| Acenaphthylene | 1.00 | 0.739 | | 0.010 | 0.005 | 74 % |
| Acenaphthene | 1.00 | 0.762 | | 0.010 | 0.005 | 76 % |
| Dibenzofuran | 1.00 | 0.775 | | 0.010 | 0.005 | 78 % |
| Fluorene | 1.00 | 0.757 | | 0.010 | 0.005 | 76 % |
| C1 - Fluorene | | | U | 0.010 | 0.005 | |
| C2 - Fluorene | | | U | 0.010 | 0.005 | |
| C3 - Fluorene | | | U | 0.010 | 0.005 | |
| Phenanthrene | 1.00 | 0.764 | | 0.010 | 0.005 | 76 % |
| Anthracene | 1.00 | 0.756 | | 0.010 | 0.005 | 76 % |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SBS | | |
| File ID: | E072714.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| Dibenzothiophene | 1.00 | 0.788 | | 0.010 | 0.005 | 79 % |
| C1 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | | | U | 0.010 | 0.005 | |
| Fluoranthene | 1.00 | 0.815 | | 0.010 | 0.005 | 82 % |
| Pyrene | 1.00 | 0.775 | | 0.010 | 0.005 | 78 % |
| C1 - Fluoranthene/Pyrene | | | U | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | | | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | | | U | 0.010 | 0.005 | |
| Benz[a]anthracene | 1.00 | 0.677 | | 0.010 | 0.005 | 68 % |
| Chrysene* | 1.00 | 0.751 | | 0.010 | 0.005 | 75 % |
| C1 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | 1.00 | 0.672 | | 0.010 | 0.005 | 67 % |
| Benzo[j/k]fluoranthene | 1.00 | 0.694 | | 0.010 | 0.005 | 69 % |
| Benzo(e)pyrene | 1.00 | 0.678 | | 0.010 | 0.005 | 68 % |
| Benzo[a]pyrene | 1.00 | 0.586 | | 0.010 | 0.005 | 59 % |
| Perylene | | | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | 1.00 | 0.513 | | 0.010 | 0.005 | 51 % |
| Dibenz[a,h]anthracene | 1.00 | 0.550 | | 0.010 | 0.005 | 55 % |
| Benzo[g,h,i]perylene | 1.00 | 0.564 | | 0.010 | 0.005 | 56 % |
| Coronene | | | U | 0.010 | 0.005 | |
| Retene | | | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | | | U | 0.010 | 0.005 | |
| 2-Methylpyrene | | | U | 0.010 | 0.005 | |
| 4-Methylpyrene | | | U | 0.010 | 0.005 | |
| 1-Methylpyrene | | | U | 0.010 | 0.005 | |
| Heptadecane | | | U | 0.010 | 0.005 | |
| Pristane | | | U | 0.010 | 0.005 | |
| Octadecane | | | BU | 0.010 | 0.005 | |
| Phytane | | | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
# META Environmental, Inc.

## Field ID: Soil Blank Spike

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060725-SBS | | |
| File ID: | E072714.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/25/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 7/28/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060725-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 74 | 50 - 120 |
| Phenanthrene-d10 | 73 | 50 - 120 |
| Perylene-d12 | 60 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SB | | |
| File ID: | E080306.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 0.191 | | 0.050 | 0.025 | |
| Toluene | | U | 0.050 | 0.025 | |
| Ethylbenzene | | U | 0.010 | 0.005 | |
| m/p-Xylenes | | U | 0.010 | 0.005 | |
| Styrene | 0.006 | J | 0.010 | 0.005 | |
| o-Xylene | | U | 0.010 | 0.005 | |
| Isopropylbenzene | | U | 0.010 | 0.005 | |
| n-Propylbenzene | | U | 0.010 | 0.005 | |
| 1,3,5-Trimethylbenzene | | U | 0.010 | 0.005 | |
| 1,2,4-Trimethylbenzene | | U | 0.010 | 0.005 | |
| t-Butylbenzene | | U | 0.010 | 0.005 | |
| sec-Butylbenzene | | U | 0.010 | 0.005 | |
| p-Isopropyltoluene | | U | 0.010 | 0.005 | |
| n-Butylbenzene | | U | 0.010 | 0.005 | |
| C1 - Benzene | | U | 0.050 | 0.025 | |
| C2 - Benzene | 0.006 | J | 0.010 | 0.005 | |
| C3 - Benzene | 0.008 | J | 0.010 | 0.005 | |
| C4 - Benzene | | U | 0.010 | 0.005 | |
| C5 - Benzene | | U | 0.010 | 0.005 | |
| trans-Decalin | | U | 0.010 | 0.005 | |
| cis-Decalin | | U | 0.010 | 0.005 | |
| Naphthalene | 0.019 | | 0.010 | 0.005 | |
| 2-Methylnaphthalene | 0.020 | | 0.010 | 0.005 | |
| 1-Methylnaphthalene | 0.016 | | 0.010 | 0.005 | |
| C1 - Naphthalene | 0.026 | | 0.010 | 0.005 | |
| C2 - Naphthalene | 0.020 | | 0.010 | 0.005 | |
| C3- Naphthalene | 0.010 | J | 0.010 | 0.005 | |
| C4- Naphthalene | | U | 0.010 | 0.005 | |
| Acenaphthylene | | U | 0.010 | 0.005 | |
| Acenaphthene | 0.006 | J | 0.010 | 0.005 | |
| Dibenzofuran | | U | 0.010 | 0.005 | |
| Fluorene | 0.005 | J | 0.010 | 0.005 | |
| C1 - Fluorene | | U | 0.010 | 0.005 | |
| C2 - Fluorene | | U | 0.010 | 0.005 | |
| C3 - Fluorene | | U | 0.010 | 0.005 | |
| Phenanthrene | 0.015 | | 0.010 | 0.005 | |
| Anthracene | | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SB | | |
| File ID: | E080306.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 0.012 | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| Dibenzothiophene | U | 0.010 | 0.005 | |
| C1 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | U | 0.010 | 0.005 | |
| Fluoranthene | U | 0.010 | 0.005 | |
| Pyrene | U | 0.010 | 0.005 | |
| C1 - Fluoranthene/Pyrene | 0.006 J | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| Benz[a]anthracene | U | 0.010 | 0.005 | |
| Chrysene* | U | 0.010 | 0.005 | |
| C1 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | U | 0.010 | 0.005 | |
| Benzo[j/k]fluoranthene | U | 0.010 | 0.005 | |
| Benzo(e)pyrene | U | 0.010 | 0.005 | |
| Benzo[a]pyrene | U | 0.010 | 0.005 | |
| Perylene | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | U | 0.010 | 0.005 | |
| Dibenz[a,h]anthracene | U | 0.010 | 0.005 | |
| Benzo[g,h,i]perylene | U | 0.010 | 0.005 | |
| Coronene | U | 0.010 | 0.005 | |
| Retene | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | U | 0.010 | 0.005 | |
| 2-Methylpyrene | U | 0.010 | 0.005 | |
| 4-Methylpyrene | U | 0.010 | 0.005 | |
| 1-Methylpyrene | U | 0.010 | 0.005 | |
| Heptadecane | U | 0.010 | 0.005 | |
| Pristane | U | 0.010 | 0.005 | |
| Octadecane | 0.010 J | 0.010 | 0.005 | |
| Phytane | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SB | | |
| File ID: | E080306.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |
| Total PAH (16) | 0.045 | 0.010 | 0.005 | |
| Total PAH (42) | 0.119 | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 91 | 50 - 120 |
| Phenanthrene-d10 | 86 | 50 - 120 |
| Perylene-d12 | 50 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SBS | | |
| File ID: | E080307.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | Spike Amount | | | | | % Recovery |
| Benzene | 1.00 | 0.807 | B | 0.050 | 0.025 | 81 % |
| Toluene | 1.00 | 0.887 | | 0.050 | 0.025 | 89 % |
| Ethylbenzene | 1.00 | 0.914 | | 0.010 | 0.005 | 91 % |
| m/p-Xylenes | 1.00 | 0.879 | | 0.010 | 0.005 | 88 % |
| Styrene | 1.00 | 0.844 | B | 0.010 | 0.005 | 84 % |
| o-Xylene | 1.00 | 0.924 | | 0.010 | 0.005 | 92 % |
| Isopropylbenzene | 1.00 | 0.865 | | 0.010 | 0.005 | 87 % |
| n-Propylbenzene | 1.00 | 0.909 | | 0.010 | 0.005 | 91 % |
| 1,3,5-Trimethylbenzene | 1.00 | 0.903 | | 0.010 | 0.005 | 90 % |
| 1,2,4-Trimethylbenzene | 1.00 | 0.877 | | 0.010 | 0.005 | 88 % |
| t-Butylbenzene | | | U | 0.010 | 0.005 | |
| sec-Butylbenzene | 1.00 | 0.919 | | 0.010 | 0.005 | 92 % |
| p-Isopropyltoluene | 1.00 | 0.882 | | 0.010 | 0.005 | 88 % |
| n-Butylbenzene | 1.00 | 0.898 | | 0.010 | 0.005 | 90 % |
| C1 - Benzene | | | U | 0.050 | 0.025 | |
| C2 - Benzene | | | BU | 0.010 | 0.005 | |
| C3 - Benzene | | | BU | 0.010 | 0.005 | |
| C4 - Benzene | | | U | 0.010 | 0.005 | |
| C5 - Benzene | | | U | 0.010 | 0.005 | |
| trans-Decalin | | | U | 0.010 | 0.005 | |
| cis-Decalin | | | U | 0.010 | 0.005 | |
| Naphthalene | 1.00 | 0.936 | B | 0.010 | 0.005 | 94 % |
| 2-Methylnaphthalene | 1.00 | 0.925 | B | 0.010 | 0.005 | 93 % |
| 1-Methylnaphthalene | 1.00 | 0.936 | B | 0.010 | 0.005 | 94 % |
| C1 - Naphthalene | | | BU | 0.010 | 0.005 | |
| C2 - Naphthalene | | | BU | 0.010 | 0.005 | |
| C3- Naphthalene | | | BU | 0.010 | 0.005 | |
| C4- Naphthalene | | | U | 0.010 | 0.005 | |
| Acenaphthylene | 1.00 | 0.893 | | 0.010 | 0.005 | 89 % |
| Acenaphthene | 1.00 | 0.918 | B | 0.010 | 0.005 | 92 % |
| Dibenzofuran | 1.00 | 0.952 | | 0.010 | 0.005 | 95 % |
| Fluorene | 1.00 | 0.908 | B | 0.010 | 0.005 | 91 % |
| C1 - Fluorene | | | U | 0.010 | 0.005 | |
| C2 - Fluorene | | | U | 0.010 | 0.005 | |
| C3 - Fluorene | | | U | 0.010 | 0.005 | |
| Phenanthrene | 1.00 | 0.929 | B | 0.010 | 0.005 | 93 % |
| Anthracene | 1.00 | 0.868 | | 0.010 | 0.005 | 87 % |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SBS | | |
| File ID: | E080307.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | | | BU | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | | | U | 0.010 | 0.005 | |
| Dibenzothiophene | 1.00 | 0.945 | | 0.010 | 0.005 | 95 % |
| C1 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | | | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | | | U | 0.010 | 0.005 | |
| Fluoranthene | 1.00 | 0.959 | | 0.010 | 0.005 | 96 % |
| Pyrene | 1.00 | 0.897 | | 0.010 | 0.005 | 90 % |
| C1 - Fluoranthene/Pyrene | | | BU | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | | | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | | | U | 0.010 | 0.005 | |
| Benz[a]anthracene | 1.00 | 0.658 | | 0.010 | 0.005 | 66 % |
| Chrysene* | 1.00 | 0.732 | | 0.010 | 0.005 | 73 % |
| C1 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | | | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | 1.00 | 0.651 | | 0.010 | 0.005 | 65 % |
| Benzo[j/k]fluoranthene | 1.00 | 0.655 | | 0.010 | 0.005 | 66 % |
| Benzo(e)pyrene | 1.00 | 0.679 | | 0.010 | 0.005 | 68 % |
| Benzo[a]pyrene | 1.00 | 0.541 | | 0.010 | 0.005 | 54 % |
| Perylene | | | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | 1.00 | 0.506 | | 0.010 | 0.005 | 51 % |
| Dibenz[a,h]anthracene | 1.00 | 0.468 | | 0.010 | 0.005 | 47 % |
| Benzo[g,h,i]perylene | 1.00 | 0.569 | | 0.010 | 0.005 | 57 % |
| Coronene | | | U | 0.010 | 0.005 | |
| | | | | | | |
| Retene | | | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | | | U | 0.010 | 0.005 | |
| 2-Methylpyrene | | | U | 0.010 | 0.005 | |
| 4-Methylpyrene | | | U | 0.010 | 0.005 | |
| 1-Methylpyrene | | | U | 0.010 | 0.005 | |
| Heptadecane | | | U | 0.010 | 0.005 | |
| Pristane | | | U | 0.010 | 0.005 | |
| Octadecane | | | BU | 0.010 | 0.005 | |
| Phytane | | | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
# META Environmental, Inc.

## Field ID: Soil Blank Spike

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060728-SBS | | |
| File ID: | E080307.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/3/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 92 | 50 - 120 |
| Phenanthrene-d10 | 90 | 50 - 120 |
| Perylene-d12 | 57 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Duplicate of WSS-RSB019B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02DUP-D | | |
| File ID: | E080311.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.17 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | RPD |
| Benzene | 20.5 | B | 1.66 | 0.830 | 7.6 |
| Toluene | 5.73 | | 1.66 | 0.830 | 15 |
| Ethylbenzene | 143 | | 0.332 | 0.166 | 25.2 |
| m/p-Xylenes | 85.2 | | 0.332 | 0.166 | 23.9 |
| Styrene | 5.02 | B | 0.332 | 0.166 | 37.9 |
| o-Xylene | 51.6 | | 0.332 | 0.166 | 28.6 |
| Isopropylbenzene | 16.6 | | 0.332 | 0.166 | 30.6 |
| n-Propylbenzene | 6.69 | | 0.332 | 0.166 | 29.3 |
| 1,3,5-Trimethylbenzene | 21.7 | | 0.332 | 0.166 | 30.2 |
| 1,2,4-Trimethylbenzene | 78.2 | | 0.332 | 0.166 | 30.8 |
| t-Butylbenzene | | U | 0.332 | 0.166 | NA |
| sec-Butylbenzene | 0.508 | | 0.332 | 0.166 | 36.8 |
| p-Isopropyltoluene | 10.0 | | 0.332 | 0.166 | 34.3 |
| n-Butylbenzene | 7.41 | | 0.332 | 0.166 | 36.6 |
| C1 - Benzene | 3.81 | | 1.66 | 0.830 | 13.1 |
| C2 - Benzene | 124 | B | 0.332 | 0.166 | 25.4 |
| C3 - Benzene | 116 | B | 0.332 | 0.166 | 28.3 |
| C4 - Benzene | 63.5 | | 0.332 | 0.166 | 37.2 |
| C5 - Benzene | 15.5 | | 0.332 | 0.166 | 41.2 |
| trans-Decalin | 2.31 | | 0.332 | 0.166 | 29.3 |
| cis-Decalin | 0.274 | J | 0.332 | 0.166 | NA |
| Naphthalene | 1,120 | DB | 0.332 | 0.166 | 26.8 |
| 2-Methylnaphthalene | 475 | B | 0.332 | 0.166 | 34.6 |
| 1-Methylnaphthalene | 312 | B | 0.332 | 0.166 | 36.8 |
| C1 - Naphthalene | 496 | B | 0.332 | 0.166 | 35.3 |
| C2 - Naphthalene | 250 | B | 0.332 | 0.166 | 42.1 |
| C3- Naphthalene | 89.0 | B | 0.332 | 0.166 | 44.8 |
| C4- Naphthalene | 27.9 | | 0.332 | 0.166 | 47.5 |
| Acenaphthylene | 26.5 | | 0.332 | 0.166 | 46.5 |
| Acenaphthene | 216 | B | 0.332 | 0.166 | 41.3 |
| Dibenzofuran | 8.88 | | 0.332 | 0.166 | 36.6 |
| Fluorene | 88.2 | B | 0.332 | 0.166 | 42.3 |
| C1 - Fluorene | 65.6 | | 0.332 | 0.166 | 41 |
| C2 - Fluorene | 50.7 | | 0.332 | 0.166 | 53.2 |
| C3 - Fluorene | 21.3 | | 0.332 | 0.166 | 55.9 |
| Phenanthrene | 289 | B | 0.332 | 0.166 | 36.9 |
| Anthracene | 109 | | 0.332 | 0.166 | 41.6 |

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

## Field ID: Duplicate of WSS-RSB019B-001 (10.5'-11')

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02DUP-D | | |
| File ID: | E080311.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.17 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 225 | B | 0.332 | 0.166 | 47.9 |
| C2 - Phenanthrene/Anthracene | 110 | | 0.332 | 0.166 | 54.6 |
| C3 - Phenanthrene/Anthracene | 36.6 | | 0.332 | 0.166 | 49 |
| C4 - Phenanthrene/Anthracene | 11.5 | | 0.332 | 0.166 | 40.5 |
| Dibenzothiophene | 24.8 | | 0.332 | 0.166 | 39.6 |
| C1 - Dibenzothiophene | 30.4 | | 0.332 | 0.166 | 47.7 |
| C2 - Dibenzothiophene | 33.0 | | 0.332 | 0.166 | 55.8 |
| C3 - Dibenzothiophene | 17.6 | | 0.332 | 0.166 | 56.1 |
| C4 - Dibenzothiophene | 6.3 | | 0.332 | 0.166 | 58.5 |
| Benzo(b)naphtho(2,1-d)thiophene | 12.5 | | 0.332 | 0.166 | 57.5 |
| Fluoranthene | 101 | | 0.332 | 0.166 | 33 |
| Pyrene | 152 | | 0.332 | 0.166 | 36.6 |
| C1 - Fluoranthene/Pyrene | 162 | B | 0.332 | 0.166 | 56.6 |
| C2 - Fluoranthene/Pyrene | 62.9 | | 0.332 | 0.166 | 64 |
| C3 - Fluoranthene/Pyrene | 19.7 | | 0.332 | 0.166 | 53.4 |
| Benz[a]anthracene | 63.1 | | 0.332 | 0.166 | 52.9 |
| Chrysene* | 64.4 | | 0.332 | 0.166 | 50.8 |
| C1 - Benz(a)anthracene/Chrysene | 56.4 | | 0.332 | 0.166 | 66 |
| C2 - Benz(a)anthracene/Chrysene | 26.0 | | 0.332 | 0.166 | 65.3 |
| C3 - Benz(a)anthracene/Chrysene | 9.66 | | 0.332 | 0.166 | 64.5 |
| C4 - Benz(a)anthracene/Chrysene | 8.81 | | 0.332 | 0.166 | 81 |
| Benzo[b]fluoranthene | 21.2 | | 0.332 | 0.166 | 38.2 |
| Benzo[j/k]fluoranthene | 26.5 | | 0.332 | 0.166 | 38.2 |
| Benzo(e)pyrene | 26.1 | | 0.332 | 0.166 | 42.2 |
| Benzo[a]pyrene | 46.2 | | 0.332 | 0.166 | 47.1 |
| Perylene | 6.89 | | 0.332 | 0.166 | 40.5 |
| Indeno[1,2,3-cd]pyrene | 18.6 | | 0.332 | 0.166 | 44.7 |
| Dibenz[a,h]anthracene | 6.5 | | 0.332 | 0.166 | 57.9 |
| Benzo[g,h,i]perylene | 17.8 | | 0.332 | 0.166 | 36.5 |
| Coronene | 5.26 | | 0.332 | 0.166 | 33 |
| Retene | 8.02 | | 0.332 | 0.166 | 17.6 |
| Benzo(b/c)fluorenes | 21.9 | | 0.332 | 0.166 | 58.4 |
| 2-Methylpyrene | 21.2 | | 0.332 | 0.166 | 53.1 |
| 4-Methylpyrene | 21.1 | | 0.332 | 0.166 | 55.8 |
| 1-Methylpyrene | 22.4 | | 0.332 | 0.166 | 53.1 |
| Heptadecane | 16.8 | | 0.332 | 0.166 | 50.7 |
| Pristane | 24.6 | | 0.332 | 0.166 | 15.8 |
| Octadecane | 13.0 | B | 0.332 | 0.166 | 65.8 |
| Phytane | 15.0 | | 0.332 | 0.166 | 19 |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Duplicate of WSS-RSB019B-001 (10.5'-11')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060726-02DUP-D | | |
| File ID: | E080311.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/25/2006 | Decanted: | None |
| Date Received: | 7/26/2006 | | |
| Date Prepared: | 7/28/2006 | Sample Size (g): | 2.17 |
| Date Cleanup: | NA | Percent Solid: | 56% |
| Date Analyzed: | 8/5/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 20.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060728-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 14.3 | 0.332 | 0.166 | 37.1 |
| 2,6,10-trimethyltridecane | 19.4 | 0.332 | 0.166 | 33.7 |
| Norpristane | 14.4 | 0.332 | 0.166 | 21.5 |
| Total PAH (16) | 2,360 | 0.332 | 0.166 | 33.7 |
| Total PAH (42) | 4,250 | 0.332 | 0.166 | 39.1 |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 81 | 50 - 120 |
| Phenanthrene-d10 | 80 | 50 - 120 |
| Perylene-d12 | 139 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SB | | |
| File ID: | E081008.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | |
| Benzene | U | 0.050 | 0.025 | |
| Toluene | U | 0.050 | 0.025 | |
| Ethylbenzene | U | 0.010 | 0.005 | |
| m/p-Xylenes | U | 0.010 | 0.005 | |
| Styrene | 0.014 | 0.010 | 0.005 | |
| o-Xylene | U | 0.010 | 0.005 | |
| Isopropylbenzene | U | 0.010 | 0.005 | |
| n-Propylbenzene | U | 0.010 | 0.005 | |
| 1,3,5-Trimethylbenzene | U | 0.010 | 0.005 | |
| 1,2,4-Trimethylbenzene | U | 0.010 | 0.005 | |
| t-Butylbenzene | U | 0.010 | 0.005 | |
| sec-Butylbenzene | U | 0.010 | 0.005 | |
| p-Isopropyltoluene | U | 0.010 | 0.005 | |
| n-Butylbenzene | U | 0.010 | 0.005 | |
| C1 - Benzene | U | 0.050 | 0.025 | |
| C2 - Benzene | 0.006 J | 0.010 | 0.005 | |
| C3 - Benzene | U | 0.010 | 0.005 | |
| C4 - Benzene | U | 0.010 | 0.005 | |
| C5 - Benzene | U | 0.010 | 0.005 | |
| trans-Decalin | U | 0.010 | 0.005 | |
| cis-Decalin | U | 0.010 | 0.005 | |
| Naphthalene | U | 0.010 | 0.005 | |
| 2-Methylnaphthalene | U | 0.010 | 0.005 | |
| 1-Methylnaphthalene | U | 0.010 | 0.005 | |
| C1 - Naphthalene | U | 0.010 | 0.005 | |
| C2 - Naphthalene | U | 0.010 | 0.005 | |
| C3- Naphthalene | U | 0.010 | 0.005 | |
| C4- Naphthalene | U | 0.010 | 0.005 | |
| Acenaphthylene | U | 0.010 | 0.005 | |
| Acenaphthene | U | 0.010 | 0.005 | |
| Dibenzofuran | U | 0.010 | 0.005 | |
| Fluorene | U | 0.010 | 0.005 | |
| C1 - Fluorene | U | 0.010 | 0.005 | |
| C2 - Fluorene | U | 0.010 | 0.005 | |
| C3 - Fluorene | U | 0.010 | 0.005 | |
| Phenanthrene | U | 0.010 | 0.005 | |
| Anthracene | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SB | | |
| File ID: | E081008.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | U | 0.010 | 0.005 | |
| Dibenzothiophene | U | 0.010 | 0.005 | |
| C1 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | U | 0.010 | 0.005 | |
| Fluoranthene | U | 0.010 | 0.005 | |
| Pyrene | U | 0.010 | 0.005 | |
| C1 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | U | 0.010 | 0.005 | |
| Benz[a]anthracene | U | 0.010 | 0.005 | |
| Chrysene* | U | 0.010 | 0.005 | |
| C1 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | U | 0.010 | 0.005 | |
| Benzo[j/k]fluoranthene | U | 0.010 | 0.005 | |
| Benzo(e)pyrene | U | 0.010 | 0.005 | |
| Benzo[a]pyrene | U | 0.010 | 0.005 | |
| Perylene | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | U | 0.010 | 0.005 | |
| Dibenz[a,h]anthracene | U | 0.010 | 0.005 | |
| Benzo[g,h,i]perylene | U | 0.010 | 0.005 | |
| Coronene | U | 0.010 | 0.005 | |
| Retene | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | U | 0.010 | 0.005 | |
| 2-Methylpyrene | U | 0.010 | 0.005 | |
| 4-Methylpyrene | U | 0.010 | 0.005 | |
| 1-Methylpyrene | U | 0.010 | 0.005 | |
| Heptadecane | U | 0.010 | 0.005 | |
| Pristane | U | 0.010 | 0.005 | |
| Octadecane | U | 0.010 | 0.005 | |
| Phytane | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SB | | |
| File ID: | E081008.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |
| Total PAH (16) | U | 0.010 | 0.005 | |
| Total PAH (42) | U | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 92 | 50 - 120 |
| Phenanthrene-d10 | 88 | 50 - 120 |
| Perylene-d12 | 63 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SBS | | |
| File ID: | E081009.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | Spike Amount | | | | | % Recovery |
| Benzene | 1.00 | 0.932 | | 0.050 | 0.025 | 93 % |
| Toluene | 1.00 | 0.838 | | 0.050 | 0.025 | 84 % |
| Ethylbenzene | 1.00 | 0.872 | | 0.010 | 0.005 | 87 % |
| m/p-Xylenes | 1.00 | 0.839 | | 0.010 | 0.005 | 84 % |
| Styrene | 1.00 | 0.828 | B | 0.010 | 0.005 | 83 % |
| o-Xylene | 1.00 | 0.876 | | 0.010 | 0.005 | 88 % |
| Isopropylbenzene | 1.00 | 0.820 | | 0.010 | 0.005 | 82 % |
| n-Propylbenzene | 1.00 | 0.853 | | 0.010 | 0.005 | 85 % |
| 1,3,5-Trimethylbenzene | 1.00 | 0.831 | | 0.010 | 0.005 | 83 % |
| 1,2,4-Trimethylbenzene | 1.00 | 0.802 | | 0.010 | 0.005 | 80 % |
| t-Butylbenzene | | | U | 0.010 | 0.005 | |
| sec-Butylbenzene | 1.00 | 0.797 | | 0.010 | 0.005 | 80 % |
| p-Isopropyltoluene | 1.00 | 0.749 | | 0.010 | 0.005 | 75 % |
| n-Butylbenzene | 1.00 | 0.779 | | 0.010 | 0.005 | 78 % |
| C1 - Benzene | | | U | 0.050 | 0.025 | |
| C2 - Benzene | | | BU | 0.010 | 0.005 | |
| C3 - Benzene | | | U | 0.010 | 0.005 | |
| C4 - Benzene | | | U | 0.010 | 0.005 | |
| C5 - Benzene | | | U | 0.010 | 0.005 | |
| trans-Decalin | | | U | 0.010 | 0.005 | |
| cis-Decalin | | | U | 0.010 | 0.005 | |
| Naphthalene | 1.00 | 0.768 | | 0.010 | 0.005 | 77 % |
| 2-Methylnaphthalene | 1.00 | 0.784 | | 0.010 | 0.005 | 78 % |
| 1-Methylnaphthalene | 1.00 | 0.885 | | 0.010 | 0.005 | 89 % |
| C1 - Naphthalene | | | U | 0.010 | 0.005 | |
| C2 - Naphthalene | | | U | 0.010 | 0.005 | |
| C3- Naphthalene | | | U | 0.010 | 0.005 | |
| C4- Naphthalene | | | U | 0.010 | 0.005 | |
| Acenaphthylene | 1.00 | 0.863 | | 0.010 | 0.005 | 86 % |
| Acenaphthene | 1.00 | 0.867 | | 0.010 | 0.005 | 87 % |
| Dibenzofuran | 1.00 | 0.865 | | 0.010 | 0.005 | 87 % |
| Fluorene | 1.00 | 0.884 | | 0.010 | 0.005 | 88 % |
| C1 - Fluorene | | | U | 0.010 | 0.005 | |
| C2 - Fluorene | | | U | 0.010 | 0.005 | |
| C3 - Fluorene | | | U | 0.010 | 0.005 | |
| Phenanthrene | 1.00 | 0.863 | | 0.010 | 0.005 | 86 % |
| Anthracene | 1.00 | 0.905 | | 0.010 | 0.005 | 91 % |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Soil Blank Spike**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SBS | | |
| File ID: | E081009.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | | U | 0.010 | 0.005 | |
| C2 - Phenanthrene/Anthracene | | U | 0.010 | 0.005 | |
| C3 - Phenanthrene/Anthracene | | U | 0.010 | 0.005 | |
| C4 - Phenanthrene/Anthracene | | U | 0.010 | 0.005 | |
| Dibenzothiophene | 1.00 | 0.877 | 0.010 | 0.005 | 88 % |
| C1 - Dibenzothiophene | | U | 0.010 | 0.005 | |
| C2 - Dibenzothiophene | | U | 0.010 | 0.005 | |
| C3 - Dibenzothiophene | | U | 0.010 | 0.005 | |
| C4 - Dibenzothiophene | | U | 0.010 | 0.005 | |
| Benzo(b)naphtho(2,1-d)thiophene | | U | 0.010 | 0.005 | |
| Fluoranthene | 1.00 | 0.915 | 0.010 | 0.005 | 92 % |
| Pyrene | 1.00 | 0.862 | 0.010 | 0.005 | 86 % |
| C1 - Fluoranthene/Pyrene | | U | 0.010 | 0.005 | |
| C2 - Fluoranthene/Pyrene | | U | 0.010 | 0.005 | |
| C3 - Fluoranthene/Pyrene | | U | 0.010 | 0.005 | |
| Benz[a]anthracene | 1.00 | 0.717 | 0.010 | 0.005 | 72 % |
| Chrysene* | 1.00 | 0.733 | 0.010 | 0.005 | 73 % |
| C1 - Benz(a)anthracene/Chrysene | | U | 0.010 | 0.005 | |
| C2 - Benz(a)anthracene/Chrysene | | U | 0.010 | 0.005 | |
| C3 - Benz(a)anthracene/Chrysene | | U | 0.010 | 0.005 | |
| C4 - Benz(a)anthracene/Chrysene | | U | 0.010 | 0.005 | |
| Benzo[b]fluoranthene | 1.00 | 0.698 | 0.010 | 0.005 | 70 % |
| Benzo[j/k]fluoranthene | 1.00 | 0.705 | 0.010 | 0.005 | 71 % |
| Benzo(e)pyrene | 1.00 | 0.714 | 0.010 | 0.005 | 71 % |
| Benzo[a]pyrene | 1.00 | 0.699 | 0.010 | 0.005 | 70 % |
| Perylene | | U | 0.010 | 0.005 | |
| Indeno[1,2,3-cd]pyrene | 1.00 | 0.647 | 0.010 | 0.005 | 65 % |
| Dibenz[a,h]anthracene | 1.00 | 0.715 | 0.010 | 0.005 | 72 % |
| Benzo[g,h,i]perylene | 1.00 | 0.652 | 0.010 | 0.005 | 65 % |
| Coronene | | U | 0.010 | 0.005 | |
| | | | | | |
| Retene | | U | 0.010 | 0.005 | |
| Benzo(b/c)fluorenes | | U | 0.010 | 0.005 | |
| 2-Methylpyrene | | U | 0.010 | 0.005 | |
| 4-Methylpyrene | | U | 0.010 | 0.005 | |
| 1-Methylpyrene | | U | 0.010 | 0.005 | |
| Heptadecane | | U | 0.010 | 0.005 | |
| Pristane | | U | 0.010 | 0.005 | |
| Octadecane | | U | 0.010 | 0.005 | |
| Phytane | | U | 0.010 | 0.005 | |

# Analytical Results for Volatile and Semivolatile Organics
# META Environmental, Inc.

## Field ID: Soil Blank Spike

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060803-SBS | | |
| File ID: | E081009.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 8/10/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.010 | 0.005 | |
| 2,6,10-trimethyltridecane | U | 0.010 | 0.005 | |
| Norpristane | U | 0.010 | 0.005 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 89 | 50 - 120 |
| Phenanthrene-d10 | 86 | 50 - 120 |
| Perylene-d12 | 65 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Duplicate of WSS-RSB001-001 (11.5'-12')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01DUP | | |
| File ID: | E081015.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.28 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | RPD |
| Benzene | 0.571 | | 0.075 | 0.037 | 25.4 |
| Toluene | 1.06 | | 0.075 | 0.037 | 48 |
| Ethylbenzene | 12.7 | | 0.015 | 0.008 | 32.3 |
| m/p-Xylenes | 7.92 | | 0.015 | 0.008 | 62.4 |
| Styrene | 1.9 | B | 0.015 | 0.008 | 42 |
| o-Xylene | 3.72 | | 0.015 | 0.008 | 35.4 |
| Isopropylbenzene | 1.52 | | 0.015 | 0.008 | 35.2 |
| n-Propylbenzene | 0.727 | | 0.015 | 0.008 | 37.3 |
| 1,3,5-Trimethylbenzene | 3.23 | | 0.015 | 0.008 | 33.9 |
| 1,2,4-Trimethylbenzene | 9.68 | | 0.015 | 0.008 | 33.7 |
| t-Butylbenzene | | U | 0.015 | 0.008 | NA |
| sec-Butylbenzene | 0.071 | | 0.015 | 0.008 | 47.3 |
| p-Isopropyltoluene | 1.59 | | 0.015 | 0.008 | 36.5 |
| n-Butylbenzene | 1.13 | | 0.015 | 0.008 | 38 |
| C1 - Benzene | 0.766 | | 0.075 | 0.037 | 48 |
| C2 - Benzene | 11.1 | B | 0.015 | 0.008 | 47.4 |
| C3 - Benzene | 17.3 | | 0.015 | 0.008 | 34.8 |
| C4 - Benzene | 11.0 | | 0.015 | 0.008 | 36.4 |
| C5 - Benzene | 3.39 | | 0.015 | 0.008 | 36.6 |
| trans-Decalin | 0.337 | | 0.015 | 0.008 | 58.4 |
| cis-Decalin | 0.034 | | 0.015 | 0.008 | 53.8 |
| Naphthalene | 363 | D | 0.015 | 0.008 | 31.4 |
| 2-Methylnaphthalene | 167 | D | 0.015 | 0.008 | 30.9 |
| 1-Methylnaphthalene | 111 | D | 0.015 | 0.008 | 28.6 |
| C1 - Naphthalene | 177 | D | 0.015 | 0.008 | 29.8 |
| C2 - Naphthalene | 78.5 | | 0.015 | 0.008 | 34.3 |
| C3- Naphthalene | 30.7 | | 0.015 | 0.008 | 38.4 |
| C4- Naphthalene | 9.96 | | 0.015 | 0.008 | 39.7 |
| Acenaphthylene | 15.4 | | 0.015 | 0.008 | 31.7 |
| Acenaphthene | 181 | D | 0.015 | 0.008 | 30.8 |
| Dibenzofuran | 2.87 | | 0.015 | 0.008 | 71.6 |
| Fluorene | 71.9 | D | 0.015 | 0.008 | 33.7 |
| C1 - Fluorene | 33.8 | | 0.015 | 0.008 | 42.6 |
| C2 - Fluorene | 19.9 | | 0.015 | 0.008 | 39.2 |
| C3 - Fluorene | 6.7 | | 0.015 | 0.008 | 37.7 |
| Phenanthrene | 291 | D | 0.015 | 0.008 | 34 |
| Anthracene | 110 | D | 0.015 | 0.008 | 37 |

Analytical Results for Volatile and Semivolatile Organics
META Environmental, Inc.

## Field ID: Duplicate of WSS-RSB001-001 (11.5'-12')

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01DUP | | |
| File ID: | E081015.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.28 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 125 | D | 0.015 | 0.008 | 33.3 |
| C2 - Phenanthrene/Anthracene | 46.3 | | 0.015 | 0.008 | 39.1 |
| C3 - Phenanthrene/Anthracene | 15.0 | | 0.015 | 0.008 | 38.7 |
| C4 - Phenanthrene/Anthracene | 4.04 | | 0.015 | 0.008 | 44.2 |
| Dibenzothiophene | 18.1 | | 0.015 | 0.008 | 35.1 |
| C1 - Dibenzothiophene | 13.3 | | 0.015 | 0.008 | 37.3 |
| C2 - Dibenzothiophene | 10.8 | | 0.015 | 0.008 | 38.8 |
| C3 - Dibenzothiophene | 5.27 | | 0.015 | 0.008 | 40.1 |
| C4 - Dibenzothiophene | 1.67 | | 0.015 | 0.008 | 44.3 |
| Benzo(b)naphtho(2,1-d)thiophene | 7.22 | | 0.015 | 0.008 | 40.6 |
| Fluoranthene | 112 | D | 0.015 | 0.008 | 40.6 |
| Pyrene | 161 | D | 0.015 | 0.008 | 35.3 |
| C1 - Fluoranthene/Pyrene | 103 | | 0.015 | 0.008 | 35.2 |
| C2 - Fluoranthene/Pyrene | 28.6 | | 0.015 | 0.008 | 41.6 |
| C3 - Fluoranthene/Pyrene | 7.78 | | 0.015 | 0.008 | 45 |
| Benz[a]anthracene | 46.6 | D | 0.015 | 0.008 | 40.4 |
| Chrysene* | 47.5 | D | 0.015 | 0.008 | 37.9 |
| C1 - Benz(a)anthracene/Chrysene | 27.5 | | 0.015 | 0.008 | 40.3 |
| C2 - Benz(a)anthracene/Chrysene | 10.6 | | 0.015 | 0.008 | 40 |
| C3 - Benz(a)anthracene/Chrysene | 3.42 | | 0.015 | 0.008 | 47.3 |
| C4 - Benz(a)anthracene/Chrysene | 2.15 | | 0.015 | 0.008 | 51.7 |
| Benzo[b]fluoranthene | 20.2 | | 0.015 | 0.008 | 24.7 |
| Benzo[j/k]fluoranthene | 25.3 | | 0.015 | 0.008 | 32.7 |
| Benzo(e)pyrene | 23.4 | | 0.015 | 0.008 | 29.8 |
| Benzo[a]pyrene | 43.0 | D | 0.015 | 0.008 | 37.9 |
| Perylene | 6.69 | | 0.015 | 0.008 | 49.6 |
| Indeno[1,2,3-cd]pyrene | 20.5 | | 0.015 | 0.008 | 22.5 |
| Dibenz[a,h]anthracene | 6.2 | | 0.015 | 0.008 | 48.8 |
| Benzo[g,h,i]perylene | 21.3 | | 0.015 | 0.008 | 22.1 |
| Coronene | 6.0 | | 0.015 | 0.008 | 45.5 |
| Retene | 2.69 | | 0.015 | 0.008 | 21.3 |
| Benzo(b/c)fluorenes | 15.8 | | 0.015 | 0.008 | 37.1 |
| 2-Methylpyrene | 12.3 | | 0.015 | 0.008 | 36.5 |
| 4-Methylpyrene | 12.2 | | 0.015 | 0.008 | 36.2 |
| 1-Methylpyrene | 15.4 | | 0.015 | 0.008 | 34 |
| Heptadecane | 14.5 | | 0.015 | 0.008 | 31.4 |
| Pristane | 7.78 | | 0.015 | 0.008 | 30.7 |
| Octadecane | 9.34 | | 0.015 | 0.008 | 39.9 |
| Phytane | 5.88 | | 0.015 | 0.008 | 27.2 |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

**Field ID: Duplicate of WSS-RSB001-001 (11.5'-12')**

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | Willow Street Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR060731-01DUP | | |
| File ID: | E081015.D | Matrix: | Soil |
| | | Preservation: | None |
| Date Sampled: | 7/28/2006 | Decanted: | None |
| Date Received: | 7/31/2006 | | |
| Date Prepared: | 8/3/2006 | Sample Size (g): | 2.28 |
| Date Cleanup: | NA | Percent Solid: | 59% |
| Date Analyzed: | 8/11/2006 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | RS | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR060803-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 3.05 | 0.015 | 0.008 | 39.9 |
| 2,6,10-trimethyltridecane | 5.51 | 0.015 | 0.008 | 35.8 |
| Norpristane | 5.17 | 0.015 | 0.008 | 30.1 |
| Total PAH (16) | 1,540 | 0.015 | 0.008 | 33.5 |
| Total PAH (42) | 2,350 | 0.015 | 0.008 | 34.5 |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 72 | 50 - 120 |
| Phenanthrene-d10 | 89 | 50 - 120 |
| Perylene-d12 | 99 | 50 - 120 |

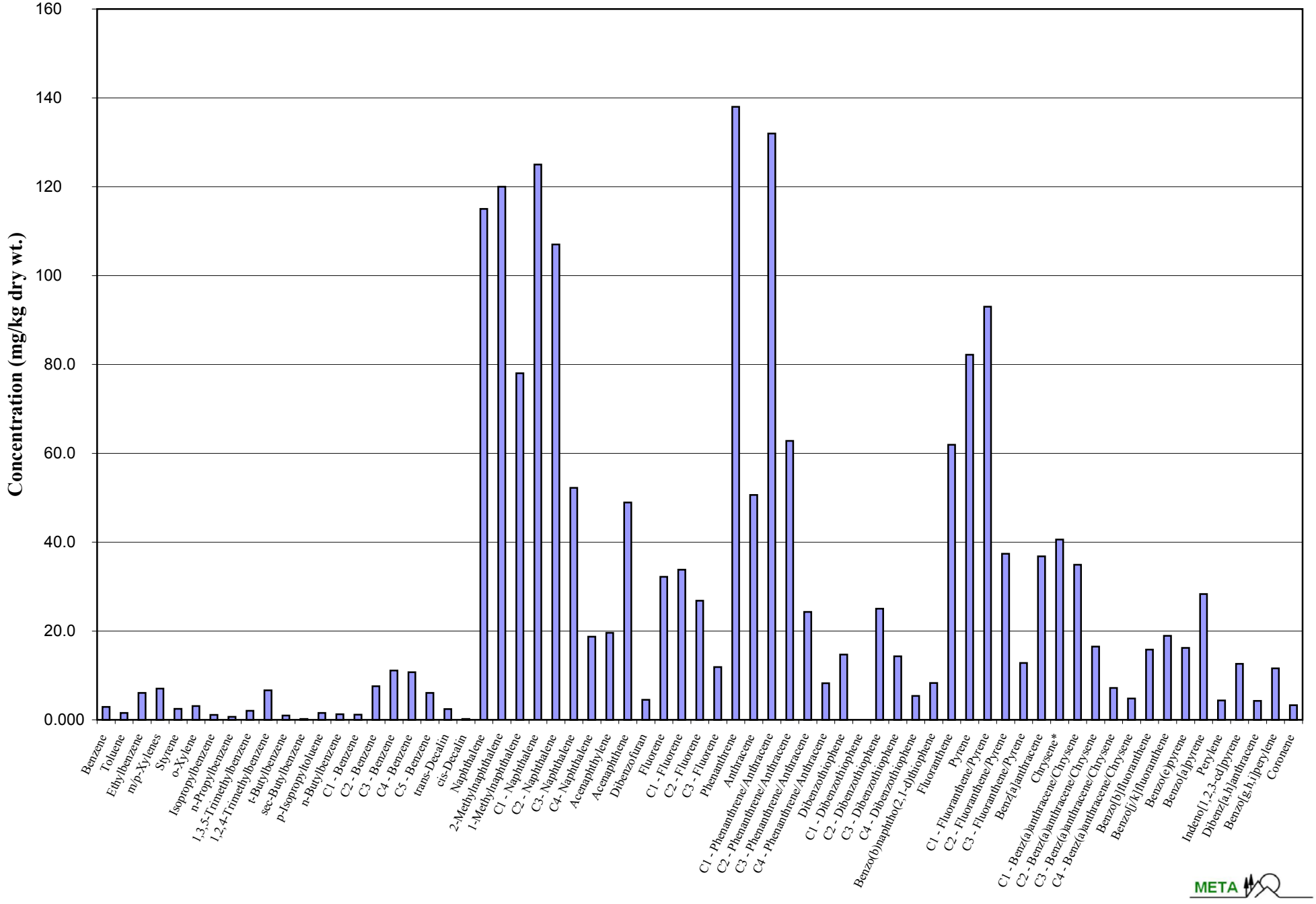
NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Appendix D

# Extended MAH/PAH Profiles – Histograms

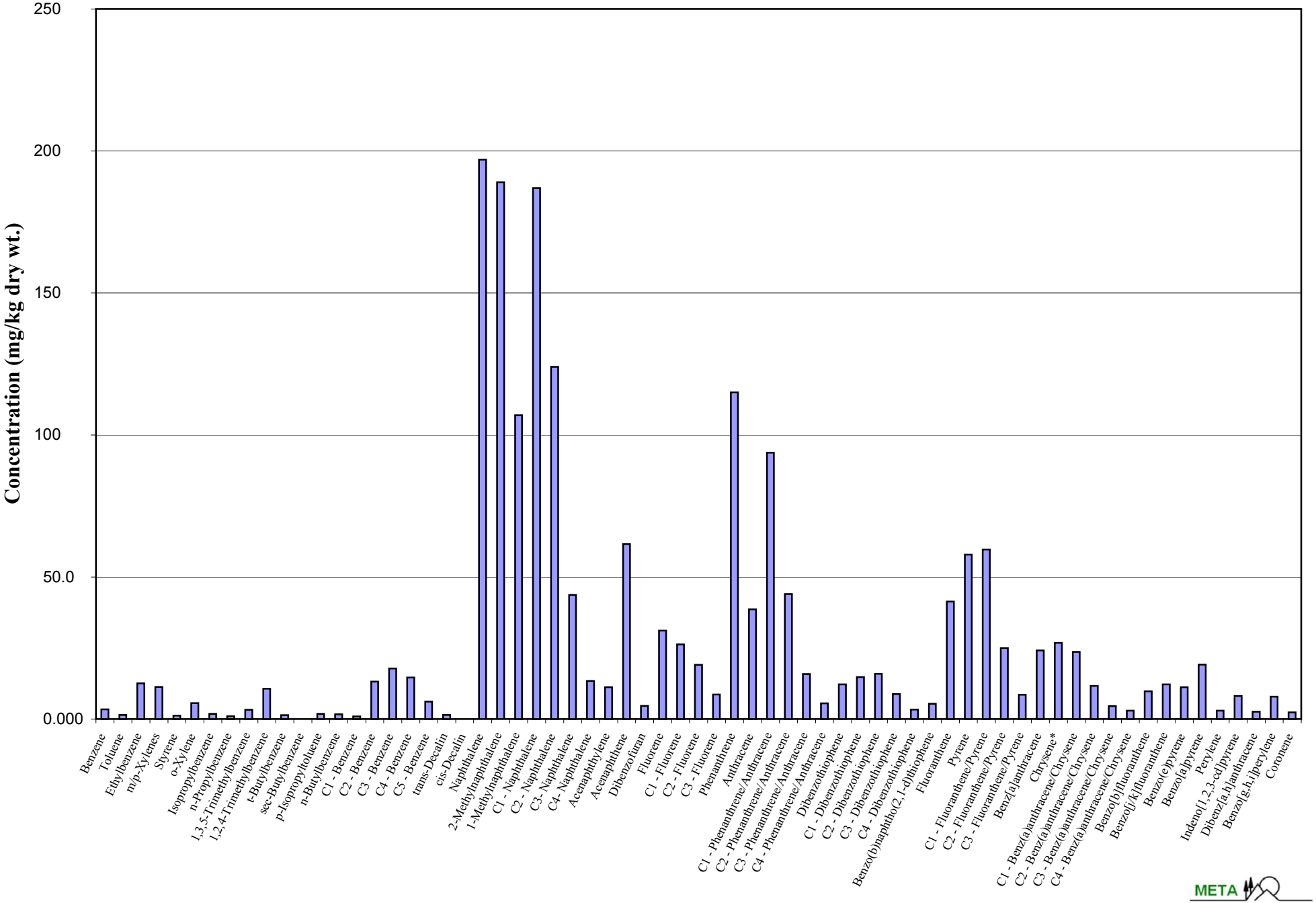
# WSS-RSB004-001 (9'-10')

BR060719-01-D



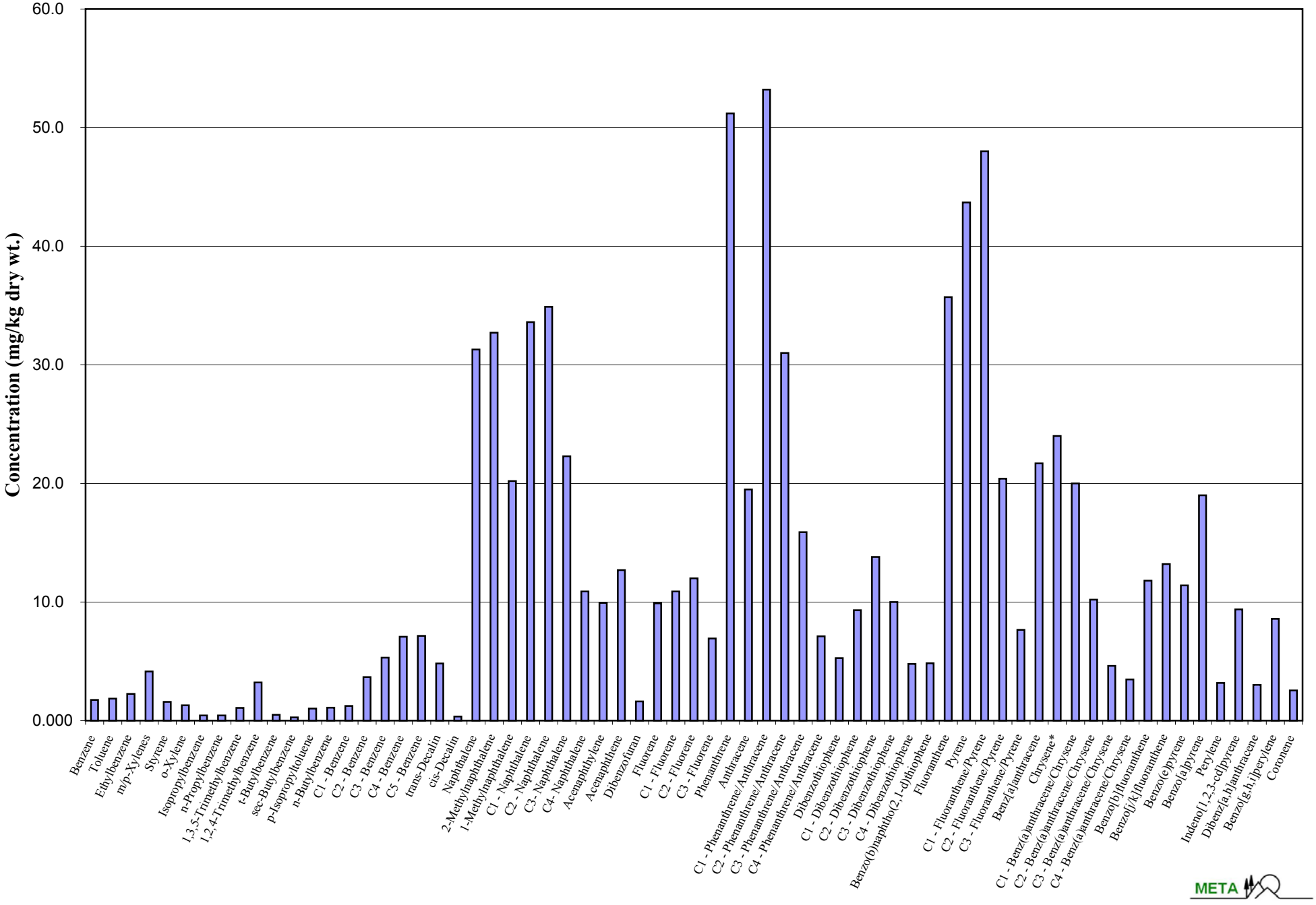
# WSS-RSB006-001 (9'-9.5')

BR060719-02-D



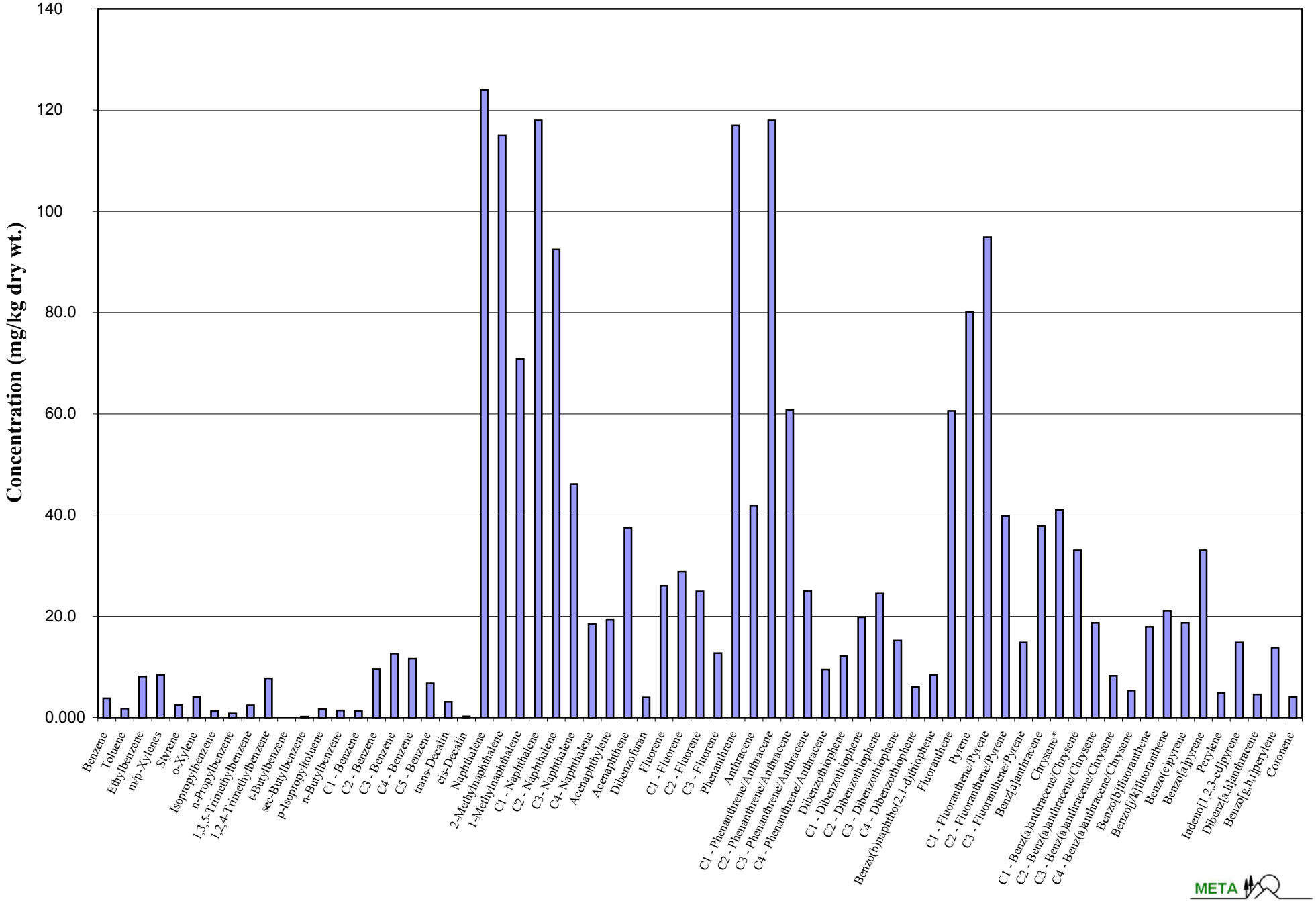
# WSS-RSB008-001 (15'-15.6')

BR060719-03-D



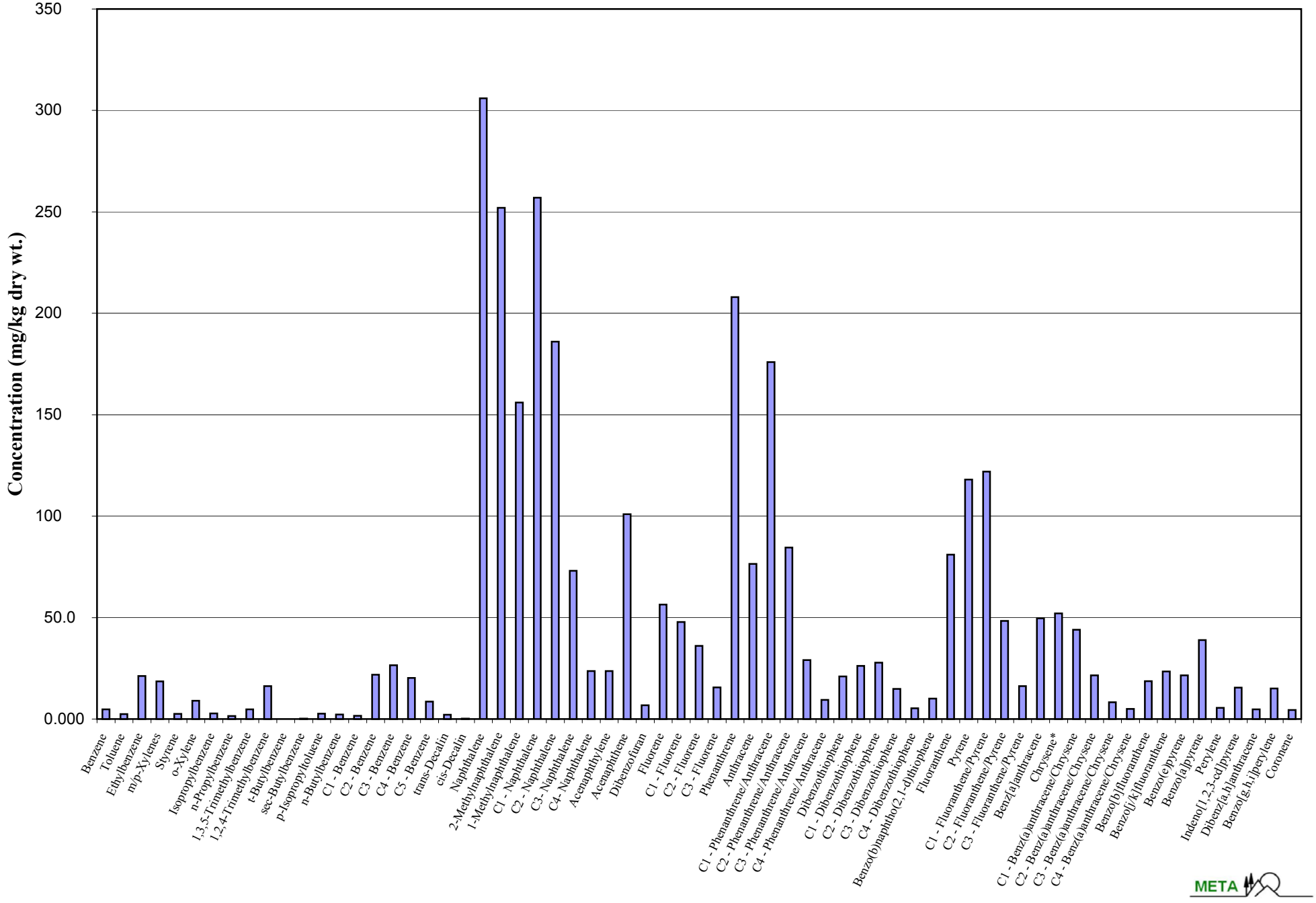
# WSS-RSB009-001 (12.5'-13')

BR060720-01-D



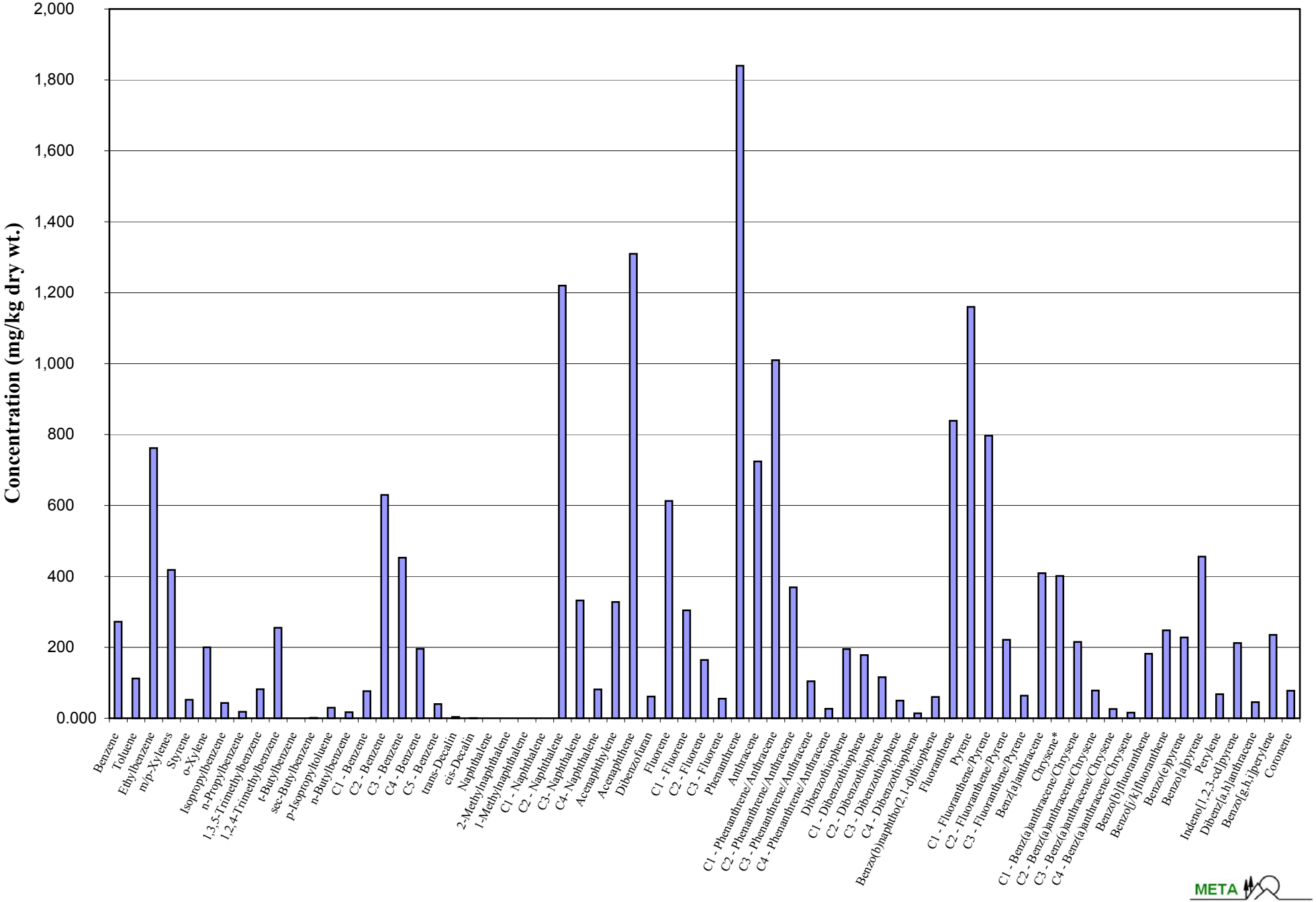
# WSS-RSB012-001 (9.5'-10')

BR060721-01-D



# WSS-RSB017-001 (8'-8.5')

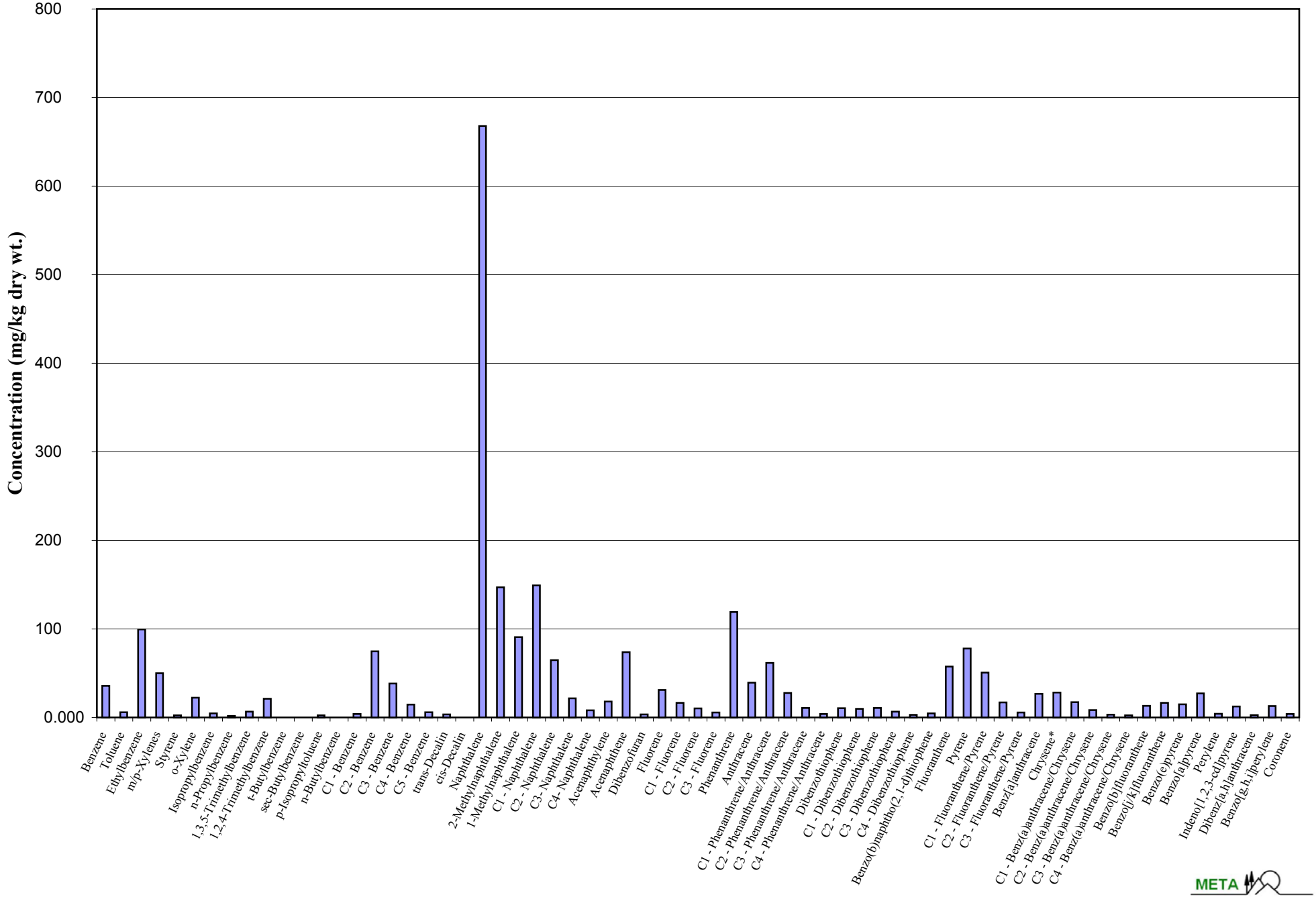
BR060725-01-D




META

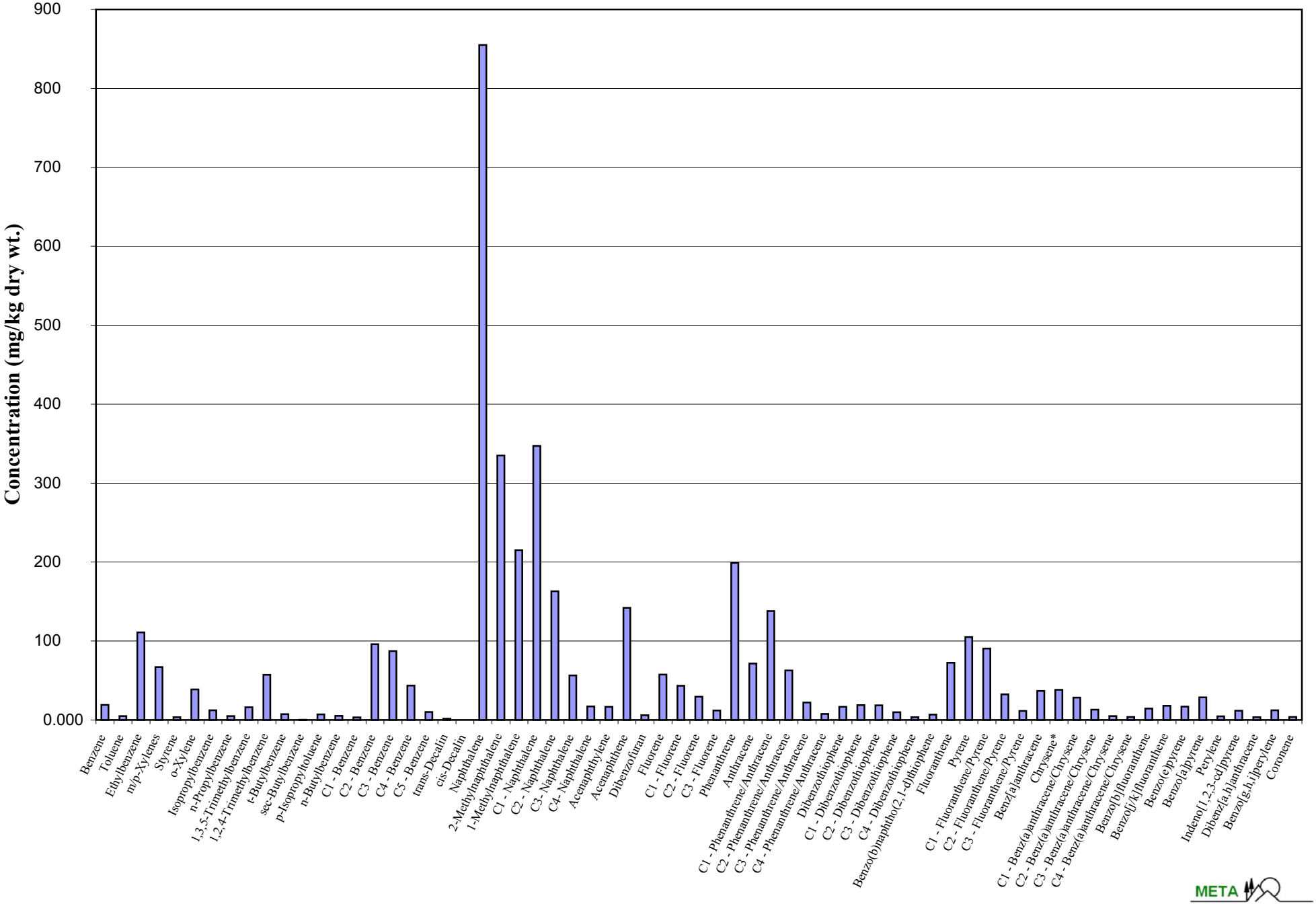
# WSS-RSB018-001 (7.5'-8')

BR060725-02-D



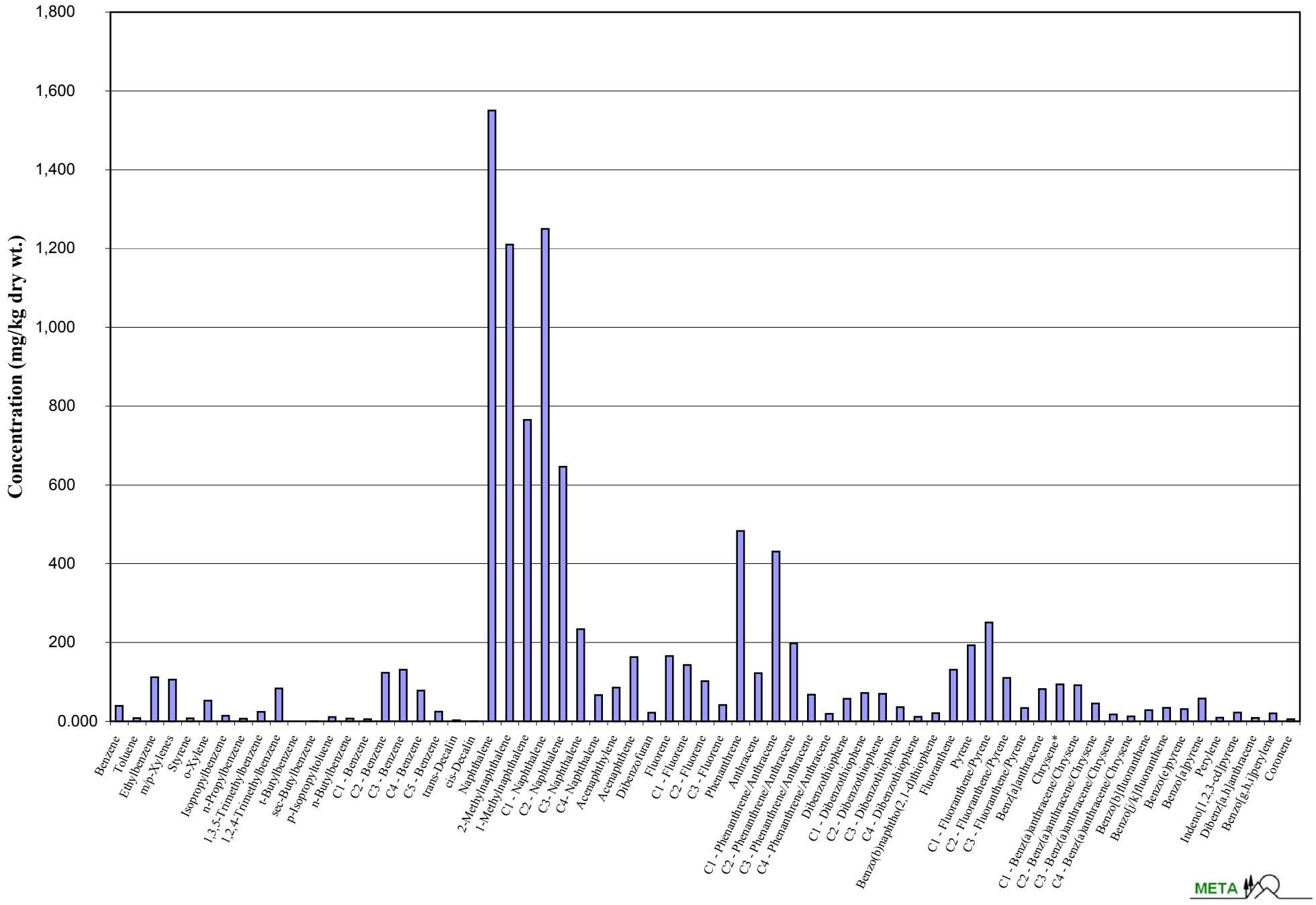
# WSS-RSB019B-001 (10.5'-11')

BR060726-02-D



# WSS-RSB-020B-001 (10.5'-11')

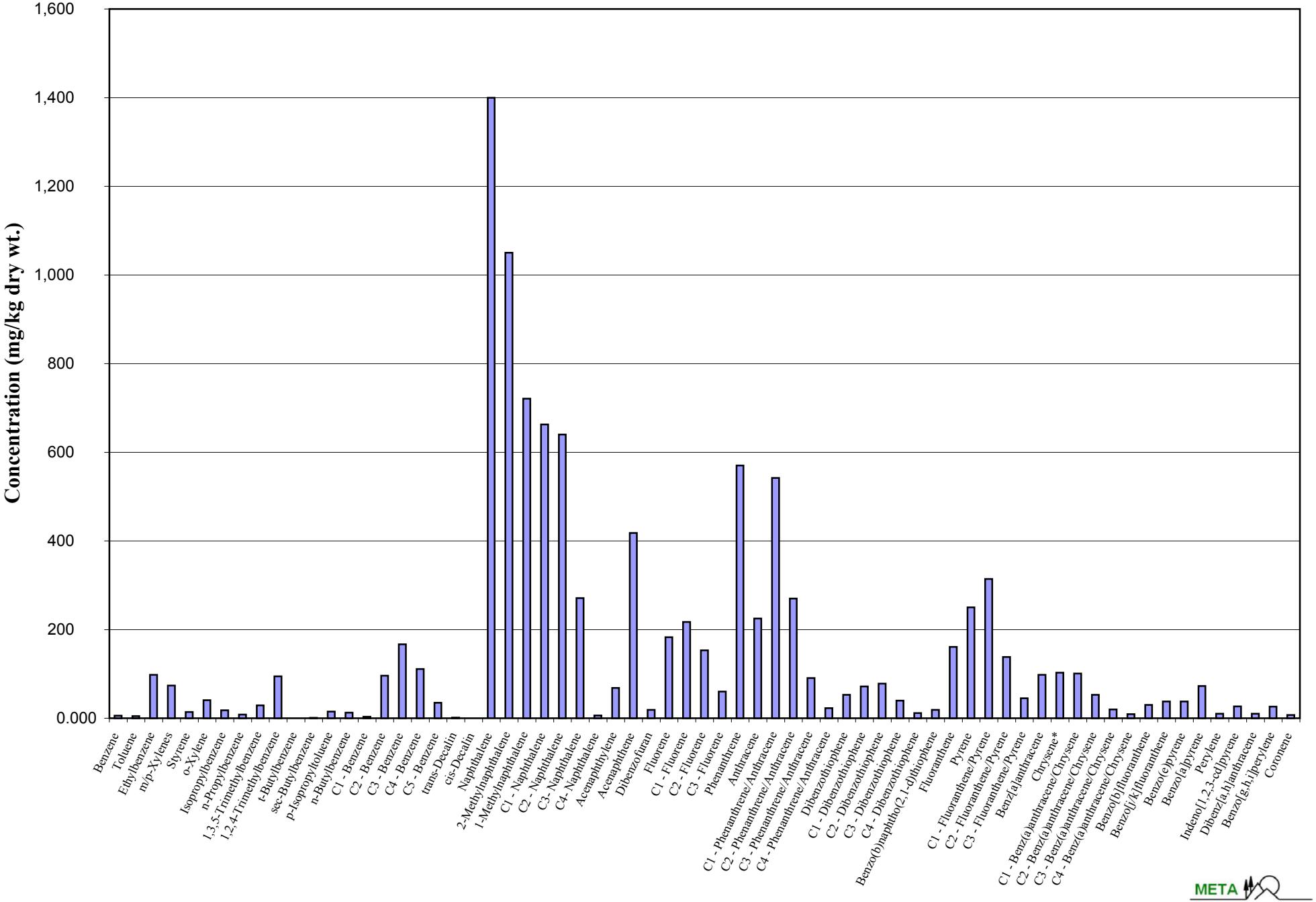
BR060727-01-D




META

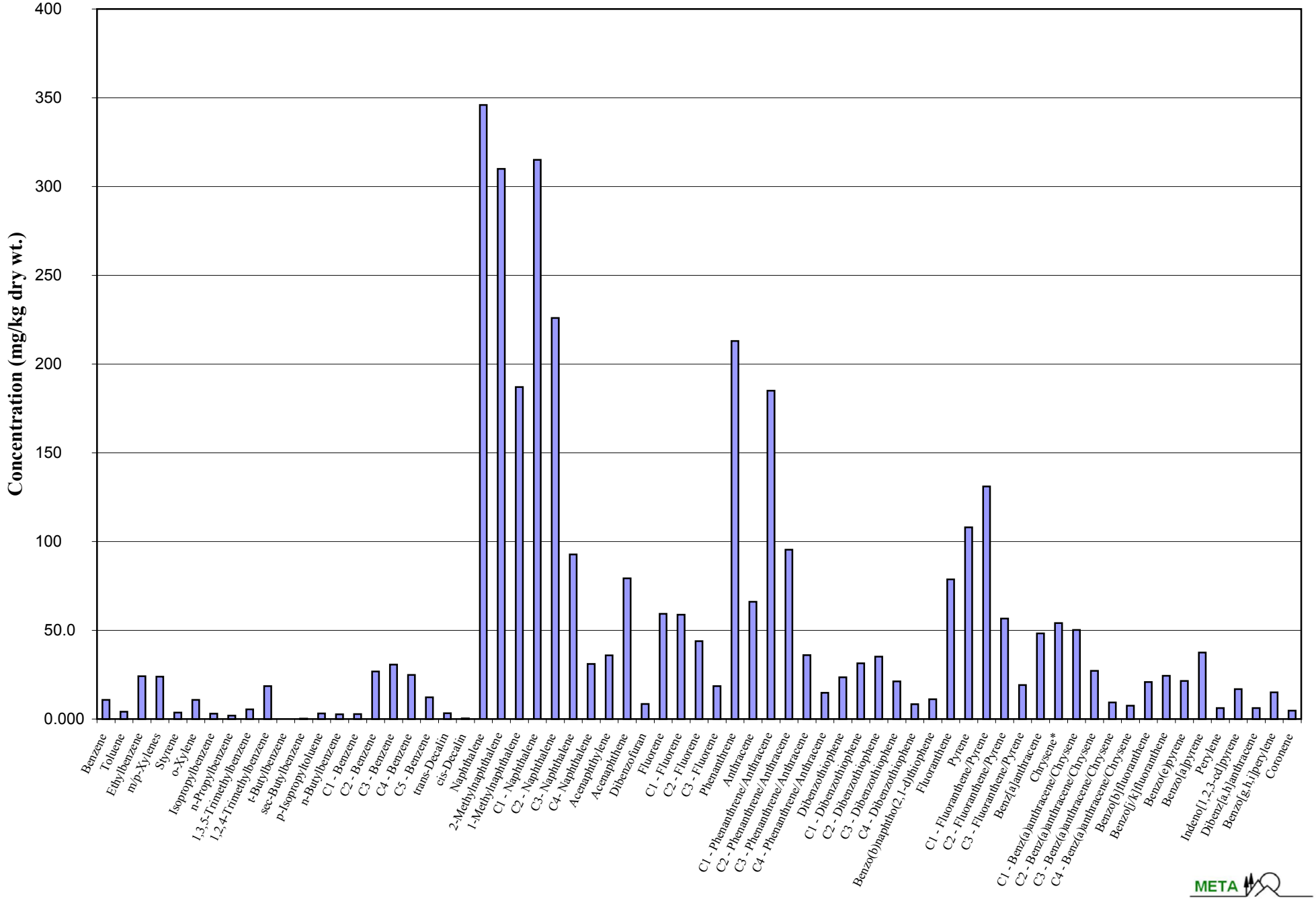
# WSS-RSB022-001 (5.5'-6')

BR060727-02-D



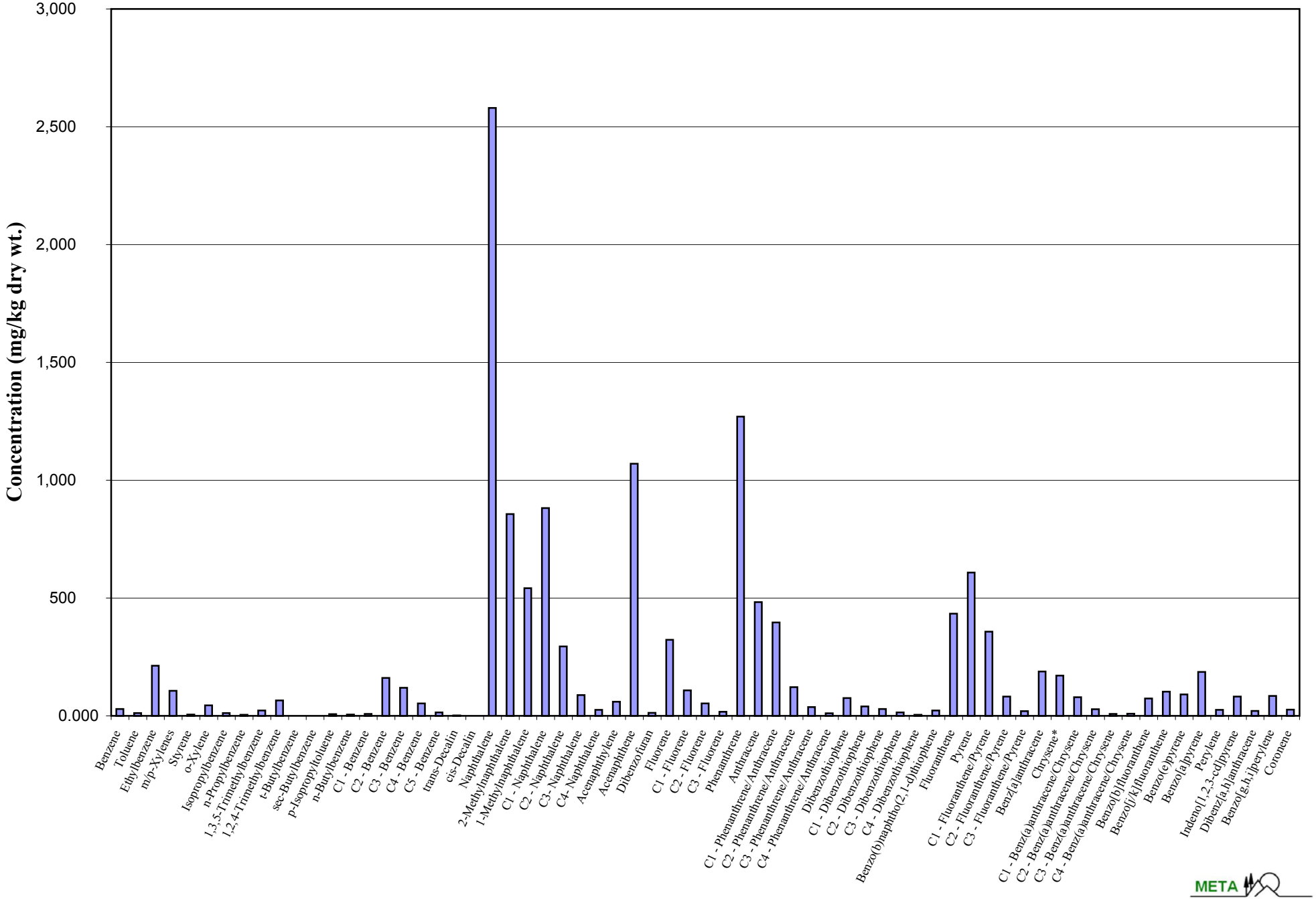
# WSS-RSB009C-001 (13'-13.5')

BR060728-01-D



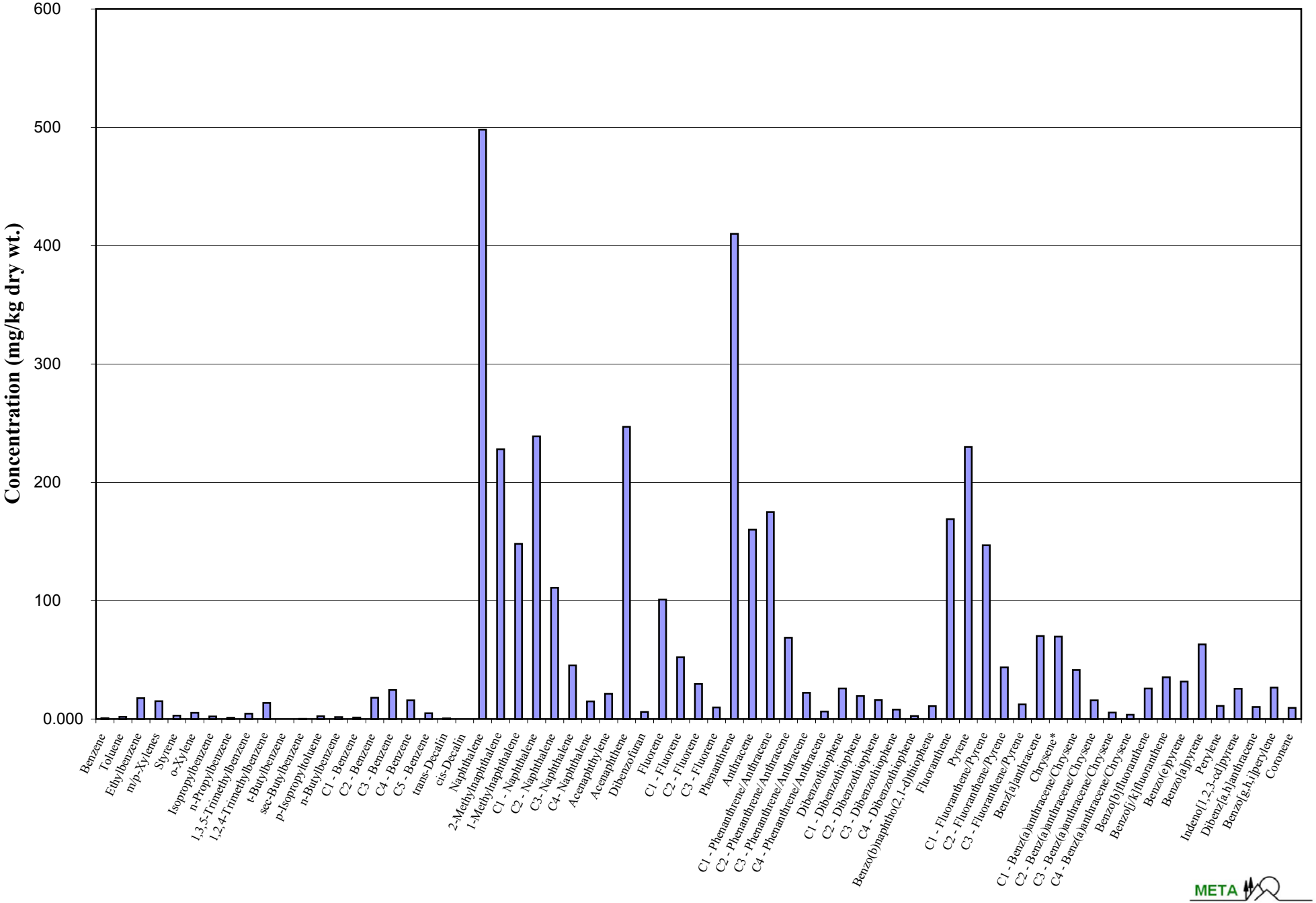
# WSS-RSB024B-001 (6.5'-7.0')

BR060728-02-D



# WSS-RSB001-001 (11.5'-12')

BR060731-01



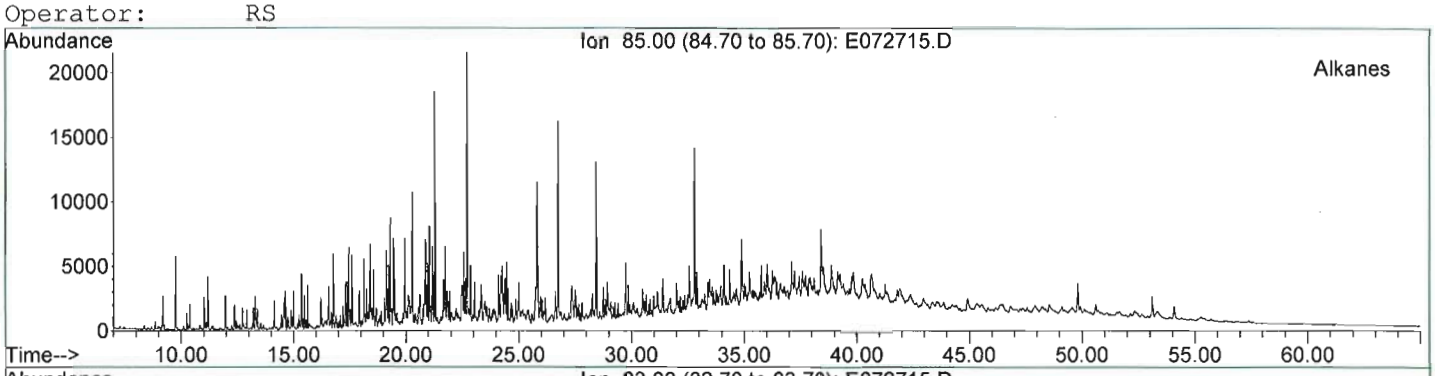
# Appendix E

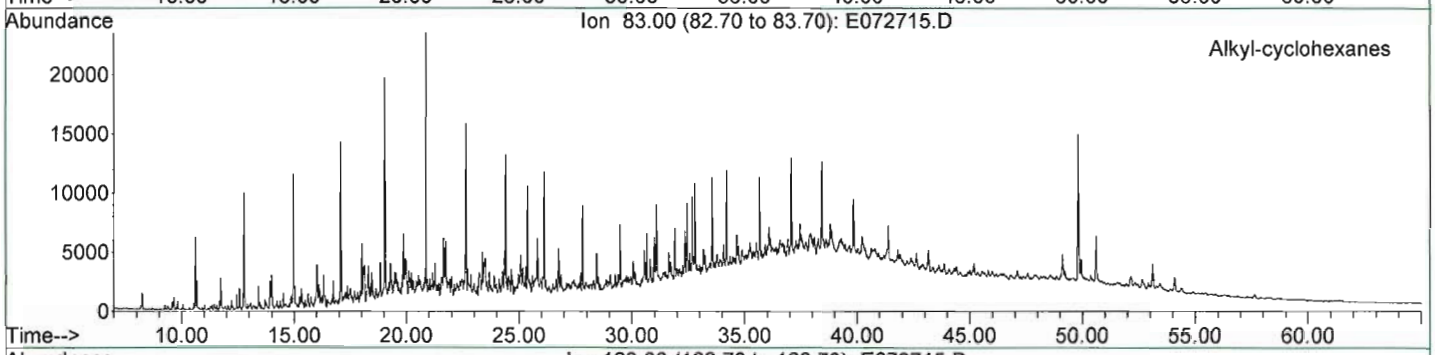
# Extracted Ion Current Profiles (EICPs)

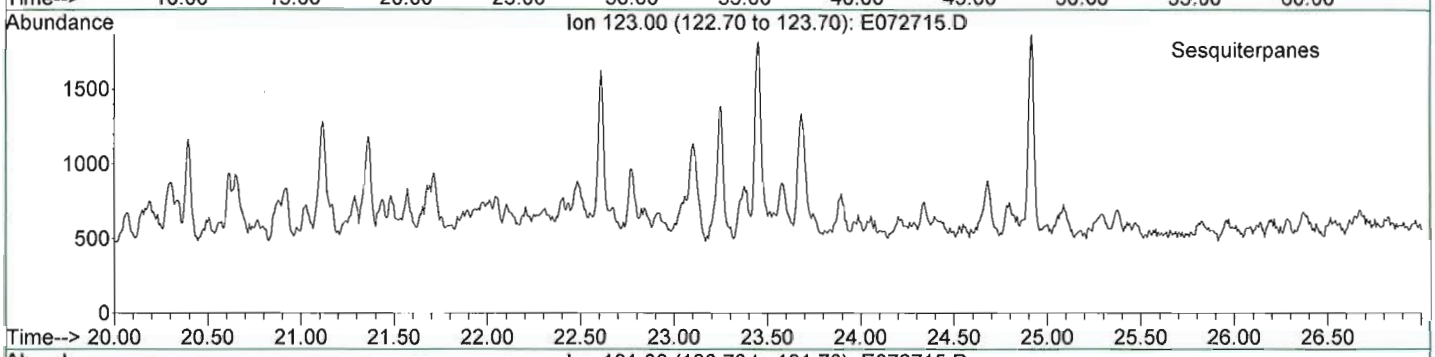
META Environmental, Inc.

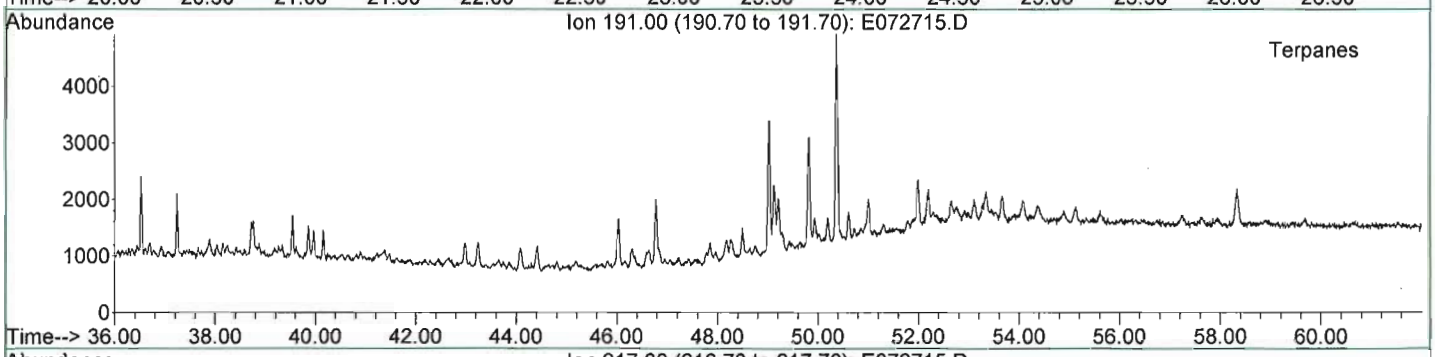
GC/MS EXTRACTED ION CHROMATOGRAM

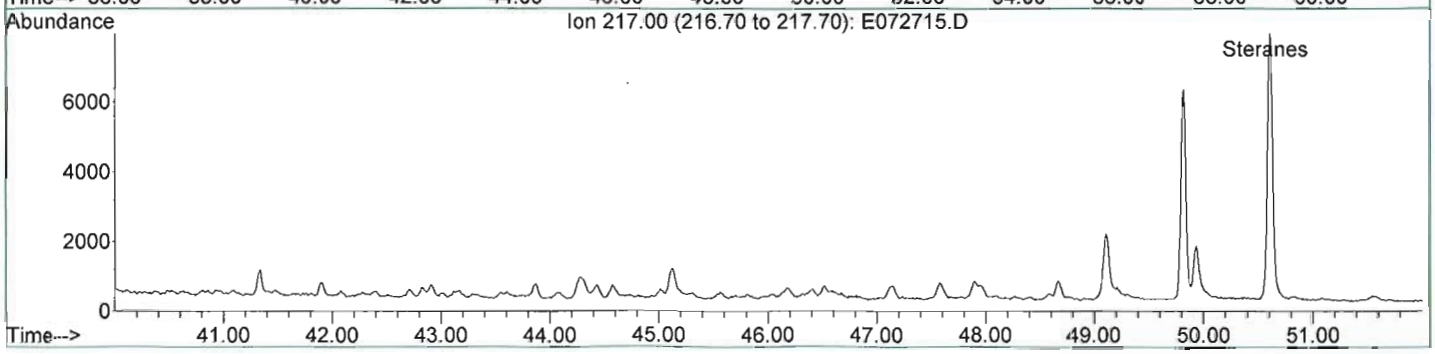
File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



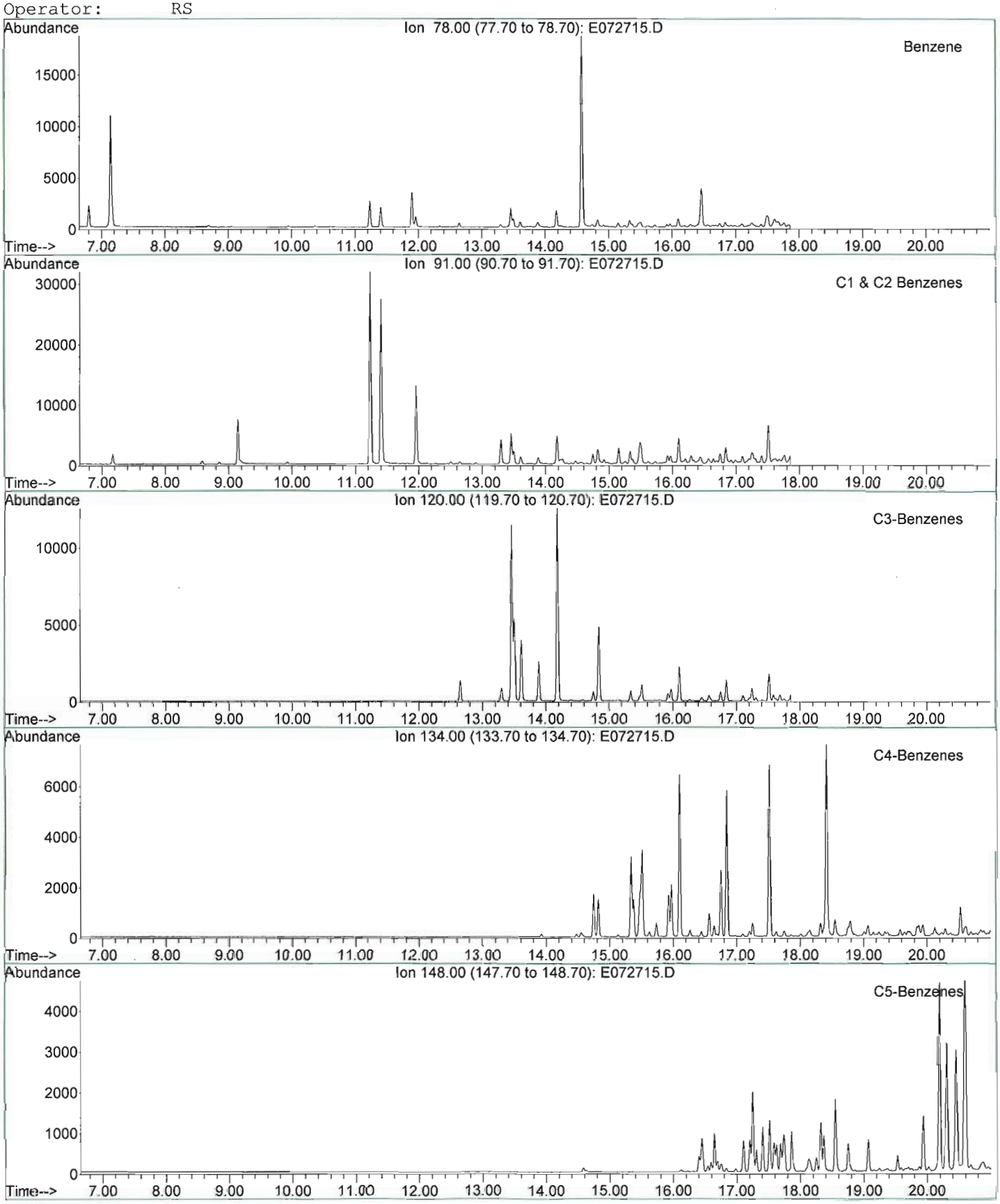



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

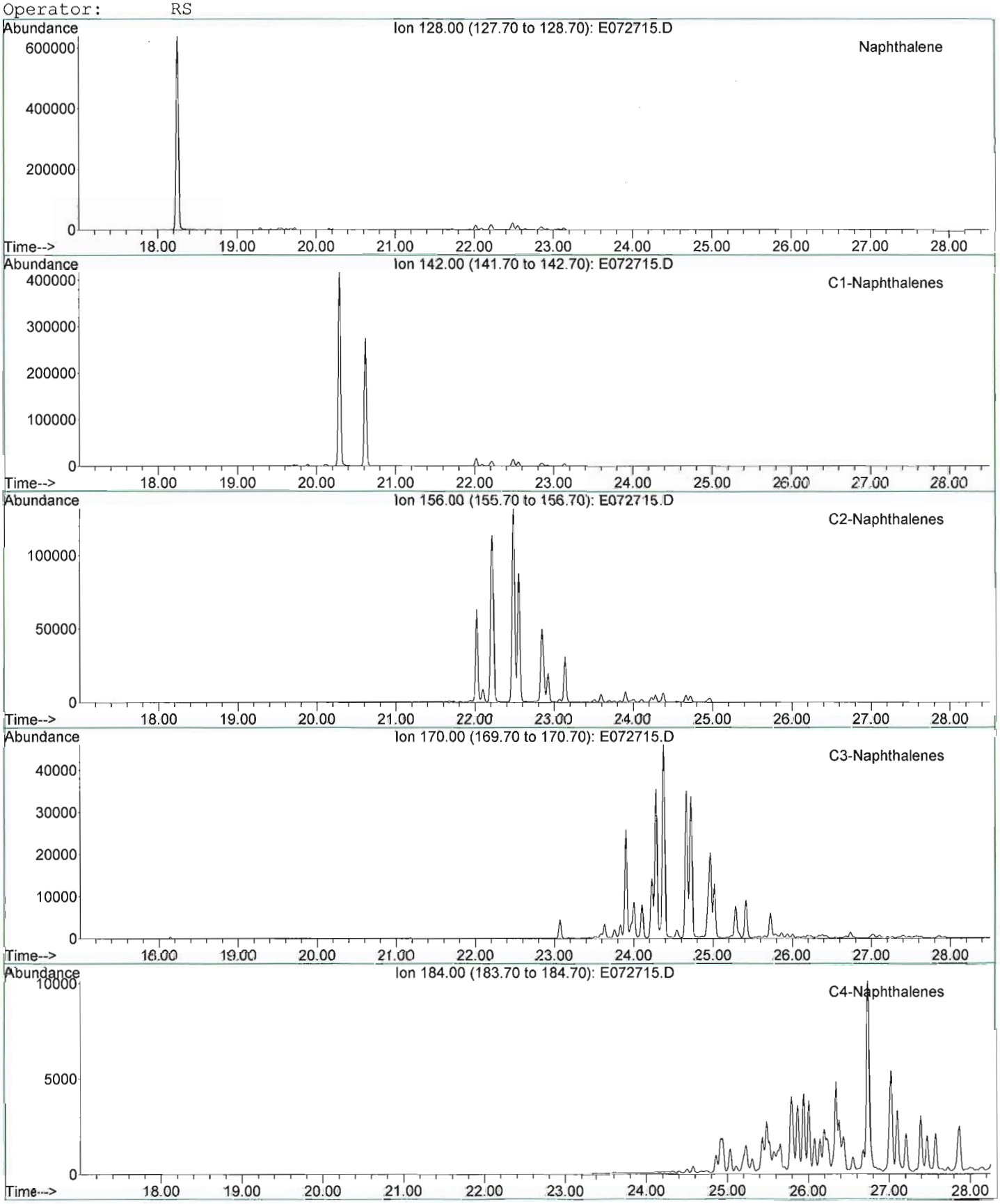
File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

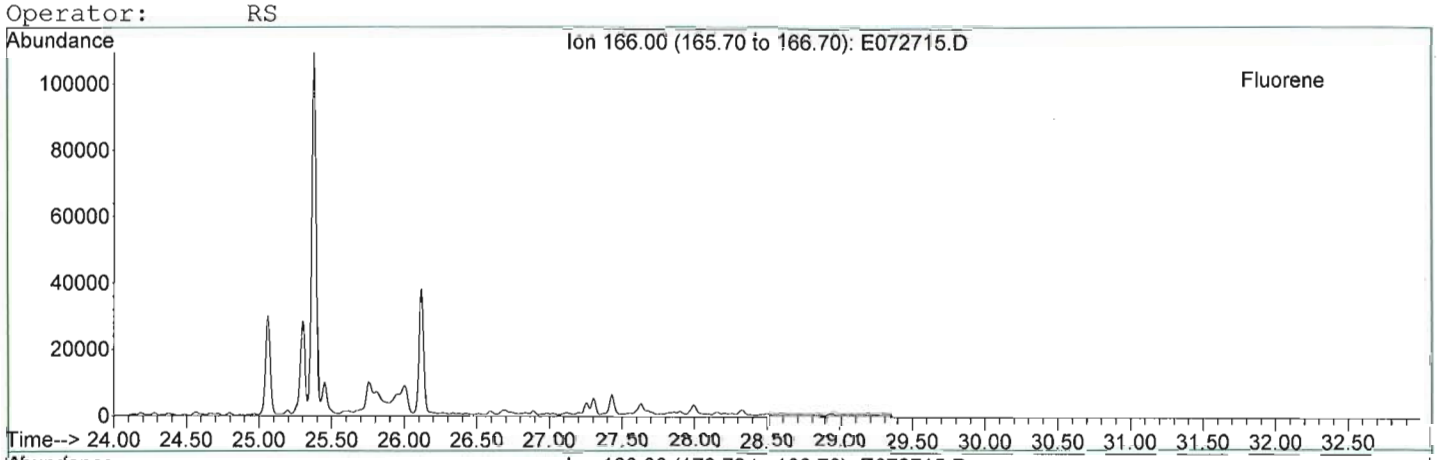
File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS

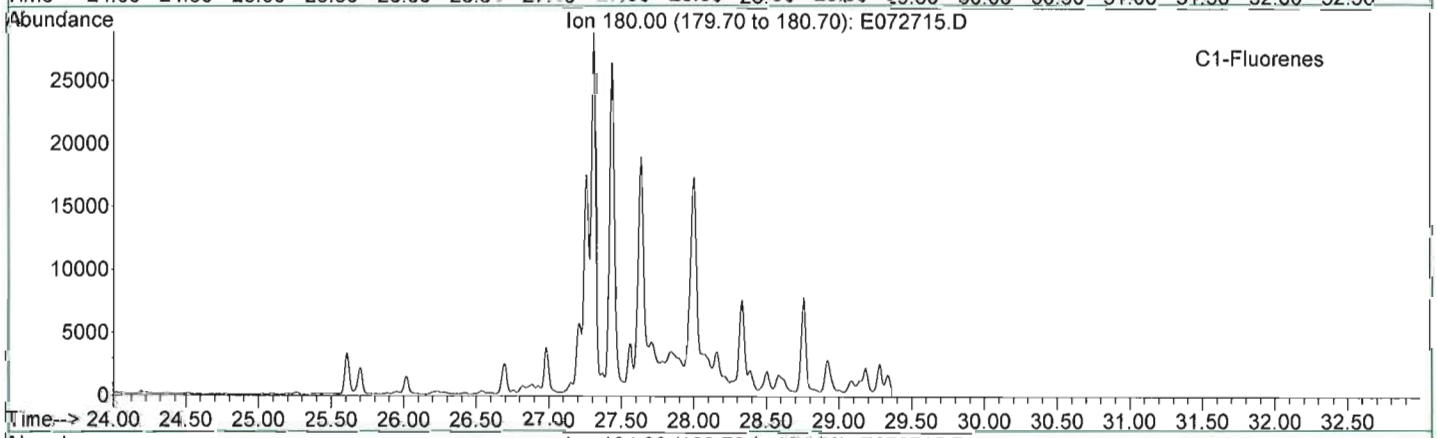


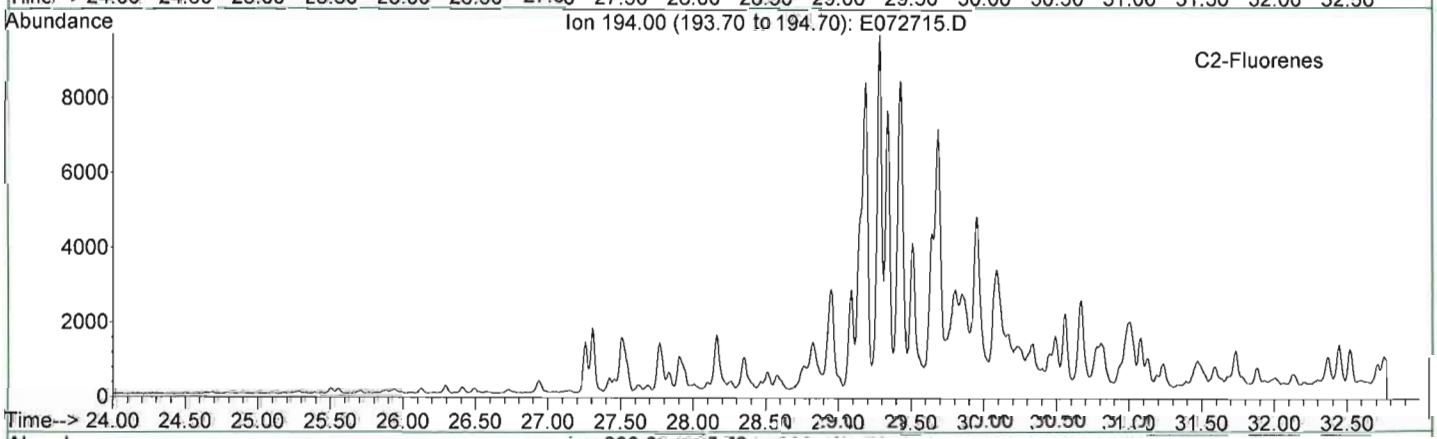
META Environmental, Inc.

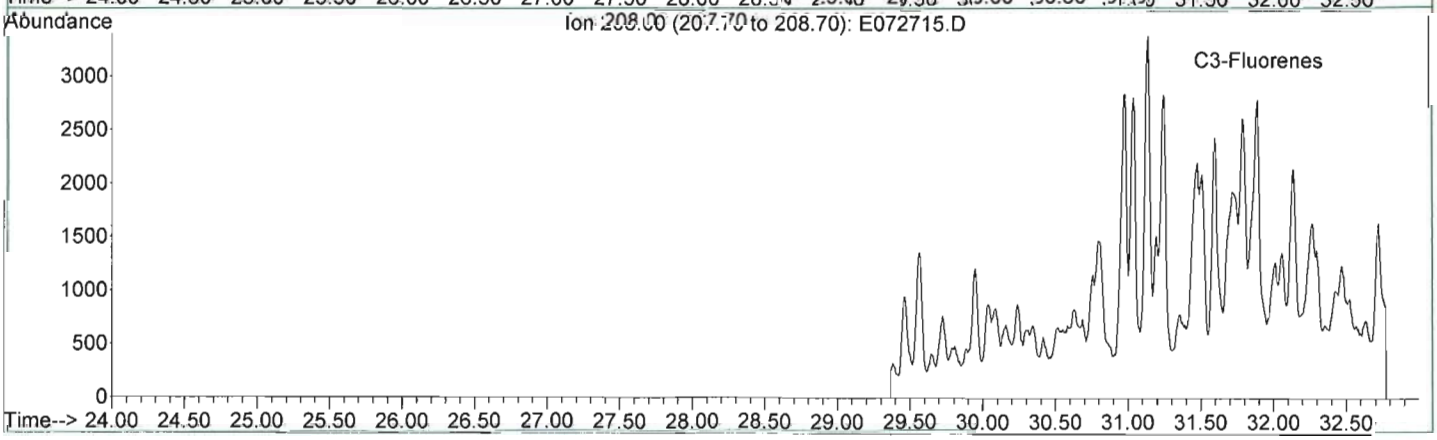
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



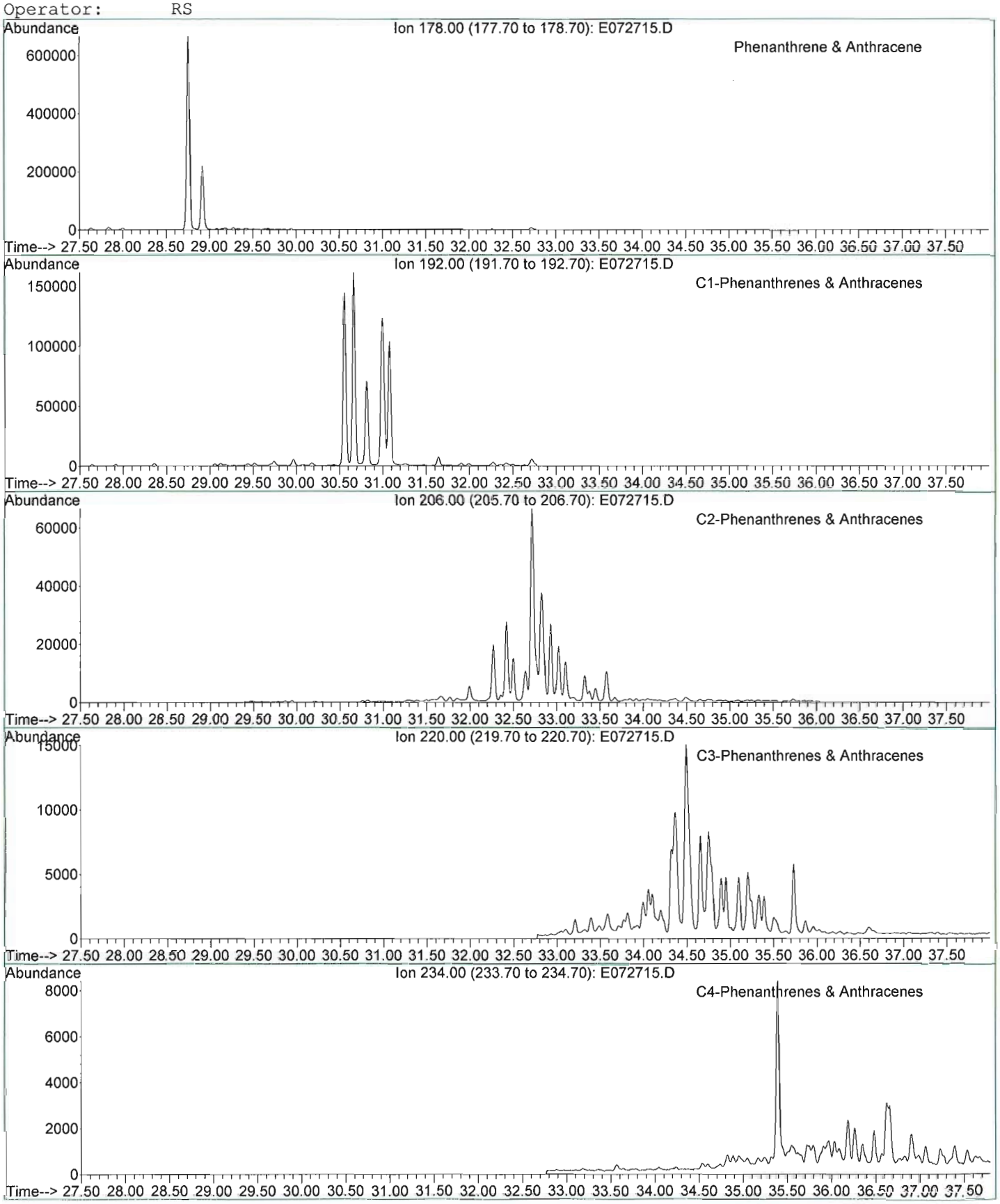



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072715.D
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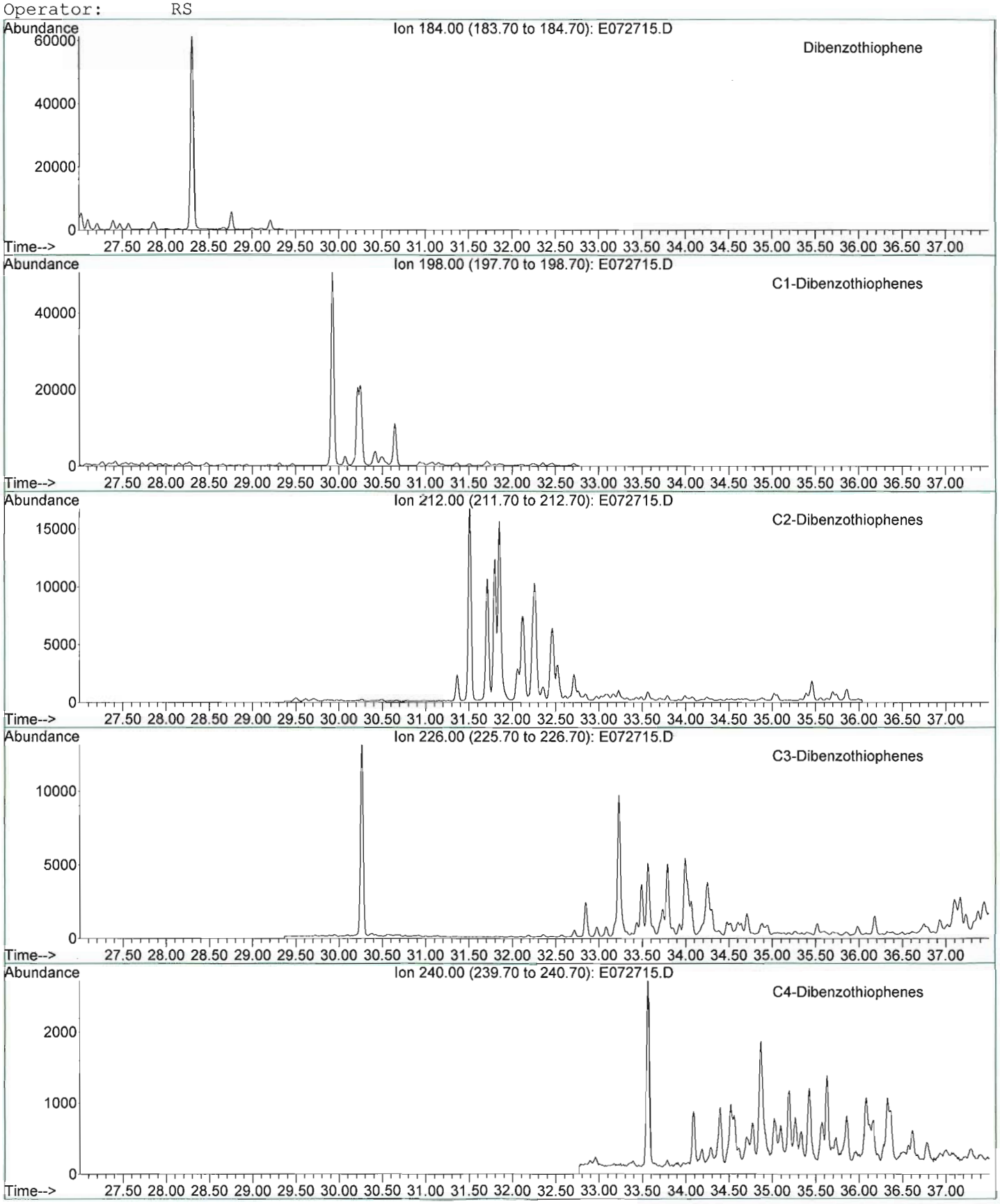
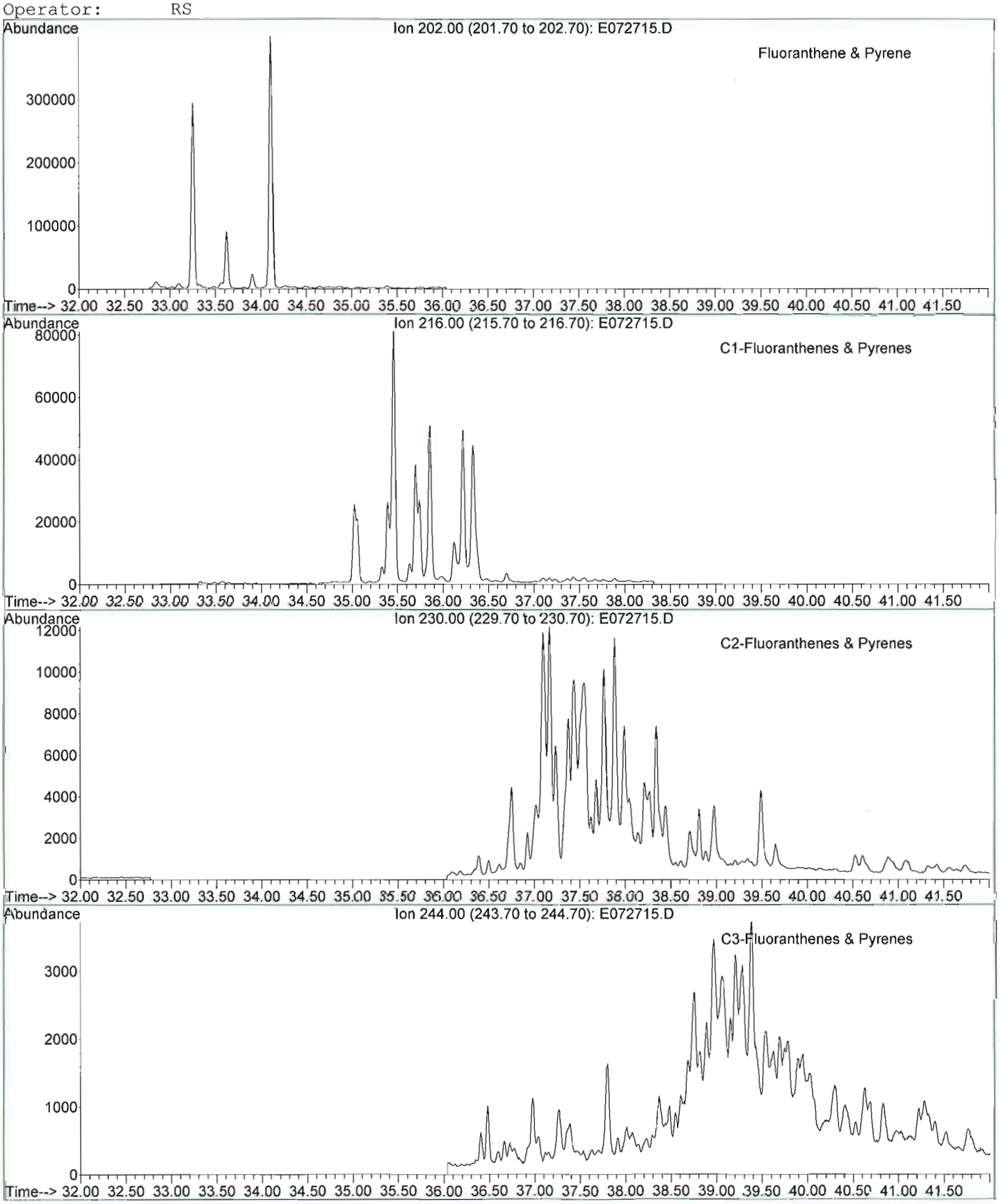
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
Method File: 4008SIM2.M
Sample Name: BR060719-01-D
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072715.D
Date Acquired: 28 Jul 2006 6:00 am
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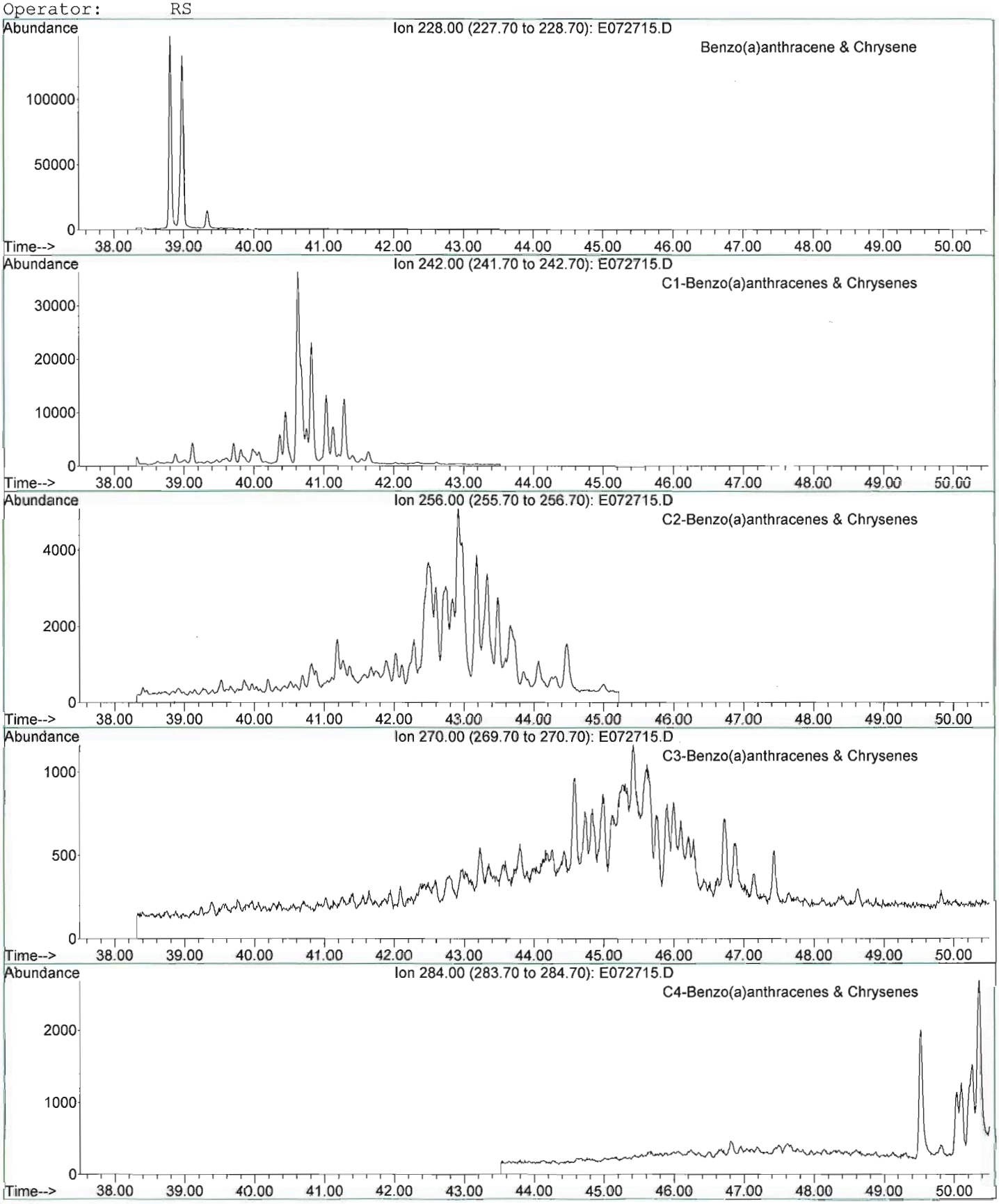

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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Date Acquired: 28 Jul 2006 6:00 am
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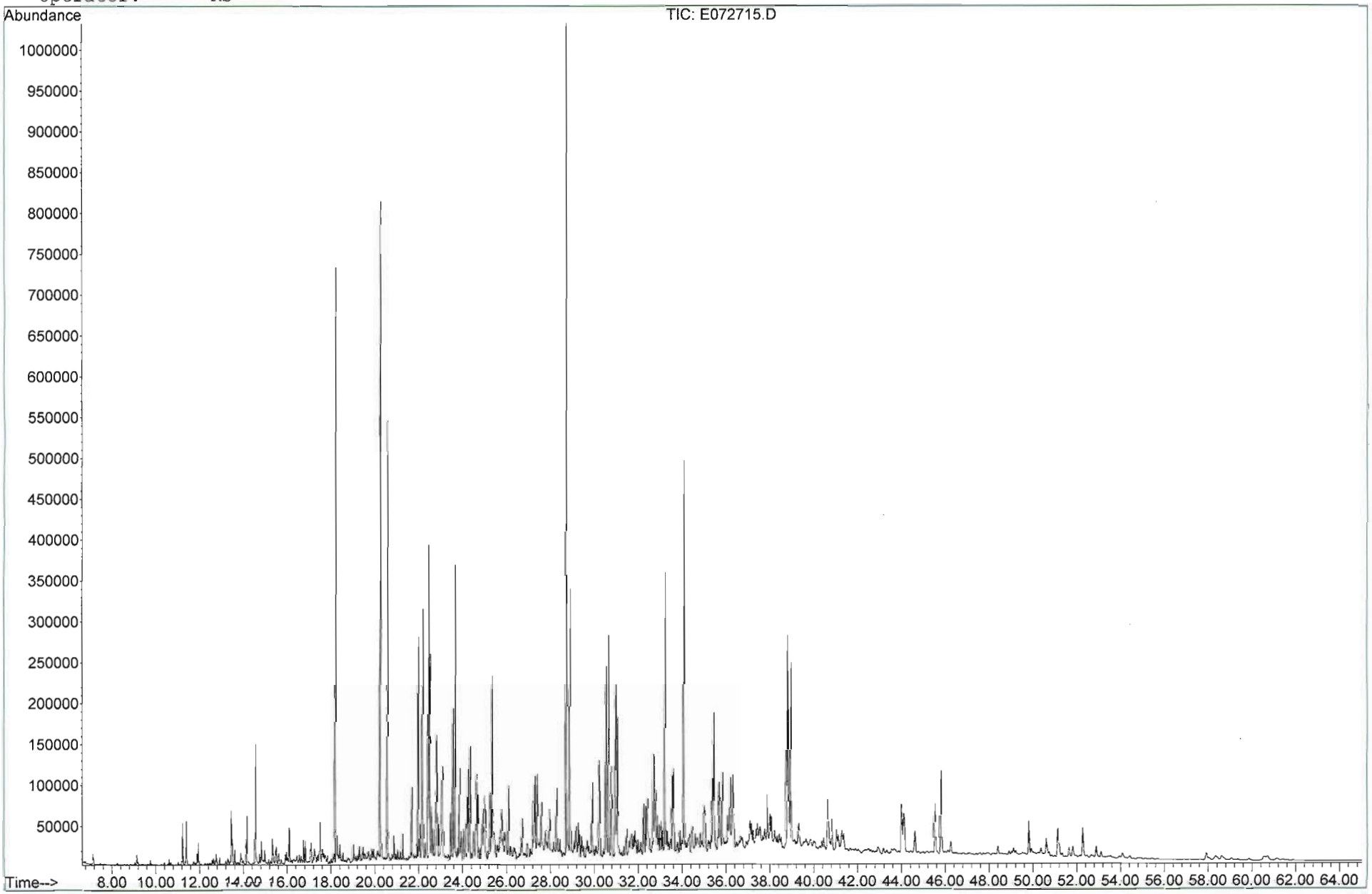
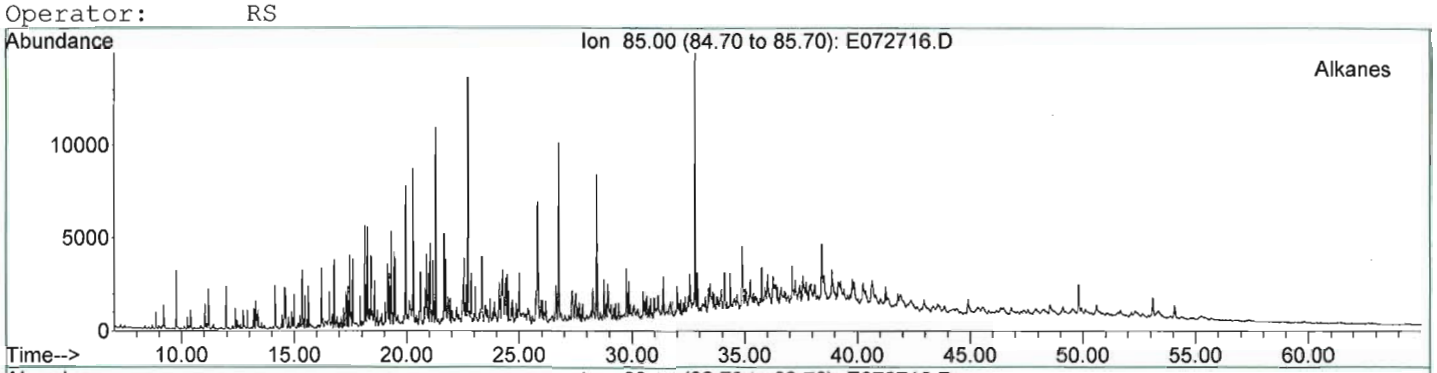
Misc Info: WSS-RSB004-001 (9.0'-10.0')
Operator: RS

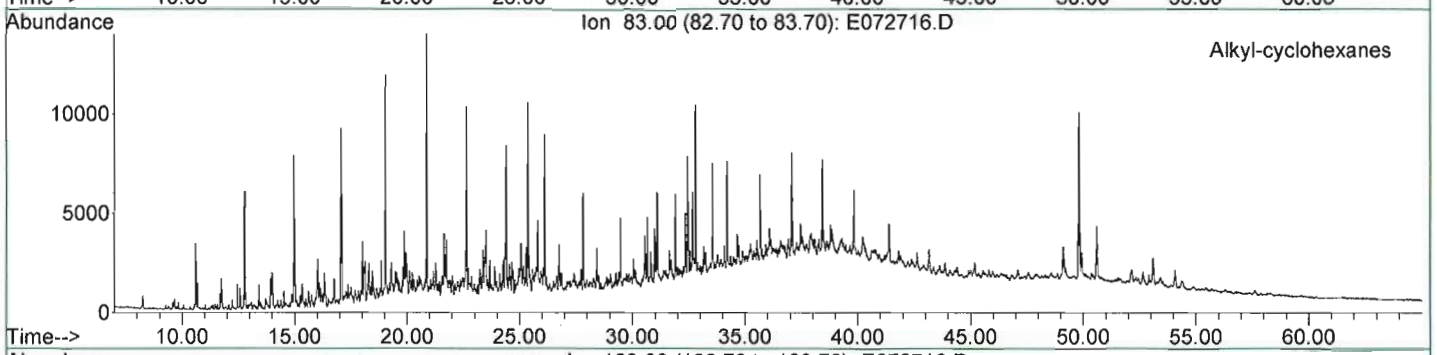


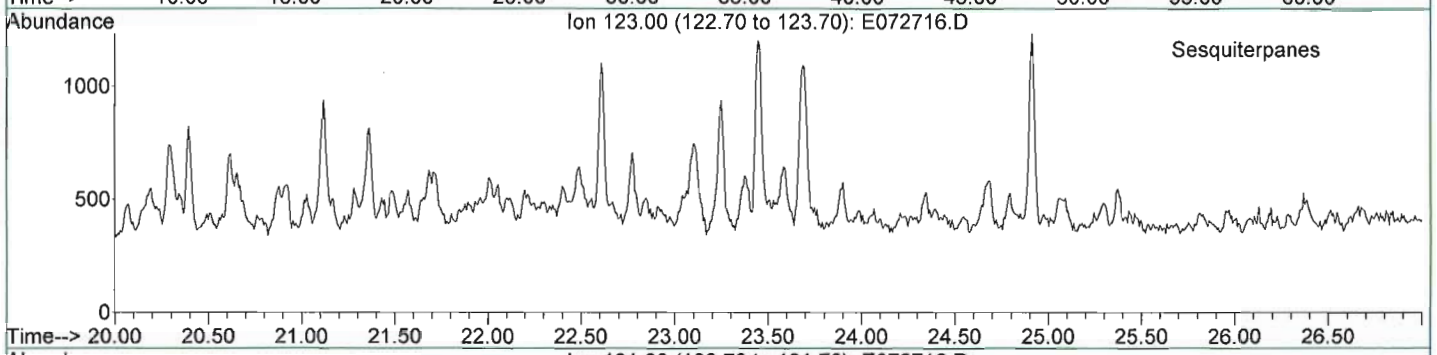
META Environmental, Inc.

