EVENT INVESTIGATION REPORT

Investigation of AOP-015 at 271AP Instrument Building
Event Investigation Report 2019-003

241-AP-271

[redacted]
[redacted] Event Investigation Team Lead

2/20/19
Date

[redacted]
[redacted] Responsible Manager

2/20/19
Date

Executive Summary

At 0800 on January 28, 2019, a pair of Nuclear Chemical Operators (NCOs) entered the 271AP instrument building to support scheduled work. Upon entering the building, both NCOs smelled what was initially described as a sulfur smell. The NCOs contacted the Field Work Supervisor (FWS) who came to the building. The FWS entered the building and noticed the smell, as well. All three individuals left the building. The two NCOs secured the building and the FWS notified the Area Day-Shift Manager (ADM) who then informed the Central Shift Office (CSO). The CSO entered an AOP-015 in response to the reported odor and dispatched Industrial Hygiene. The CSO notified the on-call Facility Representative (FacRep). A SOEN was also sent out. The three individuals who initially reported the odor reported no signs or symptoms and declined medical evaluation. An Event Investigation was initiated.

Investigation Summary

At 0700, at January 28, 2019, two NCOs received pre-job briefings to assist with two different work orders that were scheduled (Receiving SCBA bottles, and standing pressure watch inside the instrument building). At 8am, the two NCOs went over to the 271AP instrument building to prepare for work. The two NCOs entered the building and noticed the odor in the room on the right of the entrance hallway. The first NCO directed the second NCO to inform the FWS. Both NCOs left the building. The FWS returned to the building with the second NCO. The odor was still present when the FWS arrived. The three individuals exited the building but checked the trash can and rodent traps on their way out. All were empty. Hanford Weather Station 6, which is the weather station for the 200 East area, showed wind speeds approximately 3 miles per hour at 8am. The FWS and the second NCO reported the odor to the Area Day-Shift Manager (ADM). The first NCO stayed at the building and secured it. The ADM notified the Central Shift Manager (CSM) who then declared an AOP-015 entry, notified the FacRep, sent out a SOEN, and activated the IH response team. An event investigation was also initiated.

CSO sent out the Industrial Hygiene (IH) response team. All samples taken tested at less than detectable levels.

Both NCOs and the FWS personnel declined medical evaluation. None of the three exhibited any signs or symptoms. All three submitted completed odor response cards.

On January 31, 2019, the Event Investigator conducted an informal interview with one of the NCOs and the FWS. They walked down the building and the surrounding area. There were no obvious sources of for the odor. However, the FWS indicated that the septic system directly across the road to the northeast of the 271AP building entrance had been pumped by MSA at 5am on January 28 and this was a potential cause of the odor.

Event Timeline

1/28/2019

0700 Pre-Job Brief conducted for AP Farm NCOs

0800 NCOs enter 241-AP-271 and notice a sulfur odor in HMI room of the building

0805 First NCO leaves building and notifies FWS of odor

0810 FWS returns to 241-AP-271 and confirms odor

0815 FWS notifies Area Day Shift Manager

0820 ADM contacts CSO and notifies CSM of sulfur odor

0821 CSO enters AOP-015 for odors inside 241-AP-271. Access to 241-AP-271 is restricted. On-Call FacRep notified.

0824 SOEN for AOP-015 issued.

0855 Completed odor response cards delivered to Central Shift Office

0930 FacRep notified of initiation of Event Investigation 2019-003

0955 Field IHTs obtain samples from inside and outside 241-AP-271

1720 AOP-015 exited

1725 Notified FacRep of sample results and that AOP-015 has been exited.

Event	271AP Instrument Building AOP-015 Event
Date/time of event	January 28, 2019 0800
Location	Inside 271AP Instrument Building
Odor	Sulfur
Symptoms	None
DRI results during event	Less than the Level of Detection (LOD) for ammonia (NH3) and Volatile Organic Compounds (VOCs) on sweep of reported odor location
IH investigative monitoring/sampling	Readings from bag samples were at or below background levels.
Possible source(s)	Fugitive emissions from septic pump-out earlier in morning
Weather conditions on January 28, 2019 (data from Weather Station 6)	
Waste disturbing or tank work in adjacent area	No waste disturbing activities or tank work occurring in AP Farm or adjacent areas.

Time	Wind Dir (From)	Wind Speed	Ave Temp	Bar	RH
0745	103.30	2.04	31.17F	29.795	96.06
0800	159.19	3.42	31.25F	29.791	95.97
0845	153.10	3.09	31.26F	29.779	96.08

Compensatory Measures

- The FWS stopped work in the field and the IH response team sampled the interior and exterior of the 241-AP-271. The results of all the sampling less than detectable levels.

IH Response Team Sample Results (Inside 271AP Building)

Agent	Result	Action Limit
Ammonia	0.000 ppm	12 ppm
Carbon Monoxide	0.000 ppm	12.5 ppm
Flammable Gas	0.000 %	25 %
Oxygen	20.900 %	23.5 %
Volatile Organic Compound	0.000 ppb	2 ppm

Preliminary Extent of Condition Review

- No extent of condition exists for this investigation.

Discussion of Potential Causes

- The septic system located directly across the road from the entrance to 241-AP-271 is a potential source of the odor. FWS supervisor reports that he verified with MSA the septic system was pumped at approximately 0500.

Discussion of Barriers That Could Have Impacted the Cause

- There were no barriers that could have impacted the cause

Recommendations/Proposed Corrective Actions

- No recommendations or proposed corrective actions.

Attachments:

1 CSO logs for AOP-015 event
2 Industrial Hygiene Investigation Report (IHIR)
(Includes Odor Response Cards, 38 pages total)

01/28/2019 -- 08:21	Notification	Notified [redacted], for AOP, Entered AOP-015 for odors reported inside 271AP. Access to 271AP is restricted unless authorized by CSM. at 01/28/2019 08:21
01/28/2019 -- 08:21	**AOP**	Entered TF-AOP-015 Response to Reported Odors or Unexpected Changes to Vapor Conditions. Notified by [redacted] (AN ADM) that [redacted] (FWS), [redacted] (NCO) and [redacted] (NCO) reported a sulfur smell in the 271AP building HMI room. No smell was detectable in the remainder of the building or outside. Nobody reported symptoms and all declined evaluation at HPMC. Personnel exited the building and warned others not to enter. Access to 271AP is restricted. Work scope for the individuals involved was to receive SCBA bottles for temporary storage and provide pressure watch for work inside the farm (work had not started at the time).
01/28/2019 -- 09:29	Notification	Notified [redacted] for Initiated event investigation EIR 2019-003 "Investigation of AOP-015 at 271AP Instrument Building". POC:
01/28/2019 -- 09:04	AOP	[redacted] turned odor response cards in to CSO. Directed Industrial Hygiene Technician (IHT) to implement Tank Waste Odor Sample Plan IHP-09001. Will pull bag samples both inside the room of concern, as well as outside the building. Form A-6005-744, TF-AOP-015 Industrial Hygiene Investigation Report is initiated. Electronic version of Attachment 2 - Communication Template complete and sent to DL – WRPS AOP-015 Event Notification.
01/28/2019 -- 17:25	Notification	Notified DL - WRPS AOP-015 Event Notification [redacted] for Sample analysis for the TF-AOP-015 event has been completed and the results are at or below background levels. Exiting AOP-015 for 271AP Odor Response.
01/28/2019 -- 17:23	AOP	Closing TF-AOP-015. Sample analysis for the TF-AOP-015 event has been completed and the results are at or below background levels. Exiting AOP-015.

Figure 1- CSO logs for Investigation of AOP-015 at 271AP Instrument Building

Washington River Protection Solutions **TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT**	**PER Number:** WRPS-PER-2019-0165
Time/Date & Event location: 0808 01/28/2019 271AP Instrument Building	**EIR Number:** EIR-2019-003

1. **Event Summary** *(including number of workers involved and activity in progress):*

At approximently 0808 1 FWS and 2 NCOs reported a "rotten" odor in 271AP instrument building HLAN room.

- Was an IHT Present during initiating event? [ ] Yes [X] No

IH Monitoring/ Sample Survey Reports:

19-00556 "AOP-015 241-271-AP indoors"
19-00550 "AOP-015 241-271-AP outside"

Weather Conditions at Time of Event:

Ambient outside conditions:

- Weather station: 6 at 0800
- Wind Direction and Speed: SSE 3mph
- Barometric Pressure *(steady/rising/falling)*: 27.79 inHg rising slowly
- Temperature (F°): 31.2
- Humidity: 96%

Inside conditions:

- Temperature (F°): 77 (thermostat setting)

Field Response Timeline:

0824: SOEN: "Entered AOP-015 for odors reported inside 271AP. Access to 271AP is restricted unless authorized by CSM. CSM"
0826: AN Field IH and COMS Field IH arrive at CSO
0827: CSM 1 briefs AN Field IH and COMS Field IH:
- FWS and 2 NCOs encountered "Sulphur" odor in HLAN room of 271AP Instrument building, searched the building and garbage cans for possible odor source and found no readily apparent source. They then reported odor to CSM 1

0827: PO Safety and Health Manager arrives at CSO
0830: AN Field IH asks CSM 1 to consult TF-AOP-015 procedure
0832: PO Safety and Health Manager contacts PO IHT Lead to mobilize PO IHTs and instrumentation
0833: CSM 1 determines Tank Waste cannot be ruled out as odor source
0835: CSM 1 requests actions in accordance with TF-AOP-015 3.1.12
- IHT monitoring as per IHP-09001
- IHIR is initiated
- RPE worn in accordance with TF-AOP-015 RPF Task 2

0848: AN IHT Supervisor arrives at CSO
0849: PO IHT arrives at CSO and is briefed by COMS Field IH
0850: 2 additional PO IHTs arrive at CSO
0852: CSM 1 directs collection of 2 grab samples: Interior and exterior to 271 AP instrument building
0853: CSM 1 directs to wait no more than 5 additional minutes to receive Odor Response Cards before response
0854: Shift PO Manager asks CSM 1 to direct Terra Graphics truck to respond
0855: FWS and Odor Response Cards arrive at CSO. FWS confirms sewage pumping was conducted in the area before dayshift started at approximately 0500.
0855: COMS Field IH directs PO IHTs:
- Monitor for NH_3 and VOCs
- Collect 2 grab samples: Interior and exterior.
- Acquire RPE with TF-AOP-015 RPF Task 2
- Analyze grab samples with H_2S, SO_2, NOx, N_2O, Hg, FID, DRI sensors

0857: PO IHTs depart CSO
0858: CSM 1 contacts Terra Graphics truck to respond. Terra Graphics truck is 30-45 minutes out.
0914: PO Safety and Health Manager contacts IH programs to ensure HAPSITE and other sensors support is prepared.
0918: PO IHT lead confirms PO IHT field response
0924: PO Safety and Health Manager briefs ESH&Q Manager
1003: COMS Field IH and AN Field IH report to CSO and brief CSM 1 with progress. CSM 1 informs AN Field IH and COMS Field IH that Terra Graphics Van response has been cancelled due to timeliness concerns.
1526: PO Safety and Health Manager briefs CSM 2 on monitoring results.
1720: SOEN: "Sample analysis for the TF-AOP-015 event has been completed and the results are at or below background levels. Exiting AOP-015. CSM"

Field IH Author:

[redacted] | [redacted] | [redacted] | 02/14/2019

Print First and Last Name | *Signature* | *Phone No.* | *Date*

2. GCMS Sample Results:

Samples 19-00550 271AP Outside and 19-00556 271AP Inside were analyzed by GC-MS.

Results:		
271AP Outside	Xylenes	~20 ppb
	D-Limonene	~10 ppb
	Paraffin Hydrocarbons	~75 ppb
271AP Inside	Xylenes	~20 ppb
	D-Limonene	~10 ppb
	Paraffin Hydrocarbons	~50 ppb

D-Limonene is the primary ingredient in Simple Green©

No compounds were found at concentrations of concern (All concentrations well below OELs)

See Attachment "A" for GCMS Laboratory Results

Programs IH Author:

[redacted] | [redacted] | [redacted] | 2/19/2019

Print First and Last Name | *Signature* | *Phone No.* | *Date*

3. Additional Information:

- Odor Response Cards received:

ODOR RESPONSE CARD - 241-AP FARM

1. Contact CSM, Complete below bulleted information and map.

- Date and time odor was noticed 1-28-19 0800
- Your name and the work your were perfoming [redacted] monitoring pressures AP instrument Bldg
- Location of odors *(mark area on map and wind direction)* Inside Building
- Name(s) of others in or near the affected area [redacted]
- Was an IHT present? NO
- Describe the odor ☐ Sweet ☐ Sour ☐ Musty ☐ Earthy ☐ Metallic ☐ Smoky ☒ Rotten ☐ Onion
  ☐ Cleaning Solution ☐ Ammonia ☐ Other:
- Possible Source Dead Rodent Perhaps
- Your symptoms *(if any)* ☐ Headache ☐ Dizziness/Light-Headed ☐ Nausea ☐ Cough
  ☐ Fatigue/Drowsiness/Weakness ☐ Sore/Burning Throat ☐ Difficulty Breathing
  ☐ Watery/Irritated Eyes/Trouble with Vision ☐ Tingling/Numbness/Paralysis ☐ Rash/Itching
  ☐ Other: None

2. Send this card to the Central Shift Office.

Page 2 of 2 — **OFFICIAL USE ONLY (when filled in)** — A-6006-929 (REV 1)

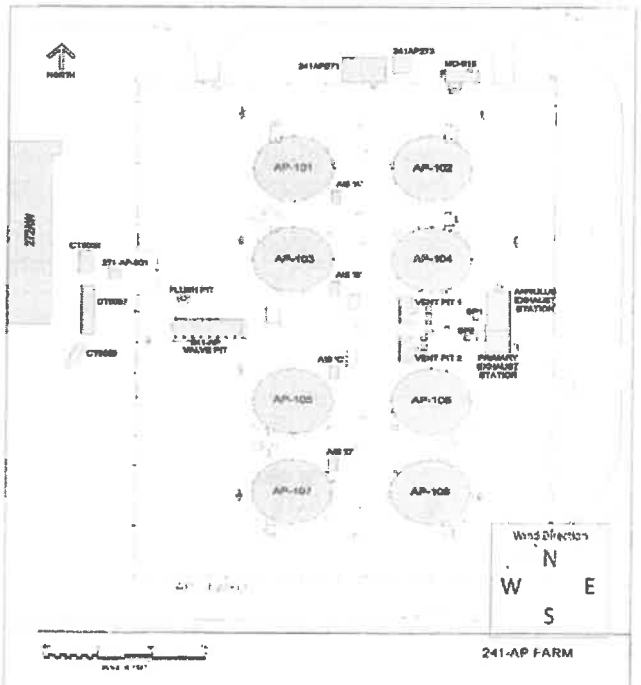
ODOR RESPONSE CARD - 241-AP FARM

Odors Detected with *NO* Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [redacted] Provide the bulleted information below.
3. Complete map, return to Central Shift Office as soon as practicable.

Odors Detected *WITH* Symptoms

4. Notify Immediate Supervisor.
5. Contact CSM, [redacted] complete below bulleted information and map.
   - Your name and the work you were performing
   - Your symptoms *(if any)*
   - Date and time odor was noticed
   - Location of odors *(mark area on map and the wind direction)*
   - Describe the odor
   - Name of other in or near the affected area
   - Was an IHT present?
   - Possible source
6. Provide information on the back of card.
7. Send this card immediately to the Central Shift Office



Page 1 of 2 — **OFFICIAL USE ONLY (when filled in)** — A-6006-929 (REV 1)

ODOR RESPONSE CARD - 241-AP FARM

1. **Contact CSM, Complete below bulleted information and map.**

- Date and time odor was noticed 1-28-19 8:00 am
- Your name and the work your were perfoming Hanging boHles out [redacted]
- Location of odors *(mark area on map and wind direction)* 241 AP
- Name(s) of others in or near the affected area [redacted]
- Was an IHT present? NO
- Describe the odor ☐ Sweet ☐ Sour ☐ Musty ☐ Earthy ☐ Metallic ☐ Smoky ☒ Rotten ☐ Onion
  ☐ Cleaning Solution ☐ Ammonia ☐ Other:
- Possible Source Rotten Dead maybe
- Your symptoms *(if any)* ☐ Headache ☐ Dizziness/Light-Headed ☐ Nausea ☐ Cough
  ☐ Fatigue/Drowsiness/Weakness ☐ Sore/Burning Throat ☐ Difficulty Breathing
  ☐ Watery/Irritated Eyes/Trouble with Vision ☐ Tingling/Numbness/Paralysis ☐ Rash/Itching
  ☐ Other: None

2. **Send this card to the Central Shift Office.**

Page 2 of 2

OFFICIAL USE ONLY (when filled in)

A-6006-929 (REV 1)

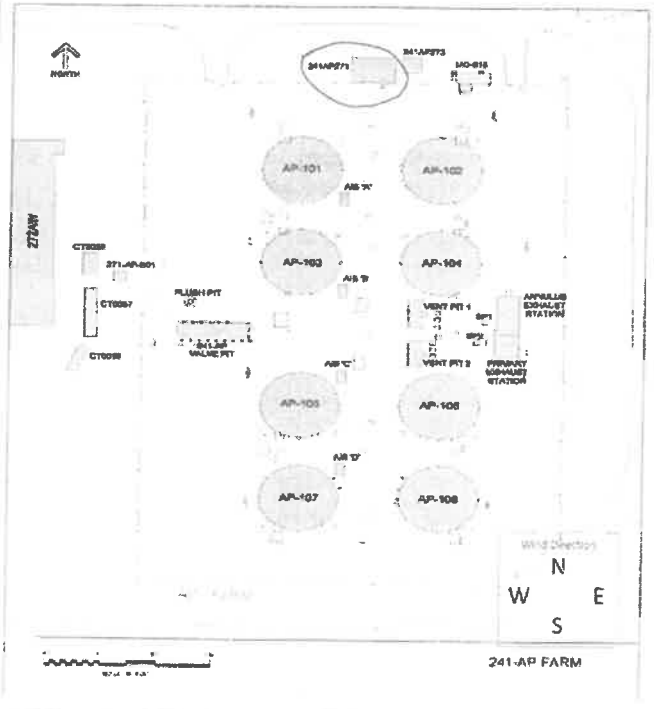
ODOR RESPONSE CARD - 241-AP FARM

Odors Detected with *NO* Immediate symptoms

1. Notify Immediate Supervisor.
2. Contact Central Shift Manager, [redacted] Provide the bulleted information below.
3. Complete map, return to Central Shift Office as soon as practicable.

