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22 June 2015

Ms. Jing Liu
Toxic Cleanup Program
Washington State Department of Ecology
3190 160th Avenue SE
Bellevue, Washington 98008

Subject: Quarterly Groundwater Monitoring Event Report, May 2015
Cornet Bay Marina
Oak Harbor, Washington
K/J 1396010.00

Dear Ms. Liu:

This letter report presents the findings of the fourth quarterly groundwater monitoring event that was performed following completion of remediation activities at the Cornet Bay Marina (site) in June 2014. The site is located at the northern end of Whidbey Island, Island County, Washington and bounded on the west by Cornet Bay and on the east by Cornet Bay Road. A site vicinity map is included as Figure 1 (attached).

The work documented in this letter report was performed on behalf of the Washington State Department of Ecology (Ecology) in support of a cleanup action completed at the site. The work performed includes the fourth quarterly groundwater monitoring of six site monitoring wells and two groundwater seeps.

Background

In January 1989, a release occurred from ruptured underground fuel lines and caused impacts to soil and groundwater behind the wooden bulkhead at the site. After discovery of the release, the original underground storage tanks (USTs) and piping were emptied and removed. Following removal of the old tanks and piping, a two-compartment 12,000-gallon aboveground storage tank (AST) (9,000-gallon gasoline and 3,000-gallon diesel) and steel piping were installed. The tank was installed in a belowground reinforced concrete vault near the footprint of the former UST excavation. The location of the tank vault is shown on Figure 2 (attached).

In February 1993, a Consent Decree (Ecology Site Cleanup No. 2011, Consent Decree No. 93-2-00018-3) was established between Ecology and the Cornet Bay Marina site owner/operator (Mr. Milton Woods). The consent decree required an investigation and cleanup of the site in accordance with the requirements of Model Toxics Control Act (MTCA) [Washington Administrative Code (WAC) 173-340].

In August 2011, Ecology authorized Kennedy/Jenks Consultants to prepare a Remedial Investigation/Feasibility Study (RI/FS) Work Plan (Work Plan) to 1) collect supplemental information regarding the distribution of affected soil and groundwater, 2) assess the potential for vapor intrusion at the onsite building, and 3) evaluate overall site conditions with the intent to identify and select a cleanup action for the site.

The Work Plan was implemented from August through December 2011 and documented in the RI/FS report dated July 2013. The preferred remedial alternative identified in the FS included replacement of the dilapidated wooden bulkhead with a new steel sheet pile bulkhead and removal and disposal of contaminated soil. Following completion of the RI/FS, the following activities were performed in support of implementing the selected remedial alternative:

- Preparation of a cleanup action plan (CAP), dated July 2013, that summarized key elements of the remedial action.

- Extensive permitting activities, including a State of Washington National Pollutant Discharge Elimination System (NPDES) permit, a Construction Stormwater General Permit (CSGP), and a U.S. Army Corps of Engineers (Corps) Nationwide Permit (NWP).

- Preparation of an Engineering Design Report (EDR), dated September 2013. The EDR provided details regarding the cleanup requirements, engineering design concepts and criteria, and plans for confirmation monitoring.

- Preparation of construction issue specifications and plans (Project Documents) for implementation by Ecology's selected remediation contractor.

The remedial action field work was completed from December 2013 through June 2014 by Ecology's selected remediation contractor (Glacier Environmental, Inc. of Mukilteo, Washington). The substantive remedial activities (including summary of performance monitoring results) for the remedial action are summarized in the Construction Completion Report (CCR) dated October 2014.

Following completion of the remedial action, four new groundwater monitoring wells (MW-1R, MW-2R, MW-4R, and MW-10R) were installed at the site on 13 August 2014 (refer to Figure 2). The four new wells replaced prior monitoring wells that had been abandoned as part of the cleanup activities. Each of the new wells and two previously installed monitoring wells (MW-7 and MW-9) were developed to remove fine-grained sediments from the filter-pack. Following development, each of the wells was surveyed by KPG of Seattle, Washington to identify top of casing elevation.

Scope of Work

Quarterly Groundwater Monitoring

The fourth quarterly monitoring event was performed on 19 May 2015. Field activities performed included the following:

- Groundwater level monitoring was conducted by gauging each of six site monitoring wells using an electronic water level depth probe. The groundwater elevation at each well was calculated by measuring the depth to water (to +/- 0.01 foot) and subtracting this measurement from the surveyed monitoring well casing elevations. Water levels were measured at high and low tides. Water levels were measured from 0558 to 0611, within approximately 0.5 hour of the 0546 high tide at Cornet Bay. Water levels were measured again from 1218 to 1234, within approximately 0.5 hour of the 1250 low tide at Cornet Bay.

- Groundwater sampling was performed using low-flow purging and sampling techniques with wells purged at a rate of approximately 0.1 to 0.25 liter per minute using a peristaltic pump. Field parameter monitoring included temperature, pH, specific conductance, dissolved oxygen, oxidation/reduction potential (ORP), and relative turbidity. Due to rapid dewatering and slowing recharge associated with the changing tides, wells MW-1R, MW-2R, and MW-10R field parameters did not completely stabilize prior to sample collection. Aside from the aforementioned exceptions, purging continued until field parameters indicated stable conditions (refer to Table 1, attached).

- Groundwater samples were collected from the six monitoring wells and submitted to Analytical Resources, Incorporated (ARI) in Tukwila, Washington, for the following analyses:
  - Gasoline-range organics (GRO) using Ecology Method Northwest Total Petroleum Hydrocarbons as Gasoline (NWTPH-Gx).
  - Diesel-range organics (DRO) using Ecology Method Northwest Total Petroleum Hydrocarbons as Diesel Extended (NWTPH-Dx).
  - Benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Method SW8260C.

- Quality assurance/quality control (QA/QC) samples were collected and include:
  - One field duplicate sample (D-1) was collected and analyzed for each of the primary chemical of concern (COC) analytes (GRO, DRO, and BTEX) from well MW-2R.
  - Trip blanks were included with the shipment (19 May 2015) to the analytical laboratory.

- Groundwater samples were also collected for analysis of selected monitored natural attenuation (MNA) parameters, including nitrate/nitrite, ammonia, sulfate, sulfide, dissolved iron (field filtered), and methane.

- Groundwater seep samples were collected from two seep locations along the bulkhead during low tide (for purposes of access). Sampling was performed by collecting seep water directly to the designated sampling bottles. Samples were submitted to ARI for analysis of DRO, GRO, and BTEX. Groundwater seep locations are included on Figure 2.

Groundwater Purge and Sample Forms are included in Attachment A.

Monitoring Results

Groundwater Elevation Results

The results of water level monitoring are summarized in Table 2 (attached). Potentiometric surface elevation maps of site groundwater are provided on Figure 3A (attached) for high tide data and Figure 3B (attached) for low tide data. Based on historical water level monitoring data, site groundwater levels are tidally influenced (especially near the bulkhead). Groundwater hydraulic gradient at the site slopes from the upland areas toward Cornet Bay (from east to west) during high tide. During low tide, the hydraulic gradient slopes from the upland areas toward the northern side of the bulkhead. Current water level monitoring results obtained on 19 May 2015 indicate groundwater gradient conditions are generally consistent with historical monitoring results.

Analytical Results

As indicated above, groundwater samples for the six site wells and two groundwater seep locations were submitted for GRO, DRO, and BTEX compounds on 19 May 2015. The analytical results of groundwater samples collected during this quarterly monitoring event are summarized in Table 3 (attached). All analyte concentrations (including GRO, DRO, and BTEX) in groundwater samples were below laboratory reporting limits for all site monitoring wells and both groundwater seep samples.

As site groundwater discharges to surface water and is not used for potable consumption, compliance with groundwater cleanup levels for the site are based on comparison to applicable, relevant, and appropriate requirement (ARARs) or other relevant screening criteria. All analyte concentrations in the samples were either below the MTCA Method A Cleanup Level, Clean Water Act (CWA) values, or the National Oceanic and Atmospheric Administration's (NOAA) *Screening Quick Reference Tables* (SQUIRT) values. Comparison of site groundwater with these standards and screening levels demonstrate the remedial action completed in June 2014 was successful in removing contaminated site soils that could impact surface water in Cornet Bay. Groundwater laboratory analytical results are summarized in Table 3 and the laboratory analytical reports are provided in Attachment B.

As indicated above, site groundwater samples were also submitted for analysis of baseline MNA parameters (identified above) to assess natural biodegradation of possible residual hydrocarbon compounds (refer to Table 1). The results indicate conducive conditions in site groundwater to support natural biodegradation of any residual soil or groundwater COC impacts at the site via aerobic and/or anaerobic respiration.

Kennedy/Jenks Consultants appreciates the opportunity to provide continued support to Ecology on this project. Should you have any questions regarding the information contained herein, please do not hesitate to contact us at (253) 835-6400.

Very truly yours,

KENNEDY/JENKS CONSULTANTS

Ty C. Schreiner, L.Hg.
Vice President

Attachments:

Tables
Table 1 – Water Quality and Geochemical Parameters
Table 2 – Summary of Groundwater Elevation Data
Table 3 – Groundwater Analytical Results

Figures
Figure 1 – Site Location
Figure 2 – Site Plan
Figure 3A – Groundwater Potentiometric Surface Map – High Tide, May 2015
Figure 3B – Groundwater Potentiometric Surface Map – Low Tide, May 2015

Attachments
Attachment A – Groundwater Purge and Sample Forms
Attachment B – Laboratory Analytical Reports

Tables

Table 1: Water Quality and Geochemical Parameters

		Water Quality Parameters[a]						Geochemical Parameters					
Monitoring Well ID	Sample Collection Date	pH	Conductivity (mS/cm)	Turbidity (NTU)	Temperature (°C)	Dissolved Oxygen (mg/L)	ORP (mV)	Nitrate+ Nitrite (mg-N/L)	Ammonia (mg-N/L)	Sulfate (mg/L)	Sulfide (mg/L)	Methane (µg/L)	Dissolved Iron (mg/L)
MW-1R	9/18/2014	6.79	1.920	22.2	20.44	4.37	111	0.180	1.17	64.5	0.050 U	11.8	---[b]
MW-1R	11/25/2014	7.23	0.957[c]	32[c]	11.8	4.46[c]	61.9[c]	16.3	0.026	80.0	0.050 U	0.7 U	0.05 U
MW-1R	2/24/2015	7.14	1.908	137.00	10.4	5.31	38.7	5.41	0.037	44.7	0.161	0.7 U	0.83
MW-1R	5/19/2015	7.22	0.723	36.00	12.9	1.84	181.8	10.30	0.181	55.2	0.052	0.7 U	0.18
MW-2R	8/15/2014	6.77	1.260	28.8	17.42	6.15	79	1.320	0.116	64.3	0.050 U	0.7 U	0.05 U
MW-2R	11/25/2014	7.11	0.267	80	11.0	9.82	205.0	0.654	0.018	20.4	0.098	0.7 U	0.15
MW-2R	2/24/2015	6.40	2.851	29.30	10.2	3.48	61.3	0.095	0.318	66.5	0.100	116	3.91
MW-2R	5/19/2015	6.79	1.299	75.90	12.1	6.79	155.0	0.145	0.021	59.6	0.050 U	0.7 U	0.05 U
MW-4R	8/15/2014	7.25	1.400	32.9	16.24	3.51	-18	0.714	0.022	96.0	0.050 U	13.2	0.05 U
MW-4R	11/25/2014	7.38	0.308	6.7	11.0	9.85	251.1	2.21	0.034	42.5	0.050 U	0.7 U	0.05 U
MW-4R	2/24/2015	7.00	1.454	3.76	10.15	3.74	50.9	0.513	0.013	10	0.050 U	96.2	0.31
MW-4R	5/19/2015	7.21	1.187	17.40	12.50	0.20	63.6	0.106	0.039	99.5	0.050 U	414	0.05 U
MW-7	8/14/2014	6.67	0.673	16.3	17.47	2.16	-175	0.024	14.5	19.7	0.050 U	1,160	14.4
MW-7	11/25/2014	7.11	0.455	0.90	11.5	0.16	-115.4	0.012	10.9	24.1	0.050 U	1,760	12.9
MW-7	2/24/2015	6.73	0.761	NM	9.41	0.98	-83.1	0.010 U	8.38	25.3	0.050 U	700	9.13
MW-7	5/19/2015	7.02	0.437	8.90	12.50	0.19	-136.6	0	9.53	16.9	0.050 U	779	14.2
MW-9	8/14/2014	6.91	0.693	17.0	17.82	2.95	10	0.010 U	0.376	10.8	0.050 U	0.7 U	0.05 U
MW-9	11/25/2014	7.14	0.676	5.2	12.7	0.26	-7.0	0.010 U	0.266	12.8	0.050 U	323	0.58
MW-9	2/24/2015	6.89	1.379	25.30	10.57	0.69	-0.3	0.011	0.462	65.6	0.050 U	241	0.05 U
MW-9	5/19/2015	7.13	0.620	13.10	13.50	0.43	-66.7	0.040	0.428	12.9	0.050 U	0.7 U	1.32
MW-10R	8/15/2014	7.03	2.160	165.0	18.23	7.73	-30	0.084	4.61	98.6	0.100	5,180	2.07
MW-10R	11/25/2014	6.83	1.608	10	12.2	0.32	108.0	0.010 U	3.10	211	0.059	3,000	1.99
MW-10R	2/24/2015	6.62	3.539	3.68	10.98	0.69	51	0.109	3.31	363	0.050 U	1,680	1.91
MW-10R	5/19/2015	6.83	1.599	4.10	11.90	1.87	14.9	0.019	3.21	312	0.050 U	39	2.1

Notes:

(a) Water quality parameter readings at the completion of purging and prior to sampling.
(b) Well was not sampled for dissolved iron due to slow recharge.
(c) Well sampled prior to water quality parameter stabilization due to slow recharge.

mS/cm = milli-Siemens per centimeter.
NTU = nephelometric turbidity unit.
°C = degrees Celsius.
mg/L = milligrams per liter.
ORP = oxidation-reduction potential.
mV = millivolt.
mg-N/L = milligram nitrogen per liter.
mg/L = milligrams per liter.
µg/L = micrograms per liter.
"U" = Not detected at or above laboratory reporting limits.
NM = Not measured due to turbidity reading difficulties.

Table 2: Summary of Groundwater Elevation Data

Monitoring Well ID	Measurement Date	Top of PVC Well Elevation[a] (feet amsl)[b]	Depth to Groundwater (feet)	Groundwater Elevation (feet amsl)
MW-1R	8/15/2014	14.19	8.98	5.21
MW-1R	11/25/2014	14.19	4.81	9.38
MW-1R [c]	2/24/2015	14.19	5.32	8.87
MW-1R [d]	2/24/2015	14.19	7.96	6.23
MW-1R [c]	5/19/2015	14.19	6.46	7.73
MW-1R [d]	5/19/2015	14.19	9.02	5.17
MW-2R	8/15/2014	13.87	7.80	6.07
MW-2R	11/25/2014	13.87	6.72	7.15
MW-2R [c]	2/24/2015	13.87	5.13	8.74
MW-2R [d]	2/24/2015	13.87	5.19	8.68
MW-2R [c]	5/19/2015	13.87	6.38	7.49
MW-2R [d]	5/19/2015	13.87	9.60	4.27
MW-4R	8/15/2014	13.76	5.61	8.15
MW-4R	11/25/2014	13.76	4.86	8.90
MW-4R [c]	2/24/2015	13.76	5.92	7.84
MW-4R [d]	2/24/2015	13.76	10.62	3.14
MW-4R [c]	5/19/2015	13.76	6.03	7.73
MW-4R [d]	5/19/2015	13.76	6.03	7.73
MW-7	8/14/2014	13.66	2.59	11.07
MW-7	11/25/2014	13.66	0.47	13.19
MW-7 [c]	2/24/2015	13.66	2.04	11.62
MW-7 [d]	2/24/2015	13.66	2.09	11.57
MW-7 [c]	5/19/2015	13.66	3.02	10.64
MW-7 [d]	5/19/2015	13.66	3.09	10.57
MW-9	8/14/2014	12.83	3.28	9.55
MW-9	11/25/2014	12.83	1.84	10.99
MW-9 [c]	2/24/2015	12.83	3.31	9.52
MW-9 [d]	2/24/2015	12.83	2.65	10.18
MW-9 [c]	5/19/2015	12.83	2.56	10.27
MW-9 [d]	5/19/2015	12.83	3.99	8.84
MW-10R	8/15/2014	13.42	4.19	9.23
MW-10R	11/25/2014	13.42	3.57	9.85
MW-10R [c]	2/24/2015	13.42	3.52	9.90
MW-10R [d]	2/24/2015	13.42	3.55	9.87
MW-10R [c]	5/19/2015	13.42	4.22	9.20
MW-10R [d]	5/19/2015	13.42	5.28	8.14

Notes:

(a) Casing elevations were surveyed on 15 August 2014 by KPG, Inc. of Tacoma, Washington.

(b) Water quality parameter readings at the completion of purging and prior to sampling.

(c) Groundwater elevation collected at high tide.

(d) Groundwater elevation collected at low tide.

PVC = polyvinyl chloride.

amsl = above mean sea level.

Table 3: Groundwater Analytical Results

Monitoring Well / Sampling Location ID	Sample Collection Date	Total Petroleum Hydrocarbons (µg/L)[a]			Volatile Organic Compounds (µg/L)[b]			
		Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes
MW-1R	8/18/2014	250 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MW-1R	11/25/2014	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-1R	2/24/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-1R	5/19/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-2R	8/15/2014	250 U	100 U	200 U	1.5	1.0 U	1.0 U	3.0 U
MW-2R	11/25/2014	250 U / 250 U	100 U / 100 U	200 U / 200 U	0.20 U / 0.20 U	0.20 U / 0.20 U	0.20 U / 0.20 U	0.60 U / 0.60 U
MW-2R	2/24/2015	250 U / 250 U	100 U / 100 U	200 U / 200 U	1.0 U / 0.42	1.0 U / 0.20 U	1.0 U / 0.20 U	3.0 U / 0.60 U
MW-2R	5/19/2015	250 U / 250 U	100 U / 100 U	200 U / 200 U	0.20 U / 0.20 U	0.20 U / 0.20 U	0.20 U / 0.20 U	0.60 U / 0.60 U
MW-4R	8/15/2014	250 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MW-4R	11/25/2014	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-4R	2/24/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-4R	5/19/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-7	8/14/2014	250 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MW-7	11/25/2014	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-7	2/24/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-7	5/19/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-9	8/14/2014	250 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MW-9	11/25/2014	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-9	2/24/2015	250 U	110 U	220 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-9	5/19/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-10R	8/15/2014	250 U / 250 U	100 U / 100 U	200 U / 200 U	1.0 U / 1.0 U	1.0 U / 1.0 U	1.0 U / 1.0 U	3.0 U / 3.0 U
MW-10R	11/25/2014	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
MW-10R	2/24/2015	250 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MW-10R	5/19/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U

Table 3: Groundwater Analytical Results

Monitoring Well / Sampling Location ID	Sample Collection Date	Total Petroleum Hydrocarbons (µg/L)[a]			Volatile Organic Compounds (µg/L)[b]			
		Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Total Xylenes
SEEP-1	2/24/2015	250 U	100 U	200 U	0.20 U	0.20 U	0.20 U	0.60 U
SEEP-1	5/19/2015	1200 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
SEEP-2	2/24/2015	250 U	100 U	200 U	0.81	0.20 U	0.20 U	0.60 U
SEEP-2	5/19/2015	1200 U	100 U	200 U	1.0 U	1.0 U	1.0 U	3.0 U
MTCA Method A Cleanup Level		1,000[c]	500	500	51[d]	15,000[d]	2,100[d]	1,000
NOAA SQUIRT Marine Values Chronic Effects		NA	NA	NA	110[e]	215[e]	25[e]	NA

Notes:

(a) Samples were analyzed for diesel- and heavy oil-range, hydrocarbons using Northwest Total Petroleum Hydrocarbon (TPH) Method NWTPH-Dx with Acid/Silica Gel Clean-up and for gasoline-range hydrocarbons using Northwest TPH Method NWTPH-G.

(b) Select aromatic volatile organic compounds (VOC) analyzed by EPA Method 8021B.

(c) Cleanup level without presence of benzene.

(d) Cleanup level is based on Clean Water Act - CWA 303 (c)(4)(B).

(e) Value based on NOAA Screening Quick Reference Tables (SQUIRT).

µg/L = micrograms per liter.

U = Not detected at or above laboratory reporting limits or limits of quantitation.

MTCA = Washington State Department of Ecology Model Toxics Control Act (WAC 173-340).

NOAA = National Oceanic and Atmostpheric Administration.

NA = Not measured, Not available, or Not applicable.

Where two values are displayed, the second is the analytical result for a field duplicate sample.

Figures

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0 0.5 1

Miles

Kennedy/Jenks Consultants

Washington State Department of Ecology
Cornet Bay Marina

Site Location

1396010*00
May 2015

Figure 1

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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- MW-9 — Existing Monitoring Well
- MW-1R — 2014 Monitoring Well
- Approximate Location of Seep
- Approximate Property Boundary
- Former Timber Bulkhead and Current Sheet Pile Bulkhead

Note:

1. Approximate property boundary obtained from survey performed on 17 November 2011. Boundary located on east portion of site is identified as right-of-way.

N

0 50 100

Scale: Feet

1 inch = 50 feet

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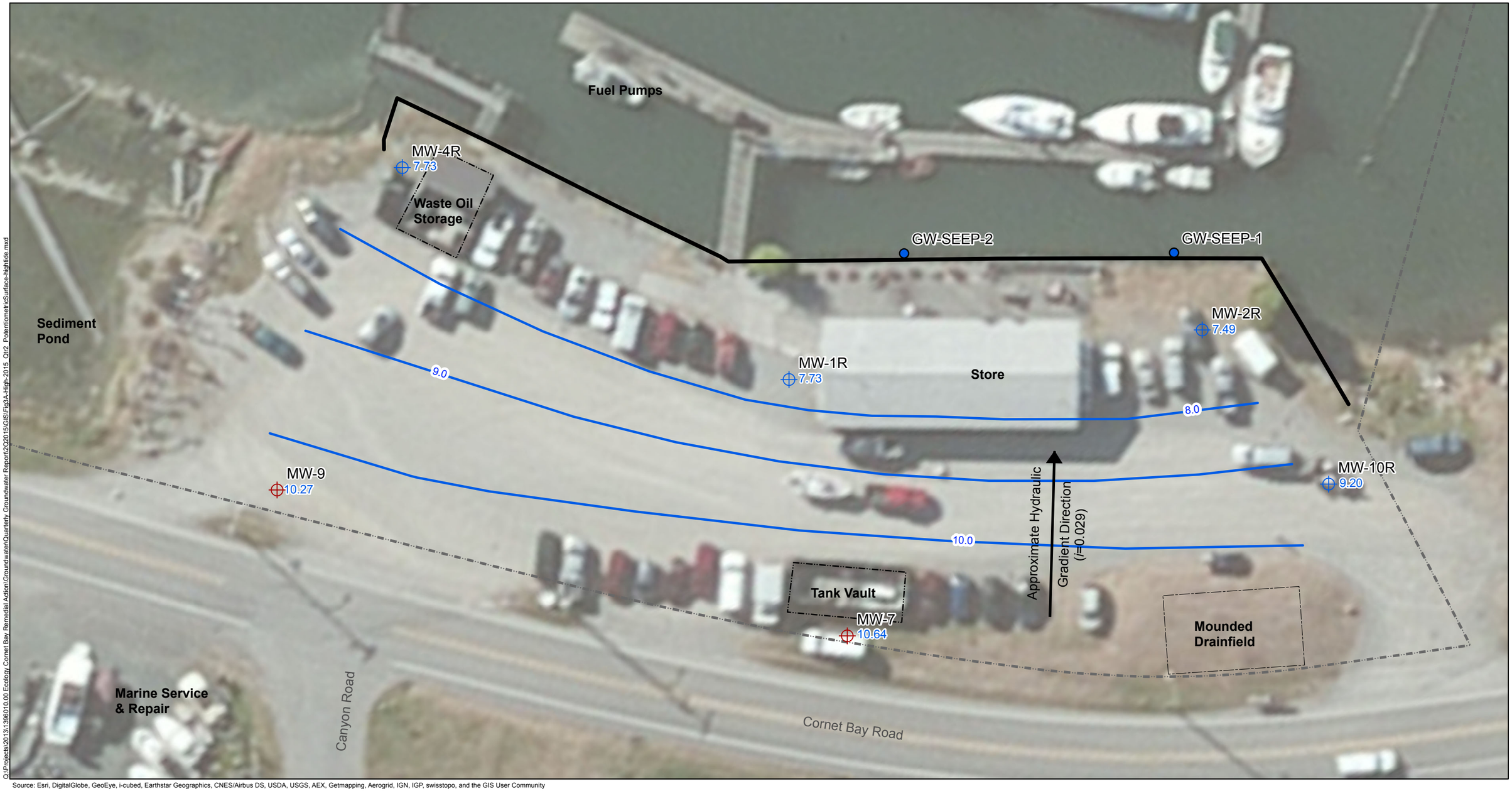
Washington State Department of Ecology
Cornet Bay Marina

Site Plan

1396010*00
May 2015

Figure 2



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- MW-9 — Existing Monitoring Well (With May 2015 Groundwater Level Elevation, feet above MSL)
- MW-1R — 2014 Monitoring Well (With May 2015 Groundwater Level Elevation, feet above MSL)
- 8.0 — May 2015 Groundwater Contours (feet above MSL)
- Approximate Location of Seep
- Approximate Property Boundary
- Former Timber Bulkhead and Current Sheet Pile Bulkhead

Note:

1. Approximate property boundary obtained from survey performed on 17 November 2011. Boundary located on east portion of site is identified as right-of-way.

N

0 30 60

Scale: Feet

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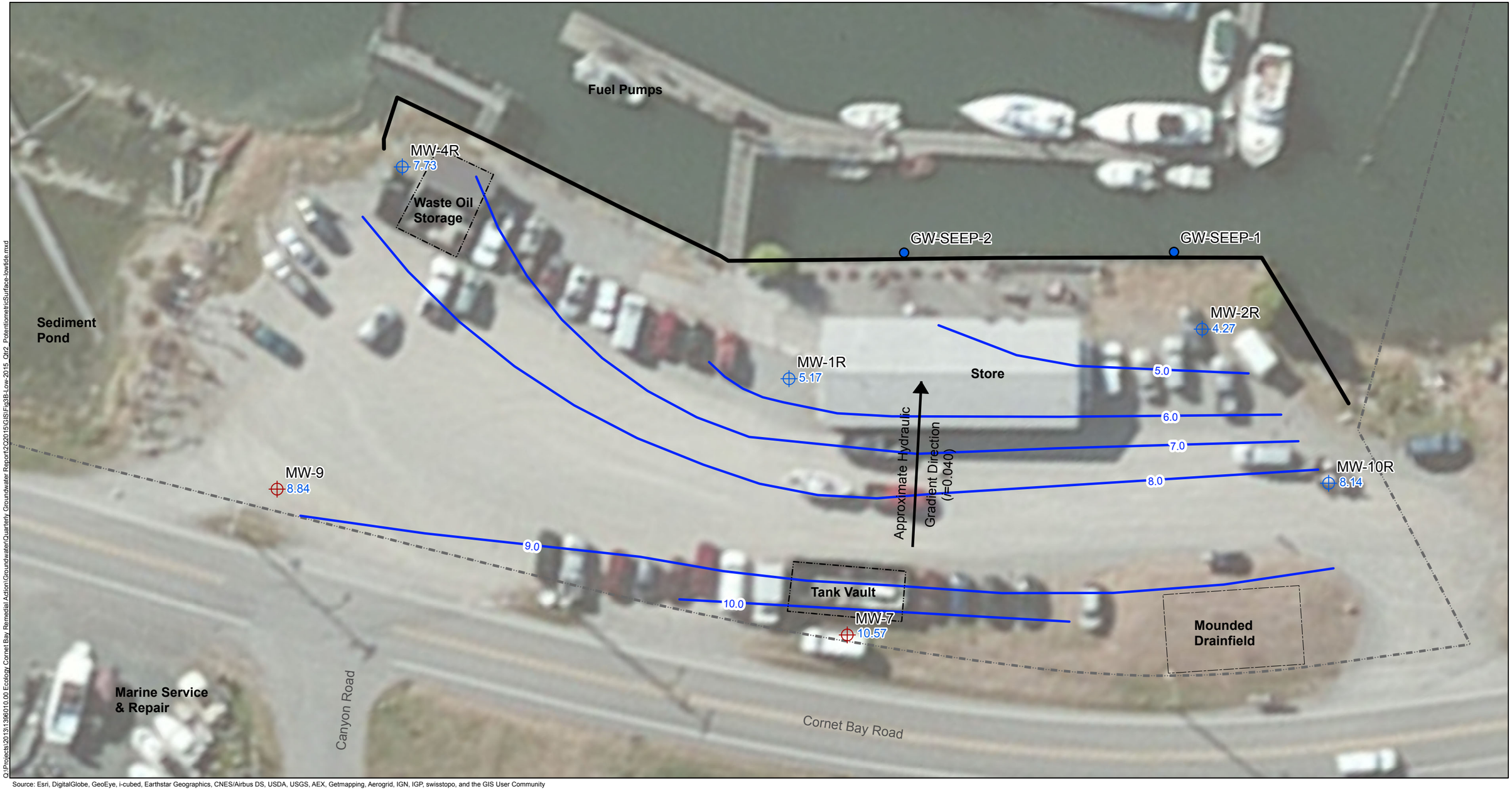
Washington State Department of Ecology
Cornet Bay Marina

Groundwater Potentiometric Surface Map - High Tide May 2015

1396010*00
May 2015

Figure 3A



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Source: Esri, DigitalGlobe, GeoEye, i-cubed, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

Legend

- MW-9 — Existing Monitoring Well (With May 2015 Groundwater Level Elevation, feet above MSL)
- MW-1R — 2014 Monitoring Well (With May 2015 Groundwater Level Elevation, feet above MSL)
- 8.0 — May 2015 Groundwater Contours (feet above MSL)
- Approximate Location of Seep
- Former Timber Bulkhead and Current Sheet Pile Bulkhead
- Approximate Property Boundary

Note:

1. Approximate property boundary obtained from survey performed on 17 November 2011. Boundary located on east portion of site is identified as right-of-way.

N

0 30 60

Scale: Feet

Kennedy/Jenks Consultants

Washington State Department of Ecology
Cornet Bay Marina

Groundwater Potentiometric Surface Map - Low Tide May 2015

1396010*00
May 2015

Figure 3B

Attachment A

Groundwater Purge and Sample Forms

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record

Kennedy/Jenks Consultants

Date:	5.19.2015	Well Number:	**MW-1R**
Weather:	Overcast, Foggy 50 F	Monument Type:	Flush
Project Name:	Cornet Bay Marina	Well Diameter:	2 inches
Project Number:	1396010*00	Total Casing Depth:	10.50 ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5 ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	14.19 ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	6.46 ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	7.73 ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	0.65 gal
Pump Intake Depth (ft):	~8.00	Depth to NAPL:	- ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	- ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	--
Trip Blank	TB
Equipment Blank	--
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	3
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
Total			11

Parameter	Start Purge:	625		End Purge:	0638		Sample Time:	638	
Time (3-5 min intervals)	0630	0633	0636						
Volume Purged (L)	0.5	0.8	1.1						
DTW (ft BTOC)(ft)	6.43	7.3	6.72						
Flow Rate (mL/min)	0.1	0.1	0.1						
Temperature (^{o}C)	12.90	12.80	12.90						
pH (± 0.1 units)	7.20	7.22	7.22						
Sp. Cond. (µS/cm) (± 3%)	697	713	723						
Diss Oxygen (mg/L) (± 10%)	2.56	2.46	1.84						
Turbidity (NTU) (± 10%)	34	31.5	36.00						
Odor	None	None	None						
TDS (g/L)	--	--	--						
ORP (mv) (± 10 mV)	183.3	182.2	181.8						

Notes: Dewatered quickly. Completely by 0700. Had to allow to recharge for collection.

Ammonia, Dissolved Iron, and Nitrate MNA sample containers not completely filled.

Toal volume purged ~ 1.5 L

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record

Kennedy/Jenks Consultants

Date:	5.19.15	Well Number:	**MW-2R**	
Weather:	Overcast, Foggy 50 F	Monument Type:	Flush	
Project Name:	Cornet Bay Marina	Well Diameter:	2	inches
Project Number:	1396010*00	Total Casing Depth:	10.50	ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5	ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	13.87	ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	6.38	ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	7.49	ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	0.66	gal
Pump Intake Depth (ft):	~8.00	Depth to NAPL:	-	ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	-	ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	D-1
Trip Blank	TB
Equipment Blank	--
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	3
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
Total			11

Parameter	Start Purge: 0713			End Purge: 735			Sample Time: 0735		
Time (3-5 min intervals)	0716	0719	0722	0725	0728				
Volume Purged (L)	0.3	1.05	1.8	2.55	3.3				
DTW (ft BTOC)(ft)	6.37	6.44	6.51	6.54	6.58				
Flow Rate (mL/min)	0.25	0.25	0.25	0.25	0.25				
Temperature (^{o}C)	12.00	12.00	12.10	12.10	12.10				
pH (± 0.1 units)	6.73	6.74	6.76	6.78	6.79				
Sp. Cond. (µS/cm) (± 3%)	1,303	1,305	1,305	1,301	1,299				
Diss Oxygen (mg/L) (± 10%)	7.69	6.55	6.76	6.78	6.79				
Turbidity (NTU) (± 10%)	135.8	100.8	91.90	87	75.9				
Odor	None	None	None	None	None				
TDS (g/L)	--	--	--	--	--				
ORP (mv) (± 10 mV)	174.4	164.6	156.1	155.7	155.0				

Notes Duplicate collected. Sampled early (before full stabilization) to be sure we had enough well volume (slow dewatering). Boat on truck trailer over top of well during gauging, moved by the sampling event -- no oil staining below noted, no reason to believe that it could compromise sample analysis.

Total volume purged ~5.0 L

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record

Kennedy/Jenks Consultants

Date:	5.19.15	Well Number:	**MW-4R**
Weather:	Overcast, Foggy 55 F	Monument Type:	Flush
Project Name:	Cornet Bay Marina	Well Diameter:	2 inches
Project Number:	1396010*00	Total Casing Depth:	10.50 ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5 ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	13.76 ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	6.03 ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	7.73 ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	0.72 gal
Pump Intake Depth (ft):	~8.00	Depth to NAPL:	- ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	- ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	--
Trip Blank	TB
Equipment Blank	--
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	3
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
Total			11

Parameter	Start Purge: 0942			End Purge: 1005			Sample Time: 1005		
Time (3-5 min intervals)	0945	0948	0951	0954	0957	1000			
Volume Purged (L)	0.3	0.6	0.9	1.2	1.5	1.8			
DTW (ft BTOC)(ft)	6.37	6.38	6.38	6.38	6.38	6.38			
Flow Rate (mL/min)	0.1	0.1	0.1	0.1	0.1	0.1			
Temperature (^{o}C)	12.70	12.60	12.60	12.70	12.60	12.50			
pH (± 0.1 units)	7.45	7.40	7.36	7.27	7.22	7.21			
Sp. Cond. (µS/cm) (± 3%)	1,149	1,150	1,159	1,180	1,183	1,187			
Diss Oxygen (mg/L) (± 10%)	0.80	0.51	0.35	0.29	0.22	0.20			
Turbidity (NTU) (± 10%)	4.9	3.2	8.20	11.7	15.4	17.4			
Odor	None	None	None	None	None	None			
TDS (g/L)	--	--	--	--	--	--			
ORP (mv) (± 10 mV)	64.8	66.0	67.3	68.1	64.9	63.6			

Notes: Total volume purged ~2.5 L

Changed well depth to ~9.0 feet after experiencing dewatering

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record

Kennedy/Jenks Consultants

Date:	5.19.2015	Well Number:	**MW-7**
Weather:	Overcast, Foggy 55 F	Monument Type:	Flush
Project Name:	Cornet Bay Marina	Well Diameter:	2 inches
Project Number:	1396010*00	Total Casing Depth:	10.50 ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5 ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	13.66 ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	3.02 ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	10.64 ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	1.20 gal
Pump Intake Depth (ft):	~7.00	Depth to NAPL:	- ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	- ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	--
Trip Blank	TB
Equipment Blank	--
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	5
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
NO2-NO3 & SO4			13

Parameter	Start Purge:	1125		End Purge:	1150		Sample Time:	1150	
Time (3-5 min intervals)	1128	1131	1134	1137	1140	1143	1146		
Volume Purged (L)	0.3	0.9	1.5	2.1	2.7	3.3	3.9		
DTW (ft BTOC)(ft)	3.02	4.07	3.92	3.81	3.8	3.81	3.81		
Flow Rate (mL/min)	0.2	0.2	0.2	0.2	0.2	0.2	0.2		
Temperature (^{o}C)	12.00	12.20	12.30	12.50	12.50	12.60	12.50		
pH (± 0.1 units)	7.00	7.02	7.02	7.02	7.01	7.02	7.02		
Sp. Cond. (µS/cm) (± 3%)	450	451	451	449	446	440	437		
Diss Oxygen (mg/L) (± 10%)	0.67	0.29	0.25	0.20	0.19	0.19	0.19		
Turbidity (NTU) (± 10%)	2.6	4.2	5.20	7.3	9.6	9.3	8.9		
Odor	None	None	None	None	None	None	None		
TDS (g/L)	--	-	--	--	--	--	--		
ORP (mv) (± 10 mV)	-131.8	-139.6	-140.5	-140.3	-139.8	-138.0	-136.6		

Notes: Total volume purged ~4.5 L

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record

Kennedy/Jenks Consultants

Date:	5.19.2015	Well Number:	**MW-9**
Weather:	Overcast, Foggy 55 F	Monument Type:	Flush
Project Name:	Cornet Bay Marina	Well Diameter:	2 inches
Project Number:	1396010*00	Total Casing Depth:	10.50 ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5 ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	12.83 ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	2.56 ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	10.27 ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	1.27 gal
Pump Intake Depth (ft):	~7.00	Depth to NAPL:	- ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	- ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	--
Trip Blank	TB
Equipment Blank	TB
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	3
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
Total			11

Parameter	Start Purge: 1035			End Purge: 1105			Sample Time: 1105		
Time (3-5 min intervals)	1040	1045	1050	1055	1100	1105			
Volume Purged (L)	0.5	1	1.5	2	2.5	3			
DTW (ft BTOC)(ft)	3.62	3.94	4.18	4.6	4.77	5.2			
Flow Rate (mL/min)	0.1	0.1	0.1	0.1	0.1	0.1			
Temperature (^{o}C)	13.10	13.20	13.50	13.50	13.50	13.50			
pH (± 0.1 units)	7.18	7.23	7.22	7.21	7.14	7.13			
Sp. Cond. (µS/cm) (± 3%)	605	607	609	612	618	620			
Diss Oxygen (mg/L) (± 10%)	1.31	0.84	0.54	0.45	0.43	0.43			
Turbidity (NTU) (± 10%)	13.3	11.6	10.7	9.7	11.4	13.1			
Odor	None	None	None	None	None	None			
TDS (g/L)	--	--	--	--	--	--			
ORP (mv) (± 10 mV)	-68.8	-76.7	-75.2	-70.7	-67.2	-66.7			

Notes: Dewatered quickly Total volume purged ~ 3 L

Ecology Cornet Bay Marina Groundwater Forms

May 2015

Groundwater Monitoring Record — Kennedy/Jenks Consultants

Date:	5.19.15	Well Number:	**MW-10R**
Weather:	Overcast, Foggy 55 F	Monument Type:	Flush
Project Name:	Cornet Bay Marina	Well Diameter:	2 inches
Project Number:	1396010*00	Total Casing Depth:	10.50 ft BTOC
Sampling Personnel:	MW-AL	Screen Interval:	3-10.5 ft BGS
Water Level Indicator:	Geotech Interface Meter	Top of Casing Elevation:	13.42 ft (NAVD 88)
Purging Method:	Peristaltic Pump	Depth to Groundwater:	4.22 ft BTOC
Sampling Method:	Low-flow	Groundwater Elevation:	9.20 ft (NAVD 88)
Sampling Device:	Peristaltic Pump	Wet Casing Volume:	1.00 gal
Pump Intake Depth (ft):	~8.00	Depth to NAPL:	- ft btoc
Water Disposal:	On-site drum; fenced-in location	NAPL Thickness:	- ft

Water Quality Meter(s)	Model	Calibration Date/Time
Temperature:	ProDSS	5.15.2015
pH:		
Eh:		
Sp. Conductivity:		
Dissolved Oxygen:		
Turbidity:		
Other: ORP		

Gallons per Foot of Well Casing:

2-inch = 0.16 gal/ft 4-inch = 0.64 gal/ft

6-inch = 1.44 gal/ft

QA/QC Samples	
Type	**Sample ID**
Blind Duplicate	--
Trip Blank	TB
Equipment Blank	--
Other	--

Sample Containers

Analysis	Bottle Type	Preservative	Number
NWTPH-Dx	500 mL Amber	HCl	2
NWTPH-Gx	40 mL VOA	HCl	3
Dissolved Fe (field filtered)	500 mL HDPE	HNO3	1
NO2-NO3 & SO4	500 mL HDPE	--	1
Methane	40 mL VOA	--	2
Sulfide	500 mL HDPE	ZnAc	1
Ammonia	500 mL HDPE	H2SO4	1
Total			11

Parameter	Start Purge: 0735			End Purge: 0850			Sample Time: 850		
Time (3-5 min intervals)	0838	0841	0844	0847					
Volume Purged (L)	0.3	1.05	1.8	2.55					
DTW (ft BTOC)(ft)	6.7	6.66	7.88	8.01					
Flow Rate (mL/min)	0.25	0.25	0.25	0.25					
Temperature (^{o}C)	12.30	12.90	12.50	11.90					
pH (± 0.1 units)	6.81	6.97	6.91	6.83					
Sp. Cond. (µS/cm) (± 3%)	1,498	1,450	1,584	1,599					
Diss Oxygen (mg/L) (± 10%)	1.98	2.08	3.52	1.87					
Turbidity (NTU) (± 10%)	25.1	19.6	6.80	4.1					
Odor	None	None	None	None					
TDS (g/L)	--	--	--	--					
ORP (mv) (± 10 mV)	109.1	20.3	11.4	14.9					

Notes: Dewatering quickly. Sampling before full stabilization.

Total volume purged ~ 4 L

Attachment B

Laboratory Analytical Reports

Analytical Resources, Incorporated
Analytical Chemists and Consultants

1 June 2015

Ty Schreiner
Kennedy Jenks Consultants
32001 32nd Ave S., Suite 100
Federal Way, WA 98001

RE: Client Project: Ecology Cornet Bay Marina, 1396010.00
ARI Job No: AGI5

Dear Ty:

Please find enclosed the original Chain-of-Custody (COC) record and the final results for the samples from the project referenced above. Nine water samples and one trip blank were received on May 19, 2015. The samples were analyzed for BETX, NWTPH-G, MEE, NWTPH-Dx, dissolved iron and conventional parameters as instructed.