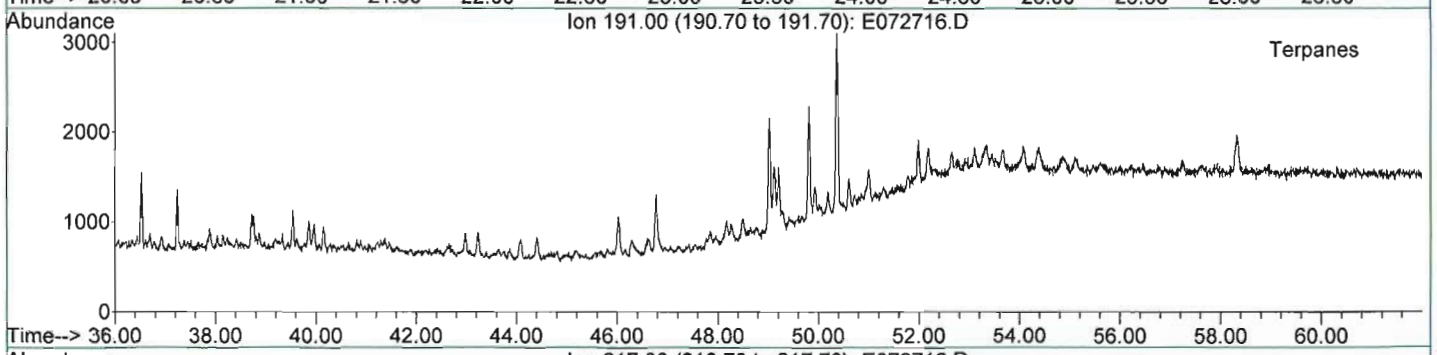
GC/MS EXTRACTED ION CHROMATOGRAM

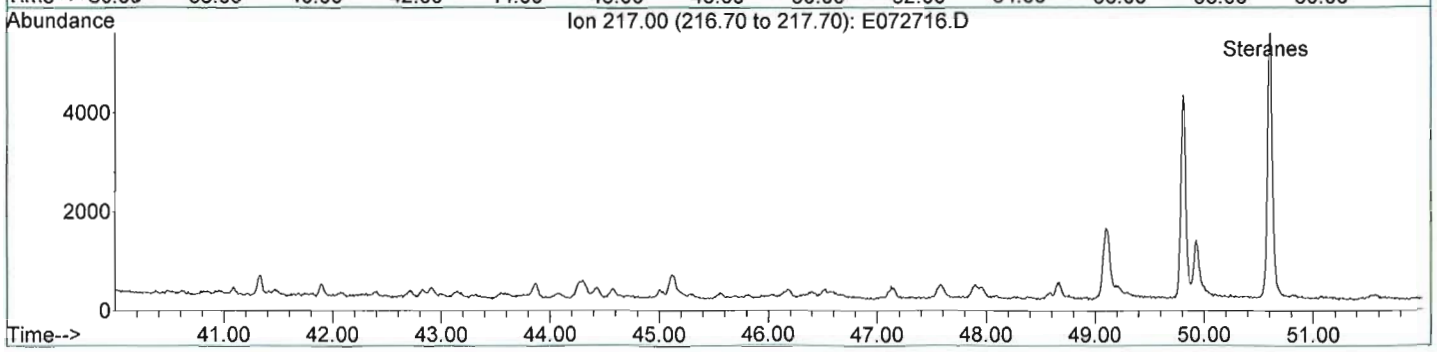
File: J:\1\DATA\E060727\E072716.D
Date Acquired: 28 Jul 2006 7:26 am
Method File: 4008SIM2.M
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 28 Jul 2006 7:26 am
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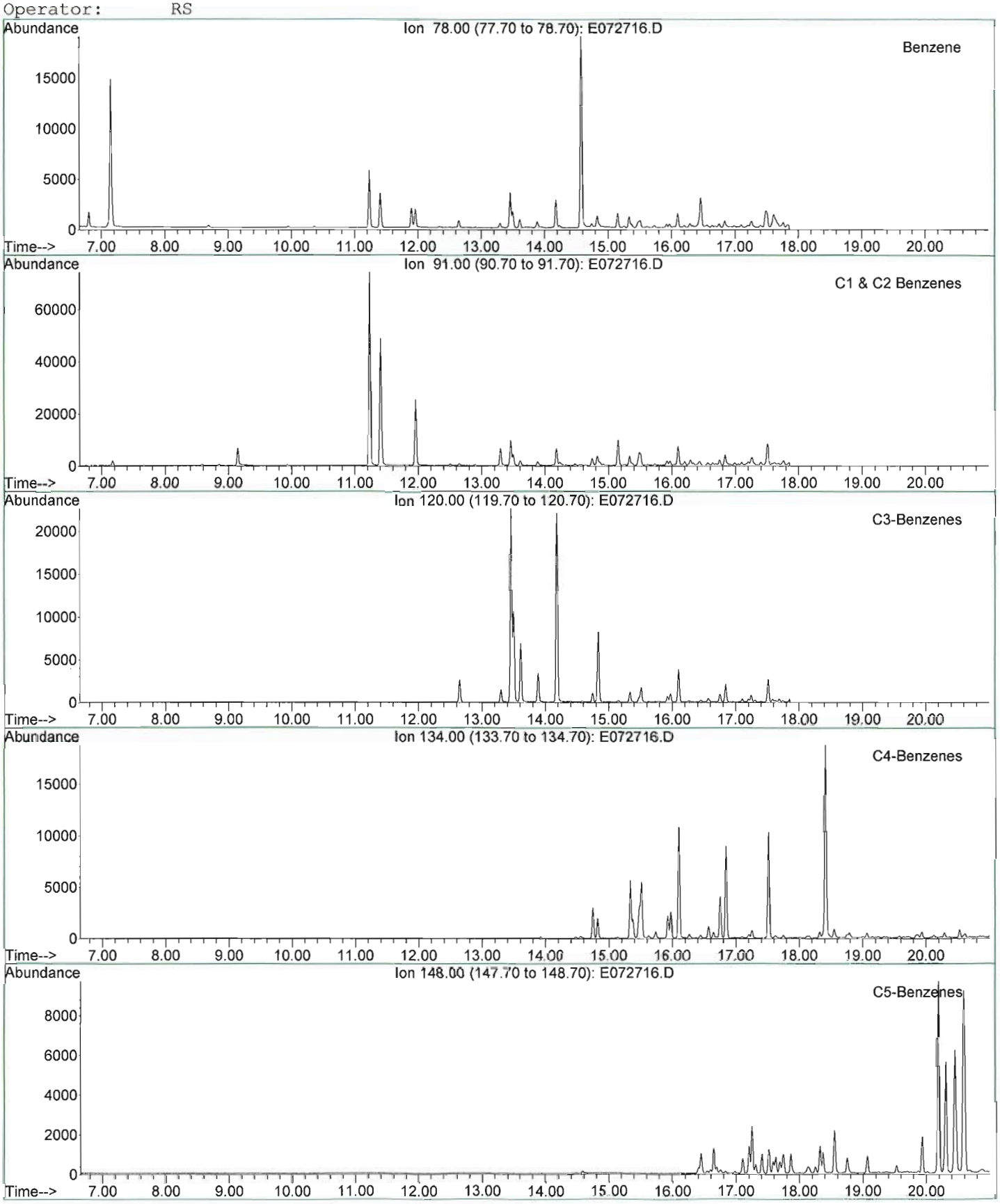
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 28 Jul 2006 7:26 am
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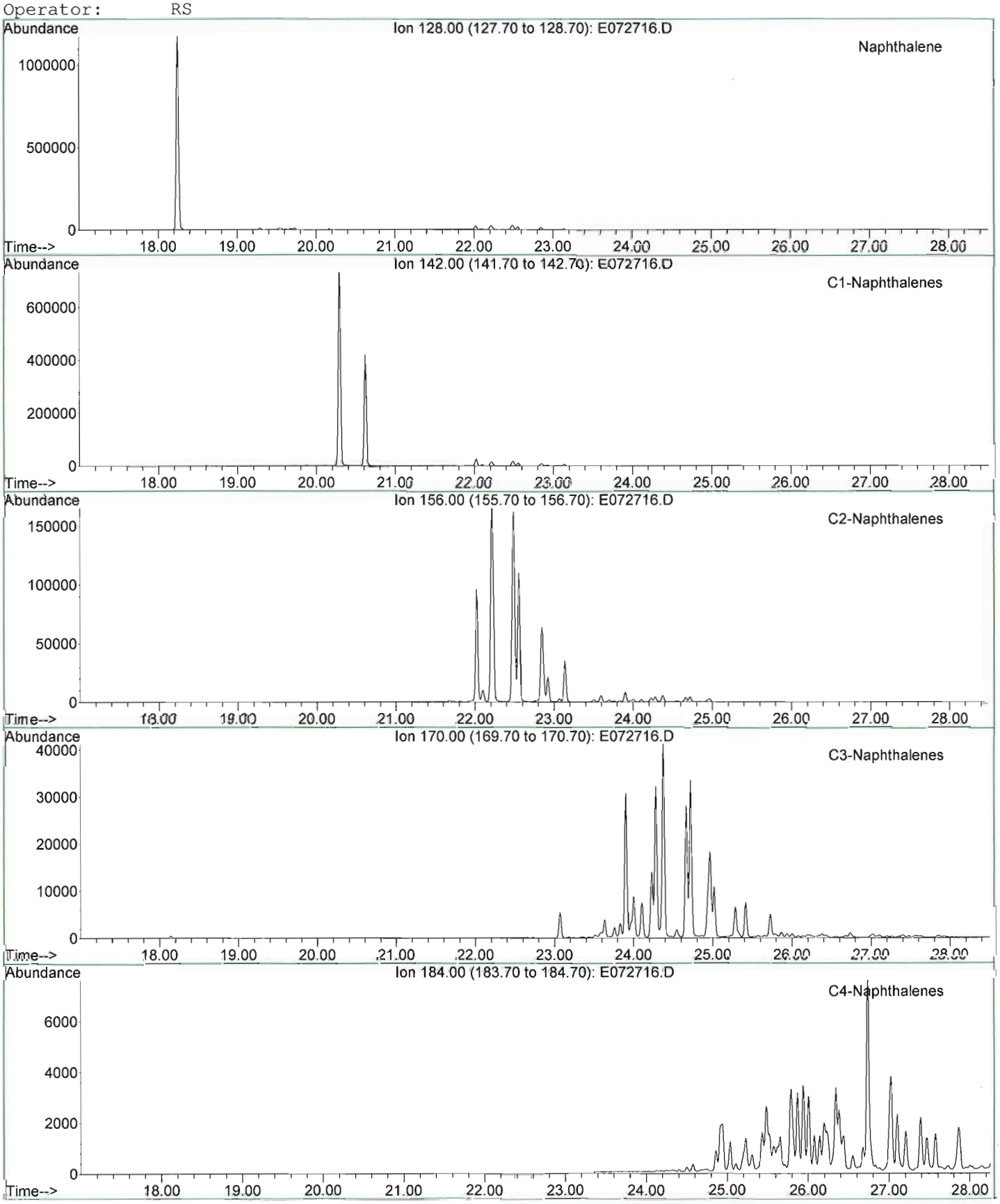
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 28 Jul 2006 7:26 am
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Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
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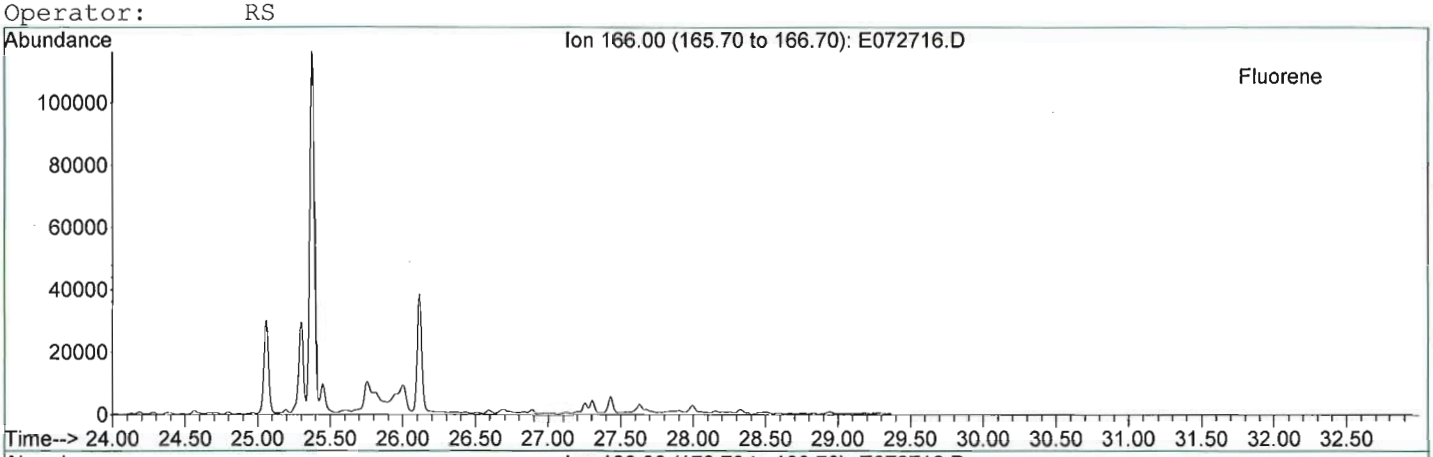


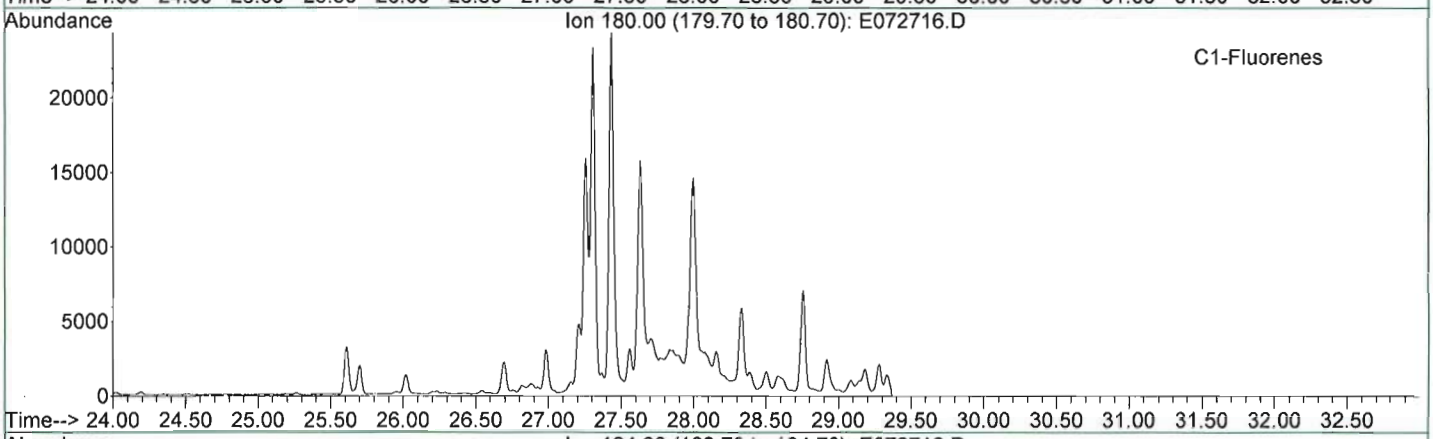


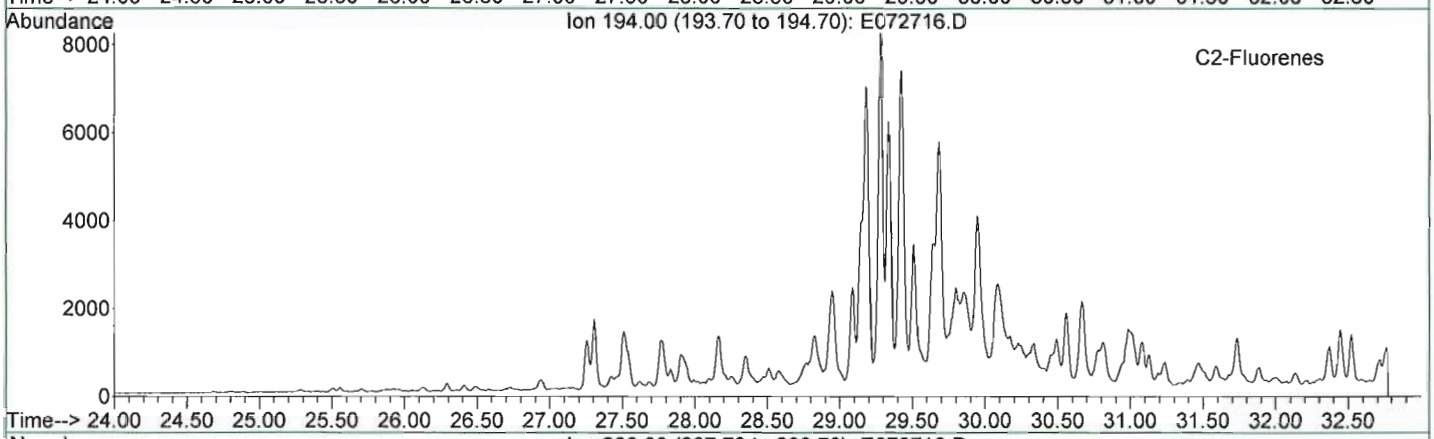


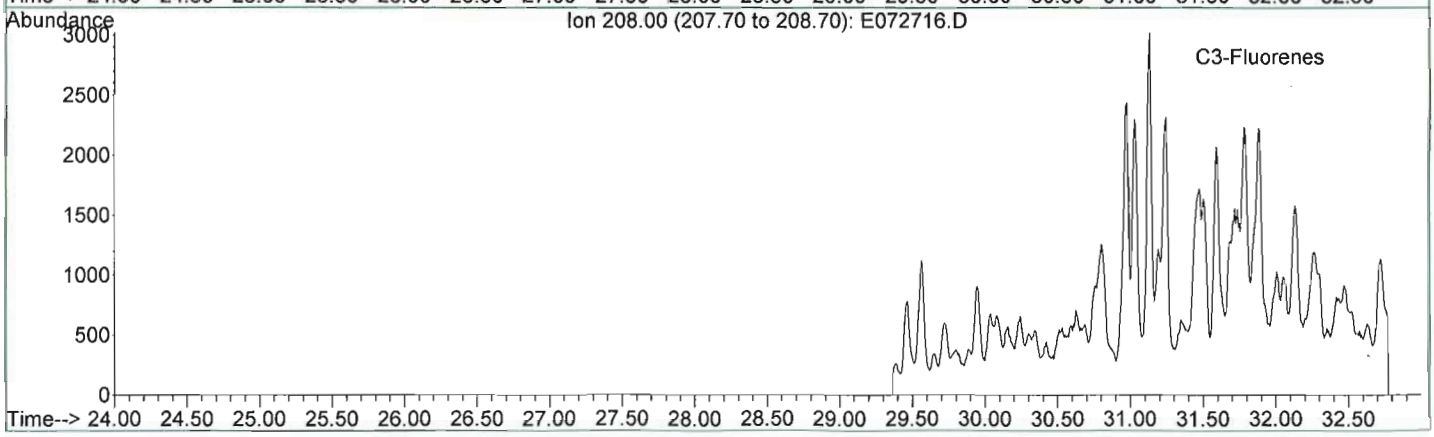

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072716.D
Date Acquired: 28 Jul 2006 7:26 am
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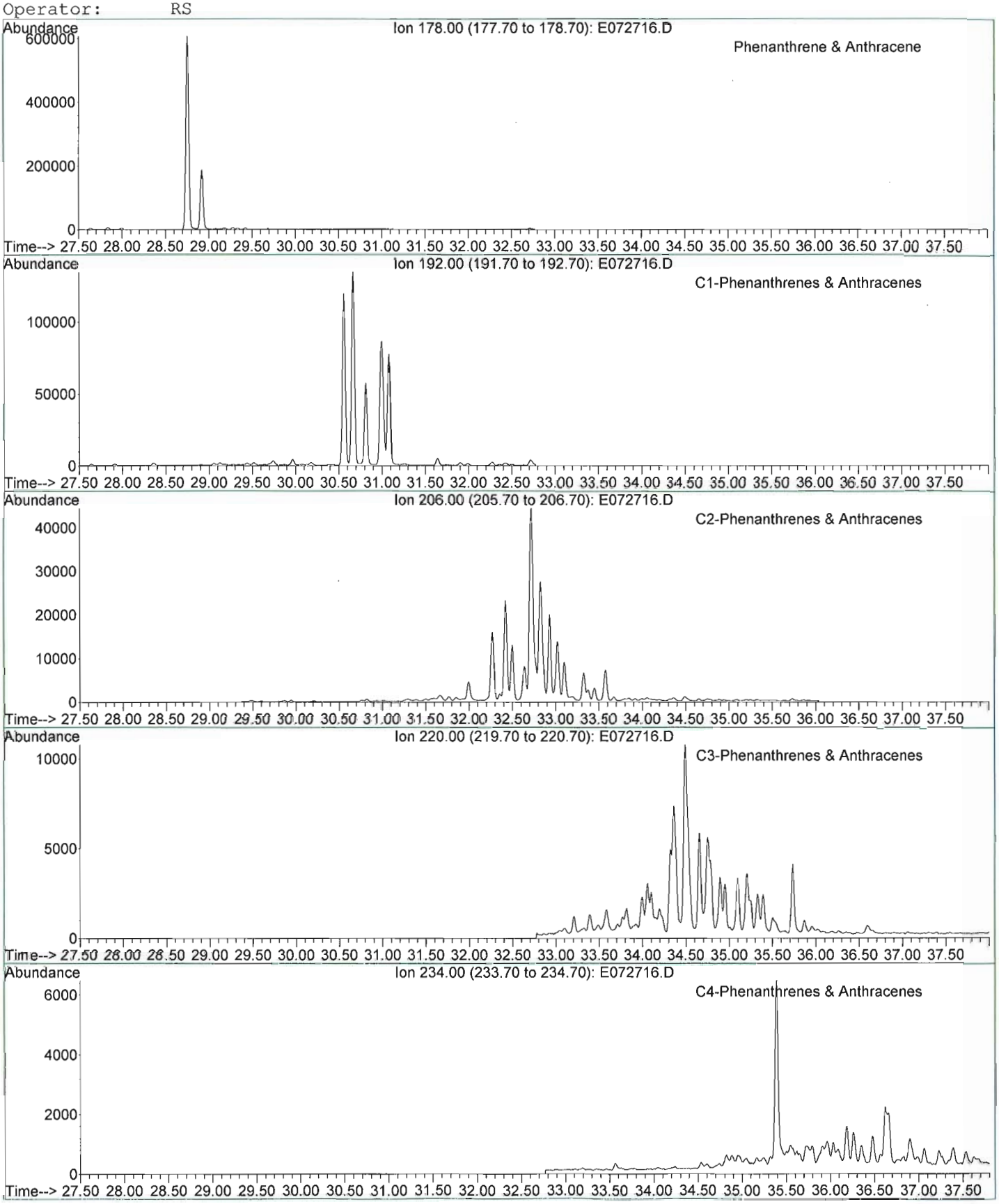
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072716.D
Date Acquired: 28 Jul 2006 7:26 am
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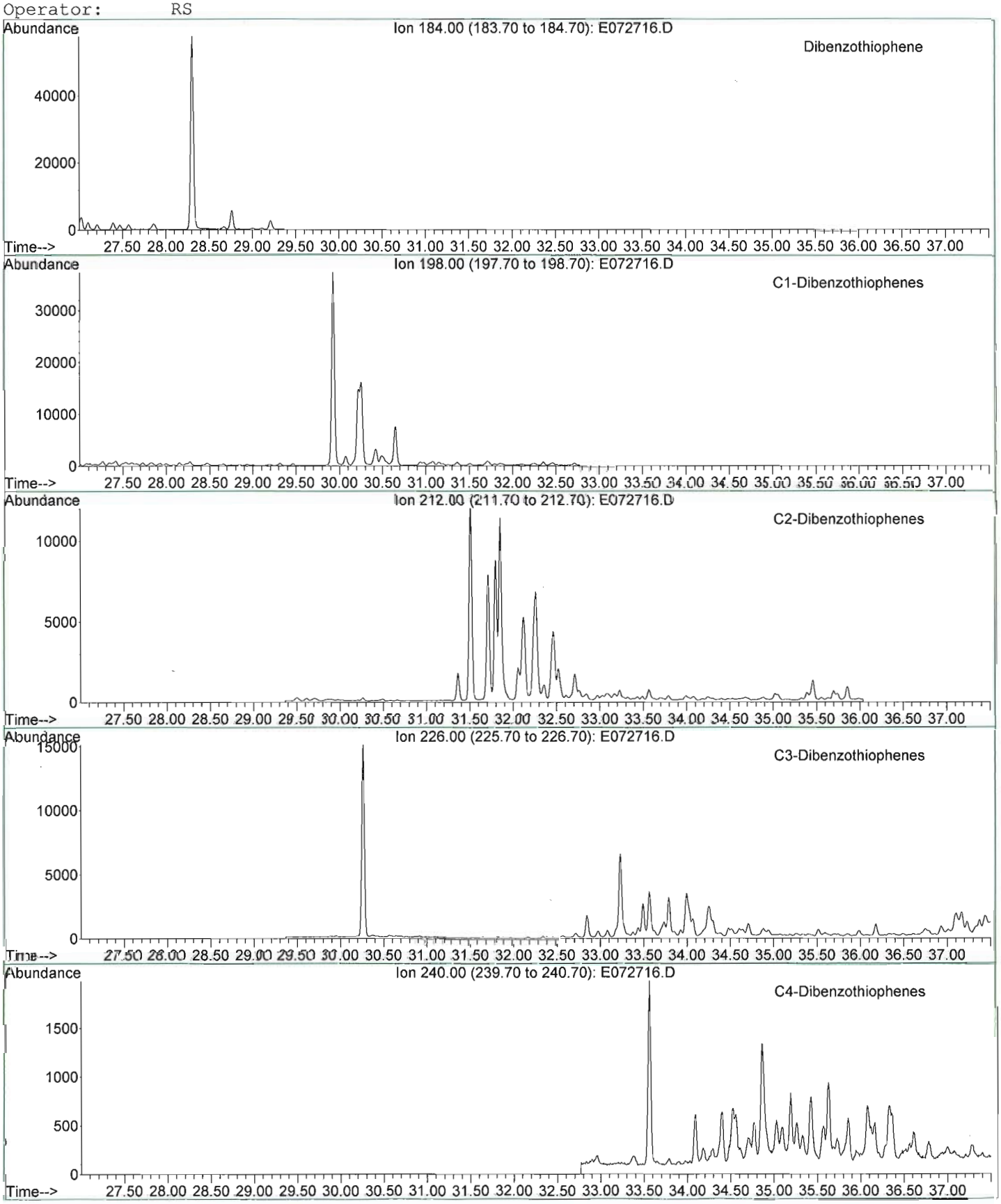
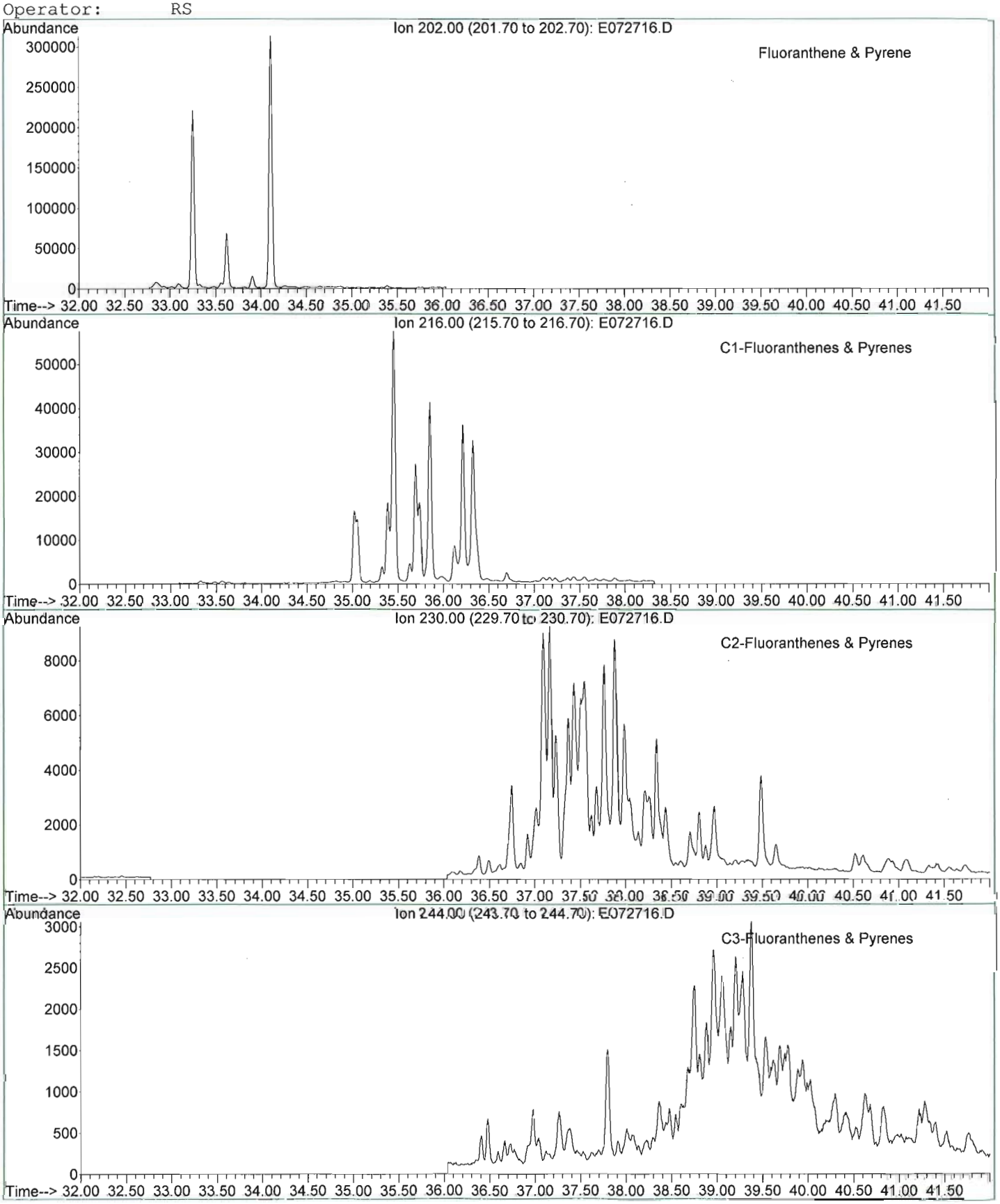
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072716.D
Date Acquired: 28 Jul 2006 7:26 am
Method File: 4008SIM2.M
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072716.D
Date Acquired: 28 Jul 2006 7:26 am
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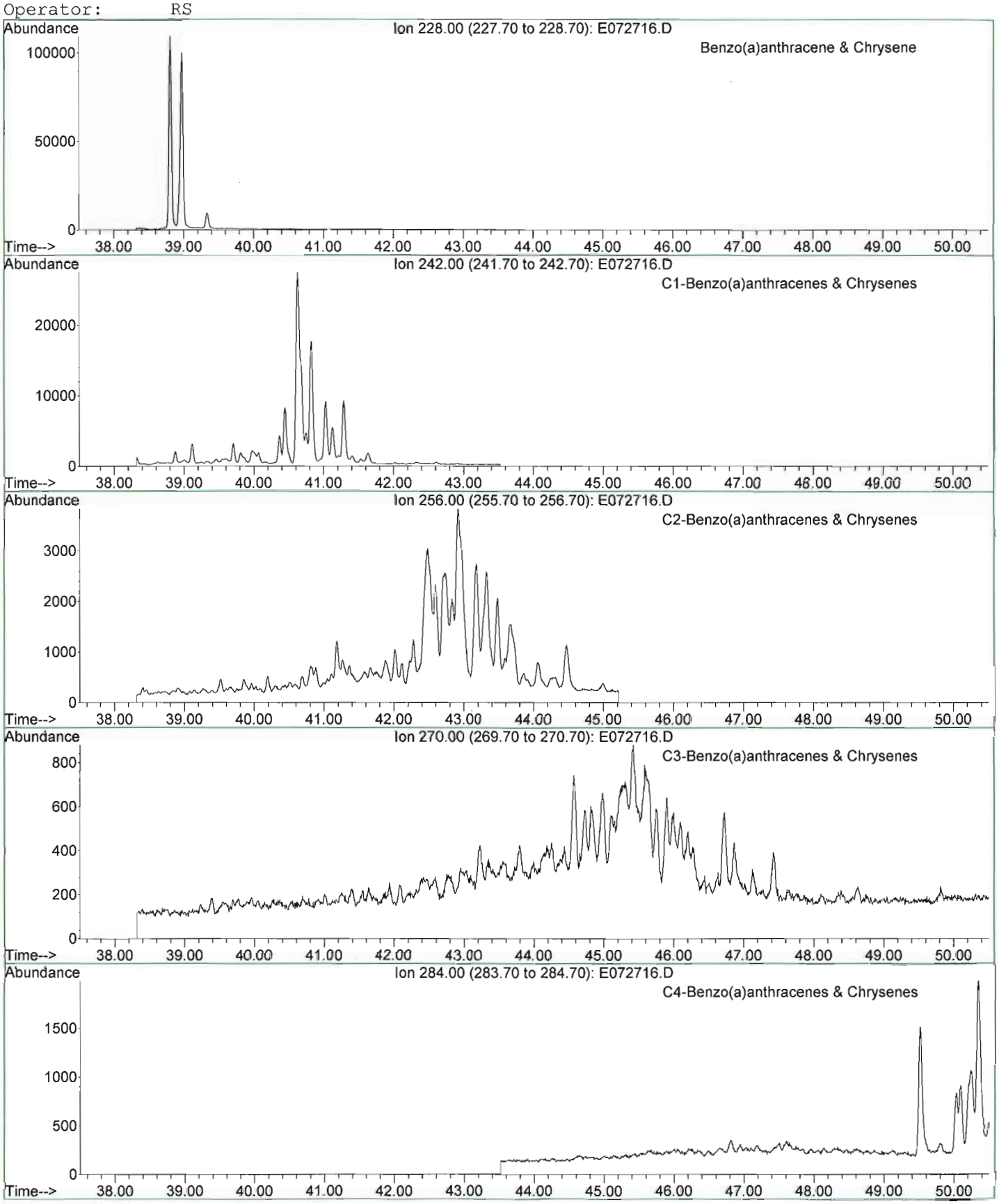
Sample Name: BR060719-02-D
Misc Info: WSS-RSB006-001 (9.0'-9.5')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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Sample Name: BR060719-02-D
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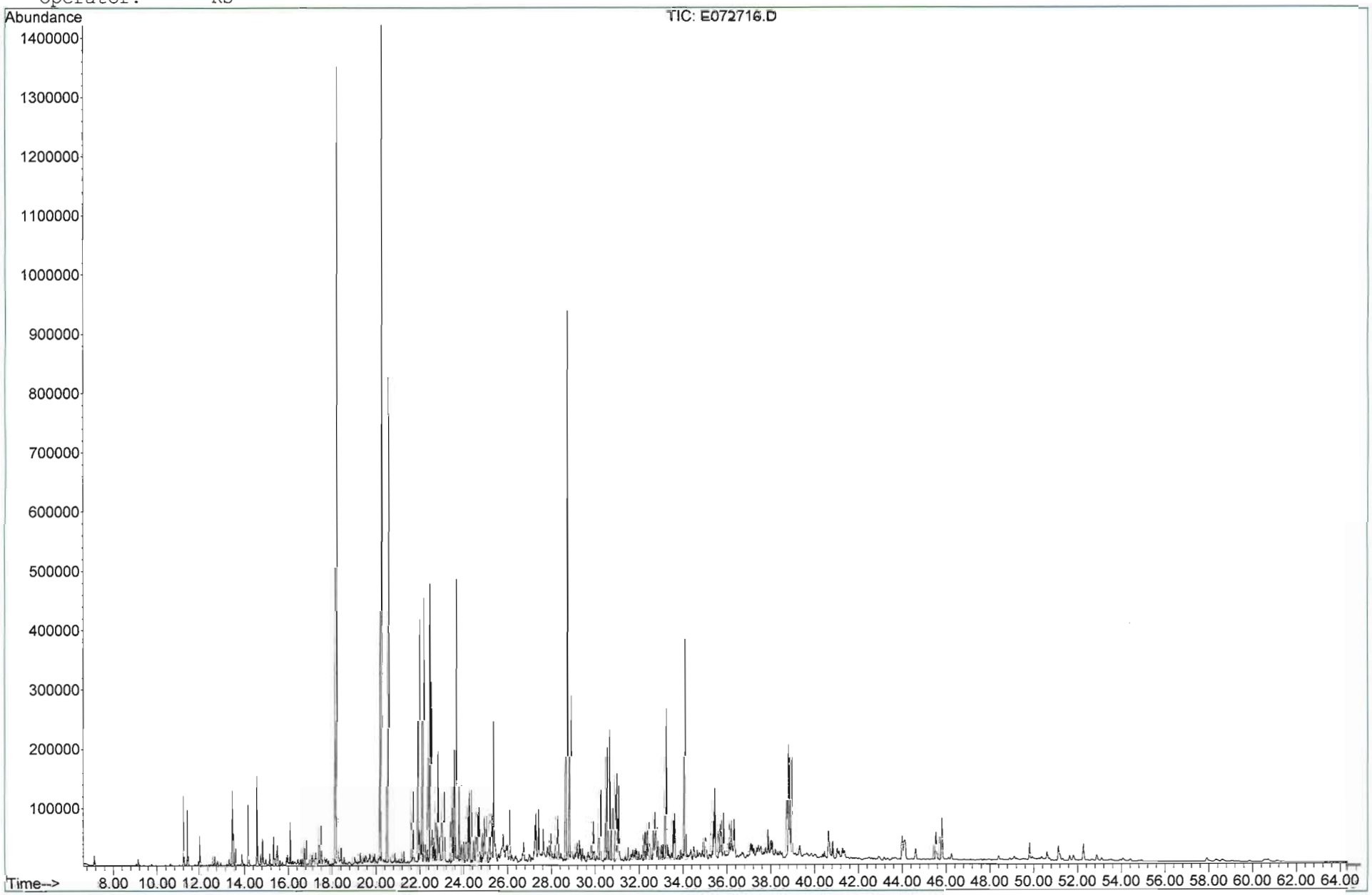
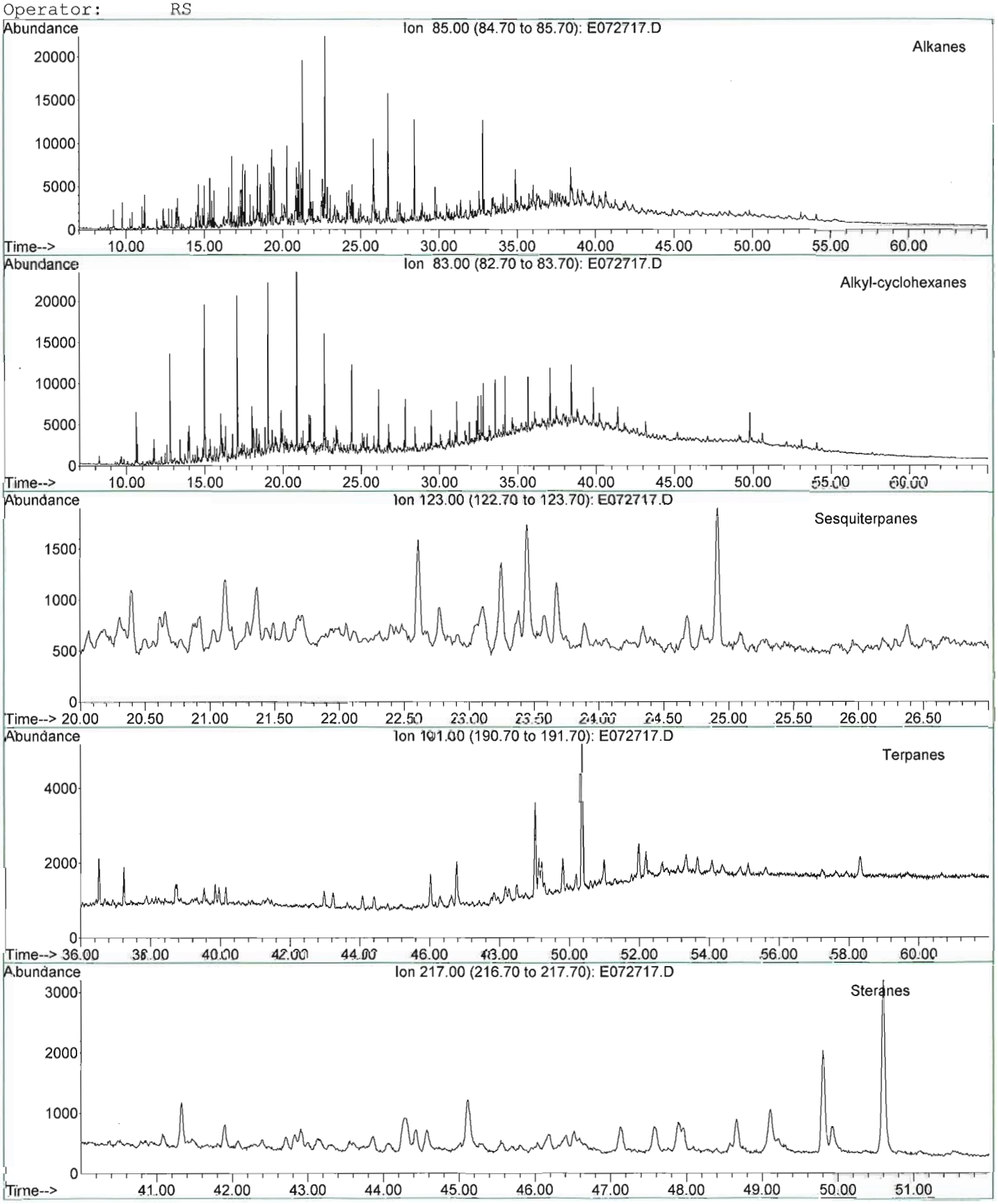
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072717.D
Date Acquired: 28 Jul 2006 8:52 am
Method File: 4008SIM2.M
Sample Name: BR060719-03-D
Misc Info: WSS-RSB008-001 (15.0'-15.6')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072717.D
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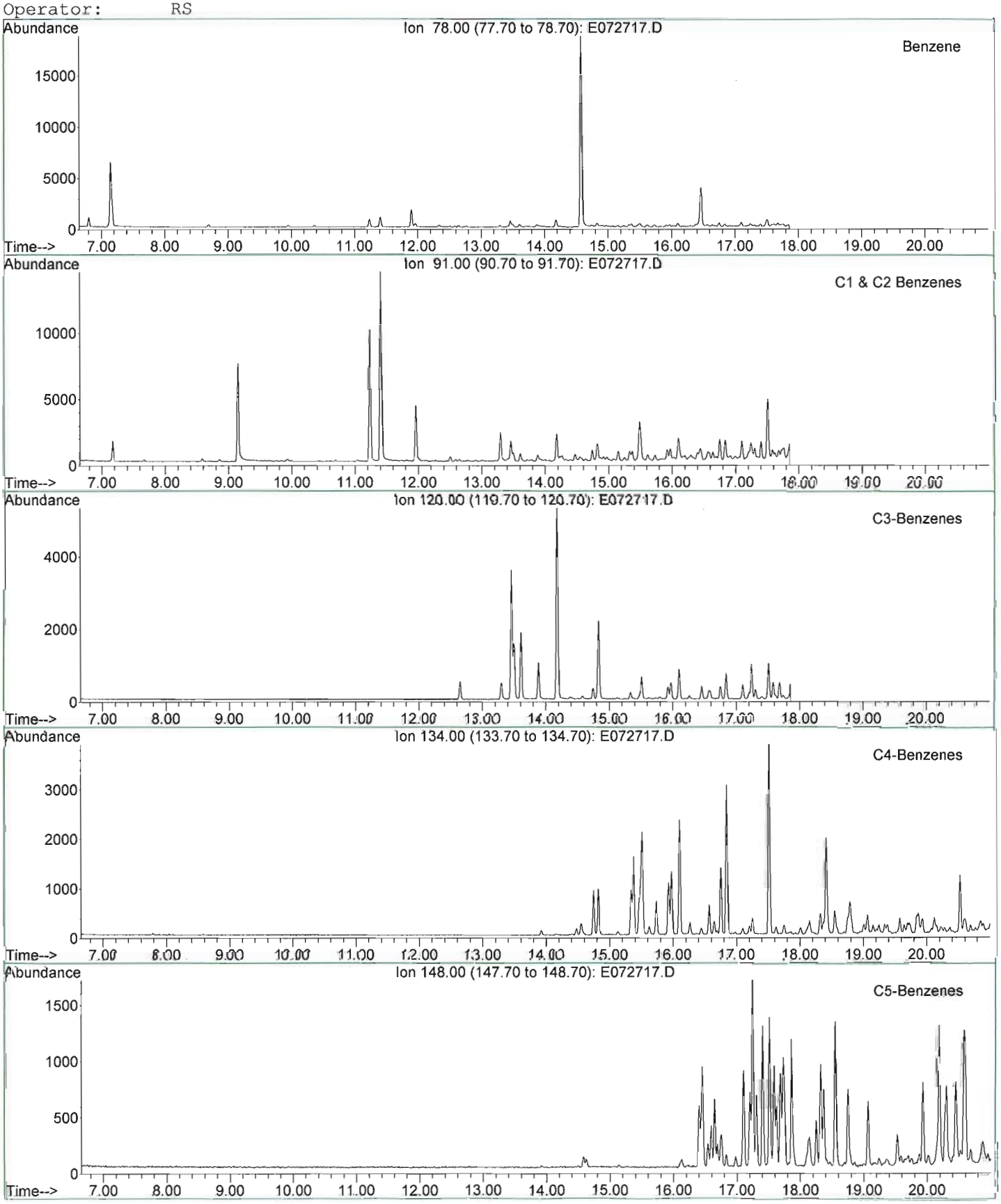

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GC/MS EXTRACTED ION CHROMATOGRAM

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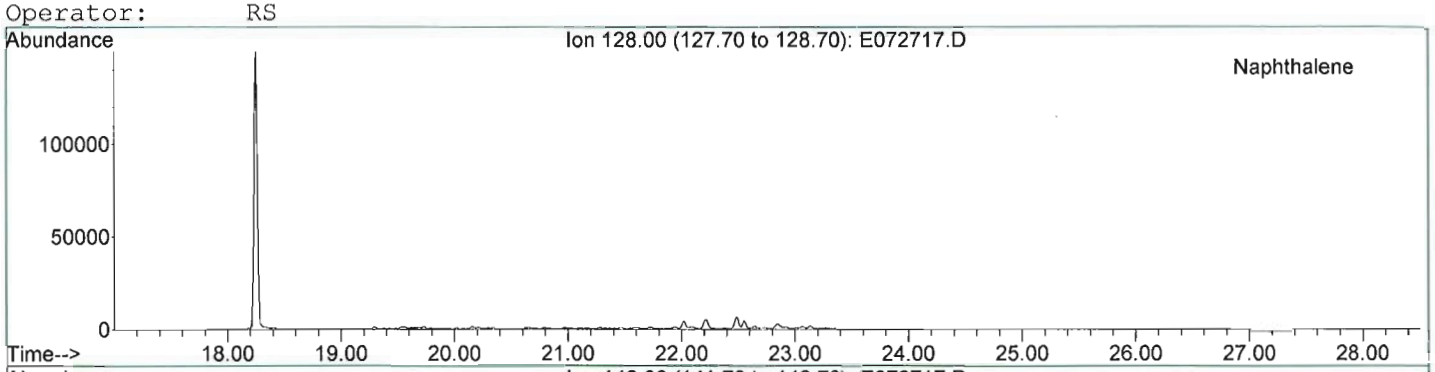


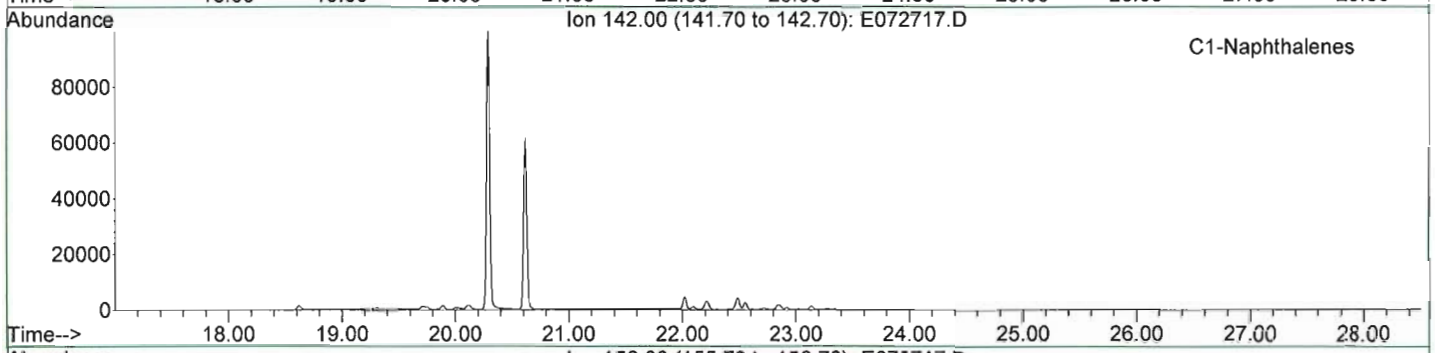


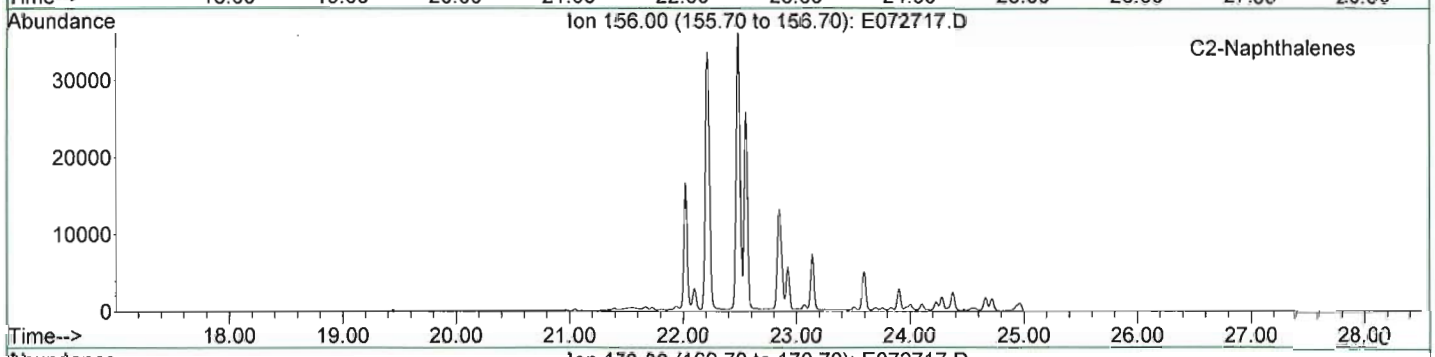


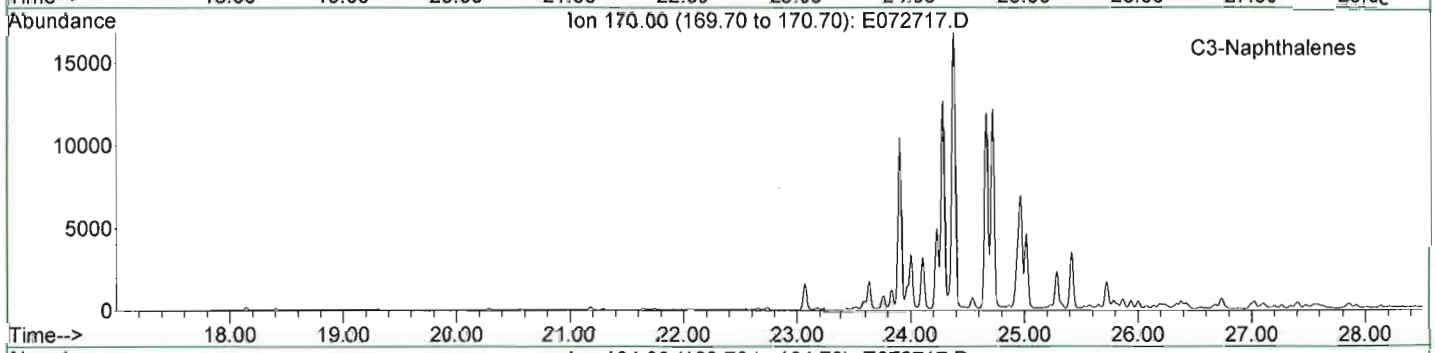


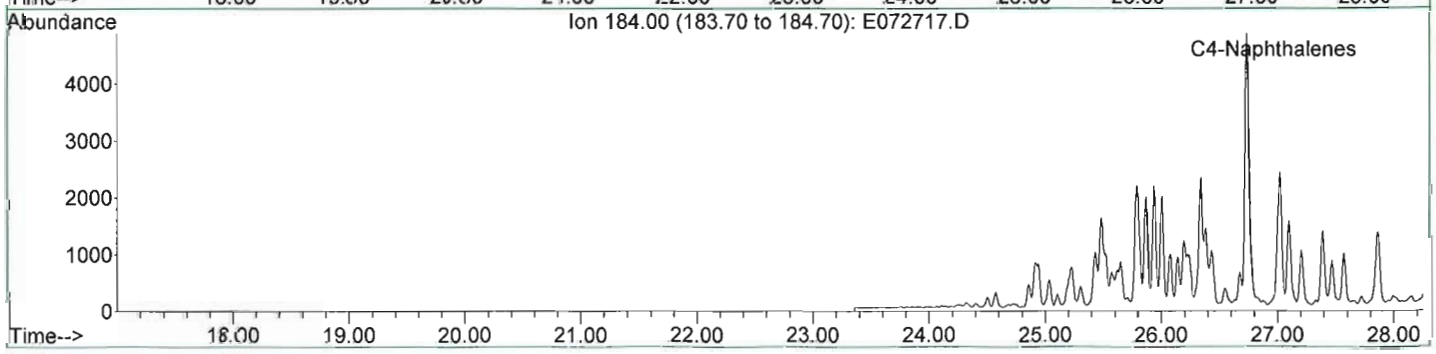

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File: J:\1\DATA\E060727\E072717.D
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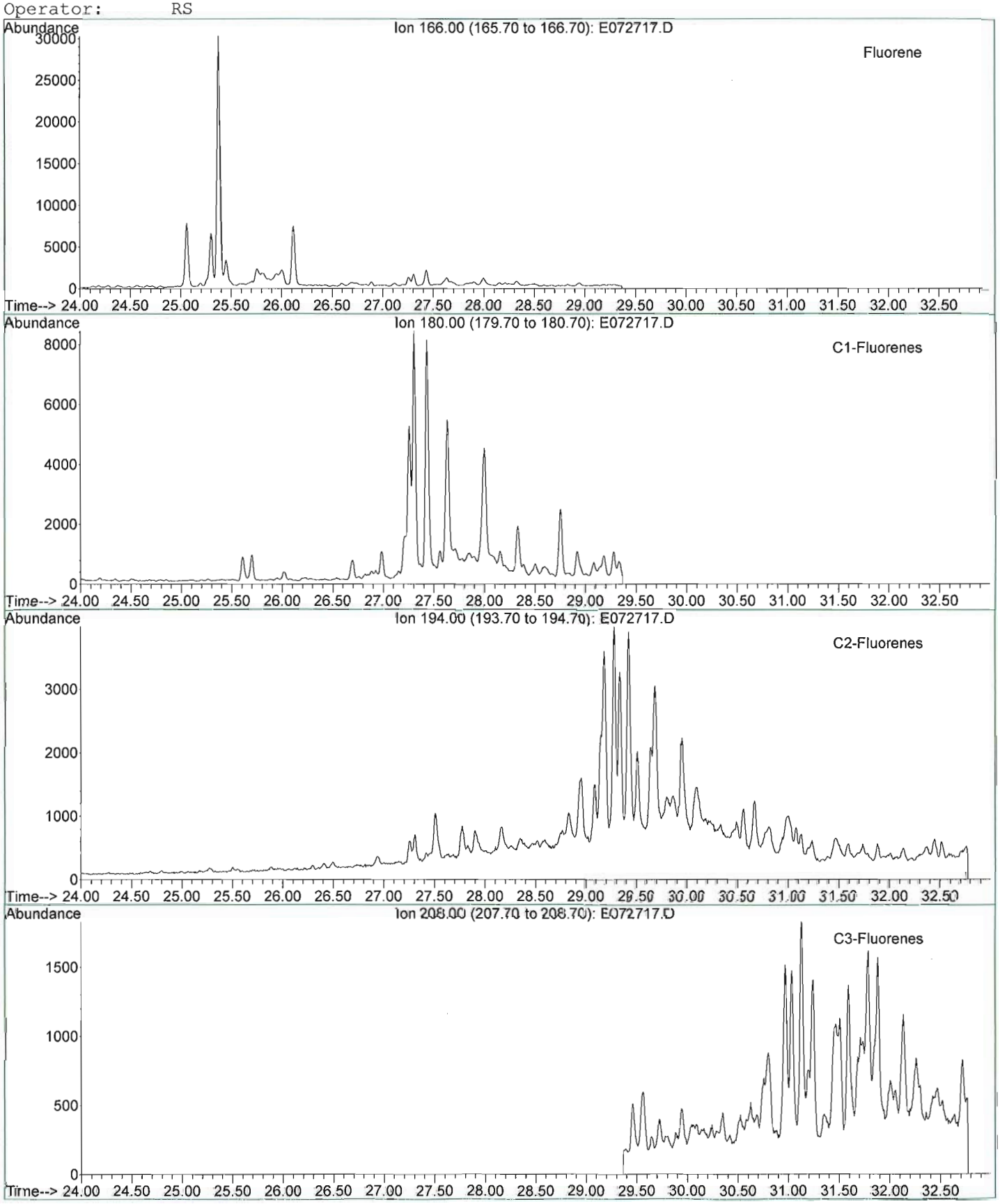

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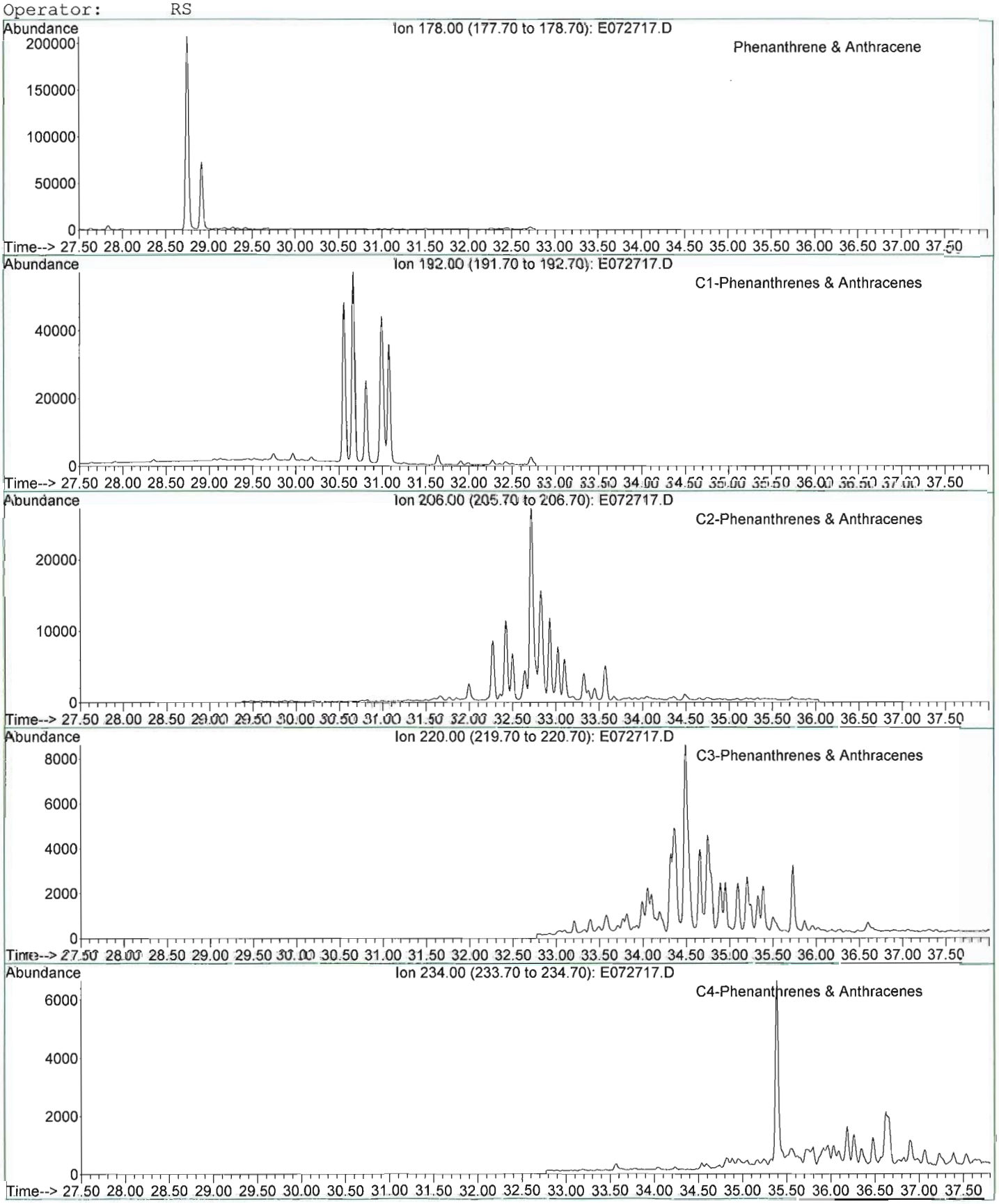

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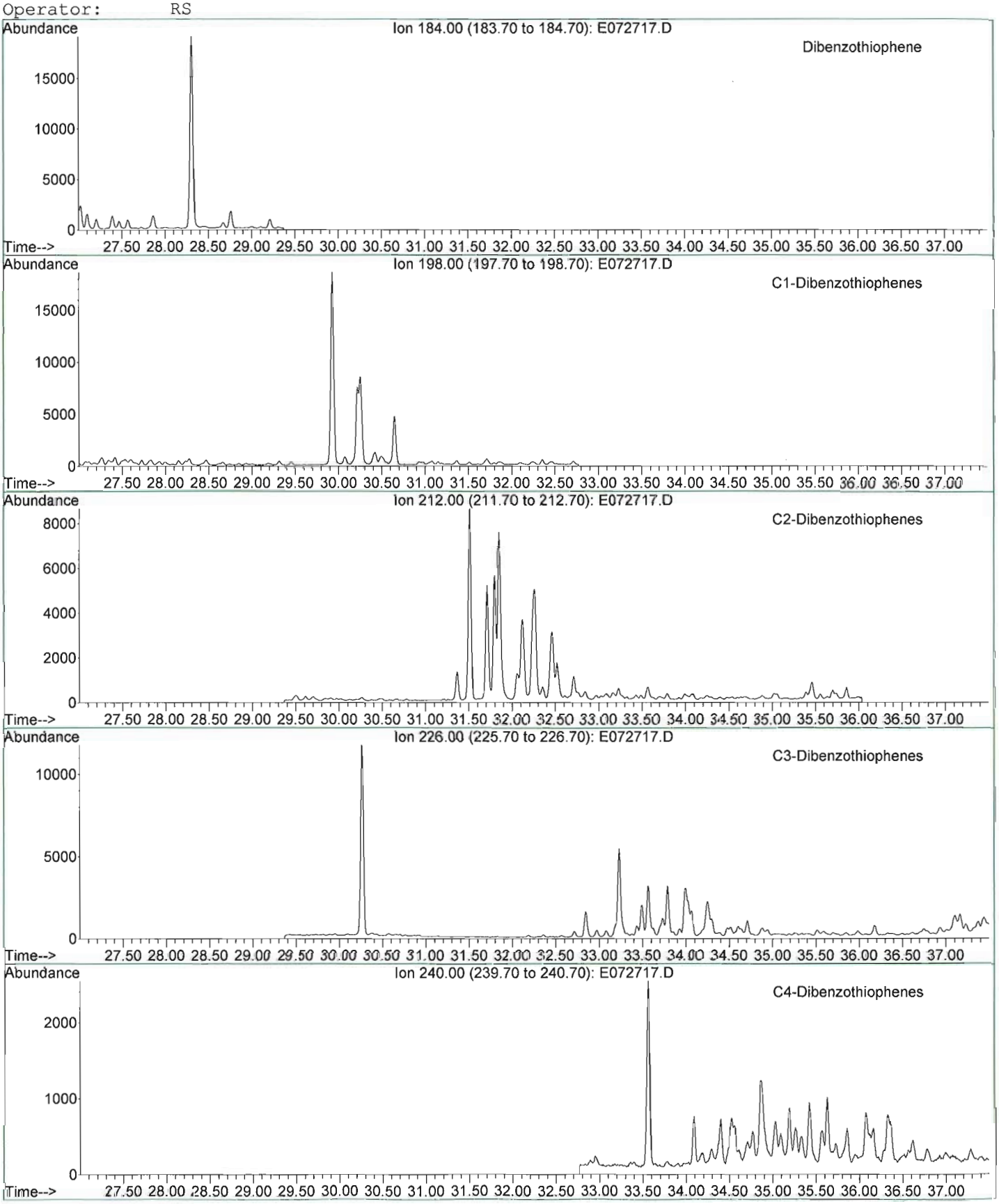

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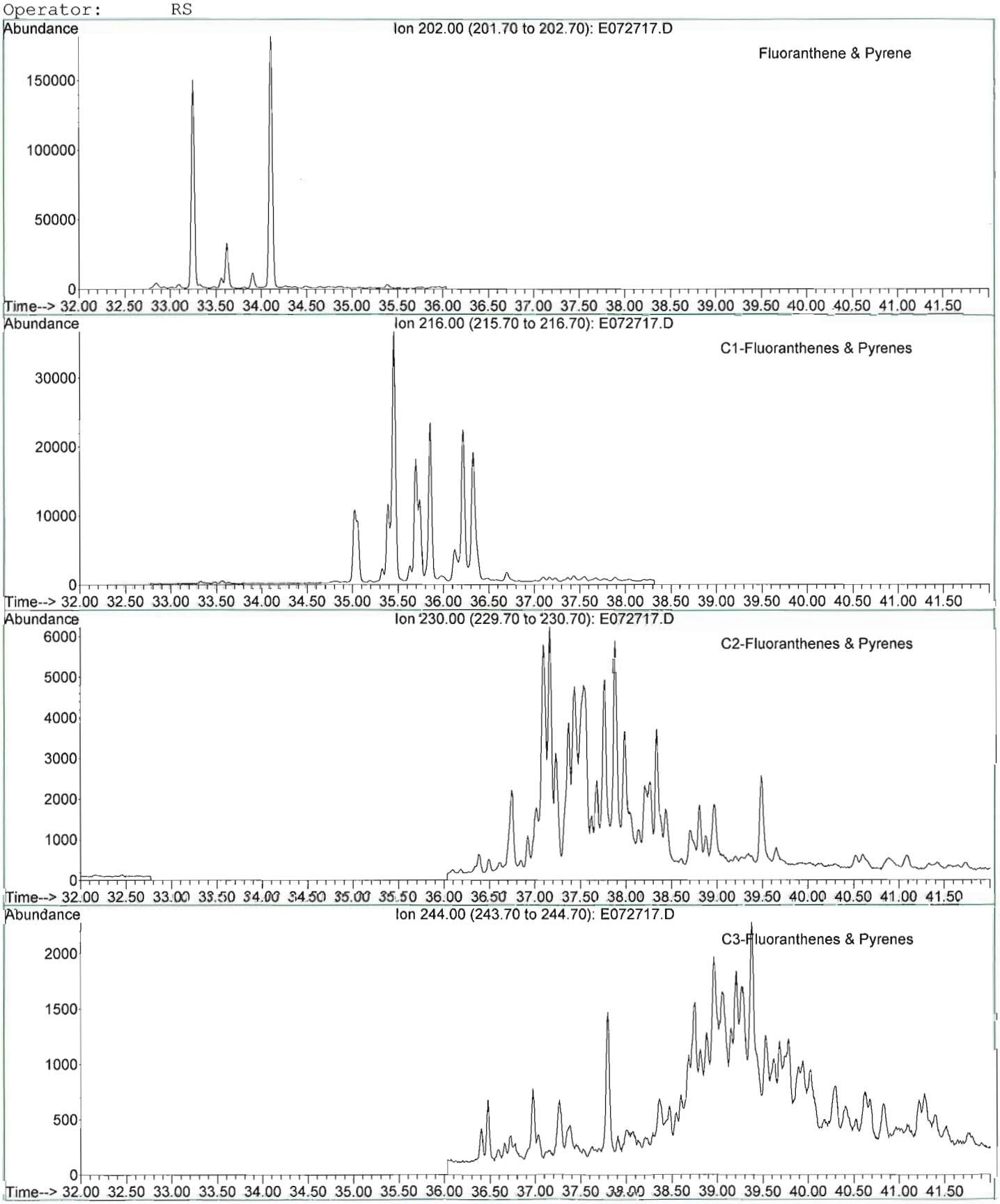

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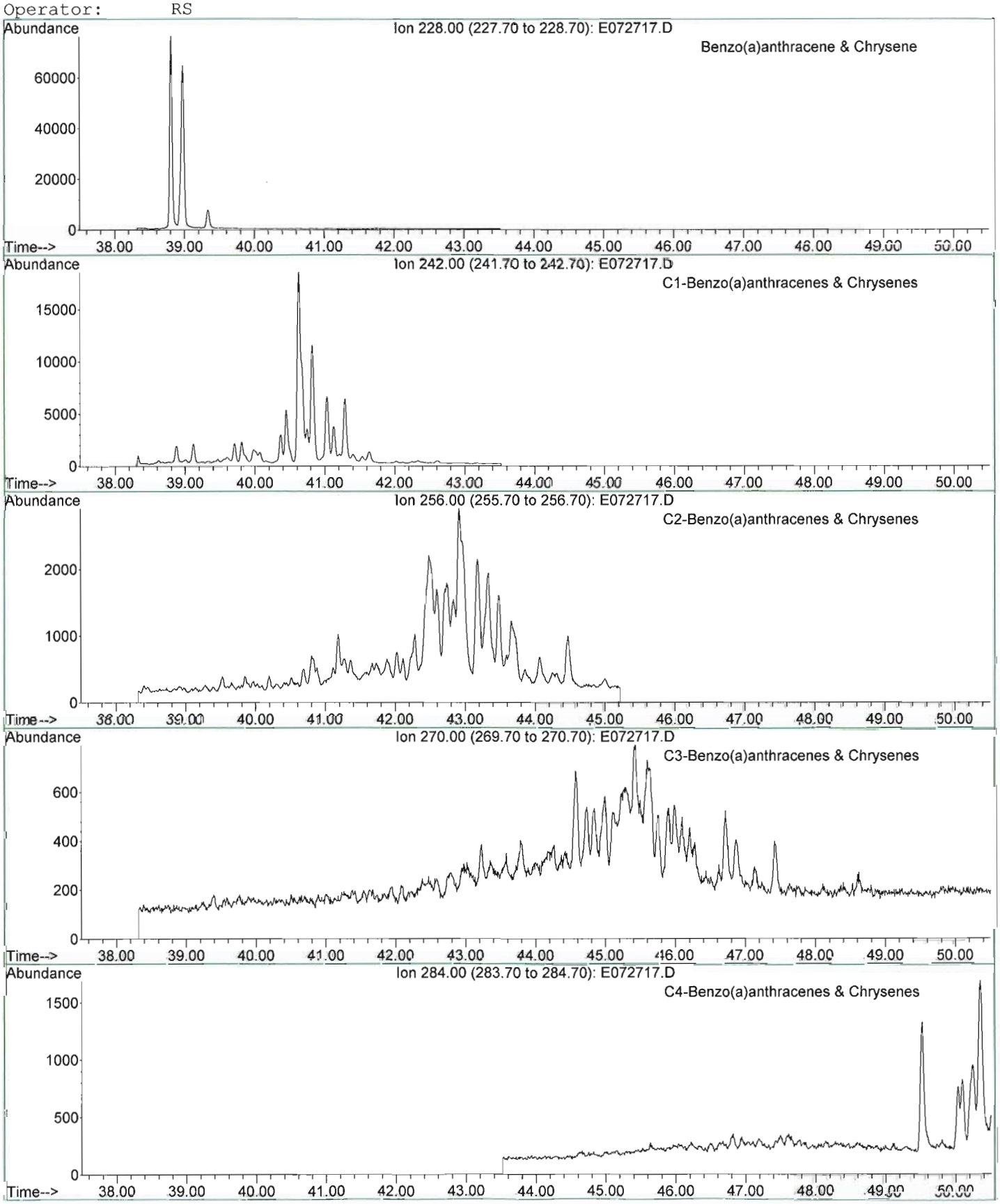

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072717.D
Date Acquired: 28 Jul 2006 8:52 am
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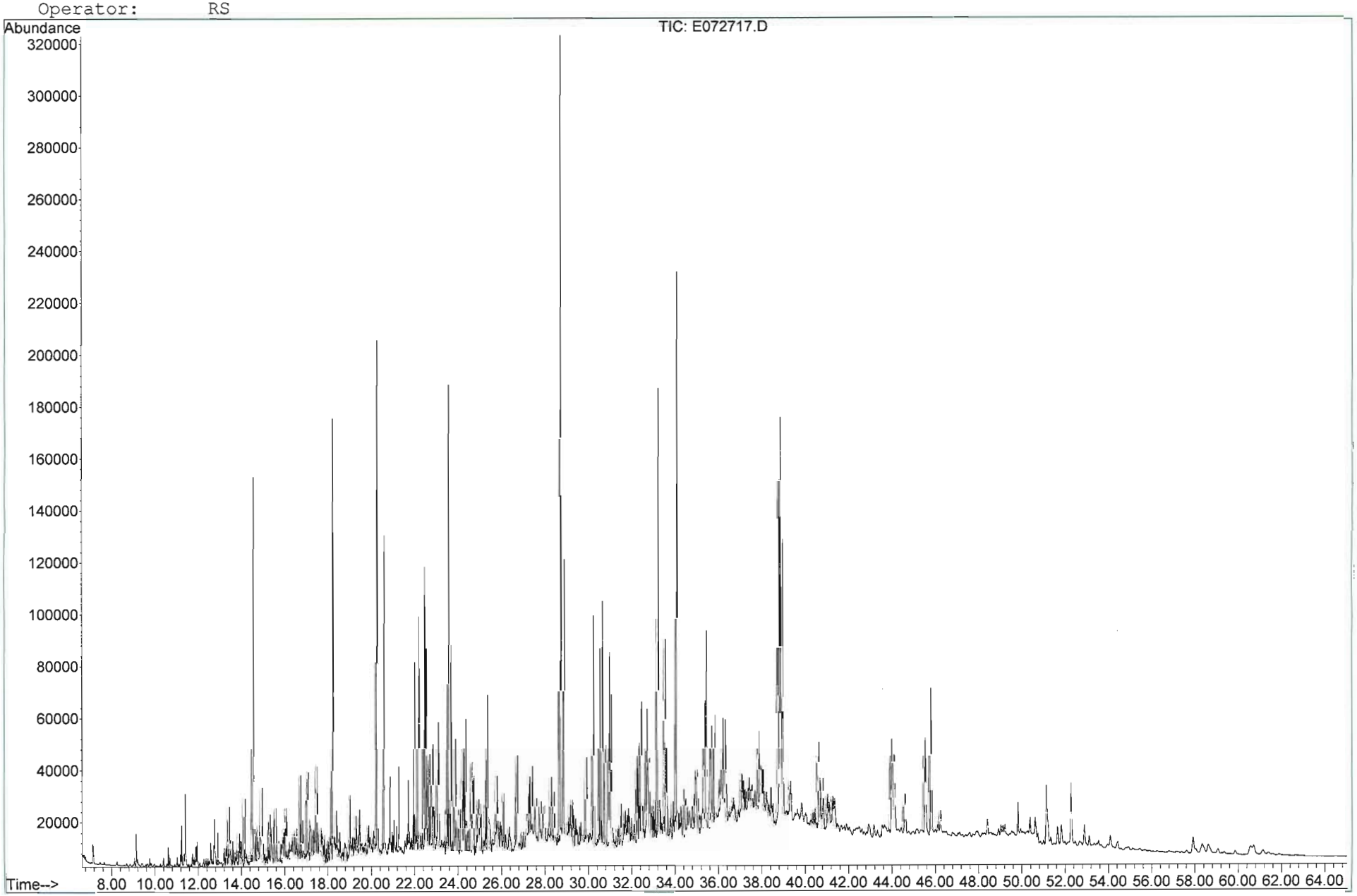
Sample Name: BR060719-03-D
Misc Info: WSS-RSB008-001 (15.0'-15.6')
Operator: RS



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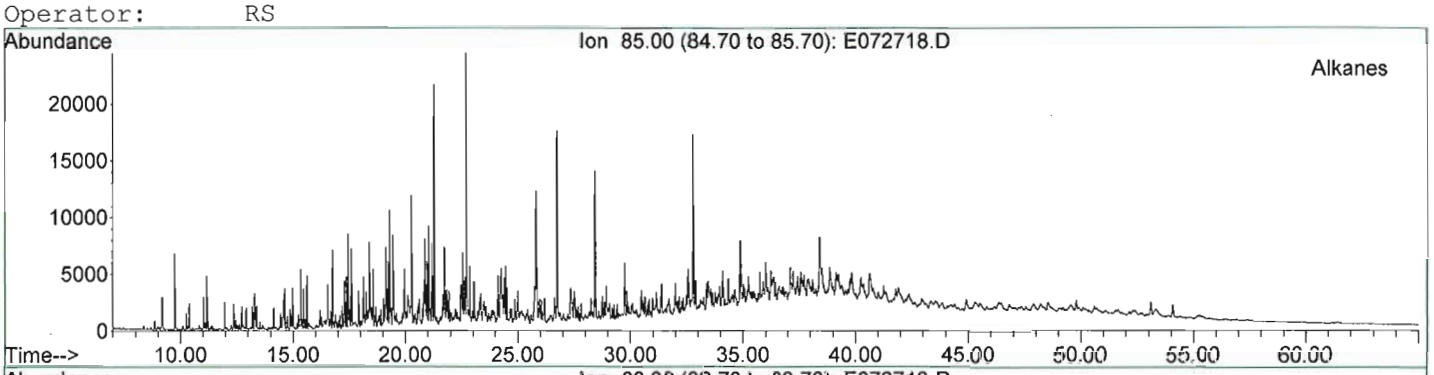
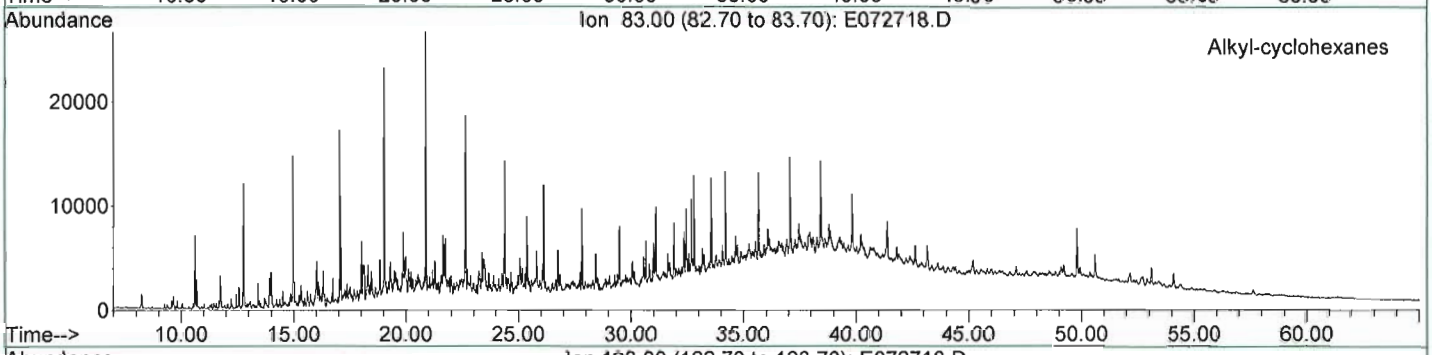
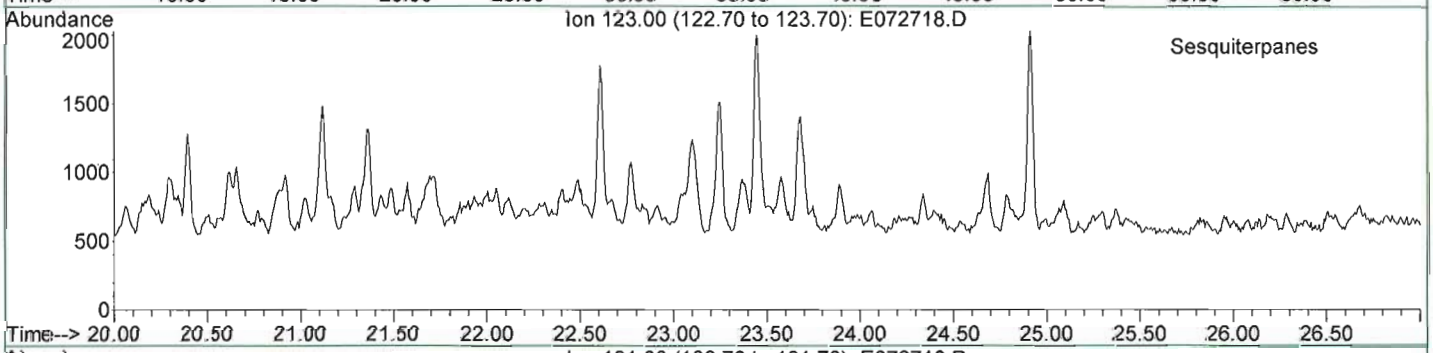
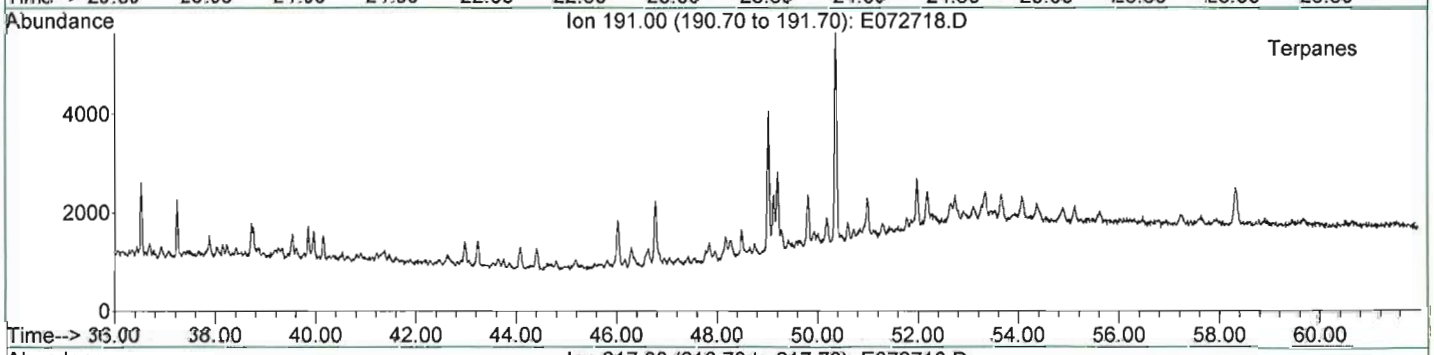
GC/MS EXTRACTED ION CHROMATOGRAM

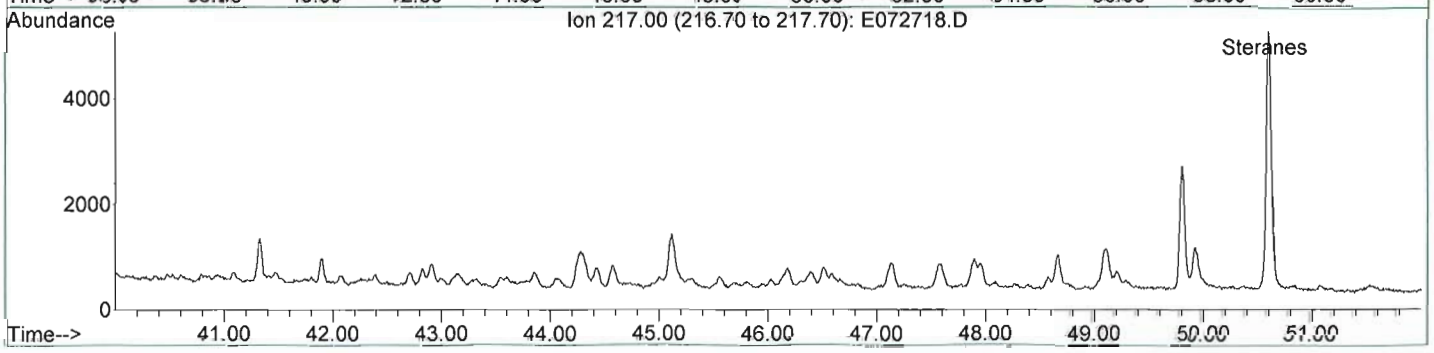
File: J:\1\DATA\E060727\E072718.D
Date Acquired: 28 Jul 2006 10:20 am
Method File: 4008SIM2.M
Sample Name: BR060720-01-D
Misc Info: WSS-RSB009-001 (12.5'-13')
Operator: RS



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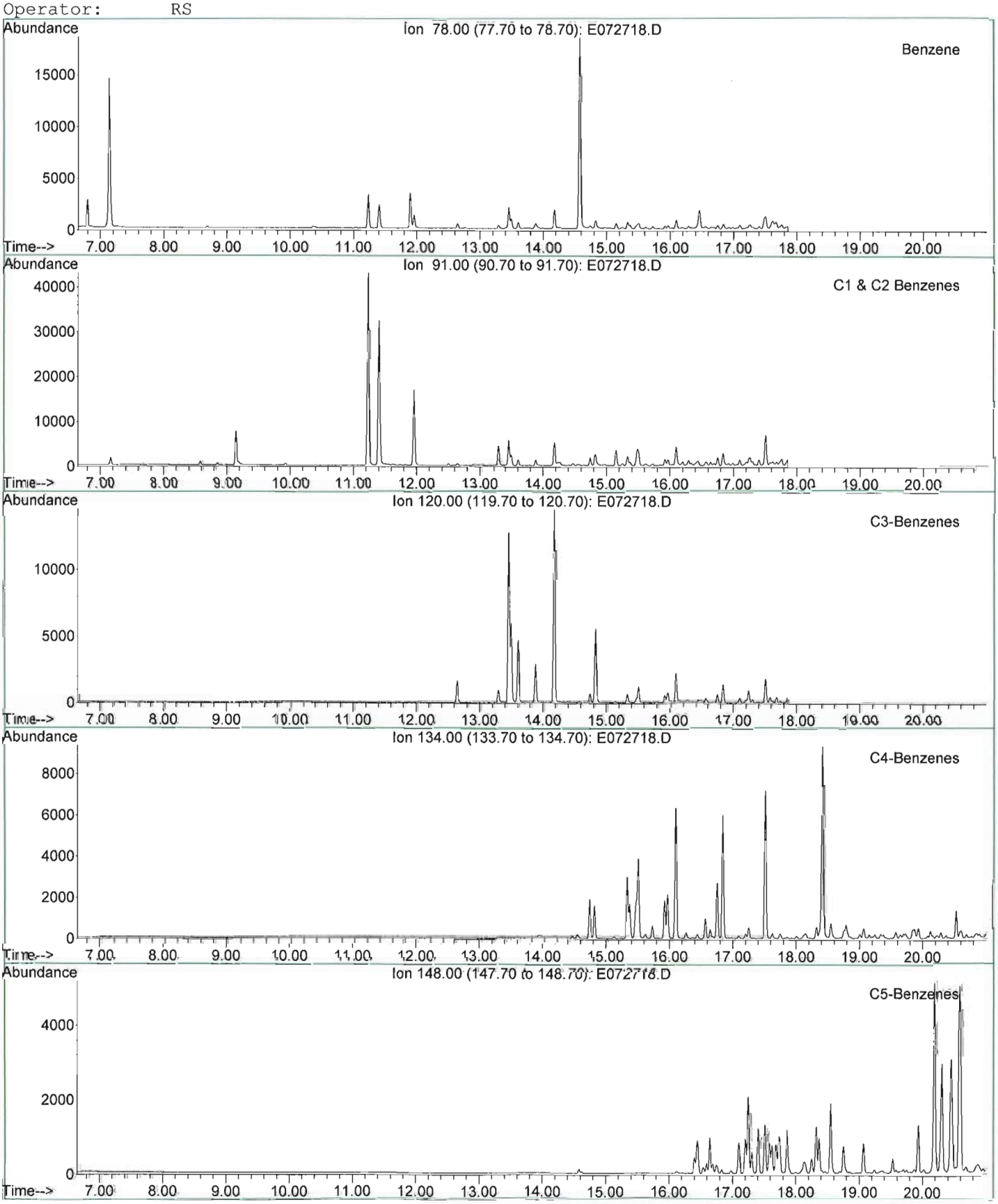

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GC/MS EXTRACTED ION CHROMATOGRAM

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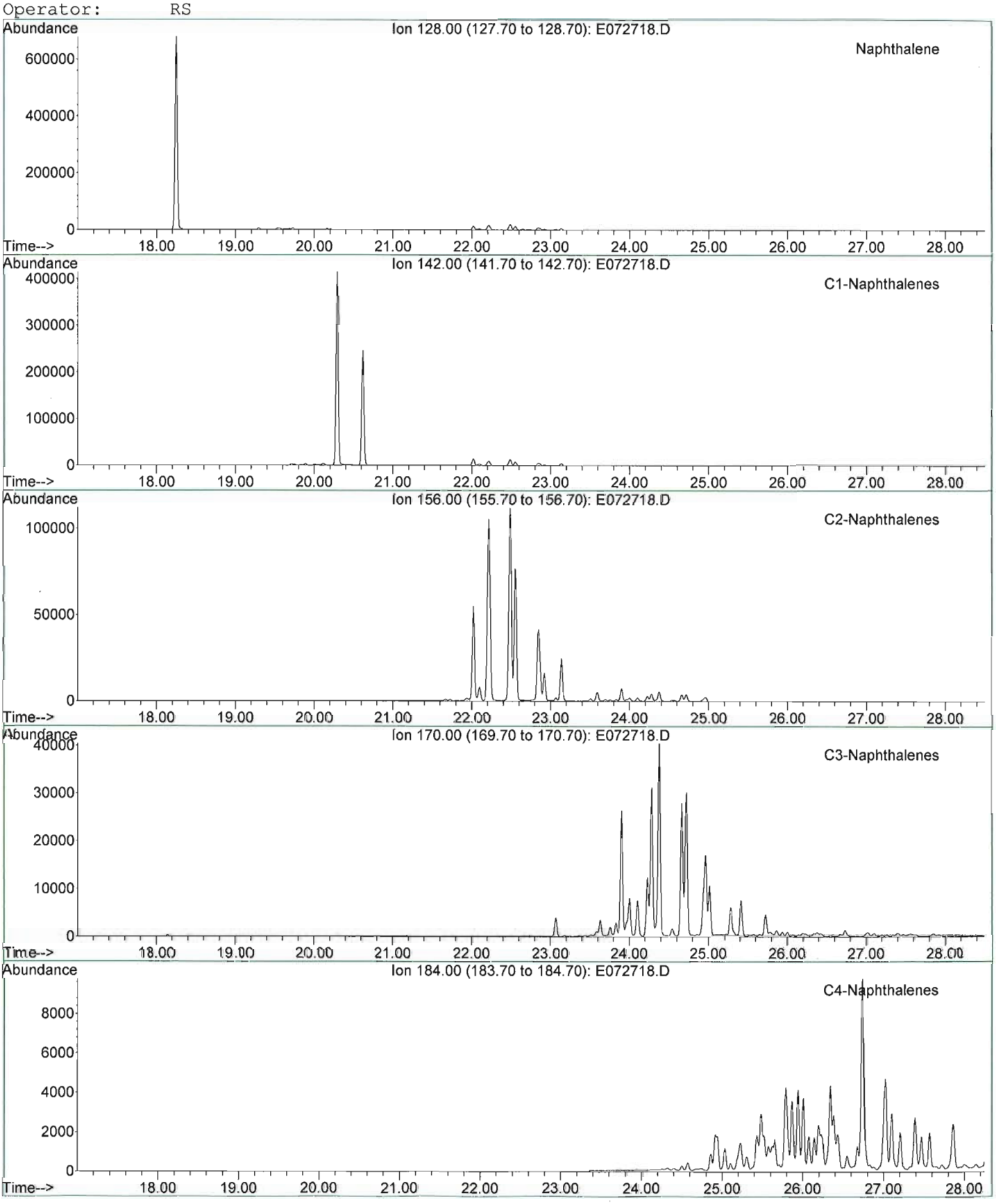

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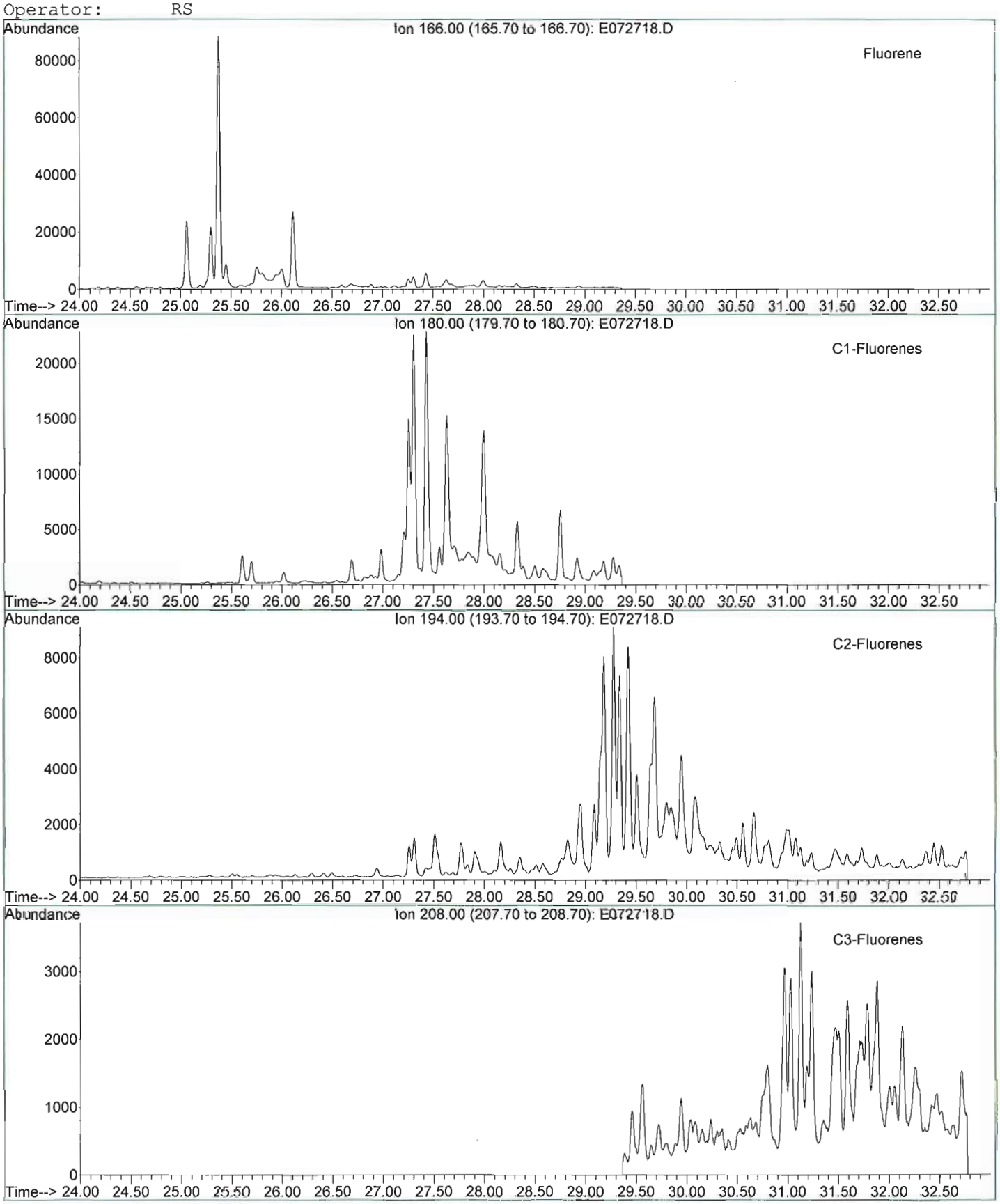

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GC/MS EXTRACTED ION CHROMATOGRAM

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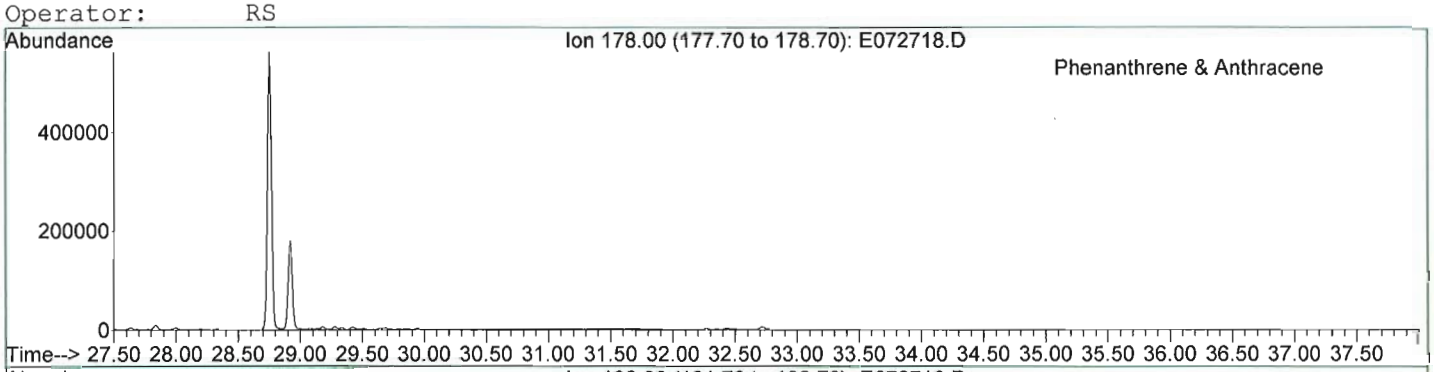


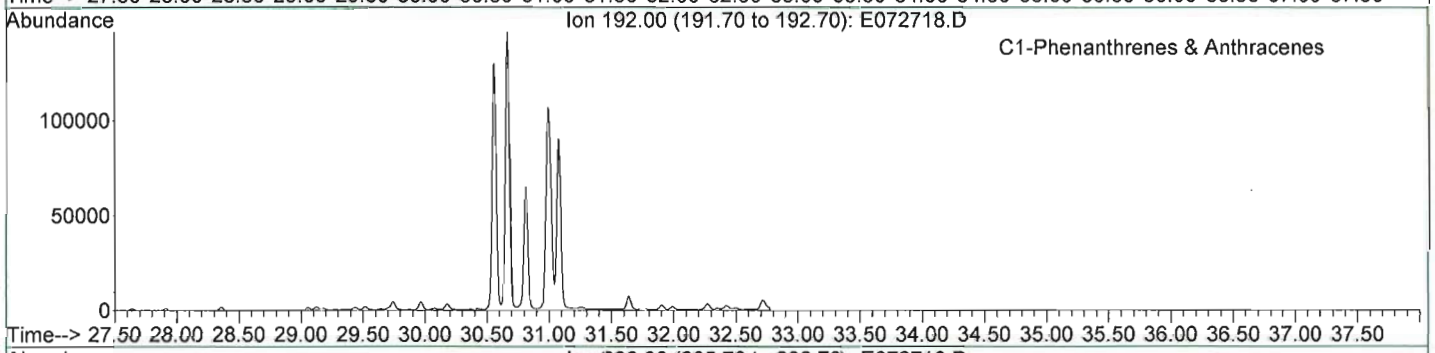


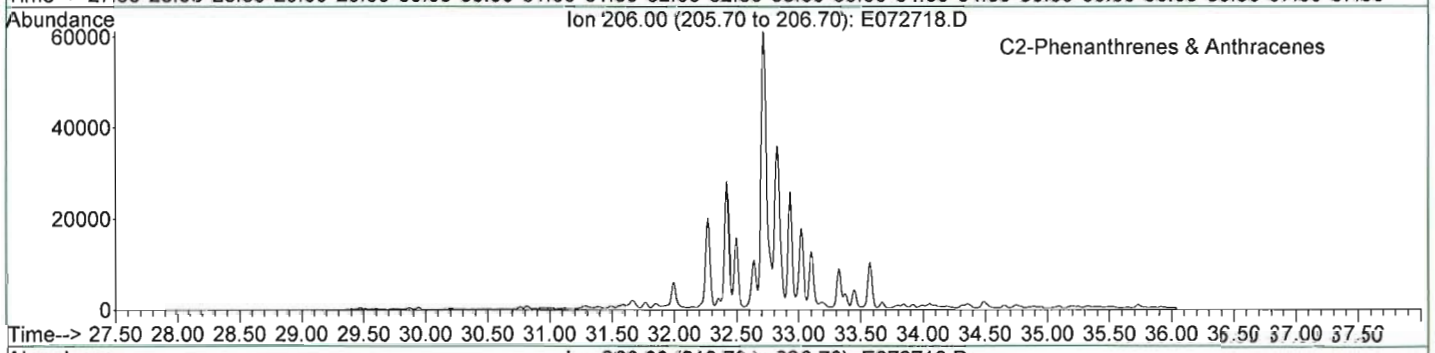


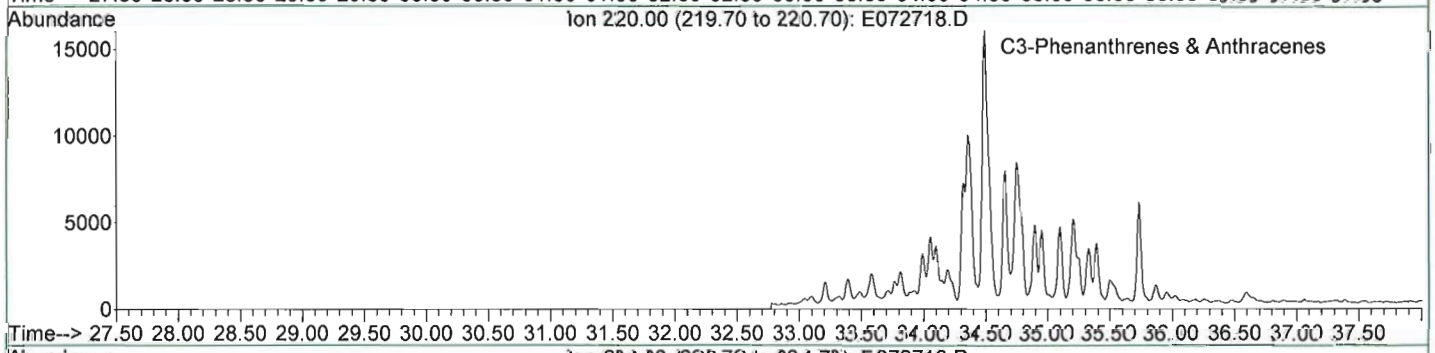


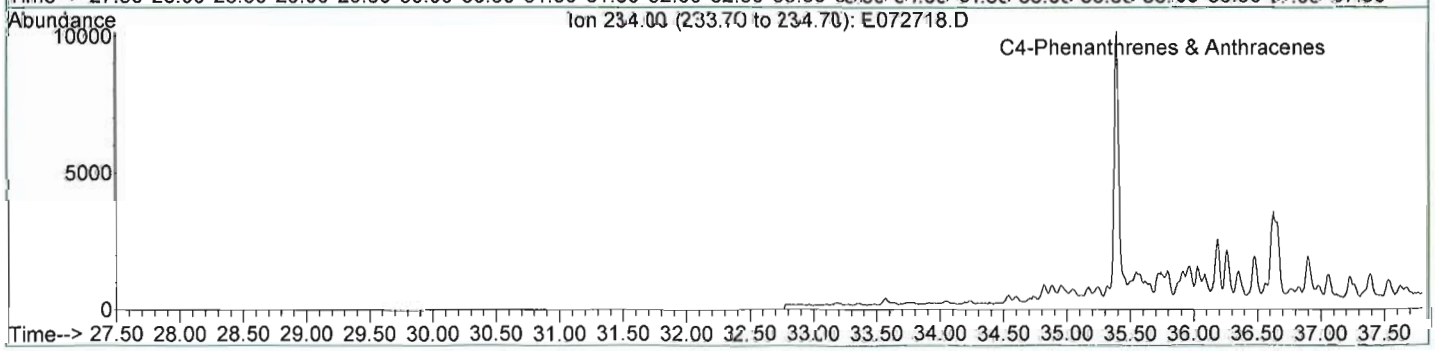

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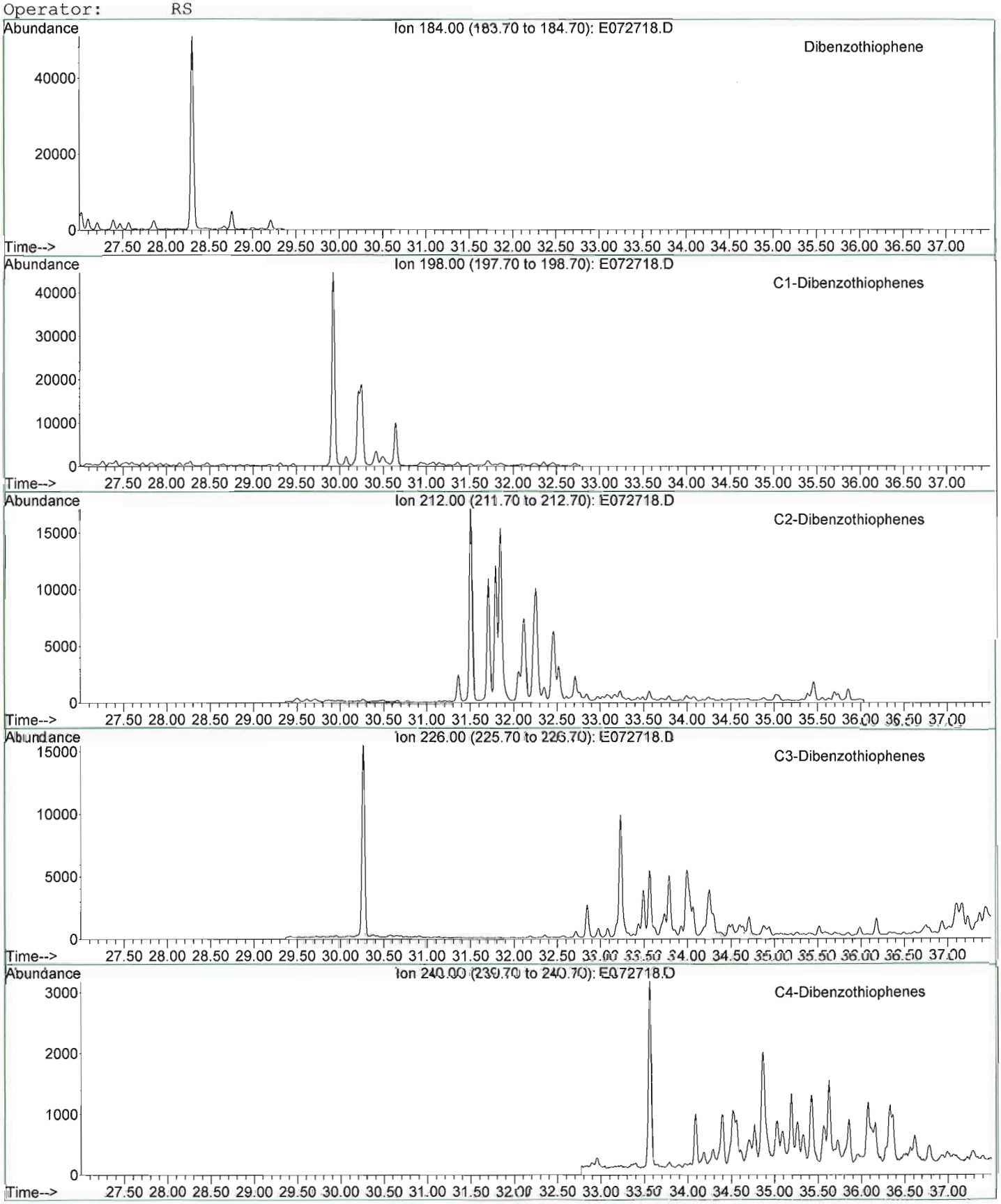

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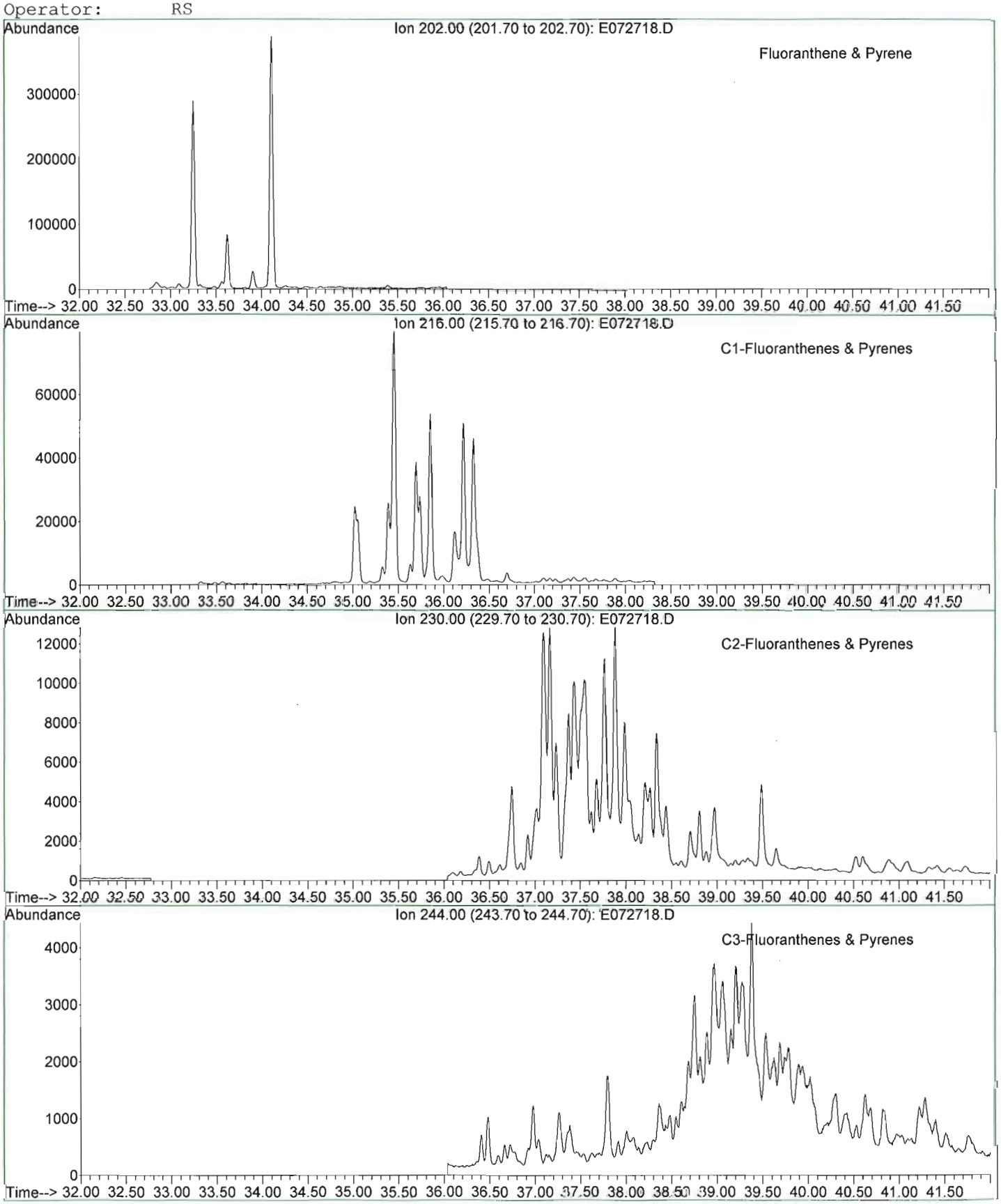

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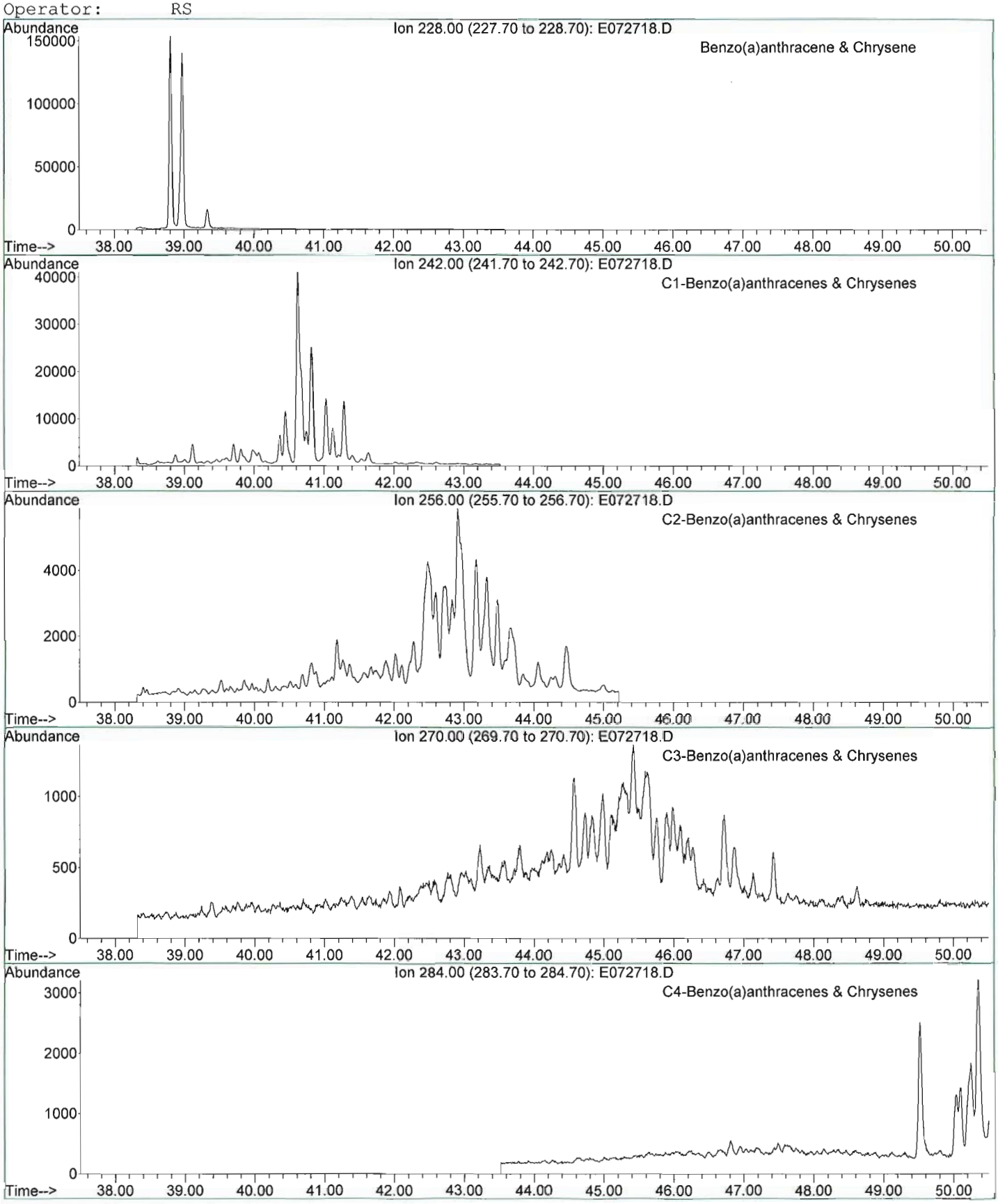

META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072718.D
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Sample Name: BR060720-01-D
Misc Info: WSS-RSB009-001 (12.5'-13')
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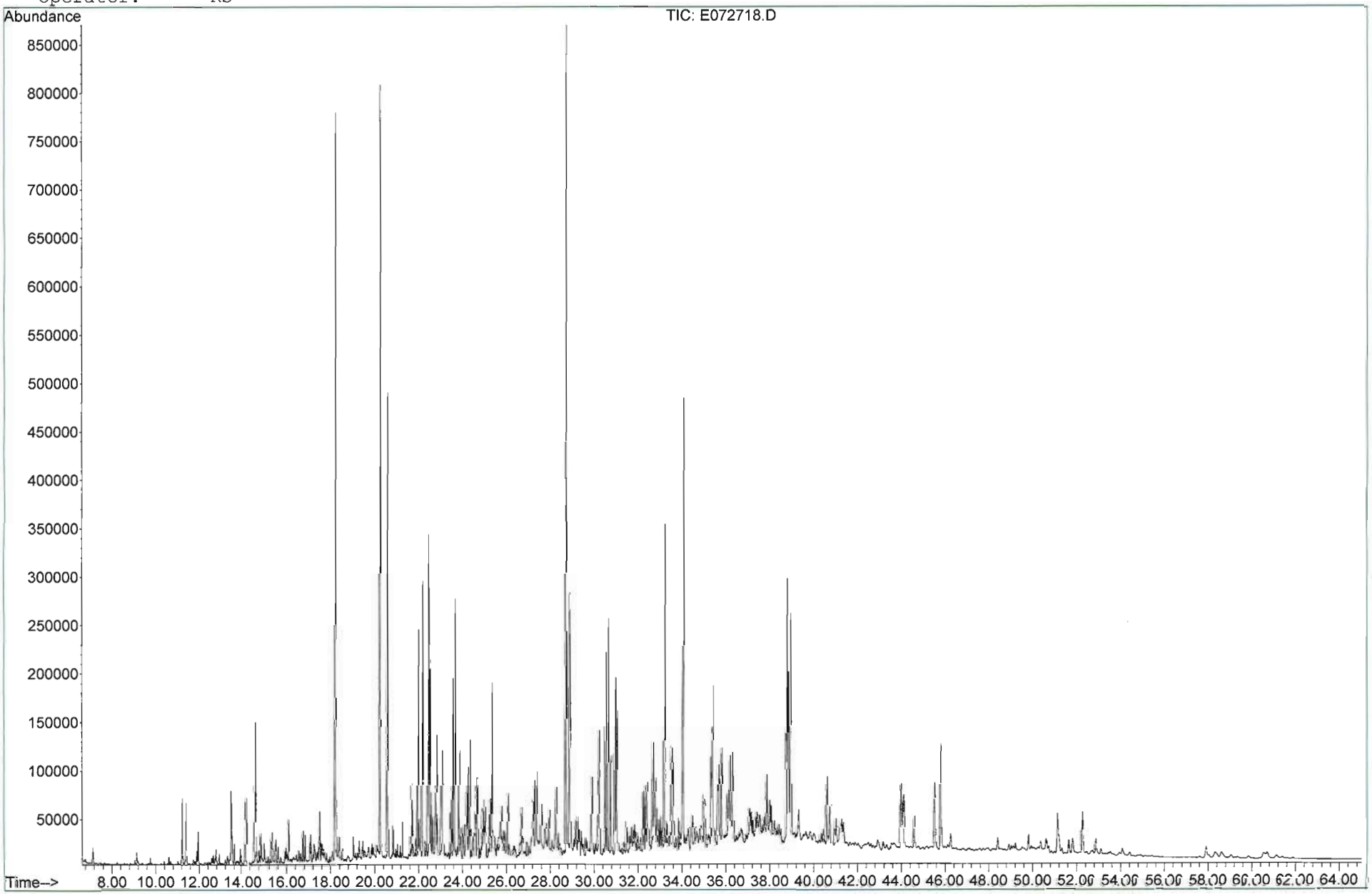
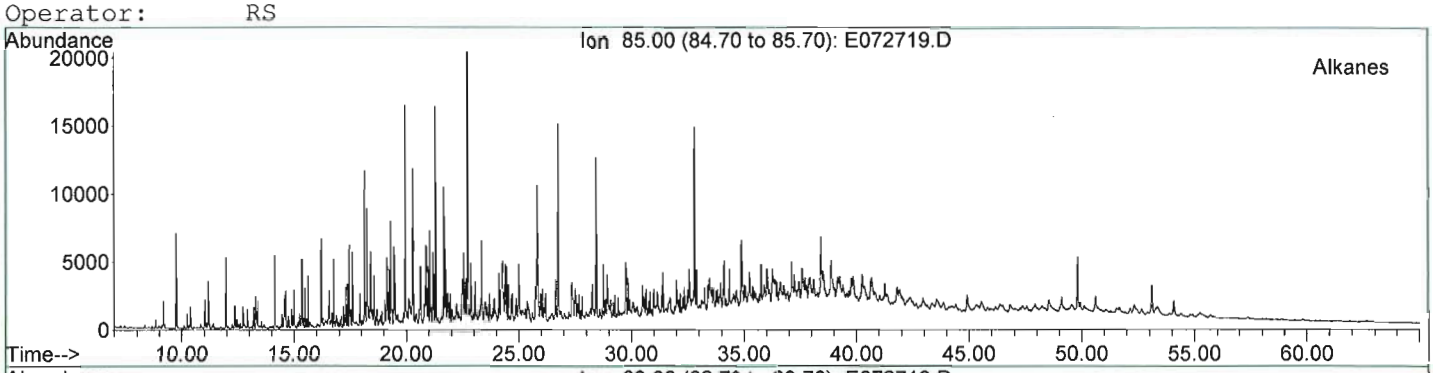
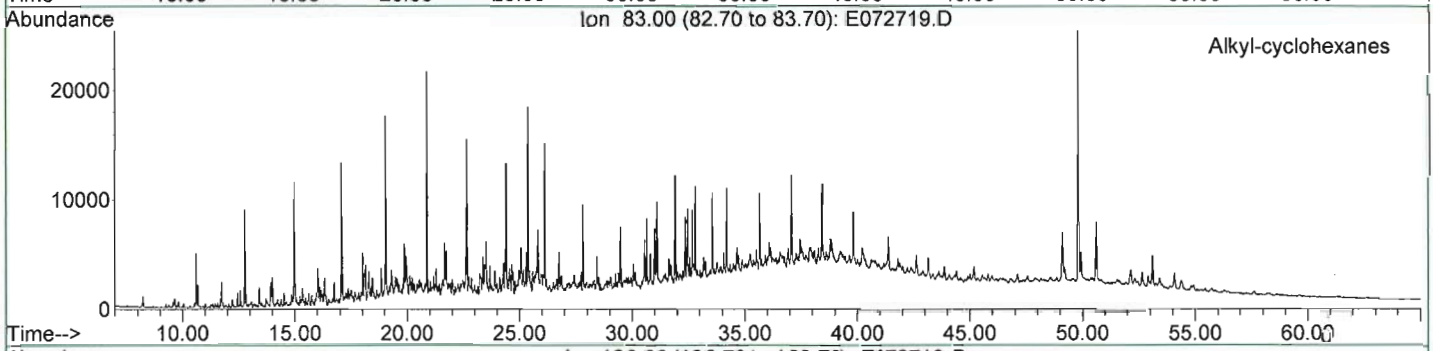


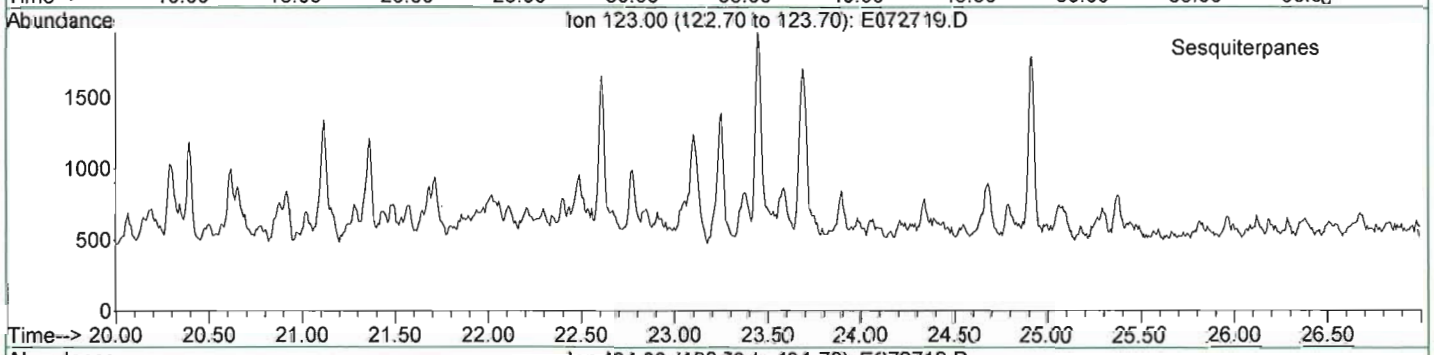
META Environmental, Inc.

