Monthly Progress Report No. 20 June 2011/July 2011
Submitted July 15, 2011
San Jacinto River Waste Pits Superfund Site
USEPA Region 6, CERCLA Docket No. 06-03-10 UAO for RIFS
Channelview, Texas

The Unilateral Administrative Order (UAO) for the Remedial Investigation/Feasibility Study (RI/FS) at the San Jacinto River Waste Pits Superfund Site (Site) in Channelview, Texas (USEPA Region 6, CERCLA Docket No. 06-03-10 UAO for RI/FS) was issued on November 20, 2009. The Respondents include International Paper Company (IP) and McGinnes Industrial Maintenance Corporation (MIMC).

A. Summary of Work Performed –June 2011/July 2011

The Respondents, Anchor QEA, and Integral Consulting, completed work on the following tasks:

- Submitted Monthly Progress Report No. 19 to USEPA on June 15, 2011.
- Continued preparing Field Sampling Reports (FSRs) for sediment, soil, tissue, and groundwater field studies.
- Continued preparing the Draft Preliminary Site Characterization Report.
- Continued preparing a Draft Treatability Study literature review for dioxin contaminated soils and sediments.
- Continued implementation of Fate and Transport Field Sampling Plans (FSPs), including the collection of upstream sediment load, and current velocity data.
- Continued analysis of fate and transport field and modeling data.
- Completed monitoring well plugging for two remaining well clusters, following approval by USEPA on June 2, 2011.
- On behalf of International Paper, provided an Excel spreadsheet of south impoundment soil chemistry results, with analysis tools incorporated, as requested by TCEQ, to USEPA on June 20, 2011.

B. Summary of Agency Communications

The written communications between Respondents and USEPA subsequent to the issuance of the UAO are summarized in the attached Table 1.

C. Summary of Sampling Results

The raw data for this reporting period are included on DVDs. Table 2 provides a listing of the files included.

ANCHOR QEA

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D. Problems, Delays, and Solutions

None for this reporting period.

E. Projected Work for Next 2 Reporting Periods – July 2011/August 2011

The Respondents, Anchor QEA, and Integral Consulting, expect to conduct the following tasks during the remainder of the month of July 2011 and during August 2011:

- Continue implementation of the Upstream Sediment Load and Current Velocity Field Sampling Plans.
- Perform data analyses and other activities in preparation for upcoming project deliverables, including the Draft Preliminary Site Characterization Report and the Draft Fate and Transport Modeling Report.
- Continue to participate in and support USEPA on community awareness and outreach issues.
- Work with USEPA to obtain necessary access and implement residential soil sampling.
- Submit Field Sampling Reports for field activities conducted in 2010 and 2011.
- Submit the Draft Preliminary Site Characterization Report.
- Submit the Draft Treatability Study literature review of treatment alternatives for dioxin contaminated soils and sediments to USEPA.

F. Schedule

- The revised RI/FS schedule, approved by USEPA on February 15, 2011, is attached.

Prepared by:

David C. Keith

Project Coordinator

ANCHOR QEA

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
12/4/2009	Required Notifications pursuant to Paragraphs 51 and 75 of UOA	None	NA	Provided notice of intent to comply and "sufficient cause" defenses and identified Project Coordinator.
12/7/2009	Copies of Letters to McGinnes Heirs Regarding Site Access	None	NA	
12/10/2009	Draft Scoping Meeting Minutes	None	NA	
12/14/2009	Copy of Response from Big Star Barge & Boat Company Regarding Site Access	None	NA	
12/15/2009	Monthly Progress Report No. 1	None	NA	
12/18/2009	Status Report on Site Access	1/12/2010	Actions to date did not constitute "best efforts" to gain access.	Respondents and EPA spoke regarding the matter in further detail on 1/8/10.
12/21/2009	HASP	None	NA	
12/21/2009	Anchor QMP	None	NA	
12/21/2009	Integral QMP	None	NA	
1/7/2010	Request for comments regarding access agreement for Big Star Barge & Boat Company	None	NA	
1/11/2010	Proposed Draft AOC for time critical removal action	1/12/2010	Respondents' proposed AOC has been forwarded to headquarters and Philip Allen for comment. Time critical removal action requires imminent and substantial endangerment finding.	
1/12/2010	Copy of Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
1/12/2010	Notice of UAO Deficiency	None	Actions to date did not constitute "best efforts" to gain access.	
1/13/2010	Draft Sediment Sampling and Analysis Plan Minutes	None	NA	
1/13/2010	Draft Database and Data Exchange Minutes	None	NA	
1/15/2010	Monthly Progress Report No. 2	None	NA	
1/15/2010	Update Regarding Respondents' Efforts to Obtain Access Agreement, Response to Letter from Barbara Nann and Request for Extension	1/21/2010	Efforts to obtain Site access are "encouraging."	
1/20/2010	Correspondence from Port of Houston Authority regarding access	None	NA	
1/21/2010	Copies of Site Access Letter From Attorney for McGinnes Heirs	1/22/2010	EPA requested another copy of the letter	
1/21/2010	Correspondence with Port of Houston Authority Regarding revised fence alignment	None	NA	

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1/22/2010	Copies of Site Access Letter From Attorney for McGinnes Heirs	None	NA	
1/25/2010	Copies of Letters Sent to Gary Gladfelter and Tanya Ammons Regarding Site Access	None	NA	
1/27/2010	Draft 1/20/10 Alignment Meeting Minutes	None	NA	
1/27/2010	Copy of Correspondence with Big Star Barge & Boat Company Regarding Site Access	None	NA	
1/27/2010	EPA's response to Respondents' proposed AOC regarding Time Critical Removal Action	None	EPA will give Respondents additional time to respond as to whether Group wants to enter into AOC for Site stabilization.	
1/29/2010	Copy of Revised Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
2/2/2010	Copy of Correspondence with Big Star Barge & Boat Company Regarding Site Access	None	NA	
2/4/2010	Respondents' proposed changes/comments on proposed AOC for Time Critical Removal Action	3/5/2010	Awaiting finalization of action memo for site stabilization before making additional changes to the AOC for site stabilization.	
2/10/2010	Draft Memorandum San Jacinto River Waste Pits Superfund Site Time Critical Removal Action	Non	NA	
2/11/2010	Copy of Revised Consent Form for Site Access from Big Star Barge & Boat Company	None	NA	
2/11/2010	Copy of executed Consent Form for Site Access from Big Star Barge & Boat Company	2/17/2010	EPA approved of the form and will await an access agreement allowing for the RI/FS to take place.	
2/15/2010	Monthly Progress Report No. 3	None	NA	
2/16/2010	Draft Sediment Sampling and Analysis Plan/QAPP	None	Comments received March 10, 2010	
2/16/2010	Correspondence to EPA regarding update to Respondents' efforts to obtain access to the site	None	NA	
2/17/2010	Submitted the Agency Review Draft of the Quality Assurance Project Plan and Field Sampling Plan for Sediment Sampling	Consolidated comments received on March 10, 2010	Follow up meeting conducted with EPA, TCEQ and Trustees on March 16 and comment/response table developed for submittal with Draft Final report	Draft Final document submitted on 4/9/2010.
2/18/2010	Sampling Plan for sediment sampling on February 17, 2010	2/19/2010	EPA will forward for review to EPA's financial assurance expert.	
2/18/2010	Correspondence from MIMC regarding financial assurance bond	2/19/2010	EPA will forward for review to EPA's financial assurance expert.	

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San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
2/19/2010	Copy of presentation regarding Short-Term Communications Plan	None	NA	
2/22/2010	Letter to Barbara Nann regarding MIMC's responsibility to provide access to the V.C. McGinnes, Trustee tract	None	NA	
3/18/2010	Draft Sediment Sampling and Analysis Plan Comment Review Meeting Minutes March 16, 2010, TCEQ, Austin Texas	None	NA	
4/7/2010	Draft Field Sampling Plan and Job Safety Analyses for the TCRA sampling	None	NA	This sampling was requested by EPA in an email on March 26, 2010.
4/9/2010	Submitted the Draft RI/FS Work Plan and SLERA	June 3, 1010	Comments received from EPA by email	
4/9/2010	Submitted the Draft Final of the Quality Assurance Project Plan and Field Sampling Plan for sediment sampling	None	NA	
4/15/2010	Submitted Monthly Progress Report No. 5 on April 15, 2010	None	NA	
		4/26/2010	Approval letter from EPA for implementation of the RI/FS Sediment QAPP/SAP.	Agency requested replacement pages for Final QAPP/SAP.
4/30/2010	Submitted replacement pages to EPA, TCEQ and the trustees for the Final SAP/QAPP on April 30, 2010	None	NA	
5/11/2010	Submitted the Draft Chemical Fate and Transport Modeling Study design and sampling and analysis plan addendum on May 11	None	NA	
5/14/2010	Submitted a Soil Sampling and Analysis Plan for the TxDOT right-of-way to TxDOT and EPA	None	NA	Submitted to TxDOT as part of effort to obtain access into the TxDOT right-of-way for RI/FS and TCRA activities.
5/17/2010	Submitted Monthly Progress Report No. 6 on May 17, 2010	None		
5/21/2010	Submitted revised TxDOT right-of-way sampling and analysis plan	None		Comments received from TxDOT on May 25, 2010.

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
5/25/2010	Submitted email outlining sediment sampling and analysis deviations	5/26/2010	EPA agreed to recommendations and asked that human health locations on west bank be reconsidered.	Human health locations on west bank moved with EPA concurrence in email on May 28, 2010.
5/27/2010	Submitted revised TxDOT right-of-way sampling and analysis plan	None		TxDOT approved the revised sampling and analysis plan on June 11, 2010.
5/28/2010	Submitted email summary of VOC data from sediment sampling	5/28/2010	EPA concurred that no further VOC analyses were required.	
6/7/2010	Response to 6/4/10 email from Barbara Nann regarding access for 3 soil samples in western impoundment	None		
6/11/2010	Submitted Draft Tissue Sampling and Analysis Plan and Draft Technical Memorandum on Bioaccumulation Modeling on June 11, 2010	None		
6/15/2010	Submitted Monthly Progress Report No. 7 on June 15, 2010	None		
6/25/2010	Submitted comments and responses on Draft RI/FS Work Plan	None		
7/9/2010	Submitted Revised Draft RI/FS Work Plan	7/12/2010 8/26/2010	Email from B. Nann forwarding edits to RI/FS work plan. Email from Steve Tzhone with additional comments concerning Site History and soil sampling in the area of former impoundments south of I-10.	
7/15/2010	Submitted Monthly Progress Report No. 8 on July 15, 2010	None		
7/27/2010	Provided EPA a draft response to comments on the Draft Fate and Transport Memorandum Review	8/12/2010	Email from S. Tzhone forwarding two additional comments on the Fate and Transport Modeling Memorandum	
8/16/2010	Submitted Monthly Progress Report No. 9 on August 16, 2010	None		

Table 1
Summary of Agency Communication
San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
8/17/2010	Submitted revised response to comments on the Fate and Transport Sampling and Analysis Plan	8/31/2010 9/7/2010	Email from S. Tzhone approving the revised response to comments and authorizing submittal of the Final Draft document. Email from S. Tzhone providing comments from USGS on sampling and analysis plan and direction to incorporate comments as EPA comments by phone. Comments need to be addressed prior to implementing field work.	
8/18/2010	Submitted Draft Addendum to the Sampling and Analysis Plan (SAP): Sediment Study	8/23/2010	Email from S. Tzhone approving the addendum SAP and authorizing sampling in Cedar Bayou.	
8/18/2010	Submitted revised response to comments on the Bioaccumulation Modeling and Tissue Sampling and Analysis Plan	8/31/2010	Email from S. Tzhone approving the revised response to comments and authorizing submittal of the Final Draft documents.	
8/19/2010	Submitted Draft Meeting Minutes - Agency Comments on Tissue SAP and Technical Memorandum on Bioaccumulation Modeling	None		
9/3/2010	Submitted Draft Final RI/FS Work Plan	10/7/2010	Letter of deficiency from S. Tzhone requiring Respondents to incorporate EPA's Comment Number 4 (sampling of south impoundment) provided to the respondents on August 26, 2010, as part of the RI/FS.	Respondents have 14 days to comply from the date of the letter.
9/9/2010	Submitted letter to Steve Tzhone regarding Site Warning and Protective Measures	9/1/2010	Email from S. Tzhone approving the proposed scope of work for additional fencing and signs and requesting clarification and final design for impoundment signs and buoy placement.	

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Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/10/2010	Submitted letter to Steve Tzhone and Barbara Nann concerning MIMC's participation in soil sampling in the area of former impoundment south of I-10	10/8/2010	Letter to MIMC counsel from B. Nann expressing disagreement with MIMC's letter and reiterating position that south impoundment must be sampled.	
9/10/2010	Submitted the Draft Soil Sampling and Analysis Plan for the RI/FS	None		
9/10/2010	Submitted Draft Final Tissue SAP, and Draft Final Technical Memorandum on Bioaccumulation Modeling			
9/15/2010	Submitted Monthly Progress Report No. 10 on September 15, 2010	10/7/2010	Letter of deficiency from S. Tzhone requiring Respondents to submit all raw data with monthly progress reports.	Respondents have 14 days to comply from the date of the letter.
9/16/2010	Submitted letter outlining proposed buoy and warning signs at impoundments	9/16/2010	Email from S. Tzhone approving final design for signs and buoy system	
9/23/2010	Submitted an email with clarifications required for the final Sampling and Analysis Plan: Tissue Study on the following topics: Laboratory Certification, selection of tissue analytes, and a few editorial changes to the tables and text re: lipid analysis methods.	9/24/2010	Email from Steve Tzhone indicating that EPA agreed with the response to EPA's concerns about laboratory certification, and agreeing to the proposed edits. EPA approved the final Tissue SAP and Technical Memorandum on Bioaccumulation Modeling on September 24, 2010.	
9/28/2010	Submitted Final Sampling and Analysis Plan: Tissue Study and Final Technical Memorandum on Bioaccumulation Modeling on September 28, 2010.	9/29/2010	EPA approved of the Tissue SAP Addendum.	

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San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
9/30/2010	Submitted Draft TxDOT Right-Of-Way Data Report on September 30, 2010.	None		
10/1/2010	Submitted Draft Groundwater QAPP and FSP on October 1, 2010.	None		
		10/7/2010	Email from B. Nann regarding status of access efforts.	
		10/11/2010	Email from B. Nann encouraging diligent efforts on access.	
10/13/2010	Email to B. Nann regarding the status of access efforts and need for a conference call between TxDOT, EPA and respondents to discuss	10/14/2010	Email from B. Nann agreeing to conference call.	
10/15/2010	Submitted Monthly Progress Report No. 11 on October 15, 2010			
10/18/2010	IP Letter responding to NOD regarding south area investigation			
10/20/2010	Submitted revised monthly reports for June, July, August, and September 2010 and accompanying raw data on discs			
10/21/2010	MIMC letter responding to NOD regarding south area investigation			
10/21/2010	Joint letter responding to NOD regarding raw data			
10/21/2010	Submitted Draft Final RI/FS Work Plan	11/2/2010	Draft Final RI/FS Work Plan approval letter from S. Tzhone provided by email	
		10/25/2010	Email from B. Nann approving use of TxDOT right-of-way for gravel road	

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		10/29/2010	Received certified letter from B. Nann regarding UAO deliverables	
11/1/2010	Certified letter to B. Nann from IP counsel detailing Respondents' efforts to obtain Site Access Agreements with TxDOT and Big Star Barge and Boat			
		11/2/2010	Received certified letter from B. Nann regarding best efforts for obtaining Site Access	
		11/3/2010	Email from S. Tzhone to D. Keith expressing concerns with field sampling procedures used during the week of October 25, 2010	
11/5/2010	Email from D. Keith to S. Tzhone regarding compliance with UAO deliverable procedures and proposed future deliverable procedures	11/5/2010	Email from S. Tzhone to D. Keith concurring with proposed procedures	
		11/8/2010	Email from B. Nann concurring with proposed procedures	
11/8/2010	Email from D. Keith to S. Tzhone concerning revisions to field procedures to be used in the future.			
11/8/2010	Re-submitted Revised Draft Groundwater Study SAP	11/22/2010	Email from S. Tzhone with comments on Groundwater SAP	
11/8/2010	Re-submitted Draft Soil Sampling and Analysis Plan	11/22/2010	Email from S. Tzhone with comments on Soil SAP	Additional comments received from S. Tzhone on 11/30/2010
11/12/2010	Certified letter to B. Nann from Al Axe reiterating and detailing Respondents' efforts to obtain Site Access Agreements with TxDOT and Big Star Barge and Boat			

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San Jacinto River Waste Pits Superfund Site

Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
11/15/2010	Submitted Monthly Progress Report No. 12 on November 15, 2010			
11/30/2010	Submitted Draft Final Comment/Response Matrix of the Fate and Transport Modeling Memorandum	12/8/2010	Email from S. Tzhone approving the Draft Final Comment/Response matrix	
11/30/2010	*Transferred preliminary Big Star soils data to* USEPA as a mix of excel and PDF files via email, and then submitted the complete preliminary unvalidated data to USEPA via email December 1, 2010			
12/6/2010	Submitted Draft Comment/Response Matrix for Groundwater SAP	12/14/2010	Email from S. Tzhone approving the Draft Final Comment/Response matrix	
12/9/2010	Submitted Draft Comment/Response Matrix for Soil SAP			
12/15/2010	Submitted Monthly Progress Report No. 13 on December 15, 2010			
12/16/2010	Submitted the Draft Final Groundwater Study Sampling and Analysis Plan on December 16, 2010	12/23/2010	Email and letter from S. Tzhone approving the Groundwater Study Sampling and Analysis Plan	Requested final copies be provided to remove "Draft" from "Draft Final" - implementation of field work approved
12/17/2010	Submitted the Draft Final Chemical Fate and Transport Modeling Memorandum December 17, 2010	1/10/2011	Email and letter from S. Tzhone approving the Chemical Fate and Transport Modeling Memorandum	Requested final copies be provided to remove "Draft" from "Draft Final"
12/17/2010	Submitted an Addendum to the Soil SAP to describe a soil investigation in the area South of I-10 on December 17, 2010	1/18/2011 2/3/11	Emailed letter from S. Tzhone providing comments to the Draft Addendum to the Soil SAP Additional comments from TCEQ on Draft Addendum to the Soil SAP received from S. Tzhone by email	Conference calls to discuss comments with agencies on January 25 and February 7
12/22/2010	Submitted the Draft Final Sampling and Analysis Plan: Soil Study on December 22, 2010	1/10/2011	Email and letter from S. Tzhone approving the Sampling and Analysis Plan: Soil Study	Requested final copies be provided to remove "Draft" from "Draft Final"
1/13/2011	Submitted Final Groundwater Study Sampling and Analysis Plan			
1/13/2011	Submitted Final Chemical Fate and Transport Modeling Memorandum			

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Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
1/14/2011	Submitted the Final Sampling and Analysis Plan: Soil Study			
1/14/2011	Submitted Monthly Progress Report No. 14			
1/24/2011	Email from D. Keith to S. Tzhone regarding schedule for soil sampling activities			
1/27/2011	Letter from IPs counsel submitted to USEPA regarding International Papers efforts to obtain access for the south area investigation			
1/27/2011	Provided USEPA a compilation of historical aerial photographs of the project area on the project web portal			
2/1/2011	Submitted a DVD containing all draft documents for the SJRWP RI/FS submitted to USEPA via the project portal through January 25, 2011			
2/11/2011	Submitted Draft Contaminants of Potential Concern Memorandum	3/10/2011	Received comments on Draft COPC Technical Memorandum	
2/14/2011	Submitted Draft Revised RI/FS Schedule	2/15/2011	Approval letter from EPA for revised RI/FS schedule	
2/15/2011	Submitted Monthly Progress Report No. 15			
2/15/2011	Submitted the Draft Bed Property Study Field Sampling Plan	3/3/2011	Received emailed comments from S. Tzhone on Draft Bed Property Study FSP	
2/15/2011	Submitted the Draft Bathymetry Survey Field Sampling Plan	3/3/2011	Received emailed comments from S. Tzhone on Draft Bathymetry Survey FSP	
2/22/2011	Submitted Draft Final Sampling and Analysis Play, Soil Study Addendum 1	3/4/2011	Approval letter from USEPA for Draft Final Sampling and Analysis Play, Soil Study Addendum 1	
3/2/2011	Submitted Draft Current Velocity Study Field Sampling Plan			
3/8/2011	Submitted Draft Comment Response Matrices for the Draft Bed Property Study and Draft Bathymetry Survey FSPs	3/9/2011	Phone conversation with Steve Tzhone indicated that responses were approved	
3/9/2011	Submitted Final Sampling and Analysis Plan, Soil Study Addendum 1			

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3/11/2011	Phone call from J. Sampson (proxy for D. Keith) to S. Tzhone to report field observations of a petroleum odor and oily sheen on some subsurface soil samples from the south impoundment soil study area	3/11/2011	Received an email from S. Tzhone acknowledging the phone report, and with direction to: 1) proceed with sampling according to the approved Soil SAP Addendum 1, and 2) to provide a summary report of field observations when the sampling event is complete	
3/15/2011	Submitted Monthly Progress Report No. 16			
3/15/2011	Submitted the Draft Final Bed Property Study and the Draft Final Bathymetric Survey Field Sampling Plans	3/21/2011	Approval letter from USEPA for Draft Final Bed Property Study and the Draft Final Bathymetric Study FSP	
3/16/2011	Submitted the Draft Sedflume Study FSP, the Draft Radioisotope Coring Study FSP, and the Draft Upstream Sediment Load Study FSP	4/8/2011	Received emailed comments from S. Tzhone on the Draft Sedflume Study FSP, the Draft Radioisotope Coring Study FSP, and the Draft Upstream Sediment Load Study FSP	Conference call to discuss comments with agencies on April 15, 2011
3/16/2011	Submitted Field Report on south impoundment soil sampling			
3/18/2011	Submitted a letter to USEPA on behalf of International Paper regarding the completion of the south impoundment sampling			
3/25/2011	Submitted the Final Bed Property Study and the Final Bathymetric Survey Field Sampling Plans			
3/28/2011	Submitted the Draft Comment/Response Matrix for the Draft Currently Velocity Study Field Sampling Plan	4/6/2011	Received emailed comments from S. Tzhone with two additional comments on the Draft Current Velocity Study FSP	
		3/29/2011	Received emailed letter from S. Tzhone requesting Respondents participate in Residential Soil Sampling as part of USEPA's Community Engagement Initiative	Respondents provided USEPA their response to this request on April 15, 2011
3/30/2011	Submitted the Draft Comment/Response matrix with responses to USEPA comments on the COPC Technical Memorandum	4/1/2011	Conference call with USEPA to discuss comments	

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Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
4/7/2011	Submitted an email request for assistance in obtaining Quality Assurance Project Plan and laboratory validation packages for the TCEQ Total Maximum Load programs. These documents are necessary to meet all requirements of USEPA comments on the COPC Technical Memorandum			
4/8/2011	Submitted Revised Comment/Response Matrix for USEPA comments on the COPC Technical Memorandum	5/5/2011	Received approval letter from Carlos Sanchez for Gary Miller on the Draft COPC Technical Memorandum	
4/8/2011	Submitted the Draft Final Current Velocity Study FSP	5/3/2011	Received approval letter from Carlos Sanchez for Gary Miller on the Draft Final Current Velocity Study Field Sampling Plan	
4/14/2011	Submitted the Draft Comments/Responses matrices for the Draft Sedflume Study, Draft Radioisotope Coring Study, and the Draft Upstream Sediment Load Study Field Sampling Plans	4/15/2011	Conference call with USEPA to discuss comments	
4/15/2011	Submitted Monthly Progress Report No. 17			
4/15/2011	Provided USEPA and TCEQ Site groundwater data maps and tables associated with implementation of the north impoundment Groundwater Field Sampling Plan			
		4/19/2011	Received letter from Carlos Sanchez notifying Respondent's that USEPA has changed the designated EPA Project Coordinator under the UAO to M. Gary Miller effective April 19, 2011	
4/25/2011	Submitted Draft Final Upstream Sediment Load Field Sampling Plan	5/5/2011	Received phone request form Gary Miller to provide redline/strikeout version of Word document for EPA review.	Provided redline strikeout version of document for review by email from Teri Frietas on behalf of David Keith
4/28/2011	Submitted Draft Final Radioisotope Coring Study Field Sampling Plan	5/5/2011	Received approval letter from Carlos Sanchez on behalf of Gary Miller for the Draft Final Radioisotope Coring Study Field Sampling Plan	

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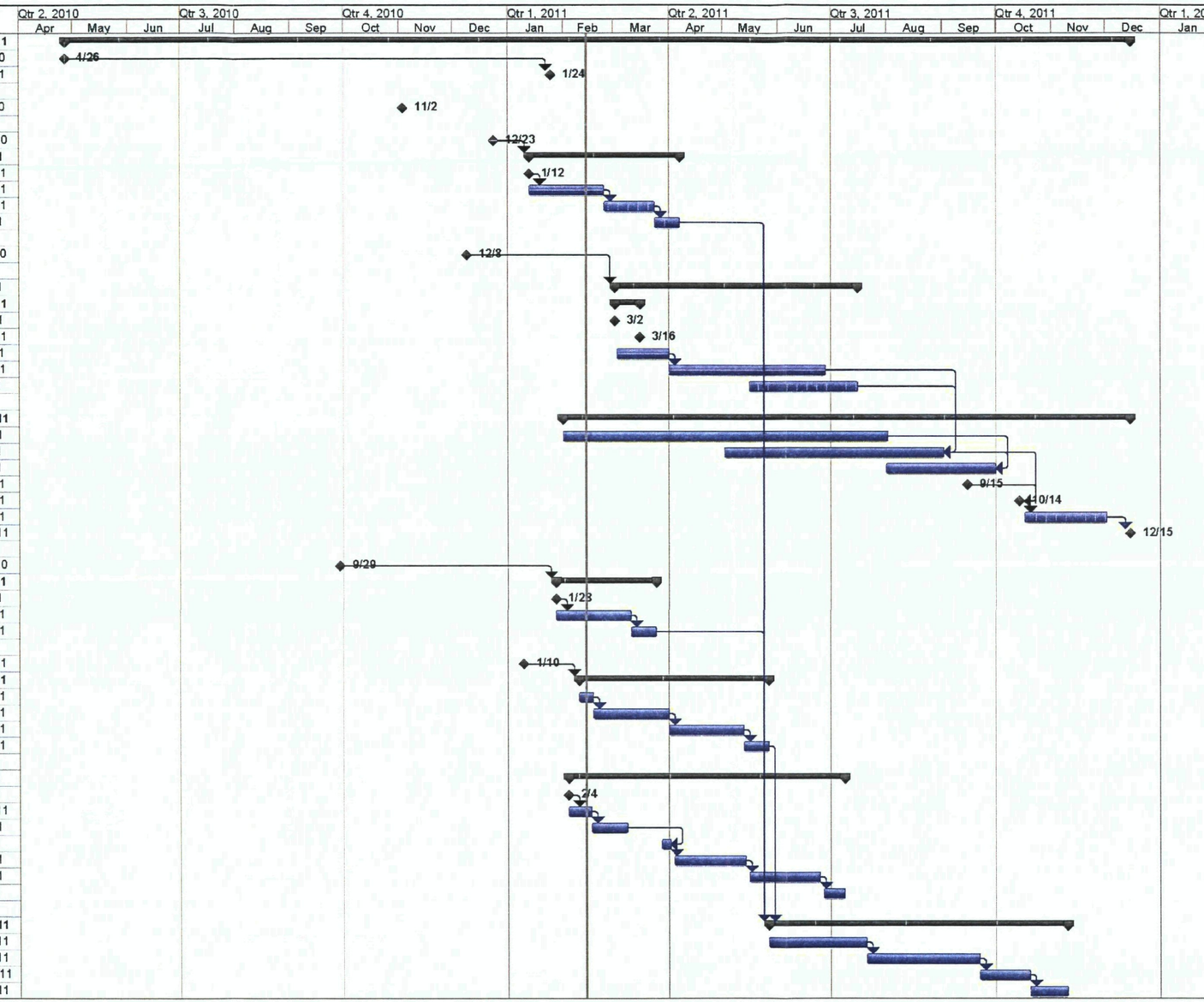
Respondents Submittal Date	Respondents Communication Summary	Response from USEPA Date	USEPA Communication Summary	Notes
		4/29/2011	Received email from Gary Miller with three additional questions on the Draft Sedflume Study Field Sampling Plan	
5/5/2011	Submitted Draft Final Sedflume Field Sampling Plan	5/20/2011	Received approval letter from USEPA on the Draft Final Sedflume Study Field Sampling Plan	
5/9/2011	Submitted Final Current Velocity Study Field Sampling Plan			
5/9/2011	Submitted Final Radioisotope Coring Study Field Sampling Plan			
5/16/2011	Submitted Monthly Progress Report No. 18			
5/18/2011	Received approval letter from USEPA on the Draft Final Upstream Sediment Load Field Sampling Plan			
		5/23/2011	Received letter from Gary Miller directing Respondents sample residential soils in the area	Respondents provided USEPA their response to this request on May 31, 2011
5/24/2011	Submitted Final Upstream Sediment Load Study Field Sampling Plan			
5/24/2011	Submitted Final Sedflume Field Sampling Plan			
5/25/2011	Submitted email request to USEPA for approval to begin monitoring well decommissioning	6/2/2011	Received email approval from Gary Miller to proceed with this work in accordance with the work plan	
5/27/2011	Submitted all Working Documents from the SJRWP Site Portal on DVD			
6/10/2011	Submitted Draft Soil Sampling and Analysis Plan Addendum 2			This is the sampling and analysis plan for residential soil sampling
6/14/2011	Posted an updated Site database to the project web portal			
6/15/2011	Submitted Monthly Progress Report No. 19			

Table 2. Summary of Data Files Provided

Project	SDG	Lab Data Packages	Lab Electronic Data Deliverables
Bed Property Study	K1104871	K1104871.pdf	K1104871.zip
Upstream Sediment Load Study	K1104854	K1104854.pdf	K1104854.zip
Upstream Sediment Load Study	K1105162	K1105162.pdf	K1105162.zip
SedFlume	E1100611	E1100611 Final DB.pdf	
Upstream Sediment Load Study	K1105314	K1105314.pdf	K1105314.zip
Upstream Sediment Load Study	K1105409	K1105409.pdf	K1105409.zip
Upstream Sediment Load Study	K1105625	K1105625.pdf	K1105625.zip
Upstream Sediment Load Study	K1105732	K1105732.pdf	K1105732.zip
Upstream Sediment Load Study	K1105867	K1105867.pdf	K1105867.zip
Upstream Sediment Load Study	K1105981	K1105981.pdf	K1105981.zip

Task Name	Duration	Start	Finish
Preliminary Site Characterization Report Studies and Preparation	**427 days**	**Mon 4/26/10**	**Thu 12/15/11**
EPA Approval San Jacinto Sediment Sampling and Analysis Plan	0 days	Mon 4/26/10	Mon 4/26/10
Completed Field Implementation, Data Validation and Data Management	0 days	Mon 1/24/11	Mon 1/24/11
EPA Approval of RI/FS Work Plan	0 days	Tue 11/2/10	Tue 11/2/10
EPA Approval of Groundwater QAPP/FSP	0 days	Thu 12/23/10	Thu 12/23/10
Groundwater Field Sampling and Analysis	**60 days**	**Wed 1/12/11**	**Wed 4/6/11**
Well Installation and Sampling Completed	0 days	Wed 1/12/11	Wed 1/12/11
Laboratory Analysis	30 days	Thu 1/13/11	Wed 2/23/11
Data Validation	20 days	Thu 2/24/11	Wed 3/23/11
Data Management	10 days	Thu 3/24/11	Wed 4/6/11
EPA Approval of Tech. Memo. On Fate&Transport Modeling Memo and QAPP	0 days	Wed 12/8/10	Wed 12/8/10
Field Sampling, F&T Study	**98 days**	**Wed 3/2/11**	**Fri 7/15/11**
Submittal of FSPs	**10 days**	**Wed 3/2/11**	**Wed 3/16/11**
Bed Property Study, Bathymetric Survey, Current Velocity Study	0 days	Wed 3/2/11	Wed 3/2/11
Radio Isotope Coring, SedFlume Study, Upstream Sediment Load Study	0 days	Wed 3/16/11	Wed 3/16/11
Agency Review and Response	21 days	Thu 3/3/11	Thu 3/31/11
Field Studies	62 days	Fri 4/1/11	Mon 6/27/11
Data Validation and Data Management	45 days	Mon 5/16/11	Fri 7/15/11
F&T Model Development, Calibration and Application	**227 days**	**Tue 2/1/11**	**Thu 12/15/11**
F&T Model Development	130 days	Tue 2/1/11	Mon 8/1/11
F&T Model Calibration/Validation	89 days	Mon 5/2/11	Thu 9/1/11
F&T Model Application	45 days	Mon 8/1/11	Fri 9/30/11
F&T Model Presentation	0 days	Thu 9/15/11	Thu 9/15/11
Submit Draft F&T Modeling Report	0 days	Fri 10/14/11	Fri 10/14/11
Agency Review and Response	34 days	Mon 10/17/11	Thu 12/1/11
Final F&T Modeling Report	0 days	Thu 12/15/11	Thu 12/15/11
EPA Approval of Tech Memo on Bioaccumulation & QAPP/FSP	0 days	Wed 9/29/10	Wed 9/29/10
Field Sampling Tissue	**40 days**	**Fri 1/28/11**	**Thu 3/24/11**
Field Study and Laboratory Analysis Completed	0 days	Fri 1/28/11	Fri 1/28/11
Data Validation	30 days	Fri 1/28/11	Thu 3/10/11
Data Management	10 days	Fri 3/11/11	Thu 3/24/11
EPA Approval of Soil QAPP/FSP	0 days	Mon 1/10/11	Mon 1/10/11
Soil Field Sampling and Analysis, North of I-10	**76 days**	**Thu 2/10/11**	**Thu 5/26/11**
Mobilization and Field Study	6 days	Thu 2/10/11	Thu 2/17/11
Laboratory Analysis	30 days	Fri 2/18/11	Thu 3/31/11
Data Validation	30 days	Fri 4/1/11	Thu 5/12/11
Data Management	10 days	Fri 5/13/11	Thu 5/26/11
Soil SAP Addendum, South of I-10	**111 days**	**Fri 2/4/11**	**Fri 7/8/11**
Agency Meeting	0 days	Fri 2/4/11	Fri 2/4/11
Document Revisions	9 days	Fri 2/4/11	Wed 2/16/11
Agency Review and Approval	14 days	Thu 2/17/11	Tue 3/8/11
Soil Sampling South of I-10 (assuming access issues are resolved)	5 days	Mon 3/28/11	Fri 4/1/11
Laboratory Analysis	30 days	Mon 4/4/11	Fri 5/13/11
Data Validation	30 days	Mon 5/16/11	Fri 6/24/11
Data Management	10 days	Mon 6/27/11	Fri 7/8/11
Preliminary Site Characterization Report	**119 days**	**Fri 5/27/11**	**Wed 11/9/11**
Draft PSC Report	39 days	Fri 5/27/11	Wed 7/20/11
Agency Review	45 days	Thu 7/21/11	Wed 9/21/11
Final PSC Report Submitted	20 days	Thu 9/22/11	Wed 10/19/11
EPA Approval of PSC Report	15 days	Thu 10/20/11	Wed 11/9/11