Samples 'Seep-1' and 'Seep-2' were diluted for BETX/NWTPH-G analyses due to foaming at the instrument.

A matrix duplicate (MD) was prepared and analyzed for ammonia in conjunction with sample 'MW-2R'. The RPD was high following the analysis of the MD. Since the percent recovery for ammonia was within acceptable QC limits for the corresponding SRM, it was concluded that a lack of sample homogeneity was the cause of the high RPD. No corrective actions were taken.

A matrix spike (MS) was prepared and analyzed for sulfide in conjunction with sample 'MW-1R'. The percent recovery was low following the analysis of the MS. Since the percent recovery for sulfide was within acceptable QC limits for the corresponding LCS, it was concluded that the sample matrix was the cause of the poor MS recovery. No corrective actions were taken.

There were no further analytical complications noted.

An electronic copy of this report and all supporting raw data will be kept on file at ARI. Should you have any questions regarding these results, please feel free to call me at any time.

Sincerely,

ANALYTICAL RESOURCES, INC.

Mark D. Harris
Project Manager
206/695-6210
markh@arilabs.com

Enclosures

cc: file AGI5

MDH/mdh

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: AGIS	Turn-around Requested: STD	Page: 1 of 1	
ARI Client Company: Kennedy Jenks Consultants	Phone: 253-835-6400	Date: 5/19/15	Ice Present? Yes
Client Contact: Ty Schreiner		No of Coolers: 2	Cooler Temps: 3.1, 3.2
Client Project Name: Ecology Cornet Bay Marina			
Client Project #: 1396010.00	Samplers: MJW & AML		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)
www.arilabs.com

Sample ID	Date	Time	Matrix	No Containers	NWTPH-Dx w/ sg c	NWTPH-Gx BTEX (8260)	Nitrate/ Nitrite/ Sulfate	Ammonia	Sulfide	Methane	Dissolved Iron (1)		Notes/Comments
					Analysis Requested								
MW-1R	5/19/15	638	GW	11	X	X	X	X	X	X	X		(1) Field Filtered
MW-2R		735											
MW-4R		1005											
MW-7		1150											
MW-9		1105											
MW-10R		850											
MW-D-1		—		5									
Seep-1		920		5									
Seep-2		925		5									

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: Alexander Lesher	Printed Name: Chris Arnold	Printed Name	Printed Name
	Company: Kennedy Jenks	Company: ARI	Company	Company
	Date & Time: 5-19-15 1520	Date & Time: 5-19-15 1520	Date & Time	Date & Time

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: Kennedy Jenks

Project Name: Ecology Grant Bay Marina

COC No(s): ~~NA~~

Delivered by: Fed-Ex UPS Courier Hand Delivered Other _____

Assigned ARI Job No: ACI15

Tracking No _____ ~~NA~~

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	~~NO~~
Were custody papers included with the cooler?	~~YES~~	NO
Were custody papers properly filled out (ink, signed, etc)	~~YES~~	NO

Temperature of Cooler(s) (°C) (recommended 2 0-6 0 °C for chemistry) 3.231

Time: 1520

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID# 92877952

Cooler Accepted by: CA Date: 5-19-15 Time 1520

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	~~NO~~
What kind of packing material was used? ... Bubble Wrap ~~Wet~~ Ice Gel Packs Baggies Foam Block Paper Other:			
Was sufficient ice used (if appropriate)?	NA	~~YES~~	NO
Were all bottles sealed in individual plastic bags?		YES	~~NO~~
Did all bottles arrive in good condition (unbroken)?		~~YES~~	NO
Were all bottle labels complete and legible?		~~YES~~	NO
Did the number of containers listed on COC match with the number of containers received?		~~YES~~	NO
Did all bottle labels and tags agree with custody papers?		~~YES~~	NO
Were all bottles used correct for the requested analyses?		~~YES~~	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)	NA	~~YES~~	NO
Were all VOC vials free of air bubbles?	NA	~~YES~~	NO
Was sufficient amount of sample sent in each bottle?		~~YES~~	NO
Date VOC Trip Blank was made at ARI	NA	5/13/15	

Was Sample Split by ARI: ~~NA~~ YES Date/Time _____ Equipment _____ Split by _____

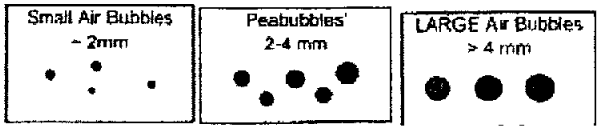
Samples Logged by CA Date 5-19-15 Time 1711

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By. Date



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Subject: RE: ZX74-Cornet Bay Marina
From: Alexander Lesher <AlexanderLesher@kennedyjenks.com>
Date: 5/21/2015 12:05 PM
To: Mark Harris <markh@arilabs.com>

Hello Mark,
I recently submitted samples for analysis.
I have two questions:
1. Can we change the name on one of the samples? I think one says MW-D-1. I would like it to just say D-1 (cut out MW if possible).
2. What is the expected turnaround time at this point?
Thank you,

Alexander Lesher | Senior Staff Engineer
Kennedy/Jenks Consultants
Direct: 253.835.6403

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Tuesday, March 10, 2015 2:09 PM
To: Alexander Lesher
Subject: Re: ZX74-Cornet Bay Marina

Alexander:

Here's the final report for these samples (1 of 2). The hard copy, paginated, will mail tomorrow.

Let me know if you have any questions regarding these results.

Mark H.

On 3/9/2015 11:55 AM, Alexander Lesher wrote:

> I am in no rush right now so you can hold it all. If they are in by Thursday, that will be great for my schedule! So, it sounds like we are fine. I appreciate the response, Mark.
>
> Alexander Lesher | Senior Staff Engineer Kennedy/Jenks Consultants
> Direct: 253.835.6403
>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]

Sent: Monday, March 09, 2015 11:53 AM
To: Alexander Lesher
Subject: Re: ZX74-Cornet Bay Marina

Alexander:

The two items not finalized yet are the TPH's.

The TPH-G has been run; they need reviewed by the analyst and a senior reviewer.

The severe backlog is with organic extractions. The TPJ-Dx is not out of that lab yet, though they should be in a day or so, then they should get on an instrument fairly quickly after that.

If you'd like, I can send you all available final data now, then the balance when it comes due. Or, hold everything until it's all completed and try and pusj to get the TPH's done in a couple of days if at all possible.

Mark H.

On 3/9/2015 11:40 AM, Alexander Lesher wrote:

> Hello Mark,
> Any update on the progress of the analytical for Cornet Bay?
> Thank you,
>
> Alexander Lesher | Senior Staff Engineer Kennedy/Jenks Consultants
> Direct: 253.835.6403
>
> -----Original Message-----
> From: Mark Harris [mailto:markh@arilabs.com]
> Sent: Thursday, February 26, 2015 9:36 AM
> To: Alexander Lesher
> Subject: Re: ZX74-Cornet Bay Marina
>
> Alexander:

The login people said they got everything on the bench, then double checked the coolers and did not come across the missing bottles. Nor were there any extras for any of the other samples.

At this point, we can use the second amber bottle and split some for the dissolved metals and conventionals. Filtering and/or preserving this late isn't ideal but it would be your call. Also, it would leave us with insufficient volume for a TPH-Dx re-extraction should that be necessary.

Mark H.

On 2/26/2015 8:12 AM, Alexander Lesher wrote:

Hello Mark,
Thank you for getting this to me.
We would like to request that ethane and ethane are also reported with the methane.

I am a little baffled as to what happened with MW-9. Was there a sample well listed with more sample bottles received and perhaps a different time? We counted everything before we left the site and I just counted everything left over. We reviewed our remaining bottles and I just reviewed them again and we only have one sampling kit (we requested 8 and used 7). They were also put in bags of three each. I am not sure how this could have happened.
Thank you,

Alexander Lesher | Senior Staff Engineer Kennedy/Jenks Consultants
Direct: 253.835.6403

-----Original Message-----
From: Mark Harris [mailto:markh@arilabs.com]
Sent: Thursday, February 26, 2015 6:28 AM
To: Alexander Lesher
Subject: ZX74-Cornet Bay Marina

Alexander:

We received the Cornet Bay samples yesterday. Please note the discrepancies on the cooler receipt form regarding sample MW-9.

Also, can you please verify (with Dean if necessary) if you want the ethane and ethene reported with the methane? You are requesting methane only but I checked and we reported all three for the November round. If you'd rather not see those results, we can report the methane only.

Mark H.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210
markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey<https://www.surveymonkey.com/s/WPDBVJK>.

--
Mark Harris
Project Manager
Analytical Resources, Inc.
206/695-6210

markh@arilabs.com

How was your customer experience?
Please take our 5 minute online customer survey<https://www.surveymonkey.com/s/WPDBVJK>.

PRESERVATION VERIFICATION 05/19/15
Page 1 of 1

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: **AGI5**

Inquiry Number: NONE
Analysis Requested: 05/19/15
Contact: Schreiner, Ty
Client: Kennedy Jenks Consultants
Logged by: CA
Sample Set Used: Yes-481
Validatable Package: No
Deliverables:

PC: Mark
VTSR: 05/19/15

Project #: 1396010.00
Project: Ecology Cornet Bay Marina
Sample Site:
SDG No:
Analytical Protocol: In-house

LOGNUM ARI ID	CLIENT ID	CN >12	WAD >12	NH3 <2	COD <2	FOG <2	MET <2	PHEN <2	PHOS <2	TKN <2	NO23 <2	TOC <2	S2 >9	TPHD <2	Fe2+ <2	DMET FLT	DOC FLT	PARAMETER	ADJUSTED TO	LOT NUMBER	AMOUNT ADDED	DATE/BY
15-9631 **AGI5A**	MW-1R			pass			DIS pass						fail			Y						
15-9632 **AGI5B**	MW-2R			pass			DIS pass						fail			Y						
15-9633 **AGI5C**	MW-4R			pass			DIS pass						fail			Y						
15-9634 **AGI5D**	MW-7			pass			DIS pass						fail			Y						
15-9635 **AGI5E**	MW-9			pass			DIS pass						fail			Y						
15-9636 **AGI5F**	MW-10R			pass			DIS pass						fail			Y						
15-9637 **AGI5G**	MW-D-1																					
15-9638 **AGI5H**	Seep-1																					
15-9639 **AGI5I**	Seep-2																					

Sulfides preserved w/ZnOAc Lab to adjust ph

Checked By CA Date 5-19-15

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: AGI5
Client: Kennedy Jenks Consultants
Project Event: 1396010.00
Project Name: Ecology Cornet Bay Marina

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	MW-1R	AGI5A	15-9631	Water	05/19/15 06:38	05/19/15 15:20
2.	MW-2R	AGI5B	15-9632	Water	05/19/15 07:35	05/19/15 15:20
3.	MW-4R	AGI5C	15-9633	Water	05/19/15 10:05	05/19/15 15:20
4.	MW-7	AGI5D	15-9634	Water	05/19/15 11:50	05/19/15 15:20
5.	MW-9	AGI5E	15-9635	Water	05/19/15 11:05	05/19/15 15:20
6.	MW-10R	AGI5F	15-9636	Water	05/19/15 08:50	05/19/15 15:20
7.	D-1	AGI5G	15-9637	Water	05/19/15	05/19/15 15:20
8.	Seep-1	AGI5H	15-9638	Water	05/19/15 09:20	05/19/15 15:20
9.	Seep-2	AGI5I	15-9639	Water	05/19/15 09:25	05/19/15 15:20
10.	Trip Blank	AGI5J	15-9640	Water	05/13/15	05/19/15 15:20

Data Reporting Qualifiers

Effective 12/31/13

Inorganic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Duplicate RPD is not within established control limits
B	Reported value is less than the CRDL but ≥ the Reporting Limit
N	Matrix Spike recovery not within established control limits
NA	Not Applicable, analyte not spiked
H	The natural concentration of the spiked element is so much greater than the concentration spiked that an accurate determination of spike recovery is not possible
L	Analyte concentration is ≤5 times the Reporting Limit and the replicate control limit defaults to ±1 RL instead of the normal 20% RPD

Organic Data

U	Indicates that the target analyte was not detected at the reported concentration
*	Flagged value is not within established control limits
B	Analyte detected in an associated Method Blank at a concentration greater than one-half of ARI's Reporting Limit or 5% of the regulatory limit or 5% of the analyte concentration in the sample.
J	Estimated concentration when the value is less than ARI's established reporting limits
D	The spiked compound was not detected due to sample extract dilution
E	Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

Q Indicates a detected analyte with an initial or continuing calibration that does not meet established acceptance criteria (<20%RSD, <20%Drift or minimum RRF).

S Indicates an analyte response that has saturated the detector. The calculated concentration is not valid; a dilution is required to obtain valid quantification of the analyte

NA The flagged analyte was not analyzed for

NR Spiked compound recovery is not reported due to chromatographic interference

NS The flagged analyte was not spiked into the sample

M Estimated value for an analyte detected and confirmed by an analyst but with low spectral match parameters. This flag is used only for GC-MS analyses

N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification"

Y The analyte is not detected at or above the reported concentration. The reporting limit is raised due to chromatographic interference. The Y flag is equivalent to the U flag with a raised reporting limit.

EMPC Estimated Maximum Possible Concentration (EMPC) defined in EPA Statement of Work DLM02.2 as a value "calculated for 2,3,7,8-substituted isomers for which the quantitation and /or confirmation ion(s) has signal to noise in excess of 2.5, but does not meet identification criteria" **(Dioxin/Furan analysis only)**

C The analyte was positively identified on only one of two chromatographic columns. Chromatographic interference prevented a positive identification on the second column

P The analyte was detected on both chromatographic columns but the quantified values differ by ≥40% RPD with no obvious chromatographic interference

X Analyte signal includes interference from polychlorinated diphenyl ethers. **(Dioxin/Furan analysis only)**

Z Analyte signal includes interference from the sample matrix or perfluorokerosene ions. **(Dioxin/Furan analysis only)**

Geotechnical Data

A The total of all fines fractions. This flag is used to report total fines when only sieve analysis is requested and balances total grain size with sample weight.

F Samples were frozen prior to particle size determination

SM Sample matrix was not appropriate for the requested analysis. This normally refers to samples contaminated with an organic product that interferes with the sieving process and/or moisture content, porosity and saturation calculations

SS Sample did not contain the proportion of "fines" required to perform the pipette portion of the grain size analysis

W Weight of sample in some pipette aliquots was below the level required for accurate weighting

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS
Page 1 of 1

Sample ID: MW-1R
SAMPLE

Lab Sample ID: AGI5A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/27/15 22:48

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	107%
Bromofluorobenzene	96.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: MW-2R
SAMPLE

Lab Sample ID: AGI5B
LIMS ID: 15-9632
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/27/15 23:13

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	107%
Bromofluorobenzene	93.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS
Page 1 of 1

Sample ID: MW-4R
SAMPLE

Lab Sample ID: AGI5C
LIMS ID: 15-9633
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/27/15 23:38

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	107%
Bromofluorobenzene	95.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: MW-7
SAMPLE

Lab Sample ID: AGI5D
LIMS ID: 15-9634
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 00:03

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	107%
Bromofluorobenzene	92.1%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: MW-9
SAMPLE

Lab Sample ID: AGI5E
LIMS ID: 15-9635
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 00:29

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	107%
Bromofluorobenzene	96.3%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: MW-10R
SAMPLE

Lab Sample ID: AGI5F
LIMS ID: 15-9636
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 00:54

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	109%
Bromofluorobenzene	96.9%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: D-1
SAMPLE

Lab Sample ID: AGI5G
LIMS ID: 15-9637
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 01:19

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

CAS Number	Analyte	LOQ	Result	Q	TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	103%
d8-Toluene	109%
Bromofluorobenzene	95.2%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: Seep-1
SAMPLE

Lab Sample ID: AGI5H
LIMS ID: 15-9638
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 01:47

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
1330-20-7	Total Xylenes	3.0	< 3.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

					TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	1.2	< 1.2	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	105%
d8-Toluene	112%
Bromofluorobenzene	94.5%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS
Page 1 of 1

Sample ID: Seep-2
SAMPLE

Lab Sample ID: AGI5I
LIMS ID: 15-9639
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/28/15 02:14

Sample Amount: 2.00 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	1.0	< 1.0	U
108-88-3	Toluene	1.0	< 1.0	U
100-41-4	Ethylbenzene	1.0	< 1.0	U
1330-20-7	Total Xylenes	3.0	< 3.0	U
179601-23-1	m,p-Xylene	2.0	< 2.0	U
95-47-6	o-Xylene	1.0	< 1.0	U

Reported in µg/L (ppb)

					TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	1.2	< 1.2	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	107%
d8-Toluene	108%
Bromofluorobenzene	94.7%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: Trip Blank
SAMPLE

Lab Sample ID: AGI5J
LIMS ID: 15-9640
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/13/15
Date Received: 05/19/15

Instrument/Analyst: NT3/LH
Date Analyzed: 05/27/15 22:22

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

					TPHG ID
86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U	---

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	106%
d8-Toluene	108%
Bromofluorobenzene	94.0%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: MB-052715A
METHOD BLANK

Lab Sample ID: MB-052715A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: NA
Date Received: NA

Instrument/Analyst: NT3/LH
Date Analyzed: 05/27/15 20:16

Sample Amount: 10.0 mL
Purge Volume: 10.0 mL

CAS Number	Analyte	LOQ	Result	Q
71-43-2	Benzene	0.20	< 0.20	U
108-88-3	Toluene	0.20	< 0.20	U
100-41-4	Ethylbenzene	0.20	< 0.20	U
1330-20-7	Total Xylenes	0.60	< 0.60	U
179601-23-1	m,p-Xylene	0.40	< 0.40	U
95-47-6	o-Xylene	0.20	< 0.20	U

Reported in µg/L (ppb)

86290-81-5	Gasoline Range Hydrocarbons	0.25	< 0.25	U

Reported in mg/L (ppm)

Volatile Surrogate Recovery

d4-1,2-Dichloroethane	104%
d8-Toluene	103%
Bromofluorobenzene	97.6%

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
Volatiles by Purge & Trap GC/MS

Sample ID: LCS-052715A
LAB CONTROL SAMPLE

Lab Sample ID: LCS-052715A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 06/01/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: NA
Date Received: NA

Instrument/Analyst LCS: NT3/LH
LCSD: NT3/LH
Date Analyzed LCS: 05/27/15 19:25
LCSD: 05/27/15 19:51

Sample Amount LCS: 10.0 mL
LCSD: 10.0 mL
Purge Volume LCS: 10.0 mL
LCSD: 10.0 mL

Analyte	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Benzene	3.36	3.52	95.5%	3.49	3.52	99.1%	3.8%
Toluene	24.0	24.7	97.2%	24.7	24.7	100%	2.9%
Ethylbenzene	5.79	6.17	93.8%	6.04	6.17	97.9%	4.2%
Total Xylenes	27.4	27.7	98.9%	28.6	27.7	103%	4.3%
m,p-Xylene	19.9	20.0	99.5%	20.8	20.0	104%	4.4%
o-Xylene	7.55	7.67	98.4%	7.84	7.67	102%	3.8%
Reported in µg/L (ppb)							
Gasoline Range Hydrocarbons	0.45	0.50	90.0%	0.47	0.50	94.0%	4.3%
Reported in mg/L (ppm)							

RPD calculated using sample concentrations per SW846.

Volatile Surrogate Recovery

	LCS	LCSD
d4-1,2-Dichloroethane	104%	104%
d8-Toluene	99.8%	99.9%
Bromofluorobenzene	101%	100%

ANALYTICAL RESOURCES INCORPORATED

VOA SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00

ARI ID	Client ID	PV	DCE	TOL	BFB	DCB	TOT OUT
MB-052715A	Method Blank	10	104%	103%	97.6%	NA	0
LCS-052715A	Lab Control	10	104%	99.8%	101%	NA	0
LCSD-052715A	Lab Control Dup	10	104%	99.9%	100%	NA	0
AGI5A	MW-1R	10	105%	107%	96.5%	NA	0
AGI5B	MW-2R	10	103%	107%	93.1%	NA	0
AGI5C	MW-4R	10	106%	107%	95.3%	NA	0
AGI5D	MW-7	10	104%	107%	92.1%	NA	0
AGI5E	MW-9	10	106%	107%	96.3%	NA	0
AGI5F	MW-10R	10	105%	109%	96.9%	NA	0
AGI5G	D-1	10	103%	109%	95.2%	NA	0
AGI5H	Seep-1	10	105%	112%	94.5%	NA	0
AGI5I	Seep-2	10	107%	108%	94.7%	NA	0
AGI5J	Trip Blank	10	106%	108%	94.0%	NA	0

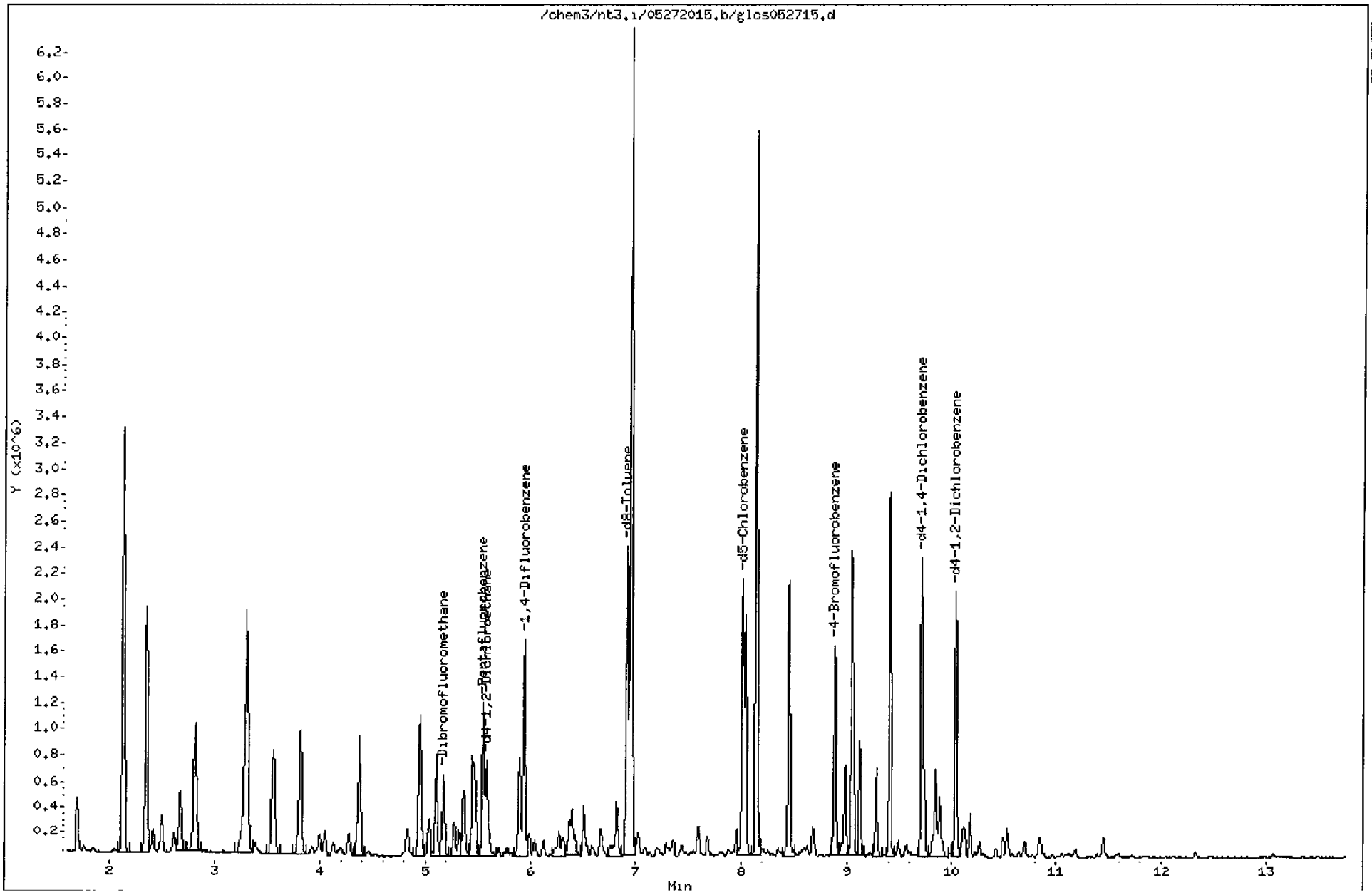
SW8260C	LCS/MB LIMITS	QC LIMITS
(DCE) = d4-1,2-Dichloroethane	(80-120)	(80-120)
(TOL) = d8-Toluene	(80-120)	(80-120)
(BFB) = Bromofluorobenzene	(80-120)	(80-120)
(DCB) = d4-1,2-Dichlorobenzene	(80-120)	(80-120)

Prep Method: SW5030B
Log Number Range: 15-9631 to 15-9640

Data File: /chem3/nt3.i/05272015.b/glcs052715.d
Date : 27-MAY-2015 19:25
Client ID: GLCS0527
Sample Info: GLCS0527,10,10,0

Instrument: nt3.i
Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/glcs052715.d

Page 1

Date : 27-MAY-2015 19:25

Client ID: LCS0.5

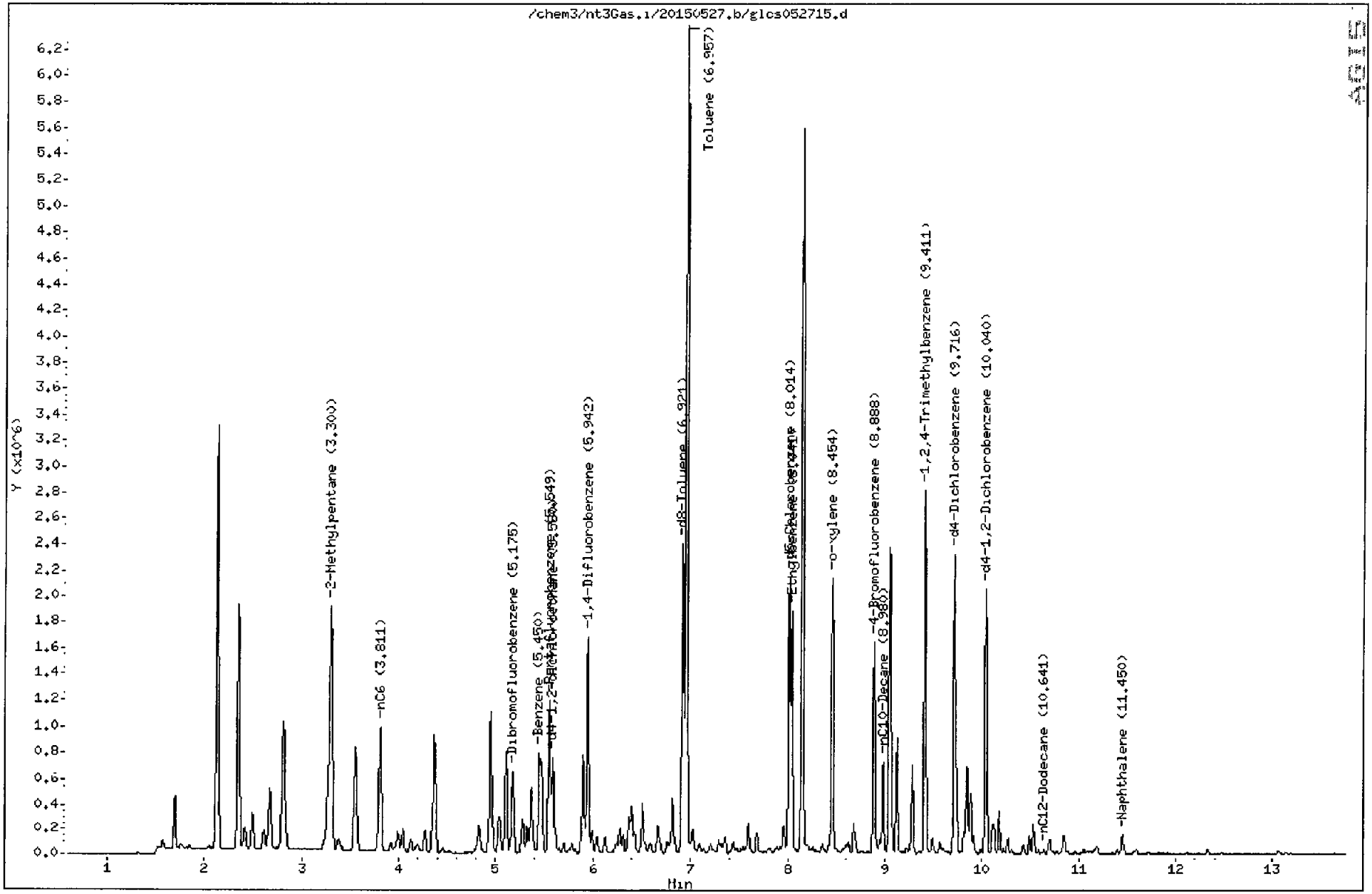
Instrument: nt3Gas.i

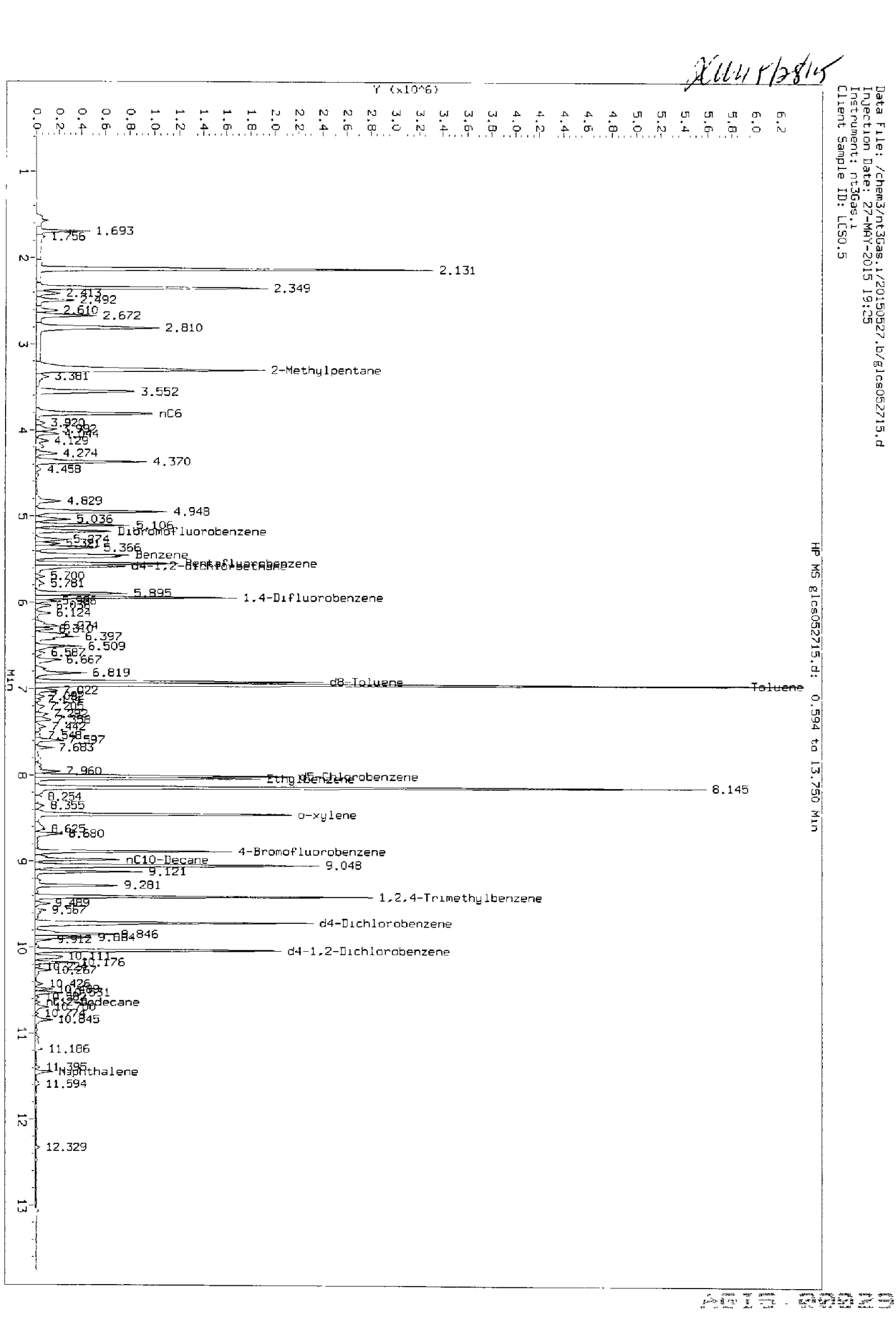
Sample Info: GLCS0527,10,10,0

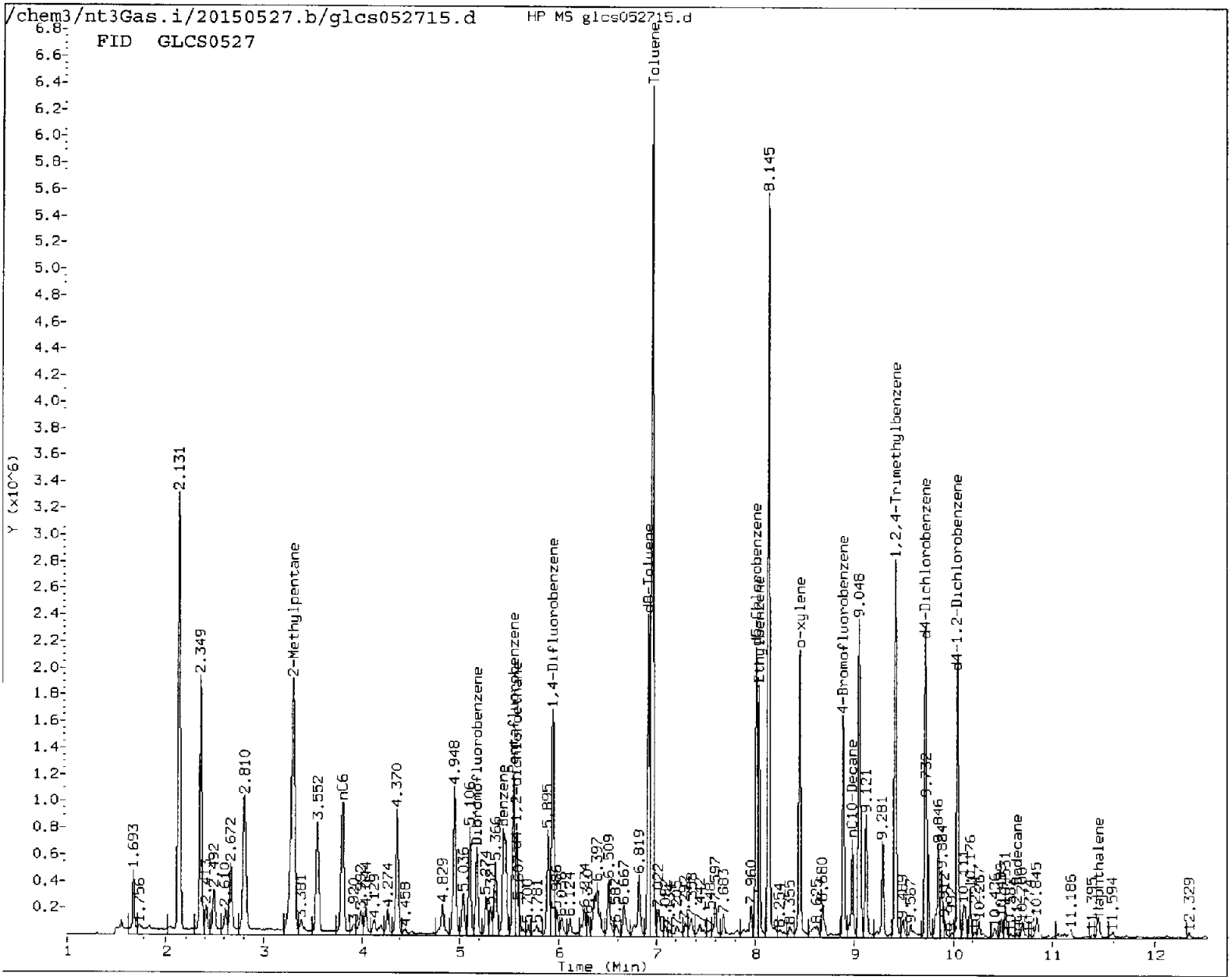
Operator: MMH

Column phase: RTXVMS

Column diameter: 0.18




Data File: /chem3/nt3Gas.i/20150527.b/glcs052715.d
Injection Date: 27-MAY-2015 19:25
Instrument: nt3Gas.i
Client Sample ID: LCS0.5
HP MS glcs052715.d: 0.594 to 13.750 Min
Y (x10^6)
Min
1.693
1.756
2.131
2.349
2.413
2.492
2.610
2.672
2.810
2-Methylpentane
3.381
3.552
nC6
3.920
4.129
4.274
4.370
4.458
4.829
4.948
5.036
5.106
Dibromofluorobenzene
5.366
Benzene
d4-1,2-Dichloroethane
5.781
5.895
1,4-Difluorobenzene
6.124
6.397
6.509
6.667
6.819
d8-Toluene
Toluene
7.442
7.597
7.683
7.960
d5-Chlorobenzene
Ethylbenzene
8.145
8.254
8.355
o-xylene
8.625
8.680
4-Bromofluorobenzene
nC10-Decane
9.048
9.121
9.281
1,2,4-Trimethylbenzene
9.489
9.567
d4-Dichlorobenzene
9.846
d4-1,2-Dichlorobenzene
10.111
10.178
10.287
10.426
10.531
10.845
11.186
11.395
Naphthalene
11.594
12.329



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

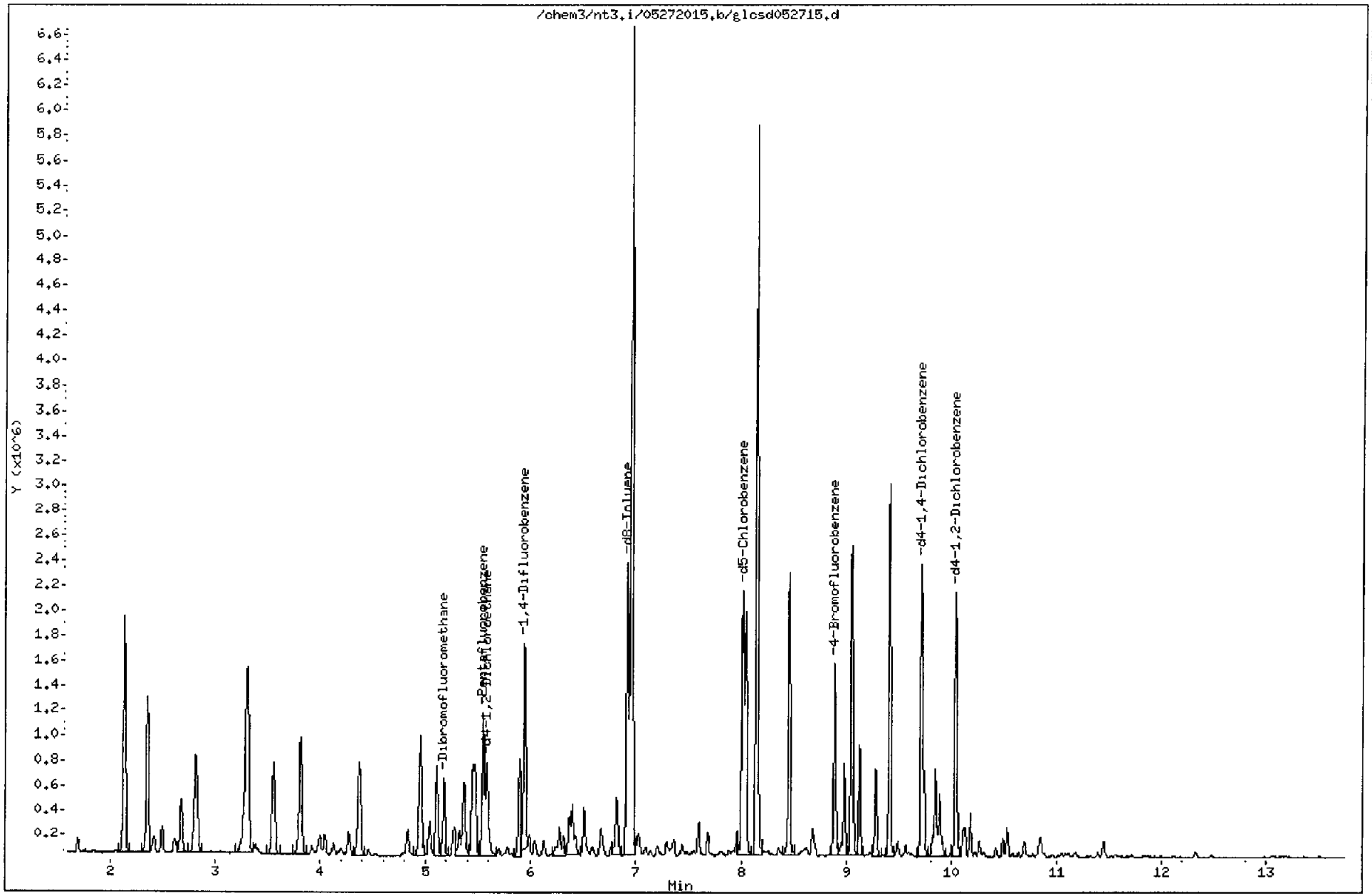
5. Other _____

Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.i/05272015.b/glcsd052715.d
Date : 27-MAY-2015 19:51
Client ID: GLCS0527
Sample Info: GLCS0527,10,10,0

Instrument: nt3.i
Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/glcsd052715.d