Odors Detected *WITH* Symptoms

4. Notify Immediate Supervisor.
5. Contact CSM, [redacted] complete below bulleted information and map.
   - Your name and the work you were performing
   - Your symptoms *(if any)*
   - Date and time odor was noticed
   - Location of odors *(mark area on map and the wind direction)*
   - Describe the odor
   - Name of other in or near the affected area
   - Was an IHT present?
   - Possible source
6. Provide information on the back of card.
7. Send this card immediately to the Central Shift Office.



Page 1 of 2

OFFICIAL USE ONLY (when filled in)

A-6006-929 (REV 1)

- Summary of IH Monitoring and Sampling Data:

  a. Monitoring:

  Event Response: 19-00556 "AOP-015 241-271-AP indoors"

CO	0.000 ppm
H_2S	0.000 ppm
Hg	5.000 ng/m^3
LEL	0.000%
N_2O	0.000 ppm
NH_3	0.000 ppm
NO	0.000 ppm
NO_2	0.000 ppm
O_2	20.9 %
SO_2	0.000 ppm
VOC (FID)	consistent with background
VOC (PID)	0.000 ppb

  Event Response: 19-00550 "AOP-015 241-271-AP outside"

CO	0.000 ppm
H_2S	0.000 ppm
Hg	7.000 ng/m^3
LEL	0.000%
N_2O	0.100 ppm
NH_3	0.000 ppm
NO	0.000 ppm
NO_2	0.000 ppm
O_2	20.9 %
SO_2	0.000 ppm
VOC (FID)	consistent with background
VOC (PID)	0.000 ppb

  b. Sampling:
  N/A

Washington River Protection Solutions **TF-AOP-015 INDUSTRIAL HYGIENE INVESTIGATION REPORT**	**PER Number:** N/A
Time/Date & Event location: 0808 01/28/2019 271AP Instrument Building	**EIR Number:** 2019-003

4. **Summary of Employee Reported Information** *(e.g., symptoms)*

   No symptoms were reported
   The workers that reported the odors refused voluntary HPMC medical evaluations

5. **Recommendations/Conclusions:**
   Identification of Source of the Concern: [ ] Yes [X] No

   No recommendations at this time.

6. **Other:**

   N/A

S&H Program Management:

[redacted]	[redacted]	[redacted]	2/19/19
Print First and Last Name		*Phone No.*	*Date*

Attachment A

GCMS Laboratory Results

HAPSITE GC-MS Bag Sample Results Survey 19-00556

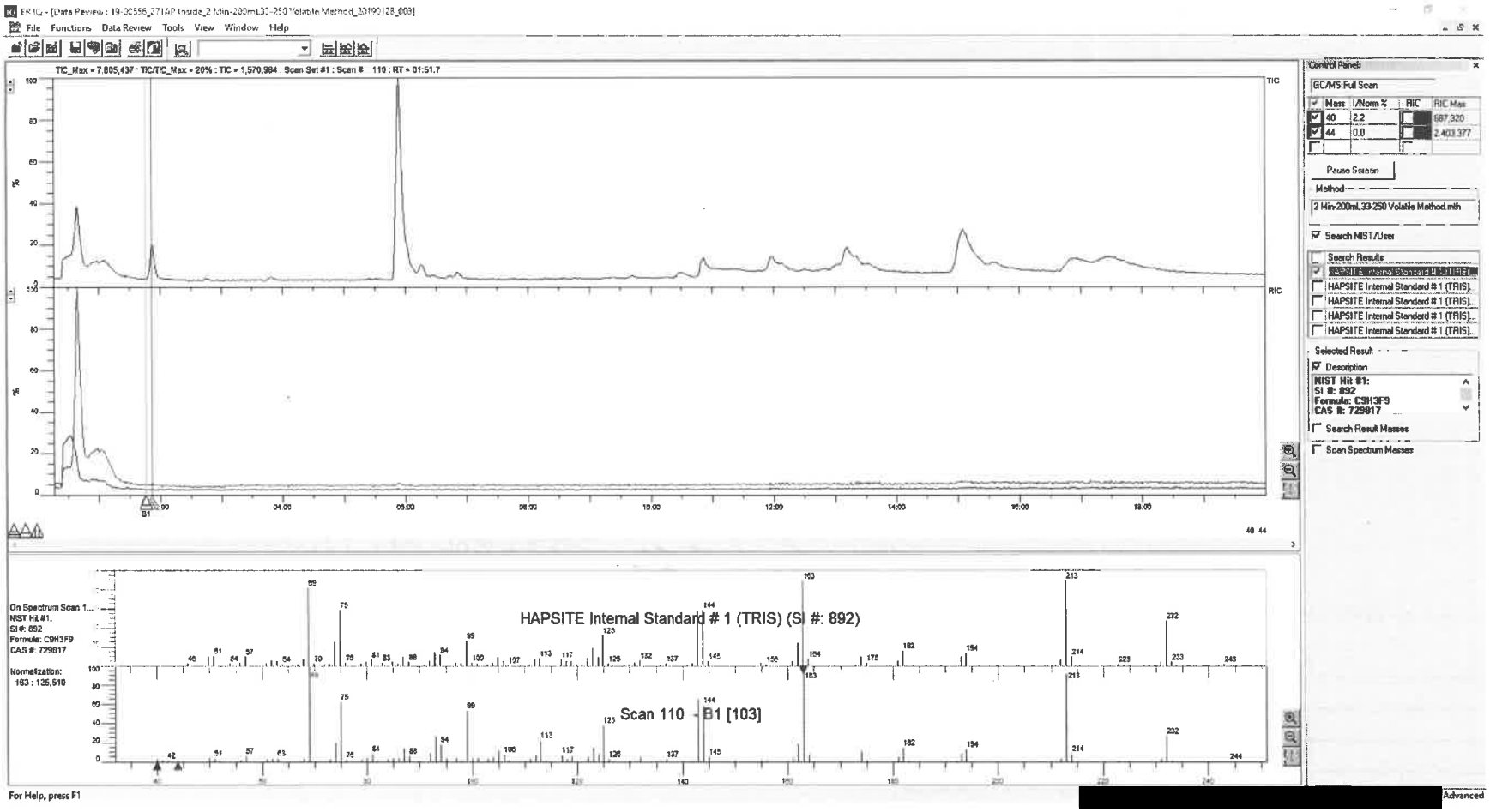
A bag sample was collected inside of the 271 AP change trailer and analyzed using an Inficon HAPSITE GC-MS on January 28, 2019. Data was interpreted and reported on January 28, 2019. Results are found below:

Compounds identified in Bag Sample Collected Inside 271 AP Survey 19-00556

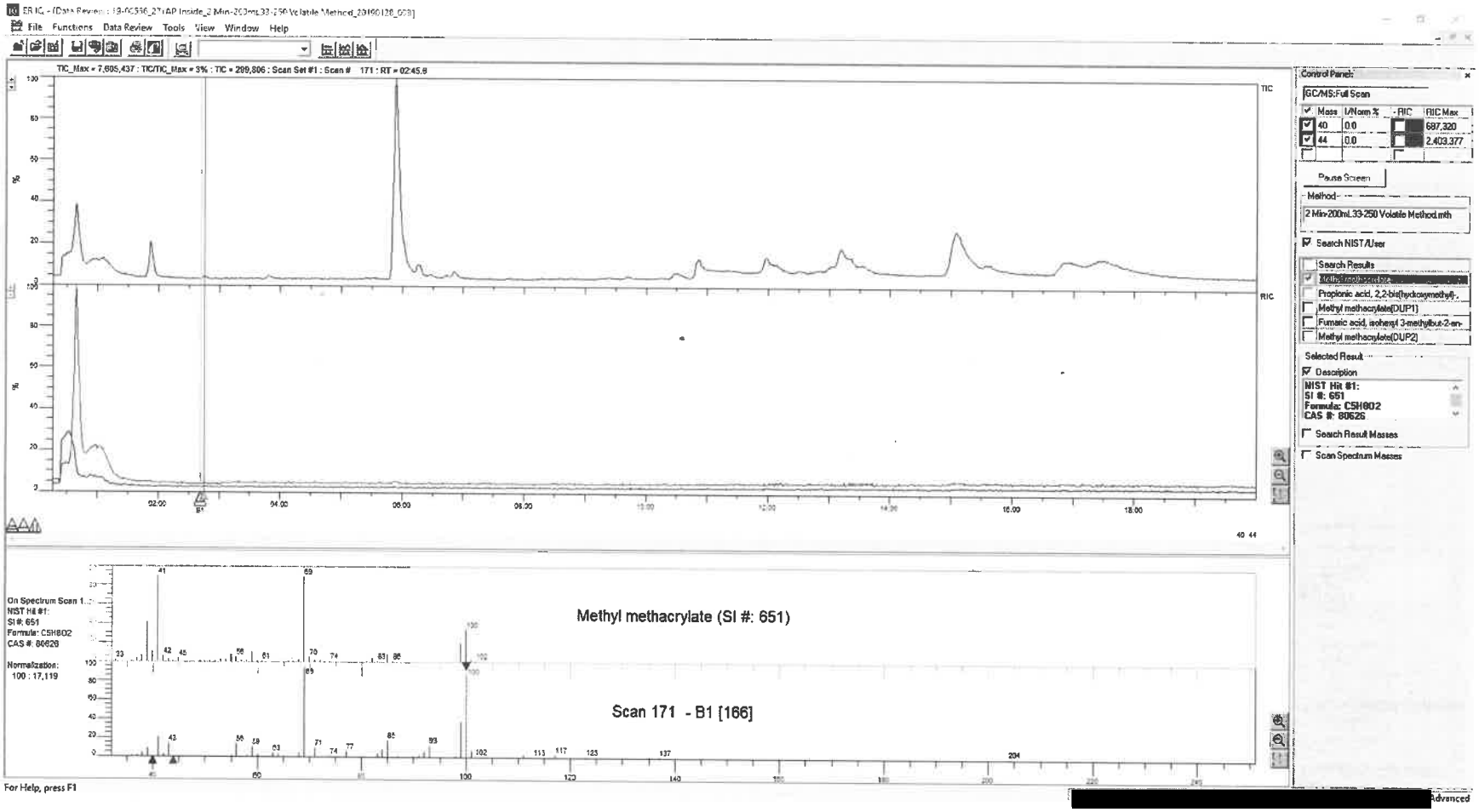
Compound	COPC	Estimated Sample Concentration (ppb)	Typical Sample Bag Concentration (ppb)	Net Concentration (ppb
Methyl methacrylate	No	< 10	< 10	Not found
Toluene + Xylenes	No	20	20	Not Found
D-Limonene	No	10	<5	10
Aliphatic Hycrocarbons, C11 – C16	Yes	75	100	Not Found

If you have questions contact [redacted]