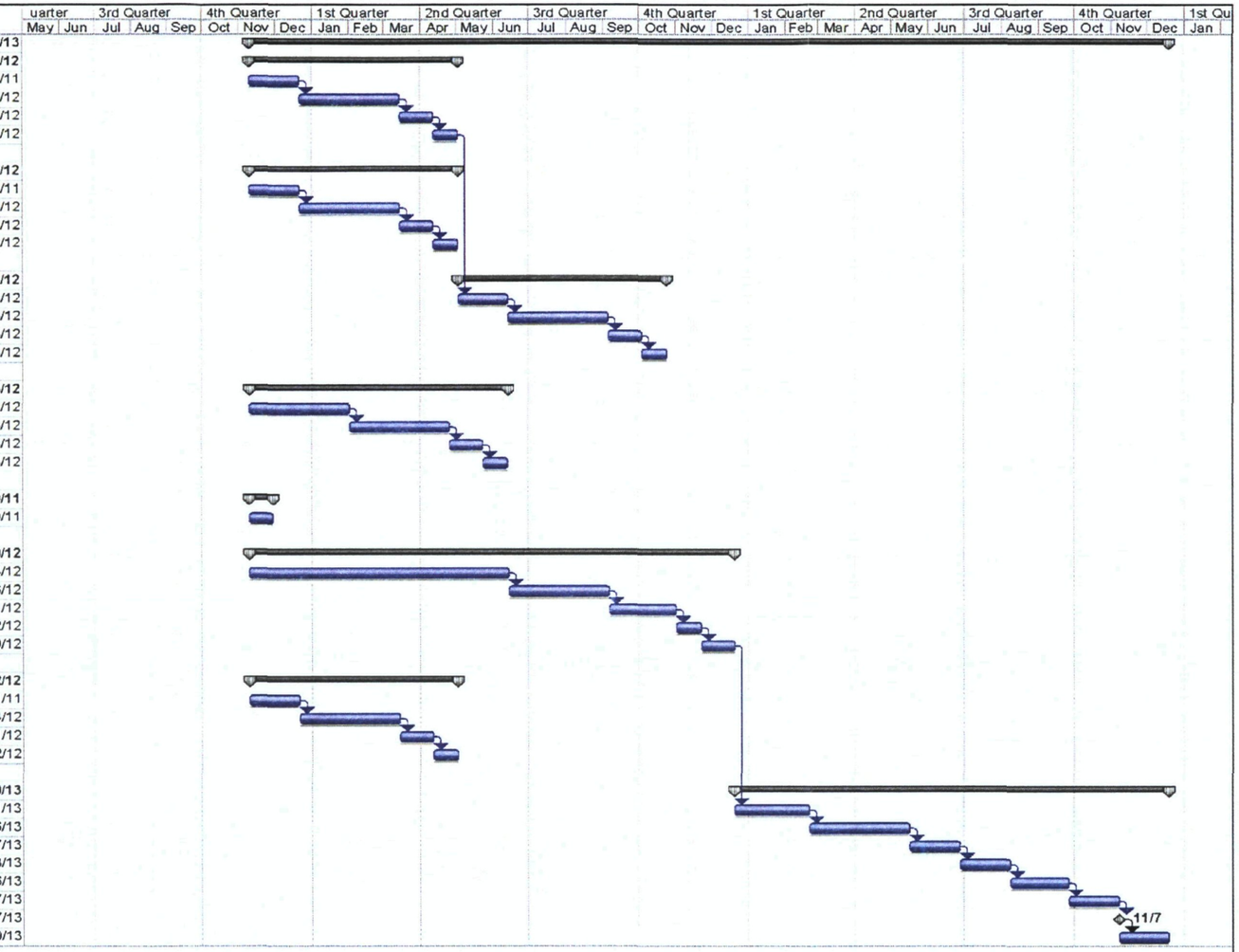
Project: Draft San Jac Schedule Pre-P
Date: Mon 2/14/11

Task | Split | Milestone | Summary | Project Summary | External Tasks | External Milestone | Inactive Task | Inactive Milestone | Inactive Summary | Manual Task | Duration-only | Manual Summary Rollup | Manual Summary | Start-only | Finish-only | Progress | Deadline

ANCHOR QEA

Figure 8-1a
Schedule of Deliverables Pre-Preliminary Site Characterization Report
SJRWP RI/FS Work Plan
SJRWP Superfund/MIMC and IPC

ID	Task Name	Duration	Start	Finish
1	**Post Site Characterization Report Deliverables**	**551 days**	**Thu 11/10/11**	**Thu 12/19/13**
2	**Exposure Assessment (EA) Memorandum**	**125 days**	**Thu 11/10/11**	**Wed 5/2/12**
3	Submit Draft of EA Memo	30 days	Thu 11/10/11	Wed 12/21/11
4	Agency Review	60 days	Thu 12/22/11	Wed 3/14/12
5	Final EA Memorandum Submitted	20 days	Thu 3/15/12	Wed 4/11/12
6	EPA Approval of EA Memorandum	15 days	Thu 4/12/12	Wed 5/2/12
7				
8	**Toxicological and Epidemiological Studies (TES) Memorandum**	**125 days**	**Thu 11/10/11**	**Wed 5/2/12**
9	Submit Draft of TES Memo	30 days	Thu 11/10/11	Wed 12/21/11
10	Agency Review	60 days	Thu 12/22/11	Wed 3/14/12
11	Final TES Memorandum Submitted	20 days	Thu 3/15/12	Wed 4/11/12
12	EPA Approval of TES Memorandum	15 days	Thu 4/12/12	Wed 5/2/12
13				
14	**Baseline Human Health Risk Assessment BHHRA Report**	**125 days**	**Thu 5/3/12**	**Wed 10/24/12**
15	Submit Draft of BHHRA Report	30 days	Thu 5/3/12	Wed 6/13/12
16	Agency Review	60 days	Thu 6/14/12	Wed 9/5/12
17	Final BHHRA Submitted	20 days	Thu 9/6/12	Wed 10/3/12
18	EPA Approval of BHHRA Memorandum	15 days	Thu 10/4/12	Wed 10/24/12
19				
20	**Baseline Ecological Risk Assessment (BERA) Report**	**155 days**	**Thu 11/10/11**	**Wed 6/13/12**
21	Submit Draft of BERA Report	60 days	Thu 11/10/11	Wed 2/1/12
22	Agency Review	60 days	Thu 2/2/12	Wed 4/25/12
23	Final BERA Submitted	20 days	Thu 4/26/12	Wed 5/23/12
24	EPA Approval of BERA Memorandum	15 days	Thu 5/24/12	Wed 6/13/12
25				
26	**Treatability Studies (TS)**	**14 days**	**Thu 11/10/11**	**Tue 11/29/11**
27	To be determined	14 days	Thu 11/10/11	Tue 11/29/11
28				
29	**Remedial Investigation (RI) Report**	**291 days**	**Thu 11/10/11**	**Thu 12/20/12**
30	Submit Draft of RI Report	156 days	Thu 11/10/11	Thu 6/14/12
31	Agency Review	60 days	Fri 6/15/12	Thu 9/6/12
32	Final RI Report Submitted	40 days	Fri 9/7/12	Thu 11/1/12
33	Presentation to EPA of RI Report	15 days	Fri 11/2/12	Thu 11/22/12
34	EPA Approval of RI Report	20 days	Fri 11/23/12	Thu 12/20/12
35				
36	**Remedial Alternatives Memorandum**	**125 days**	**Thu 11/10/11**	**Wed 5/2/12**
37	Submit Draft of RA Memorandum	30 days	Thu 11/10/11	Wed 12/21/11
38	Agency Review	60 days	Thu 12/22/11	Wed 3/14/12
39	Prepare Final Draft RA Report	20 days	Thu 3/15/12	Wed 4/11/12
40	EPA Approval of Final RA Report	15 days	Thu 4/12/12	Wed 5/2/12
41				
42	**Feasibility Study (FS) Report**	**260 days**	**Fri 12/21/12**	**Thu 12/19/13**
43	Submit Draft Interim Final FS Report	45 days	Fri 12/21/12	Thu 2/21/13
44	Agency Review	60 days	Fri 2/22/13	Thu 5/16/13
45	Final Interim FS Report	30 days	Fri 5/17/13	Thu 6/27/13
46	Submit Final FS Report	30 days	Fri 6/28/13	Thu 8/8/13
47	EPA Prepares "Proposed Plan"	35 days	Fri 8/9/13	Thu 9/26/13
48	EPA Accepts Public Comment on Proposed Plan	30 days	Fri 9/27/13	Thu 11/7/13
49	EPA Provides Comments to Respondents	0 days	Thu 11/7/13	Thu 11/7/13
50	Prepare Final FS Report	30 days	Fri 11/8/13	Thu 12/19/13



Project: EPAs UAO-RI Schedule after
Date: Thu 9/2/10

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

ANCHOR QEA

Figure 8-1b
Schedule of Deliverables Post Preliminary Site Characterization Report
SJRWP RI/FS Work Plan
SJRWP Superfund /MIMC and IPC

Columbia Analytical Services™ 19408 Park Row, Suite 320, Houston, TX 77084 | 713.266.1599 | www.caslab.com

June 22, 2011 Service Request No: E1100611

Daleel Nangju
Anchor QEA, LLC
10707 Corporate Drive Suite 230
Stafford, TX

Laboratory Results for: San Jacinto River Sedflume Study IDW

Dear Daleel:

Enclosed are the results of the sample(s) submitted to our laboratory on June 6, 2011. For your reference, these analyses have been assigned our service request number **E1100611**.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the final complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report. In accordance to the NELAC 2003 Standard, a statement on the estimated uncertainty of measurement of any quantitative analysis will be supplied upon request.

Please contact me if you have any questions. My extension is 2954. You may also contact me via email at DBiles@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Darren Biles
Project Chemist

Page 1 of _____

Columbia Analytical Services INC

Certificate of Analysis

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www.caslab.com

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COLUMBIA ANALYTICAL SERVICES, INC

Client:	Anchor QEA, LLC	**Service Request No.:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Received:**	6/6/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed in adherence to the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 6/6/11.

The following discrepancies were noted upon initial sample inspection: no custody seals on cooler(s). The exceptions are also noted on the cooler receipt and preservation form included in this data package.

The samples were received at 1°C in good condition and are consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

Data Validation Notes and Discussion

B flags – Method Blanks

The Method Blank EQ1100270-01 contained low levels of 1234678-HpCDD, OCDD, and OCDF at or below the Method Reporting Limit (MRL).

The associated compounds in the samples are flagged with 'B' flags.

MS/DMS

EQ1100270: Laboratory Control Spike/Duplicate Laboratory Control Spike (LCS/DLCS) samples were analyzed and reported in lieu of an MS/DMS for this extraction batch. The batch quality control criteria were met.

C flags – 2378-TCDF Confirmation

Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225.) The results from both the DB-5 column and the DB-225 column are included in this data package.

The valid result for the 2378-TCDF compound is reported from the confirmation column.

The confirmation results have been included on the TEQ summary pages.

Approved by: Darren Biles for XL **Date:** 6/22/11

Xiangqiu Liang, Laboratory Director

K flags

CAS/Houston reports EMPC results that comply with Section 11.2.6 of the DLM02.2 SOW. An EMPC result is flagged with a 'K' flag.

Detection Limits

Detection limits are calculated for each congener in each sample by measuring the height of the noise level for each quantitation ion for the associated labeled standard. The concentration equivalent to 2.5 times the height of the noise is then calculated using the appropriate response factor and the weight of the sample. The calculated concentration equals the detection limit.

The TEQ results for each sample have been calculated by CAS/Houston to include:

- WHO-1998 TEFs
- 2378-TCDF from the DB-225 column, when confirmation required
- Non-detected compounds are represented as 1/2 *EDL for the TEQ calculation

Use of Columbia Analytical Services, Inc. (CAS) Name. Client shall not use CAS's name or trademark in any marketing or reporting materials, press releases or in any other manner ("Materials") whatsoever and shall not attribute to CAS any test result, tolerance or specification derived from CAS's data ("Attribution") without CAS's prior written consent, which may be withheld by CAS for any reason in its sole discretion. To request CAS's consent, Client shall provide copies of the proposed Materials or Attribution and describe in writing Client's proposed use of such Materials or Attribution. If CAS has not provided written approval of the Materials or Attribution within ten (10) days of receipt from Client, Client's request to use CAS's name or trademark in any Materials or Attribution shall be deemed denied. CAS may, in its discretion, reasonably charge Client for its time in reviewing Materials or Attribution requests. Client acknowledges and agrees that the unauthorized use of CAS's name or trademark may cause CAS to incur irreparable harm for which the recovery of money damages will be inadequate. Accordingly, Client acknowledges and agrees that a violation shall justify preliminary injunctive relief. For questions contact the laboratory.

Approved by: Darren Biles for XL **Date:** 6/22/11

Xiangqiu Liang, Laboratory Director

Client: Anchor QEA, LLC
Project: San Jacinto River Sedflume Study IDW

Service Request: E1100611

SAMPLE CROSS-REFERENCE

SAMPLE #	CLIENT SAMPLE ID	DATE	TIME
E1100611-001	SJSF001-IDW	6/6/11	11:44
E1100611-002	SJSF002-IDW	6/6/11	12:14

Superset Summary

Service Request: E1100611 **SuperSet Reference:** 11-0000181126 rev 00

1613B/Dioxins Furans

Calibrations: 03/24/11 03/31/11

Data Files:

Raw Data	*Begin CCAL*	*Method Blank*	*Lab ID*
P114452	P114443	P114457	E1100611-001.R01
P114453	P114443	P114457	E1100611-002
P114457	P114455	P114457	EQ1100270-01
P114464	P114455	P114457	EQ1100270-02
P114465	P114455	P114457	EQ1100270-03
U140620	U140611	U140612	E1100611-002.R01
U140634	U140622	U140624	E1100611-001

Laboratory Certifications
2011-2012

STATE/PROGRAM	AGENCY	CERT#	EXP DATE	CERTIFIED?
DoD ELAP	A2LA	2897.01	11/30/11	Yes
ISO 17025	A2LA	2897.01	11/30/11	Yes
Arizona	AZ-DHS	AZ0725	05/27/11	Yes
arkansas	ADEQ	10-035-0	06/16/11	Yes
California	CA-ELAP	2452	02/28/13	Yes
Florida/NELAP	FL-DOHS	E87611	06/30/11	Yes
Hawaii	HI-DOH	N/A	06/30/11	Yes
Illinois/NELAP	IL-EPA	002611	10/06/11	Yes
Louisiana/NELAP	LELAP	03048	06/30/11	Yes
Louisiana/NELAP	LDHH	LA100032	12/31/11	Yes
Maine	ME-DOHS	2010041	06/05/12	Yes
Michigan	MIDEQ	9971	06/30/11	Yes
Minnesota	MDH	048-999-427	12/31/11	Yes
Nevada	NDEP	TX014112010A	07/31/10	Yes (Extension)
New Jersey	NJDEP	TX008	06/30/11	Yes
New Mexico	NMED-DWB	N/A	06/30/11	Yes
New York/NELAP	NY-DOH	11707	04/1/12	Yes
Oklahoma	OKDEQ	2010-022	08/31/11	Yes
Oregon/NELAP	ORELAP	TX200002-006	03/24/12	Yes
Pennsylvania/NELAP	PLAP	002	06/30/11	Yes
Tennessee	TNDEC	04016	06/30/11	Yes
Texas/NELAP	TCEQ	T104704216-10-1	06/30/11	Yes
UTAH/NELAP	UTELCP	COLU2	06/30/11	Yes
Soil Import Permit	USDA	P330-09-00067	03/27/12	Yes
Washington/NELAP	WA-Ecology	C819-10	11/14/11	Yes
West Virginia	WVDEP	347	06/30/11	Yes

Abbreviations, Acronyms & Definitions

Cal	Calibration
Conc	CONCentration
Dioxin(s)	Polychlorinated dibenzo-p-dioxin(s)
EDL	Estimated Detection Limit
EMPC	Estimated Maximum Possible Concentration
Flags	Data qualifiers
Furan(s)	Polychlorinated dibenzofuran(s)
g	Grams
ICAL	Initial CALibration
ID	IDentifier
Ions	Masses monitored for the analyte during data acquisition
L	Liter (s)
LCS	Laboratory Control Sample
DLCS	Duplicate Laboratory Control Sample
MB	Method Blank
MCL	Method Calibration Limit
MDL	Method Detection Limit
MRL	Method Reporting Limit
mL	Milliliters
MS	Matrix Spiked sample
DMS	Duplicate Matrix Spiked sample
NO	Number of peaks meeting all identification criteria
PCDD(s)	Polychlorinated dibenzo-p-dioxin(s)
PCDF(s)	Polychlorinated dibenzofuran(s)
ppb	Parts per billion
ppm	Parts per million
ppq	Parts per quadrillion
ppt	Parts per trillion
QA	Quality Assurance
QC	Quality Control
Ratio	Ratio of areas from monitored ions for an analyte
% Rec.	Percent Recovery
RPD	Relative Percent Difference
RRF	Relative Response Factor
RT	Retention Time
RRT	Relative Retention Time
SDG	Sample Delivery Group
S/N	Signal-to-Noise ratio
TEF	Toxicity Equivalence Factor
TEQ	Toxicity Equivalence Quotient

Data Qualifier Flags – Dioxin/Furans

- **B** Indicates the associated analyte is found in the method blank, as well as in the sample.

- **C** Confirmation of the TCDF compound: When 2378-TCDF is detected on the DB-5 column, confirmation analyses are performed on a second column (DB-225). The results from both the DB-5 column and the DB-225 column are included in this data package. The results from the DB-225 analyses should be used to evaluate the 2378-TCDF in the samples. The confirmed result should be used in determining the TEQ value for TCDF.

- **E** Indicates an estimated value – used when the analyte concentration exceeds the upper end of the linear calibration range.

- **J** Indicates an estimated value – used when the analyte concentration is below the method reporting limit (MRL) and above the estimated detection limit (EDL).

- **K** EMPC - When the ion abundance ratios associated with a particular compound are outside the QC limits, samples are flagged with a 'K' flag. A 'K' flag indicates an estimated maximum possible concentration for the associated compound.

- **U** Indicates the compound was analyzed and not detected.

- **Y** Samples that had recoveries of labeled standards outside the acceptance limits are flagged with 'Y'. In all cases, the signal-to-noise ratios are greater than 10:1, making these data acceptable.

- **ND** Indicates concentration is reported as 'Not Detected.'

- **S** Peak is saturated; data not reportable.

- **P** Indicates chlorodiphenyl ether interference present at the retention time of the target compound.

- **Q** Lock-mass interference by chlorodiphenyl ether compounds.

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1100611 DB-5 DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 6/10/11 Analyst: cer Samples: -001, -002

Second Level - Data Review – to be filled by person doing peer review

Date: 06/11/11 Analyst: [illegible] Samples: 001, 002

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID: E1100611 mc 06/10/11 | DB-5 | DB-225 | SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date:	Analyst:	Samples:
06/10/11	JB	002

Second Level - Data Review – to be filled by person doing peer review

Date:	Analyst:	Samples:
06/10/11	MC	002

PEER REVIEW PAGE.DOC

COLUMBIA ANALYTICAL SERVICES, INC. – Houston
Data Processing/Form Production and Peer Review Signatures

SR# Unique ID E1100611 DB-5 DB-225 SPB-Octyl

First Level - Data Processing - to be filled by person generating the forms

Date: 06/15/11 Analyst: gc Samples: 001

Second Level - Data Review – to be filled by person doing peer review

Date: 06/15/11 Analyst: BY Samples: 001

PEER REVIEW PAGE

Analytical Results

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Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1144
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF001-IDW	**Units:**	pg/L
Lab Code:	E1100611-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1409
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1010mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114452	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114443

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**2.60**	K	0.742	1.98	0.90	1.001	1
1,2,3,7,8-PeCDD	ND	U	1.08	9.90			1
1,2,3,4,7,8-HxCDD	ND	U	0.632	9.90			1
1,2,3,6,7,8-HxCDD	ND	U	0.778	9.90			1
1,2,3,7,8,9-HxCDD	ND	U	0.678	9.90			1
1,2,3,4,6,7,8-HpCDD	**23.9**	B	0.742	9.90	1.16	1.000	1
OCDD	**1020**	B	1.28	19.8	0.90	1.000	1
2,3,7,8-TCDF	**3.78**	C	0.903	1.98	0.81	1.001	1
1,2,3,7,8-PeCDF	ND	U	0.738	9.90			1
2,3,4,7,8-PeCDF	ND	U	0.703	9.90			1
1,2,3,4,7,8-HxCDF	**0.950**	J	0.429	9.90	1.31	1.001	1
1,2,3,6,7,8-HxCDF	ND	U	0.426	9.90			1
1,2,3,7,8,9-HxCDF	ND	U	0.563	9.90			1
2,3,4,6,7,8-HxCDF	ND	U	0.450	9.90			1
1,2,3,4,6,7,8-HpCDF	**3.44**	J	0.582	9.90	0.96	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.723	9.90			1
OCDF	**36.2**	B	1.69	19.8	0.83	1.004	1
Total Tetra-Dioxins	ND	U	0.742	1.98			1
Total Penta-Dioxins	ND	U	1.08	9.90			1
Total Hexa-Dioxins	**12.1**		0.632	9.90	1.06		1
Total Hepta-Dioxins	**80.2**		0.742	9.90	0.93		1
Total Tetra-Furans	**3.78**		0.903	1.98	0.81		1
Total Penta-Furans	ND	U	0.703	9.90			1
Total Hexa-Furans	**2.02**	J	0.429	9.90	1.28		1
Total Hepta-Furans	**6.07**	J	0.582	9.90	0.96		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1144
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF001-IDW	**Units:**	Percent
Lab Code:	E1100611-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1409
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1010mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114452	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114443

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1568.755	78		25-164	0.80	1.007
13C-1,2,3,7,8-PeCDD	2000	1562.125	78		25-181	1.61	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1837.167	92		32-141	1.25	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1633.036	82		28-130	1.28	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1492.318	75		23-140	1.05	1.068
13C-OCDD	4000	2269.814	57		17-157	0.90	1.147
13C-2,3,7,8-TCDF	2000	1157.533	58		24-169	0.79	0.978
13C-1,2,3,7,8-PeCDF	2000	1471.566	74		24-185	1.57	1.130
13C-2,3,4,7,8-PeCDF	2000	1519.965	76		21-178	1.60	1.156
13C-1,2,3,4,7,8-HxCDF	2000	1700.381	85		26-152	0.54	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1651.427	83		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1585.076	79		29-147	0.52	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1707.682	85		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1613.005	81		28-143	0.44	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1751.818	88		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	600.547	75		35-197	NA	1.008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1144
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF001-IDW	**Units:**	pg/L
Lab Code:	E1100611-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 1613B
Prep Method: Method

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.60**	0.742	1.98	1	1	2.60
1,2,3,7,8-PeCDD	ND	1.08	9.90	1	1	0.540
1,2,3,4,7,8-HxCDD	ND	0.632	9.90	1	0.1	0.0316
1,2,3,6,7,8-HxCDD	ND	0.778	9.90	1	0.1	0.0389
1,2,3,7,8,9-HxCDD	ND	0.678	9.90	1	0.1	0.0339
1,2,3,4,6,7,8-HpCDD	**23.9**	0.742	9.90	1	0.01	0.239
OCDD	**1020**	1.28	19.8	1	0.0001	0.102
2,3,7,8-TCDF	**3.19**	0.992	1.98	1	0.1	0.319
1,2,3,7,8-PeCDF	ND	0.738	9.90	1	0.05	0.0185
2,3,4,7,8-PeCDF	ND	0.703	9.90	1	0.5	0.176
1,2,3,4,7,8-HxCDF	**0.950**	0.429	9.90	1	0.1	0.0950
1,2,3,6,7,8-HxCDF	ND	0.426	9.90	1	0.1	0.0213
1,2,3,7,8,9-HxCDF	ND	0.563	9.90	1	0.1	0.0282
2,3,4,6,7,8-HxCDF	ND	0.450	9.90	1	0.1	0.0225
1,2,3,4,6,7,8-HpCDF	**3.44**	0.582	9.90	1	0.01	0.0344
1,2,3,4,7,8,9-HpCDF	ND	0.723	9.90	1	0.01	0.00362
OCDF	**36.2**	1.69	19.8	1	0.0001	0.00362
		Total TEQ				4.31

1998 WHO TEFs, ND = 0.5*DL

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1144
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF001-IDW	**Units:**	pg/L
Lab Code:	E1100611-001	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/11/11 0005
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1010mL	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-225
Data File Name:	U140634	**Blank File Name:**	U140624
ICAL Date:	03/31/11	**Cal Ver. File Name:**	U140622

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDF	**3.19**		0.992	1.98	0.87	1.000	1

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDF	2000	1218.289	61		24-169	0.79	1.061
37Cl-2,3,7,8-TCDD	800	663.834	83		35-197	NA	0.990

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1214
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF002-IDW	**Units:**	pg/L
Lab Code:	E1100611-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1455
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1030mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114453	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114443

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**2.87**	K	0.698	1.94	0.61	1.000	1
1,2,3,7,8-PeCDD	ND	U	0.852	9.71			1
1,2,3,4,7,8-HxCDD	ND	U	0.561	9.71			1
1,2,3,6,7,8-HxCDD	ND	U	0.675	9.71			1
1,2,3,7,8,9-HxCDD	**0.986**	JK	0.594	9.71	2.06	1.008	1
1,2,3,4,6,7,8-HpCDD	**36.8**	B	1.07	9.71	1.05	1.000	1
OCDD	**1410**	B	1.36	19.4	0.90	1.000	1
2,3,7,8-TCDF	**9.36**	C	0.792	1.94	0.70	1.000	1
1,2,3,7,8-PeCDF	ND	U	0.676	9.71			1
2,3,4,7,8-PeCDF	ND	U	0.678	9.71			1
1,2,3,4,7,8-HxCDF	ND	U	0.595	9.71			1
1,2,3,6,7,8-HxCDF	ND	U	0.606	9.71			1
1,2,3,7,8,9-HxCDF	ND	U	0.787	9.71			1
2,3,4,6,7,8-HxCDF	ND	U	0.664	9.71			1
1,2,3,4,6,7,8-HpCDF	**4.18**	J	0.539	9.71	1.00	1.000	1
1,2,3,4,7,8,9-HpCDF	ND	U	0.634	9.71			1
OCDF	**53.4**	B	1.62	19.4	0.80	1.004	1
Total Tetra-Dioxins	**13.6**		0.698	1.94	0.77		1
Total Penta-Dioxins	ND	U	0.852	9.71			1
Total Hexa-Dioxins	**3.99**	J	0.561	9.71	1.35		1
Total Hepta-Dioxins	**122**		1.07	9.71	1.04		1
Total Tetra-Furans	**13.2**		0.792	1.94	0.76		1
Total Penta-Furans	ND	U	0.678	9.71			1
Total Hexa-Furans	**1.46**	J	0.595	9.71	1.38		1
Total Hepta-Furans	**8.11**	J	0.539	9.71	1.00		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1214
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF002-IDW	**Units:**	Percent
Lab Code:	E1100611-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1455
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1030mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114453	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114443

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1717.437	86		25-164	0.80	1.007
13C-1,2,3,7,8-PeCDD	2000	1677.802	84		25-181	1.57	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1836.112	92		32-141	1.26	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1673.107	84		28-130	1.26	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1557.161	78		23-140	1.06	1.068
13C-OCDD	4000	2305.895	58		17-157	0.90	1.147
13C-2,3,7,8-TCDF	2000	1253.521	63		24-169	0.79	0.978
13C-1,2,3,7,8-PeCDF	2000	1532.053	77		24-185	1.57	1.130
13C-2,3,4,7,8-PeCDF	2000	1508.596	75		21-178	1.59	1.156
13C-1,2,3,4,7,8-HxCDF	2000	1805.587	90		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1665.705	83		26-123	0.53	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1672.286	84		29-147	0.52	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1732.398	87		28-136	0.53	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1683.085	84		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1855.600	93		26-138	0.44	1.079
37Cl-2,3,7,8-TCDD	800	663.287	83		35-197	NA	1.008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1214
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF002-IDW	**Units:**	pg/L
Lab Code:	E1100611-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 1613B
Prep Method: Method

Analyte Name	Result	DL	MRL	Dilution Factor	TEF	TEF - Adjusted Concentration
2,3,7,8-TCDD	**2.87**	0.698	1.94	1	1	2.87
1,2,3,7,8-PeCDD	ND	0.852	9.71	1	1	0.426
1,2,3,4,7,8-HxCDD	ND	0.561	9.71	1	0.1	0.0281
1,2,3,6,7,8-HxCDD	ND	0.675	9.71	1	0.1	0.0338
1,2,3,7,8,9-HxCDD	**0.986**	0.594	9.71	1	0.1	0.0986
1,2,3,4,6,7,8-HpCDD	**36.8**	1.07	9.71	1	0.01	0.368
OCDD	**1410**	1.36	19.4	1	0.0001	0.141
2,3,7,8-TCDF	**8.26**	1.20	1.94	1	0.1	0.826
1,2,3,7,8-PeCDF	ND	0.676	9.71	1	0.05	0.0169
2,3,4,7,8-PeCDF	ND	0.678	9.71	1	0.5	0.170
1,2,3,4,7,8-HxCDF	ND	0.595	9.71	1	0.1	0.0298
1,2,3,6,7,8-HxCDF	ND	0.606	9.71	1	0.1	0.0303
1,2,3,7,8,9-HxCDF	ND	0.787	9.71	1	0.1	0.0394
2,3,4,6,7,8-HxCDF	ND	0.664	9.71	1	0.1	0.0332
1,2,3,4,6,7,8-HpCDF	**4.18**	0.539	9.71	1	0.01	0.0418
1,2,3,4,7,8,9-HpCDF	ND	0.634	9.71	1	0.01	0.00317
OCDF	**53.4**	1.62	19.4	1	0.0001	0.00534
		Total TEQ				5.16

1998 WHO TEFs, ND = 0.5*DL

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	6/ 6/11 1214
Sample Matrix:	Water	**Date Received:**	6/ 6/11
Sample Name:	SJSF002-IDW	**Units:**	pg/L
Lab Code:	E1100611-002	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1554
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1030mL	**Instrument Name:**	E-HRMS-01
		GC Column:	DB-225
Data File Name:	U140620	**Blank File Name:**	U140612
ICAL Date:	03/31/11	**Cal Ver. File Name:**	U140611

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDF	**8.26**		1.20	1.94	0.71	1.001	1

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDF	2000	1357.436	68		24-169	0.79	1.061
37Cl-2,3,7,8-TCDD	800	718.961	90		35-197	NA	0.990

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	pg/L
Lab Code:	EQ1100270-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1833
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114457	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	ND	U	0.760	2.00			1
1,2,3,7,8-PeCDD	ND	U	0.834	10.0			1
1,2,3,4,7,8-HxCDD	ND	U	0.661	10.0			1
1,2,3,6,7,8-HxCDD	ND	U	0.813	10.0			1
1,2,3,7,8,9-HxCDD	ND	U	0.708	10.0			1
1,2,3,4,6,7,8-HpCDD	**1.60**	J	0.888	10.0	1.13	1.000	1
OCDD	**8.32**	J	1.35	20.0	0.80	1.000	1
2,3,7,8-TCDF	ND	U	0.914	2.00			1
1,2,3,7,8-PeCDF	ND	U	0.615	10.0			1
2,3,4,7,8-PeCDF	ND	U	0.620	10.0			1
1,2,3,4,7,8-HxCDF	ND	U	0.519	10.0			1
1,2,3,6,7,8-HxCDF	ND	U	0.518	10.0			1
1,2,3,7,8,9-HxCDF	ND	U	0.666	10.0			1
2,3,4,6,7,8-HxCDF	ND	U	0.540	10.0			1
1,2,3,4,6,7,8-HpCDF	ND	U	0.710	10.0			1
1,2,3,4,7,8,9-HpCDF	ND	U	0.879	10.0			1
OCDF	**2.35**	J	1.46	20.0	0.87	1.005	1
Total Tetra-Dioxins	ND	U	0.760	2.00			1
Total Penta-Dioxins	ND	U	0.834	10.0			1
Total Hexa-Dioxins	ND	U	0.661	10.0			1
Total Hepta-Dioxins	**1.60**	J	0.888	10.0	1.13		1
Total Tetra-Furans	ND	U	0.914	2.00			1
Total Penta-Furans	ND	U	0.620	10.0			1
Total Hexa-Furans	ND	U	0.519	10.0			1
Total Hepta-Furans	ND	U	0.710	10.0			1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Method Blank	**Units:**	Percent
Lab Code:	EQ1100270-01	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/9/11 1833
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114457	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1659.882	83		25-164	0.80	1.007
13C-1,2,3,7,8-PeCDD	2000	1529.671	76		25-181	1.59	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1873.148	94		32-141	1.29	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1654.902	83		28-130	1.29	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1675.098	84		23-140	1.04	1.068
13C-OCDD	4000	2401.514	60		17-157	0.90	1.147
13C-2,3,7,8-TCDF	2000	1231.220	62		24-169	0.79	0.978
13C-1,2,3,7,8-PeCDF	2000	1521.615	76		24-185	1.60	1.130
13C-2,3,4,7,8-PeCDF	2000	1500.901	75		21-178	1.59	1.156
13C-1,2,3,4,7,8-HxCDF	2000	1723.578	86		26-152	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1699.965	85		26-123	0.52	0.974
13C-1,2,3,7,8,9-HxCDF	2000	1683.366	84		29-147	0.52	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1775.810	89		28-136	0.52	0.987
13C-1,2,3,4,6,7,8-HpCDF	2000	1780.622	89		28-143	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1893.729	95		26-138	0.45	1.079
37Cl-2,3,7,8-TCDD	800	633.155	79		35-197	NA	1.007