Date : 27-MAY-2015 19:51

Client ID: LCSD0.5

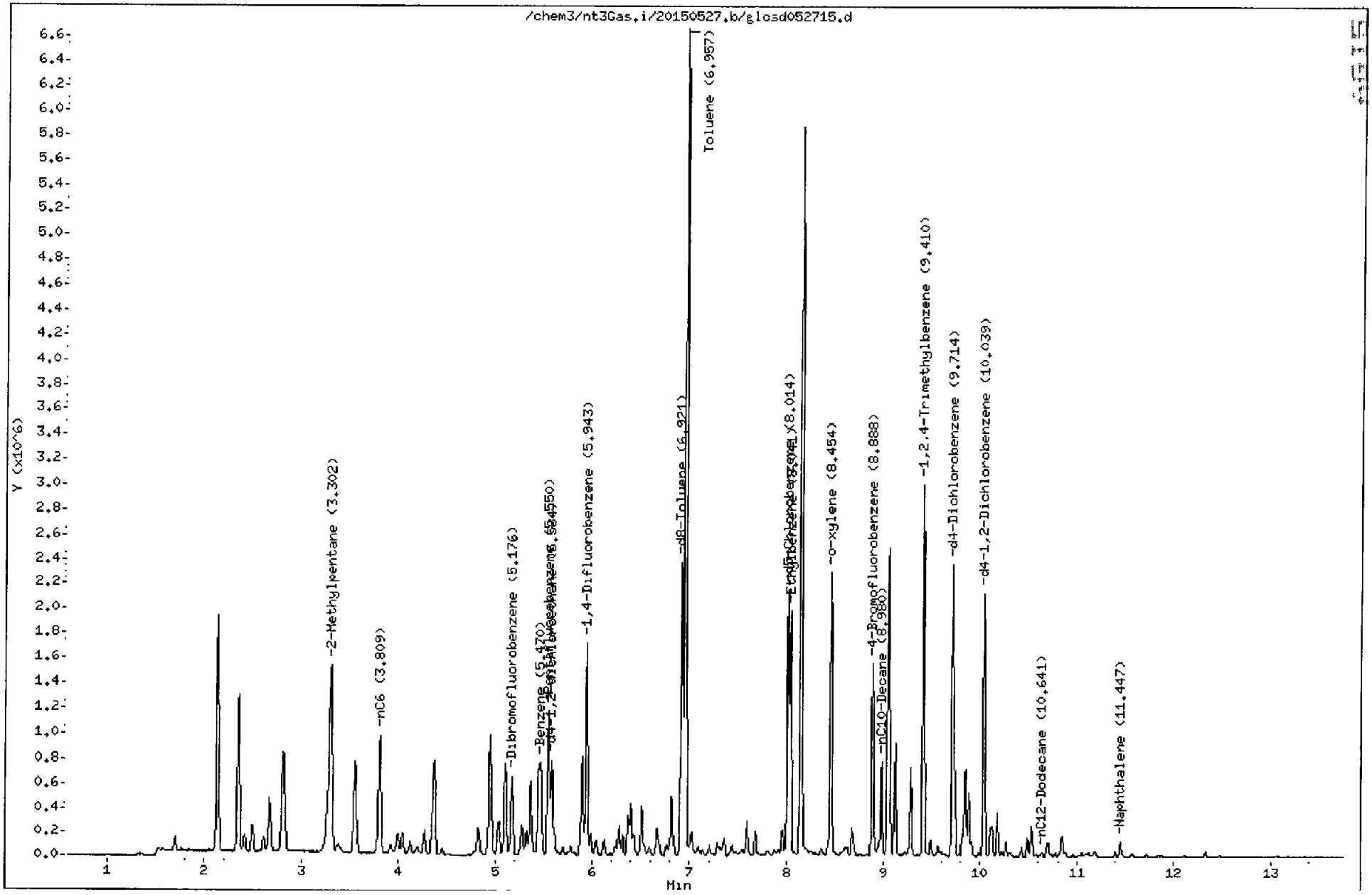
Sample Info: GLCS0527,10,10.0

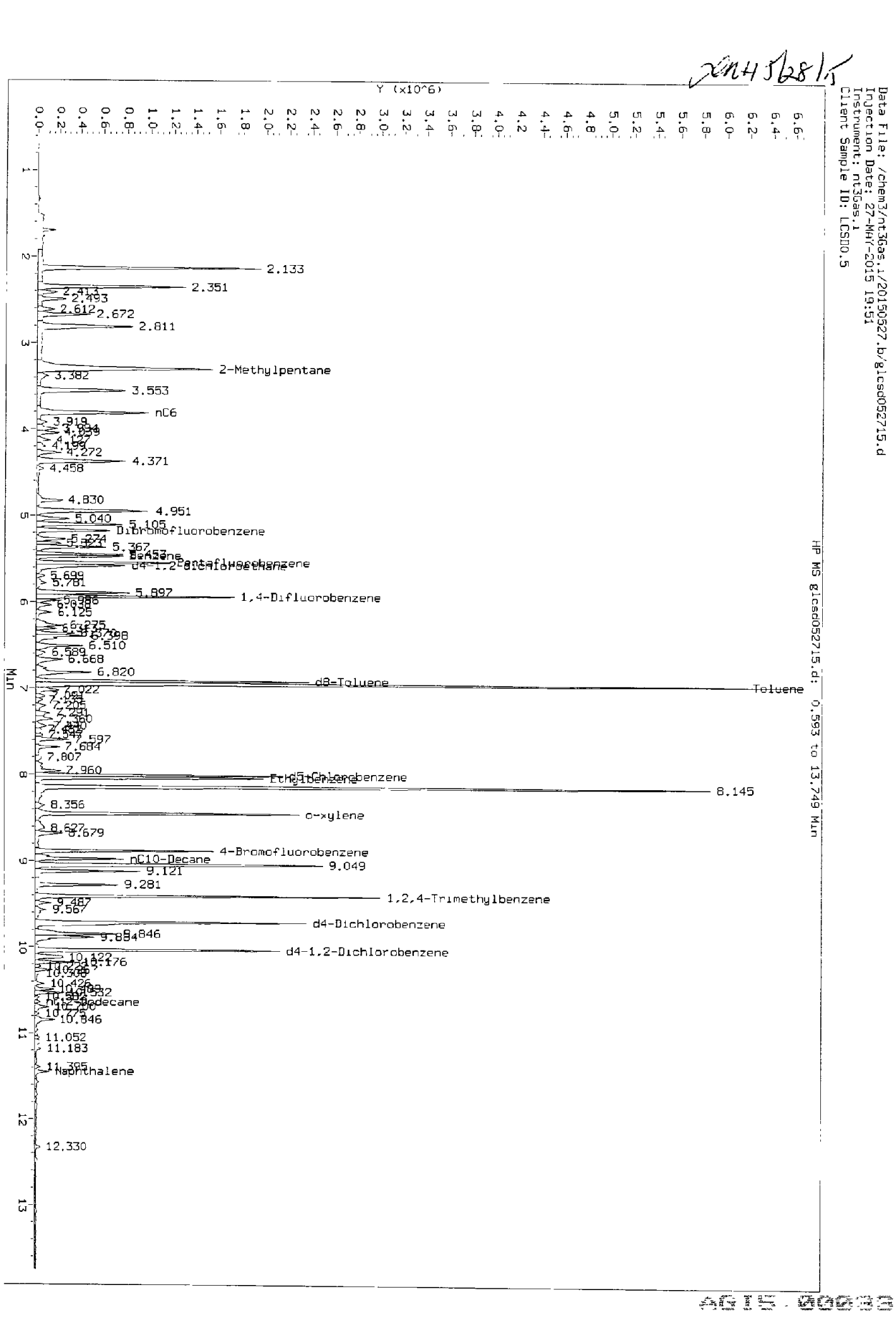
Column phase: RTXVMS

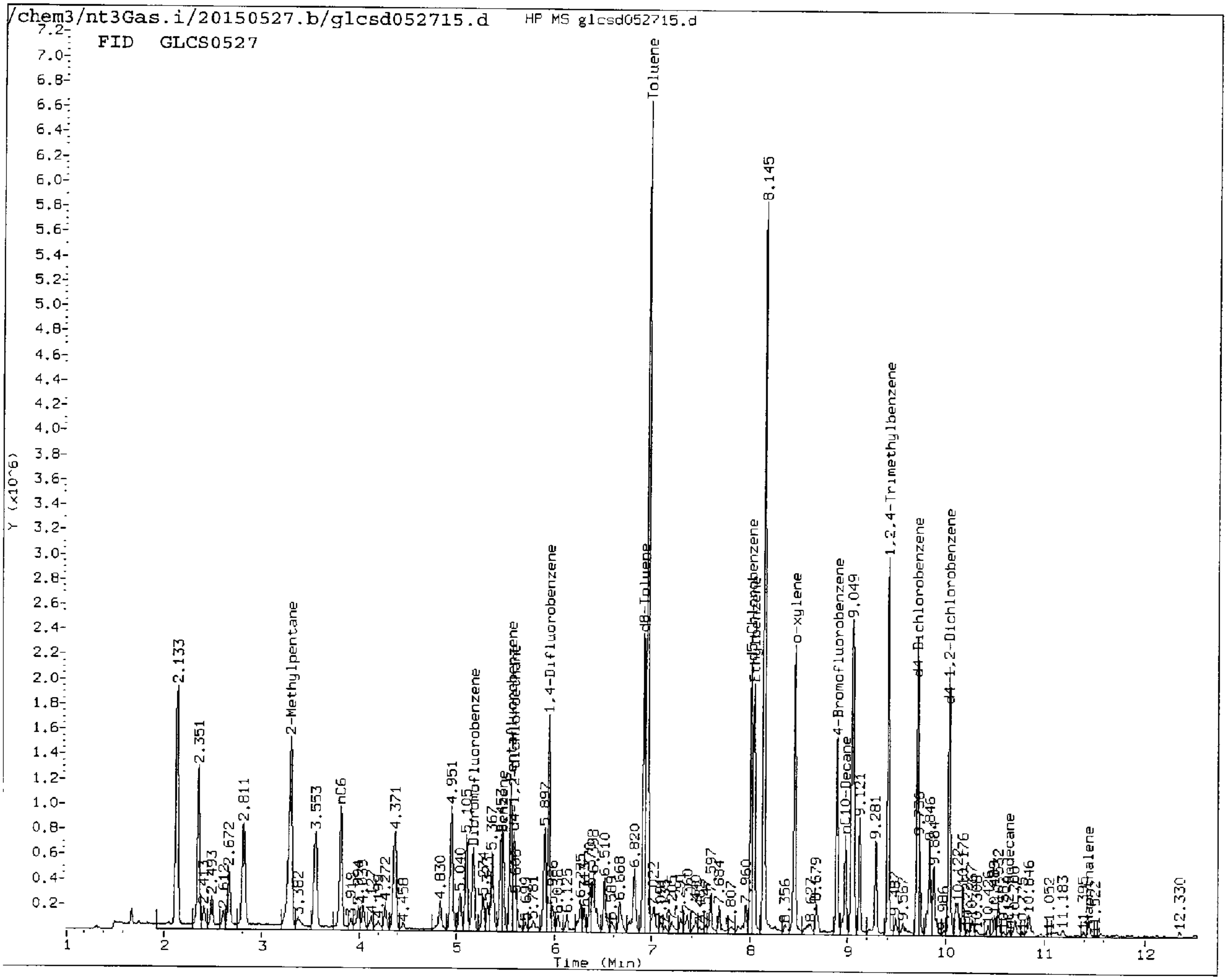
Instrument: nt3Gas.i

Operator: MMH

Column diameter: 0.18




Data File: /chem3/nt3Gas.i/20150527.b/glcsd052715.d
Injection Date: 27-MAY-2015 19:51
Instrument: nt3Gas.i
Client Sample ID: LCSD0.5
Y (x10^6)
Min
HP MS glcsd052715.d: 0.593 to 13.749 Min
2.133
2.351
2.672
2.811
2-Methylpentane
3.553
nC6
4.371
4.951
Dibromofluorobenzene
d4-1,2-Dichloroethane
1,4-Difluorobenzene
d8-Toluene
Toluene
Ethylbenzene
8.145
o-xylene
4-Bromofluorobenzene
nC10-Decane
9.049
9.281
1,2,4-Trimethylbenzene
d4-Dichlorobenzene
d4-1.2-Dichlorobenzene
Naphthalene
12.330



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

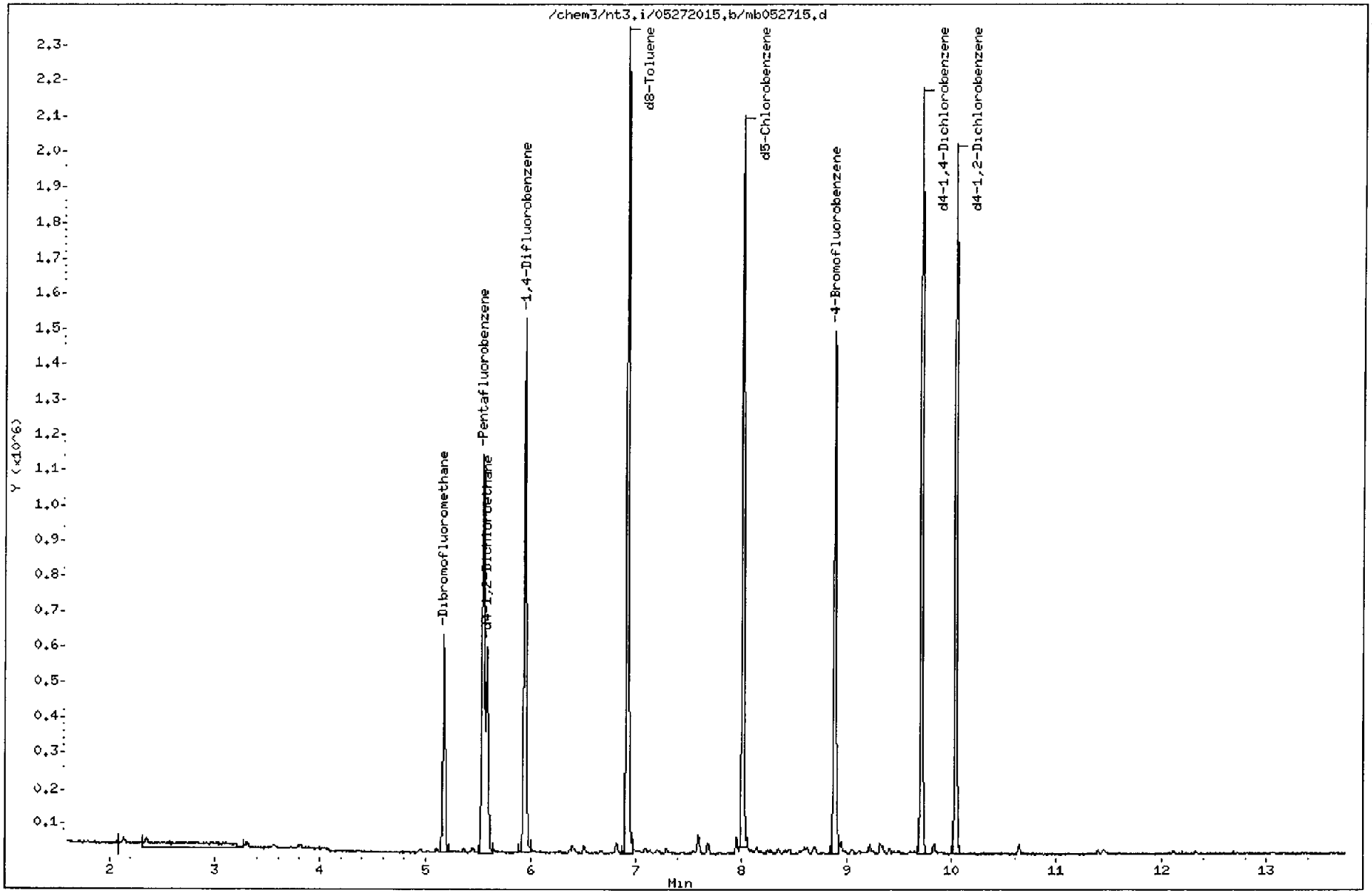
5. Other ______________________

Analyst: XUAI   Date: 5/28/15

Data File: /chem3/nt3.i/05272015.b/mb052715.d
Date : 27-MAY-2015 20:16
Client ID: MB0527
Sample Info: MB0527.10,10,0

Instrument: nt3.i
Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/mb052715.d

Date : 27-MAY-2015 20:16

Client ID: MB0527

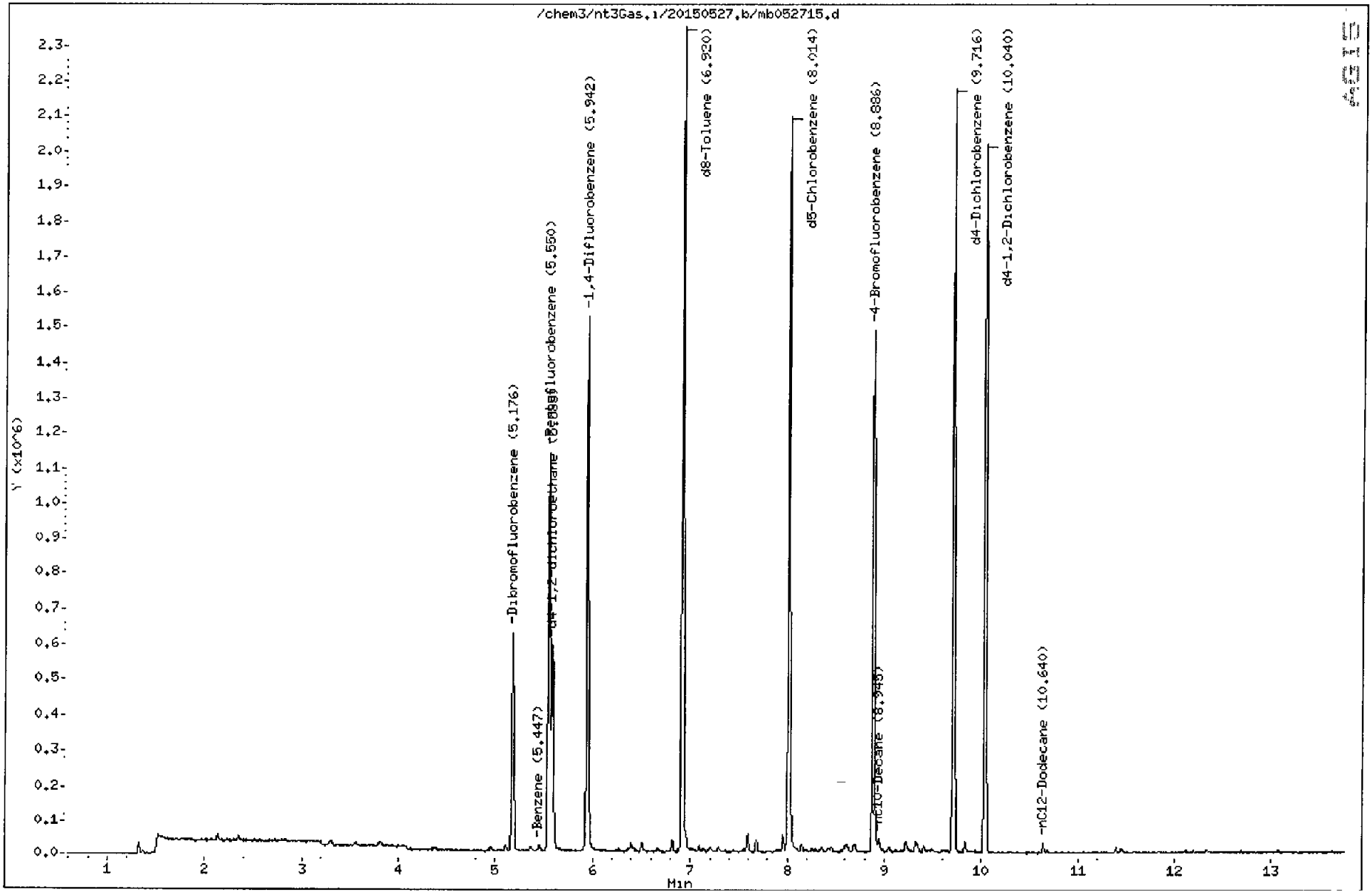
Sample Info: MB0527,10,10,0

Column phase: RTXVMS

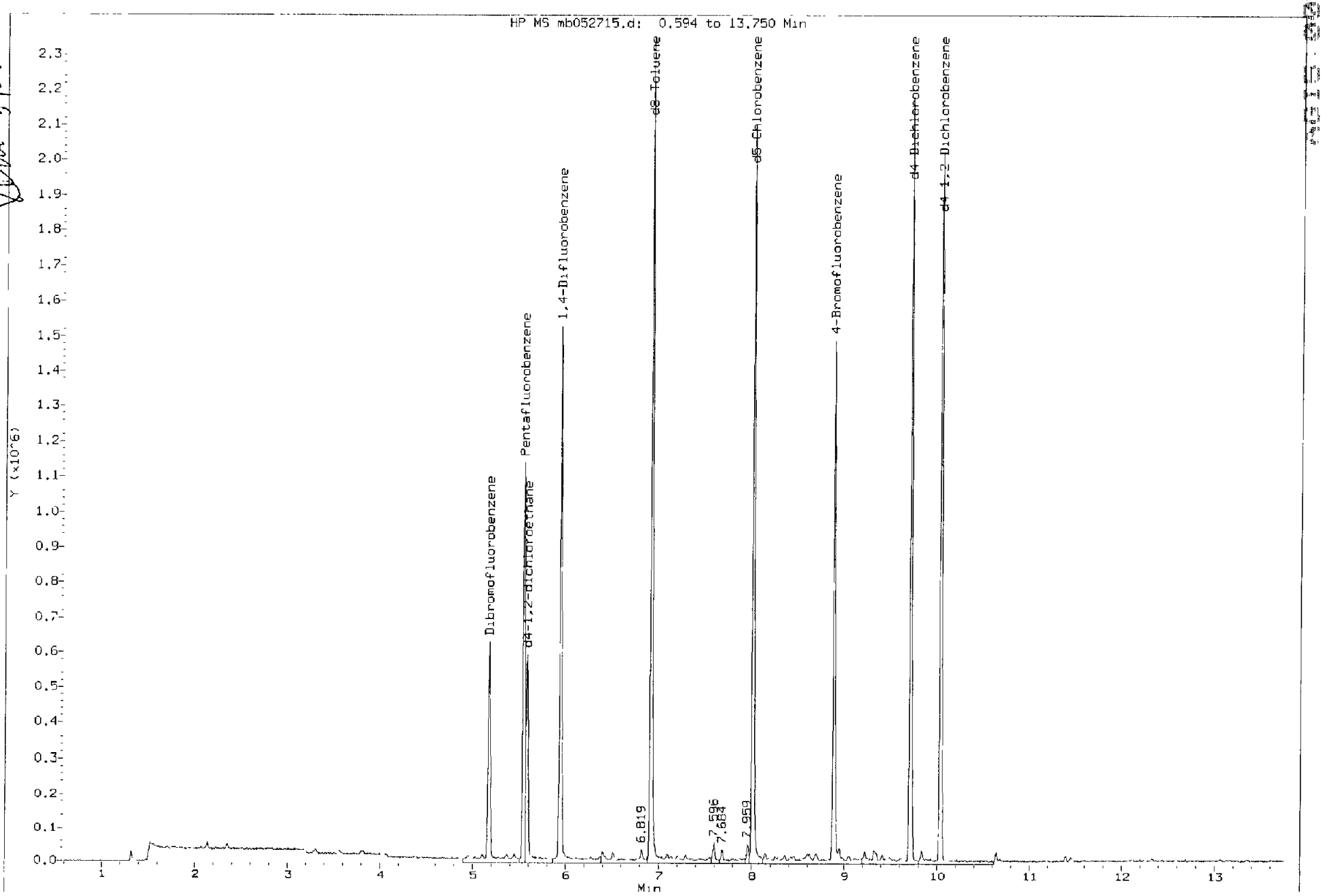
Instrument: nt3Gas.i

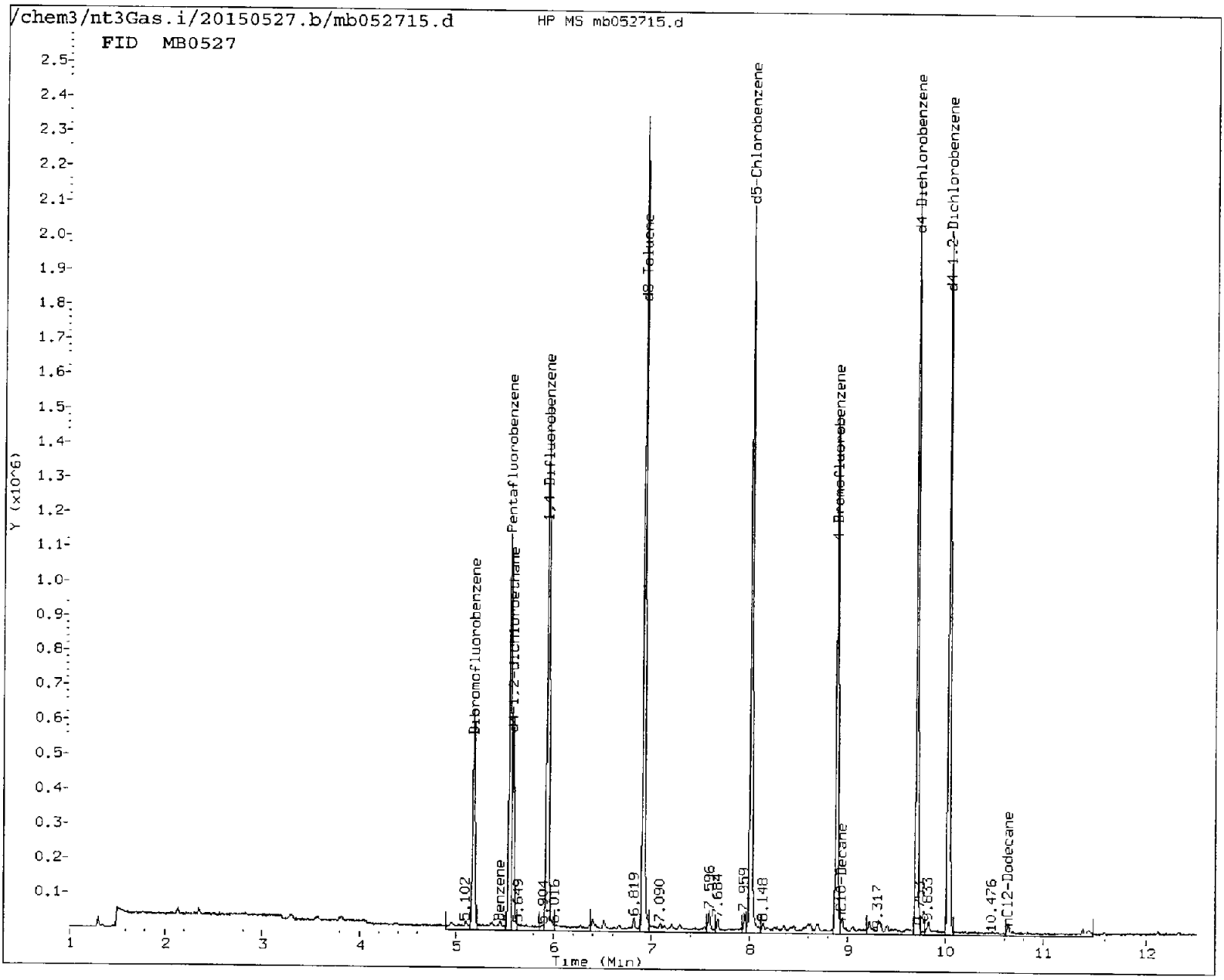
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/mb052715.d
Injection Date: 27-MAY-2015 20:16
Instrument: nt3Gas.i
Client Sample ID: MB0527





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

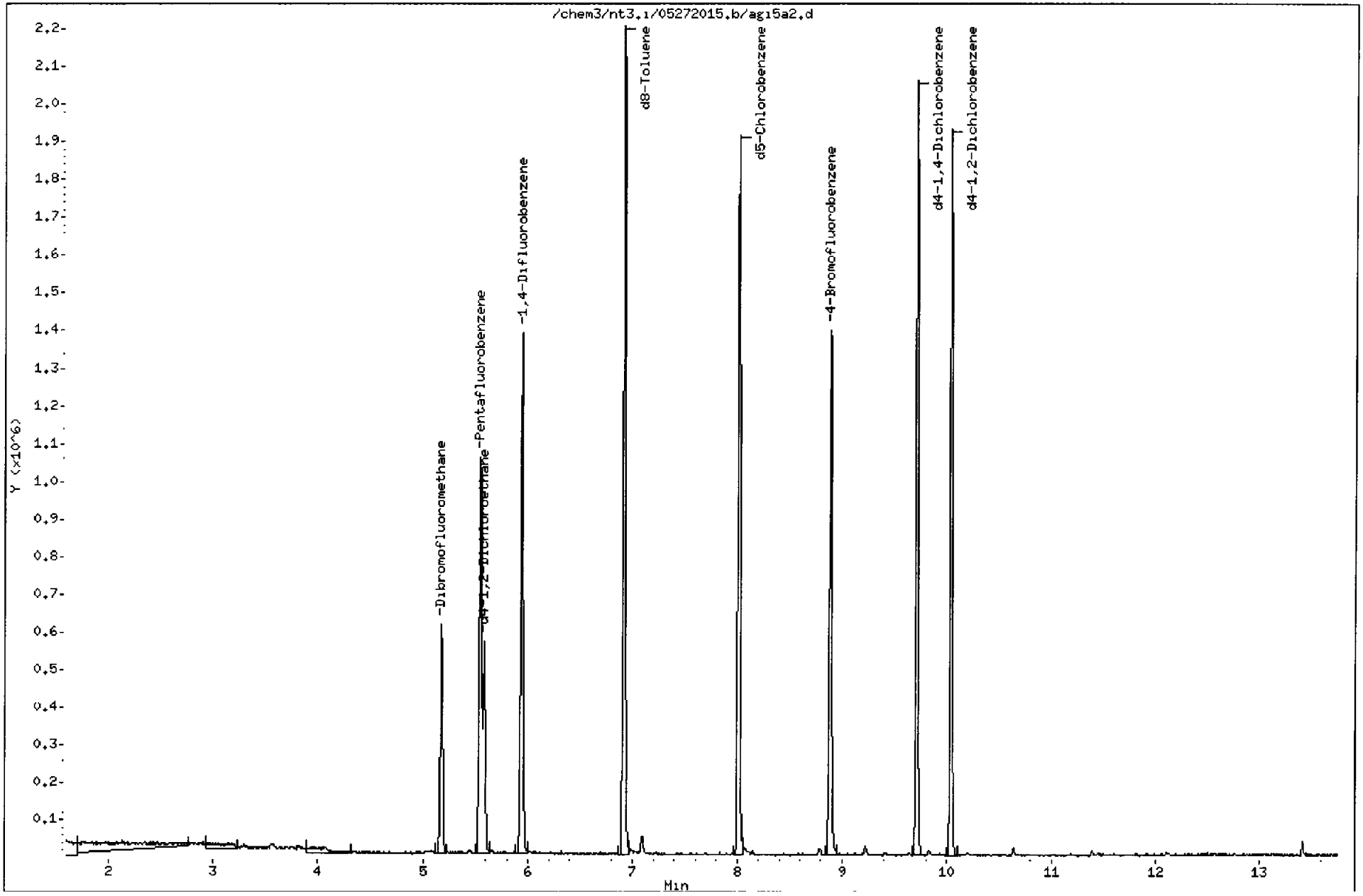
Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.i/05272015.b/agi5a2.d
Date : 27-MAY-2015 22:48
Client ID: MW-1R
Sample Info: AGI5A,10,10,0

Instrument: nt3.i

Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/ag15a2.d

Date : 27-MAY-2015 22:48

Client ID: MW-1R

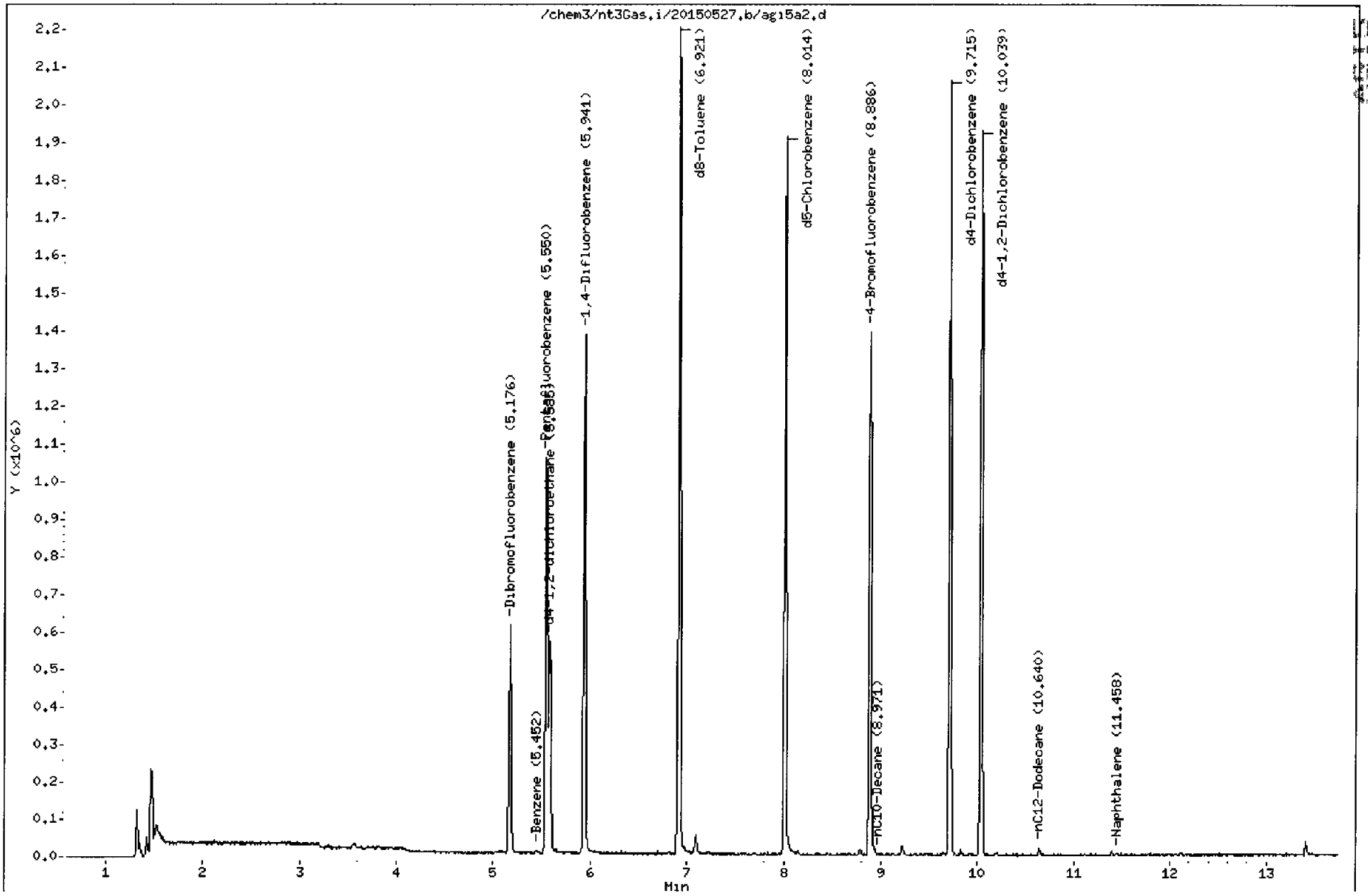
Sample Info: AGI5A,10,10,0

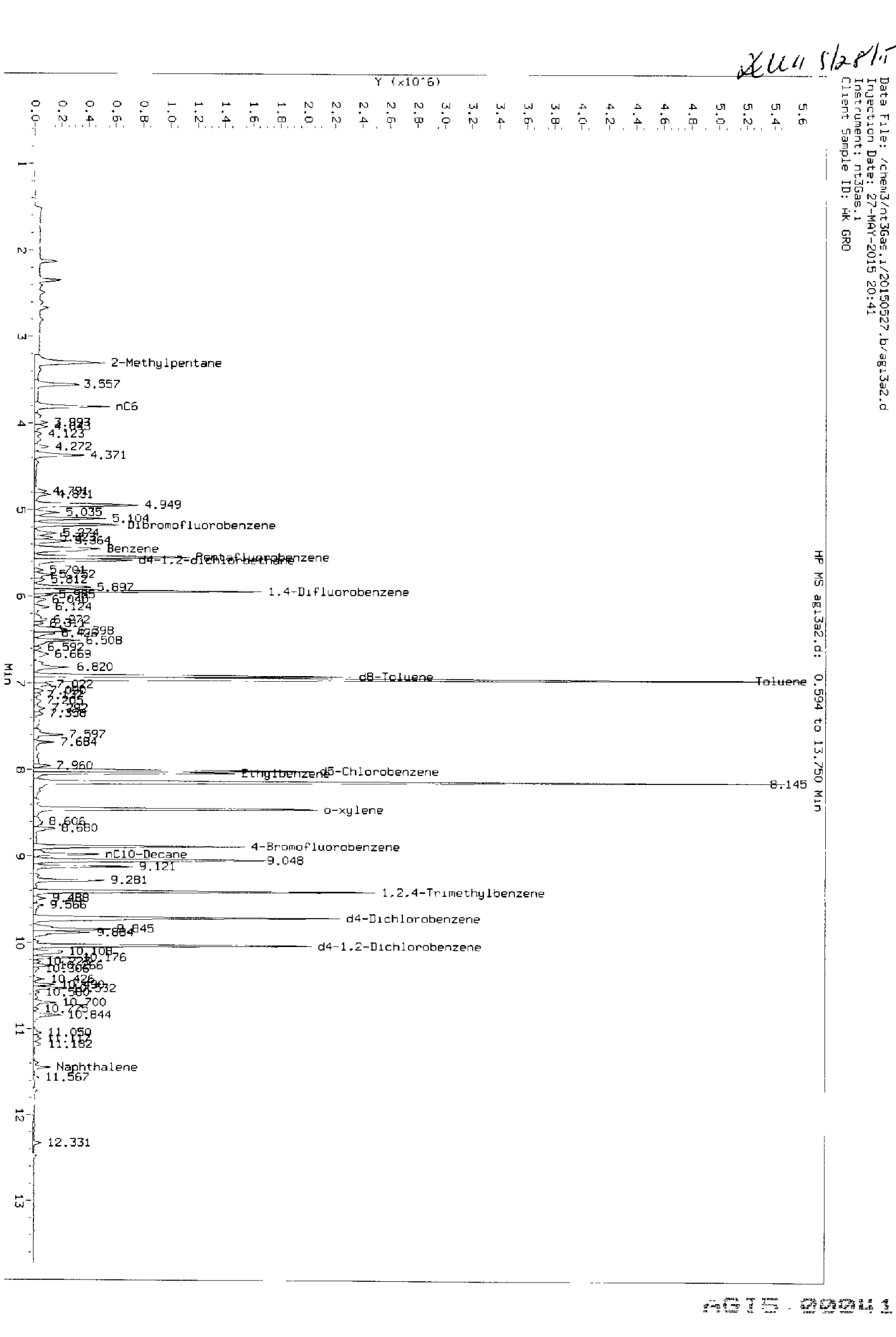
Column phase: RTXVMS

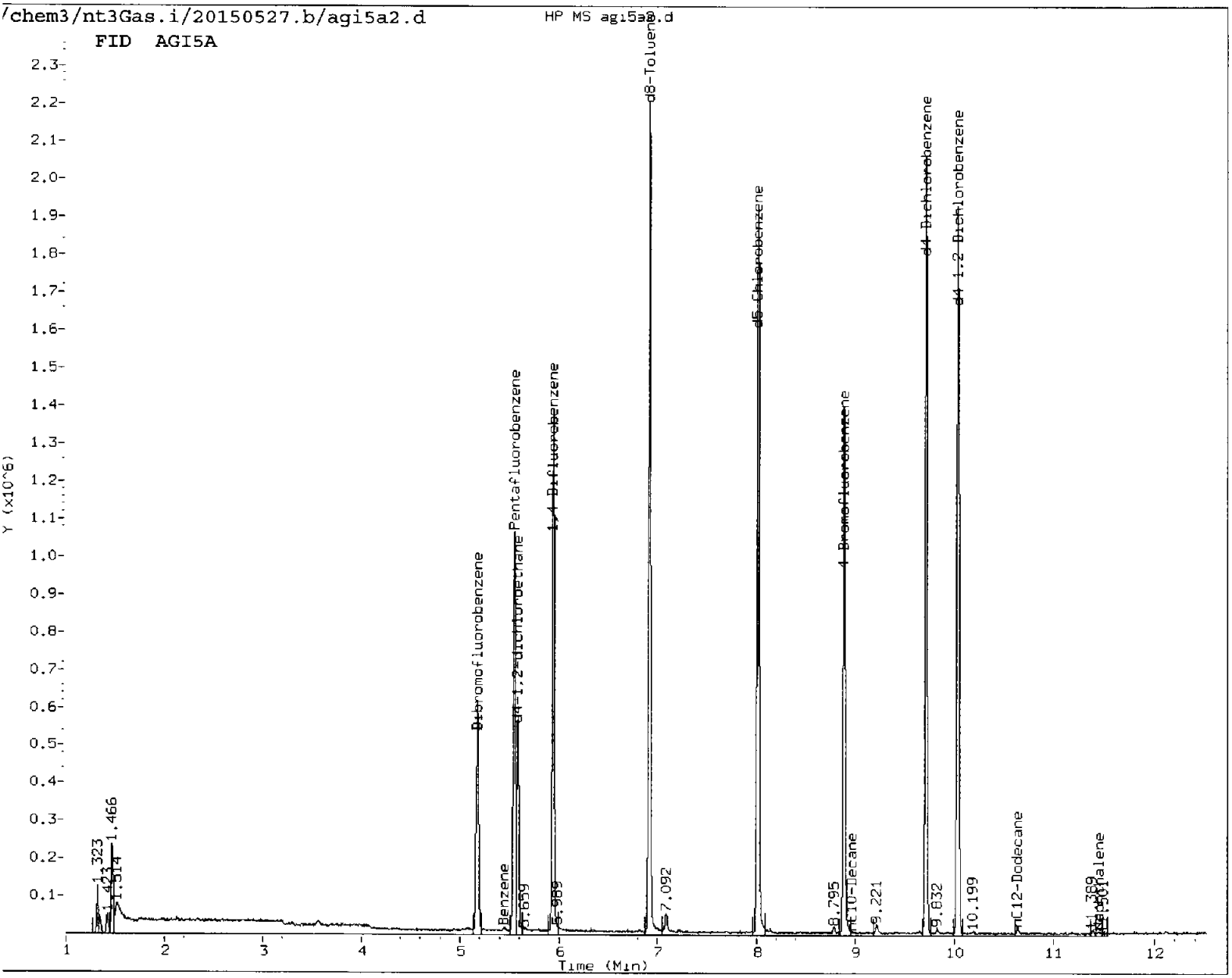
Instrument: nt3Gas.i

Operator: MMH

Column diameter: 0.18




Data File: /chem3/nt3Gas.i/20150527.b/ag13a2.d
Injection Date: 27-MAY-2015 20:41
Instrument: nt3Gas.i
Client Sample ID: HK GRO
Y (x10^6)
HP MS ag13a2.d: 0.594 to 13.750 Min
Min
2-Methylpentane
3.557
nC6
4.123
4.272
4.371
4.949
5.035
5.104
Dibromofluorobenzene
Benzene
d4-1,2-dichloroethane
Pentafluorobenzene
5.812
5.897
1.4-Difluorobenzene
6.124
6.508
6.592
6.669
6.820
d8-Toluene
Toluene
7.597
7.684
7.960
Ethylbenzene
d5-Chlorobenzene
8.145
o-xylene
8.606
8.680
4-Bromofluorobenzene
nC10-Decane
9.048
9.121
9.281
1,2,4-Trimethylbenzene
9.488
9.566
d4-Dichlorobenzene
9.845
9.884
d4-1,2-Dichlorobenzene
10.108
10.176
10.366
10.426
10.532
10.700
10.844
11.059
11.152
Naphthalene
11.567
12.331