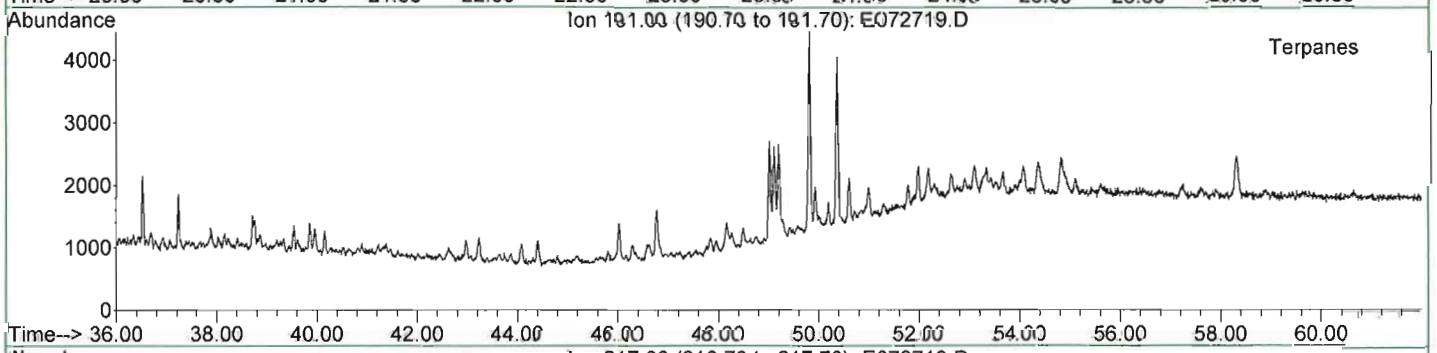
GC/MS EXTRACTED ION CHROMATOGRAM

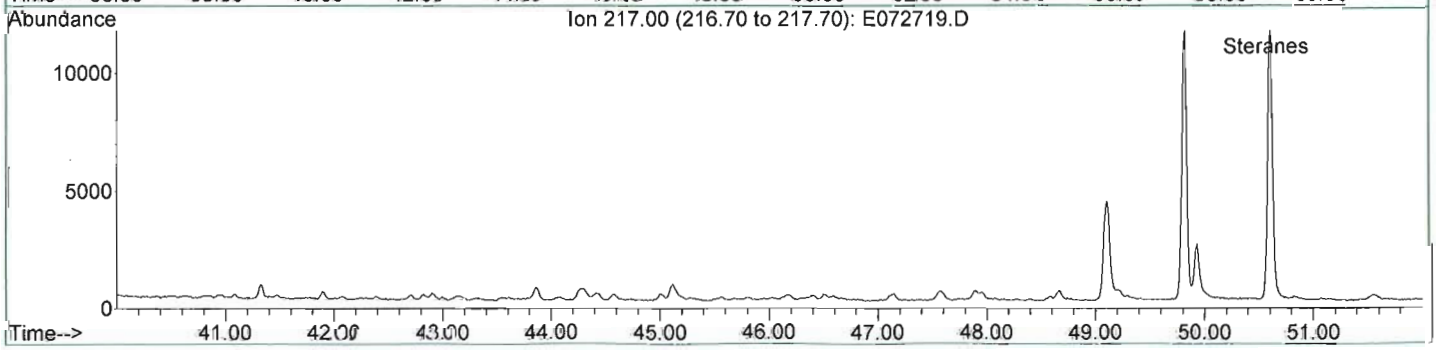
File: J:\1\DATA\E060727\E072719.D
Date Acquired: 28 Jul 2006 11:54 am
Method File: 4008SIM2.M
Sample Name: BR060721-01-D
Misc Info: WSS-RSB012-001 (9.5'-10')
Operator: RS



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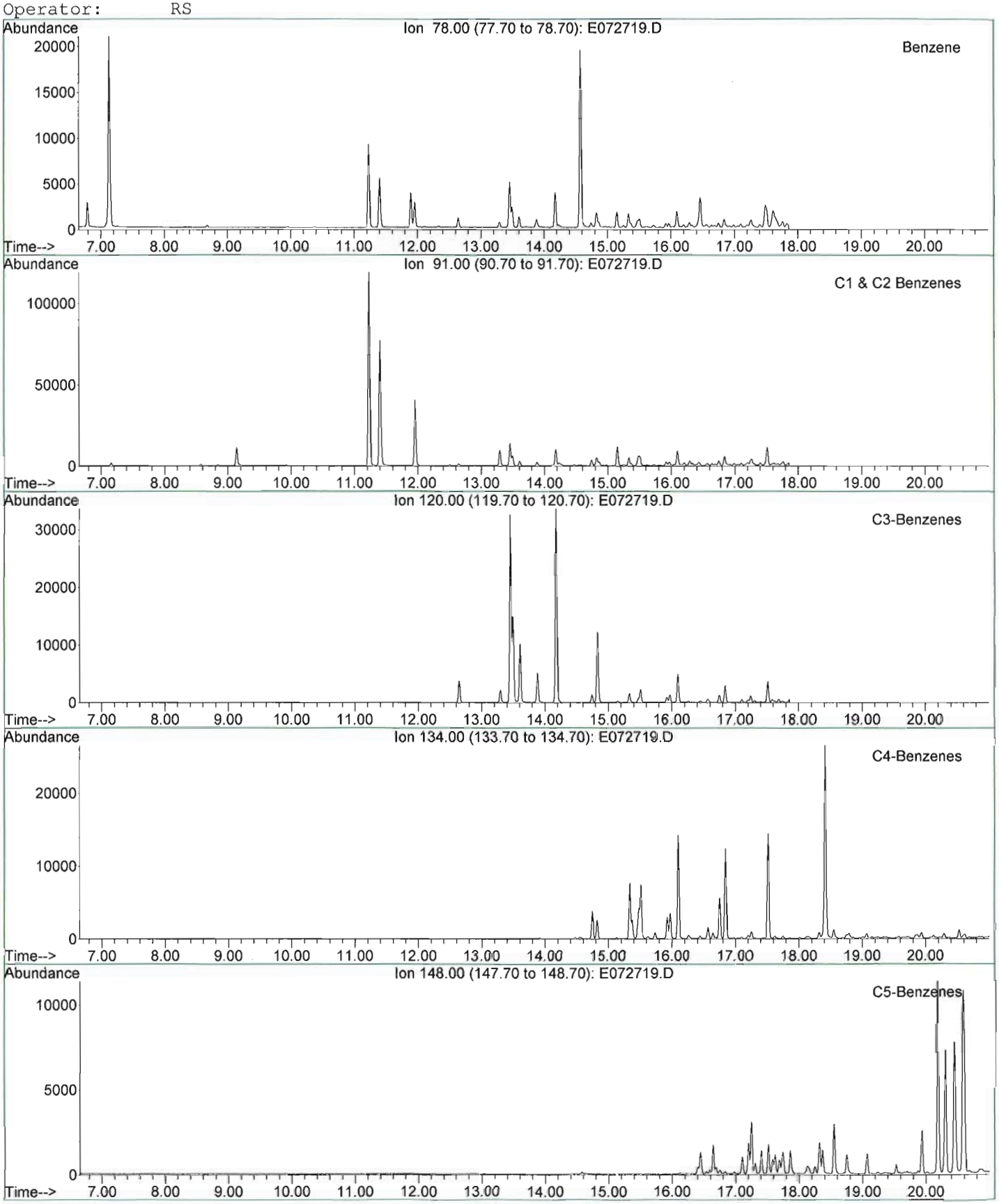

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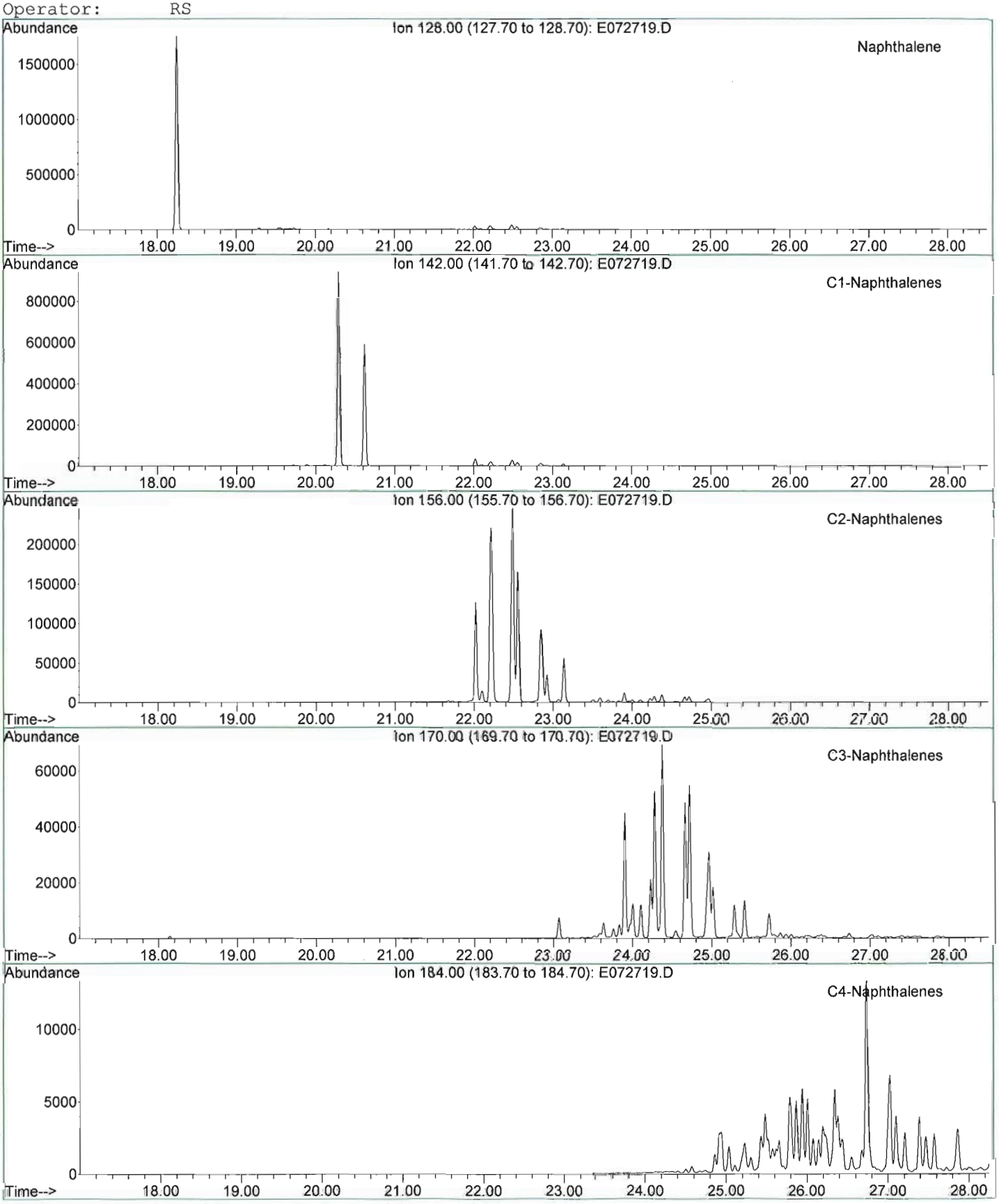

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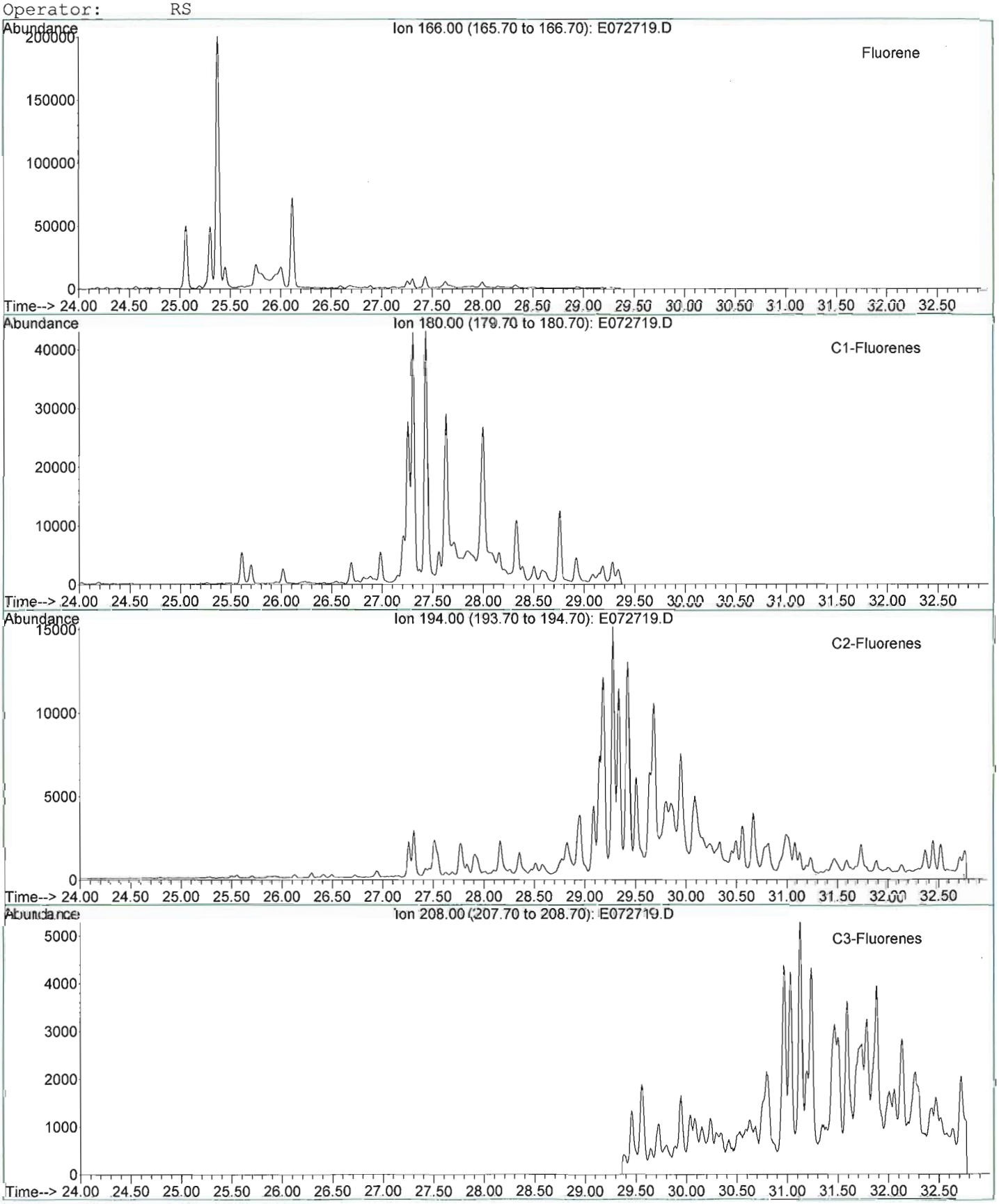

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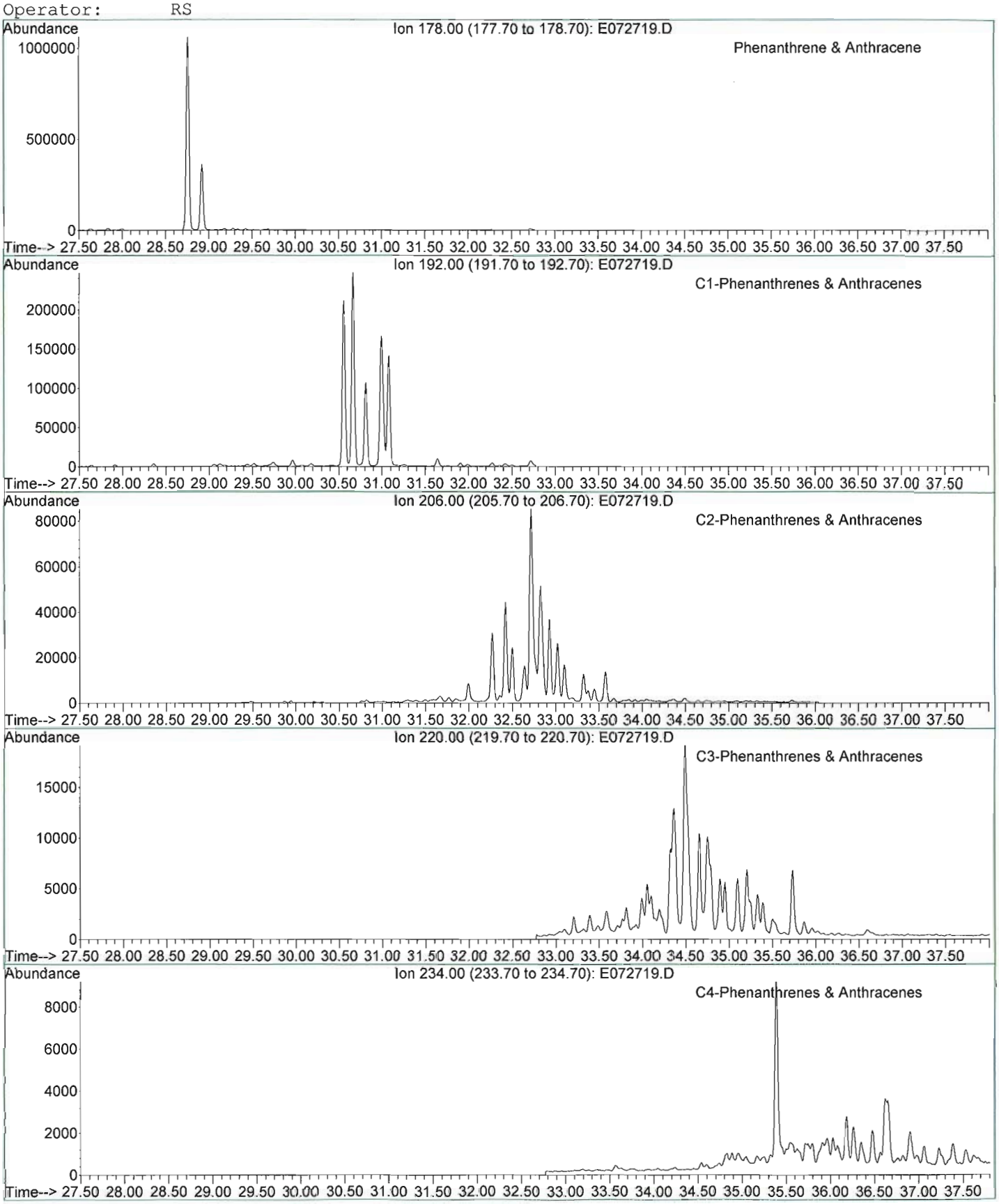

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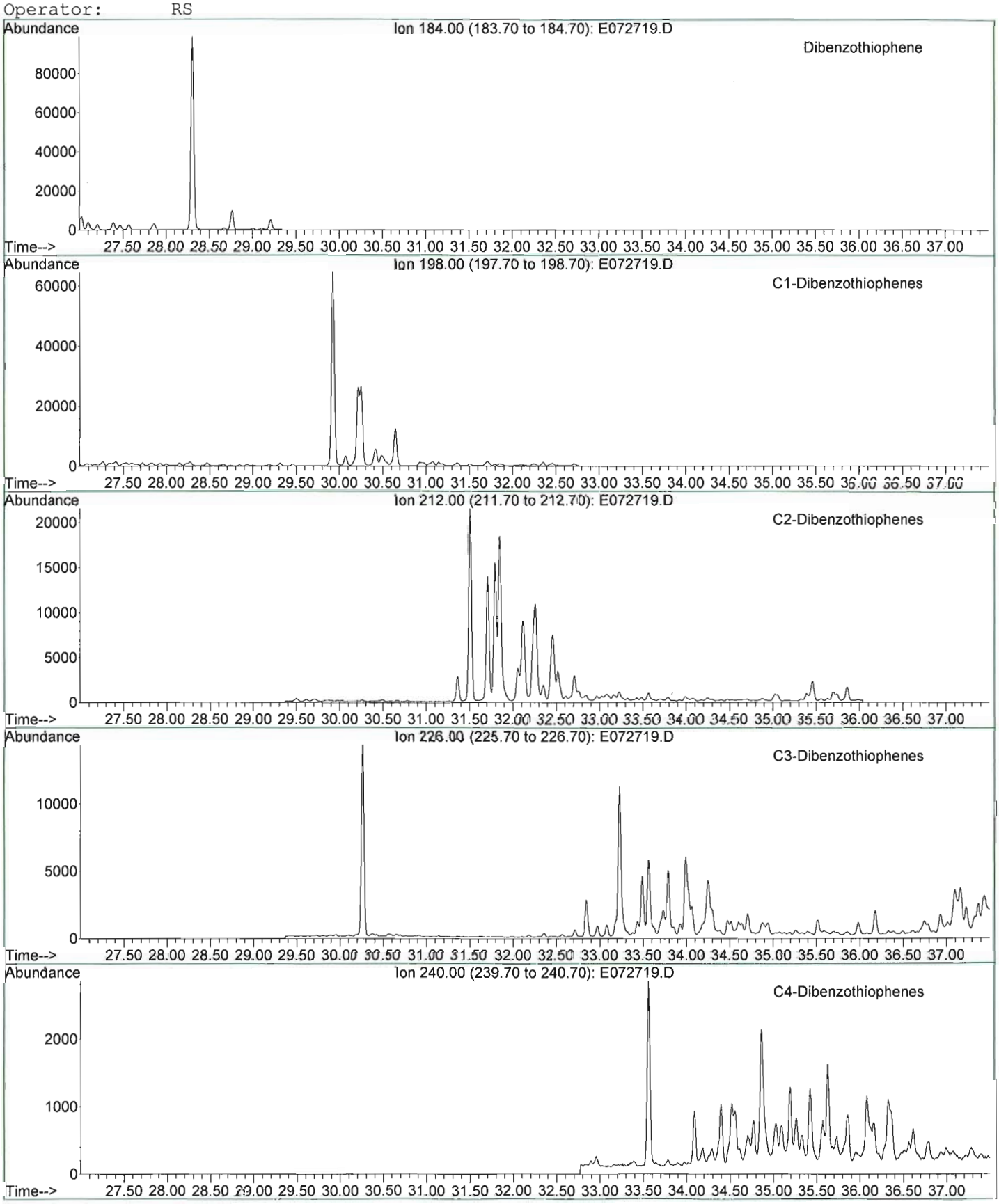

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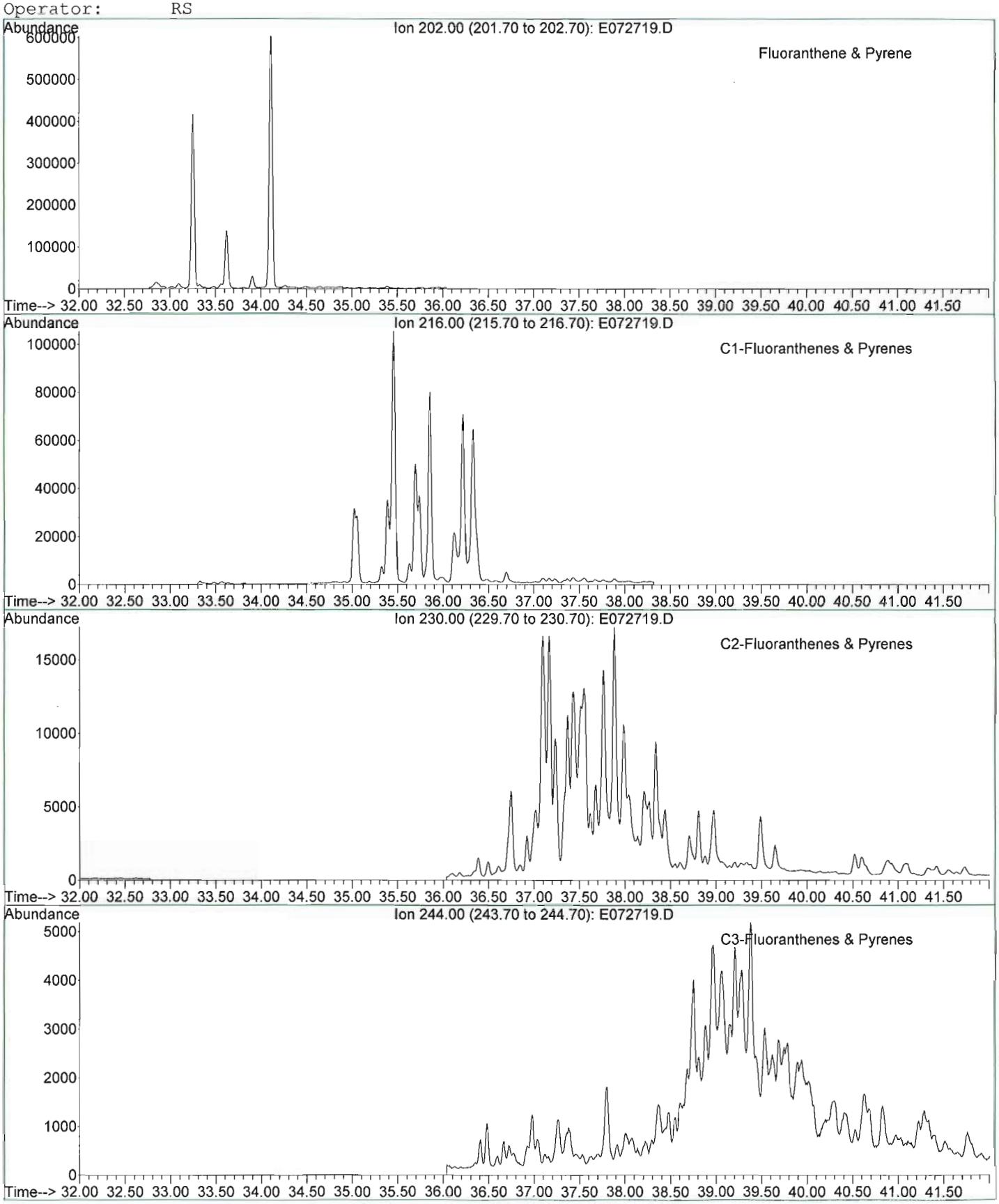

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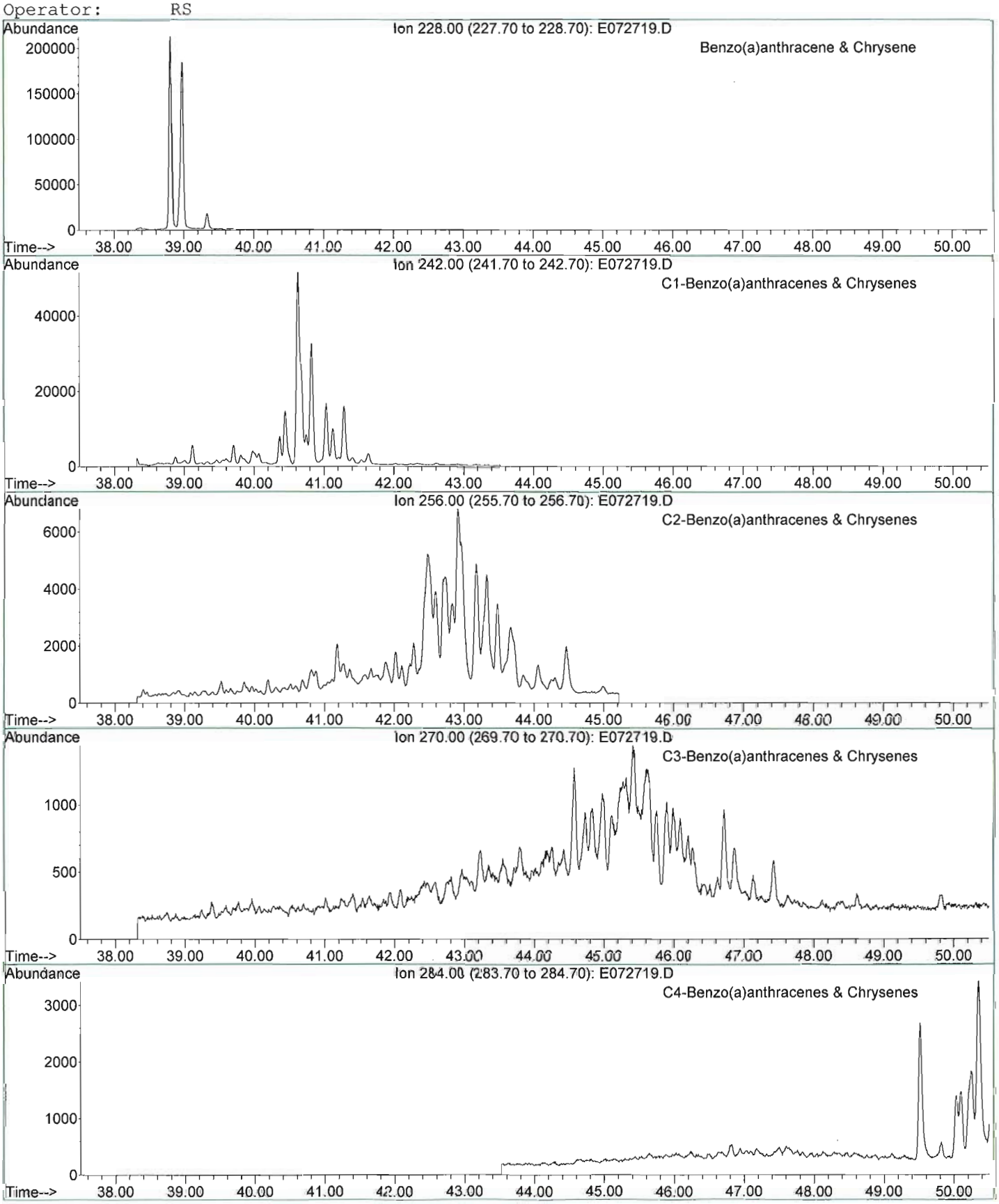
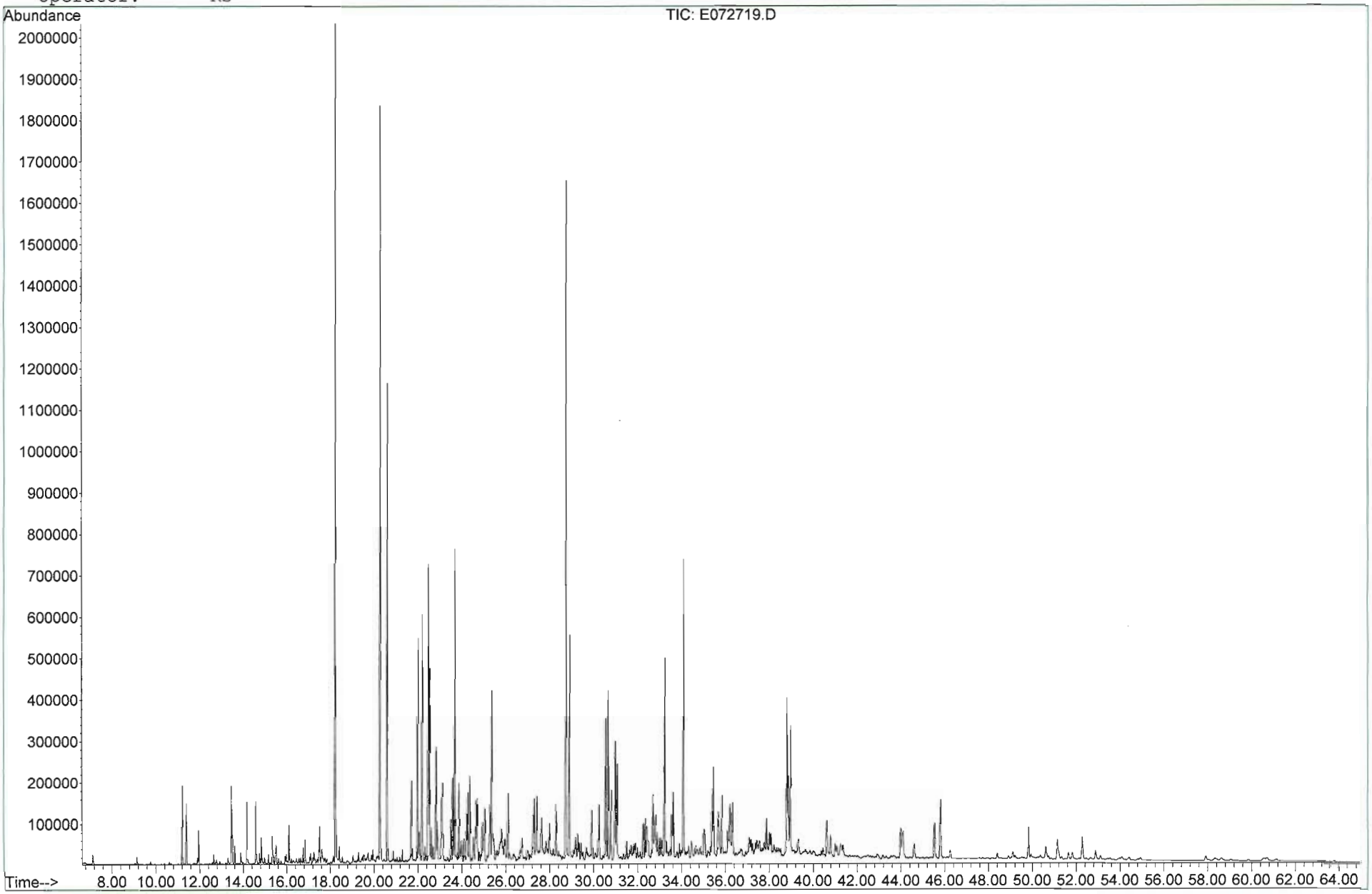
Misc Info: WSS-RSB012-001 (9.5'-10')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

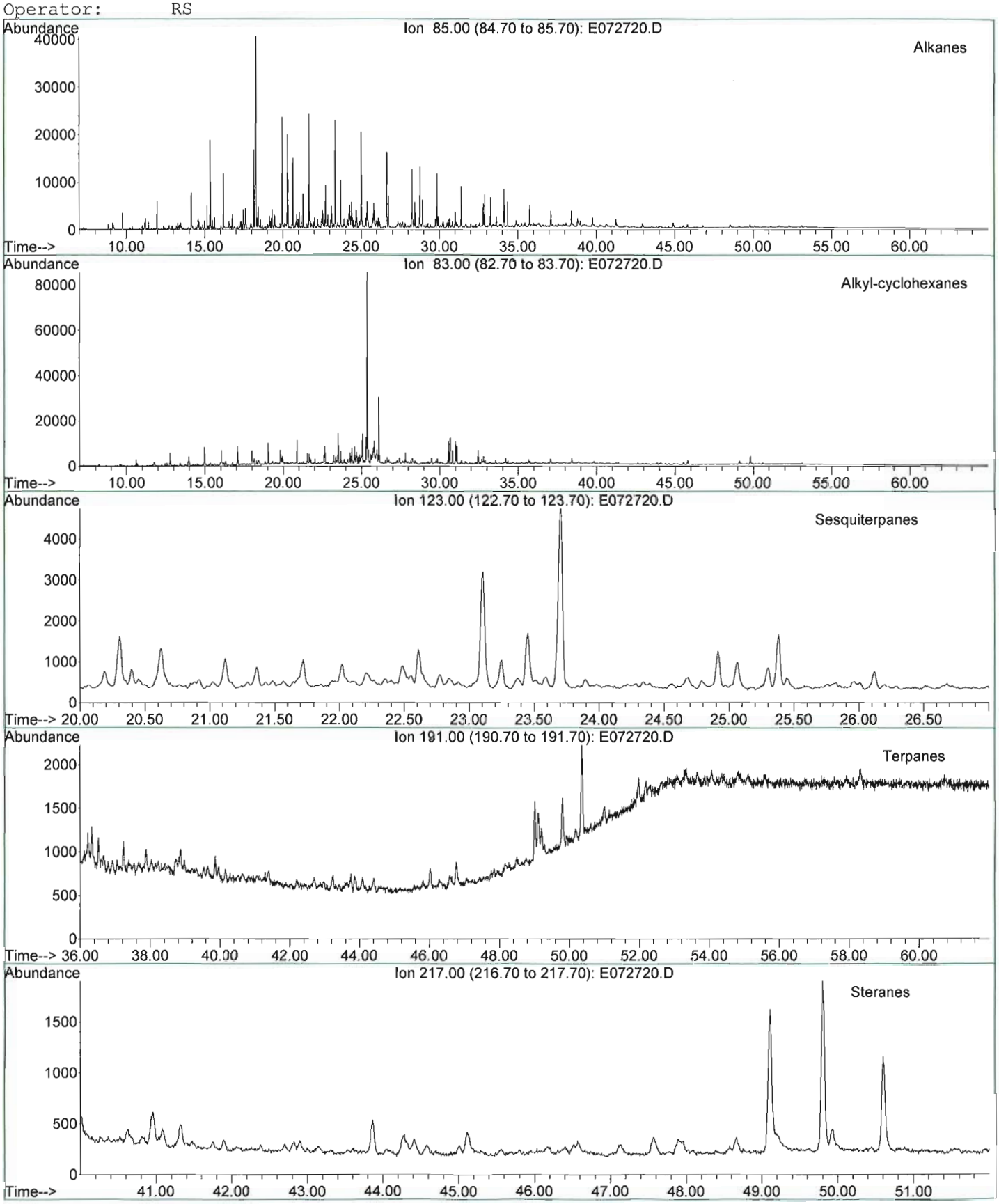
File: J:\1\DATA\E060727\E072719.D
Date Acquired: 28 Jul 2006 11:54 am
Method File: 4008SIM2.M
Sample Name: BR060721-01-D
Misc Info: WSS-RSB012-001 (9.5'-10')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

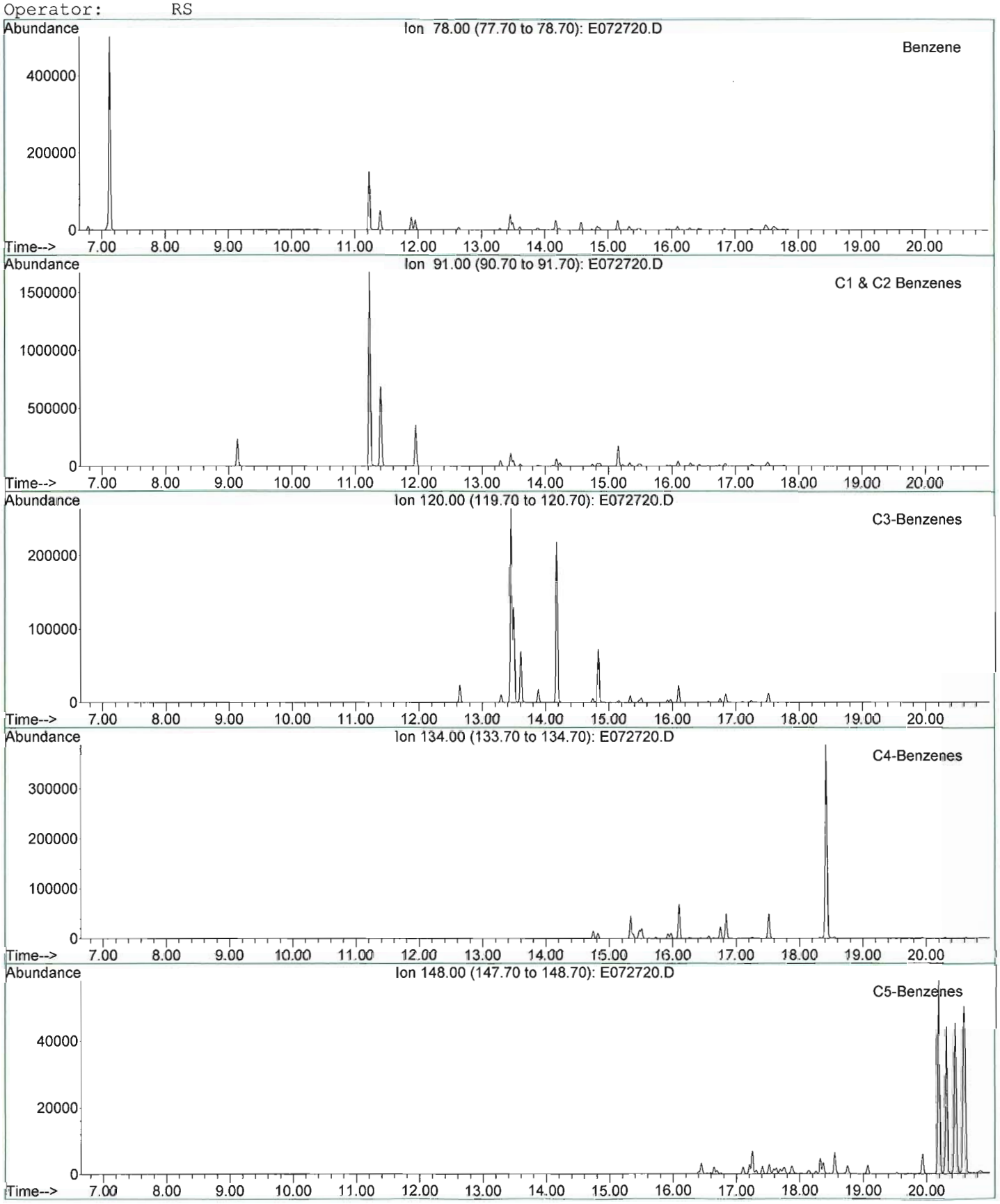
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

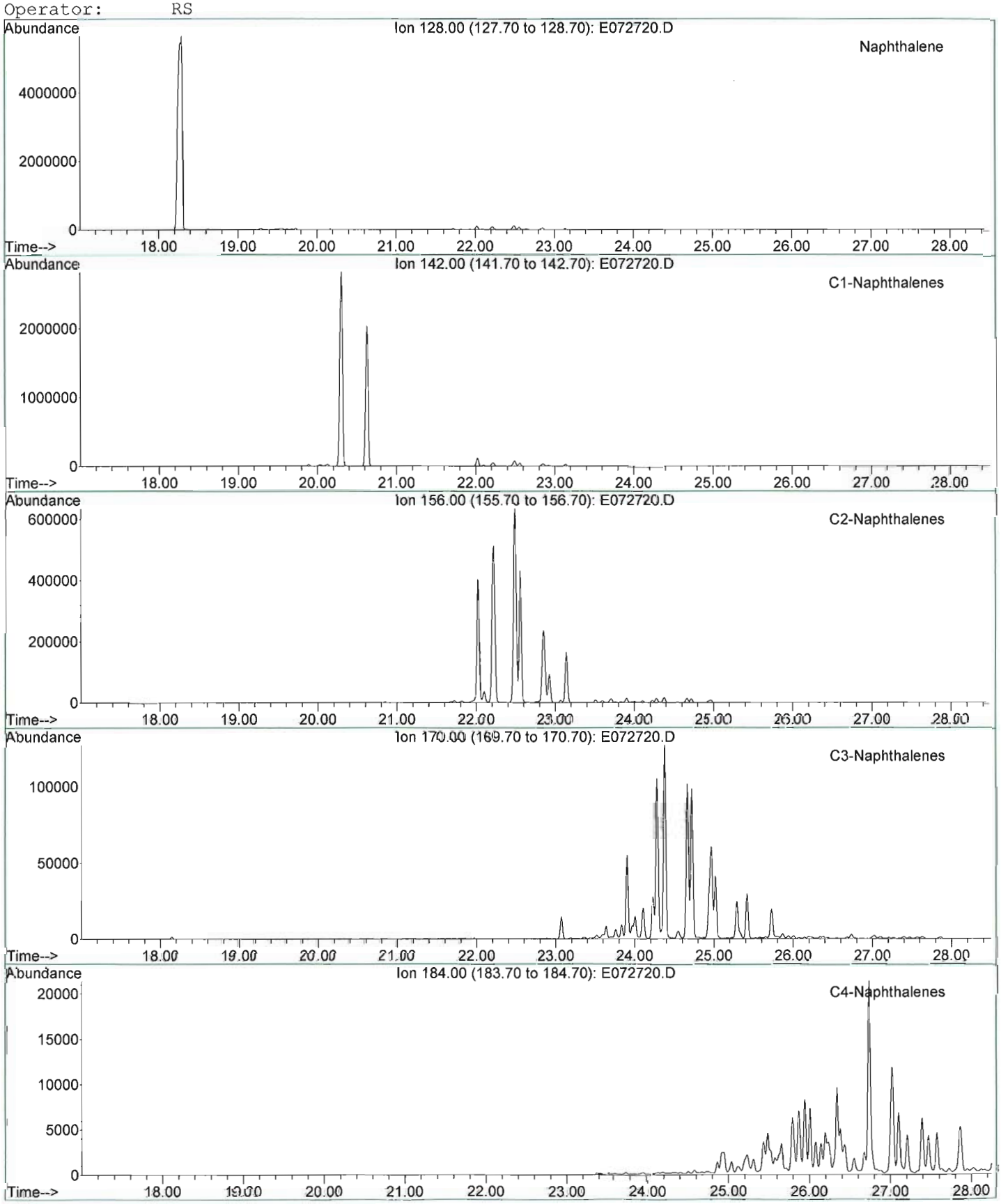
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

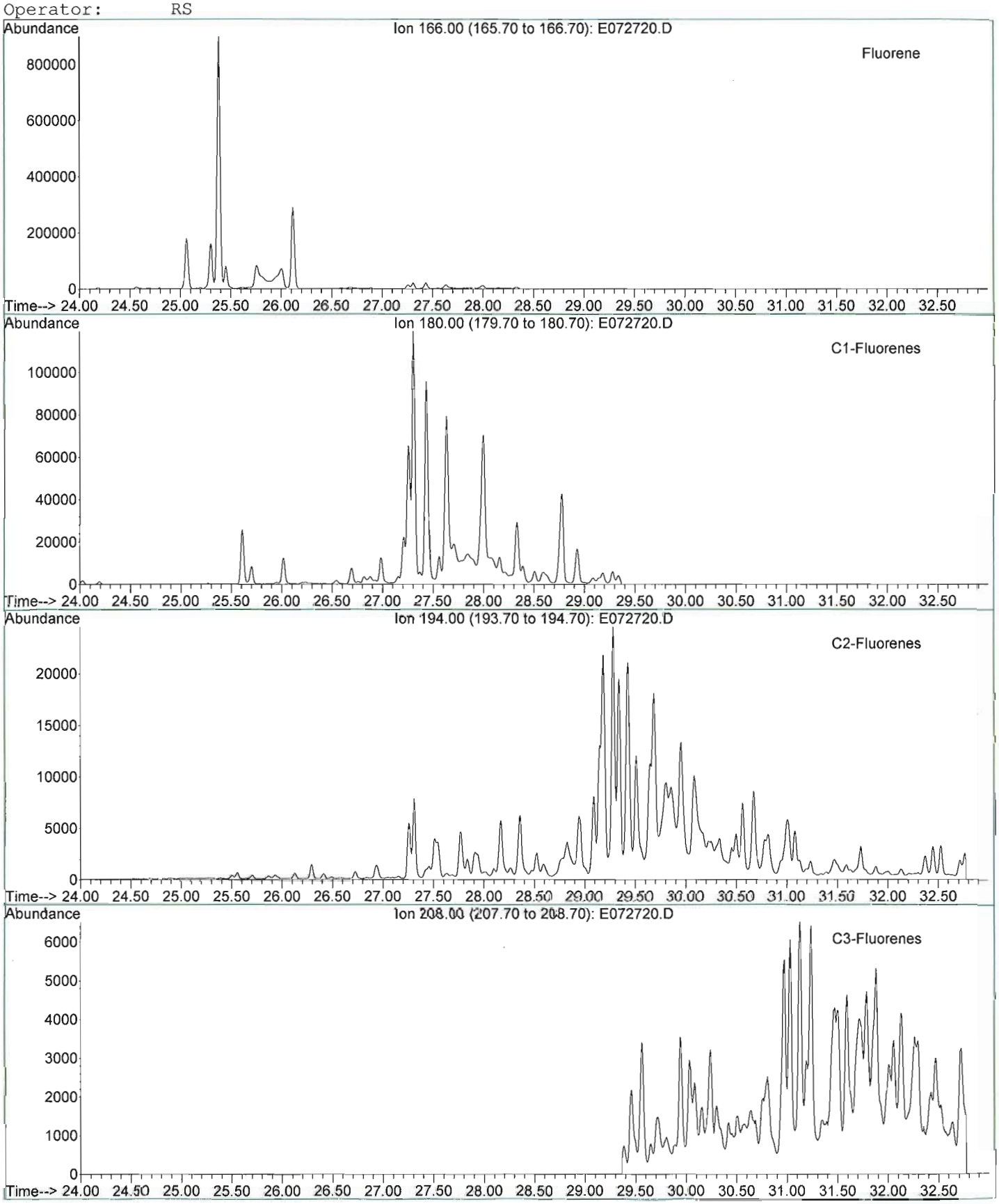
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

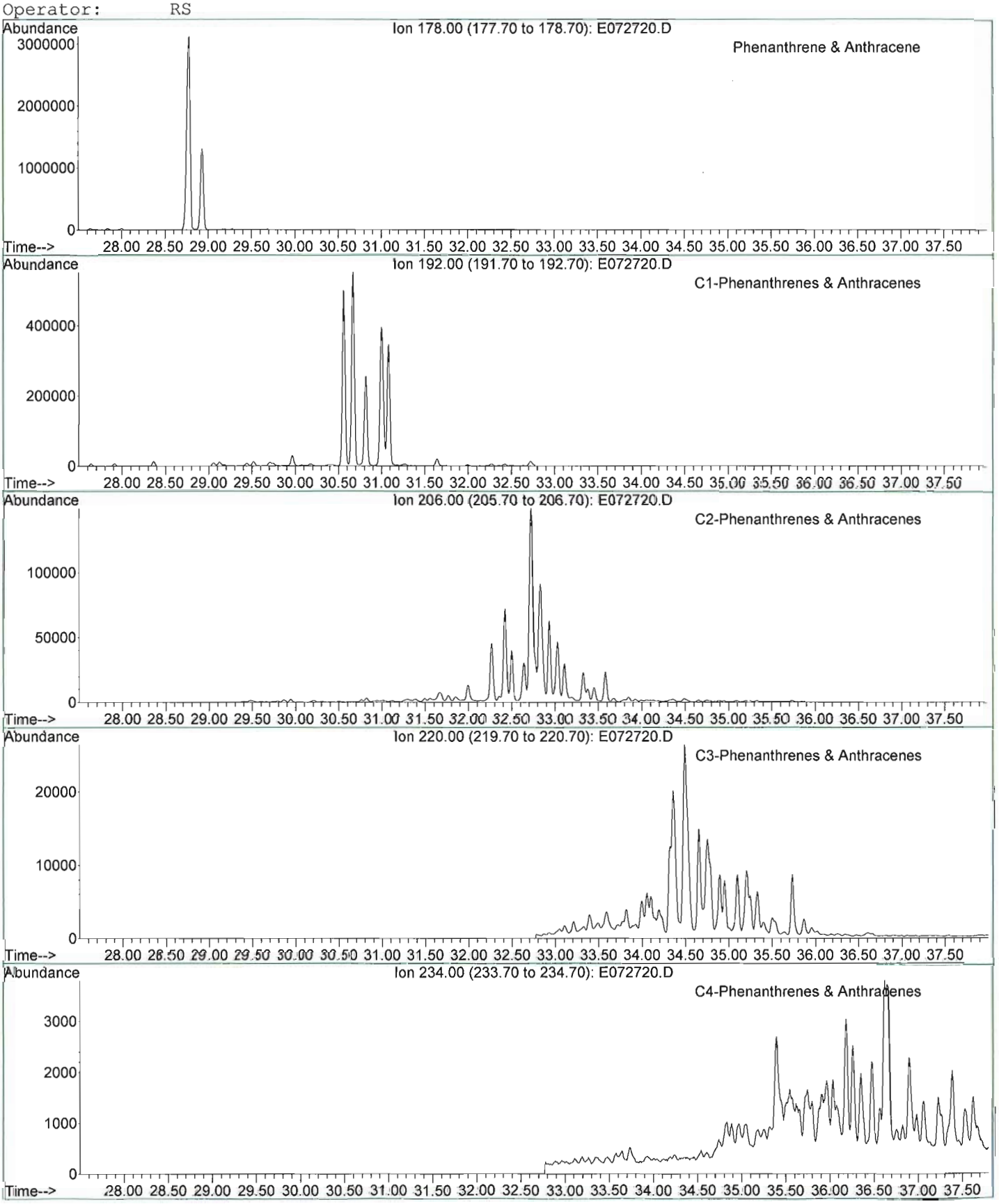
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

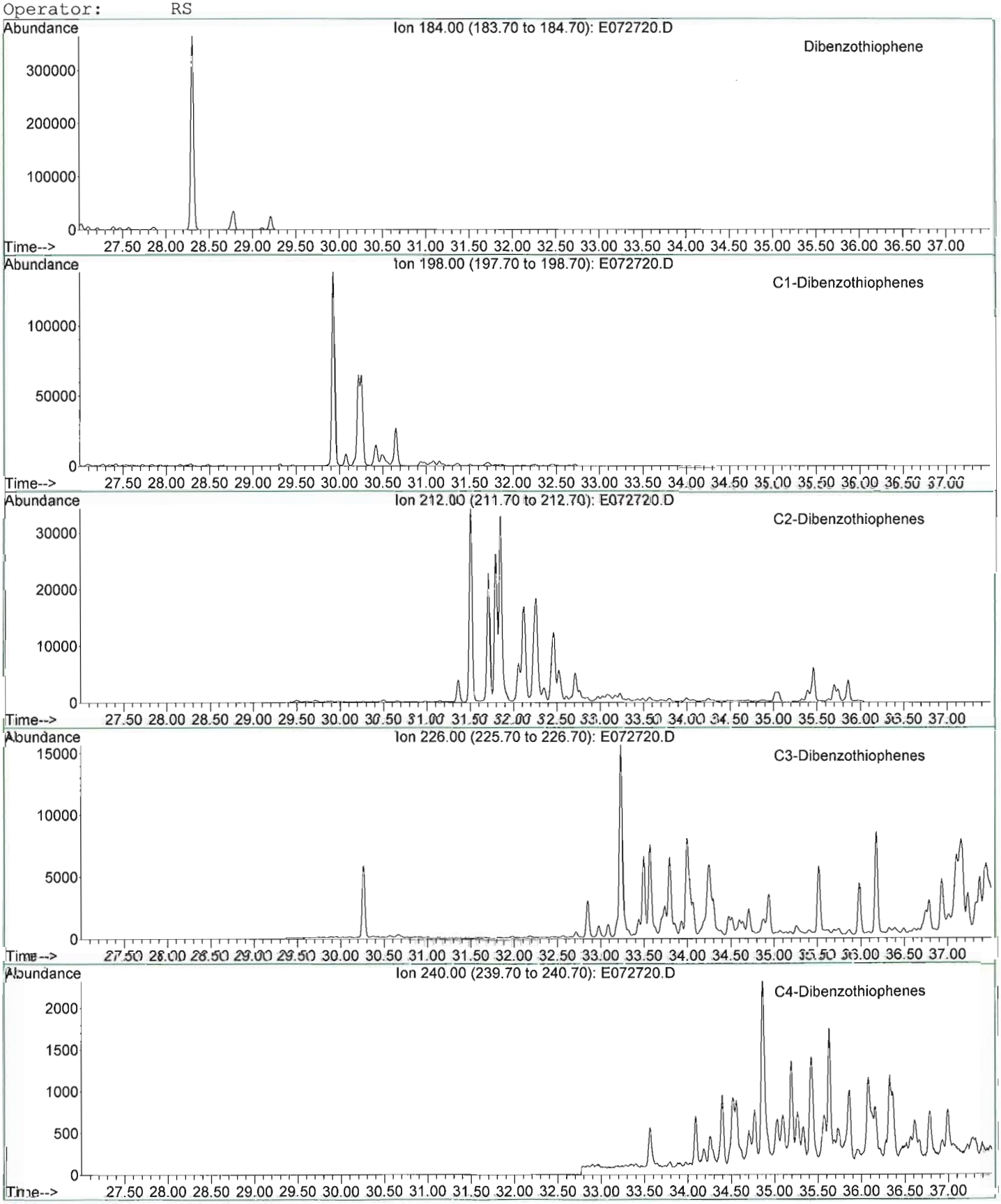
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

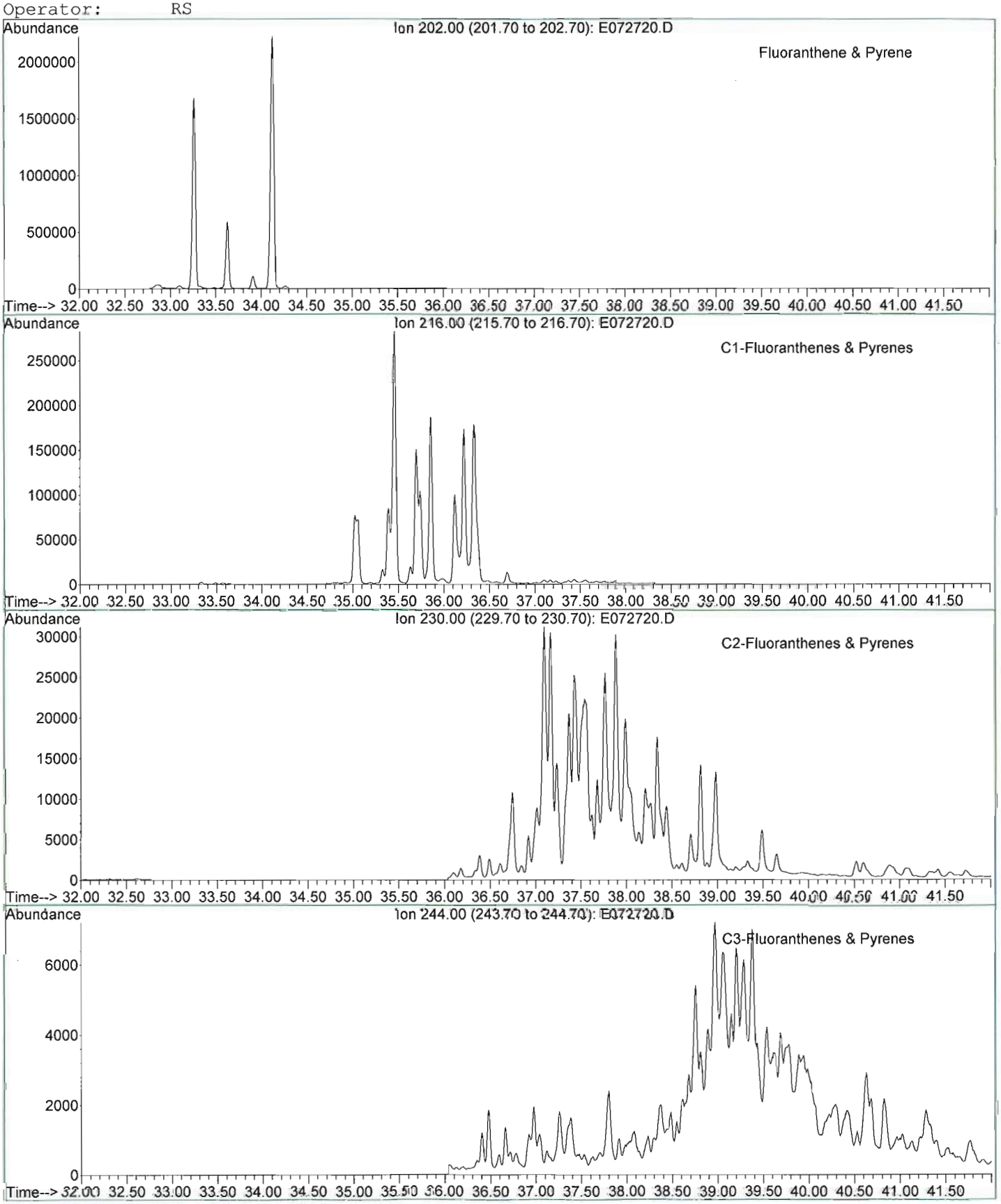
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

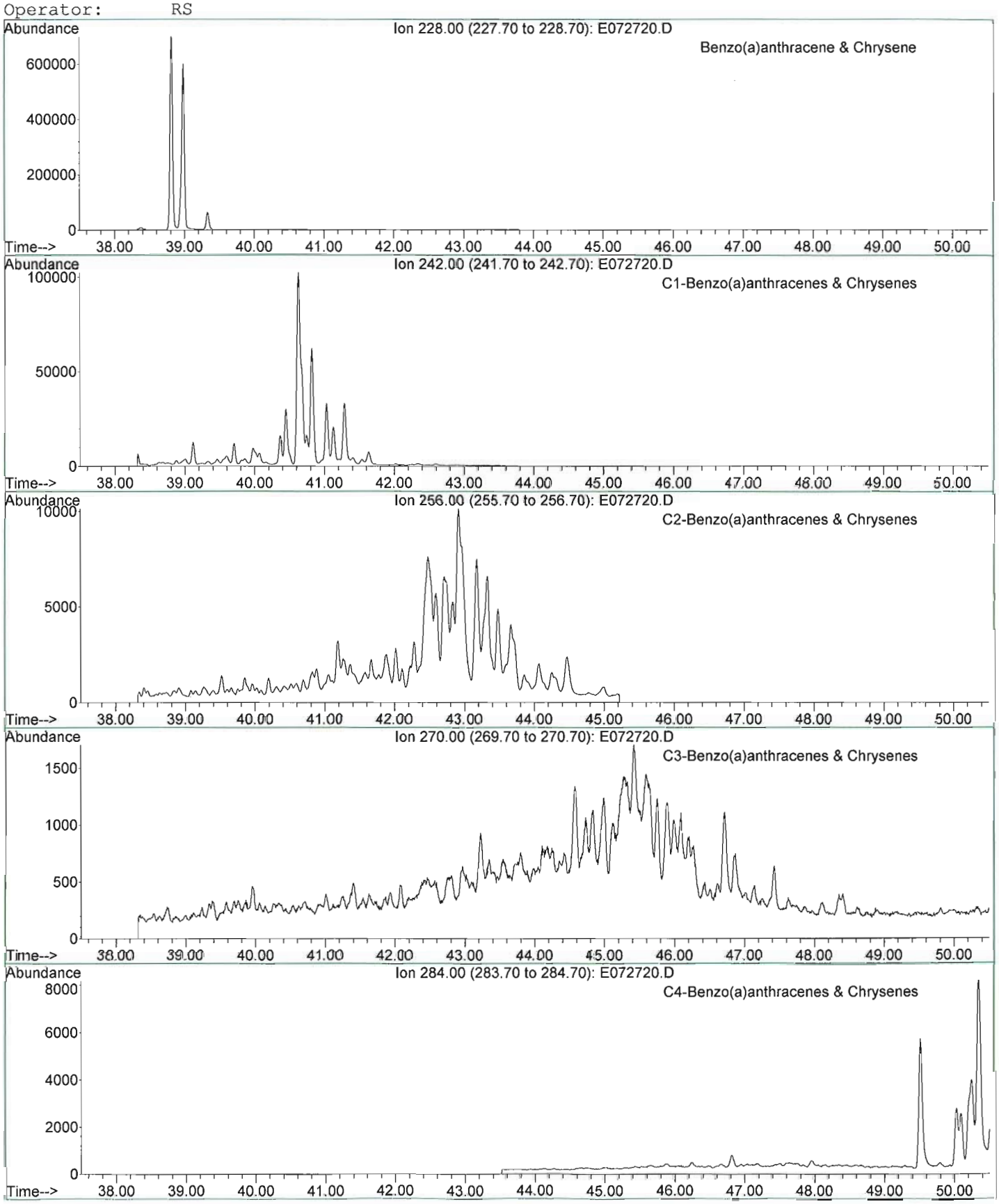
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

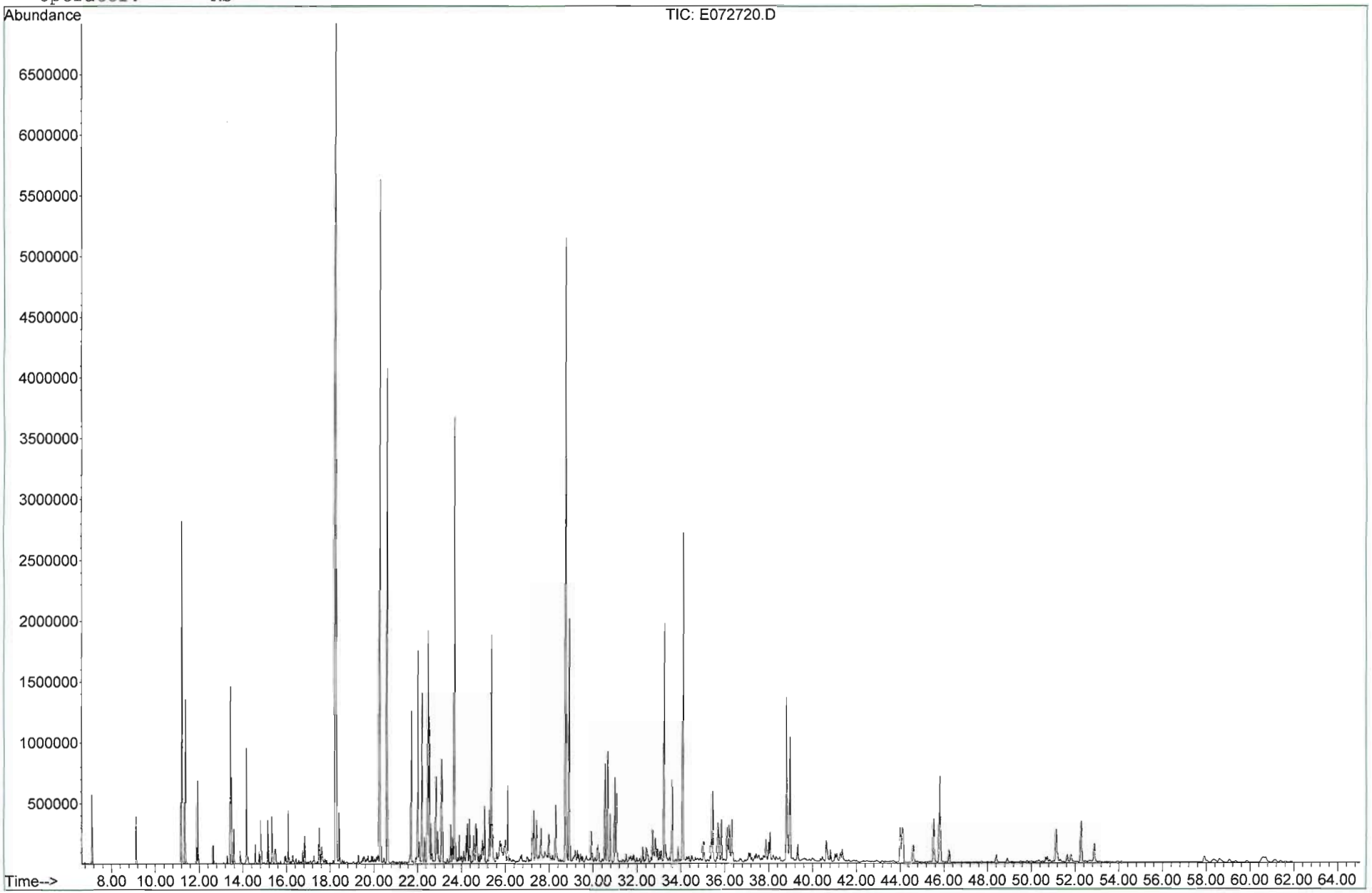
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

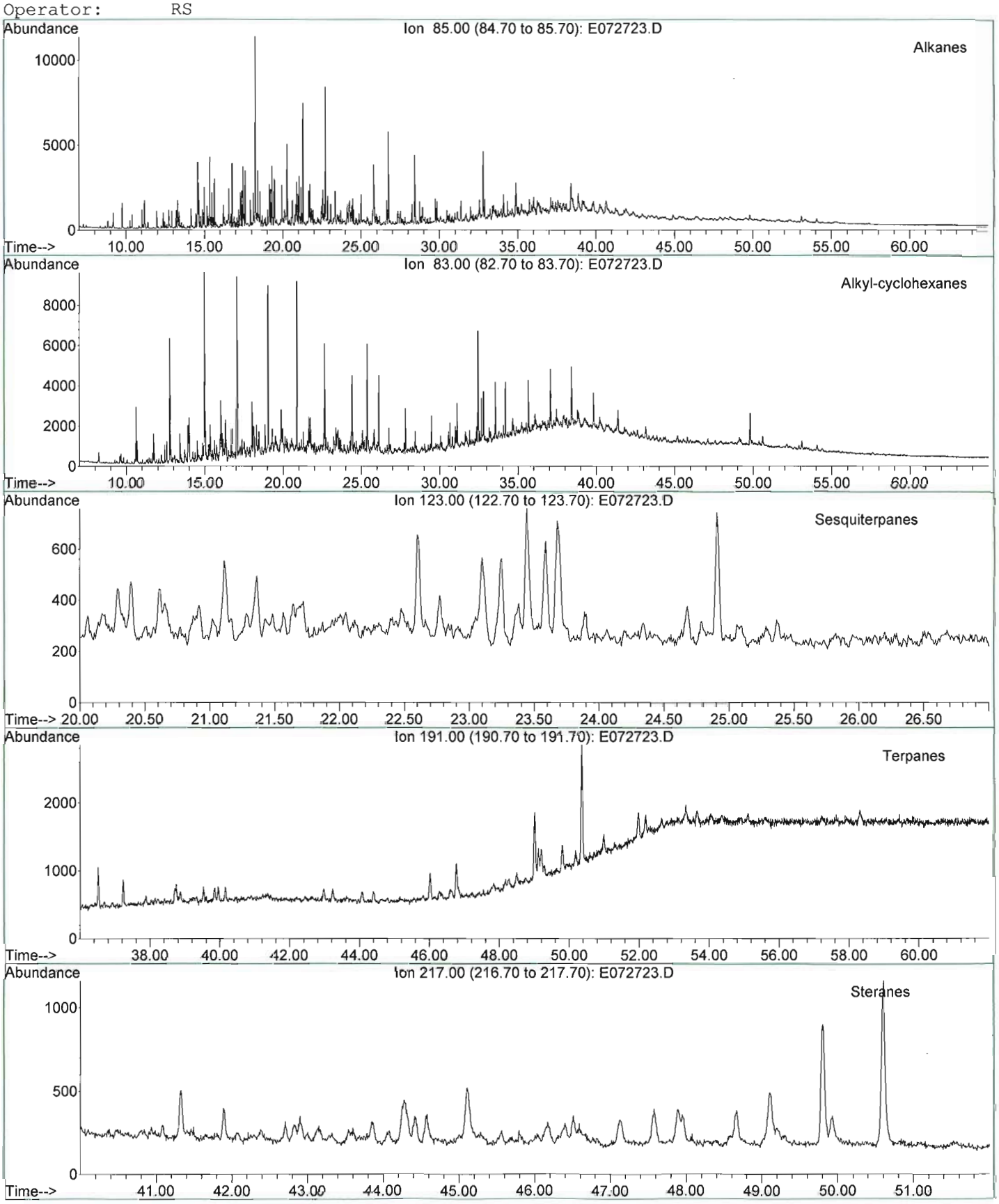
File: J:\1\DATA\E060727\E072720.D
Date Acquired: 28 Jul 2006 1:31 pm
Method File: 4008SIM2.M
Sample Name: BR060725-01-D
Misc Info: WSS-RSB017-001 (8'-8.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

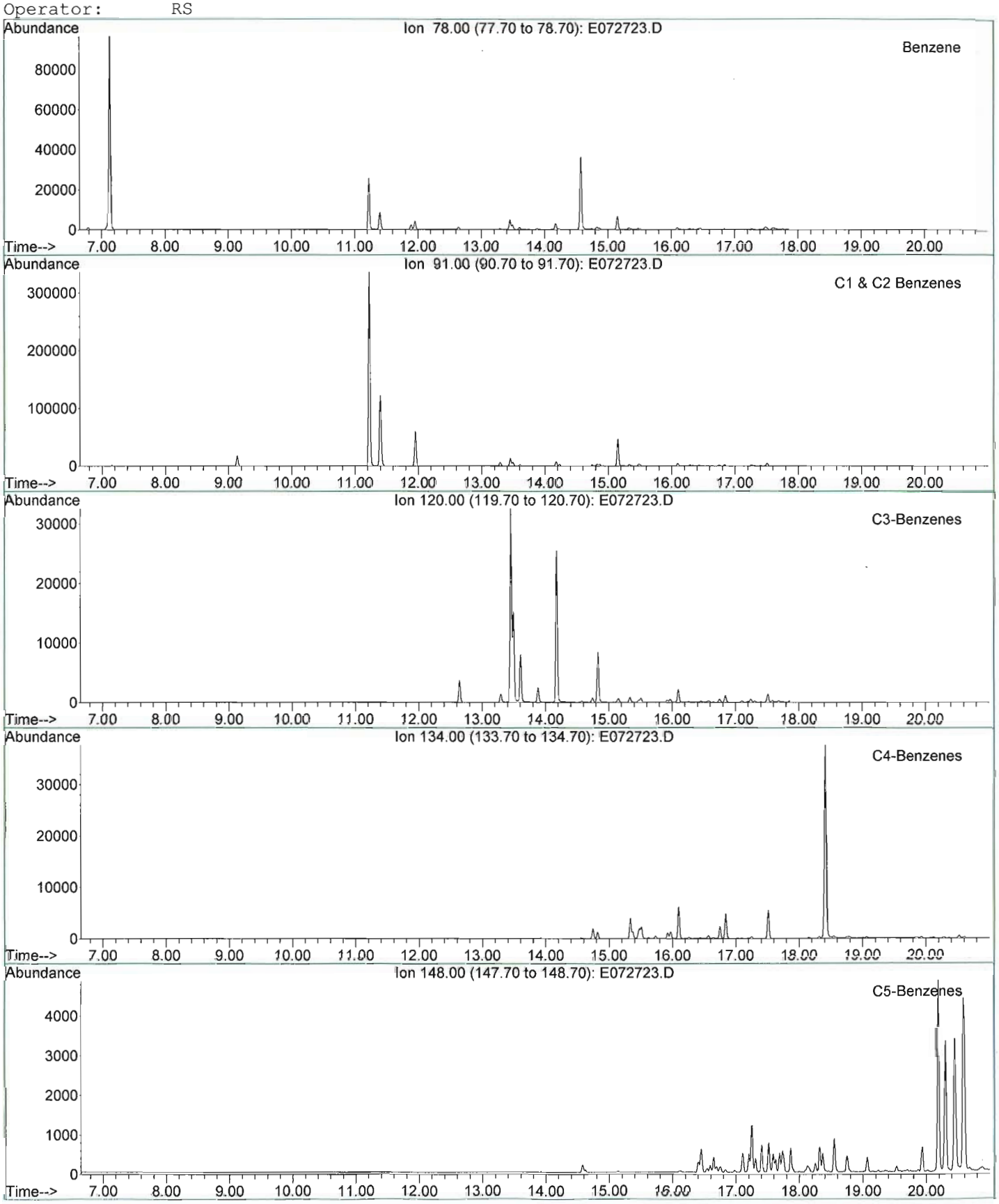
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

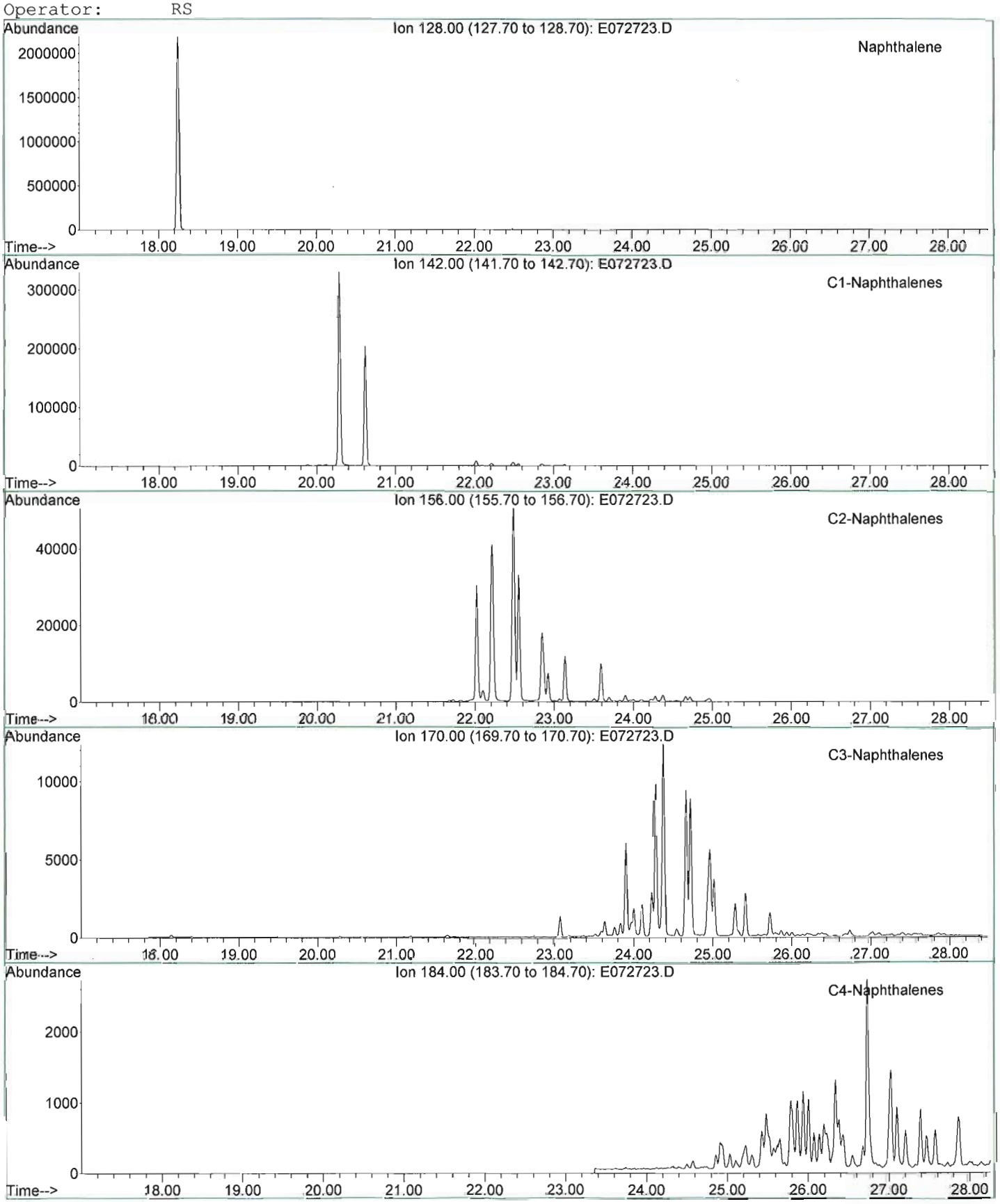
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

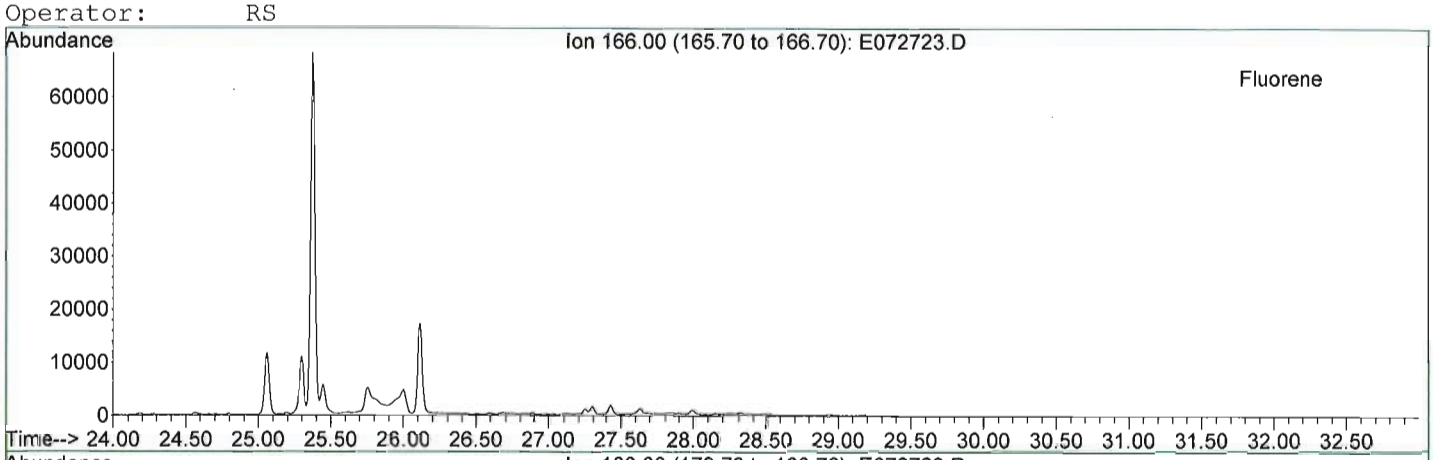
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS

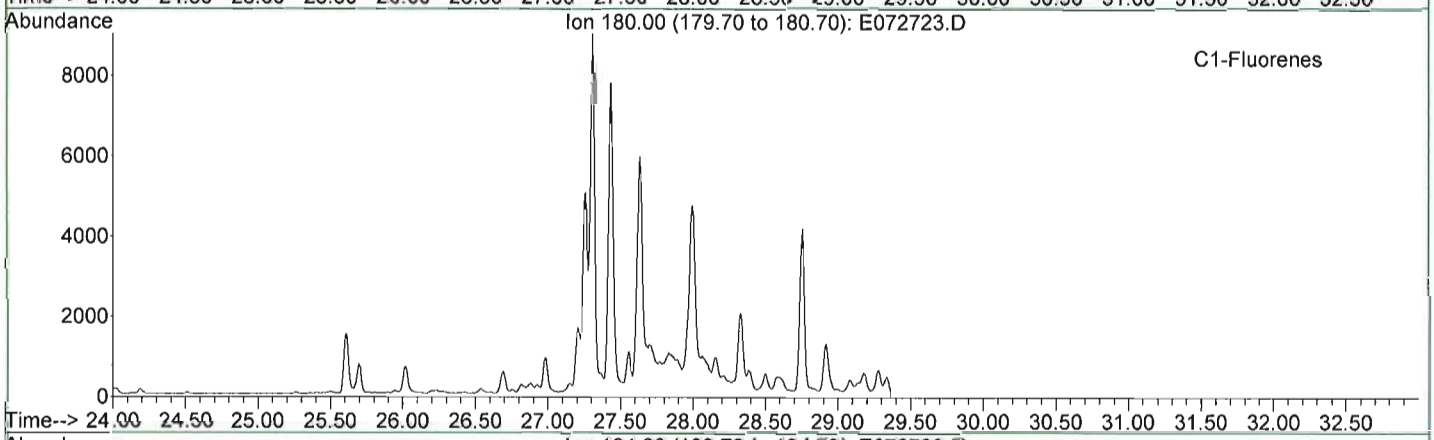


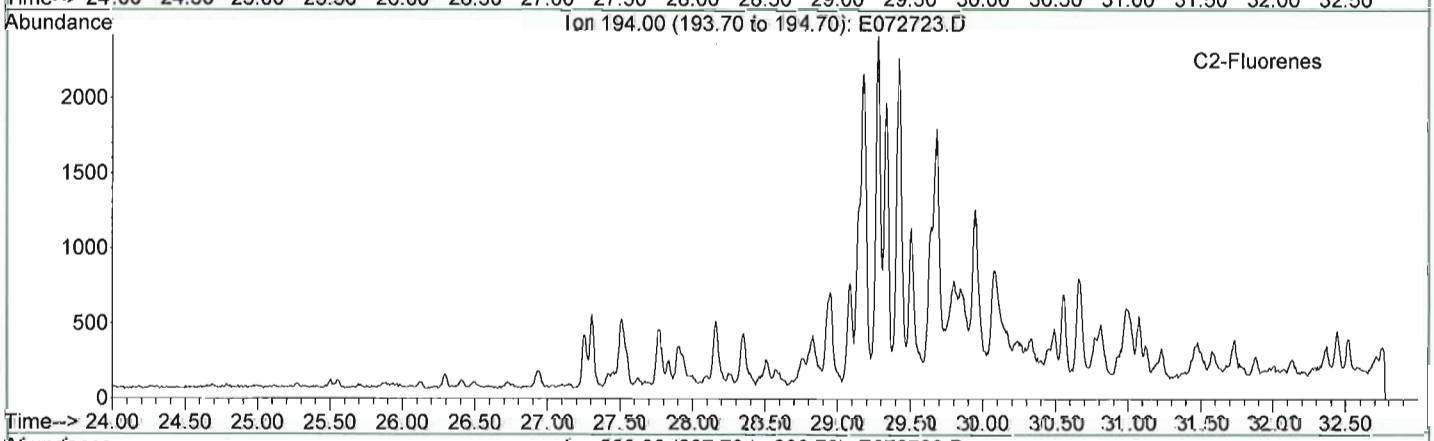
META Environmental, Inc.

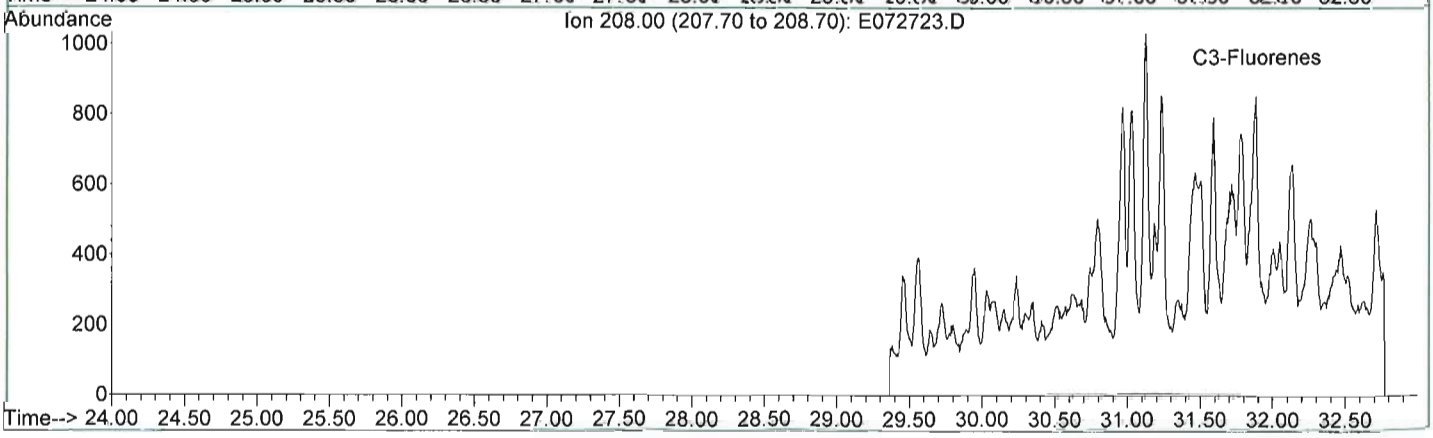
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



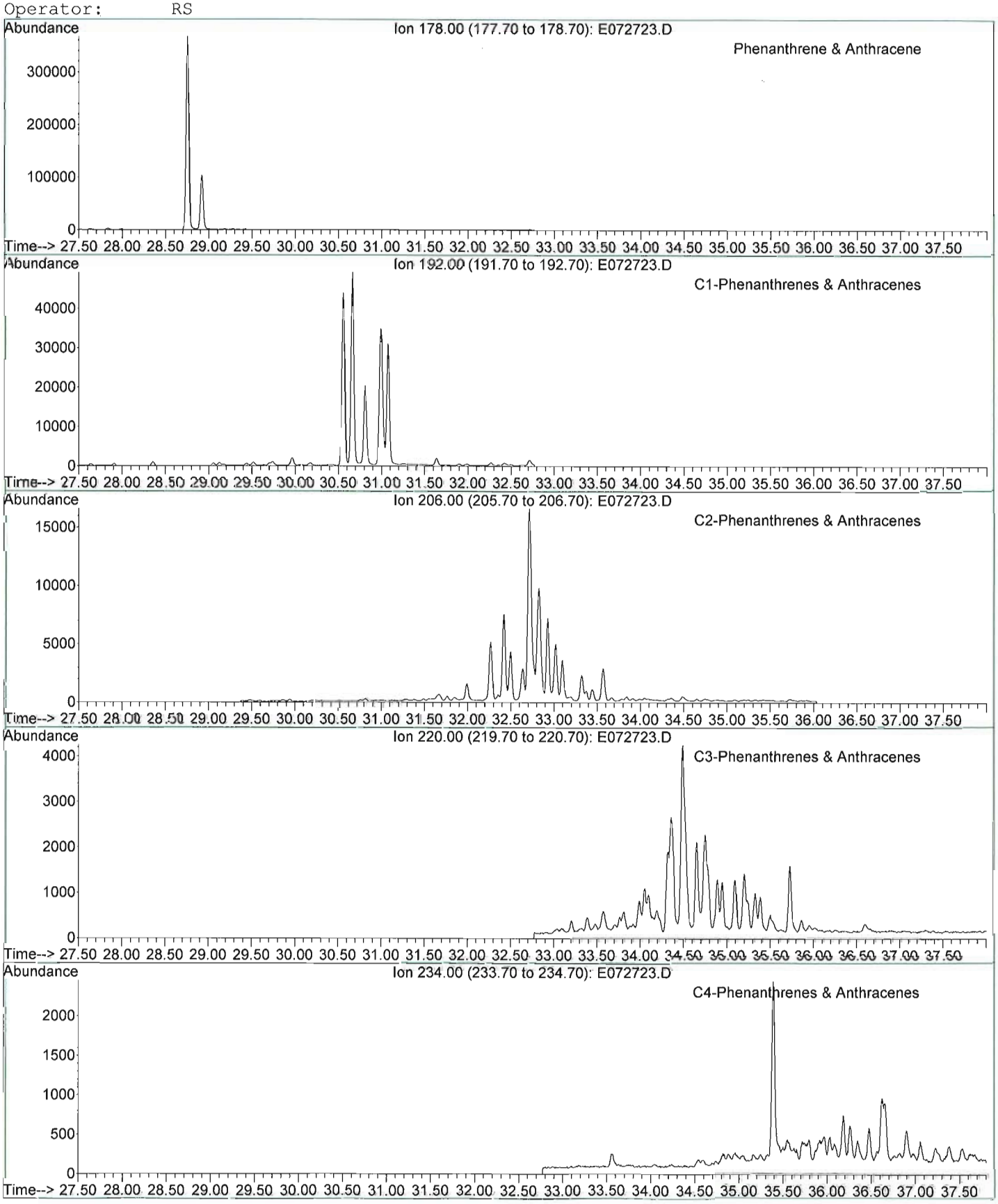



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

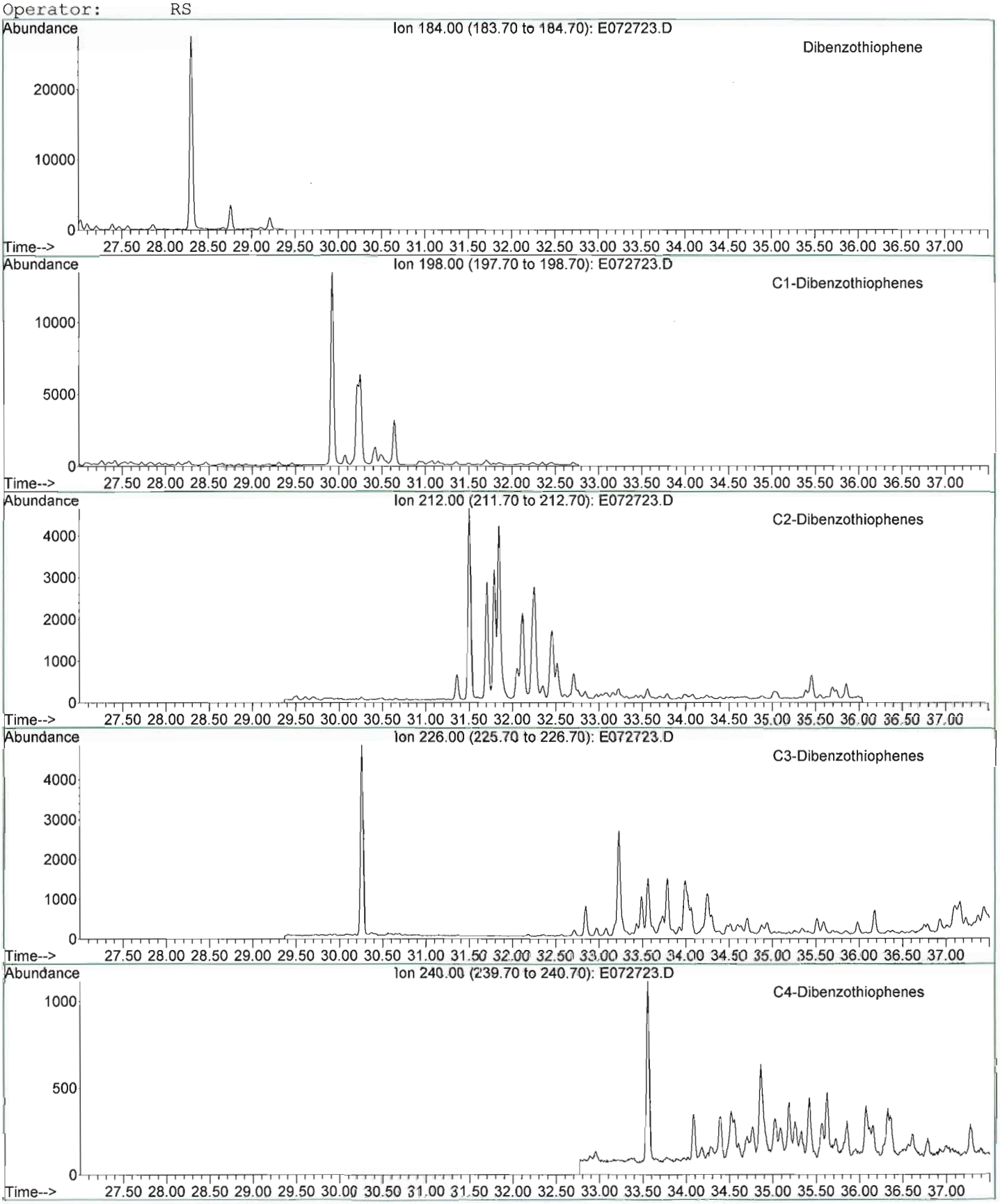
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

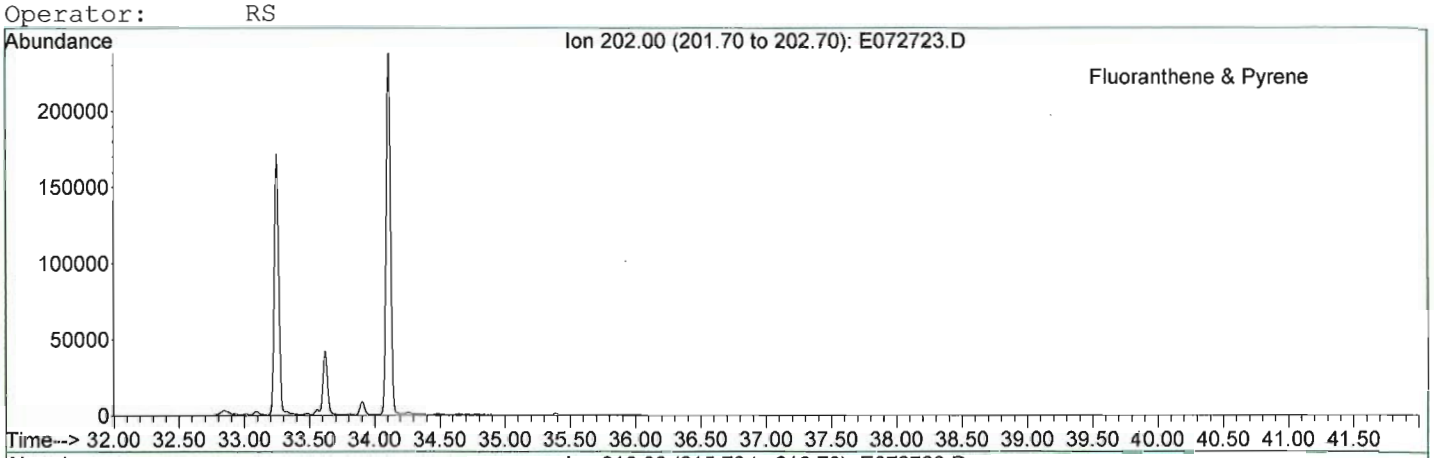
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS

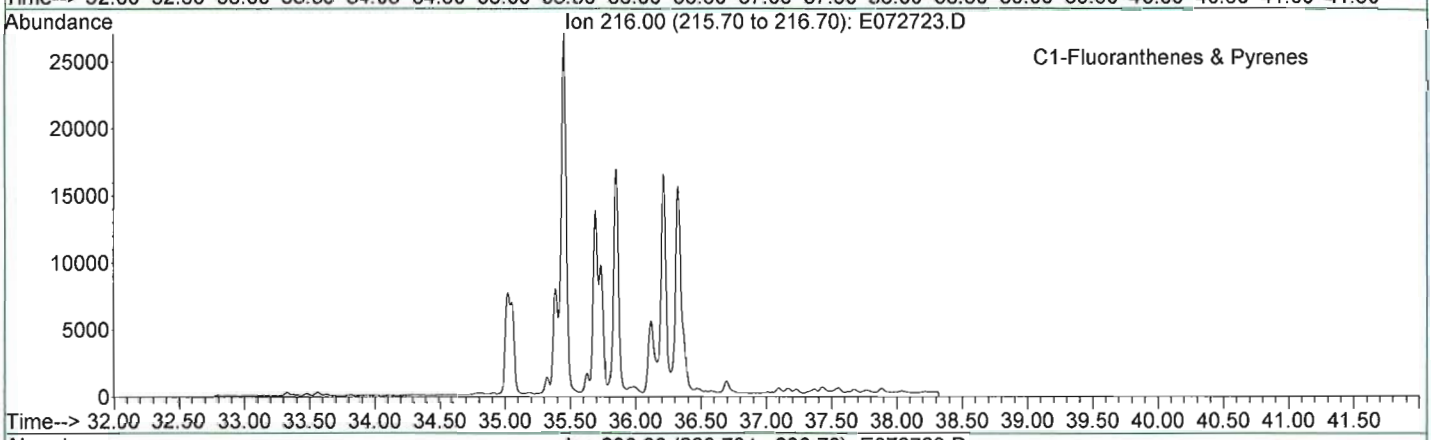


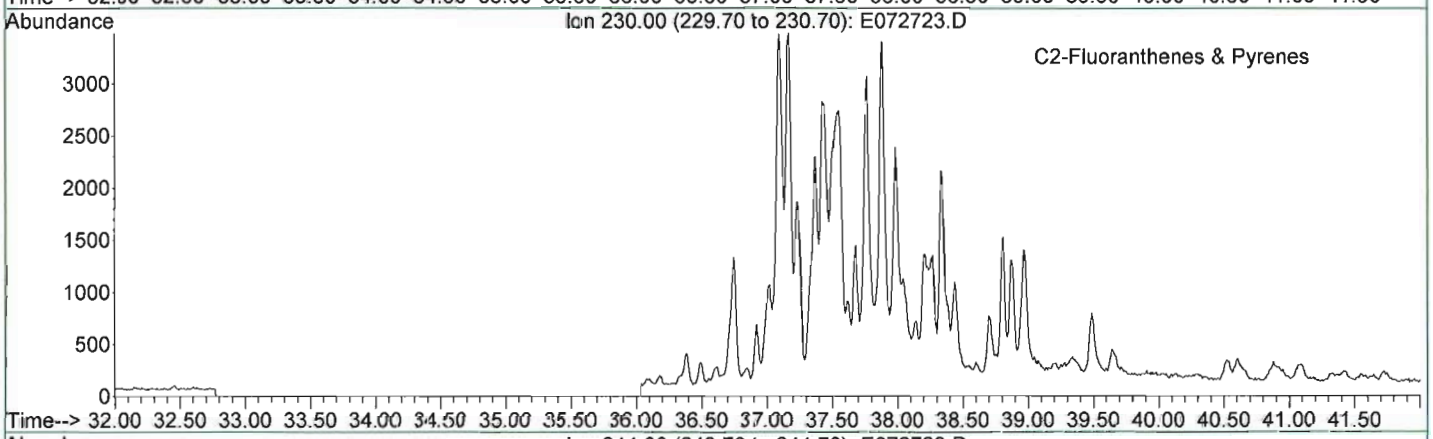
META Environmental, Inc.

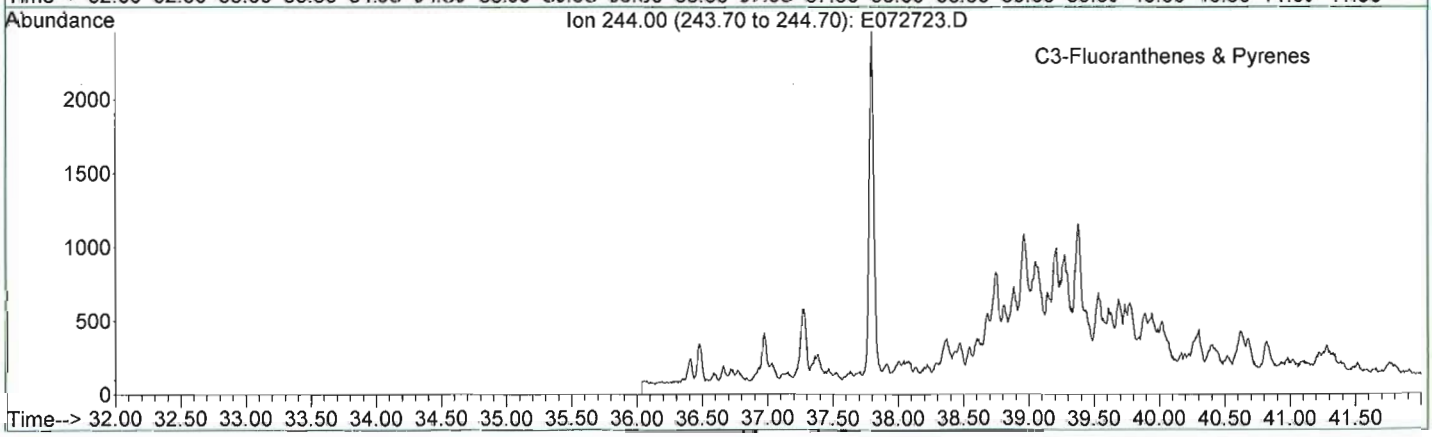
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



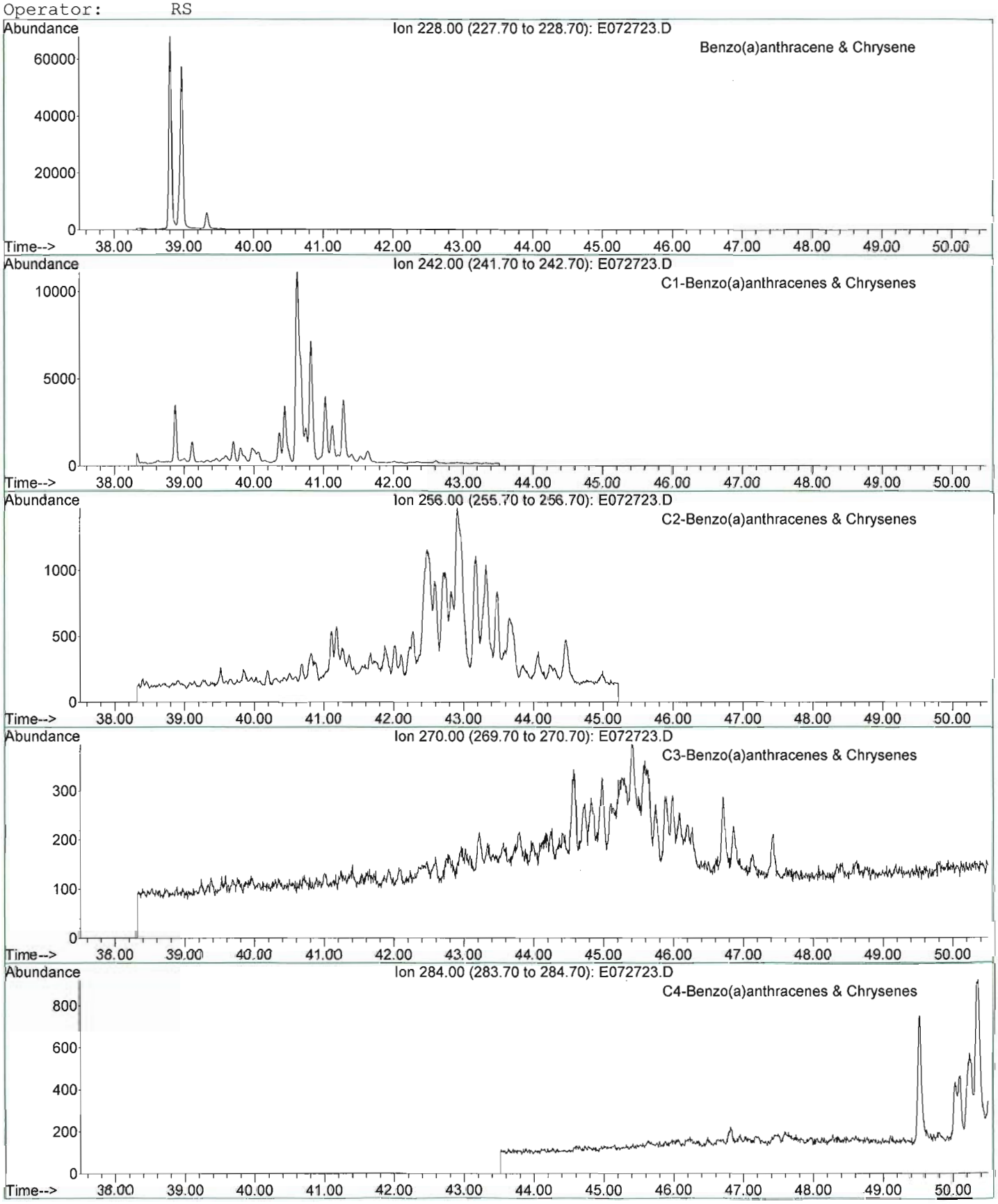



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

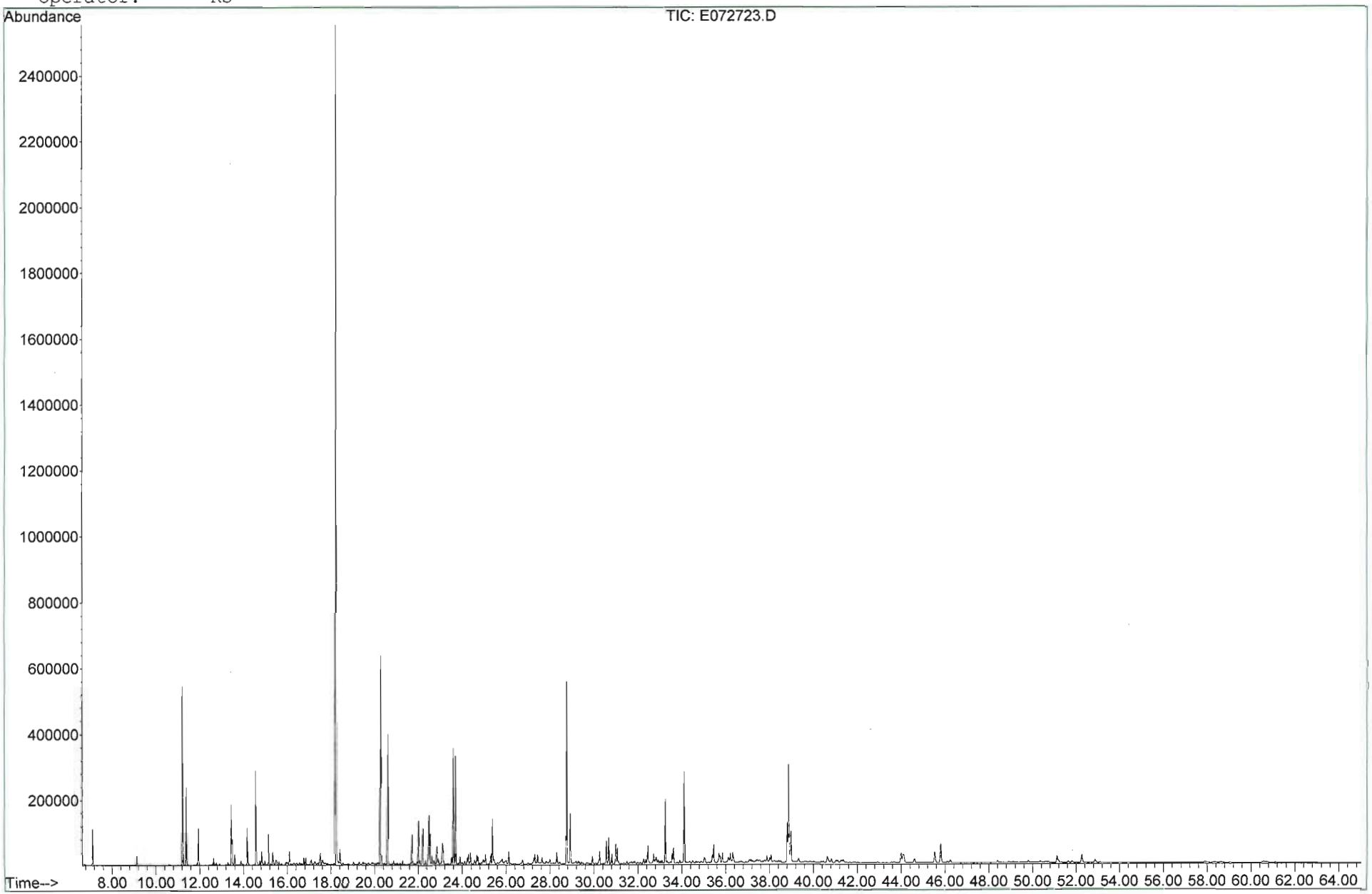
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

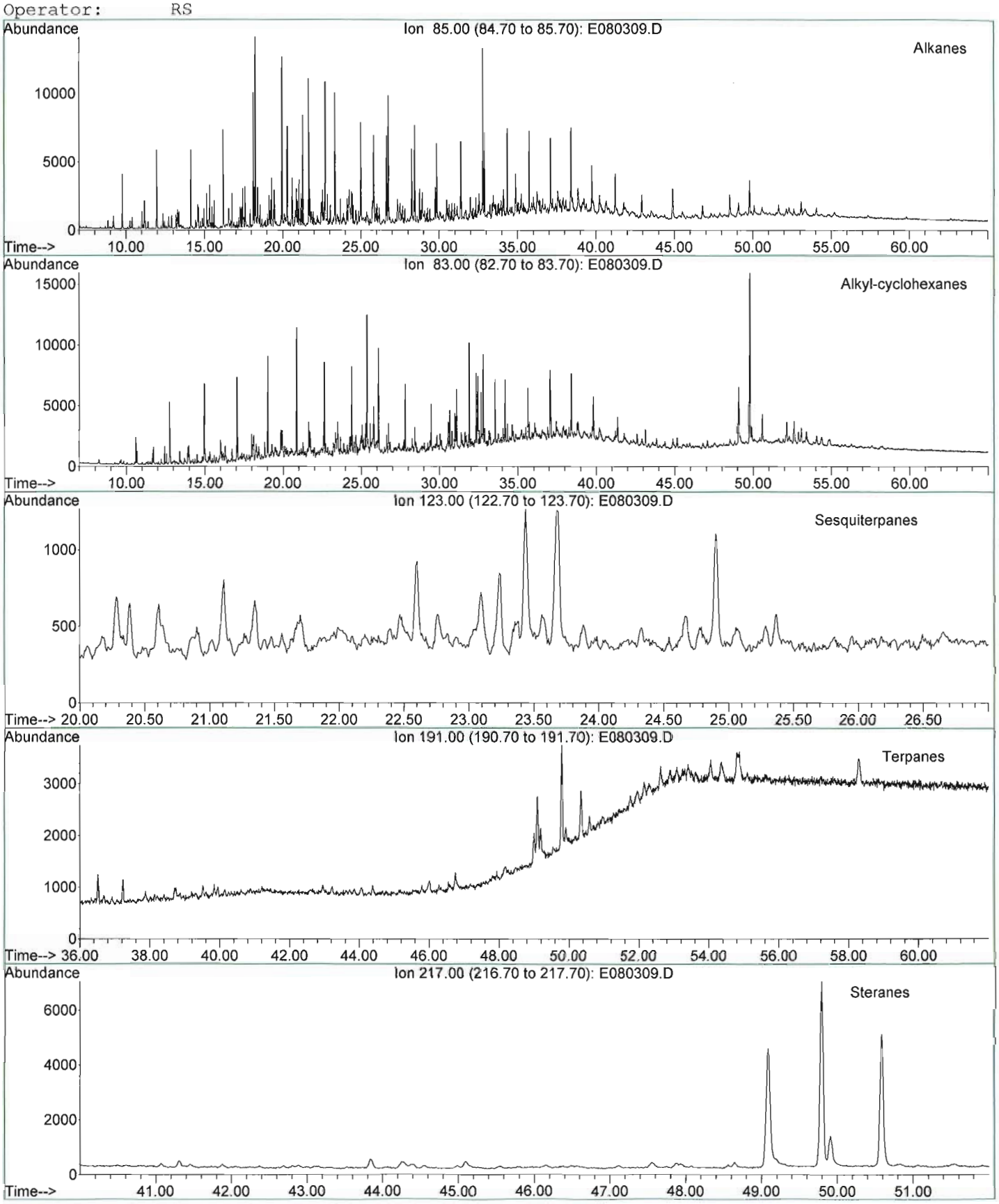
File: J:\1\DATA\E060727\E072723.D
Date Acquired: 28 Jul 2006 6:37 pm
Method File: 4008SIM2.M
Sample Name: BR060725-02-D
Misc Info: WSS-RSB018-001 (7.5' - 8')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

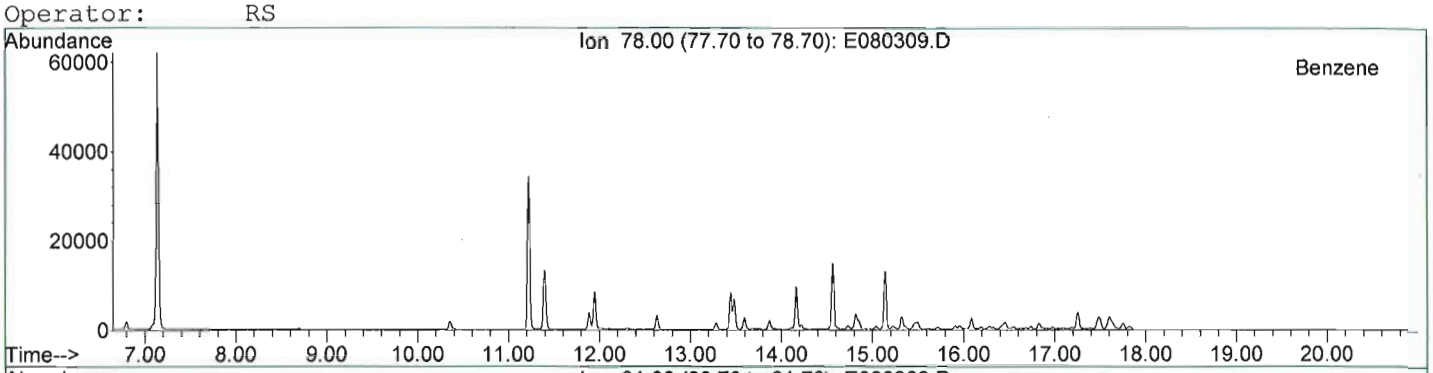
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS

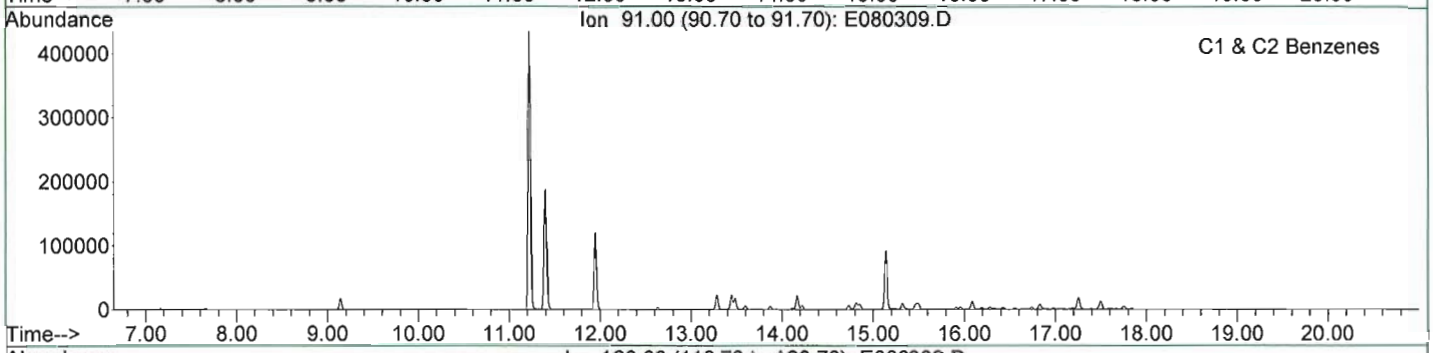


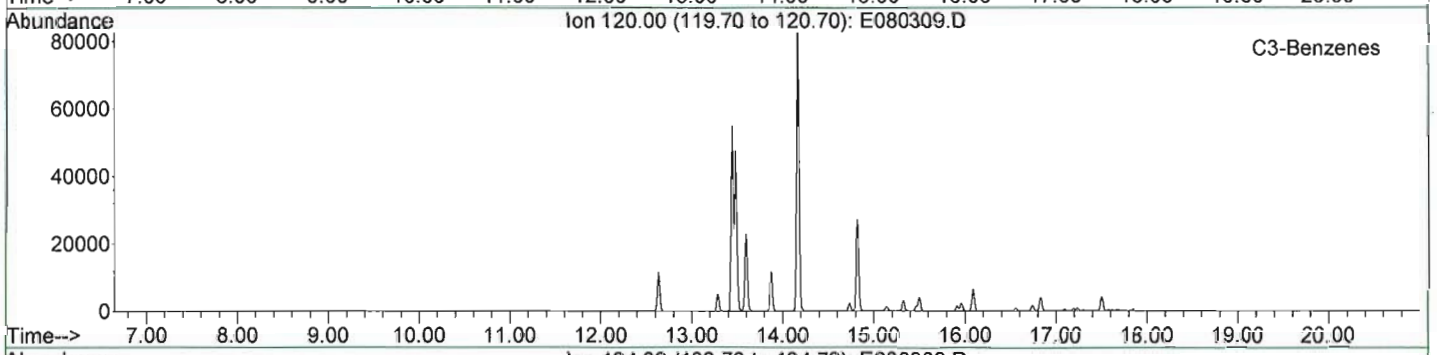
META Environmental, Inc.

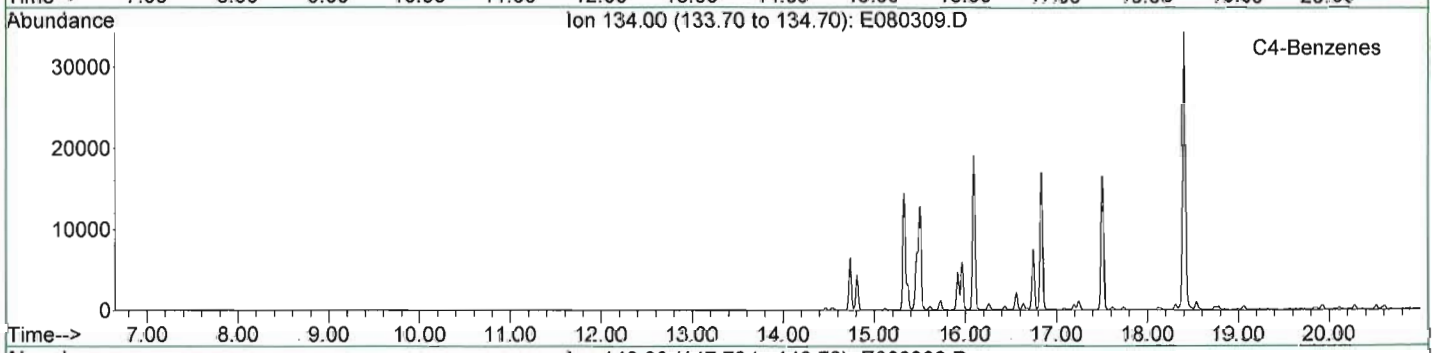
GC/MS EXTRACTED ION CHROMATOGRAM

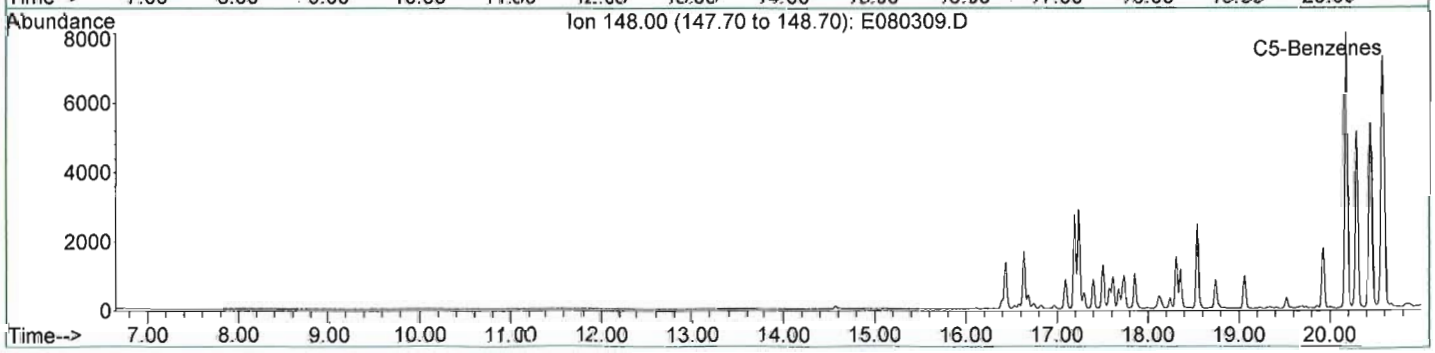
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



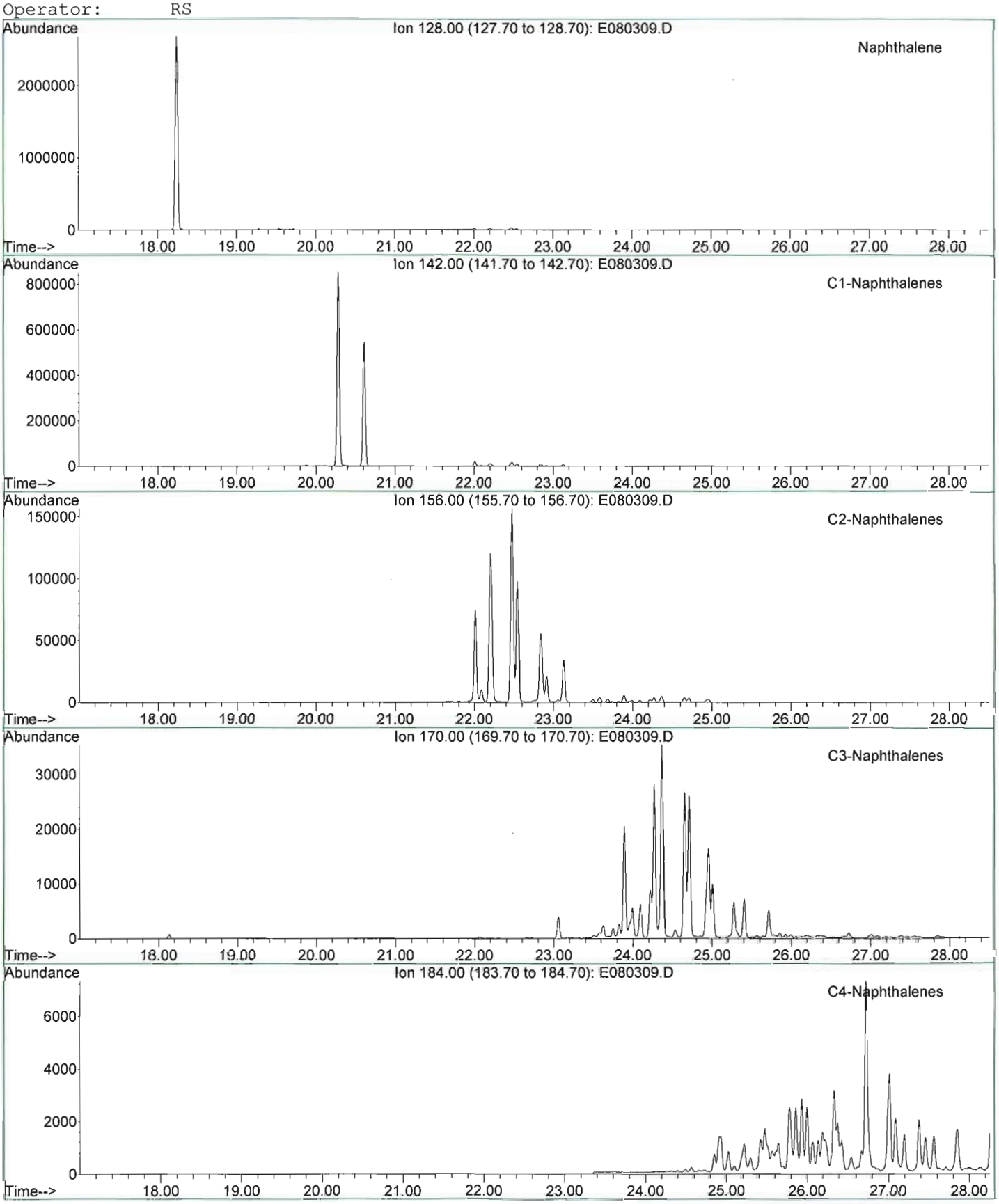



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

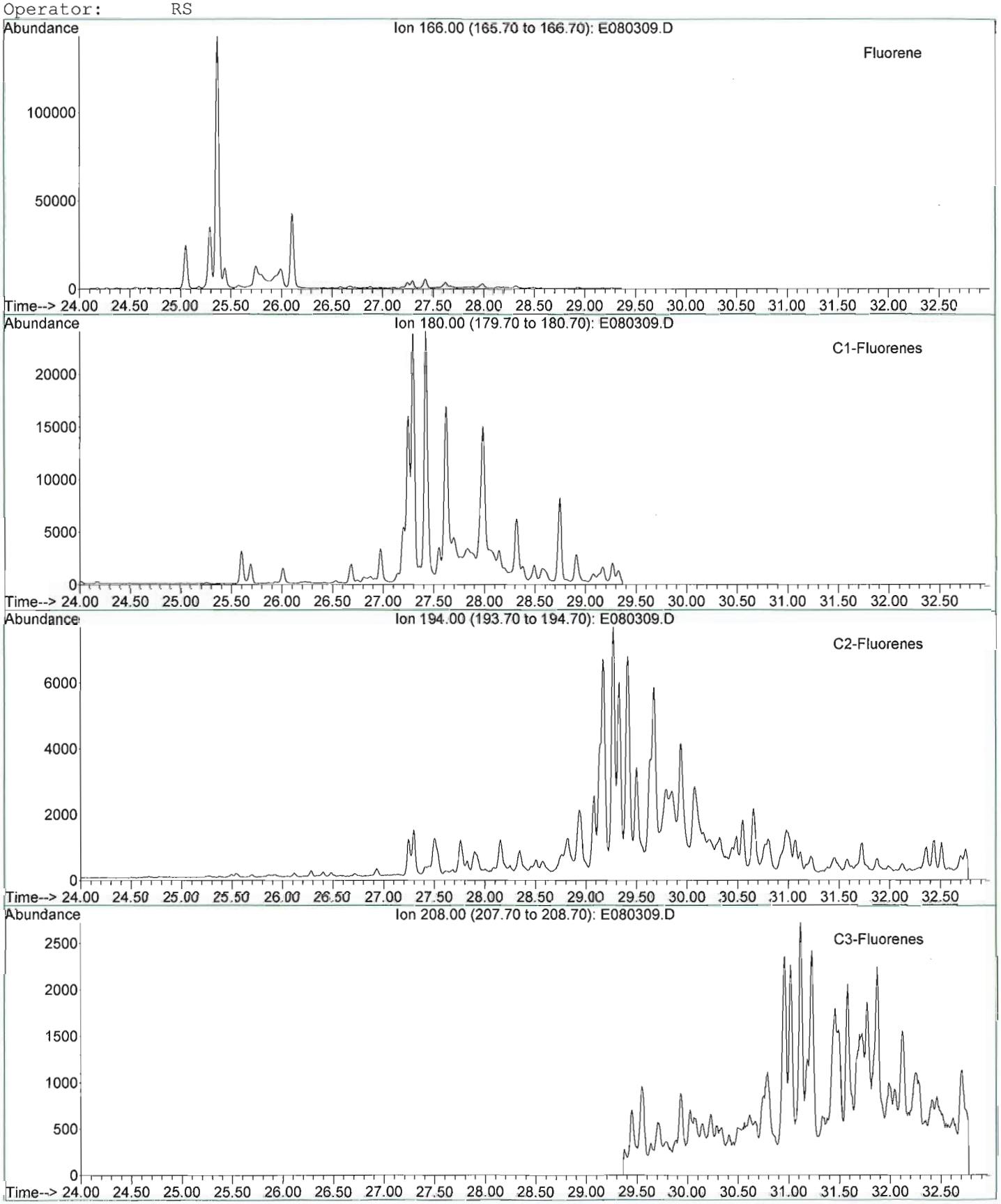
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

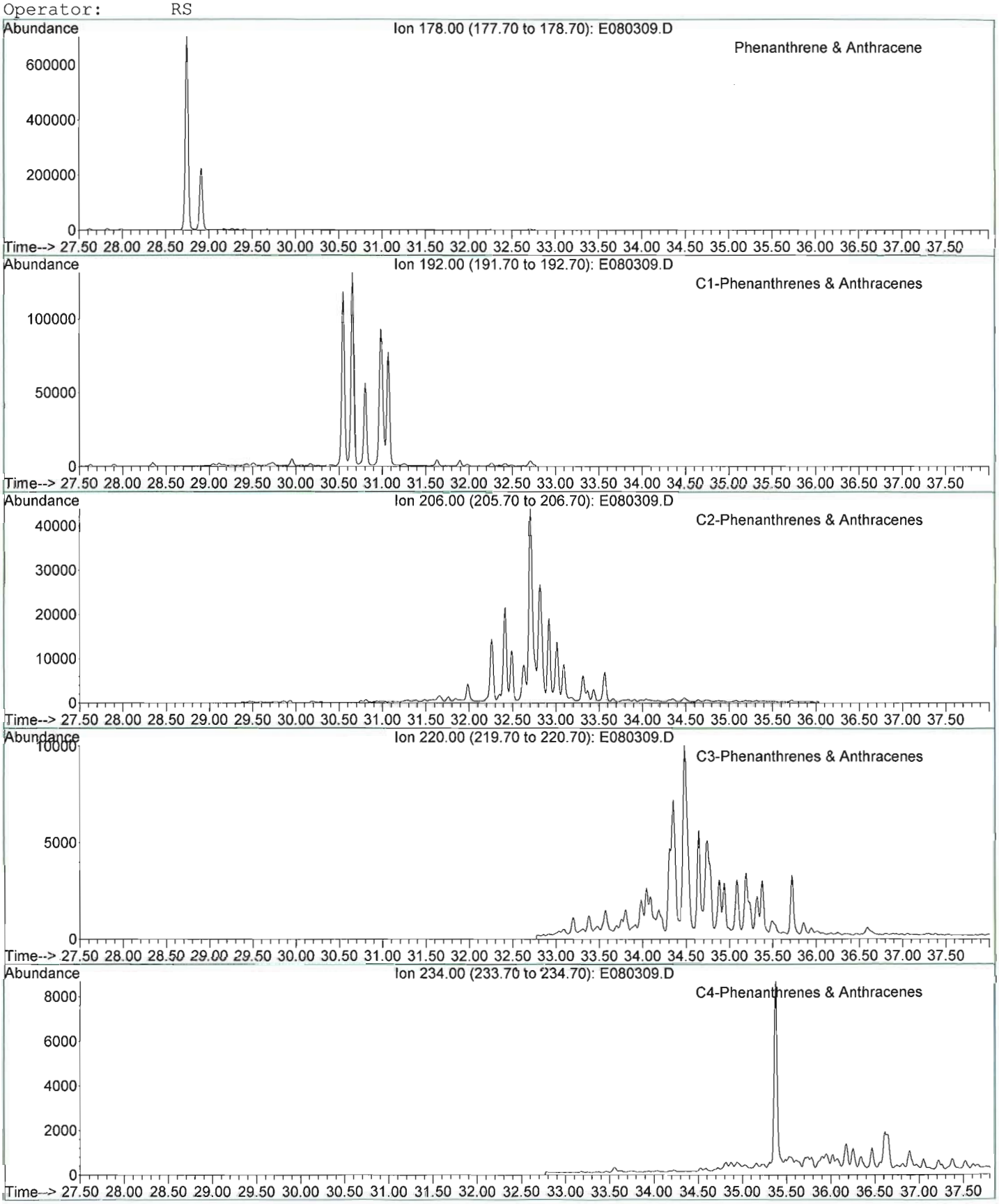
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

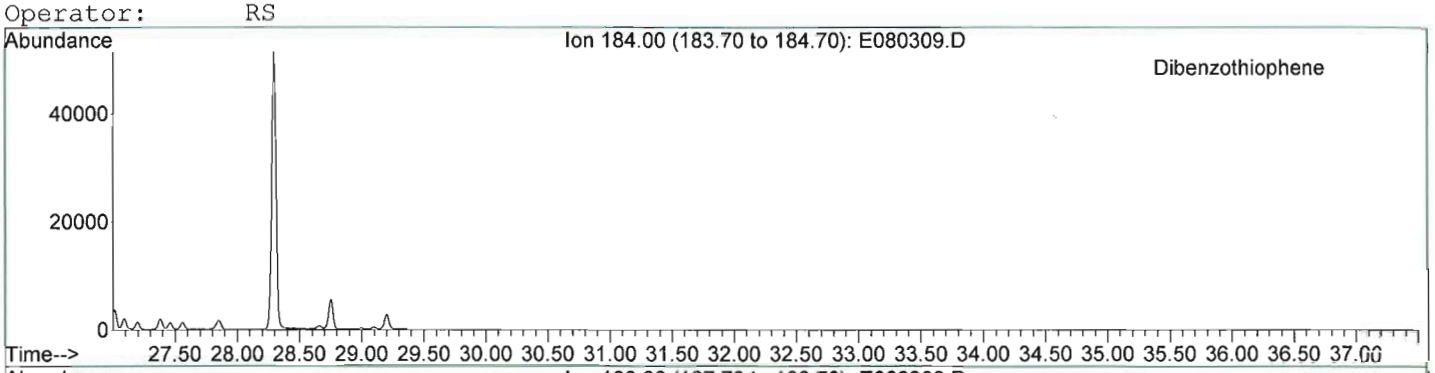
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS

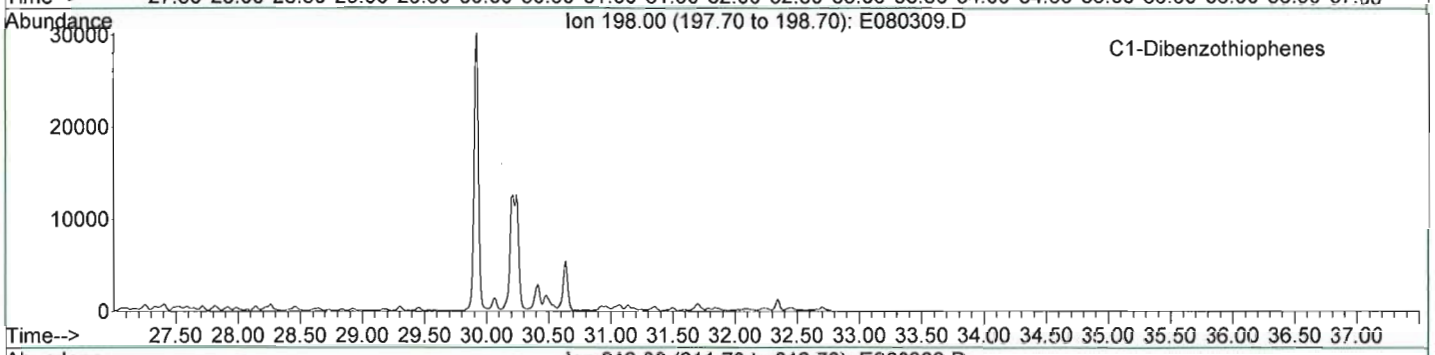


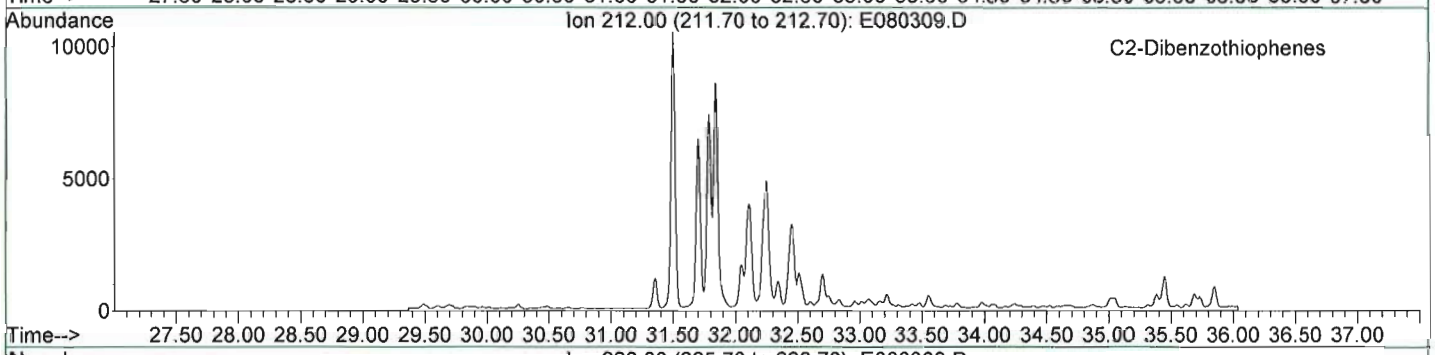
META Environmental, Inc.