Accuracy and Precision

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Anchor QEA, LLC
Project: San Jacinto River Sedflume Study IDW
Sample Matrix: Water

Service Request: E1100611
Date Analyzed: 6/10/11

Lab Control Sample Summary
Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method: 1613B
Prep Method: Method

Units: pg/L
Basis: NA

Extraction Lot: 135204

	Lab Control Sample EQ1100270-02			Duplicate Lab Control Sample EQ1100270-03					
Analyte Name	**Result**	**Spike Amount**	**% Rec**	**Result**	**Spike Amount**	**% Rec**	**% Rec Limits**	**RPD**	**RPD Limit**
2,3,7,8-TCDD	159	200	79	155	200	78	67 - 158	1	50
1,2,3,7,8-PeCDD	945	1000	94	924	1000	92	70 - 142	2	50
1,2,3,4,7,8-HxCDD	910	1000	91	886	1000	89	70 - 164	2	50
1,2,3,6,7,8-HxCDD	1010	1000	101	971	1000	97	76 - 134	4	50
1,2,3,7,8,9-HxCDD	879	1000	88	853	1000	85	64 - 162	3	50
1,2,3,4,6,7,8-HpCDD	999	1000	100	956	1000	96	70 - 140	4	50
OCDD	1970	2000	99	1910	2000	96	78 - 144	3	50
2,3,7,8-TCDF	194	200	97	189	200	94	75 - 158	3	50
1,2,3,7,8-PeCDF	903	1000	90	866	1000	87	80 - 134	3	50
2,3,4,7,8-PeCDF	890	1000	89	863	1000	86	68 - 160	3	50
1,2,3,4,7,8-HxCDF	953	1000	95	937	1000	94	72 - 134	1	50
1,2,3,6,7,8-HxCDF	964	1000	96	958	1000	96	84 - 130	<1	50
1,2,3,7,8,9-HxCDF	1020	1000	102	987	1000	99	78 - 130	3	50
2,3,4,6,7,8-HxCDF	990	1000	99	960	1000	96	70 - 156	3	50
1,2,3,4,6,7,8-HpCDF	980	1000	98	959	1000	96	82 - 122	2	50
1,2,3,4,7,8,9-HpCDF	919	1000	92	896	1000	90	78 - 138	2	50
OCDF	2170	2000	109	2090	2000	104	63 - 170	5	50

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1100270-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/10/11 0007
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114464	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**159**		0.699	2.00	0.80	1.001	1
1,2,3,7,8-PeCDD	**945**		0.672	10.0	1.59	1.000	1
1,2,3,4,7,8-HxCDD	**910**		0.503	10.0	1.25	1.000	1
1,2,3,6,7,8-HxCDD	**1010**		0.601	10.0	1.29	1.000	1
1,2,3,7,8,9-HxCDD	**879**		0.531	10.0	1.25	1.008	1
1,2,3,4,6,7,8-HpCDD	**999**		0.857	10.0	1.04	1.000	1
OCDD	**1970**		1.15	20.0	0.87	1.000	1
2,3,7,8-TCDF	**194**		0.877	2.00	0.78	1.001	1
1,2,3,7,8-PeCDF	**903**		0.669	10.0	1.59	1.001	1
2,3,4,7,8-PeCDF	**890**		0.675	10.0	1.59	1.001	1
1,2,3,4,7,8-HxCDF	**953**		0.458	10.0	1.24	1.000	1
1,2,3,6,7,8-HxCDF	**964**		0.453	10.0	1.26	1.000	1
1,2,3,7,8,9-HxCDF	**1020**		0.595	10.0	1.21	1.000	1
2,3,4,6,7,8-HxCDF	**990**		0.486	10.0	1.26	1.000	1
1,2,3,4,6,7,8-HpCDF	**980**		1.62	10.0	1.05	1.000	1
1,2,3,4,7,8,9-HpCDF	**919**		2.07	10.0	1.05	1.000	1
OCDF	**2170**		1.37	20.0	0.90	1.004	1
Total Tetra-Dioxins	**159**		0.699	2.00	0.88		1
Total Penta-Dioxins	**945**		0.672	10.0	1.59		1
Total Hexa-Dioxins	**2790**		0.503	10.0	1.25		1
Total Hepta-Dioxins	**1000**		0.857	10.0	0.93		1
Total Tetra-Furans	**198**		0.877	2.00	0.85		1
Total Penta-Furans	**1800**		0.675	10.0	1.46		1
Total Hexa-Furans	**3930**		0.458	10.0	1.24		1
Total Hepta-Furans	**1900**		1.62	10.0	1.05		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1100270-02	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/10/11 0007
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114464	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1561.696	78		25-164	0.78	1.007
13C-1,2,3,7,8-PeCDD	2000	1574.531	79		21-227	1.60	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1809.427	90		21-193	1.26	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1565.647	78		25-163	1.25	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1456.205	73		26-166	1.07	1.068
13C-OCDD	4000	2383.263	60		13-199	0.90	1.147
13C-2,3,7,8-TCDF	2000	1150.825	58		22-152	0.79	0.978
13C-1,2,3,7,8-PeCDF	2000	1521.014	76		21-192	1.61	1.130
13C-2,3,4,7,8-PeCDF	2000	1490.036	75		13-328	1.57	1.156
13C-1,2,3,4,7,8-HxCDF	2000	1698.597	85		19-202	0.53	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1655.564	83		21-159	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1624.601	81		17-205	0.52	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1683.694	84		22-176	0.53	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1617.651	81		21-158	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1751.723	88		20-186	0.45	1.079
37Cl-2,3,7,8-TCDD	800	620.368	78		31-191	NA	1.008

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	pg/L
Lab Code:	EQ1100270-03	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/10/11 0054
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114465	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Analyte Name	Result	Q	EDL	MRL	Ion Ratio	RRT	Dilution Factor
2,3,7,8-TCDD	**155**		0.572	2.00	0.79	1.001	1
1,2,3,7,8-PeCDD	**924**		0.706	10.0	1.57	1.000	1
1,2,3,4,7,8-HxCDD	**886**		0.531	10.0	1.24	1.000	1
1,2,3,6,7,8-HxCDD	**971**		0.644	10.0	1.27	1.000	1
1,2,3,7,8,9-HxCDD	**853**		0.564	10.0	1.25	1.008	1
1,2,3,4,6,7,8-HpCDD	**956**		0.623	10.0	1.03	1.000	1
OCDD	**1910**		1.08	20.0	0.87	1.000	1
2,3,7,8-TCDF	**189**		0.803	2.00	0.78	1.001	1
1,2,3,7,8-PeCDF	**866**		0.646	10.0	1.58	1.001	1
2,3,4,7,8-PeCDF	**863**		0.611	10.0	1.55	1.000	1
1,2,3,4,7,8-HxCDF	**937**		0.368	10.0	1.23	1.000	1
1,2,3,6,7,8-HxCDF	**958**		0.377	10.0	1.23	1.000	1
1,2,3,7,8,9-HxCDF	**987**		0.485	10.0	1.28	1.000	1
2,3,4,6,7,8-HxCDF	**960**		0.388	10.0	1.19	1.000	1
1,2,3,4,6,7,8-HpCDF	**959**		1.25	10.0	1.04	1.000	1
1,2,3,4,7,8,9-HpCDF	**896**		1.58	10.0	1.04	1.000	1
OCDF	**2090**		1.26	20.0	0.90	1.004	1
Total Tetra-Dioxins	**155**		0.572	2.00	0.79		1
Total Penta-Dioxins	**924**		0.706	10.0	1.57		1
Total Hexa-Dioxins	**2710**		0.531	10.0	1.24		1
Total Hepta-Dioxins	**956**		0.623	10.0	1.03		1
Total Tetra-Furans	**195**		0.803	2.00	0.71		1
Total Penta-Furans	**1750**		0.611	10.0	1.62		1
Total Hexa-Furans	**3840**		0.368	10.0	1.23		1
Total Hepta-Furans	**1860**		1.25	10.0	1.04		1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Anchor QEA, LLC	**Service Request:**	E1100611
Project:	San Jacinto River Sedflume Study IDW	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
Sample Name:	Duplicate Lab Control Sample	**Units:**	Percent
Lab Code:	EQ1100270-03	**Basis:**	NA

Polychlorinated Dibenzodioxins and Polychlorinated Dibenzofurans by HRGC/HRMS

Analytical Method:	1613B	**Date Analyzed:**	6/10/11 0054
Prep Method:	Method	**Date Extracted:**	6/7/11
Sample Amount:	1000mL	**Instrument Name:**	E-HRMS-03
		GC Column:	DB-5
Data File Name:	P114465	**Blank File Name:**	P114457
ICAL Date:	03/24/11	**Cal Ver. File Name:**	P114455

Labeled Compounds	Spike Conc.(pg)	Conc. Found (pg)	%Rec	Q	Control Limits	Ion Ratio	RRT
13C-2,3,7,8-TCDD	2000	1570.895	79		25-164	0.78	1.007
13C-1,2,3,7,8-PeCDD	2000	1528.156	76		21-227	1.60	1.168
13C-1,2,3,4,7,8-HxCDD	2000	1857.159	93		21-193	1.28	0.990
13C-1,2,3,6,7,8-HxCDD	2000	1578.350	79		25-163	1.26	0.992
13C-1,2,3,4,6,7,8-HpCDD	2000	1479.412	74		26-166	1.06	1.068
13C-OCDD	4000	2368.944	59		13-199	0.90	1.147
13C-2,3,7,8-TCDF	2000	1149.835	57		22-152	0.81	0.978
13C-1,2,3,7,8-PeCDF	2000	1481.755	74		21-192	1.60	1.130
13C-2,3,4,7,8-PeCDF	2000	1478.512	74		13-328	1.62	1.156
13C-1,2,3,4,7,8-HxCDF	2000	1725.571	86		19-202	0.52	0.972
13C-1,2,3,6,7,8-HxCDF	2000	1638.319	82		21-159	0.53	0.975
13C-1,2,3,7,8,9-HxCDF	2000	1647.061	82		17-205	0.52	1.006
13C-2,3,4,6,7,8-HxCDF	2000	1714.610	86		22-176	0.51	0.988
13C-1,2,3,4,6,7,8-HpCDF	2000	1623.233	81		21-158	0.45	1.044
13C-1,2,3,4,7,8,9-HpCDF	2000	1773.031	89		20-186	0.45	1.079
37Cl-2,3,7,8-TCDD	800	591.624	74		31-191	NA	1.008

Chain of Custody

19408 Park Row, Suite 320, Houston, TX 77084
Phone (713)266-1599 Fax (713)266-0130
www.caslab.com

An Employee Owned Company

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: _____

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Sedflume Study IDW
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ 8021☐ BTEX☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals: Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond., Cl, SO4, PO4, F, NO2, NO3, BOD, TSS, TDS (circle)	NH3-N, COD, Total-P, TKN, TOC, DOC (circle) NO2+NO3	TOX 9020☐ AOX 1650☐ 506☐	1613 B FULL LIST				REMARKS
SJSF001-IDW-N	6/6/2011	11:44		Water	1															X				
SJSF001-IDW-D	6/6/2011	11:44		Water	1															X				Backup
SJSF002-IDW-N	6/6/2011	12:14		Water	1															X				
SJSF002-IDW-D	6/6/2011	12:14		Water	1															X				Backup

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. # _____
Bill To: See comments

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
X 5 Day
___ Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

1613B full list (dioxins and furans), TEQ WHO 1998, ND=1/2 DL, rush processing
For invoicing: Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

hand delivered, no seals
opened @ 1557
wet ice, baggies
0°C/1°C

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Daleel Nangju	Signature:	Signature:	Signature: Cindy Donovan 6/6/11 1555
Date/Time:	Date/Time:	Date/Time:	Date/Time:
Printed Name: Daleel Nangju	Printed Name:	Printed Name:	Printed Name: Cindy Donovan
Firm: Anchor QEA	Firm:	Firm:	Firm: CAS Houston

RCOC #1 03/10

Columbia Analytical Services

Cooler Receipt Form

Project Chemist: DB

Client/Project: Anchor QEA; San Jacinto River Sedflume Study IDW

Service Request: E1100611

Date/Time Received: 6/6/11 15:55:00

Date/Time Logged in: 6/6/11 16:20:00

Technician: CD

Technician: CD

1. Method of delivery: ○ US Mail ○ Fed Ex ○ UPS ○ DHL ○ Courier ◉ Client

2. Samples received in: ◉ Cooler ○ Box ○ Envelope ○ Other

3. Were custody seals on coolers? ○ Yes ◉ No ○ N/A

Were they intact? ○ Yes ○ No ◉ N/A

Were they signed and dated? ○ Yes ○ No ◉ N/A

If yes, how many and where?

4. Method of delivery: ○ Inserts ☑ Baggies ○ Bubble Wrap ○ Gel Packs ☑ Wet Ice ○ Sleeves ○ Other

5. Foreign or Regulated Soil? ○ Yes ◉ No

Location of Sampling:

Cooler Tracking Number	COC ID	Date Opened	Time Opened	Opened By	Temp. °C	Temp Blank?	Filed
N/A		Jun 6, 2011	1557	CD	0/1	☒	☒
						☐	☐
						☐	☐
						☐	☐
						☐	☐

6. Were custody papers properly filled out (ink, signed, dated, etc)? ◉ Yes ○ No ○ N/A

7. Did all bottles arrive in good condition (not broken, no signs of leakage)? ◉ Yes ○ No ○ N/A

8. Were all sample labels complete (i.e., sample ID, analysis, preservation, etc)? ◉ Yes ○ No ○ N/A

9. Were appropriate bottles/containers and volumes received for the requested tests? ◉ Yes ○ No ○ N/A

10. Did sample labels and tags agree with custody documents? ◉ Yes ○ No ○ N/A

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count	Bottle Type	Out of Temp	Broken	Date	Technician
			☐	☐		
			☐	☐		
			☐	☐		
			☐	☐		

Notes, Discrepancies, & Resolutions:

Print Form

Reset Form

Columbia Analytical Services INC

Sample Acceptance Policy

This policy outlines the criteria samples must meet to be accepted by CAS/ Houston.

Cooler Custody Seals (desirable, mandatory if specified in SAP):

- ✓ Intact on outside of cooler, signed and dated

Chain-of-Custody (COC) documentation (mandatory):

The following is required on each COC:

- ✓ Sample ID, the location, date and time of collection, collector's name, preservation type, sample type, and any other special remarks concerning the sample
- ✓ The COC must be completed in ink.
- ✓ Signature and date of relinquishing party.

In the absence of a COC at sample receipt, CAS/Houston will complete a COC, which must be approved by the client, in writing, prior to proceeding with the analysis.

Sample Integrity (mandatory):

Samples are inspected upon arrival to ensure that sample integrity was not compromised during transfer to the laboratory.

- ✓ Sample containers must arrive in good condition (not broken or leaking).
- ✓ Samples must be labeled appropriately, including Sample IDs, and requested test using durable labels and indelible ink.
- ✓ The correct type of sample bottle must be used for the method requested.
- ✓ An appropriate sample volume, or weight, must be received.
- ✓ Sample IDs and number of containers must reconcile with the COC.
- ✓ Samples must be received within the method defined holding time.

Temperature Requirement (varies by sample matrix):

- ✓ Aqueous and Non-aqueous samples must be shipped and stored cold, at 0 to 6°C.
- ✓ Tissue samples must be shipped and stored frozen, at -20 to -10°C.
- ✓ Air samples can be shipped and stored at ambient temperature, ~23°C.
- ✓ The sample temperature must be recorded on the COC

All cooler inspections are documented on the Cooler Receipt Form (CRF). A separate CRF is completed for each service request. Any samples not meeting the above criteria are noted on the CRF and the Project Manager notified. The Project Manager must resolve any sample integrity issues with the client prior to proceeding with the analysis. Such resolutions are documented in writing and filed with the project folder.

Service Request Summary

Folder #: **E1100611**
Client Name: Anchor QEA, LLC
Project Name: San Jacinto River Sedflume Study IDW
Project Number:

Report To: Daleel Nangju
Anchor QEA, LLC
10707 Corporate Drive Suite 230
Stafford, TX
Phone Number: 281-565-1133
Cell Number: 281-317-0499
Fax Number:
E-mail: dnangju@anchorqea.com

Project Chemist: Darren Biles
Originating Lab: HOUSTON
Logged By: CDONOVAN
Date Received: 6/ 6/11
Internal Due Date: 6/13/11
QAP: LAB QAP
Qualifier Set: CAS Standard
Formset: CAS Standard
Merged?: N
Report to MDL?: Y
P.O. Number:
EDD: No EDD Specified

4 - 1000 mL-Plastic Bottle NM CLEAR Unpreserved

Location: E-Disposed, E-WIC01-D3

RUSH

CAS Samp No	Client Samp No.	Matrix	Collected		SVM 1613B/ Dioxins Furans
E1100611-001	SJSF001-IDW	Water	6/6/11	1144	**IV**
E1100611-002	SJSF002-IDW	Water	6/6/11	1214	**IV**

Folder Comments:

Invoice Craig Hutchings (chutchings@integral-corp.com)

Test Comments:

Group	Test/Method	Samples	Comments
Semivoa GCMS	Dioxins Furans/1613B	1-2, 0	Preliminary results at 5 business days, final report at 10 business days.

Preparation Information Benchsheet

Prep Run#: 135204 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped
Team: Semivoa GCMS/AKODUR **Prep Method:** Method **Prep Date/Time:** 6/7/11 09:45 AM

#	Lab Code	Client ID	B#	Method /Test	pH	Matrix	Amt. Ext.	Sample Description
1	E1100600-001	1106-10233-001	.01	1613B/Dioxins Furans		Drinking Water	1000mL	tinted clear liquid
2	E1100601-001	006CT	.01	1613B/Dioxins Furans		Water	960mL	clear colorless liquid
3	E1100605-001	T77527-1X	.01	1613B/Dioxins Furans		Wastewater	990mL	dark gray cloudy liquid
4	E1100606-001	T77530-1X	.01	1613B/Dioxins Furans		Wastewater	990mL	clear colorless liquid
5	E1100607-001	T77495-1X	.01	1613B/Dioxins Furans		Wastewater	990mL	white cloudy liquid
6	E1100608-001	T77519-1X	.01	1613B/Dioxins Furans		Wastewater	980mL	light brown cloudy liquid
7	E1100611-001	SJSF001-IDW	.01	1613B/Dioxins Furans		Water	1010mL	beige cloudy liquid
8	E1100611-002	SJSF002-IDW	.01	1613B/Dioxins Furans		Water	1030mL	beige cloudy liquid
9	E1100613-001	11-8854 Raw River Water	.01	1613B/Dioxins Furans		Wastewater	1090mL	clear colorless liquid
10	EQ1100270-01	MB		1613B/Dioxins Furans		Liquid	1000mL	
11	EQ1100270-02	LCS		1613B/Dioxins Furans		Liquid	1000mL	
12	EQ1100270-03	DLCS		1613B/Dioxins Furans		Liquid	1000mL	
13	EQ1100270-04	MB		1613B/Dioxins Furans		Liquid	1000mL	
14	EQ1100270-05	LCS		1613B/Dioxins Furans		Liquid	1000mL	
15	EQ1100270-06	DLCS		1613B/Dioxins Furans		Liquid	1000mL	

Spiking Solutions

Name: 1613B Matrix Working Standard Inventory ID 27643 Logbook Ref: D12-1-2B Expires On: 03/09/2012

EQ1100270-02	100.00µL	EQ1100270-03	100.00µL	EQ1100270-05	100.00µL	EQ1100270-06	100.00µL

Name: 1613B Stock Labeled Standard Inventory ID 29264 Logbook Ref: D12-14-2B (29264) Expires On: 04/21/2016

E1100613-001	20.00µL

Name: 1613B Labeled Working Standard Inventory ID 30767 Logbook Ref: D12-25-1B (30767) Expires On: 06/07/2012

E1100600-001	1,000.00µL	E1100601-001	1,000.00µL	E1100605-001	1,000.00µL	E1100606-001	1,000.00µL	E1100607-001	1,000.00µL	E1100608-001	1,000.00µL
E1100611-001	1,000.00µL	E1100611-002	1,000.00µL	EQ1100270-01	1,000.00µL	EQ1100270-02	1,000.00µL	EQ1100270-03	1,000.00µL	EQ1100270-04	1,000.00µL
EQ1100270-05	1,000.00µL	EQ1100270-06	1,000.00µL								

Name: 8290/1613B Cleanup Working Standard Inventory ID 30775 Logbook Ref: D12-25-2A/B (30775) Expires On: 06/07/2012

E1100600-001	100.00µL	E1100601-001	100.00µL	E1100605-001	100.00µL	E1100606-001	100.00µL	E1100607-001	100.00µL	E1100608-001	100.00µL
E1100611-001	100.00µL	E1100611-002	100.00µL	E1100613-001	100.00µL	EQ1100270-01	100.00µL	EQ1100270-02	100.00µL	EQ1100270-03	100.00µL
EQ1100270-04	100.00µL	EQ1100270-05	100.00µL	EQ1100270-06	100.00µL						

Preparation Information Benchsheet

Prep Run#: 135204 **Prep WorkFlow:** OrgExtAq(365) **Status:** Prepped
Team: Semivoa GCMS/AKODUR **Prep Method:** Method **Prep Date/Time:** 6/7/11 09:45 AM

Preparation Materials

Sensafe Free Chlorine WTR CHK	C2-49-5 (25290)	Acetone 99.5% Minimum	C2-34-1 (15539)	Carbon, High Purity	C2-55-4 (29680)
Ethyl Acetate 99.9% Minimum EtOAc	29100 (29100)	Glass Wool	C2-47-6 (24744)	Sulfuric Acid Reagent Grade H2SO4	29341 (29341)
Dichloromethane (Methylene Chloride) 99.9% MeCl2	C2-55-3 (29760)	Sodium Thiosulfate Anhydrous Reagent Grade NaS2O3	C2-54-6 (28404)	Sodium Hydroxide Reagent Grade NaOH	C2-40-5 (19149)
Sodium Sulfate Anhydrous Reagent Grade Na2SO4	C2-55-5 (29761)	Tridecane (n-Tridecane)	C2-56-1 (29763)	Hexane (n-Hexane) 98.5% Minimum	C2-56-6 (30670)
Nonane (n-Nonane) 99%	C2-26-001 (13942)	pH Paper 0-14	(1008)	Silica Gel Reagent Grade	C2-52-4 (27099)
Toluene 99.9% Minimum	C2-57-1 (30534)				

Preparation Steps

Step:	Extraction	Step:	Acid Clean	Step:	Silica Gel Clean	Step:	Final Volume
Started:	6/7/11 09:45	Started:	6/8/11 10:00	Started:	6/8/11 10:10	Started:	6/9/11 06:45
Finished:	6/7/11 11:55	Finished:	6/8/11 10:00	Finished:	6/8/11 13:15	Finished:	6/9/11 09:40
By:	AKODUR	By:	AKODUR	By:	AKODUR	By:	AKODUR

Comments: _____

Reviewed By: ak Date: 6/9/11

Chain of Custody

Relinquished By: _____ Date: _____ Extracts Examined

Received By: _____ Date: _____ Yes No

Columbia Analytical Services INC

Chromatograms and Selected Ion Monitoring

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Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
SJSF001-IDW

Run #17 Filename P114452 Samp: 1 Inj: 1 Acquired: 9-JUN-11 14:09:20
Processed: 10-JUN-11 13:12:58 Sample ID: E1100611-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:26	4.152e+01	5.118e+01	0.81	yes	no	0.900
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	yes	0.941
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	yes	1.028
4	Unk	1,2,3,4,7,8-HxCDF	36:25	1.848e+01	1.407e+01	1.31	yes	yes	1.235
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.199
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.147
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	yes	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	5.367e+01	5.564e+01	0.96	yes	yes	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	yes	1.438
10	Unk	OCDF	43:08	2.529e+02	3.052e+02	0.83	yes	no	1.225
11	Unk	2,3,7,8-TCDD	29:17	3.699e+01	4.118e+01	0.90	no	yes	1.029
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	yes	1.110
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	yes	0.906
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	yes	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	2.457e+02	2.120e+02	1.16	yes	no	1.001
17	Unk	OCDD	42:59	6.425e+03	7.179e+03	0.90	yes	no	1.058
18	IS	13C-2,3,7,8-TCDF	28:24	2.377e+04	3.019e+04	0.79	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.045e+04	2.581e+04	1.57	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.803e+04	2.377e+04	1.60	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	1.931e+04	3.560e+04	0.54	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	2.047e+04	3.971e+04	0.52	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:58	1.975e+04	3.696e+04	0.53	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	1.600e+04	3.087e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.379e+04	3.118e+04	0.44	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	1.213e+04	2.739e+04	0.44	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:15	2.391e+04	2.992e+04	0.80	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.941e+04	1.829e+04	1.61	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	2.630e+04	2.098e+04	1.25	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:09	2.812e+04	2.189e+04	1.28	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	1.941e+04	1.844e+04	1.05	yes	no	0.907
32	IS	13C-OCDD	42:58	2.362e+04	2.621e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	3.017e+04	3.725e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	3.108e+04	2.484e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	2.133e+04				no	1.054

$$\text{OCDD} = \frac{(6.425e+03 + 7.179e+03) \times 4000 \text{ pg} \times 1}{(2.362e+04 + 2.621e+04) \times 1010 \text{ mL} \times 1\text{L}/1000\text{ml} \times 1.058} = 1020 \text{ pg/L}$$

06/13/11

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
SJSF001-IDW

Run #17 Filename P114452 Samp: 1 Inj: 1 Acquired: 9-JUN-11 14:09:20
Processed: 10-JUN-11 13:12:581 LAB. ID: E1100611-001

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	4.68e+03	6.04e+02	7.7e+00	7.86e+03	7.96e+02	9.9e+00
2	1,2,3,7,8-PeCDF	*	8.80e+02	*	*	8.72e+02	*
3	2,3,4,7,8-PeCDF	*	8.80e+02	*	*	8.72e+02	*
4	1,2,3,4,7,8-HxCDF	5.61e+03	6.56e+02	8.5e+00	3.27e+03	6.40e+02	5.1e+00
5	1,2,3,6,7,8-HxCDF	*	6.56e+02	*	*	6.40e+02	*
6	2,3,4,6,7,8-HxCDF	*	6.56e+02	*	*	6.40e+02	*
7	1,2,3,7,8,9-HxCDF	*	6.56e+02	*	*	6.40e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.03e+04	9.40e+02	1.1e+01	1.16e+04	6.80e+02	1.7e+01
9	1,2,3,4,7,8,9-HpCDF	*	9.40e+02	*	*	6.80e+02	*
10	OCDF	4.37e+04	7.04e+02	6.2e+01	4.92e+04	1.04e+03	4.7e+01
11	2,3,7,8-TCDD	7.01e+03	7.60e+02	9.2e+00	6.63e+03	6.04e+02	1.1e+01
12	1,2,3,7,8-PeCDD	*	1.08e+03	*	*	8.44e+02	*
13	1,2,3,4,7,8-HxCDD	*	6.88e+02	*	*	8.16e+02	*
14	1,2,3,6,7,8-HxCDD	*	6.88e+02	*	*	8.16e+02	*
15	1,2,3,7,8,9-HxCDD	*	6.88e+02	*	*	8.16e+02	*
16	1,2,3,4,6,7,8-HpCDD	5.39e+04	4.88e+02	1.1e+02	4.42e+04	6.36e+02	6.9e+01
17	OCDD	1.06e+06	4.12e+02	2.6e+03	1.21e+06	7.24e+02	1.7e+03
18	13C-2,3,7,8-TCDF	3.74e+06	7.28e+02	5.1e+03	4.75e+06	8.20e+02	5.8e+03
19	13C-1,2,3,7,8-PeCDF	7.57e+06	6.88e+02	1.1e+04	4.87e+06	8.32e+02	5.9e+03
20	13C-2,3,4,7,8-PeCDF	7.39e+06	6.88e+02	1.1e+04	4.57e+06	8.32e+02	5.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.20e+06	5.16e+02	8.1e+03	7.92e+06	8.36e+02	9.5e+03
22	13C-1,2,3,6,7,8-HxCDF	4.30e+06	5.16e+02	8.3e+03	8.18e+06	8.36e+02	9.8e+03
23	13C-2,3,4,6,7,8-HxCDF	4.32e+06	5.16e+02	8.4e+03	8.08e+06	8.36e+02	9.7e+03
24	13C-1,2,3,7,8,9-HxCDF	3.36e+06	5.16e+02	6.5e+03	6.44e+06	8.36e+02	7.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	3.01e+06	1.86e+03	1.6e+03	6.83e+06	3.01e+03	2.3e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.36e+06	1.86e+03	1.3e+03	5.33e+06	3.01e+03	1.8e+03
27	13C-2,3,7,8-TCDD	3.91e+06	1.44e+03	2.7e+03	4.90e+06	4.48e+02	1.1e+04
28	13C-1,2,3,7,8-PeCDD	5.74e+06	7.48e+02	7.7e+03	3.57e+06	5.40e+02	6.6e+03
29	13C-1,2,3,4,7,8-HxCDD	5.87e+06	6.88e+02	8.5e+03	4.70e+06	5.64e+02	8.3e+03
30	13C-1,2,3,6,7,8-HxCDD	5.89e+06	6.88e+02	8.6e+03	4.63e+06	5.64e+02	8.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.81e+06	1.02e+03	3.7e+03	3.65e+06	7.24e+02	5.0e+03
32	13C-OCDD	3.92e+06	6.64e+02	5.9e+03	4.38e+06	3.88e+02	1.1e+04
33	13C-1,2,3,4-TCDD	5.23e+06	1.44e+03	3.6e+03	6.47e+06	4.48e+02	1.4e+04
34	13C-1,2,3,7,8,9-HxCDD	6.54e+06	6.88e+02	9.5e+03	5.33e+06	5.64e+02	9.5e+03
35	37Cl-2,3,7,8-TCDD	3.55e+06	6.40e+02	5.5e+03			

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF001-IDW

Entry: 36 Totals Name: Total Tetra-Furans

Run: 17 File: P114452 Sample:1 Injection:1 Function:1

Acquired: 9-JUN-11 14:09:20 Processed: 10-JUN-11 13:12:58

Mass: 303.9016 305.8987 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	28:26	4.15e+01	5.12e+01	0.81	yes	9.27e+01	2,3,7,8-TCDF	n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF001-IDW

Entry: 40 Totals Name: Total Hexa-Furans

Run: 17 File: P114452 Sample:1 Injection:1 Function:3

Acquired: 9-JUN-11 14:09:20 Processed: 10-JUN-11 13:12:58

Mass: 373.8208 375.8178 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:34	1.97e+01	1.53e+01	1.28	yes	3.50e+01	y	y
2	36:25	1.85e+01	1.41e+01	1.31	yes	3.26e+01	1,2,3,4,7,8-HxCDF y	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.
SJSF001-IDW

Entry: 41 Totals Name: Total Hexa-Dioxins

Run: 17 File: P114452 Sample:1 Injection:1 Function:3

Acquired: 9-JUN-11 14:09:20 Processed: 10-JUN-11 13:12:58

Mass: 389.8157 391.8127 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:56	1.11e+02	1.05e+02	1.06	yes	2.16e+02	n	n
2	36:35	4.66e+01	3.79e+01	1.23	yes	8.45e+01	n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF001-IDW

Entry: 42 Totals Name: Total Hepta-Furans

Run: 17 File: P114452 Sample:1 Injection:1 Function:4

Acquired: 9-JUN-11 14:09:20 Processed: 10-JUN-11 13:12:58

Mass: 407.7818 409.7789 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	5.37e+01	5.56e+01	0.96	yes	1.09e+02	1,2,3,4,6,7,8-HpCDF	y	n
2	39:27	4.25e+01	3.69e+01	1.15	yes	7.94e+01		n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF001-IDW

Entry: 43 Totals Name: Total Hepta-Dioxins

Run: 17 File: P114452 Sample:1 Injection:1 Function:4

Acquired: 9-JUN-11 14:09:20 Processed: 10-JUN-11 13:12:58

Mass: 423.7766 425.7737 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:22	5.19e+02	5.58e+02	0.93	yes	1.08e+03	n	n
2	40:00	2.46e+02	2.12e+02	1.16	yes	4.58e+02	1,2,3,4,6,7,8-HpCDD	n	n

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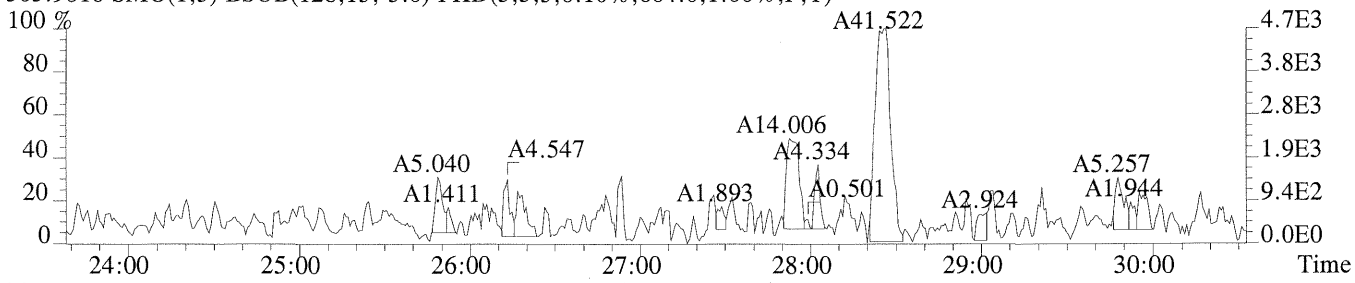
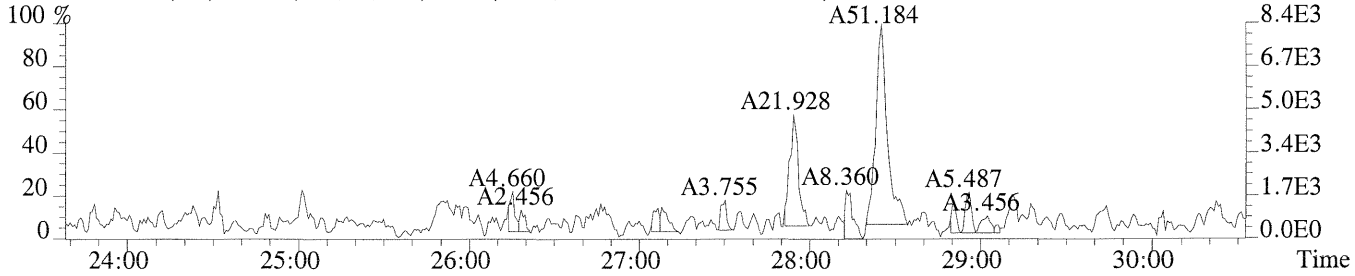
File:P114452 #1-576 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