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

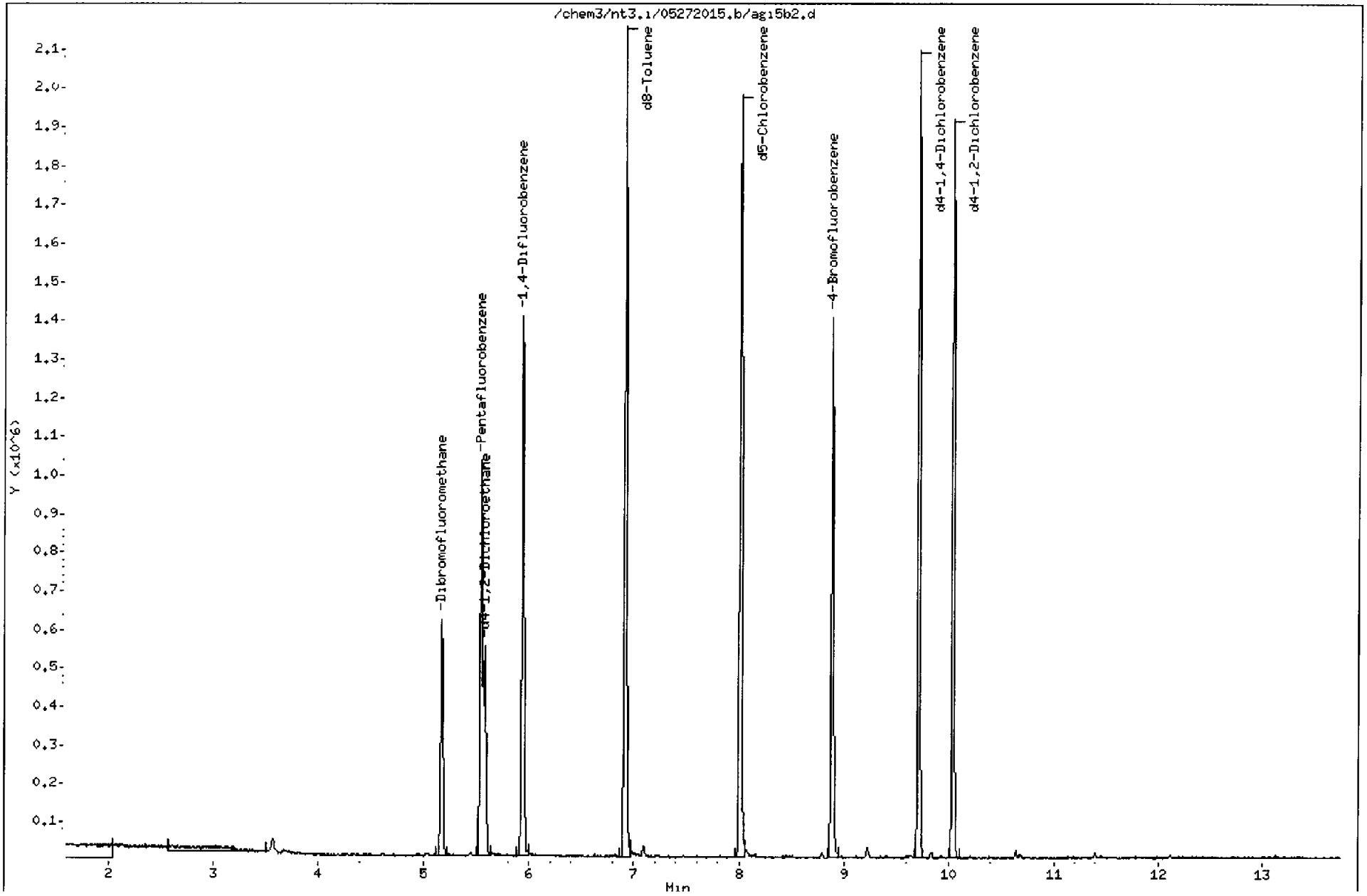
Analyst: _____ Date: 5/28/15

AGI5-20150527

Data File: /chem3/nt3.1/05272015.b/ag15b2.d
Date : 27-MAY-2015 23:13
Client ID: MW-2R
Sample Info: AG15B,10,10,0

Instrument: nt3.1
Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.1/20150527.b/ag15b2.d

Date : 27-MAY-2015 23:13

Client ID: MW-2R

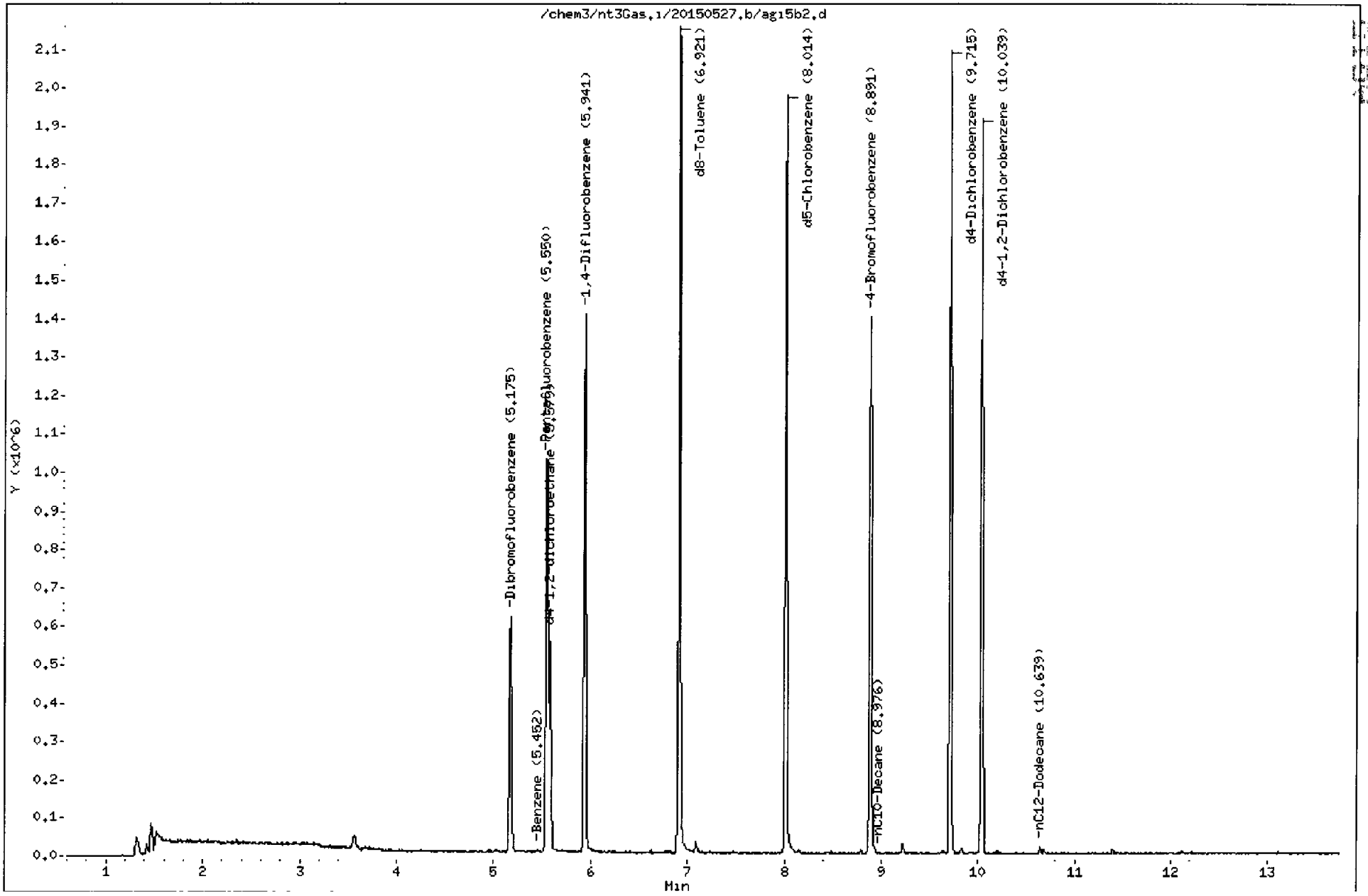
Sample Info: AG15B,10,10,0

Column phase: RTXVMS

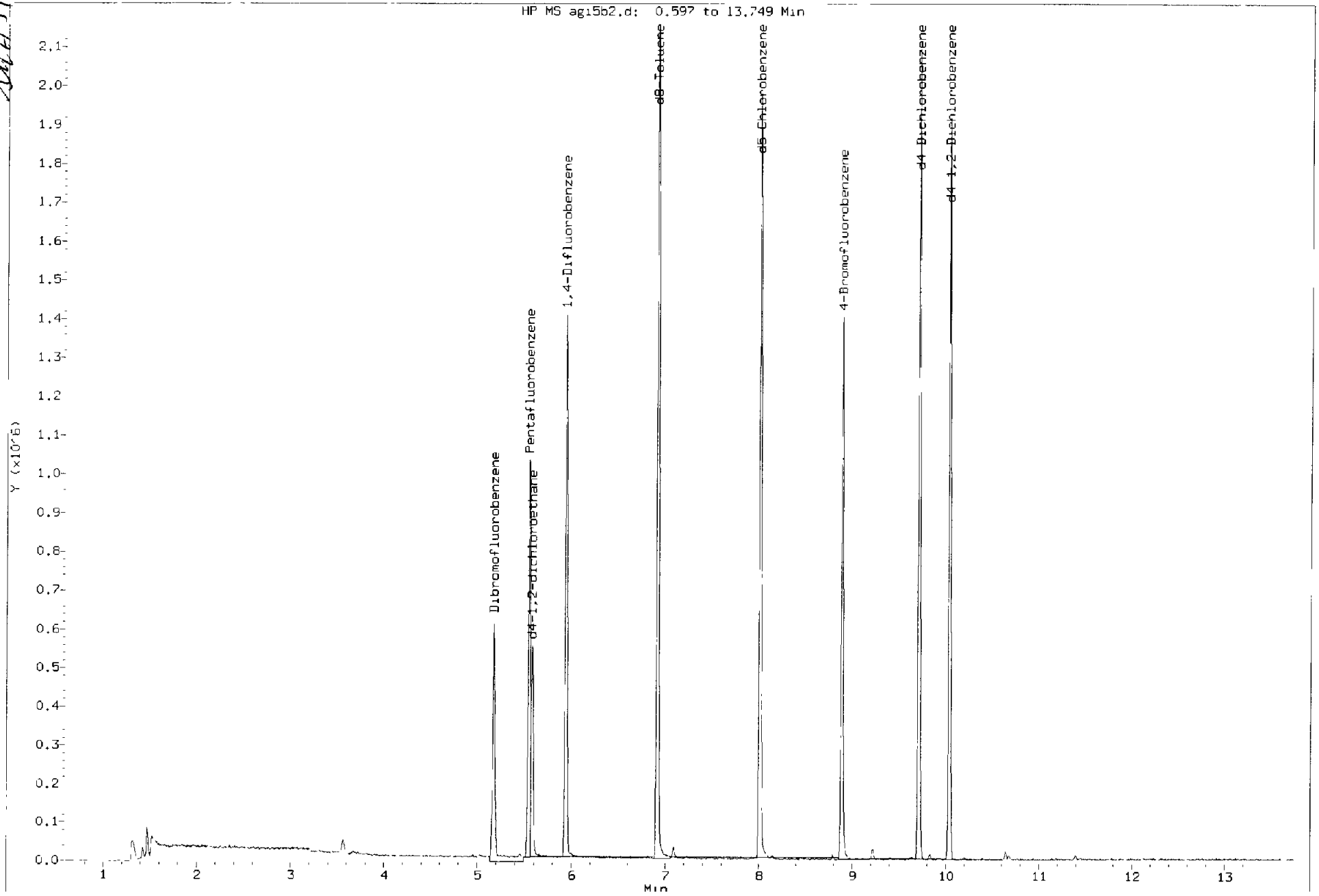
Instrument: nt3Gas.1

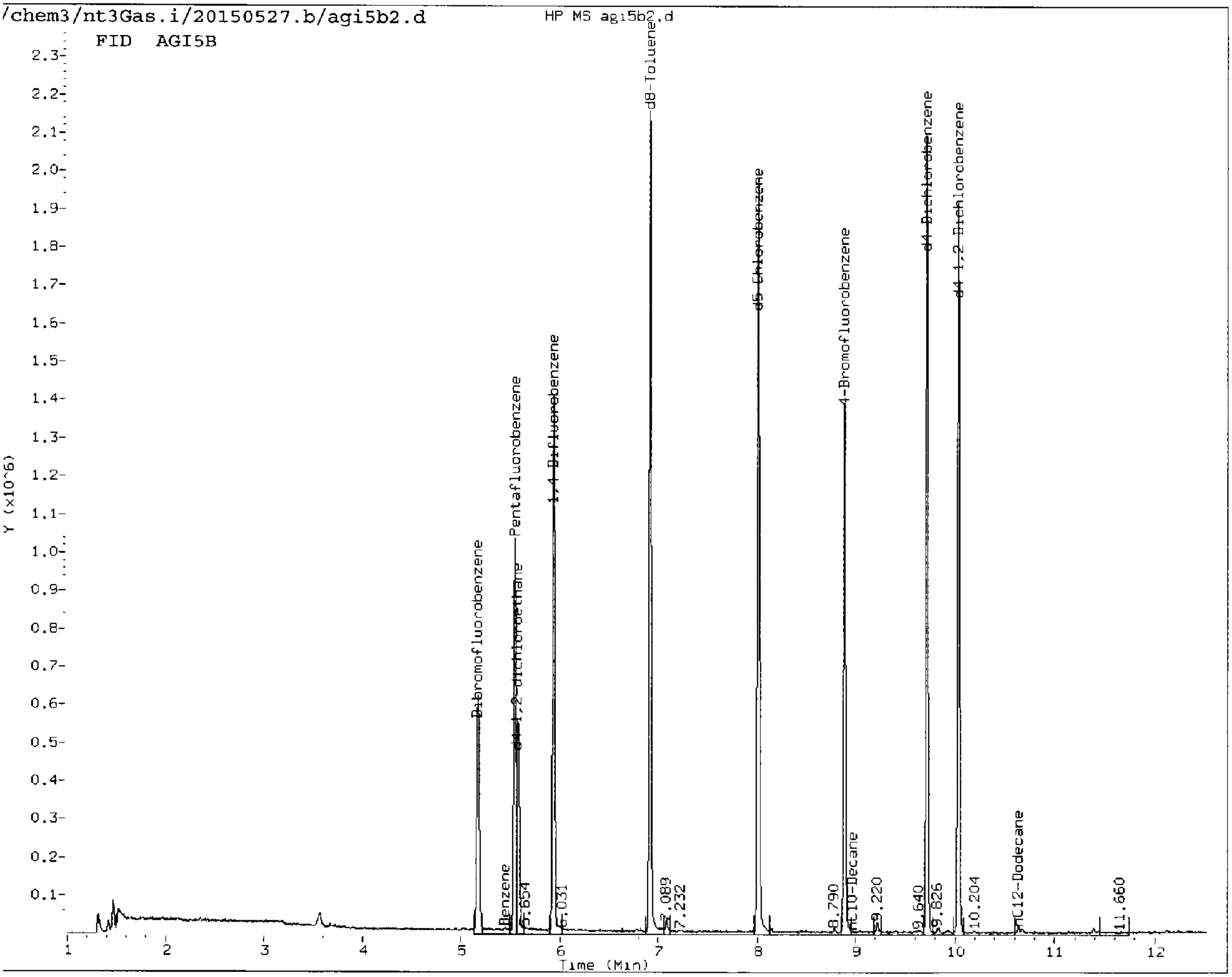
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5b2.d
Injection Date: 27-MAY-2015 23:13
Instrument: nt3Gas.i
Client Sample ID: MW-2R





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other ______________________

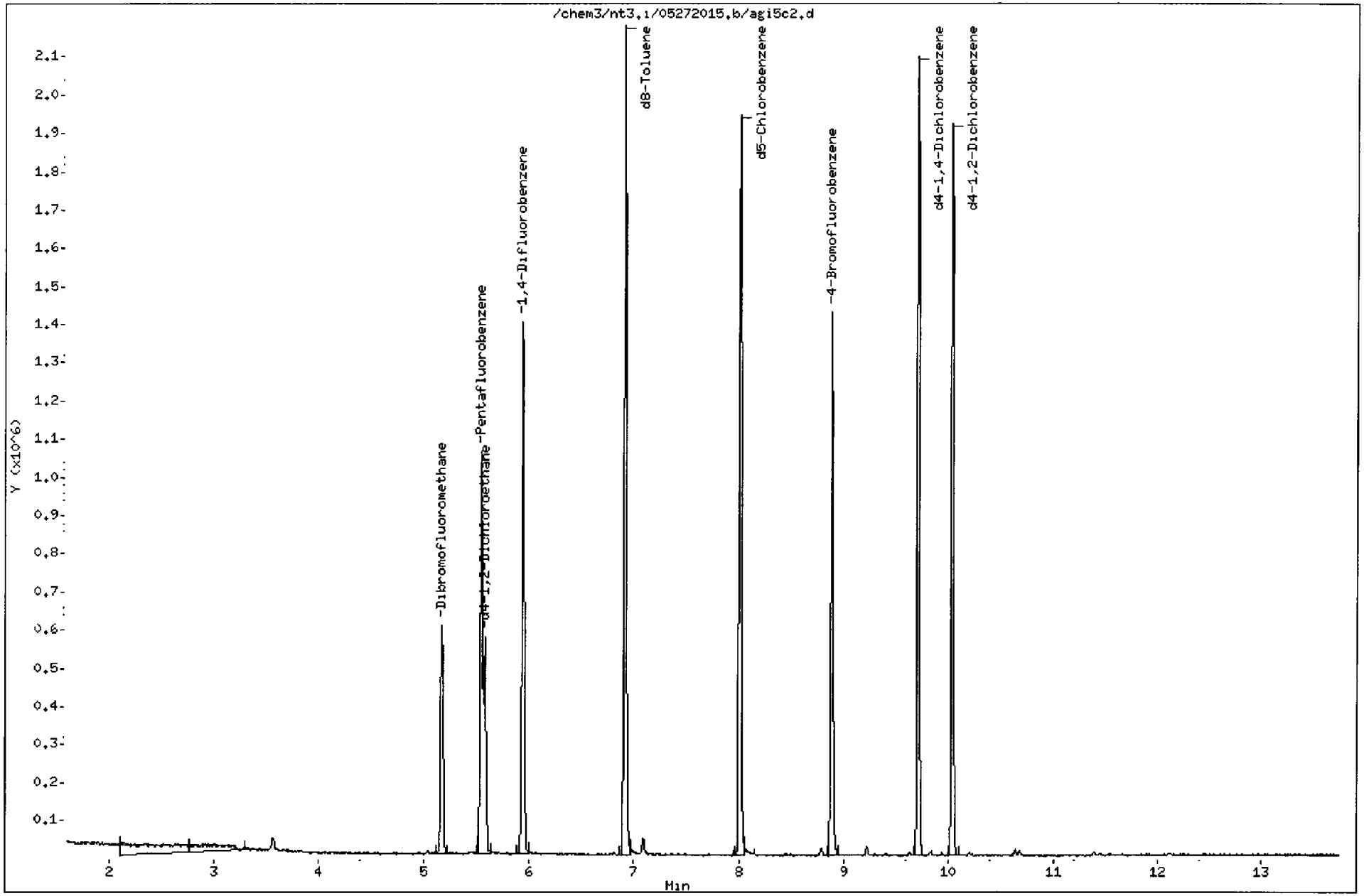
Analyst: JAM Date: 5/28/15

Data File: /chem3/nt3.1/05272015.b/ag15c2.d
Date : 27-MAY-2015 23:38
Client ID: MW-4P
Sample Info: AG15C,10,10,0

Instrument: nt3.1

Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/agi5c2.d

Page 1

Date : 27-MAY-2015 23:38

Client ID: MW-4R

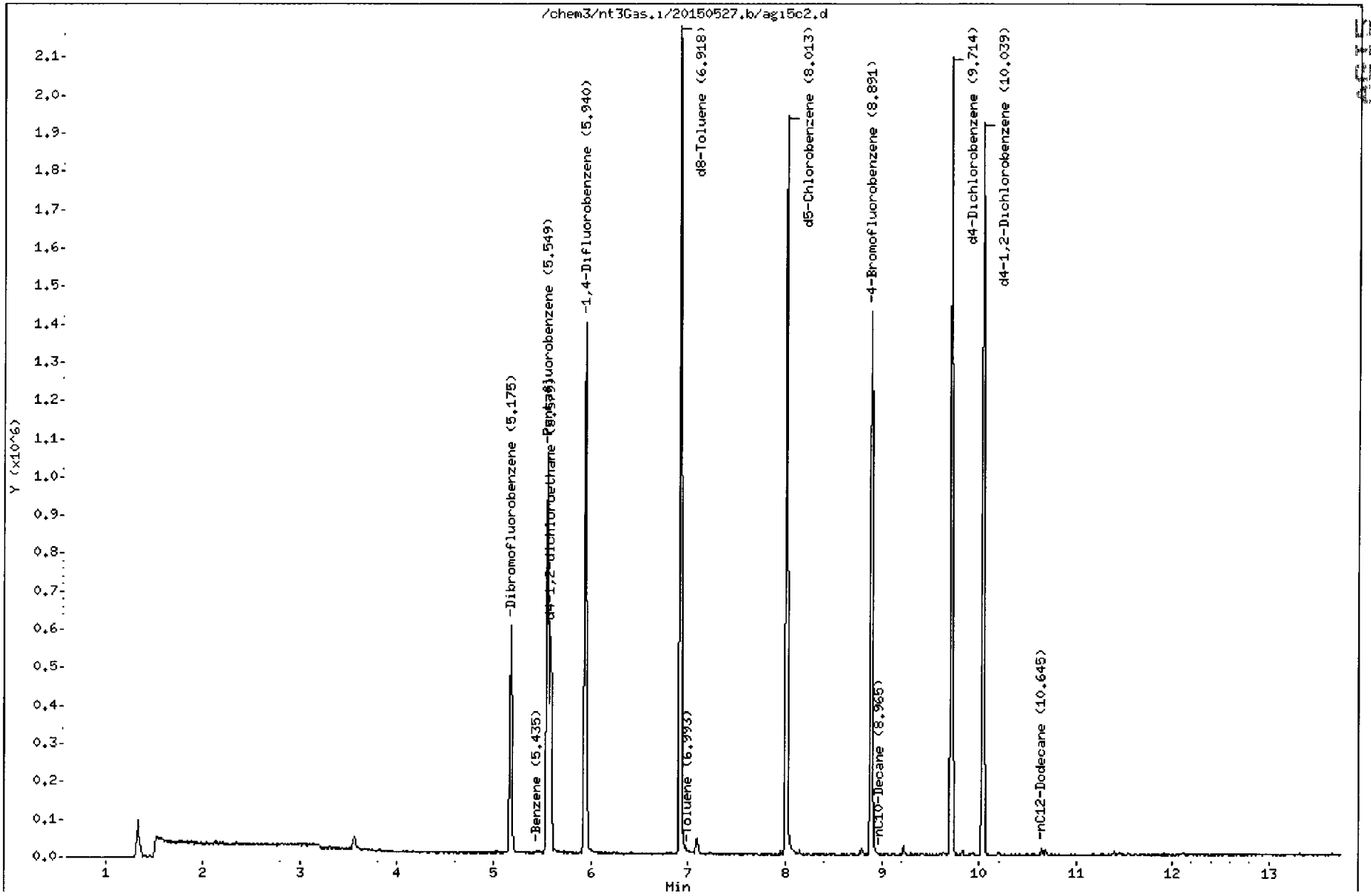
Instrument: nt3Gas.i

Sample Info: AGI5C,10,10,0

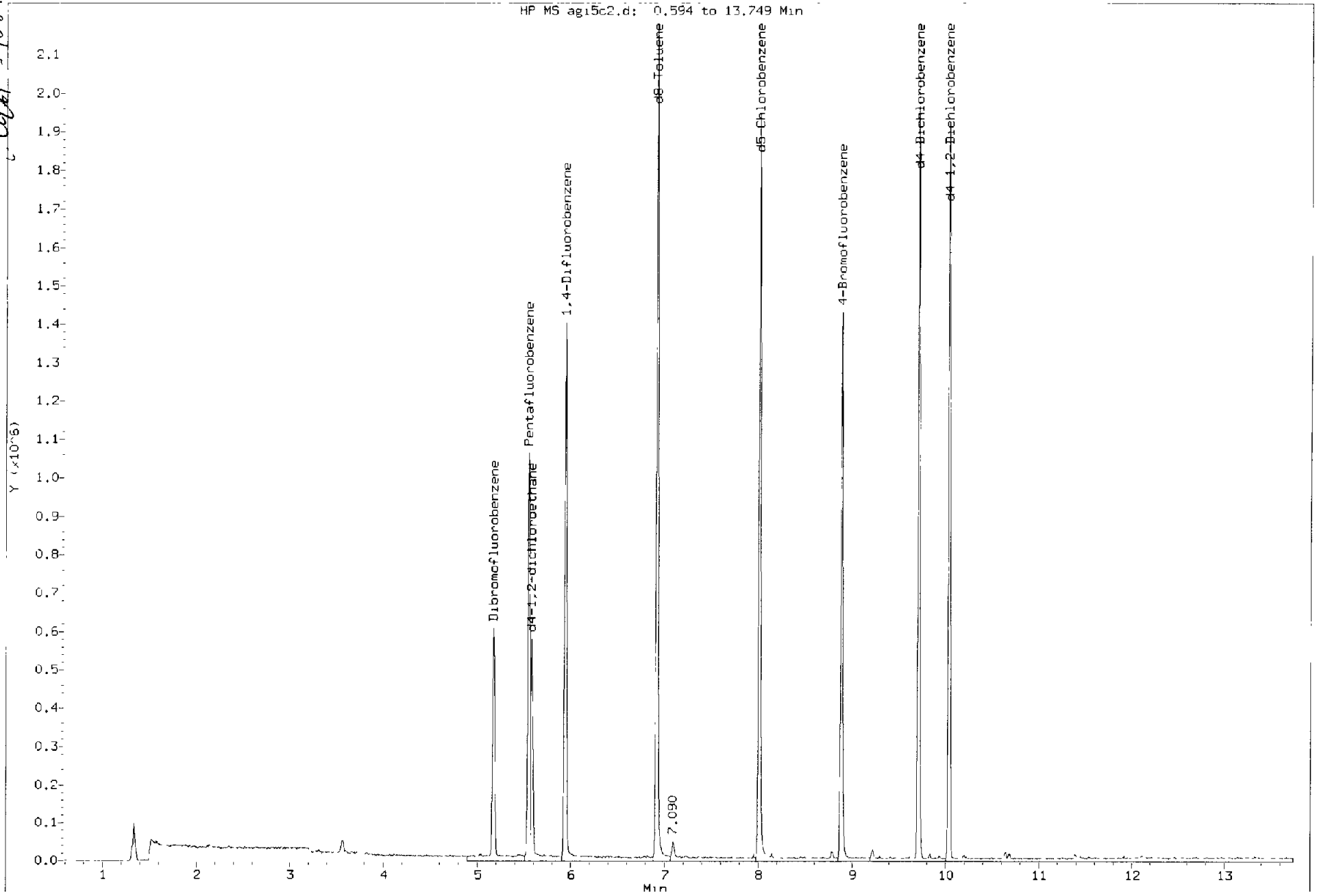
Operator: MMH

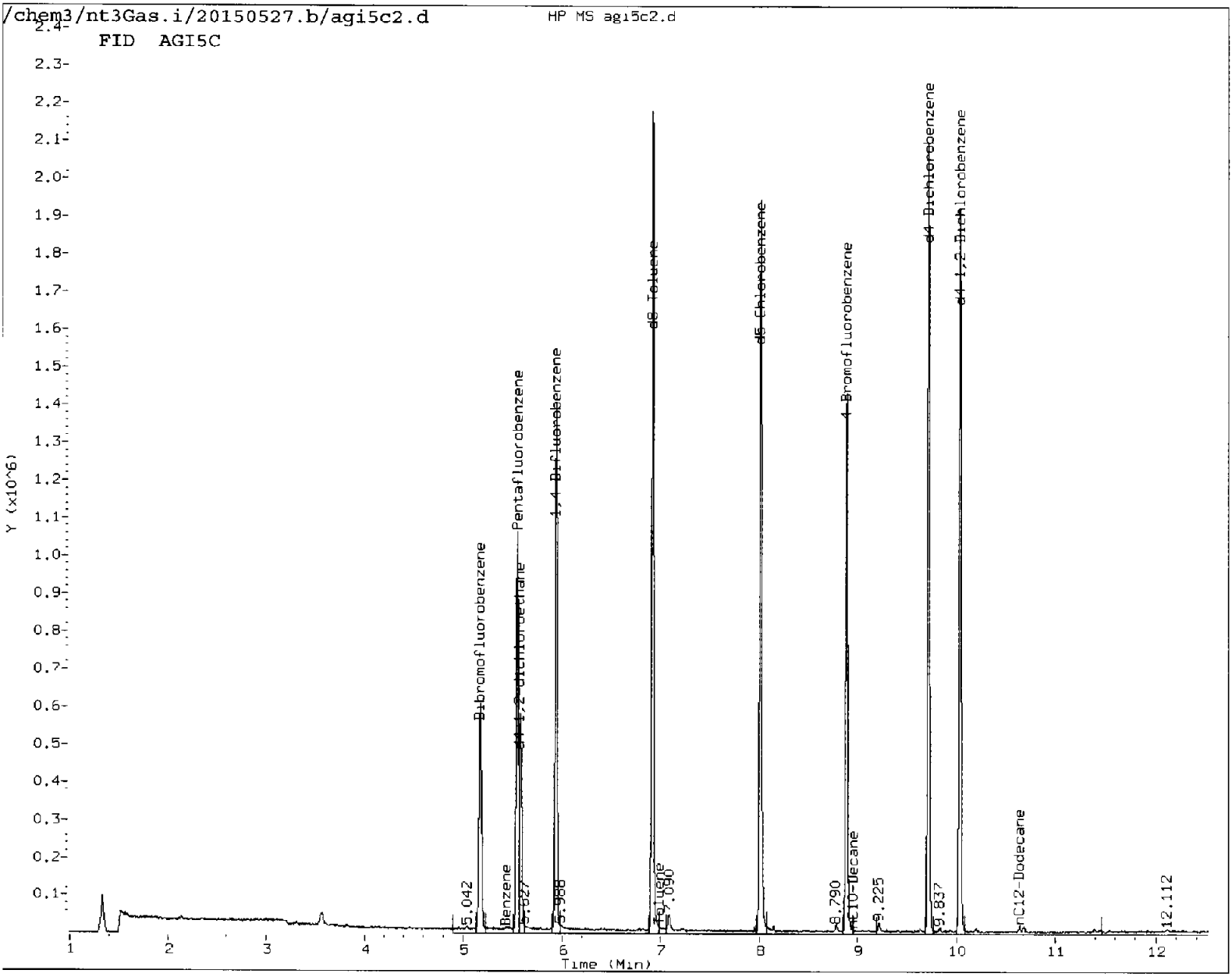
Column phase: RTXVMS

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5c2.d
Injection Date: 27-MAY-2015 23:38
Instrument: nt3Gas.i
Client Sample ID: MW-4R





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

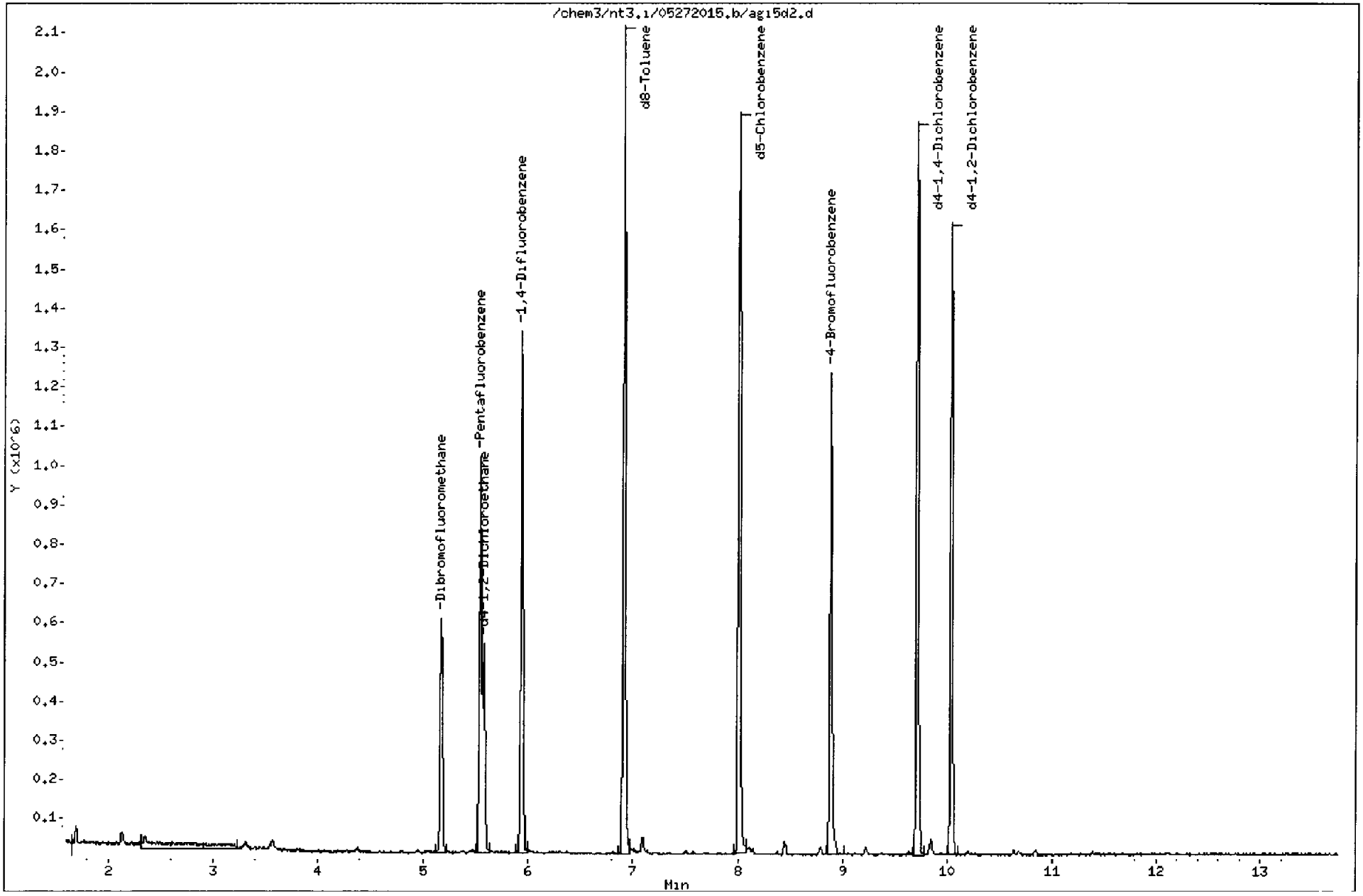
Analyst: _____ Date: 6/28/15

Data File: /chem3/nt3.i/05272015.b/ag15d2.d
Date : 28-MAY-2015 00:03
Client ID: MW-7
Sample Info: AG15D,10,10,0

Instrument: nt3.1

Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.1/20150527.b/ag15d2.d

Date : 28-MAY-2015 00:03

Client ID: MW-7

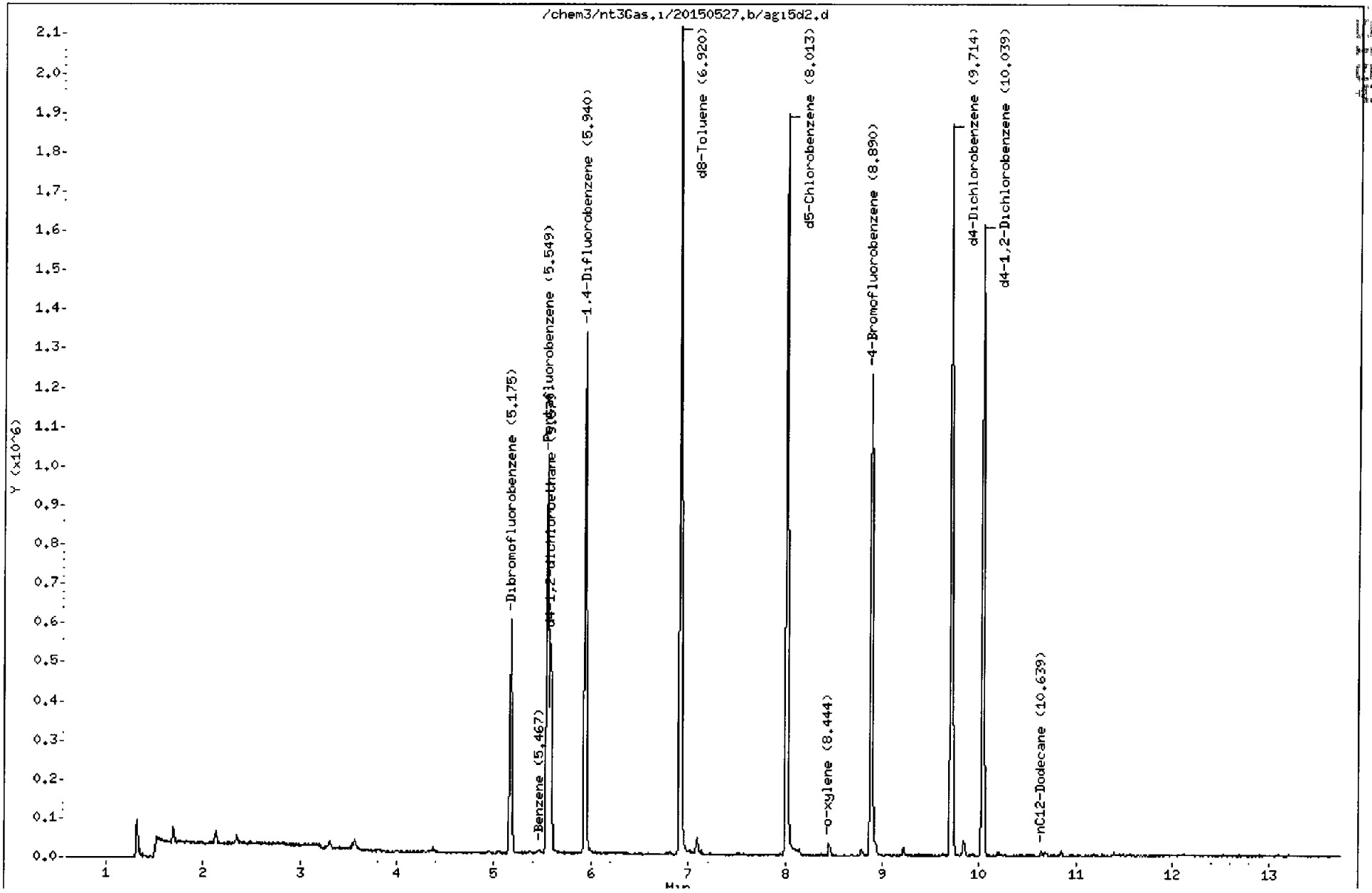
Sample Info: AG15D,10,10,0

Column phase: RTXVMS

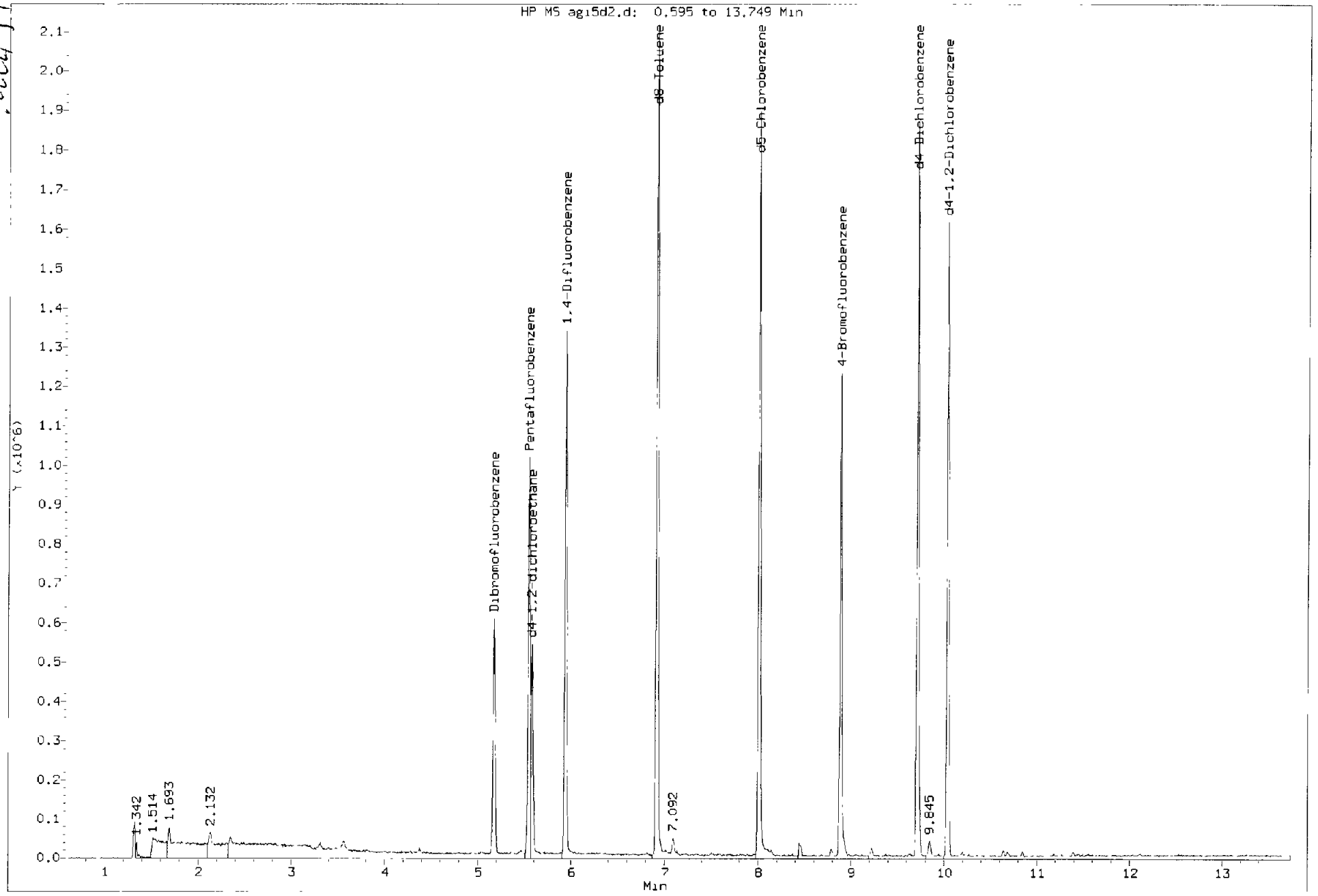
Instrument: nt3Gas.1

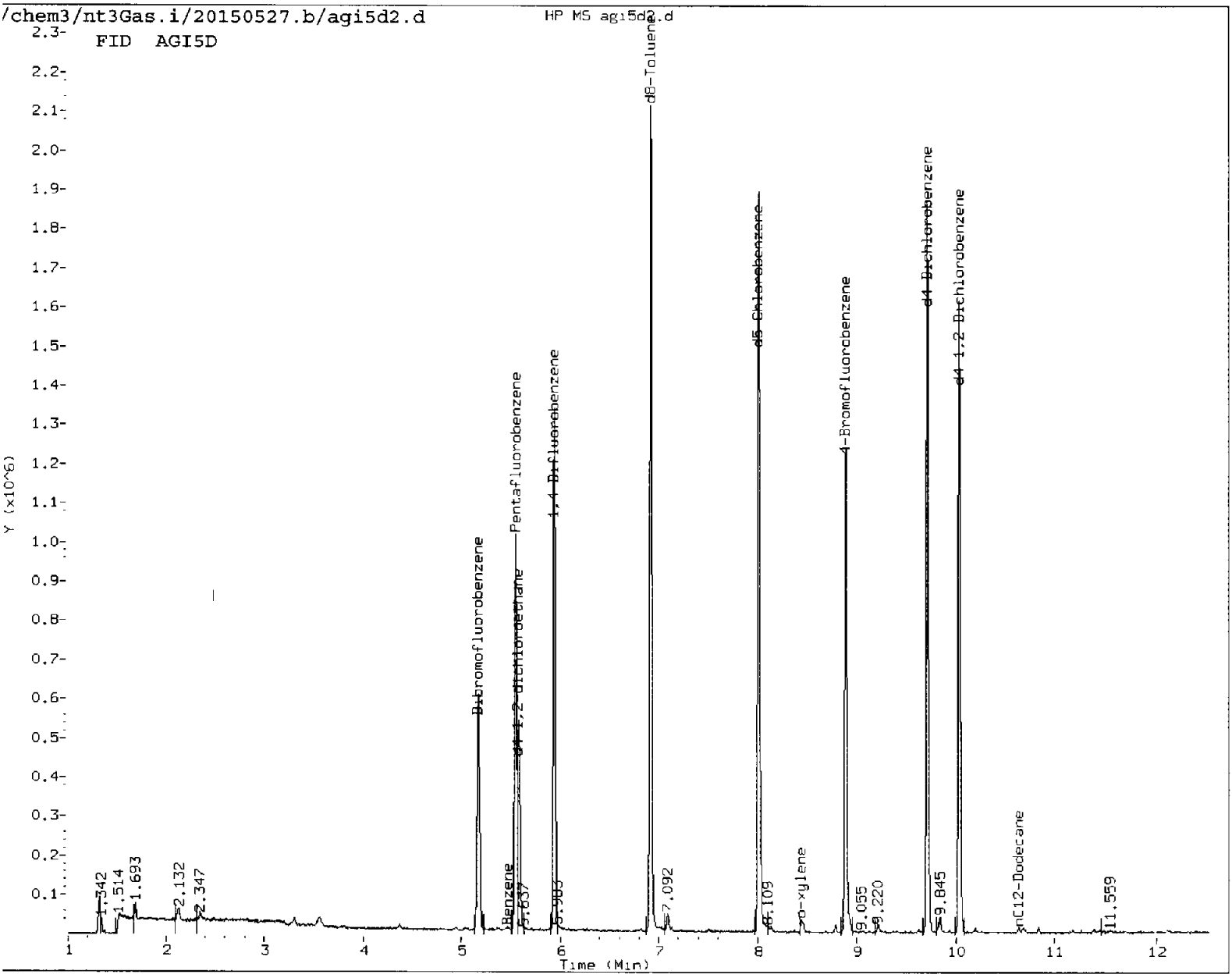
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/ag15d2.d
Injection Date: 28-MAY-2015 00:03
Instrument: nt3Gas.i
Client Sample ID: MW-7