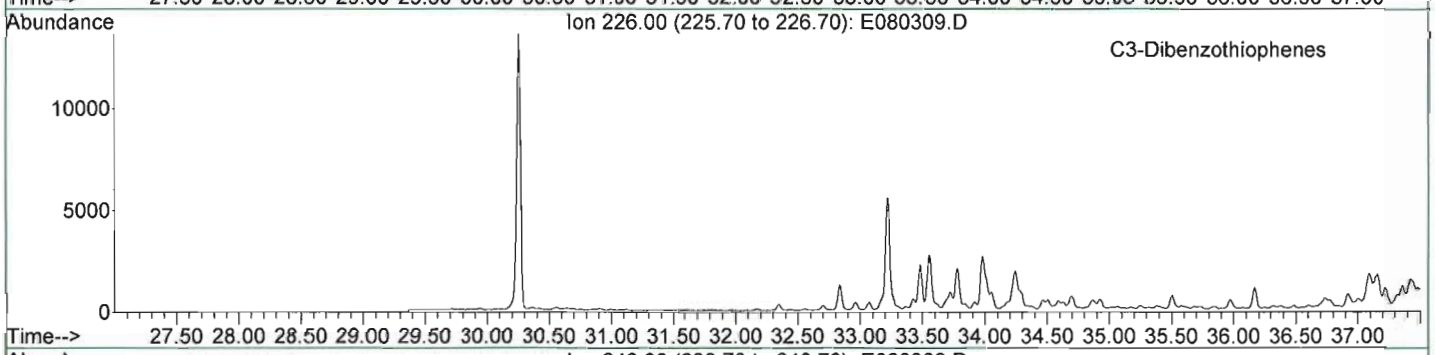
GC/MS EXTRACTED ION CHROMATOGRAM

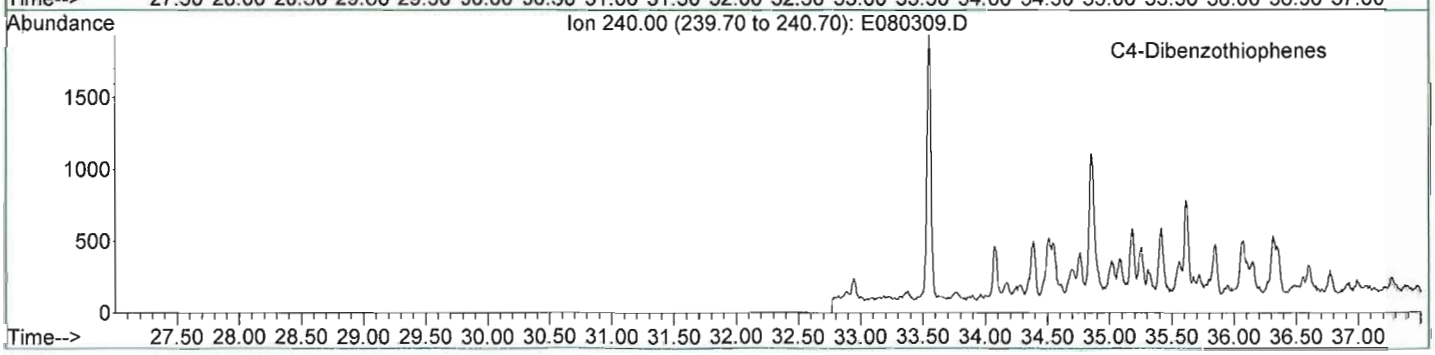
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



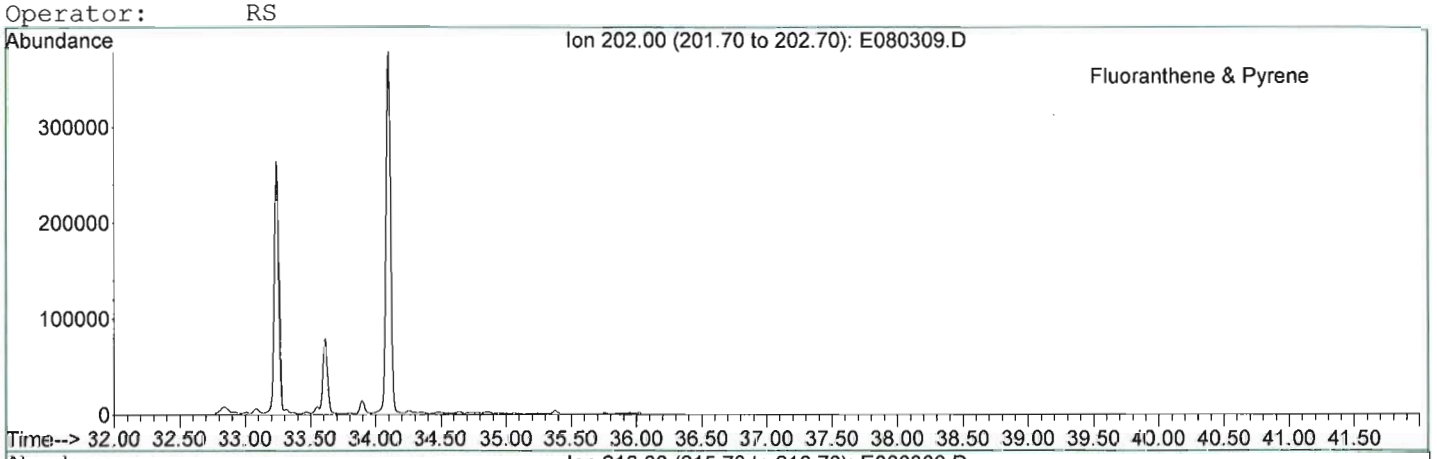



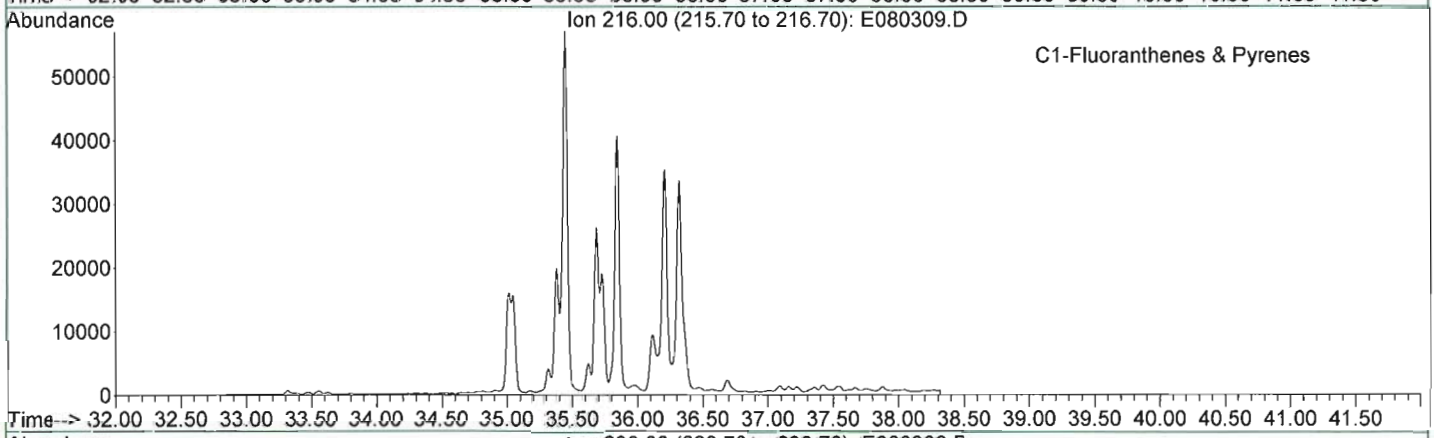



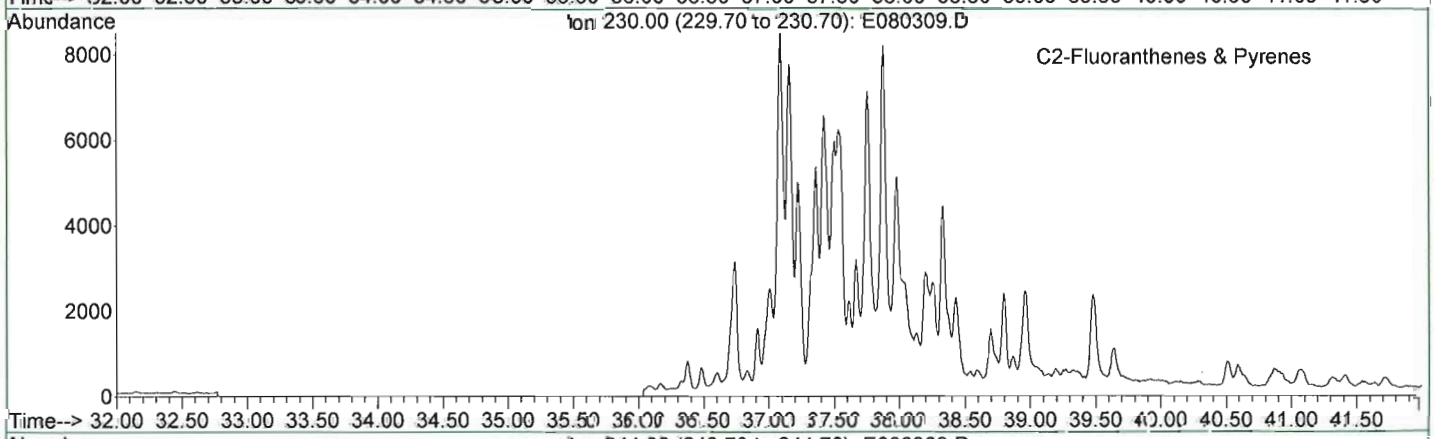
META Environmental, Inc.

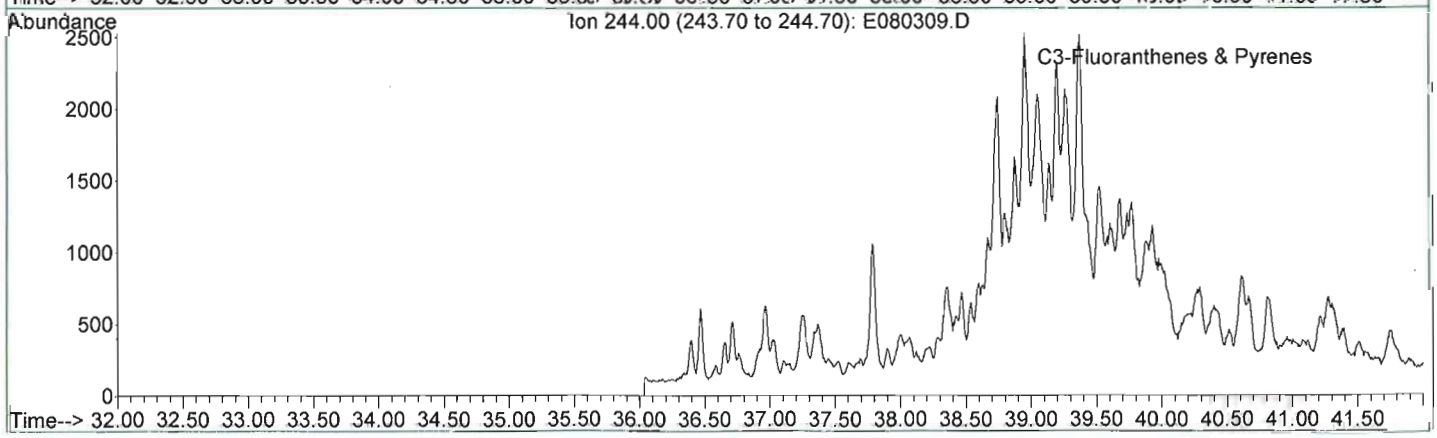
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



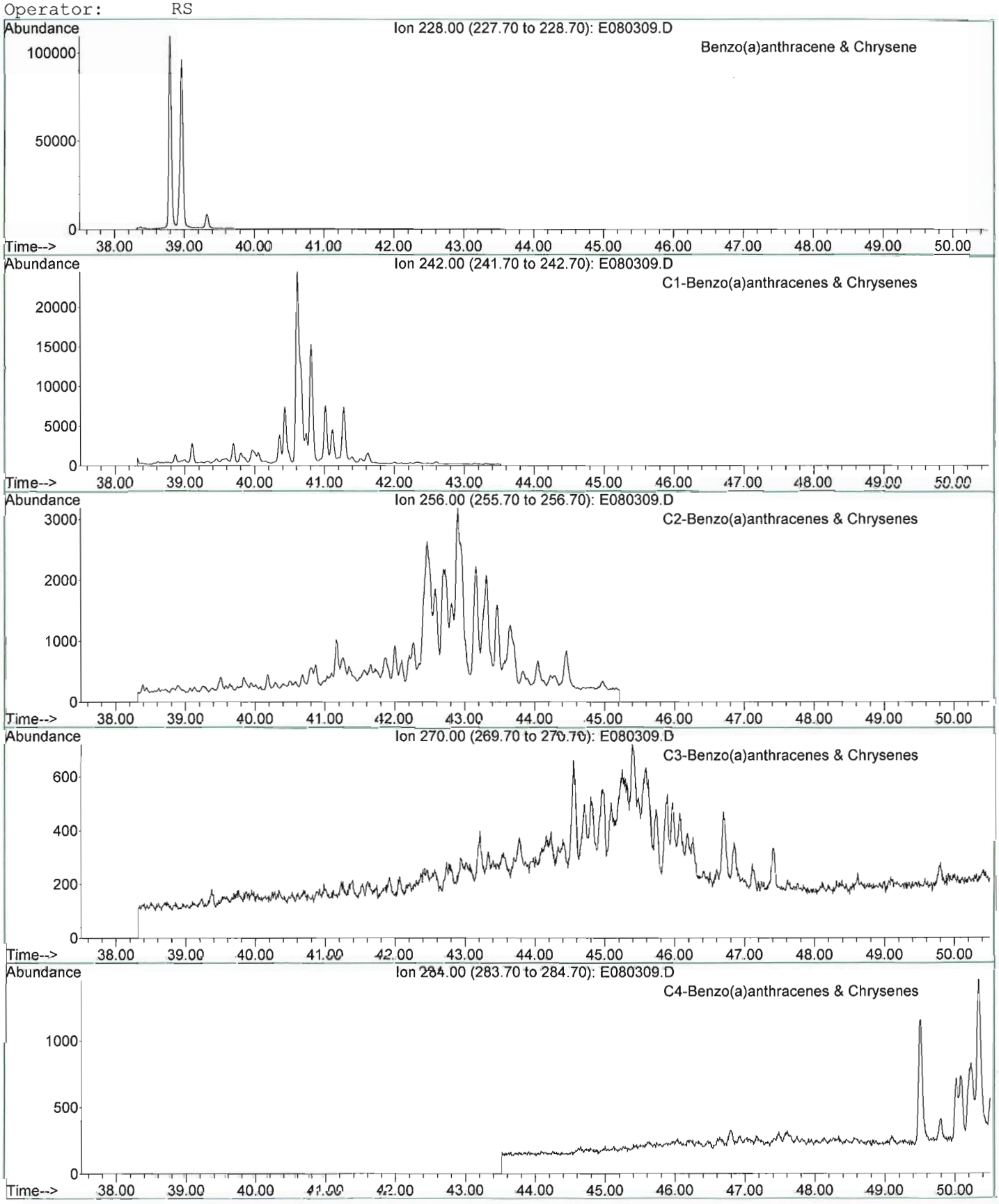



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

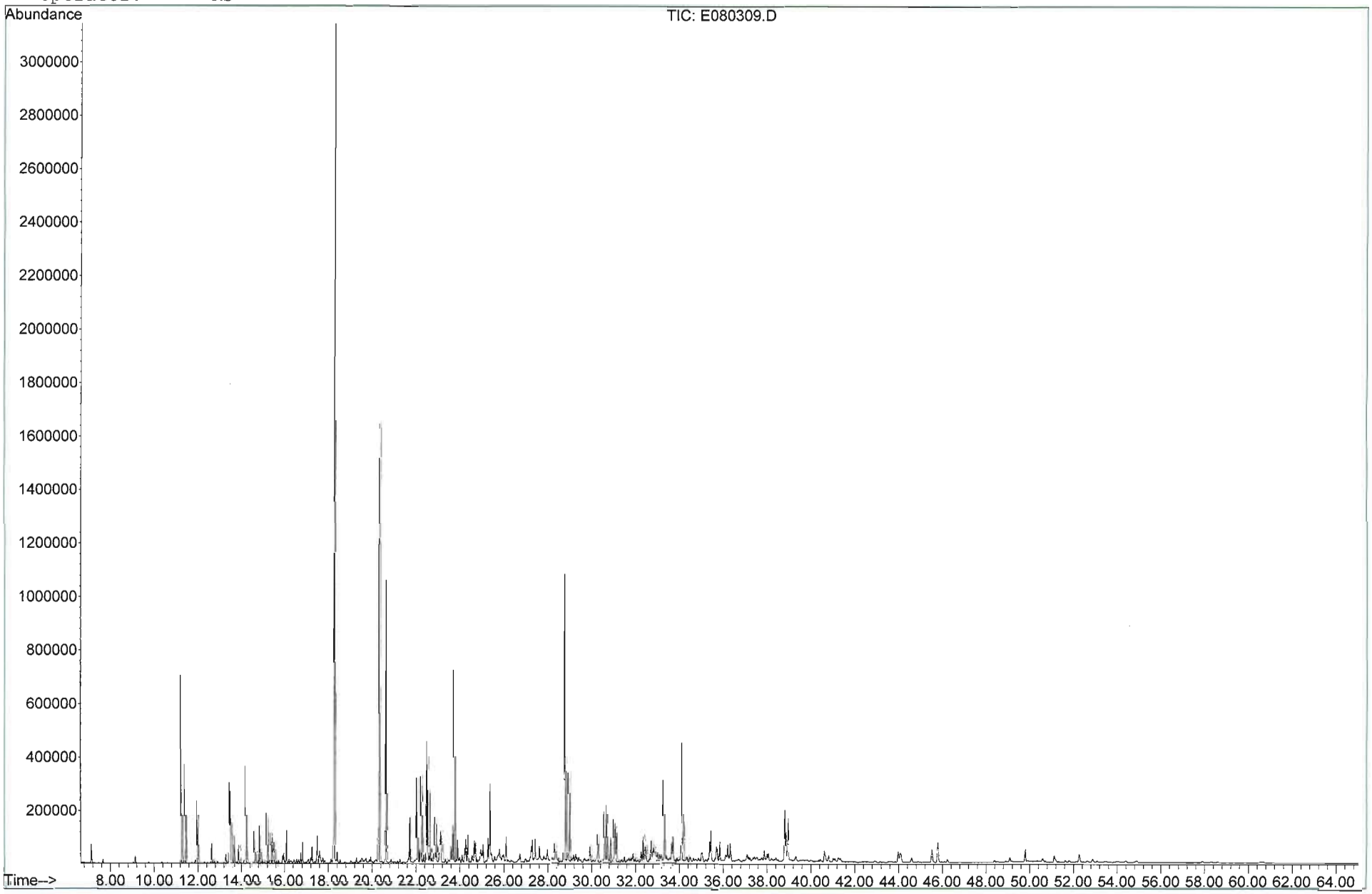
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

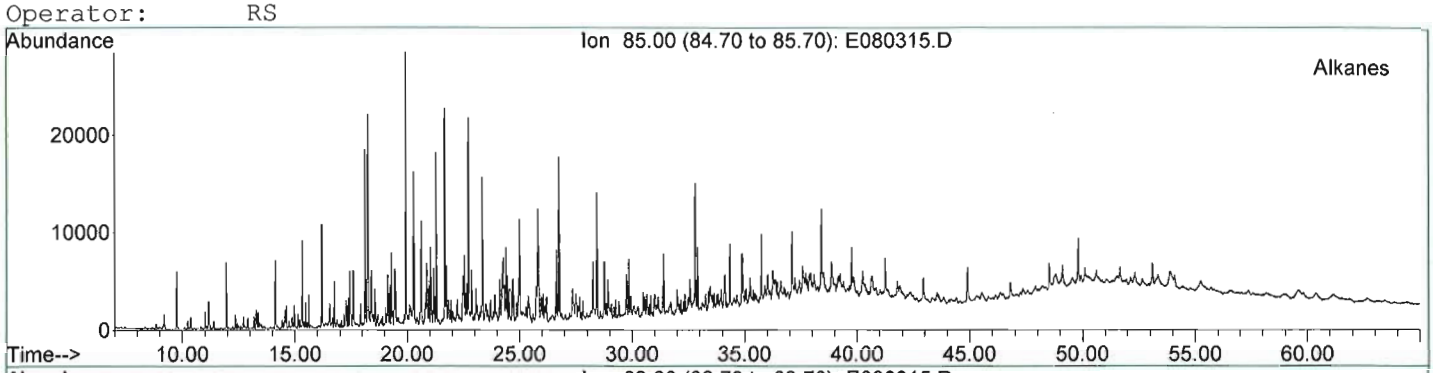
File: J:\1\DATA\E060803\E080309.D
Date Acquired: 5 Aug 2006 10:08 am
Method File: 4008SIM2.M
Sample Name: BR060726-02-D
Misc Info: WSS-RSB019B-001 (10.5'-11')
Operator: RS

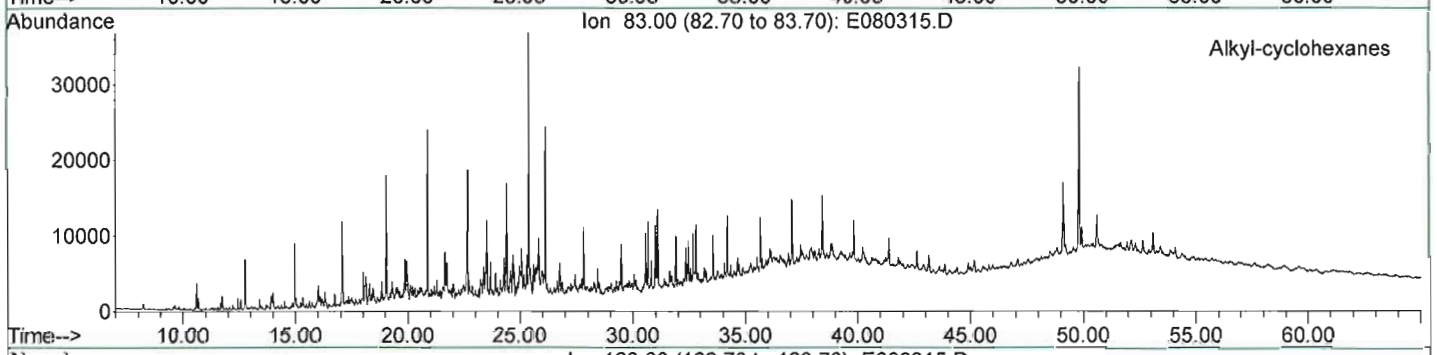


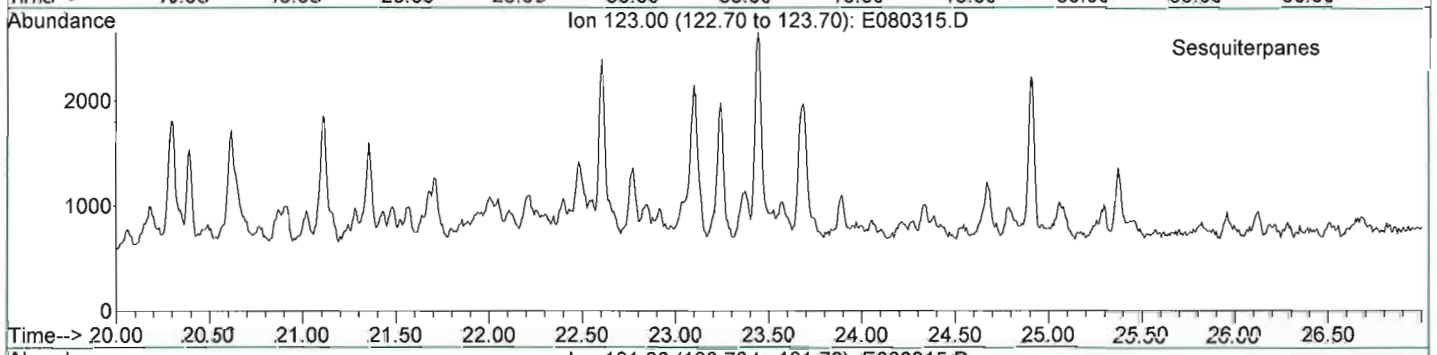
META Environmental, Inc.

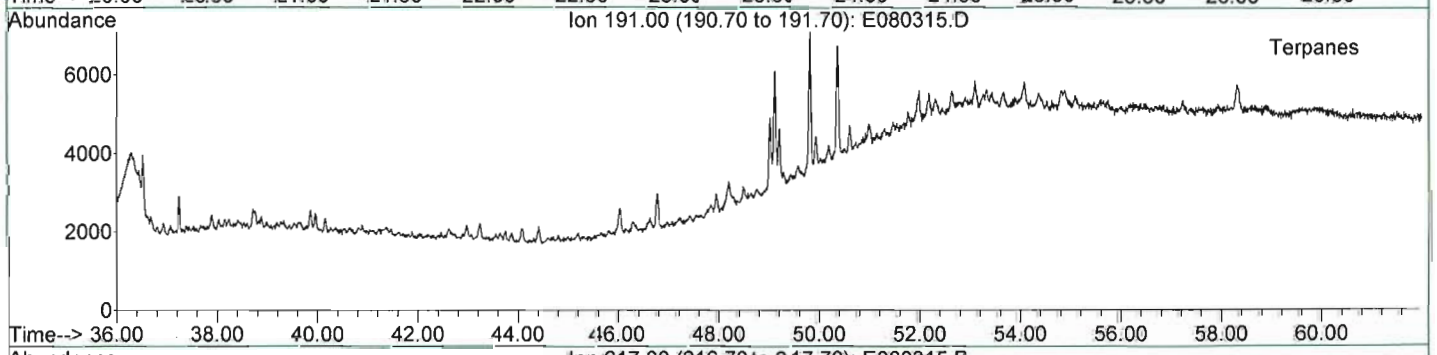
GC/MS EXTRACTED ION CHROMATOGRAM

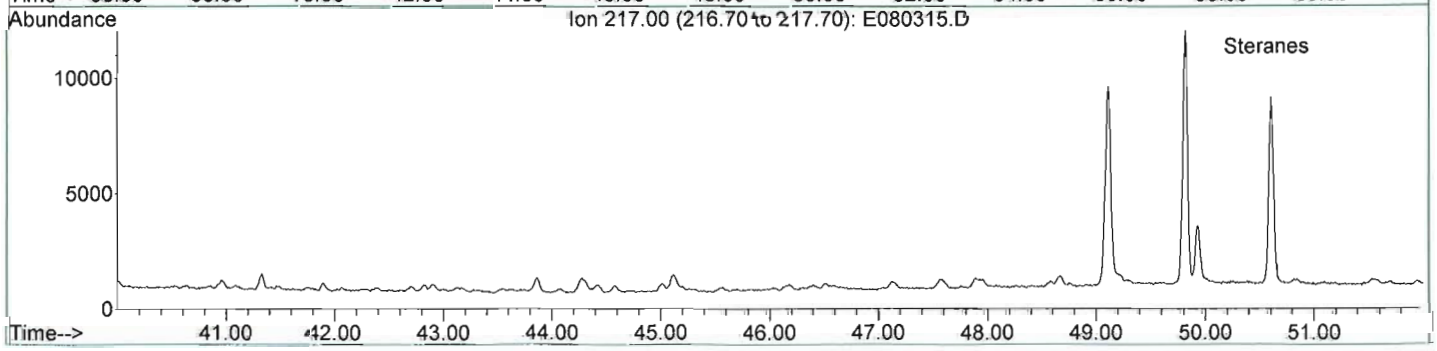
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



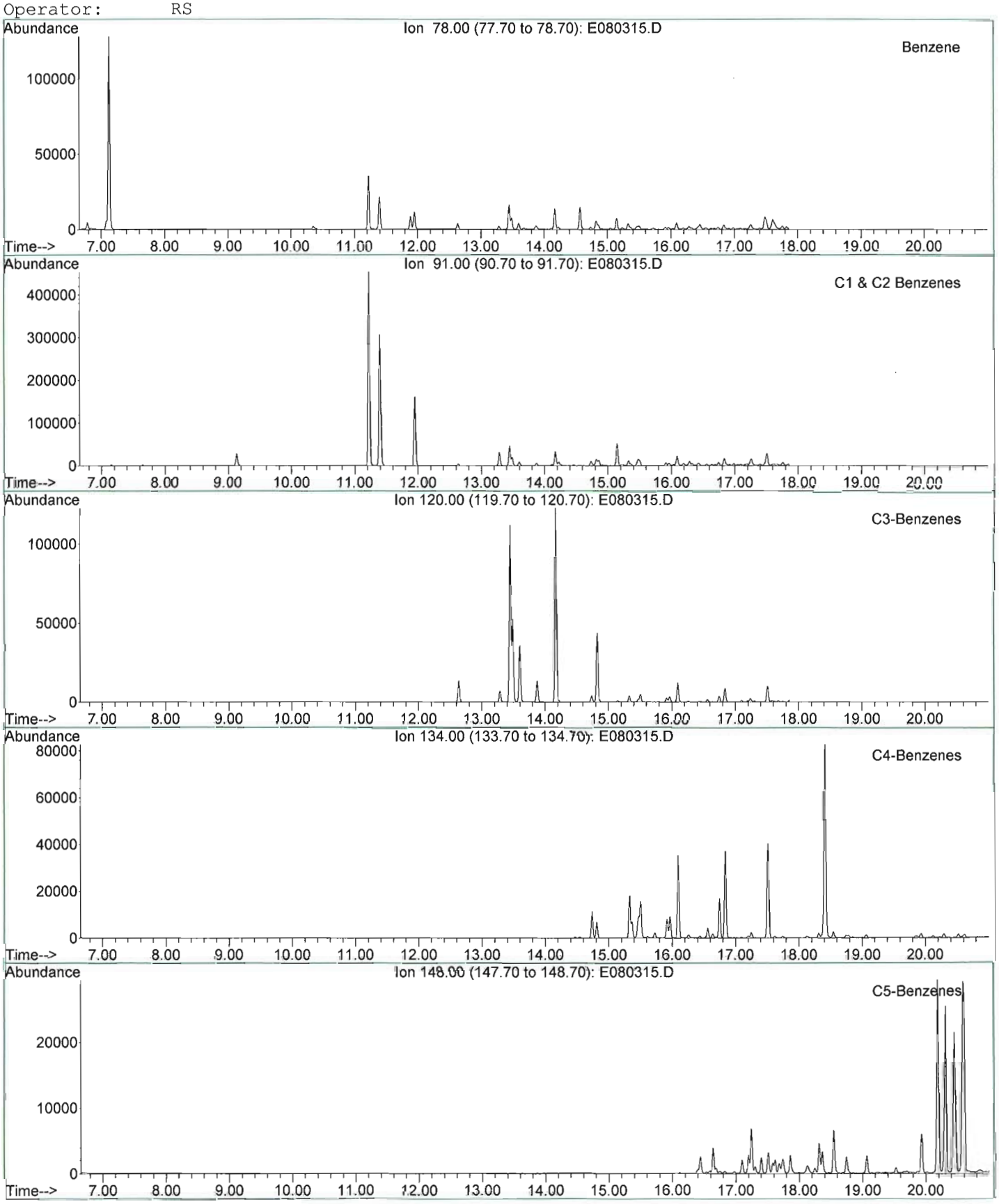



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

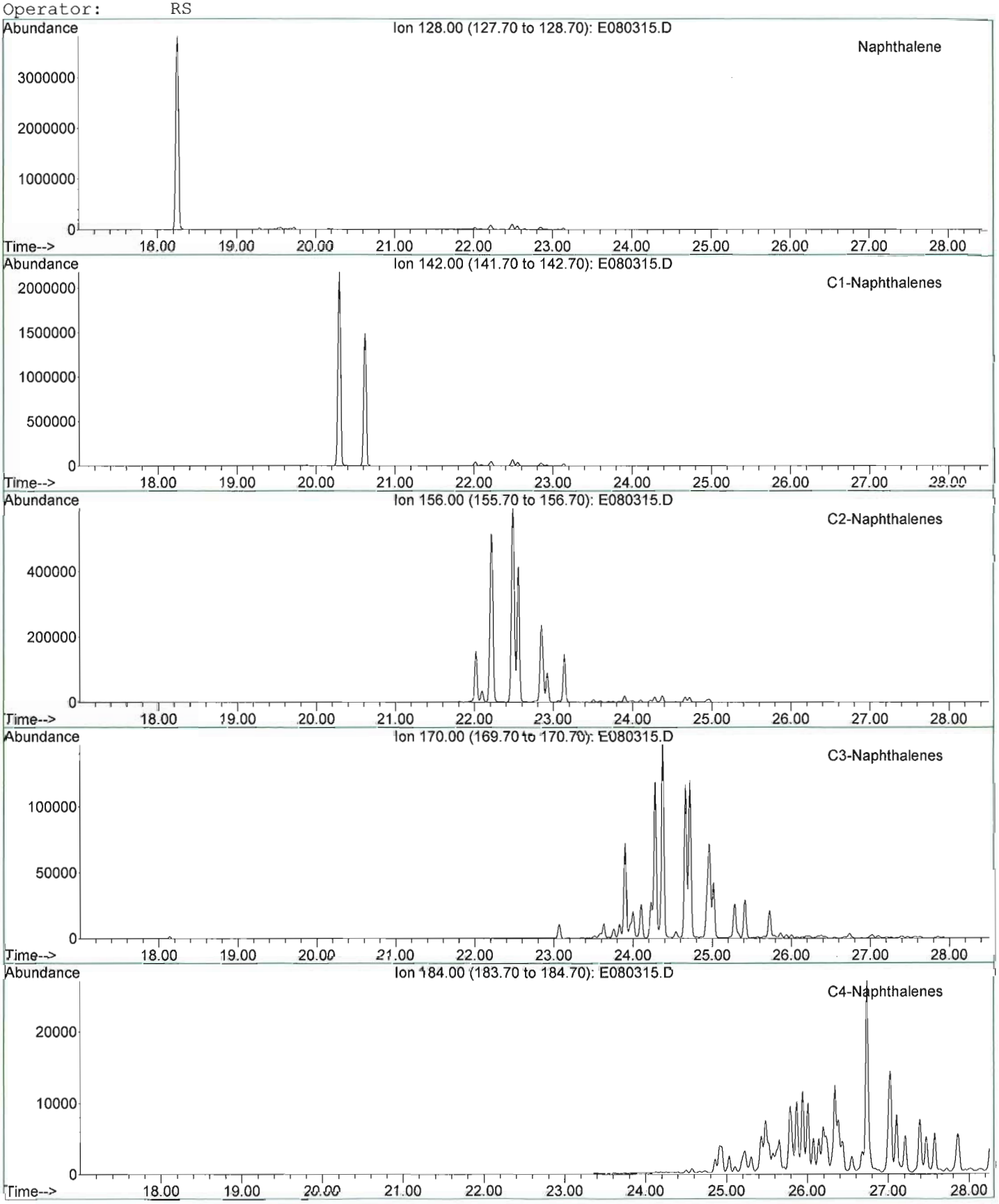
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

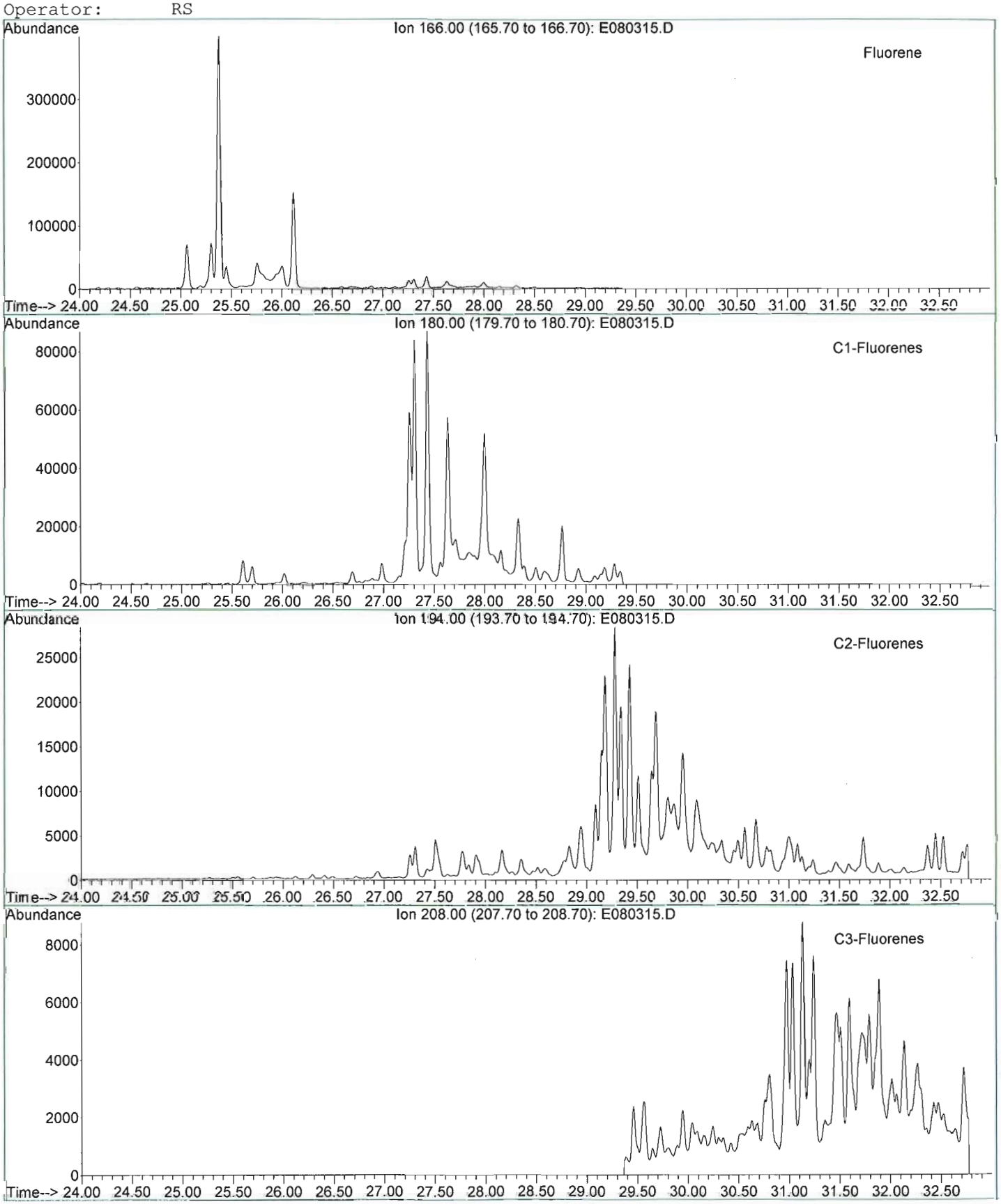
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

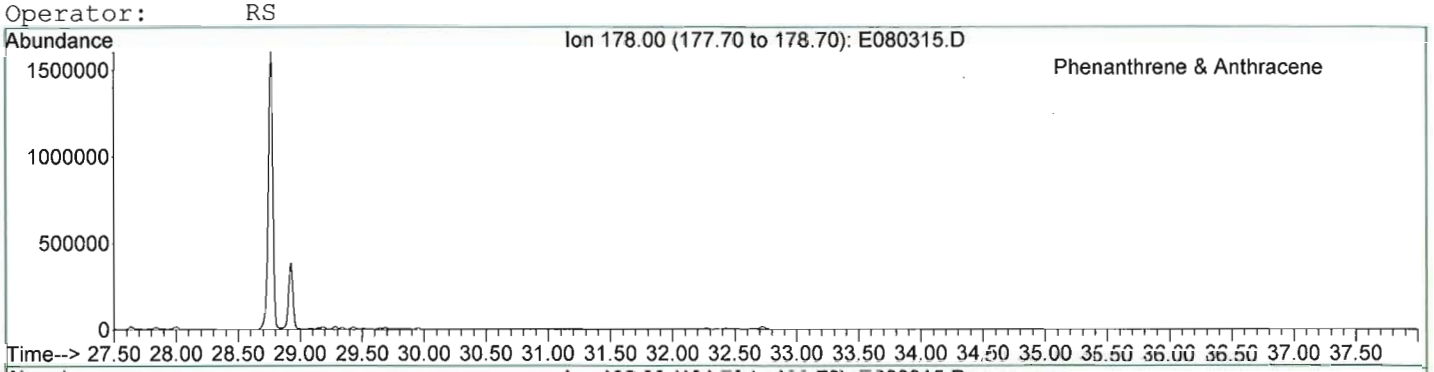
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS

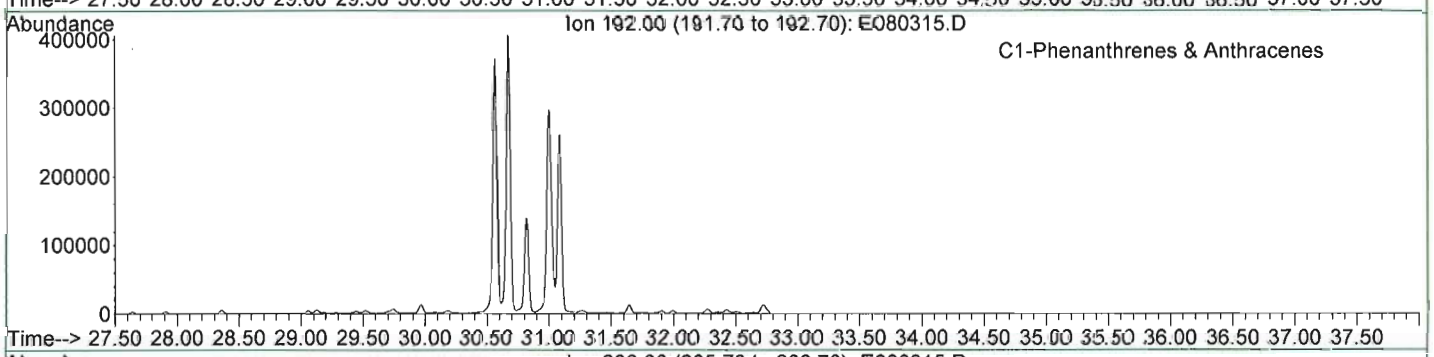


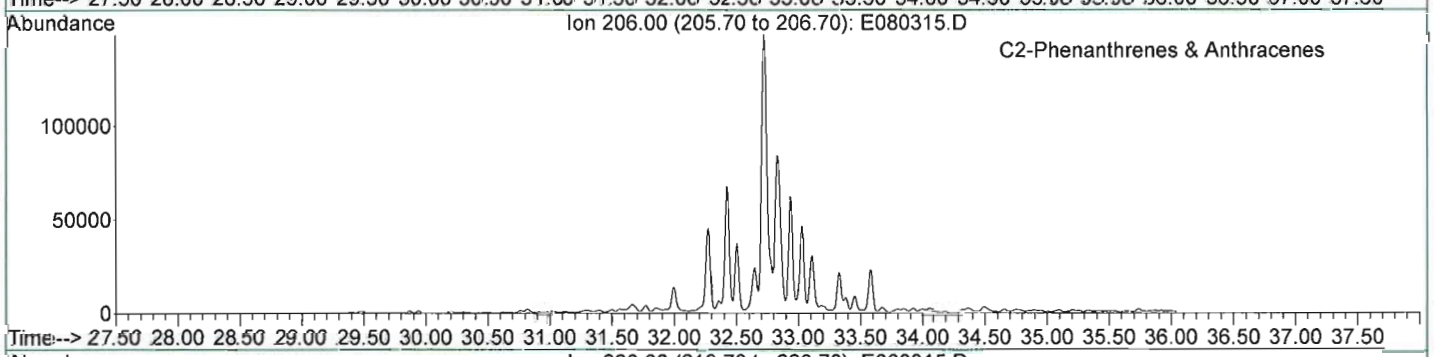
META Environmental, Inc.

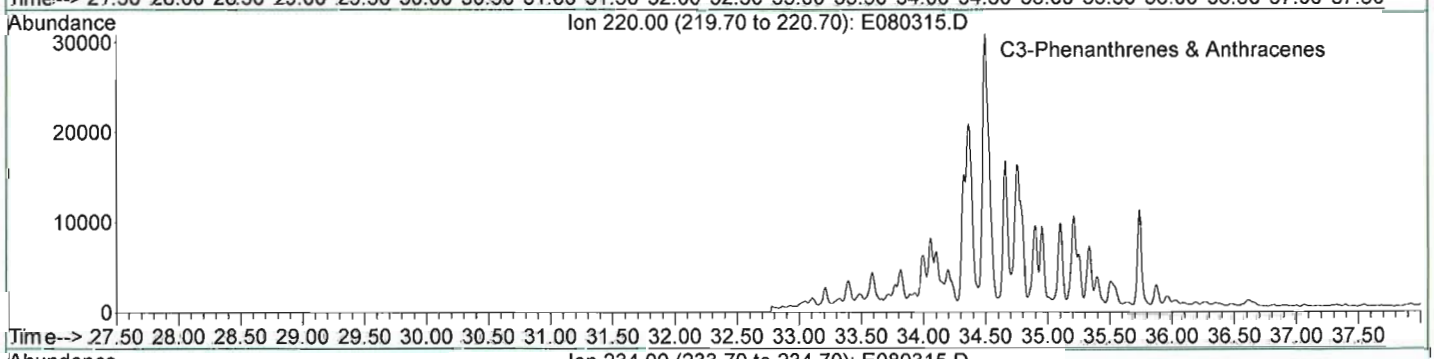
GC/MS EXTRACTED ION CHROMATOGRAM

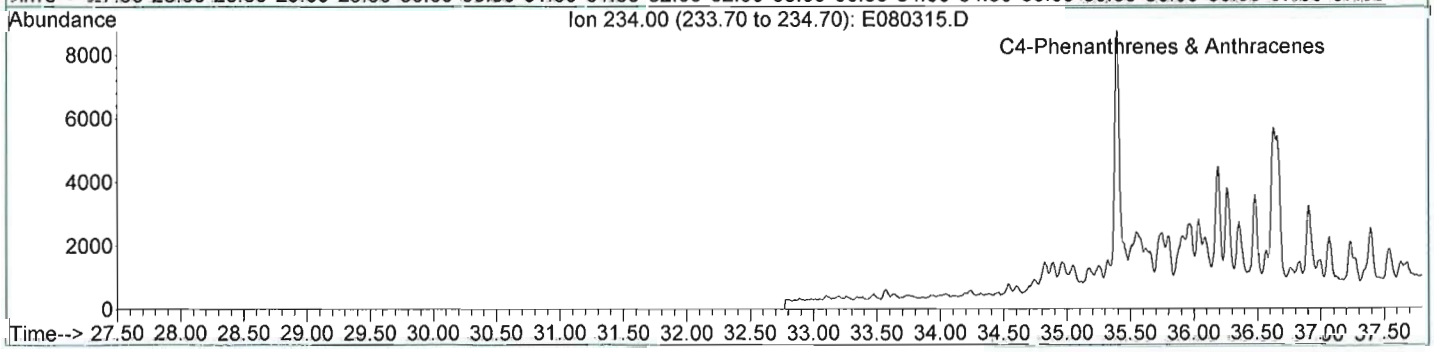
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



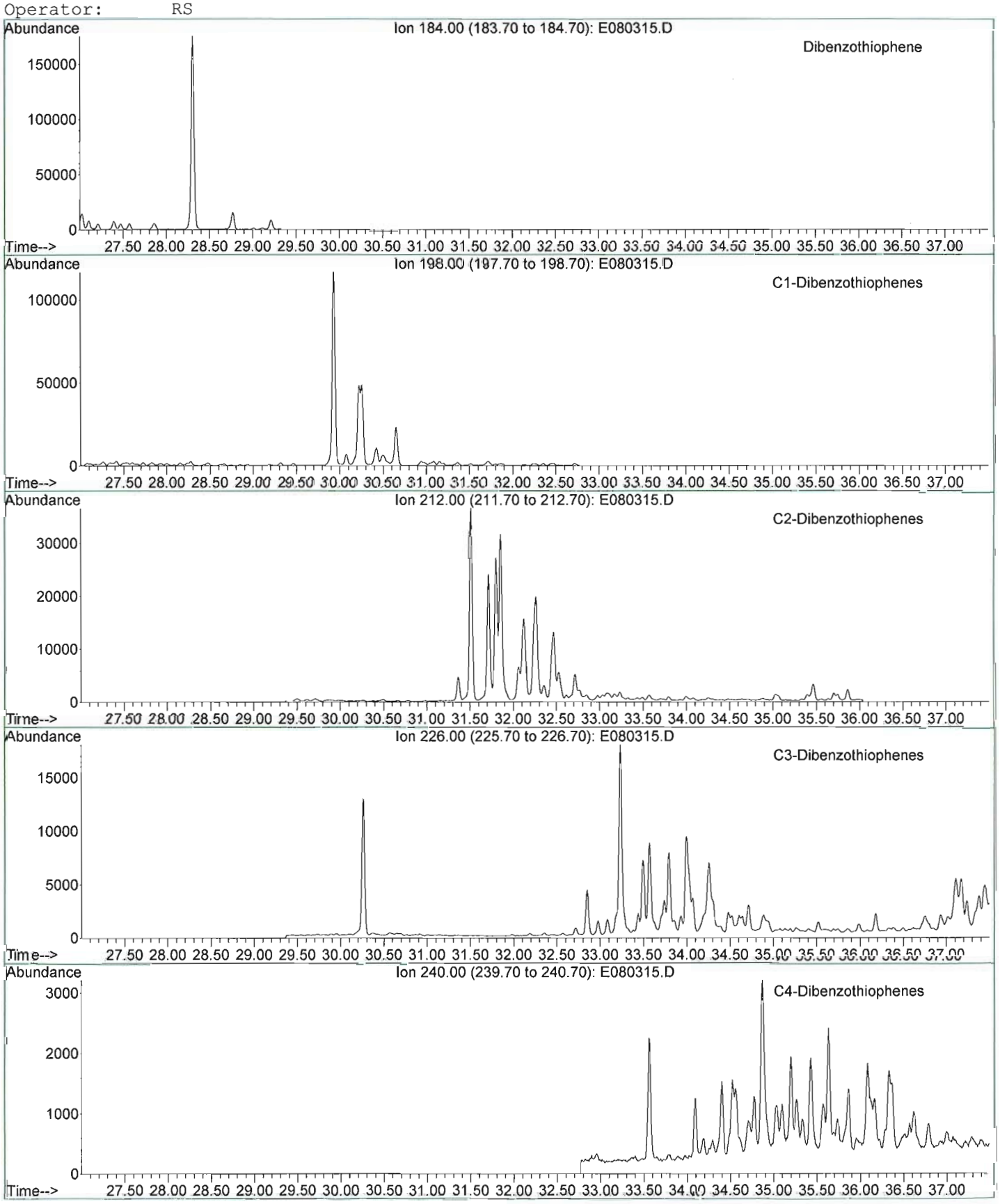



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

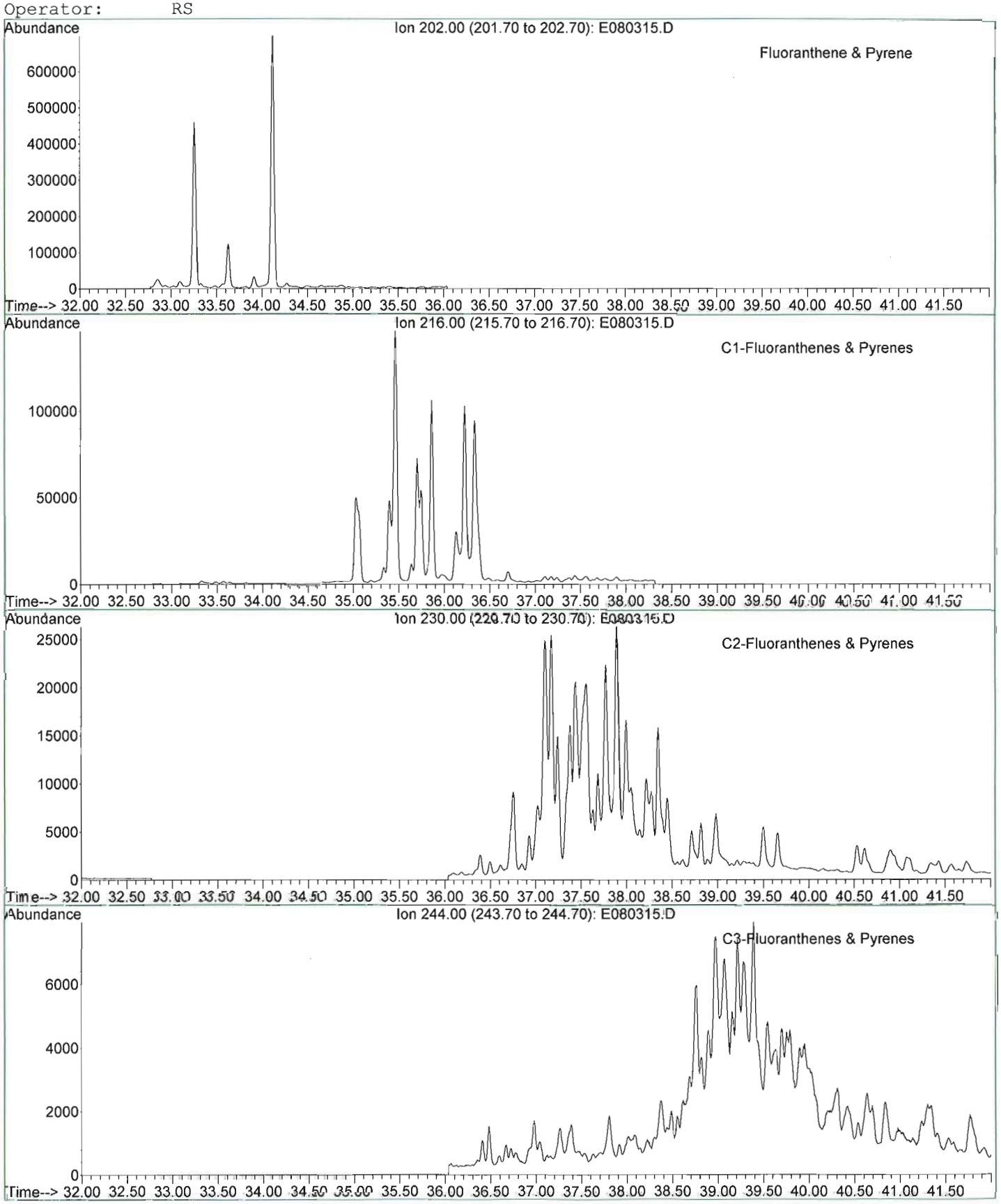
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080315.D
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Method File: 4008SIM2.M
Sample Name: BR060727-01-D
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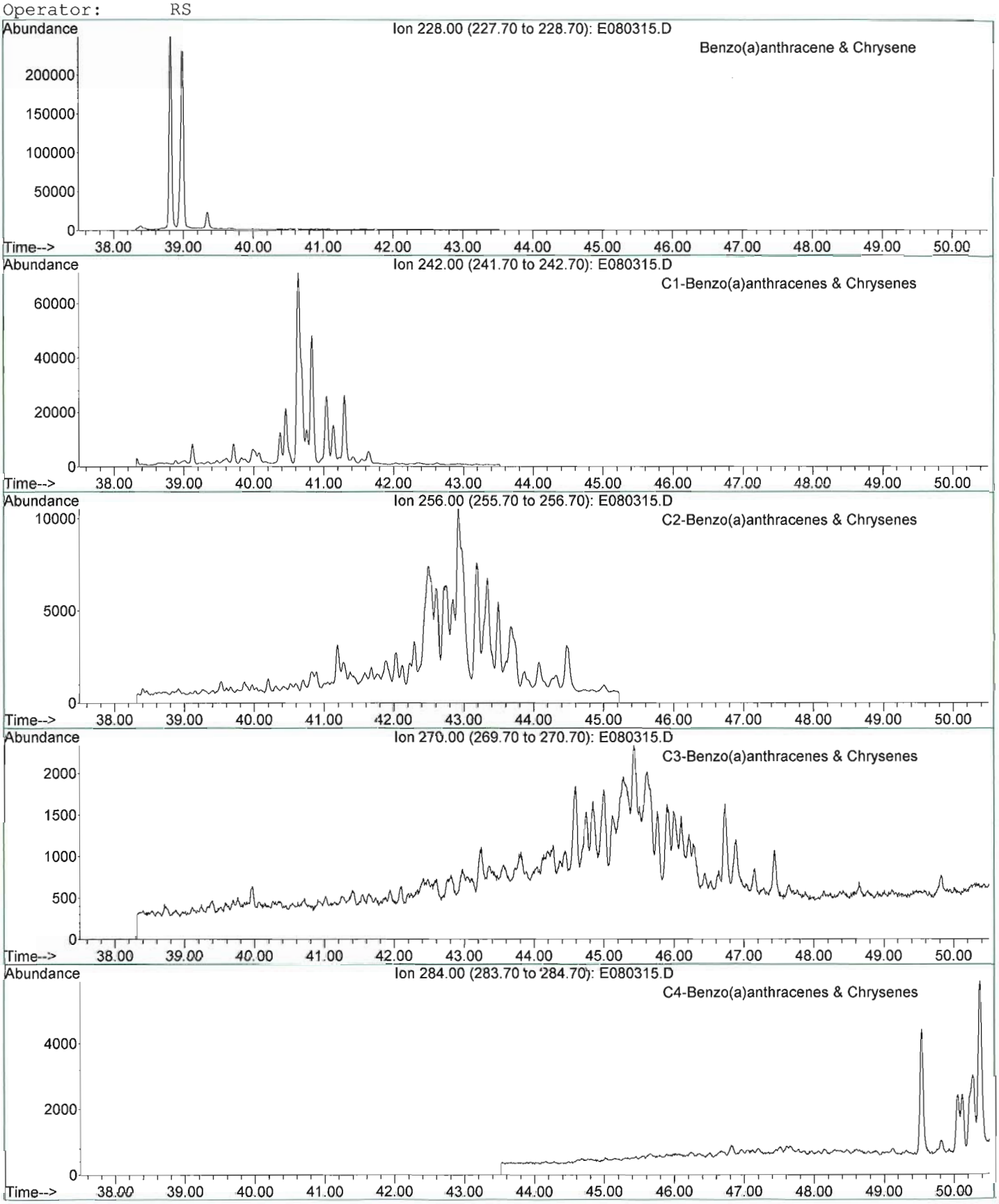
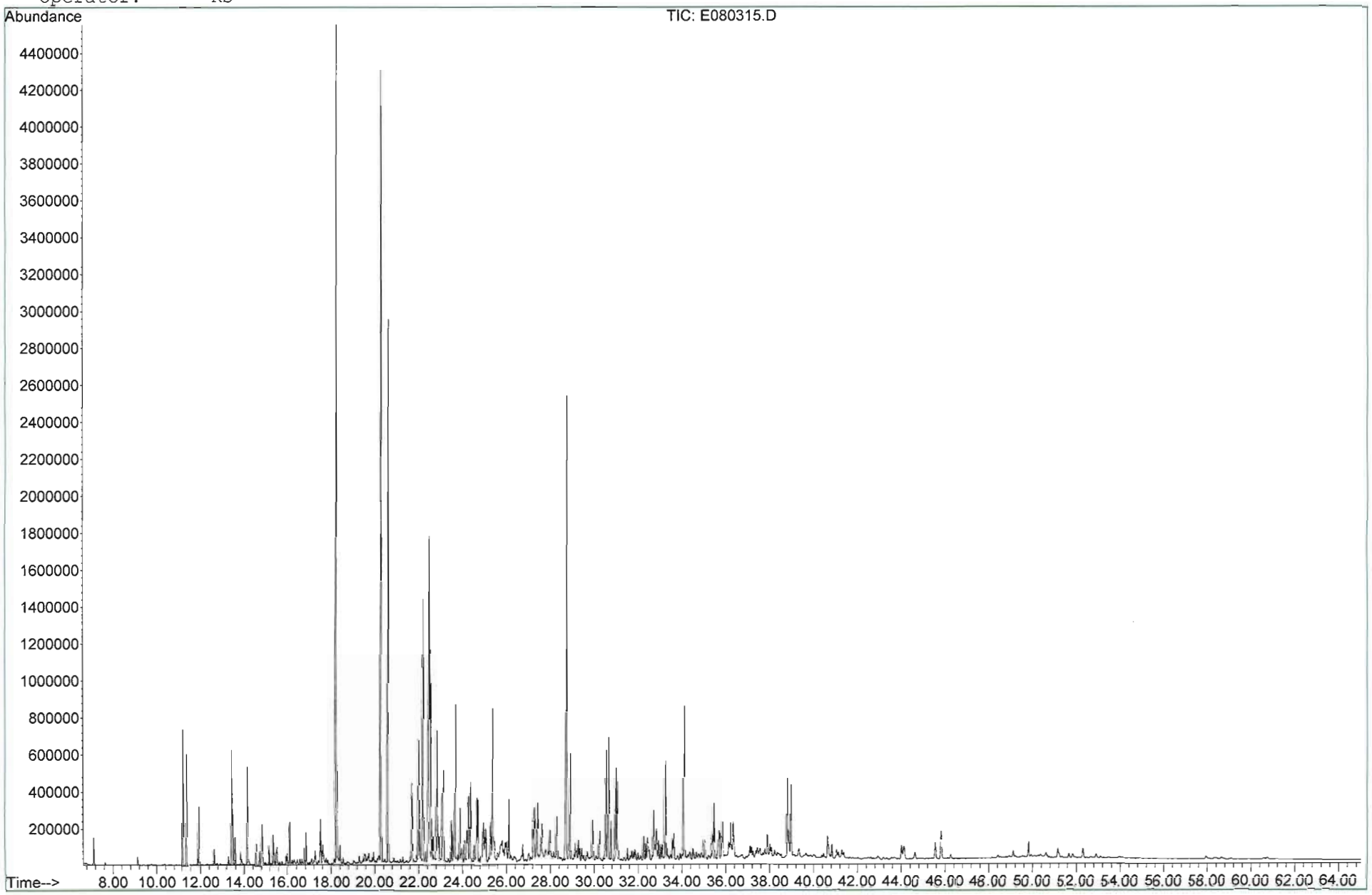
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

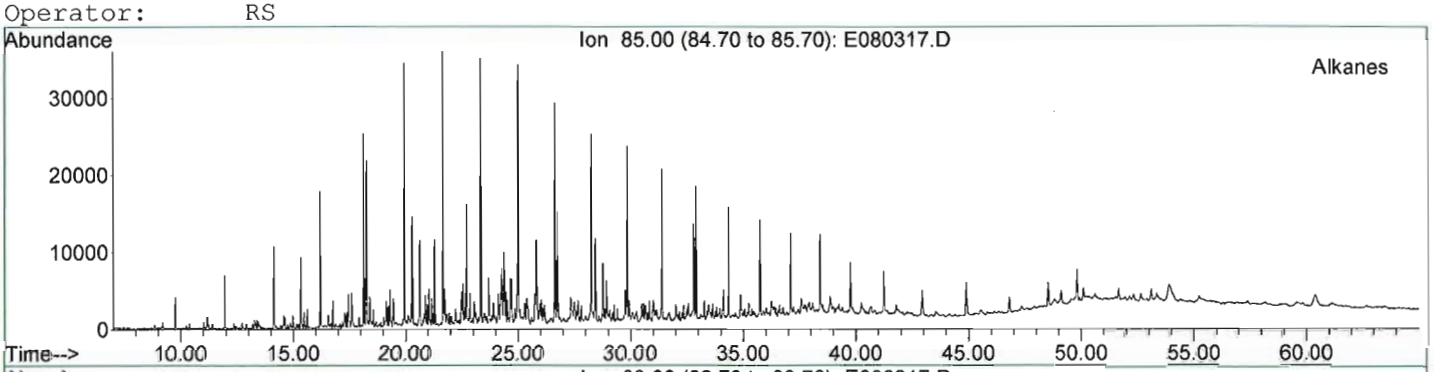
File: J:\1\DATA\E060803\E080315.D
Date Acquired: 5 Aug 2006 7:26 pm
Method File: 4008SIM2.M
Sample Name: BR060727-01-D
Misc Info: WSS-RSB020B-001 (10.5'-11')
Operator: RS

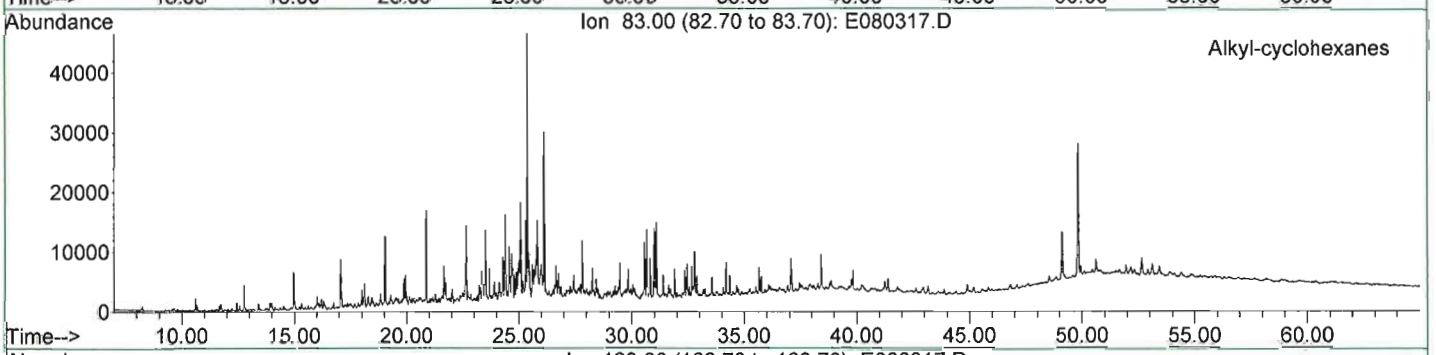


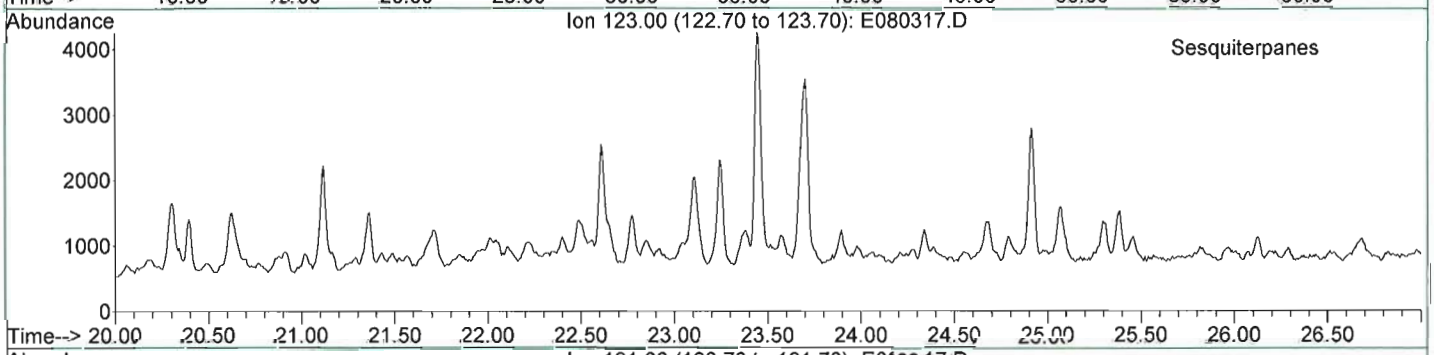
META Environmental, Inc.

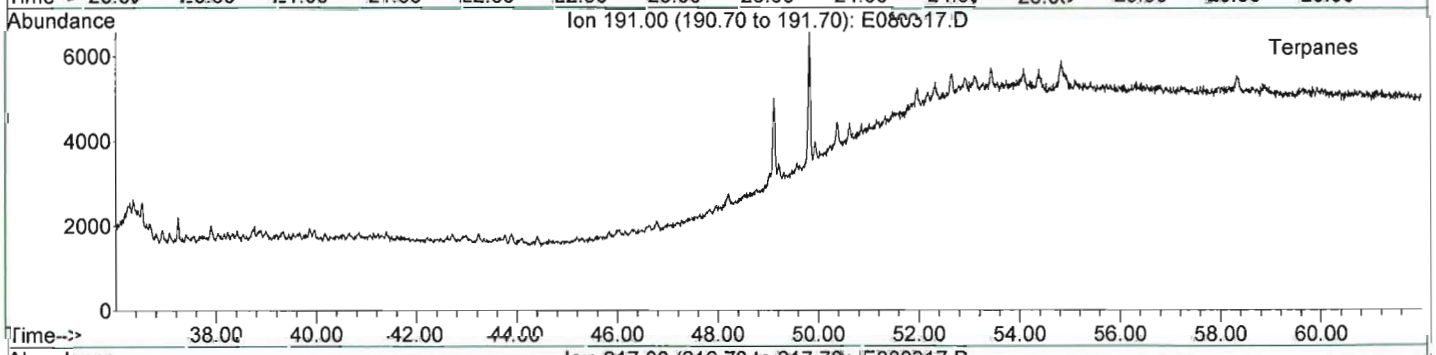
GC/MS EXTRACTED ION CHROMATOGRAM

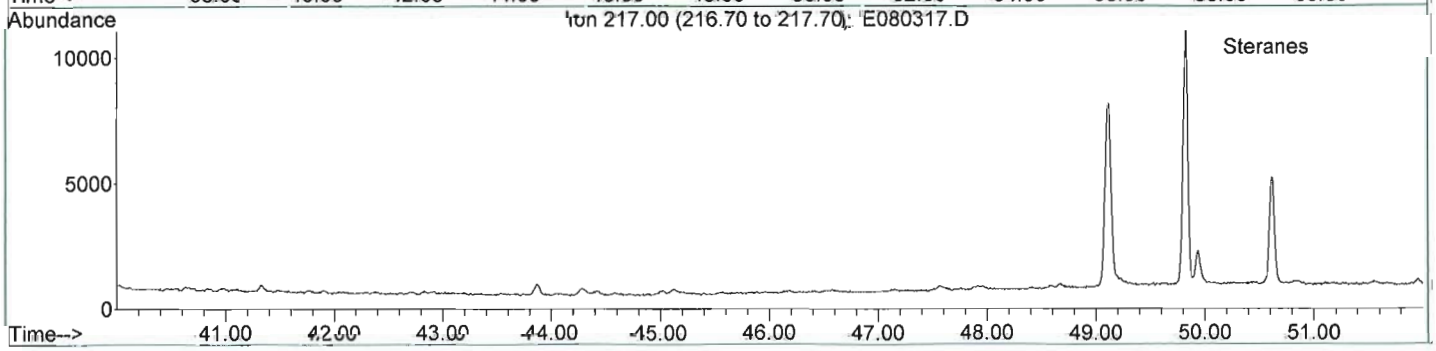
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



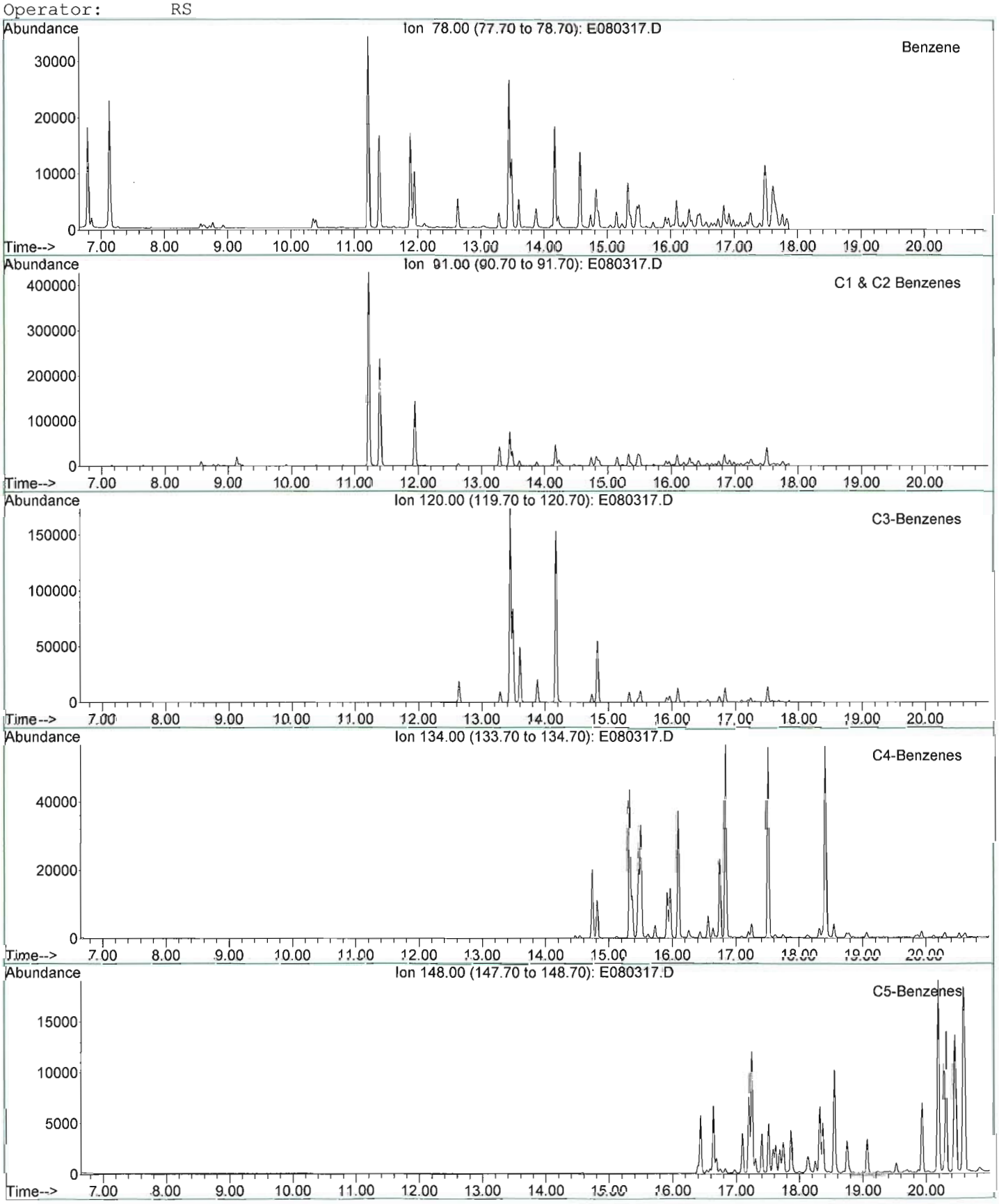



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

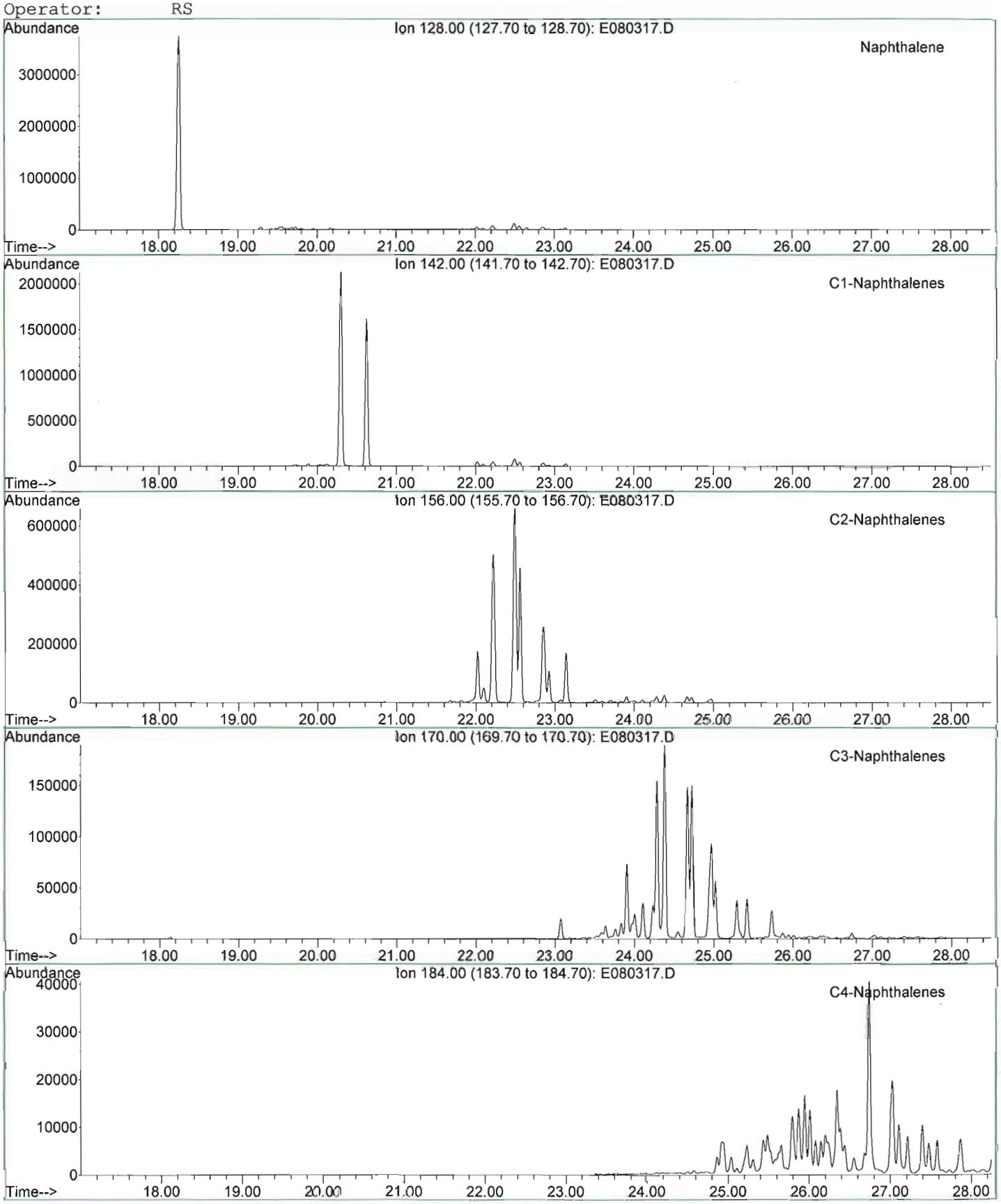
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

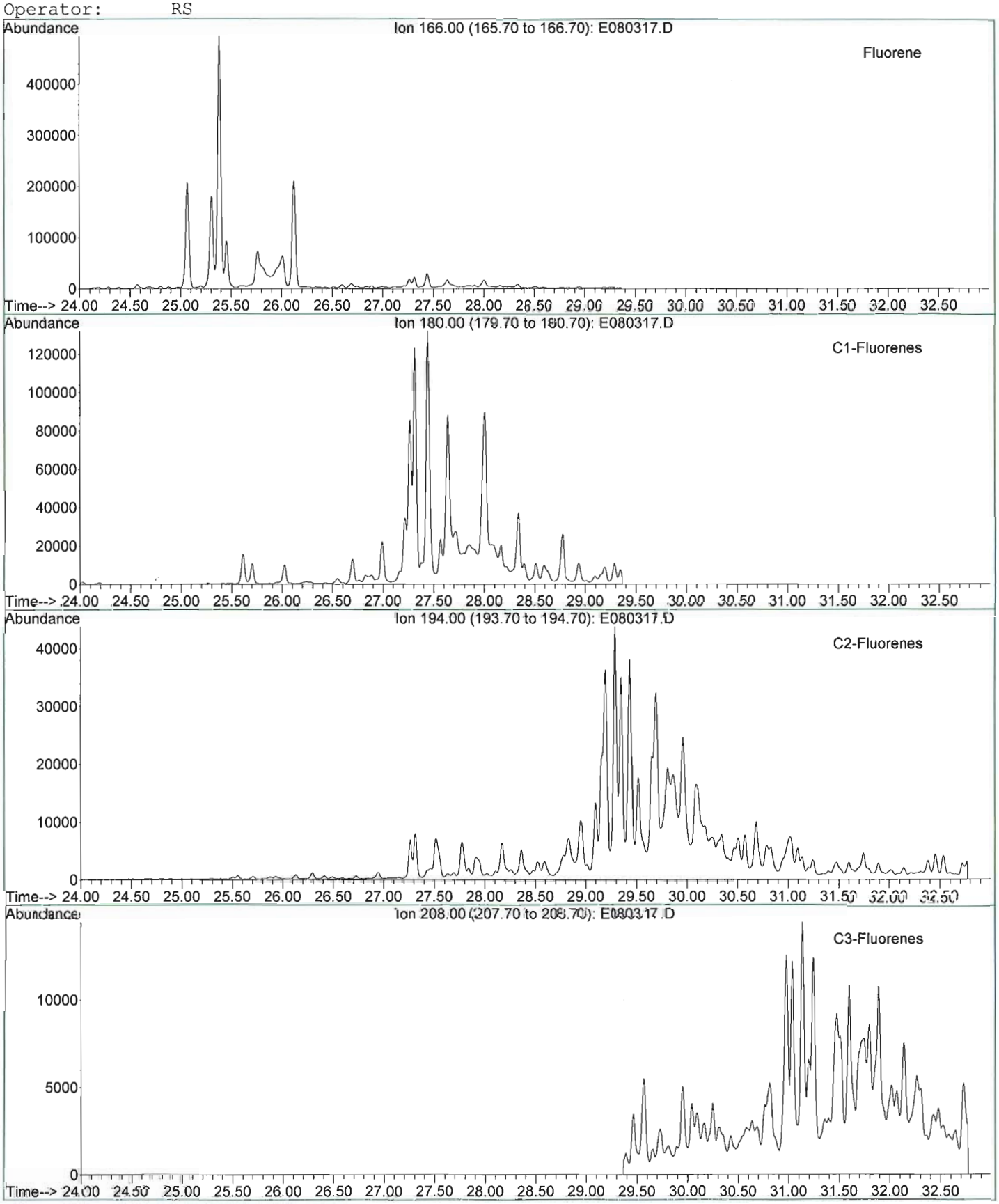
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

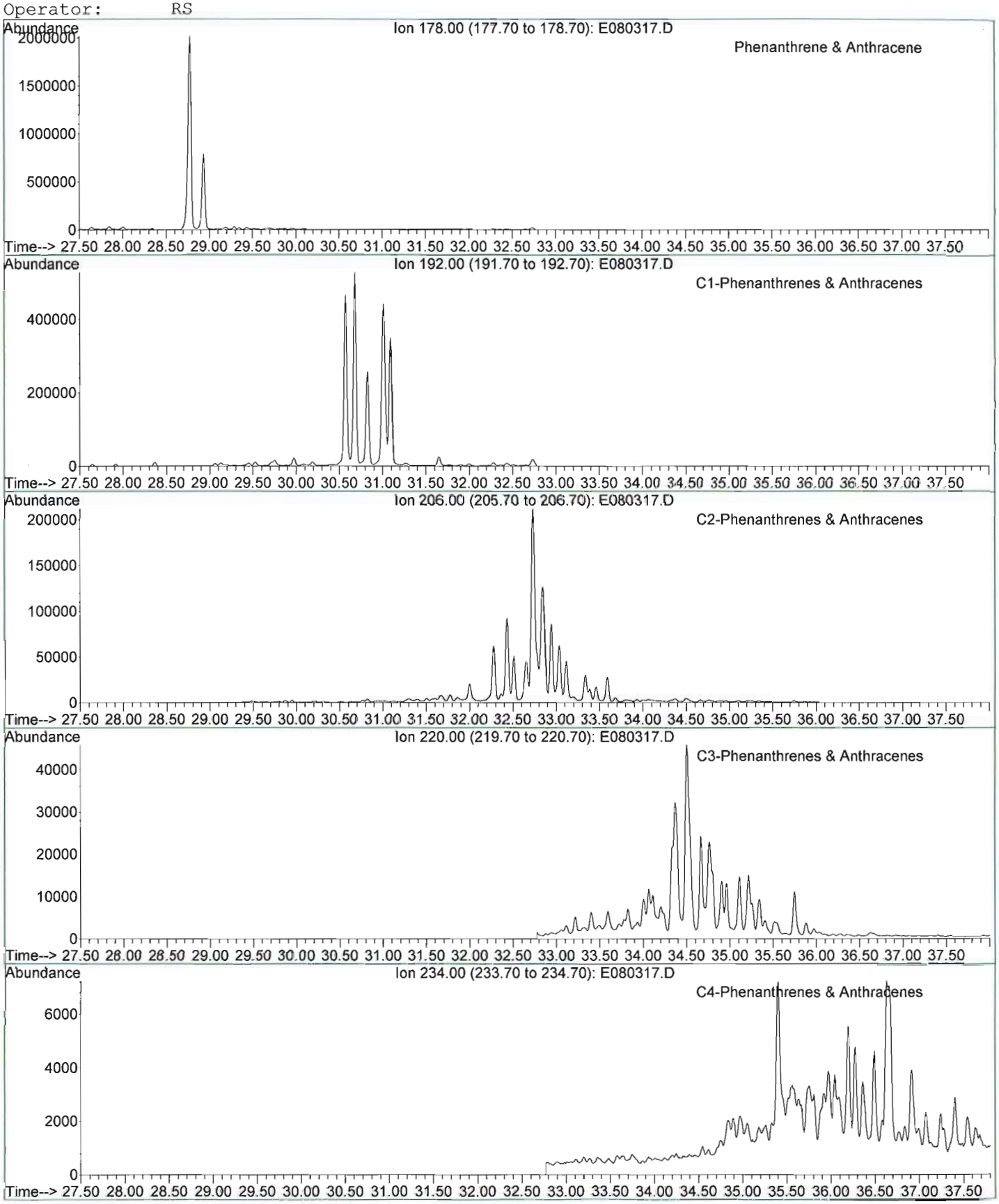
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

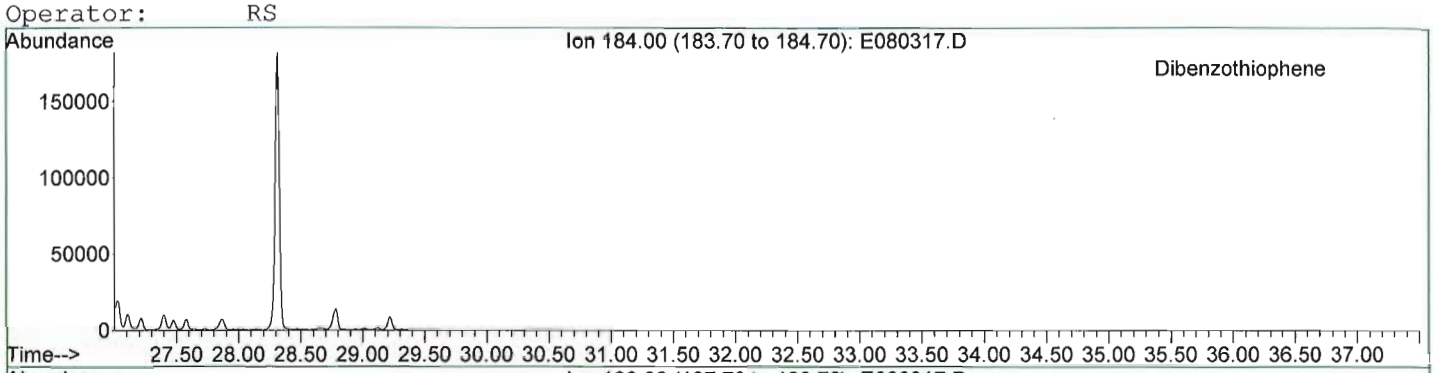
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS

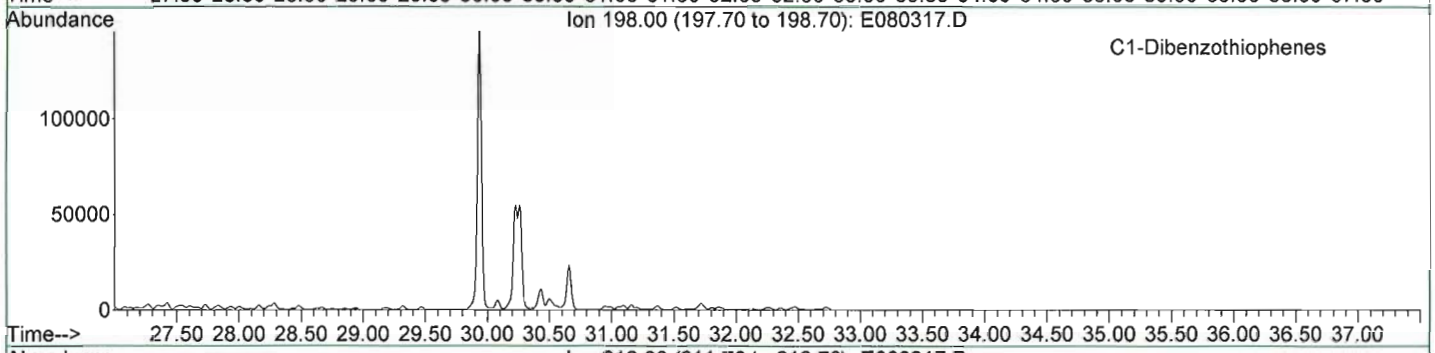


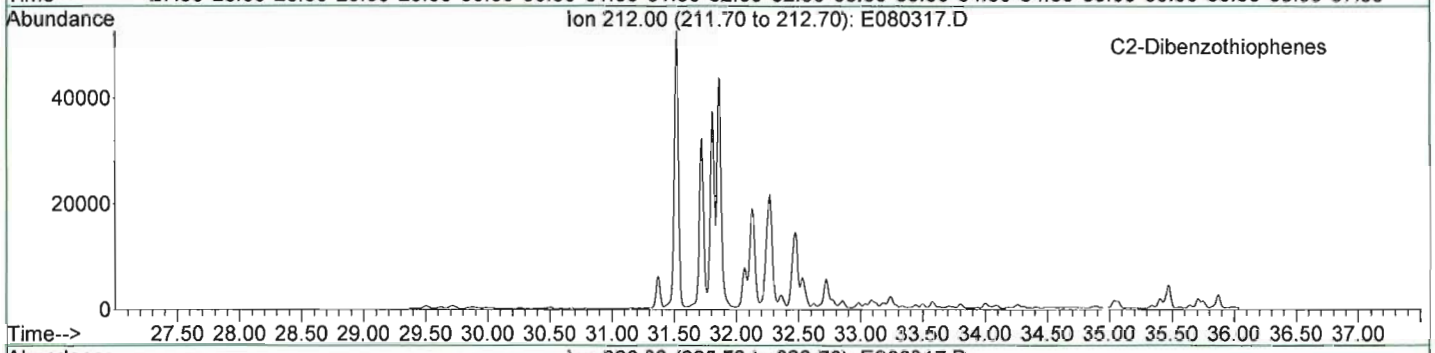
META Environmental, Inc.

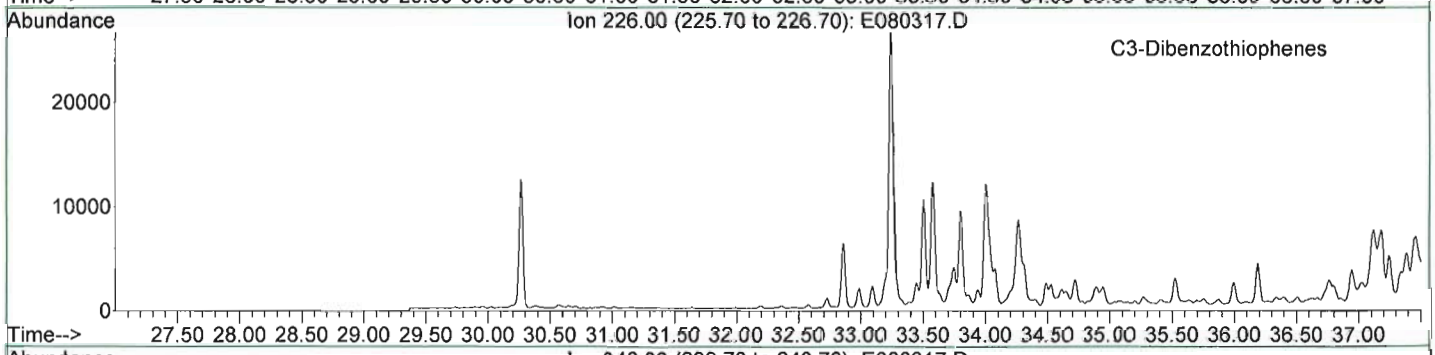
GC/MS EXTRACTED ION CHROMATOGRAM

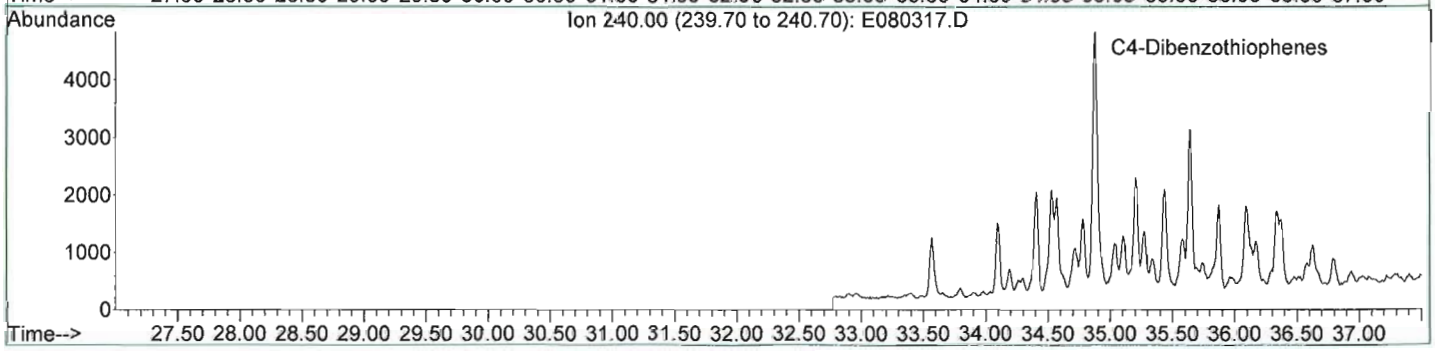
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
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Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
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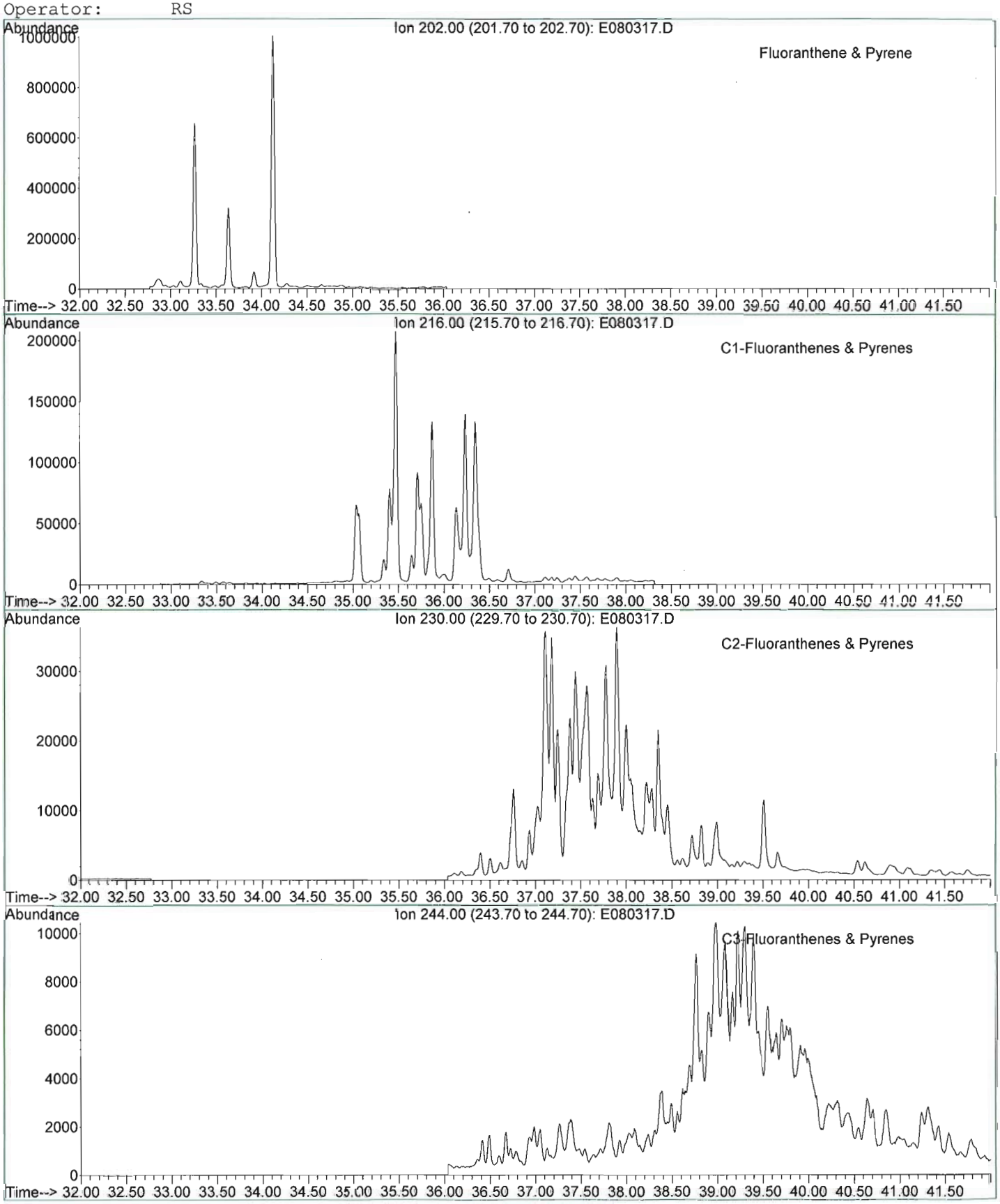
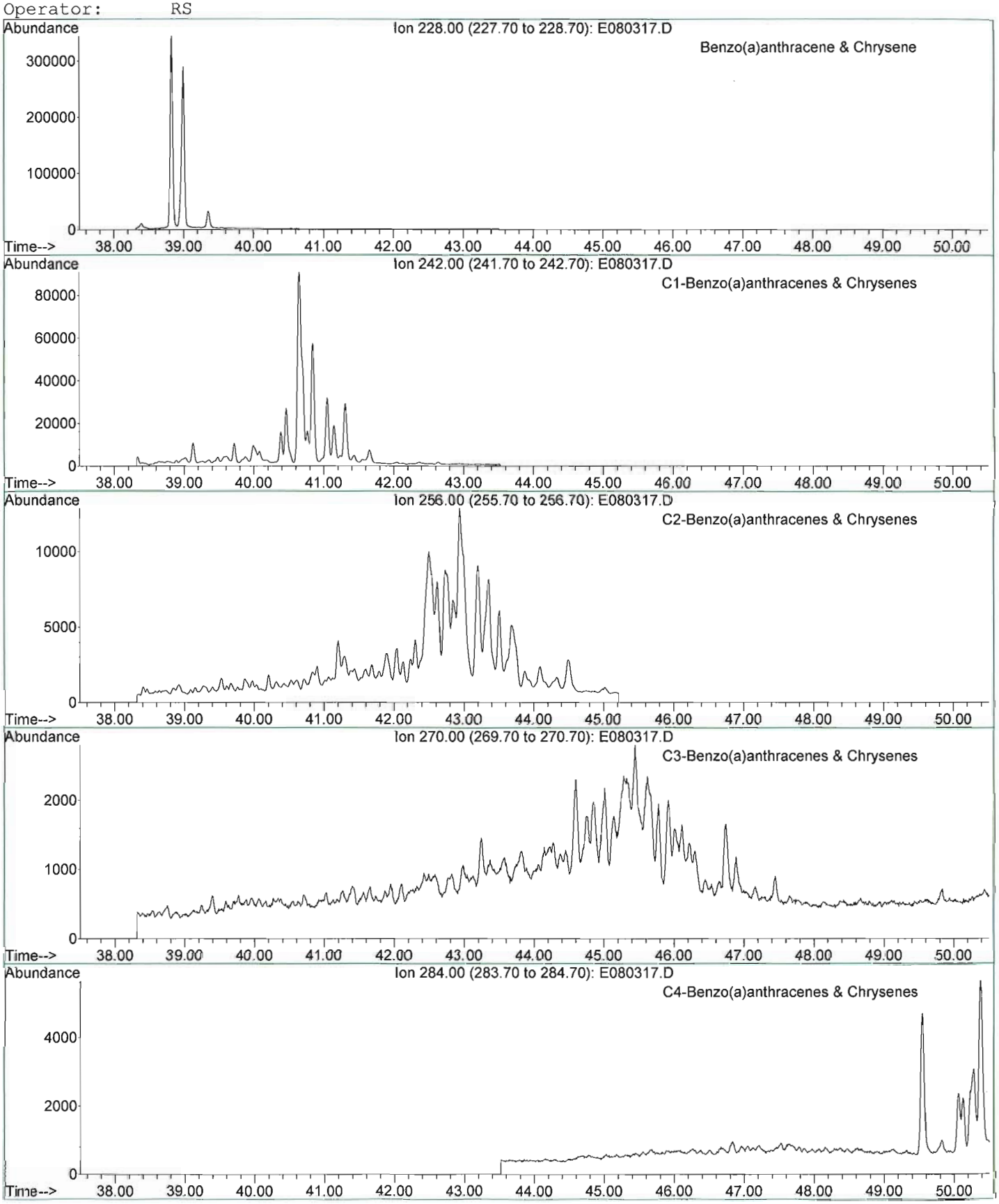


META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

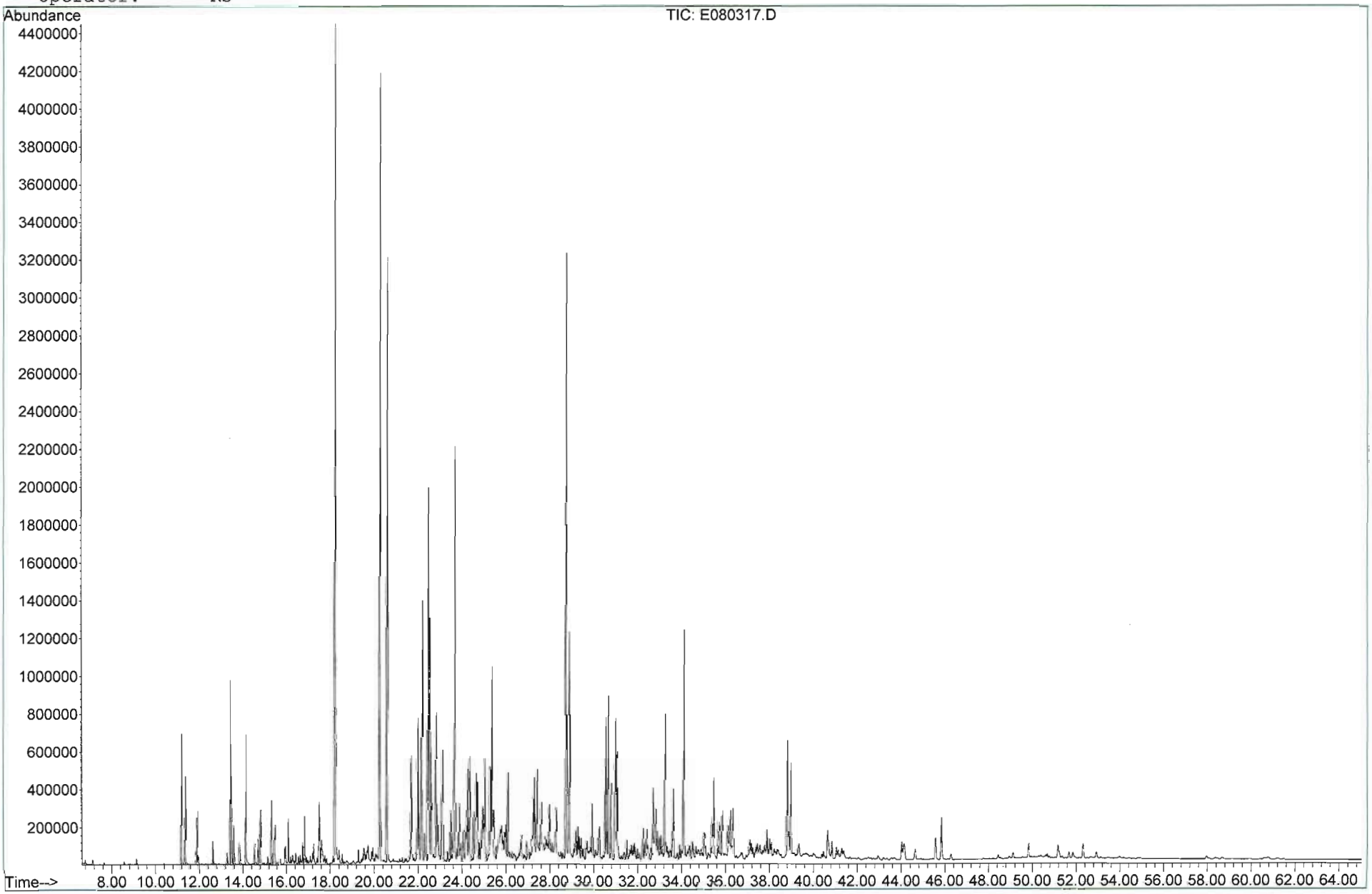
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

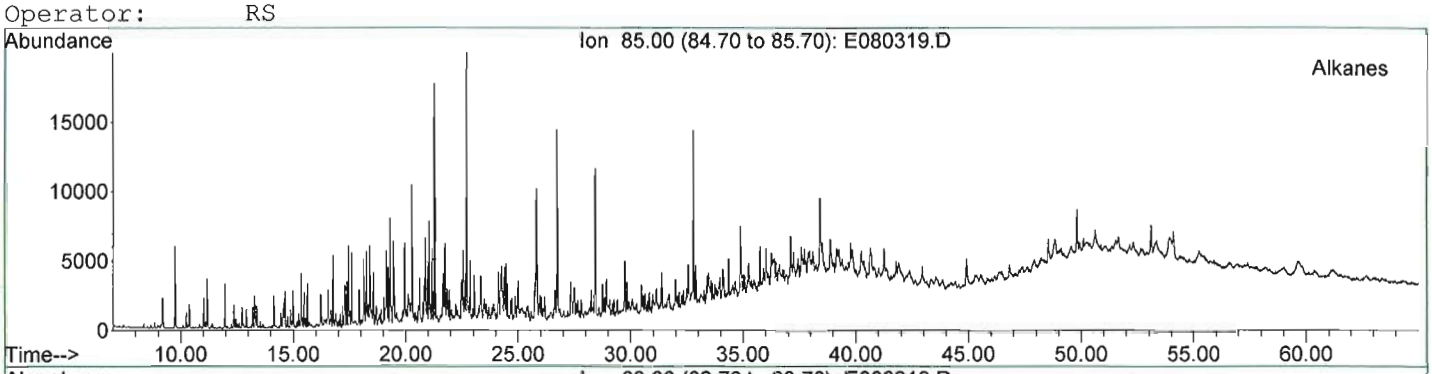
File: J:\1\DATA\E060803\E080317.D
Date Acquired: 5 Aug 2006 10:27 pm
Method File: 4008SIM2.M
Sample Name: BR060727-02-D
Misc Info: WSS-RSB022-001 (5.5'-6')
Operator: RS

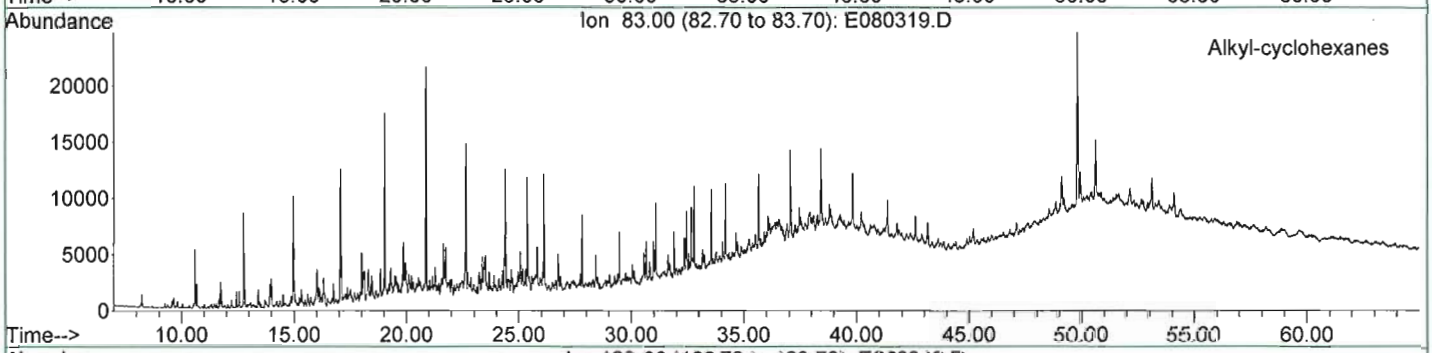


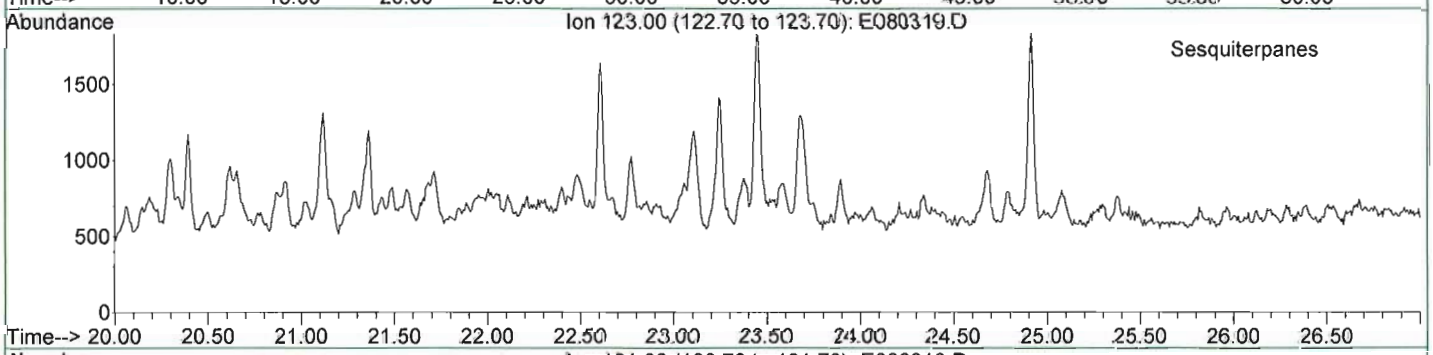
META Environmental, Inc.

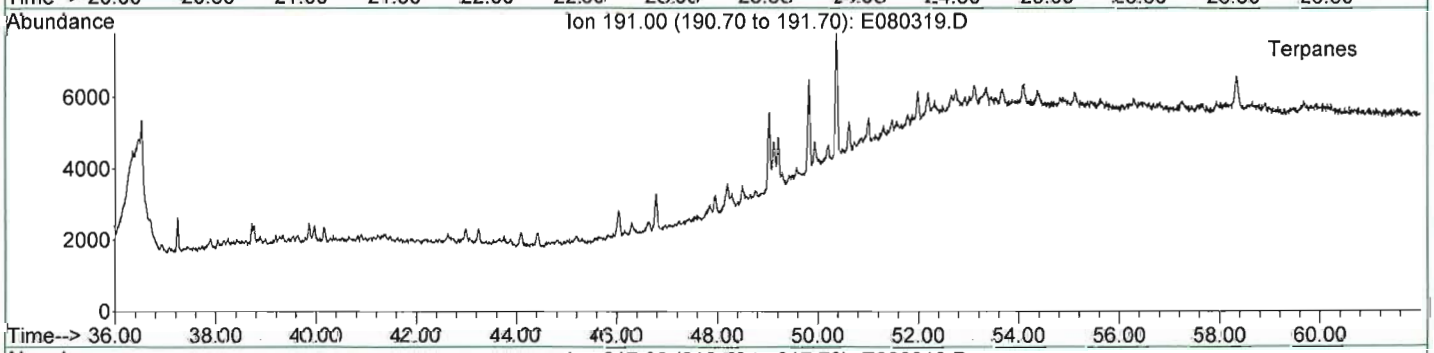
GC/MS EXTRACTED ION CHROMATOGRAM

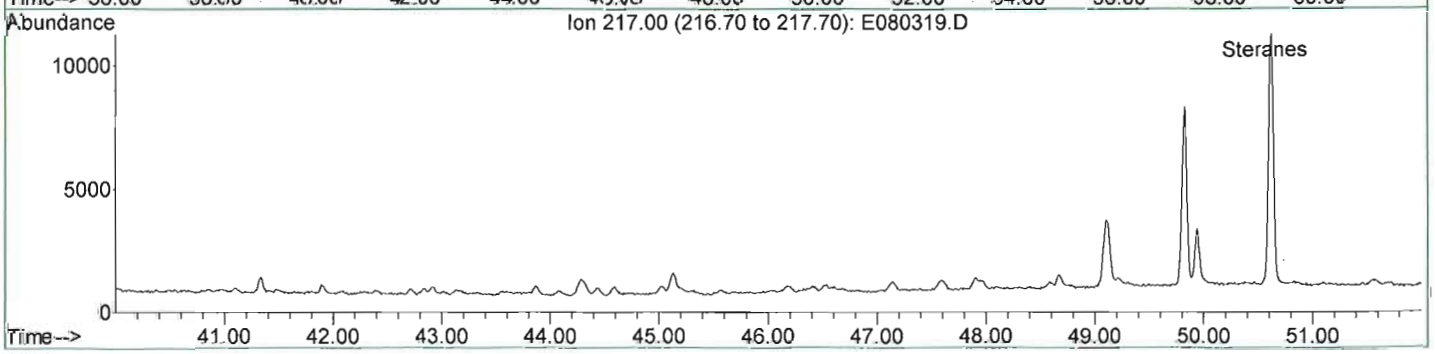
File: J:\1\DATA\E060803\E080319.D
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS



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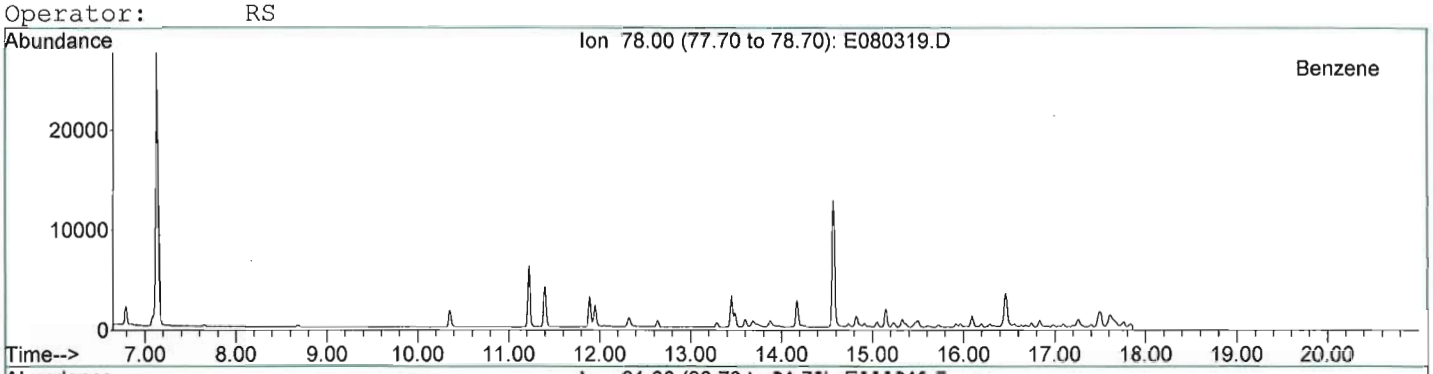
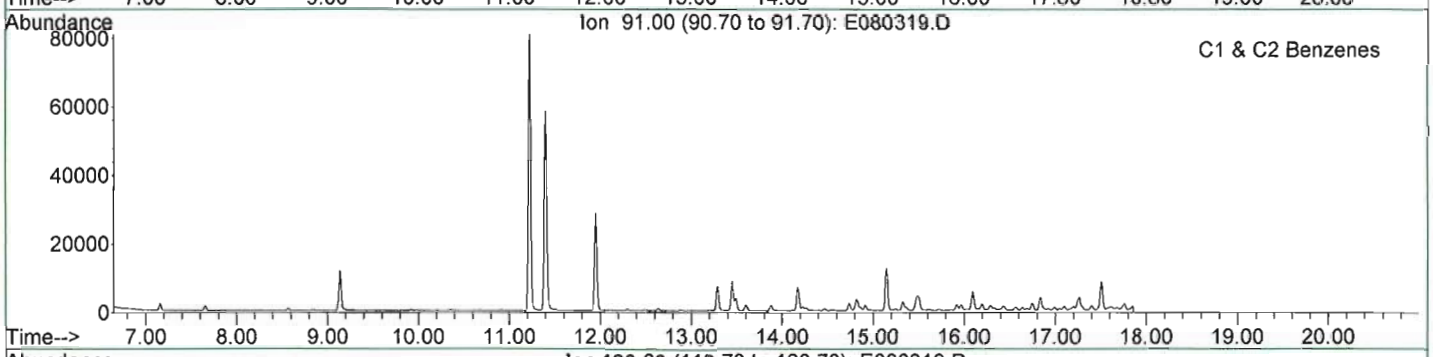
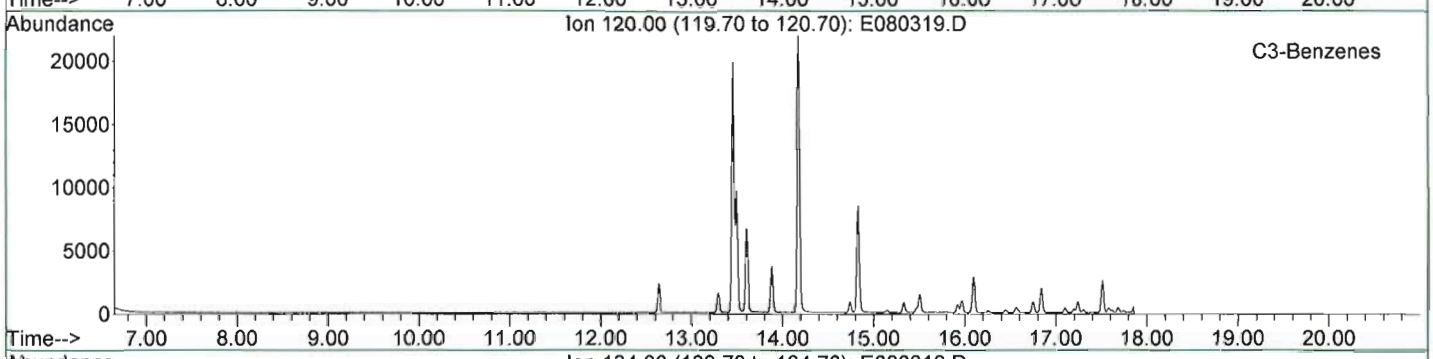
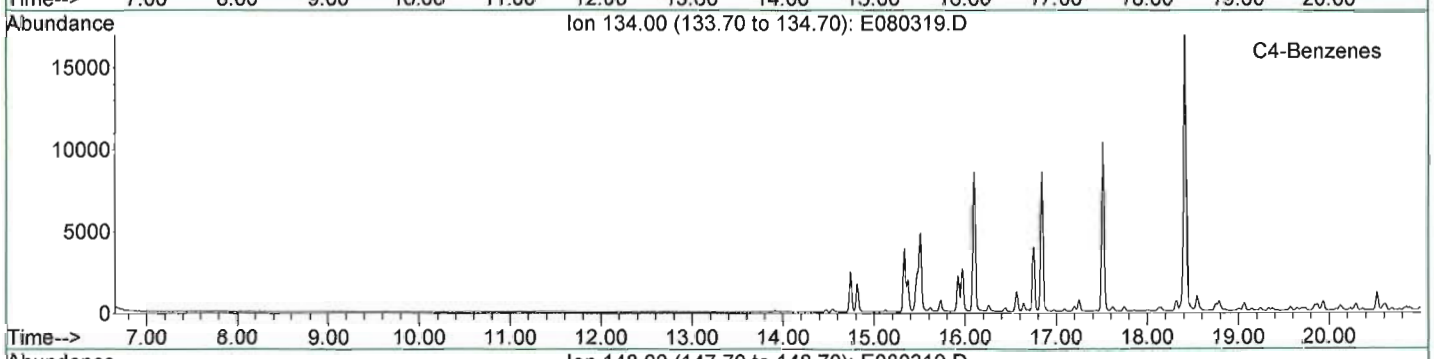
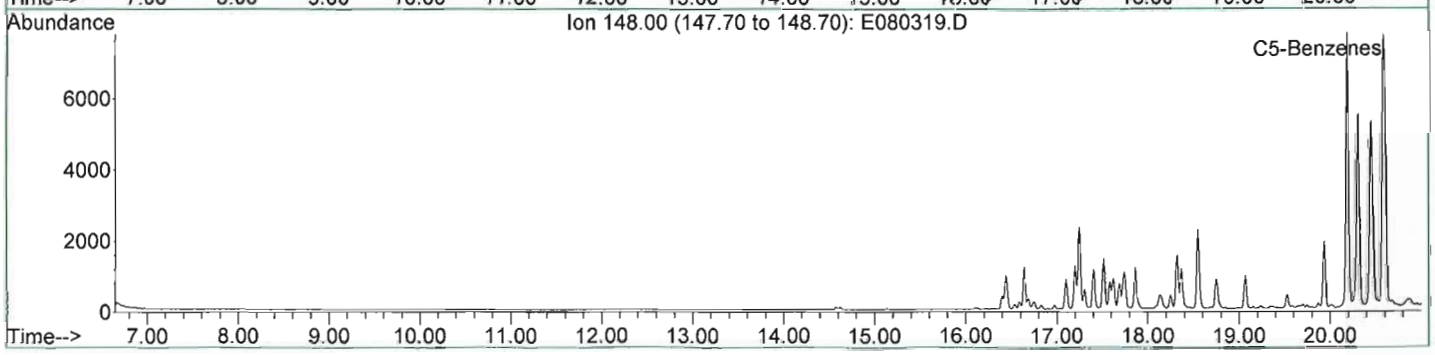
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS



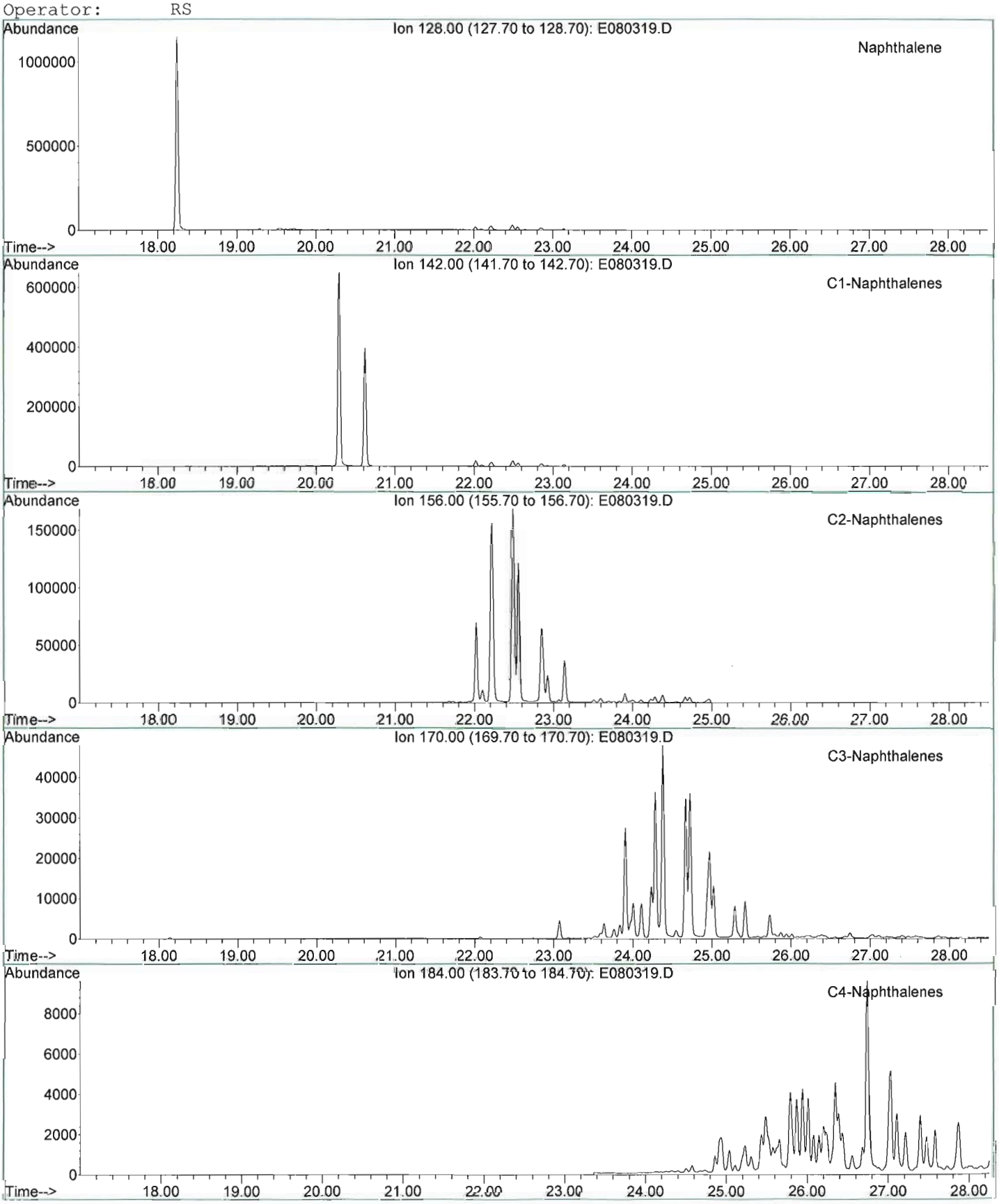



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

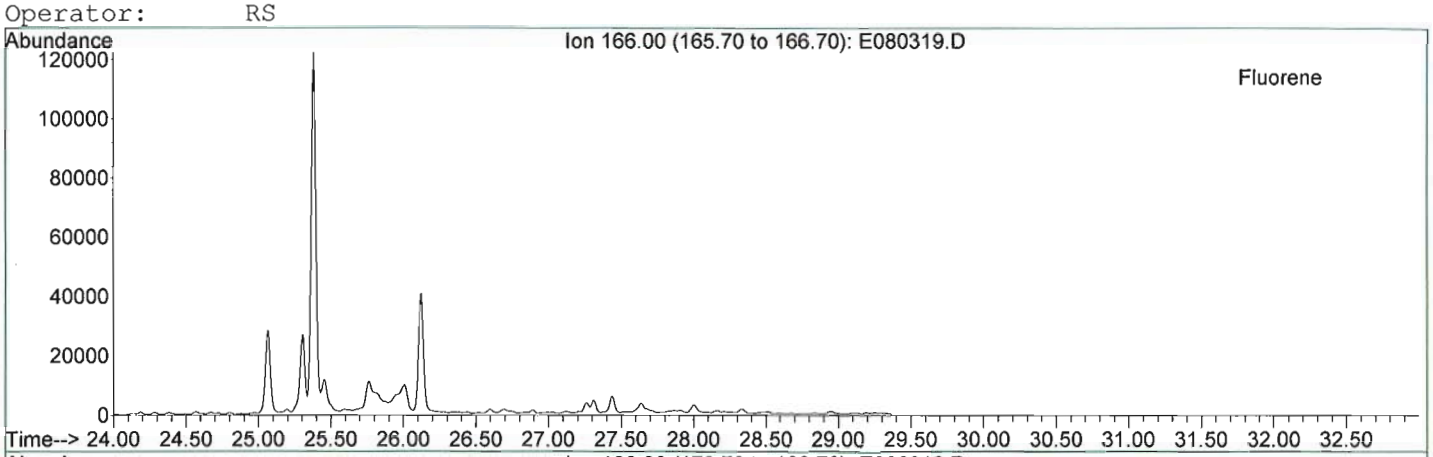
File: J:\1\DATA\E060803\E080319.D
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS

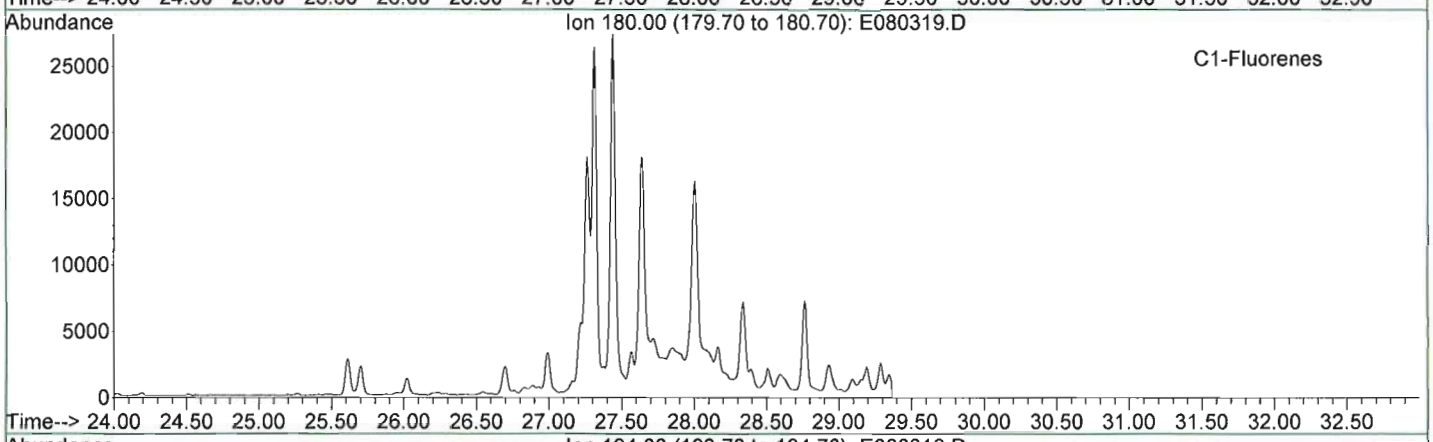


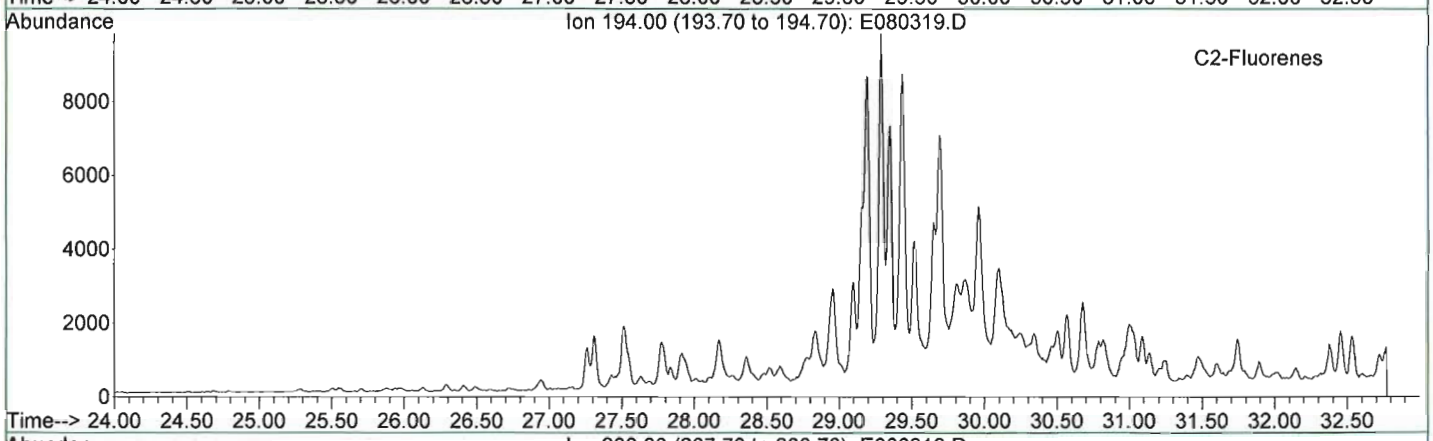
META Environmental, Inc.