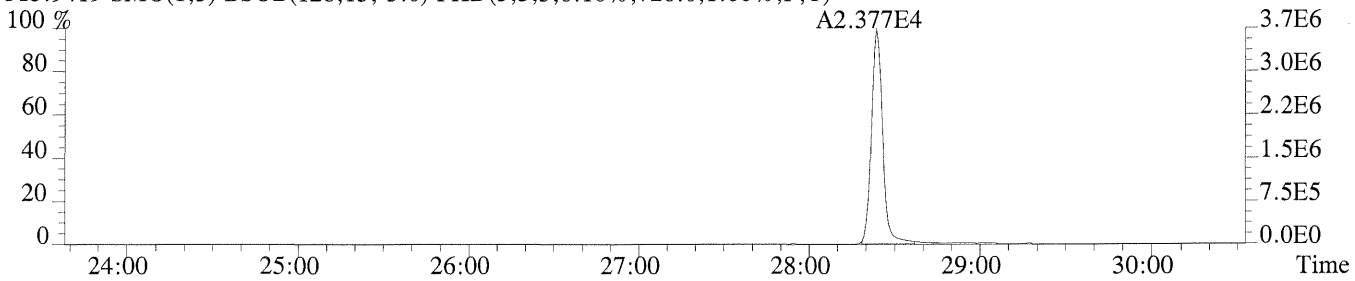
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



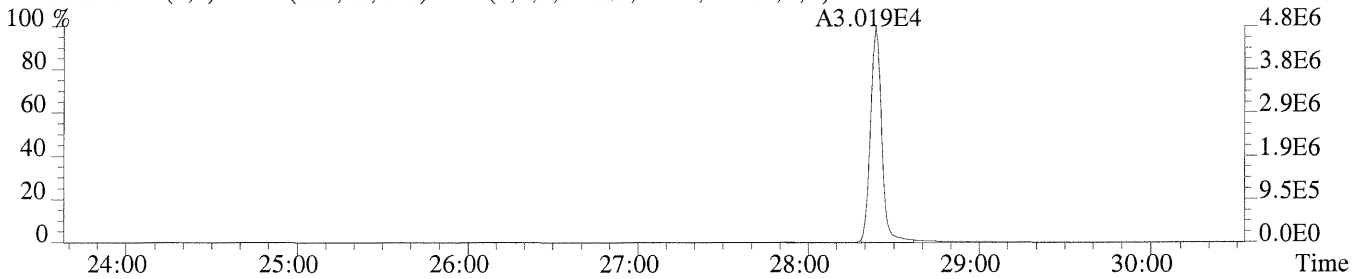
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



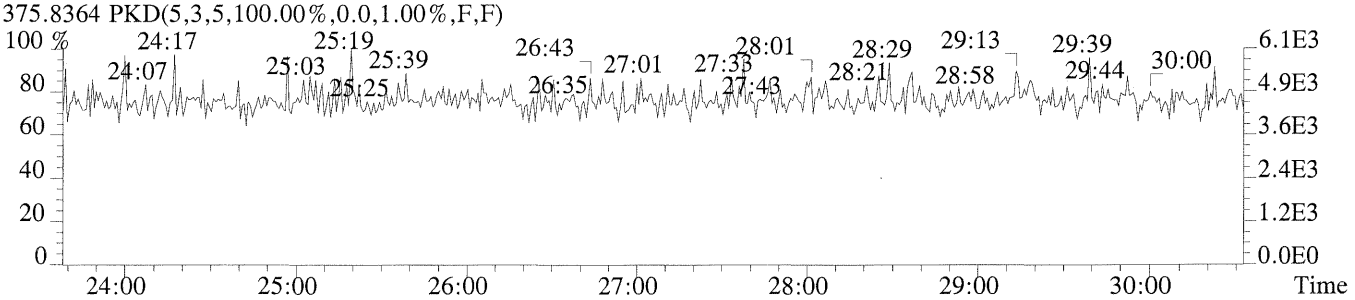
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,728.0,1.00%,F,T)



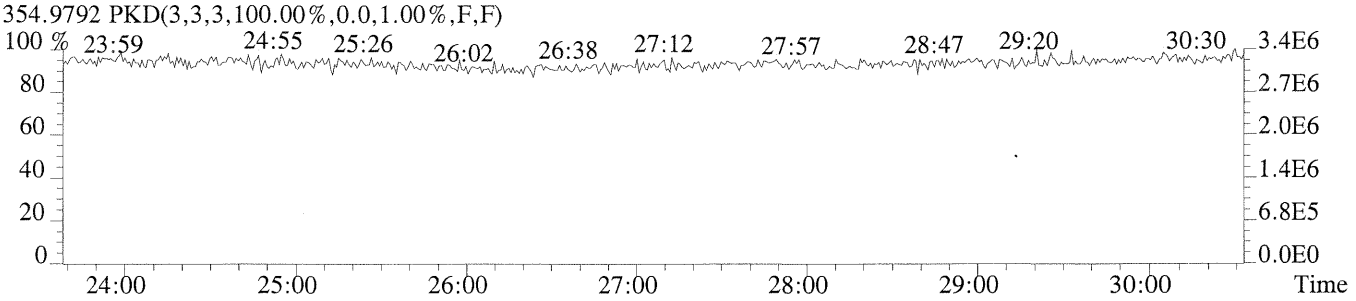
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

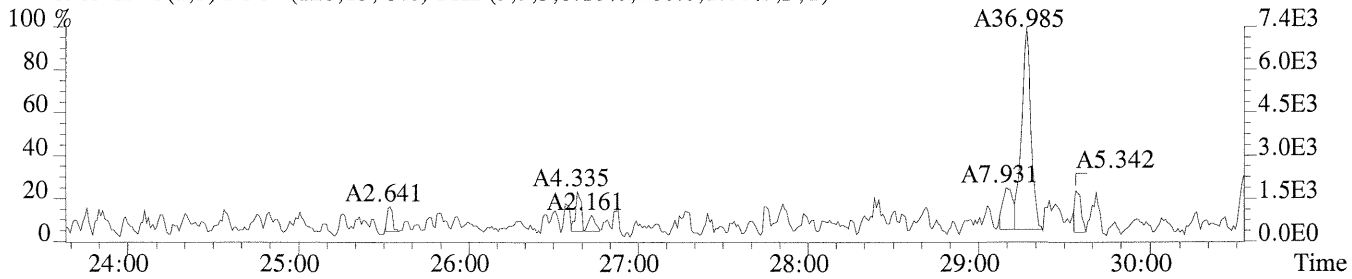


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

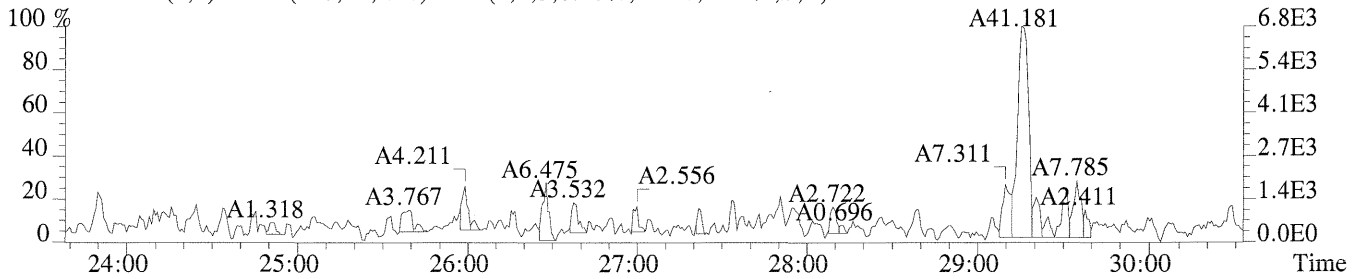


File:P114452 #1-576 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

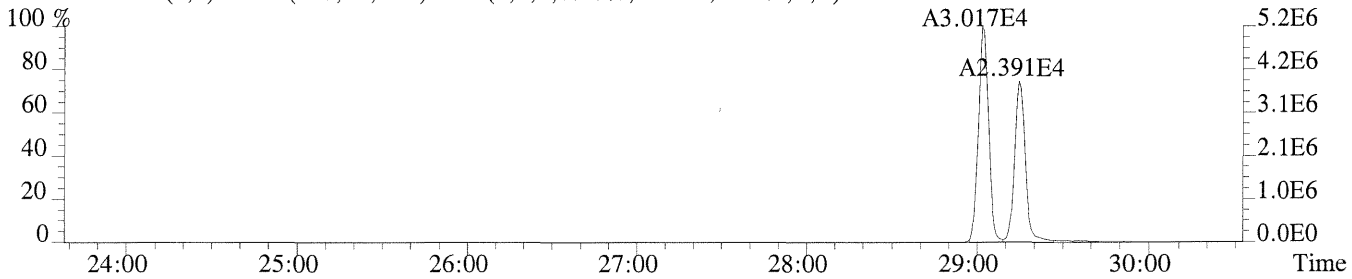
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



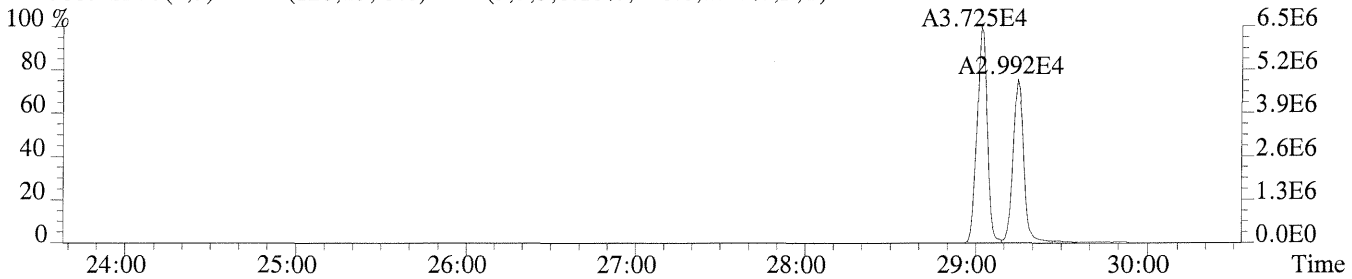
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



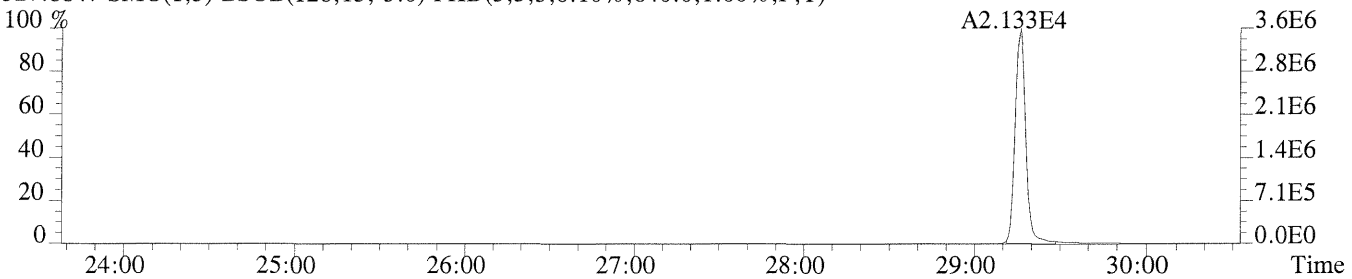
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1444.0,1.00%,F,T)



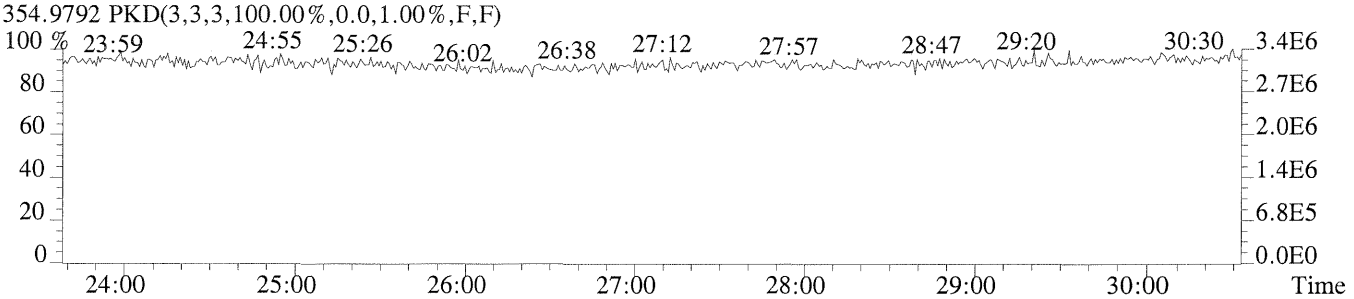
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,640.0,1.00%,F,T)

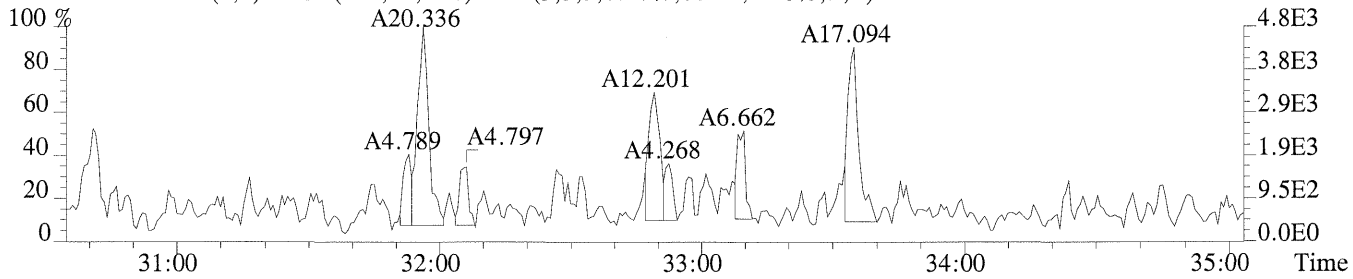


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

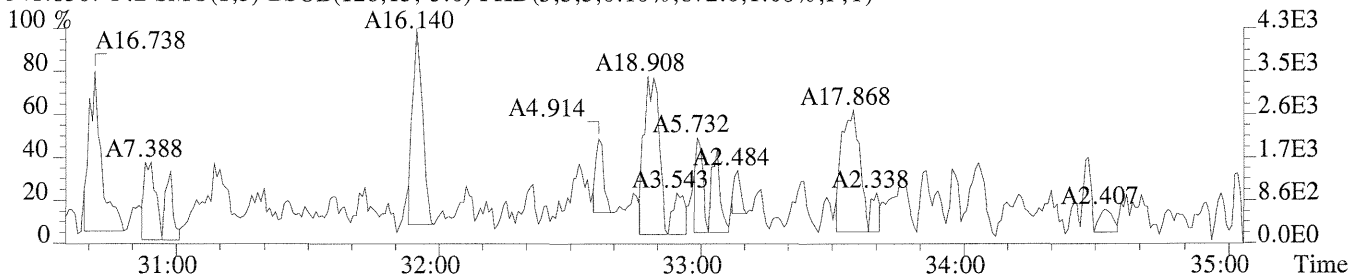


File:P114452 #1-407 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

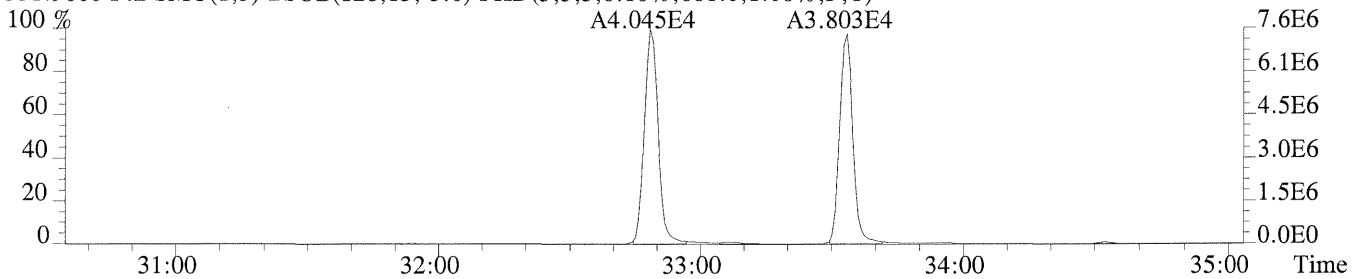
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,880.0,1.00%,F,T)



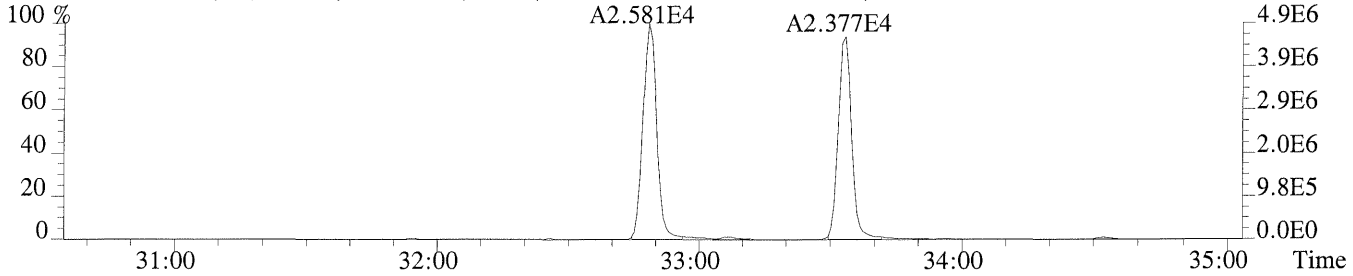
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,872.0,1.00%,F,T)



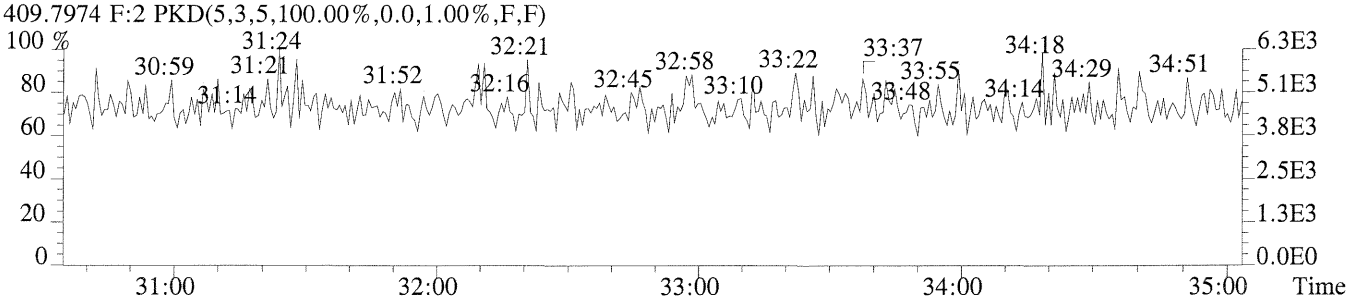
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



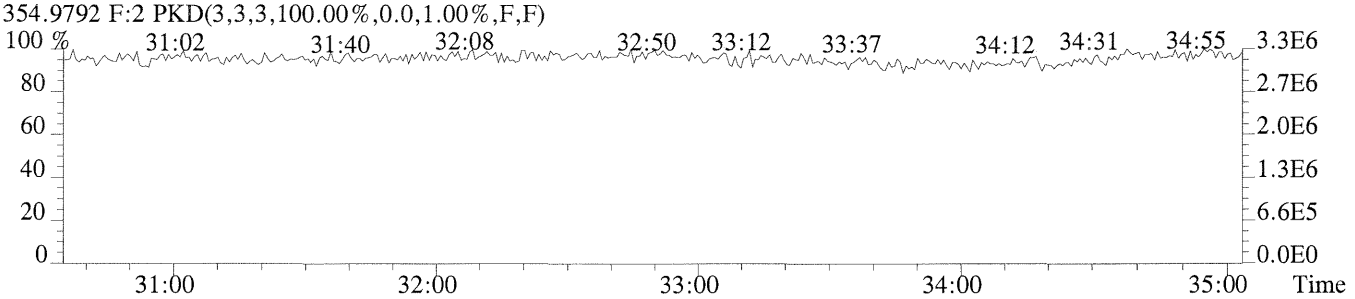
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



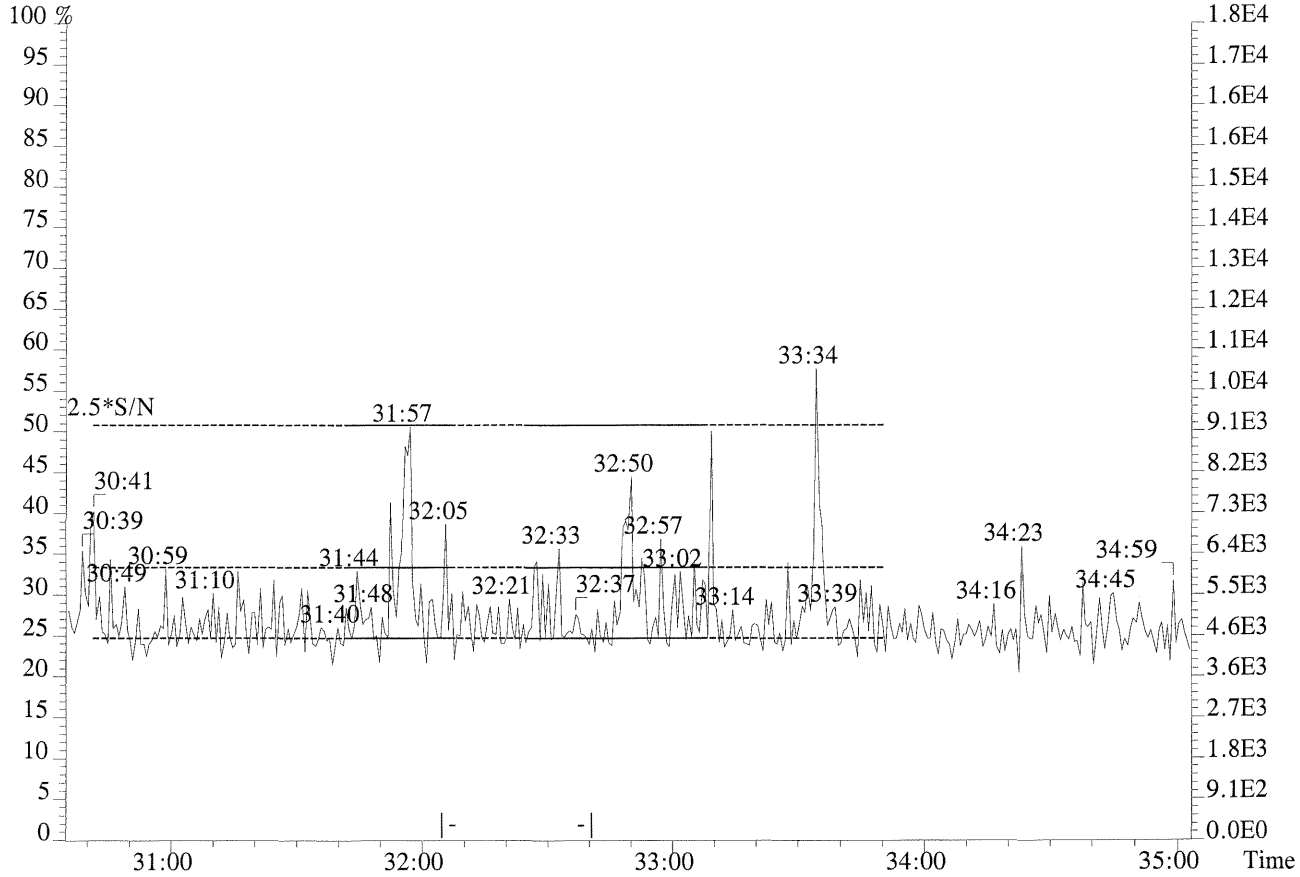
409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



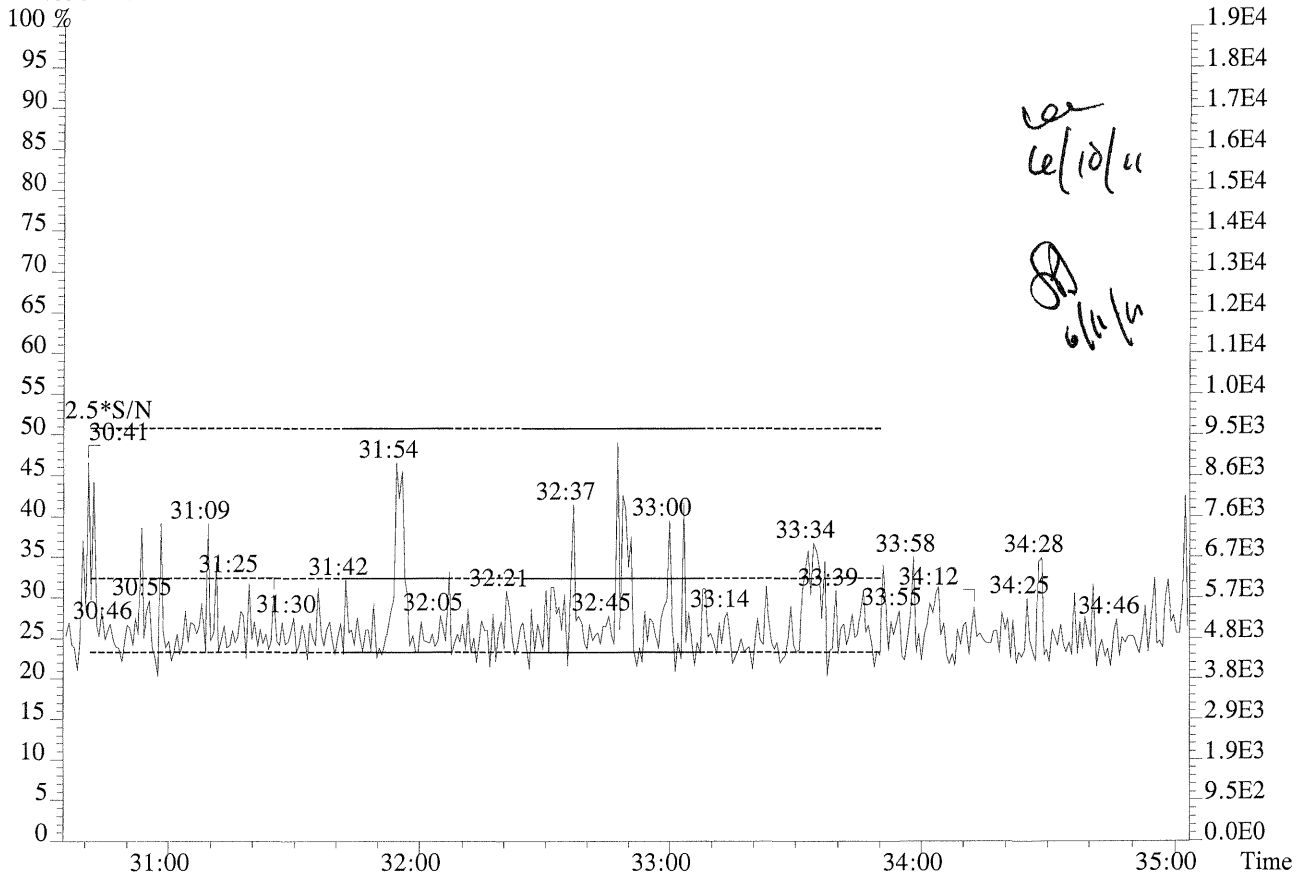
354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P114452 #1-407 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:E1100611-001 SJSF001-IDW
339.8597 F:2



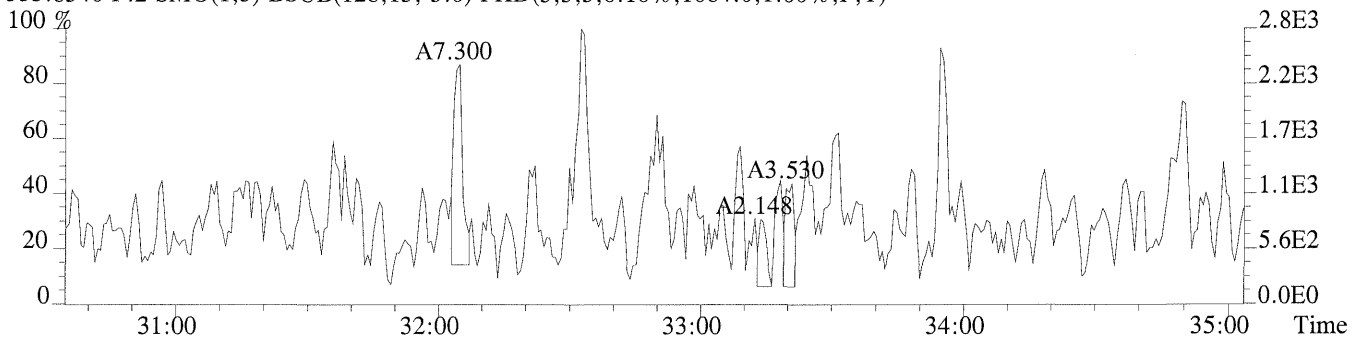
341.8567 F:2



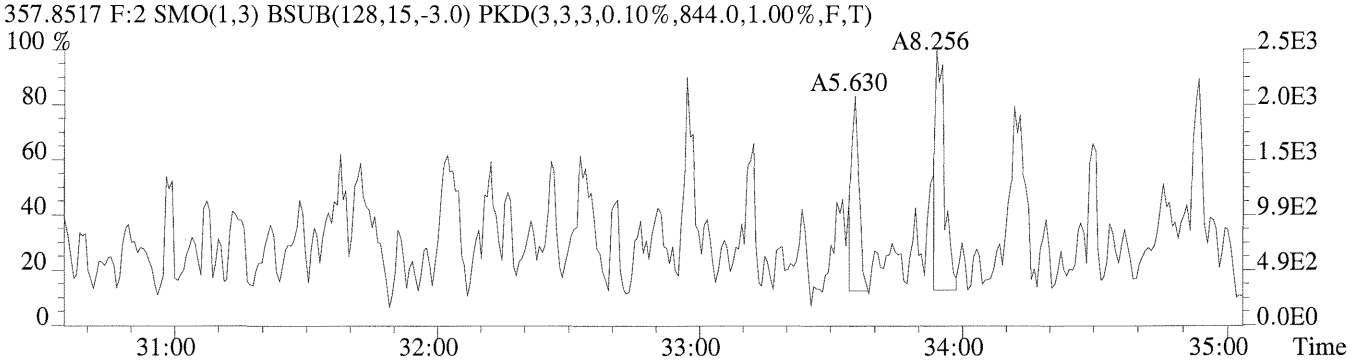
6/10/11

6/11/11

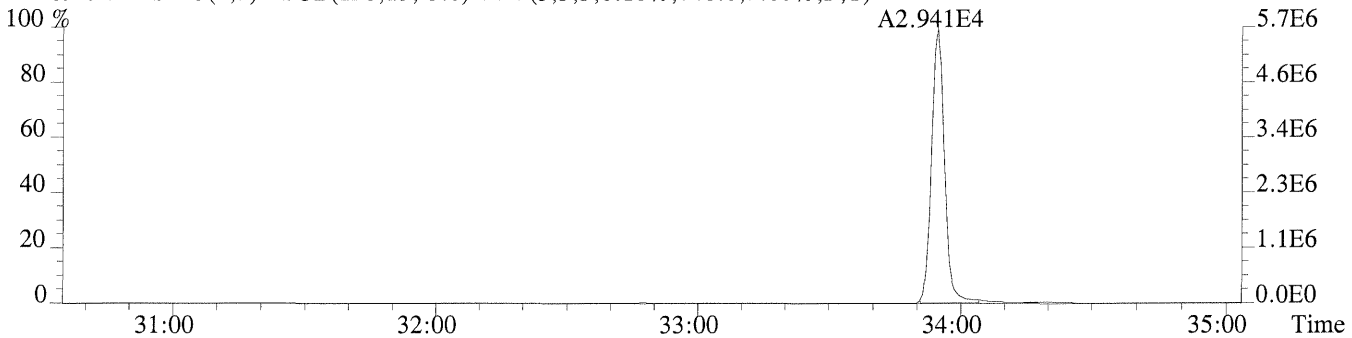
File:P114452 #1-407 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



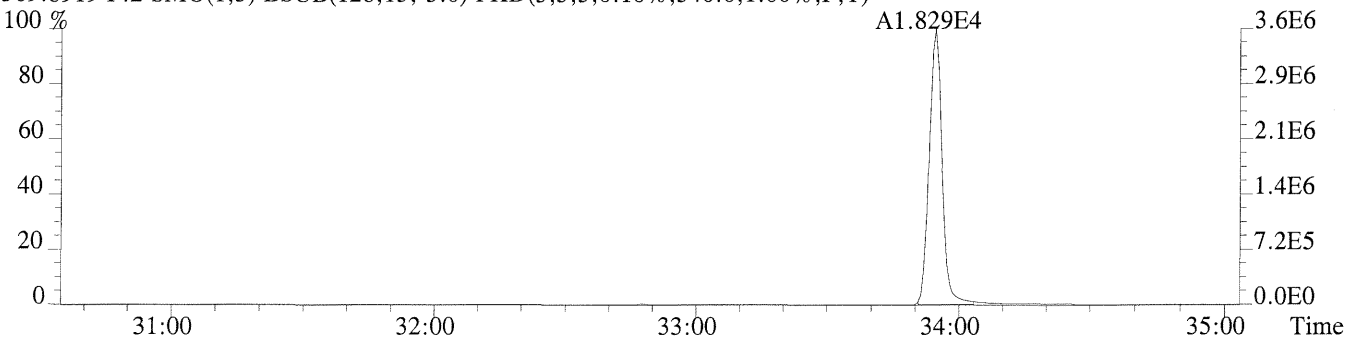
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,844.0,1.00%,F,T)