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

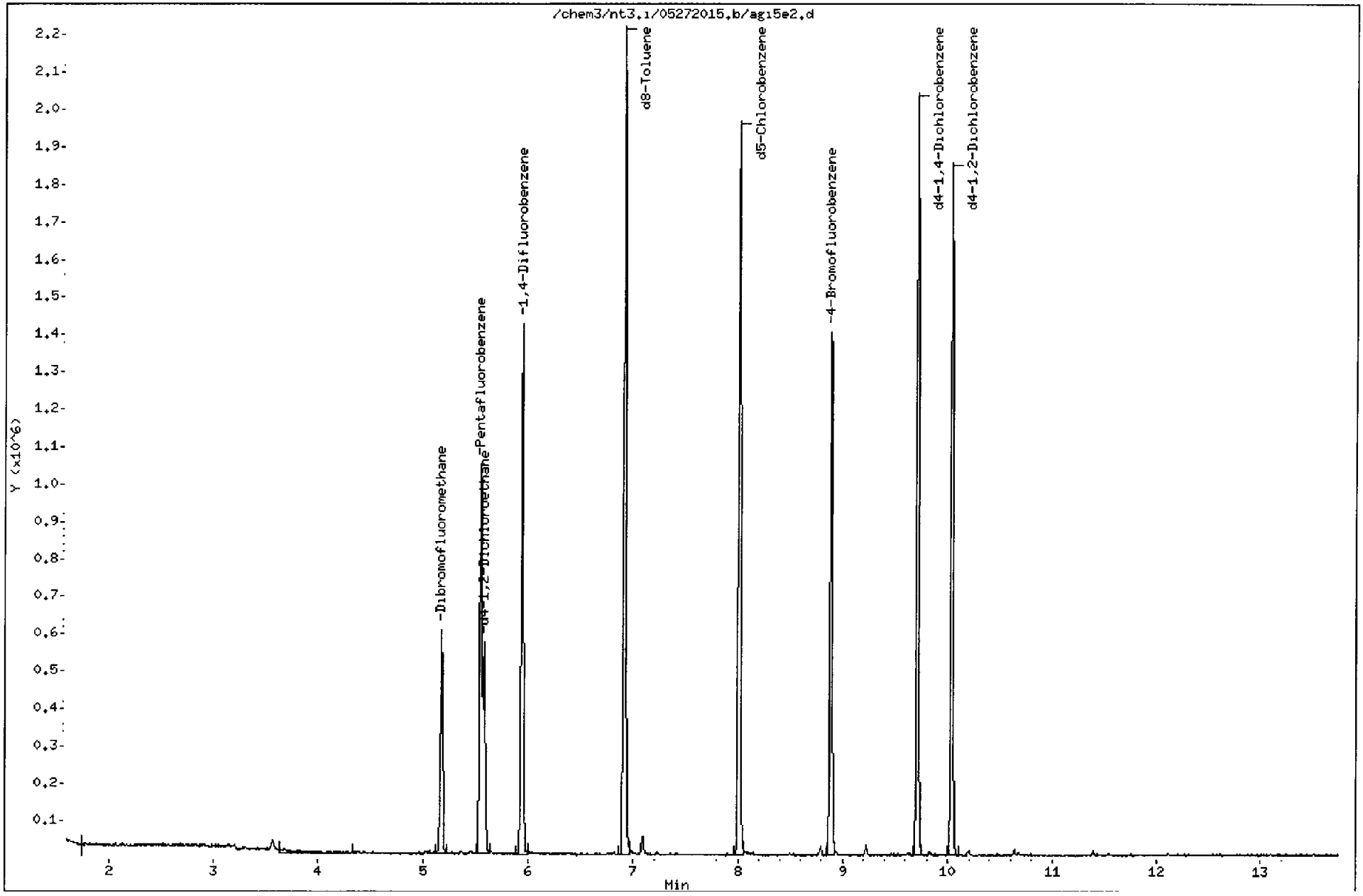
Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.1/05272015.b/ag15e2.d
Date : 28-MAY-2015 00:29
Client ID: MW-9
Sample Info: AG15E,10,10,0

Instrument: nt3.1

Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.1/20150527.b/ag15e2.d

Date : 28-MAY-2015 00:29

Client ID: MW-9

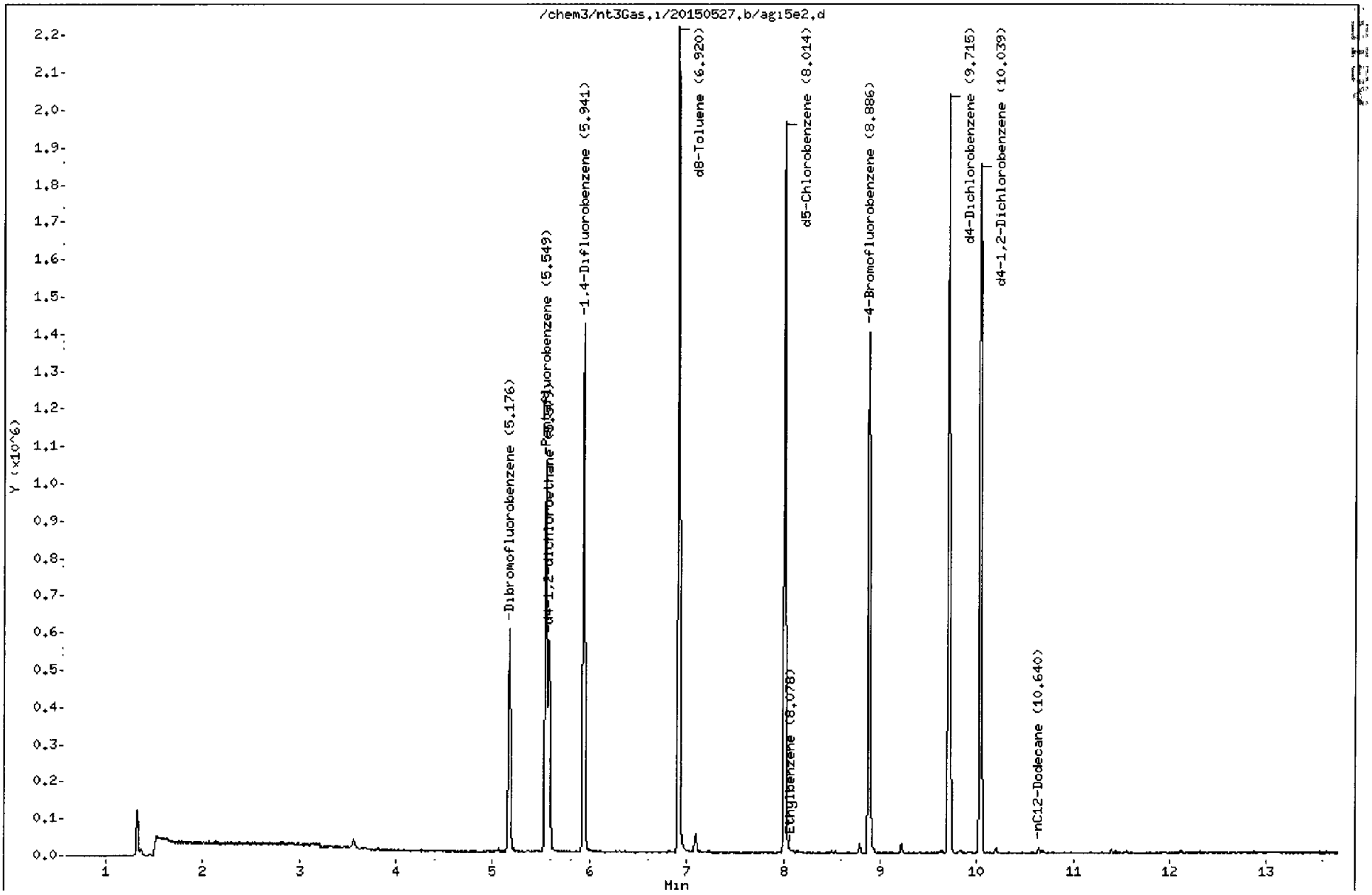
Sample Info: AG15E,10,10,0

Column phase: RTXVMS

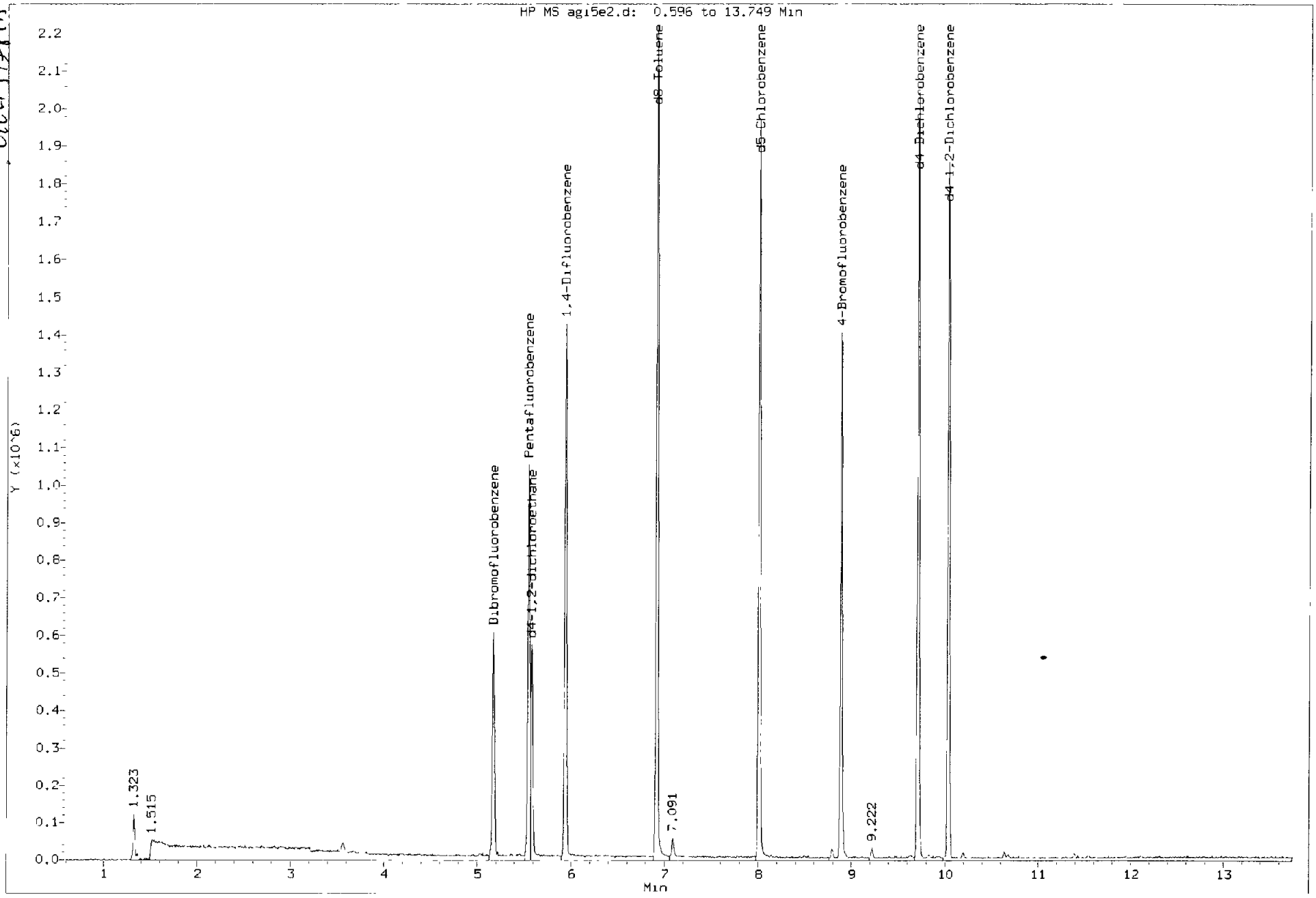
Instrument: nt3Gas.1

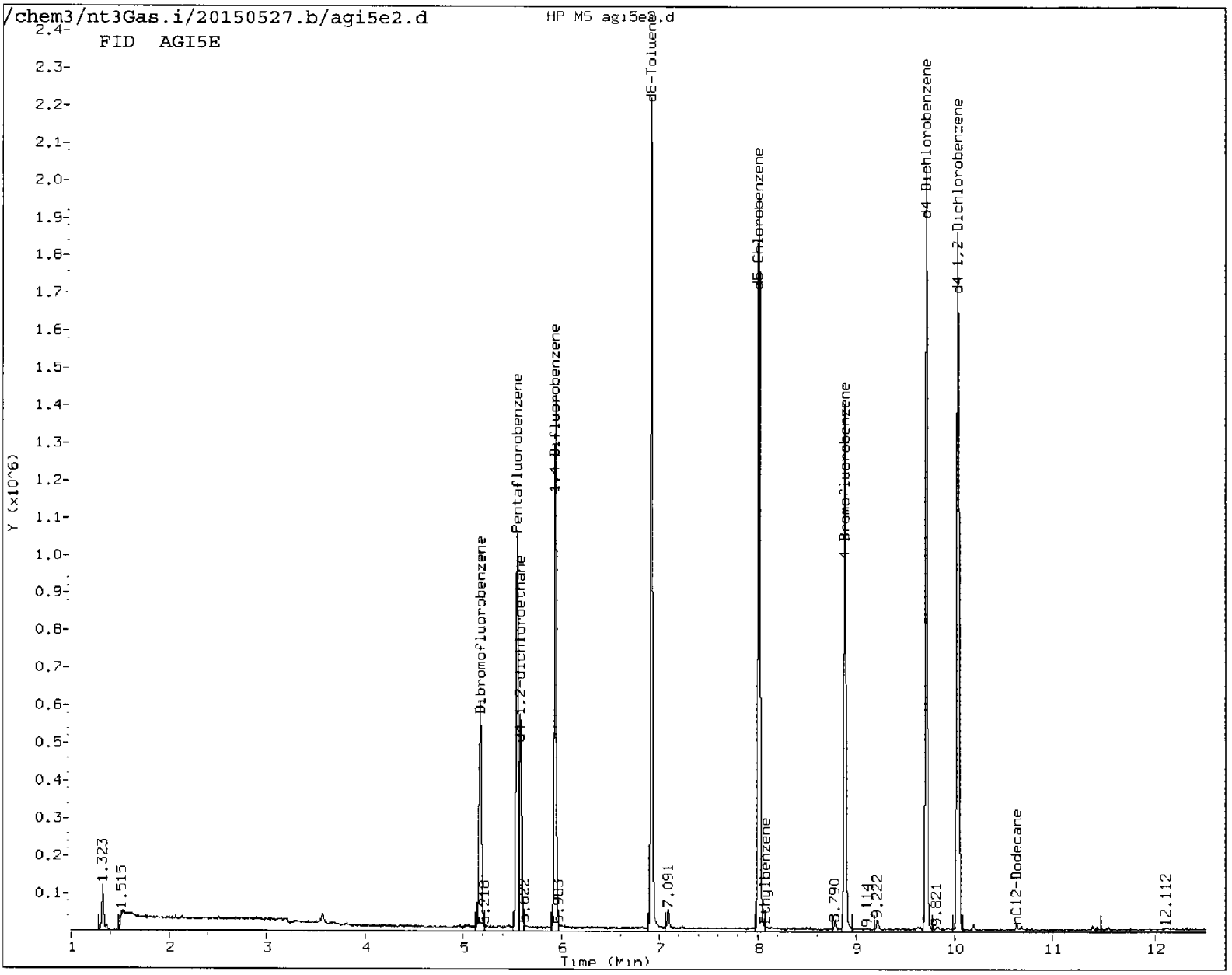
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5e2.d
Injection Date: 28-MAY-2015 00:29
Instrument: nt3Gas.i
Client Sample ID: MW-9





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

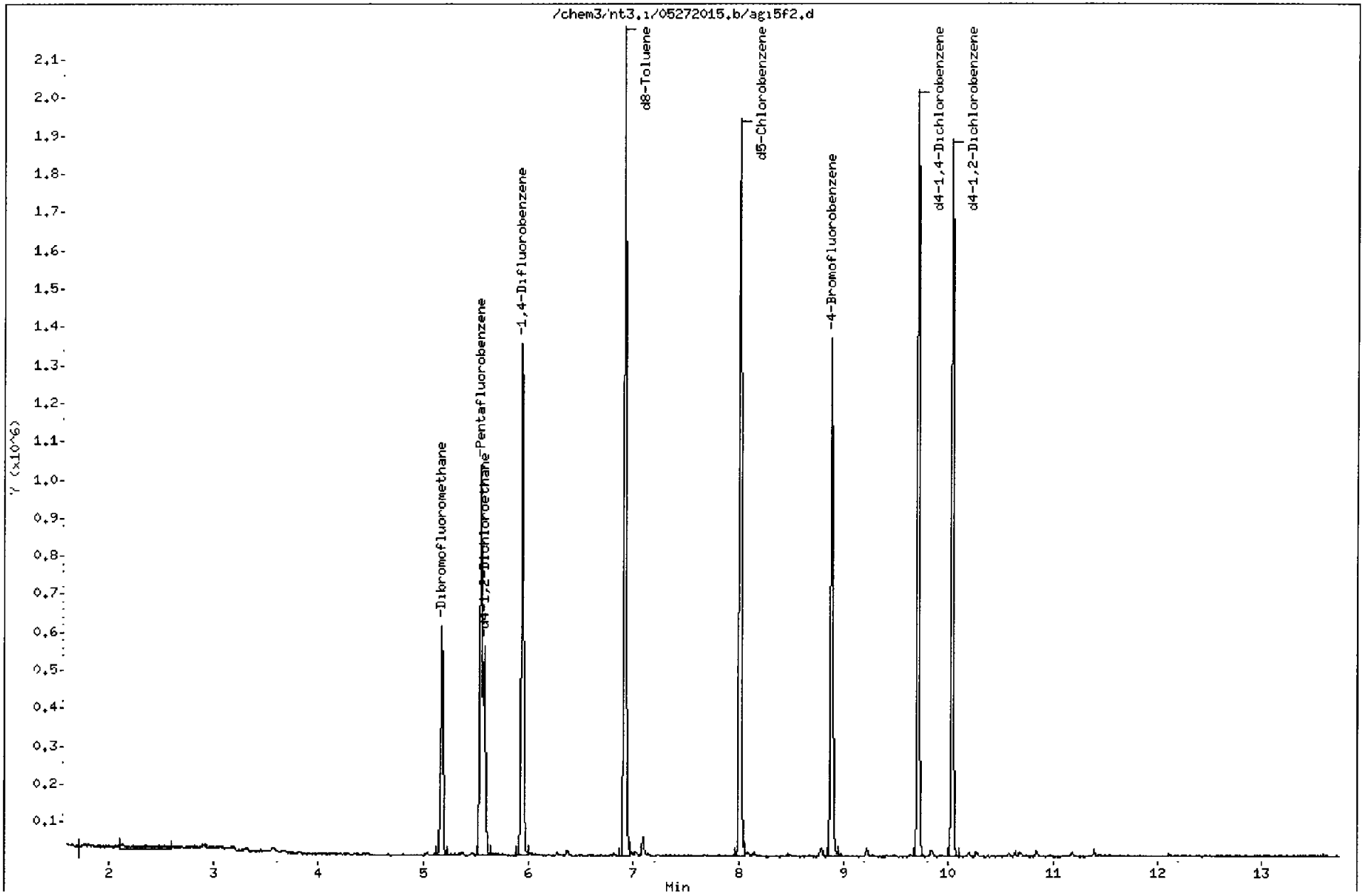
Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.i/05272015.b/ag15f2.d
Date : 28-MAY-2015 00:54
Client ID: MW-10R
Sample Info: AG15F,10,10,0

Instrument: nt3.i

Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.i/20150527.b/agi5f2.d

Date : 28-MAY-2015 00:54

Client ID: MW-10R

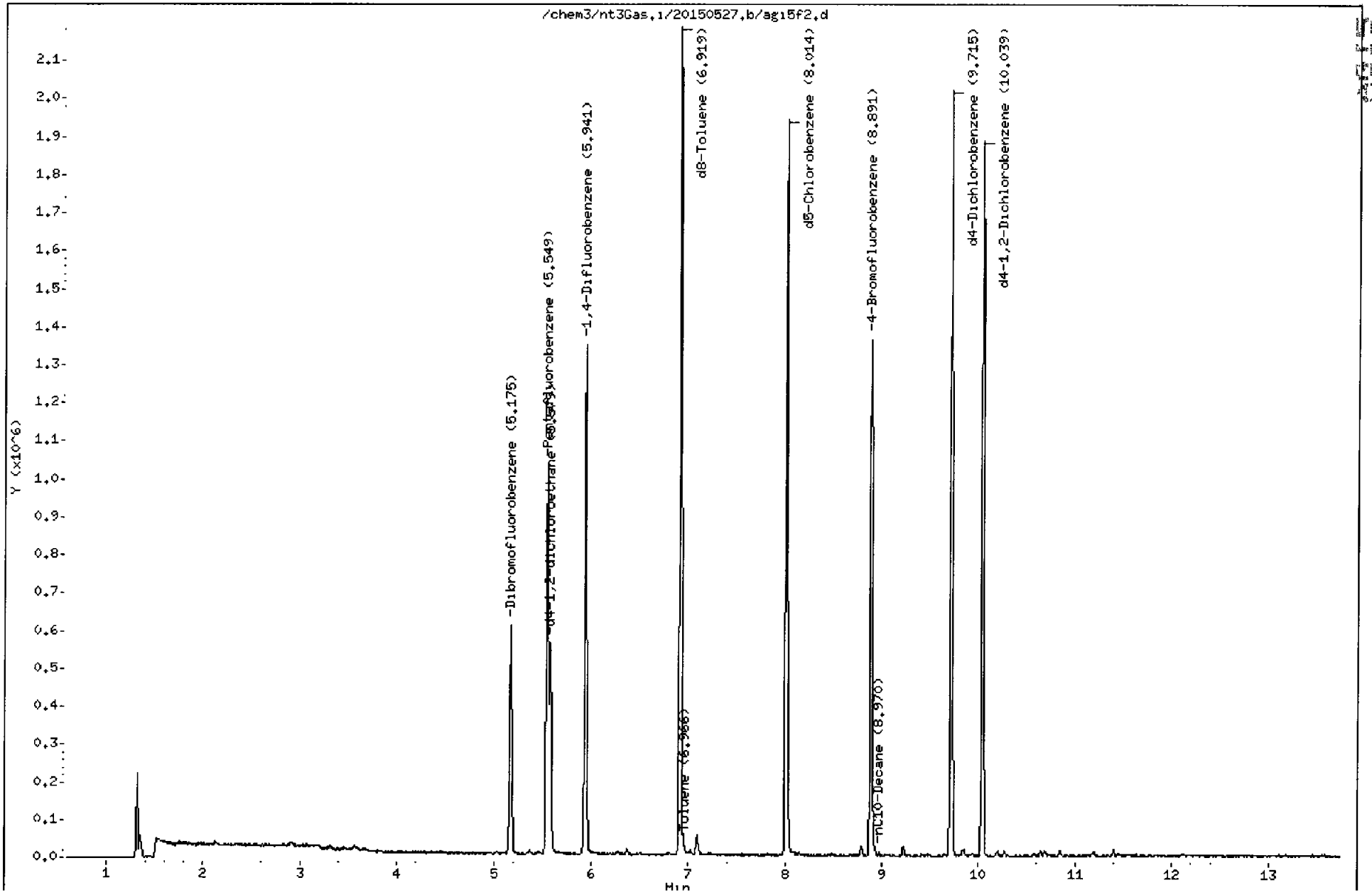
Sample Info: AGI5F,10,10,0

Column phase: RTXVMS

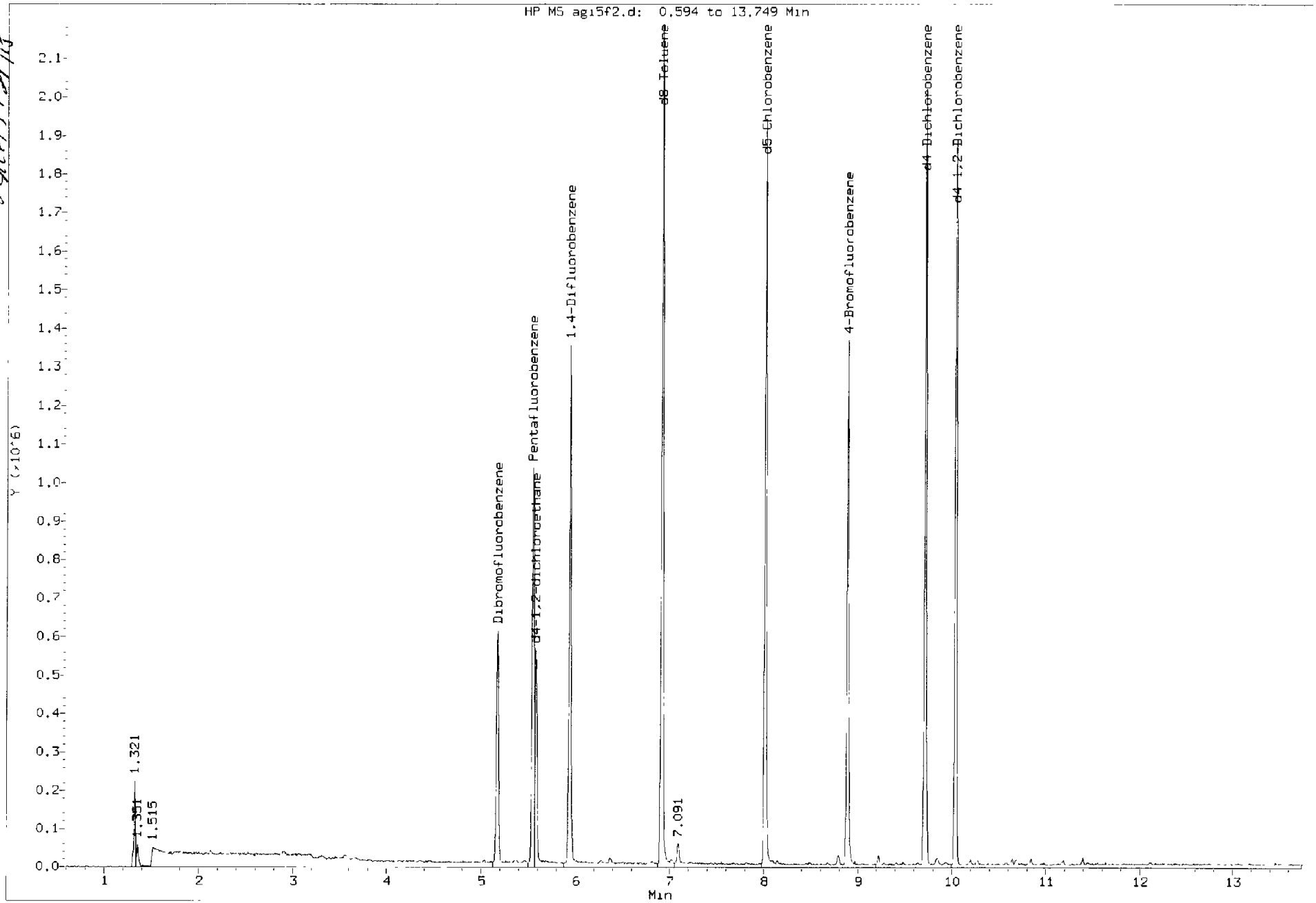
Instrument: nt3Gas.i

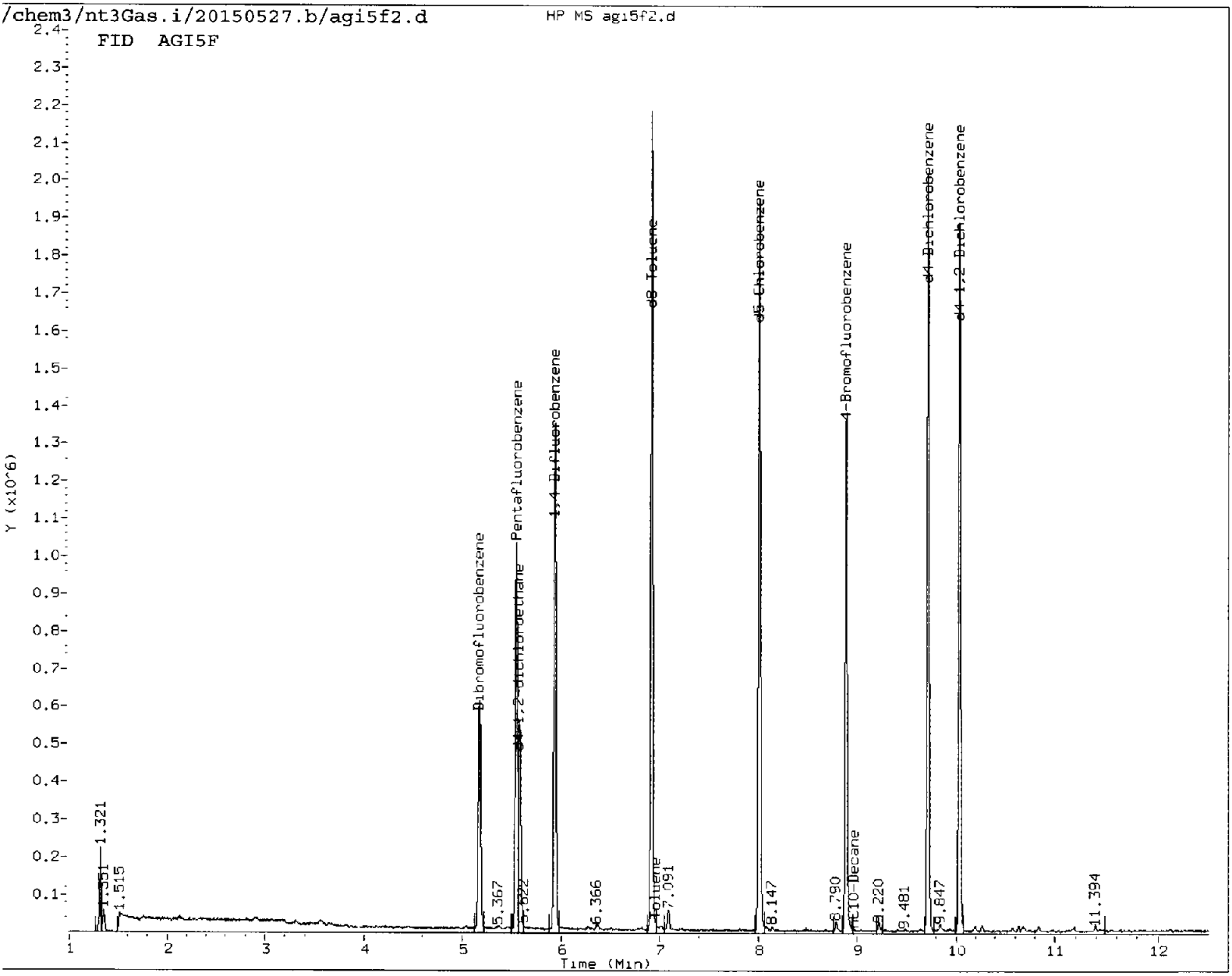
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5f2.d
Injection Date: 28-MAY-2015 00:54
Instrument: nt3Gas.i
Client Sample ID: MW-10R





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

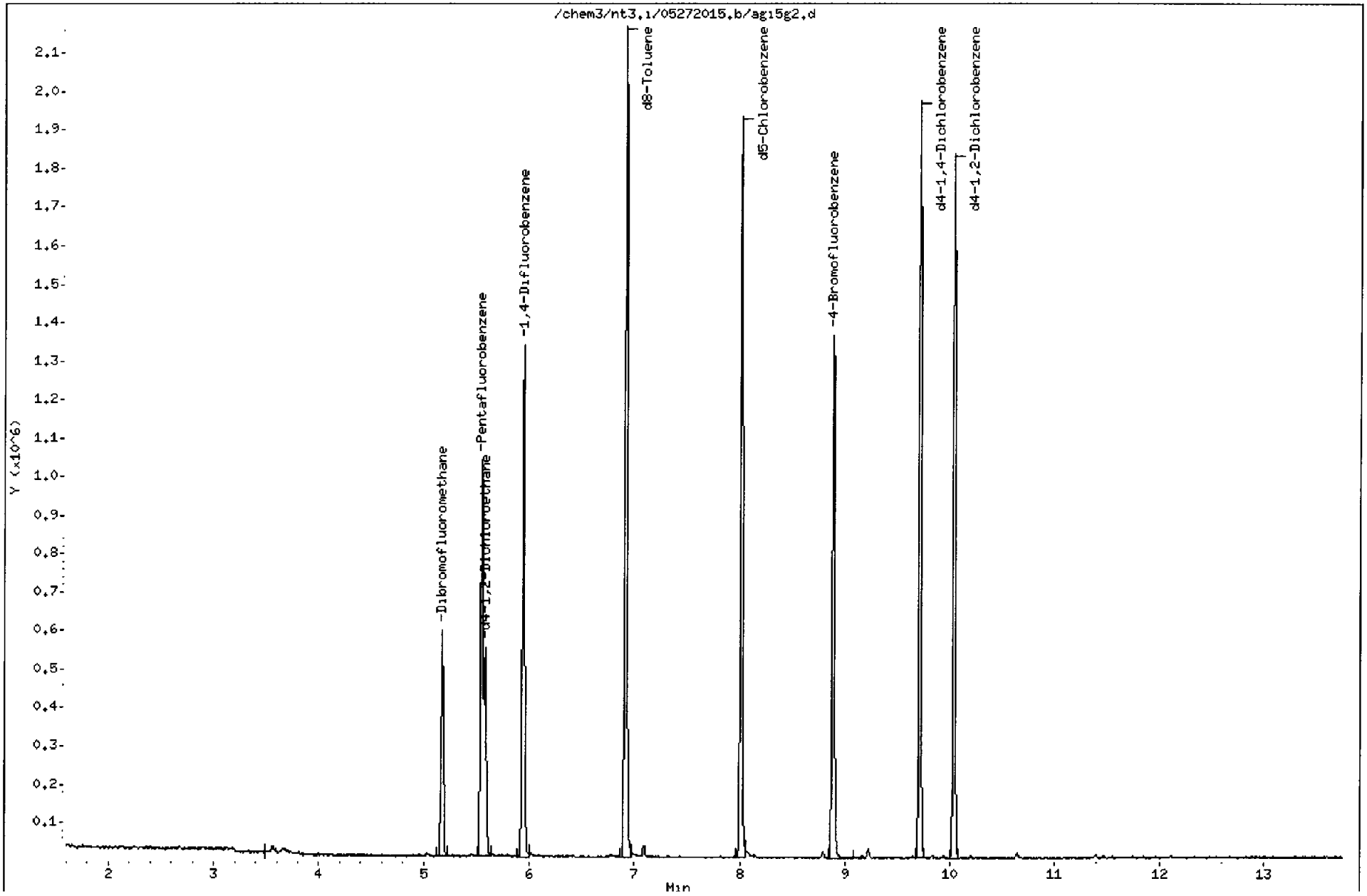
5. Other _____

Analyst: [signature] Date: 5/28/15

Data File: /chem3/nt3.1/05272015.b/ag15g2.d
Date : 28-MAY-2015 01:19
Client ID: D-1
Sample Info: AG15G,10.10,0