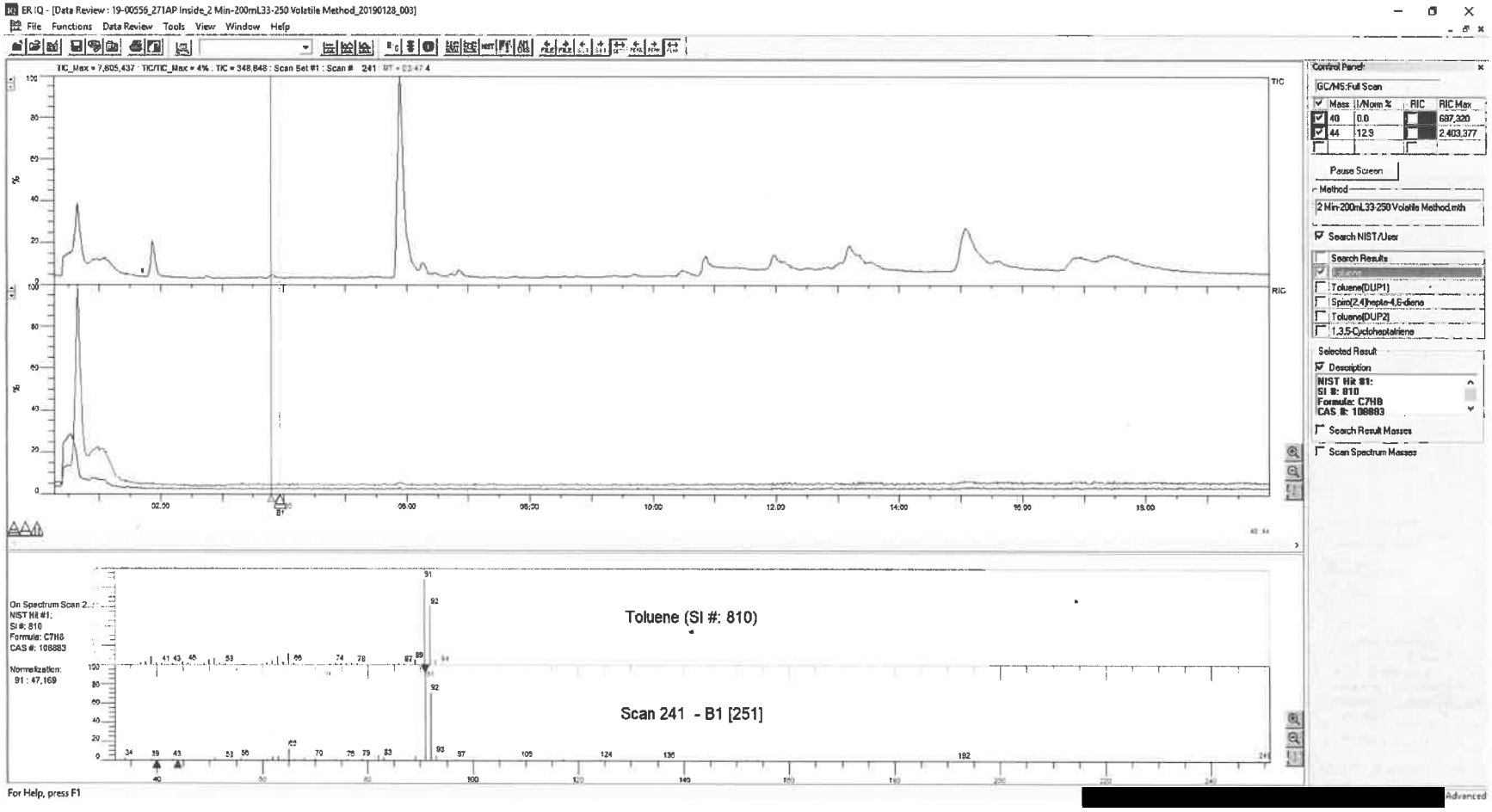
HAPSITE Internal Standard 1#



Methyl Methacrylate



Toluene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File Functions Data Review Tools View Window Help
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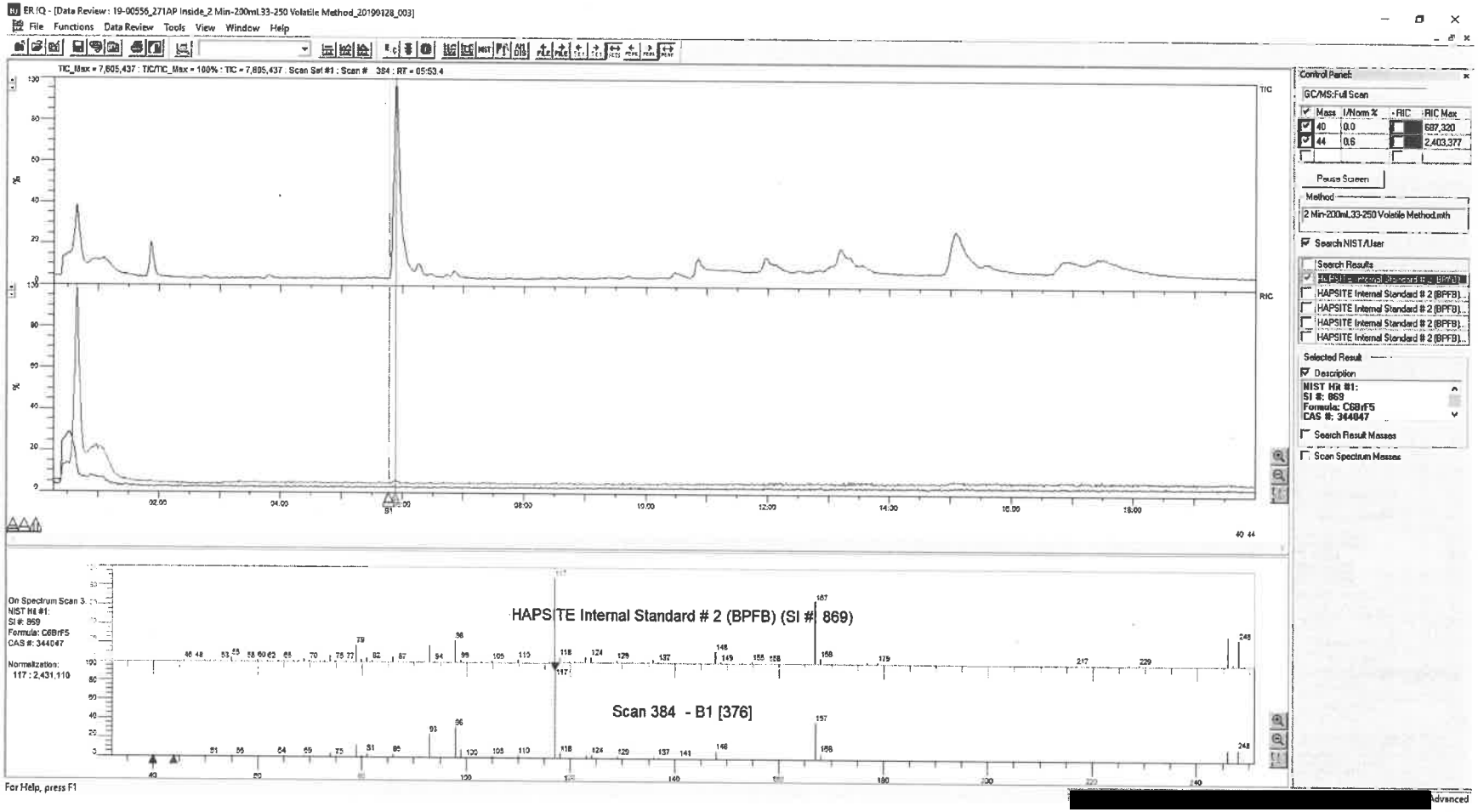
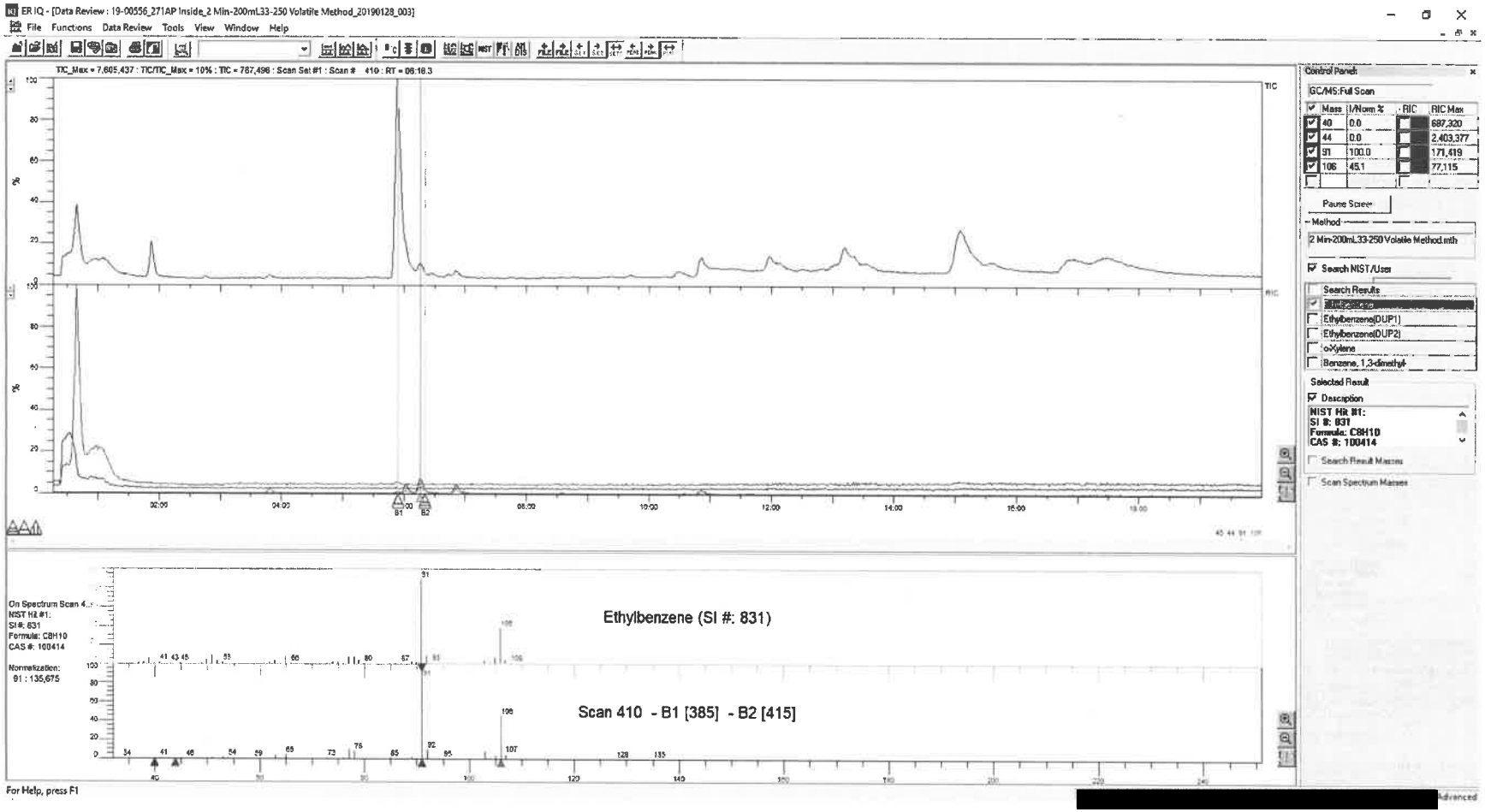
TIC
RIC
Control Panel
GC/MS:Full Scan
Mass
I/Norm %
RIC
RIC Max
40 0.0 687,320
44 12.9 2,403,377
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Toluene(DUP1)
Spiro[2.4]hepta-4,6-diene
Toluene(DUP2)
1,3,5-Cycloheptatriene
Selected Result
Description
NIST Hit #1:
SI #: 810
Formula: C7H8
CAS #: 108883
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 2...
NIST Hit #1:
SI #: 810
Formula: C7H8
CAS #: 108883
Normalization:
91 : 47,169
Toluene (SI #: 810)
Scan 241 - B1 [251]
For Help, press F1
Advanced

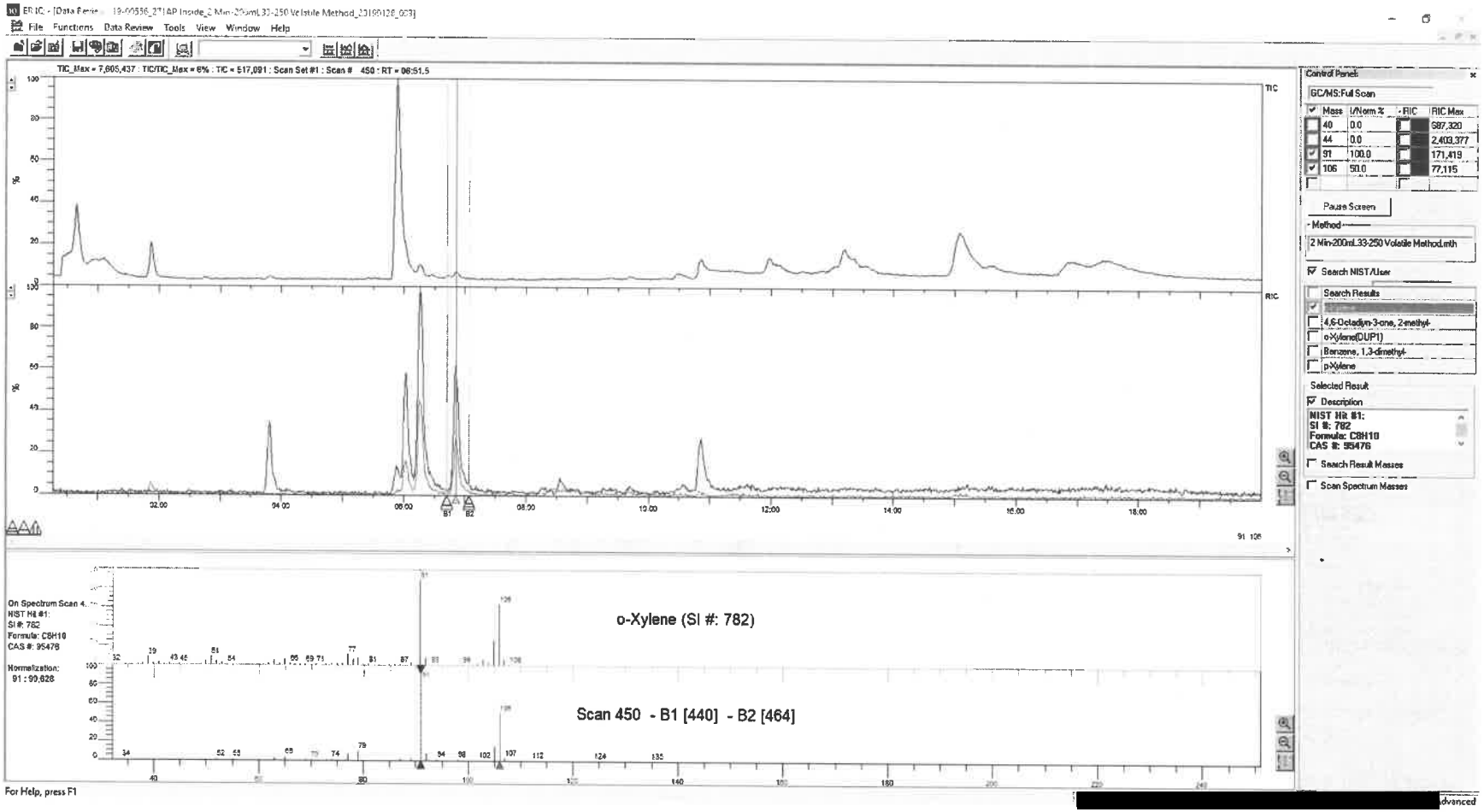
HAPSITE Internal Standard #2



Ethylbenzene



o-Xylene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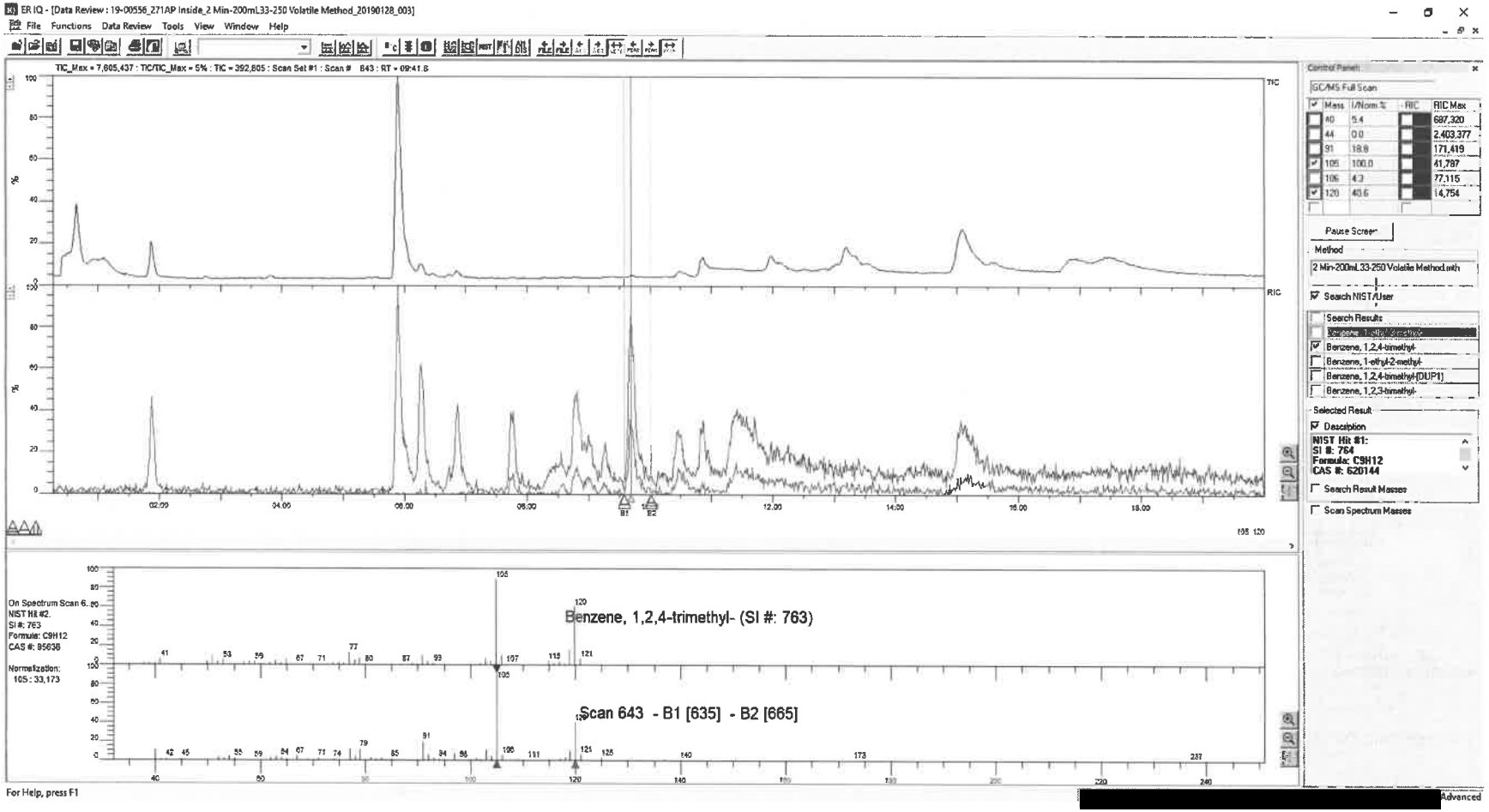
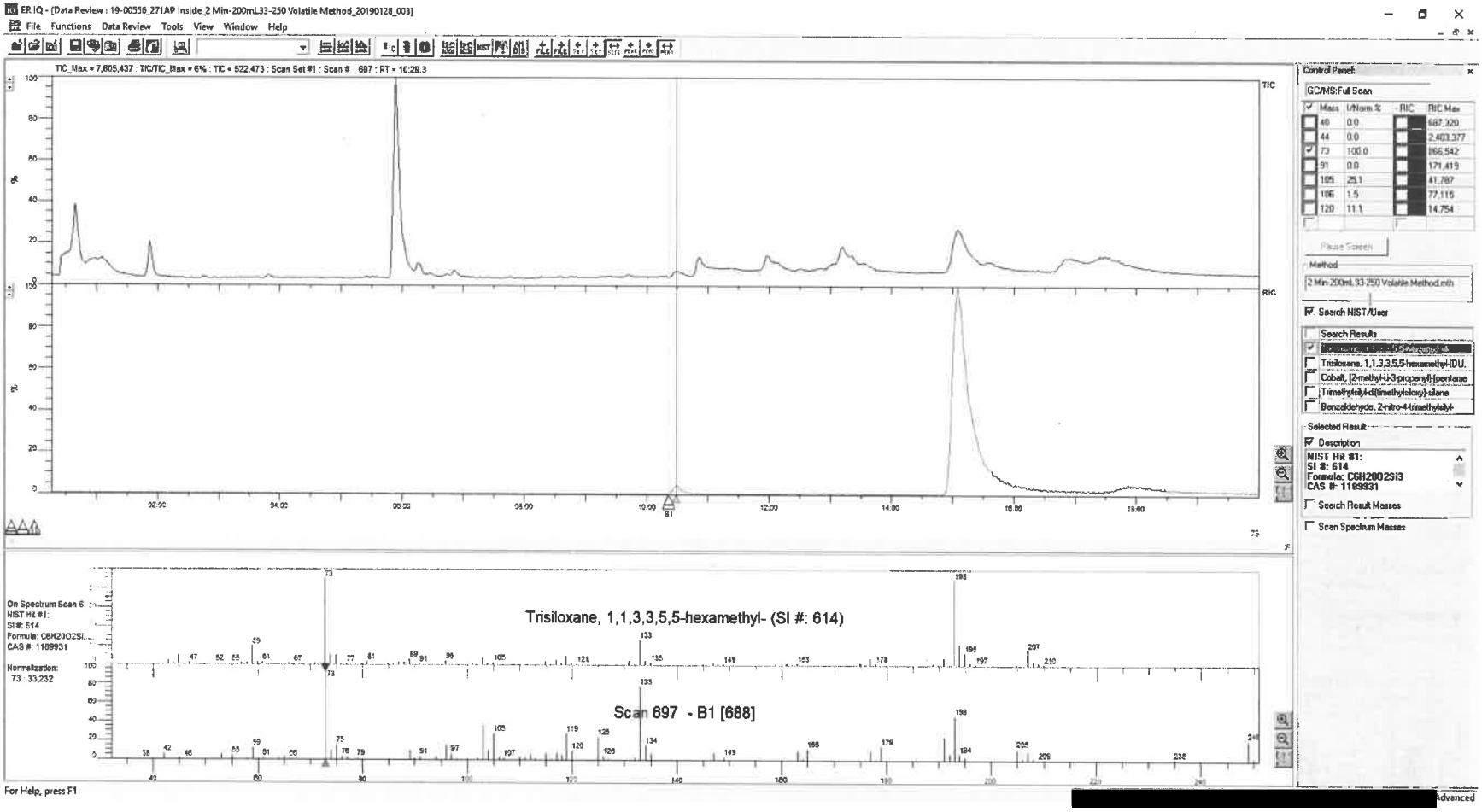
TIC
RIC
Control Panel
GC/MS:Full Scan
Mass
I/Norm %
RIC
RIC Max
40 0.0 687,320
44 0.0 2,403,377
91 100.0 171,419
106 51.0 77,115
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
4,6-Octadiyn-3-one, 2-methyl-
o-Xylene(DUP1)
Benzene, 1,3-dimethyl-
p-Xylene
Selected Result
Description
NIST Hit #1:
SI #: 782
Formula: C8H10
CAS #: 95476
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 4...
NIST Hit #1:
SI #: 782
Formula: C8H10
CAS #: 95476
Normalization:
91 : 99,828
o-Xylene (SI #: 782)
Scan 450 - B1 [440] - B2 [464]
For Help, press F1