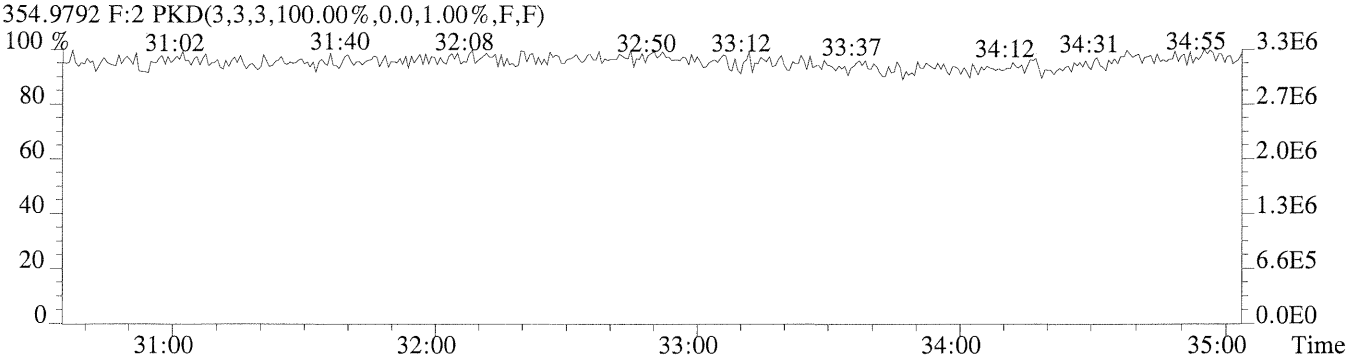
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)

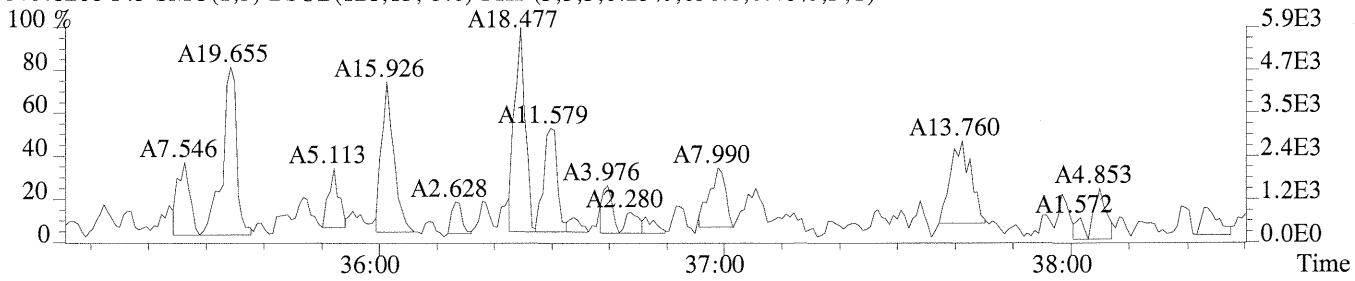


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

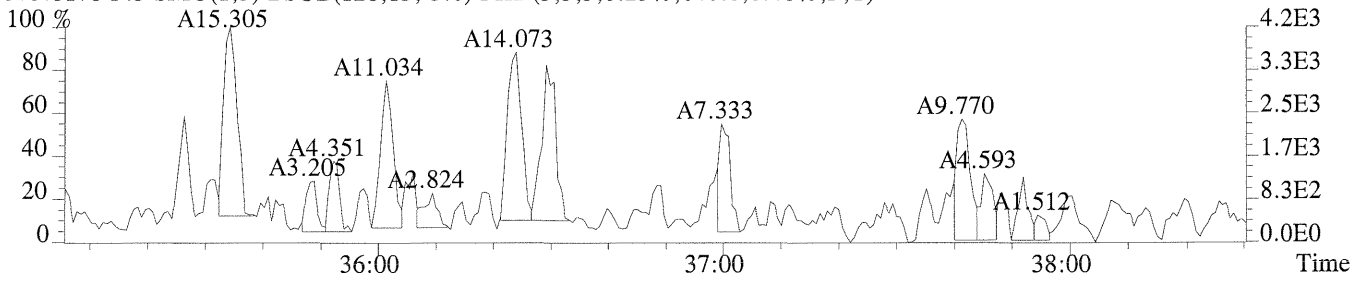


File:P114452 #1-310 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

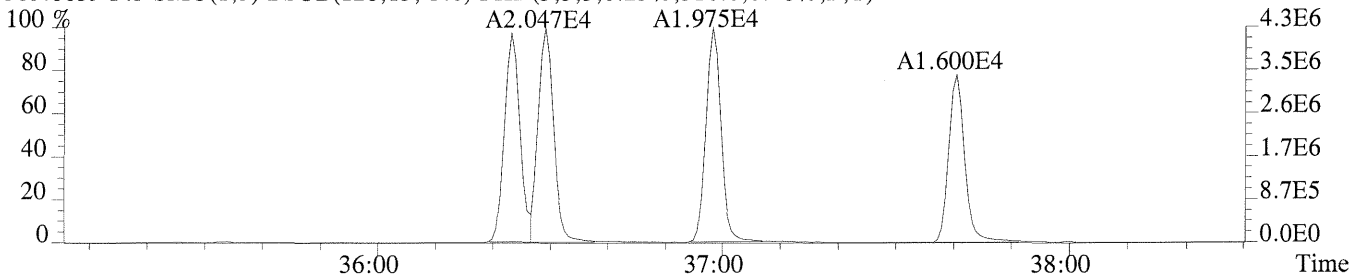
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



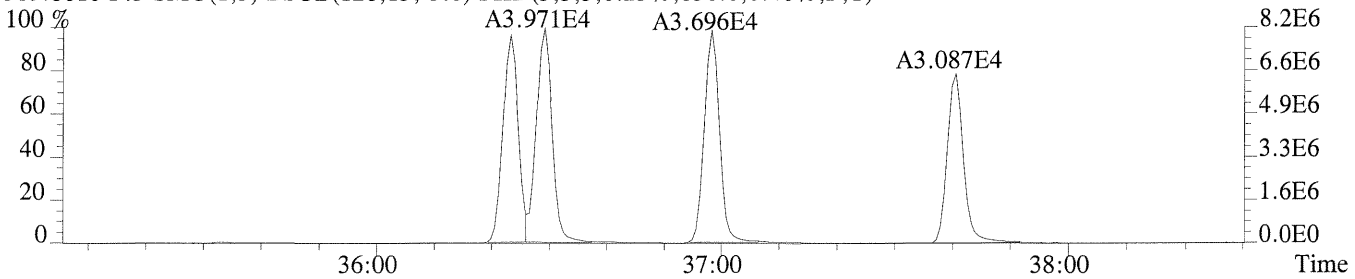
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



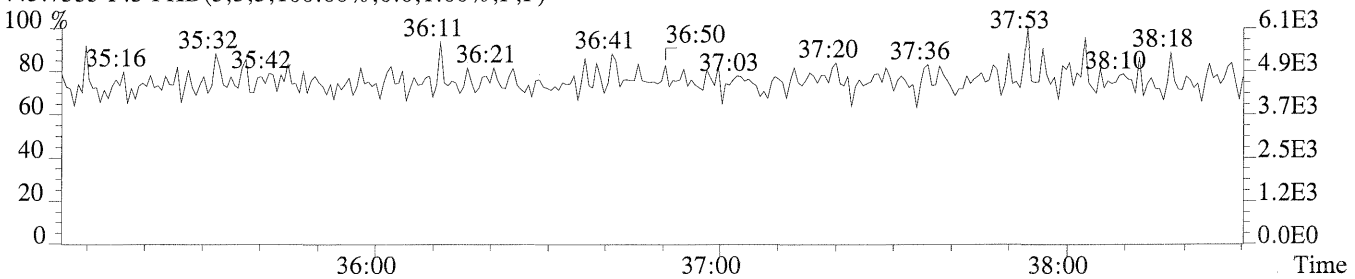
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



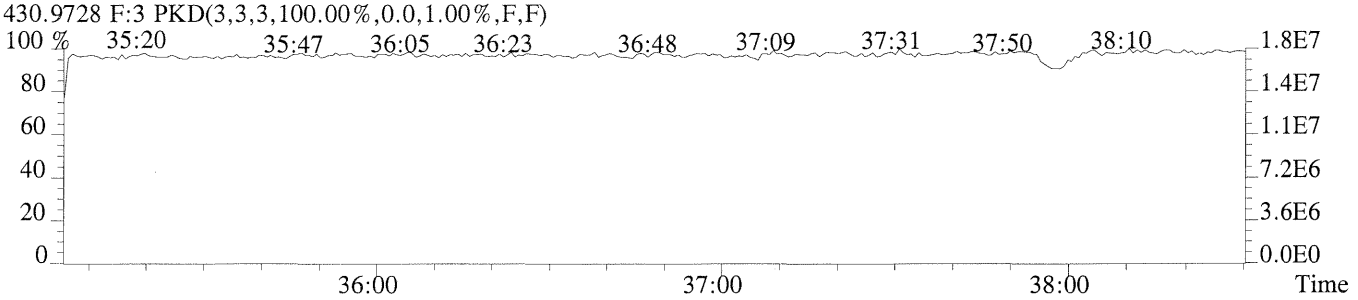
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



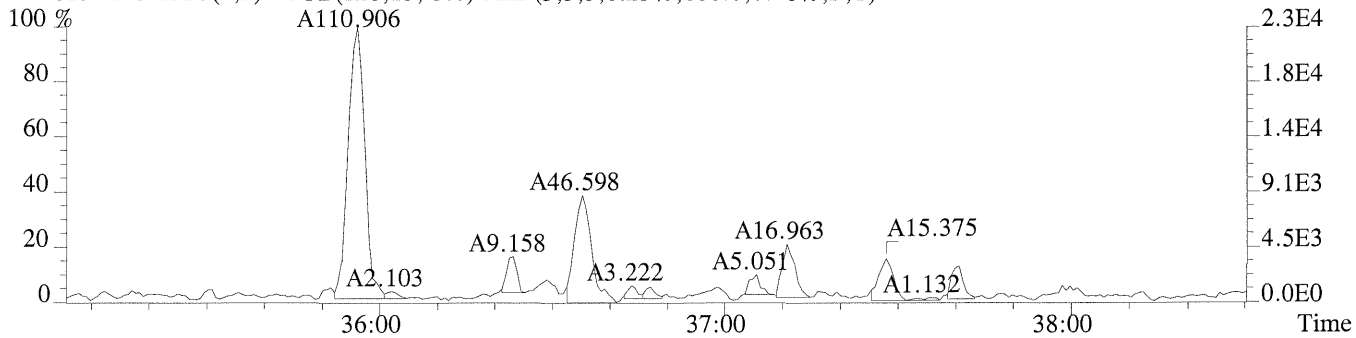
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



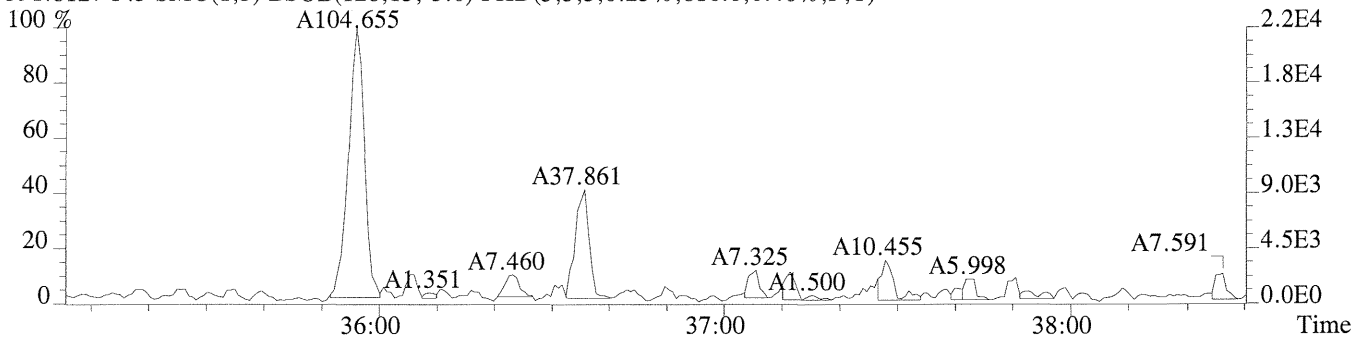
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



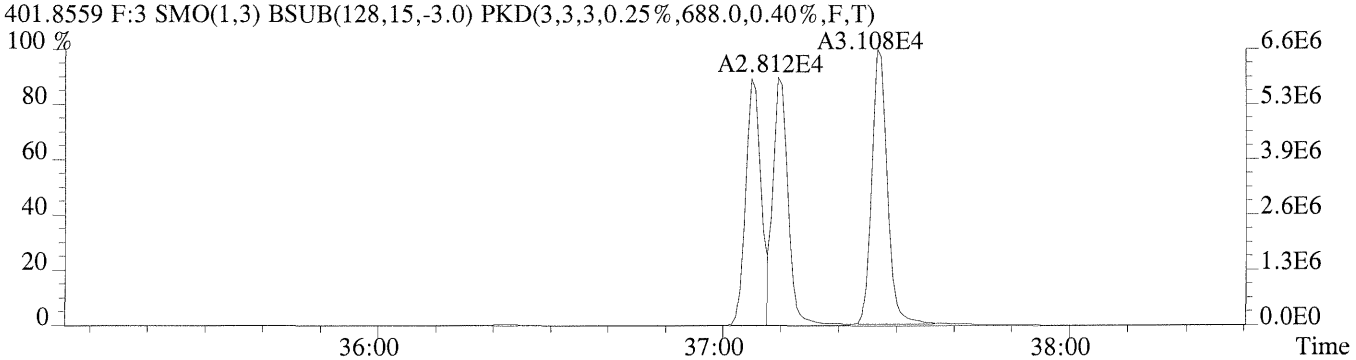
File:P114452 #1-310 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



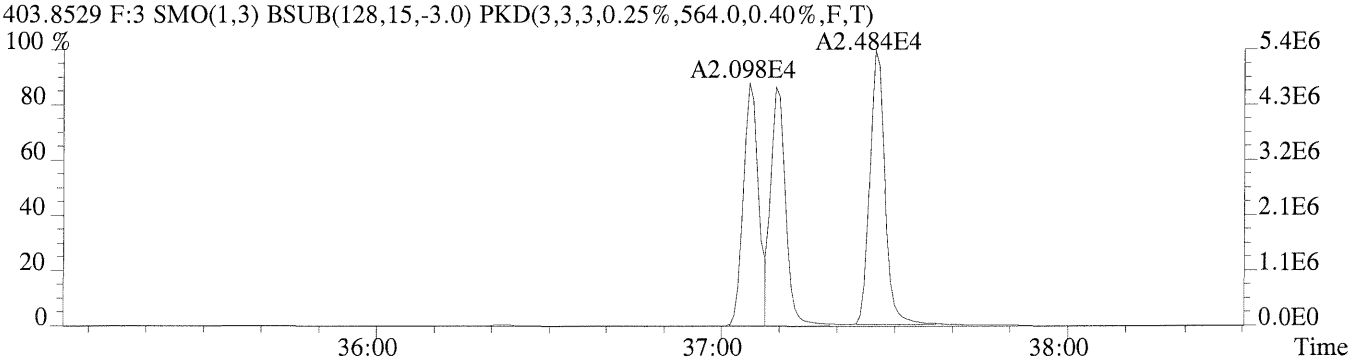
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,816.0,0.40%,F,T)



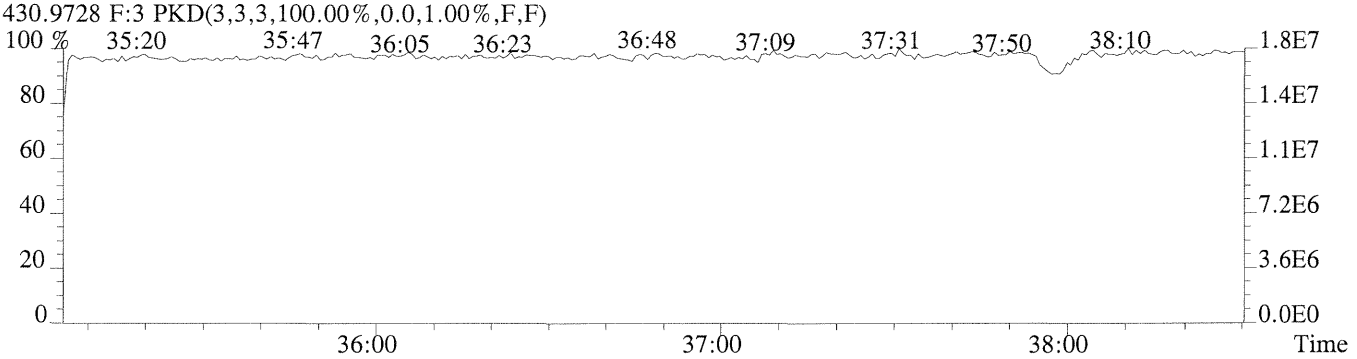
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,564.0,0.40%,F,T)

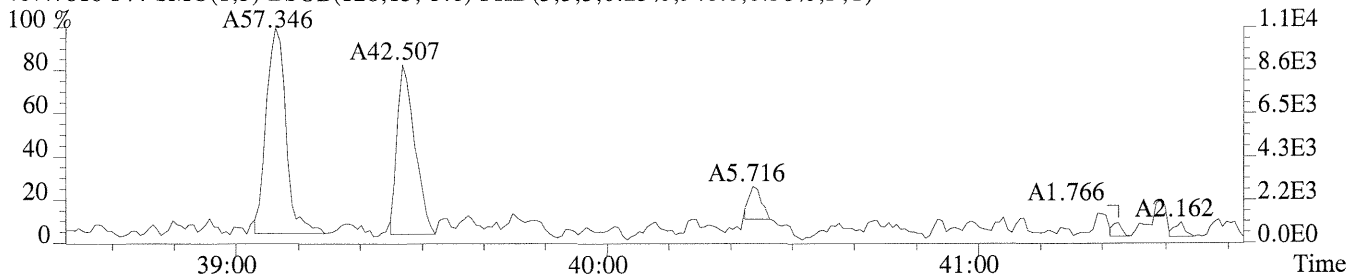


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

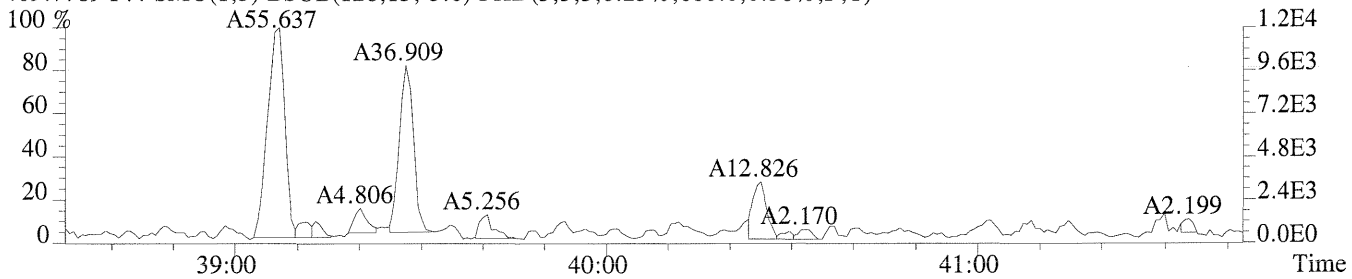


File:P114452 #1-288 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

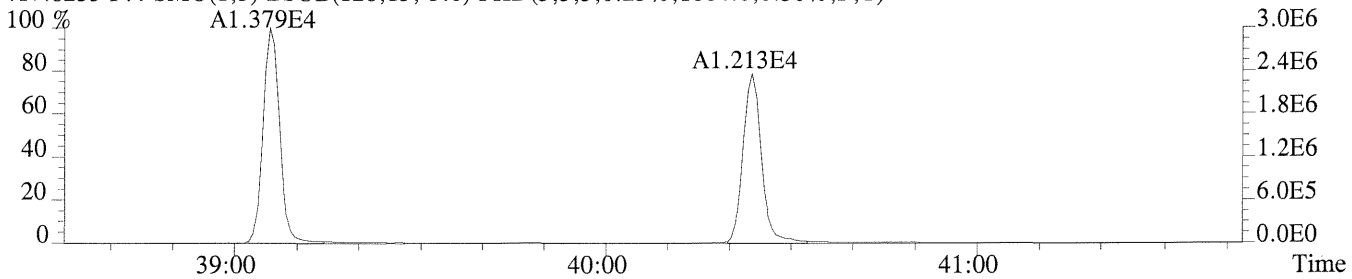
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,940.0,0.50%,F,T)



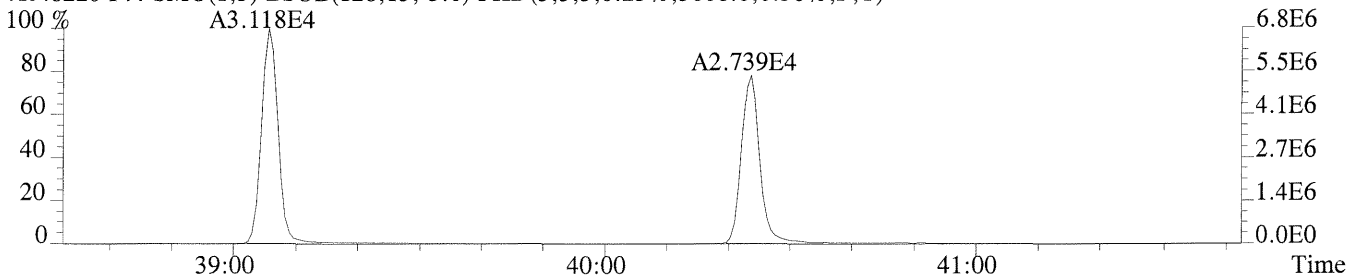
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,680.0,0.50%,F,T)



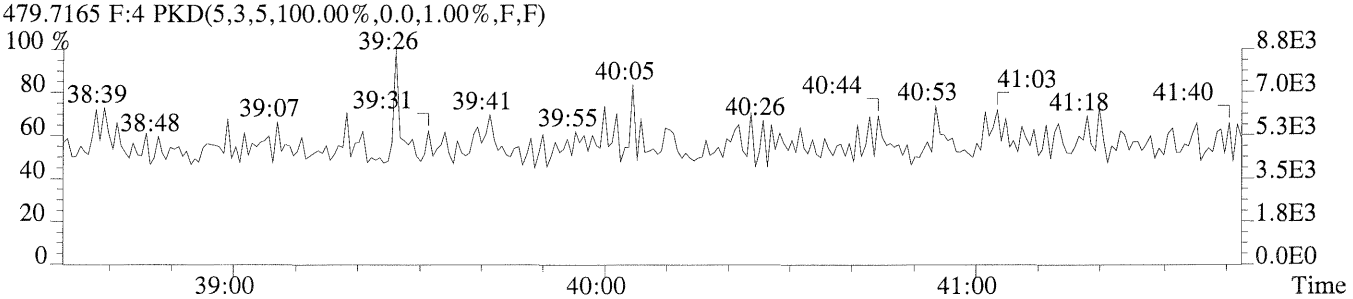
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1864.0,0.50%,F,T)



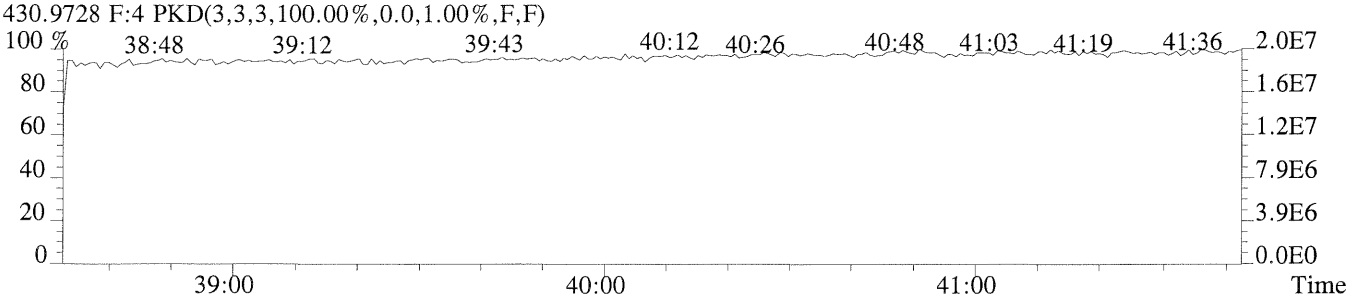
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3008.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

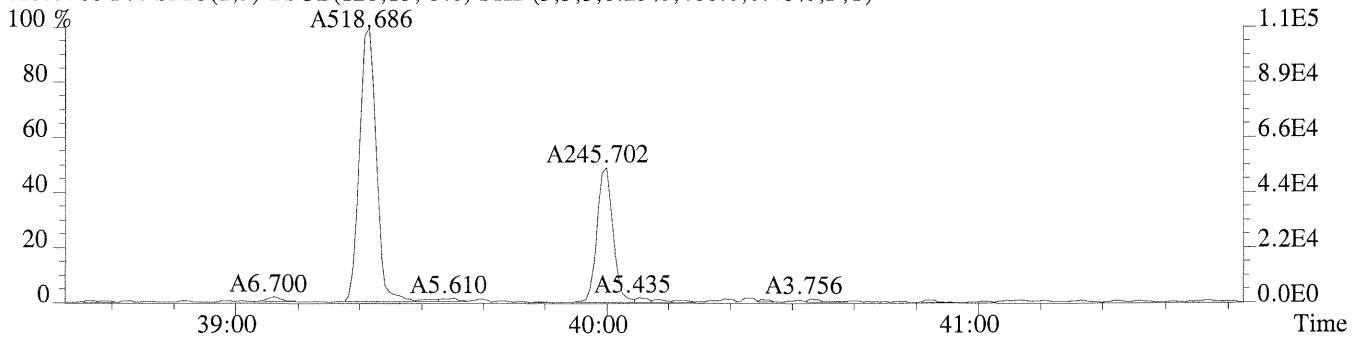


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

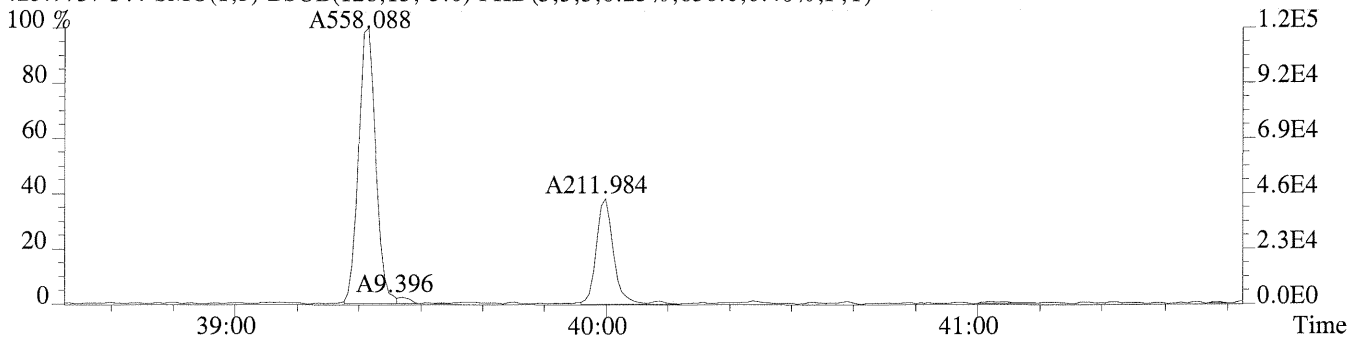


File:P114452 #1-288 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

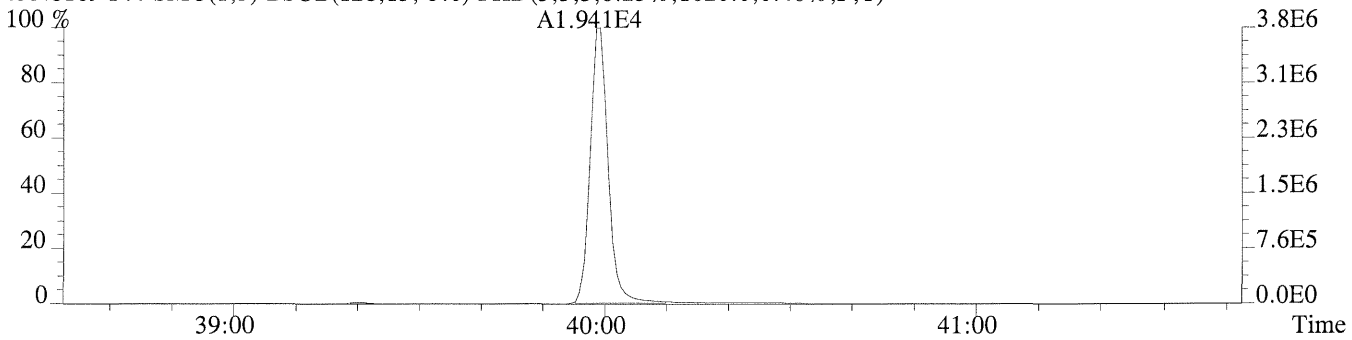
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,488.0,0.40%,F,T)



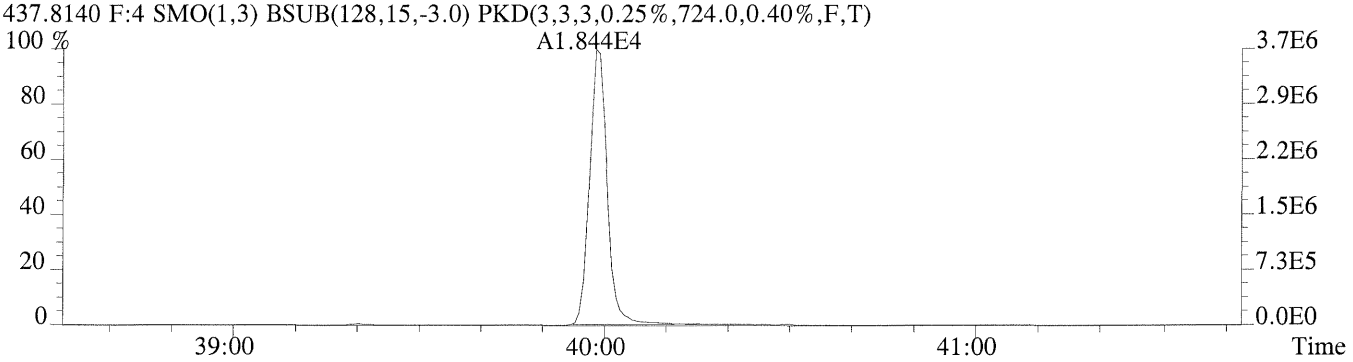
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



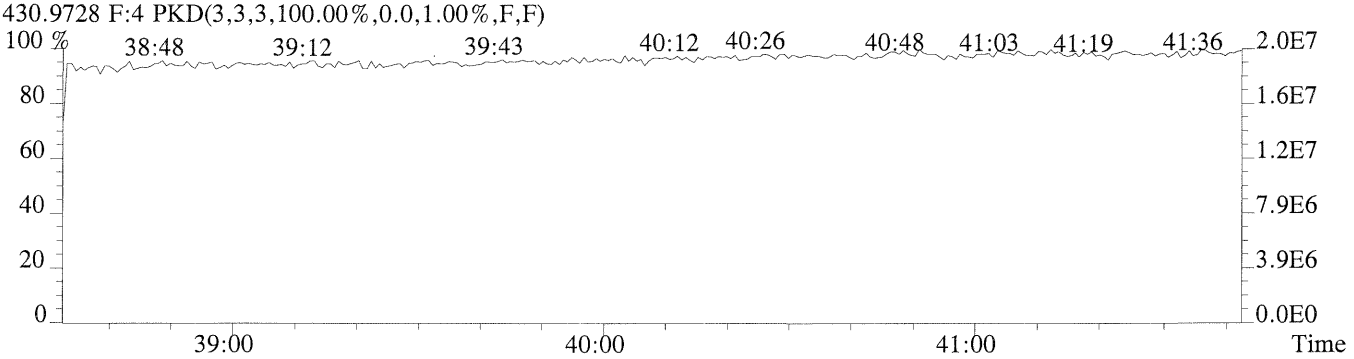
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)