Instrument: nt3.1
Operator: MMH
Column diameter: 0.18

Column phase: RTXVMS



Data File: /chem3/nt3Gas.1/20150527.b/ag15g2.d

Date : 28-MAY-2015 01:19

Client ID: D-1

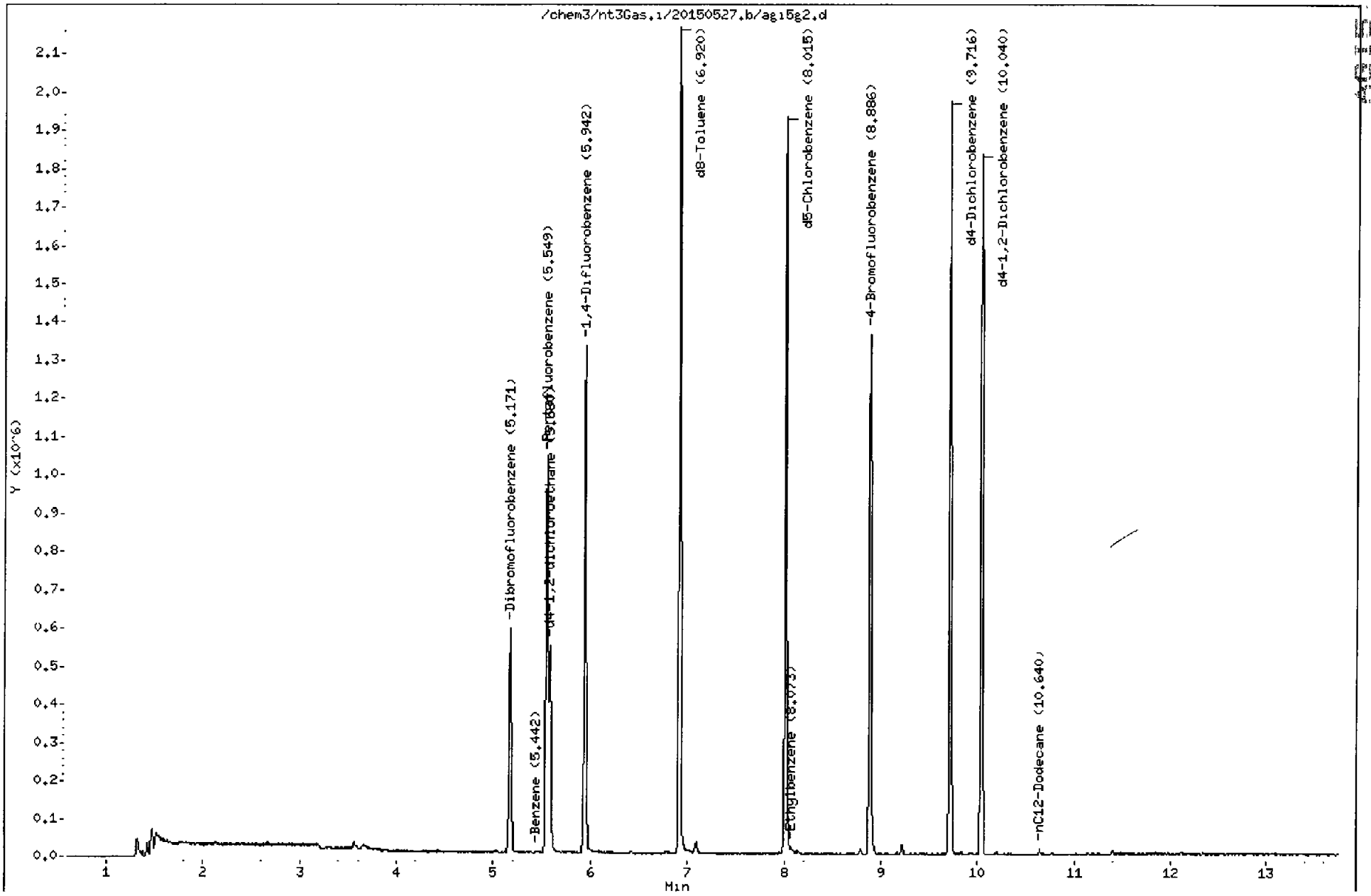
Sample Info: AG15G,10,10,0

Column phase: RTXVMS

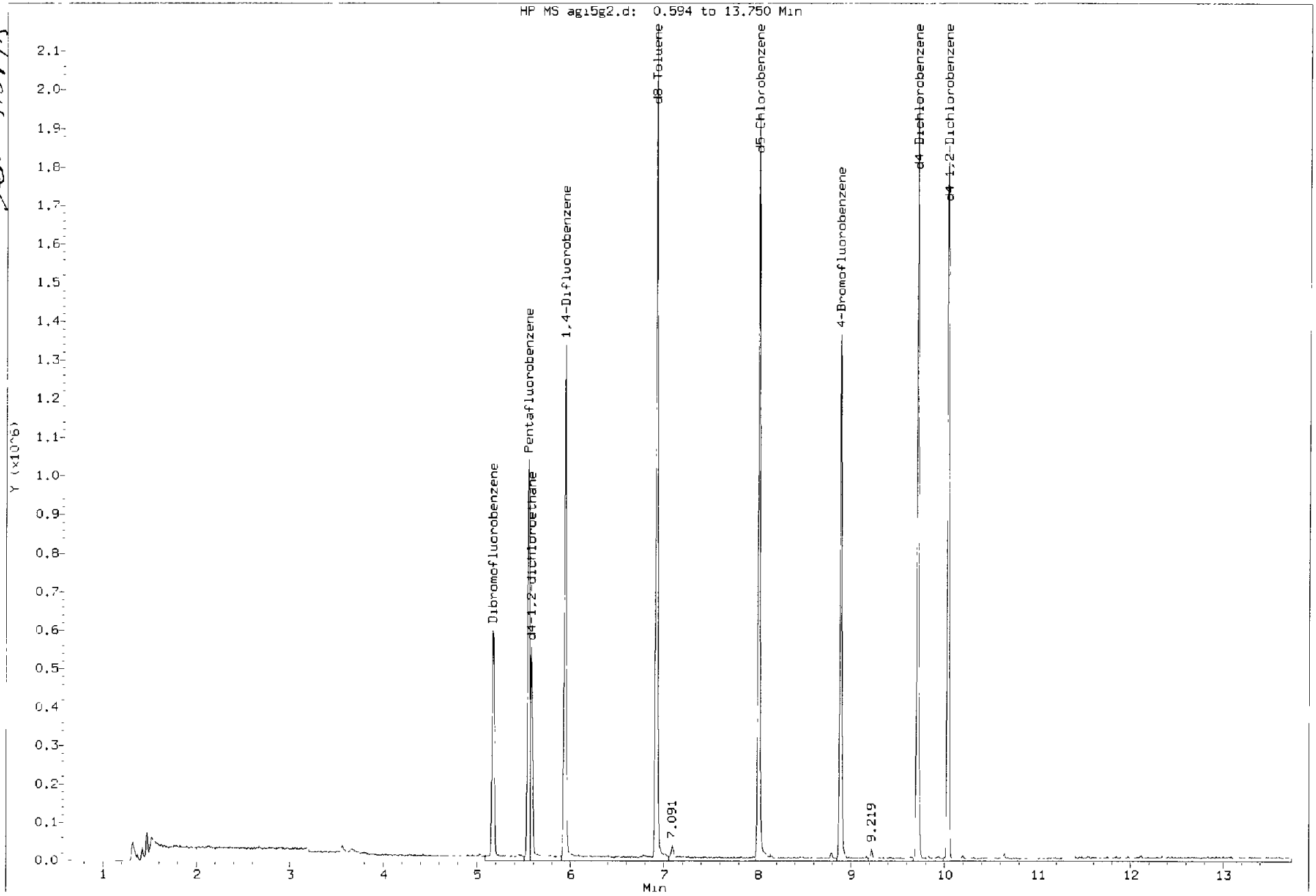
Instrument: nt3Gas.1

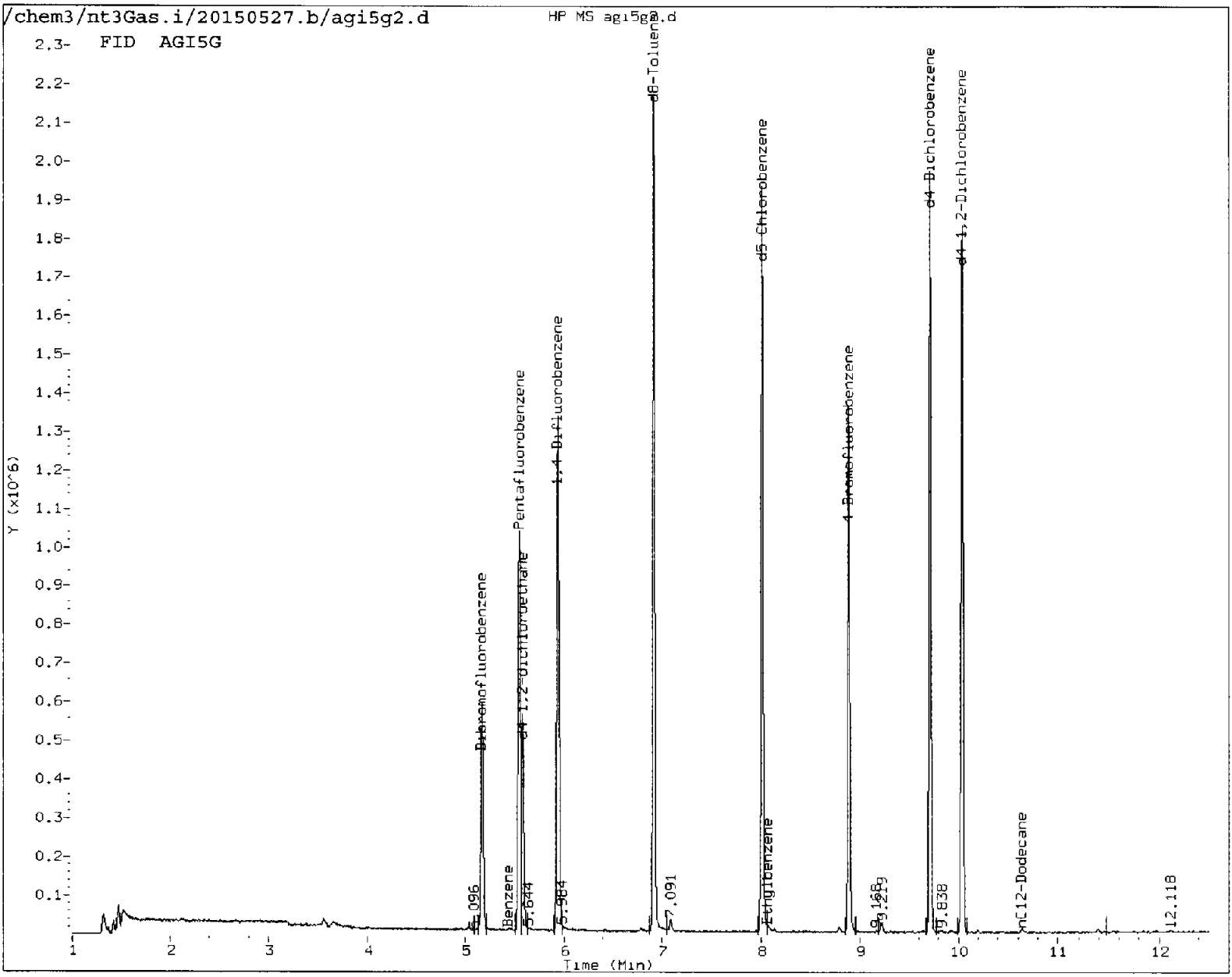
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5g2.d
Injection Date: 28-MAY-2015 01:19
Instrument: nt3Gas.i
Client Sample ID: D-1





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 5/28/15

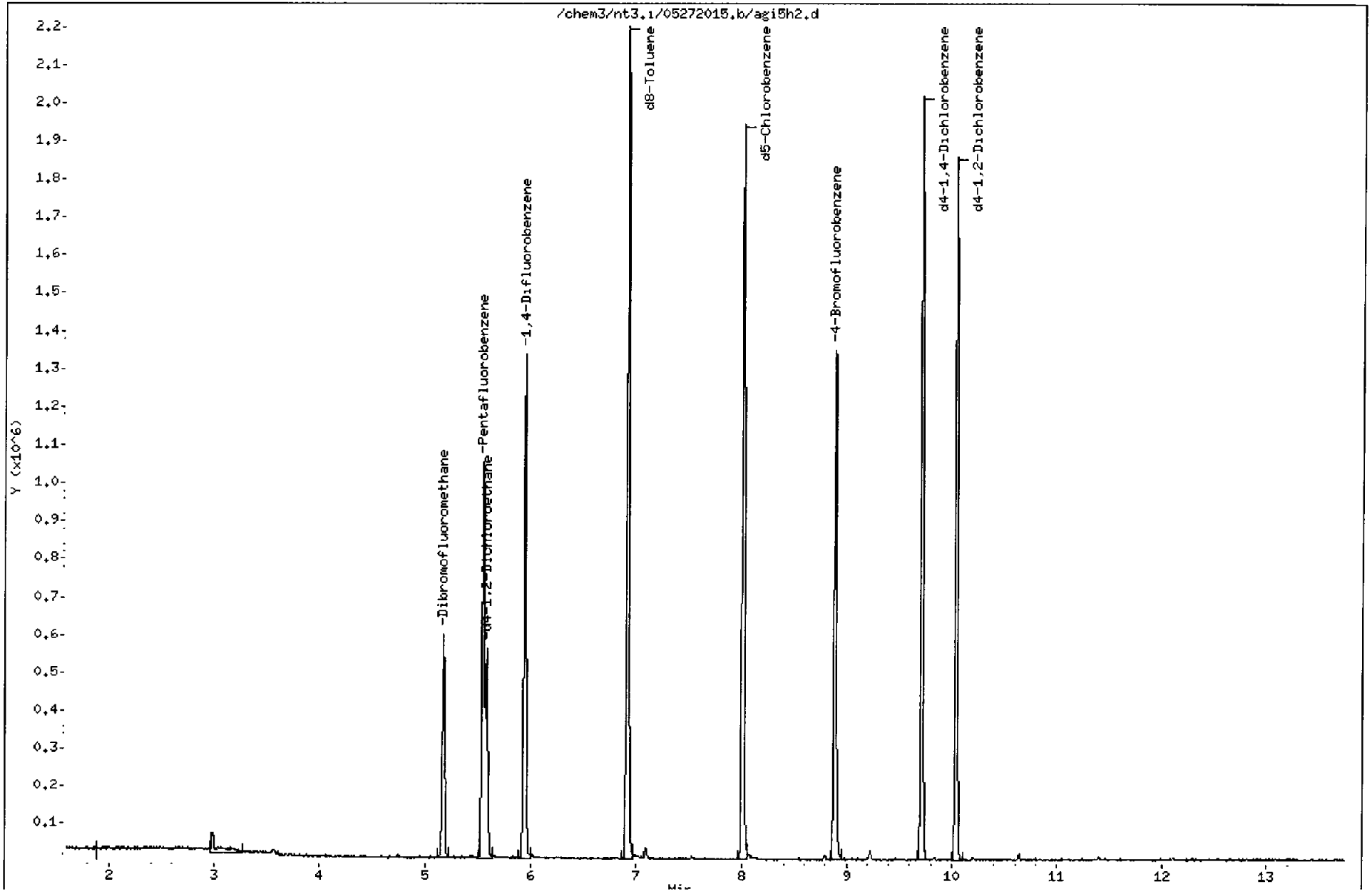
AGI5 . 00005

Data File: /chem3/nt3.i/05272015.b/agi5h2.d
Date : 28-MAY-2015 01:47
Client ID: Seep-1
Sample Info: AGI5H,10,2,0

Column phase: RTXVMS

Instrument: nt3.i

Operator: MMH
Column diameter: 0.18



Data File: /chem3/nt3Gas.1/20150527.b/ag15h2.d

Date : 28-MAY-2015 01:47

Client ID: Seep-1

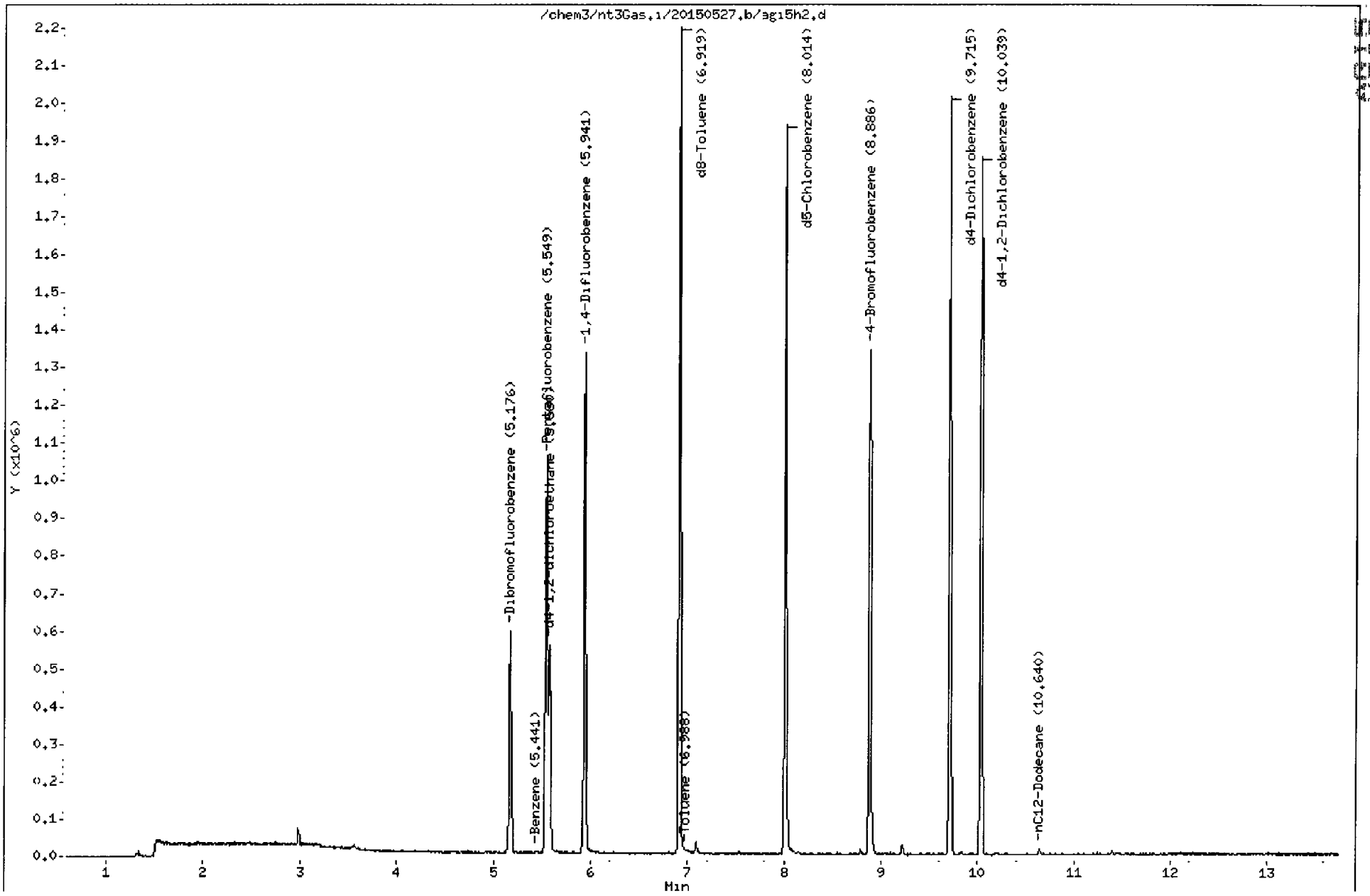
Sample Info: AG15H,10,2,0

Column phase: RTXVMS

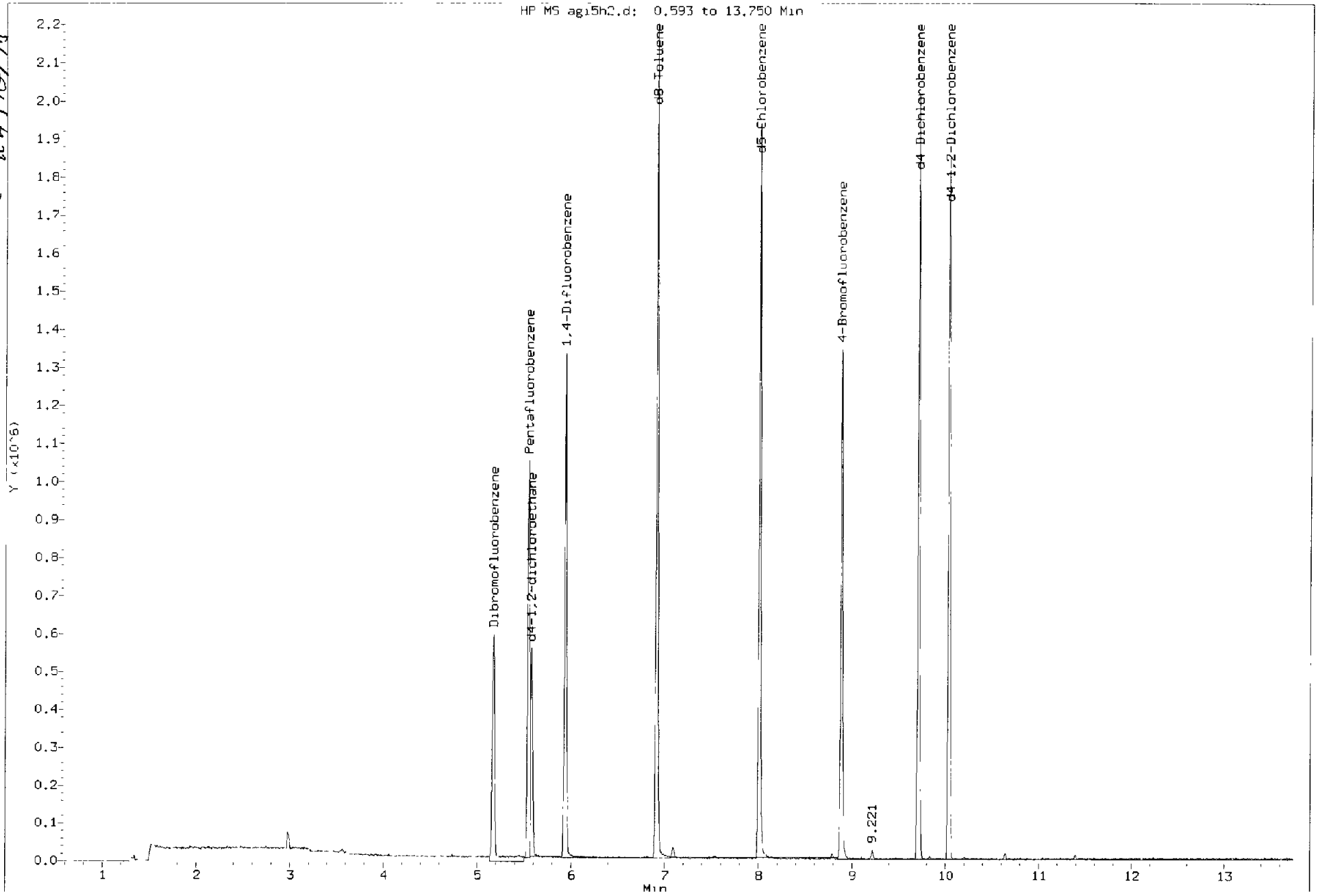
Instrument: nt3Gas.1

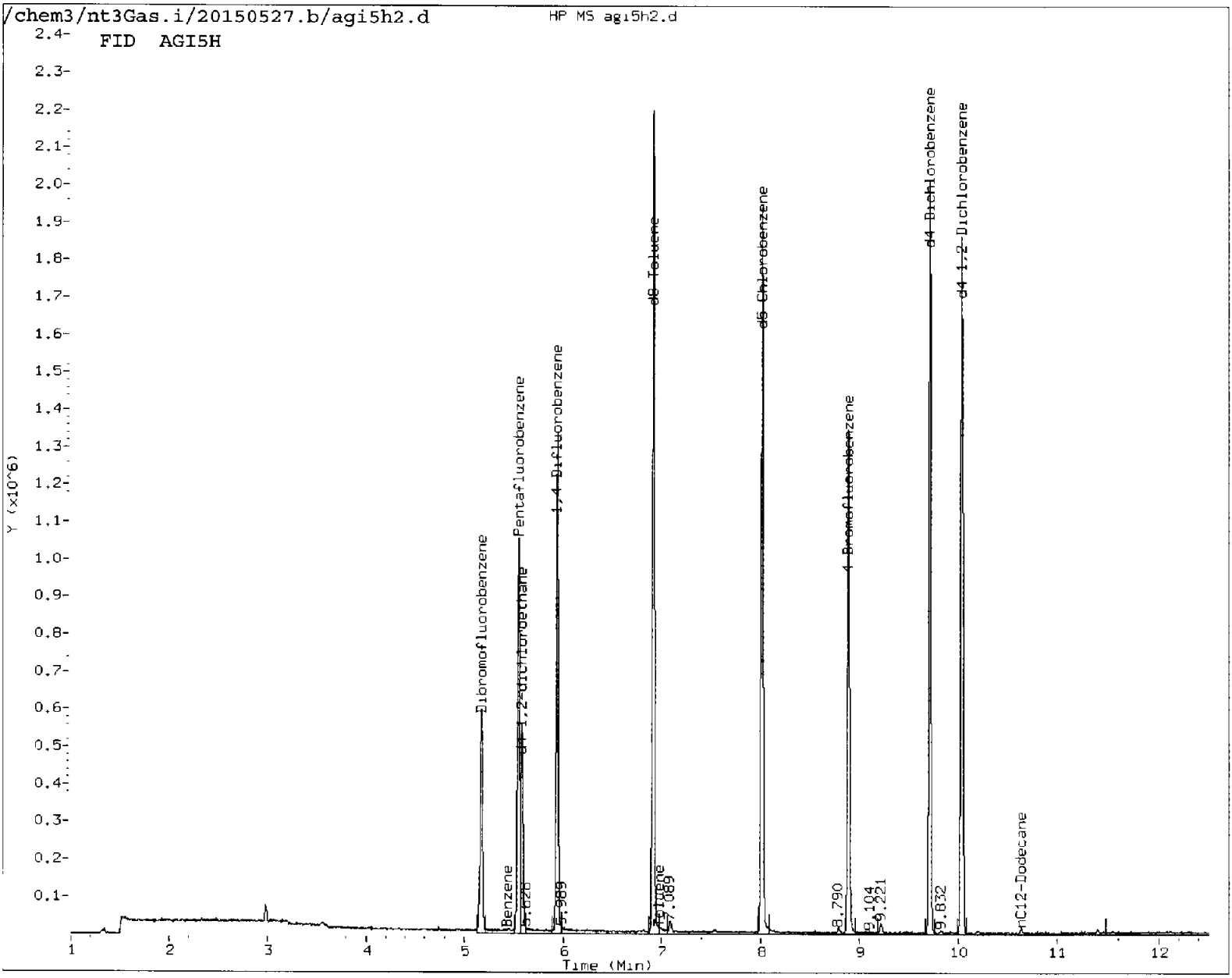
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5h2.d
Injection Date: 28-MAY-2015 01:47
Instrument: nt3Gas.i
Client Sample ID: Seep-1





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.1/05272015.b/ag1512.d

Date : 28-MAY-2015 02:14

Client ID: Seep-2

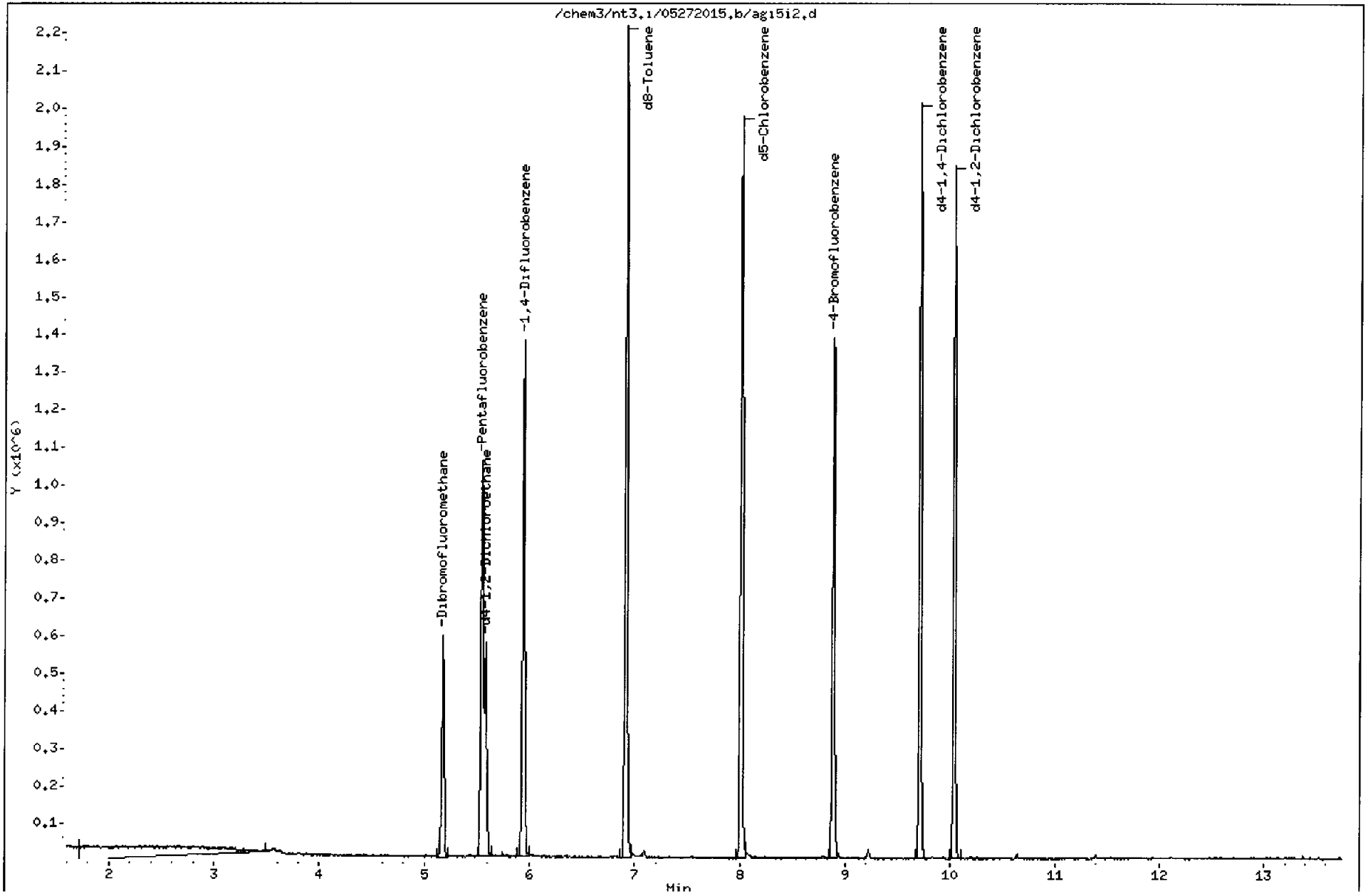
Sample Info: AG151.10,2,0

Column phase: RTXVMS

Instrument: nt3.1

Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.1/20150527.b/ag1512.d

Date : 28-MAY-2015 02:14

Client ID: Seep-2

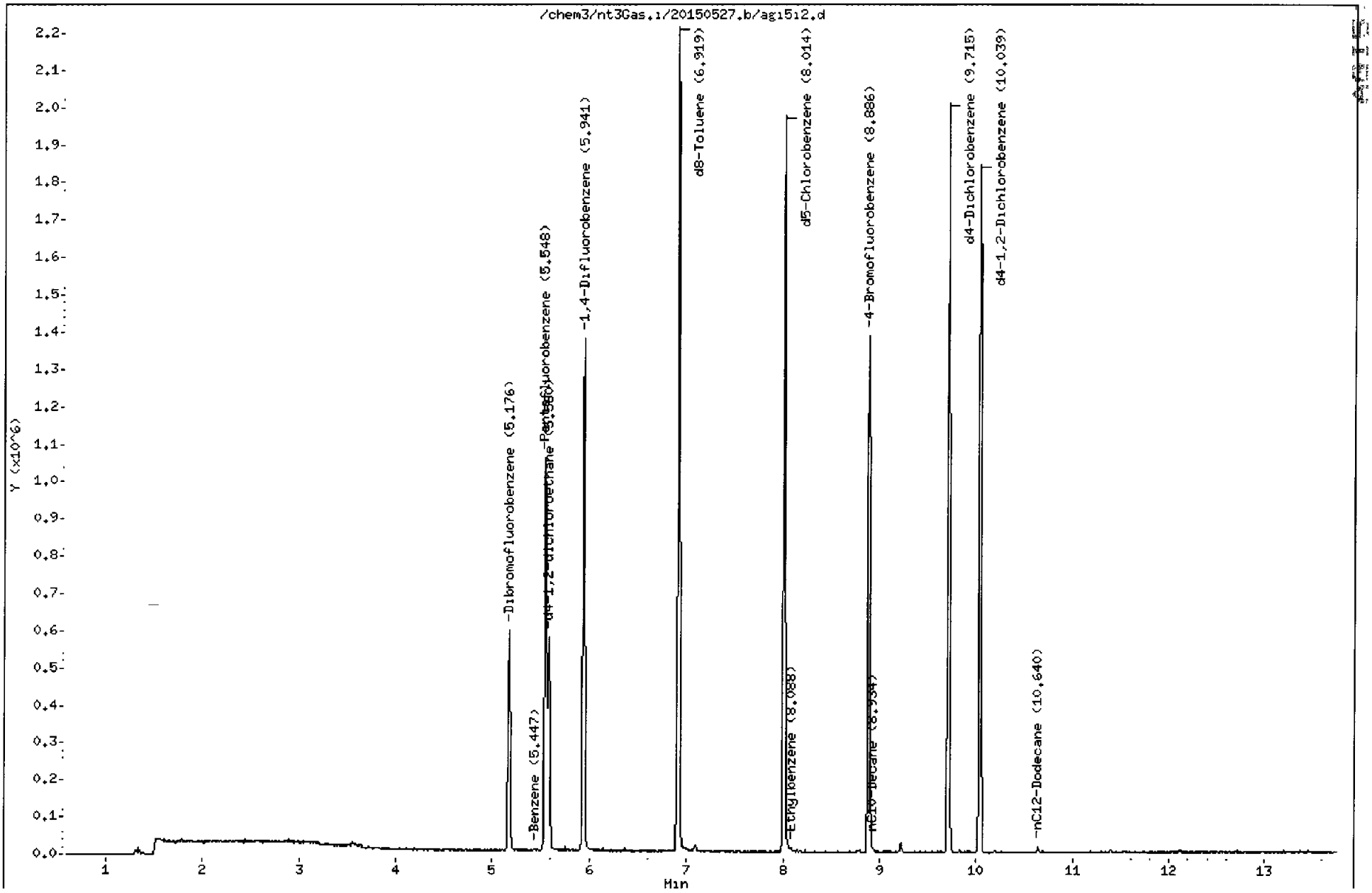
Sample Info: AG1512,10,2,0

Column phase: RTXVMS

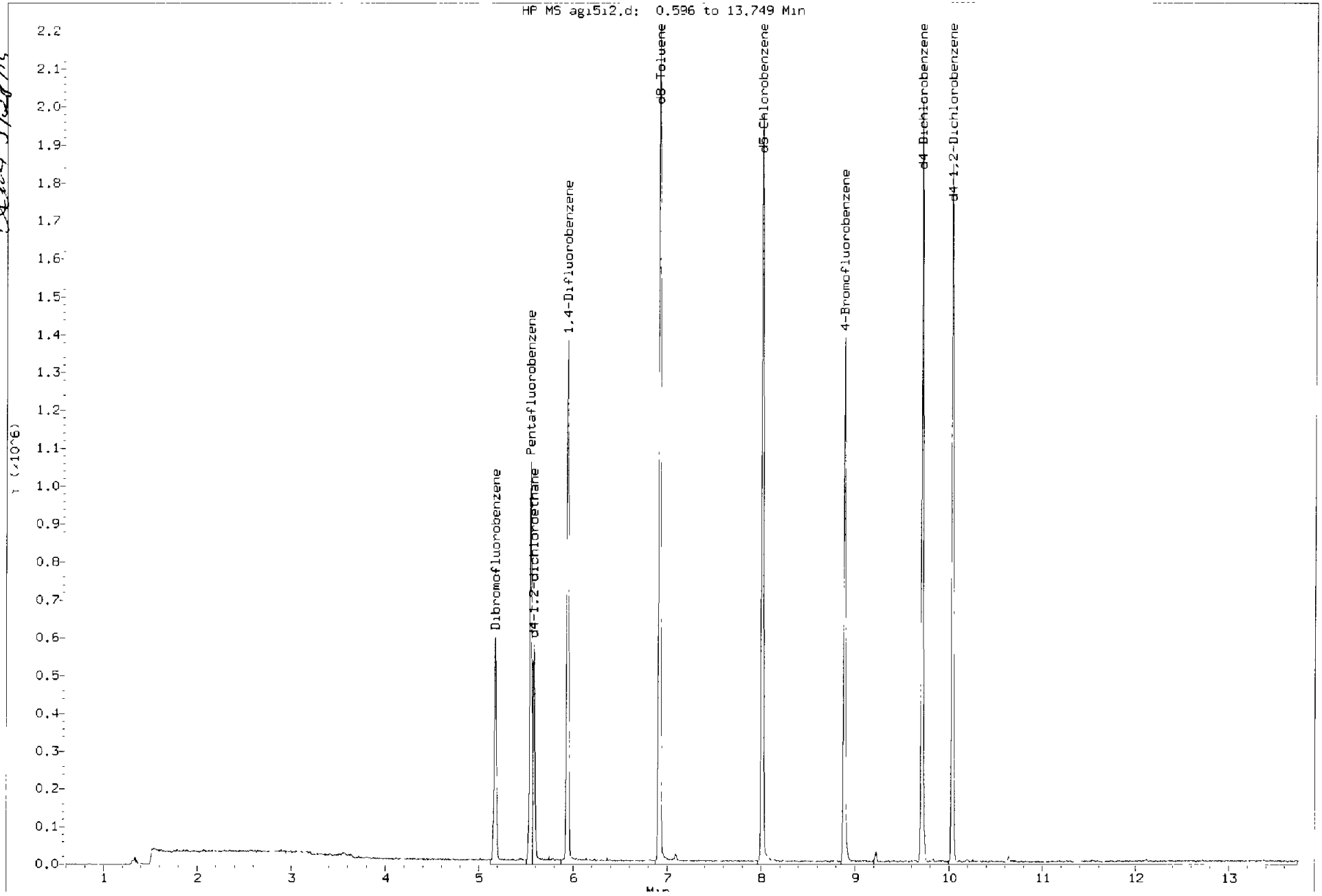
Instrument: nt3Gas.1

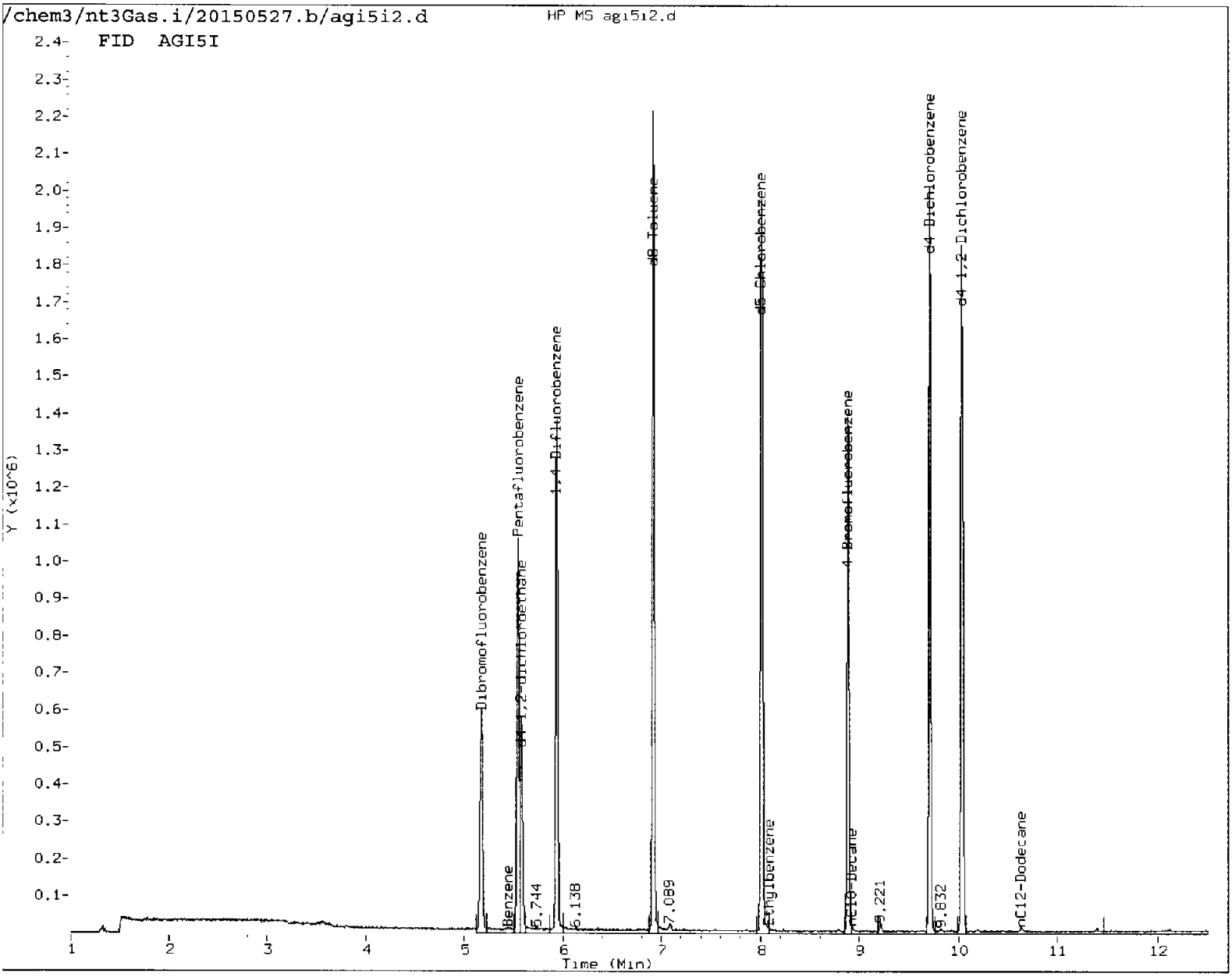
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5i2.d
Injection Date: 28-MAY-2015 02:14
Instrument: nt3Gas.i
Client Sample ID: Seep-2





MANUAL INTEGRATION

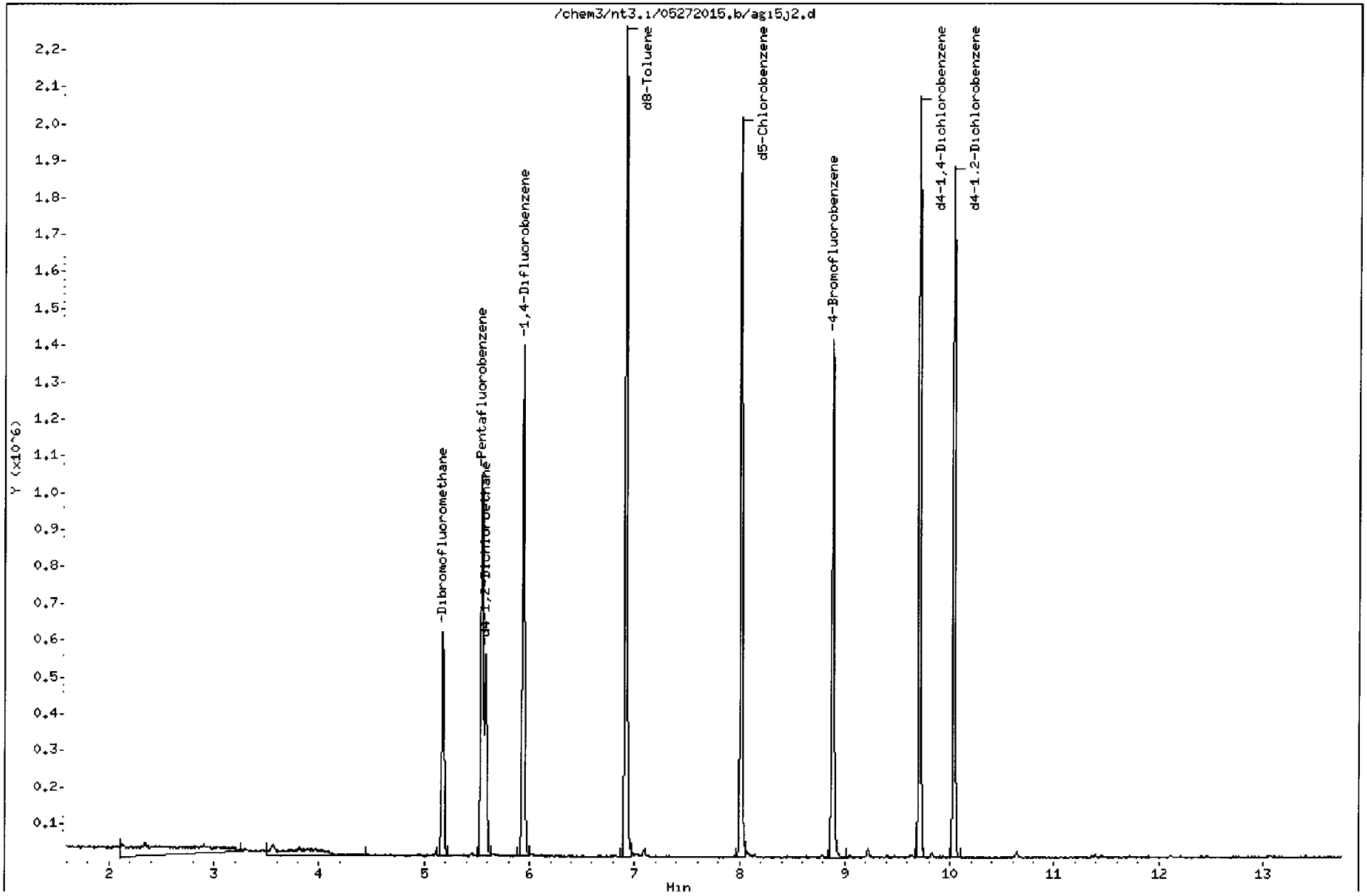
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 5/28/15