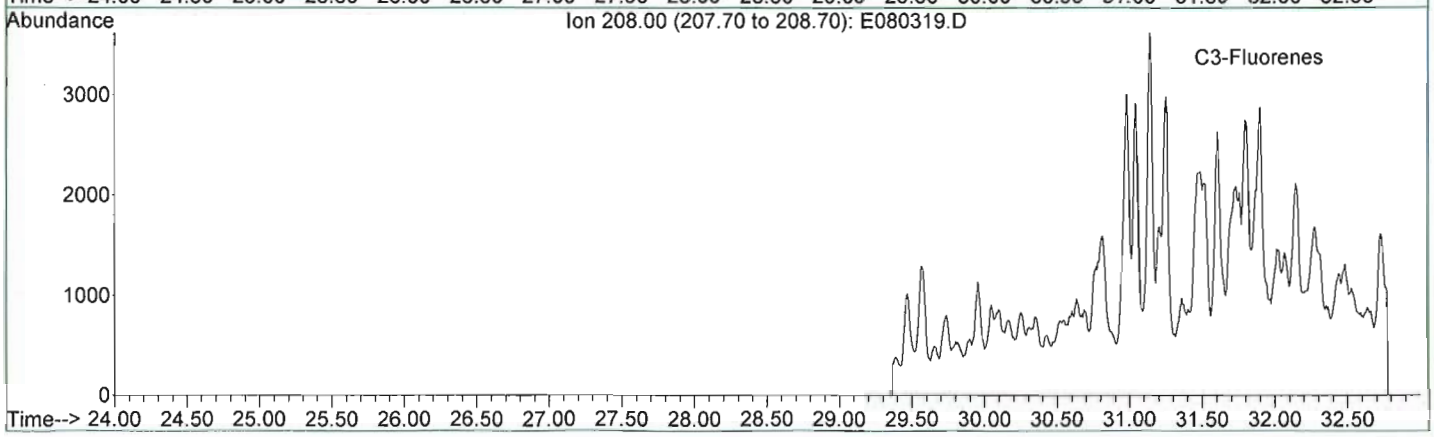
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080319.D
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS



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GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080319.D
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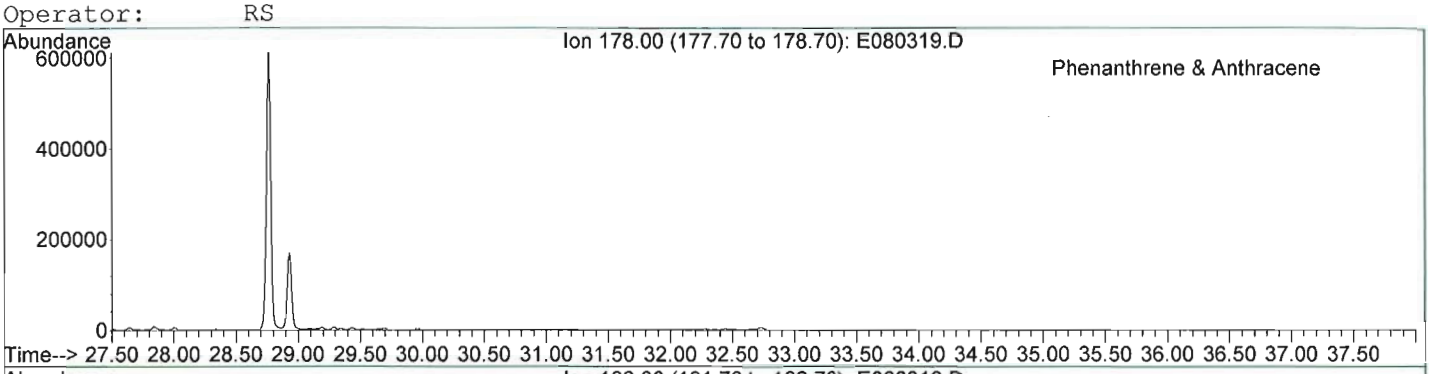
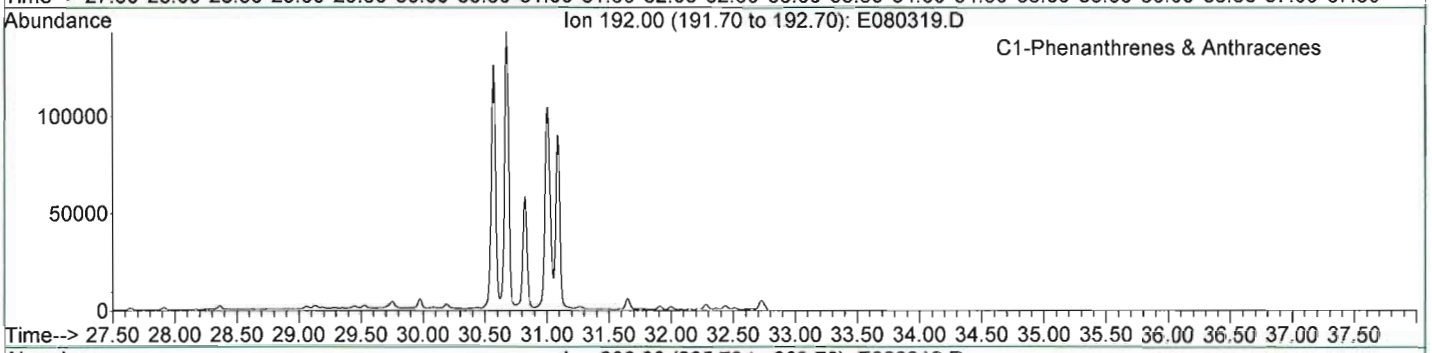
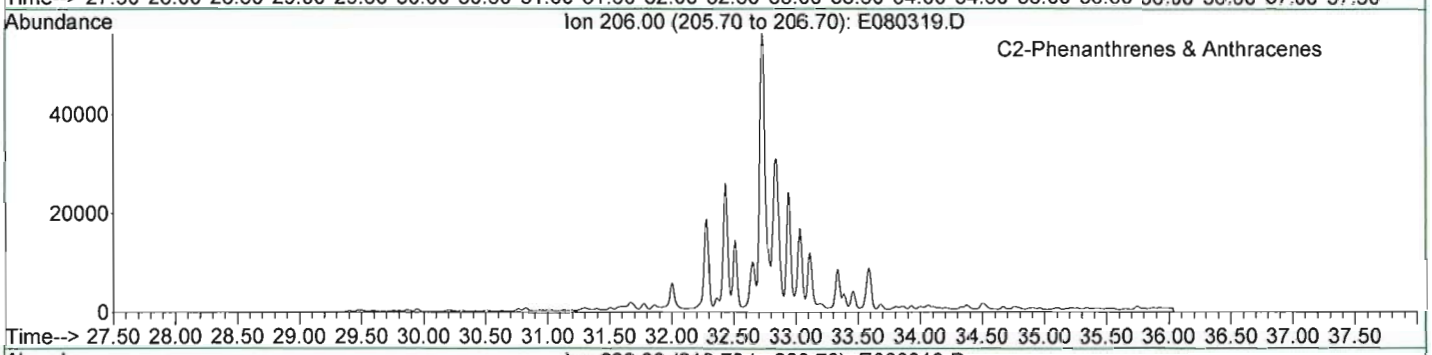
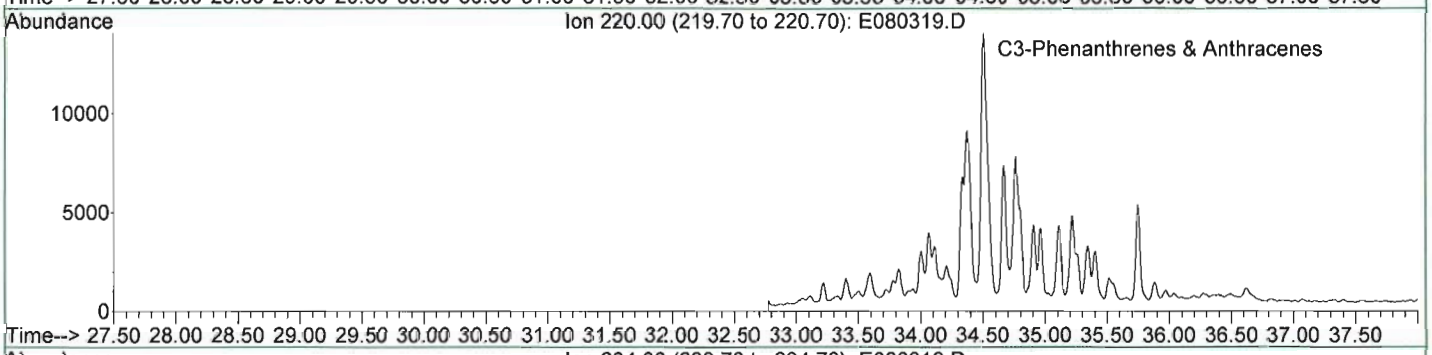
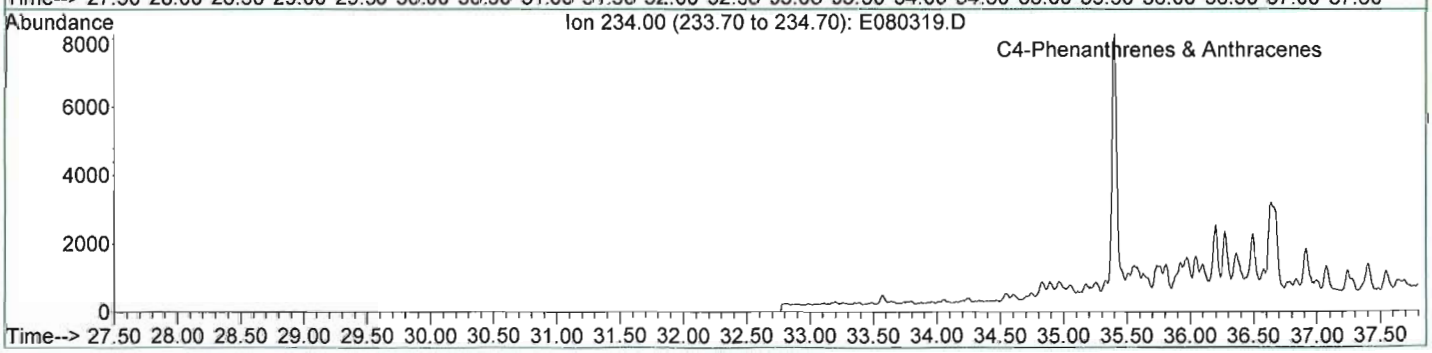
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS



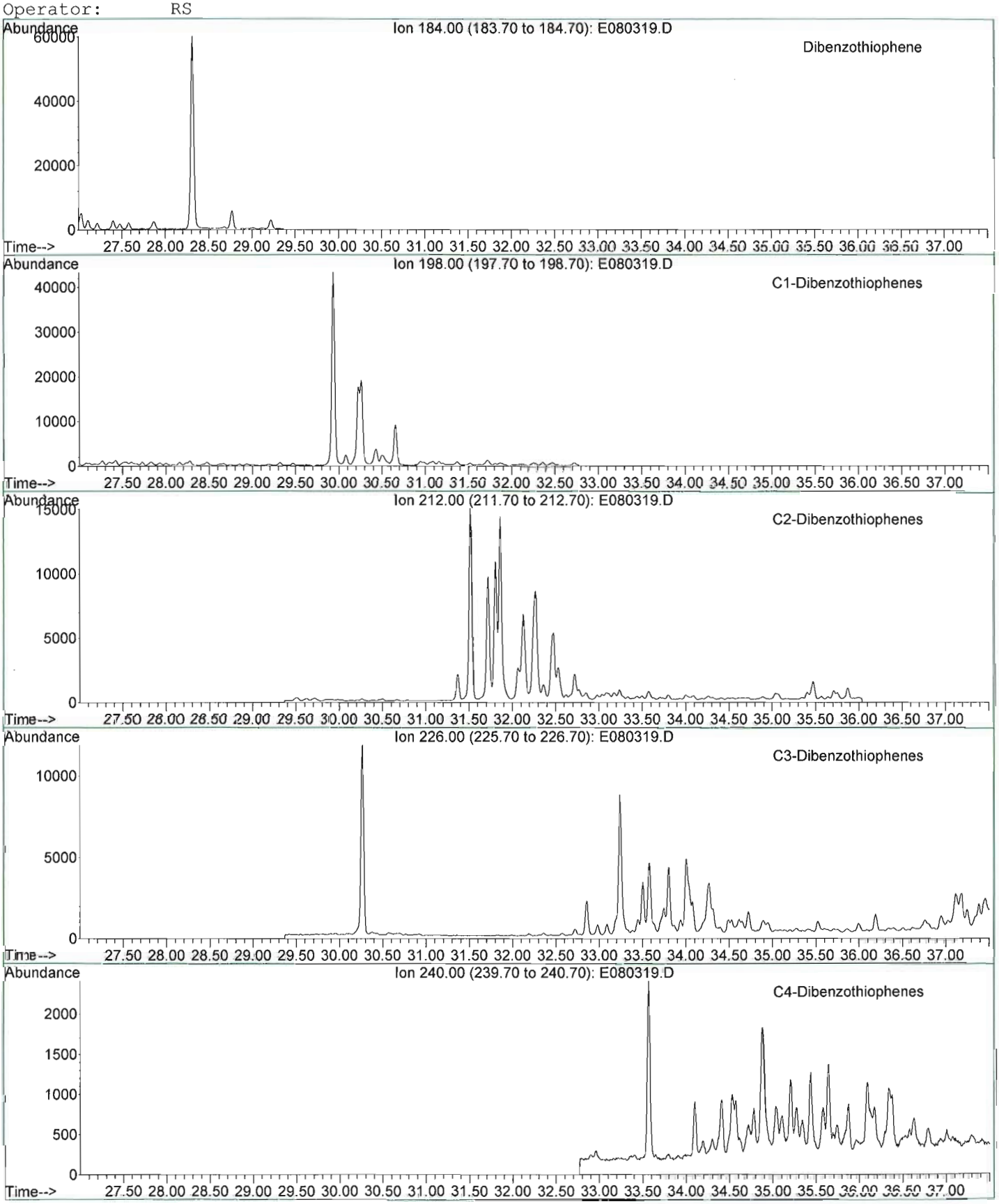



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080319.D
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Sample Name: BR060728-01-D
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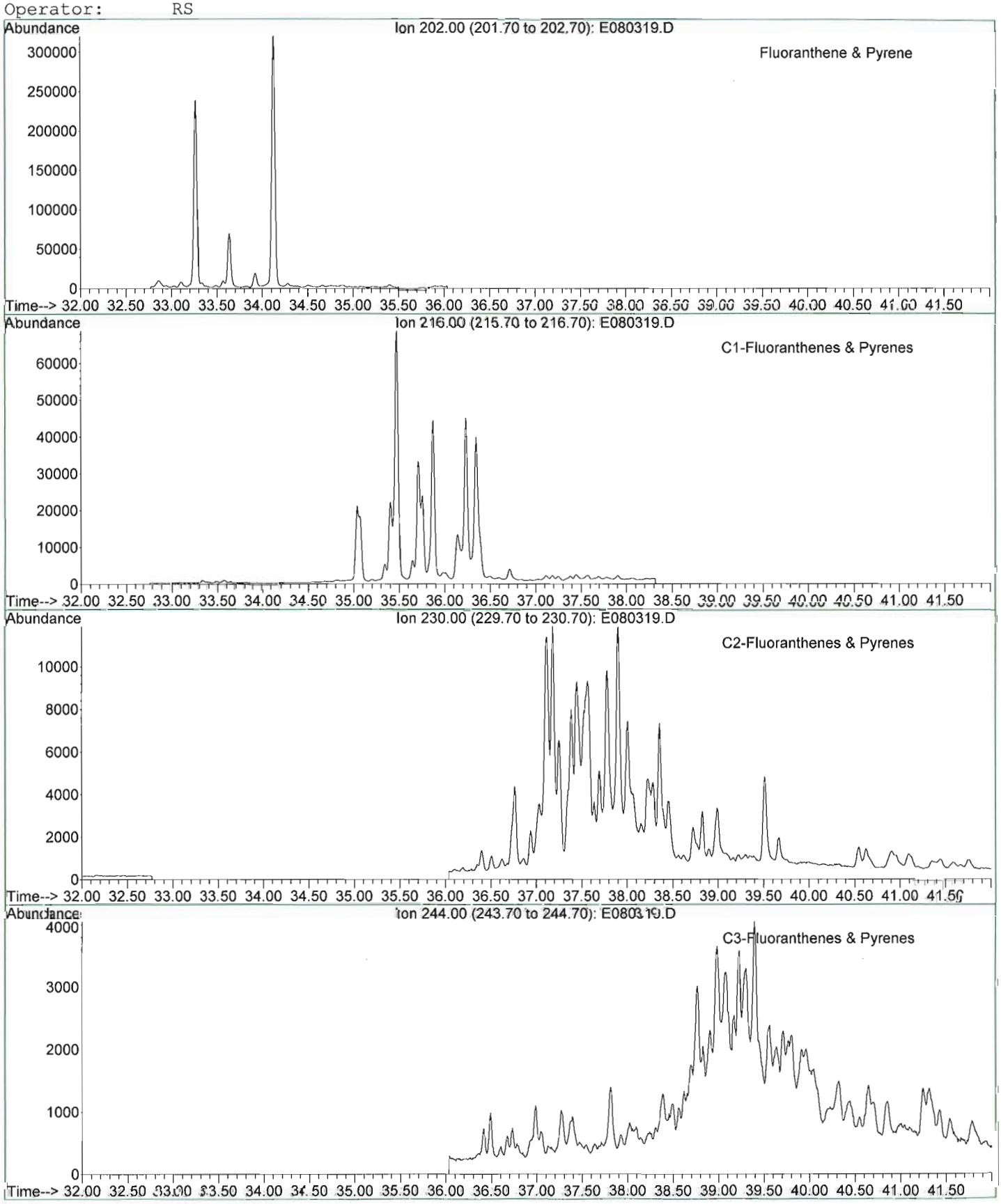

META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080319.D
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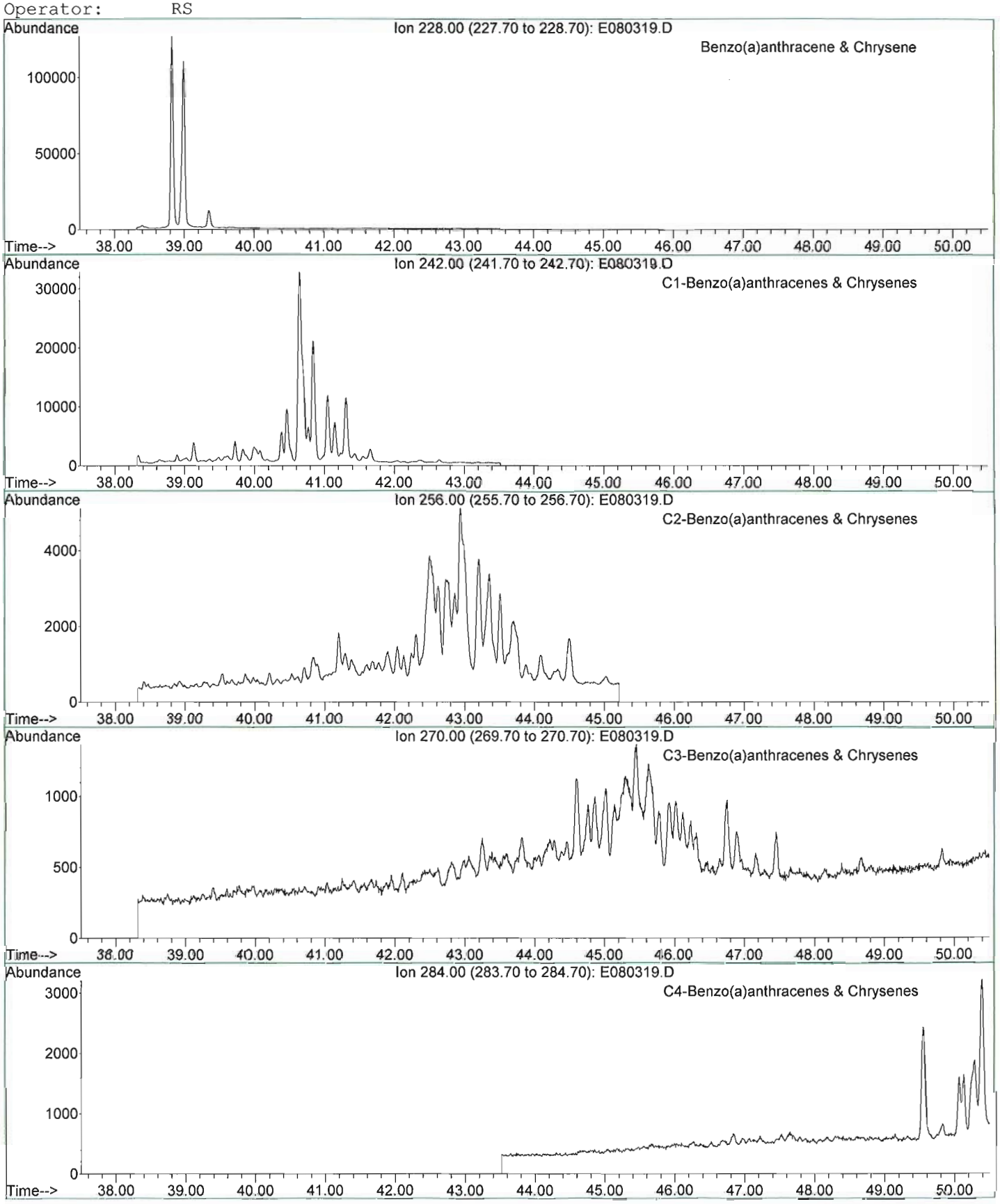
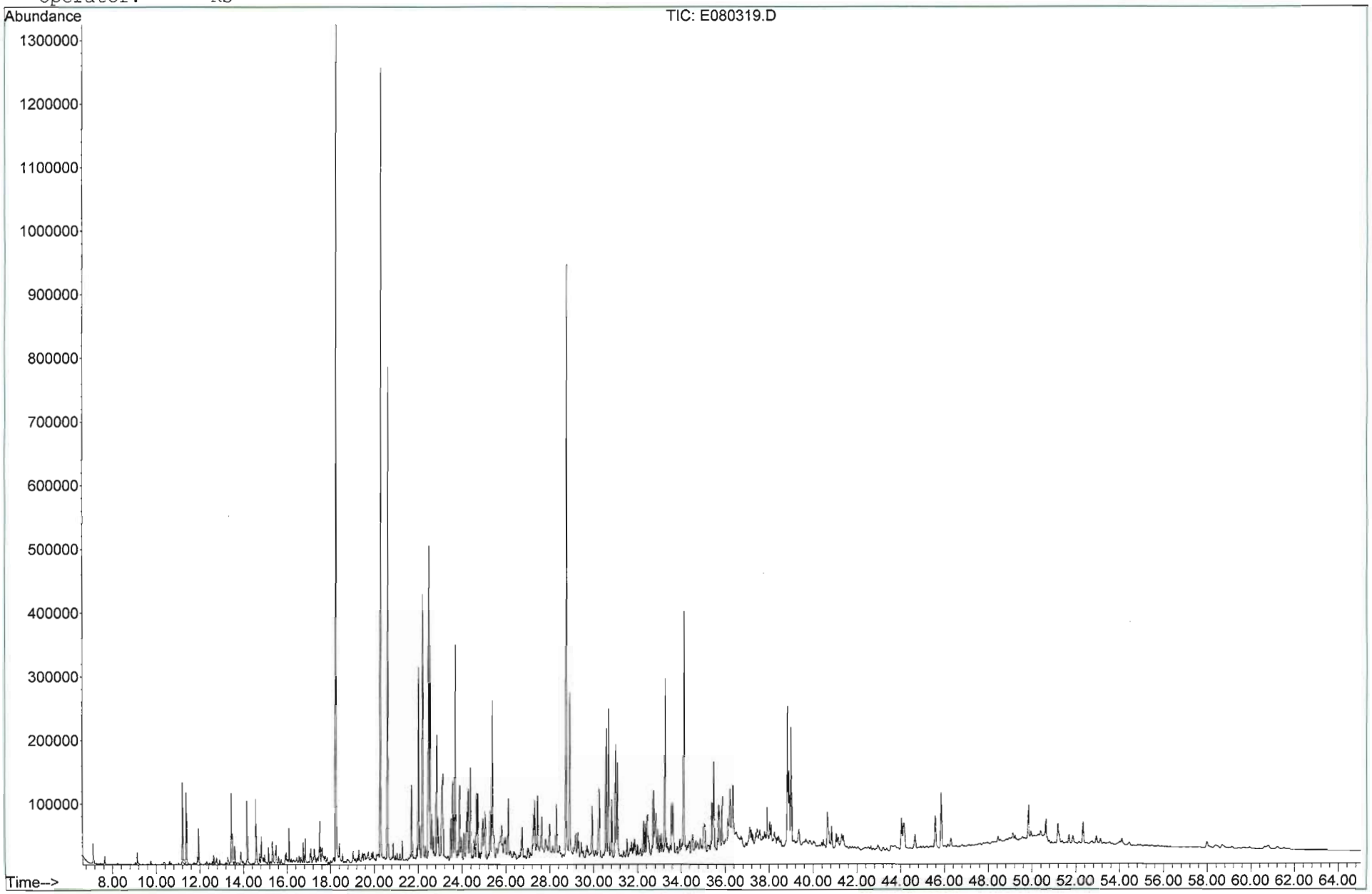
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

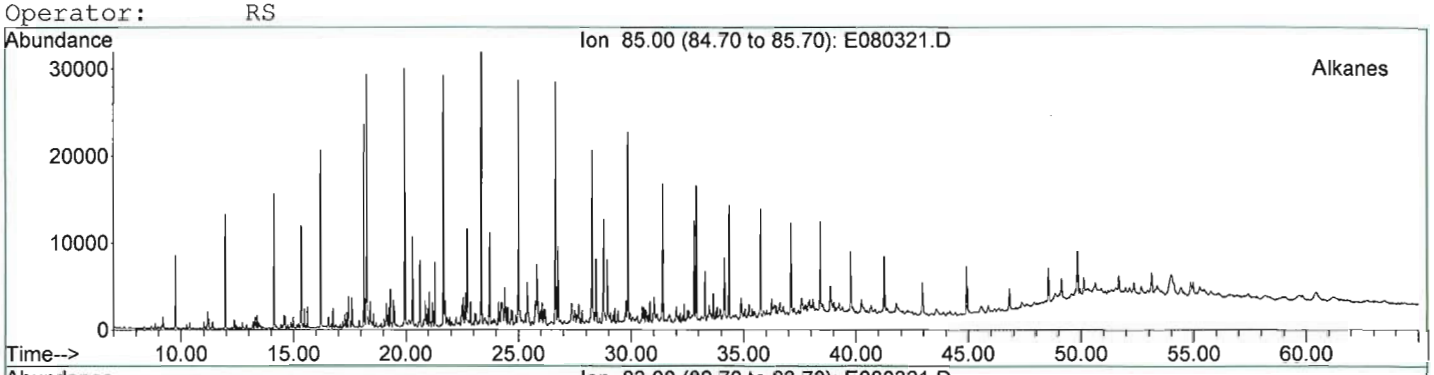
File: J:\1\DATA\E060803\E080319.D
Date Acquired: 6 Aug 2006 1:23 am
Method File: 4008SIM2.M
Sample Name: BR060728-01-D
Misc Info: WSS-RSB009C-001 (13'-13.5')
Operator: RS

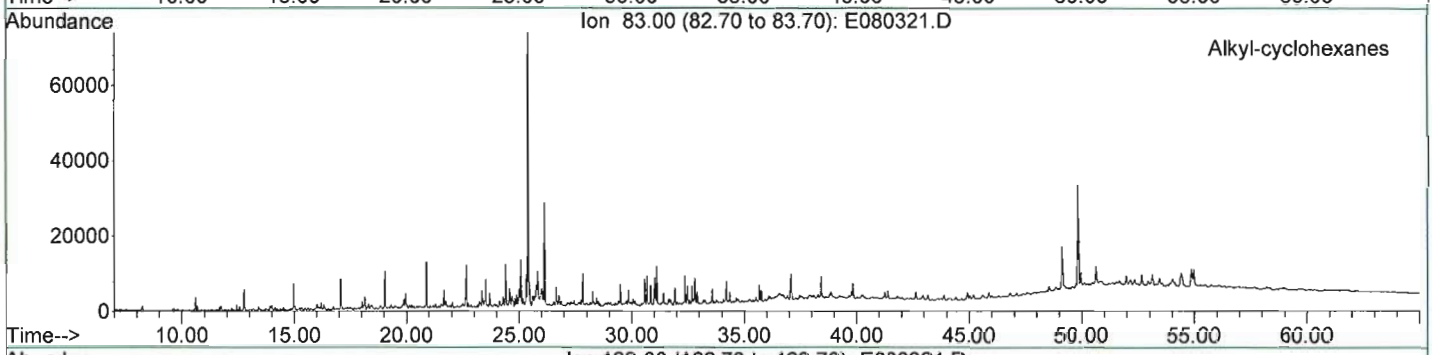


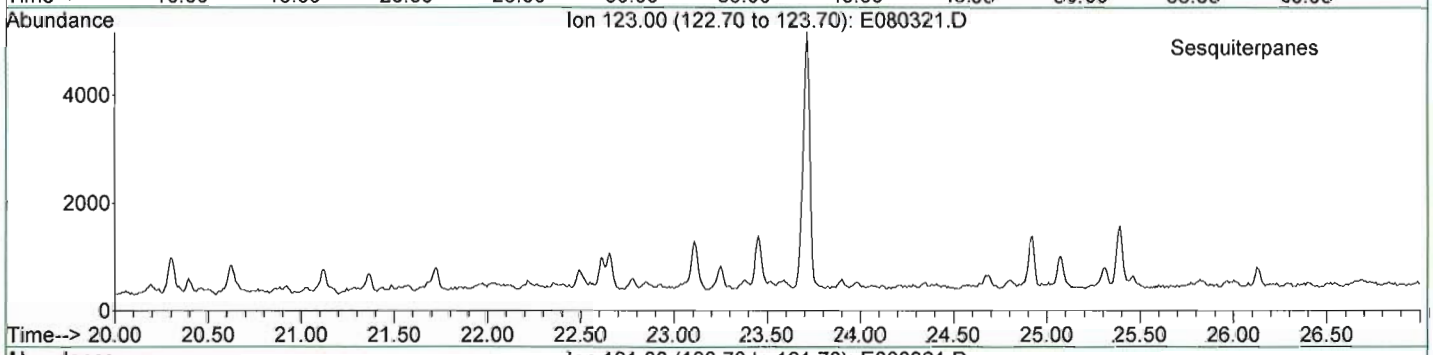
META Environmental, Inc.

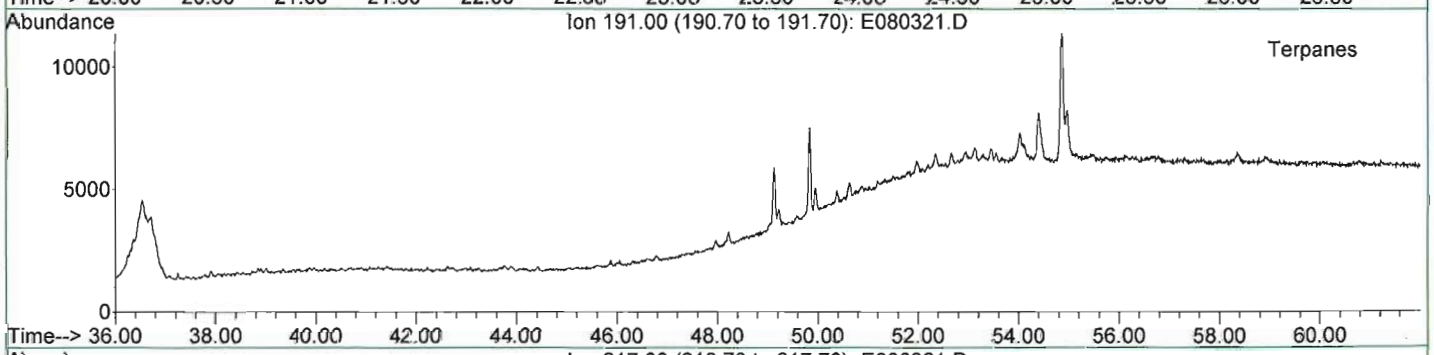
GC/MS EXTRACTED ION CHROMATOGRAM

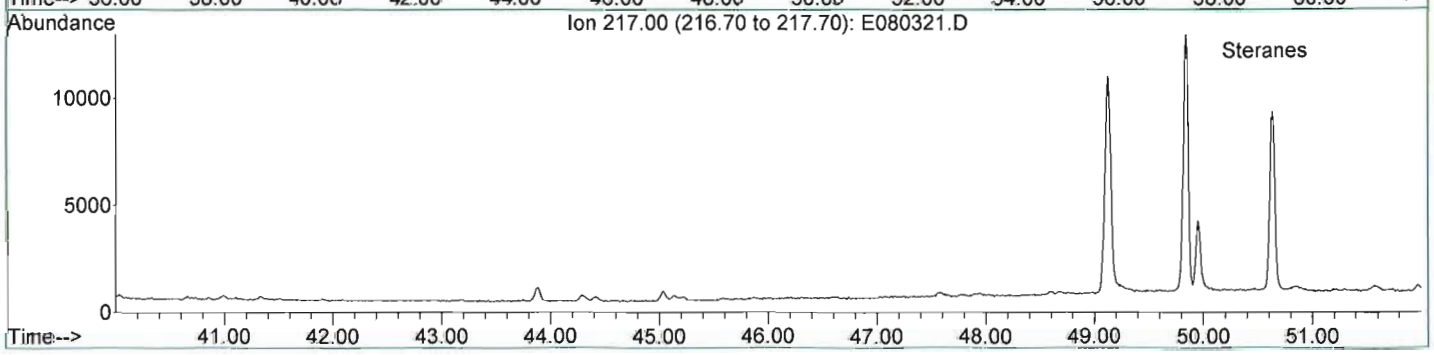
File: J:\1\DATA\E060803\E080321.D
Date Acquired: 6 Aug 2006 4:14 am
Method File: 4008SIM2.M
Sample Name: BR060728-02-D
Misc Info: WSS-RSB024B-001 (6.5'-7.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080321.D
Date Acquired: 6 Aug 2006 4:14 am
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Sample Name: BR060728-02-D
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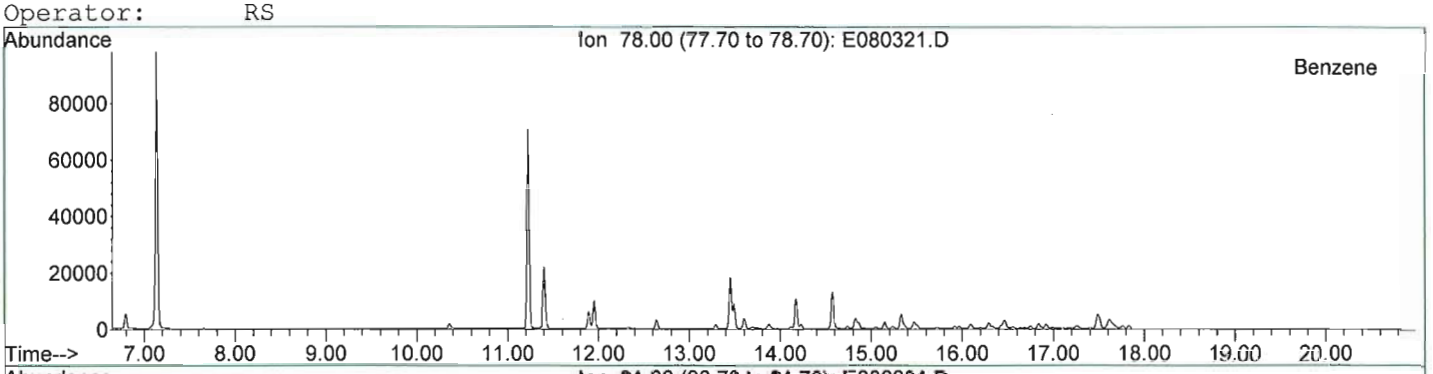
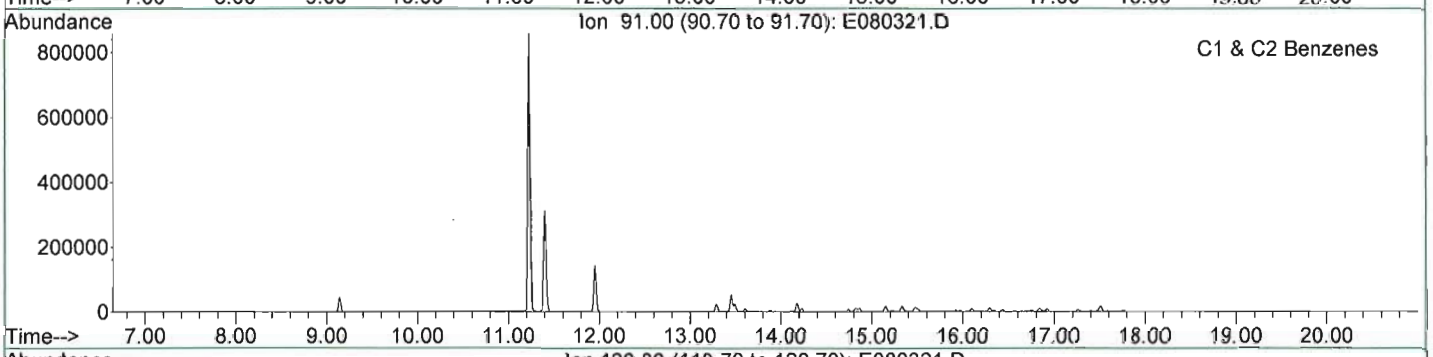
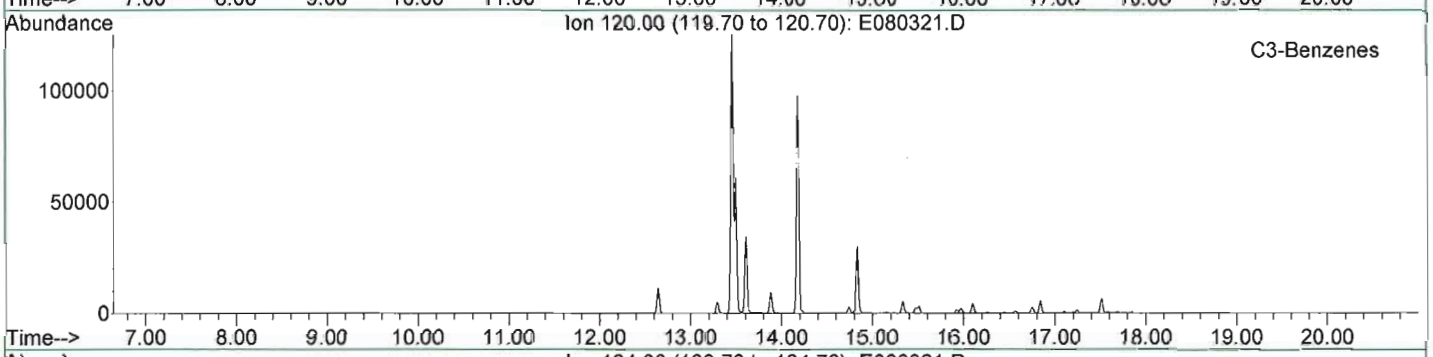
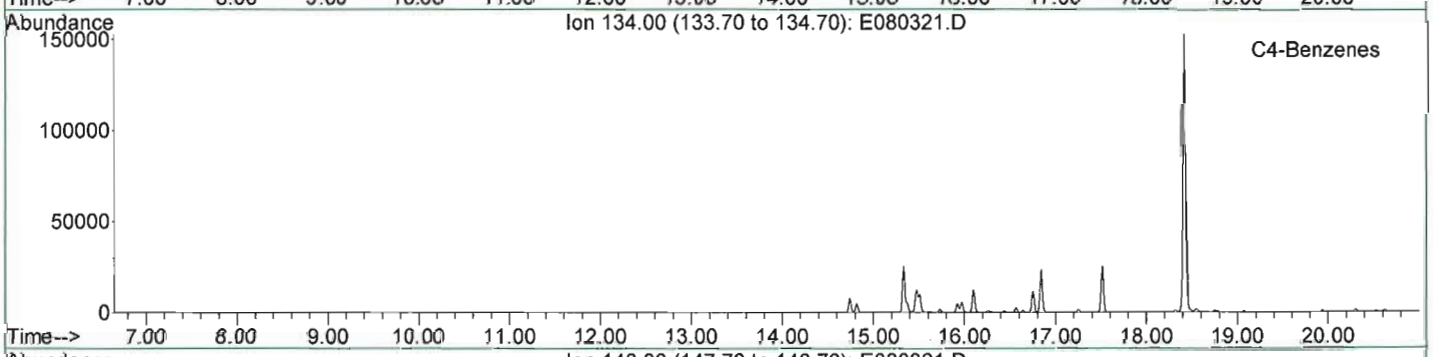
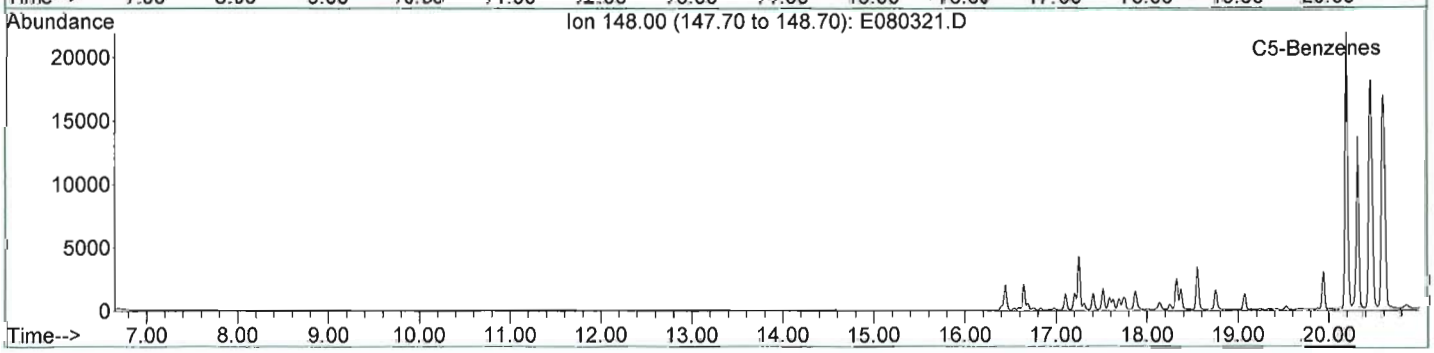
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080321.D
Date Acquired: 6 Aug 2006 4:14 am
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Sample Name: BR060728-02-D
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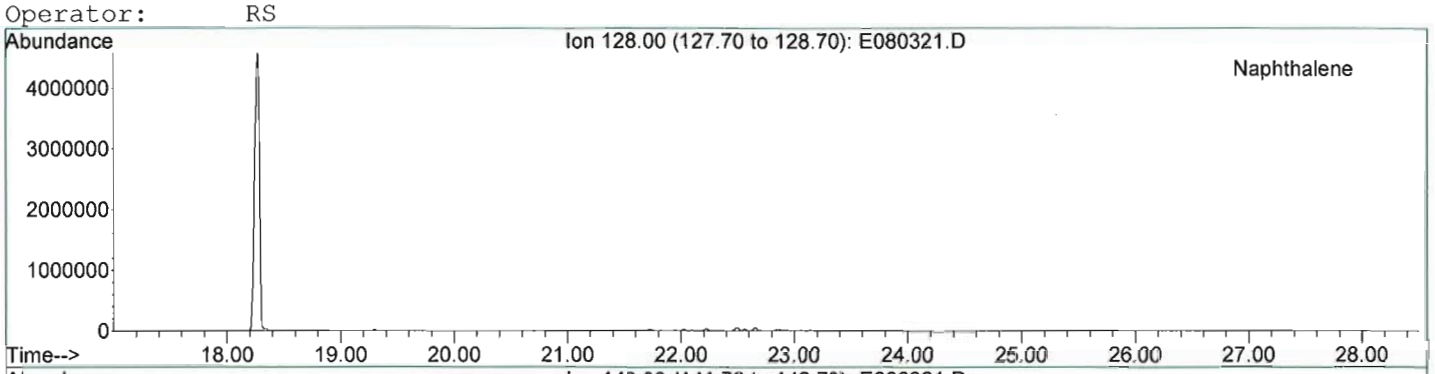


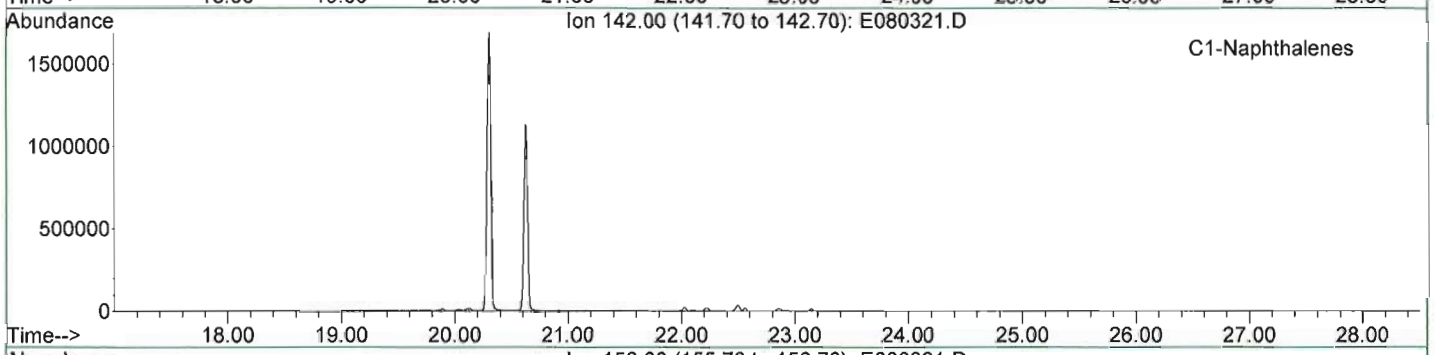


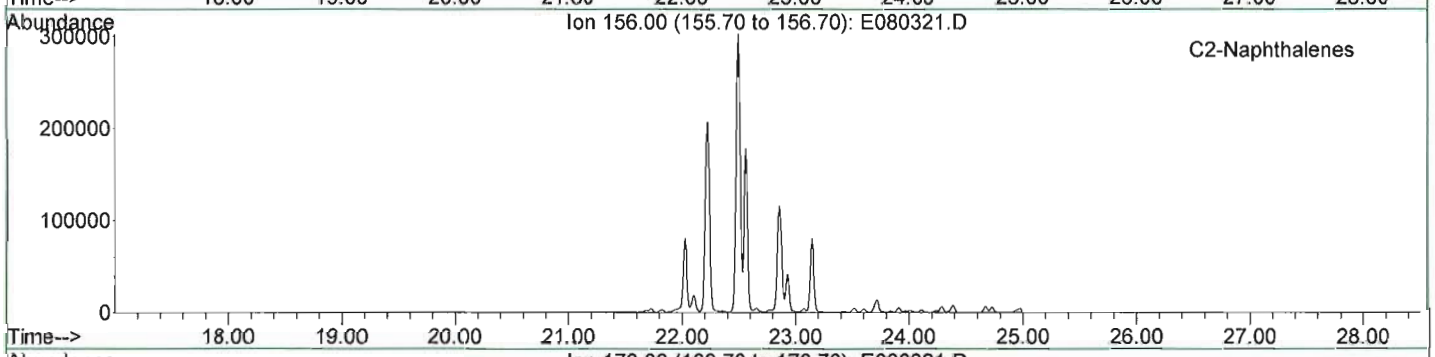


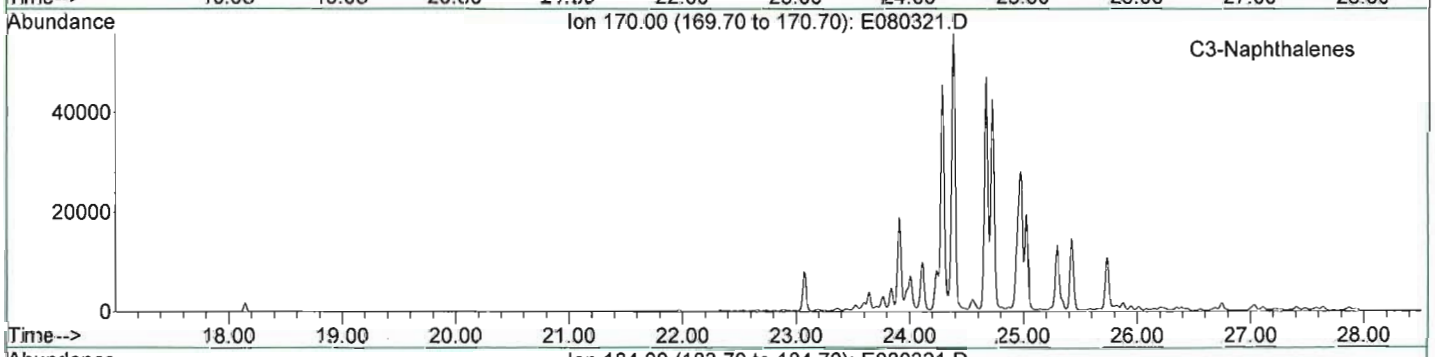


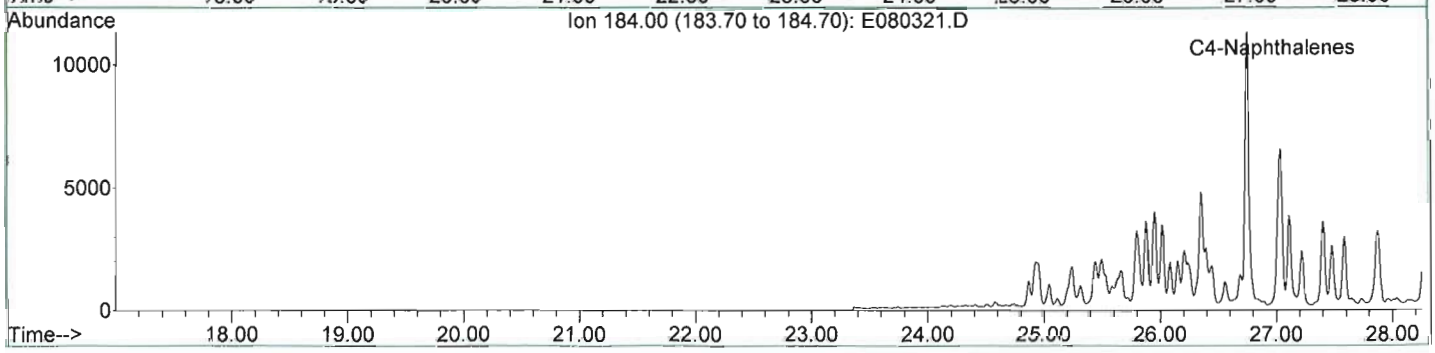

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GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080321.D
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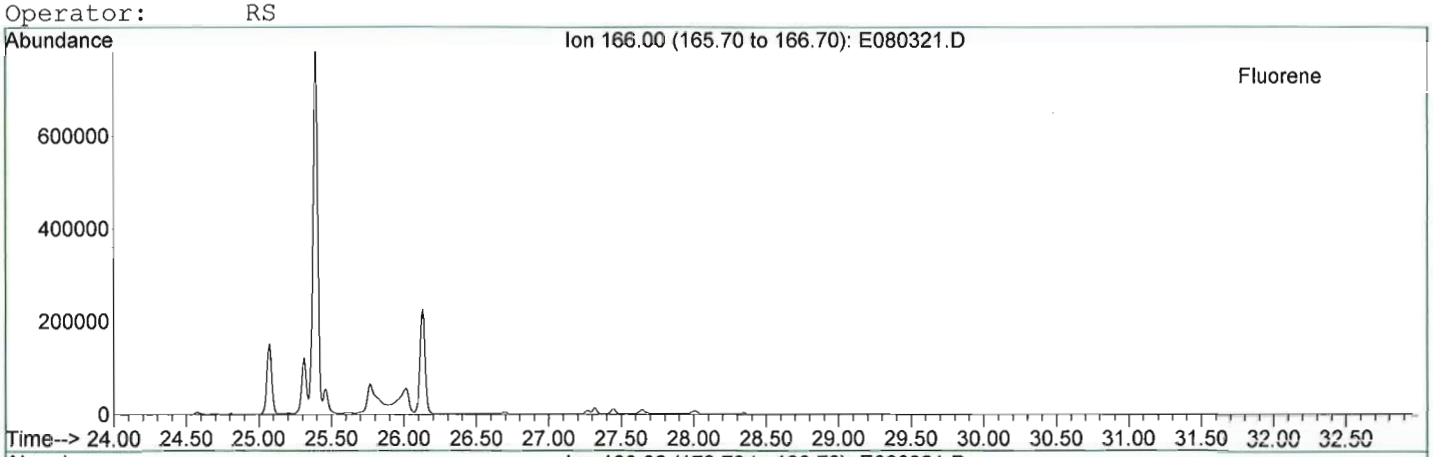
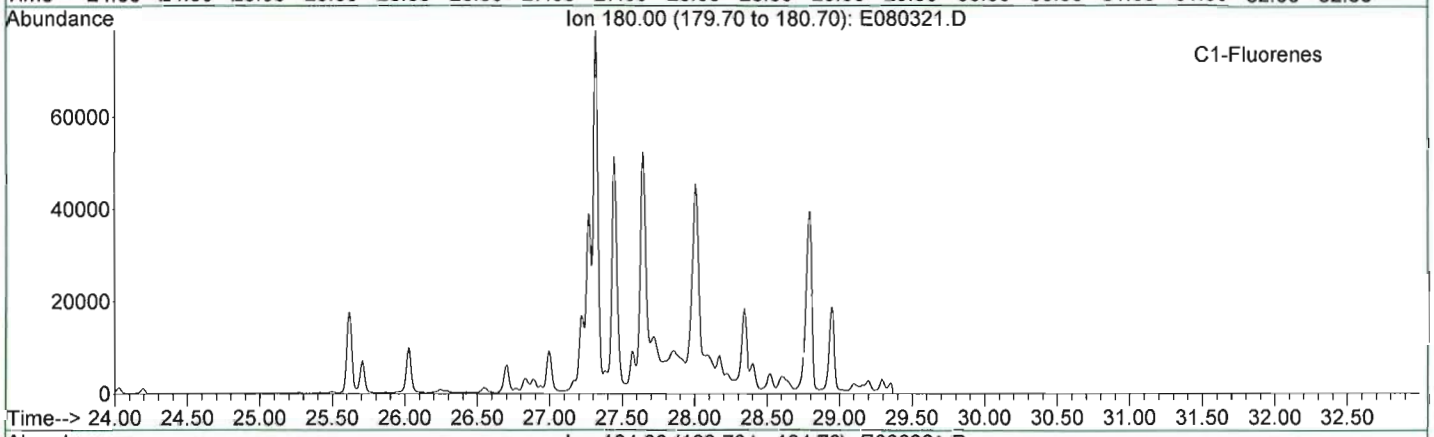
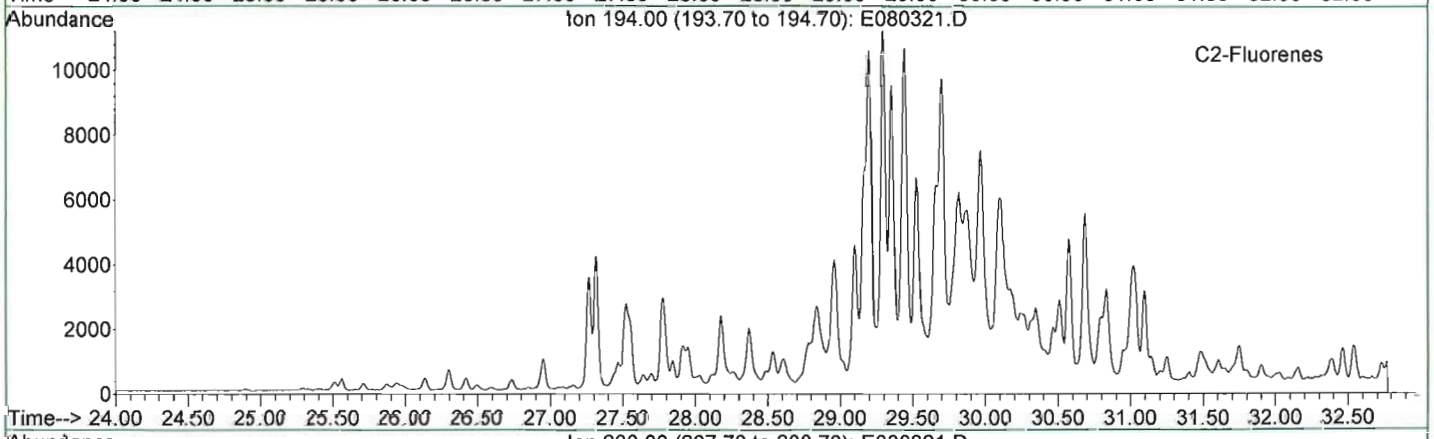
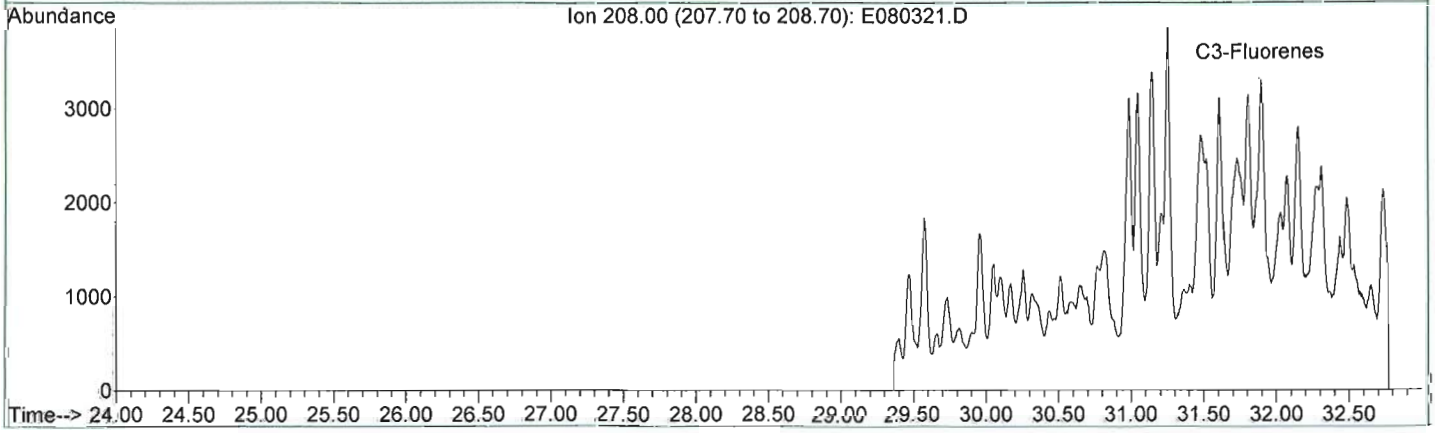
Misc Info: WSS-RSB024B-001 (6.5'-7.0')
Operator: RS



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GC/MS EXTRACTED ION CHROMATOGRAM

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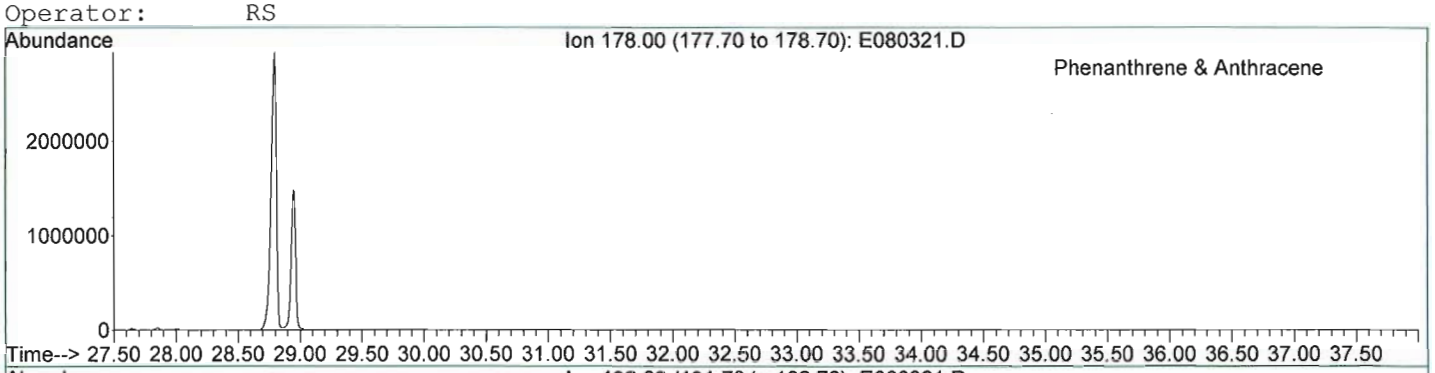
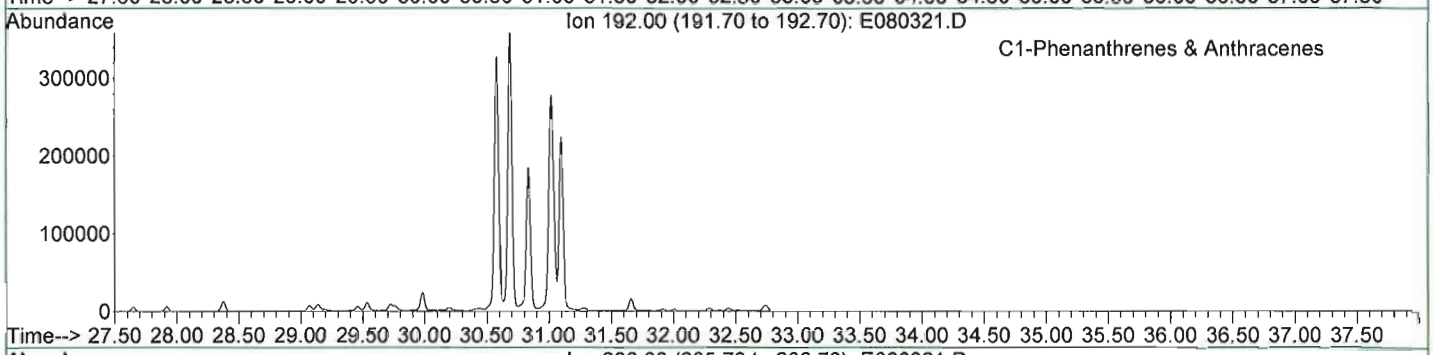
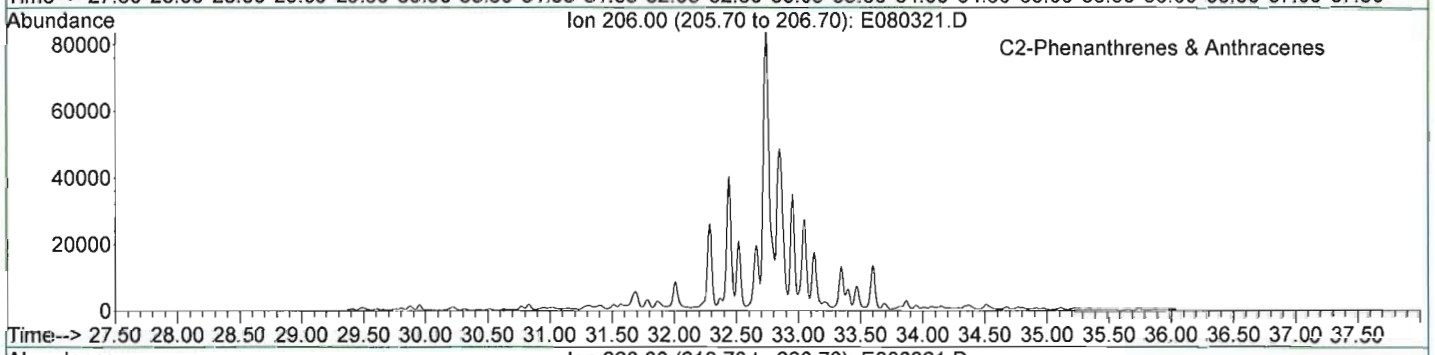
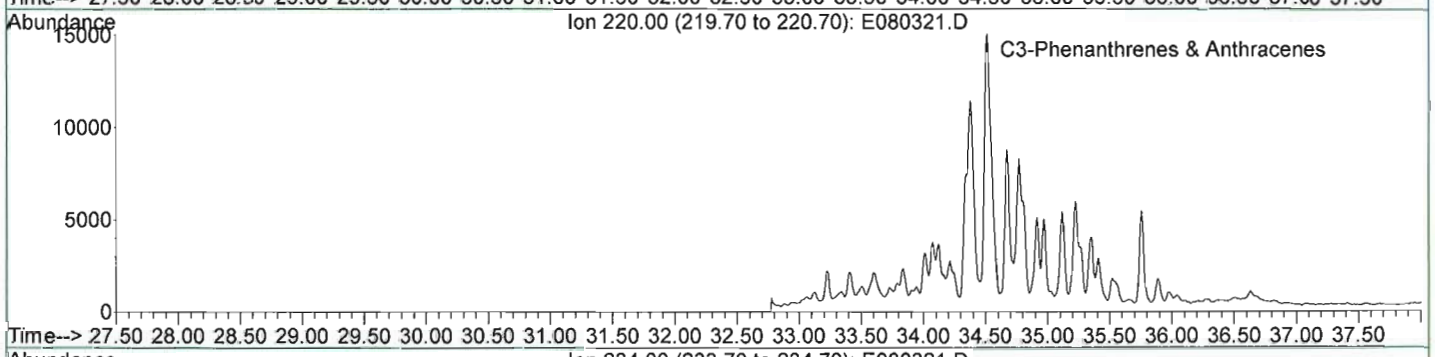
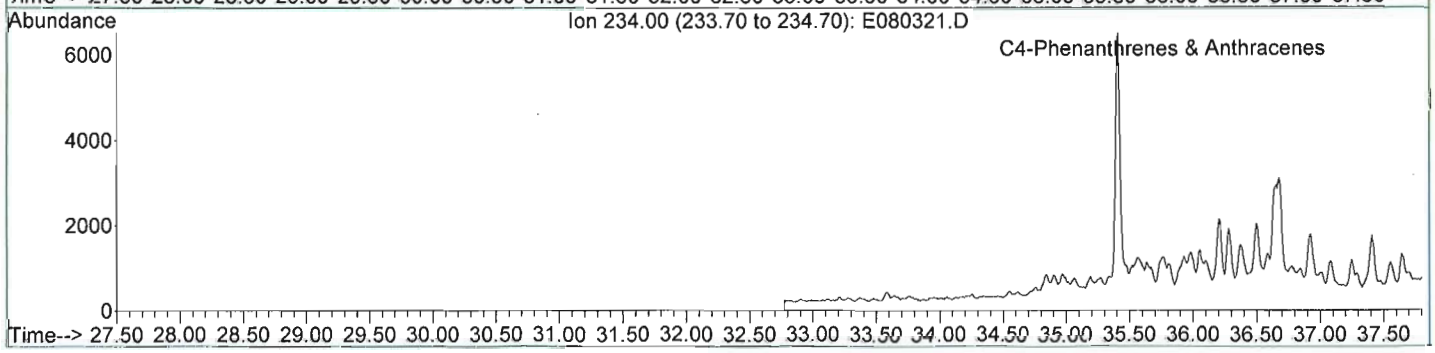
Sample Name: BR060728-02-D
Misc Info: WSS-RSB024B-001 (6.5'-7.0')
Operator: RS



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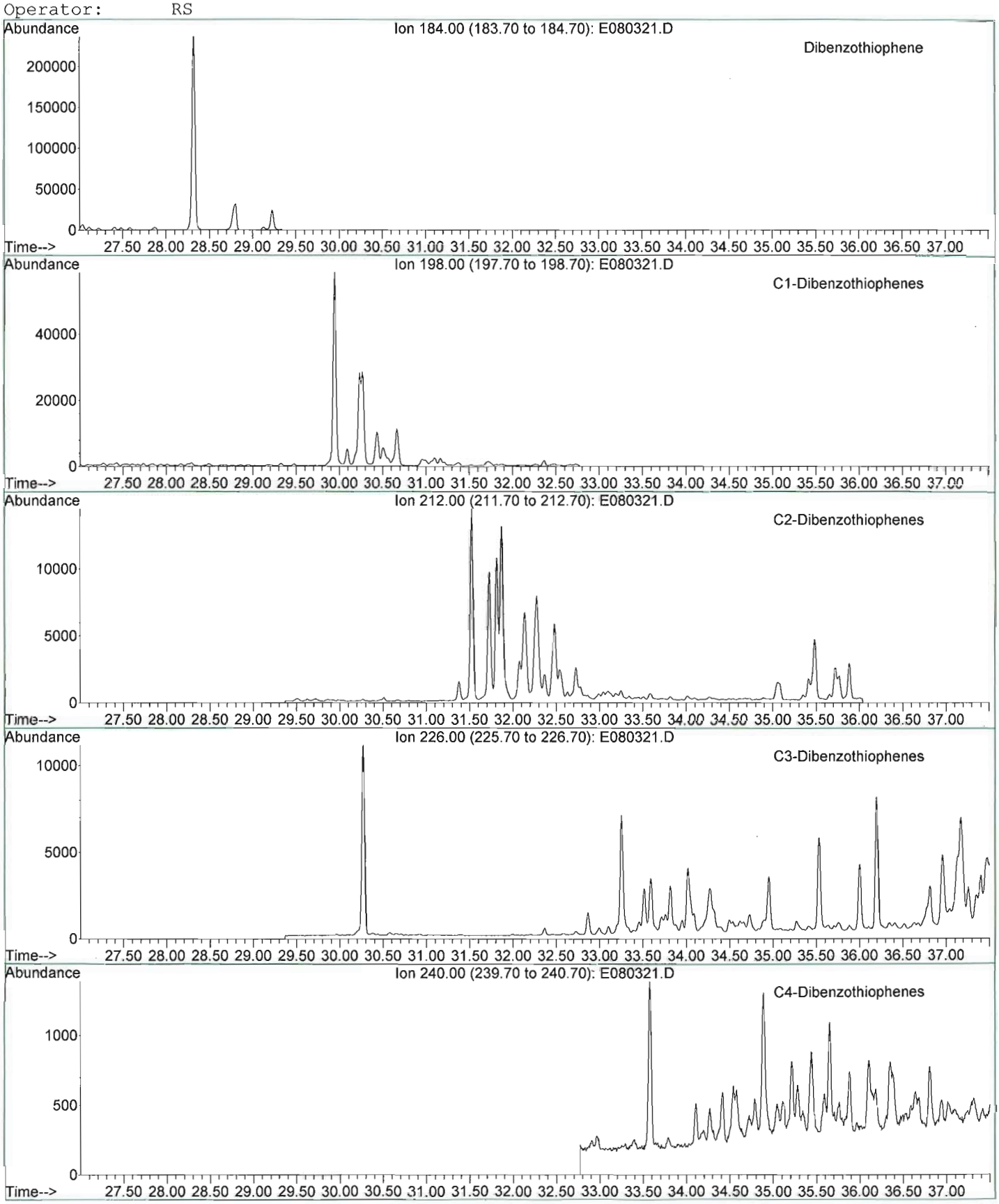

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GC/MS EXTRACTED ION CHROMATOGRAM

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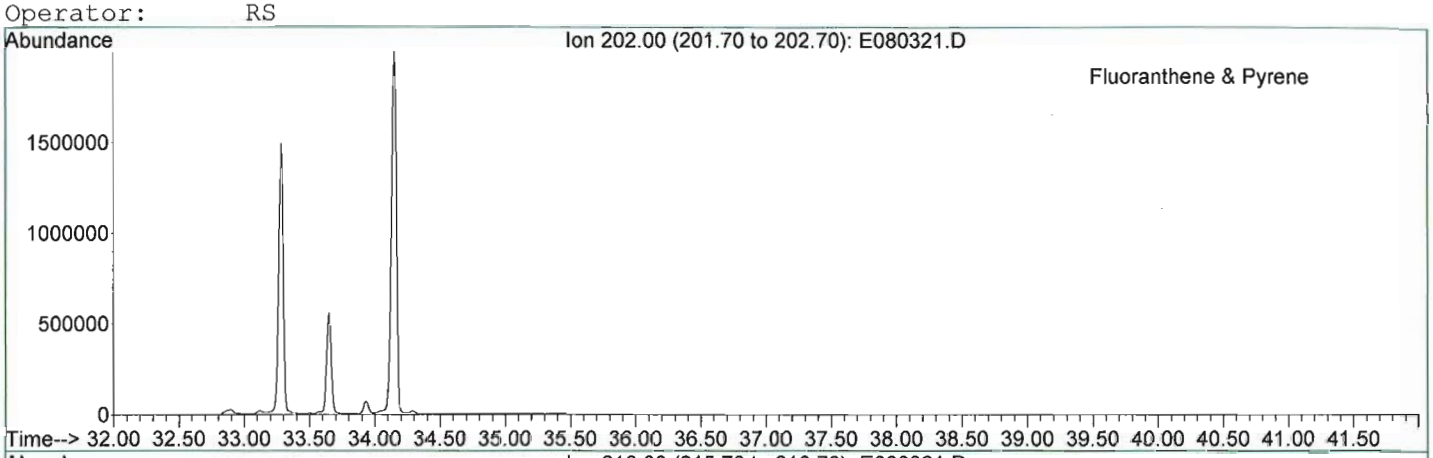


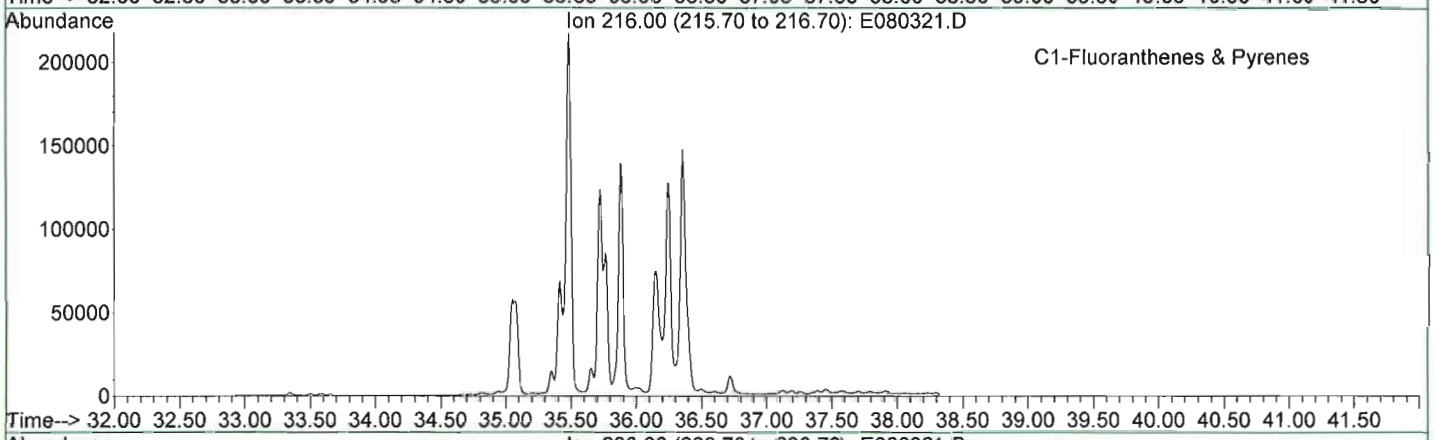


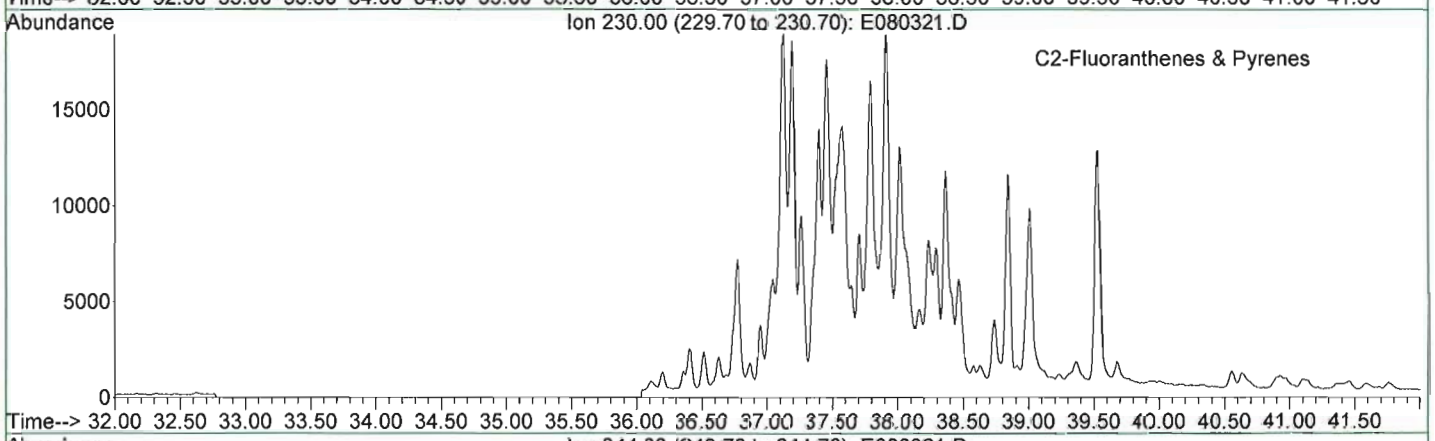


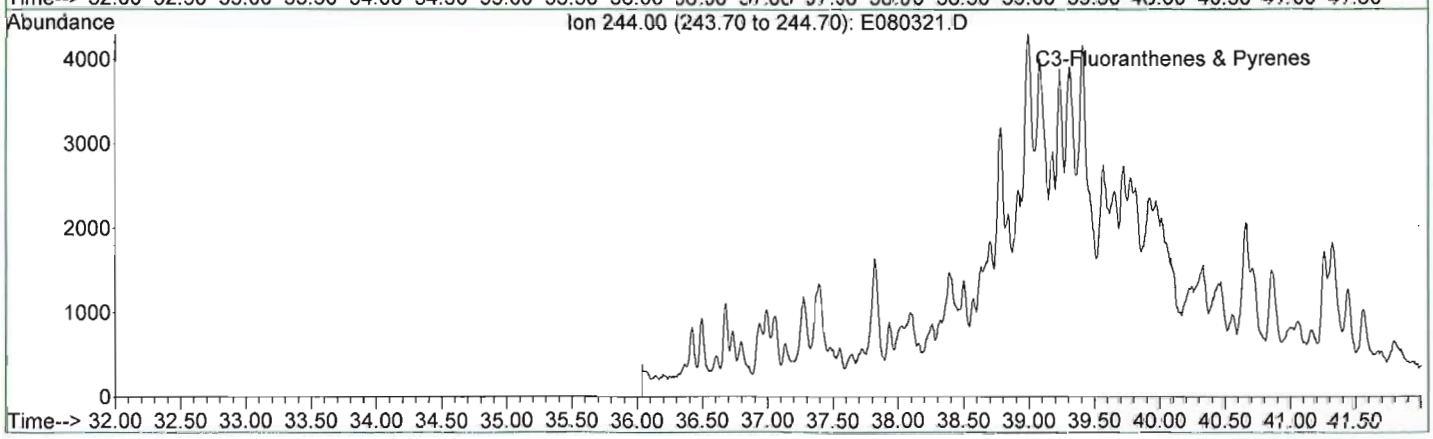

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GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060803\E080321.D
Date Acquired: 6 Aug 2006 4:14 am
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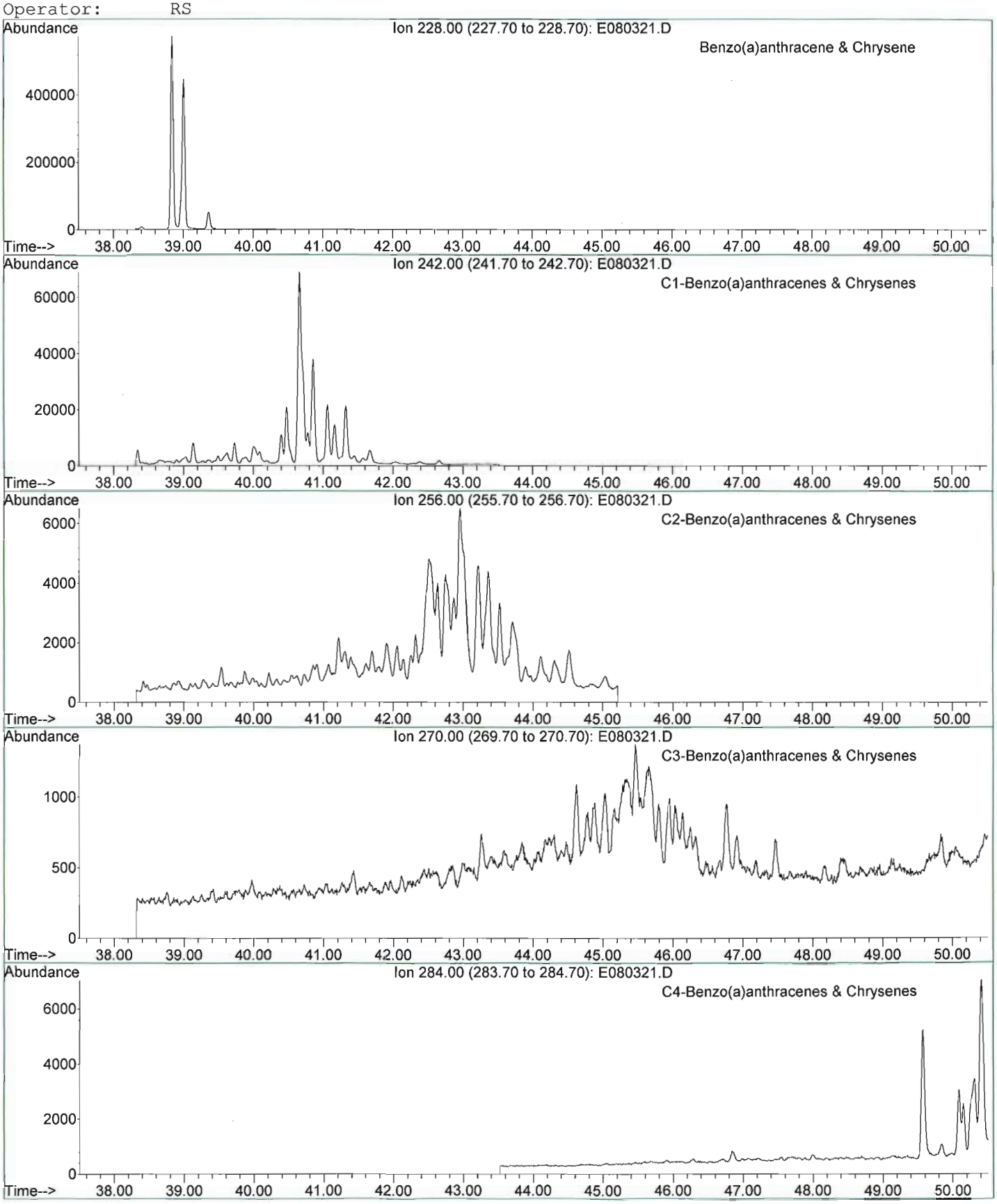
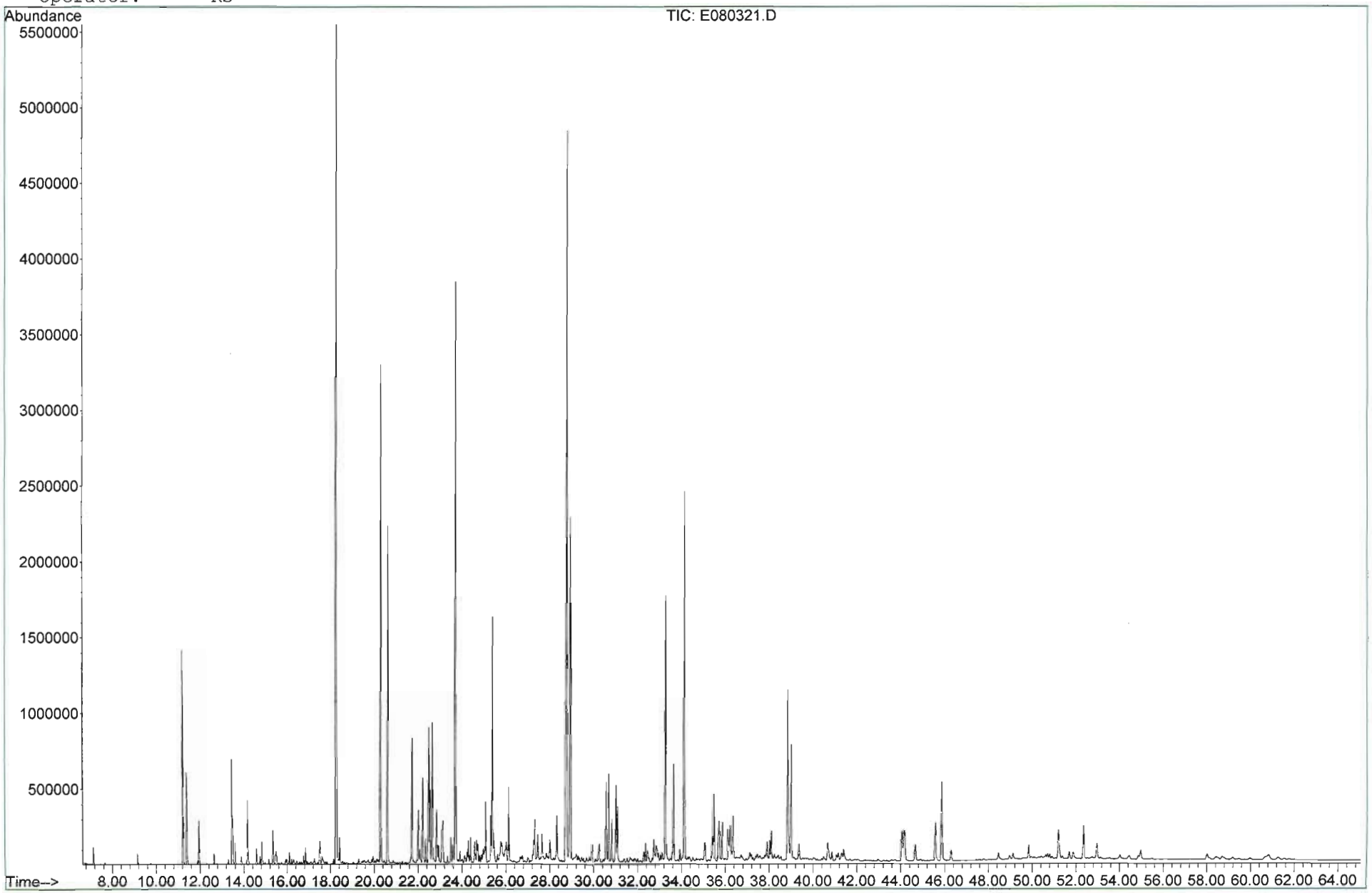
Sample Name: BR060728-02-D
Misc Info: WSS-RSB024B-001 (6.5'-7.0')
Operator: RS



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

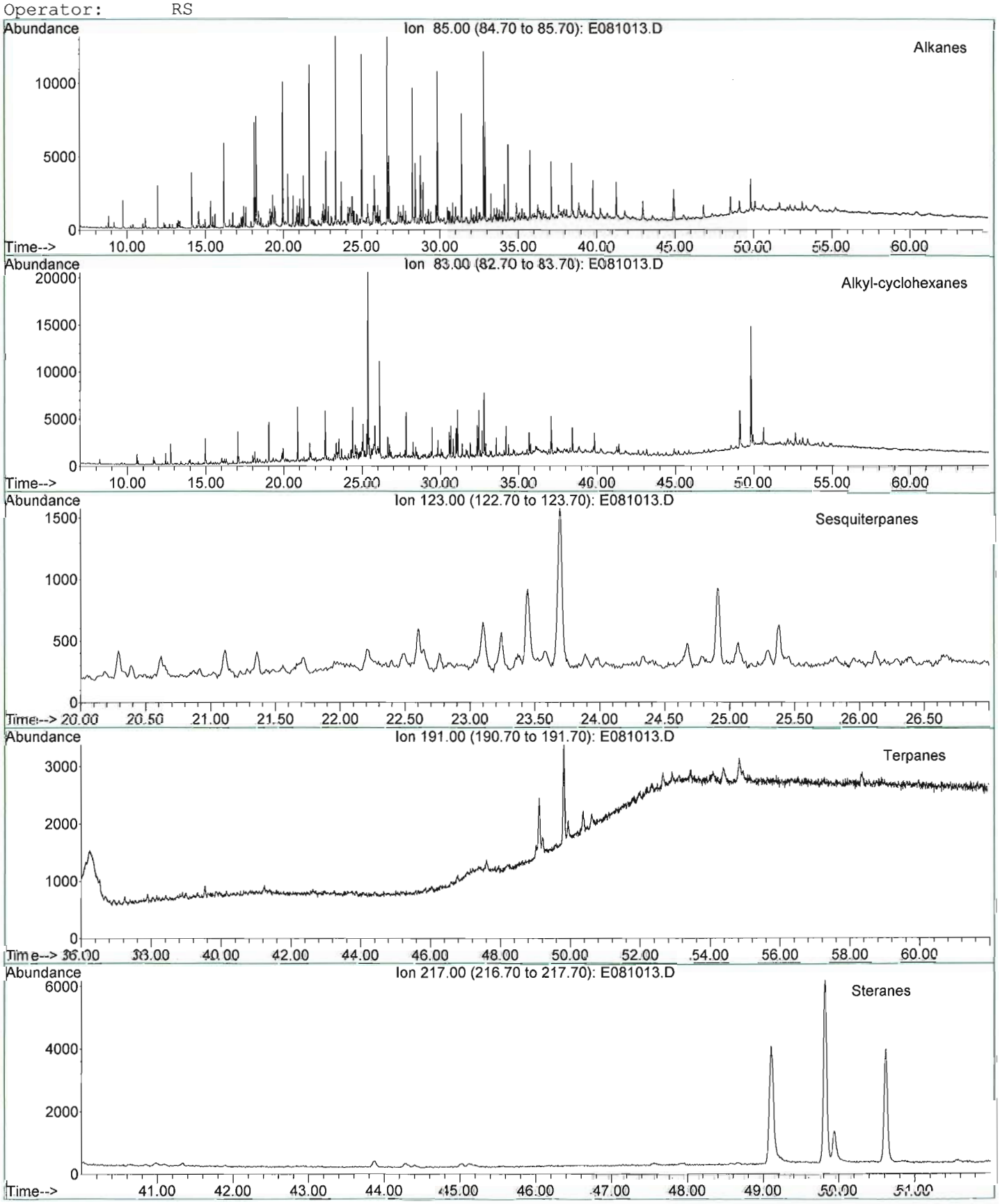
File: J:\1\DATA\E060803\E080321.D
Date Acquired: 6 Aug 2006 4:14 am
Method File: 4008SIM2.M
Sample Name: BR060728-02-D
Misc Info: WSS-RSB024B-001 (6.5'-7.0')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

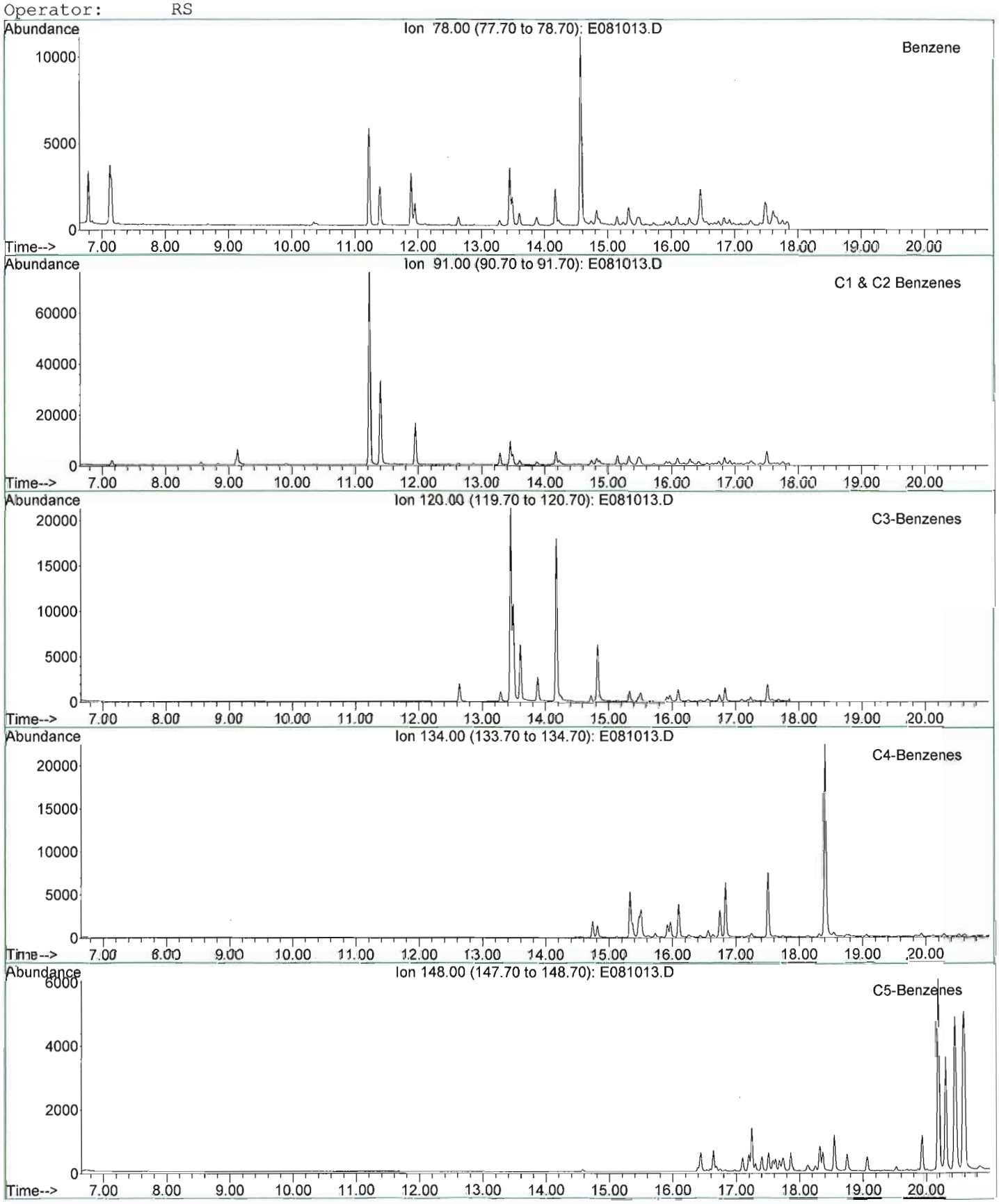
File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

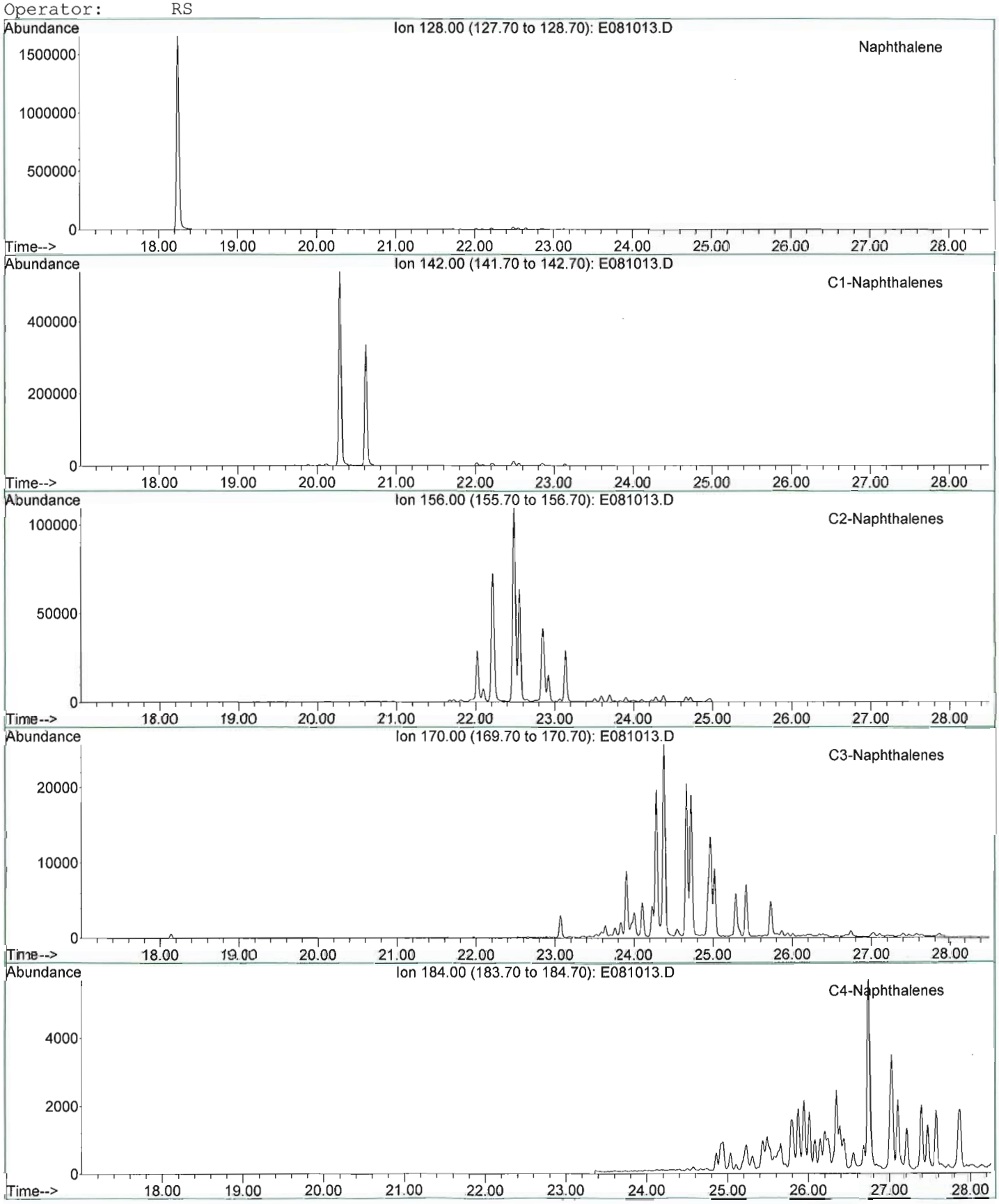
File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

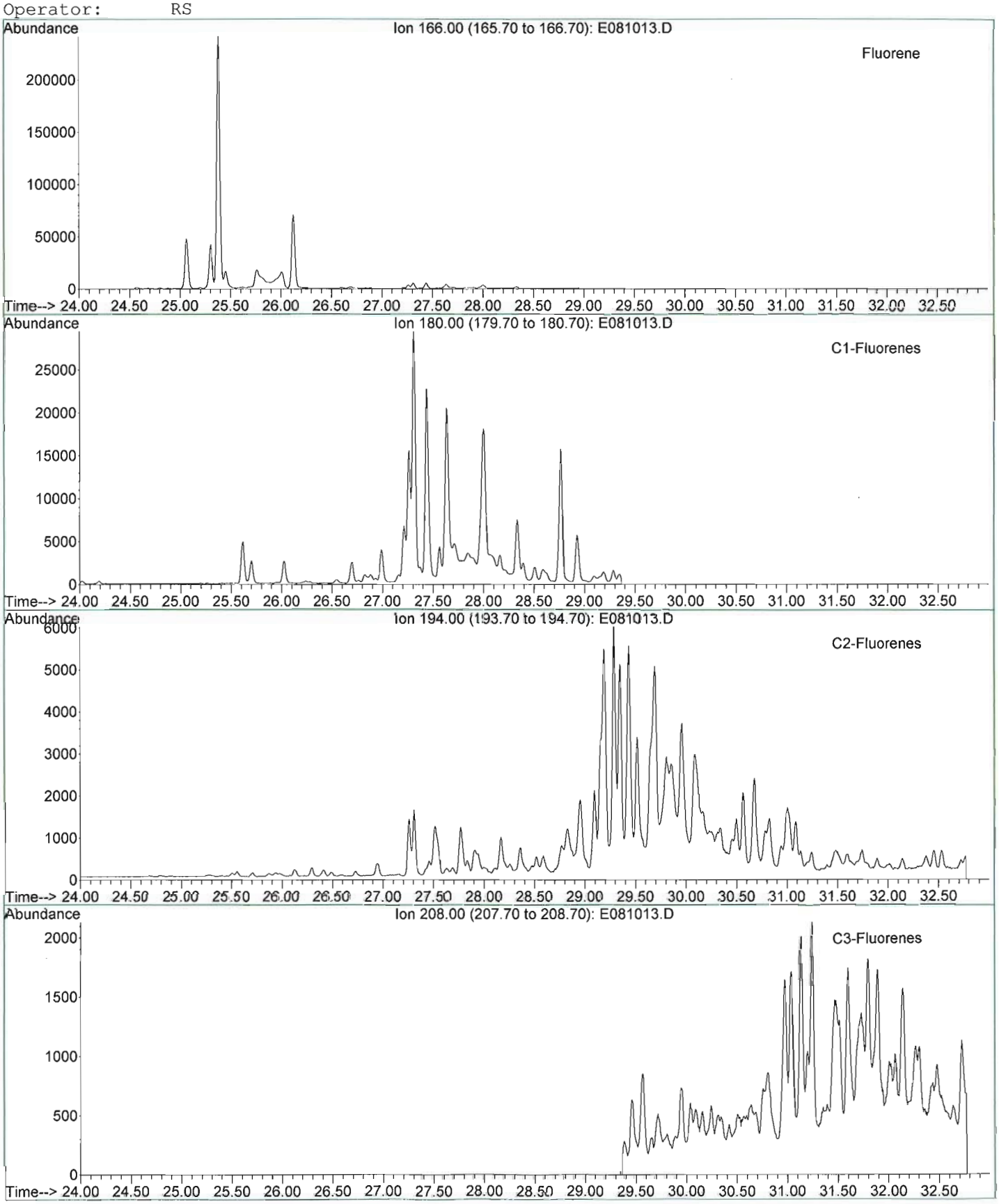
File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



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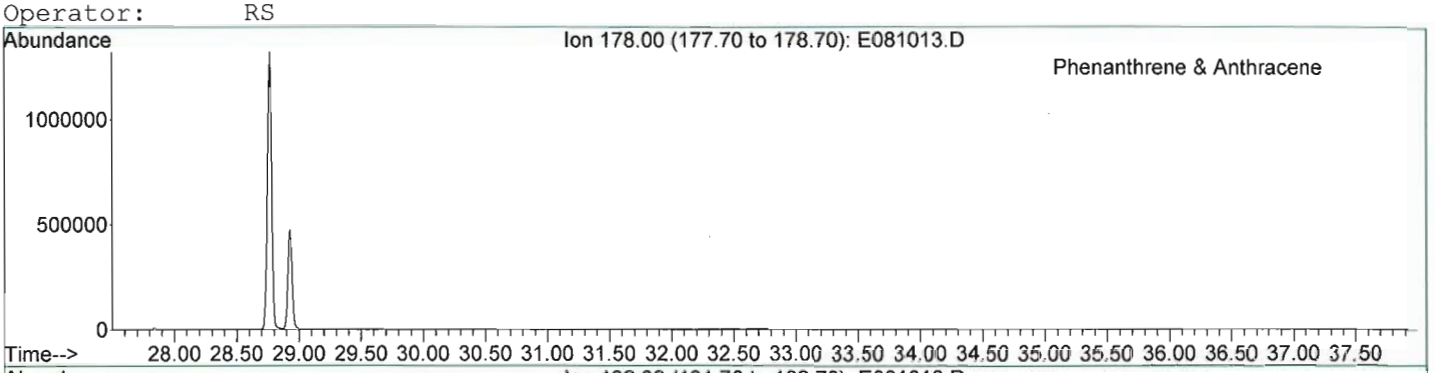
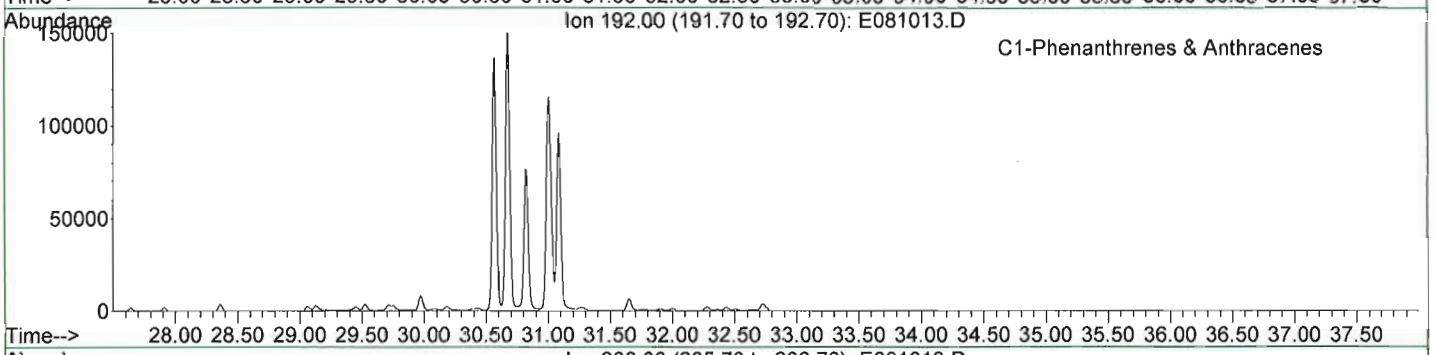
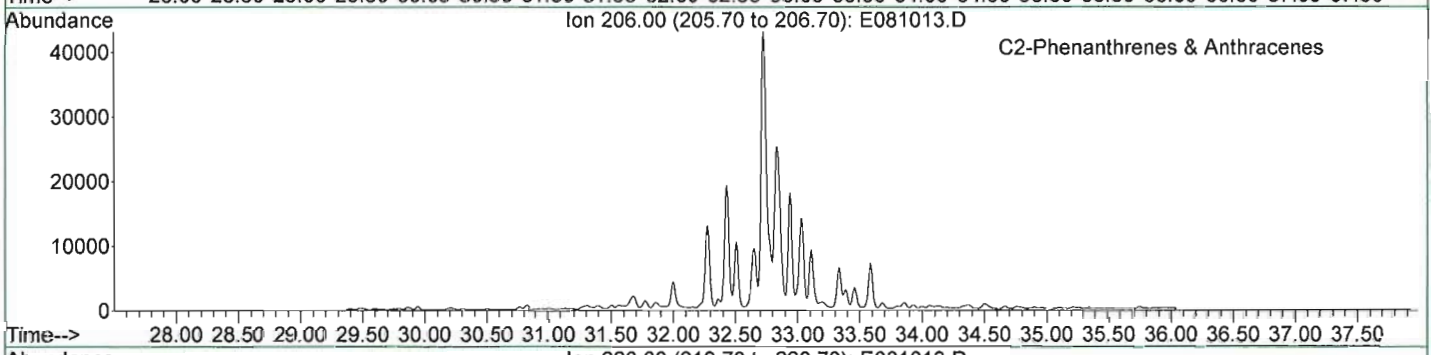
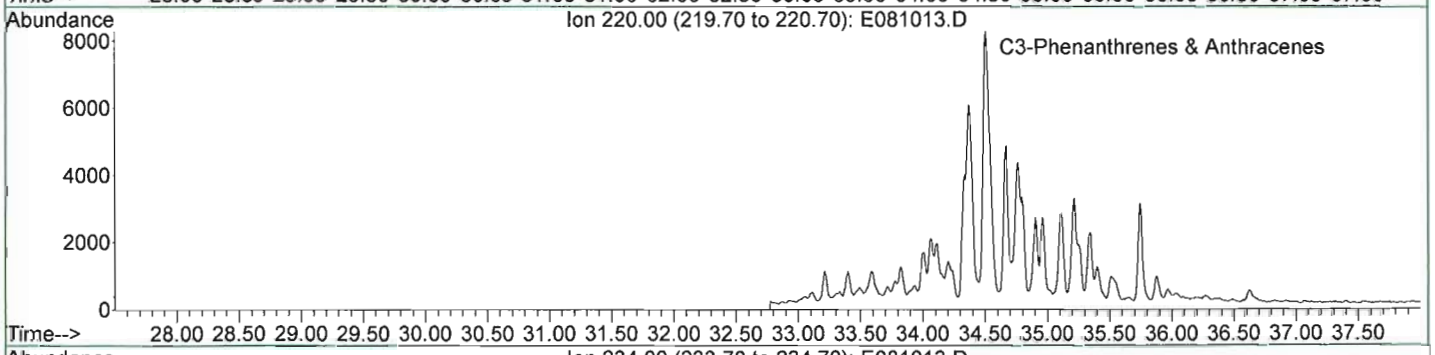
GC/MS EXTRACTED ION CHROMATOGRAM

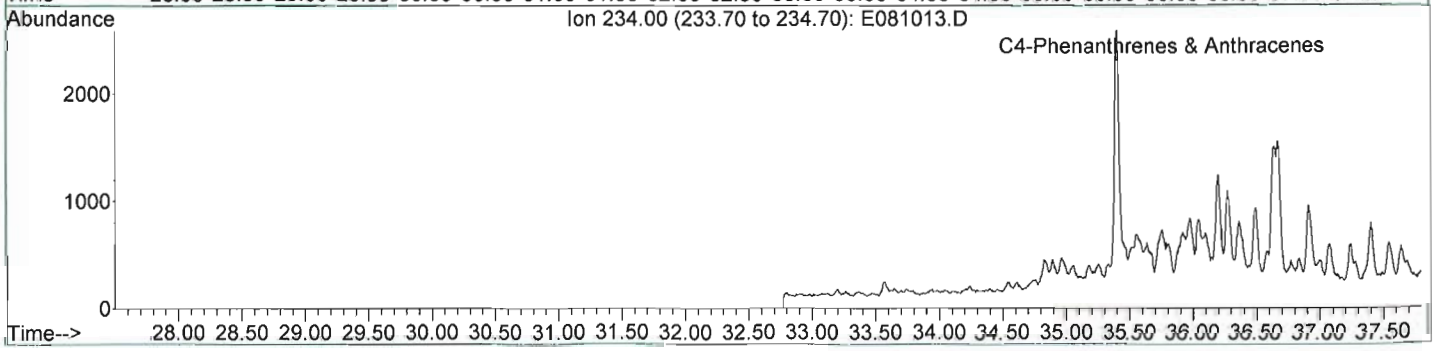
File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



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GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060810\E081013.D
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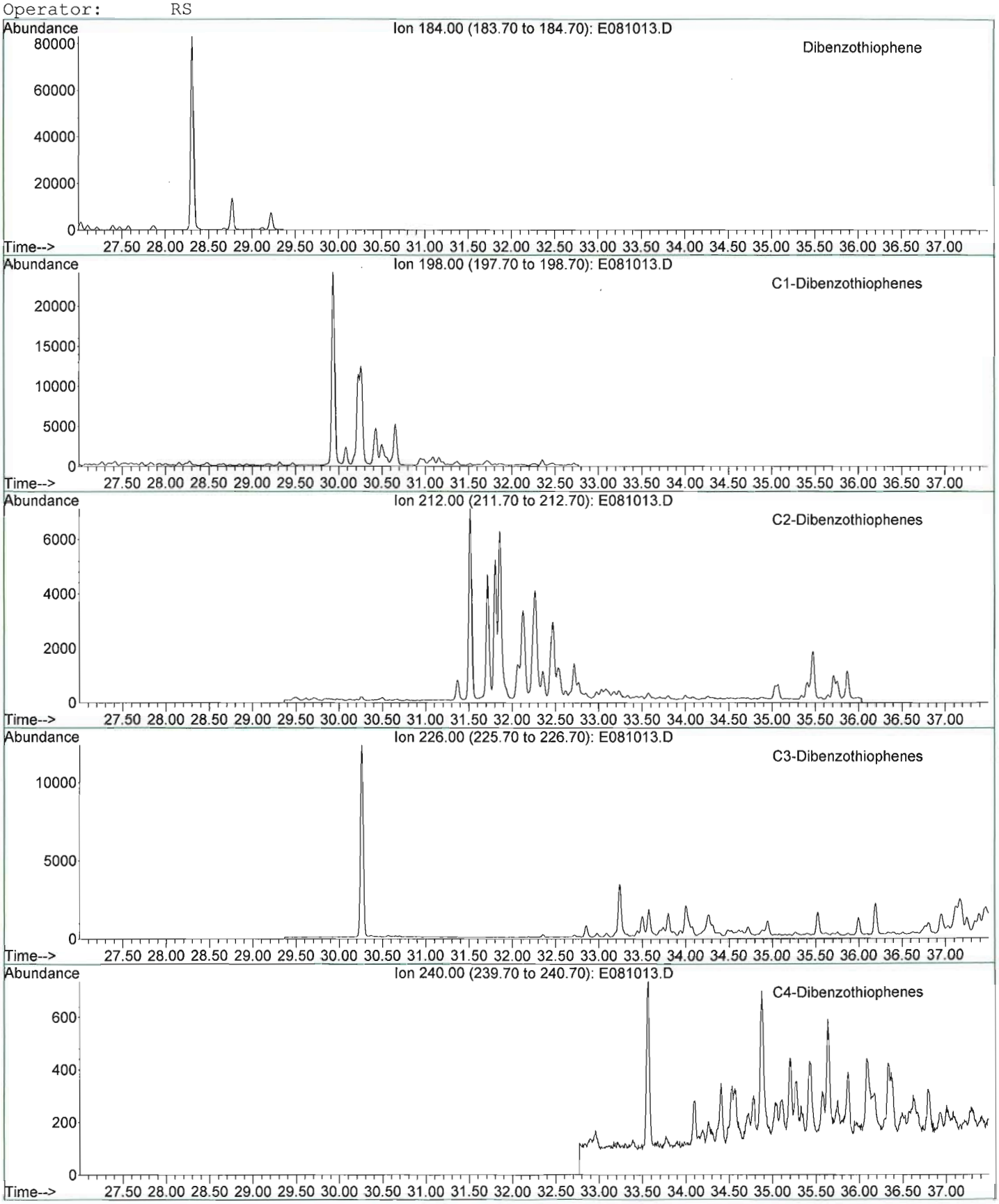
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060810\E081013.D
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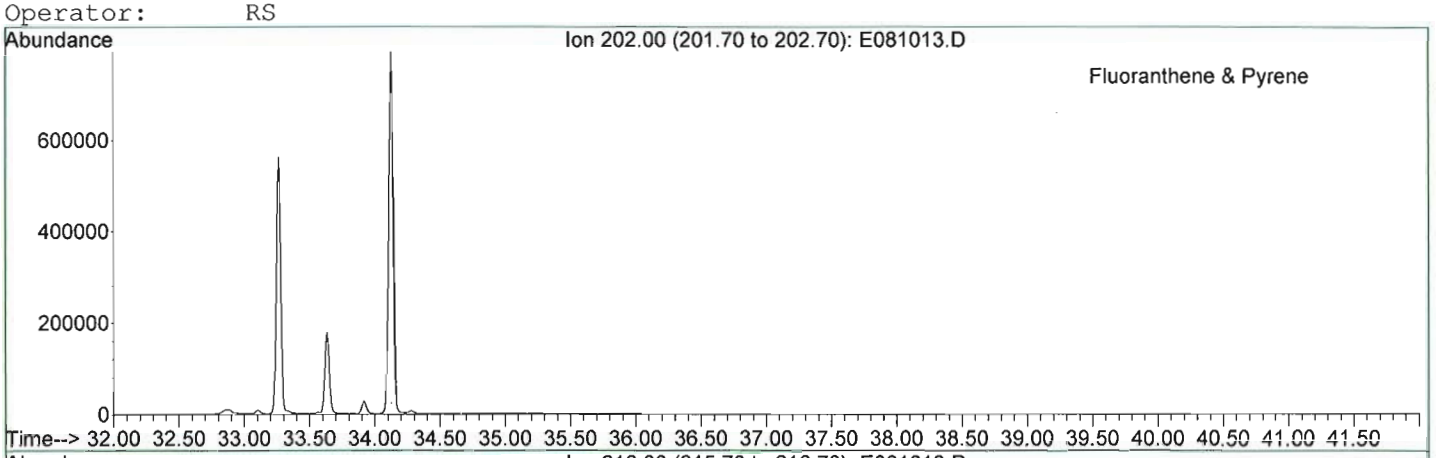
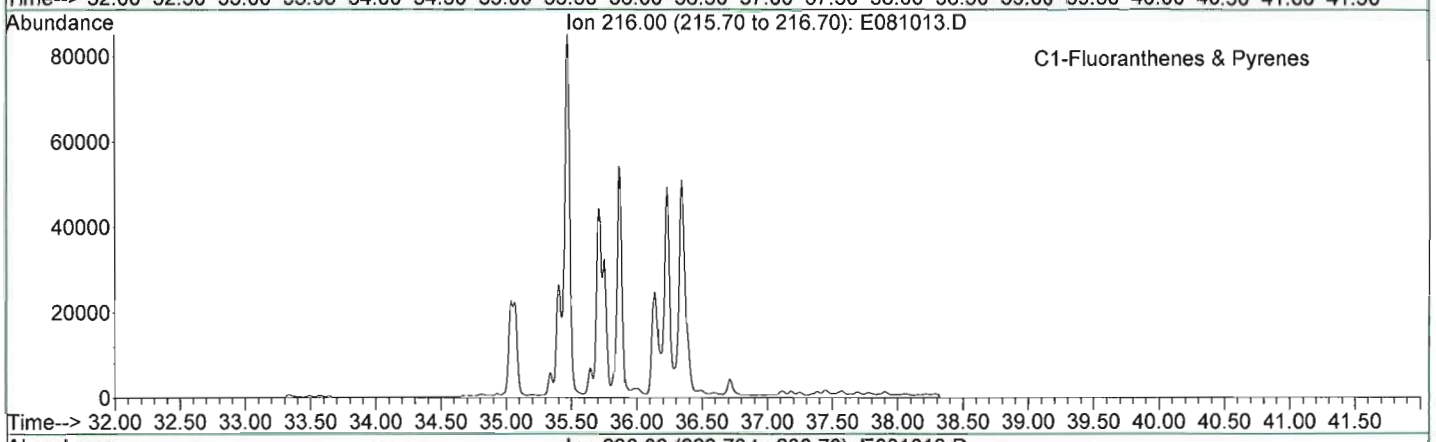
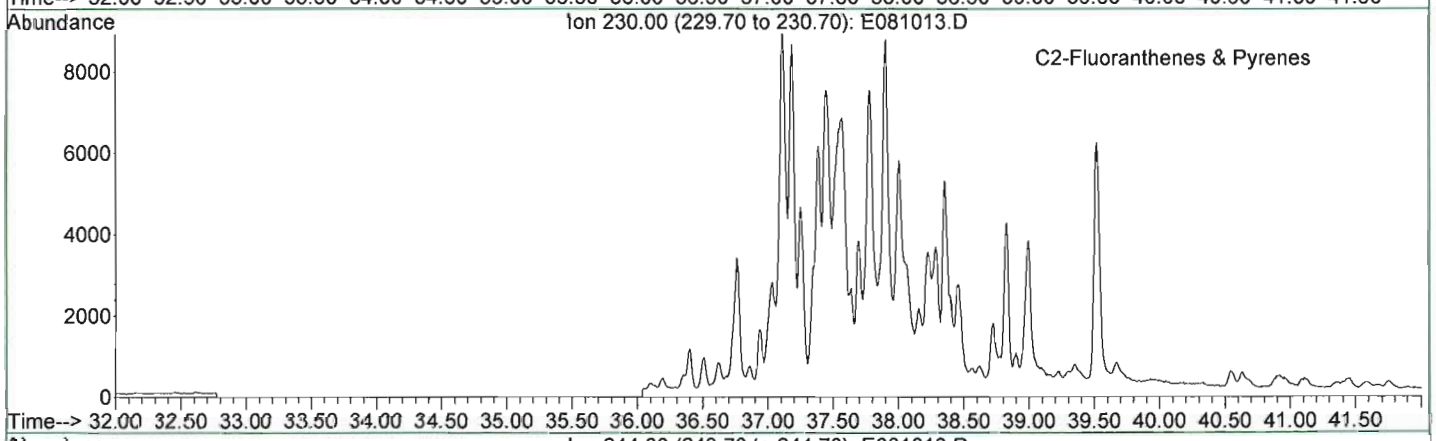
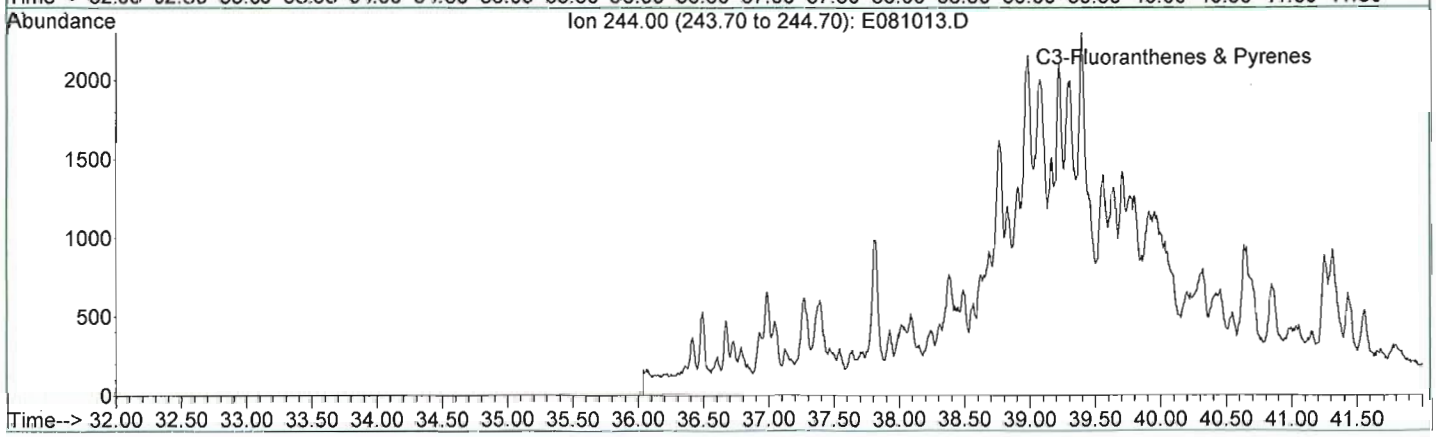
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



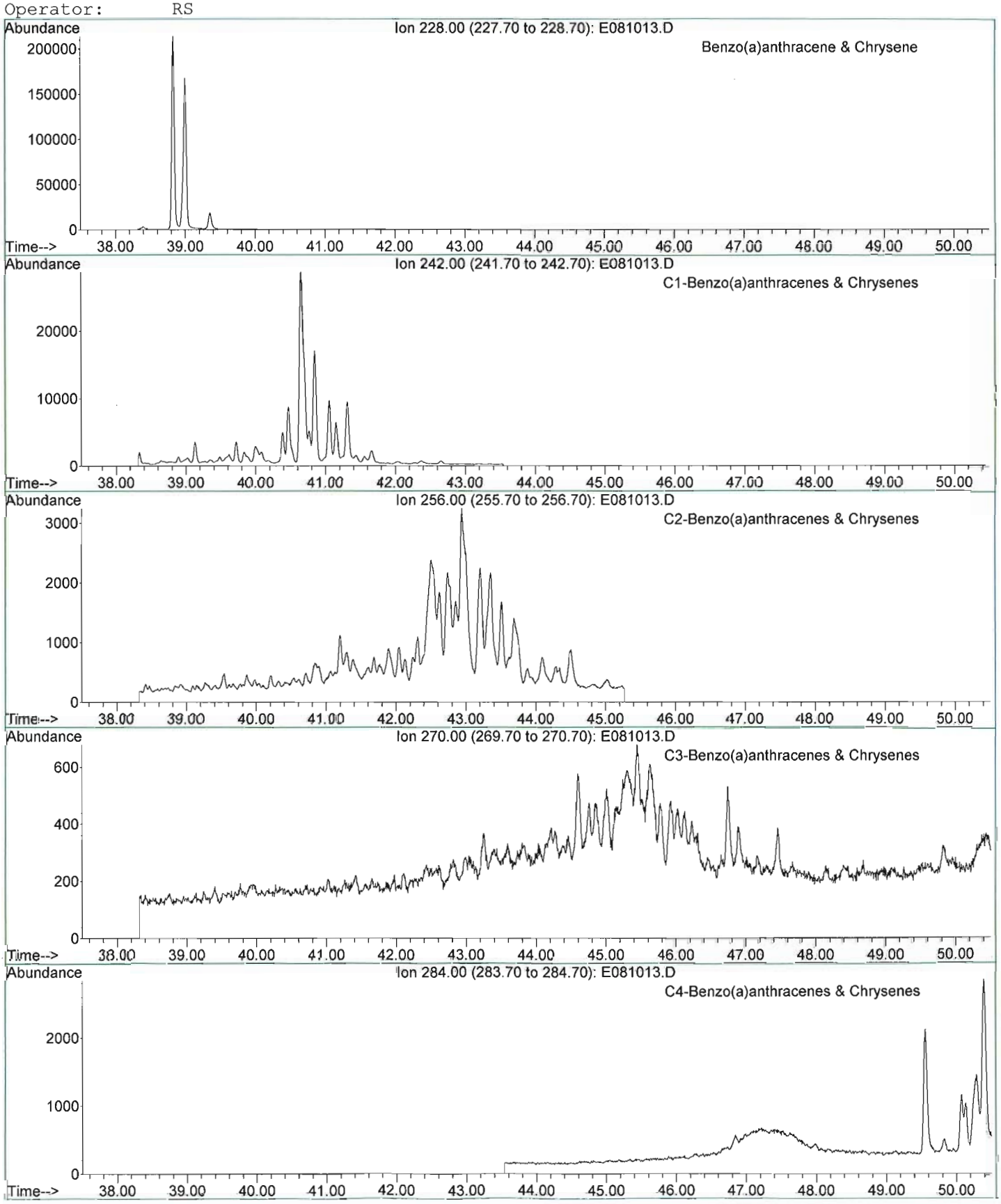



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



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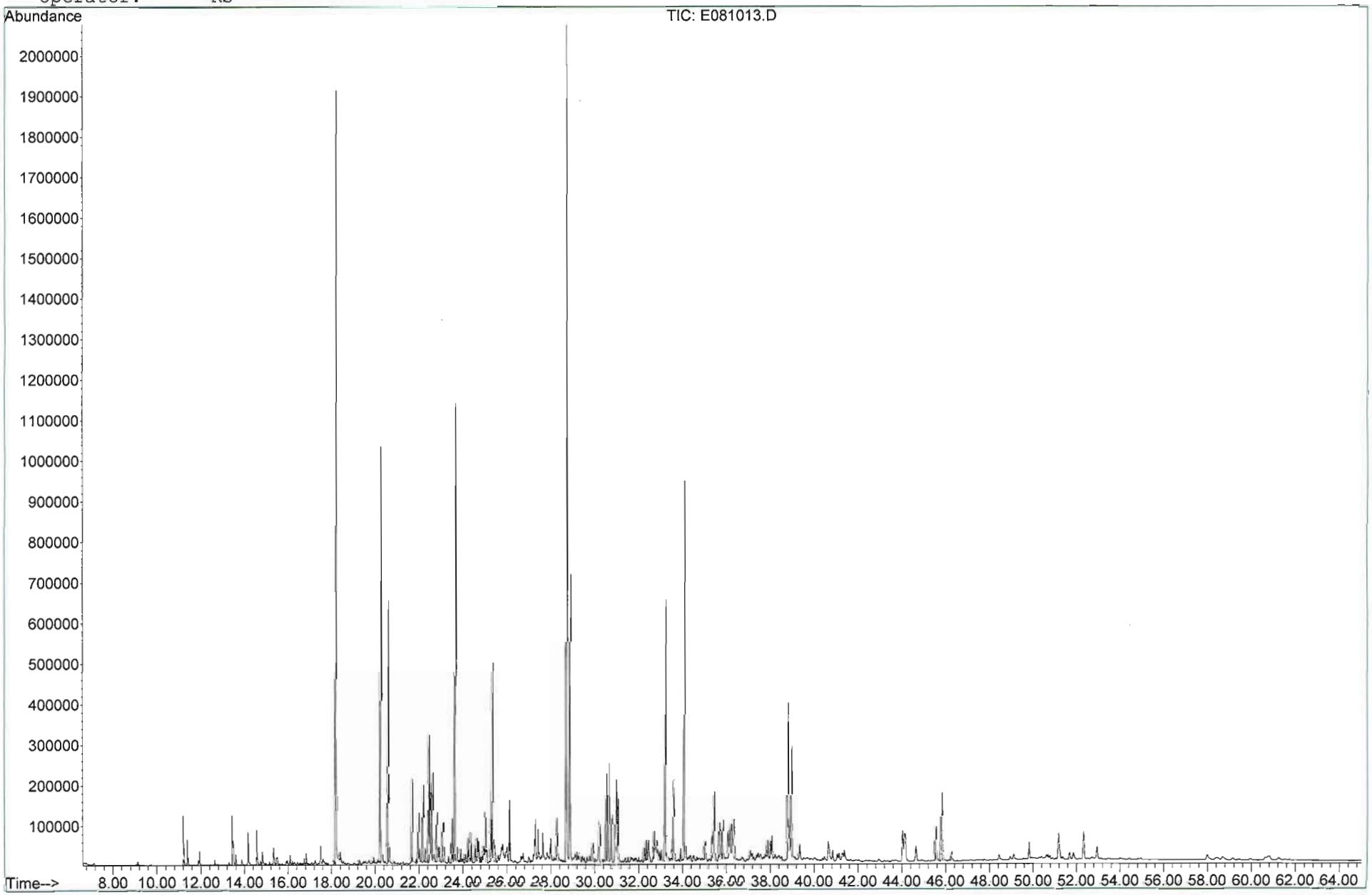
GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E060810\E081013.D
Date Acquired: 11 Aug 2006 5:10 am
Method File: 4008SIM2.M
Sample Name: BR060731-01-D
Misc Info: WSS-RSB001-001 (11.5'-12')
Operator: RS



**DRAFT**

# RIVER SEDIMENT INVESTIGATION SUMMARY
# FOR
# FORMER NORTH STATION
# MANUFACTURED GAS PLANT SITE
# LASALLE CHESTNUT PROPERTY

## CHICAGO, ILLINOIS

**Prepared for:**

**THE PEOPLES GAS**
**LIGHT and COKE COMPANY**

**Prepared by:**

**Burns & McDonnell Engineering**
**Company, Inc.**
**1431 Opus Place, Suite 400**
**Downers Grove, Illinois 60515-1164**
**630-724-3200**

**Project No. 40627**
**November 30, 2006**

This draft river sediment investigation (RSI) summary presents the sample location map and TarGOST logs for the investigation completed to date in the Chicago River North Branch Canal adjacent to the LaSalle Chestnut property and Division Halsted property portions of the former North Station manufactured gas plant site. The TarGOST probing activities were conducted in October 2006. No further RSI activities are currently scheduled for the North Branch Canal. A comprehensive evaluation of the RSI findings will be presented in the forthcoming RSI Report.