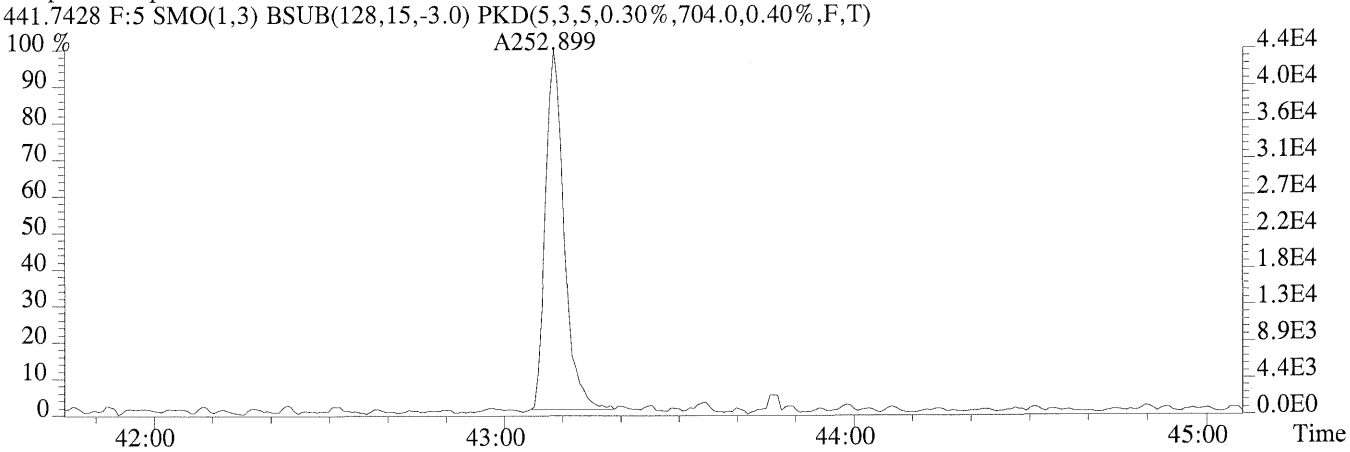


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

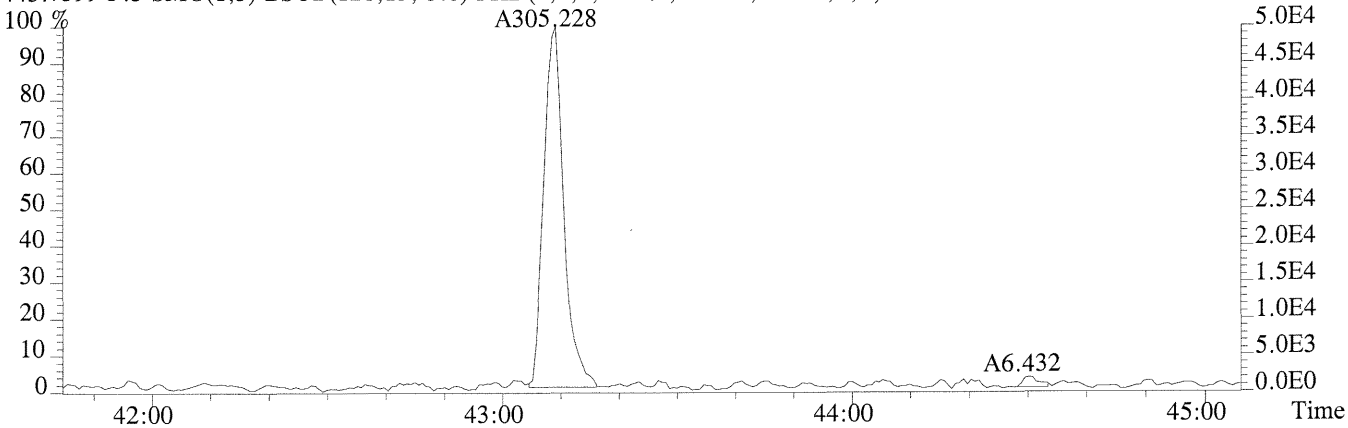


File:P114452 #1-309 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

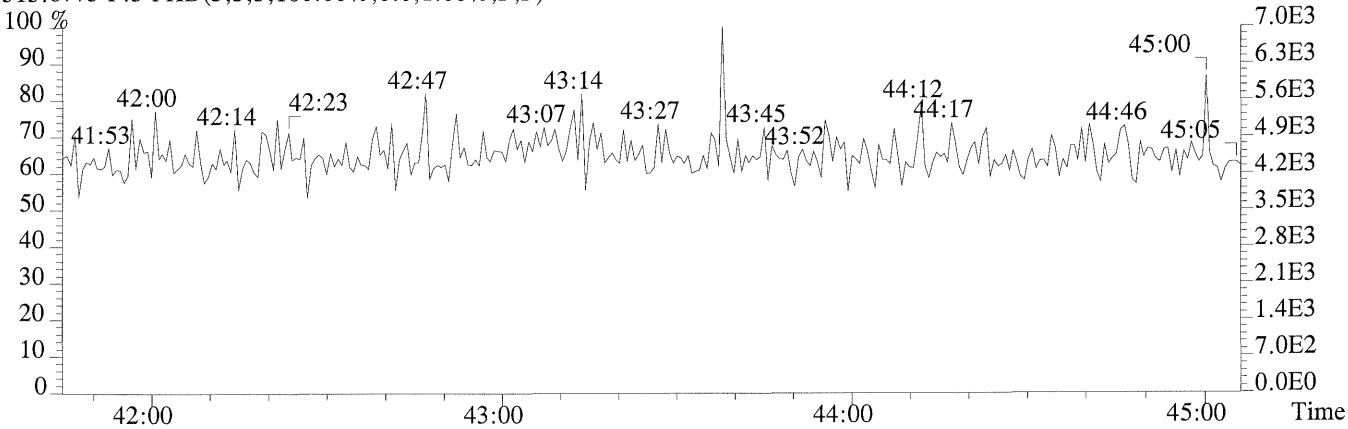
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,704.0,0.40%,F,T)



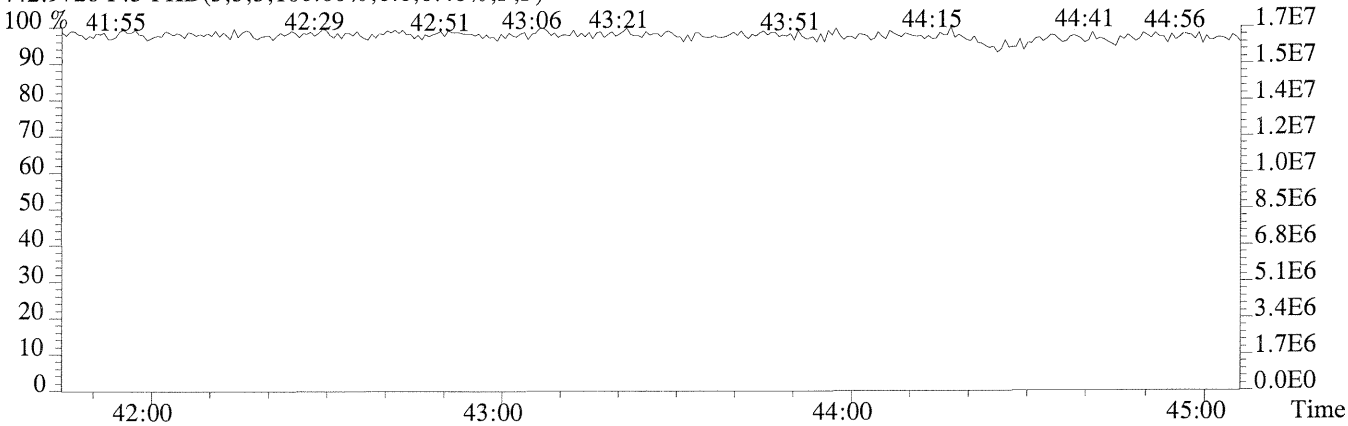
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1036.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

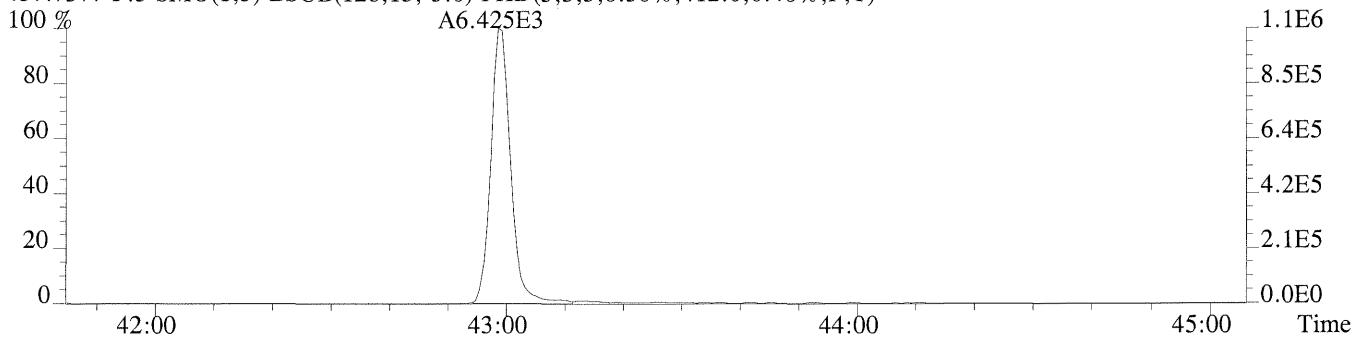


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

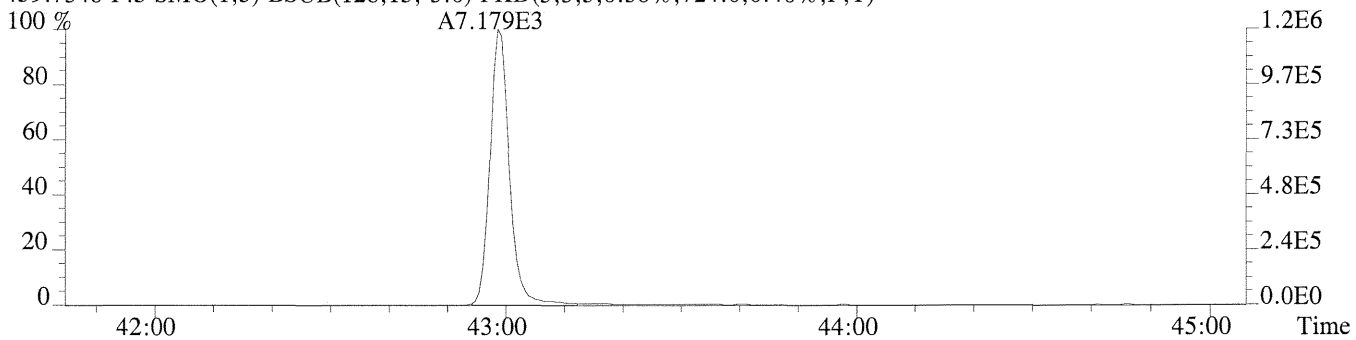


File:P114452 #1-309 Acq: 9-JUN-2011 14:09:20 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

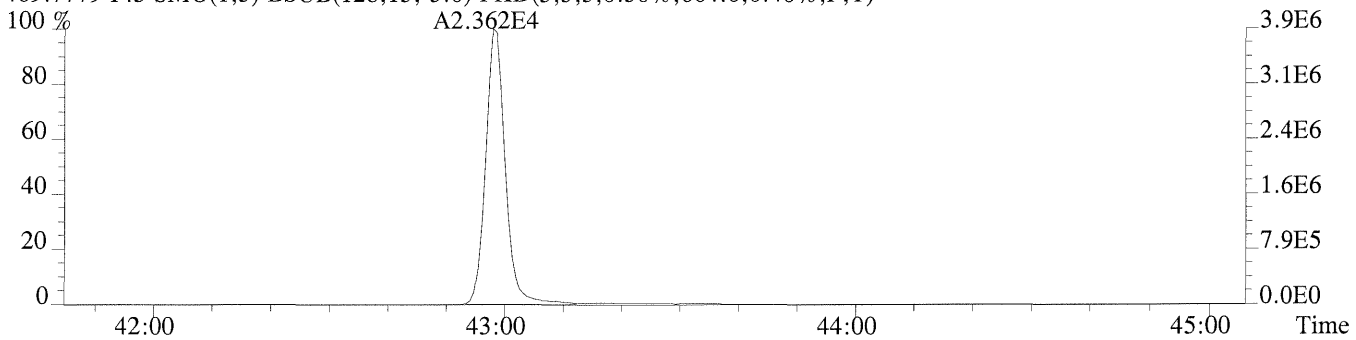
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,412.0,0.40%,F,T)



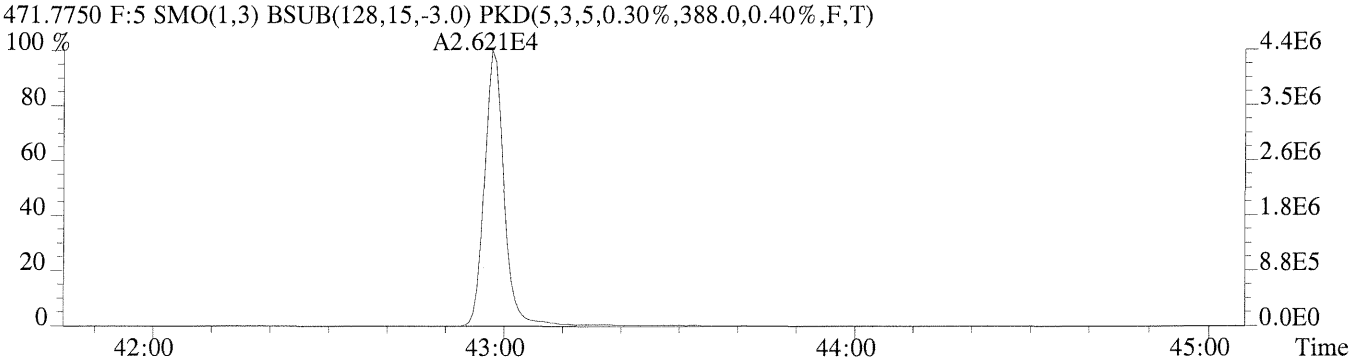
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,724.0,0.40%,F,T)



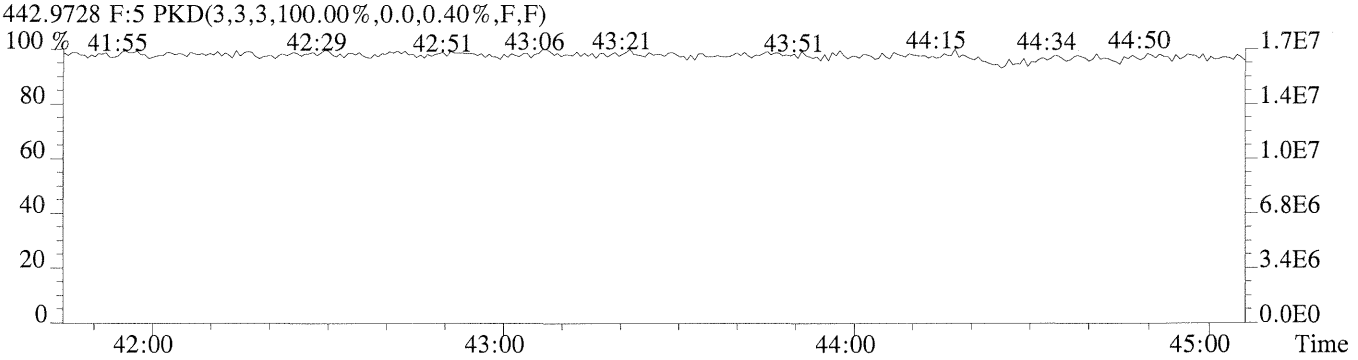
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,388.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
SJSF001-IDW

Run #19 Filename U140634 Samp: 1 Inj: 1 Acquired: 11-JUN-11 00:05:03
Processed: 15-JUN-11 06:33:26 Sample ID: E1100611-001

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:23	1.314e+02	1.512e+02	0.87	yes	y|y
2	IS	13C-2,3,7,8-TCDF	22:23	7.915e+04	1.008e+05	0.79	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:06	1.059e+05	1.347e+05	0.79	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	7.681e+04				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	1.97e+04	2.88e+03	6.8e+00	2.62e+04	2.43e+03	1.1e+01
2	13C-2,3,7,8-TCDF	1.19e+07	2.88e+03	4.1e+03	1.52e+07	2.40e+03	6.3e+03
3	13C-1,2,3,4-TCDD	1.81e+07	4.32e+03	4.2e+03	2.32e+07	2.13e+03	1.1e+04
4	37Cl-2,3,7,8-TCDD	1.26e+07	2.05e+03	6.1e+03			

--- 2378-TCDF EDL Calculation---

$$EDL = \frac{(2.880e+03 + 2.432e+03) \times 2000 \times 2.5 \text{ pg}}{(1.192e+07 + 1.518e+07) \times (\underset{1010}{\cancel{0.000}} \text{ g}) \times \underset{x}{\cancel{0.00 / 100 \times}}\ 0.97} = 1.02 \text{ pg/l}$$

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06/16/11

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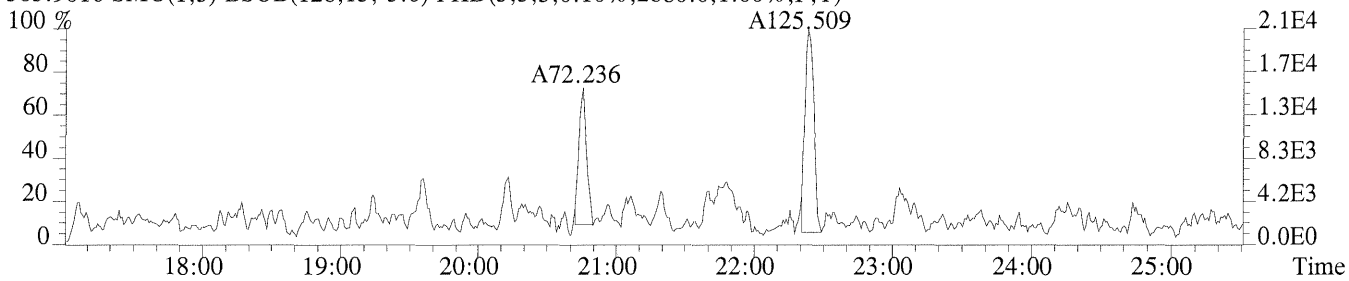
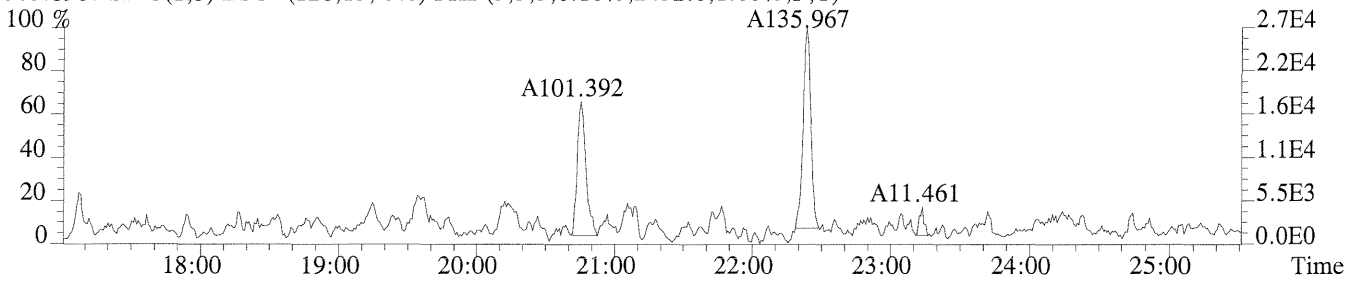
File:U140634 #1-709 Acq:11-JUN-2011 00:05:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW

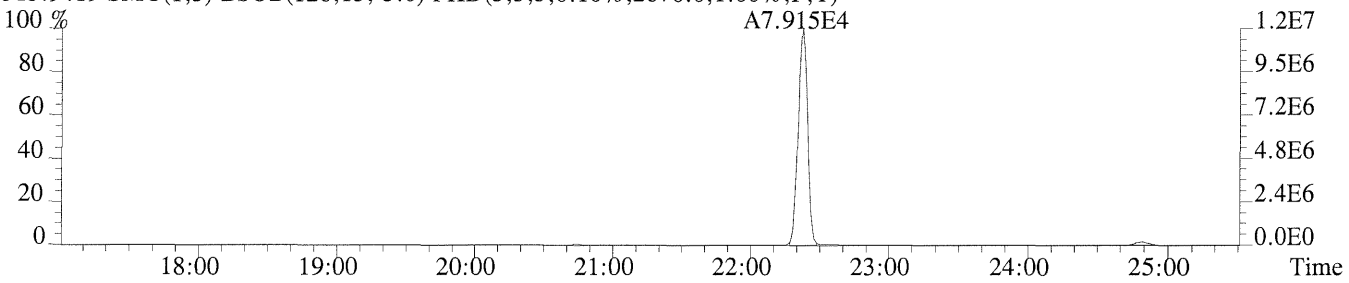
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2880.0,1.00%,F,T)



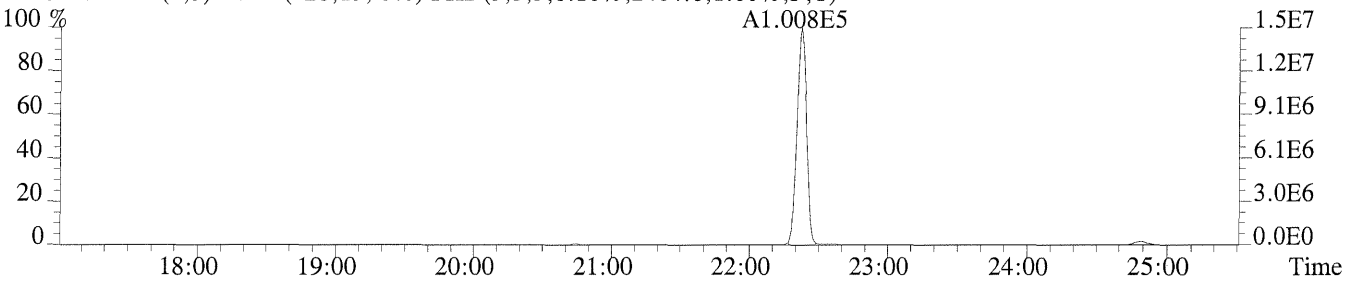
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



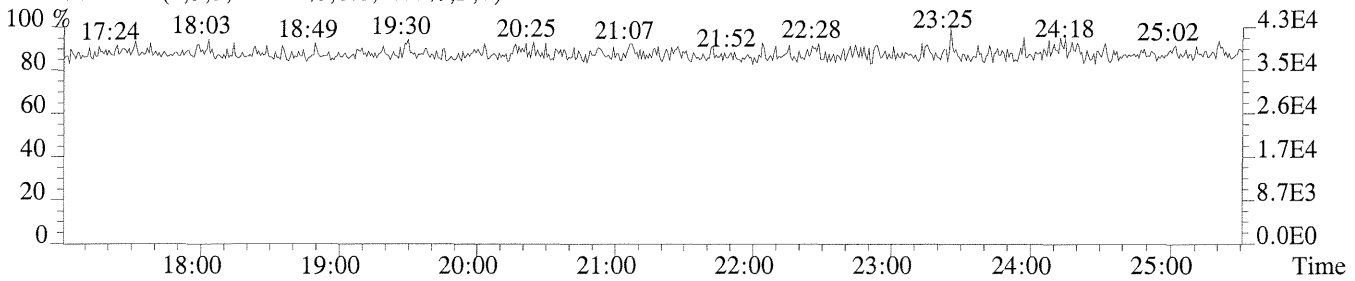
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2876.0,1.00%,F,T)



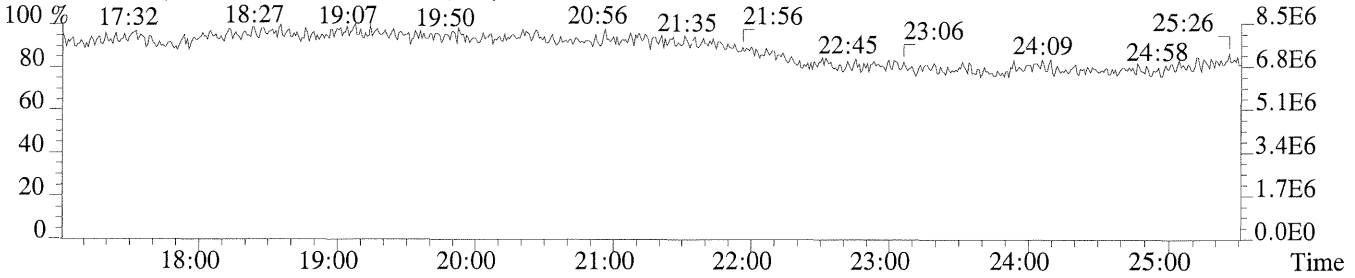
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2404.0,1.00%,F,T)



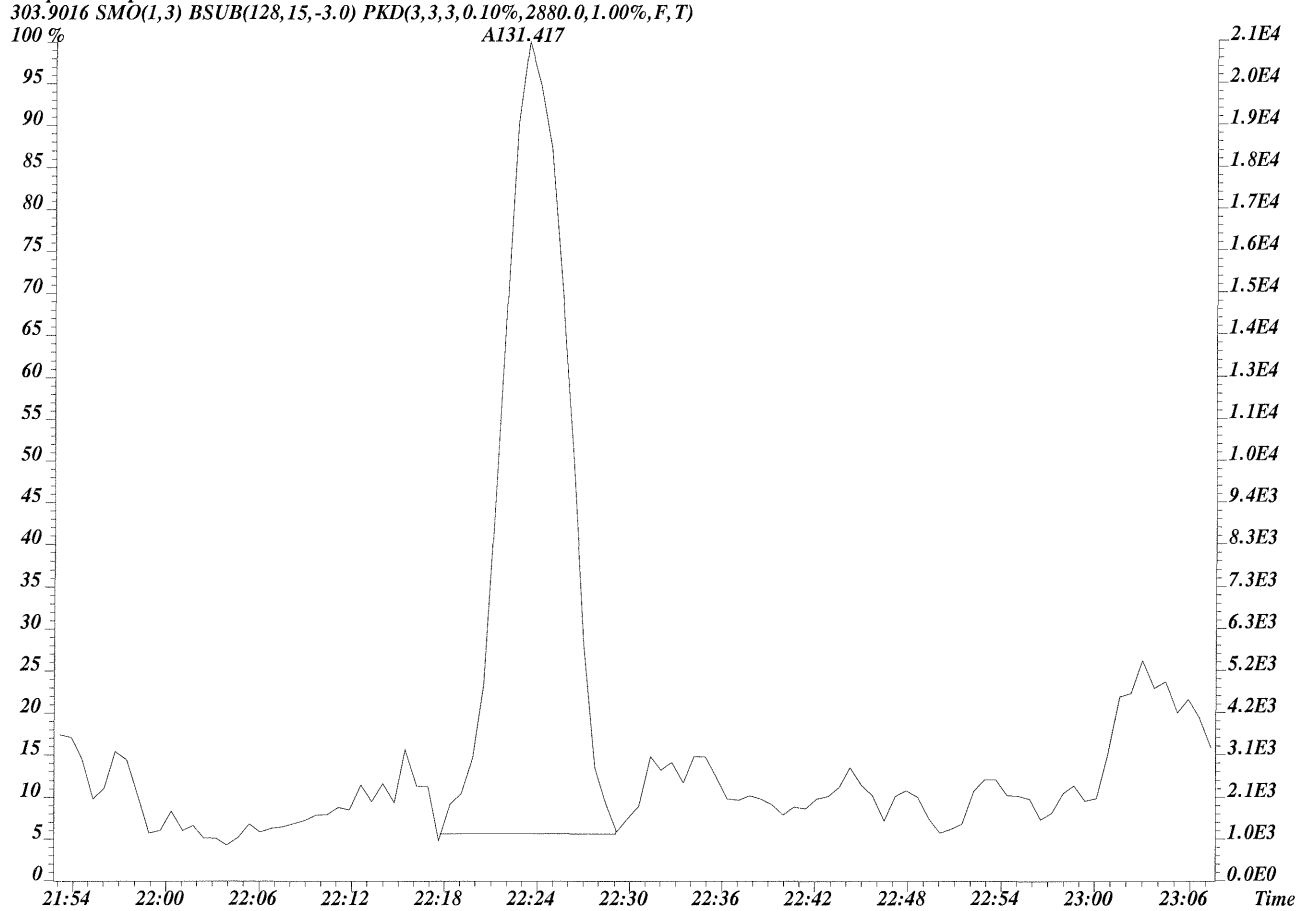
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



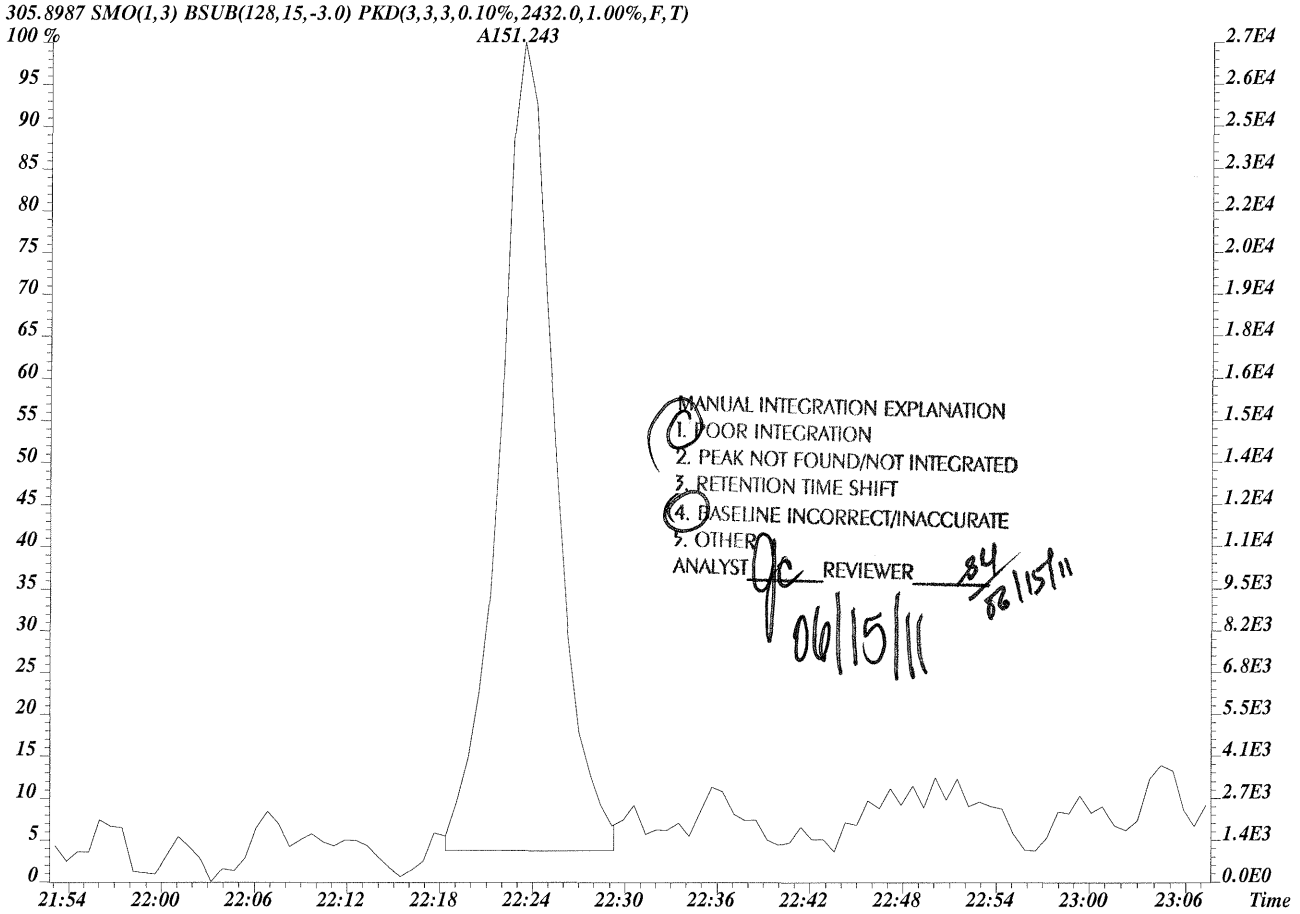
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



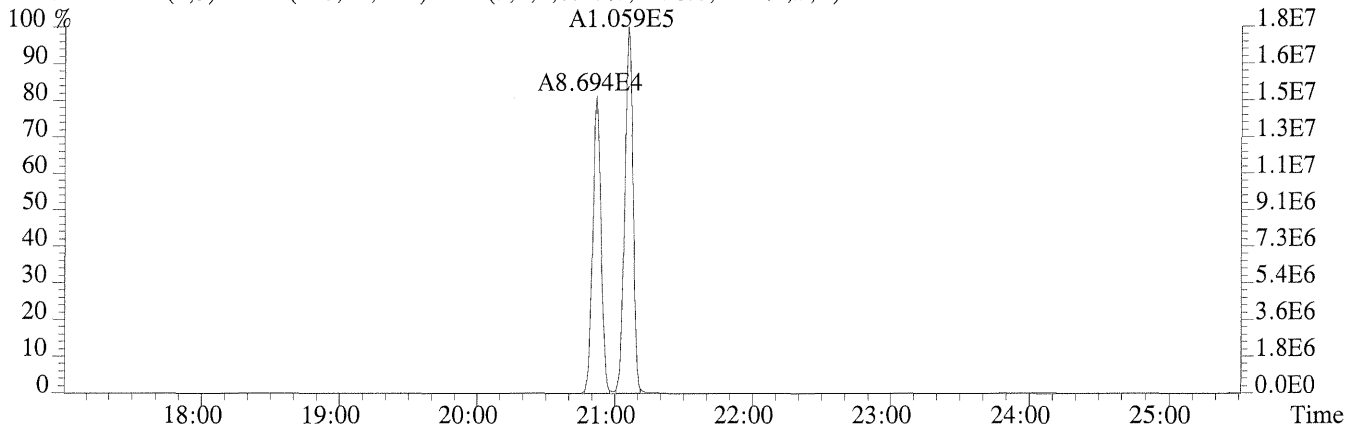
File:U140634 #1-709 Acq:11-JUN-2011 00:05:03 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:E1100611-001 SJSF001-IDW
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2880.0,1.00%,F,T)



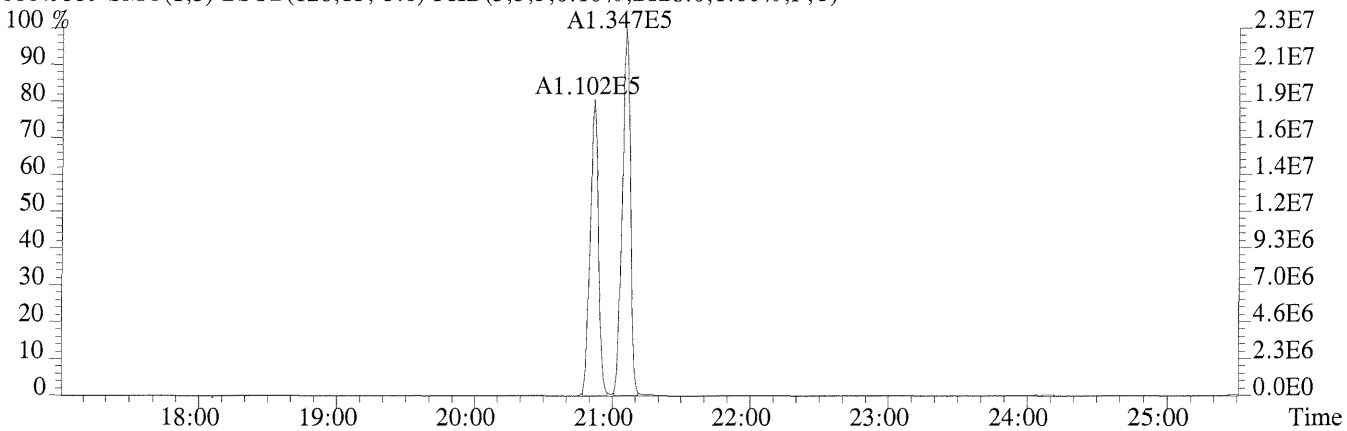
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2432.0,1.00%,F,T)