Data File: /chem3/nt3.i/05272015.b/ag15j2.d
Date : 27-MAY-2015 22:22
Client ID: Trip Blank
Sample Info: AG15J,10,10,0

Instrument: nt3.i
Operator: MMH
Column phase: RTXVMS
Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/agi5j2.d

Date : 27-MAY-2015 22:22

Client ID: Trip Blank

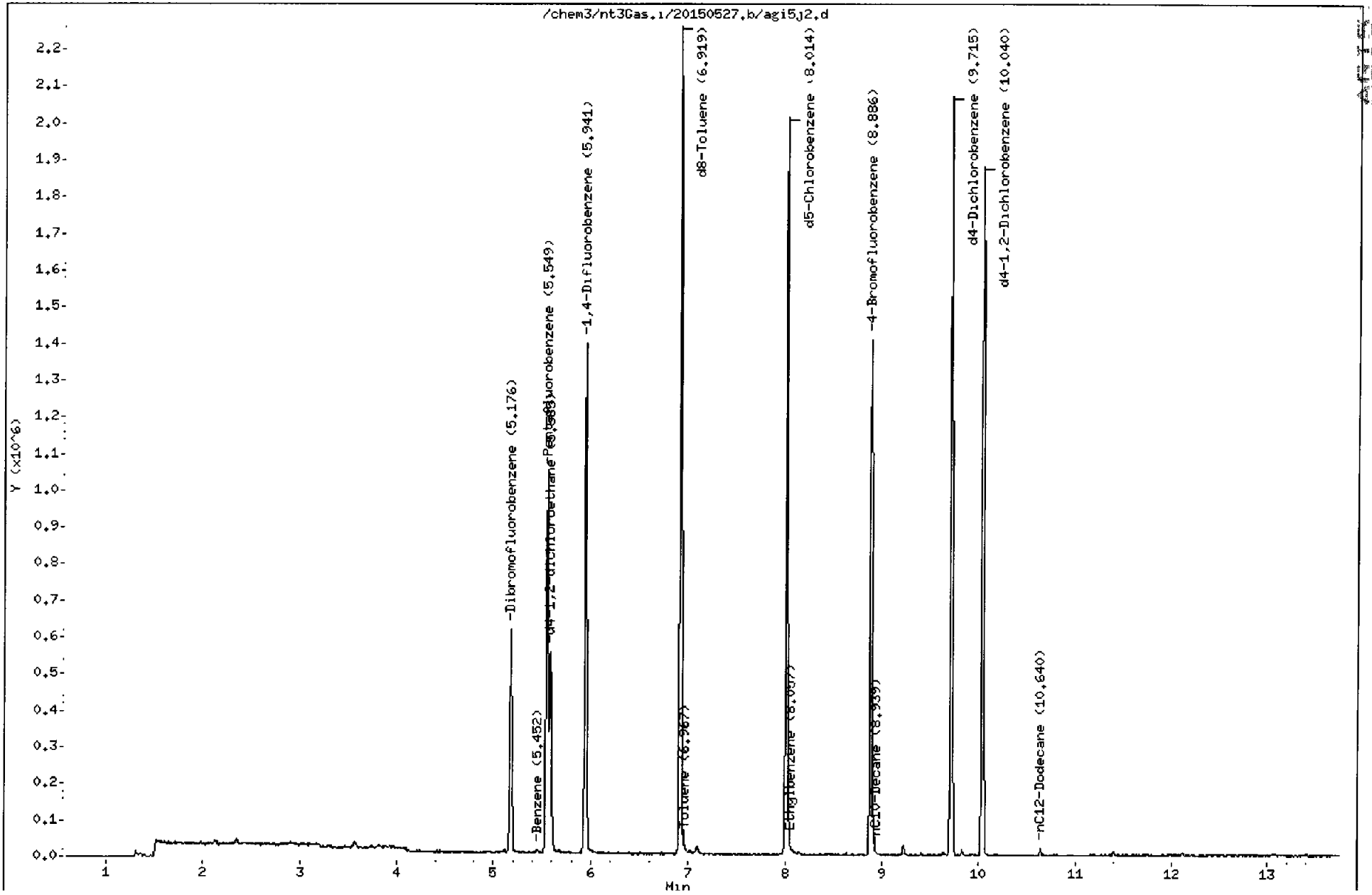
Sample Info: AGI5J,10,10,0

Column phase: RTXVMS

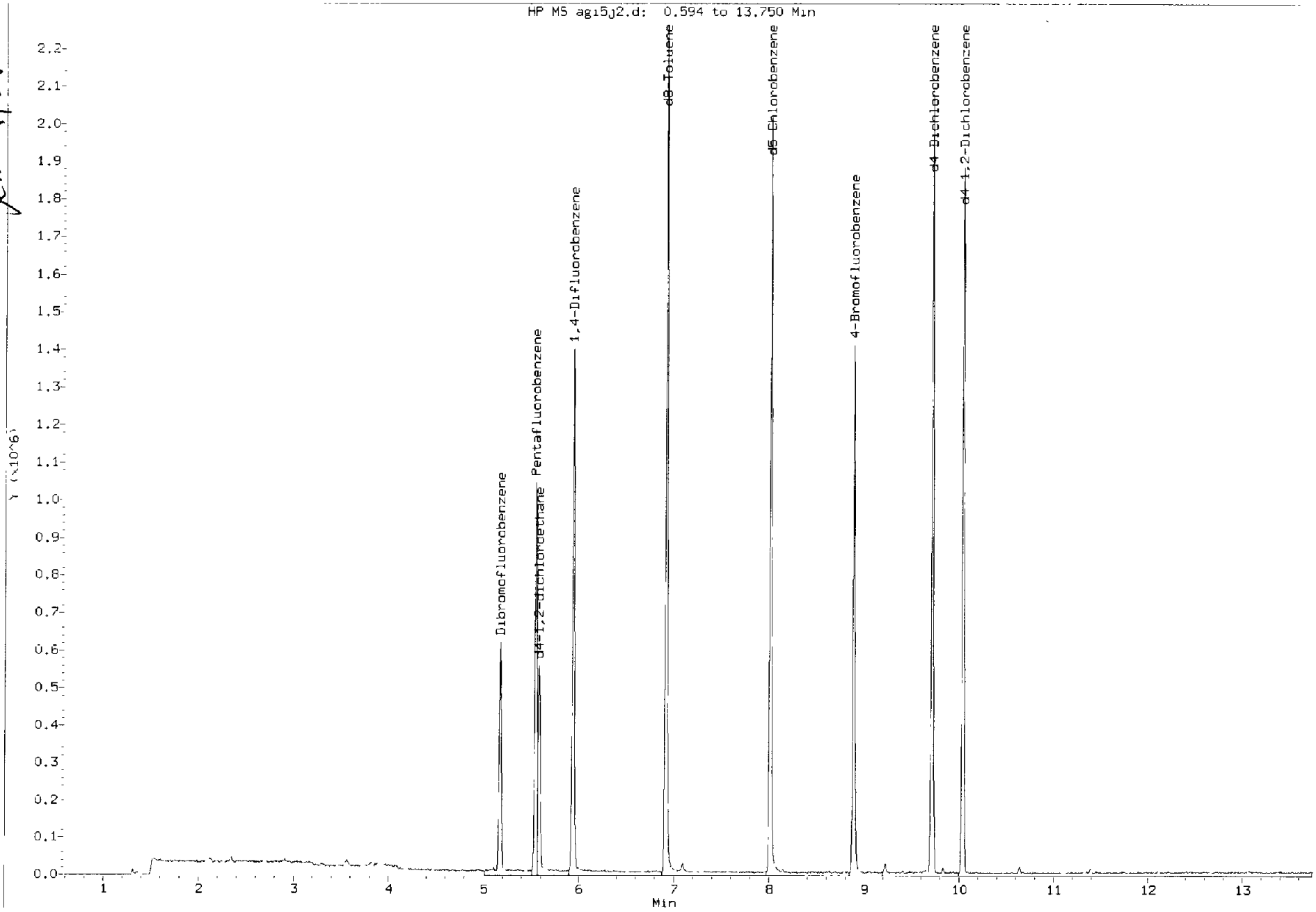
Instrument: nt3Gas.i

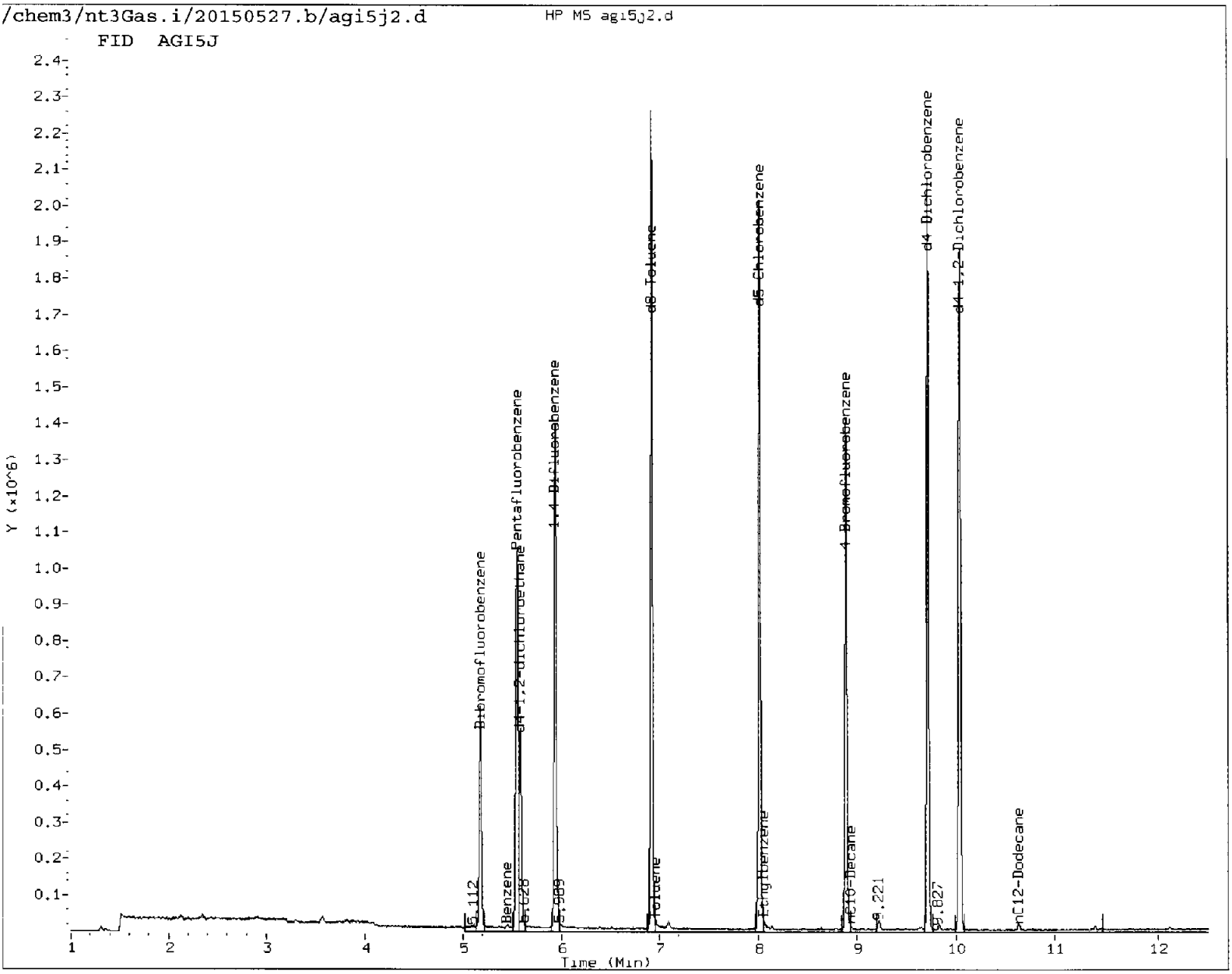
Operator: MMH

Column diameter: 0.18



Data File: /chem3/nt3Gas.i/20150527.b/ag15j2.d
Injection Date: 27-MAY-2015 22:22
Instrument: nt3Gas.i
Client Sample ID: Trip Blank





MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation

5. Other _____

Analyst: _____ Date: 7/28/15

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE

Modified RSK 175
Page 1 of 1
Matrix: Water

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Received: 05/19/15

Data Release Authorized: MW
Reported: 05/28/15

ARI ID	Sample ID	Analysis Date	DL	Analyte	RL	Result
AGI5A	MW-1R	05/27/15	1.0	Methane	0.7	< 0.7 U
15-9631				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5B	MW-2R	05/27/15	1.0	Methane	0.7	< 0.7 U
15-9632				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5C	MW-4R	05/27/15	1.0	**Methane**	**0.7**	**414**
15-9633				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5D	MW-7	05/27/15	1.0	**Methane**	**0.7**	**779**
15-9634				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5E	MW-9	05/27/15	1.0	Methane	0.7	< 0.7 U
15-9635				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5F	MW-10R	05/27/15	1.0	**Methane**	**0.7**	**39.1**
15-9636				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
AGI5ADUP	MW-1R	05/27/15	1.0	Methane	0.7	< 0.7 U
				Ethane	1.2	< 1.2 U
				Ethene	1.1	< 1.1 U
052715MB	Method Blank	05/27/15	1.0	Methane	0.7	< 0.7 U
052715MB	Method Blank	05/27/15	1.0	Ethane	1.2	< 1.2 U
052715MB	Method Blank	05/27/15	1.0	Ethene	1.1	< 1.1 U

Reported in ug/L (ppb)

ANALYTICAL RESOURCES INCORPORATED

RSK 175 WATER SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00

ARI ID	Client ID	PRP	TOT OUT
AGI5A	MW-1R	95.0%	0
AGI5ADUP	MW-1R	95.6%	0
AGI5B	MW-2R	93.9%	0
AGI5C	MW-4R	96.1%	0
AGI5D	MW-7	96.1%	0
AGI5E	MW-9	98.4%	0
AGI5F	MW-10R	93.9%	0
MB-052715	Method Blank	100%	0
LCS-052715	Lab Control	103%	0
LCSD-052715	Lab Control Dup	104%	0

	LCS/MB LIMITS	QC LIMITS
(PRP) = Propane	(72-122)	(72-122)

Log Number Range: 15-9631 to 15-9636

FORM-II RSK 175

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
METHANE ETHANE ETHENE

Modified RSK 175
Page 1 of 1
Matrix: Water

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Received: 05/19/15

Data Release Authorized:
Reported: 05/28/15

ARI ID	Analysis Date	Analyte	Spike	Result	Recovery	RPD
052715LCS	05/27/15	Methane	654	652	99.6%	0.8%
052715LCSD				647	98.9%	
052715LCS	05/27/15	Ethane	1,230	1,230	100.2%	0.8%
052715LCSD				1,220	99.4%	
052715LCS	05/27/15	Ethene	1,150	1,110	96.9%	0.0%
052715LCSD				1,110	96.9%	

Reported in ug/L (ppb)

FORM III-Lab Control

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
TOTAL DIESEL RANGE HYDROCARBONS
NWTPHD by GC/FID-Silica and Acid Cleaned
Extraction Method:
Page 1 of 1

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

ARI ID	Sample ID	Extraction Date	Analysis Date	EFV DF	Range/Surrogate	RL	Result
MB-052615	Method Blank	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9631	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		98.5%
AGI5A	MW-1R	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9631	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		94.7%
AGI5B	MW-2R	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9632	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		98.5%
AGI5C	MW-4R	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9633	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		70.4%
AGI5D	MW-7	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9634	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		96.1%
AGI5E	MW-9	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9635	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		92.8%
AGI5F	MW-10R	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9636	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		89.2%
AGI5G	D-1	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9637	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		91.2%
AGI5H	Seep-1	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9638	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		91.7%
AGI5I	Seep-2	05/26/15	05/28/15	1.00	Diesel Range	0.10	< 0.10 U
15-9639	HC ID: ---		FID9	1.0	Motor Oil Range	0.20	< 0.20 U
					o-Terphenyl		87.8%

Reported in mg/L (ppm)

EFV-Effective Final Volume in mL.
DL-Dilution of extract prior to analysis.
RL-Reporting limit.

Diesel range quantitation on total peaks in the range from C12 to C24.
Motor Oil range quantitation on total peaks in the range from C24 to C38.
HC ID: DRO/RRO indicate results of organics or additional hydrocarbons in ranges are not identifiable.

ANALYTICAL RESOURCES INCORPORATED

ORGANICS ANALYSIS DATA SHEET
NWTPHD by GC/FID-Silica and Acid Cleaned **Sample ID: LCS-052615**
Page 1 of 1 **LCS/LCSD**

Lab Sample ID: LCS-052615 QC Report No: AGI5-Kennedy Jenks Consultants
LIMS ID: 15-9631 Project: Ecology Cornet Bay Marina
Matrix: Water 1396010.00
Data Release Authorized: Date Sampled: 05/19/15
Reported: 05/29/15 Date Received: 05/19/15

Date Extracted LCS/LCSD: 05/26/15 Sample Amount LCS: 500 mL
LCSD: 500 mL
Date Analyzed LCS: 05/28/15 16:47 Final Extract Volume LCS: 1.0 mL
LCSD: 05/28/15 17:08 LCSD: 1.0 mL
Instrument/Analyst LCS: FID/JLW Dilution Factor LCS: 1.00
LCSD: FID/JLW LCSD: 1.00

Range	LCS	Spike Added-LCS	LCS Recovery	LCSD	Spike Added-LCSD	LCSD Recovery	RPD
Diesel	2.74	3.00	91.3%	2.82	3.00	94.0%	2.9%

TPHD Surrogate Recovery

	LCS	LCSD
o-Terphenyl	93.4%	92.7%

Results reported in mg/L
RPD calculated using sample concentrations per SW846.

FORM III

ANALYTICAL RESOURCES INCORPORATED

TOTAL DIESEL RANGE HYDROCARBONS-EXTRACTION REPORT

Matrix: Water
Date Received: 05/19/15

ARI Job: AGI5
Project: Ecology Cornet Bay Marina
1396010.00

ARI ID	Client ID	Samp Amt	Final Vol	Prep Date
15-9631-052615MB1	Method Blank	500 mL	1.00 mL	05/26/15
15-9631-052615LCS1	Lab Control	500 mL	1.00 mL	05/26/15
15-9631-052615LCSD1	Lab Control Dup	500 mL	1.00 mL	05/26/15
15-9631-AGI5A	MW-1R	500 mL	1.00 mL	05/26/15
15-9632-AGI5B	MW-2R	500 mL	1.00 mL	05/26/15
15-9633-AGI5C	MW-4R	500 mL	1.00 mL	05/26/15
15-9634-AGI5D	MW-7	500 mL	1.00 mL	05/26/15
15-9635-AGI5E	MW-9	500 mL	1.00 mL	05/26/15
15-9636-AGI5F	MW-10R	500 mL	1.00 mL	05/26/15
15-9637-AGI5G	D-1	500 mL	1.00 mL	05/26/15
15-9638-AGI5H	Seep-1	500 mL	1.00 mL	05/26/15
15-9639-AGI5I	Seep-2	500 mL	1.00 mL	05/26/15

AGI5 : 00031

ANALYTICAL RESOURCES INCORPORATED

CLEANED TPHD SURROGATE RECOVERY SUMMARY

Matrix: Water

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00

Client ID	OTER	TOT OUT
MB-052615	98.5%	0
LCS-052615	93.4%	0
LCSD-052615	92.7%	0
MW-1R	94.7%	0
MW-2R	98.5%	0
MW-4R	70.4%	0
MW-7	96.1%	0
MW-9	92.8%	0
MW-10R	89.2%	0
D-1	91.2%	0
Seep-1	91.7%	0
Seep-2	87.8%	0

	LCS/MB LIMITS	QC LIMITS
(OTER) = o-Terphenyl	(50-150)	(50-150)

Prep Method: SW3510C
Log Number Range: 15-9631 to 15-9639

FORM-II TPHD

AGI5:00005

Data File: /chem2/fid9.i/20150528.b/15052818.d

Date : 28-MAY-2015 16:26

Client ID: AGI5MBW1

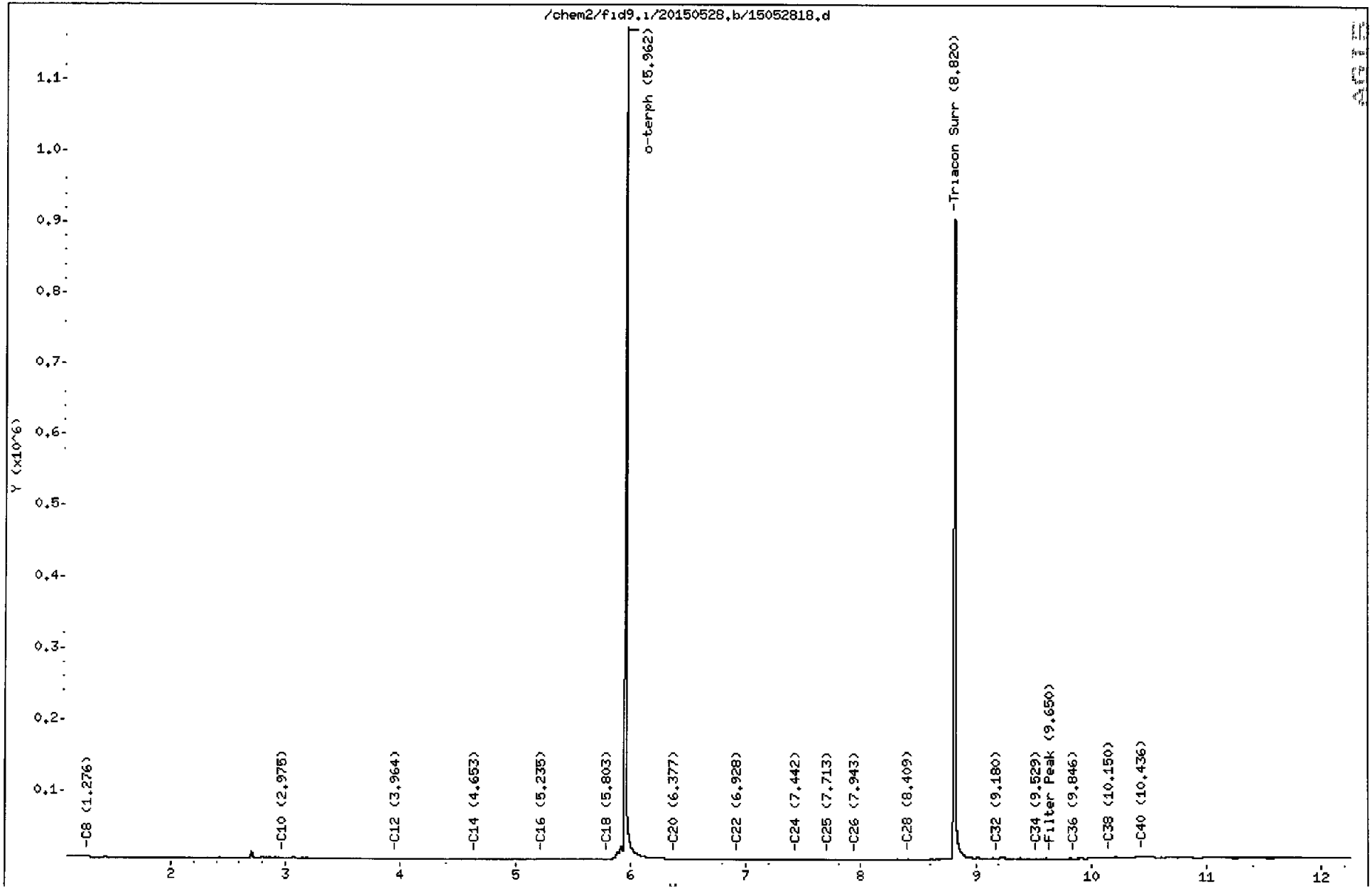
Sample Info: AGI5MBW1

Instrument: fid9.i

Operator: JW

Column phase: RTX-1

Column diameter: 0.25



Data File: /chem2/fid9.1/20150528.b/15052819.d

Date : 28-MAY-2015 16:47

Client ID: AGI5LCSW1

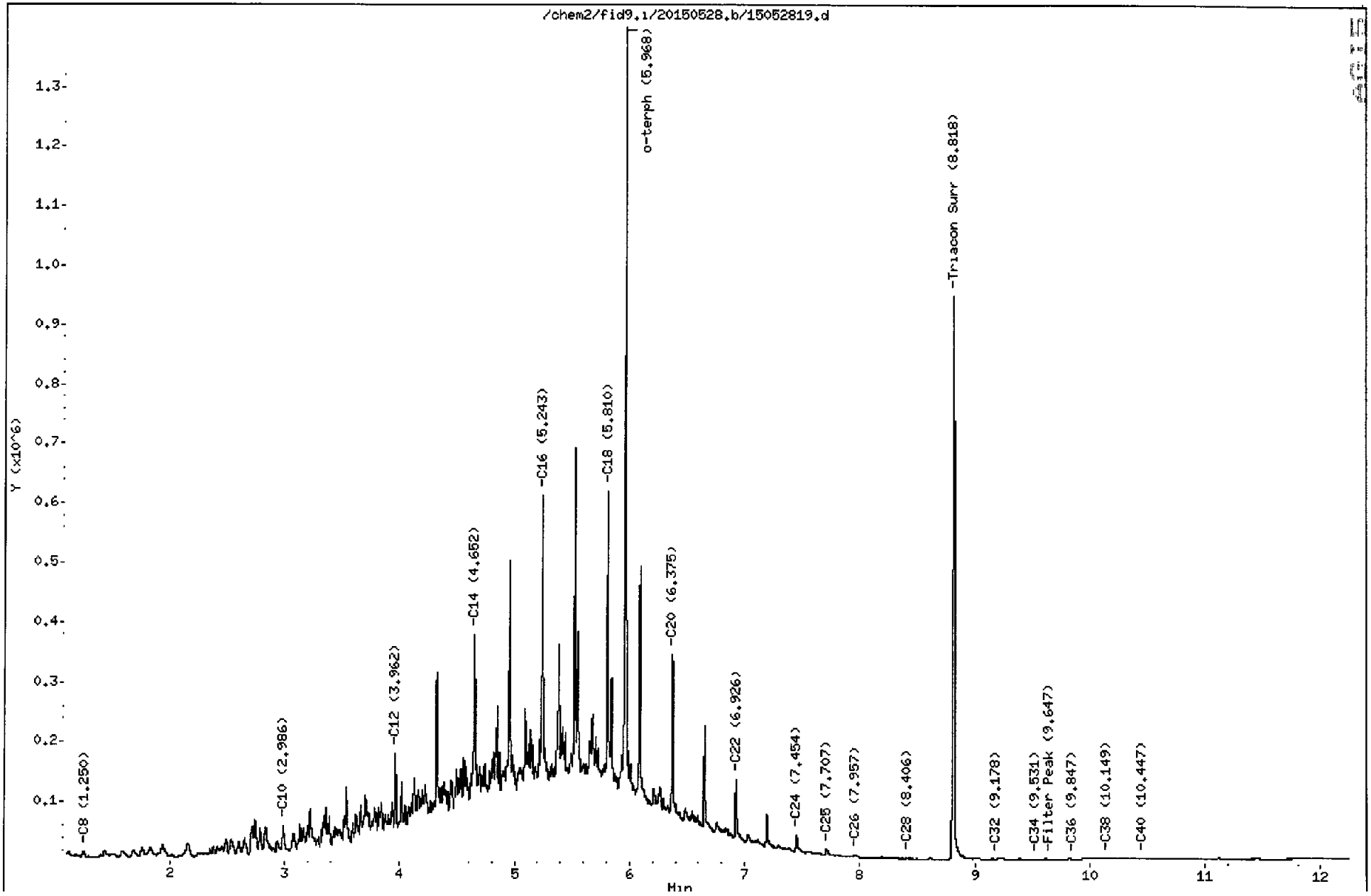
Sample Info: AGI5LCSW1

Column phase: RTX-1

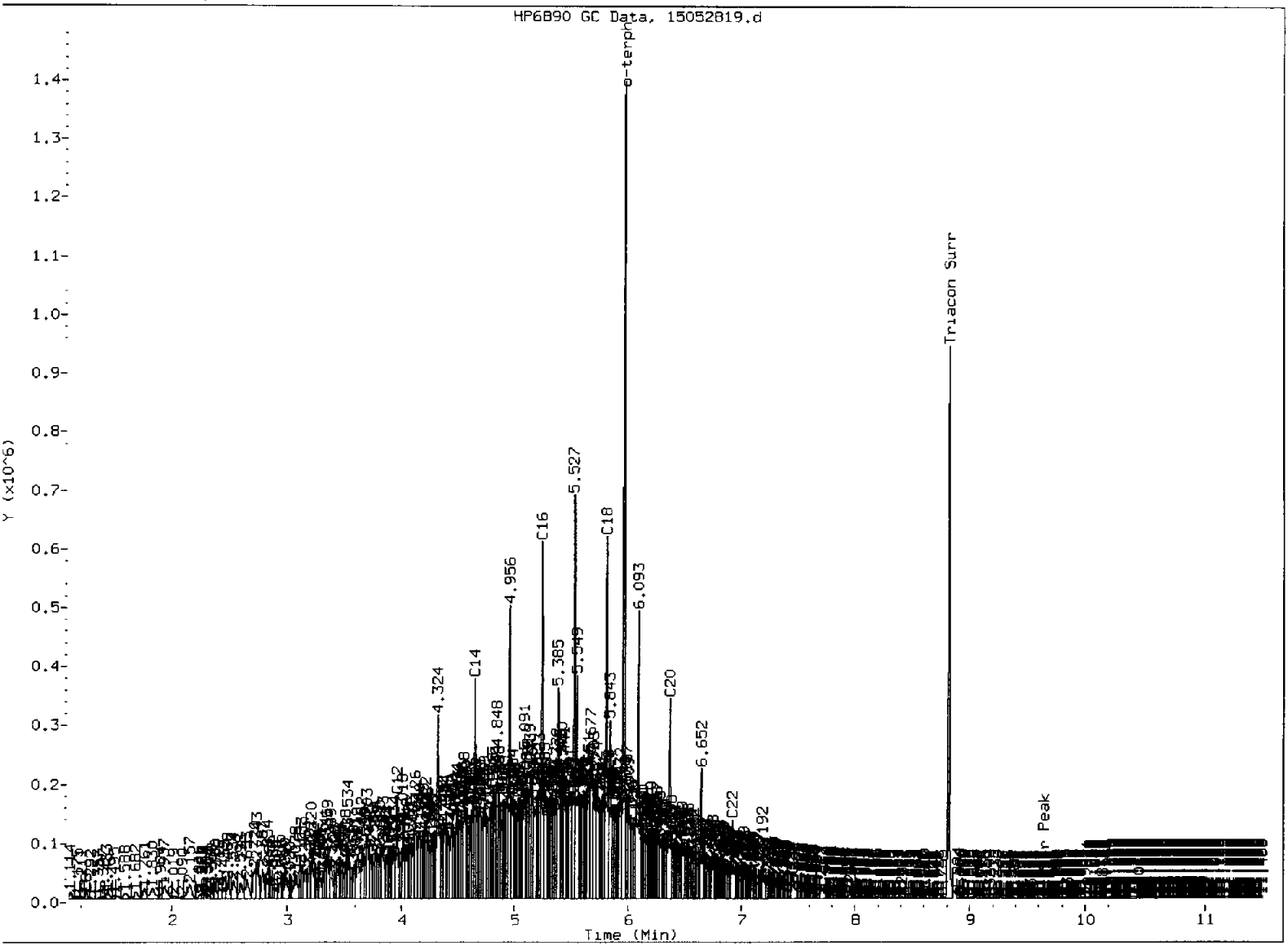
Instrument: fid9.1

Operator: JW

Column diameter: 0.25



FID:9A-2C/RTX-1 AGI5LCSW1 FID:9A SIGNAL



MANUAL INTEGRATION

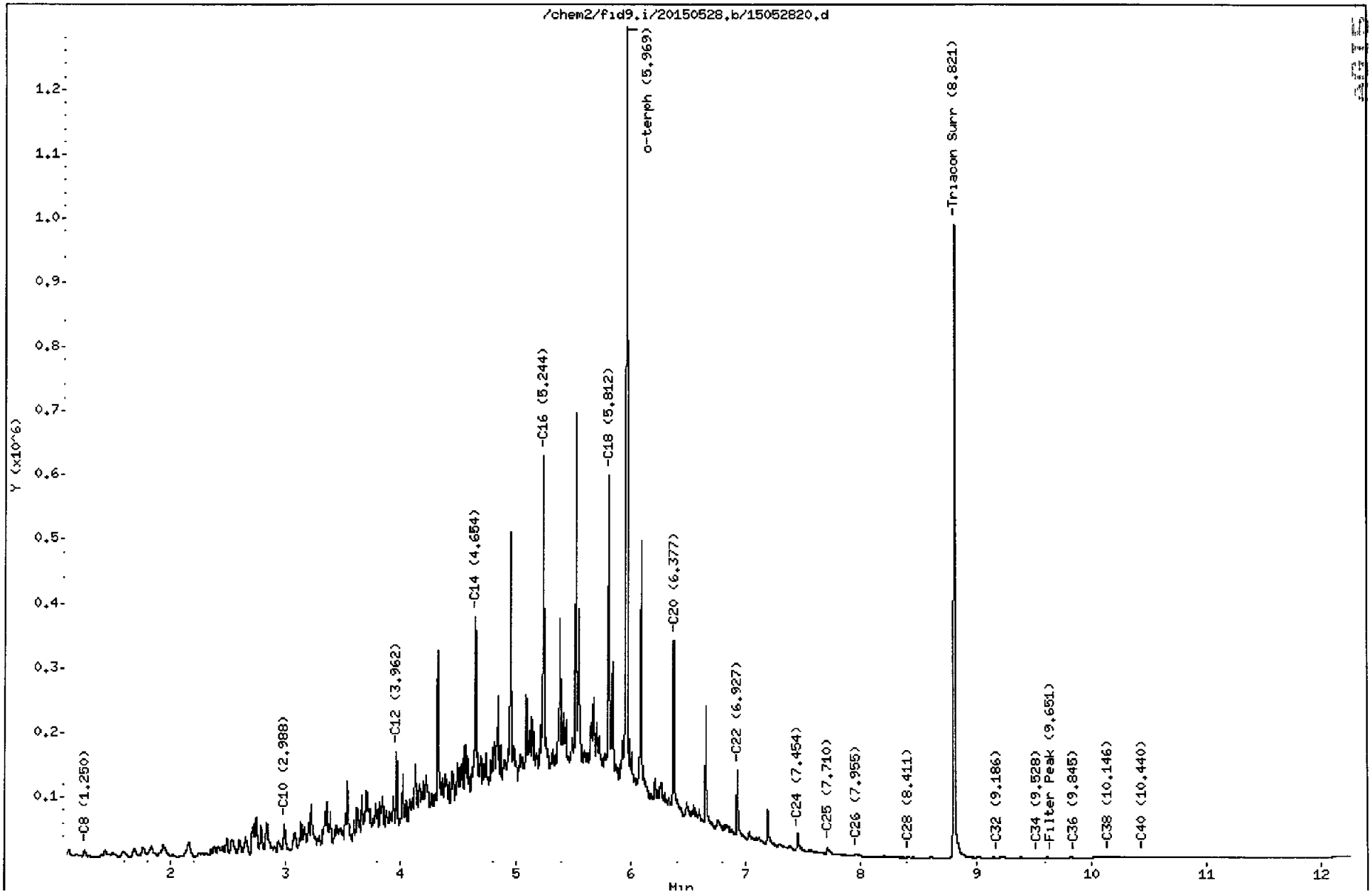
1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

Analyst: JL Date: 5/29/15

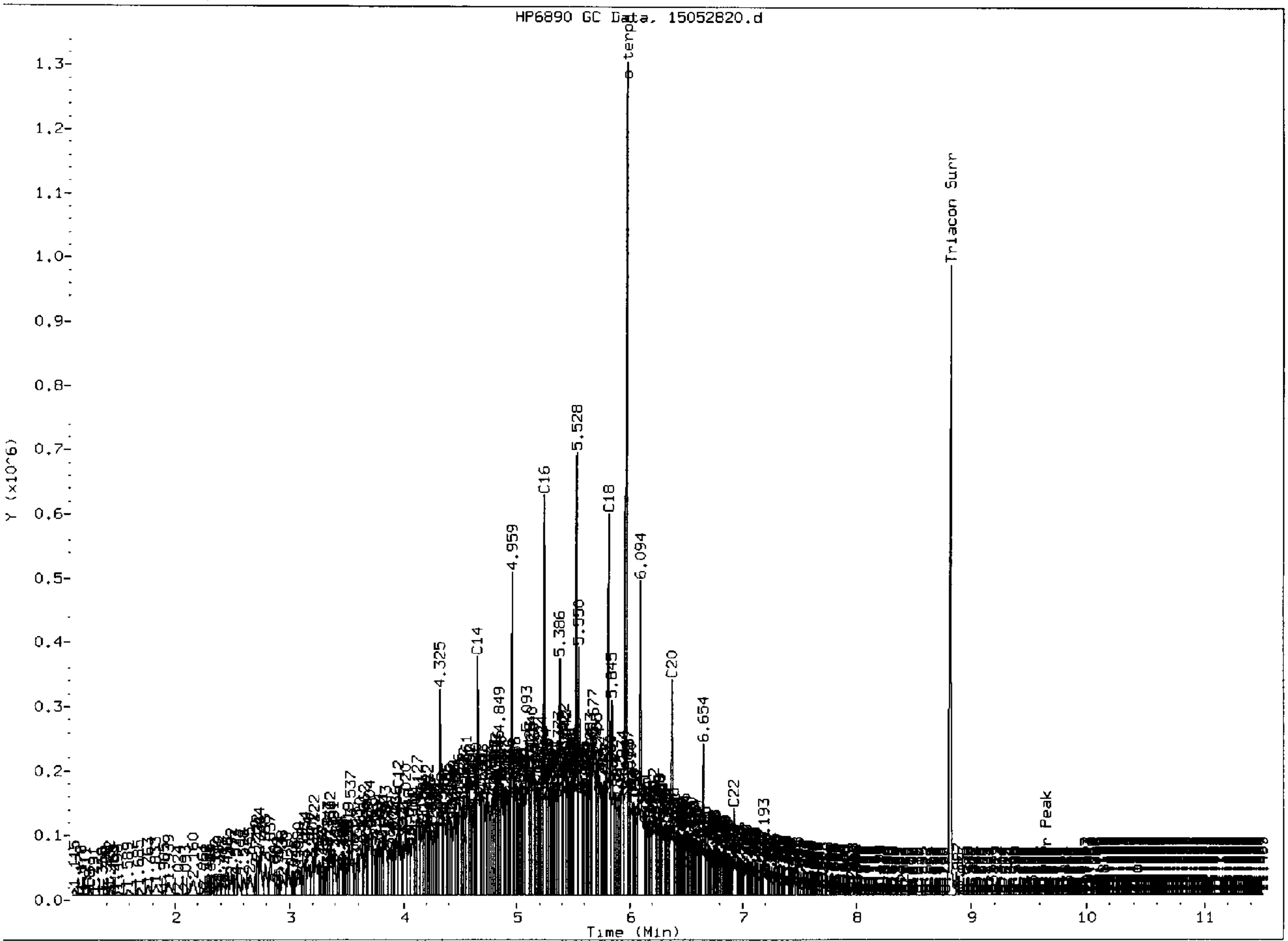
Data File: /chem2/fid9.i/20150528.b/15052820.d
Date : 28-MAY-2015 17:08
Client ID: AGI5LCSDW1
Sample Info: AGI5LCSDW1