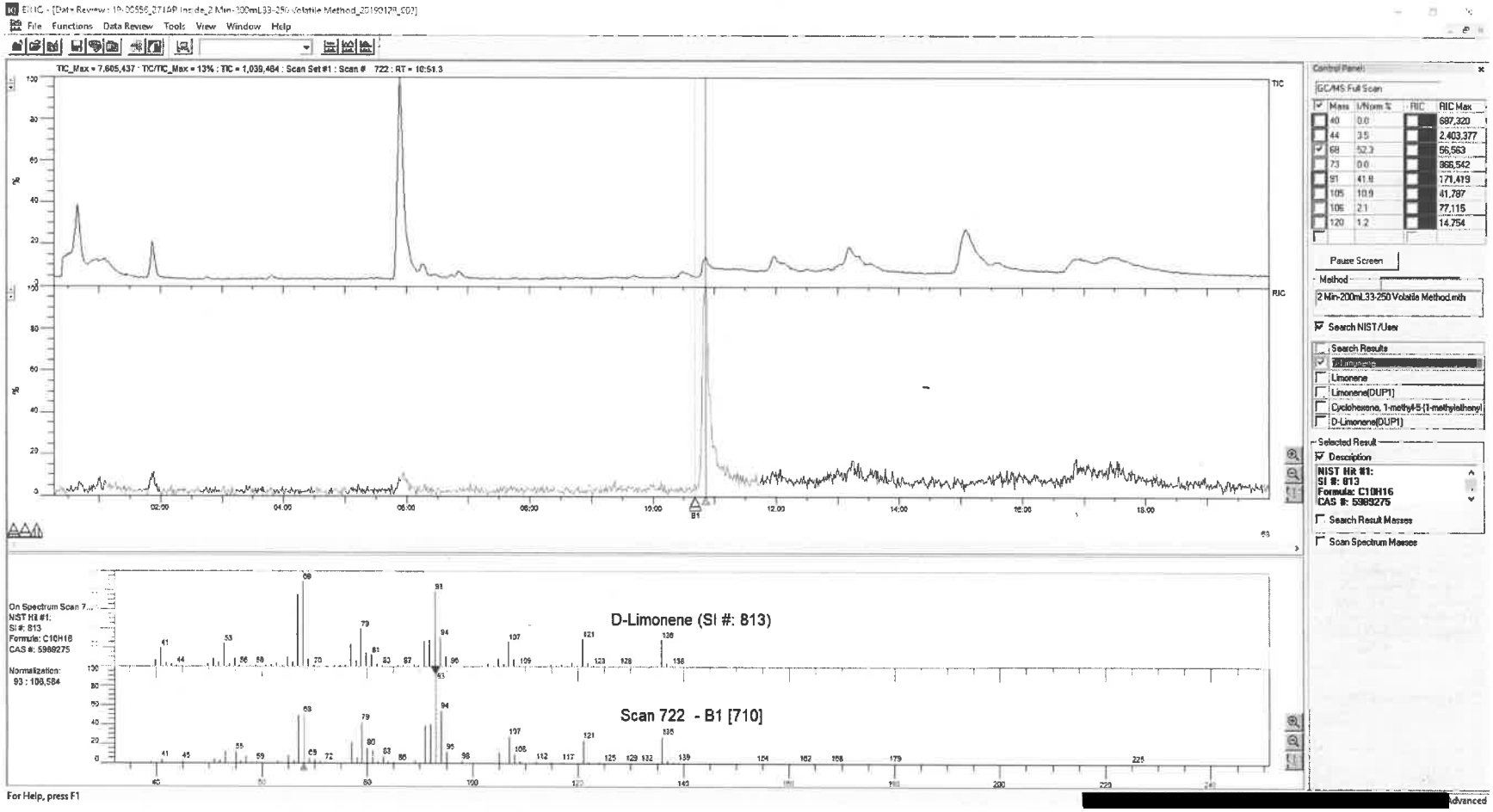
1, 2, 4-Trimethylbenzene



1, 1, 3, 3, 5, 5-Hexamethyltrisiloxane (Bag Plasticizer)



D-Limonene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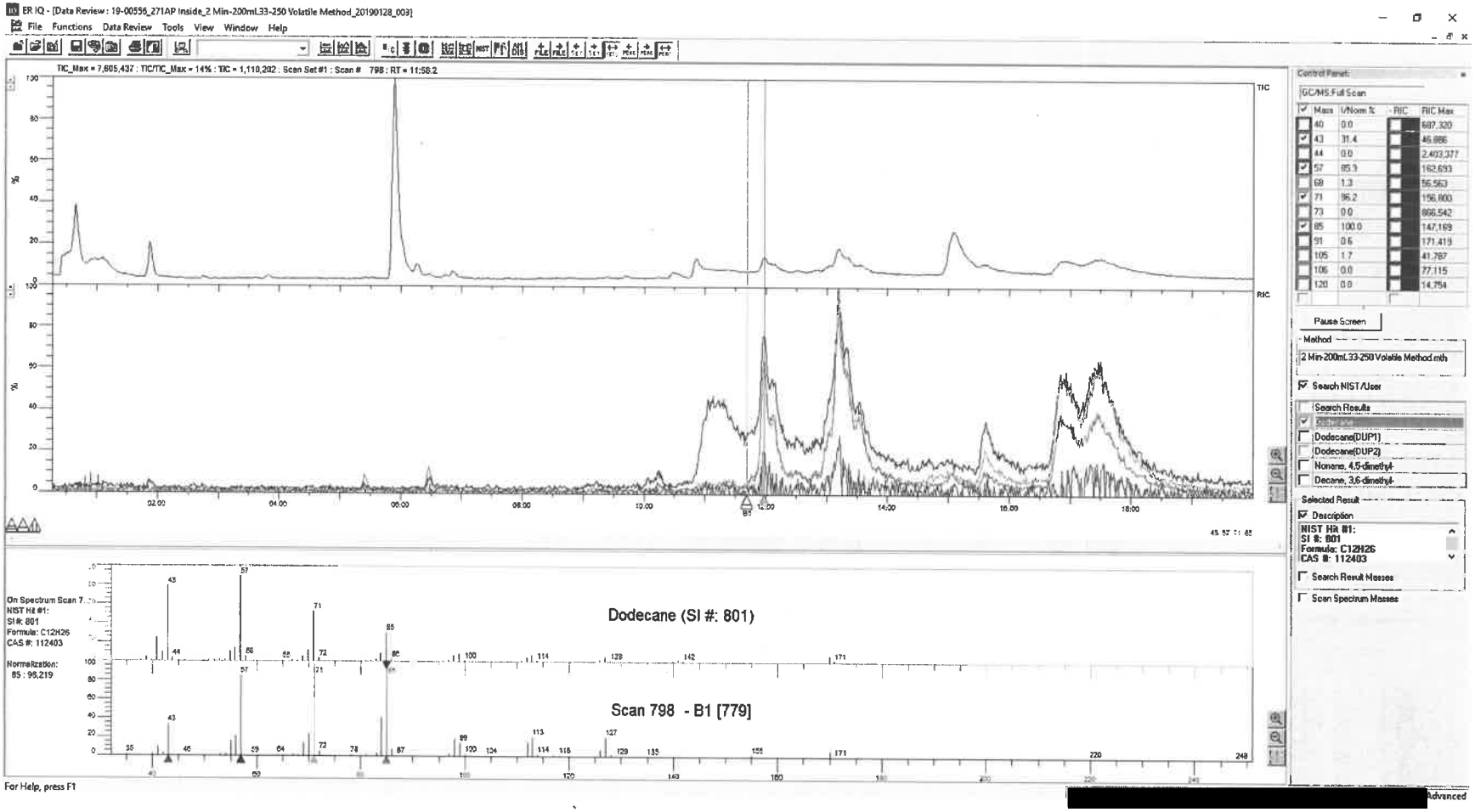
TIC
RIC
Control Panel
GC/MS Full Scan
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Limonene
Limonene(DUP1)
Cyclohexene, 1-methyl-5-(1-methylethenyl
D-Limonene(DUP1)
Selected Result
Description
NIST Hit #1:
SI #: 813
Formula: C10H16
CAS #: 5989275
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 7...
NIST Hit #1:
SI #: 813
Formula: C10H16
CAS #: 5989275
Normalization:
93 : 109,584
D-Limonene (SI #: 813)
Scan 722 - B1 [710]
For Help, press F1

Dodecane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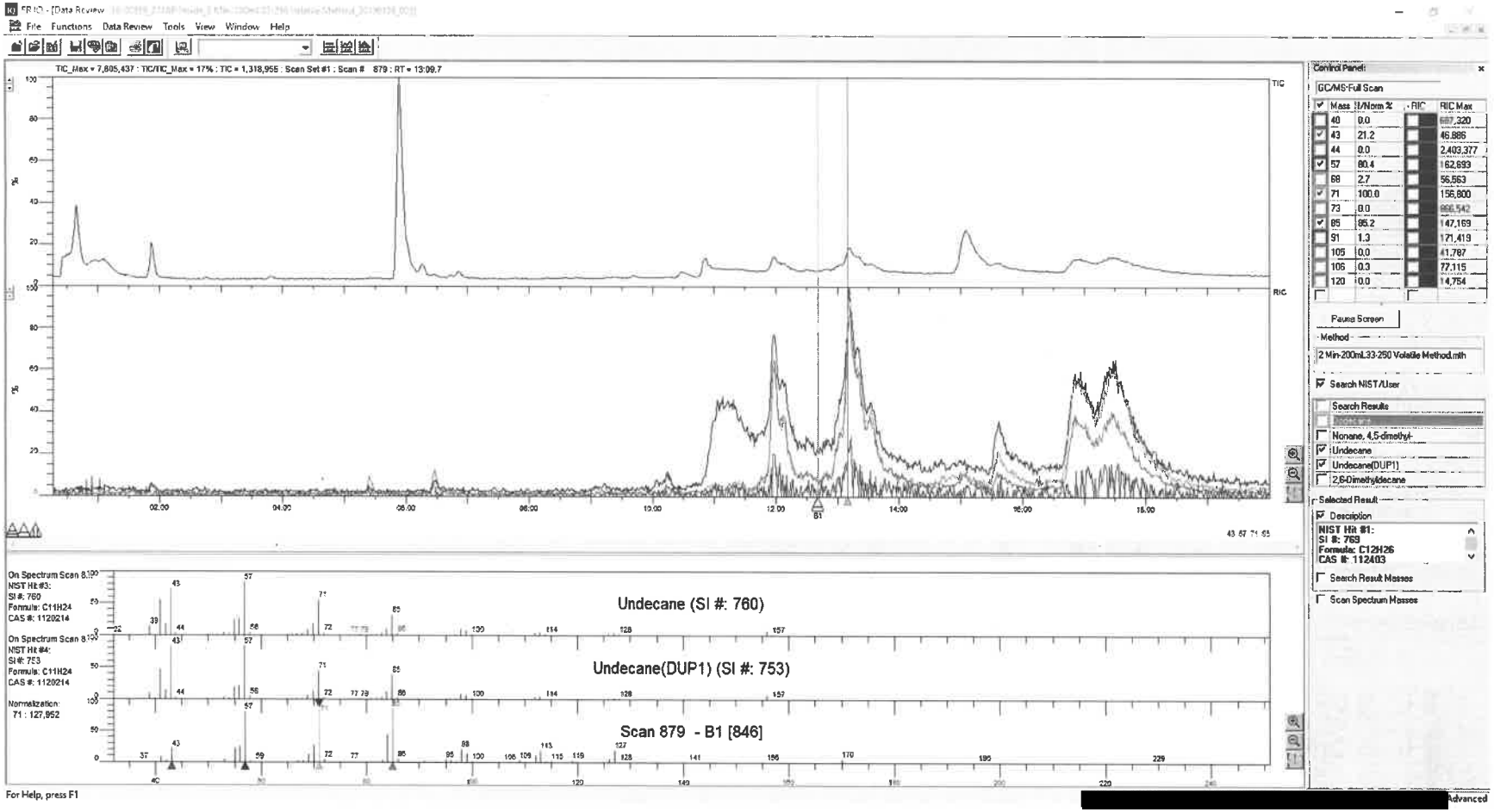
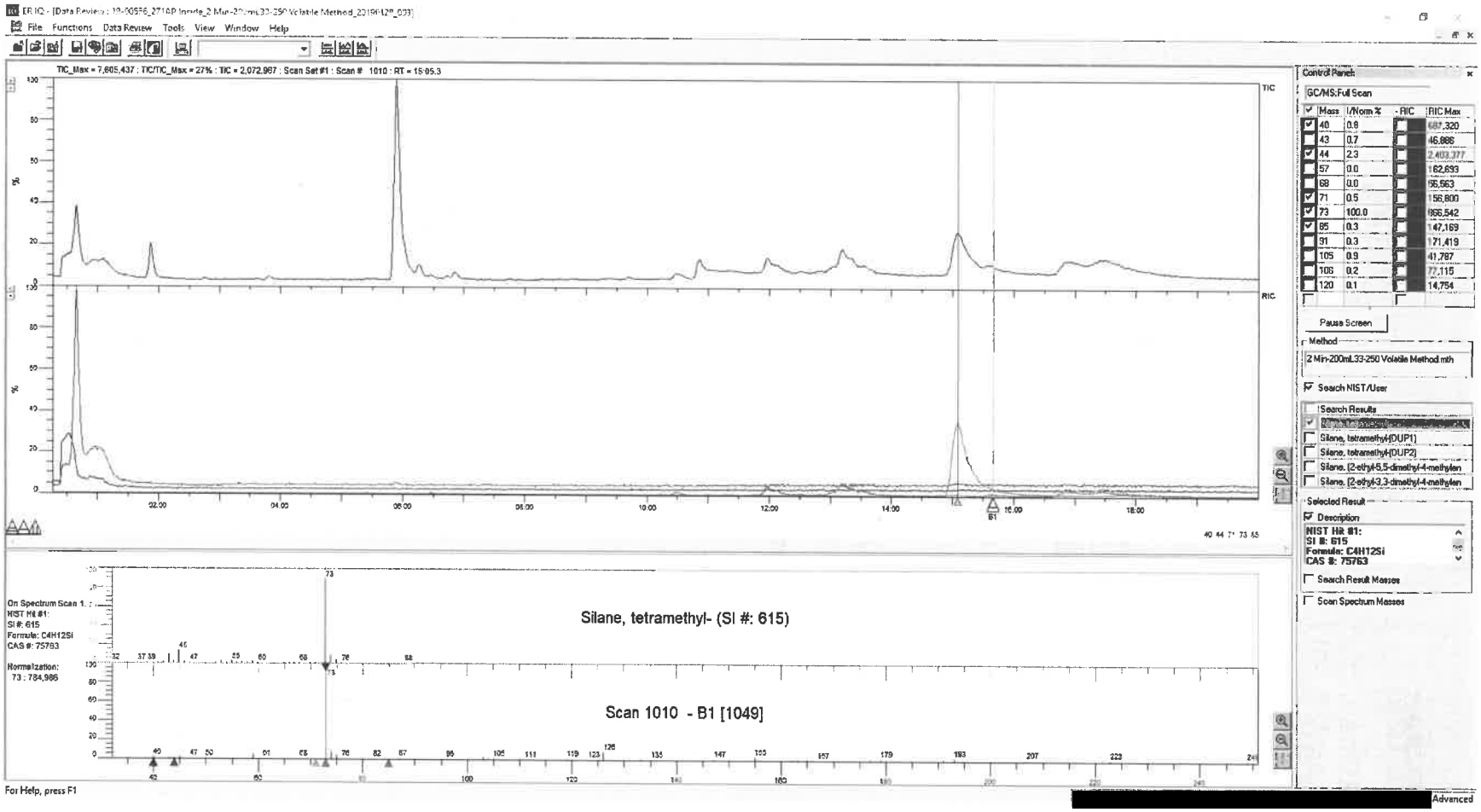
File Functions Data Review Tools View Window Help
TIC_Max = 7,605,437 : TIC/TIC_Max = 14% : TIC = 1,110,202 : Scan Set #1 : Scan # 798 : RT = 11:58.2
TIC
RIC
Control Panel:
GC/MS Full Scan
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Dodecane(DUP1)
Dodecane(DUP2)
Nonane, 4,5-dimethyl-
Decane, 3,6-dimethyl-
Selected Result
Description
NIST Hit #1:
SI #: 801
Formula: C12H26
CAS #: 112403
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 7...
NIST Hit #1:
SI #: 801
Formula: C12H26
CAS #: 112403
Normalization:
85 : 95.219
Dodecane (SI #: 801)
Scan 798 - B1 [779]
For Help, press F1
Advanced