DRAFT

RIVER SEDIMENT INVESTIGATION
FORMER NORTH STATION
FIGURE

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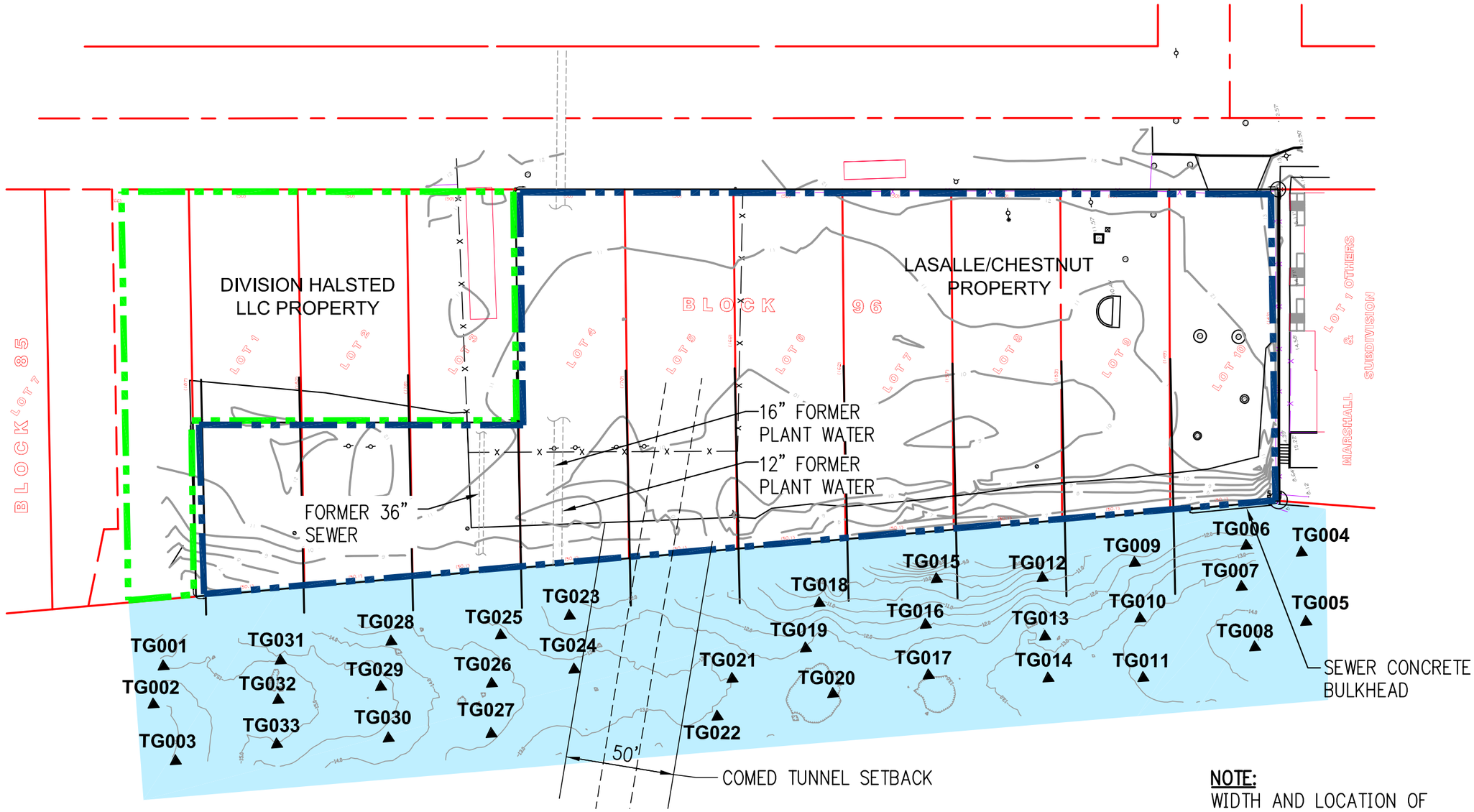
I:\Peoples Gas\LaSalle Chestnut--40627\CAD\BID\SEDIMENT INVESTIGATION\SEDIMENT INVEST SAMPLES.dwg




**NOTE:**
WIDTH AND LOCATION OF
SETBACK ARE APPROXIMATE

**LEGEND**

- LASALLE/CHESTNUT PROPERTY LINE
- DIVISION HALSTED LLC PROPERTY
- ▲ TARGOST PROBE LOCATION
- INVESTIGATION AREA

NORTH

50 0 50 100
SCALE IN FEET

**DRAFT**

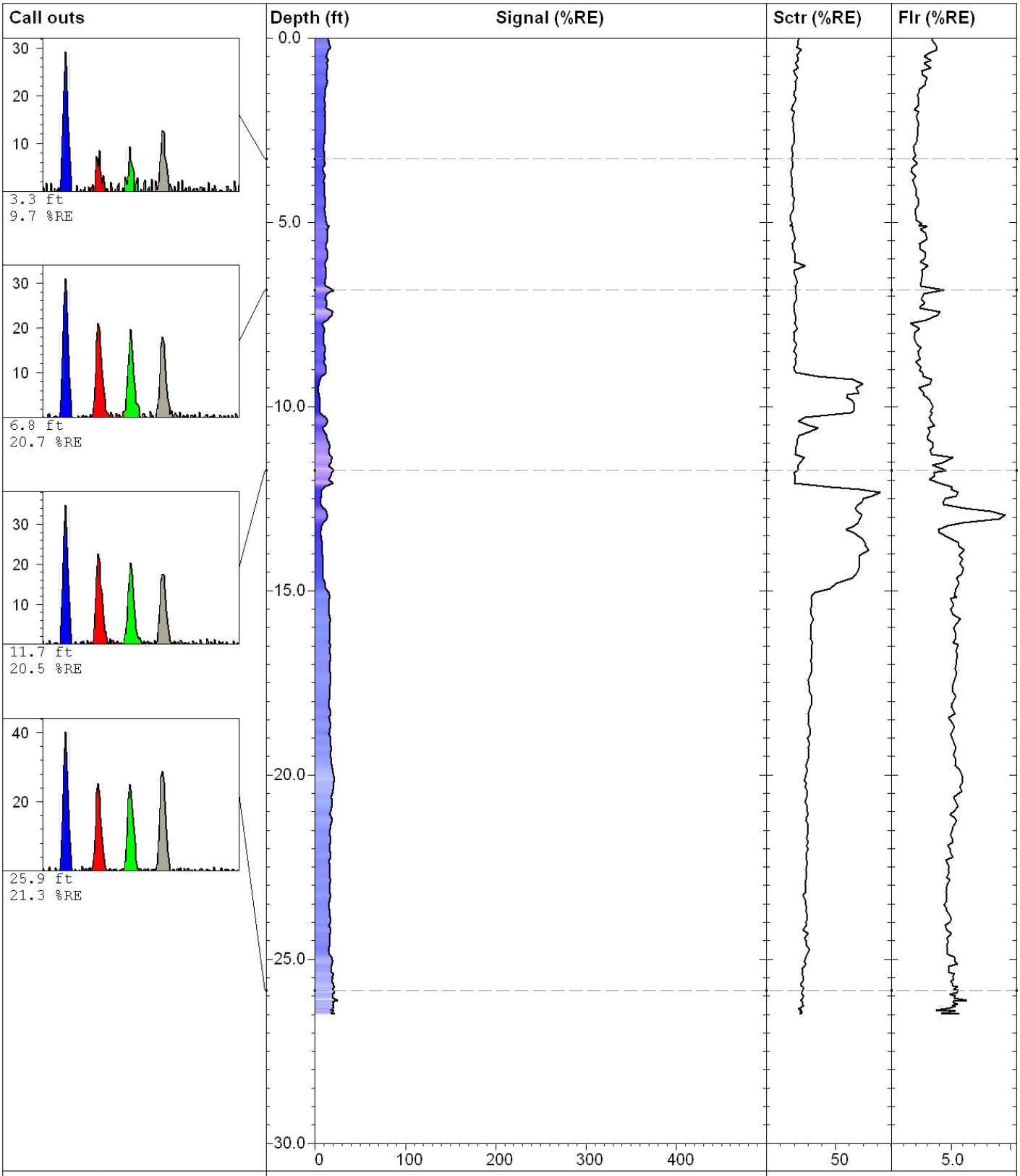
PRIVILEGED & CONFIDENTIAL

Burns & McDonnell
SINCE 1898

FIGURE 1
TARGOST LOCATION MAP
NORTH STATION
LASALLE/CHESTNUT
CHICAGO, ILLINOIS

# DRAFT

**RIVER SEDIMENT INVESTIGATION**
**FORMER NORTH STATION**
**TarGOST LOGS**

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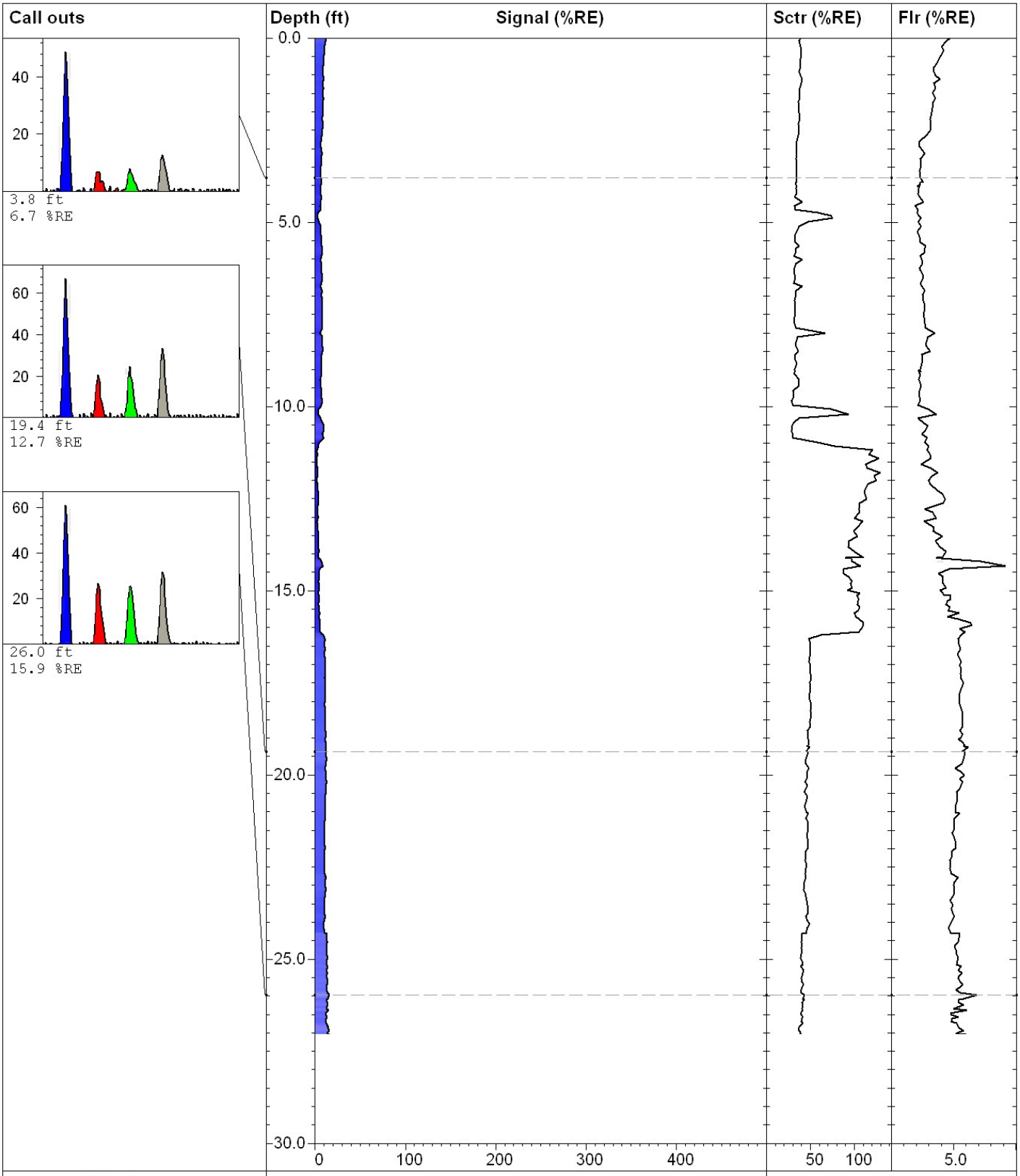
| | | |
|---|---|---|
| **NSTG001** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.51 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **25.5 % @ 26.12 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 10:39:07 AM** |

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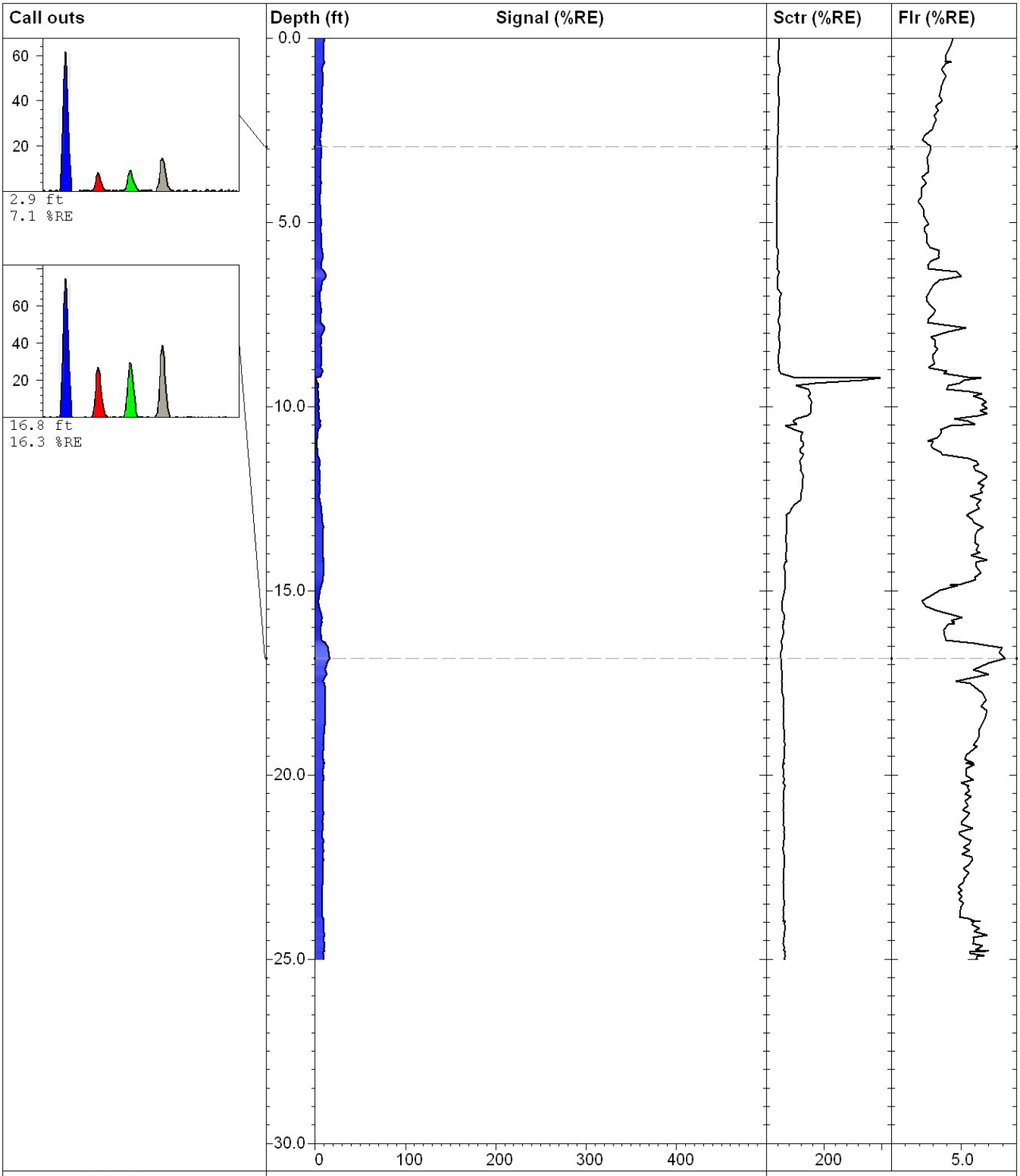
| | | |
|---|---|---|
| **NSTG002** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **27.04 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **15.9 % @ 25.98 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 11:28:55 AM** |





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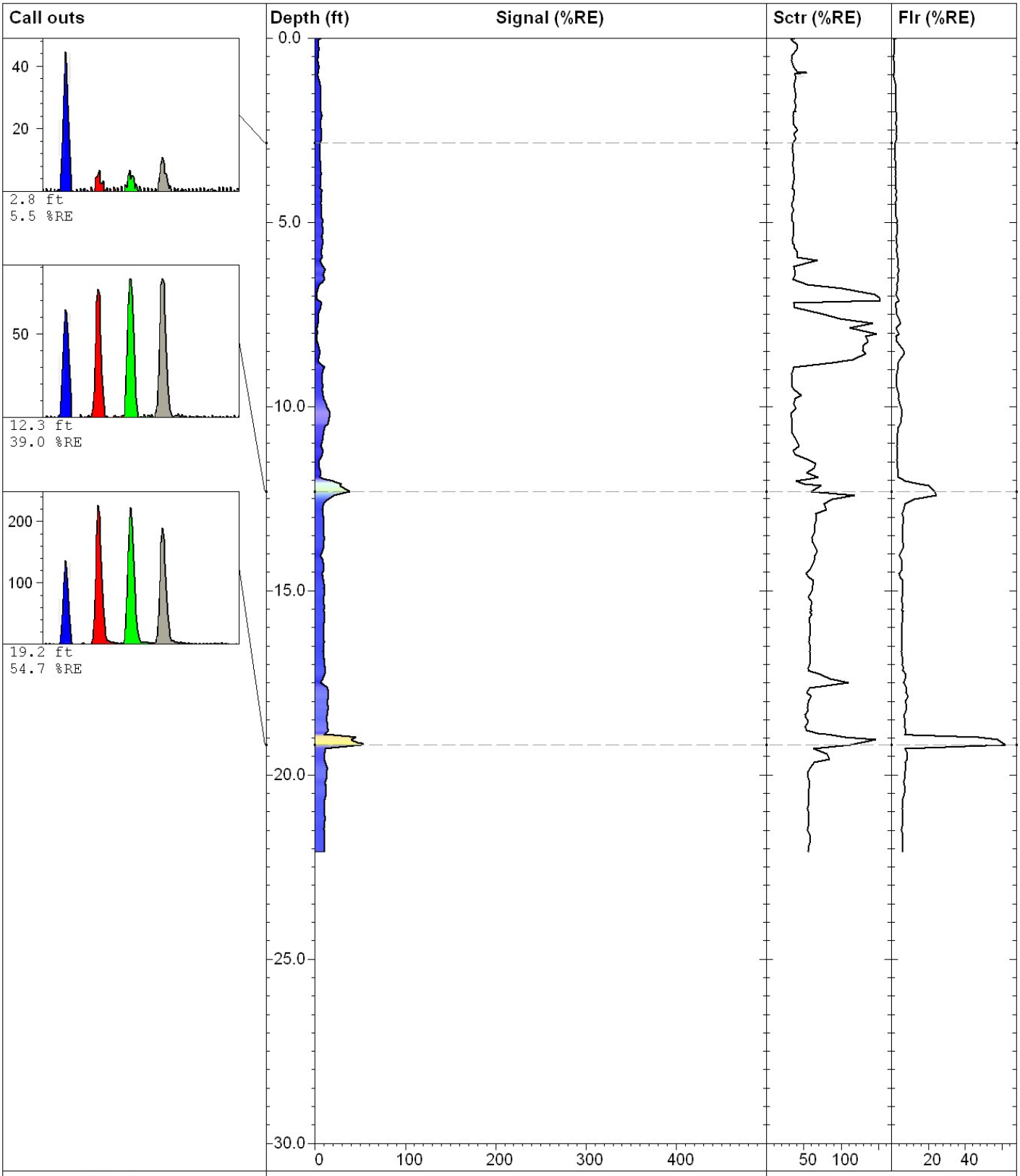
| | | |
|---|---|---|
| **NSTG003** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.04 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **16.3 % @ 16.84 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 2:04:52 PM** |

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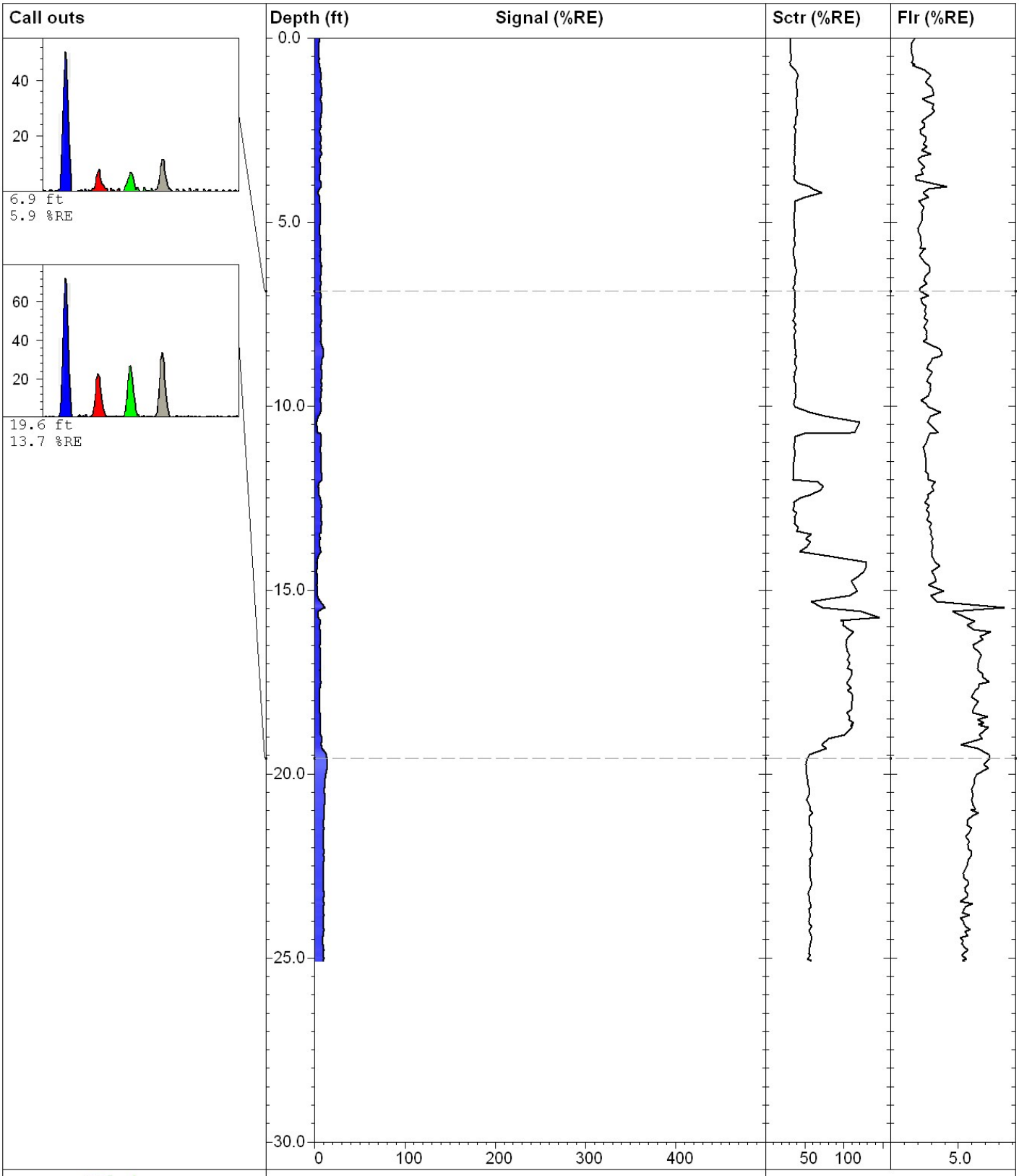
# NSTG004

# TarGOST

| | | |
|---|---|---|
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **22.10 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **54.7 % @ 19.18 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 3:08:03 PM** |

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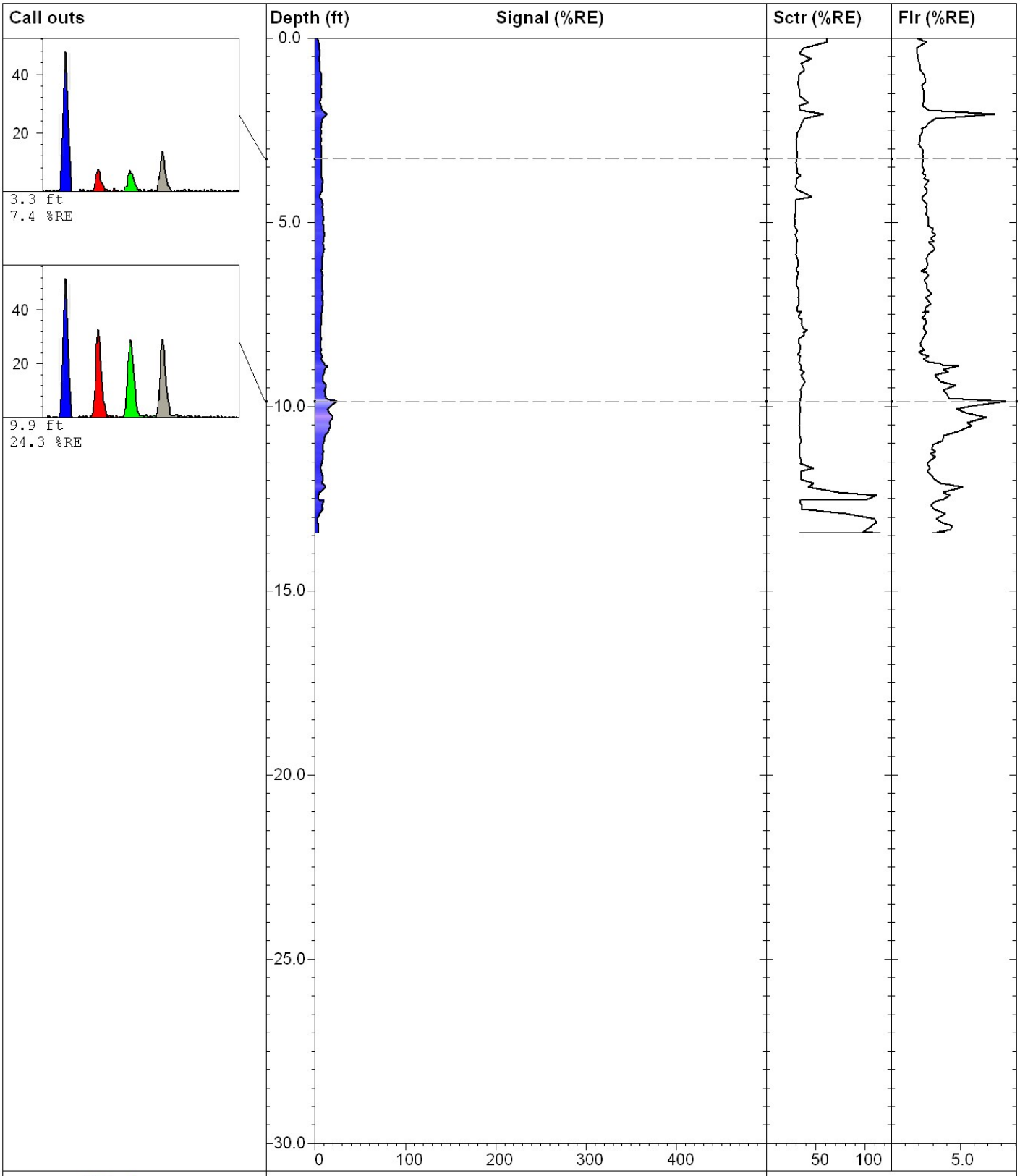
| | | |
|---|---|---|
| **NSTG005** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.11 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **13.7 % @ 19.84 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 3:53:29 PM** |

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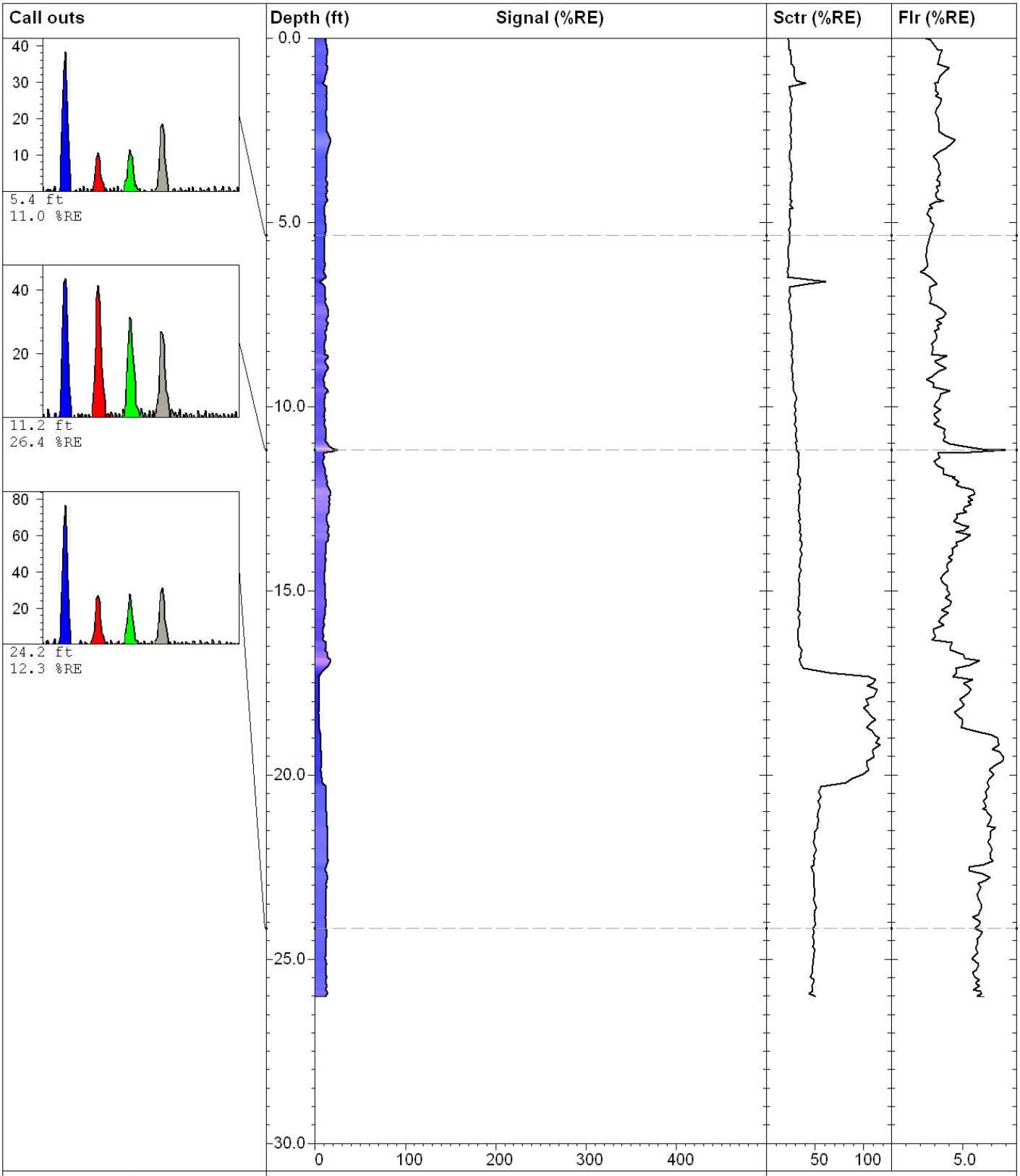
| | | |
|---|---|---|
| **NSTG006** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **13.45 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **24.3 % @ 9.87 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/7/2006 4:44:56 PM** |

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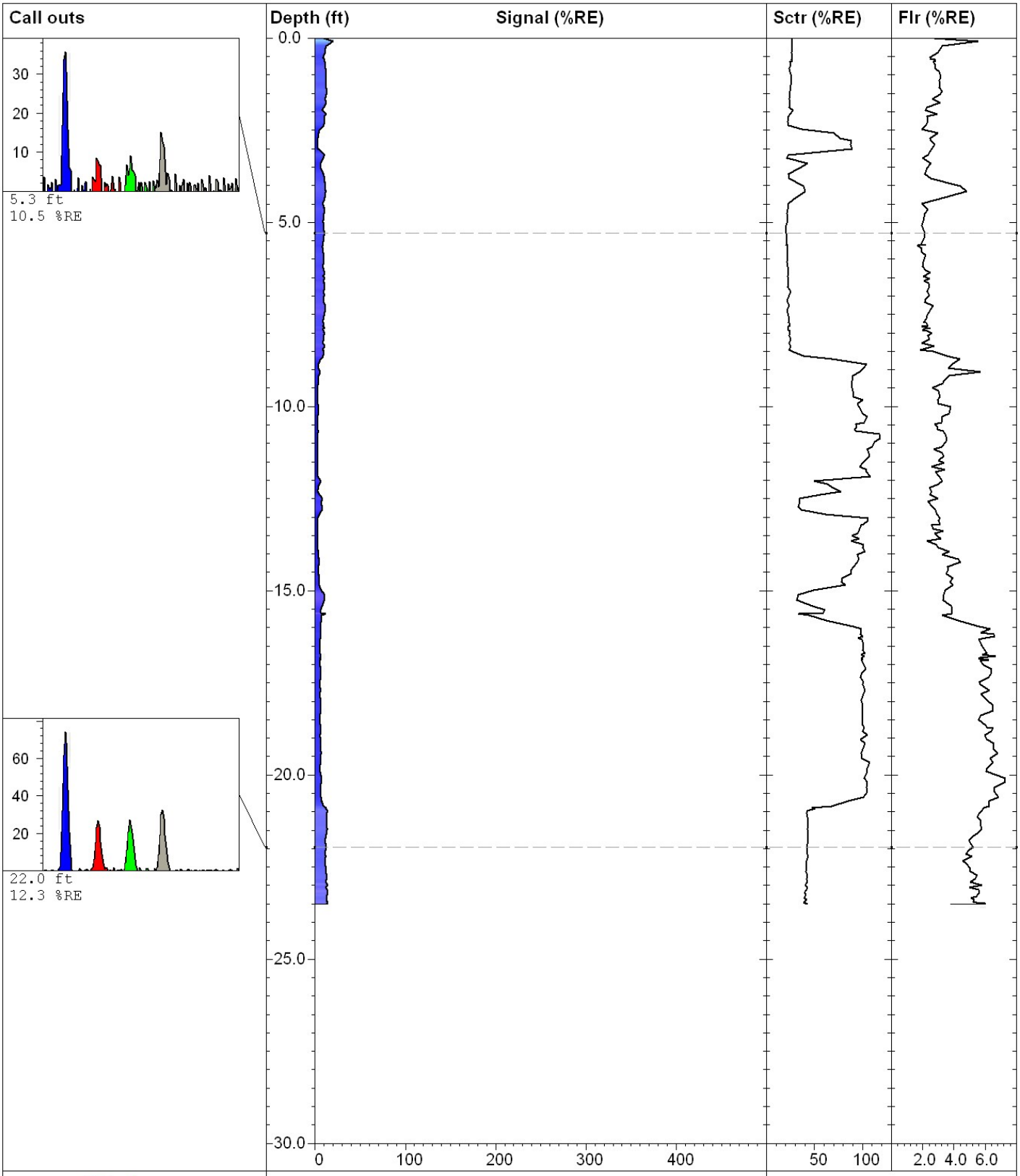
| | | |
|---|---|---|
| **NSTG007** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.03 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **26.4 % @ 11.18 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 7:57:57 AM** |

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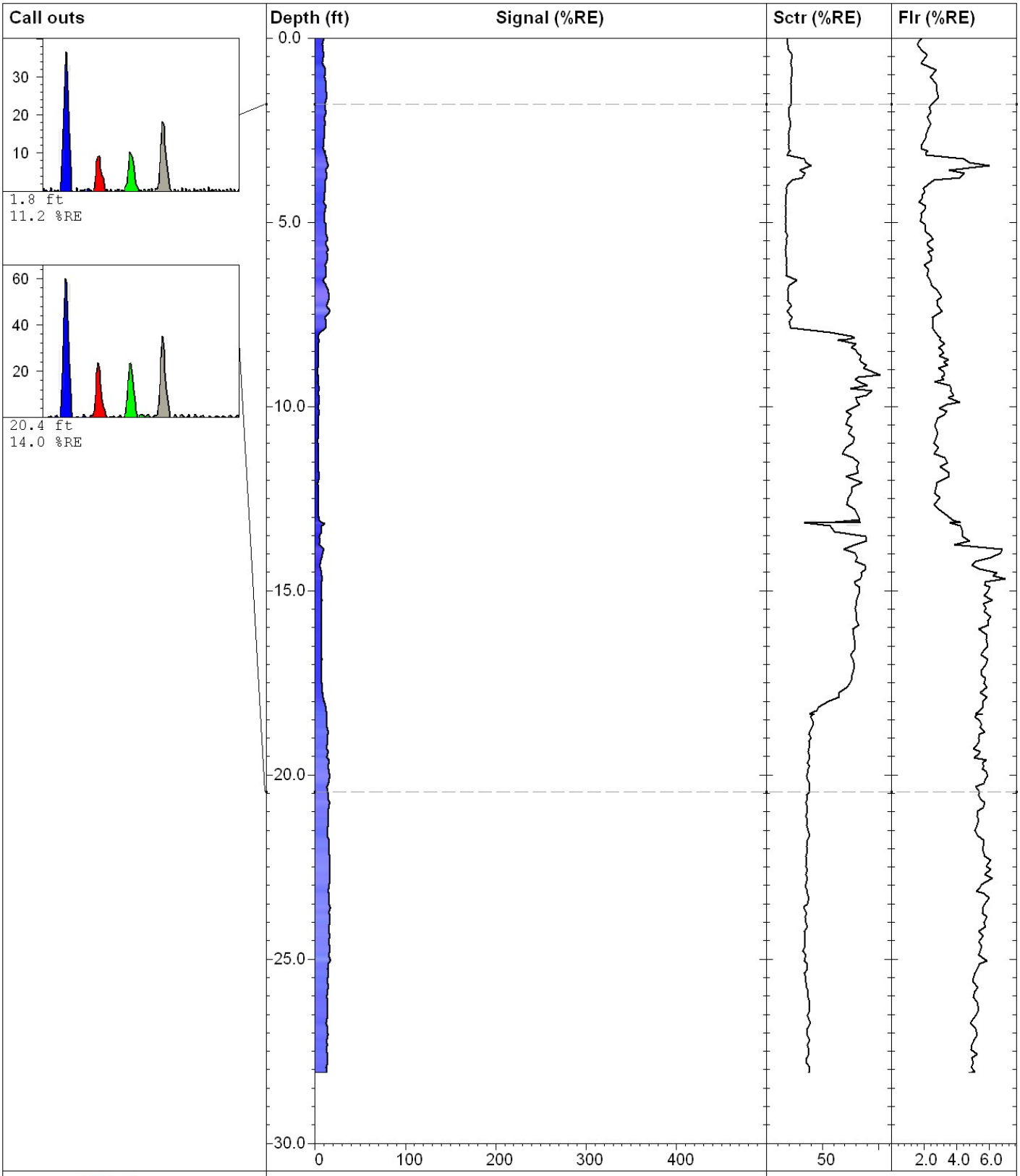
|---|---|---|
| **NSTG008** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **23.52 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **20.5 % @ 0.08 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 8:47:03 AM** |

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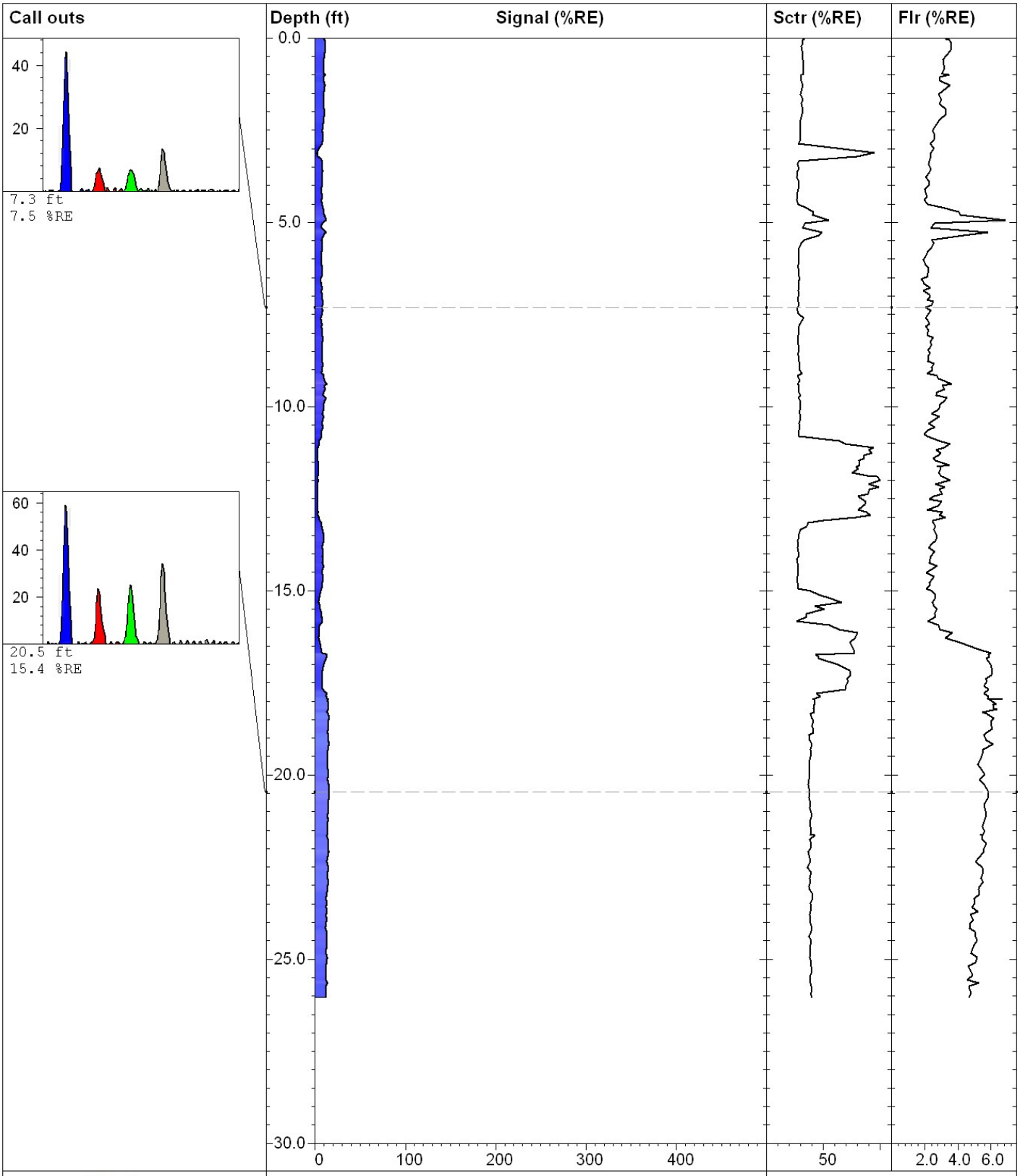
|---|---|---|
| **NSTG009** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **28.08 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **17.2 % @ 25.04 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 9:38:22 AM** |

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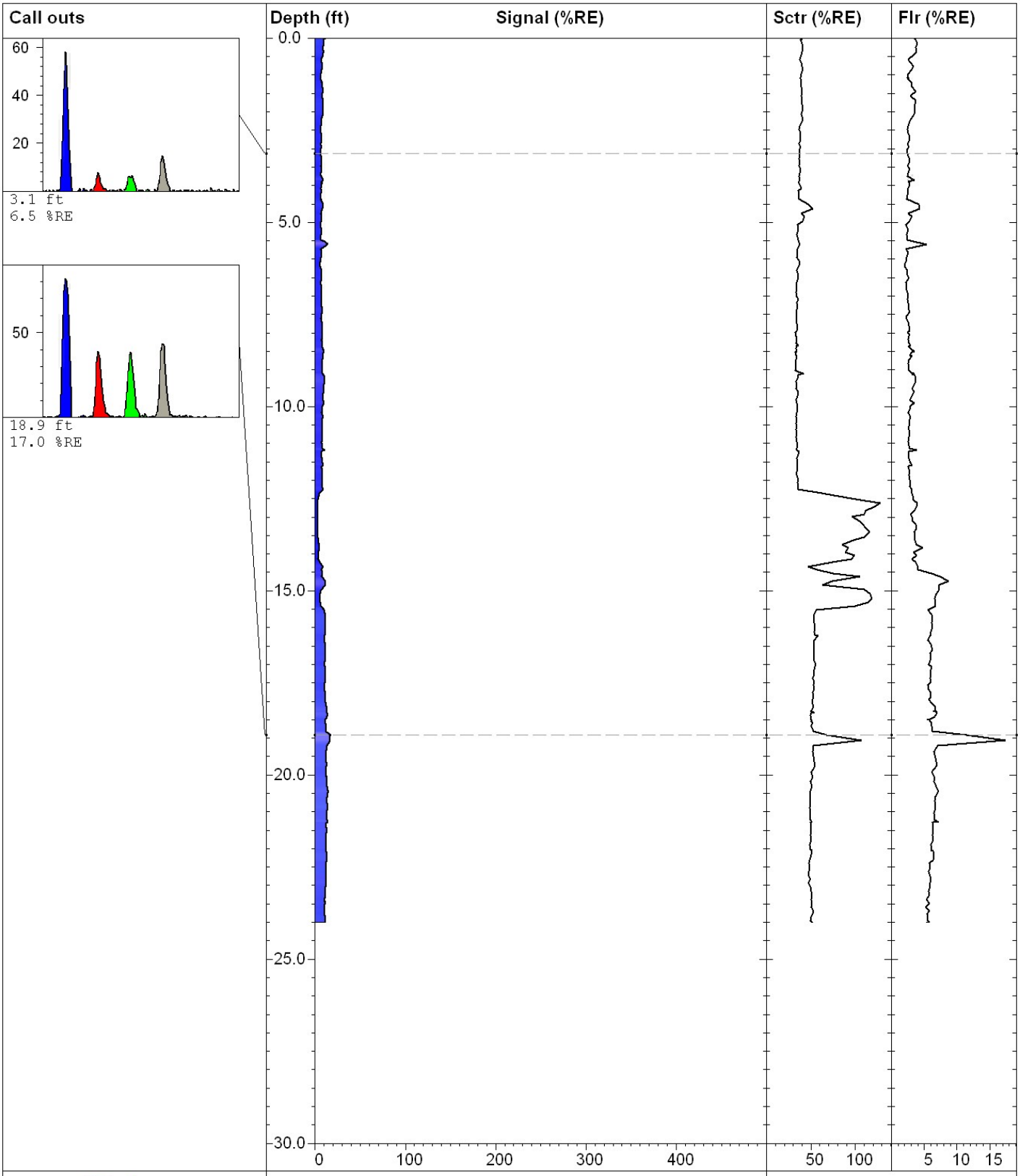
| | | |
|---|---|---|
| **NSTG010** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.06 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **16.3 % @ 17.94 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 10:41:53 AM** |





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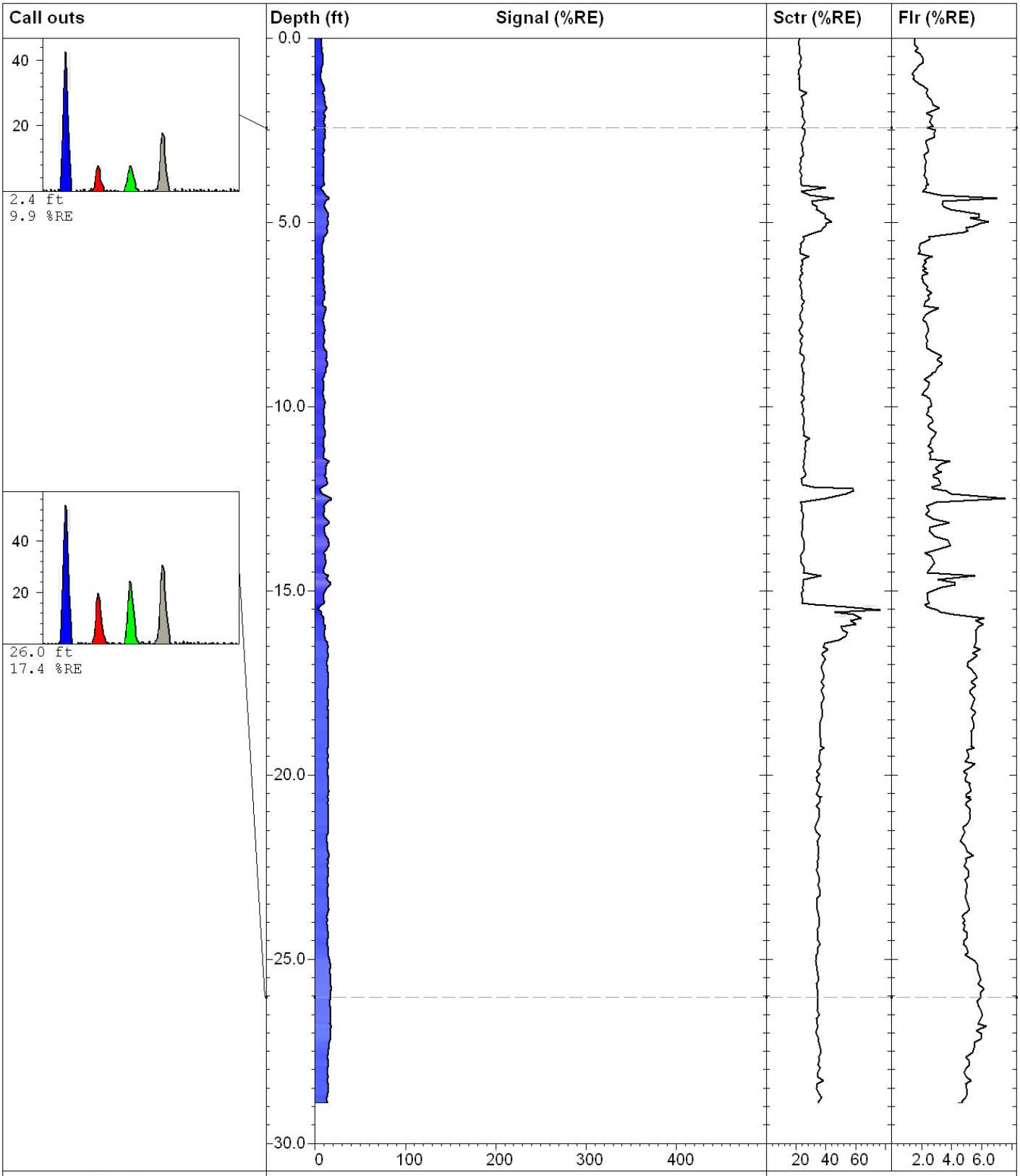
| | | |
|---|---|---|
| **NSTG011** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **24.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **17.0 % @ 18.91 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 11:37:09 AM** |

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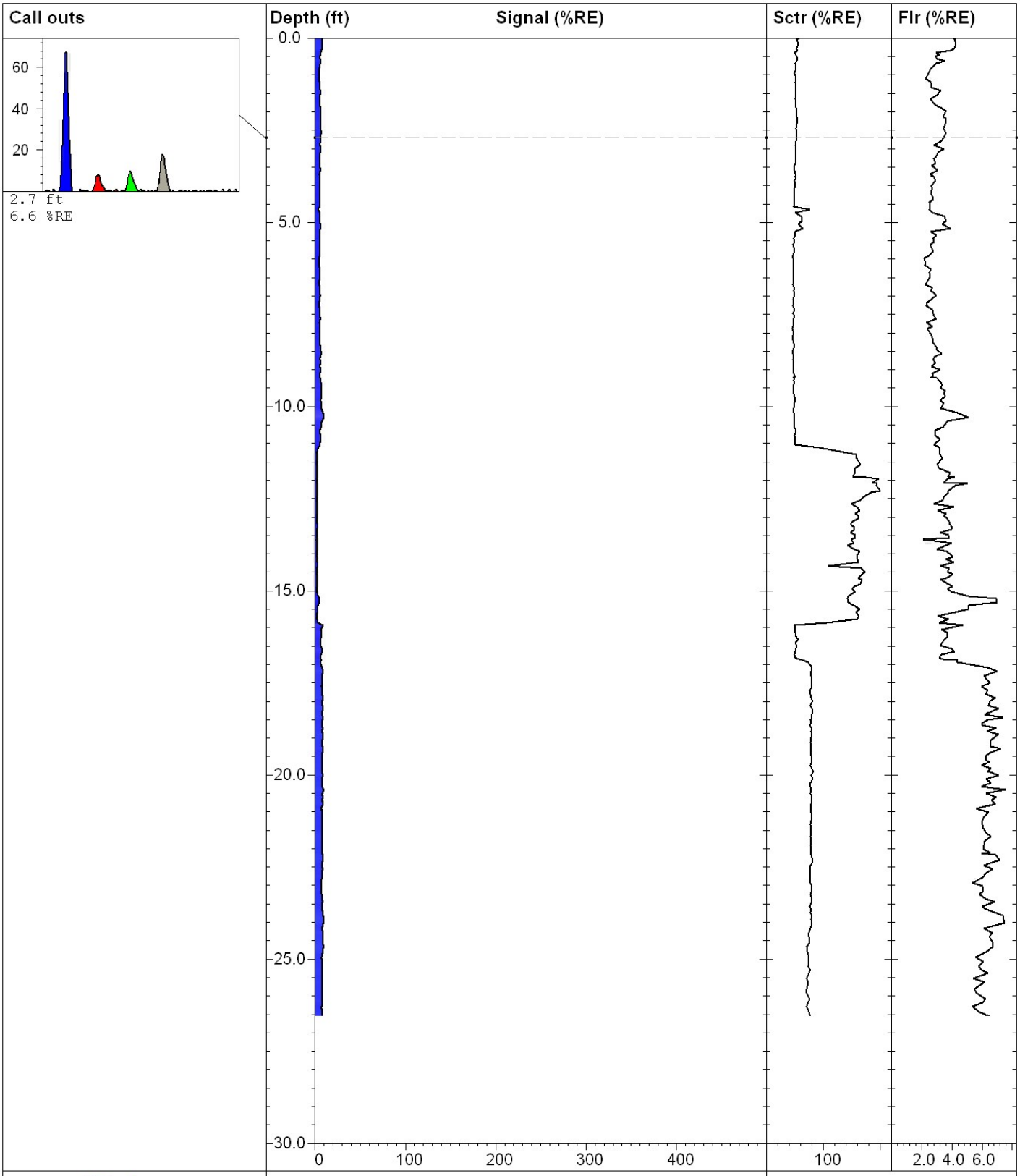
| | | |
|---|---|---|
| **NSTG012** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **28.91 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **19.0 % @ 12.50 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 1:27:51 PM** |

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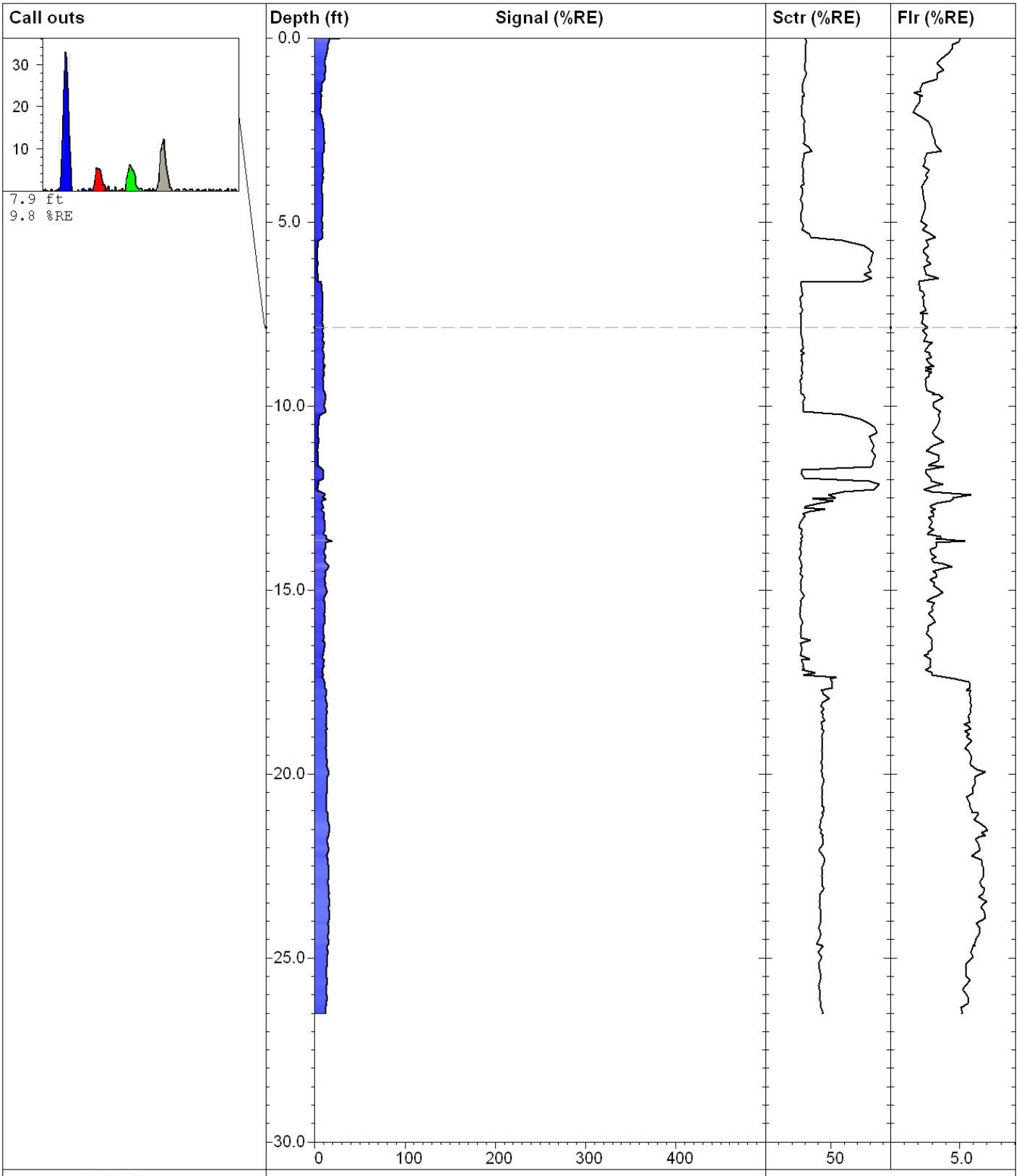
| | | |
|---|---|---|
| **NSTG013** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.56 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **10.2 % @ 10.30 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 2:18:00 PM** |

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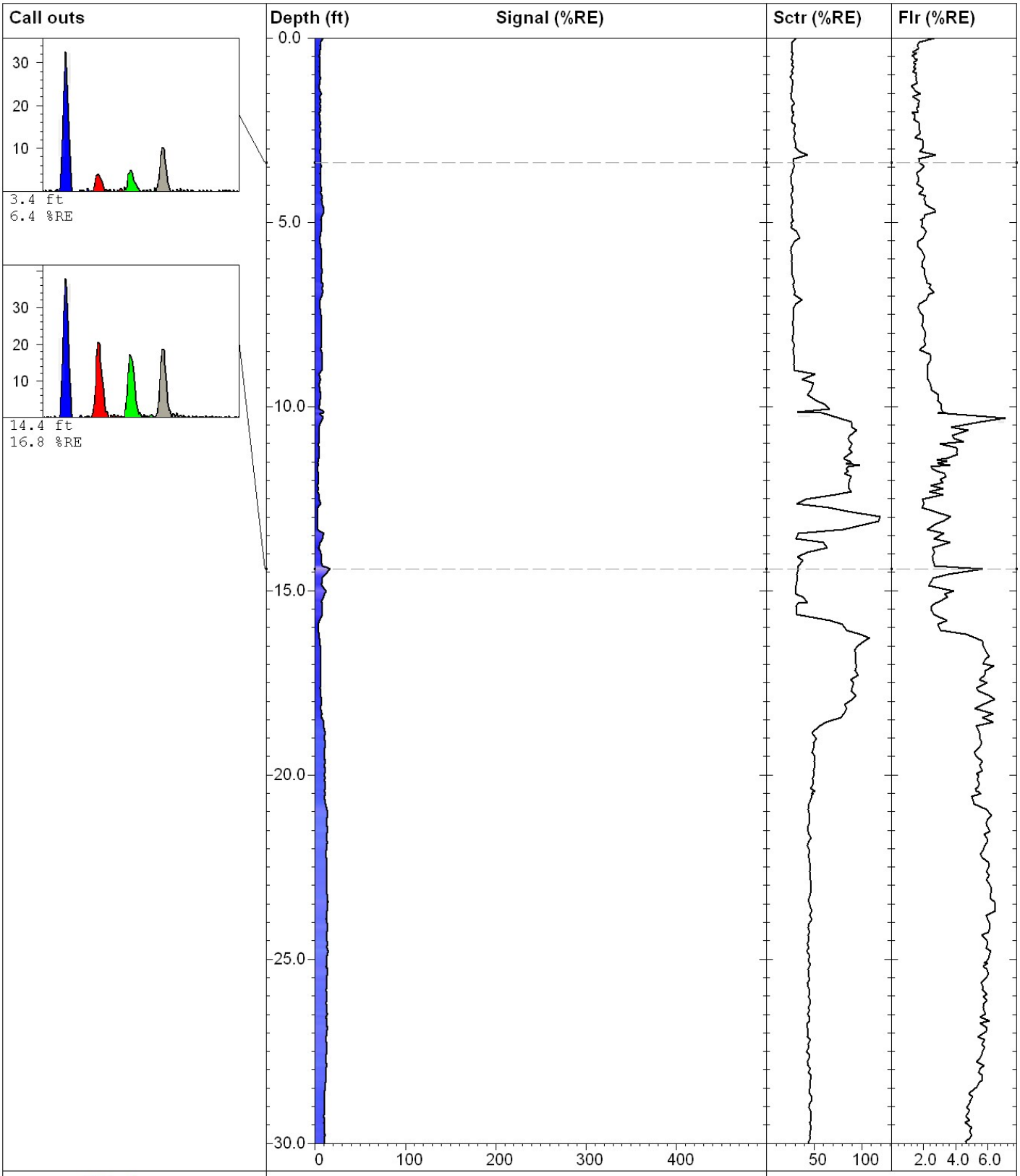
| | | |
|---|---|---|
| **NSTG014** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.52 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **27.3 % @ 0.00 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 3:04:29 PM** |

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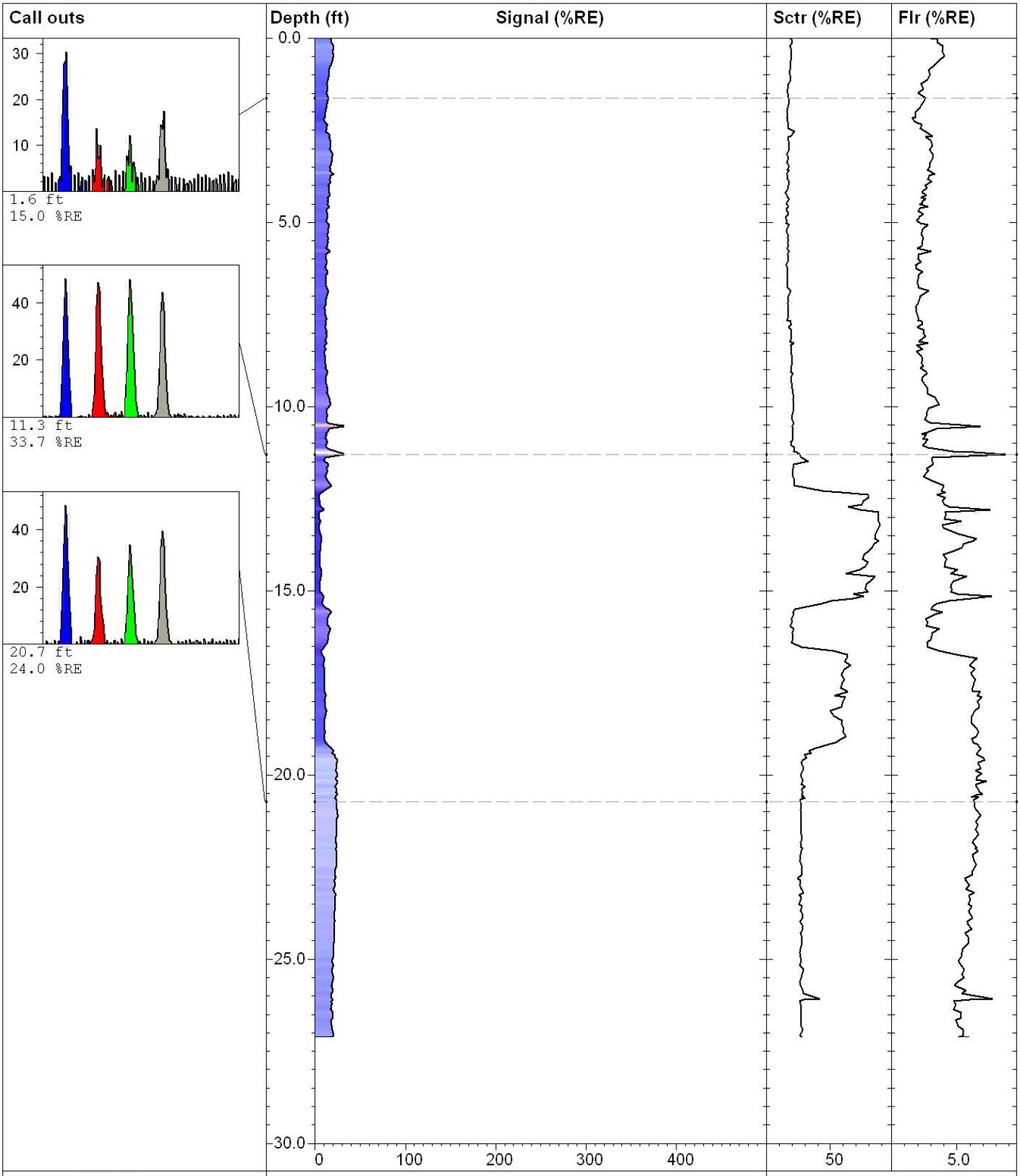
| | | |
|---|---|---|
| **NSTG015** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **30.11 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **16.8 % @ 14.42 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/8/2006 3:58:38 PM** |





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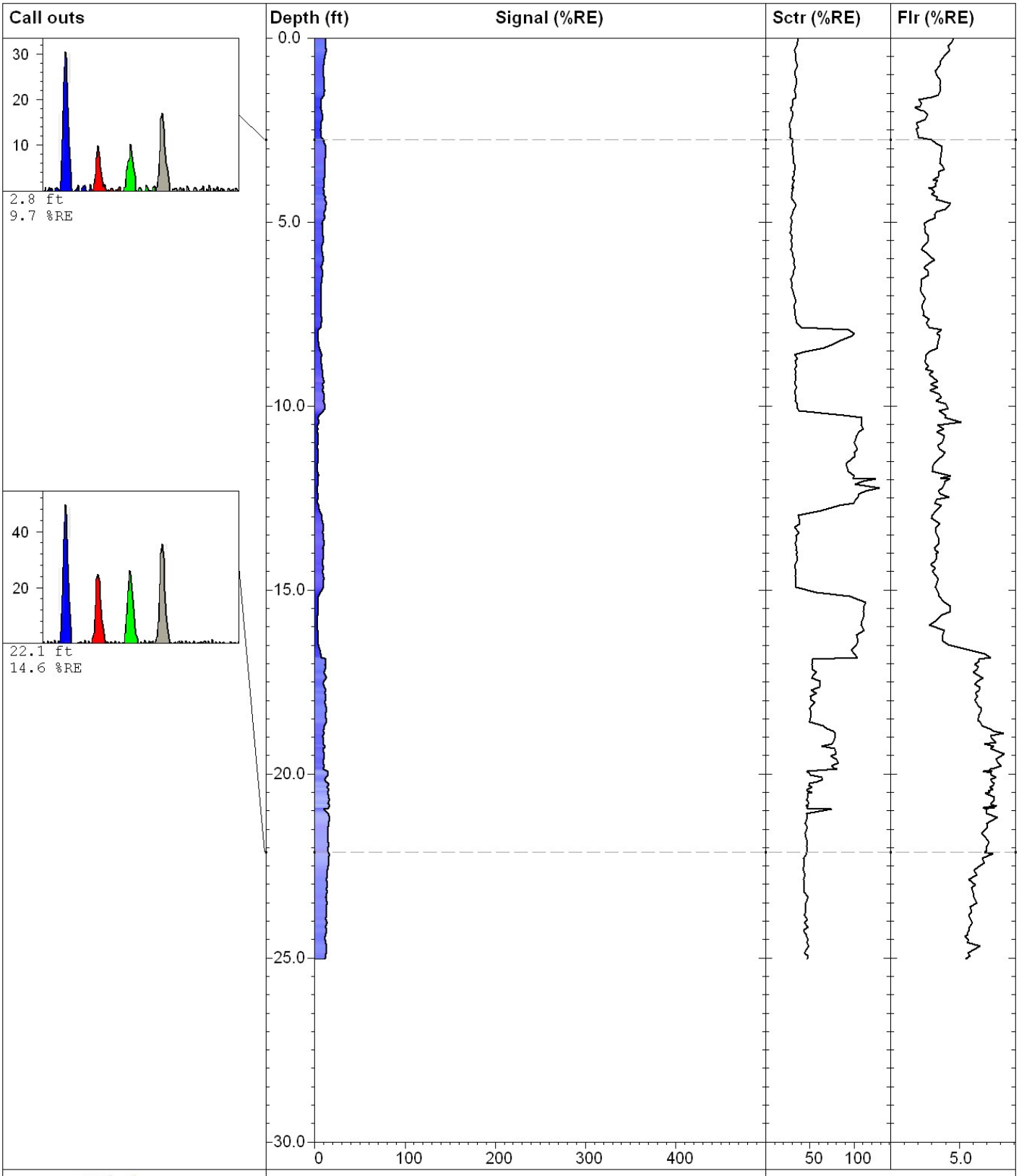
# NSTG016

# TarGOST

| | | |
|---|---|---|
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **27.13 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **33.9 % @ 10.54 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 8:16:38 AM** |





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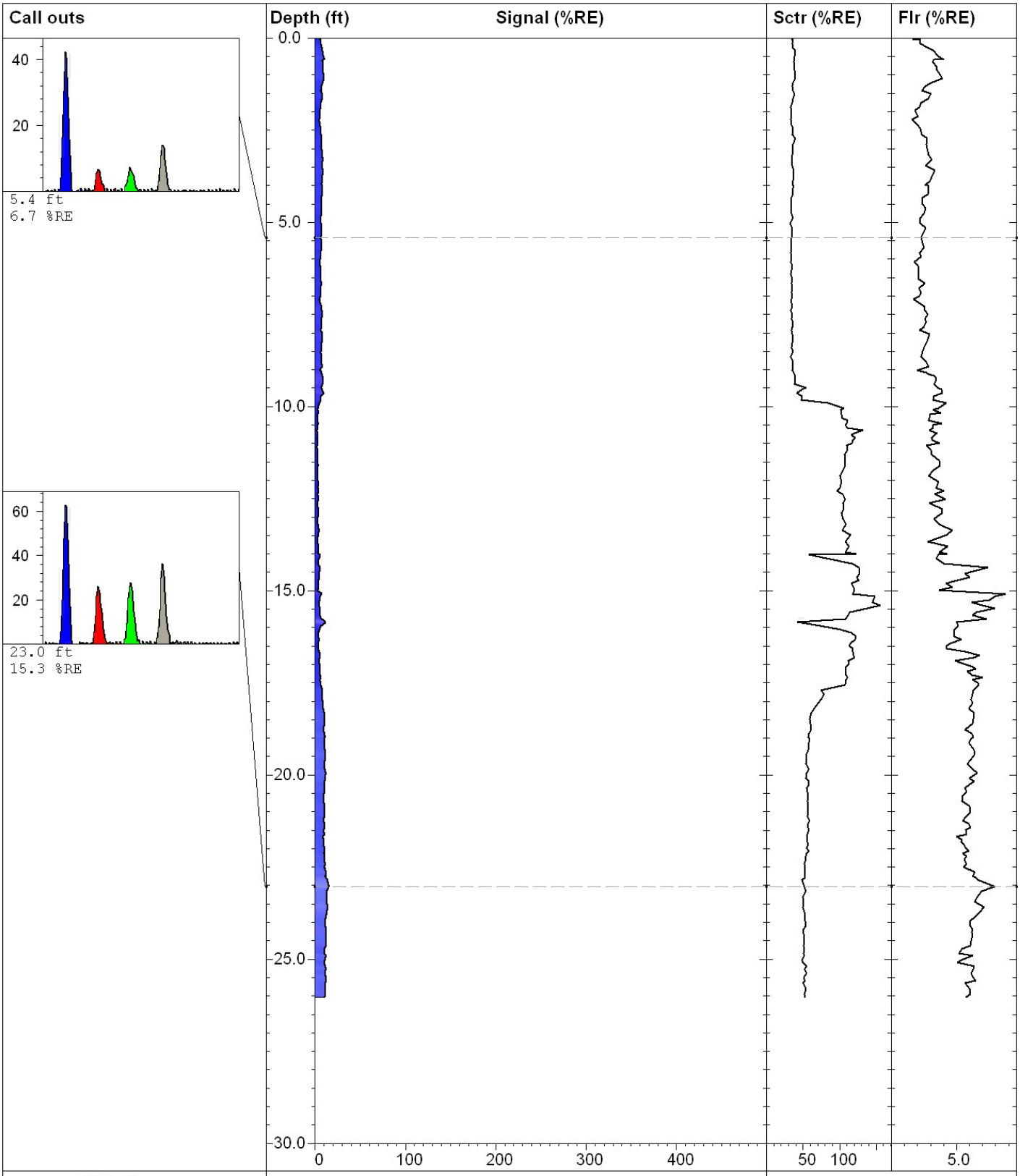
| | | |
|---|---|---|
| **NSTG017** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.04 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **16.8 % @ 20.86 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 9:12:32 AM** |

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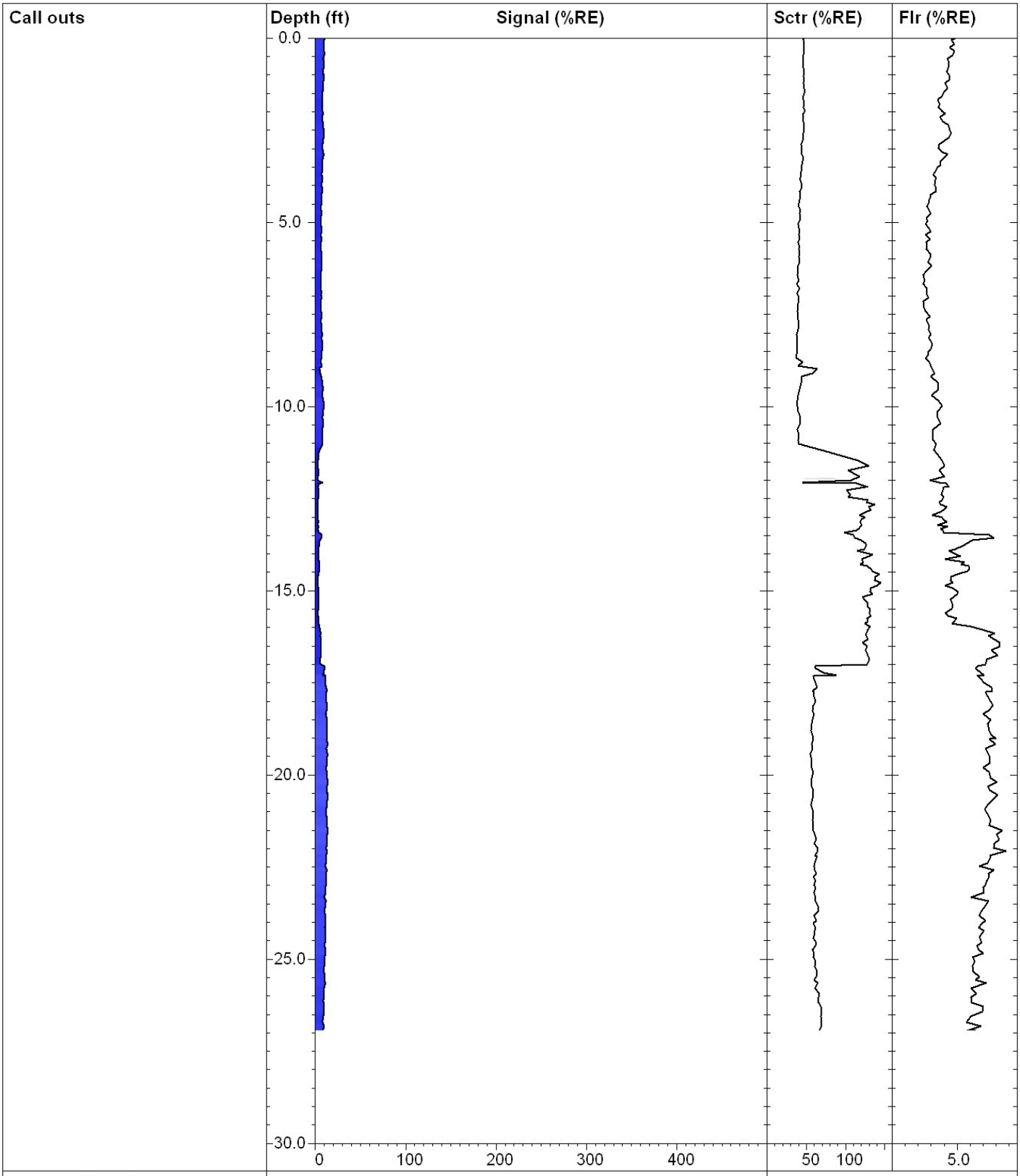
| | | |
|---|---|---|
| **NSTG018** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.05 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **15.3 % @ 23.02 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 10:02:38 AM** |




| | | | |
|---|---|---|---|
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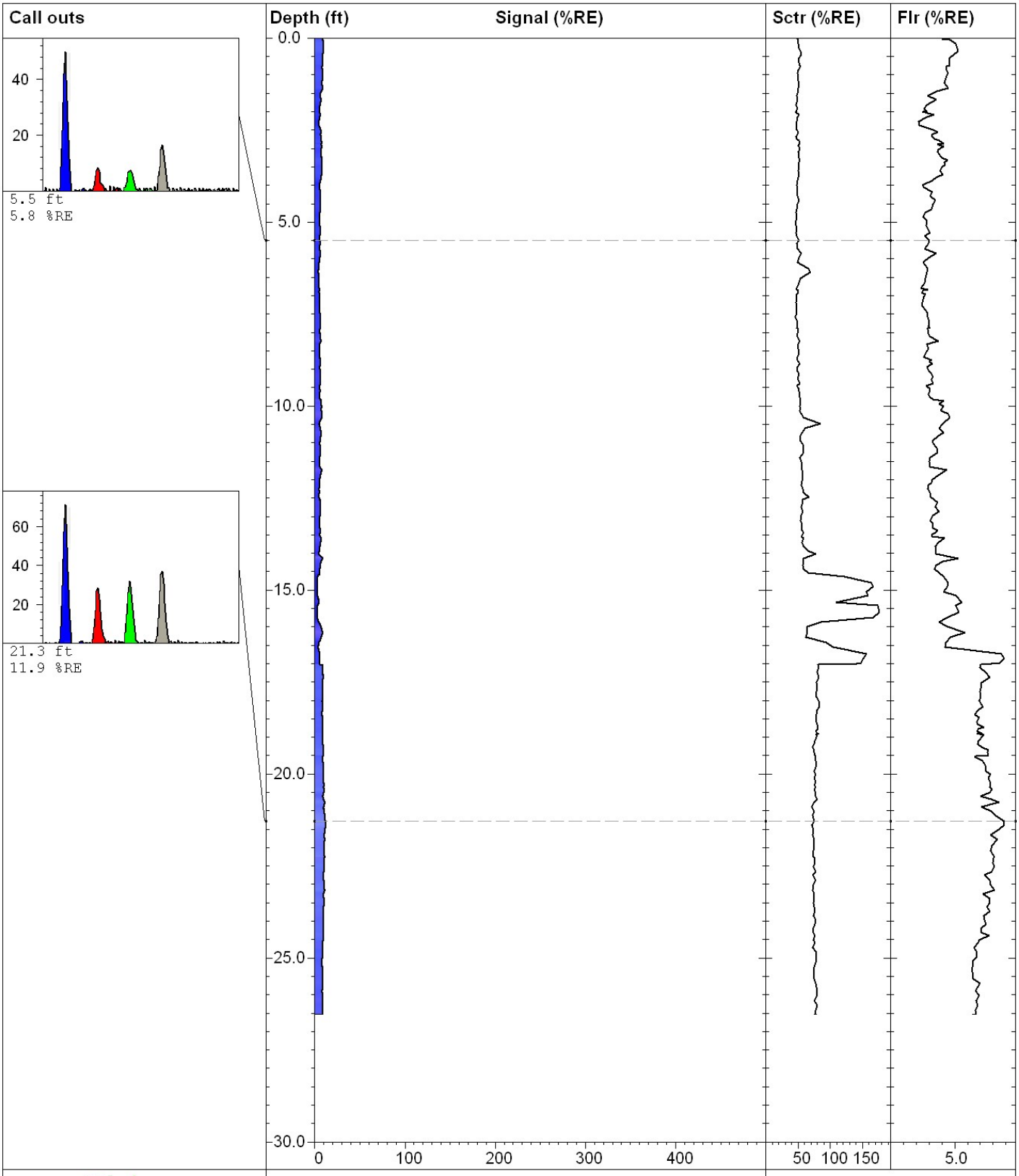
| | *Site:*<br>**North Station Chicago,IL** | *Latitude / System:*<br>**Unavailable / NAD83** | *Final depth:*<br>**26.95 ft** |
| | *Client:*<br>**Burns & McDonnell** | *Longitude:*<br>**Unavailable** | *Max signal:*<br>**14.3 % @ 21.52 ft** |
| | *Job:* | *Operator/Unit:*<br>**Tom Rudolph/DTI02** | *Date & Time:*<br>**10/9/2006 11:01:49 AM** |

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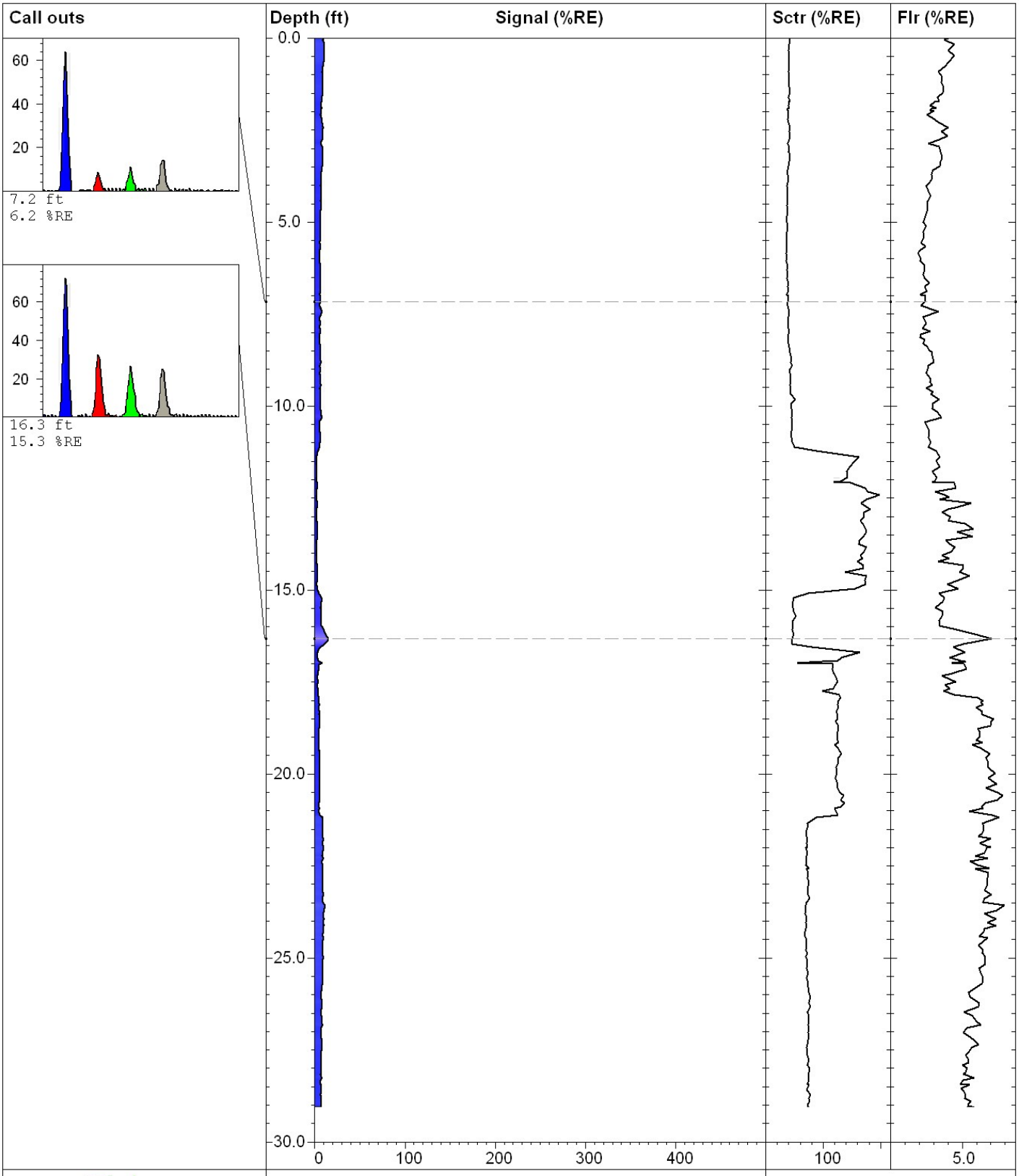
| | | |
|---|---|---|
| **NSTG020** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.54 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **12.4 % @ 21.39 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 1:19:38 PM** |

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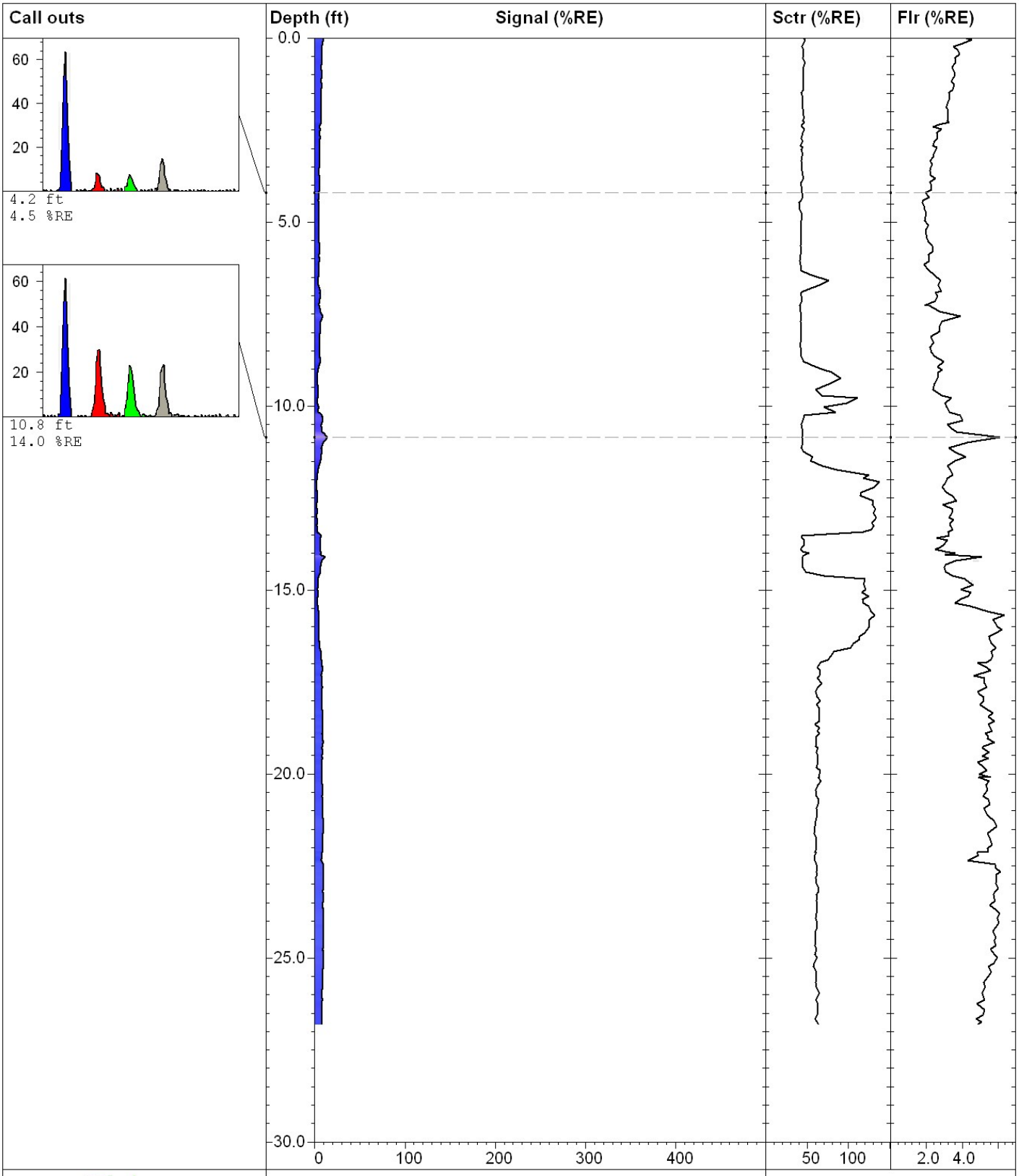
# NSTG021

# TarGOST

| | | |
|---|---|---|
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **29.05 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **15.3 % @ 16.33 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 3:10:37 PM** |

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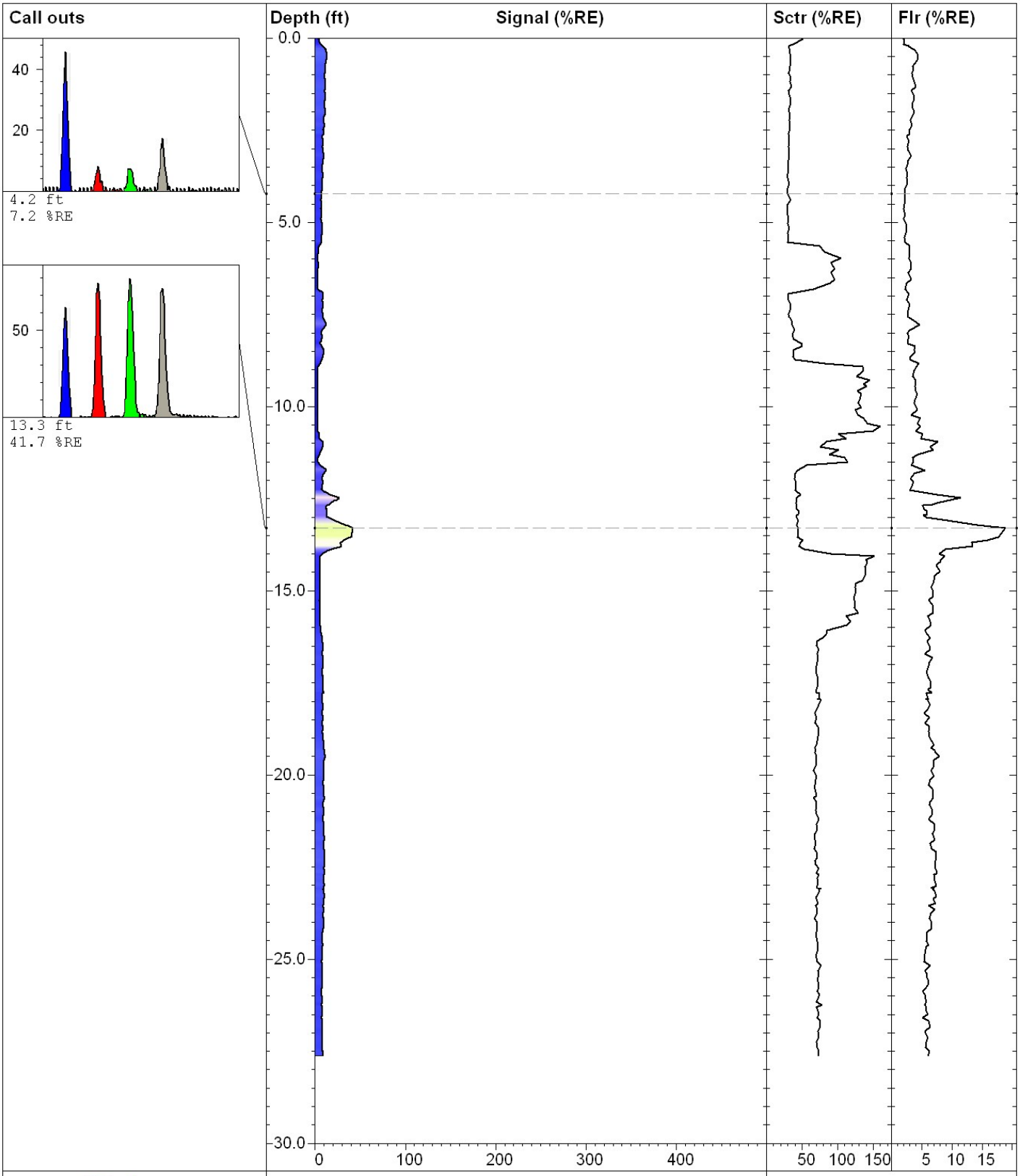
# NSTG022

# TarGOST

| | | |
|---|---|---|
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.82 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **14.0 % @ 10.85 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 2:16:48 PM** |





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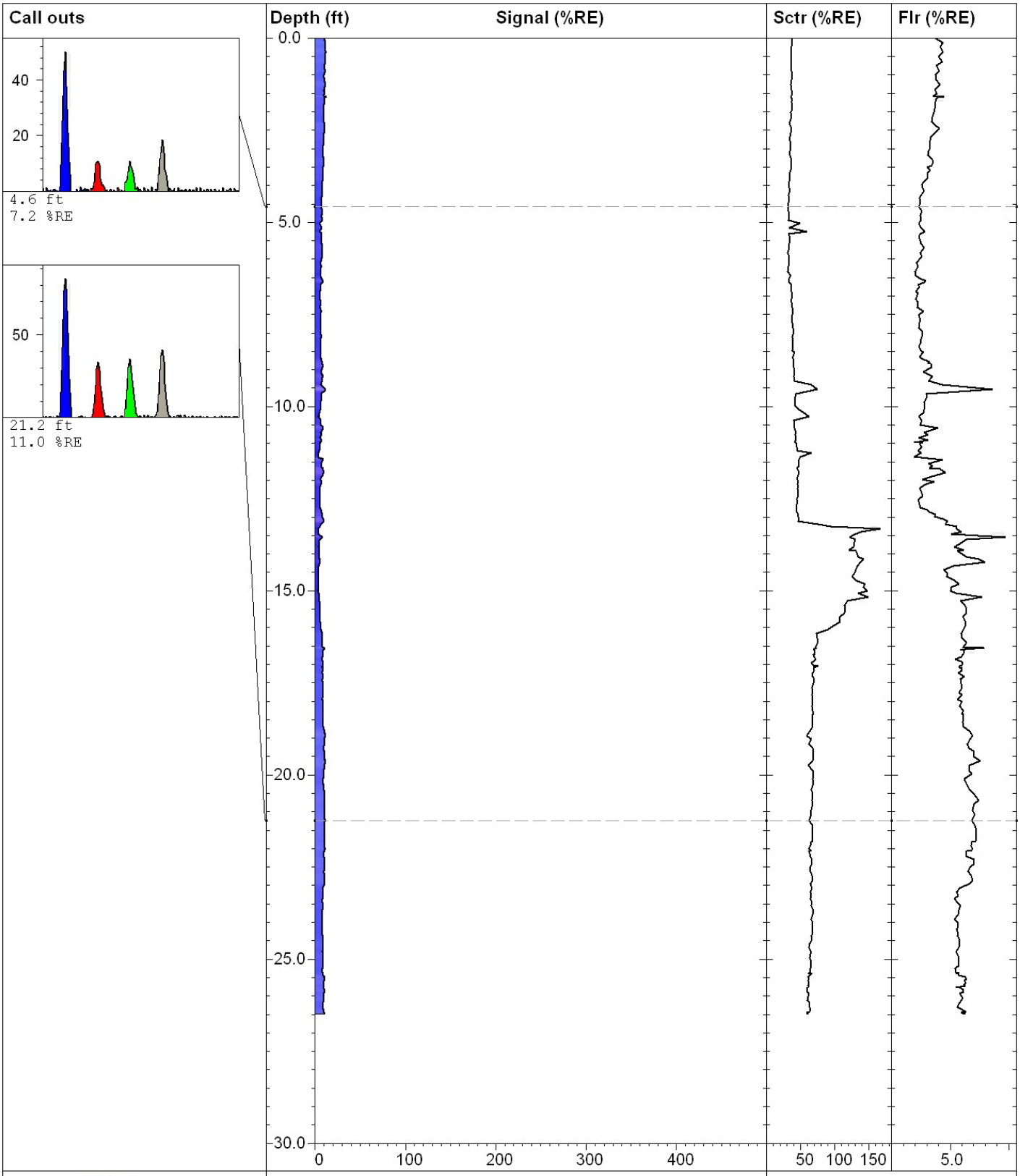
| | | |
|---|---|---|
| **NSTG023** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **27.64 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **41.7 % @ 13.31 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/9/2006 4:10:50 PM** |

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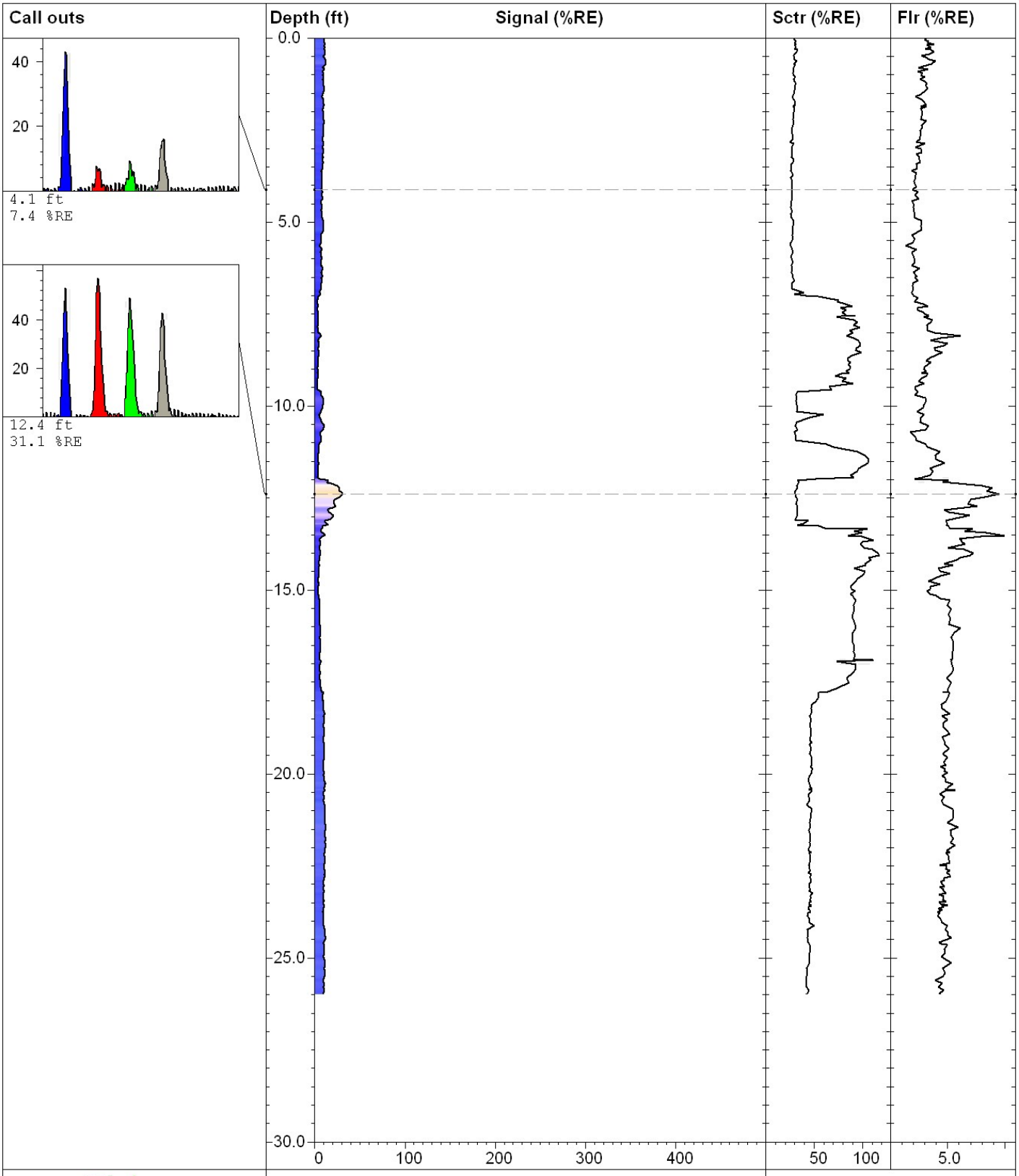
| | | |
|---|---|---|
| **NSTG024** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.50 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **12.4 % @ 1.59 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 8:01:37 AM** |

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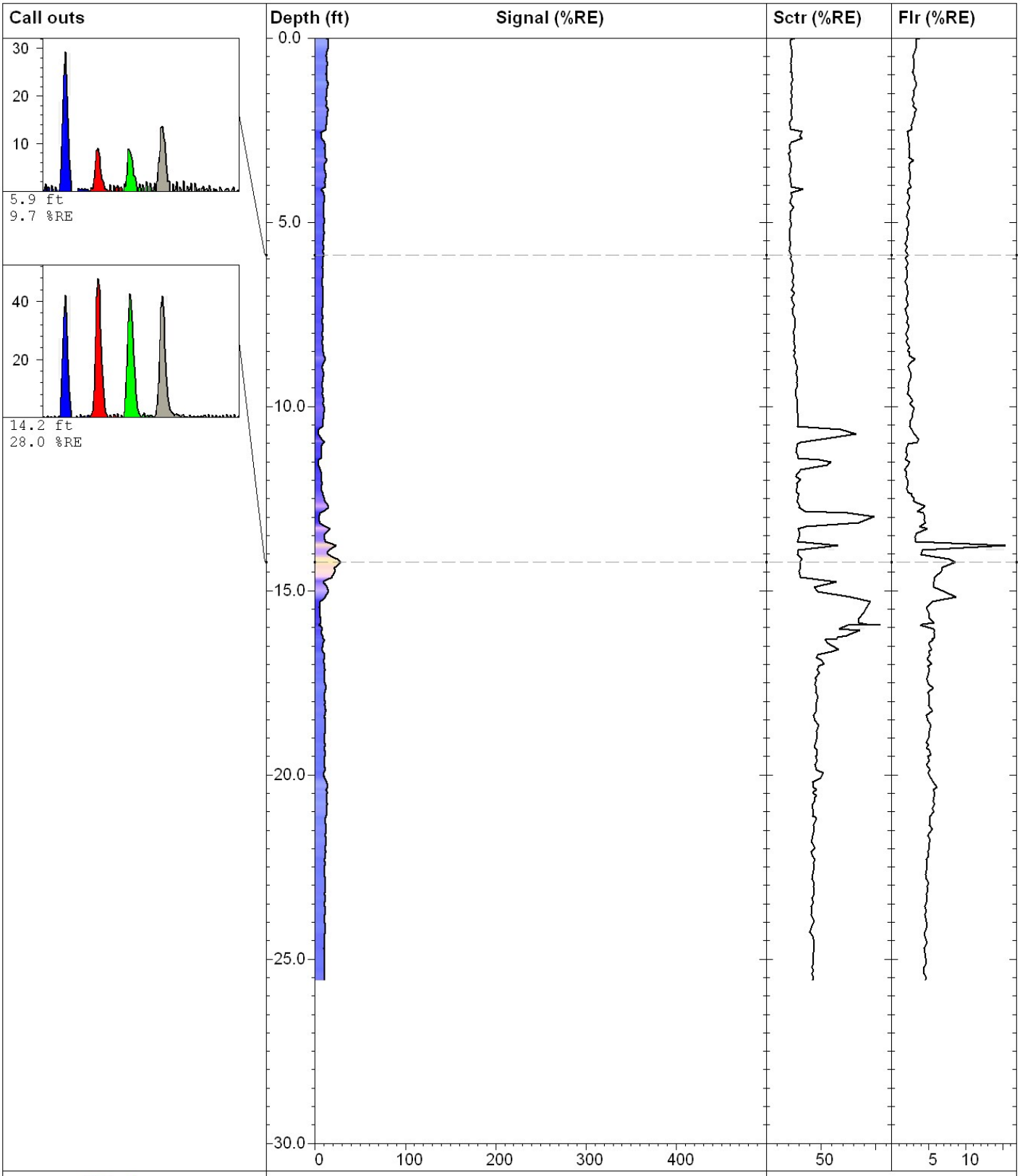
| | | |
|---|---|---|
| **NSTG025** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.00 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **31.1 % @ 12.39 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 10:41:38 AM** |




# NSTG026

# TarGOST

| | | |
|---|---|---|
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.59 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **28.0 % @ 14.23 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 9:48:53 AM** |

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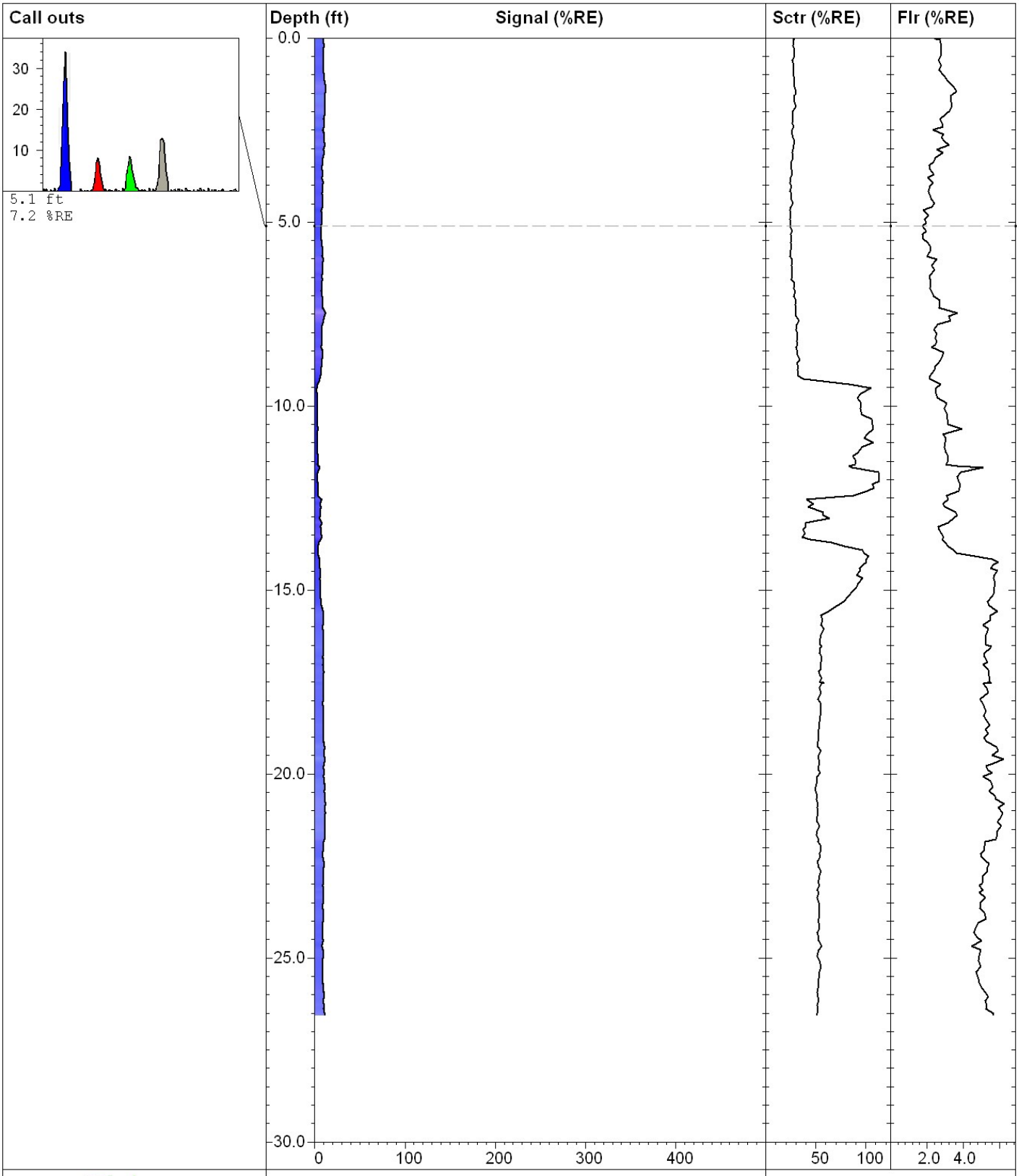


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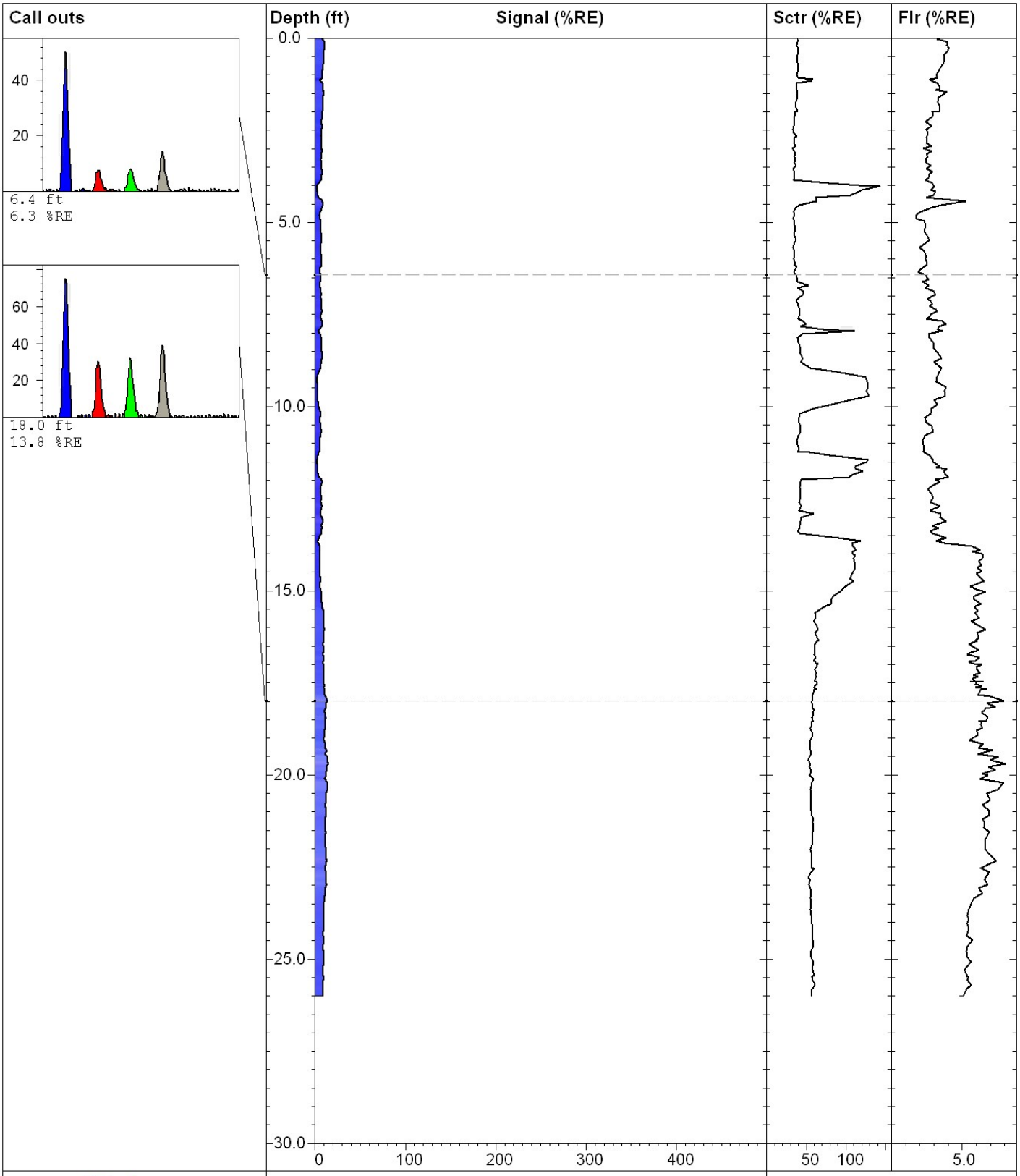
| | | |
|---|---|---|
| **NSTG027** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.58 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **12.1 % @ 1.32 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 8:56:21 AM** |

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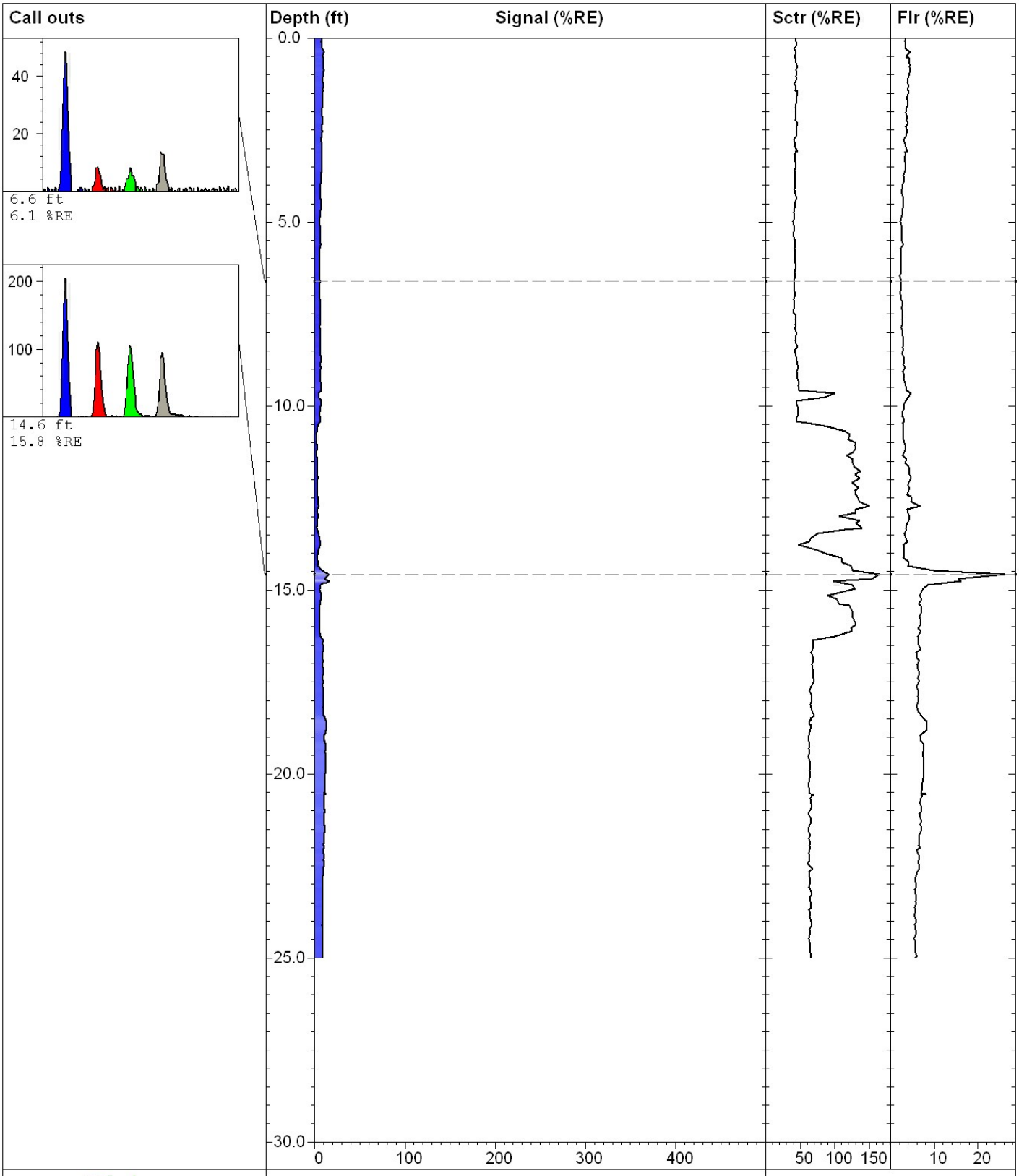
| | | |
|---|---|---|
| **NSTG028** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **26.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **14.7 % @ 19.69 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 11:40:46 AM** |

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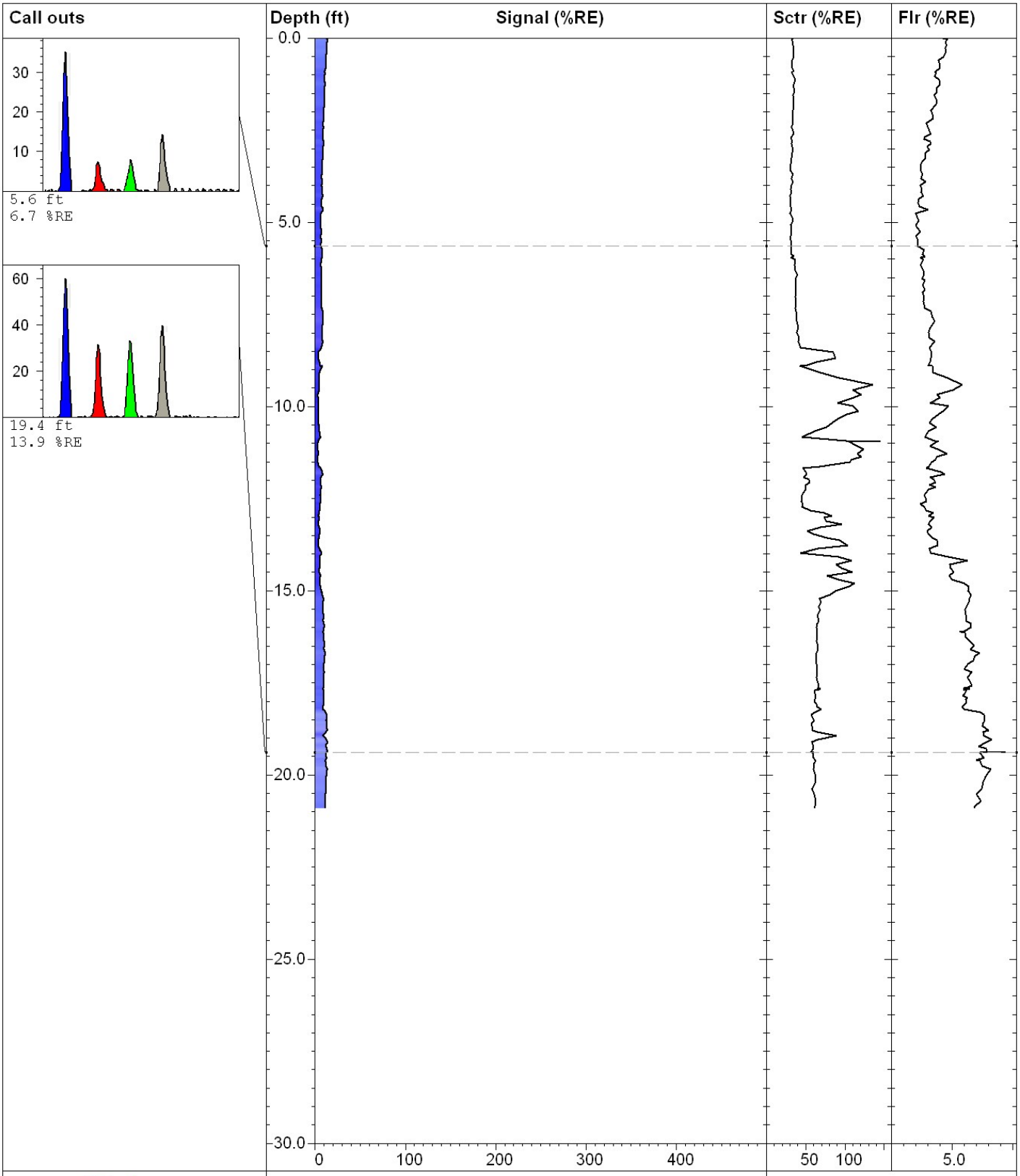
| | | |
|---|---|---|
| **NSTG029** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **16.5 % @ 14.76 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 2:03:34 PM** |

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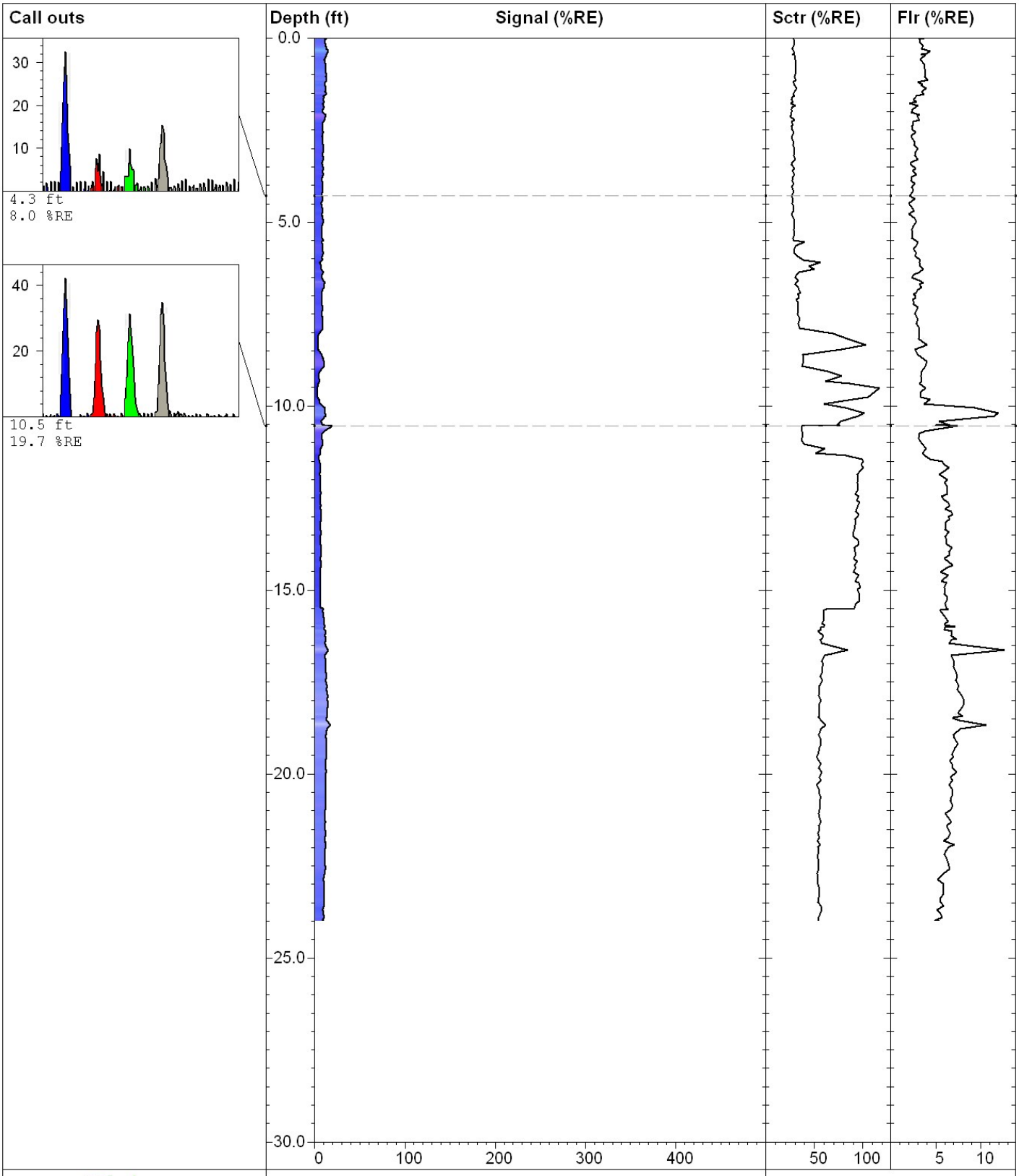
| | | |
|---|---|---|
| **NSTG030** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **20.92 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **15.7 % @ 19.39 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 2:57:36 PM** |

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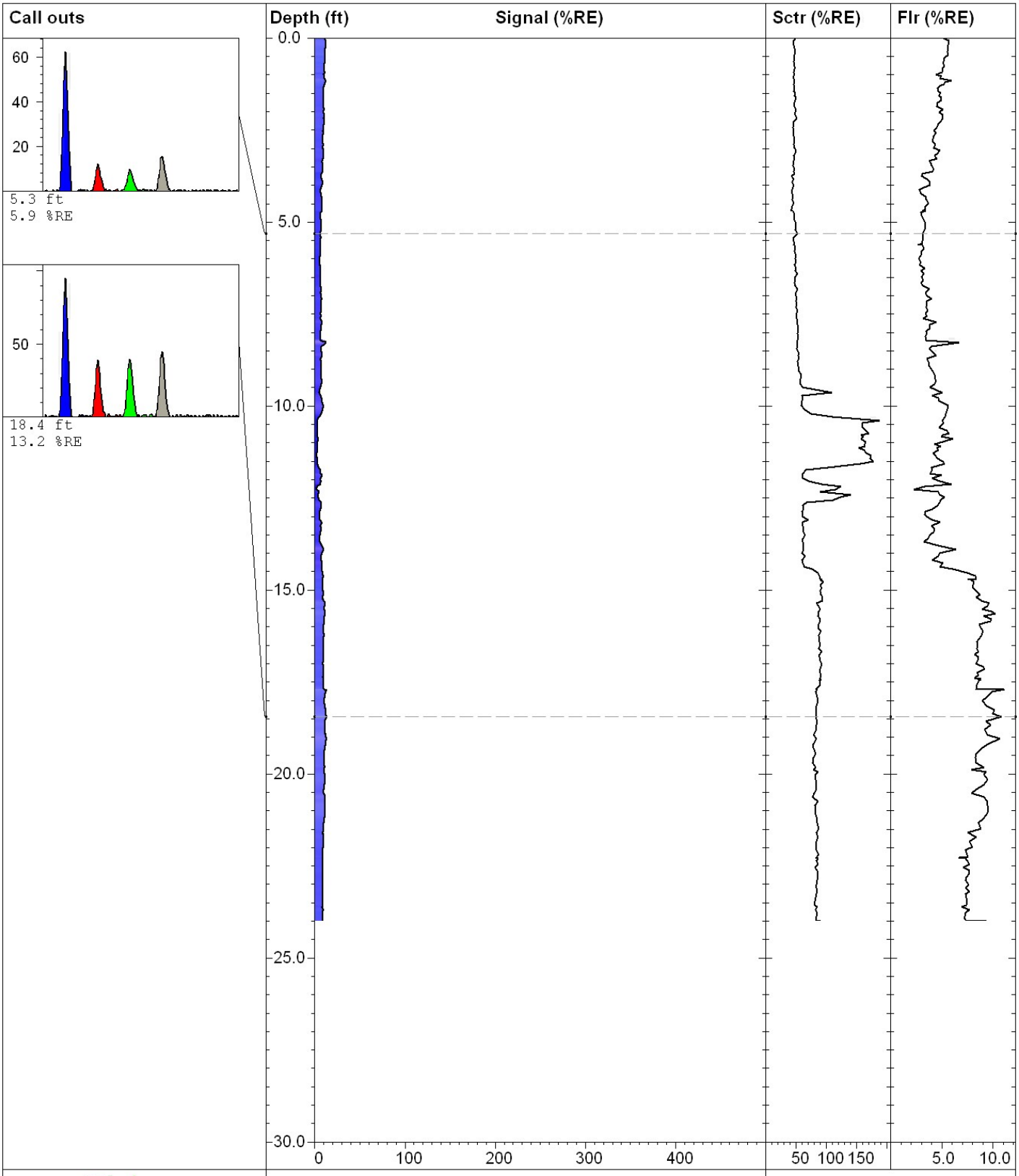
| | | |
|---|---|---|
| **NSTG031** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **24.00 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **19.7 % @ 10.55 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/10/2006 3:59:02 PM** |

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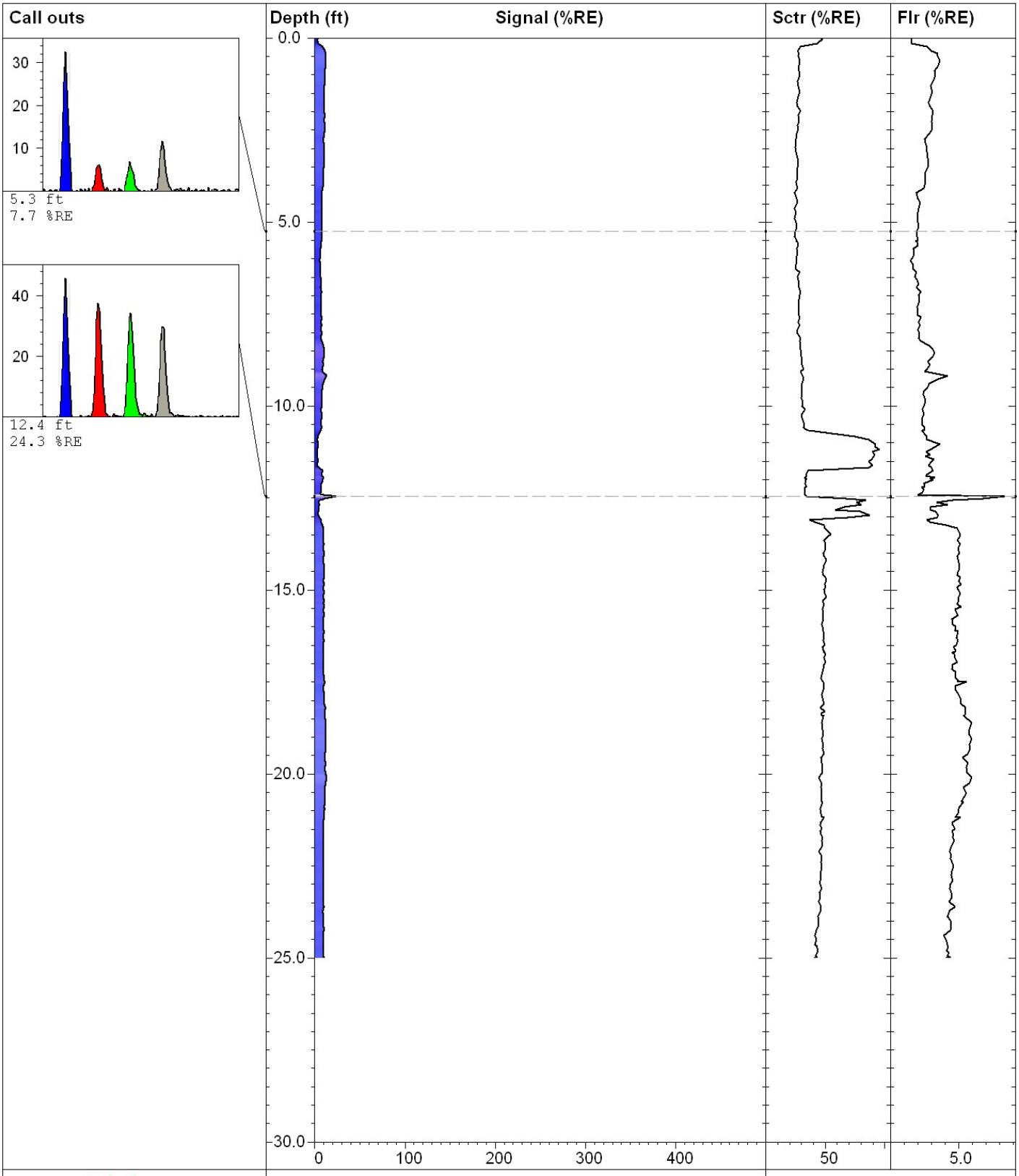
| | | |
|---|---|---|
| **NSTG032** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **24.00 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **13.2 % @ 18.45 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/11/2006 7:56:38 AM** |

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| | | |
|---|---|---|
| **NSTG033** | | **TarGOST** |
| *Site:* **North Station Chicago,IL** | *Latitude / System:* **Unavailable / NAD83** | *Final depth:* **25.00 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **Unavailable** | *Max signal:* **24.3 % @ 12.45 ft** |
| *Job:* | *Operator/Unit:* **Tom Rudolph/DTI02** | *Date & Time:* **10/11/2006 8:48:57 AM** |

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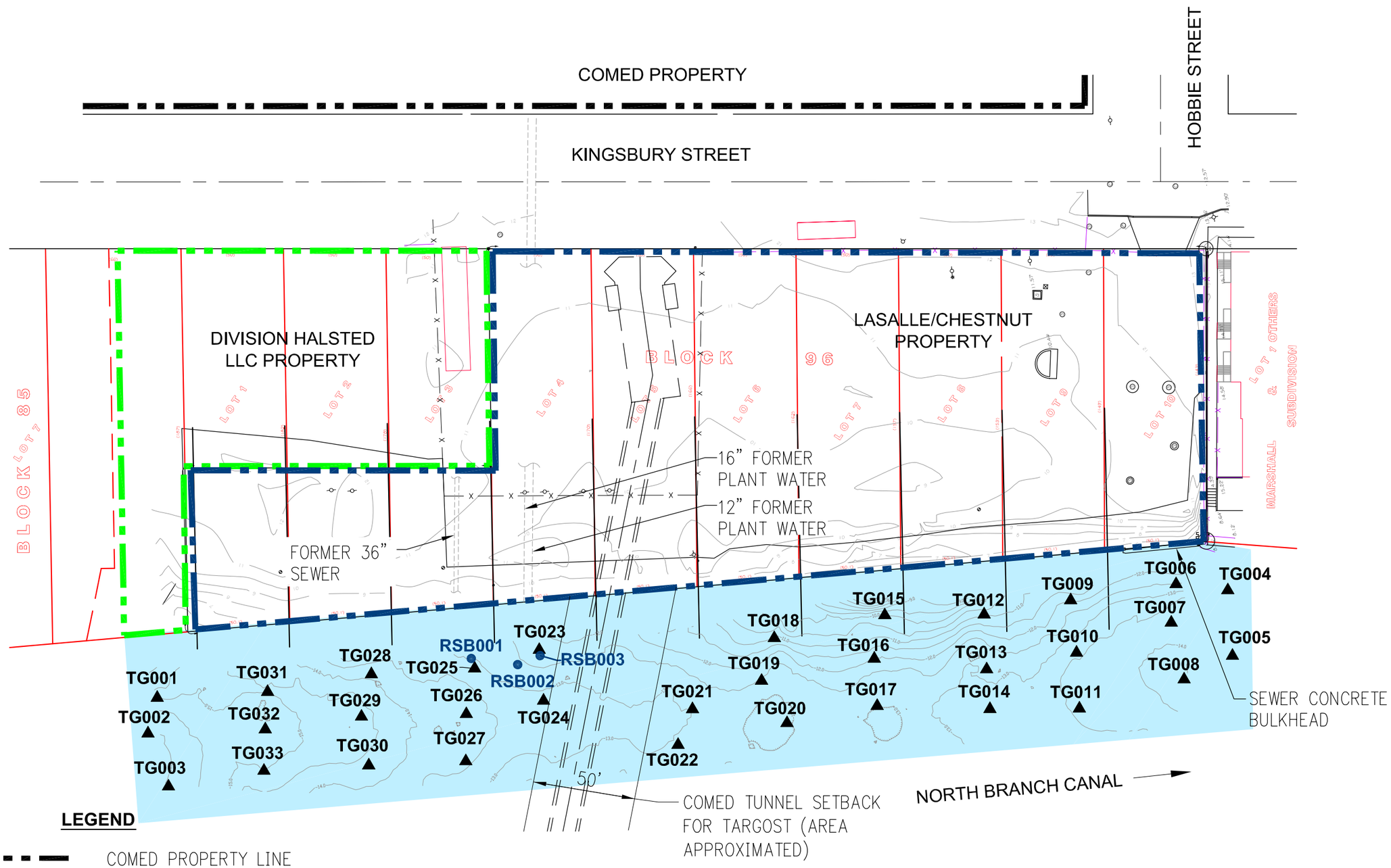
I:\Peoples Gas\LaSalle Chestnut--40627\CAD\BID\SEDIMENT INVESTIGATION\COMB SAMPLES




**LEGEND**

- COMED PROPERTY LINE
- LASALLE/CHESTNUT PROPERTY LINE
- DIVISION HALSTED LLC PROPERTY
- ▲ TARGOST SEDIMENT SAMPLING LOCATION
- ● RIVER SEDIMENT BORING LOCATION
- INVESTIGATION AREA

**DRAFT**

PRIVILEGED & CONFIDENTIAL

Burns & McDonnell SINCE 1898

FIGURE 1
SAMPLE LOCATION MAP
NORTH STATION
CHICAGO, ILLINOIS

# APPENDIX B7

# NORTH BRANCH CANAL

PRIVILEGED AND CONFIDENTIAL
Subject to the Attorney Client Privilege
and Attorney Work Product Doctrines

# Drilling Log

**DRAFT**

Burns & McDonnell
SINCE 1898

| | | | |
|---|---|---|---|
| Project Name: Former North Station | | Project No.: 40627 | Boring/Monitoring Well Number: RSB001 |
| Coordinates: N 1907410.229 E 1171028.353 | | Sediment Elevation (CCD): -15.41 | Page: 1 of 1 |
| Total Depth (feet): 16 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.21 |
| Drilling Rig: CME55LC | | Drilling Company: Mateco Drilling Company | |
| Date: 3-9-07 To: 3-9-07 | Logged By: Carl Kozlowicz | Reviewed by: Christy Barry | Approved by: Don J. Schilling |

## River Sediment Investigation

| Elevation (CCD) | Depth (feet) | Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | 1 | Gray (5Y5/1) organic SILT (OL), trace clay, very soft, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 0 | Sample intervals SS-1 through SS-7 were collected using a 3" split spoon; N values are not applicable for density determination. 2" split spoon was used to collect SS-8 sample interval. Sample interval SS-1 collected using a trap door retainer. A basket retainer was used to collect all other sample intervals. Slight organic odor (0-2.0') Petroleum like odor (3.0-7.1') |
| -17 | 2 | Gray (5Y5/1) to dark greenish Gray (5GY4/1) | | | | | | | | | |
| -18 | 3 | | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 1.6 4.0 2.8 | |
| -19 | 4 | trace animal hair | | | | | | | | | |
| -20 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 1.7/2 | | 2.3 16.6 | |
| -21 | 6 | | | | | | | | | | |
| -22 | 7 | trace tar coated plant remains (7.1-13.4') | | SS | 4 | WOH WOH WOH WOH | | 1.5/2 | | 21 85 | Tar like odor (7.1-7.5') Sample-001 (7.1-7.5') collected at 1045 Heavy tar odor (8.5-13.4') Sample-002 (8.5-9.0') collected at 1052 |
| -23 | 8 | | | | | | | | | | |
| -24 | 9 | | | SS | 5 | WOH WOH WOH 1 | | 1.0/2 | | 120 | |
| -25 | 10 | trace sheen | | | | | | | | | |
| -26 | 11 | | | SS | 6 | 1 1 1 1 | 2 | 1.7/2 | | 105 | |
| -27 | 12 | | | | | | | | | | |
| -28 | 13 | | | SS | 7 | WOH 4 4 4 | 8 | 2/2 | 0.5 | 35 | Sample-003 (12.8-13.4') collected at 1103 |
| -29 | 14 | Gray (5Y6/1) CLAY (CL), trace silt, medium stiff, medium plasticity, moist | | | | | | | | | |
| -30 | 15 | | | SS | 8 | 2 3 3 3 | 6 | 2/2 | 0.5 | 0 | |
| -31 | 16 | End of boring 16 feet below top of sediment | | | | | | | | | WOH = weight of hammer |
| | 17 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

ENVIRONMENTAL LOG RIVER BORINGS.GPJ BURNS_MO.GDT 3/30/07

# Environmental Forensic Report

## Peoples Gas – North Station

**SDG: BR070313**

*Report To:*

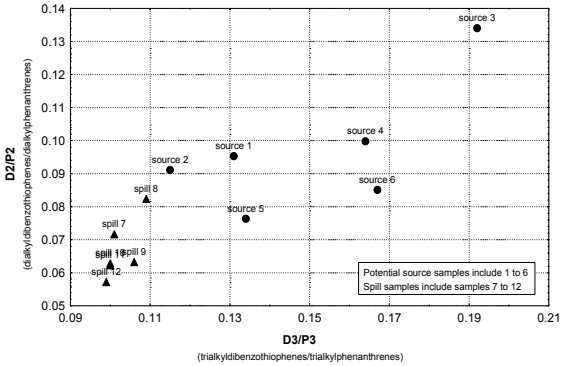
**Burns & McDonnell**
**1431 Opus Place**
**Suite 400**
**Downers Grove, IL 60515**

*Report By:*

**META Environmental, Inc.**
**49 Clarendon Street**
**Watertown, MA 02472**

**March 28, 2007**

Figure 1. Double Ratio Plot




***Identifying and allocating sources of pollutants in complex environments.***

META Environmental, Inc.
ENGINEERING & CHEMISTRY

Final Laboratory Report

META Environmental, Inc.
49 Clarendon Street
Watertown, MA 02472

Phone: 617-923-4662
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E-Mail meta@metaenv.com

## Certification

This certifies that this package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed herein. The results included in this data report relate only to the samples as received and analyzed by the laboratory. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager and Quality Assurance Officer, as verified by the following signatures.