Instrument: fid9.i
Operator: JW
Column diameter: 0.25

Column phase: RTX-1



FID:9A-2C/RTX-1 AGI5LCSDW1 FID:9A SIGNAL



MANUAL INTEGRATION

1. Baseline correction
2. Poor chromatography
3. Peak not found
4. Totals calculation
5. Surrogate Skimmed

Analyst: JL Date: 5/29/15

Data File: /chem2/fid9.i/20150528.b/15052821.d

Date : 28-MAY-2015 17:30

Client ID: MW-1R

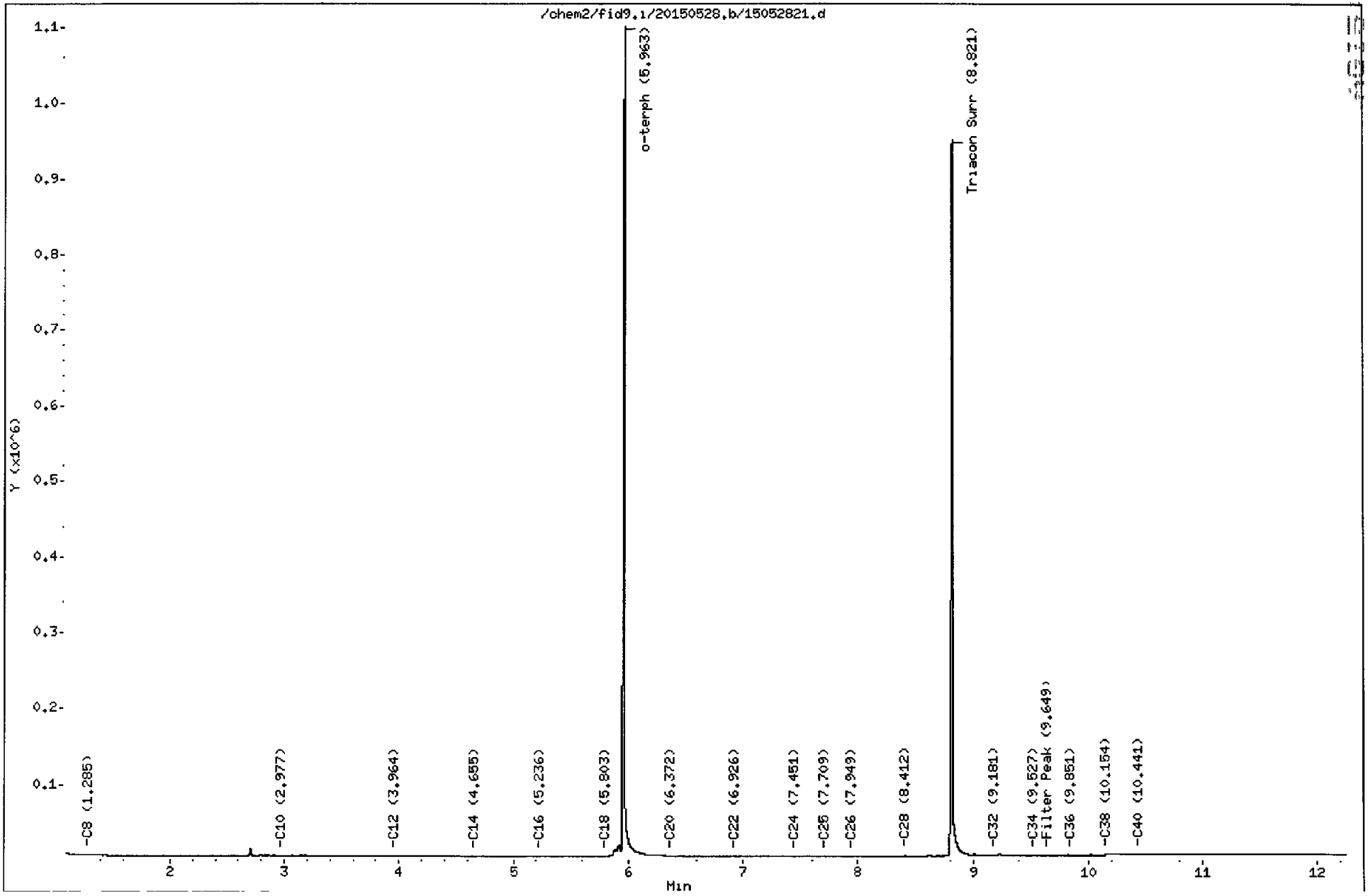
Sample Info: AGI5A

Column phase: RTX-1

Instrument: fid9.i

Operator: JW

Column diameter: 0.25

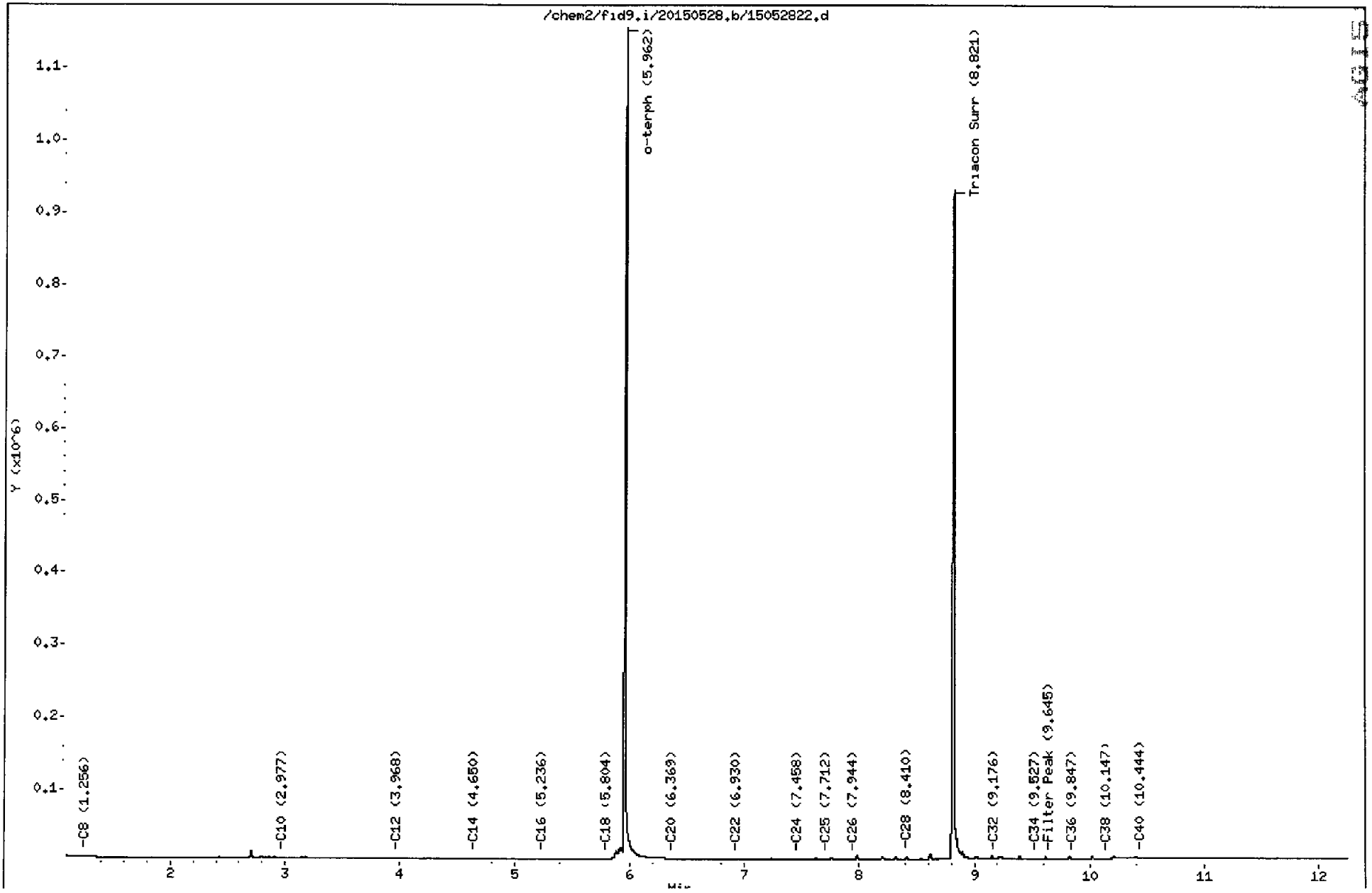


Data File: /chem2/fid9.i/20150528.b/15052822.d
Date : 28-MAY-2015 17:51
Client ID: MW-2R
Sample Info: AGI5B

Instrument: fid9.i

Operator: JW
Column diameter: 0.25

Column phase: RTX-1

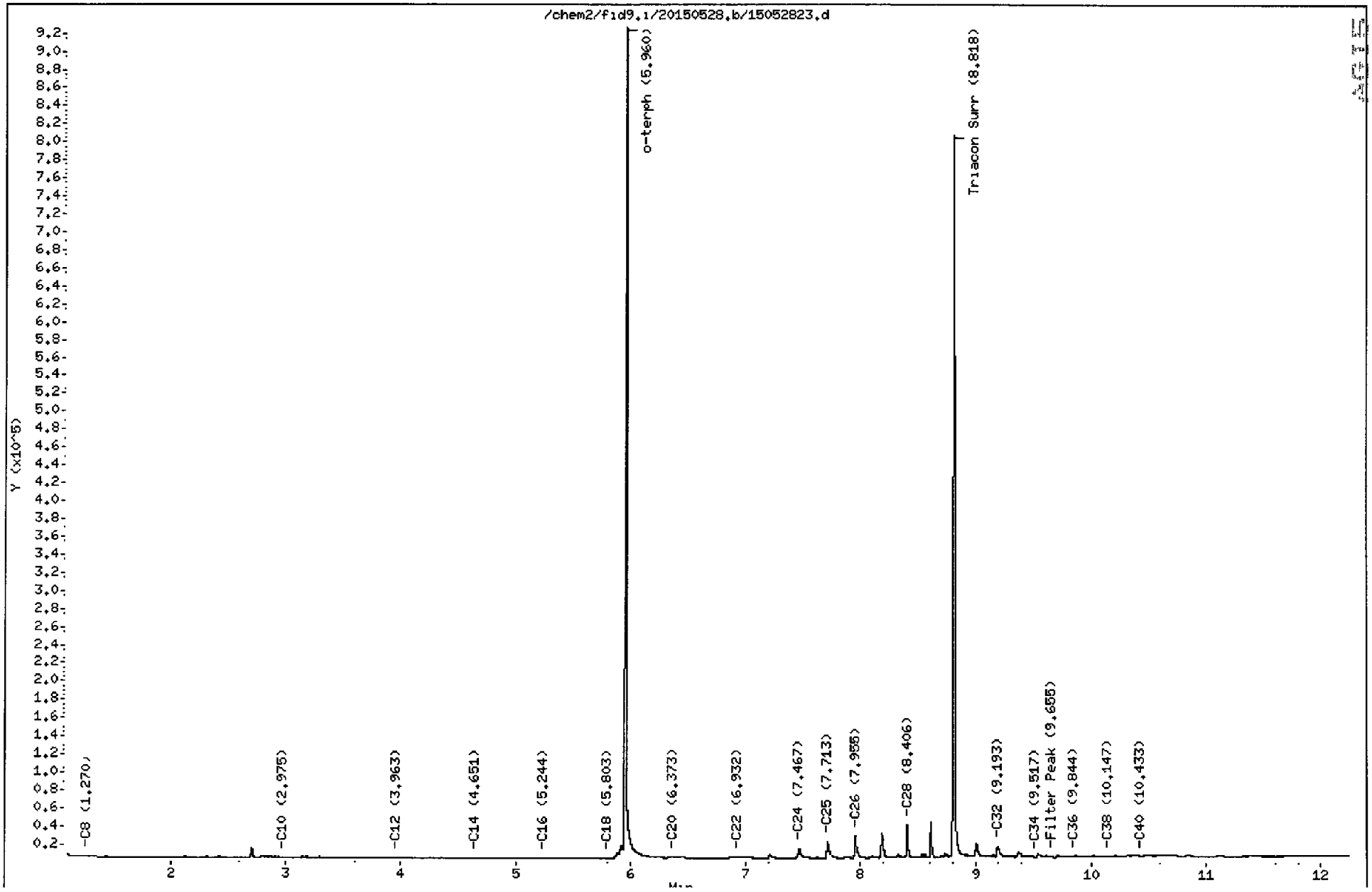


Data File: /chem2/fid9.i/20150528.b/15052823.d
Date : 28-MAY-2015 18:12
Client ID: MW-4R
Sample Info: AGI5C

Instrument: fid9.i

Operator: JW
Column diameter: 0.25

Column phase: RTX-1

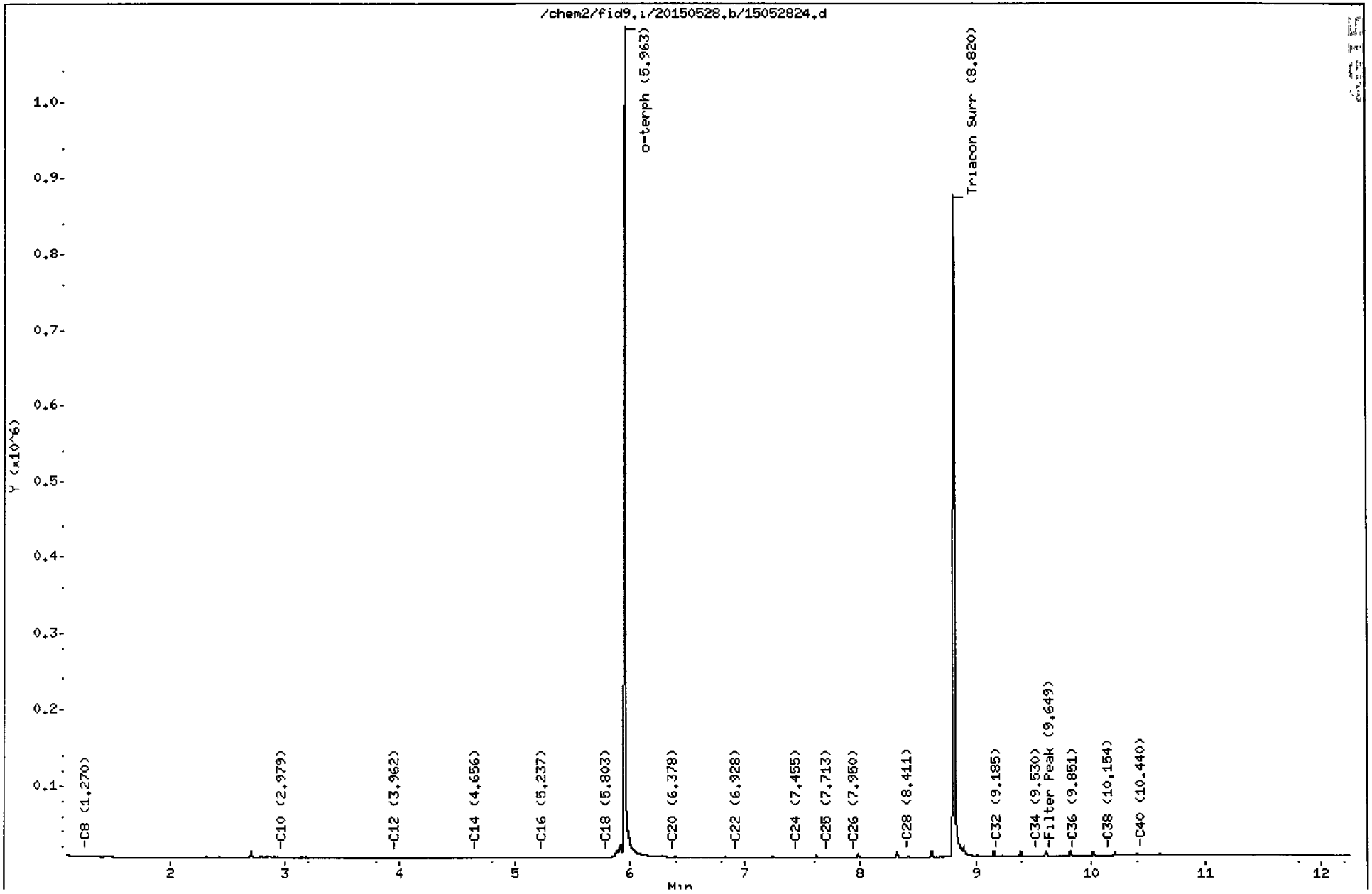


Data File: /chem2/fid9.i/20150528.b/15052824.d
Date : 28-MAY-2015 18:33
Client ID: MW-7
Sample Info: AGI5D

Instrument: fid9.i

Operator: JW
Column diameter: 0.25

Column phase: RTX-1



Data File: /chem2/fid9.i/20150528.b/15052825.d

Date : 28-MAY-2015 18:54

Client ID: MW-9

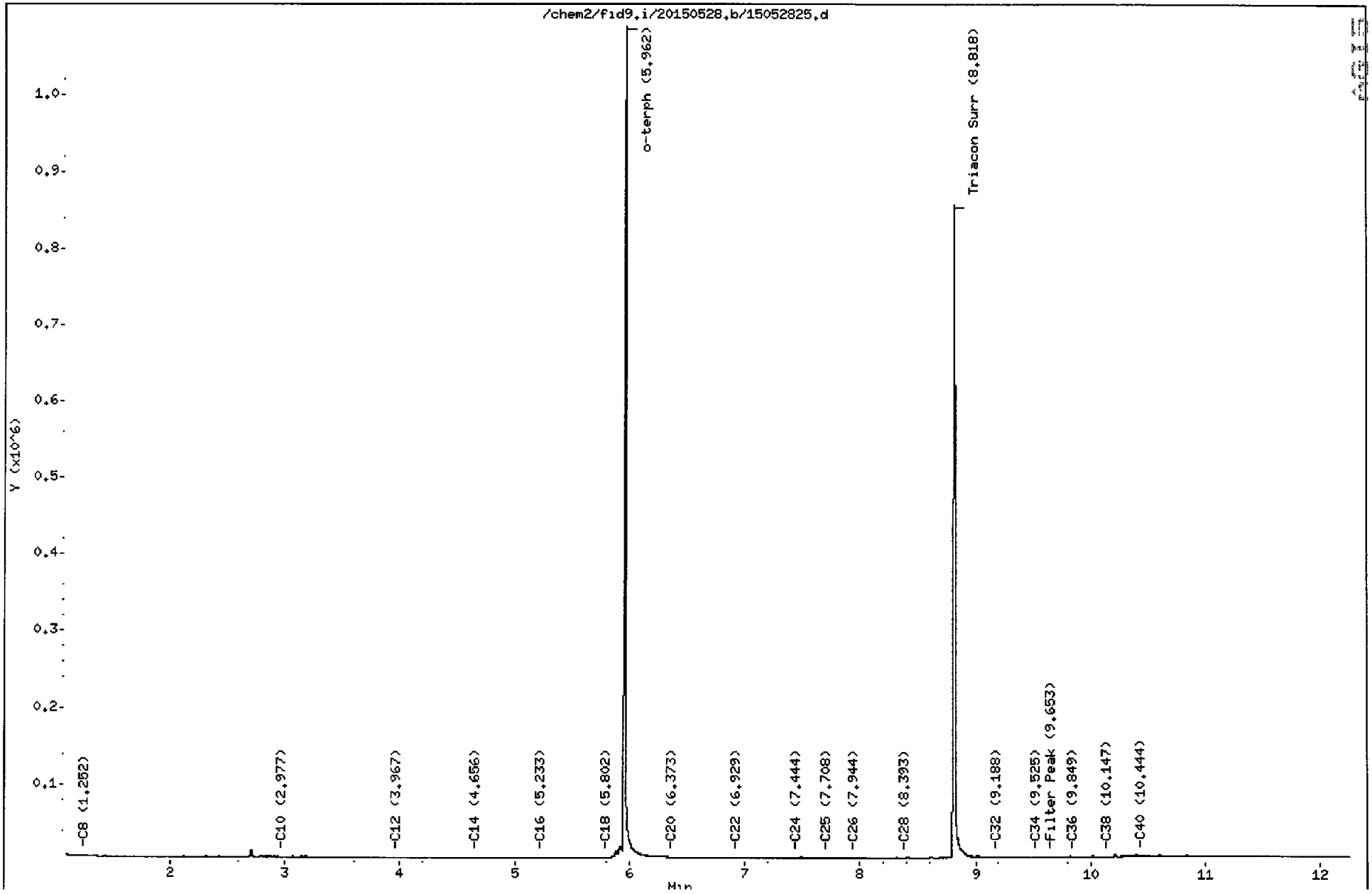
Sample Info: AGI5E

Column phase: RTX-1

Instrument: fid9.i

Operator: JW

Column diameter: 0.25



Data File: /chem2/fid9.1/20150528.b/15052826.d

Page 1

Date : 28-MAY-2015 19:15

Client ID: MW-10R

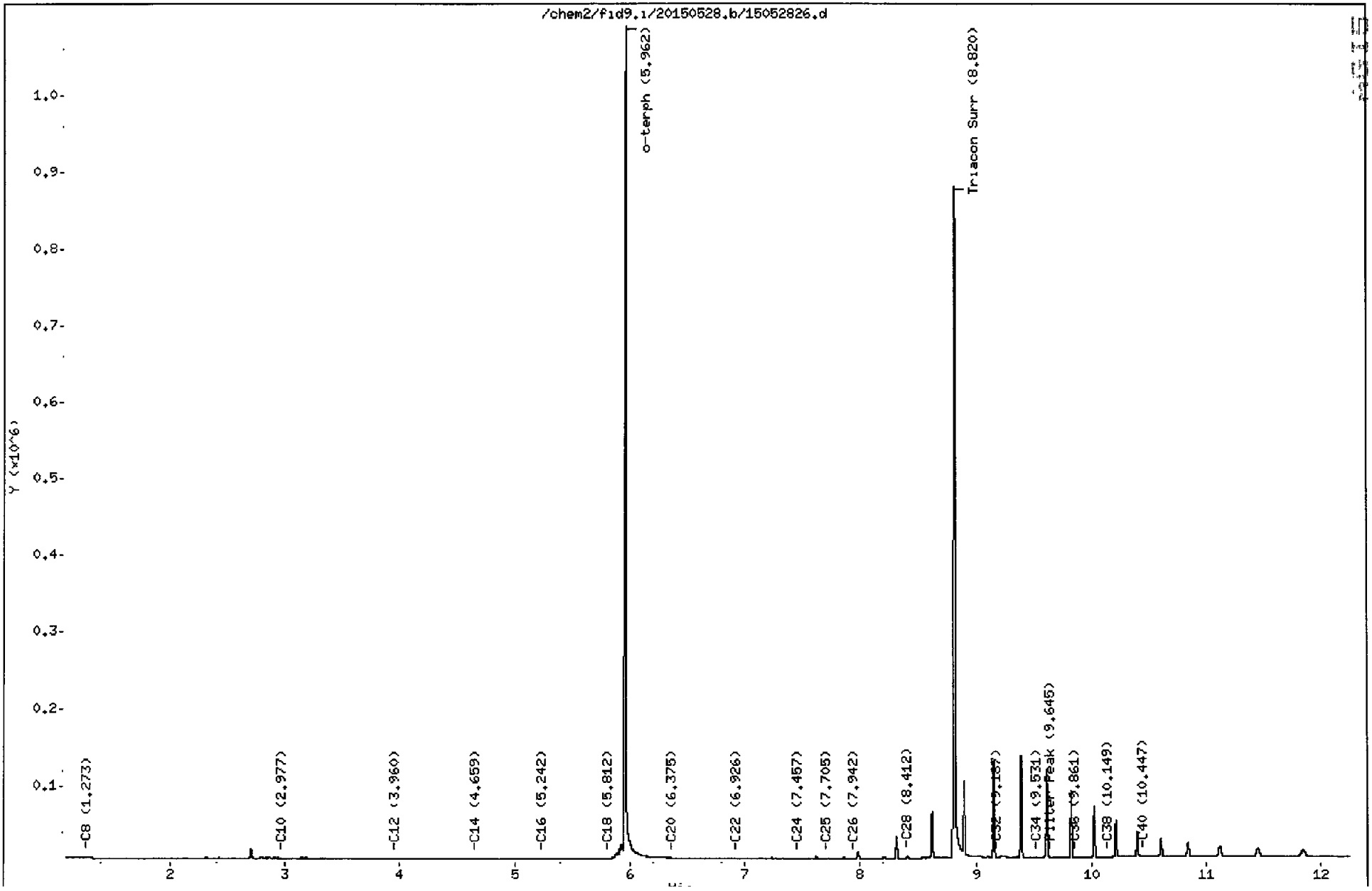
Instrument: fid9.1

Sample Info: AGI5F

Operator: JW

Column phase: RTX-1

Column diameter: 0.25



Data File: /chem2/fid9.i/20150528.b/15052827.d

Date : 28-MAY-2015 19:37

Client ID: D-1

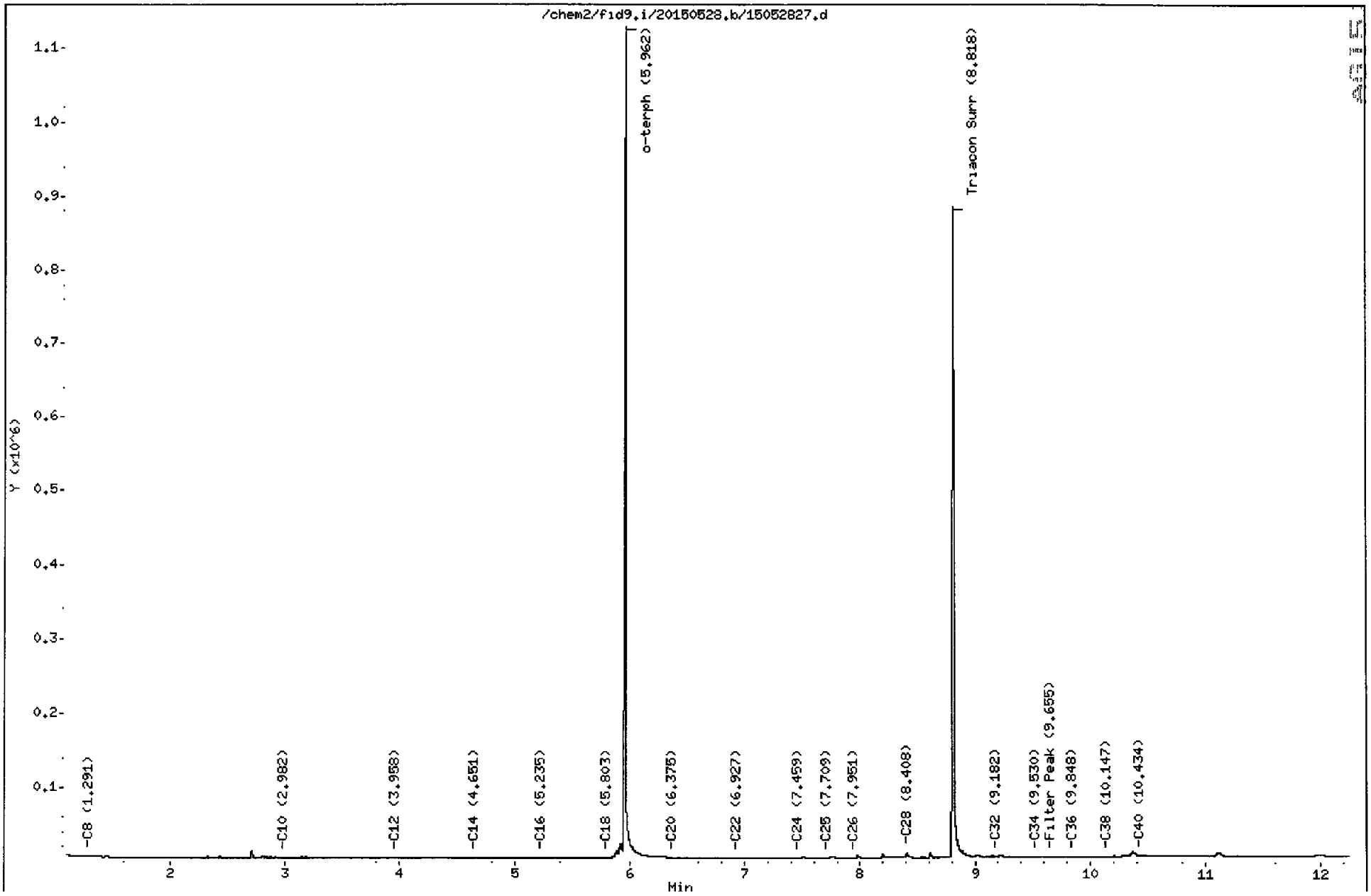
Sample Info: AGI5G

Column phase: RTX-1

Instrument: fid9.i

Operator: JW

Column diameter: 0.25



Data File: /chem2/fid9.1/20150528.b/15052828.d

Date : 28-MAY-2015 19:58

Client ID: Seep-1

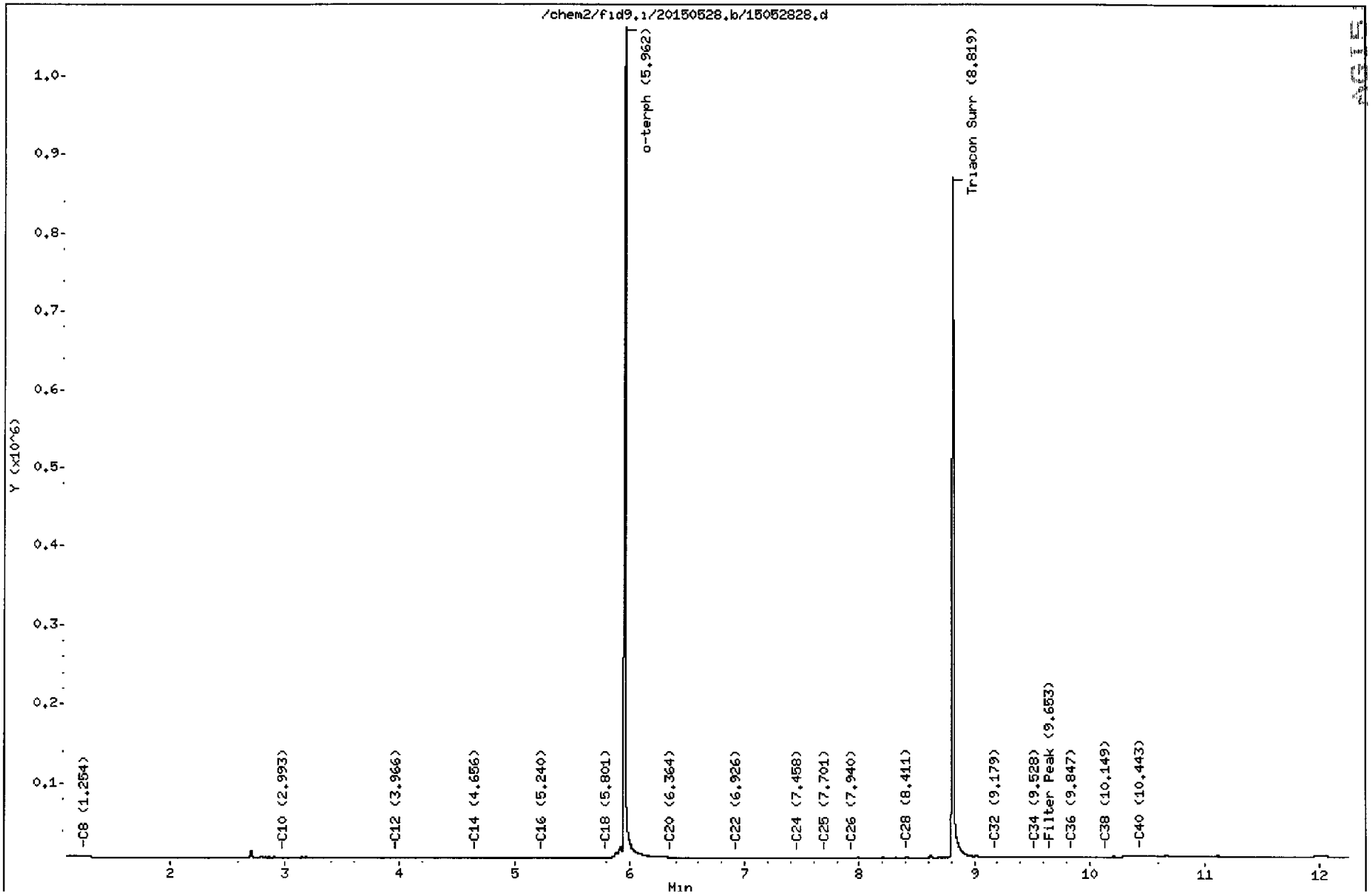
Sample Info: AGI5H

Column phase: RTX-1

Instrument: fid9.1

Operator: JW

Column diameter: 0.25

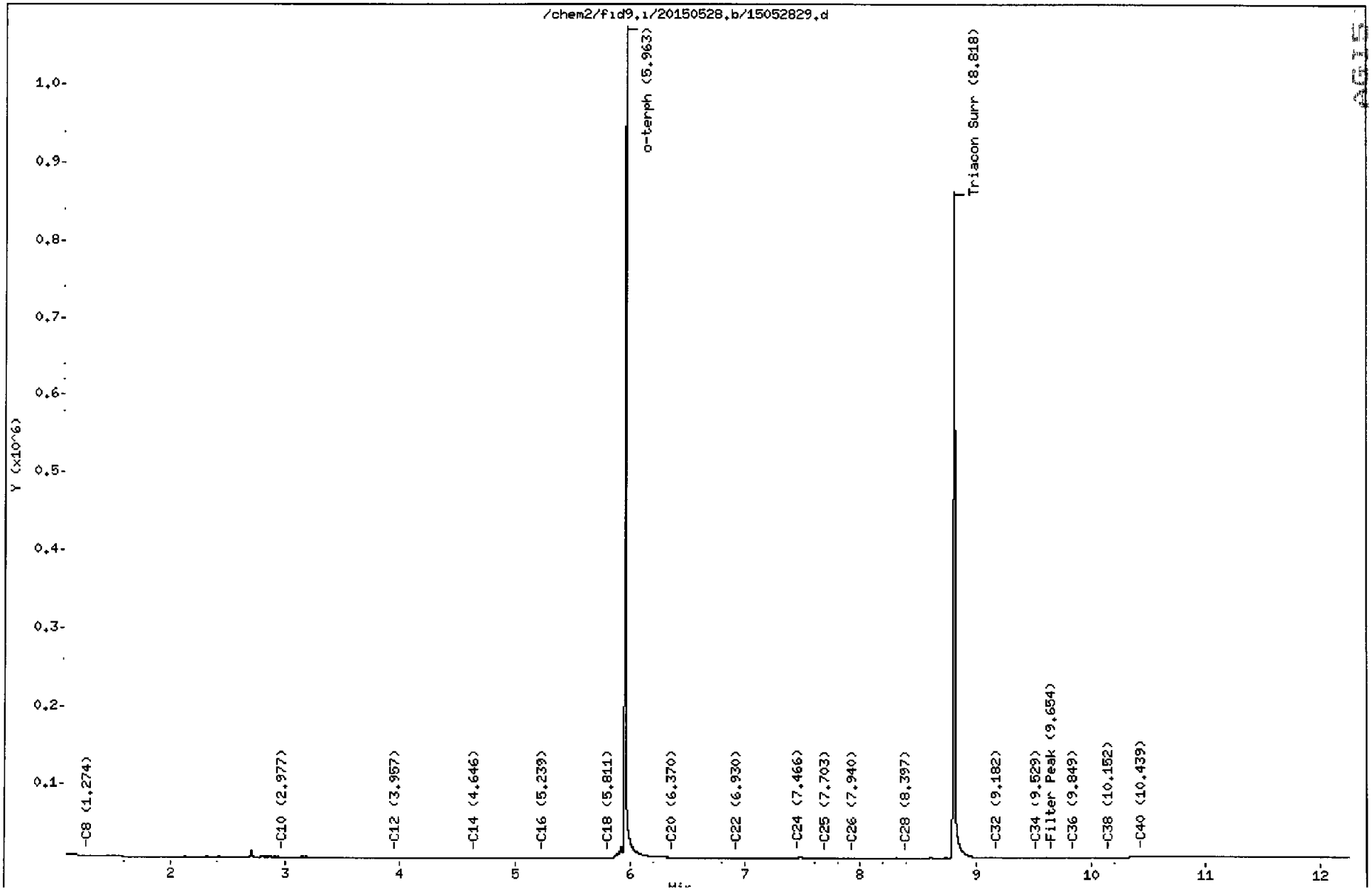


Data File: /chem2/fid9.i/20150528.b/15052829.d
Date : 28-MAY-2015 20:19
Client ID: Seep-2
Sample Info: AGI5I

Instrument: fid9.i

Operator: JW
Column diameter: 0.25

Column phase: RTX-1



SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-1R
ARI ID: 15-9631 AGI5A

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.010	0.181
N-Nitrate	05/20/15	Calculated	mg-N/L	0.200	10.2
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	0.124
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.200	10.3
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	10.0	55.2
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	0.052

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-2R
ARI ID: 15-9632 AGI5B

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.010	0.021
N-Nitrate	05/20/15	Calculated	mg-N/L	0.010	0.145
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.010	0.145
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	4.0	59.6
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	< 0.050 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-4R
ARI ID: 15-9633 AGI5C

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.010	0.039
N-Nitrate	05/20/15	Calculated	mg-N/L	0.010	0.106
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.010	0.106
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	10.0	99.5
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	< 0.050 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-7
ARI ID: 15-9634 AGI5D

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.200	9.53
N-Nitrate	05/20/15	Calculated	mg-N/L	0.010	0.181
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.010	0.181
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	4.0	16.9
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	< 0.050 U

RL Analytical reporting limit
U Undetected at reported detection limit

SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-9
ARI ID: 15-9635 AGI5E

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.010	0.428
N-Nitrate	05/20/15	Calculated	mg-N/L	0.010	0.040
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	< 0.010 U
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.010	0.040
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	2.0	12.9
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	< 0.050 U

RL Analytical reporting limit
U Undetected at reported detection limit

AGI5 0010U

SAMPLE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Client ID: MW-10R
ARI ID: 15-9636 AGI5F

Analyte	Date Batch	Method	Units	RL	Sample
N-Ammonia	05/27/15 052715#1	EPA 350.1M	mg-N/L	0.050	3.21
N-Nitrate	05/20/15	Calculated	mg-N/L	0.010	< 0.010 U
N-Nitrite	05/20/15 052015#1	EPA 353.2	mg-N/L	0.010	0.012
Nitrate + Nitrite	05/19/15 051915#1	EPA 353.2	mg-N/L	0.010	0.019
Sulfate	05/21/15 052115#1	EPA 375.2	mg/L	50.0	312
Sulfide	05/21/15 052115#1	SM4500-S2D	mg/L	0.050	< 0.050 U

RL Analytical reporting limit
U Undetected at reported detection limit

METHOD BLANK RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: NA
Date Received: NA

Analyte	Method	Date	Units	Blank	ID
N-Ammonia	EPA 350.1M	05/27/15	mg-N/L	< 0.010 U	FB
N-Nitrite	EPA 353.2	05/20/15	mg-N/L	< 0.010 U	FB
Nitrate + Nitrite	EPA 353.2	05/19/15	mg-N/L	< 0.010 U	FB
Sulfate	EPA 375.2	05/21/15	mg/L	< 2.0 U	FB
Sulfide	SM4500-S2D	05/21/15	mg/L	< 0.050 U	

FB Filtration Blank

LAB CONTROL RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: NA
Date Received: NA

Analyte/Method	QC ID	Date	Units	LCS	Spike Added	Recovery
Sulfide SM4500-S2D	ICVL	05/21/15	mg/L	0.476	0.502	94.8%

STANDARD REFERENCE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: NA
Date Received: NA

Analyte/SRM ID	Method	Date	Units	SRM	True Value	Recovery
N-Ammonia ERA #360114	EPA 350.1M	05/27/15	mg-N/L	0.499	0.500	99.8%
N-Nitrite ERA #141113	EPA 353.2	05/20/15	mg-N/L	0.478	0.500	95.6%
Nitrate + Nitrite ERA #320614	EPA 353.2	05/19/15	mg-N/L	0.480	0.500	96.0%
Sulfate ERA 131013	EPA 375.2	05/21/15	mg/L	15.5	15.0	103.3%

REPLICATE RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Analyte	Method	Date	Units	Sample	Replicate(s)	RPD/RSD
ARI ID: AGI5A Client ID: MW-1R						
N-Nitrite	EPA 353.2	05/20/15	mg-N/L	0.124	0.123	0.8%
Nitrate + Nitrite	EPA 353.2	05/19/15	mg-N/L	10.3	10.3	0.0%
Sulfate	EPA 375.2	05/21/15	mg/L	55.2	57.3	3.7%
Sulfide	SM4500-S2D	05/21/15	mg/L	0.052	< 0.050	NA
ARI ID: AGI5B Client ID: MW-2R						
N-Ammonia	EPA 350.1M	05/27/15	mg-N/L	0.021	0.016	27.0%

MS/MSD RESULTS-CONVENTIONALS
AGI5-Kennedy Jenks Consultants

ANALYTICAL RESOURCES INCORPORATED

Matrix: Water
Data Release Authorized:
Reported: 05/29/15

Project: Ecology Cornet Bay Marina
Event: 1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Analyte	Method	Date	Units	Sample	Spike	Spike Added	Recovery
ARI ID: AGI5A Client ID: MW-1R							
N-Nitrite	EPA 353.2	05/20/15	mg-N/L	0.124	0.618	0.500	98.8%
Nitrate + Nitrite	EPA 353.2	05/19/15	mg-N/L	10.3	34.1	25.0	95.2%
Sulfate	EPA 375.2	05/21/15	mg/L	55.2	141	75.0	114.4%
Sulfide	SM4500-S2D	05/21/15	mg/L	0.052	0.350	0.500	59.6%
ARI ID: AGI5B Client ID: MW-2R							
N-Ammonia	EPA 350.1M	05/27/15	mg-N/L	0.021	0.511	0.500	98.0%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1R
SAMPLE

Lab Sample ID: AGI5A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	**7439-89-6**	**Iron**	0.05	**0.18**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1R
DUPLICATE

Lab Sample ID: AGI5A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Iron	6010C	0.18	0.18	0.0%	+/- 0.05	L

Reported in mg/L

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
Page 1 of 1

Sample ID: MW-1R
MATRIX SPIKE

Lab Sample ID: AGI5A
LIMS ID: 15-9631
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Iron	6010C	0.18	2.21	2.00	102%	

Reported in mg/L

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
DISSOLVED METALS
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Sample ID: MW-2R
SAMPLE

Lab Sample ID: AGI5B
LIMS ID: 15-9632
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	7439-89-6	Iron	0.05	0.05	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: MW-4R
SAMPLE

Lab Sample ID: AGI5C
LIMS ID: 15-9633
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	7439-89-6	Iron	0.05	0.05	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: MW-7
SAMPLE

Lab Sample ID: AGI5D
LIMS ID: 15-9634
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	**7439-89-6**	**Iron**	0.05	**14.2**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: MW-9
SAMPLE

Lab Sample ID: AGI5E
LIMS ID: 15-9635
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	**7439-89-6**	**Iron**	0.05	**1.32**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: MW-10R
SAMPLE

Lab Sample ID: AGI5F
LIMS ID: 15-9636
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: 05/19/15
Date Received: 05/19/15

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	**7439-89-6**	**Iron**	0.1	**2.1**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: METHOD BLANK

Lab Sample ID: AGI5MB
LIMS ID: 15-9636
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: NA
Date Received: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/L	Q
6010C	05/21/15	6010C	05/22/15	7439-89-6	Iron	0.05	0.05	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: LAB CONTROL

Lab Sample ID: AGI5LCS
LIMS ID: 15-9636
Matrix: Water
Data Release Authorized:
Reported: 05/26/15

QC Report No: AGI5-Kennedy Jenks Consultants
Project: Ecology Cornet Bay Marina
1396010.00
Date Sampled: NA
Date Received: NA

BLANK SPIKE/BLANK SPIKE DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Dup Found	Spike Added	Spike Recovery	Spike Dup Recovery	RPD	Q
Iron	6010C	2.12	2.12	2.00	106%	106%	0.0%	

Reported in mg/L

N-Control limit not met
Control Limits: 80-120%