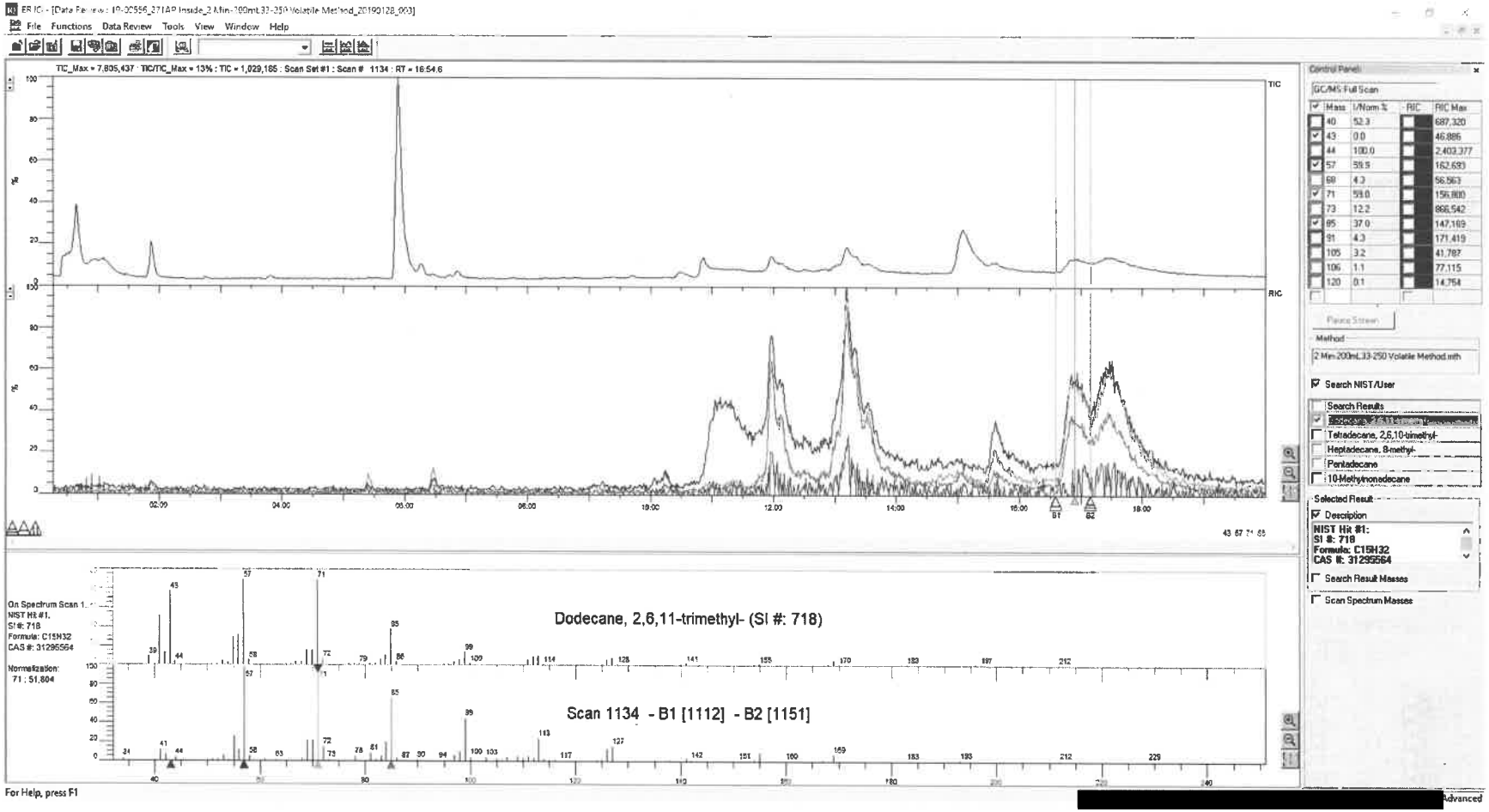
Undecane


File Functions Data Review Tools View Window Help
TIC_Max = 7,805,437 : TIC/TIC_Max = 17% : TIC = 1,318,955 : Scan Set #1 : Scan # 879 : RT = 13:09.7
TIC
RIC
Control Panel:
GC/MS-Full Scan
Mass
I/Norm %
RIC
RIC Max
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Nonane, 4,5-dimethyl-
Undecane
Undecane(DUP1)
2,6-Dimethyldecane
Selected Result
Description
NIST Hit #1:
SI #: 769
Formula: C12H26
CAS #: 112403
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 8
NIST Hit #3:
SI #: 760
Formula: C11H24
CAS #: 1120214
Undecane (SI #: 760)
On Spectrum Scan 8
NIST Hit #4:
SI #: 753
Formula: C11H24
CAS #: 1120214
Undecane(DUP1) (SI #: 753)
Normalization:
71 : 127,952
Scan 879 - B1 [846]
For Help, press F1
Advanced

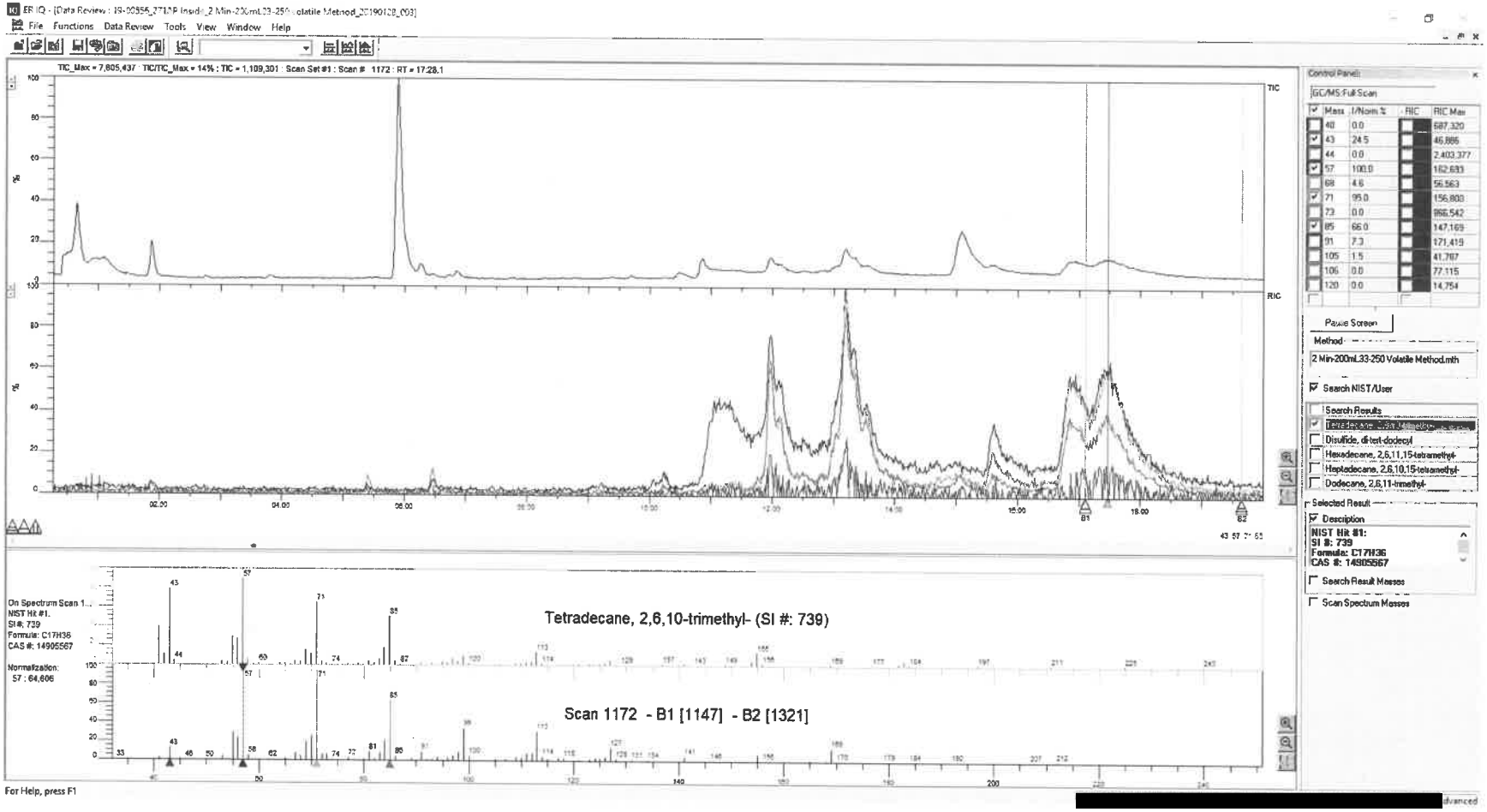
Tetramethylsilane (Bag Plasticizer)



Aliphatic Hydrocarbons



Aliphatic Hydrocarbons (continued)



Survey 19-00550

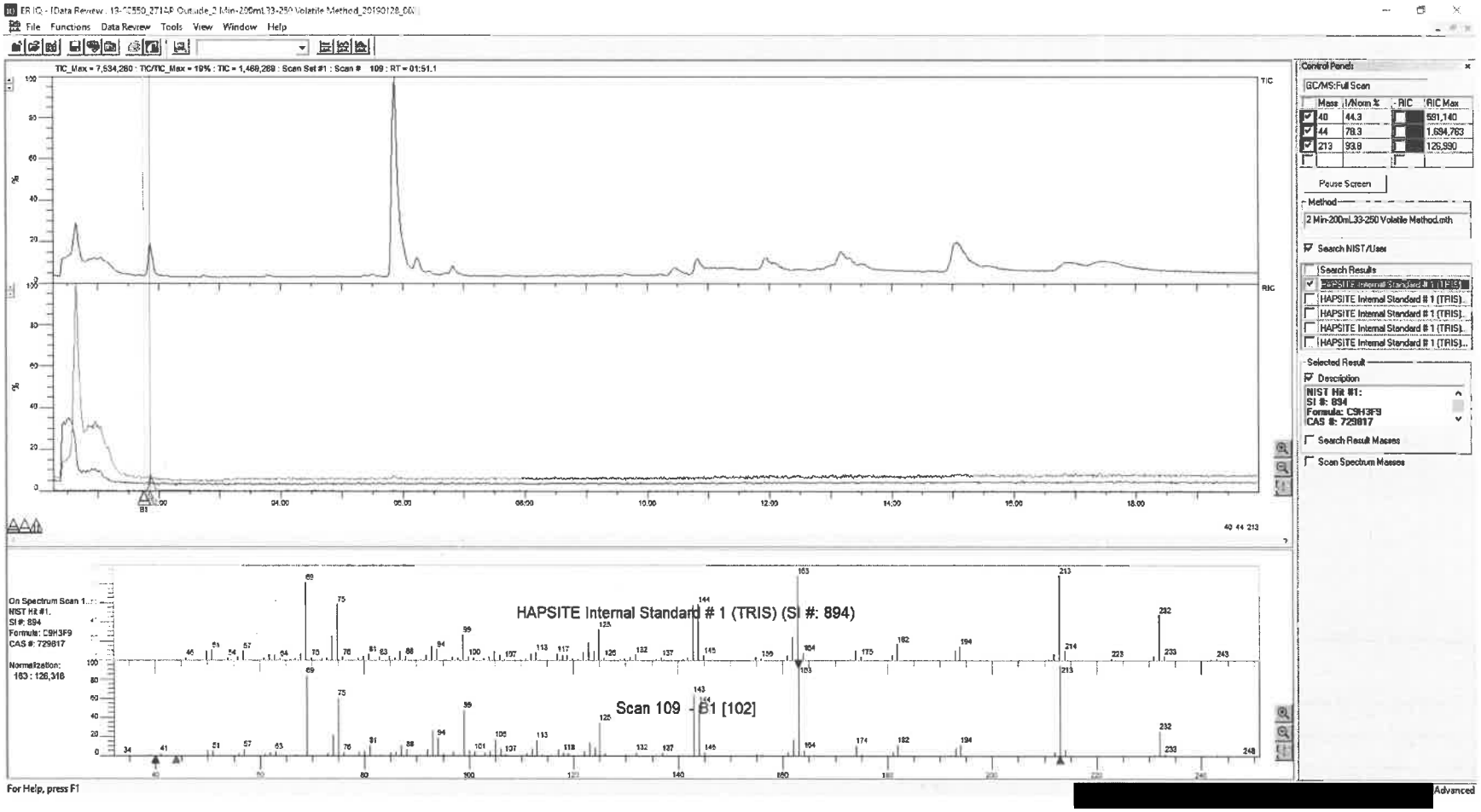
Compounds identified in Bag Sample Collected Outside 271 AP Survey 19-00550

Compound	COPC	Estimated Sample Concentration (ppb)	Typical Sample Bag Concentration (ppb)	Net Concentration (ppb
Methyl methacrylate	No	< 10	< 10	Not found
Toluene + Xylenes	No	20	20	Not Found
D-Limonene	No	10	<5	10
Aliphatic Hycrocarbons, C11 – C16	Yes	75	100	Not Found