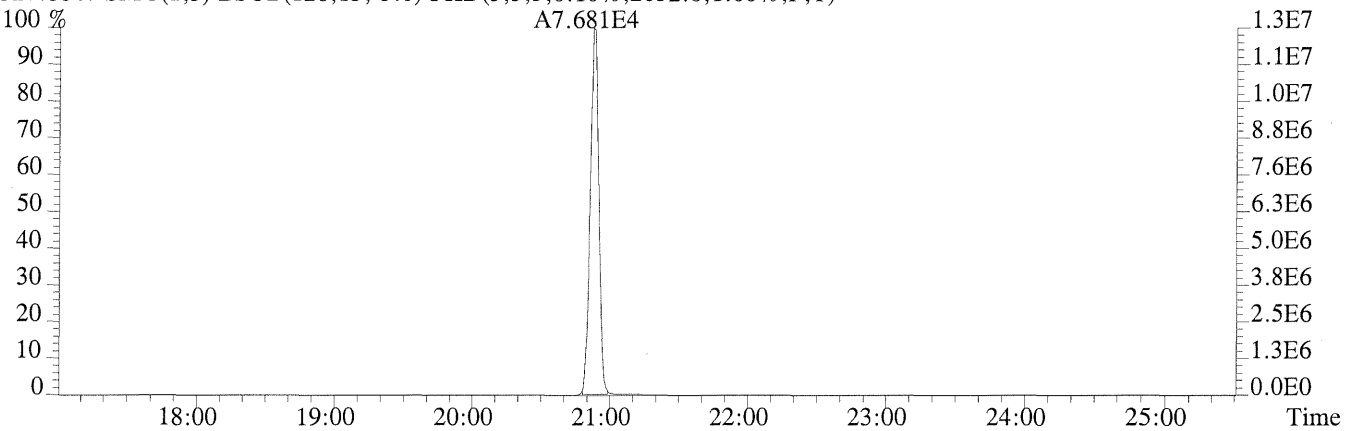
File:U140634 #1-709 Acq:11-JUN-2011 00:05:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-001 SJSF001-IDW
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4316.0,1.00%,F,T)



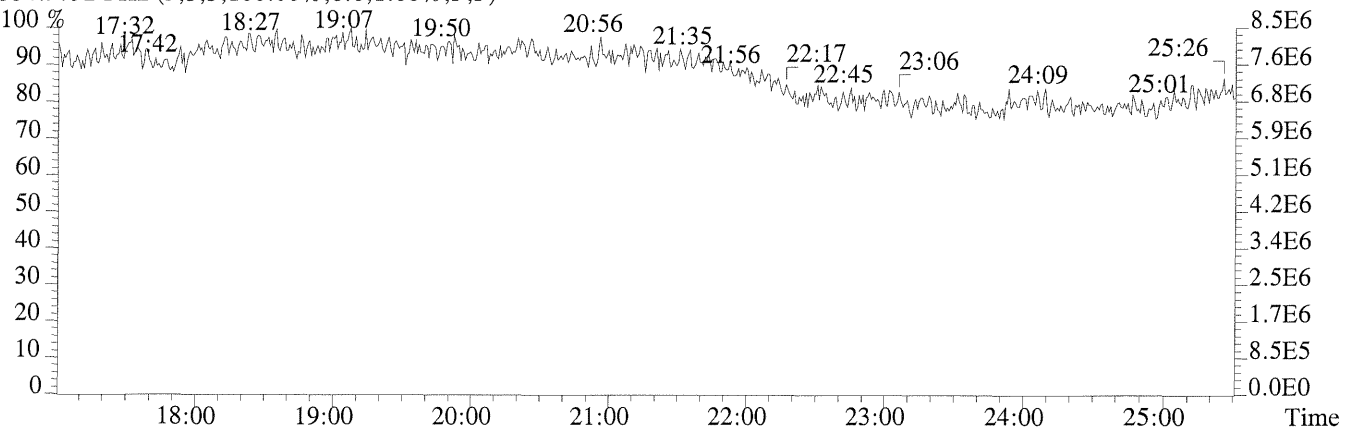
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2128.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2052.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
SJSF002-IDW

Run #18 Filename P114453 Samp: 1 Inj: 1 Acquired: 9-JUN-11 14:55:13
Processed: 10-JUN-11 13:21:48 Sample ID: E1100611-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:24	9.975e+01	1.422e+02	0.70	yes	no	0.900
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.941
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.028
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.235
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	yes	1.199
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.147
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	6.942e+01	6.975e+01	1.00	yes	no	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.438
10	Unk	OCDF	43:09	3.746e+02	4.660e+02	0.80	yes	no	1.225
11	Unk	2,3,7,8-TCDD	29:15	3.720e+01	6.130e+01	0.61	no	no	1.029
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.110
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.906
15	Unk	1,2,3,7,8,9-HxCDD	37:27	2.358e+01	1.143e+01	2.06	no	no	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	3.773e+02	3.606e+02	1.05	yes	no	1.001
17	Unk	OCDD	42:59	9.077e+03	1.004e+04	0.90	yes	no	1.058
18	IS	13C-2,3,7,8-TCDF	28:24	2.466e+04	3.110e+04	0.79	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:48	4.020e+04	2.563e+04	1.57	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.597e+04	2.257e+04	1.59	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	1.963e+04	3.781e+04	0.52	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	2.059e+04	3.921e+04	0.53	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:58	1.956e+04	3.712e+04	0.53	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:40	1.666e+04	3.206e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.429e+04	3.193e+04	0.45	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	1.266e+04	2.857e+04	0.44	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:15	2.491e+04	3.132e+04	0.80	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.987e+04	1.902e+04	1.57	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	2.592e+04	2.063e+04	1.26	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:10	2.817e+04	2.231e+04	1.26	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	2.006e+04	1.886e+04	1.06	yes	no	0.907
32	IS	13C-OCDD	42:58	2.360e+04	2.627e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	2.860e+04	3.574e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	3.056e+04	2.453e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	2.248e+04				no	1.054

$$\text{OCDD} = \frac{(9.077e+03 + 1.004e+04) \times 4000 \text{ pg} \times 1}{(2.360e+04 + 2.627e+04) \times 1030 \text{ mL} \times 1\text{L}/1000\text{ml} \times 1.058} = 1410 \text{ pg/L}$$

06/13/11

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
SJSF002-IDW

Run #18 Filename P114453 Samp: 1 Inj: 1 Acquired: 9-JUN-11 14:55:13
Processed: 10-JUN-11 13:21:481 LAB. ID: E1100611-002

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.49e+04	6.08e+02	2.5e+01	2.08e+04	6.84e+02	3.0e+01
2	1,2,3,7,8-PeCDF	*	6.92e+02	*	*	9.36e+02	*
3	2,3,4,7,8-PeCDF	*	6.92e+02	*	*	9.36e+02	*
4	1,2,3,4,7,8-HxCDF	*	1.13e+03	*	*	7.92e+02	*
5	1,2,3,6,7,8-HxCDF	*	1.13e+03	*	*	7.92e+02	*
6	2,3,4,6,7,8-HxCDF	*	1.13e+03	*	*	7.92e+02	*
7	1,2,3,7,8,9-HxCDF	*	1.13e+03	*	*	7.92e+02	*
8	1,2,3,4,6,7,8-HpCDF	1.52e+04	9.08e+02	1.7e+01	1.43e+04	6.00e+02	2.4e+01
9	1,2,3,4,7,8,9-HpCDF	*	9.08e+02	*	*	6.00e+02	*
10	OCDF	6.78e+04	8.08e+02	8.4e+01	8.21e+04	9.20e+02	8.9e+01
11	2,3,7,8-TCDD	6.96e+03	8.20e+02	8.5e+00	1.05e+04	5.96e+02	1.8e+01
12	1,2,3,7,8-PeCDD	*	9.52e+02	*	*	6.44e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.44e+02	*	*	6.00e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.44e+02	*	*	6.00e+02	*
15	1,2,3,7,8,9-HxCDD	4.47e+03	7.44e+02	6.0e+00	2.46e+03	6.00e+02	4.1e+00
16	1,2,3,4,6,7,8-HpCDD	7.30e+04	1.13e+03	6.4e+01	6.87e+04	6.12e+02	1.1e+02
17	OCDD	1.54e+06	5.76e+02	2.7e+03	1.67e+06	6.80e+02	2.5e+03
18	13C-2,3,7,8-TCDF	3.86e+06	7.84e+02	4.9e+03	4.91e+06	7.44e+02	6.6e+03
19	13C-1,2,3,7,8-PeCDF	7.57e+06	7.64e+02	9.9e+03	4.81e+06	5.76e+02	8.4e+03
20	13C-2,3,4,7,8-PeCDF	6.93e+06	7.64e+02	9.1e+03	4.36e+06	5.76e+02	7.6e+03
21	13C-1,2,3,4,7,8-HxCDF	4.33e+06	6.24e+02	6.9e+03	8.35e+06	9.00e+02	9.3e+03
22	13C-1,2,3,6,7,8-HxCDF	4.39e+06	6.24e+02	7.0e+03	8.43e+06	9.00e+02	9.4e+03
23	13C-2,3,4,6,7,8-HxCDF	4.21e+06	6.24e+02	6.8e+03	8.01e+06	9.00e+02	8.9e+03
24	13C-1,2,3,7,8,9-HxCDF	3.51e+06	6.24e+02	5.6e+03	6.71e+06	9.00e+02	7.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.98e+06	2.62e+03	1.1e+03	6.71e+06	3.37e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.44e+06	2.62e+03	9.3e+02	5.58e+06	3.37e+03	1.7e+03
27	13C-2,3,7,8-TCDD	4.22e+06	1.84e+03	2.3e+03	5.32e+06	6.36e+02	8.4e+03
28	13C-1,2,3,7,8-PeCDD	5.86e+06	6.60e+02	8.9e+03	3.70e+06	8.76e+02	4.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.89e+06	9.20e+02	6.4e+03	4.58e+06	9.08e+02	5.0e+03
30	13C-1,2,3,6,7,8-HxCDD	5.99e+06	9.20e+02	6.5e+03	4.66e+06	9.08e+02	5.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	4.06e+06	8.88e+02	4.6e+03	3.85e+06	6.92e+02	5.6e+03
32	13C-OCDD	4.01e+06	6.76e+02	5.9e+03	4.43e+06	7.12e+02	6.2e+03
33	13C-1,2,3,4-TCDD	5.00e+06	1.84e+03	2.7e+03	6.21e+06	6.36e+02	9.8e+03
34	13C-1,2,3,7,8,9-HxCDD	6.40e+06	9.20e+02	7.0e+03	5.08e+06	9.08e+02	5.6e+03
35	37Cl-2,3,7,8-TCDD	3.71e+06	8.32e+02	4.5e+03			

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.
SJSF002-IDW

Entry: 36 Totals Name: Total Tetra-Furans

Run: 18 File: P114453 Sample:1 Injection:1 Function:1

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 303.9016 305.8987 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	27:53	4.30e+01	5.68e+01	0.76	yes	9.98e+01	n	n
2	28:24	9.98e+01	1.42e+02	0.70	yes	2.42e+02	2,3,7,8-TCDF	n	n

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Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF002-IDW

Entry: 37 Totals Name: Total Tetra-Dioxins

Run: 18 File: P114453 Sample:1 Injection:1 Function:1

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 319.8965 321.8936 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	29:09	1.76e+02	2.28e+02	0.77	yes	4.04e+02	n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF002-IDW

Entry: 40 Totals Name: Total Hexa-Furans

Run: 18 File: P114453 Sample:1 Injection:1 Function:3

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 373.8208 375.8178 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	35:34	2.87e+01	2.08e+01	1.38	yes	4.96e+01	n	y

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF002-IDW

Entry: 41 Totals Name: Total Hexa-Dioxins

Run: 18 File: P114453 Sample:1 Injection:1 Function:3

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 389.8157 391.8127 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	36:35	5.79e+01	4.28e+01	1.35	yes	1.01e+02	n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF002-IDW

Entry: 42 Totals Name: Total Hepta-Furans

Run: 18 File: P114453 Sample:1 Injection:1 Function:4

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 407.7818 409.7789 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:06	6.94e+01	6.97e+01 1.00	yes	1.39e+02	1,2,3,4,6,7,8-HpCDF	n	n
2	39:27	5.91e+01	6.60e+01 0.89	yes	1.25e+02		n	n

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Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

SJSF002-IDW

Entry: 43 Totals Name: Total Hepta-Dioxins

Run: 18 File: P114453 Sample:1 Injection:1 Function:4

Acquired: 9-JUN-11 14:55:13 Processed: 10-JUN-11 13:21:48

Mass: 423.7766 425.7737 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:21	8.70e+02	8.35e+02	1.04	yes	1.71e+03	n	n
2	40:00	3.77e+02	3.61e+02	1.05	yes	7.38e+02	1,2,3,4,6,7,8-HpCDD	n	n

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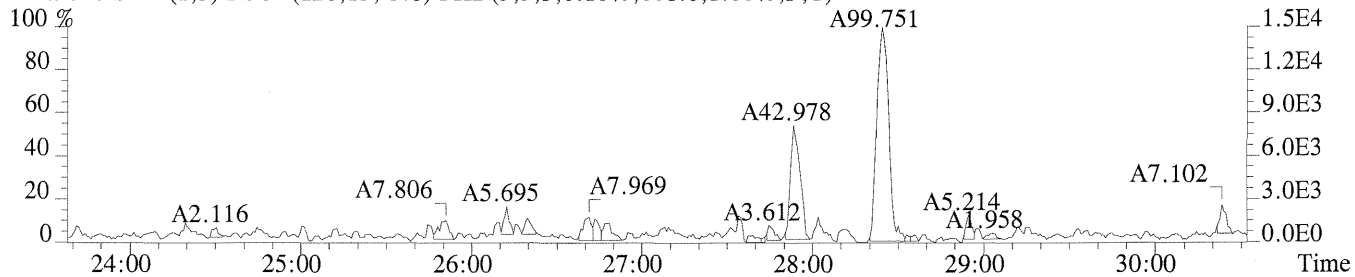
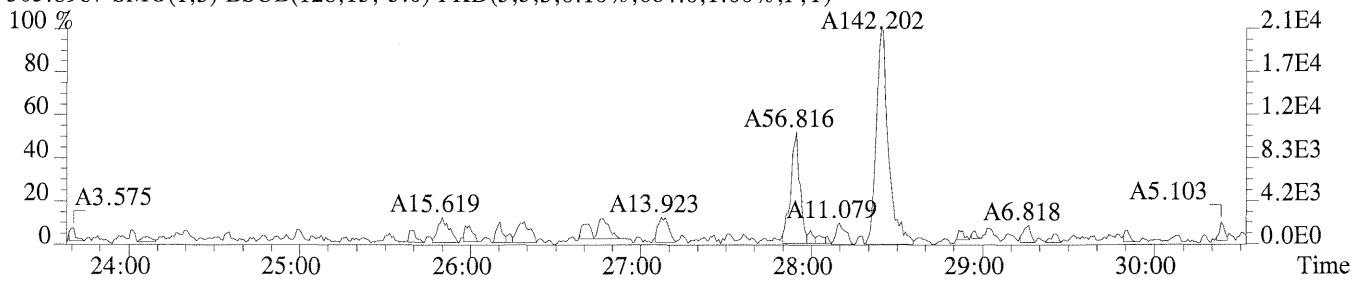
File:P114453 #1-575 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

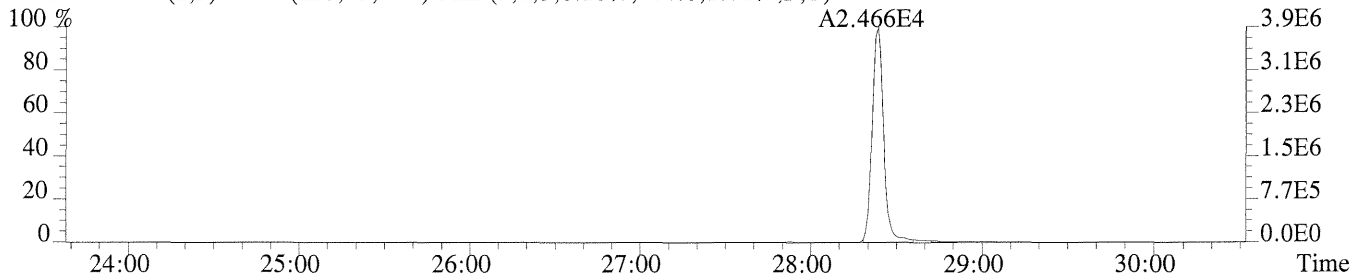
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,608.0,1.00%,F,T)



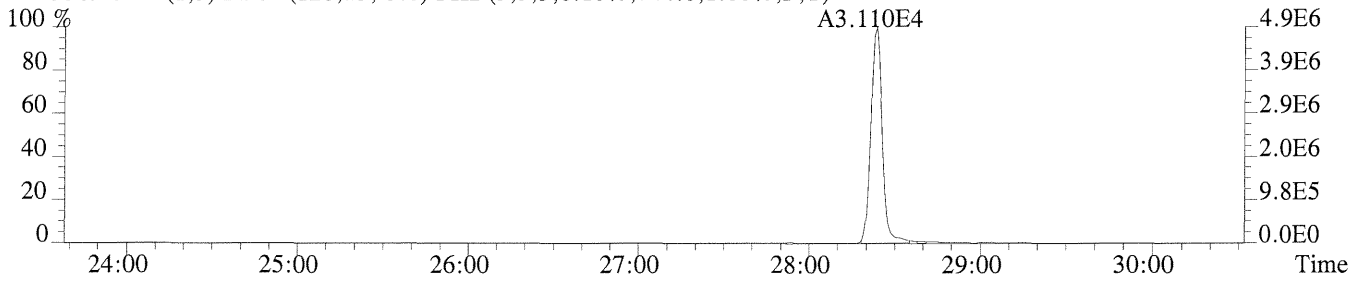
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



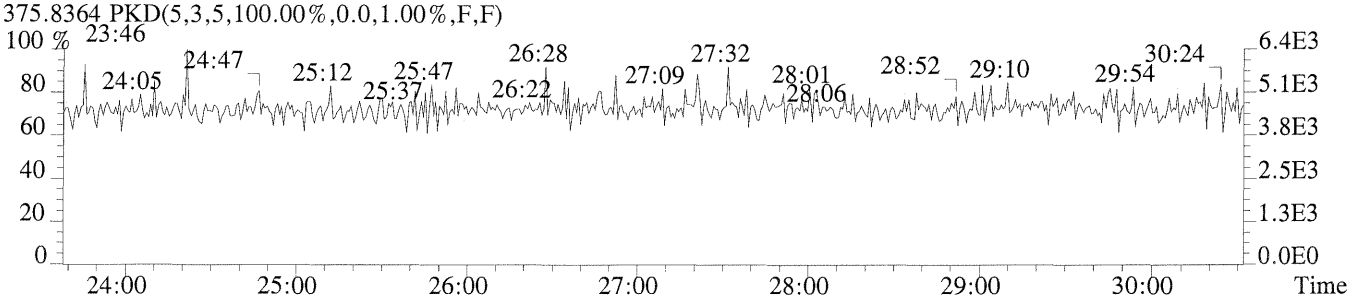
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



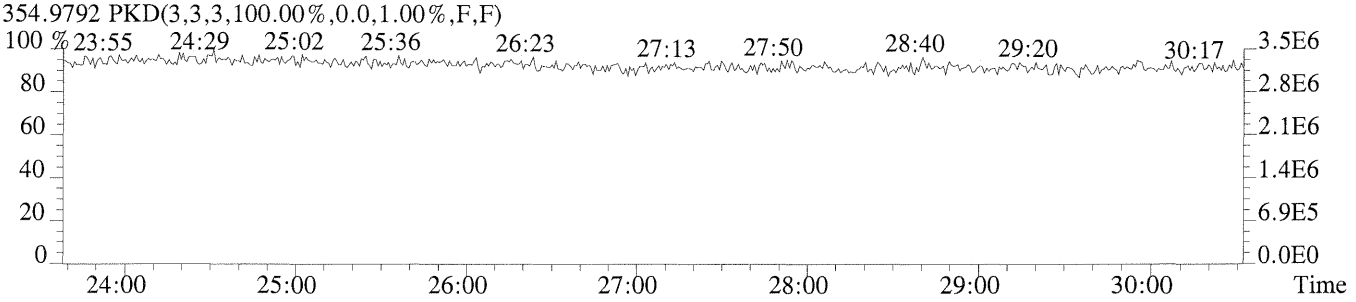
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

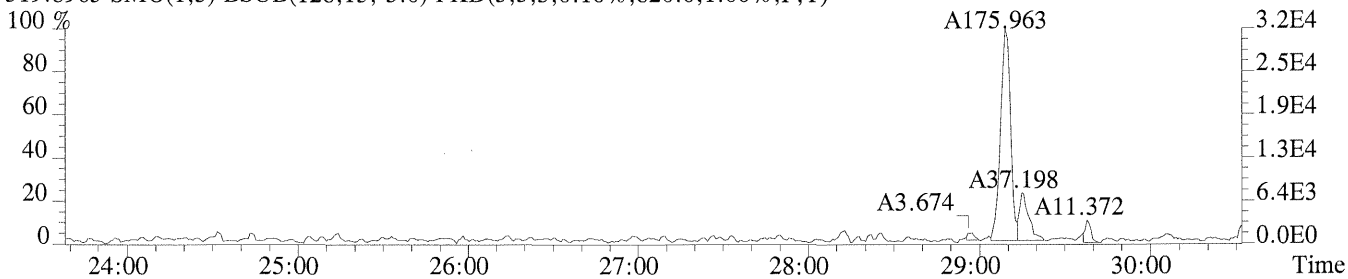


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

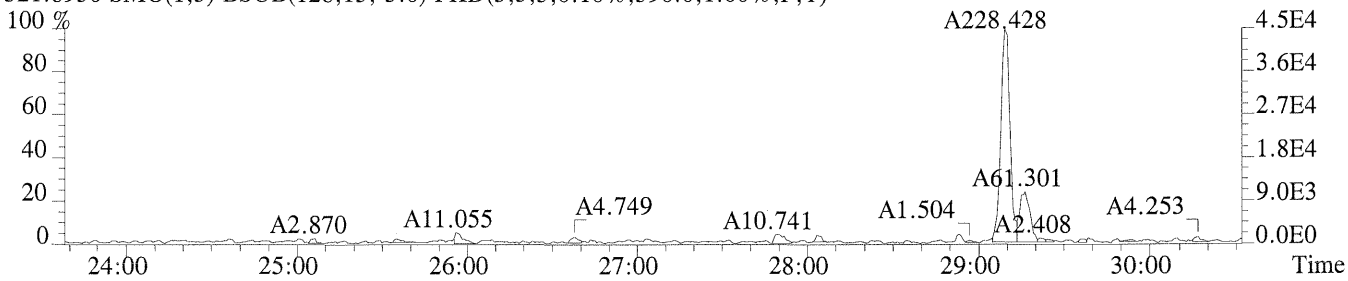


File:P114453 #1-575 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

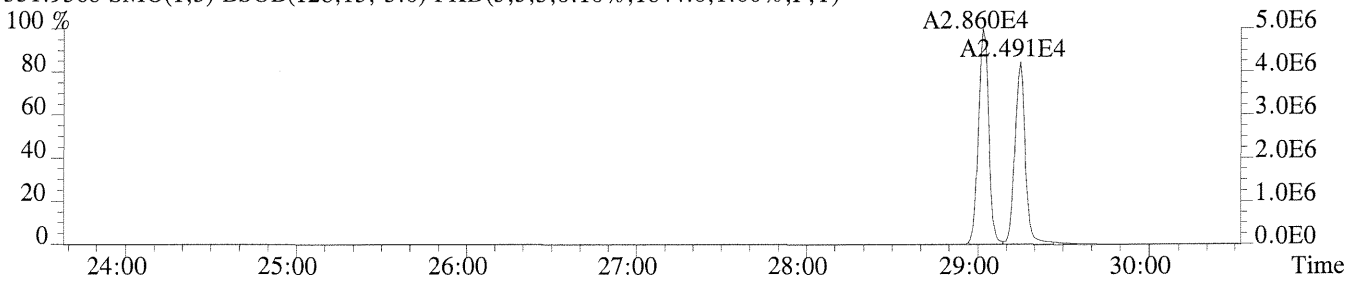
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



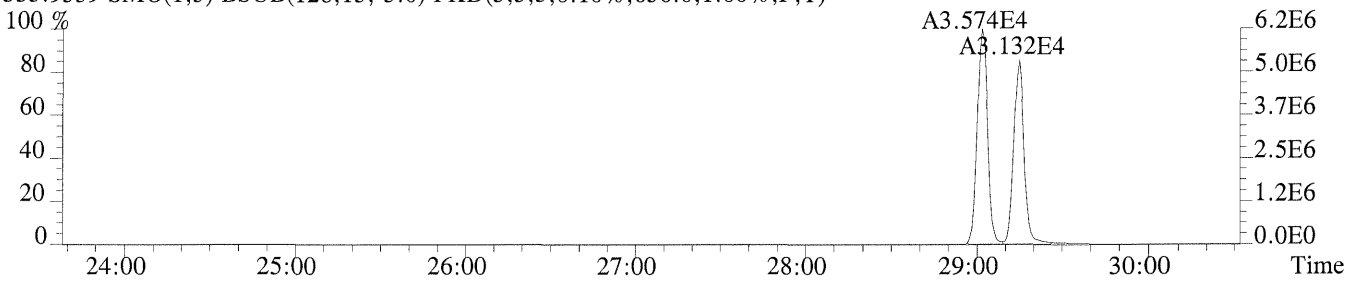
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



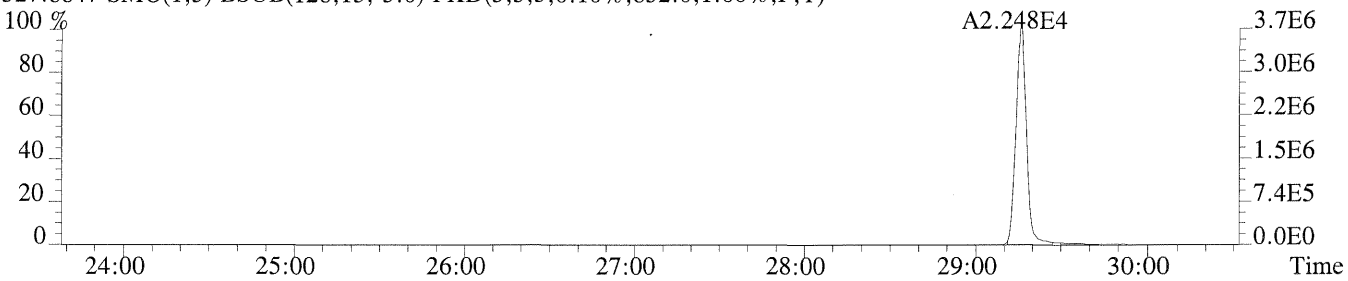
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1844.0,1.00%,F,T)



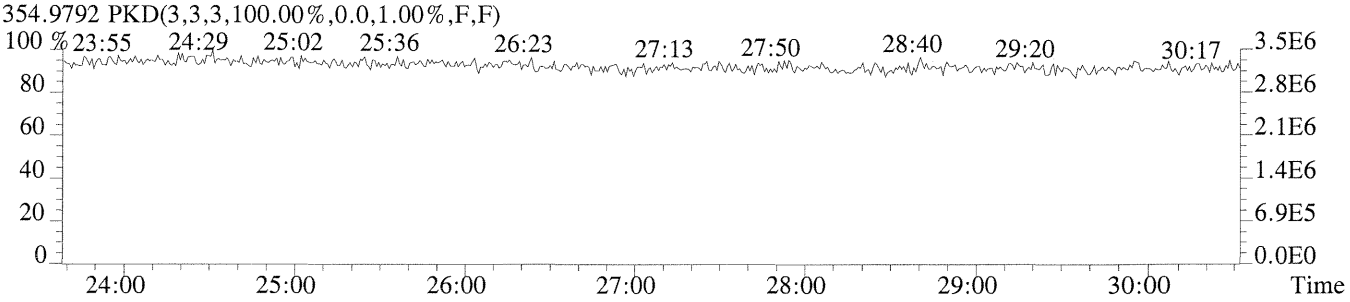
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,636.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)

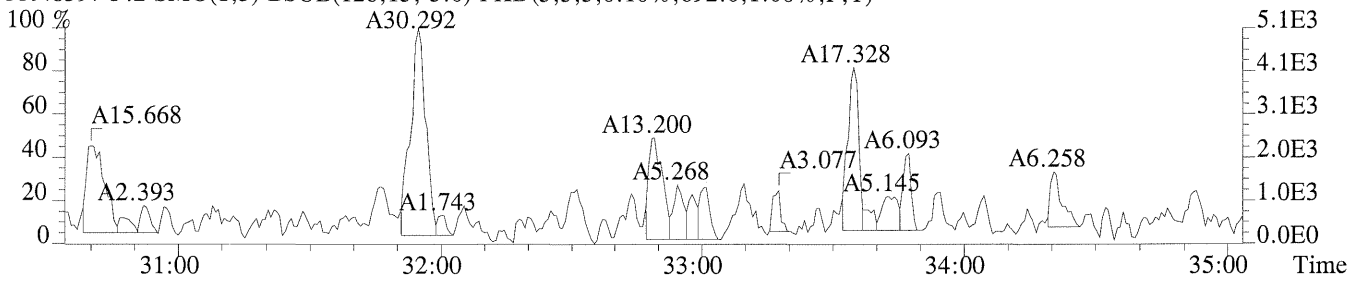


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

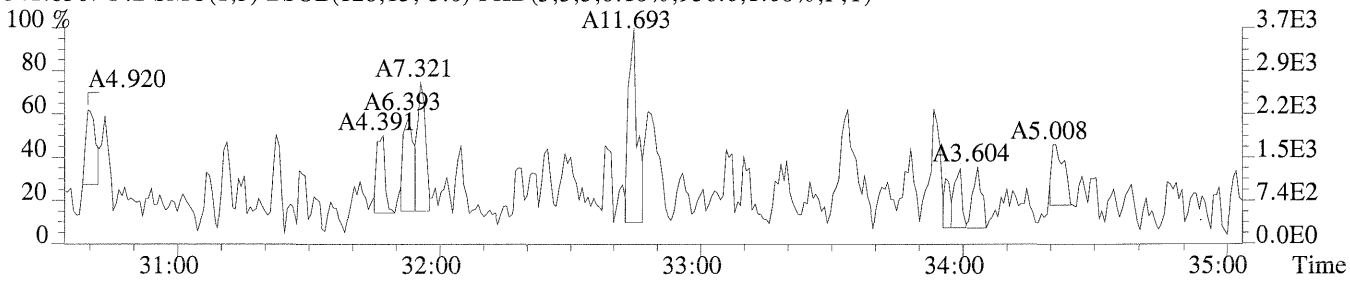


File:P114453 #1-408 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

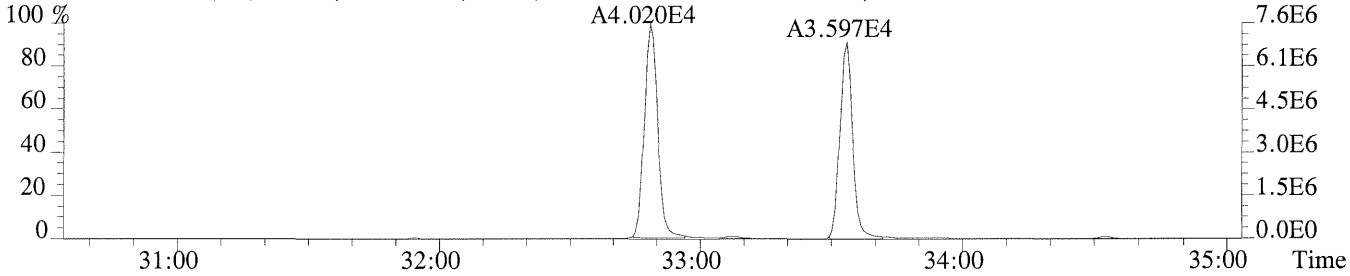
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



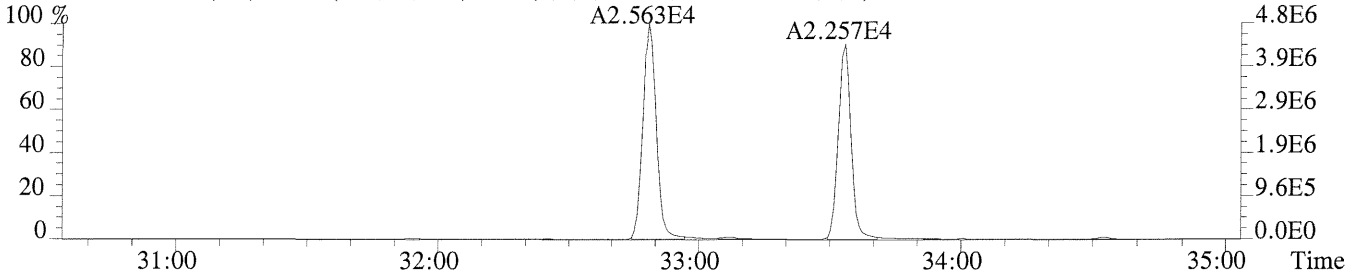
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



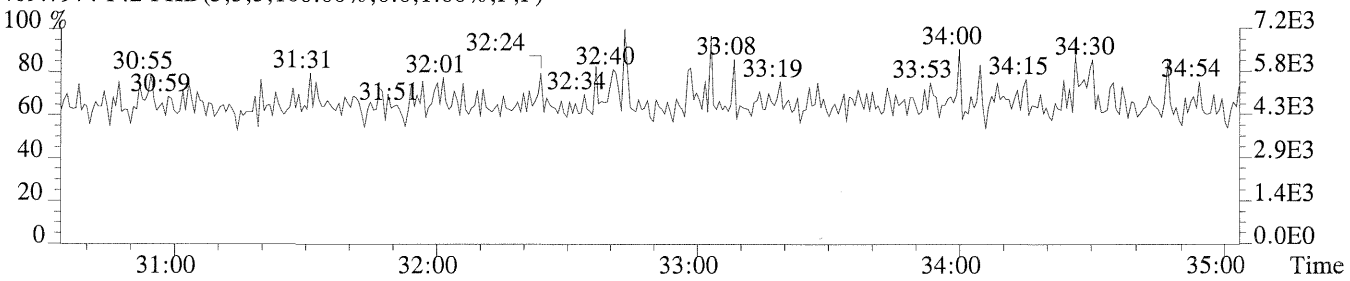
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,764.0,1.00%,F,T)