James A. Roush — March 28, 2007
James A. Roush — Date
Environmental Scientist, Laboratory Manager

David M. Mauro — March 28, 2007
David M. Mauro — Date
Senior Scientist, Quality Assurance Officer

# Sample Delivery Group Narrative

| | |
|---|---|
| Project: | Peoples Gas – North Station<br><br>Burns & McDonnell<br>1431 Opus Place<br>Suite 400<br>Downers Grove, IL 60515 |
| Report Contact: | Joan Gonzalez |
| Dates of Receipt: | March 13, 2007 |
| Sample Summary: | The samples received for this project are summarized in the attached sample login forms. |
| META Project Number: | B14014 |
| SDG No.: | BR070313 |
| Total Pages in Report: | 69 |

# Chain of Custody

The samples were received in good condition. The internal temperature of the shipment containers were as follows:

Samples received: 03/13/2007 3.9°C

Internal chain of custody procedures were followed after sample receipt. Samples were stored in a locked refrigerator. A sample custody logbook contains the record of sample removal from the secure sample storage area to the sample preparation laboratory. The custody record for the sample extracts is present on the sample extraction logbook page.

The disposal of samples and extracts will be authorized one month after the release of this data report. Sample disposal will be documented.

# Methods

The sediment samples were prepared by solvent extraction (EPA 3570) using dichloromethane (DCM). The extracts were spiked with internal standard and analyzed by GC/FID (EPA 8100M) for fingerprinting and by GC/MS/SIM (EPA 8270M) for mono- and polycyclic aromatic hydrocarbons (PAHs), alkyl PAH homologues and other selected compounds.

# Results

Sample results are presented in summary forms (CLP Form 1 equivalent) in Appendix C, which follows this narrative.

# Quality Control

Analyte Flags

The detection limits were determined as the sample equivalent of the lowest linear initial calibration standard. Analytes measured between 50% and 100% of the lowest standard were reported as "estimated" and flagged with the letter "J." Undetected analytes were reported as null and flagged with the letter, "U." Analytes marked with a "B" were detected in the associated blank and should be reviewed for a possible positive bias. No deviations were thought significant enough to compromise the integrity of the reported values.

Holding Times

The sediment samples were extracted within holding times. The samples and extracts were stored at 4°C ± 2°C prior to extraction and analysis. The extracts were analyzed within 40 days of sample preparation.

Surrogate Spikes

Extraction surrogates were added to all samples prior to extraction. All surrogate compounds were recovered within the 50%-120% acceptable criterion with the following exceptions; perylene-d12 was over-recovered in all three field samples as well as the laboratory duplicate due to the high level of dilution required for analysis.

Blanks
Toluene was detected at an elevated level (0.054 mg/kg) in the sediment blank. This high toluene concentration was due to contribution from laboratory background caused by a toluene based extraction being performed at or near the same time as these samples. All field samples had toluene concentrations greater than 10 times the level found in the blank. Other various MAH and PAH compounds were detected at very low levels below or just above the reporting limit (RL). All field samples had concentrations of these compounds far greater than 10X the blank level suggesting no high bias exists.

Blank Spikes
A blank spike was extracted with the sediment batch. All spiked compounds were recovered within acceptable laboratory criteria.

Duplicates
Sample *NS-RSB003-001 (9.0-9.4)* was extracted and analyzed in duplicate. Relative percent differences (RPDs) are reported with the concentration data in Appendix C.

Internal Standards
Internal standards were recovered within acceptable QC limits (50%-200%) relative to the continuing calibration standards.

## Interpretation

Table 1 outlines the interpretive findings, including a summary description of the GC/FID and GC/MS results as well as a Class identifier; e.g. pyrogenic or petrogenic, and a potential source identifier.

## Table 1. Summary of GC/FID and GC/MS Observations

| Field Identification | Laboratory Identification | Matrix | Depth (Feet) | Observations | Class | Tentative Source[1] |
|---|---|---|---|---|---|---|
| NS-RSB003-001 | BR070313-13 | Sediment | 8.5-9.0 | Wide range parent PAH distribution dominated by 2- and 3- ring PAHs indicating minimal weathering; total PAH =2,380 ppm; low level alkanes and sesqueterpane biomarkers; UCM present; Fl/Py ratio = 0.709 | Pyrogenic / petrogenic | tar, likely from a CWG process; some urban background present |
| NS-RSB001-002 | BR070313-14 | Sediment | 8.7-9.2 | Sample Similar to *NS-RSB003-001*; total PAH =3,110 ppm; low level alkanes and sesqueterpane biomarkers; UCM present; Fl/Py ratio = 0.626 | Pyrogenic / petrogenic | tar, likely from a CWG process; some urban background present |
| NS-RSB002-001 | BR070313-15 | Sediment | 9.0-9.4 | Also Similar to *NS-RSB003-001*; total PAH =2,580 ppm; low level alkanes and sesqueterpane biomarkers; UCM present; Fl/Py ratio = 0.656 | Pyrogenic / petrogenic | tar, likely from a CWG process; some urban background present |

1 - qualitative identification based on GC/FID and GC/MS data; the identified source refers to the hydrocarbon portion of the sample
a "tar" designation does not necessarily mean the presence of a NAPL, but rather that the PAH pattern and concentrations are consistent with tar or tar-impacted soil or sediment;
the most abundant type of material in the sample is listed first
UCM – unresolved complex mixture
CWG – carbureted water gas

**Discussion**

All three samples show very similar characteristics in both the GC/FID fingerprints (Appendix B) and the diagnostic ratios (Table 2). For example, the mean fluoranthene/pyrene ratio between the three samples tentatively identified as carbureted water gas (CWG) tar was 0.664 with a percent relative standard deviation (RSD) of 6.3%. The double ratio plots included as Figures 1 and 2 show a very tight grouping both with each other, as well as with known CWG tars from META's reference library. These three samples appear to have come from the same source.

The petrogenic material present in all the samples appears to consist of varying amounts of weathered middle and heavy distillates (e.g., kerosene and diesel-range) and higher boiling products (e.g., No. 6 fuel oil and asphalt). It is not possible to definitively identify the source of these materials with this data set, but the material appears similar in all three samples as can be seen in Figure 3. This material is consistent with the composition of sediments impacted by urban runoff.

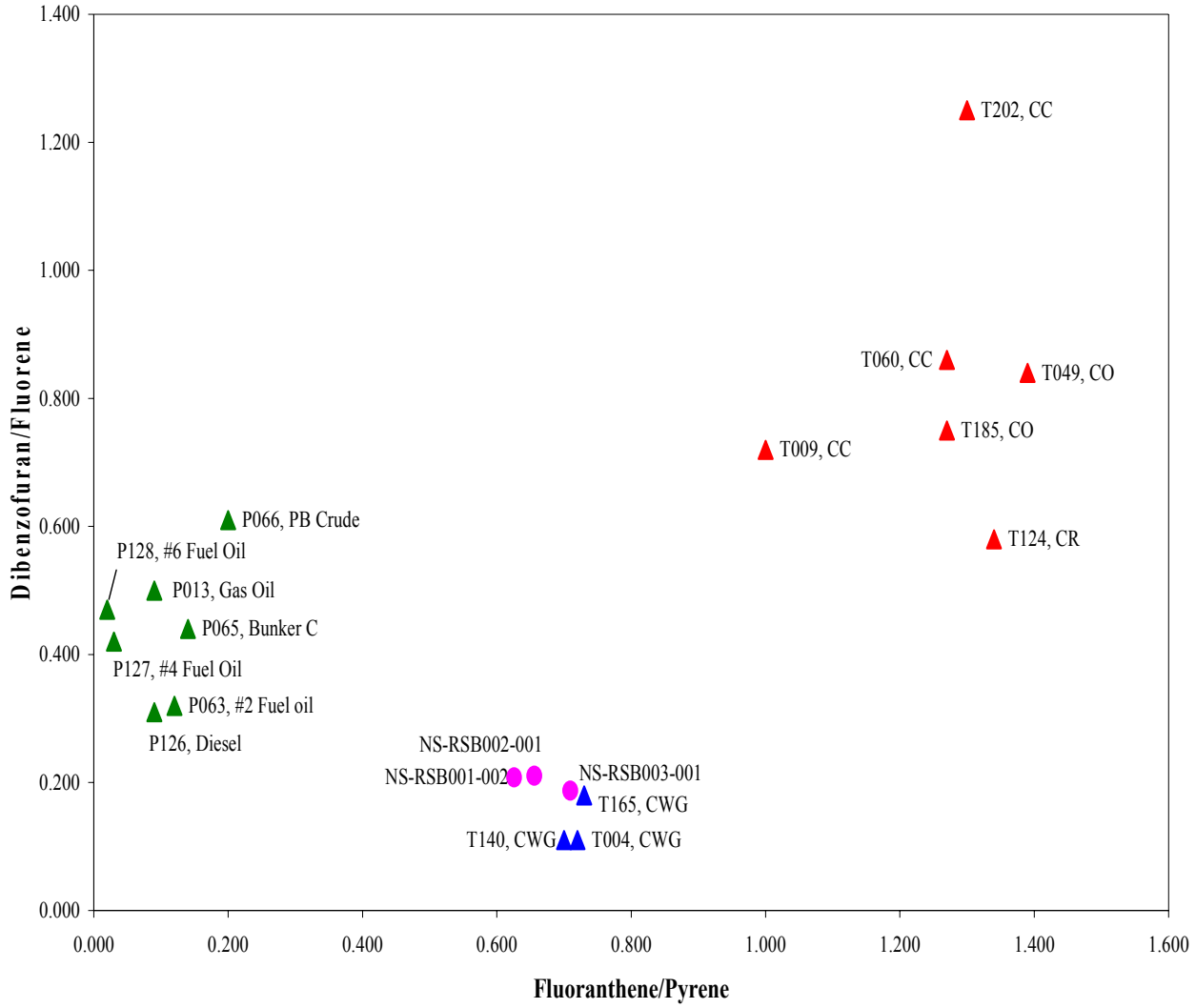
**Table 2. Selected Source and Weathering Ratios**

| | Fl/Py | D/F | C17/Pris | C18/Phy | Pris/Phy | C3D/C3PA | C2D/C2PA | BF/MP |
|---|---|---|---|---|---|---|---|---|
| ***NS-RSB003-001*** | 0.709 | 0.187 | 0.130 | 0.076 | 1.477 | 0.592 | 0.393 | 0.347 |
| ***NS-RSB001-002*** | 0.626 | 0.208 | 0.062 | 0.065 | 1.395 | 0.698 | 0.420 | 0.337 |
| ***NS-RSB002-001*** | 0.656 | 0.211 | 0.055 | 0.056 | 1.332 | 0.704 | 0.438 | 0.342 |

Ratios:

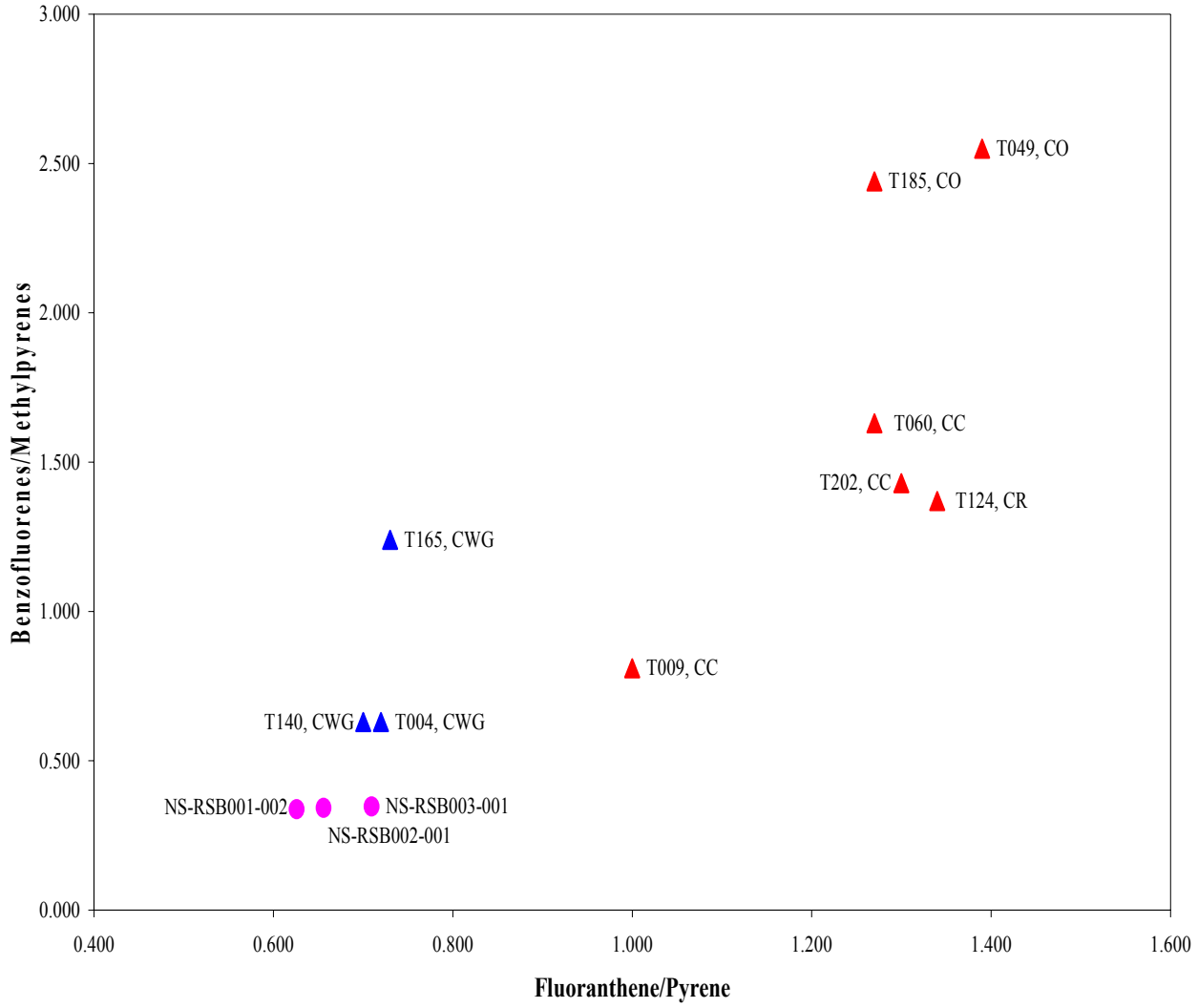
| | |
|---|---|
| Fl/Py | fluoranthene/pyrene |
| D/F | dibenzofuran/fluorene |
| C17/Pris | heptadecane/pristane |
| C18/Phy | octadecane/phytane |
| Pris/Phy | pristane/phytane |
| C3D/C3PA | trialkyldibenzothiophenes/trialkylphenanthrenes/anthracenes |
| C2D/C2PA | dialkyldibenzothiophenes/dialkylphenanthrenes/anthracenes |
| BF/MP | benzofluorenes/methylpyrenes |

**Figure 1. Selected Diagnostic Ratios – Fl/Py v. D/F**



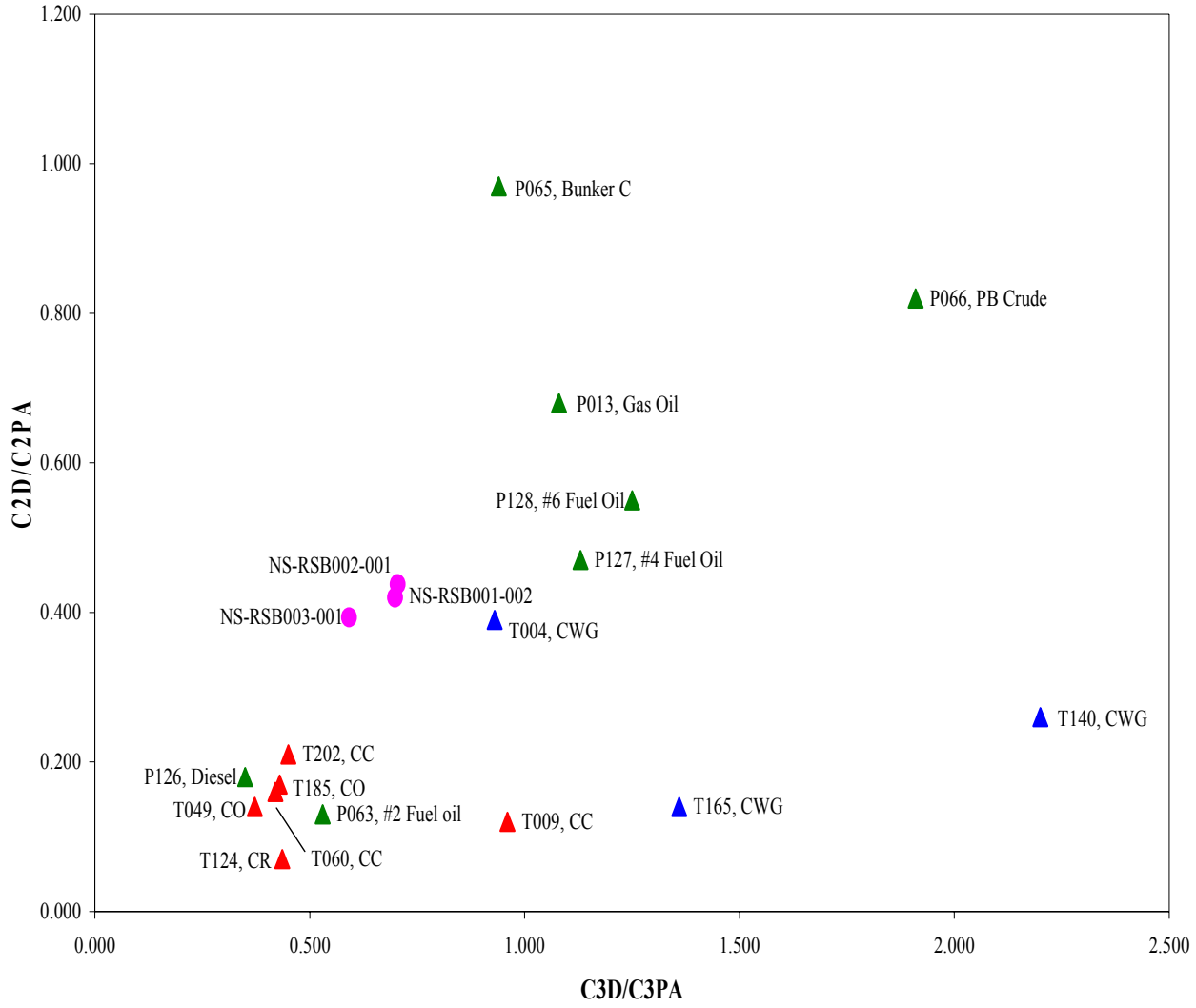

| | |
|---|---|
| TXXX | Tar Sample from META's in house source library |
| CC | Coal Carbonization Tar |
| CO | Coke Oven Tar |
| CWG | Carbureted Water Gas Tar |
| ● | Field Samples |

**Figure 2. Selected Diagnostic Ratios – Fl/Py v. BF/MP**




| | |
|---|---|
| TXXX | Tar Sample from META's in house source library |
| CC | Coal Carbonization Tar |
| CO | Coke Oven Tar |
| CWG | Carbureted Water Gas Tar |
| ● | Field Samples |

**Figure 3. Selected Diagnostic Ratios – C3D/C3PA v. C2D/C2PA**




| | |
|---|---|
| TXXX | Tar Sample from META's in house source library |
| CC | Coal Carbonization Tar |
| CO | Coke Oven Tar |
| CWG | Carbureted Water Gas Tar |
| ● | Field Samples |

# Definitions

Pyrogenic substances are complex mixtures of primarily hydrocarbons produced from organic matter subjected to high temperatures but with insufficient oxygen for complete combustion. Pyrogenic materials are produced by fires, internal combustion engines, and furnaces. They also are formed when coke or gas are produced from coal or oil. Coal-tar based products, such as roofing, pavement sealers, waterproofing, pesticides, and some shampoos contain pyrogenic materials.

Petrogenic substances include crude oil and crude oil derivatives such as gasoline, heating oil, and asphalt.

Pitch is the semi-solid or solid material consisting of high molecular weight hydrocarbons that remain following coal tar distillation.

# References

1) "Chemical Fingerprinting of Hydrocarbons," in: Introduction to Environmental Forensics. B.L. Murphy and R.D. Morrison editors, Academic Press, San Diego, CA 2002.
2) Mauro, D.M., "Chemical Source Attribution at former MGP Sites," EPRI Report 1000728, December 2000.

# Appendix A
# Chains of Custody

Burns & McDonnell SINCE 1898

# Request for Chemical Analysis and Chain of Custody Record



Burns & McDonnell Engineering
1431 Opus Place
Downers Grove, Illinois 60515
Phone: (630) 724-3200 Fax: (630) 724-3201

Attention: Joan Gonzalez

Laboratory: META Environmental
Address: 49 Clarendon Street
City/State/ZIP: Watertown, MA 02472
Telephone: 617-923-4665

Document Control No.: NS-001-2007
Lab. Reference No. or Episode No.:

Project Number: 40627-3.03
Site Name: Peoples Gas - North Station

| Group or SWMU Name | Sample Point | Sample Designator | Round | Year | Sample Depth (in feet) From | Sample Depth (in feet) To | Sample Collected Date | Sample Collected Time | Liquid | Solid | Gas | Number of Containers | Parameter/Method Code: Fingerprint | | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NS | RSB001 | 002 | — | — | 8.5 | 9.0 | 3/9/07 | 1052 | | X | | 1 | X | | | | | | BR070313-~~13~~ 13 |
| NS | RSB002 | 001 | — | — | 8.7 | 9.2 | 3/9/07 | 1340 | | X | | 1 | X | | | | | | -14 |
| NS | RSB003 | 001 | — | — | 9.0 | 9.4 | 3/9/07 | 1500 | | X | | 1 | X | | | | | | -15 |

Sampler (signature):

Sampler (signature):

Custody Seal Number: NS-001-2007

Special Instructions: Standard TAT

Relinquished By (signature): 1.
Date/Time: 3/12/07 PM
Received By (signature): Fed Ex
Date/Time:

Relinquished By (signature): 2.
Date/Time:
Received By (signature): Laurie A Murphy
Date/Time: 3/13/07 1015

Ice Present in Container: Yes ☑ No ☐

Temperature Upon Receipt: 3.9°c

Laboratory Comments: samples recvd in good condition

# META Environmental, Inc.

Sample Receipt Log

| Lab ID | Field ID | Matrix | Prep Method | Cleanup Method | Analysis Method | Date Sampled | Date Received | Project # | Container | Comments | Client Name | Project Name |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| BR070313-13 | NS-RSB001-002 (8.5-9.0) | Sediment | 2508 | | 4007/4008 | 3/9/2007 | 3/13/2007 | B14014-60 | 1 x 4 oz jar | | Burns & McDonnell | North Station |
| BR070313-14 | NS-RSB002-001 (8.7-9.2) | Sediment | 2508 | | 4007/4008 | 3/9/2007 | 3/13/2007 | B14014-60 | 1 x 4 oz jar | | Burns & McDonnell | North Station |
| BR070313-15 | NS-RSB003-001 (9.0-9.4) | Sediment | 2508 | | 4007/4008 | 3/9/2007 | 3/13/2007 | B14014-60 | 1 x 4 oz jar | | Burns & McDonnell | North Station |

Logged By: U

Date: 3/14/07



Reviewed By: JM

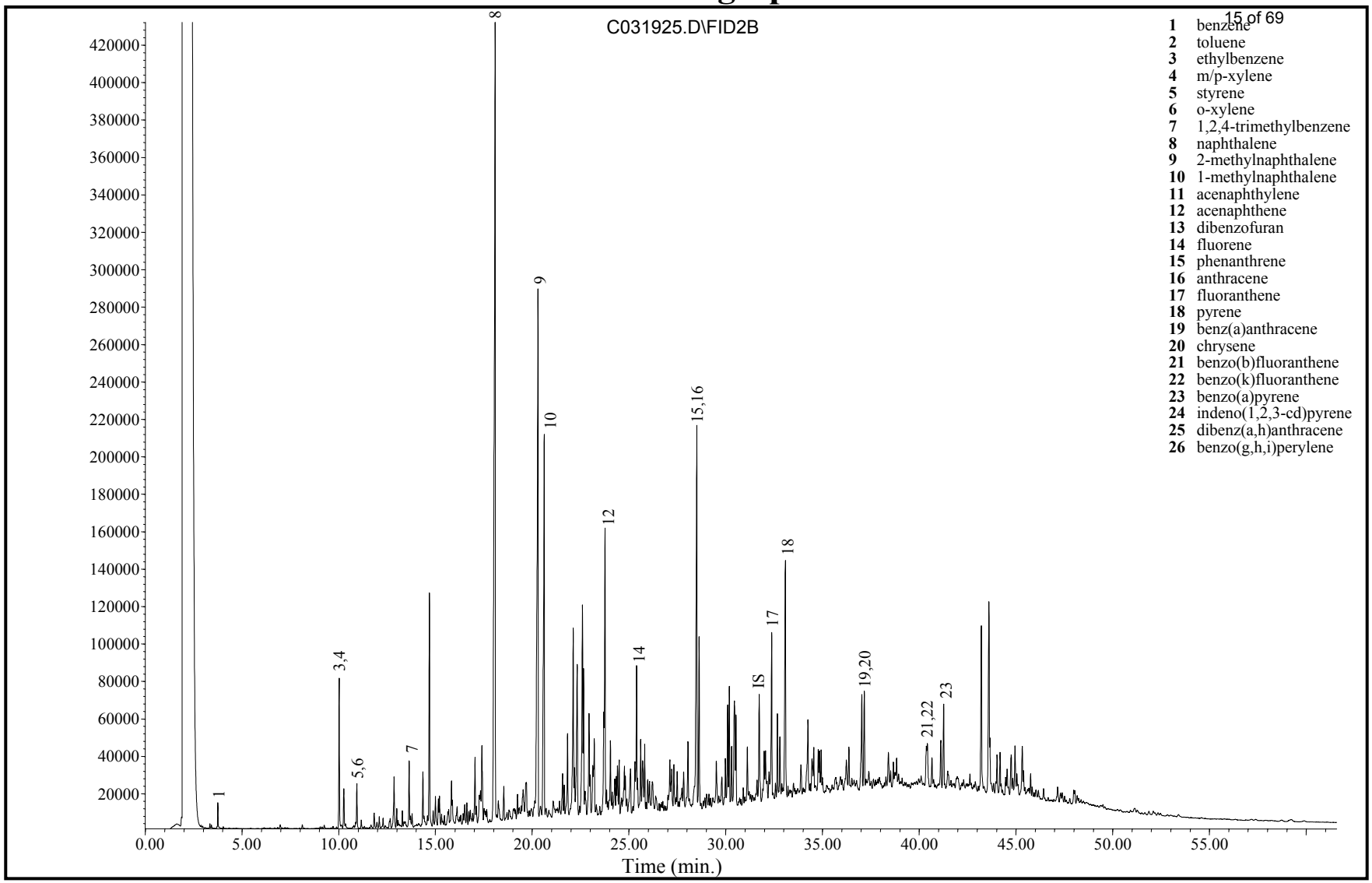
Date: 3/14/07

# Appendix B

# GC/FID Fingerprints

# GC/FID Fingerprint






***Extraction Date: 03/15/2007***
***Analysis Date: 03/20/2007***

*IS – 5-a-Androstane*
*SS1 – 2-fluorobiphenyl*
*SS2 – o-terphenyl*

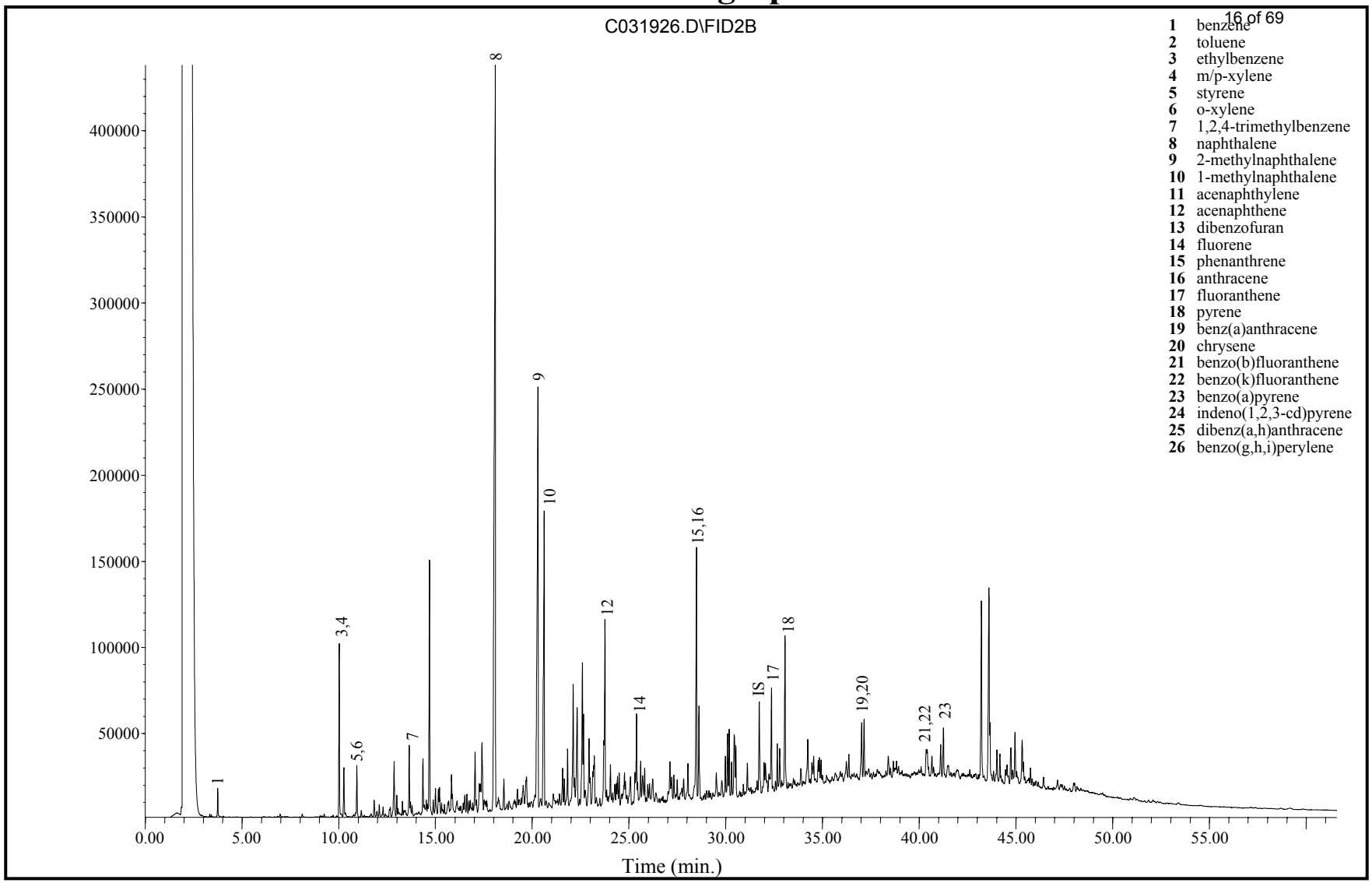
**Field ID:** NS-RSB001-002 (8.5-9.0)
Laboratory ID: BR070313-13
Method: EPA 8100M



META

# GC/FID Fingerprint






***Extraction Date: 03/15/2007***
***Analysis Date: 03/20/2007***

*IS – 5-a-Androstane*
*SS1 – 2-fluorobiphenyl*
*SS2 – o-terphenyl*

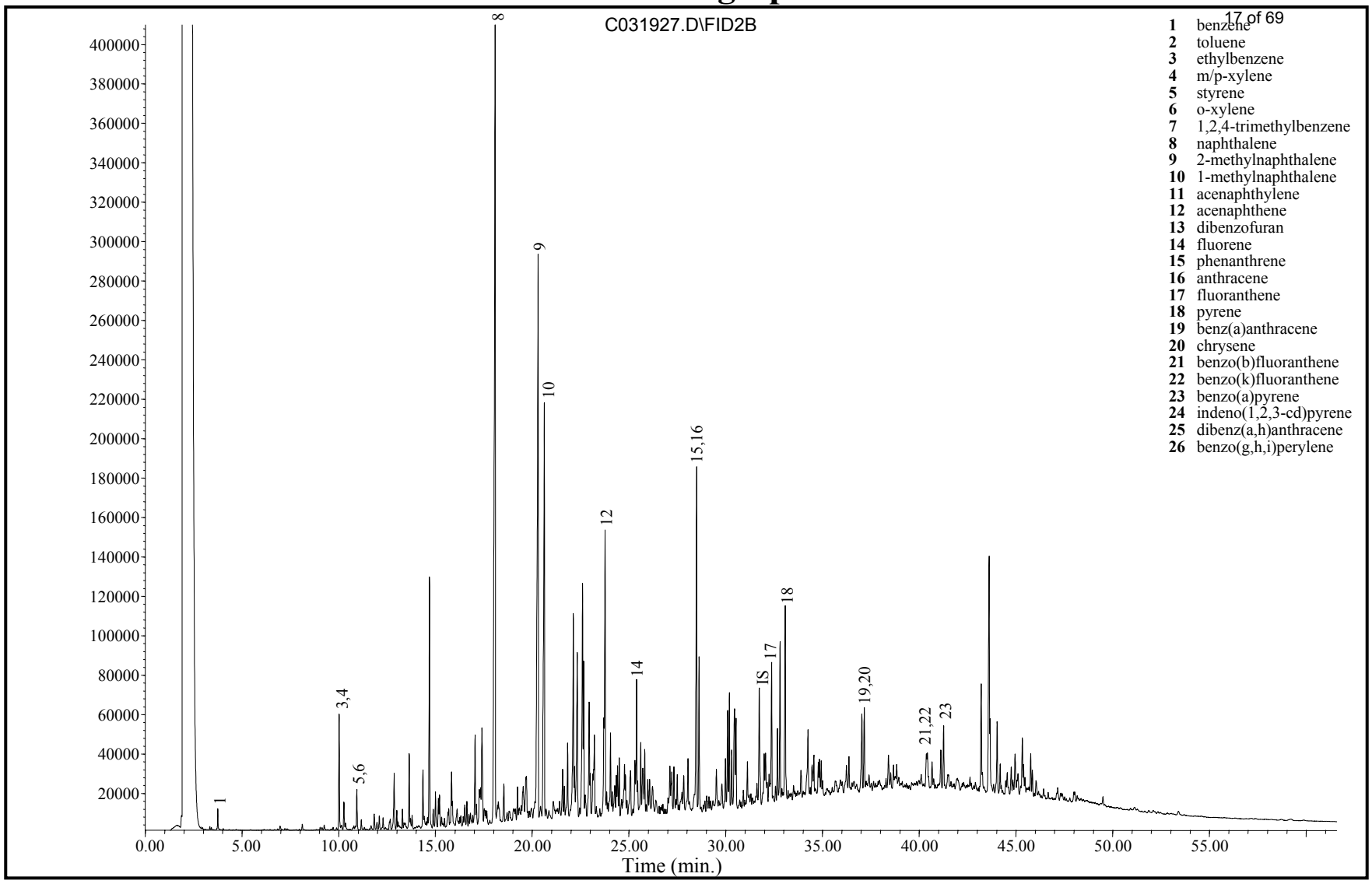
**Field ID:** NS-RSB002-001 (8.7-9.2)
Laboratory ID: BR070313-14
Method: EPA 8100M



META

# GC/FID Fingerprint






***Extraction Date: 03/15/2007***
***Analysis Date: 03/20/2007***

*IS – 5-a-Androstane*
*SS1 – 2-fluorobiphenyl*
*SS2 – o-terphenyl*

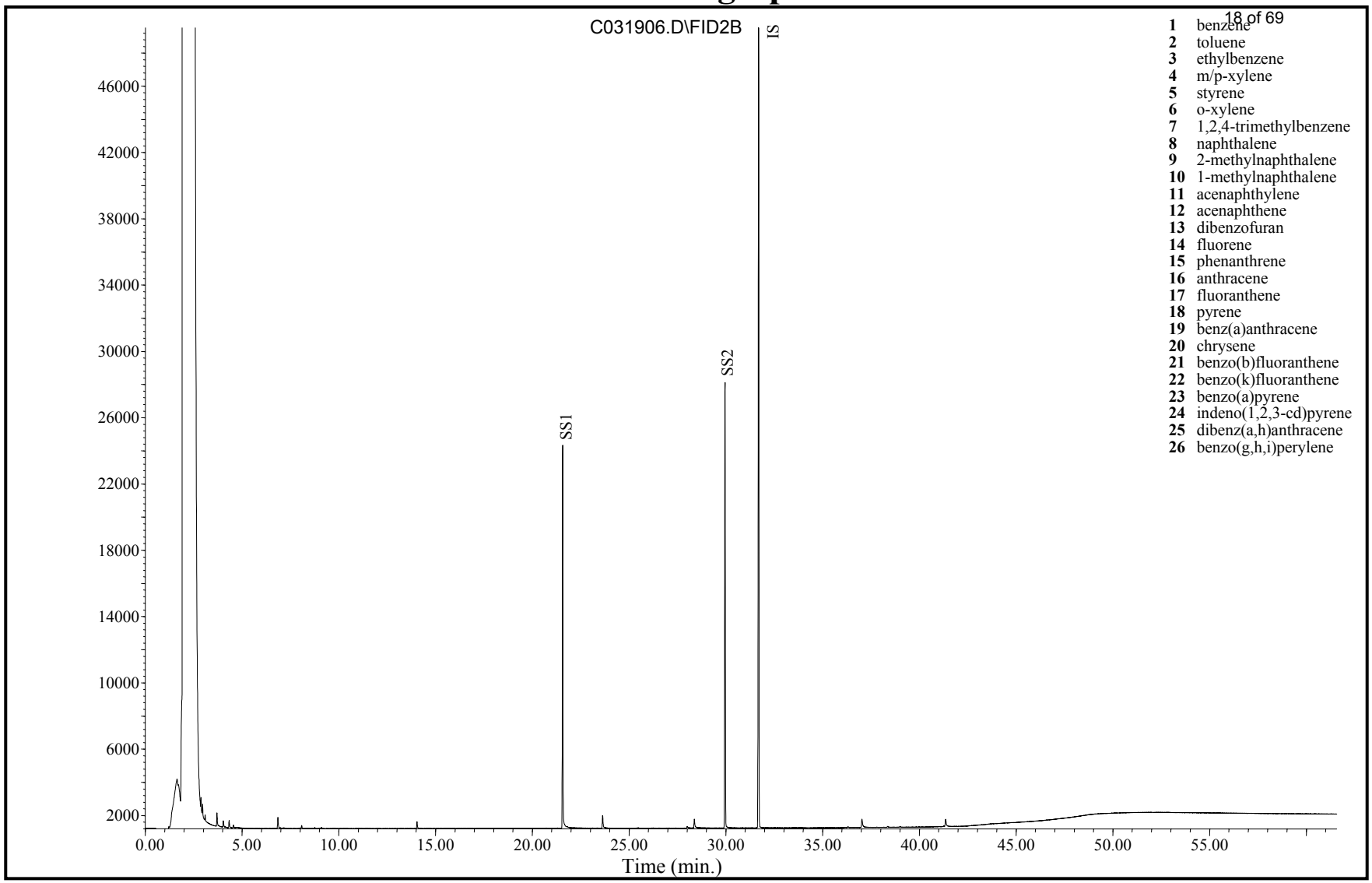
**Field ID:** NS-RSB003-001 (9.0-9.4)
Laboratory ID: BR070313-15
Method: EPA 8100M



META

# GC/FID Fingerprint






***Extraction Date: 03/15/2007***
***Analysis Date: 03/19/2007***

*IS – 5-a-Androstane*
*SS1 – 2-fluorobiphenyl*
*SS2 – o-terphenyl*

**Field ID:** Soil Blank
Laboratory ID: BR070315-SB
Method: EPA 8100M



META

# Appendix C

# MAH/PAH Concentrations

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15-D2 | | |
| File ID: | E032120.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.13 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 14.5 | B | 0.412 | 0.206 | |
| Toluene | 3.07 | B | 0.412 | 0.206 | |
| Ethylbenzene | 93.1 | | 0.412 | 0.206 | |
| m/p-Xylenes | 23.5 | | 0.412 | 0.206 | |
| Styrene | 5.18 | | 0.823 | 0.412 | |
| o-Xylene | 30.9 | | 0.412 | 0.206 | |
| Isopropylbenzene | 11.8 | | 0.412 | 0.206 | |
| n-Propylbenzene | 4.53 | | 0.412 | 0.206 | |
| 1,3,5-Trimethylbenzene | 13.7 | | 0.412 | 0.206 | |
| 1,2,4-Trimethylbenzene | 49.0 | | 0.412 | 0.206 | |
| t-Butylbenzene | | U | 0.412 | 0.206 | |
| sec-Butylbenzene | 0.433 | | 0.412 | 0.206 | |
| p-Isopropyltoluene | 8.58 | | 0.412 | 0.206 | |
| n-Butylbenzene | 8.41 | | 0.412 | 0.206 | |
| C1 - Benzene | 2.44 | B | 0.412 | 0.206 | |
| C2 - Benzene | 74.7 | | 0.412 | 0.206 | |
| C3 - Benzene | 6.38 | | 0.412 | 0.206 | |
| C4 - Benzene | 82.2 | | 0.412 | 0.206 | |
| C5 - Benzene | 31.5 | | 0.412 | 0.206 | |
| trans-Decalin | 4.17 | | 0.412 | 0.206 | |
| cis-Decalin | | U | 0.412 | 0.206 | |
| Naphthalene | 887 | B | 0.412 | 0.206 | |
| 2-Methylnaphthalene | 650 | B | 0.412 | 0.206 | |
| 1-Methylnaphthalene | 426 | B | 0.412 | 0.206 | |
| C1 - Naphthalene | 685 | B | 0.412 | 0.206 | |
| C2 - Naphthalene | 420 | | 0.412 | 0.206 | |
| C3- Naphthalene | 152 | | 0.412 | 0.206 | |
| C4- Naphthalene | 41.1 | | 0.412 | 0.206 | |
| Acenaphthylene | 37.7 | B | 0.412 | 0.206 | |
| Acenaphthene | 259 | B | 0.412 | 0.206 | |
| Dibenzofuran | 20.4 | | 0.412 | 0.206 | |
| Fluorene | 109 | | 0.412 | 0.206 | |
| C1 - Fluorene | 75.0 | | 0.412 | 0.206 | |
| C2 - Fluorene | 46.4 | | 0.412 | 0.206 | |
| C3 - Fluorene | 20.2 | | 0.412 | 0.206 | |
| Phenanthrene | 358 | B | 0.412 | 0.206 | |
| Anthracene | 125 | | 0.412 | 0.206 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15-D2 | | |
| File ID: | E032120.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.13 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 274 | 0.412 | 0.206 | |
| C2 - Phenanthrene/Anthracene | 119 | 0.412 | 0.206 | |
| C3 - Phenanthrene/Anthracene | 38.2 | 0.412 | 0.206 | |
| C4 - Phenanthrene/Anthracene | 10.8 | 0.412 | 0.206 | |
| Dibenzothiophene | 49.9 | 0.412 | 0.206 | |
| C1 - Dibenzothiophene | 60.5 | 0.412 | 0.206 | |
| C2 - Dibenzothiophene | 46.8 | 0.412 | 0.206 | |
| C3 - Dibenzothiophene | 22.6 | 0.412 | 0.206 | |
| C4 - Dibenzothiophene | 8.9 | 0.412 | 0.206 | |
| Benzo(b)naphtho(2,1-d)thiophene | 15.5 | 0.412 | 0.206 | |
| Fluoranthene | 127 | 0.412 | 0.206 | |
| Pyrene | 179 | 0.412 | 0.206 | |
| C1 - Fluoranthene/Pyrene | 186 | 0.412 | 0.206 | |
| C2 - Fluoranthene/Pyrene | 62.3 | 0.412 | 0.206 | |
| C3 - Fluoranthene/Pyrene | 25.5 | 0.412 | 0.206 | |
| Benz[a]anthracene | 67.4 | 0.412 | 0.206 | |
| Chrysene* | 70.3 | 0.412 | 0.206 | |
| C1 - Benz(a)anthracene/Chrysene | 60.7 | 0.412 | 0.206 | |
| C2 - Benz(a)anthracene/Chrysene | 29.3 | 0.412 | 0.206 | |
| C3 - Benz(a)anthracene/Chrysene | 11.7 | 0.412 | 0.206 | |
| C4 - Benz(a)anthracene/Chrysene | 6.19 | 0.412 | 0.206 | |
| Benzo[b]fluoranthene | 26.2 | 0.412 | 0.206 | |
| Benzo[j/k]fluoranthene | 34.1 | 0.412 | 0.206 | |
| Benzo(e)pyrene | 30.0 | 0.412 | 0.206 | |
| Benzo[a]pyrene | 55.6 | 0.412 | 0.206 | |
| Perylene | 7.89 | 0.412 | 0.206 | |
| Indeno[1,2,3-cd]pyrene | 21.6 | 0.412 | 0.206 | |
| Dibenz[a,h]anthracene | 6.83 B | 0.412 | 0.206 | |
| Benzo[g,h,i]perylene | 21.3 | 0.412 | 0.206 | |
| Coronene | 5.33 | 0.412 | 0.206 | |
| Retene | 7.82 | 0.412 | 0.206 | |
| Benzo(b/c)fluorenes | 25.8 | 0.412 | 0.206 | |
| 2-Methylpyrene | 23.0 | 0.412 | 0.206 | |
| 4-Methylpyrene | 24.1 | 0.412 | 0.206 | |
| 1-Methylpyrene | 27.2 | 0.412 | 0.206 | |
| Heptadecane | 4.62 B | 0.412 | 0.206 | |
| Pristane | 35.6 | 0.412 | 0.206 | |
| Octadecane | 1.82 B | 0.412 | 0.206 | |
| Phytane | 24.1 | 0.412 | 0.206 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15-D2 | | |
| File ID: | E032120.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.13 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 21.5 | 0.412 | 0.206 | |
| 2,6,10-trimethyltridecane | 28.4 | 0.412 | 0.206 | |
| Norpristane | 19.5 | 0.412 | 0.206 | |
| Total PAH (16) | 2,380 | 0.412 | 0.206 | |
| Total PAH (42) | 4,900 | 0.412 | 0.206 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 97 | 50 - 120 |
| Phenanthrene-d10 | 96 | 50 - 120 |
| Perylene-d12 | 172 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB001-002 (8.5-9.0)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-13-D2 | | |
| File ID: | E032118.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 53% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 22.9 | B | 0.450 | 0.225 | |
| Toluene | 3.92 | B | 0.450 | 0.225 | |
| Ethylbenzene | 138 | | 0.450 | 0.225 | |
| m/p-Xylenes | 40.6 | | 0.450 | 0.225 | |
| Styrene | 9.93 | | 0.901 | 0.450 | |
| o-Xylene | 39.9 | | 0.450 | 0.225 | |
| Isopropylbenzene | 13.1 | | 0.450 | 0.225 | |
| n-Propylbenzene | 4.38 | | 0.450 | 0.225 | |
| 1,3,5-Trimethylbenzene | 15.4 | | 0.450 | 0.225 | |
| 1,2,4-Trimethylbenzene | 50.3 | | 0.450 | 0.225 | |
| t-Butylbenzene | | U | 0.450 | 0.225 | |
| sec-Butylbenzene | 0.515 | | 0.450 | 0.225 | |
| p-Isopropyltoluene | 9.74 | | 0.450 | 0.225 | |
| n-Butylbenzene | 8.36 | | 0.450 | 0.225 | |
| C1 - Benzene | 3.06 | B | 0.450 | 0.225 | |
| C2 - Benzene | 112 | | 0.450 | 0.225 | |
| C3 - Benzene | 78.7 | | 0.450 | 0.225 | |
| C4 - Benzene | 78.1 | | 0.450 | 0.225 | |
| C5 - Benzene | 30.5 | | 0.450 | 0.225 | |
| trans-Decalin | 5.65 | | 0.450 | 0.225 | |
| cis-Decalin | | U | 0.450 | 0.225 | |
| Naphthalene | 1,040 | B | 0.450 | 0.225 | |
| 2-Methylnaphthalene | 704 | B | 0.450 | 0.225 | |
| 1-Methylnaphthalene | 453 | B | 0.450 | 0.225 | |
| C1 - Naphthalene | 735 | B | 0.450 | 0.225 | |
| C2 - Naphthalene | 446 | | 0.450 | 0.225 | |
| C3- Naphthalene | 163 | | 0.450 | 0.225 | |
| C4- Naphthalene | 46.5 | | 0.450 | 0.225 | |
| Acenaphthylene | 55.5 | B | 0.450 | 0.225 | |
| Acenaphthene | 304 | B | 0.450 | 0.225 | |
| Dibenzofuran | 28.9 | | 0.450 | 0.225 | |
| Fluorene | 139 | | 0.450 | 0.225 | |
| C1 - Fluorene | 83.4 | | 0.450 | 0.225 | |
| C2 - Fluorene | 54.4 | | 0.450 | 0.225 | |
| C3 - Fluorene | 23.5 | | 0.450 | 0.225 | |
| Phenanthrene | 494 | B | 0.450 | 0.225 | |
| Anthracene | 173 | | 0.450 | 0.225 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB001-002 (8.5-9.0)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-13-D2 | | |
| File ID: | E032118.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 53% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 328 | | 0.450 | 0.225 | |
| C2 - Phenanthrene/Anthracene | 135 | | 0.450 | 0.225 | |
| C3 - Phenanthrene/Anthracene | 39.8 | | 0.450 | 0.225 | |
| C4 - Phenanthrene/Anthracene | 13.4 | | 0.450 | 0.225 | |
| Dibenzothiophene | 75.4 | | 0.450 | 0.225 | |
| C1 - Dibenzothiophene | 78.2 | | 0.450 | 0.225 | |
| C2 - Dibenzothiophene | 56.7 | | 0.450 | 0.225 | |
| C3 - Dibenzothiophene | 27.8 | | 0.450 | 0.225 | |
| C4 - Dibenzothiophene | 10.3 | | 0.450 | 0.225 | |
| Benzo(b)naphtho(2,1-d)thiophene | 21.9 | | 0.450 | 0.225 | |
| Fluoranthene | 174 | | 0.450 | 0.225 | |
| Pyrene | 278 | | 0.450 | 0.225 | |
| C1 - Fluoranthene/Pyrene | 246 | | 0.450 | 0.225 | |
| C2 - Fluoranthene/Pyrene | 74.1 | | 0.450 | 0.225 | |
| C3 - Fluoranthene/Pyrene | 27.4 | | 0.450 | 0.225 | |
| Benz[a]anthracene | 96.6 | | 0.450 | 0.225 | |
| Chrysene* | 99.0 | | 0.450 | 0.225 | |
| C1 - Benz(a)anthracene/Chrysene | 75.2 | | 0.450 | 0.225 | |
| C2 - Benz(a)anthracene/Chrysene | 31.7 | | 0.450 | 0.225 | |
| C3 - Benz(a)anthracene/Chrysene | 11.7 | | 0.450 | 0.225 | |
| C4 - Benz(a)anthracene/Chrysene | 6.34 | | 0.450 | 0.225 | |
| Benzo[b]fluoranthene | 39.7 | | 0.450 | 0.225 | |
| Benzo[j/k]fluoranthene | 49.8 | | 0.450 | 0.225 | |
| Benzo(e)pyrene | 48.0 | | 0.450 | 0.225 | |
| Benzo[a]pyrene | 90.2 | | 0.450 | 0.225 | |
| Perylene | 12.3 | | 0.450 | 0.225 | |
| Indeno[1,2,3-cd]pyrene | 34.8 | | 0.450 | 0.225 | |
| Dibenz[a,h]anthracene | 10.0 | B | 0.450 | 0.225 | |
| Benzo[g,h,i]perylene | 36.4 | | 0.450 | 0.225 | |
| Coronene | 8.19 | | 0.450 | 0.225 | |
| Retene | 6.9 | | 0.450 | 0.225 | |
| Benzo(b/c)fluorenes | 34.1 | | 0.450 | 0.225 | |
| 2-Methylpyrene | 30.8 | | 0.450 | 0.225 | |
| 4-Methylpyrene | 33.7 | | 0.450 | 0.225 | |
| 1-Methylpyrene | 36.6 | | 0.450 | 0.225 | |
| Heptadecane | 2.9 | B | 0.450 | 0.225 | |
| Pristane | 47.0 | | 0.450 | 0.225 | |
| Octadecane | 2.19 | B | 0.450 | 0.225 | |
| Phytane | 33.7 | | 0.450 | 0.225 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB001-002 (8.5-9.0)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-13-D2 | | |
| File ID: | E032118.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.10 |
| Date Cleanup: | NA | Percent Solid: | 53% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 24.7 | 0.450 | 0.225 | |
| 2,6,10-trimethyltridecane | 33.0 | 0.450 | 0.225 | |
| Norpristane | 22.9 | 0.450 | 0.225 | |
| Total PAH (16) | 3,110 | 0.450 | 0.225 | |
| Total PAH (42) | 5,990 | 0.450 | 0.225 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 93 | 50 - 120 |
| Phenanthrene-d10 | 91 | 50 - 120 |
| Perylene-d12 | 170 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB002-001 (8.7-9.2)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-14-D2 | | |
| File ID: | E032119.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 28.5 | B | 0.483 | 0.242 | |
| Toluene | 4.5 | B | 0.483 | 0.242 | |
| Ethylbenzene | 187 | | 0.483 | 0.242 | |
| m/p-Xylenes | 58.2 | | 0.483 | 0.242 | |
| Styrene | 7.8 | | 0.966 | 0.483 | |
| o-Xylene | 52.9 | | 0.483 | 0.242 | |
| Isopropylbenzene | 16.7 | | 0.483 | 0.242 | |
| n-Propylbenzene | 5.33 | | 0.483 | 0.242 | |
| 1,3,5-Trimethylbenzene | 62.5 | | 0.483 | 0.242 | |
| 1,2,4-Trimethylbenzene | 63.7 | | 0.483 | 0.242 | |
| t-Butylbenzene | | U | 0.483 | 0.242 | |
| sec-Butylbenzene | 0.598 | | 0.483 | 0.242 | |
| p-Isopropyltoluene | 10.7 | | 0.483 | 0.242 | |
| n-Butylbenzene | 8.43 | | 0.483 | 0.242 | |
| C1 - Benzene | 2.87 | B | 0.483 | 0.242 | |
| C2 - Benzene | 153 | | 0.483 | 0.242 | |
| C3 - Benzene | 95.2 | | 0.483 | 0.242 | |
| C4 - Benzene | 78.6 | | 0.483 | 0.242 | |
| C5 - Benzene | 26.7 | | 0.483 | 0.242 | |
| trans-Decalin | 6.29 | | 0.483 | 0.242 | |
| cis-Decalin | 0.580 | | 0.483 | 0.242 | |
| Naphthalene | 1,170 | B | 0.483 | 0.242 | |
| 2-Methylnaphthalene | 634 | B | 0.483 | 0.242 | |
| 1-Methylnaphthalene | 404 | B | 0.483 | 0.242 | |
| C1 - Naphthalene | 658 | B | 0.483 | 0.242 | |
| C2 - Naphthalene | 328 | | 0.483 | 0.242 | |
| C3- Naphthalene | 112 | | 0.483 | 0.242 | |
| C4- Naphthalene | 34.9 | | 0.483 | 0.242 | |
| Acenaphthylene | 40.0 | B | 0.483 | 0.242 | |
| Acenaphthene | 221 | B | 0.483 | 0.242 | |
| Dibenzofuran | 20.3 | | 0.483 | 0.242 | |
| Fluorene | 96.4 | | 0.483 | 0.242 | |
| C1 - Fluorene | 55.3 | | 0.483 | 0.242 | |
| C2 - Fluorene | 37.8 | | 0.483 | 0.242 | |
| C3 - Fluorene | 18.1 | | 0.483 | 0.242 | |
| Phenanthrene | 330 | B | 0.483 | 0.242 | |
| Anthracene | 110 | | 0.483 | 0.242 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB002-001 (8.7-9.2)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-14-D2 | | |
| File ID: | E032119.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 216 | 0.483 | 0.242 | |
| C2 - Phenanthrene/Anthracene | 92.3 | 0.483 | 0.242 | |
| C3 - Phenanthrene/Anthracene | 31.8 | 0.483 | 0.242 | |
| C4 - Phenanthrene/Anthracene | 10.4 | 0.483 | 0.242 | |
| Dibenzothiophene | 47.8 | 0.483 | 0.242 | |
| C1 - Dibenzothiophene | 51.0 | 0.483 | 0.242 | |
| C2 - Dibenzothiophene | 40.4 | 0.483 | 0.242 | |
| C3 - Dibenzothiophene | 22.4 | 0.483 | 0.242 | |
| C4 - Dibenzothiophene | 10.2 | 0.483 | 0.242 | |
| Benzo(b)naphtho(2,1-d)thiophene | 14.3 | 0.483 | 0.242 | |
| Fluoranthene | 122 | 0.483 | 0.242 | |
| Pyrene | 186 | 0.483 | 0.242 | |
| C1 - Fluoranthene/Pyrene | 162 | 0.483 | 0.242 | |
| C2 - Fluoranthene/Pyrene | 51.6 | 0.483 | 0.242 | |
| C3 - Fluoranthene/Pyrene | 19.0 | 0.483 | 0.242 | |
| Benz[a]anthracene | 63.6 | 0.483 | 0.242 | |
| Chrysene* | 67.0 | 0.483 | 0.242 | |
| C1 - Benz(a)anthracene/Chrysene | 49.5 | 0.483 | 0.242 | |
| C2 - Benz(a)anthracene/Chrysene | 23.3 | 0.483 | 0.242 | |
| C3 - Benz(a)anthracene/Chrysene | 8.59 | 0.483 | 0.242 | |
| C4 - Benz(a)anthracene/Chrysene | 4.95 | 0.483 | 0.242 | |
| Benzo[b]fluoranthene | 27.8 | 0.483 | 0.242 | |
| Benzo[j/k]fluoranthene | 33.9 | 0.483 | 0.242 | |
| Benzo(e)pyrene | 32.4 | 0.483 | 0.242 | |
| Benzo[a]pyrene | 58.4 | 0.483 | 0.242 | |
| Perylene | 8.3 | 0.483 | 0.242 | |
| Indeno[1,2,3-cd]pyrene | 24.0 | 0.483 | 0.242 | |
| Dibenz[a,h]anthracene | 6.75 B | 0.483 | 0.242 | |
| Benzo[g,h,i]perylene | 25.2 | 0.483 | 0.242 | |
| Coronene | 7.43 | 0.483 | 0.242 | |
| Retene | 6.14 | 0.483 | 0.242 | |
| Benzo(b/c)fluorenes | 22.7 | 0.483 | 0.242 | |
| 2-Methylpyrene | 20.8 | 0.483 | 0.242 | |
| 4-Methylpyrene | 22.0 | 0.483 | 0.242 | |
| 1-Methylpyrene | 23.6 | 0.483 | 0.242 | |
| Heptadecane | 2.68 B | 0.483 | 0.242 | |
| Pristane | 48.6 | 0.483 | 0.242 | |
| Octadecane | 2.06 B | 0.483 | 0.242 | |
| Phytane | 36.5 | 0.483 | 0.242 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: NS-RSB002-001 (8.7-9.2)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-14-D2 | | |
| File ID: | E032119.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.06 |
| Date Cleanup: | NA | Percent Solid: | 50% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 26.8 | 0.483 | 0.242 | |
| 2,6,10-trimethyltridecane | 33.8 | 0.483 | 0.242 | |
| Norpristane | 22.5 | 0.483 | 0.242 | |
| Total PAH (16) | 2,580 | 0.483 | 0.242 | |
| Total PAH (42) | 4,730 | 0.483 | 0.242 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 89 | 50 - 120 |
| Phenanthrene-d10 | 87 | 50 - 120 |
| Perylene-d12 | 159 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SB | | |
| File ID: | E032104.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | |
| Benzene | 0.005 | | 0.005 | 0.003 | |
| Toluene | 0.054 | | 0.005 | 0.003 | |
| Ethylbenzene | | U | 0.005 | 0.003 | |
| m/p-Xylenes | | U | 0.005 | 0.003 | |
| Styrene | | U | 0.010 | 0.005 | |
| o-Xylene | | U | 0.005 | 0.003 | |
| Isopropylbenzene | | U | 0.005 | 0.003 | |
| n-Propylbenzene | | U | 0.005 | 0.003 | |
| 1,3,5-Trimethylbenzene | | U | 0.005 | 0.003 | |
| 1,2,4-Trimethylbenzene | | U | 0.005 | 0.003 | |
| t-Butylbenzene | | U | 0.005 | 0.003 | |
| sec-Butylbenzene | | U | 0.005 | 0.003 | |
| p-Isopropyltoluene | | U | 0.005 | 0.003 | |
| n-Butylbenzene | | U | 0.005 | 0.003 | |
| C1 - Benzene | 0.044 | | 0.005 | 0.003 | |
| C2 - Benzene | | U | 0.005 | 0.003 | |
| C3 - Benzene | | U | 0.005 | 0.003 | |
| C4 - Benzene | | U | 0.005 | 0.003 | |
| C5 - Benzene | | U | 0.005 | 0.003 | |
| trans-Decalin | | U | 0.005 | 0.003 | |
| cis-Decalin | | U | 0.005 | 0.003 | |
| Naphthalene | 0.004 | J | 0.005 | 0.003 | |
| 2-Methylnaphthalene | 0.004 | J | 0.005 | 0.003 | |
| 1-Methylnaphthalene | 0.003 | J | 0.005 | 0.003 | |
| C1 - Naphthalene | 0.005 | | 0.005 | 0.003 | |
| C2 - Naphthalene | | U | 0.005 | 0.003 | |
| C3- Naphthalene | | U | 0.005 | 0.003 | |
| C4- Naphthalene | | U | 0.005 | 0.003 | |
| Acenaphthylene | 0.005 | | 0.005 | 0.003 | |
| Acenaphthene | 0.003 | J | 0.005 | 0.003 | |
| Dibenzofuran | | U | 0.005 | 0.003 | |
| Fluorene | | U | 0.005 | 0.003 | |
| C1 - Fluorene | | U | 0.005 | 0.003 | |
| C2 - Fluorene | | U | 0.005 | 0.003 | |
| C3 - Fluorene | | U | 0.005 | 0.003 | |
| Phenanthrene | 0.006 | | 0.005 | 0.003 | |
| Anthracene | | U | 0.005 | 0.003 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SB | | |
| File ID: | E032104.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | U | 0.005 | 0.003 | |
| C2 - Phenanthrene/Anthracene | U | 0.005 | 0.003 | |
| C3 - Phenanthrene/Anthracene | U | 0.005 | 0.003 | |
| C4 - Phenanthrene/Anthracene | U | 0.005 | 0.003 | |
| Dibenzothiophene | U | 0.005 | 0.003 | |
| C1 - Dibenzothiophene | U | 0.005 | 0.003 | |
| C2 - Dibenzothiophene | U | 0.005 | 0.003 | |
| C3 - Dibenzothiophene | U | 0.005 | 0.003 | |
| C4 - Dibenzothiophene | U | 0.005 | 0.003 | |
| Benzo(b)naphtho(2,1-d)thiophene | U | 0.005 | 0.003 | |
| Fluoranthene | U | 0.005 | 0.003 | |
| Pyrene | U | 0.005 | 0.003 | |
| C1 - Fluoranthene/Pyrene | U | 0.005 | 0.003 | |
| C2 - Fluoranthene/Pyrene | U | 0.005 | 0.003 | |
| C3 - Fluoranthene/Pyrene | U | 0.005 | 0.003 | |
| Benz[a]anthracene | U | 0.005 | 0.003 | |
| Chrysene* | U | 0.005 | 0.003 | |
| C1 - Benz(a)anthracene/Chrysene | U | 0.005 | 0.003 | |
| C2 - Benz(a)anthracene/Chrysene | U | 0.005 | 0.003 | |
| C3 - Benz(a)anthracene/Chrysene | U | 0.005 | 0.003 | |
| C4 - Benz(a)anthracene/Chrysene | U | 0.005 | 0.003 | |
| Benzo[b]fluoranthene | U | 0.005 | 0.003 | |
| Benzo[j/k]fluoranthene | U | 0.005 | 0.003 | |
| Benzo(e)pyrene | U | 0.005 | 0.003 | |
| Benzo[a]pyrene | U | 0.005 | 0.003 | |
| Perylene | U | 0.005 | 0.003 | |
| Indeno[1,2,3-cd]pyrene | U | 0.005 | 0.003 | |
| Dibenz[a,h]anthracene | 0.003 J | 0.005 | 0.003 | |
| Benzo[g,h,i]perylene | U | 0.005 | 0.003 | |
| Coronene | U | 0.005 | 0.003 | |
| Retene | U | 0.005 | 0.003 | |
| Benzo(b/c)fluorenes | U | 0.005 | 0.003 | |
| 2-Methylpyrene | U | 0.005 | 0.003 | |
| 4-Methylpyrene | U | 0.005 | 0.003 | |
| 1-Methylpyrene | U | 0.005 | 0.003 | |
| Heptadecane | 0.005 | 0.005 | 0.003 | |
| Pristane | U | 0.005 | 0.003 | |
| Octadecane | 0.006 | 0.005 | 0.003 | |
| Phytane | U | 0.005 | 0.003 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SB | | |
| File ID: | E032104.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.005 | 0.003 | |
| 2,6,10-trimethyltridecane | U | 0.005 | 0.003 | |
| Norpristane | U | 0.005 | 0.003 | |
| Total PAH (16) | 0.021 | 0.005 | 0.003 | |
| Total PAH (42) | 0.026 | 0.005 | 0.003 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 95 | 50 - 120 |
| Phenanthrene-d10 | 91 | 50 - 120 |
| Perylene-d12 | 77 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SBS | | |
| File ID: | E032105.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | Spike Amount | | | | | % Recovery |
| Benzene | 1.00 | 0.832 | B | 0.005 | 0.003 | 83 % |
| Toluene | 1.00 | 1.0 | B | 0.005 | 0.003 | 100 % |
| Ethylbenzene | 1.00 | 0.963 | | 0.005 | 0.003 | 96 % |
| m/p-Xylenes | 1.00 | 0.944 | | 0.005 | 0.003 | 94 % |
| Styrene | 1.00 | 0.902 | | 0.010 | 0.005 | 90 % |
| o-Xylene | 1.00 | 0.966 | | 0.005 | 0.003 | 97 % |
| Isopropylbenzene | 1.00 | 0.936 | | 0.005 | 0.003 | 94 % |
| n-Propylbenzene | 1.00 | 0.926 | | 0.005 | 0.003 | 93 % |
| 1,3,5-Trimethylbenzene | 1.00 | 0.904 | | 0.005 | 0.003 | 90 % |
| 1,2,4-Trimethylbenzene | 1.00 | 0.878 | | 0.005 | 0.003 | 88 % |
| t-Butylbenzene | | | U | 0.005 | 0.003 | |
| sec-Butylbenzene | 1.00 | 0.903 | | 0.005 | 0.003 | 90 % |
| p-Isopropyltoluene | 1.00 | 0.906 | | 0.005 | 0.003 | 91 % |
| n-Butylbenzene | 1.00 | 0.902 | | 0.005 | 0.003 | 90 % |
| C1 - Benzene | | | BU | 0.005 | 0.003 | |
| C2 - Benzene | | | U | 0.005 | 0.003 | |
| C3 - Benzene | | | U | 0.005 | 0.003 | |
| C4 - Benzene | | | U | 0.005 | 0.003 | |
| C5 - Benzene | | | U | 0.005 | 0.003 | |
| trans-Decalin | | | U | 0.005 | 0.003 | |
| cis-Decalin | | | U | 0.005 | 0.003 | |
| Naphthalene | 1.00 | 0.955 | B | 0.005 | 0.003 | 96 % |
| 2-Methylnaphthalene | 1.00 | 0.941 | B | 0.005 | 0.003 | 94 % |
| 1-Methylnaphthalene | 1.00 | 0.948 | B | 0.005 | 0.003 | 95 % |
| C1 - Naphthalene | | | BU | 0.005 | 0.003 | |
| C2 - Naphthalene | | | U | 0.005 | 0.003 | |
| C3- Naphthalene | | | U | 0.005 | 0.003 | |
| C4- Naphthalene | | | U | 0.005 | 0.003 | |
| Acenaphthylene | 1.00 | 0.924 | B | 0.005 | 0.003 | 92 % |
| Acenaphthene | 1.00 | 0.957 | B | 0.005 | 0.003 | 96 % |
| Dibenzofuran | 1.00 | 0.954 | | 0.005 | 0.003 | 95 % |
| Fluorene | 1.00 | 0.936 | | 0.005 | 0.003 | 94 % |
| C1 - Fluorene | | | U | 0.005 | 0.003 | |
| C2 - Fluorene | | | U | 0.005 | 0.003 | |
| C3 - Fluorene | | | U | 0.005 | 0.003 | |
| Phenanthrene | 1.00 | 0.934 | B | 0.005 | 0.003 | 93 % |
| Anthracene | 1.00 | 0.967 | | 0.005 | 0.003 | 97 % |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SBS | | |
| File ID: | E032105.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | | RL | EDL | Comments |
|---|---|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | | | U | 0.005 | 0.003 | |
| C2 - Phenanthrene/Anthracene | | | U | 0.005 | 0.003 | |
| C3 - Phenanthrene/Anthracene | | | U | 0.005 | 0.003 | |
| C4 - Phenanthrene/Anthracene | | | U | 0.005 | 0.003 | |
| Dibenzothiophene | 1.00 | 0.956 | | 0.005 | 0.003 | 96 % |
| C1 - Dibenzothiophene | | | U | 0.005 | 0.003 | |
| C2 - Dibenzothiophene | | | U | 0.005 | 0.003 | |
| C3 - Dibenzothiophene | | | U | 0.005 | 0.003 | |
| C4 - Dibenzothiophene | | | U | 0.005 | 0.003 | |
| Benzo(b)naphtho(2,1-d)thiophene | | | U | 0.005 | 0.003 | |
| Fluoranthene | 1.00 | 0.976 | | 0.005 | 0.003 | 98 % |
| Pyrene | 1.00 | 0.982 | | 0.005 | 0.003 | 98 % |
| C1 - Fluoranthene/Pyrene | | | U | 0.005 | 0.003 | |
| C2 - Fluoranthene/Pyrene | | | U | 0.005 | 0.003 | |
| C3 - Fluoranthene/Pyrene | | | U | 0.005 | 0.003 | |
| Benz[a]anthracene | 1.00 | 0.907 | | 0.005 | 0.003 | 91 % |
| Chrysene* | 1.00 | 0.944 | | 0.005 | 0.003 | 94 % |
| C1 - Benz(a)anthracene/Chrysene | | | U | 0.005 | 0.003 | |
| C2 - Benz(a)anthracene/Chrysene | | | U | 0.005 | 0.003 | |
| C3 - Benz(a)anthracene/Chrysene | | | U | 0.005 | 0.003 | |
| C4 - Benz(a)anthracene/Chrysene | | | U | 0.005 | 0.003 | |
| Benzo[b]fluoranthene | 1.00 | 0.926 | | 0.005 | 0.003 | 93 % |
| Benzo[j/k]fluoranthene | 1.00 | 0.960 | | 0.005 | 0.003 | 96 % |
| Benzo(e)pyrene | 1.00 | 0.918 | | 0.005 | 0.003 | 92 % |
| Benzo[a]pyrene | 1.00 | 0.826 | | 0.005 | 0.003 | 83 % |
| Perylene | | | U | 0.005 | 0.003 | |
| Indeno[1,2,3-cd]pyrene | 1.00 | 0.845 | | 0.005 | 0.003 | 85 % |
| Dibenz[a,h]anthracene | 1.00 | 0.808 | B | 0.005 | 0.003 | 81 % |
| Benzo[g,h,i]perylene | 1.00 | 0.826 | | 0.005 | 0.003 | 83 % |
| Coronene | | | U | 0.005 | 0.003 | |
| | | | | | | |
| Retene | | | U | 0.005 | 0.003 | |
| Benzo(b/c)fluorenes | | | U | 0.005 | 0.003 | |
| 2-Methylpyrene | | | U | 0.005 | 0.003 | |
| 4-Methylpyrene | | | U | 0.005 | 0.003 | |
| 1-Methylpyrene | | | U | 0.005 | 0.003 | |
| Heptadecane | | | BU | 0.005 | 0.003 | |
| Pristane | | | U | 0.005 | 0.003 | |
| Octadecane | | | BU | 0.005 | 0.003 | |
| Phytane | | | U | 0.005 | 0.003 | |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID:

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070315-SBS | | |
| File ID: | E032105.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | NA | Decanted: | None |
| Date Received: | NA | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.00 |
| Date Cleanup: | NA | Percent Solid: | 100% |
| Date Analyzed: | 3/21/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 1.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | U | 0.005 | 0.003 | |
| 2,6,10-trimethyltridecane | U | 0.005 | 0.003 | |
| Norpristane | U | 0.005 | 0.003 | |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 94 | 50 - 120 |
| Phenanthrene-d10 | 95 | 50 - 120 |
| Perylene-d12 | 80 | 50 - 120 |

NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: Duplicate of NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15DUP-D | | |
| File ID: | E032121.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.12 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | | RL | EDL | Comments |
|---|---|---|---|---|---|
| MAH & PAH COMPOUNDS: | | | | | RPD |
| Benzene | 16.1 | B | 0.414 | 0.207 | 10.5 |
| Toluene | 5.01 | B | 0.414 | 0.207 | 48 |
| Ethylbenzene | 77.7 | | 0.414 | 0.207 | 18 |
| m/p-Xylenes | 19.3 | | 0.414 | 0.207 | 19.6 |
| Styrene | 4.34 | | 0.828 | 0.414 | 17.6 |
| o-Xylene | 25.0 | | 0.414 | 0.207 | 21.1 |
| Isopropylbenzene | 9.3 | | 0.414 | 0.207 | 23.7 |
| n-Propylbenzene | 3.51 | | 0.414 | 0.207 | 25.4 |
| 1,3,5-Trimethylbenzene | 11.2 | | 0.414 | 0.207 | 20.1 |
| 1,2,4-Trimethylbenzene | 41.9 | | 0.414 | 0.207 | 15.6 |
| t-Butylbenzene | | U | 0.414 | 0.207 | NA |
| sec-Butylbenzene | 0.352 | J | 0.414 | 0.207 | 20.6 |
| p-Isopropyltoluene | 7.88 | | 0.414 | 0.207 | 8.5 |
| n-Butylbenzene | 6.5 | | 0.414 | 0.207 | 25.6 |
| C1 - Benzene | 3.9 | B | 0.414 | 0.207 | 46.1 |
| C2 - Benzene | 62.1 | | 0.414 | 0.207 | 18.4 |
| C3 - Benzene | 5.31 | | 0.414 | 0.207 | 18.3 |
| C4 - Benzene | 66.8 | | 0.414 | 0.207 | 20.7 |
| C5 - Benzene | 25.7 | | 0.414 | 0.207 | 20.3 |
| trans-Decalin | 3.62 | | 0.414 | 0.207 | 14.1 |
| cis-Decalin | | U | 0.414 | 0.207 | NA |
| Naphthalene | 748 | B | 0.414 | 0.207 | 17 |
| 2-Methylnaphthalene | 543 | B | 0.414 | 0.207 | 17.9 |
| 1-Methylnaphthalene | 348 | B | 0.414 | 0.207 | 20.2 |
| C1 - Naphthalene | 571 | B | 0.414 | 0.207 | 18.2 |
| C2 - Naphthalene | 347 | | 0.414 | 0.207 | 19 |
| C3- Naphthalene | 124 | | 0.414 | 0.207 | 20.3 |
| C4- Naphthalene | 33.2 | | 0.414 | 0.207 | 21.3 |
| Acenaphthylene | 32.6 | B | 0.414 | 0.207 | 14.5 |
| Acenaphthene | 215 | B | 0.414 | 0.207 | 18.6 |
| Dibenzofuran | 16.8 | | 0.414 | 0.207 | 19.4 |
| Fluorene | 89.9 | | 0.414 | 0.207 | 19.2 |
| C1 - Fluorene | 62.2 | | 0.414 | 0.207 | 18.7 |
| C2 - Fluorene | 40.8 | | 0.414 | 0.207 | 12.8 |
| C3 - Fluorene | 17.4 | | 0.414 | 0.207 | 14.9 |
| Phenanthrene | 298 | B | 0.414 | 0.207 | 18.3 |
| Anthracene | 105 | | 0.414 | 0.207 | 17.4 |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: Duplicate of NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15DUP-D | | |
| File ID: | E032121.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.12 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| C1 - Phenanthrene/Anthracene | 225 | 0.414 | 0.207 | 19.6 |
| C2 - Phenanthrene/Anthracene | 98.4 | 0.414 | 0.207 | 19 |
| C3 - Phenanthrene/Anthracene | 31.2 | 0.414 | 0.207 | 20.2 |
| C4 - Phenanthrene/Anthracene | 10.3 | 0.414 | 0.207 | 4.7 |
| Dibenzothiophene | 42.0 | 0.414 | 0.207 | 17.2 |
| C1 - Dibenzothiophene | 49.7 | 0.414 | 0.207 | 19.6 |
| C2 - Dibenzothiophene | 38.2 | 0.414 | 0.207 | 20.2 |
| C3 - Dibenzothiophene | 18.9 | 0.414 | 0.207 | 17.8 |
| C4 - Dibenzothiophene | 6.76 | 0.414 | 0.207 | 27.3 |
| Benzo(b)naphtho(2,1-d)thiophene | 13.0 | 0.414 | 0.207 | 17.5 |
| Fluoranthene | 104 | 0.414 | 0.207 | 19.9 |
| Pyrene | 149 | 0.414 | 0.207 | 18.3 |
| C1 - Fluoranthene/Pyrene | 151 | 0.414 | 0.207 | 20.8 |
| C2 - Fluoranthene/Pyrene | 54.0 | 0.414 | 0.207 | 14.3 |
| C3 - Fluoranthene/Pyrene | 19.7 | 0.414 | 0.207 | 25.7 |
| Benz[a]anthracene | 55.4 | 0.414 | 0.207 | 19.5 |
| Chrysene* | 59.0 | 0.414 | 0.207 | 17.5 |
| C1 - Benz(a)anthracene/Chrysene | 50.4 | 0.414 | 0.207 | 18.5 |
| C2 - Benz(a)anthracene/Chrysene | 23.9 | 0.414 | 0.207 | 20.3 |
| C3 - Benz(a)anthracene/Chrysene | 9.04 | 0.414 | 0.207 | 25.7 |
| C4 - Benz(a)anthracene/Chrysene | 5.09 | 0.414 | 0.207 | 19.5 |
| Benzo[b]fluoranthene | 21.4 | 0.414 | 0.207 | 20.2 |
| Benzo[j/k]fluoranthene | 27.4 | 0.414 | 0.207 | 21.8 |
| Benzo(e)pyrene | 24.3 | 0.414 | 0.207 | 21 |
| Benzo[a]pyrene | 43.9 | 0.414 | 0.207 | 23.5 |
| Perylene | 6.46 | 0.414 | 0.207 | 19.9 |
| Indeno[1,2,3-cd]pyrene | 17.3 | 0.414 | 0.207 | 22.1 |
| Dibenz[a,h]anthracene | 5.55 B | 0.414 | 0.207 | 20.7 |
| Benzo[g,h,i]perylene | 17.1 | 0.414 | 0.207 | 21.9 |
| Coronene | 3.85 | 0.414 | 0.207 | 32.2 |
| Retene | 6.13 | 0.414 | 0.207 | 24.2 |
| Benzo(b/c)fluorenes | 21.0 | 0.414 | 0.207 | 20.5 |
| 2-Methylpyrene | 18.9 | 0.414 | 0.207 | 19.6 |
| 4-Methylpyrene | 19.9 | 0.414 | 0.207 | 19.1 |
| 1-Methylpyrene | 22.1 | 0.414 | 0.207 | 20.7 |
| Heptadecane | 2.48 B | 0.414 | 0.207 | 60.3 |
| Pristane | 28.5 | 0.414 | 0.207 | 22.2 |
| Octadecane | 1.69 B | 0.414 | 0.207 | 7.4 |
| Phytane | 19.3 | 0.414 | 0.207 | 22.1 |

# Analytical Results for Volatile and Semivolatile Organics
## META Environmental, Inc.

## Field ID: Duplicate of NS-RSB003-001 (9.0-9.4)

| | | | |
|---|---|---|---|
| Client: | Burns & McDonnell | Preparation Method: | EPA 3570 |
| Project: | North Station | Cleanup Method(s): | NA |
| | | Analysis Method: | EPA 8270M |
| Lab ID | BR070313-15DUP-D | | |
| File ID: | E032121.D | Matrix: | Sediment |
| | | Preservation: | None |
| Date Sampled: | 3/9/2007 | Decanted: | None |
| Date Received: | 3/13/2007 | | |
| Date Prepared: | 3/15/2007 | Sample Size (g): | 2.12 |
| Date Cleanup: | NA | Percent Solid: | 57% |
| Date Analyzed: | 3/22/2007 | Extract Volume (µl): | 2000 |
| Instrument: | El Camino | Prep DF: | 1.00 |
| Operator: | JAR | Analysis DF: | 50.00 |
| | | Injection Volume (µl): | 1.00 |
| Batch QC: | BR070315-SB | | |

| Analyte | Concentration (mg/kg dry wt.) | RL | EDL | Comments |
|---|---|---|---|---|
| 2,6,10-trimethyldodecane | 17.0 | 0.414 | 0.207 | 23.4 |
| 2,6,10-trimethyltridecane | 22.7 | 0.414 | 0.207 | 22.3 |
| Norpristane | 15.1 | 0.414 | 0.207 | 25.4 |
| Total PAH (16) | 1,990 | 0.414 | 0.207 | 17.8 |
| Total PAH (42) | 4,060 | 0.414 | 0.207 | 18.8 |

| *Extraction Surrogate Recoveries (%)* | | Limits |
|---|---|---|
| Toluene-d8 | 96 | 50 - 120 |
| Phenanthrene-d10 | 89 | 50 - 120 |
| Perylene-d12 | 165 | 50 - 120 |

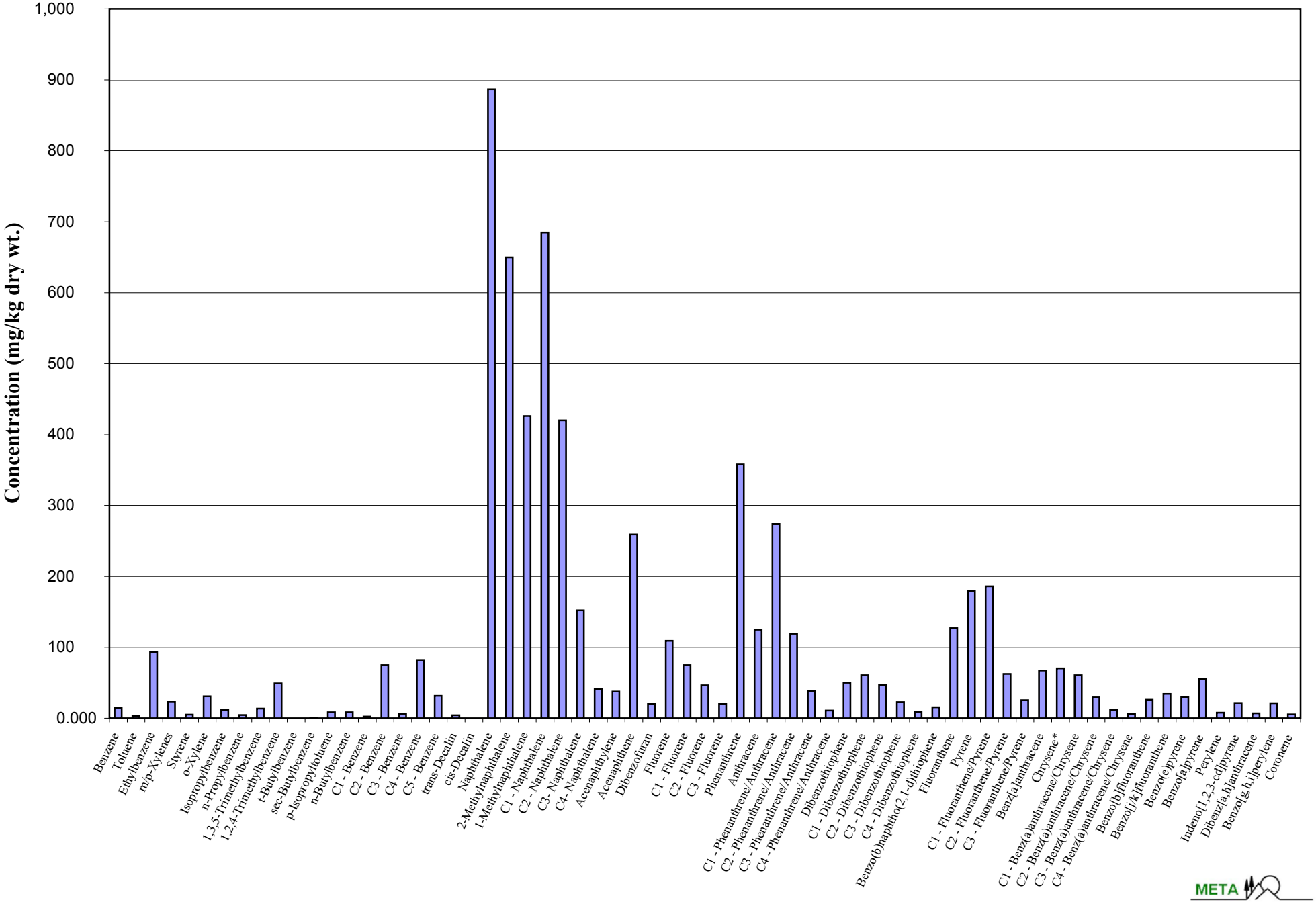
NA - Not applicable.
B - Analyte detected in the Blank.
J - Estimated value; detected between the RL and DL.
U - Analyte not detected above DL.
D - Analyte reported from a diluted extract.
E - Estimate, result detected above calibration range.
I - Concentration/Peak ID uncertain due to potential interference.
RL - Reporting limit is the sample equivalent of the lowest linear calibration concentration.
EDL - Estimated detection limit is 50% of RL.
* - Triphenylene is known to coelute with this compound.

# Appendix D

# Extended MAH/PAH Profiles – Histograms

# NS-RSB003-001 (9.0-9.4)

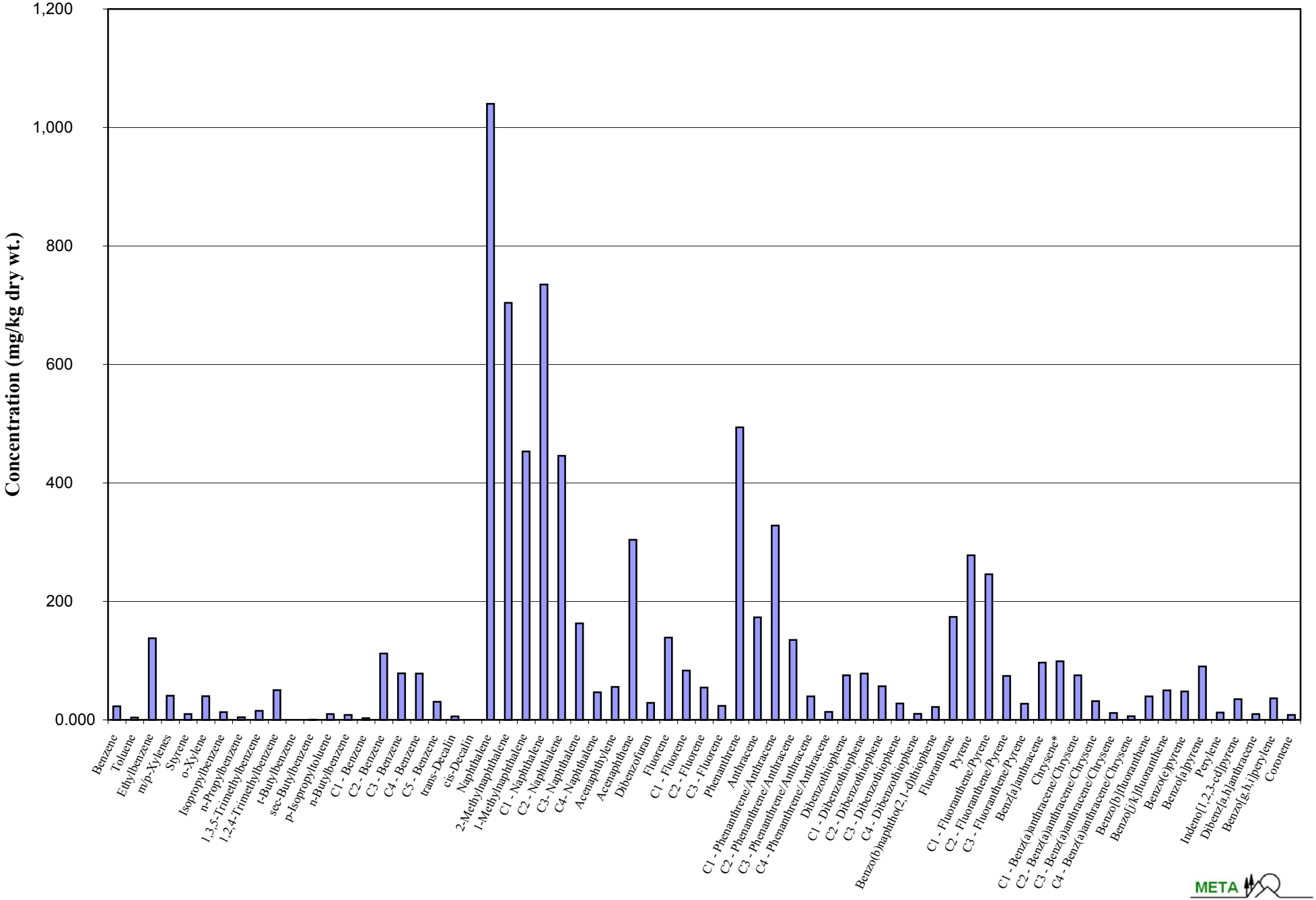
BR070313-15-D2




META

# NS-RSB001-002 (8.5-9.0)

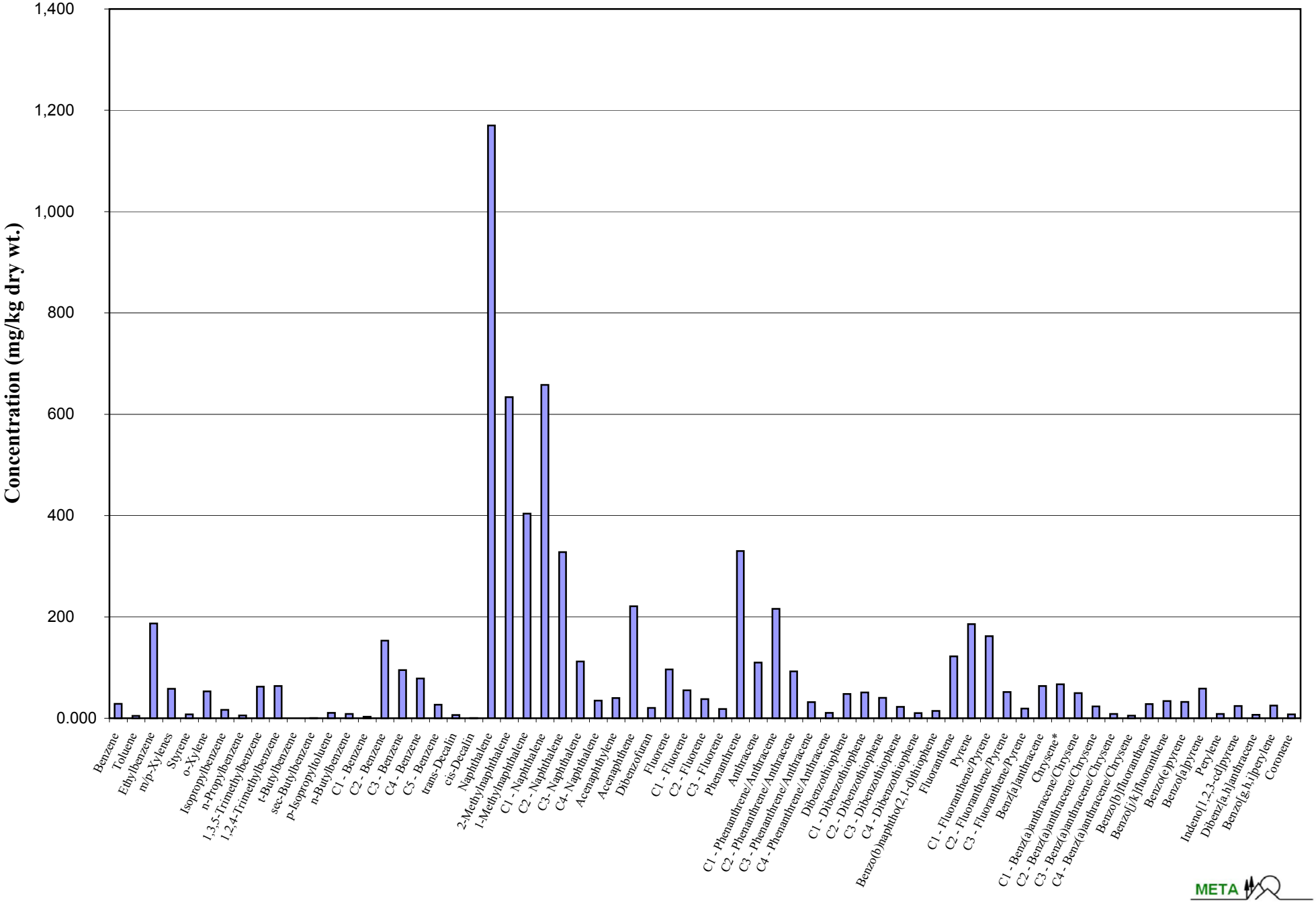
BR070313-13-D2




META

# NS-RSB002-001 (8.7-9.2)

BR070313-14-D2




META

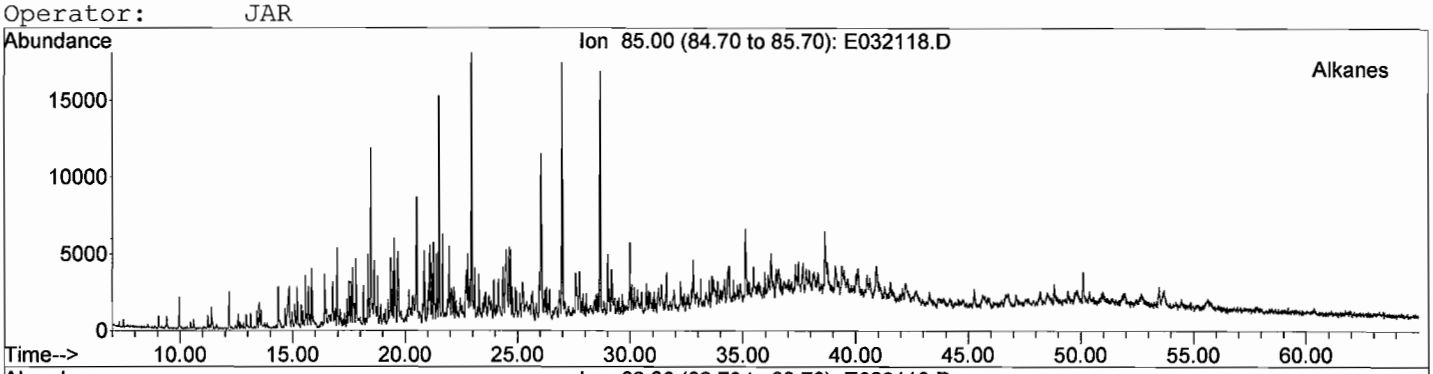
# Appendix E

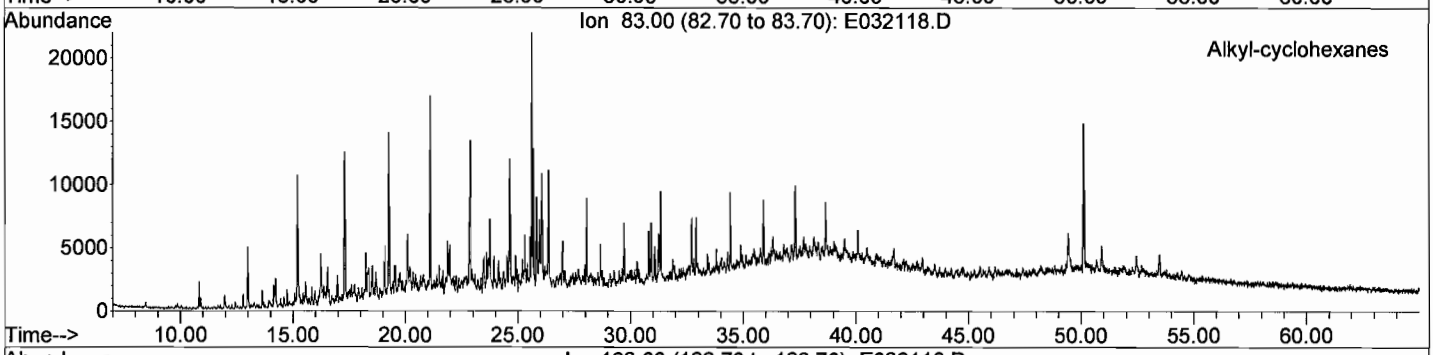
# Extracted Ion Current Profiles (EICPs)

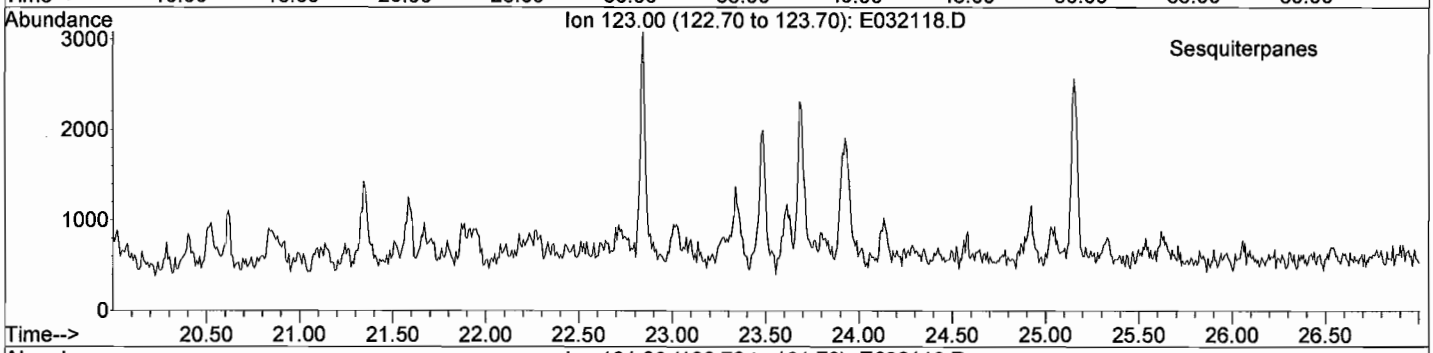
META Environmental, Inc.

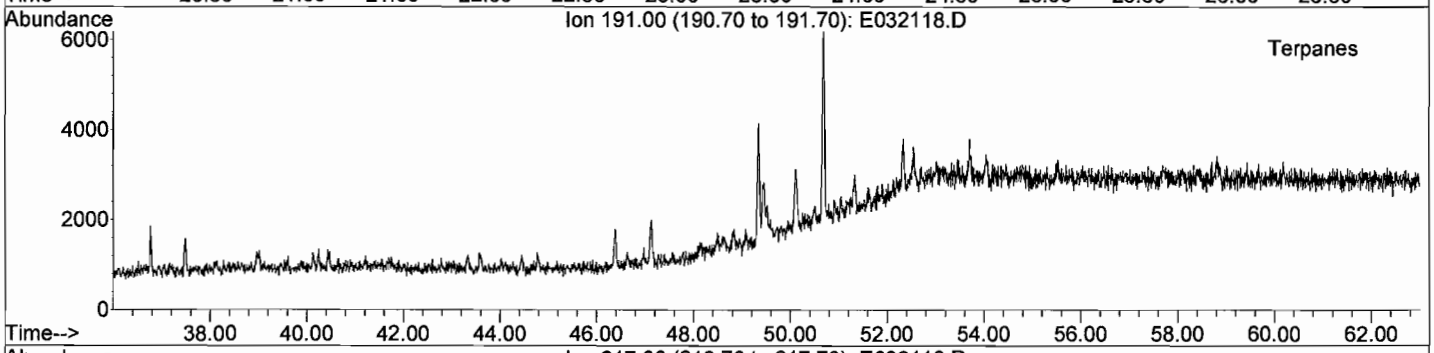
GC/MS EXTRACTED ION CHROMATOGRAM

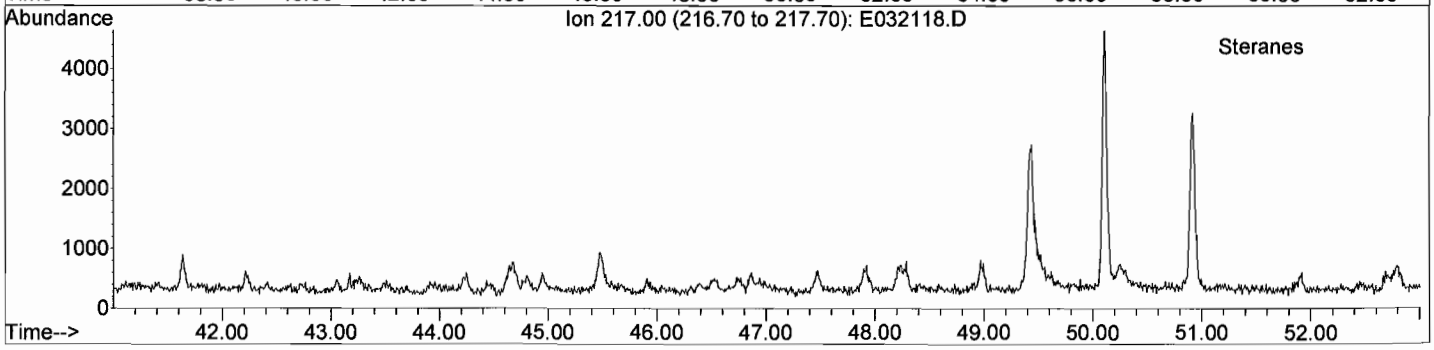
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



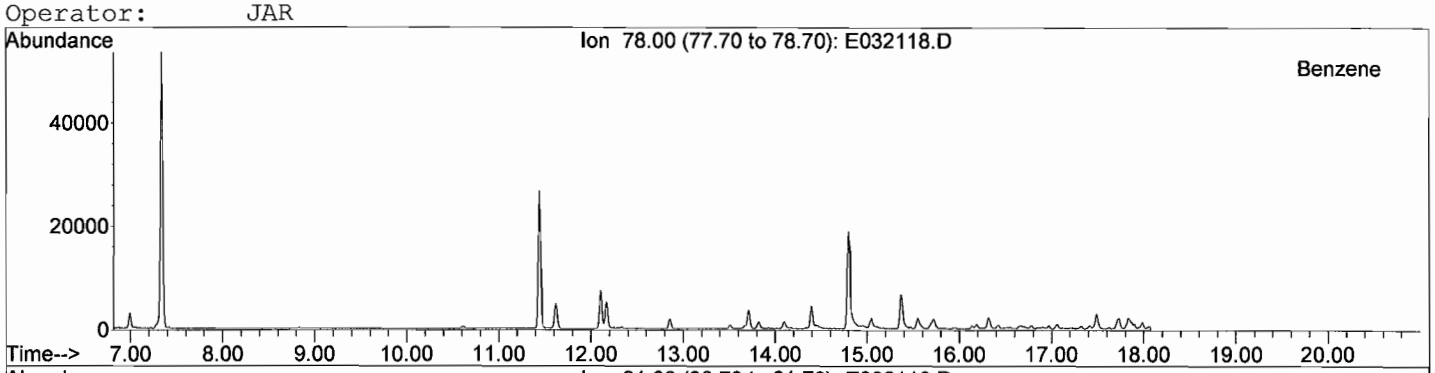



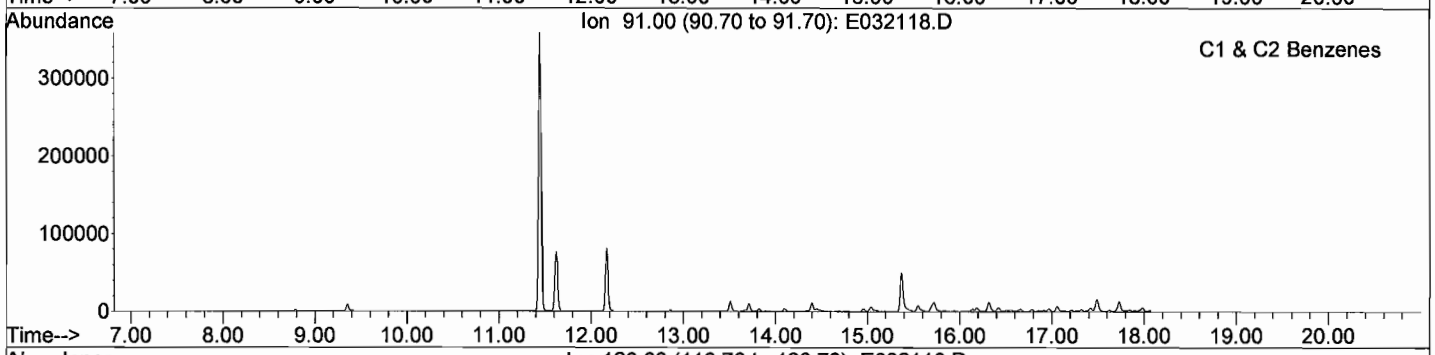



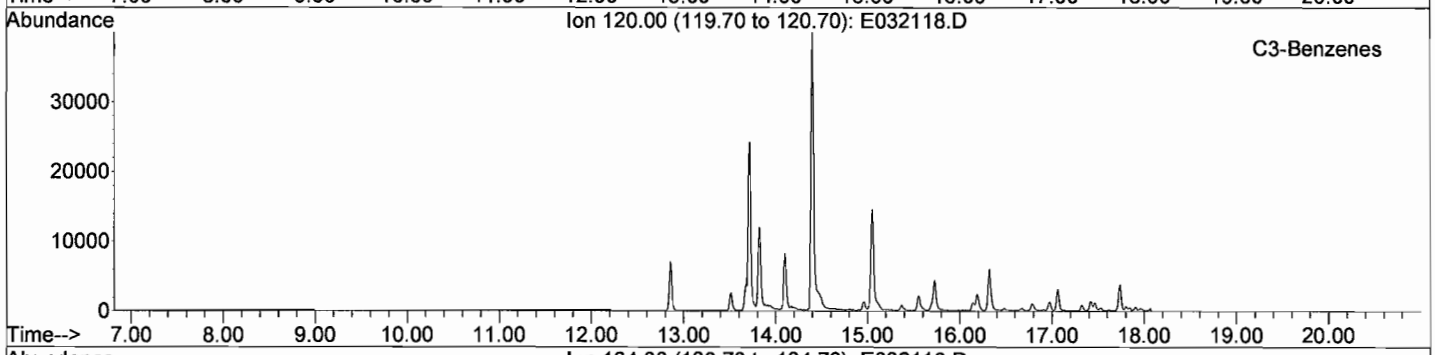
META Environmental, Inc.

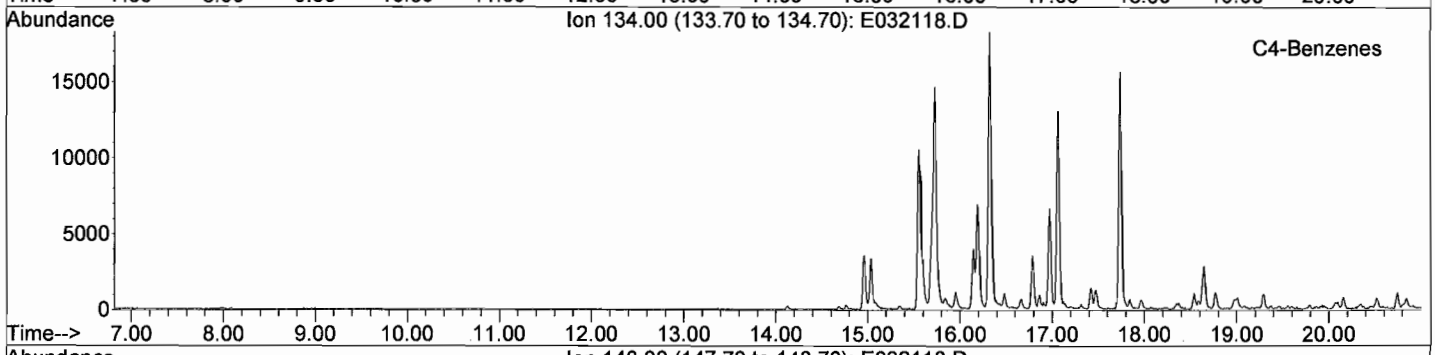
GC/MS EXTRACTED ION CHROMATOGRAM

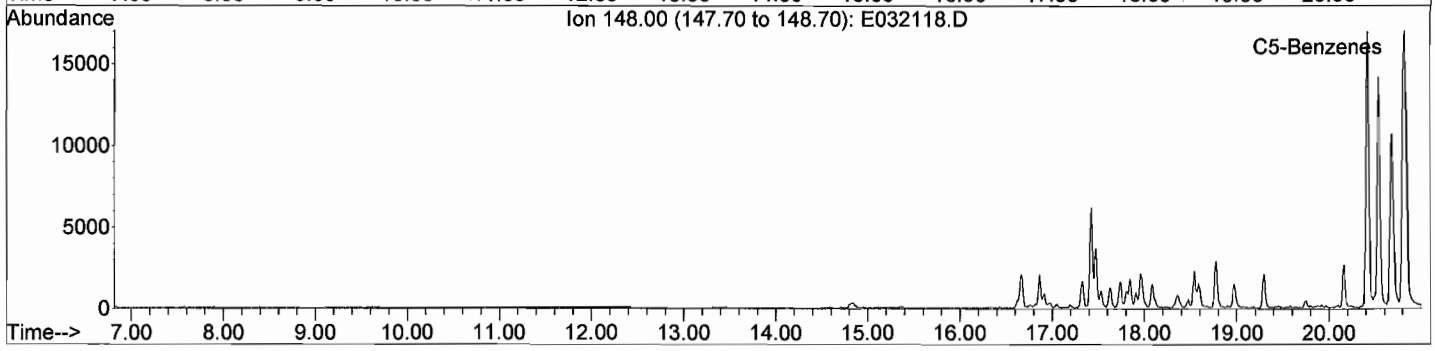
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



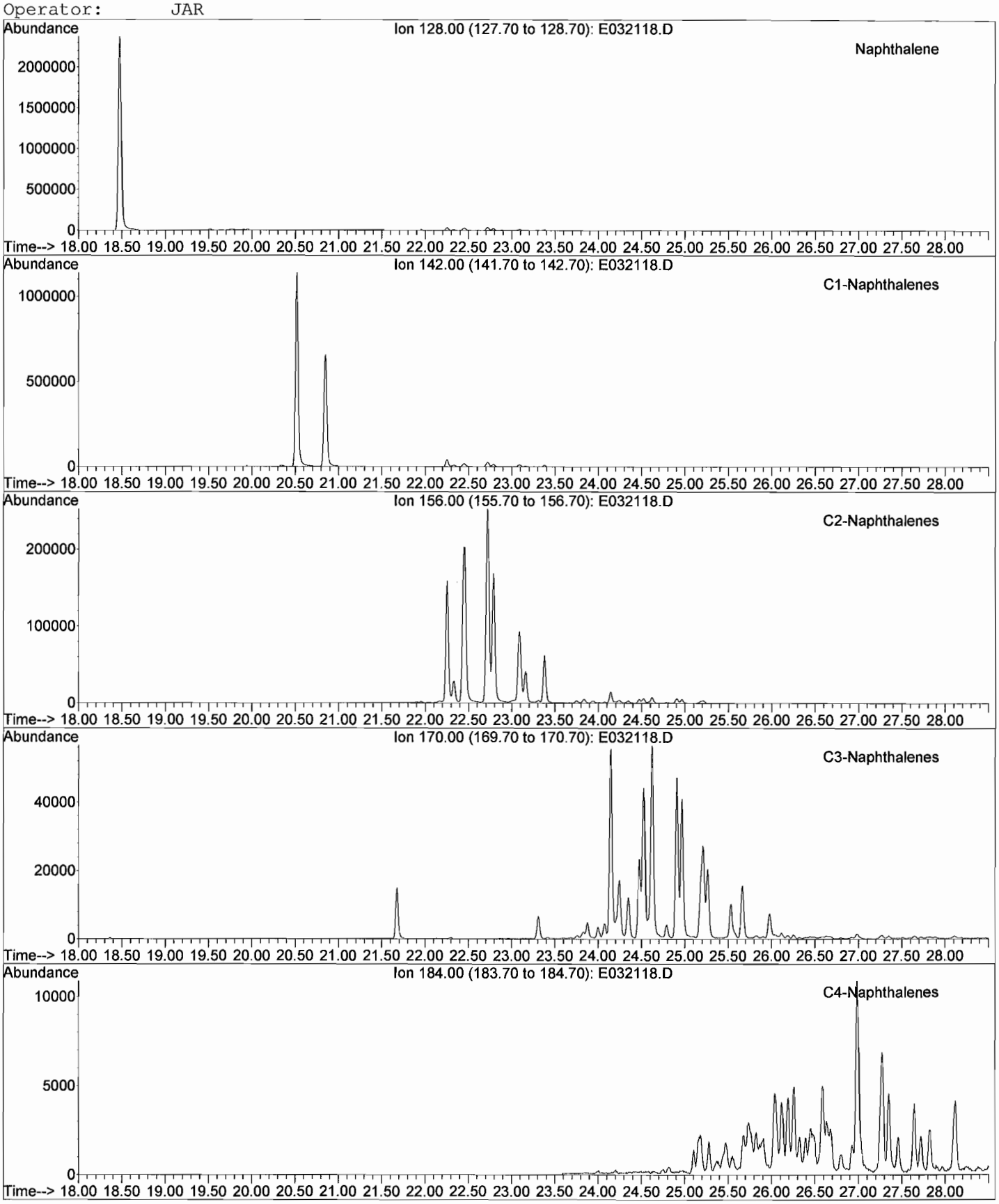



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

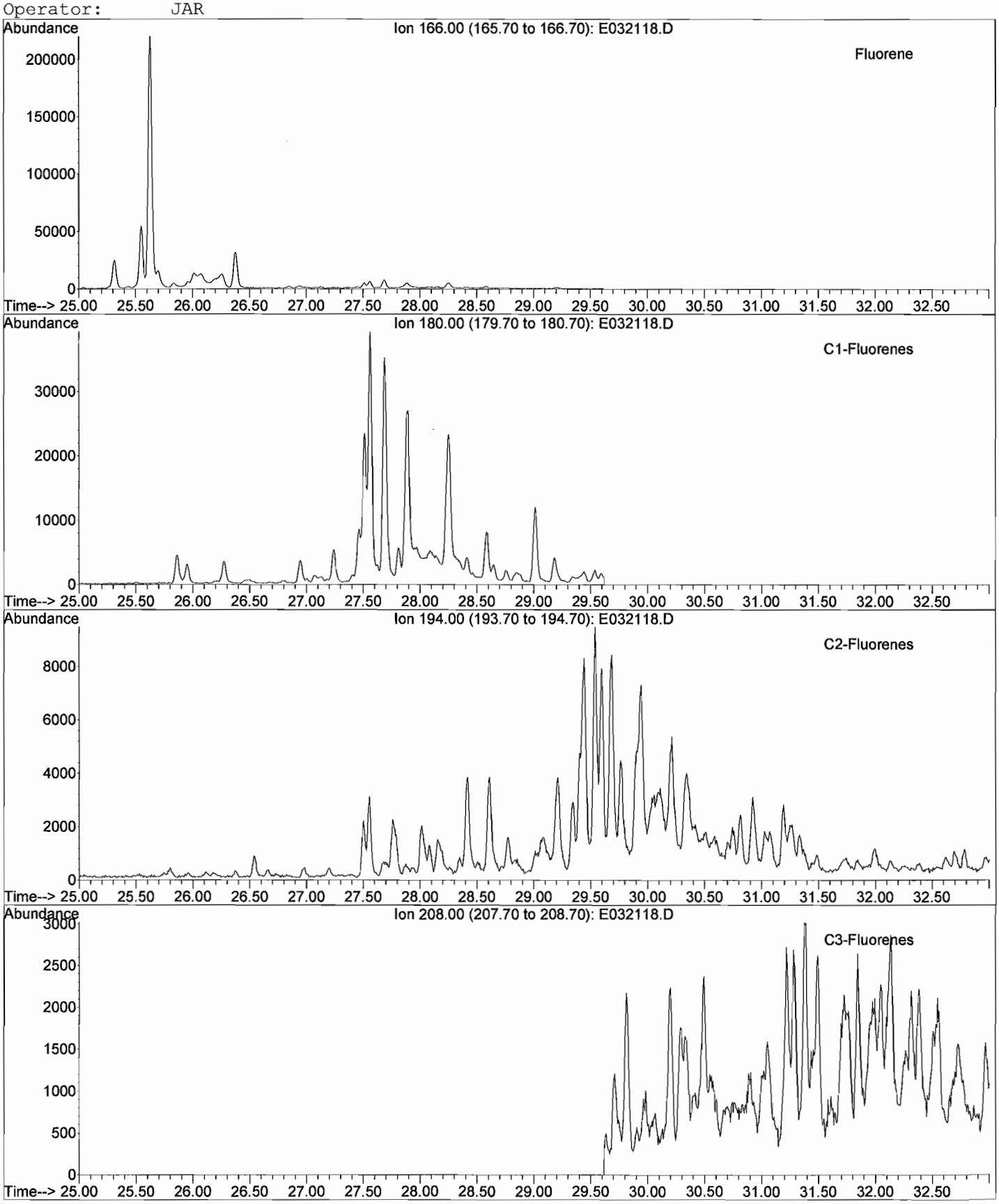
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

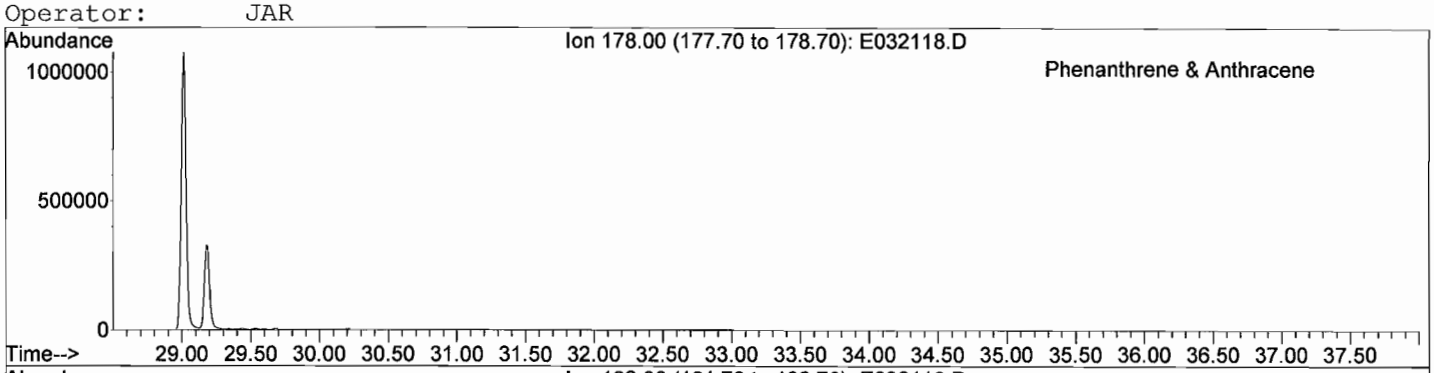
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR

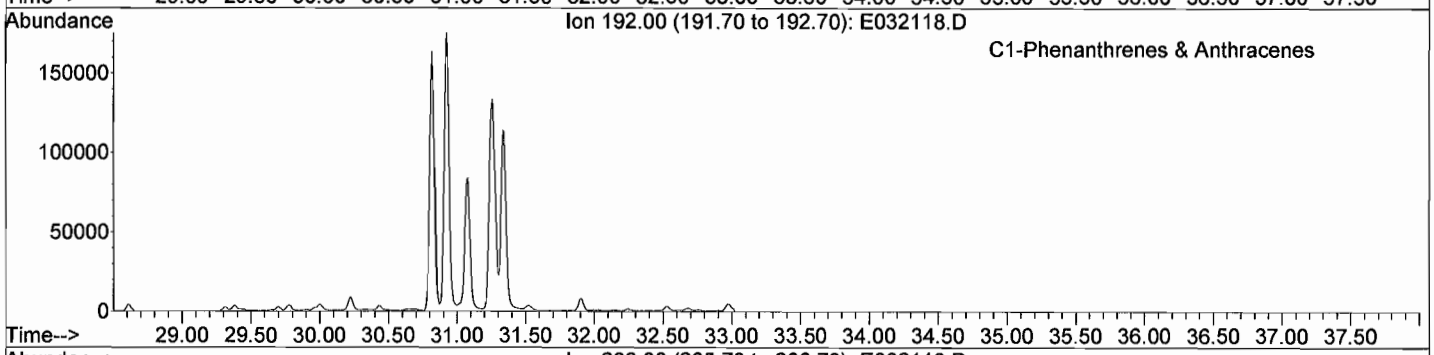


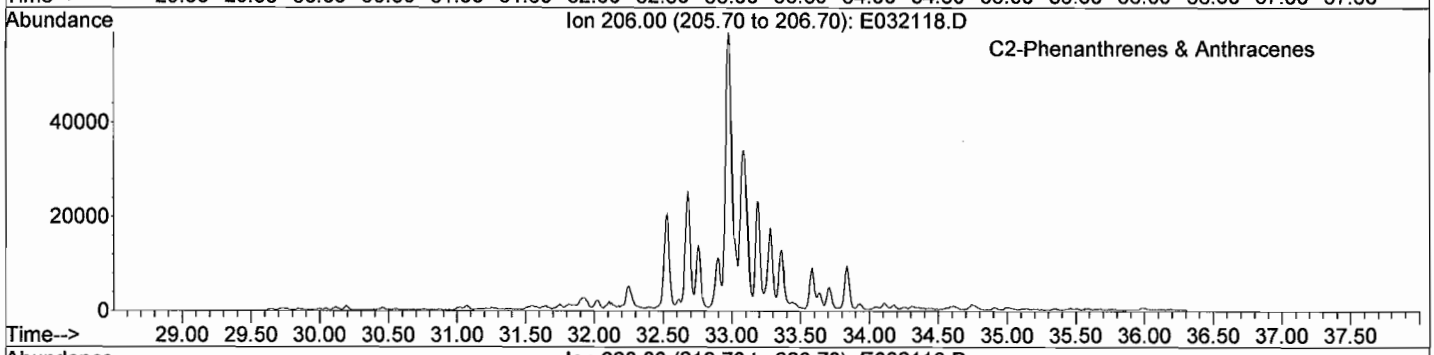
META Environmental, Inc.

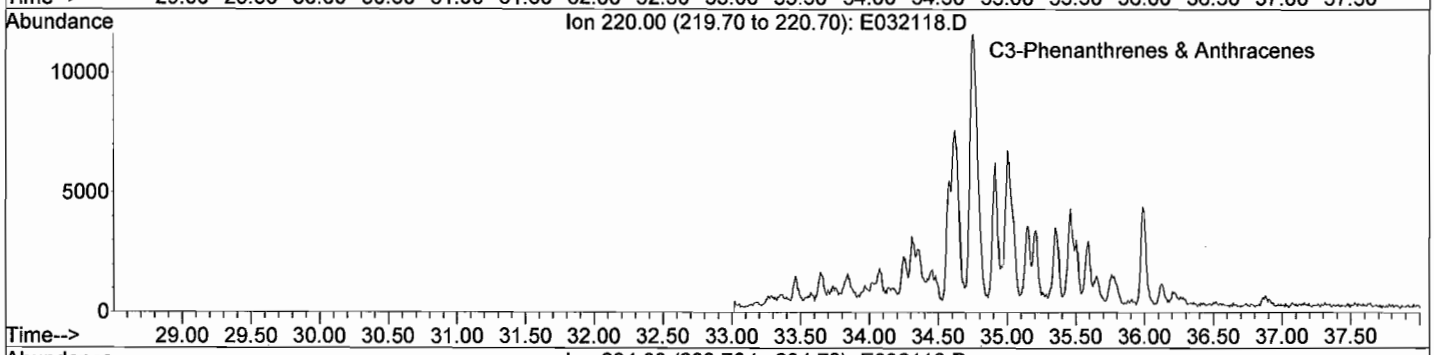
GC/MS EXTRACTED ION CHROMATOGRAM

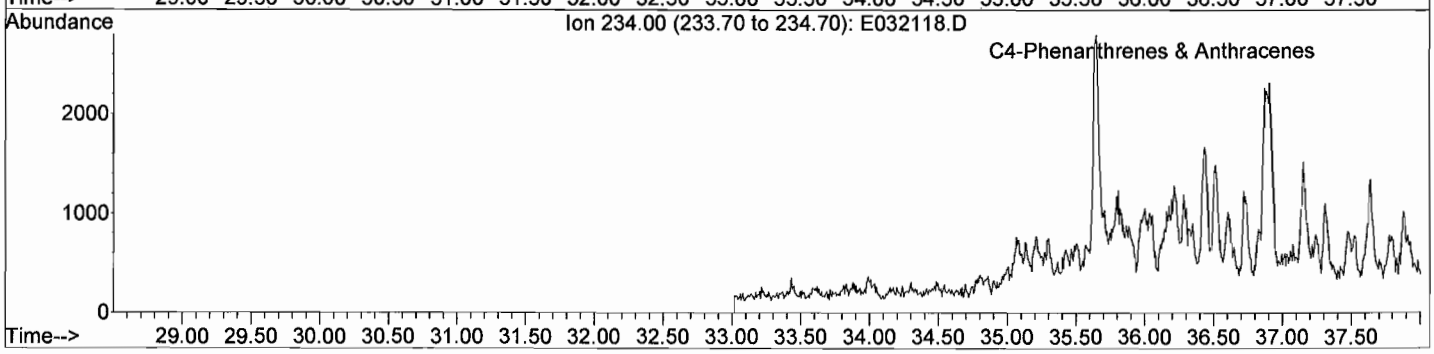
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



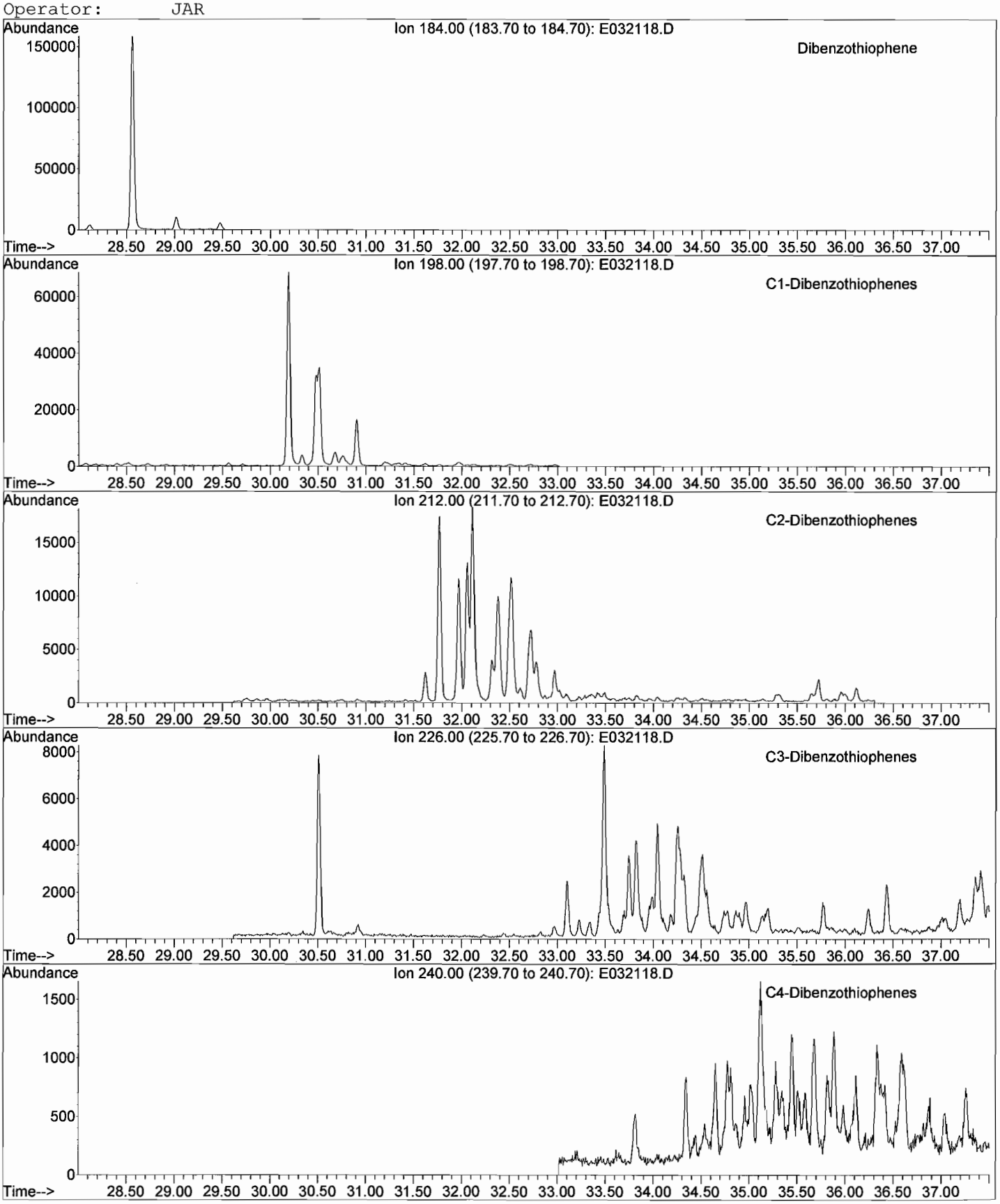



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

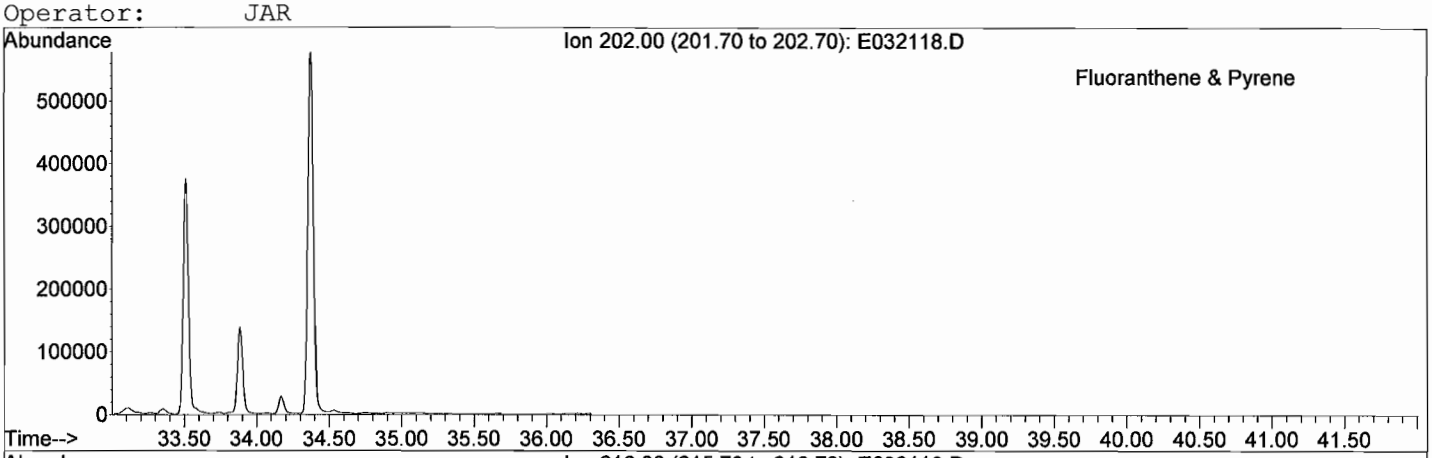
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR

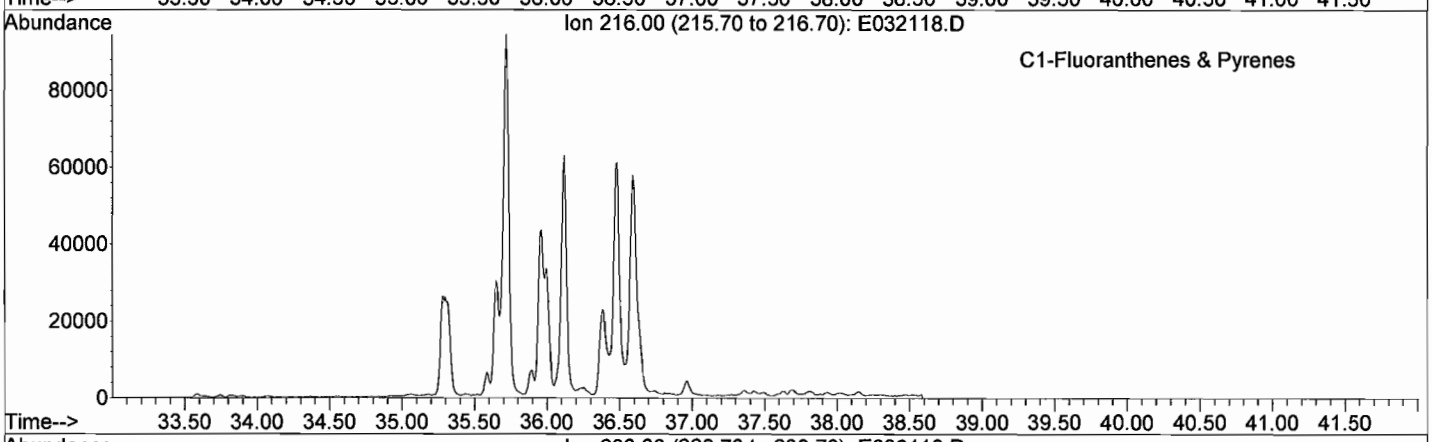


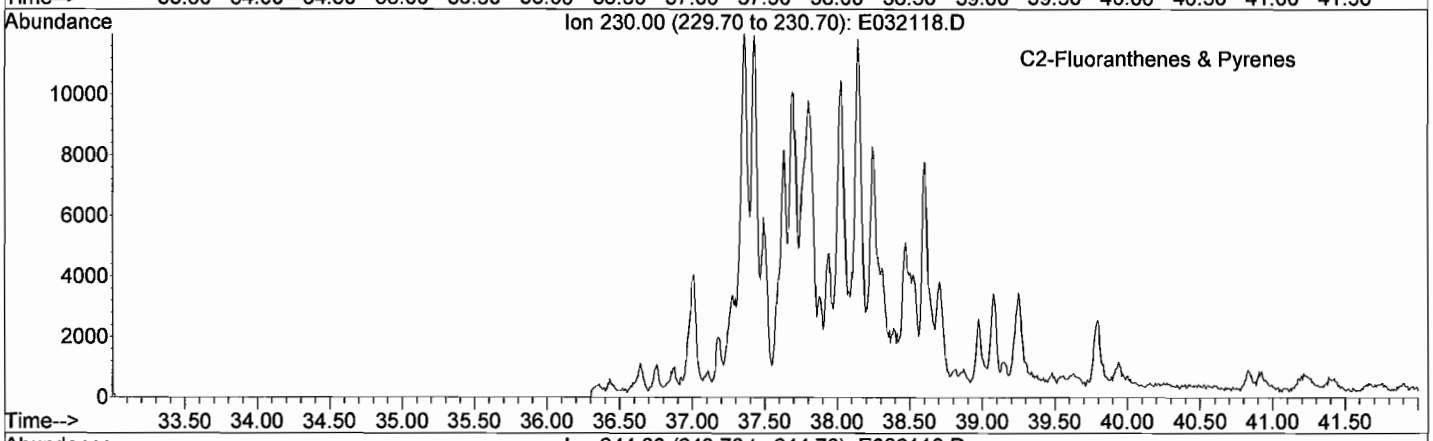
META Environmental, Inc.