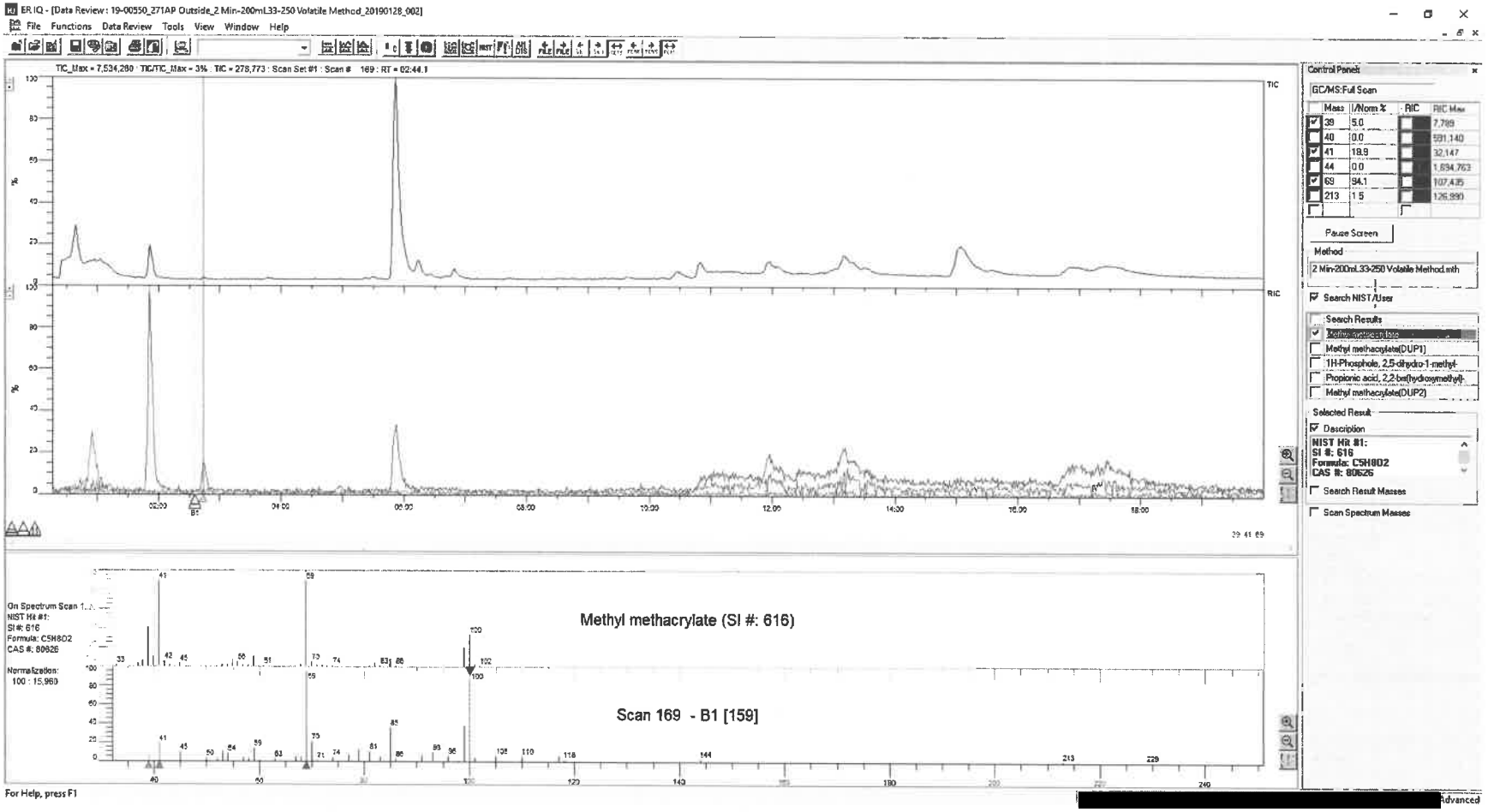
[redacted]

2-12-19

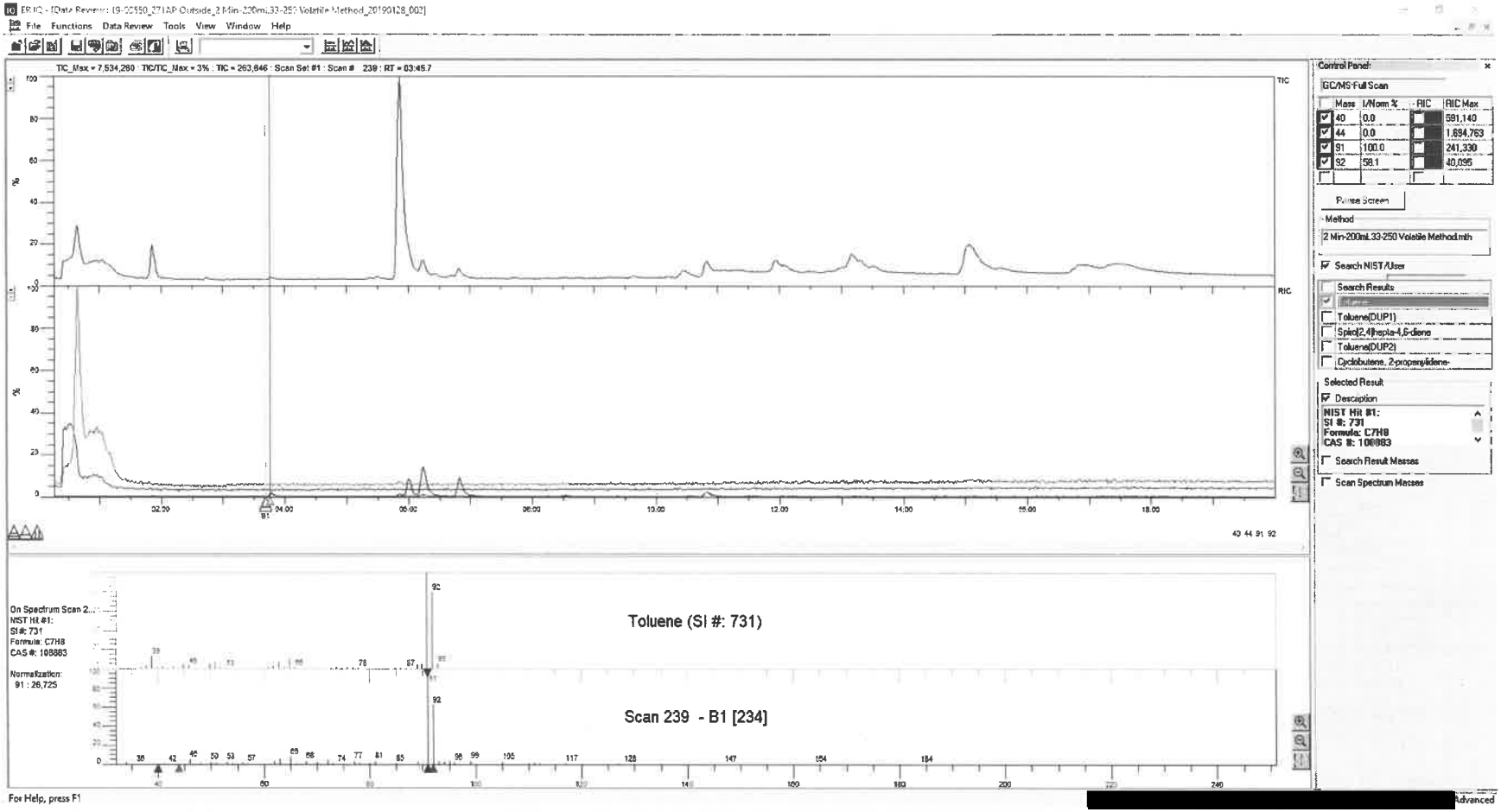
HAPSITE Internal Standard 1#



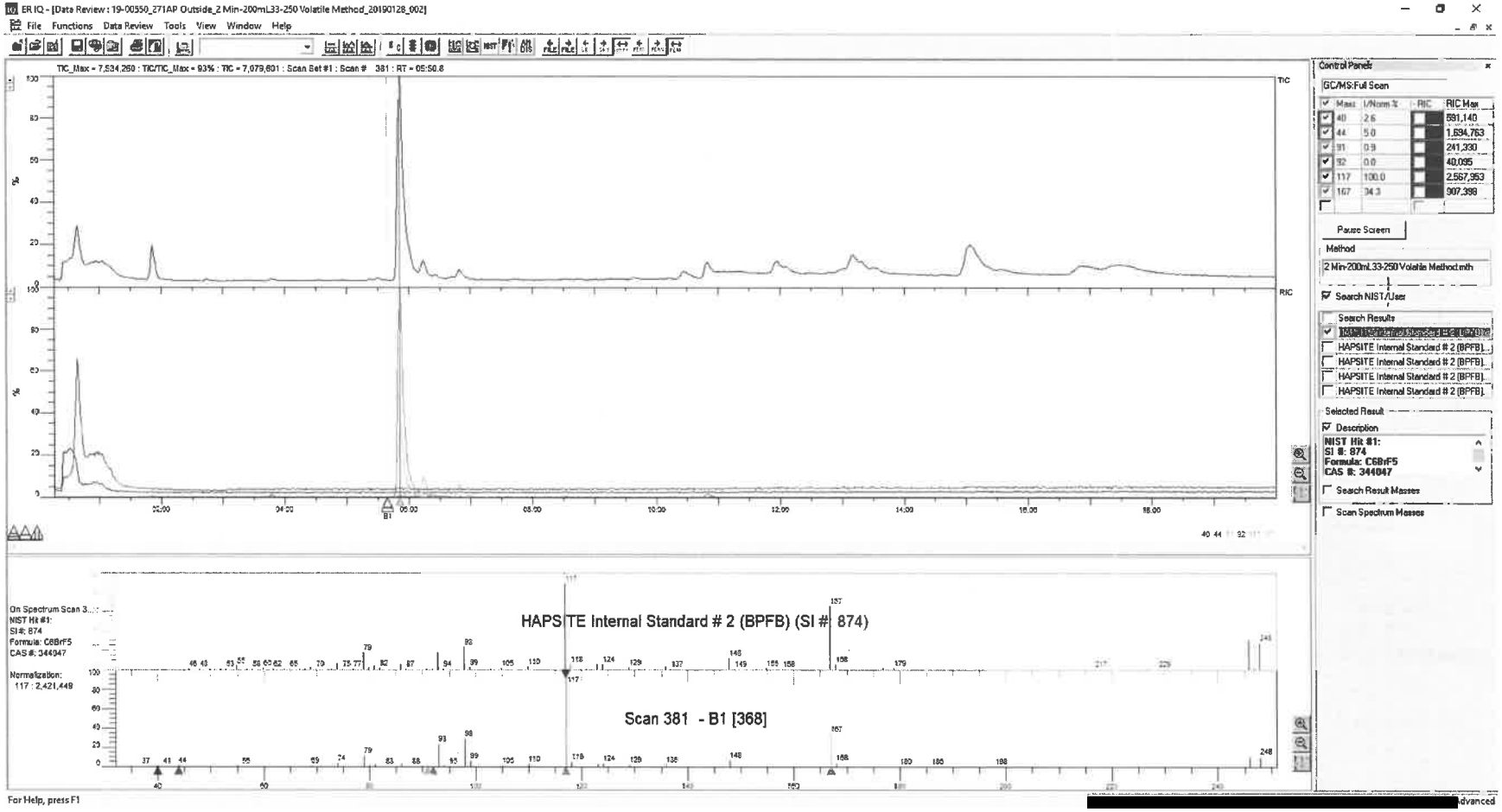
Methyl Methacrylate



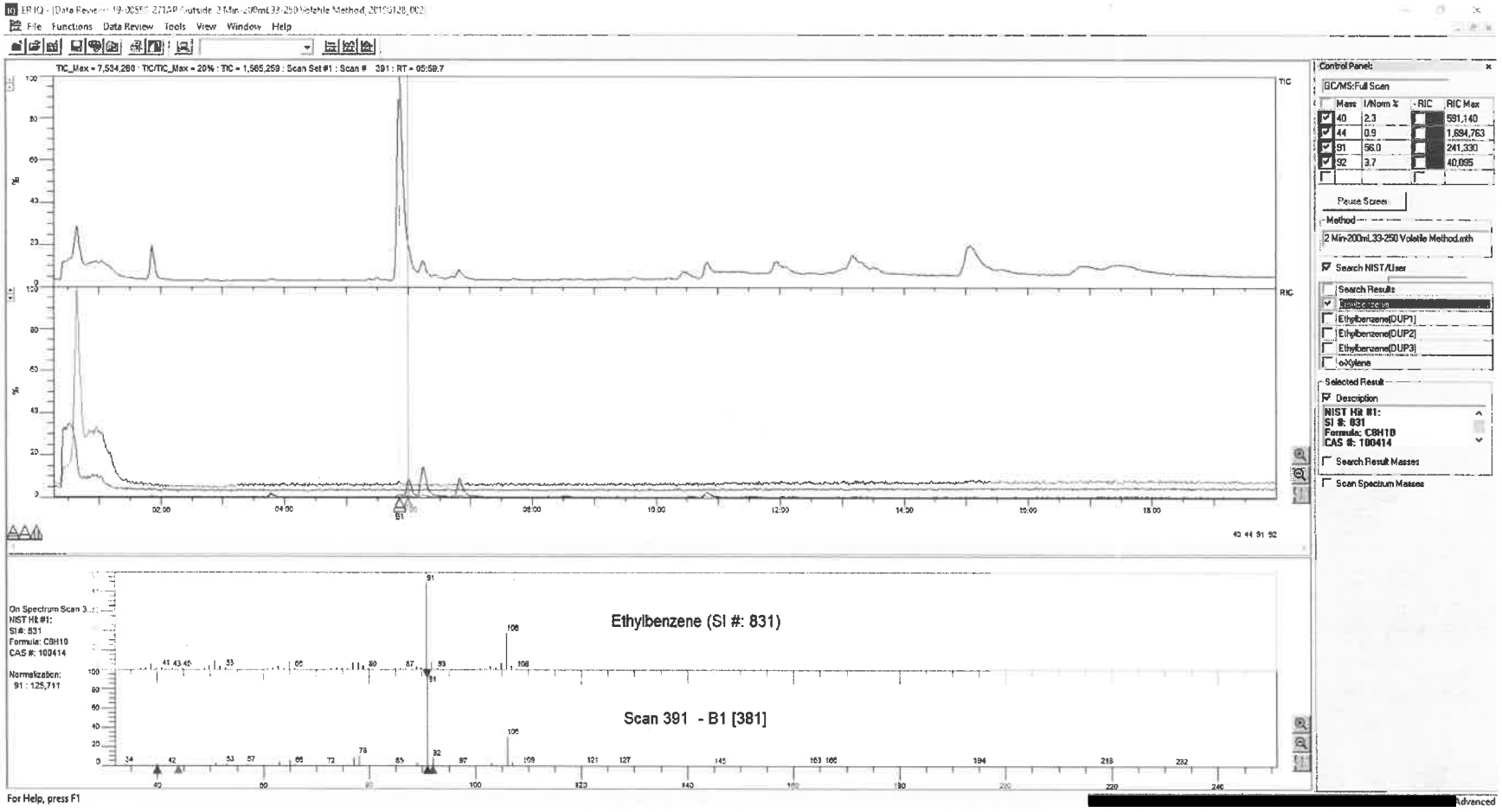
Toluene


TIC_Max = 7,534,260 : TIC/TIC_Max = 3% : TIC = 263,846 : Scan Set #1 : Scan # 239 : RT = 03:45.7
TIC
RIC
Control Panel:
GC/MS Full Scan
Mass
I/Norm %
RIC
RIC Max
40 0.0 591,140
44 0.0 1,694,763
91 100.0 241,330
92 58.1 40,095
Print Screen
Method
2 Min-200mL 33-250 Volatile Method.mth
Search NIST/User
Search Results
Toluene(DUP1)
Spiro[2.4]hepta-4,6-diene
Toluene(DUP2)
Cyclobutene, 2-propenylidene-
Selected Result
Description
NIST Hit #1:
SI #: 731
Formula: C7H8
CAS #: 108883
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 2...
NIST Hit #1:
SI #: 731
Formula: C7H8
CAS #: 108883
Normalization:
91 : 26,725
Toluene (SI #: 731)
Scan 239 - B1 [234]
For Help, press F1
Advanced

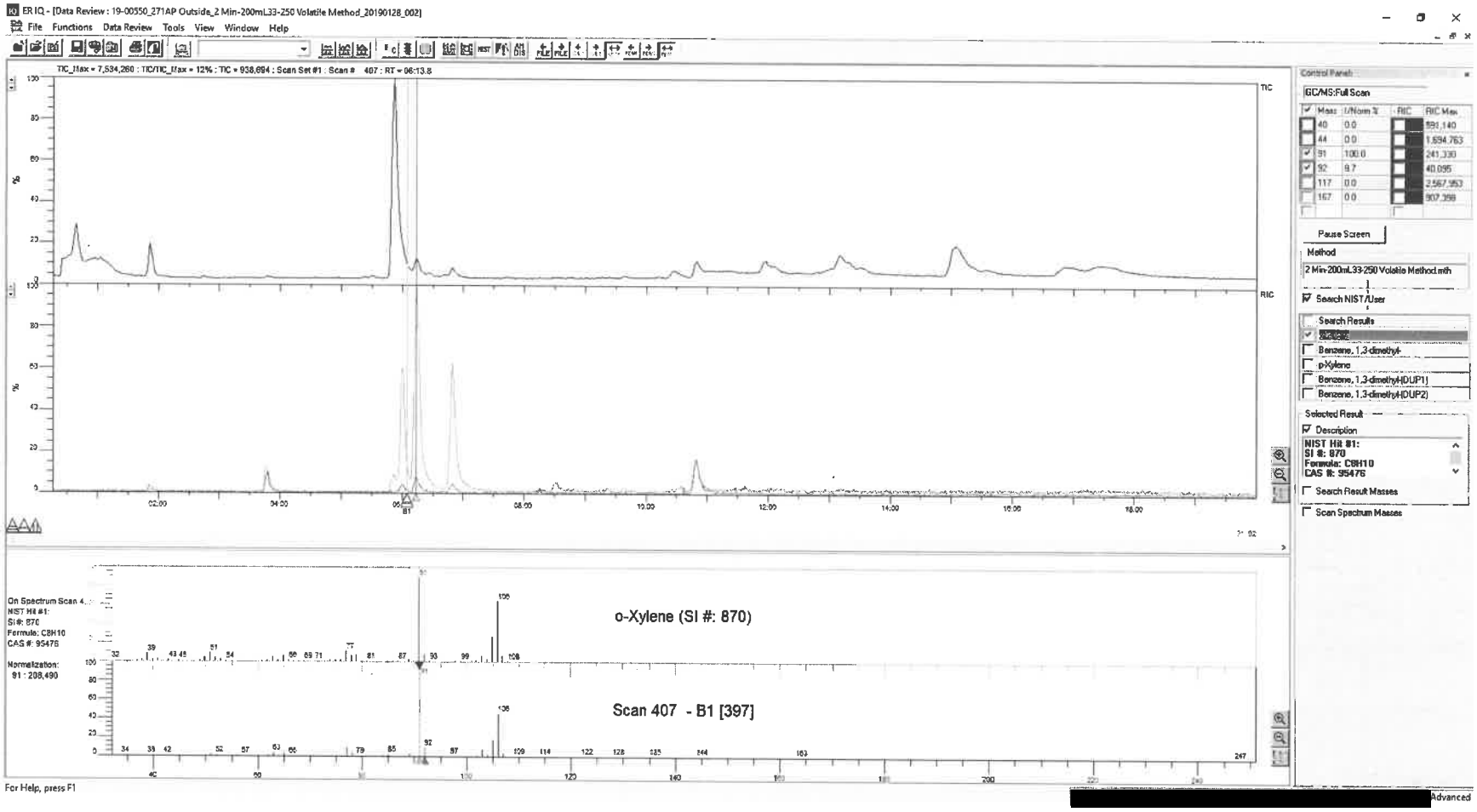
HAPSITE Internal Standard #2



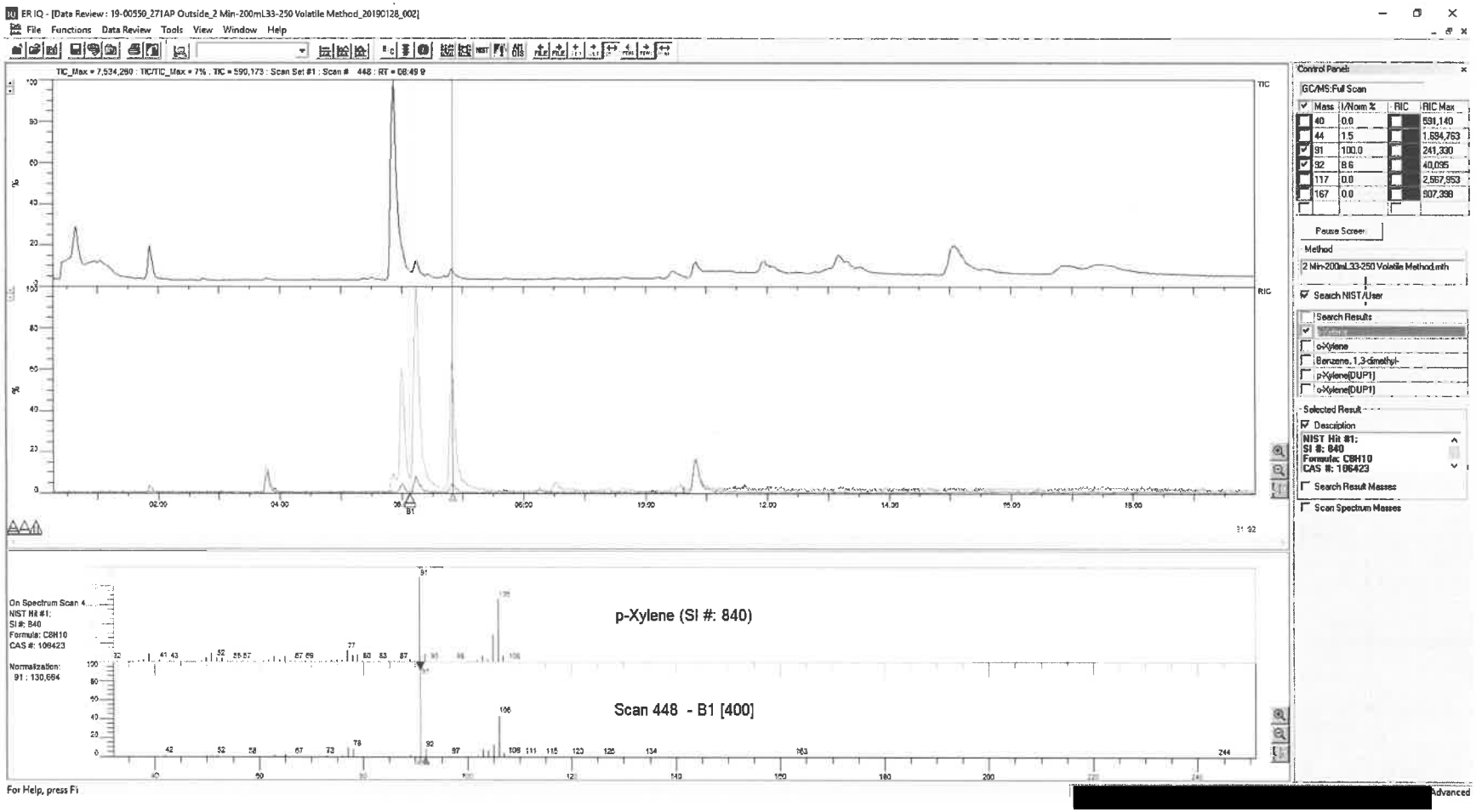
Ethylbenzene



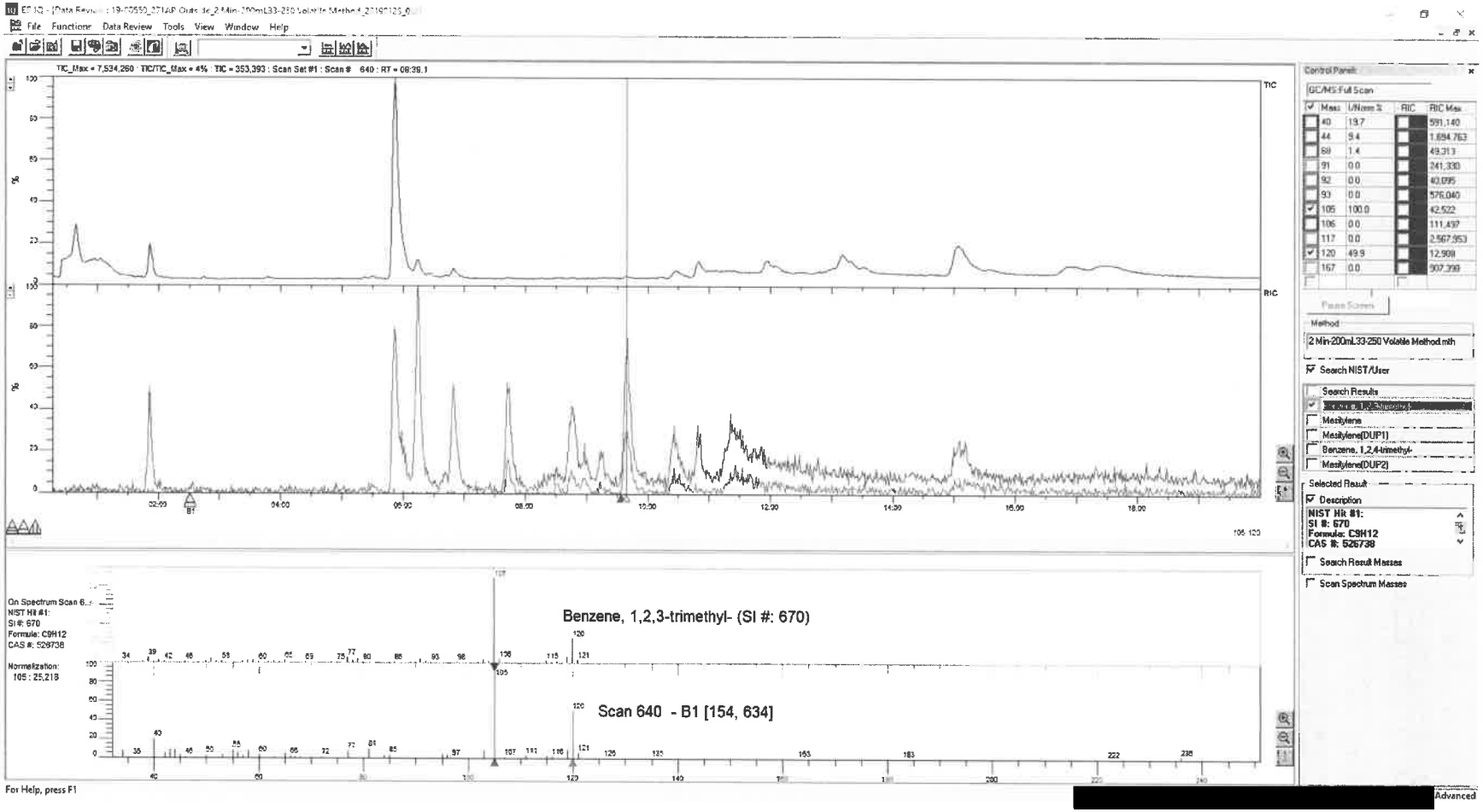
o-Xylene


ER IQ - [Data Review : 19-00550_271AP Outside_2 Min-200mL33-250 Volatile Method_20190128_002]
File Functions Data Review Tools View Window Help
TIC_Max = 7,534,260 : TIC/TIC_Max = 12% : TIC = 938,694 : Scan Set #1 : Scan # 407 : RT = 06:13.8
TIC
RIC
Control Panel
GC/MS:Full Scan
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Benzene, 1,3-dimethyl-
p-Xylene
Benzene, 1,3-dimethyl(DUP1)
Benzene, 1,3-dimethyl(DUP2)
Selected Result
Description
NIST Hit #1:
SI #: 870
Formula: C8H10
CAS #: 95476
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 4...
NIST Hit #1:
SI #: 870
Formula: C8H10
CAS #: 95476
Normalization:
91 : 208,490
o-Xylene (SI #: 870)
Scan 407 - B1 [397]
For Help, press F1
Advanced

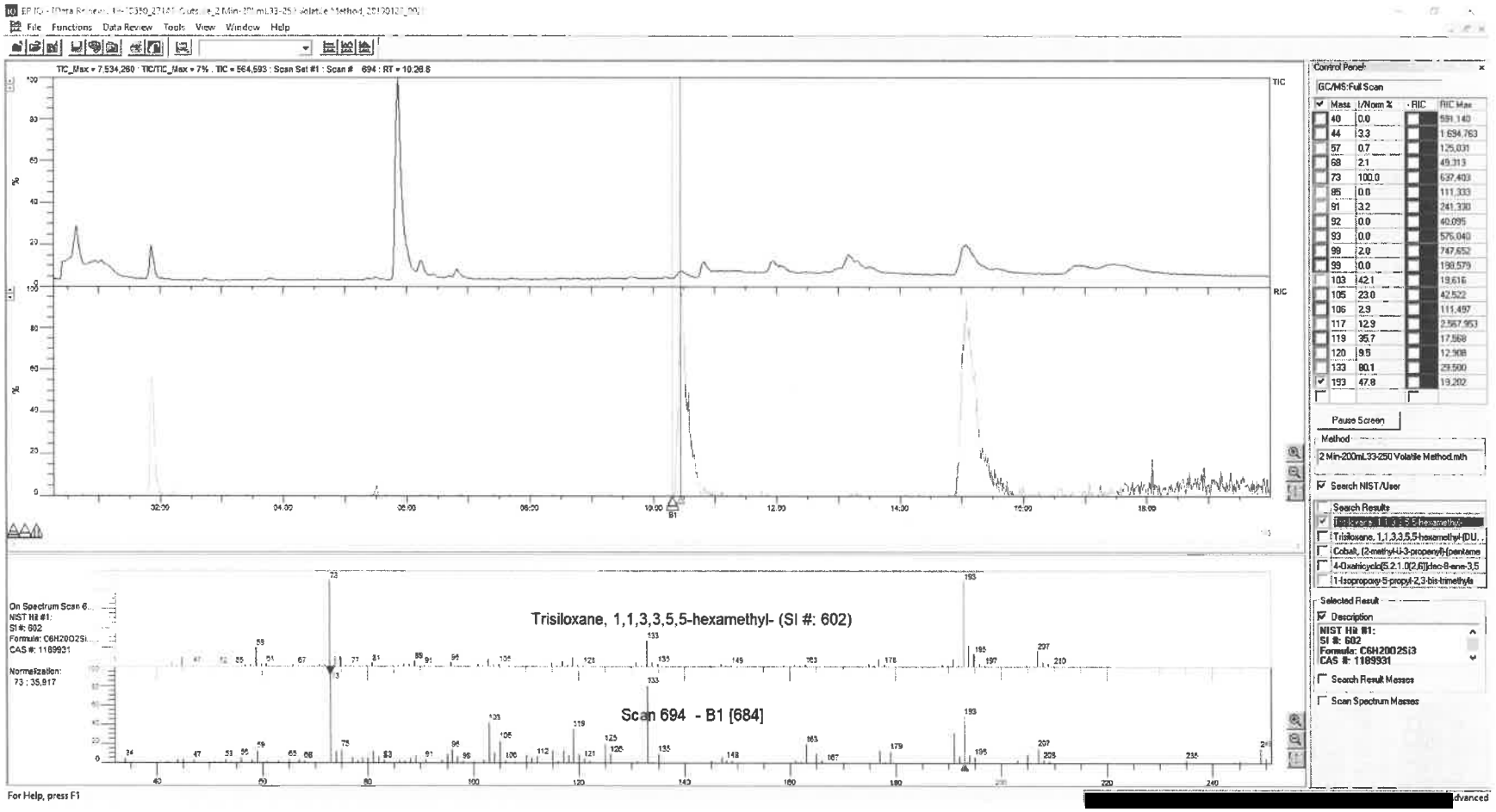
p-Xylene


ER IQ - [Data Review : 19-00550_271AP Outside_2 Min-200mL33-250 Volatile Method_20190128_002]
File Functions Data Review Tools View Window Help
TIC_Max = 7,534,290 : TIC/TIC_Max = 7% : TIC = 590,173 : Scan Set #1 : Scan # 448 : RT = 08:49.9
TIC
RIC
Control Panel
GC/MS:Full Scan
Mass I/Norm % RIC RIC Max
40 0.0 591,140
44 1.5 1,694,763
91 100.0 241,330
92 8.6 40,095
117 0.0 2,567,953
167 0.0 907,398
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
o-Xylene
Benzene, 1,3-dimethyl-
p-Xylene(DUP1)
o-Xylene(DUP1)
Selected Result
Description
NIST Hit #1:
SI #: 840
Formula: C8H10
CAS #: 106423
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 4...
NIST Hit #1:
SI #: 840
Formula: C8H10
CAS #: 106423
Normalization:
91 : 130,664
p-Xylene (SI #: 840)
Scan 448 - B1 [400]
For Help, press F1
Advanced