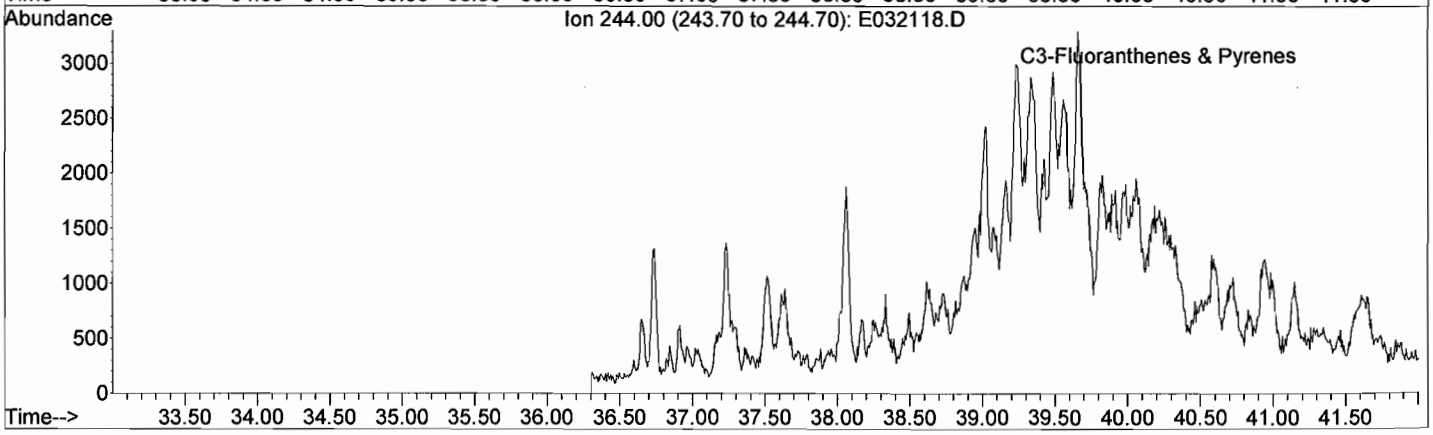
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
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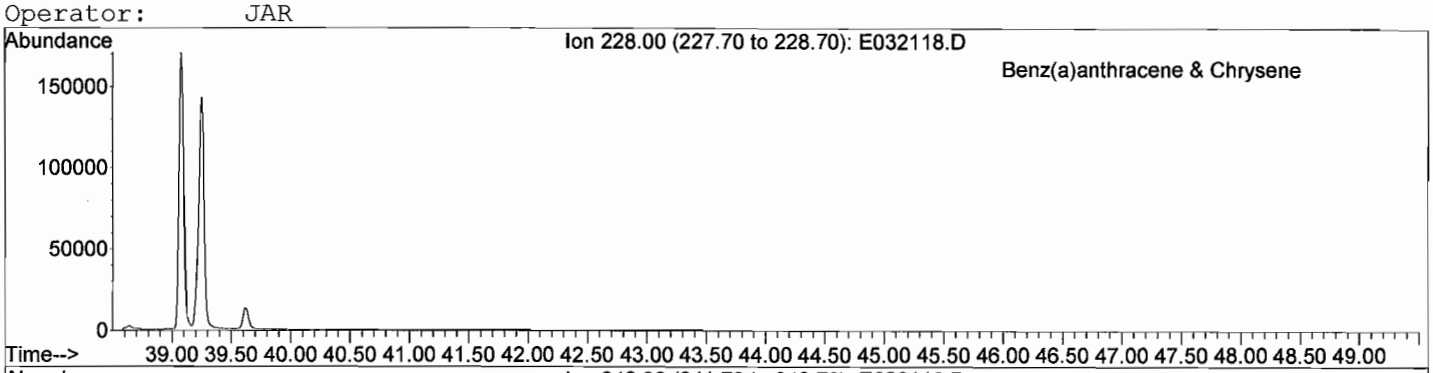
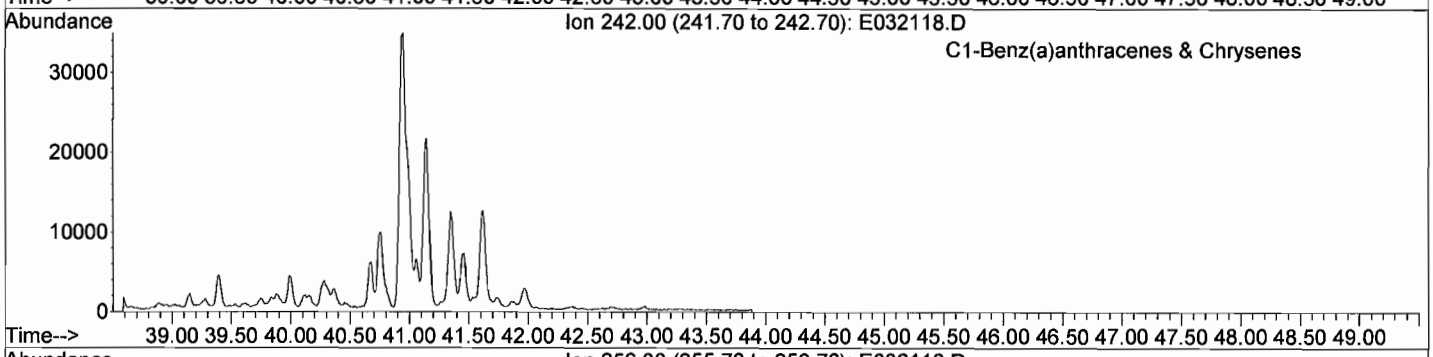
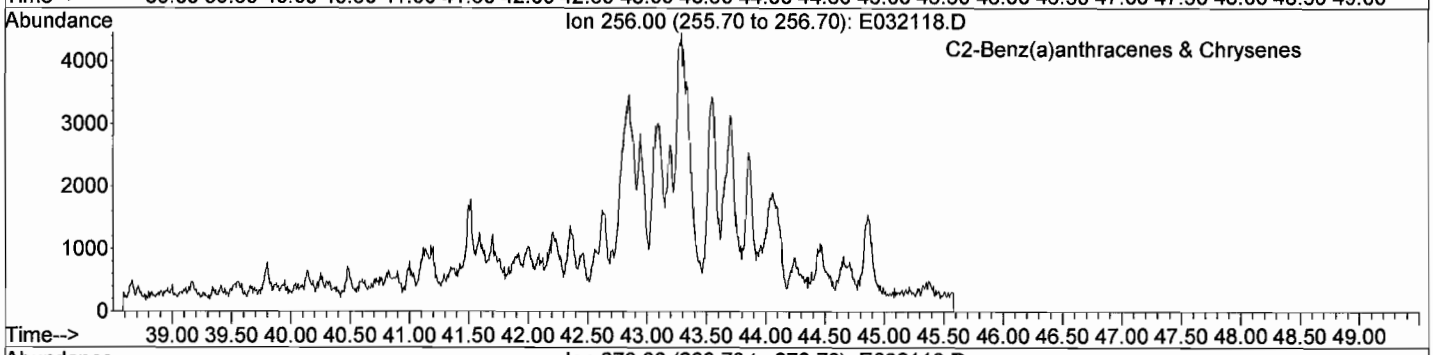
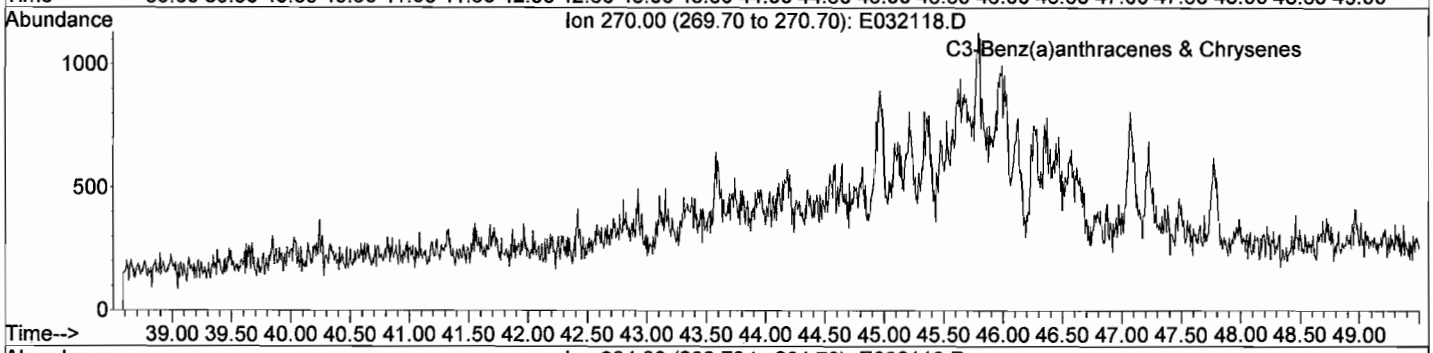
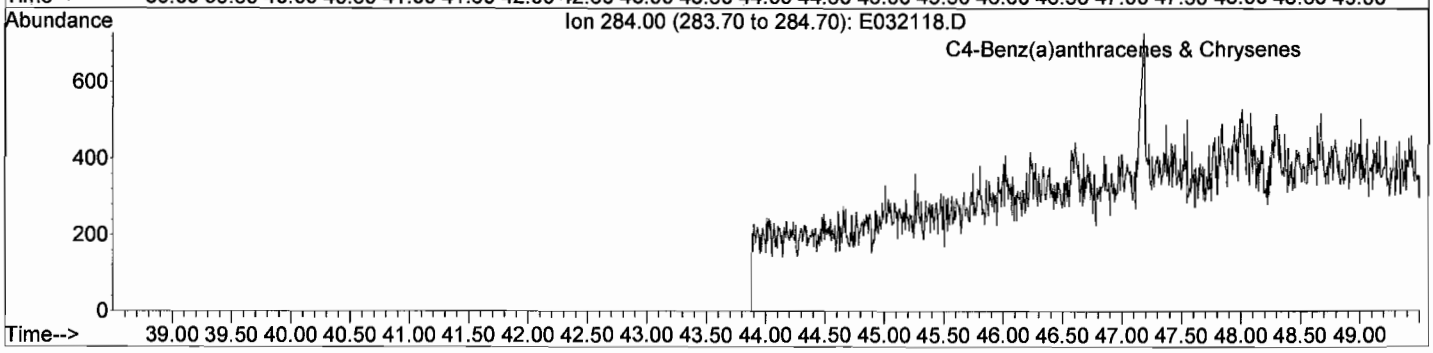
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR



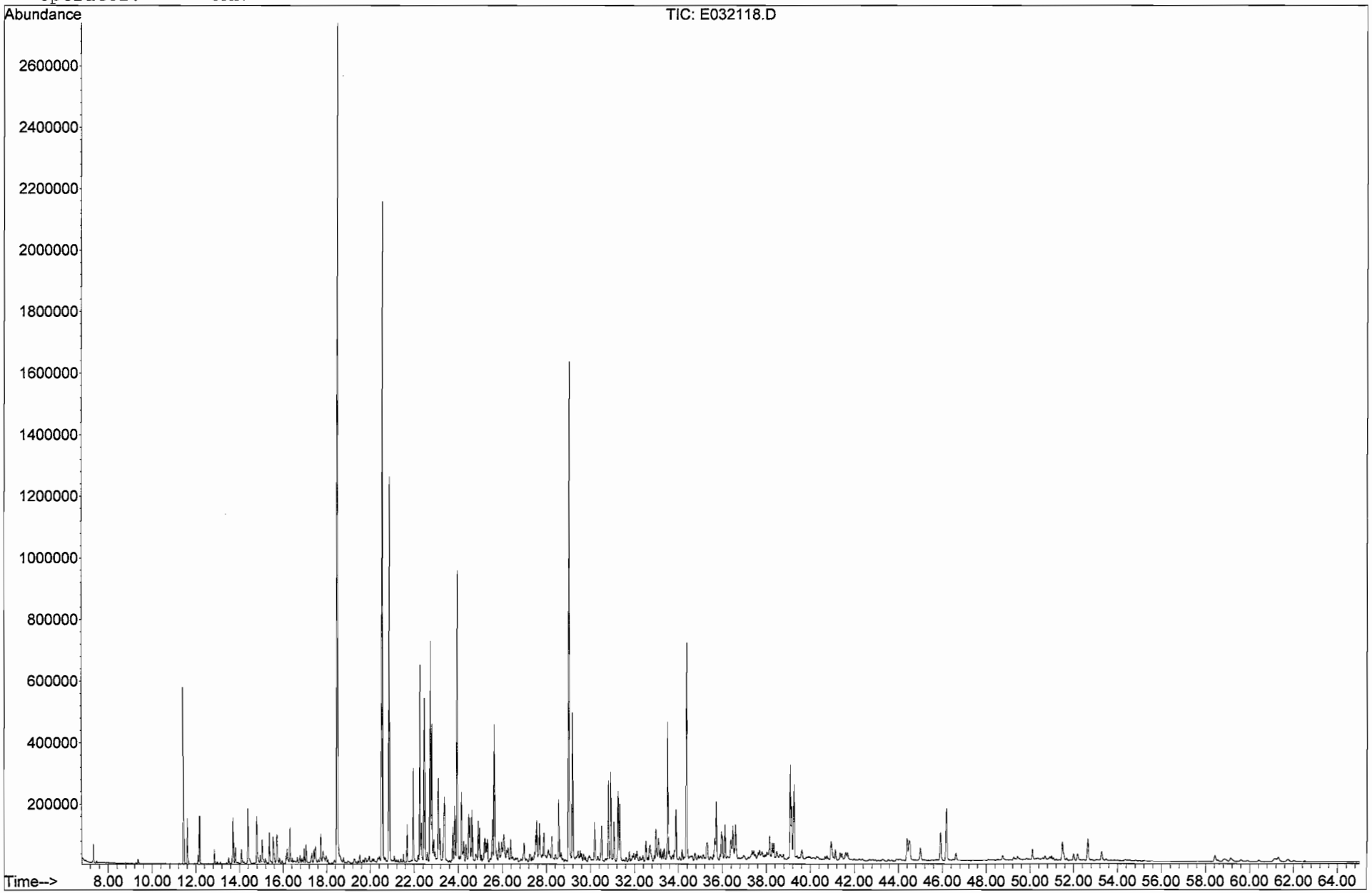



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

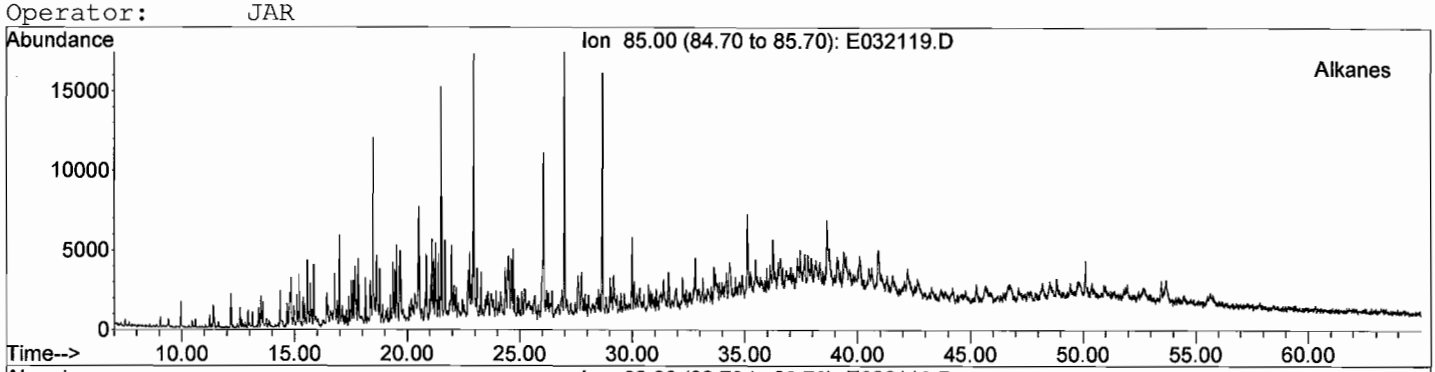
File: J:\1\DATA\E070321\E032118.D
Date Acquired: 22 Mar 2007 11:33 am
Method File: 4008SIM2.M
Sample Name: BR070313-13-D2
Misc Info: NS-RSB001-002 (8.5-9.0)
Operator: JAR

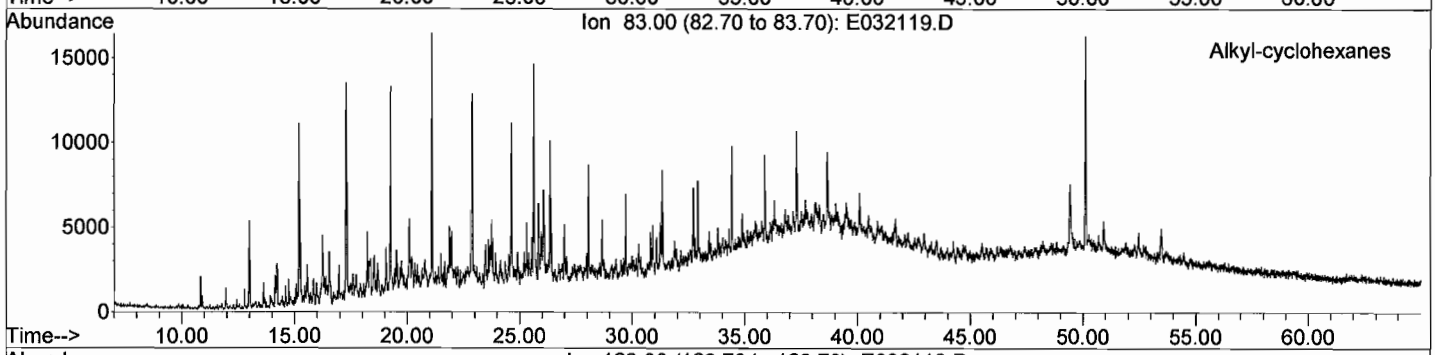


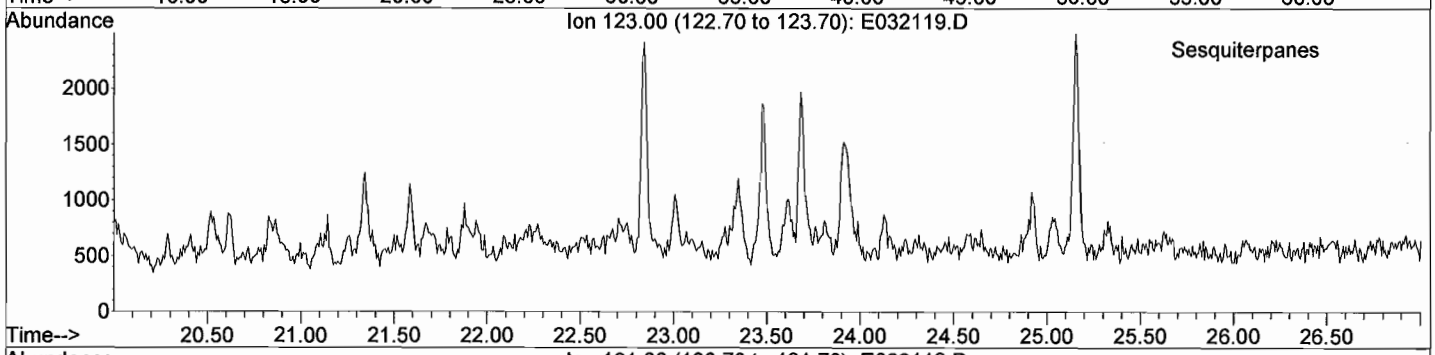
META Environmental, Inc.

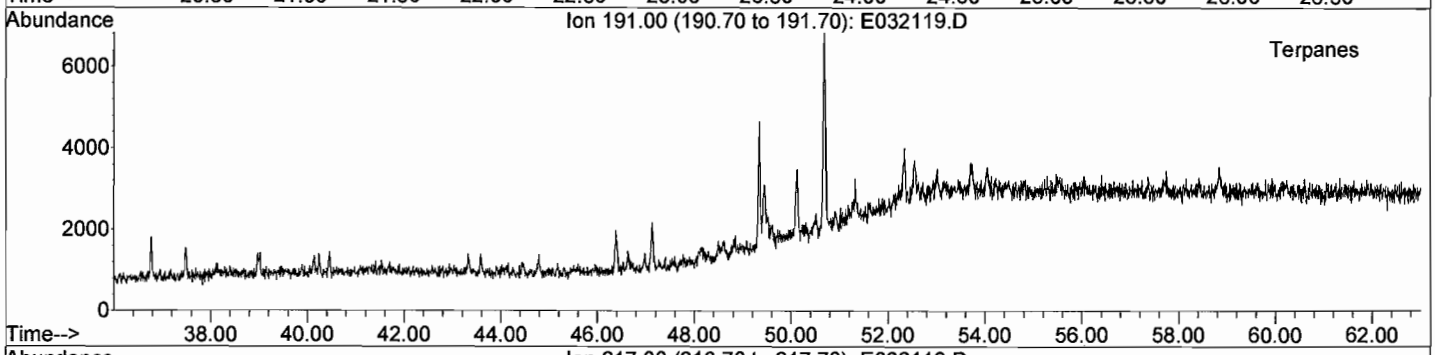
GC/MS EXTRACTED ION CHROMATOGRAM

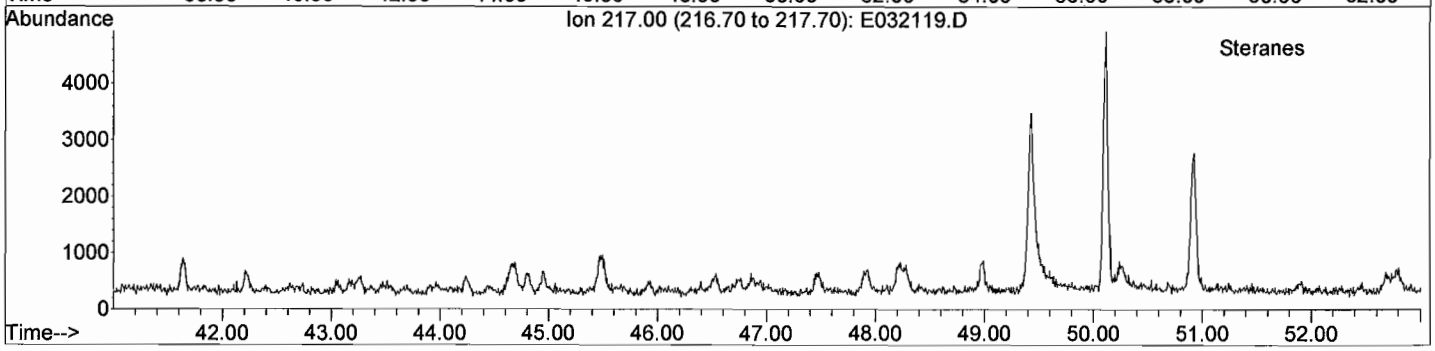
File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



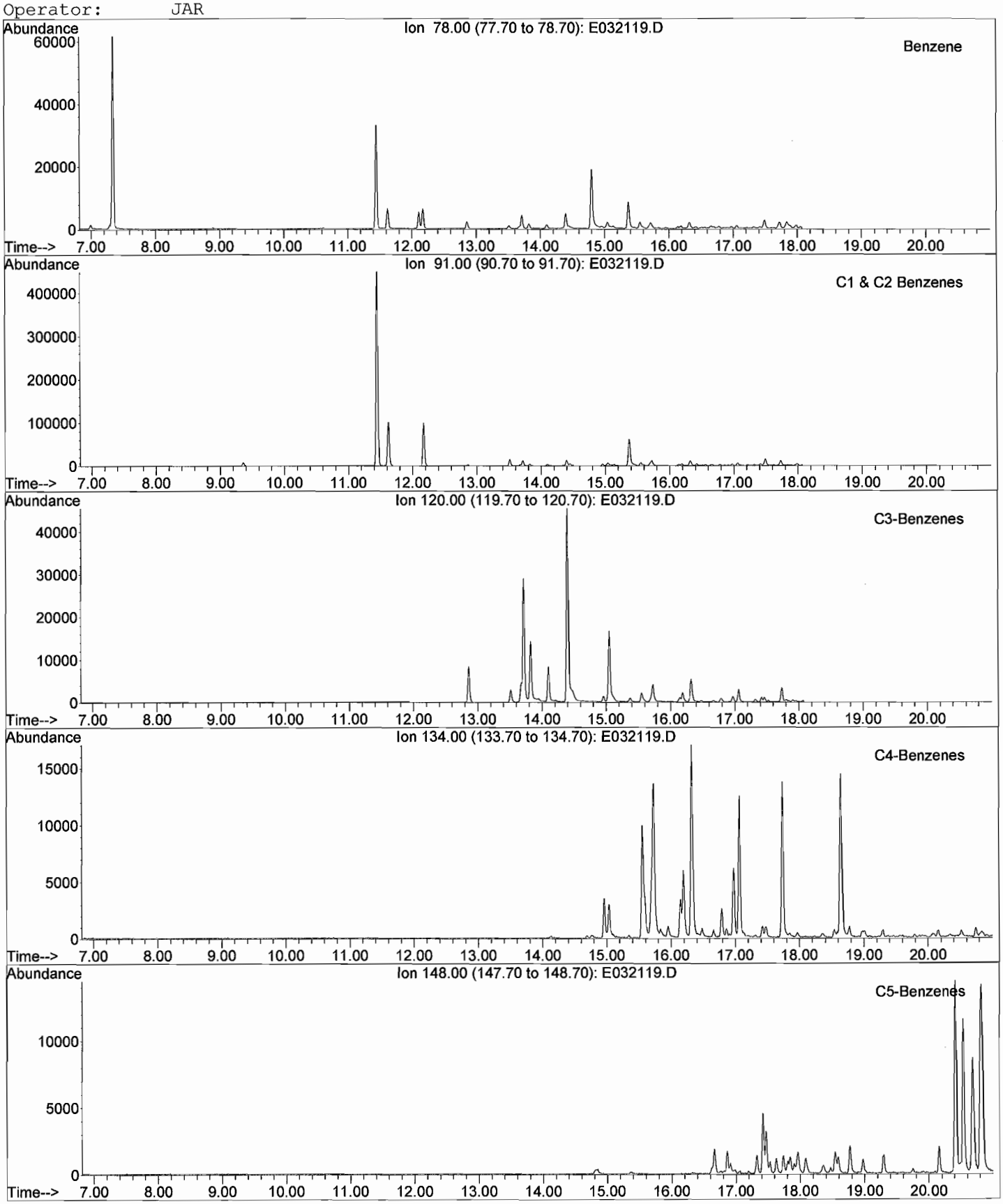



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
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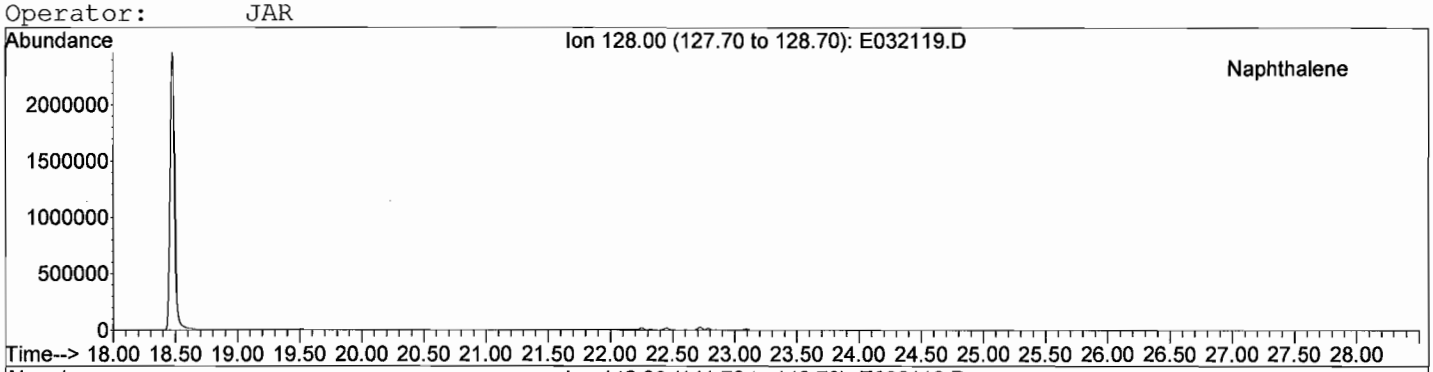
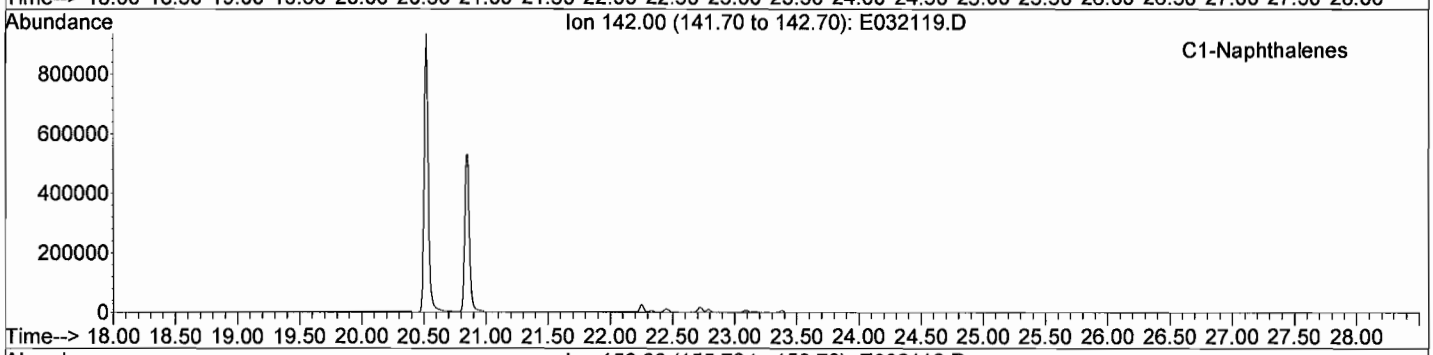
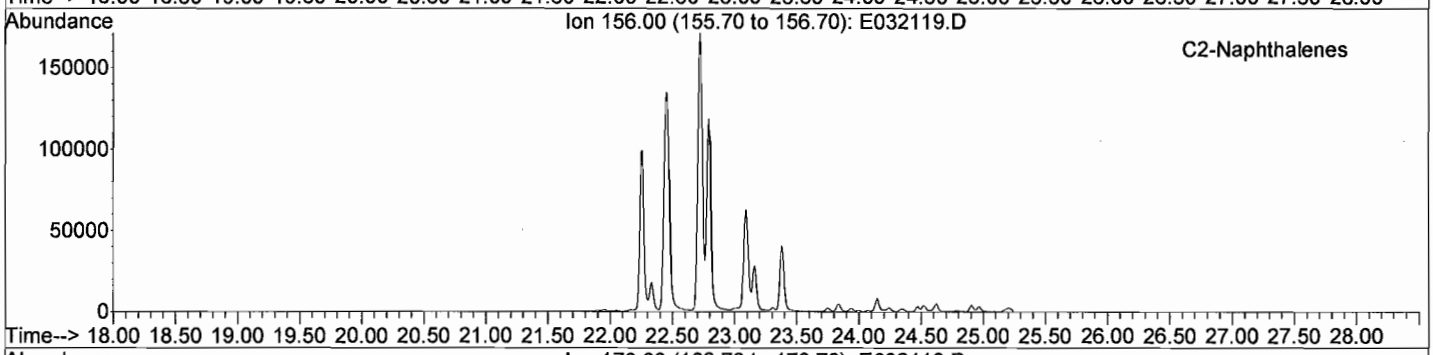
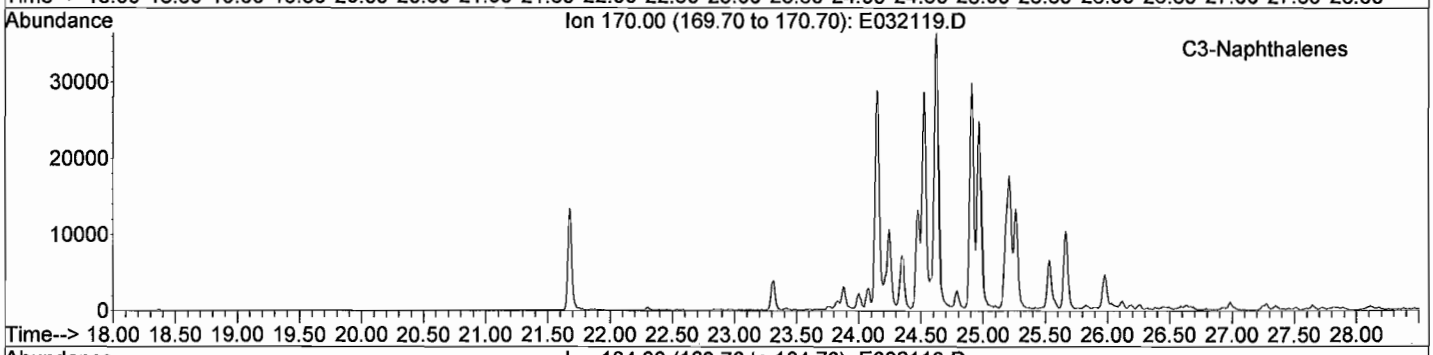
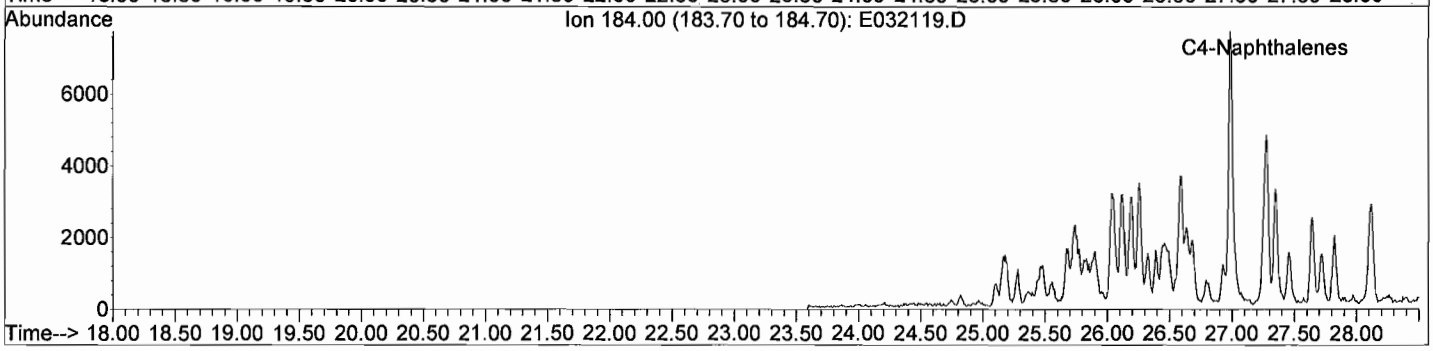
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



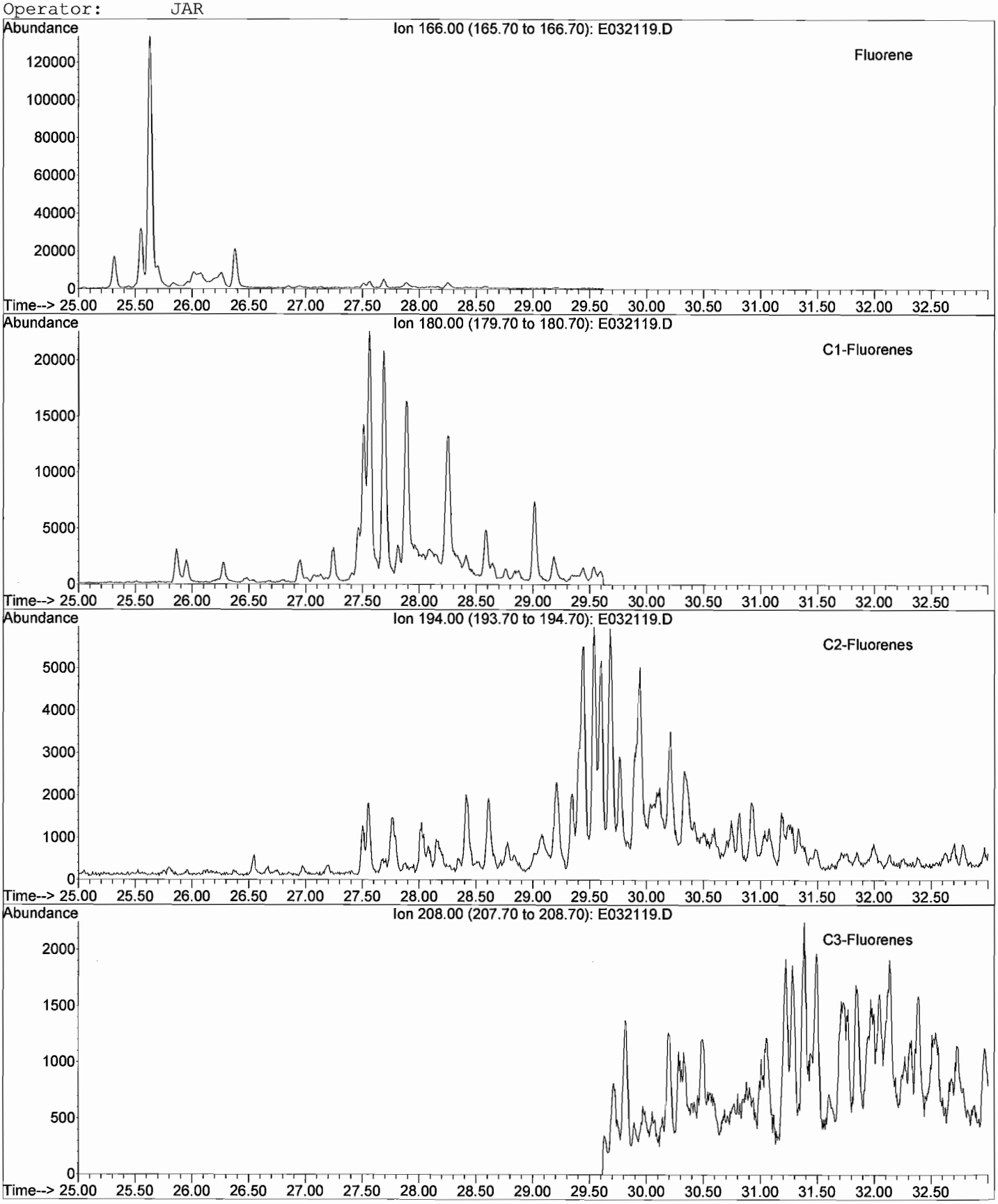



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

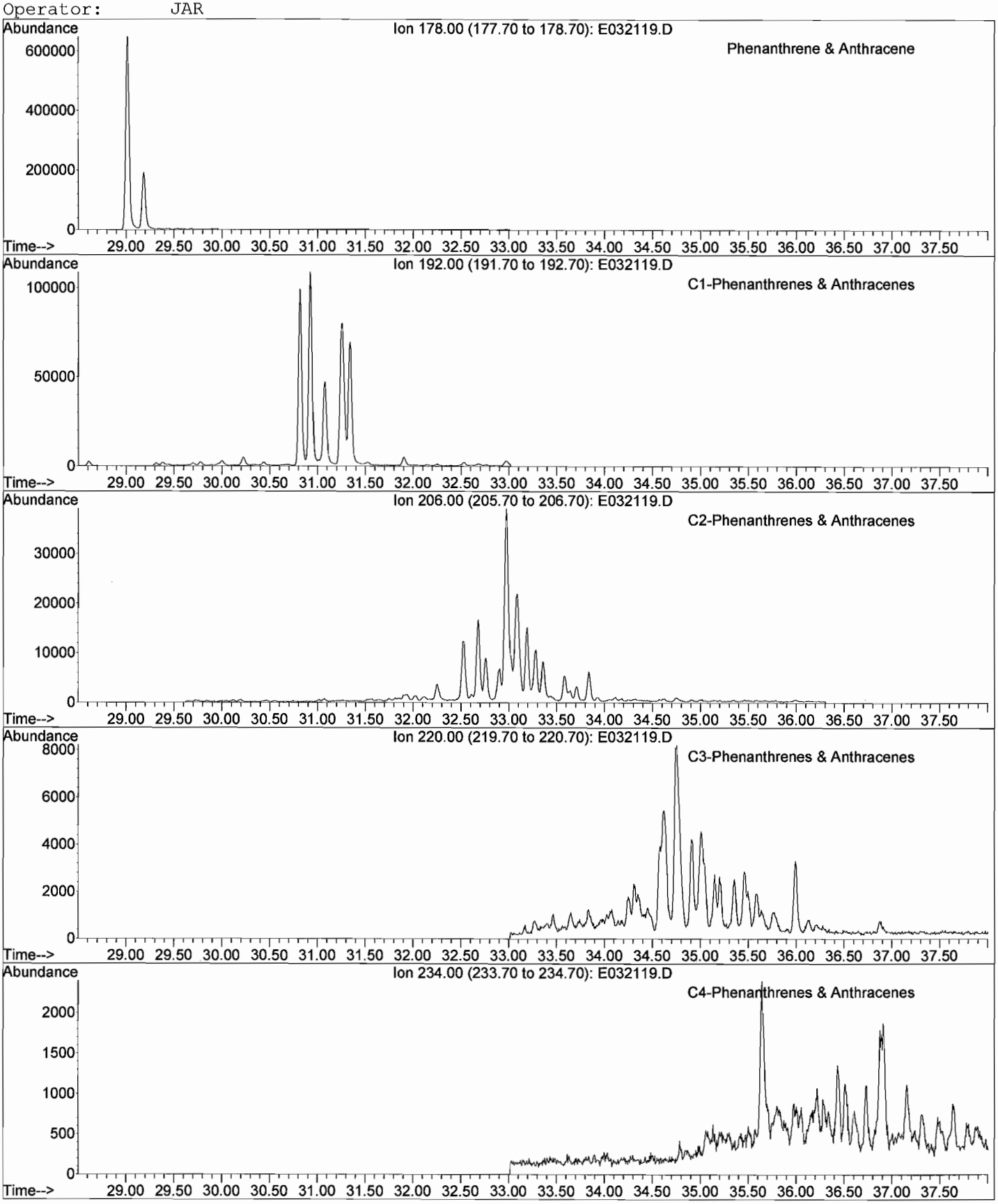
File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

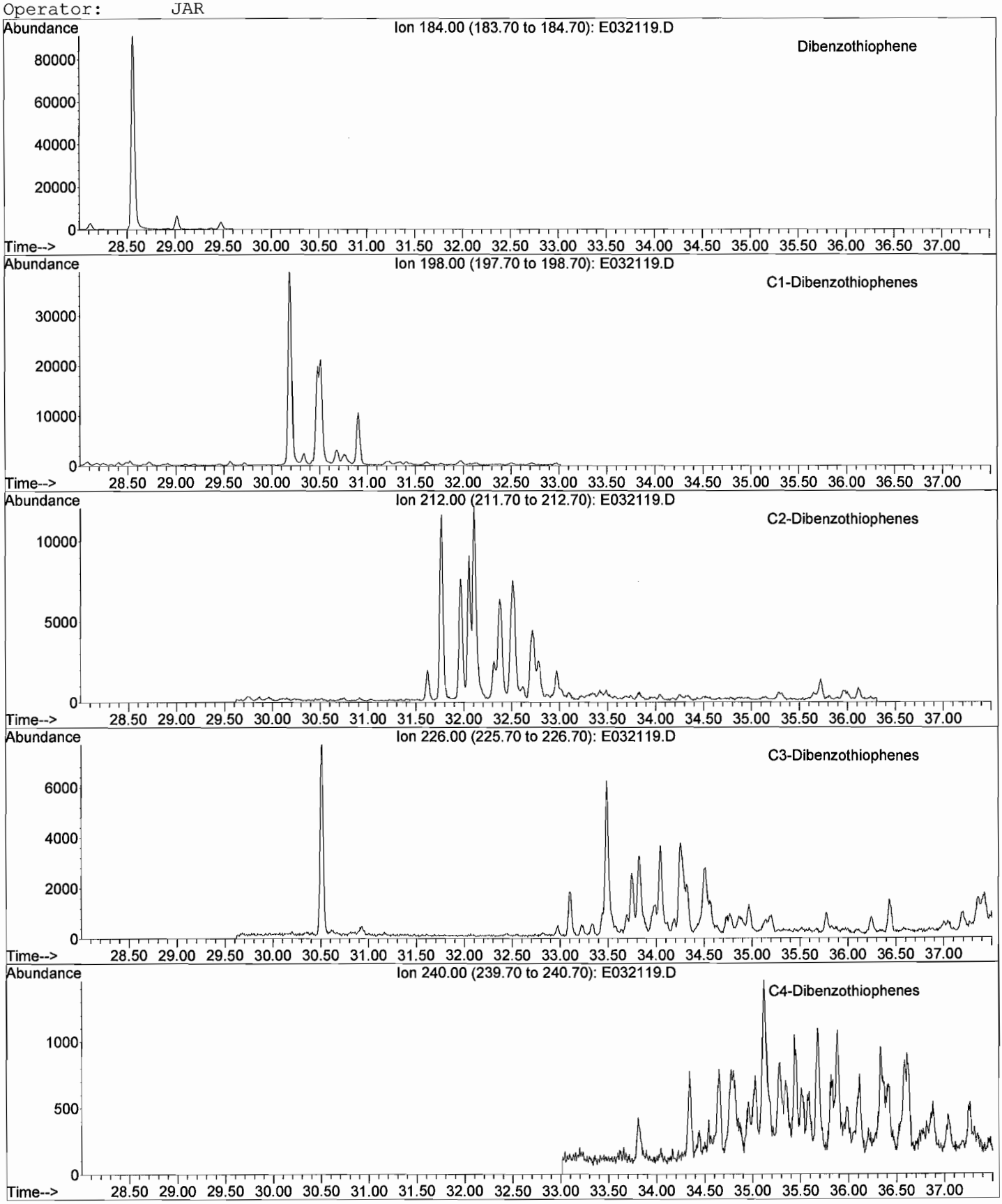
File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

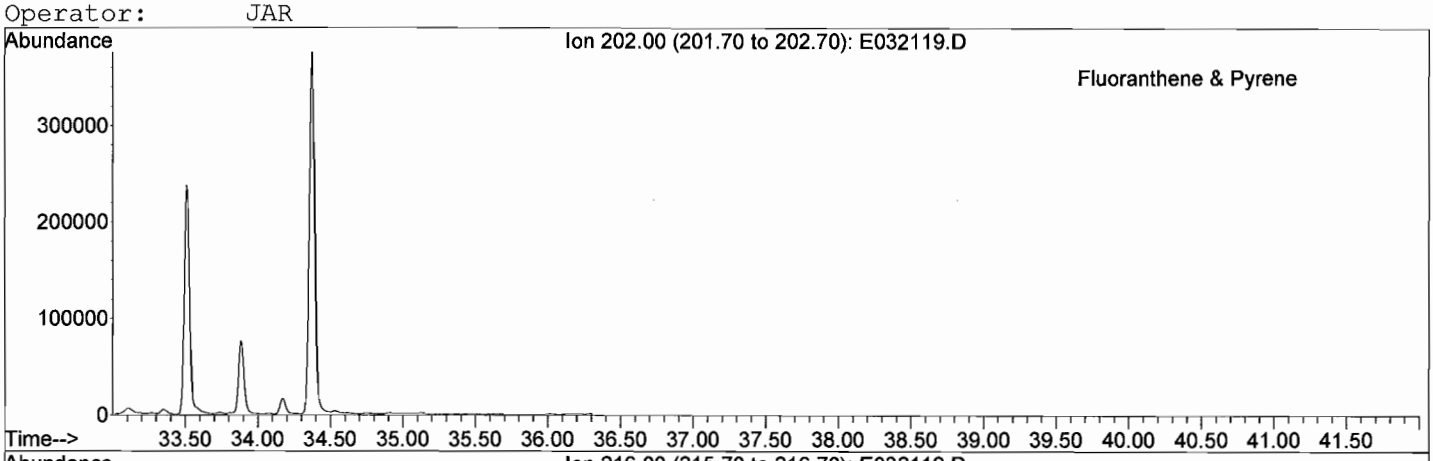
File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR

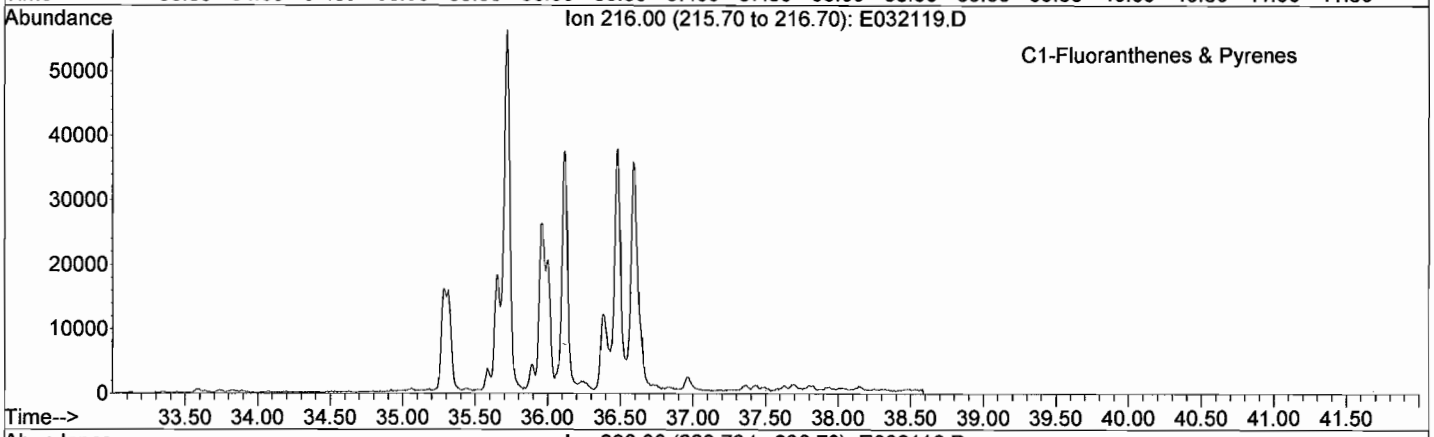


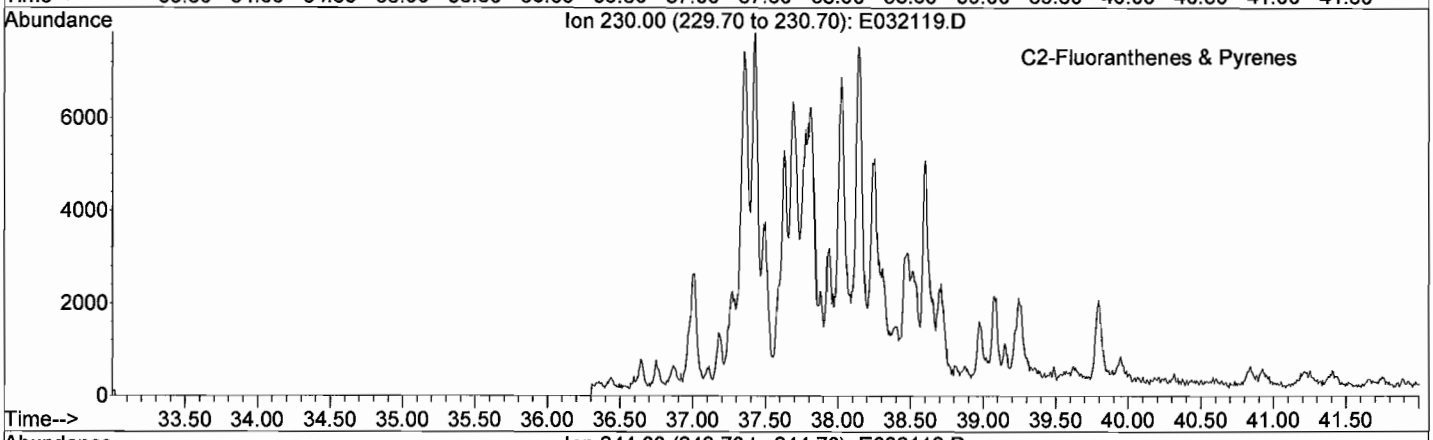
META Environmental, Inc.

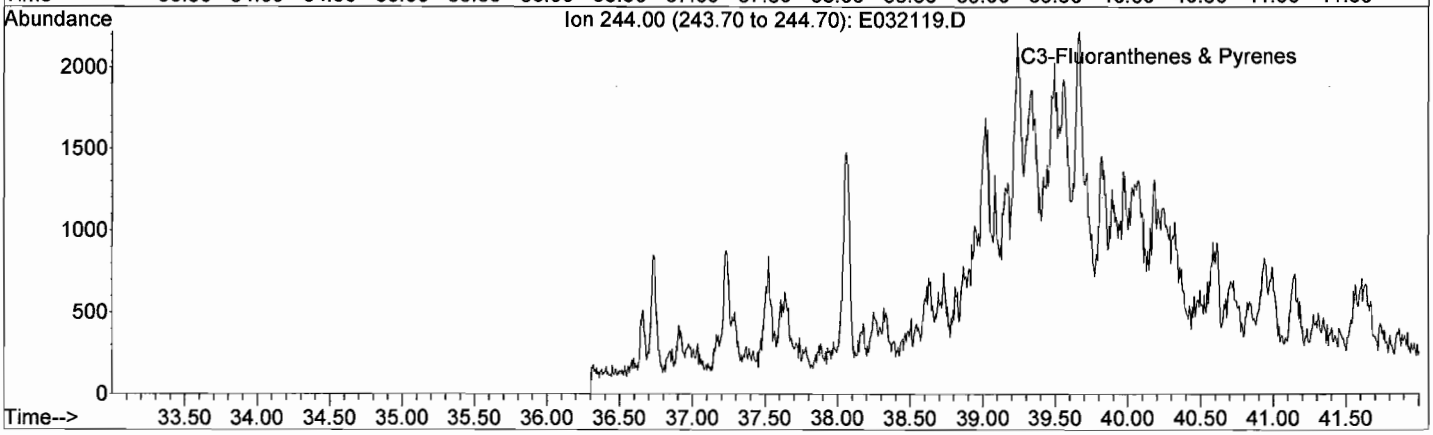
GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



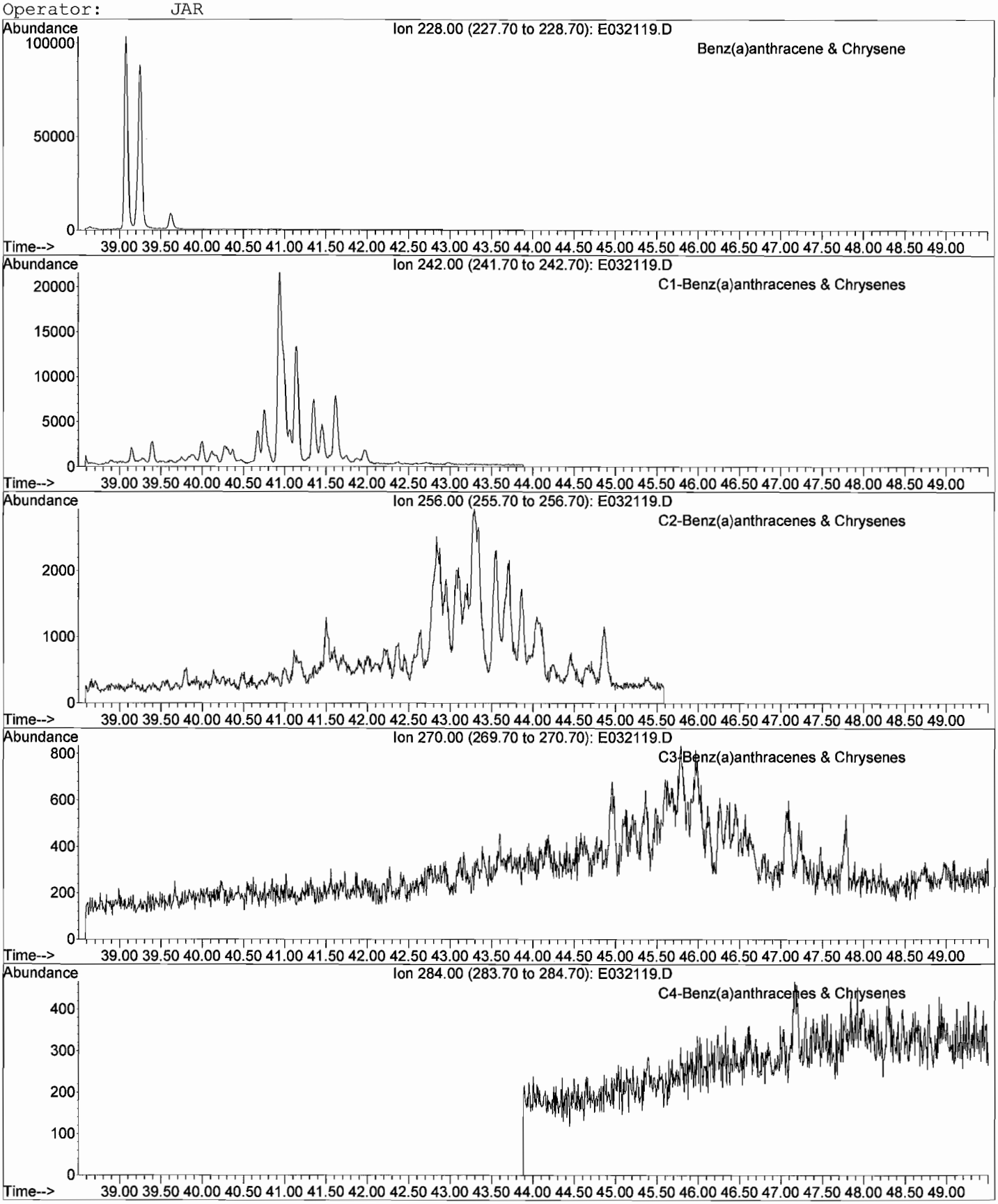



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032119.D
Date Acquired: 22 Mar 2007 12:52 pm
Method File: 4008SIM2.M
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

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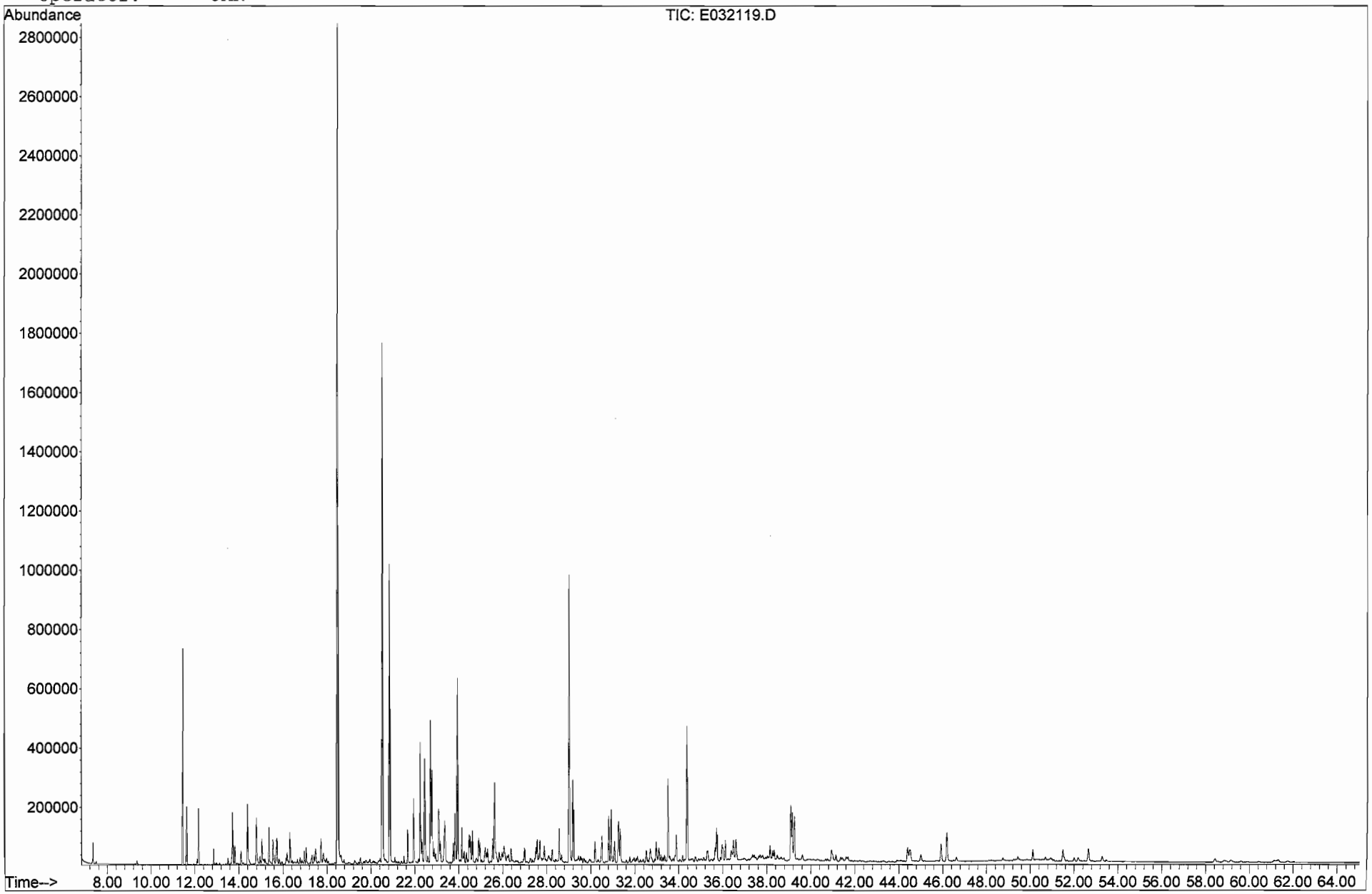
Sample Name: BR070313-14-D2
Misc Info: NS-RSB002-001 (8.7-9.2)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
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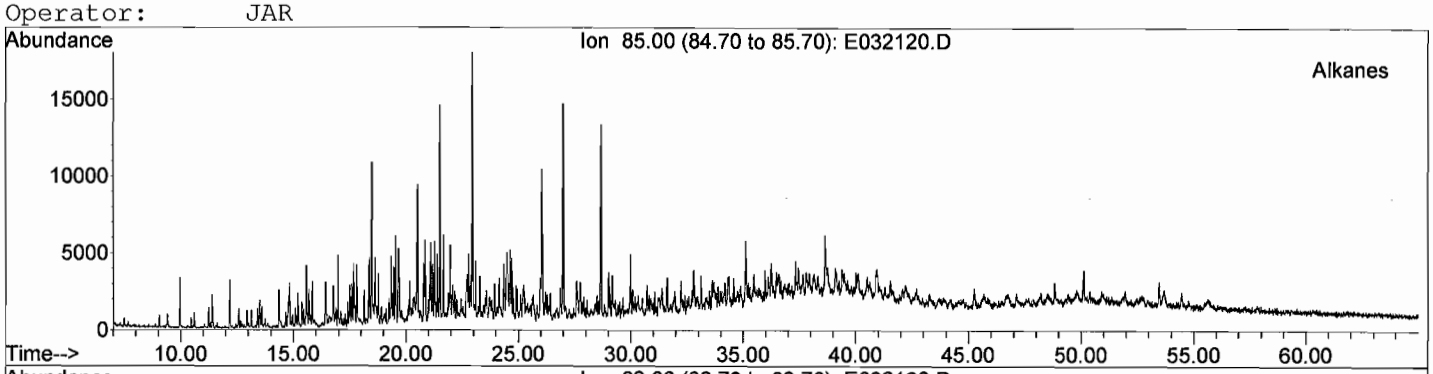
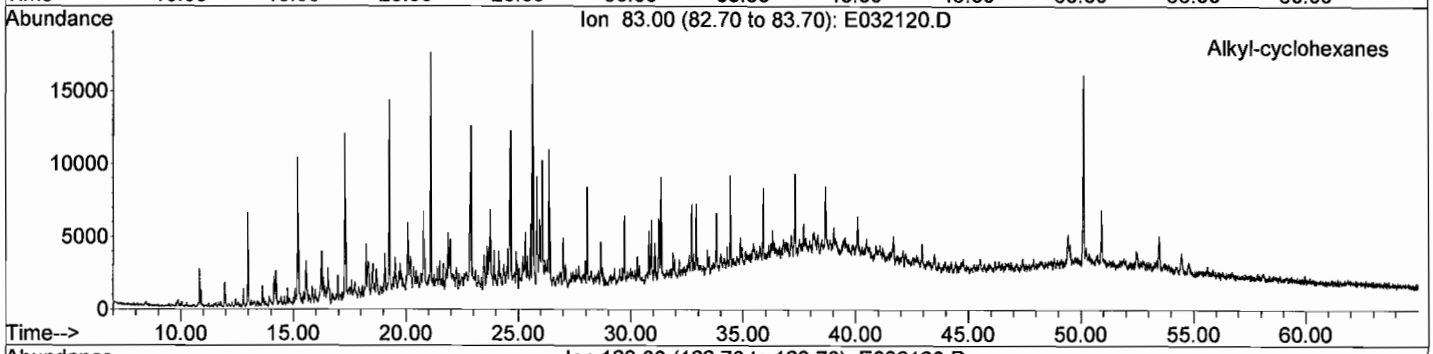
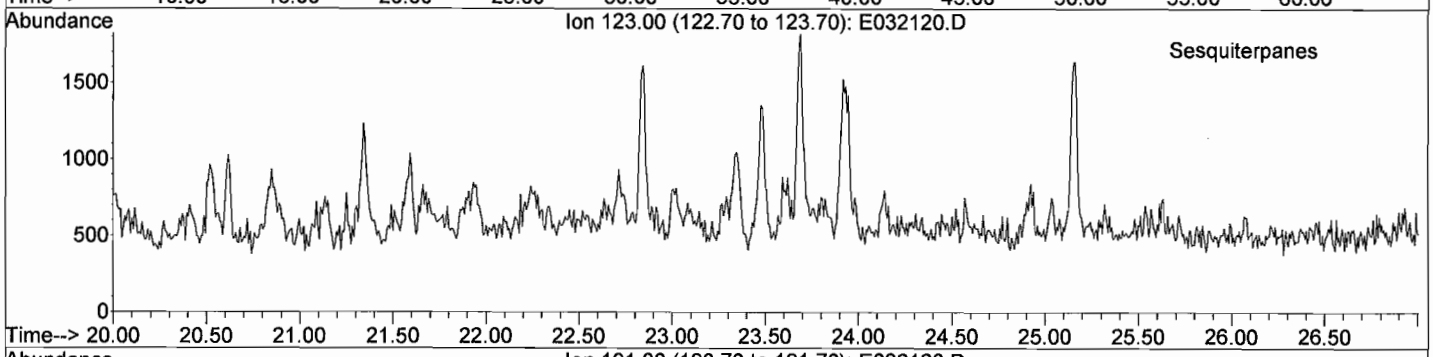
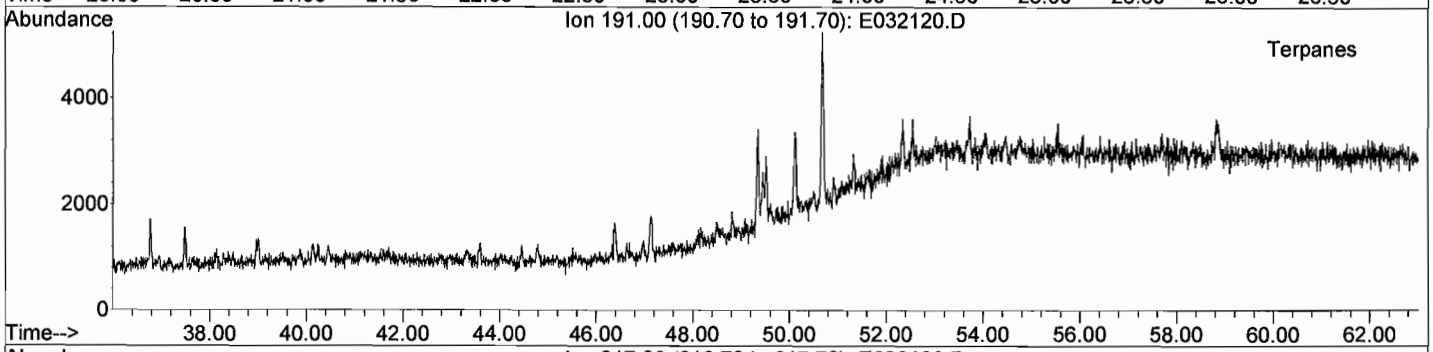
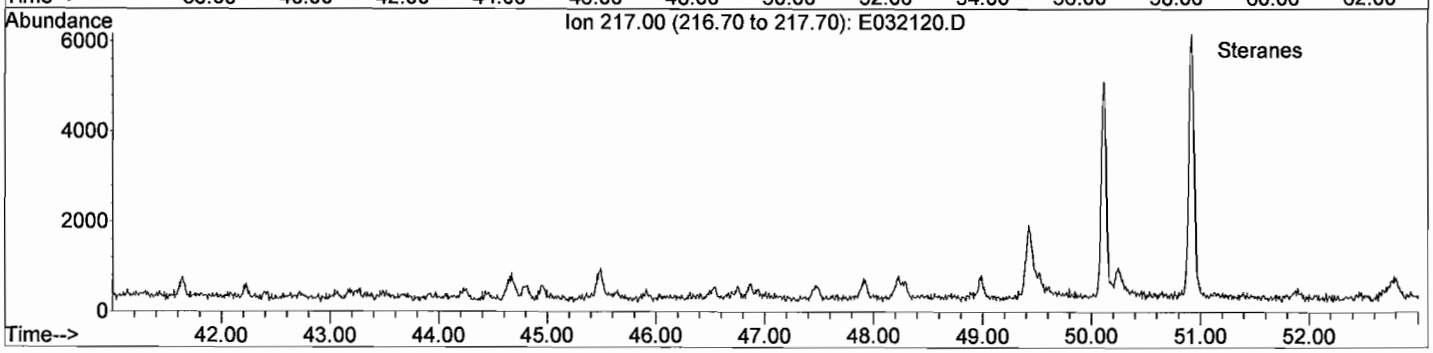
Operator: JAR



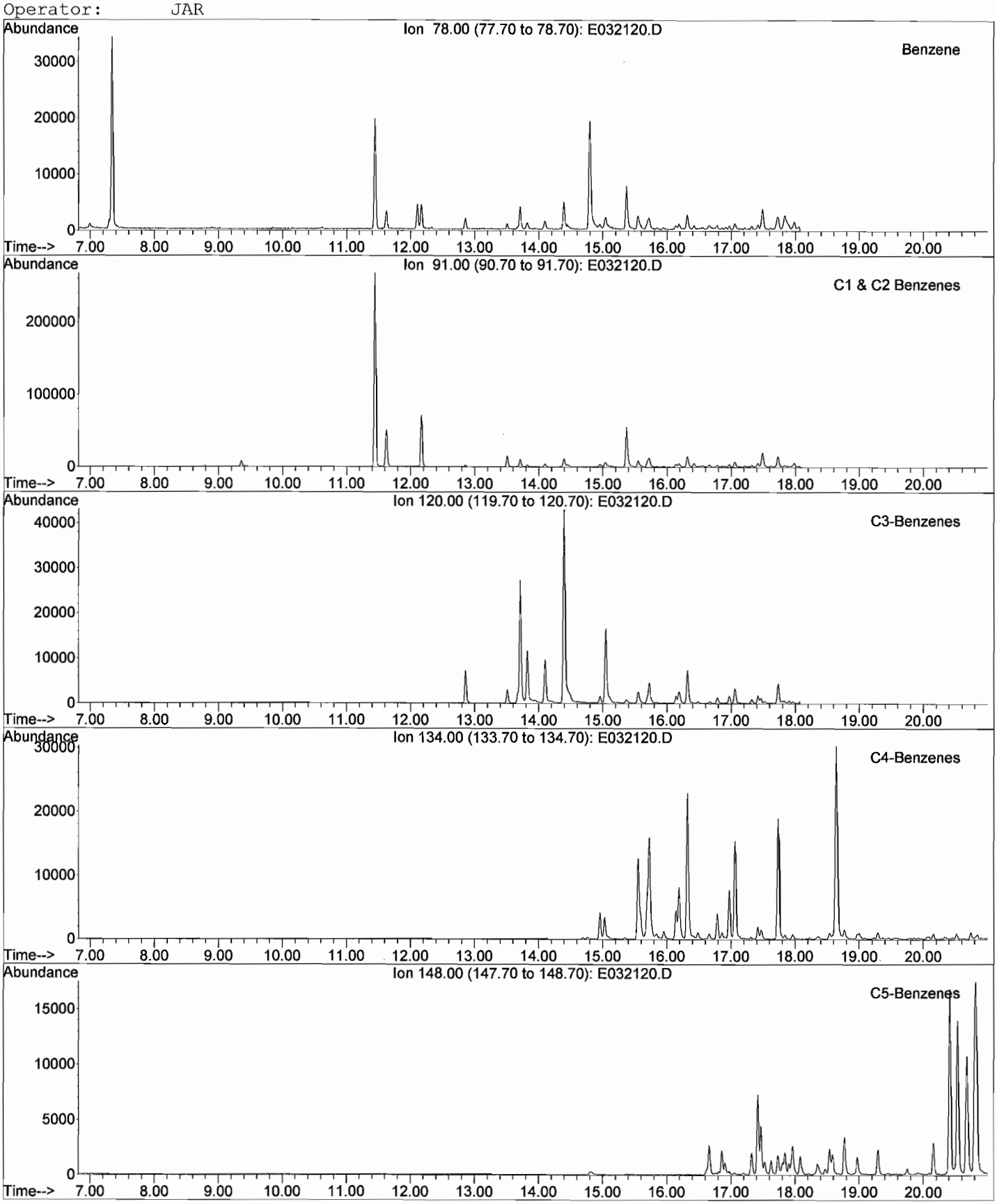



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

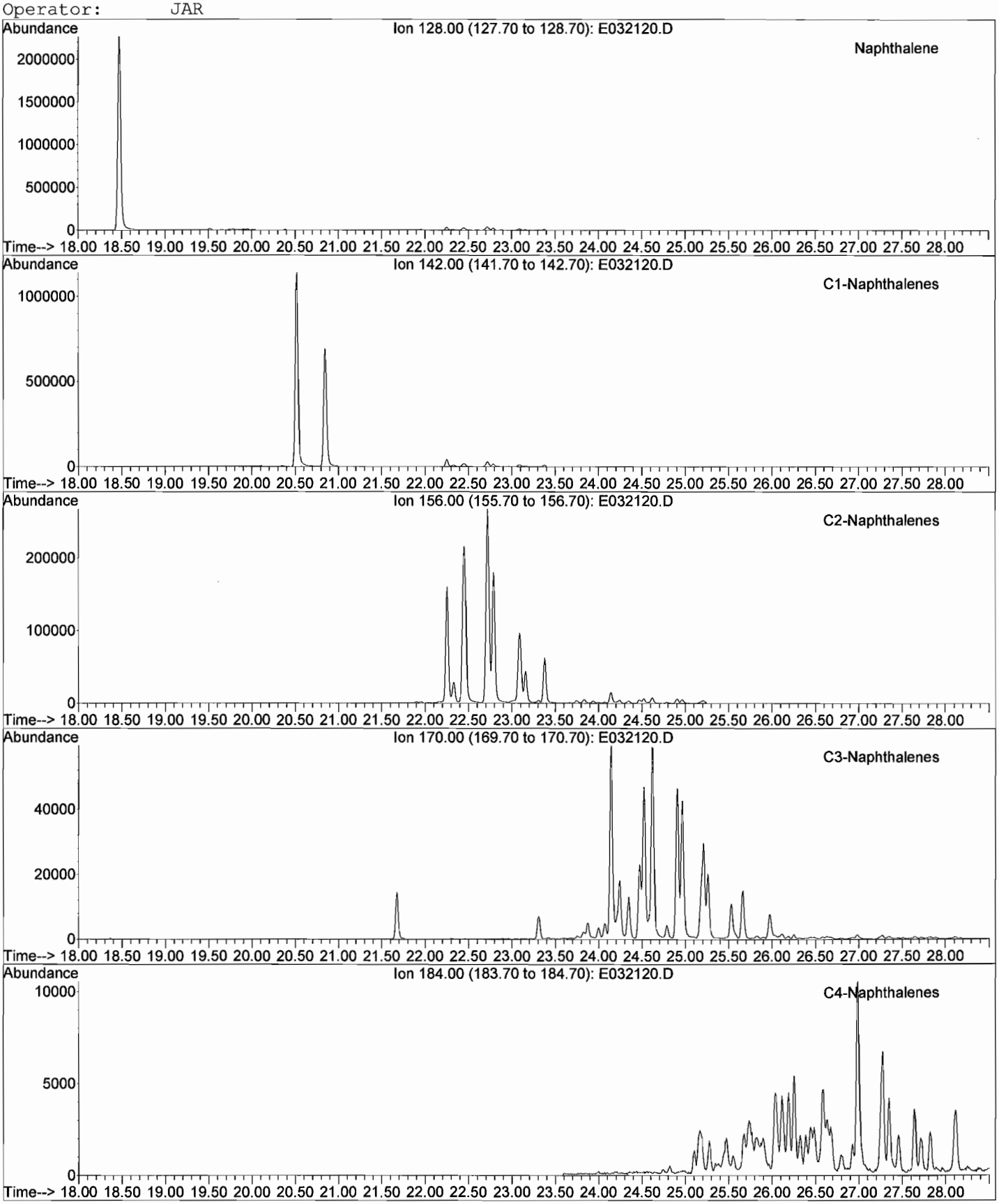
File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
Misc Info: NS-RSB003-001 (9.0-9.4)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
Misc Info: NS-RSB003-001 (9.0-9.4)
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
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Sample Name: BR070313-15-D2
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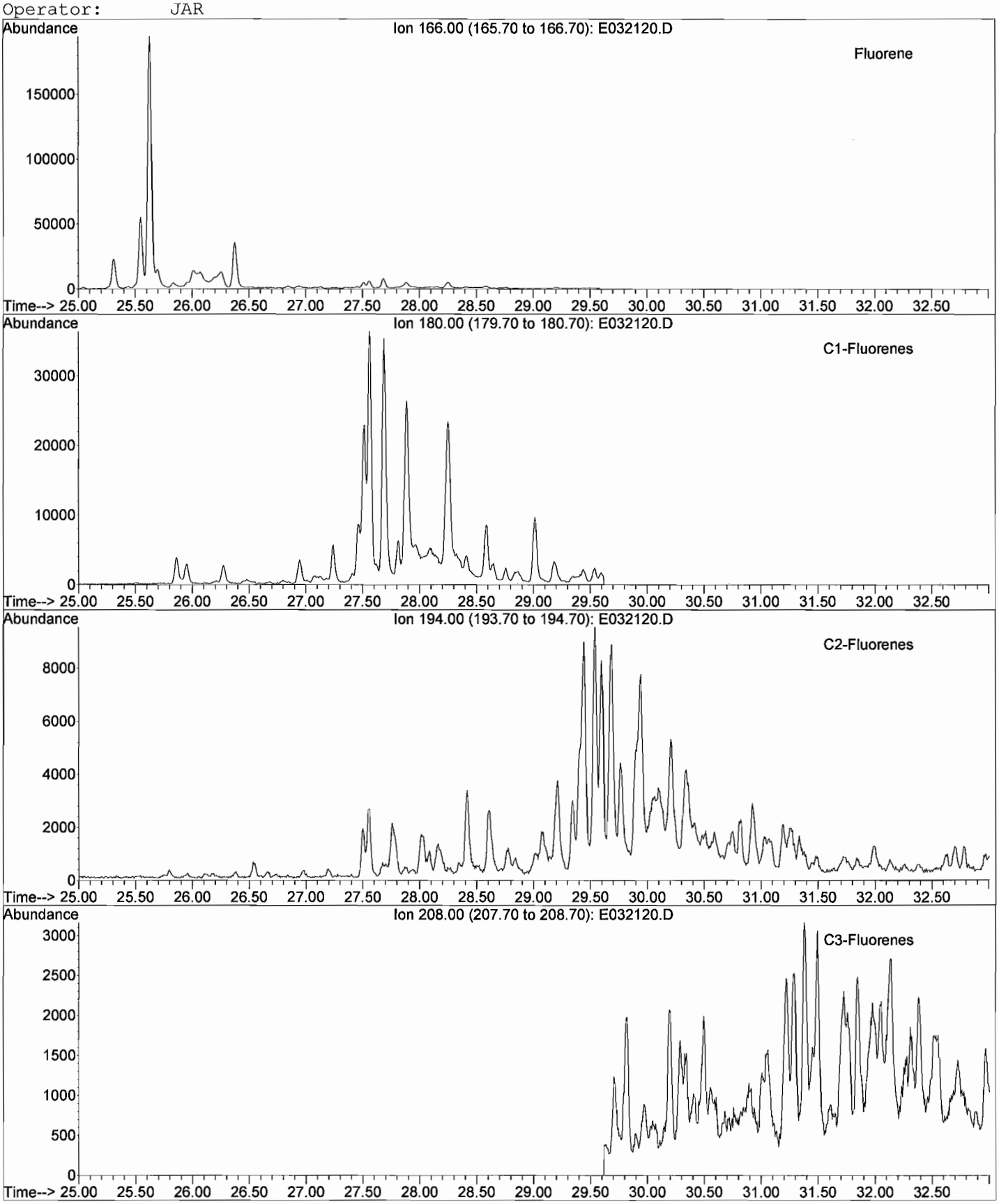
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
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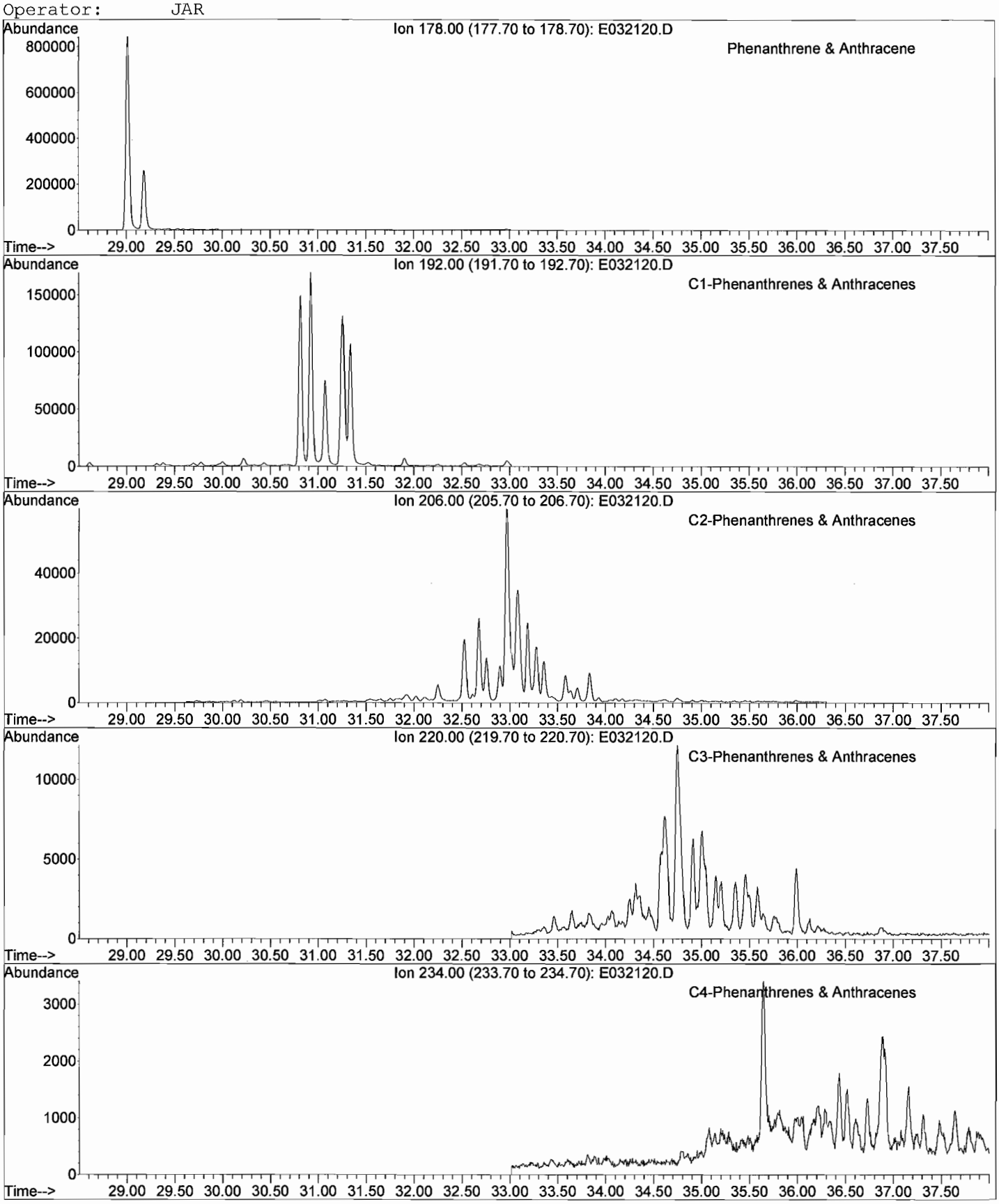
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

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Date Acquired: 22 Mar 2007 2:10 pm
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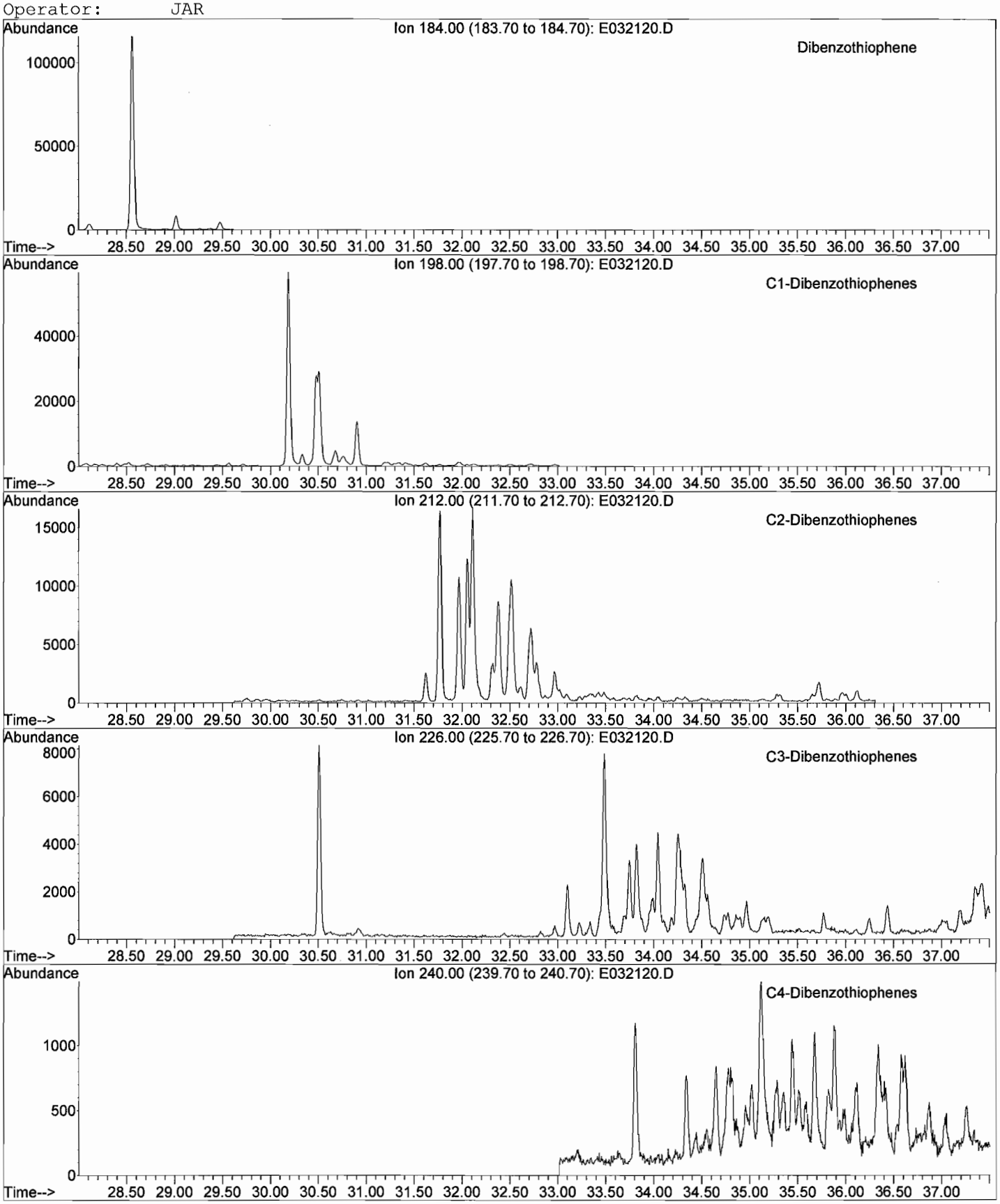
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
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Sample Name: BR070313-15-D2
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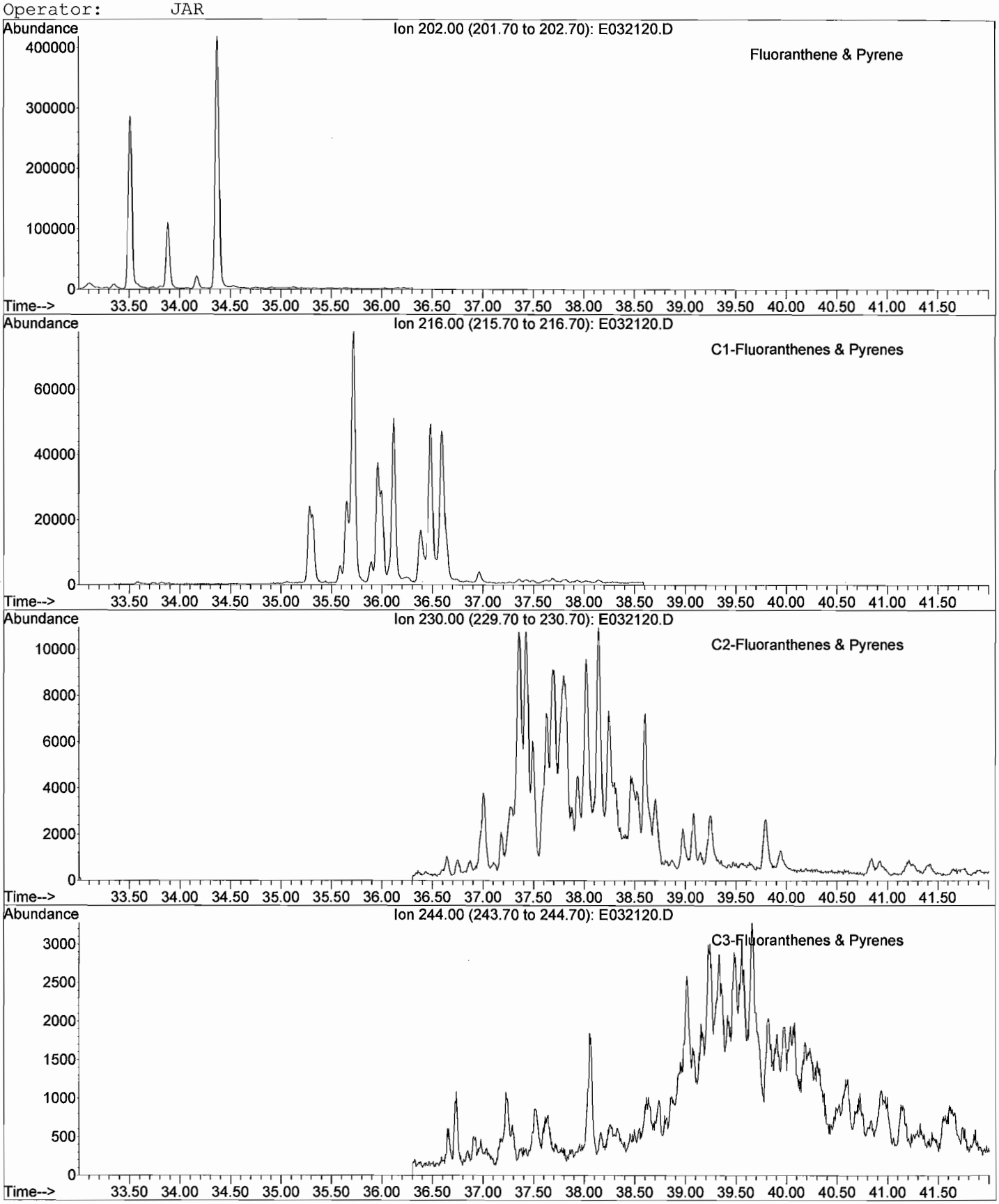
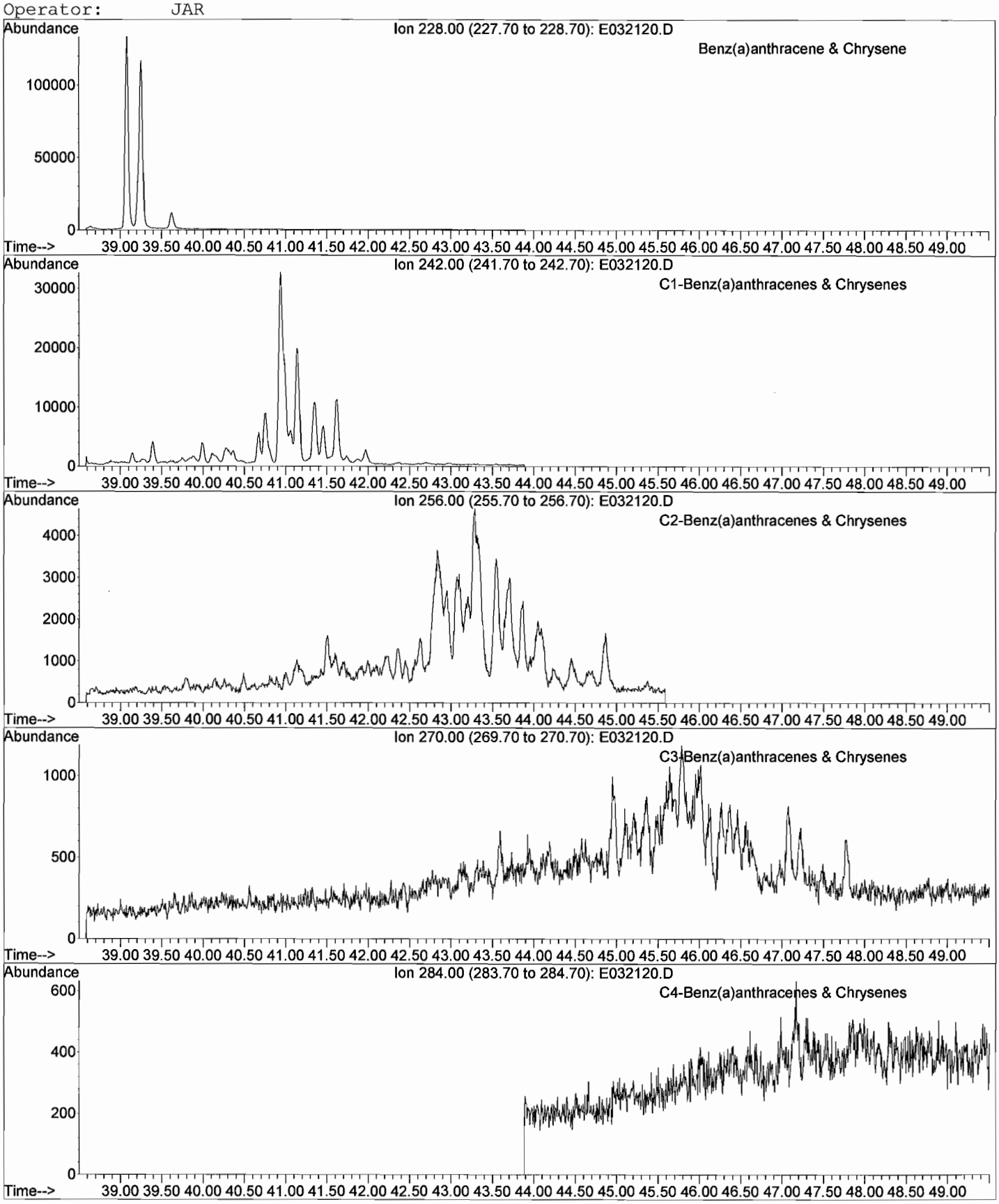
Operator: JAR



META Environmental, Inc.

GC/MS EXTRACTED ION CHROMATOGRAM

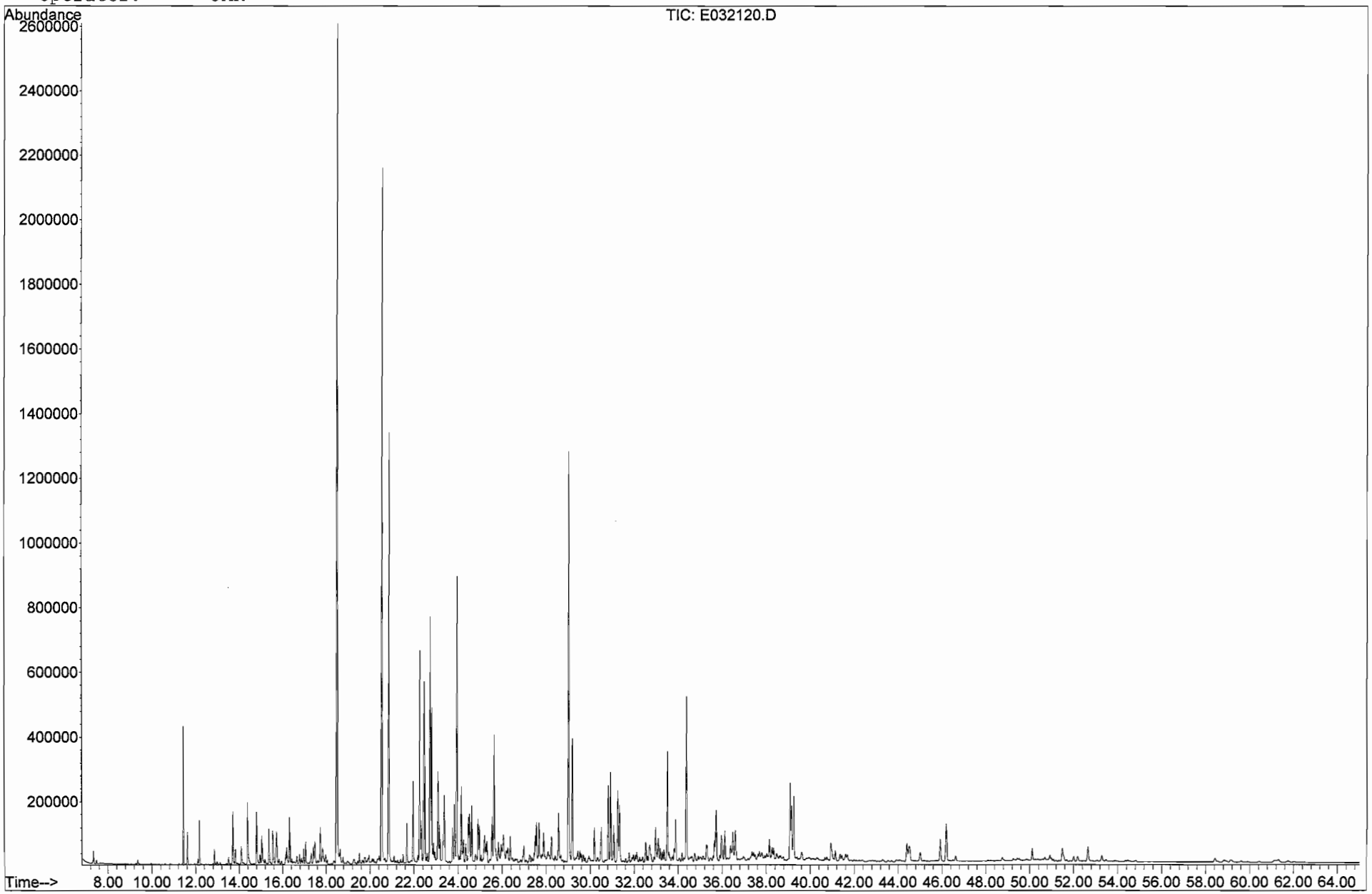
File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
Misc Info: NS-RSB003-001 (9.0-9.4)
Operator: JAR



META Environmental, Inc.

GC/MS TOTAL ION CHROMATOGRAM

File: J:\1\DATA\E070321\E032120.D
Date Acquired: 22 Mar 2007 2:10 pm
Method File: 4008SIM2.M
Sample Name: BR070313-15-D2
Misc Info: NS-RSB003-001 (9.0-9.4)
Operator: JAR



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Subject to the Attorney Client Privilege
and Attorney Work Product Doctrines

# Drilling Log

**DRAFT**

Burns & McDonnell
SINCE 1898

| | | | |
|---|---|---|---|
| Project Name: Former North Station | | Project No.: 40627 | Boring/Monitoring Well Number: RSB002 |
| Coordinates: N 1907389.535 E 1171038.048 | | Sediment Elevation (CCD): -15.61 | Page: 1 of 1 |
| Total Depth (feet): 12 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.21 |
| Drilling Rig: CME55LC | | Drilling Company: Mateco Drilling Company | |
| Date: 3-9-07 | To: 3-9-07 | Logged By: Carl Kozlowicz | Reviewed by: Christy Barry | Approved by: Don J. Schilling |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | 1 | Gray (5Y5/1) organic SILT (OL), trace clay, trace animal hair, very soft, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS-1 through SS-3 were collected using a 3" split spoon; N values are not applicable for density determination. 2" split spoon was used to collect all other sample intervals. Sample interval SS-1 collected using a trap door retainer. A basket retainer was used to collect all other sample intervals. Slight organic odor (0 - 2.0') Petroleum like odor (2.2 - 3.5') Slight tar like odor (4.0-5.5') Tar odor (6-7.5') |
| -17 | 2 | | | | | | | | | | |
| -18 | 3 | Gray (5Y5/1) to dark greenish Gray (5GY4/1) | | SS | 2 | WOH WOH WOH WOH | | 1.5/2 | | 18 | |
| -19 | 4 | | | | | | | | | | |
| -20 | 5 | trace sheen | | SS | 3 | WOH WOH WOH WOH | | 1.5/2 | | 25 | |
| -21 | 6 | | | | | | | | | | |
| -22 | 7 | | | SS | 4 | WOH WOH 1 1 | | 1.5/2 | | 37 | |
| -23 | 8 | | | | | | | | | | |
| -24 | 9 | trace tar coated (8.7-9.2') | | SS | 5 | WOH WOH 2 3 | | 1.9/2 | 0.5 | 120 0 | Heavy tar odor (8-9.2') Sample-001 (8.7-9.2') collected at 1340 |
| -25 | 10 | Gray (5Y6/1) CLAY (CL), trace silt, trace coarse to fine sand, trace coarse to fine gravel, medium stiff, high plasticity, moist | | | | | | | | | |
| -26 | 11 | | | SS | 6 | 3 3 3 3 | 6 | 1.6/2 | 0.5 | 0 | |
| -27 | 12 | End of boring 12 feet below top of sediment | | | | | | | | | WOH = weight of hammer |
| | 13 | | | | | | | | | | |
| | 14 | | | | | | | | | | |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |
| | 17 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

ENVIRONMENTAL LOG RIVER BORINGS.GPJ BURNS_MO.GDT 3/30/07

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and Attorney Work Product Doctrines

# Drilling Log

**DRAFT**

Burns & McDonnell
SINCE 1898

| | | | |
|---|---|---|---|
| Project Name: Former North Station | | Project No.: 40627 | Boring/Monitoring Well Number: RSB003 |
| Coordinates: N 1907382.687 E 1171047.631 | | Sediment Elevation (CCD): -15.36 | Page: 1 of 1 |
| Total Depth (feet): 14 | Hole Size (inches): 8.25 | Driller (s): Gary Swift | River Elevation (CCD): -2.26 |
| Drilling Rig: CME55LC | | Drilling Company: Mateco Drilling Company | |
| Date: 3-9-07 To: 3-9-07 | Logged By: Carl Kozlowicz | Reviewed by: Christy Barry | Approved by: Don J. Schilling |

| Elevation (CCD) | Depth (feet) | River Sediment Investigation Description | Graphic Log | Sample Type | Sample Interval | Blow Counts per 0.5' | N Value | Sample Recovery/Length (feet) | Penetrometer (TSF) | PID Reading (PPM) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|
| -16 | 1 | Gray (5Y5/1) organic SILT (OL), trace clay, very soft, saturated | | SS | 1 | WOH WOH WOH WOH | | 2/2 | | 0 | Sample intervals SS-1 through SS-3 were collected using a 3" split spoon; N values are not applicable for density determination. 2" split spoons were used to collect all other samples. Sample interval SS-1 collected using a trap door retainer. A basket retainer was used to collect all other sample intervals. Petroleum odor (2.9-4.0') Tar odor (5-6') Heavy tar odor (6-9.4') |
| -17 | 2 | | | | | | | | | | |
| -18 | 3 | Gray (5Y5/1) to dark greenish Gray (5GY4/1) | | SS | 2 | WOH WOH WOH WOH | | 2/2 | | 8.7 | |
| -19 | 4 | | | | | | | | | | |
| -20 | 5 | | | SS | 3 | WOH WOH WOH WOH | | 2/2 | | 19 27 | |
| -21 | | trace animal hair, sheen | | | | | | | | | |
| -22 | 6 | | | SS | 4 | WOH WOH WOH 1 | | 1.3/2 | | 8.9 49 | |
| -23 | 7 | | | | | | | | | | |
| -24 | 8 | | | SS | 5 | 1 1 1 1 | 2 | 1.9/2 | 0.5 | 27 74 0 | Sample-001 (9-9.4') collected at 1500 |
| -25 | 9 | some wood fragments, trace tar coated (9.0-9.4') | | | | | | | | | |
| -26 | 10 | Gray (5Y6/1) CLAY (CL), trace silt, medium stiff, high plasticity, moist | | SS | 6 | 3 4 4 4 | 8 | 0.9/2 | 0.5 | 0 | |
| -27 | 11 | | | | | | | | | | |
| -28 | 12 | | | SS | 7 | 3 3 4 6 | 7 | 1.1/2 | 0.5 | 0 | |
| -29 | 13 | | | | | | | | | | |
| | 14 | End of boring 14 feet below top of sediment | | | | | | | | | WOH = weight of hammer |
| | 15 | | | | | | | | | | |
| | 16 | | | | | | | | | | |
| | 17 | | | | | | | | | | |

Depth to water while drilling
Depth to water after drilling

ENVIRONMENTAL LOG RIVER BORINGS.GPJ BURNS_MO.GDT 3/30/07

# DRAFT

**DRAFT RIVER SEDIMENT INVESTIGATION SUMMARY**
**FOR**
**THE FORMER DIVISION STREET STATION**

**CHICAGO, ILLINOIS**

**Prepared for:**

**THE PEOPLES GAS**
**LIGHT and COKE COMPANY**

**Prepared by:**

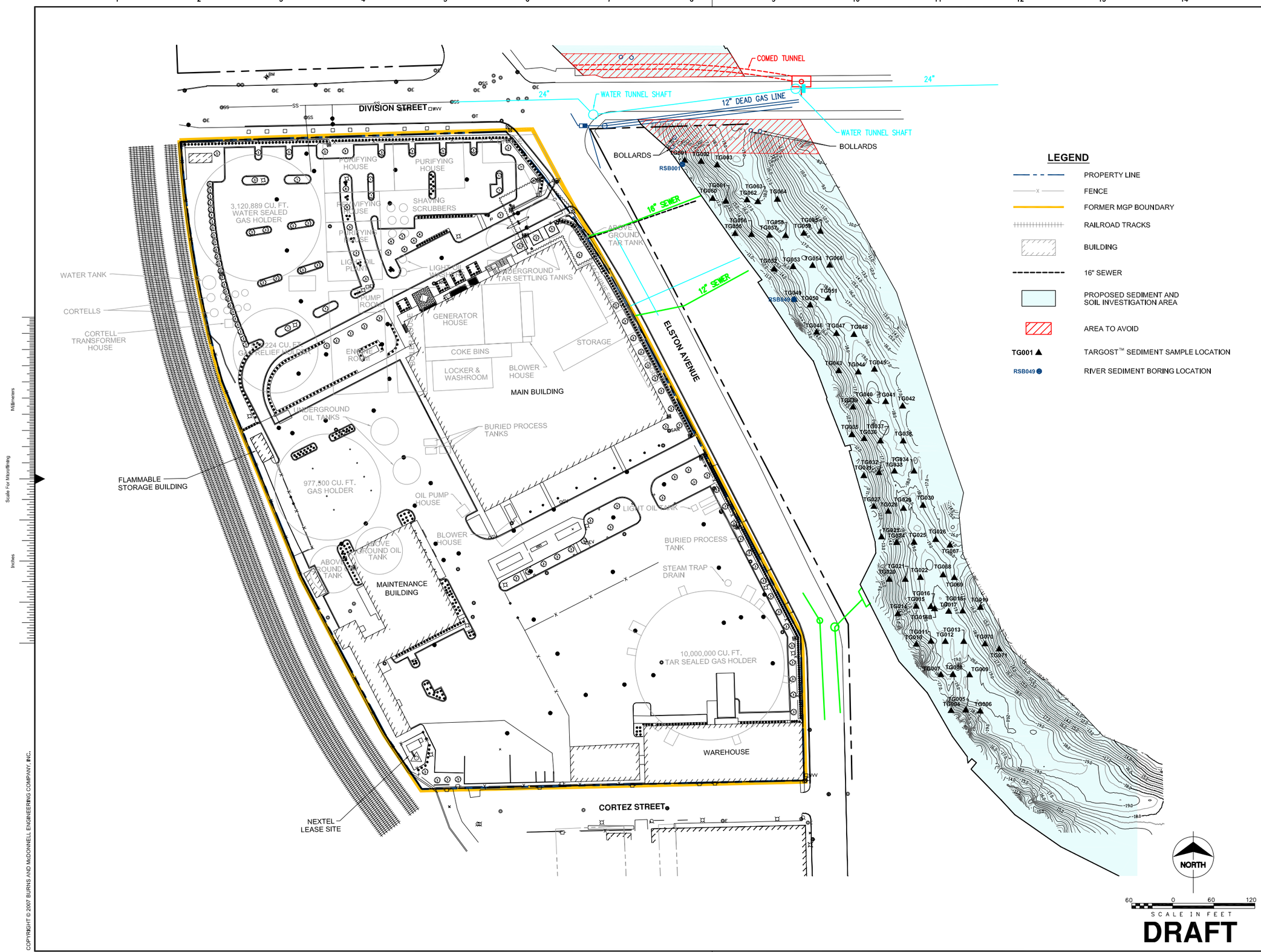
**Burns & McDonnell Engineering**
**Company, Inc.**
**1431 Opus Place, Suite 400**
**Downers Grove, Illinois 60515-1164**
**630-724-3200**

**PROJECT NO. 44217**
**April 2007**

This draft river sediment investigation (RSI) summary presents a figure, TarGOST™ logs, boring logs, photographs and forensic analytical results collected to date in the North Branch of the Chicago River (River) adjacent to the former Division Street Station (Site). The RSI activities were conducted in February and March 2007.

# DRAFT

**RIVER SEDIMENT INVESTIGATION**
**FIGURE**




| no. | date | by | ckd | description |
|---|---|---|---|---|

Burns & McDonnell

| date | detailed |
|---|---|
| 03-30-07 | G. ALVAREZ |
| designed | checked |
| J. KERSTIENS | |

**THE PEOPLES GAS LIGHT AND COKE COMPANY CHICAGO, ILLINOIS**

Figure 1
SAMPLE LOCATION MAP
FORMER DIVISION STREET STATION
CHICAGO, ILLINOIS

| project | contract |
|---|---|
| 27277 | |
| drawing | rev. |
| | – |

sheet 1 of 1 sheets

file I:\PEOPLES GAS\DIVISION-27277\CAD\BID\RIVER INVESTIGATION\TARGOST LOC

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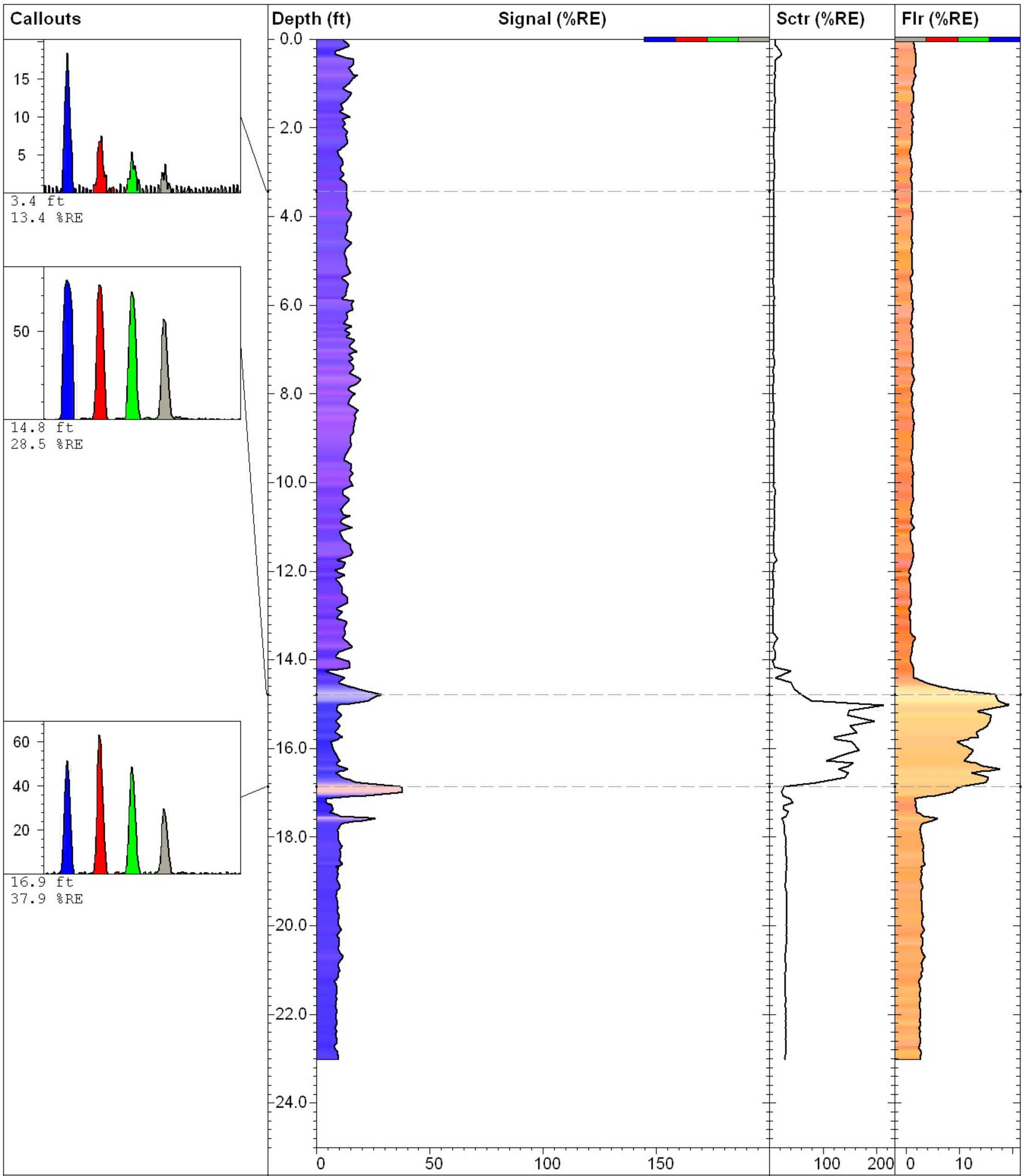
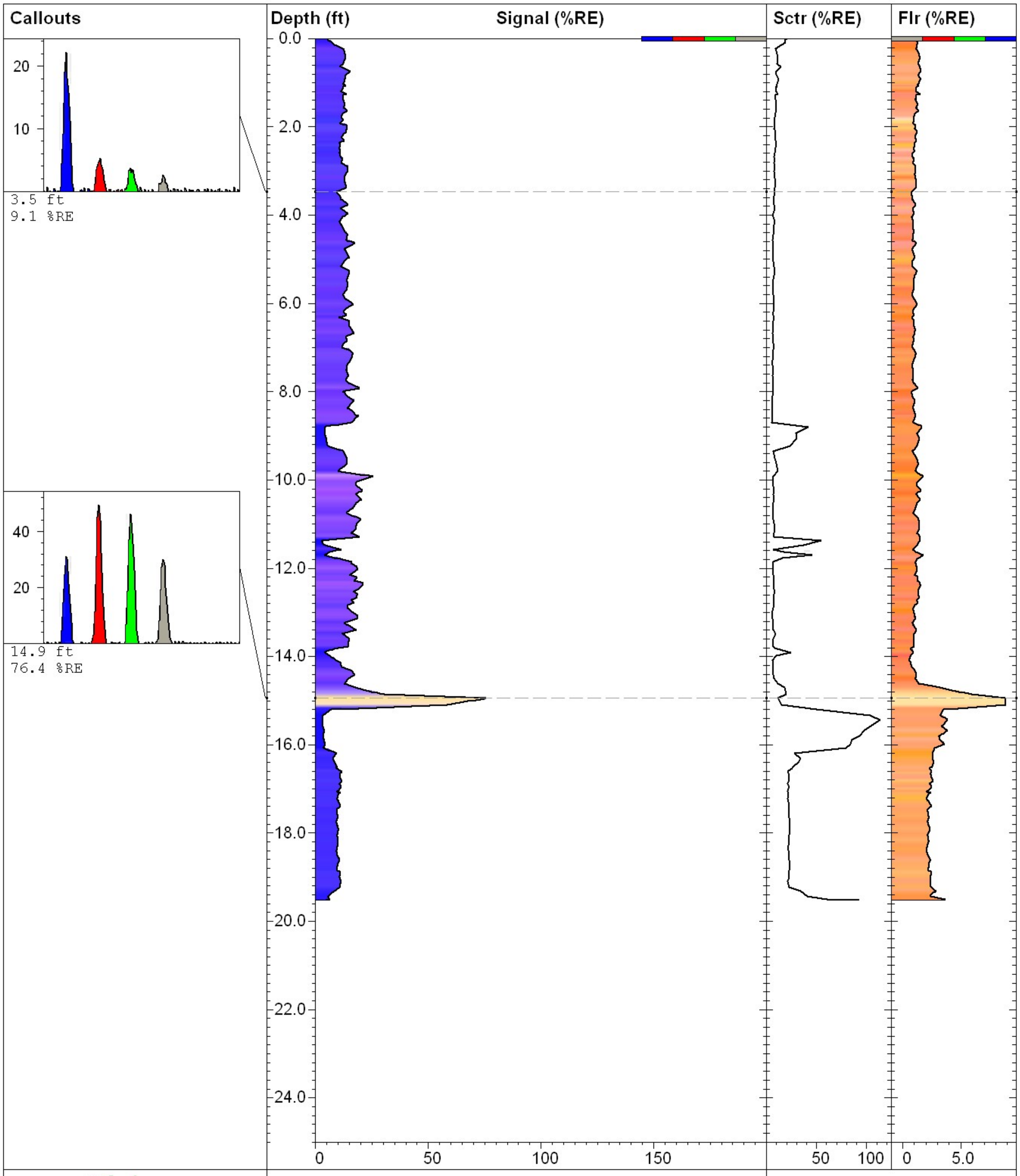
# DRAFT

**RIVER SEDIMENT INVESTIGATION**
**TarGOST™ LOGS**




**Dakota Technologies, Inc.**
2201-A 12th St N, Fargo, ND
P:(701)237-4908 F:(701)237-4926
www.DakotaTechnologies.com

| | | |
|---|---|---|
| **DSS_TG001** | | **TarGOST** |
| *Site:* **Divison St. Chicago,IL** | *Latitude / System:* **41 54.194780 N / NAD83** | *Final depth:* **23.03 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **087 39.446070 W** | *Max signal:* **37.9 % @ 16.86 ft** |
| *Job:* | *Operator/Unit:* **T. Rudolph/DTI02** | *Date & Time:* **2/1/2007 2:24:35 PM** |

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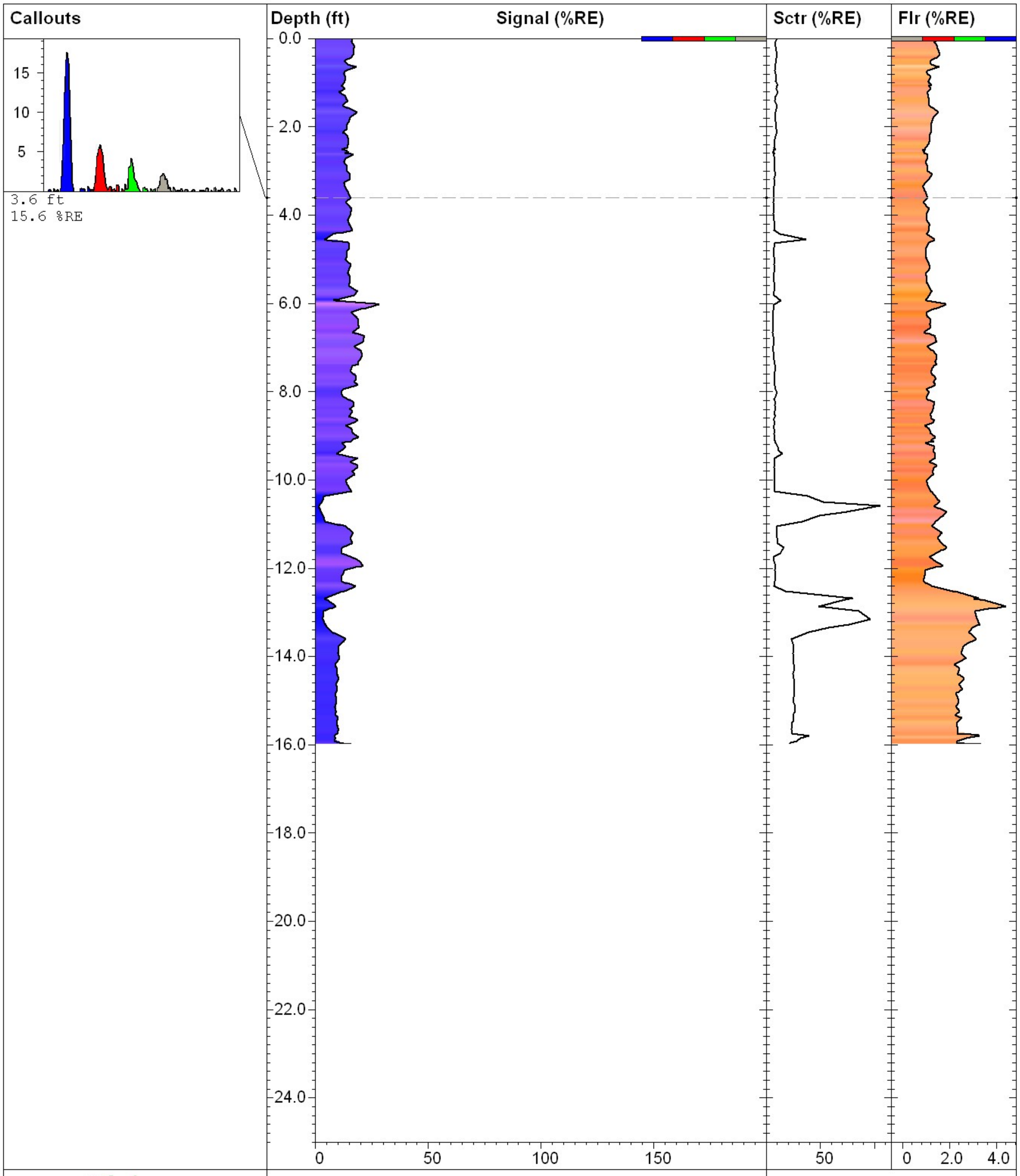
www.DakotaTechnologies.com

| | | |
|---|---|---|
| **DSS_TG002** | | **TarGOST** |
| *Site:* **Divison St. Chicago,IL** | *Latitude / System:* **41 54.194450 N / NAD83** | *Final depth:* **19.53 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **087 39.440830 W** | *Max signal:* **76.4 % @ 14.94 ft** |
| *Job:* | *Operator/Unit:* **T. Rudolph/DTI02** | *Date & Time:* **2/2/2007 8:33:22 AM** |

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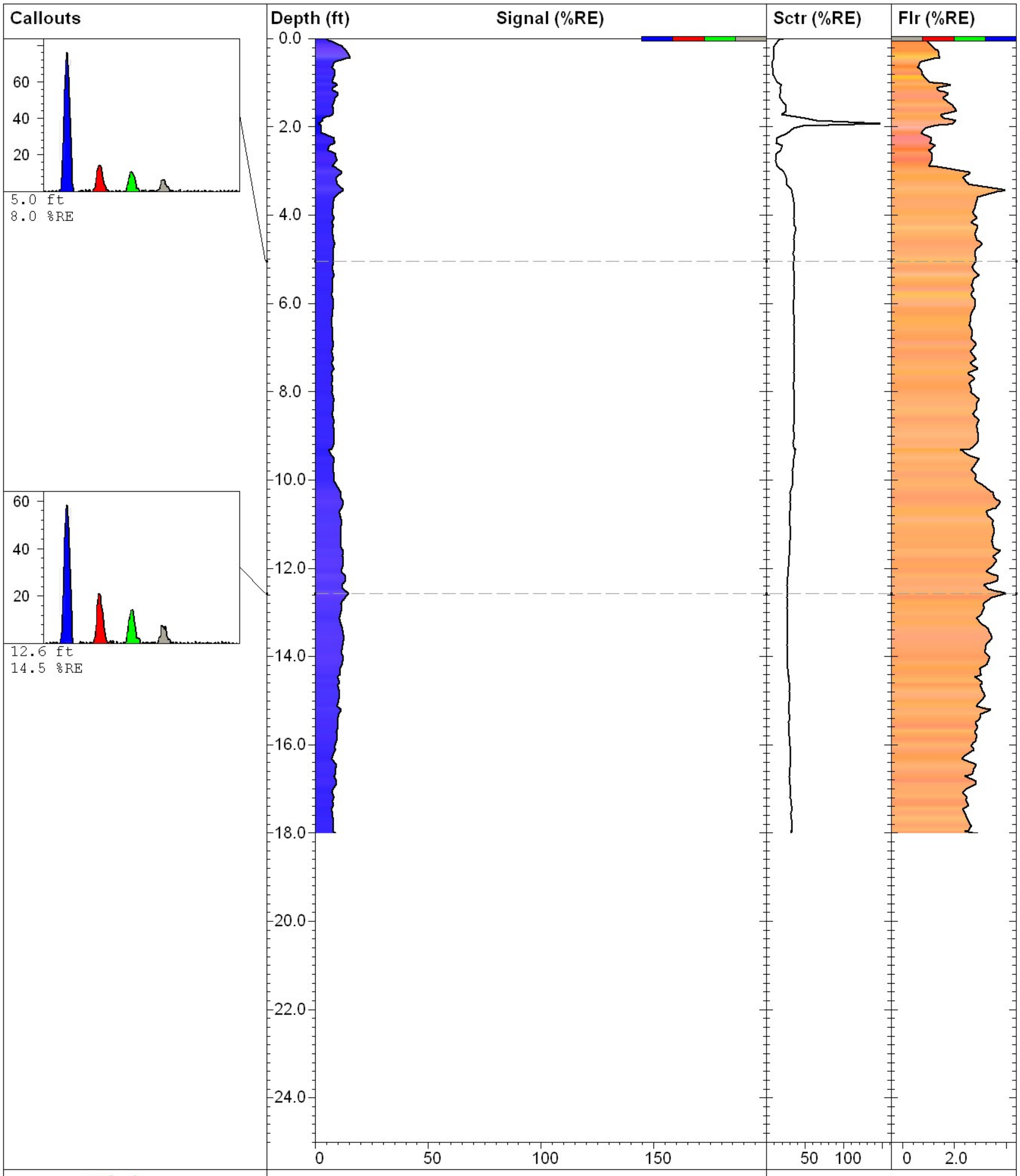
# DSS_TG003

# TarGOST

| | | |
|---|---|---|
| *Site:* **Divison St. Chicago,IL** | *Latitude / System:* **41 54.193620 N / NAD83** | *Final depth:* **15.99 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **087 39.435680 W** | *Max signal:* **28.5 % @ 6.01 ft** |
| *Job:* | *Operator/Unit:* **T. Rudolph/DTI02** | *Date & Time:* **2/2/2007 9:34:47 AM** |

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www.DakotaTechnologies.com

| | | |
|---|---|---|
| **DSS_TG004** | | **TarGOST** |
| *Site:* **Divison St. Chicago,IL** | *Latitude / System:* **41 54.062340 N / NAD83** | *Final depth:* **18.01 ft** |
| *Client:* **Burns & McDonnell** | *Longitude:* **087 39.360350 W** | *Max signal:* **15.4 % @ 0.43 ft** |
| *Job:* | *Operator/Unit:* **T. Rudolph/DTI02** | *Date & Time:* **2/2/2007 11:10:30 AM** |