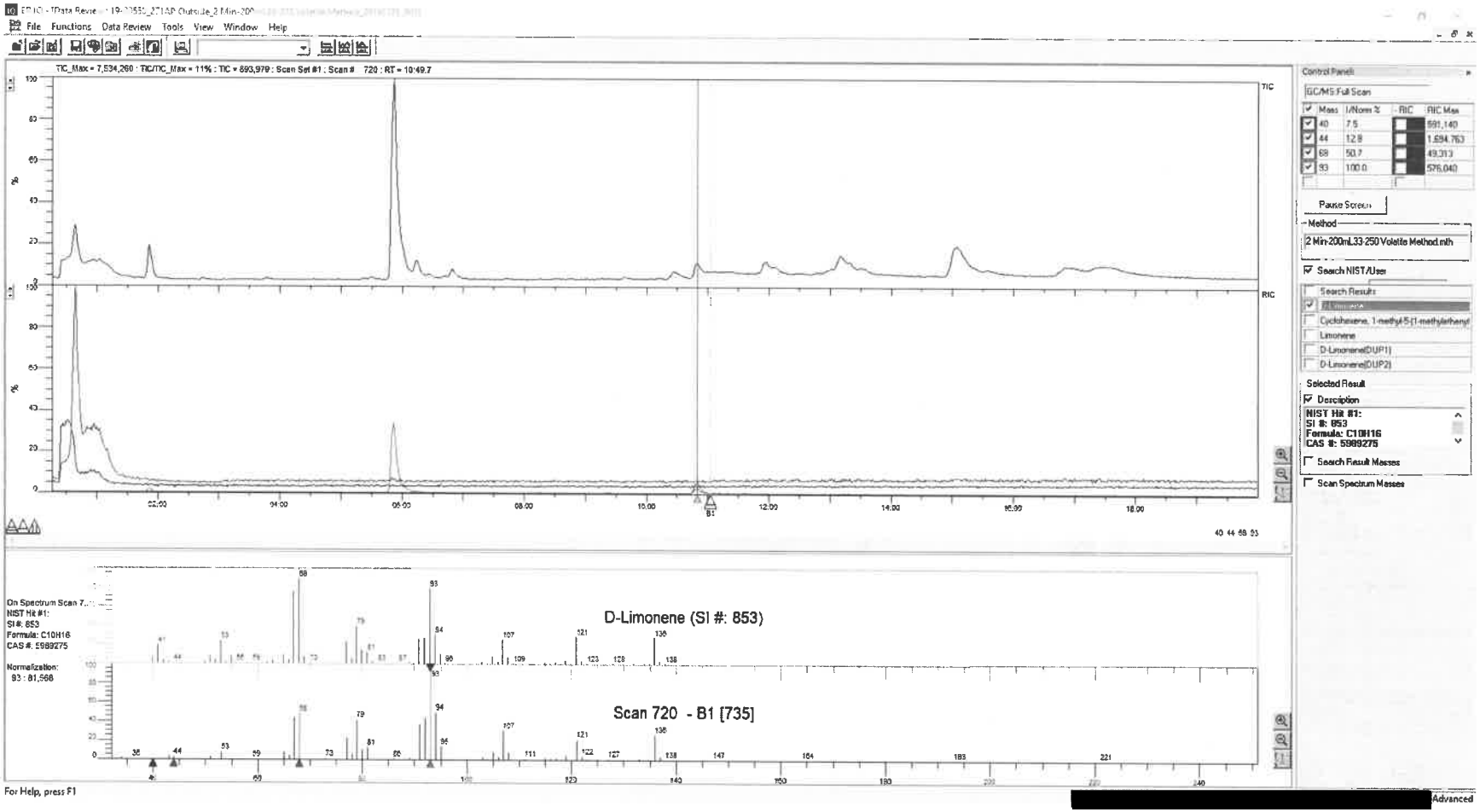
1, 2, 3-Trimethylbenzene



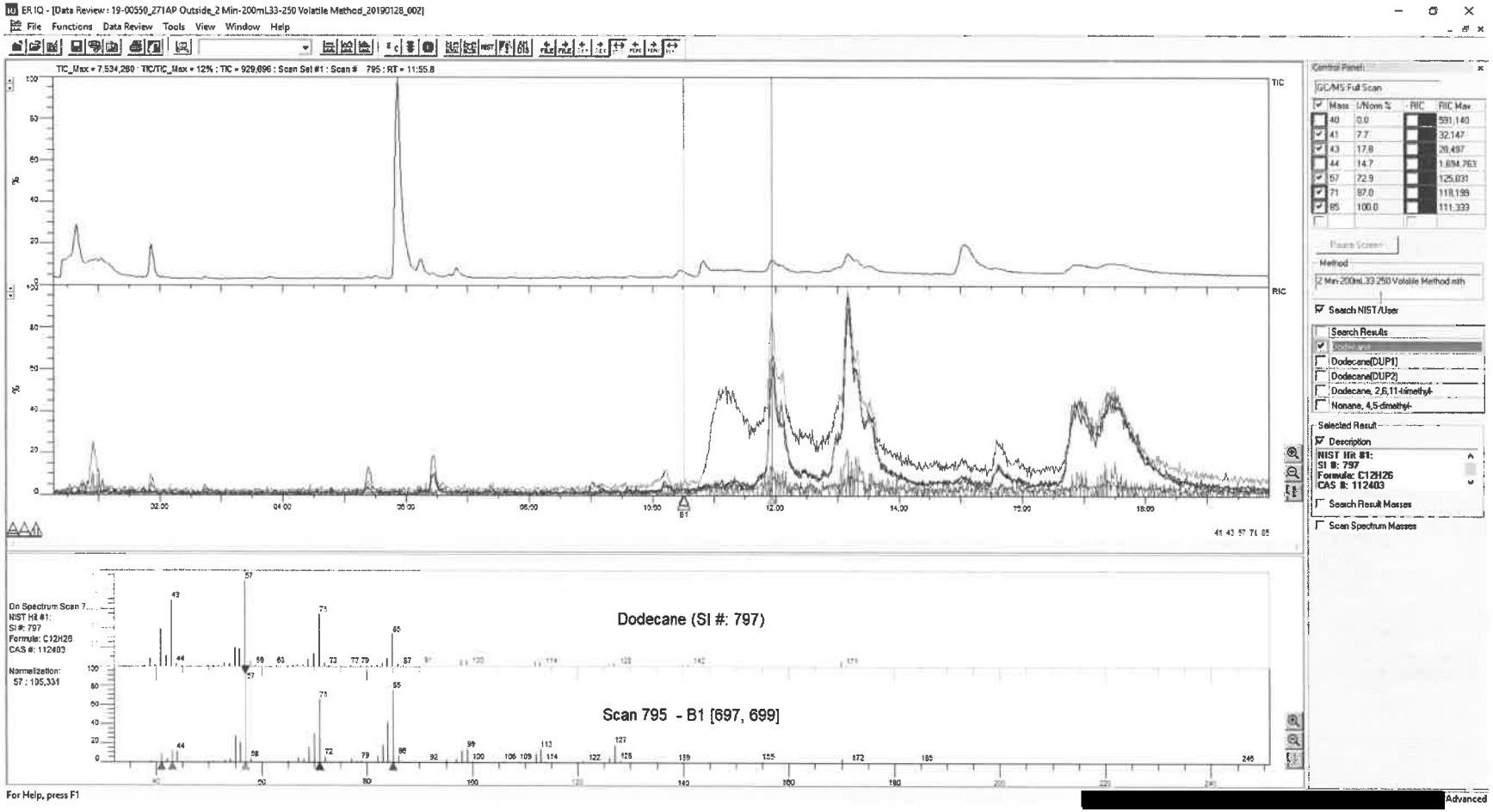
1, 1, 3, 3, 5, 5-Hexamethyltrisiloxane (Bag Plasticizer)



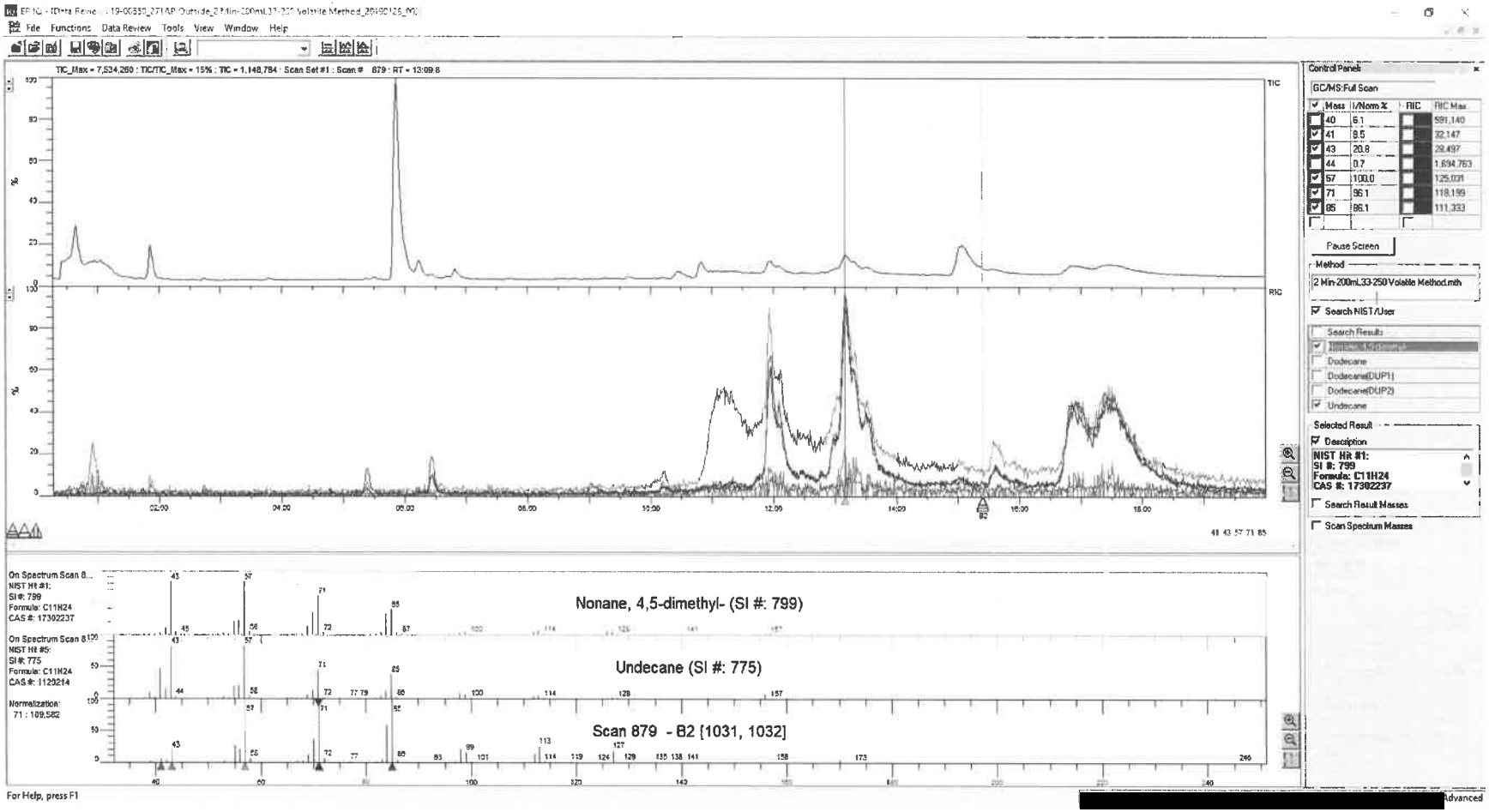
D-Limonene


File Functions Data Review Tools View Window Help
TIC_Max = 7,534,260 : TIC/TIC_Max = 11% : TIC = 893,979 : Scan Set #1 : Scan # 720 : RT = 10:49.7
TIC
RIC
Control Panel
GC/MS Full Scan
Mass I/Norm % RIC RIC Max
40 7.5 591,140
44 12.8 1,694,763
68 50.7 49,013
93 100.0 576,040
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Cyclohexene, 1-methyl-5-(1-methylethenyl
Limonene
D-Limonene(DUP1)
D-Limonene(DUP2)
Selected Result
Description
NIST Hit #1:
SI #: 853
Formula: C10H16
CAS #: 5989275
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 7...
NIST Hit #1:
SI #: 853
Formula: C10H16
CAS #: 5989275
Normalization:
93 : 81,568
D-Limonene (SI #: 853)
Scan 720 - B1 [735]
For Help, press F1
Advanced

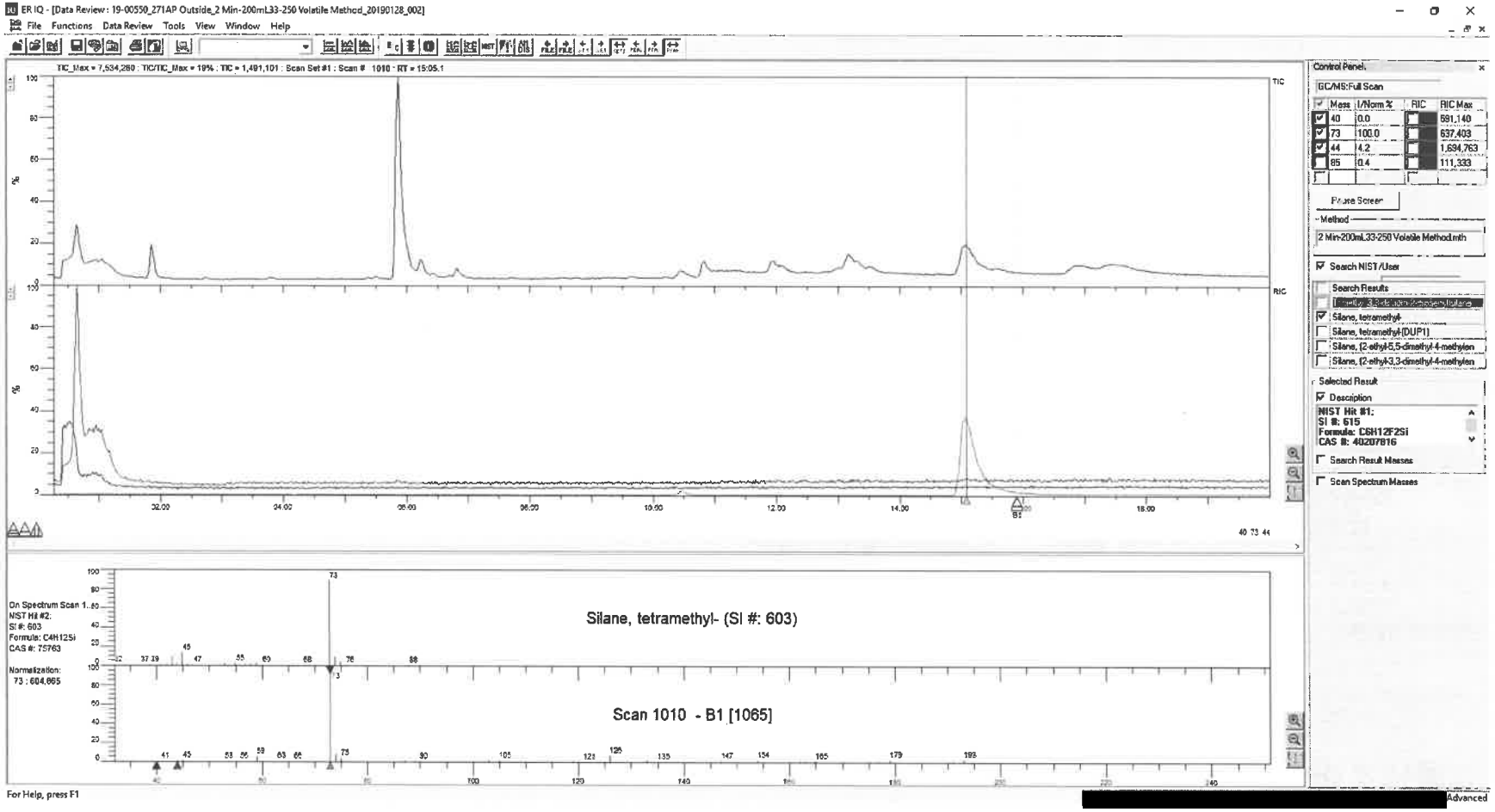
Dodecane


ER IQ - [Data Review : 19-00550_271AP Outside_2 Min-200mL33-250 Volatile Method_20190128_002]
File Functions Data Review Tools View Window Help
TIC_Max = 7,534,280 : TIC/TIC_Max = 12% : TIC = 929,696 : Scan Set #1 : Scan # 795 : RT = 11:55.8
TIC
RIC
Dodecane (SI #: 797)
Scan 795 - B1 [697, 699]
On Spectrum Scan 7...
NIST Hit #1:
SI #: 797
Formula: C12H26
CAS #: 112403
Normalization:
57 : 105,331
Control Panel
GC/MS Full Scan
Search NIST/User
Search Results
Dodecane(DUP1)
Dodecane(DUP2)
Dodecane, 2,6,11-trimethyl-
Nonane, 4,5-dimethyl-
Selected Result
Description
NIST Hit #1:
SI #: 797
Formula: C12H26
CAS #: 112403
Search Result Masses
Scan Spectrum Masses
For Help, press F1
Advanced

Undecane


File Functions Data Review Tools View Window Help
TIC_Max = 7,534,260 : TIC/TIC_Max = 15% : TIC = 1,148,784 : Scan Set #1 : Scan # 879 : RT = 13:09.8
TIC
RIC
Control Panel
GC/MS:Full Scan
Mass I/Norm % RIC RIC Max
40 6.1 591,140
41 8.5 32,147
43 20.8 29,497
44 0.7 1,694,763
57 100.0 125,031
71 96.1 118,199
85 86.1 111,333
Pause Screen
Method
2 Min-200mL33-250 Volatile Method.mth
Search NIST/User
Search Results
Dodecane
Dodecane(DUP1)
Dodecane(DUP2)
Undecane
Selected Result
Description
NIST Hit #1:
SI #: 799
Formula: C11H24
CAS #: 17302237
Search Result Masses
Scan Spectrum Masses
On Spectrum Scan 8...
NIST Hit #1:
SI #: 799
Formula: C11H24
CAS #: 17302237
Nonane, 4,5-dimethyl- (SI #: 799)
On Spectrum Scan 8...
NIST Hit #5:
SI #: 775
Formula: C11H24
CAS #: 1120214
Undecane (SI #: 775)
Normalization:
71 : 109,582
Scan 879 - B2 [1031, 1032]
For Help, press F1
Advanced

Tetramethylsilane (Bag Plasticizer)



Heptadecane (or other aliphatic hydrocarbon)