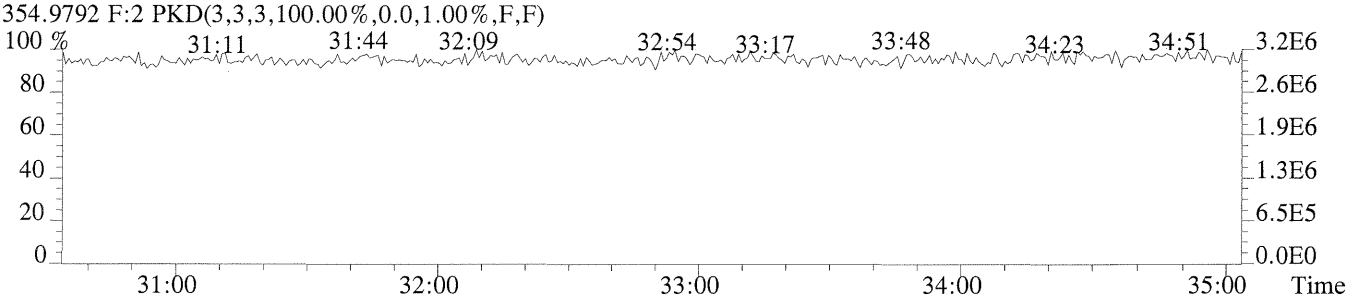
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

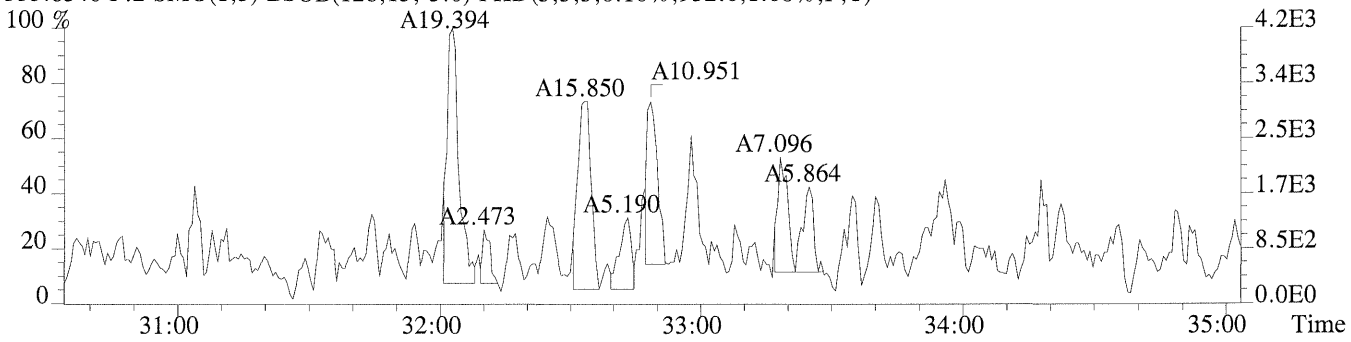


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

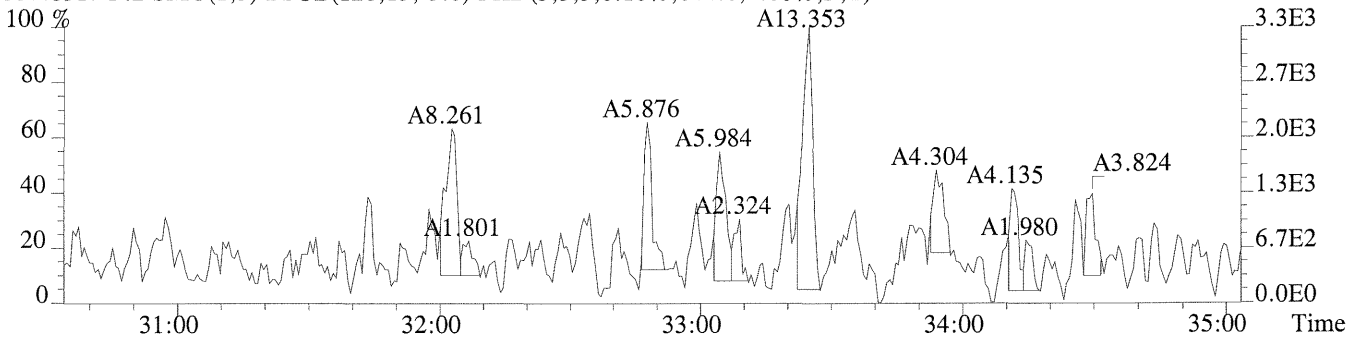


File:P114453 #1-408 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

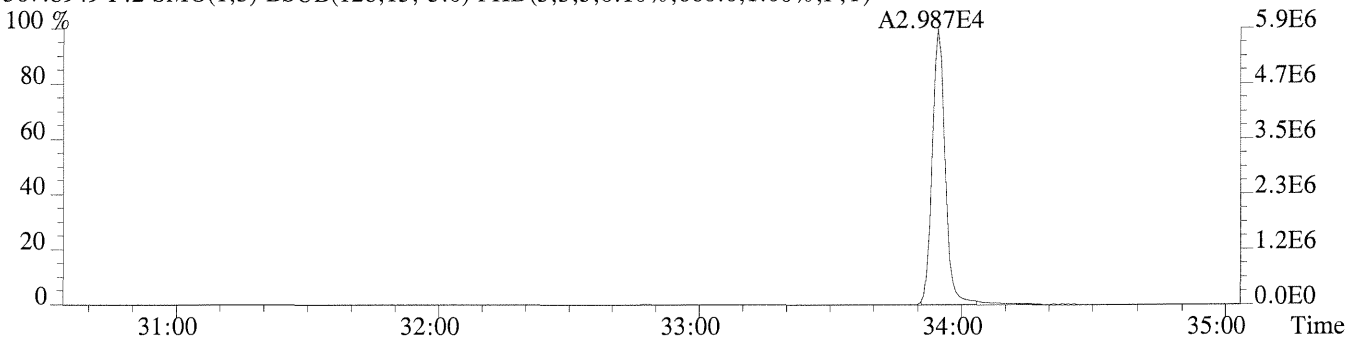
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



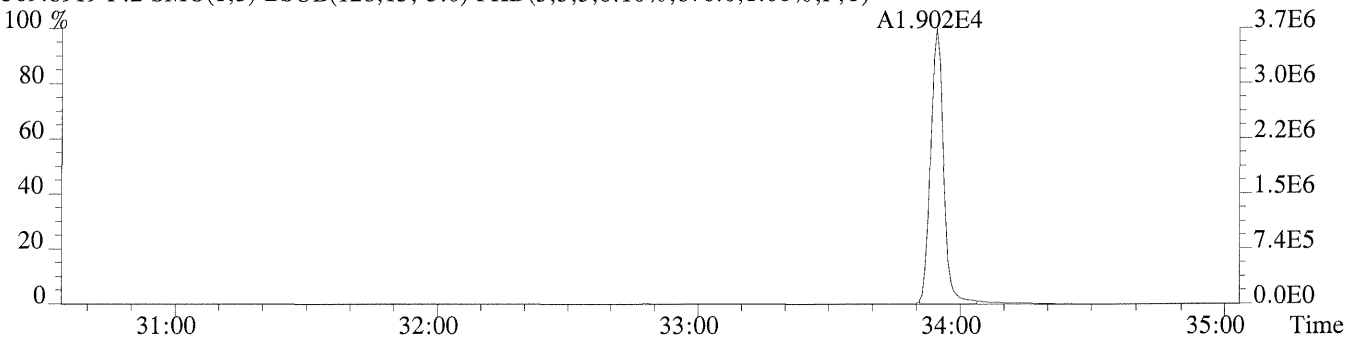
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



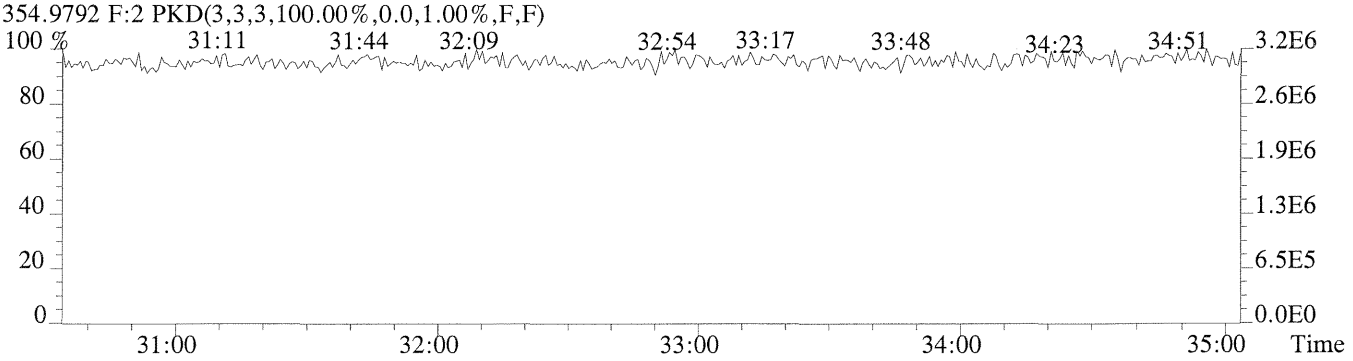
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,876.0,1.00%,F,T)

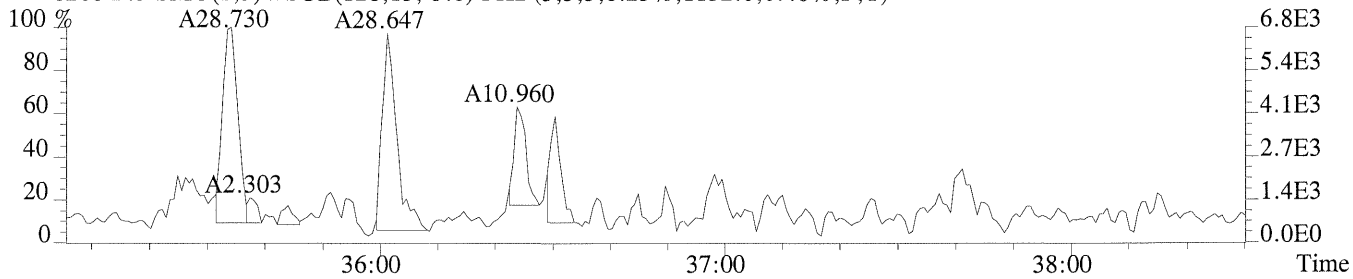


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

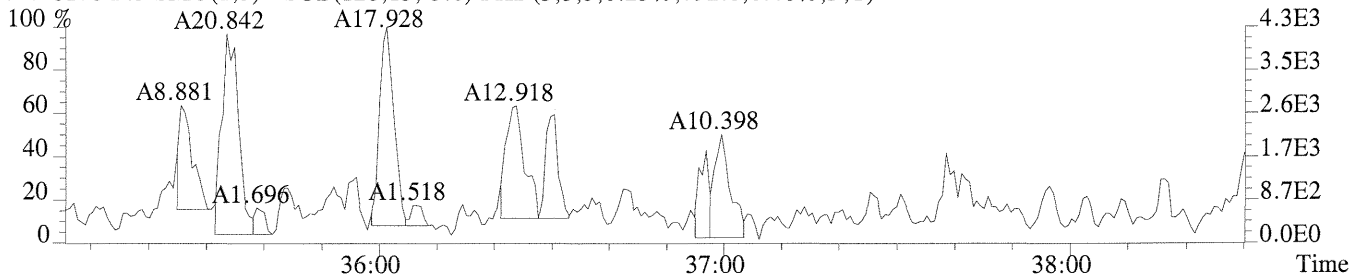


File:P114453 #1-310 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

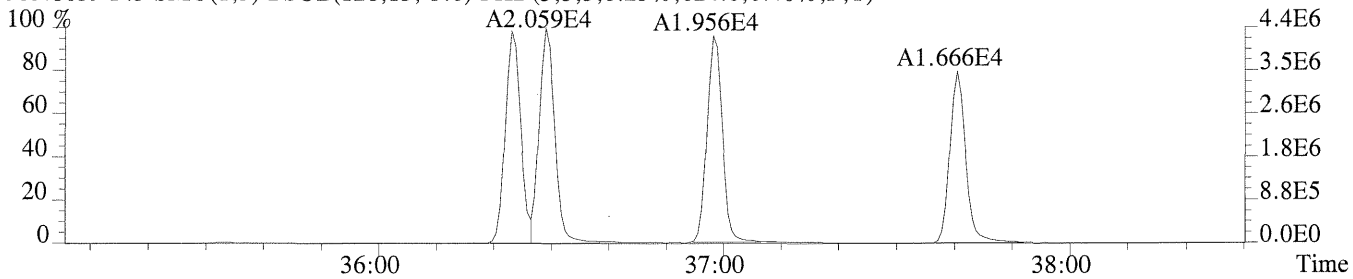
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



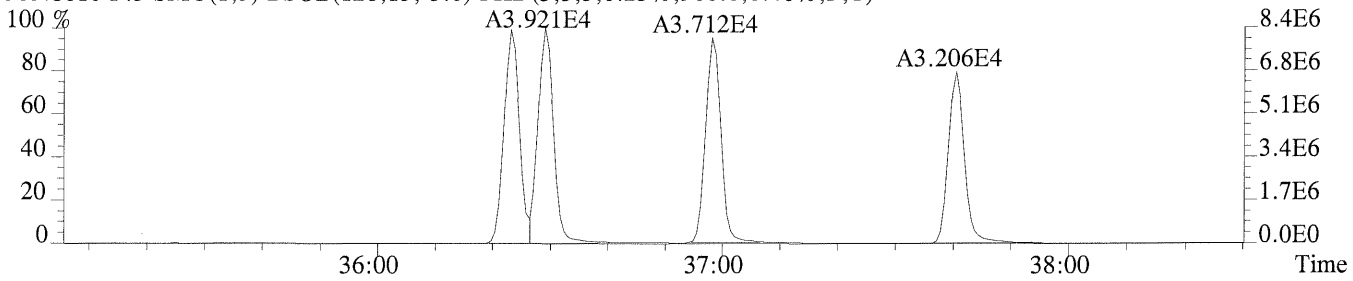
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



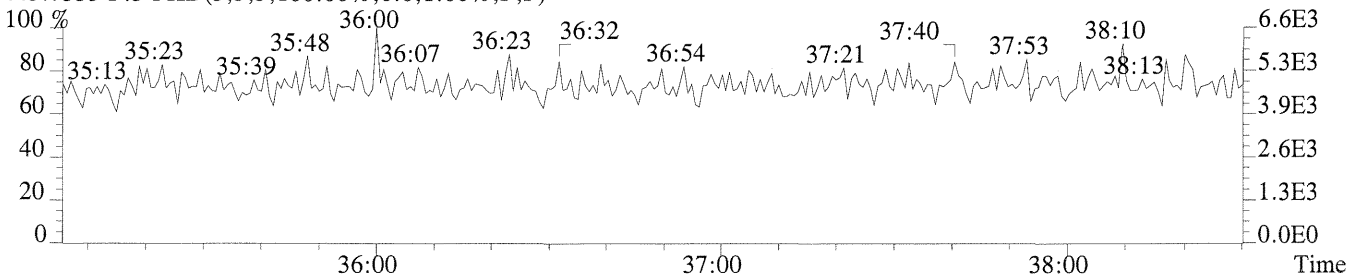
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



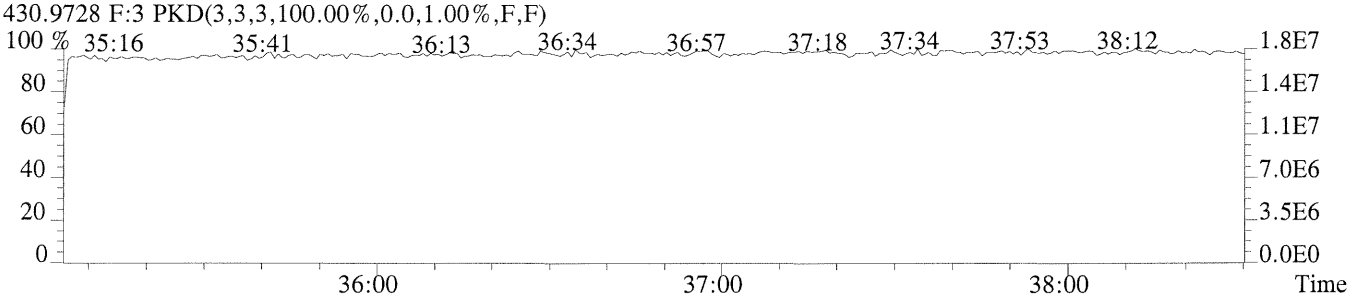
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



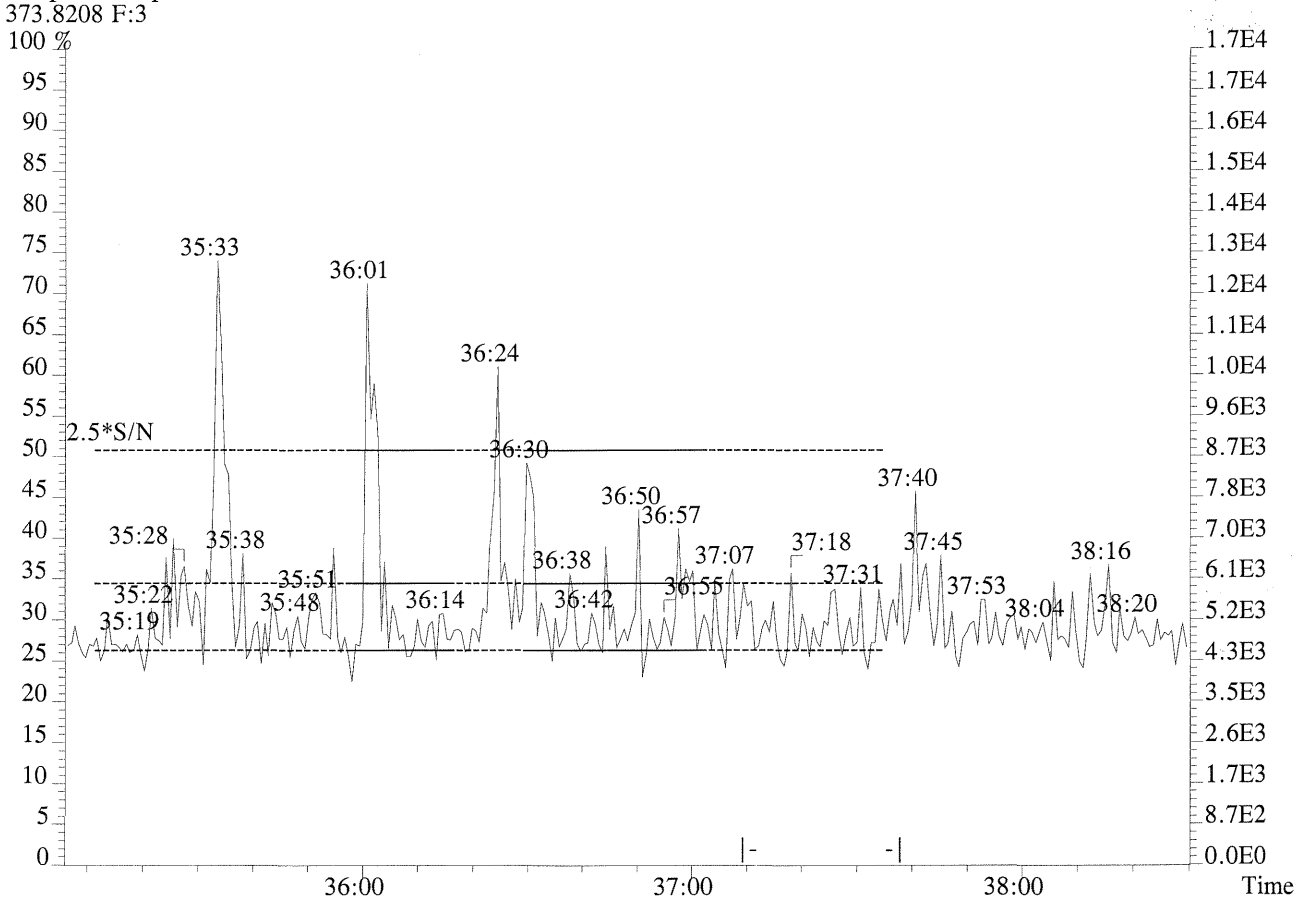
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



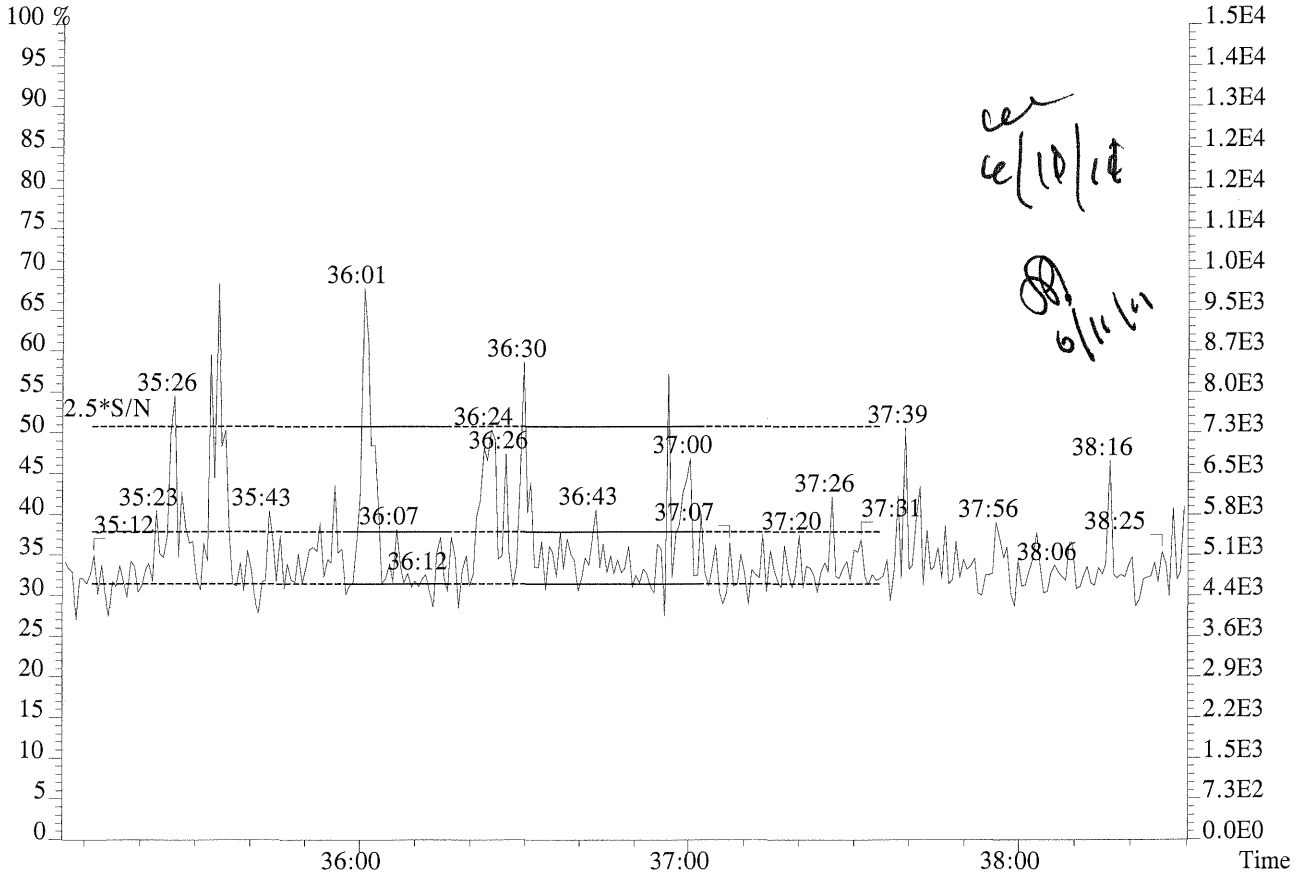
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P114453 #1-310 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:E1100611-002 SJSF002-IDW
373.8208 F:3



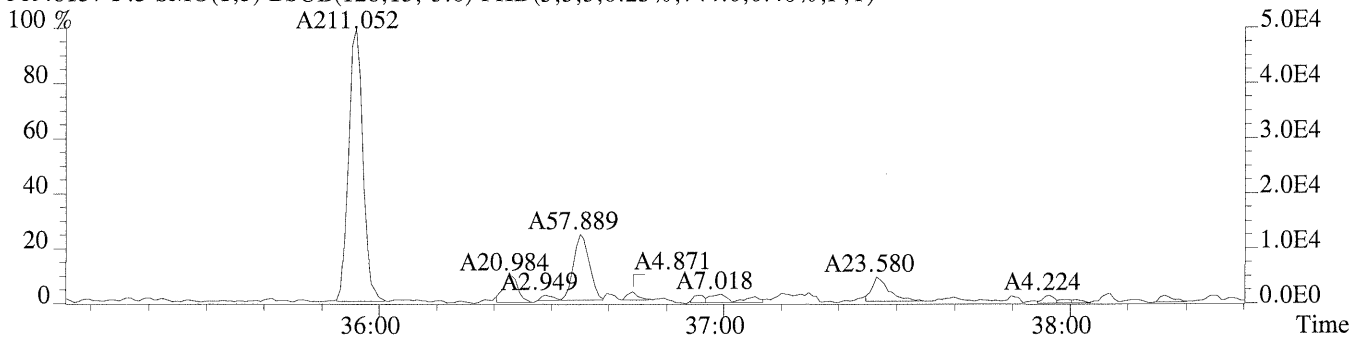
375.8178 F:3



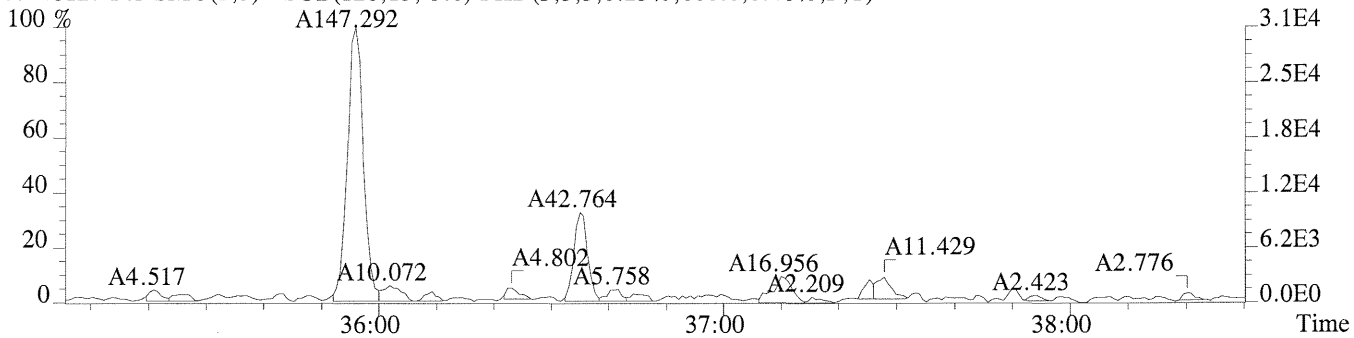
ce 6/10/11

6/11/11

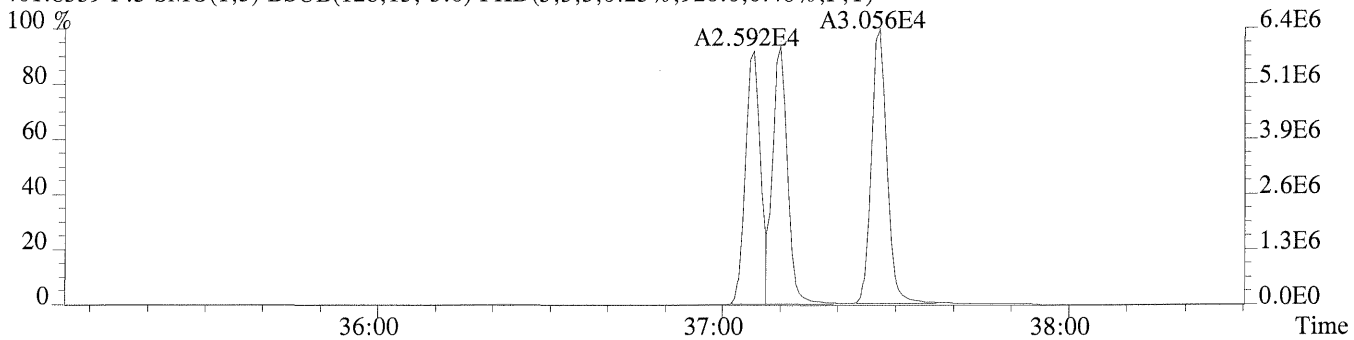
File:P114453 #1-310 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



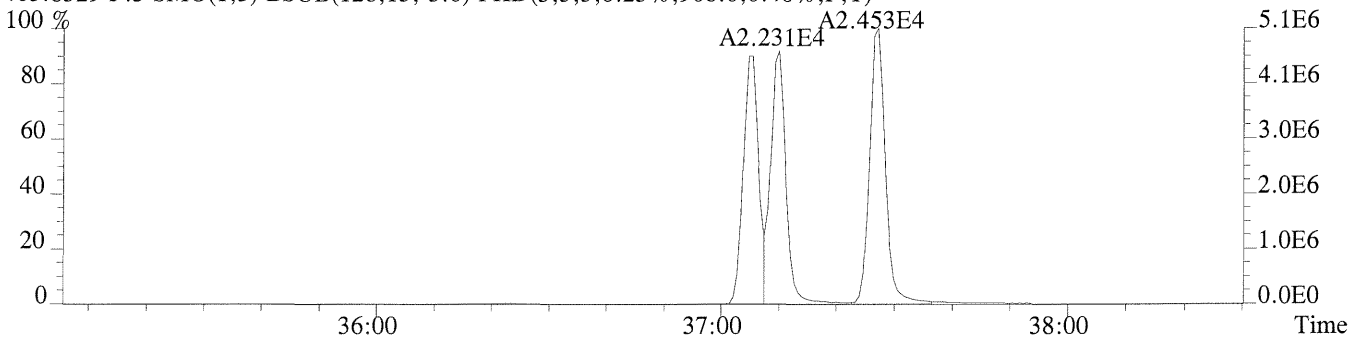
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



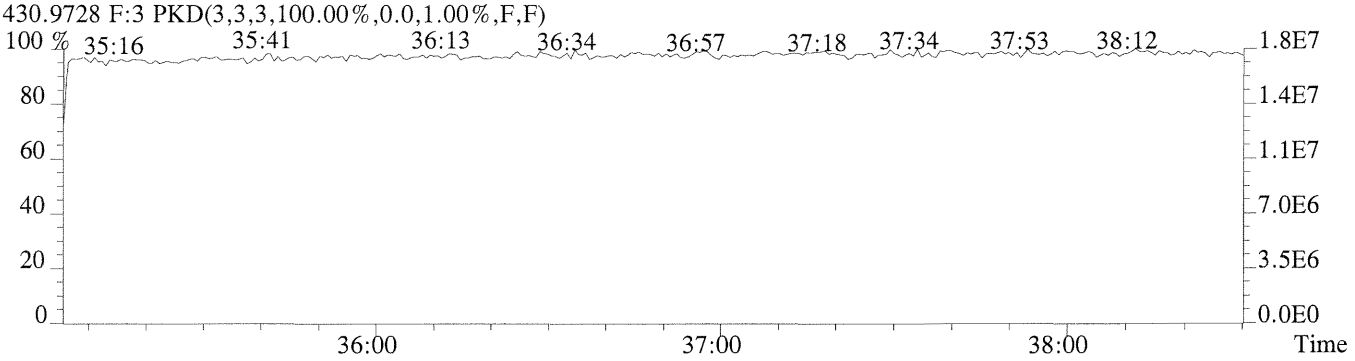
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,920.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)

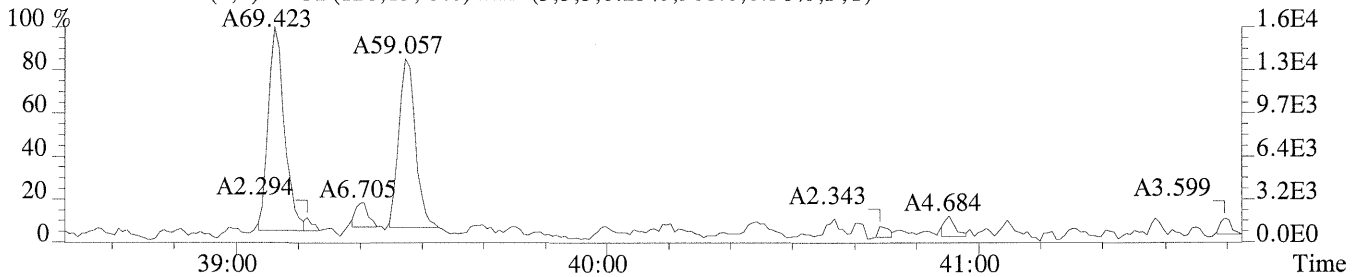


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

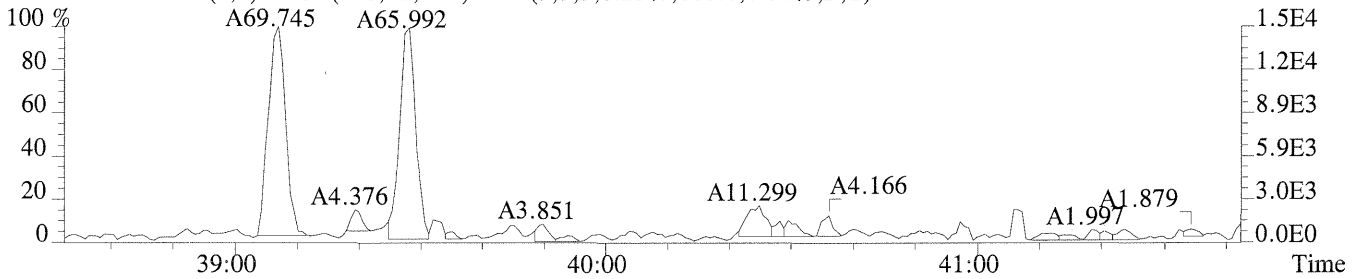


File:P114453 #1-288 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

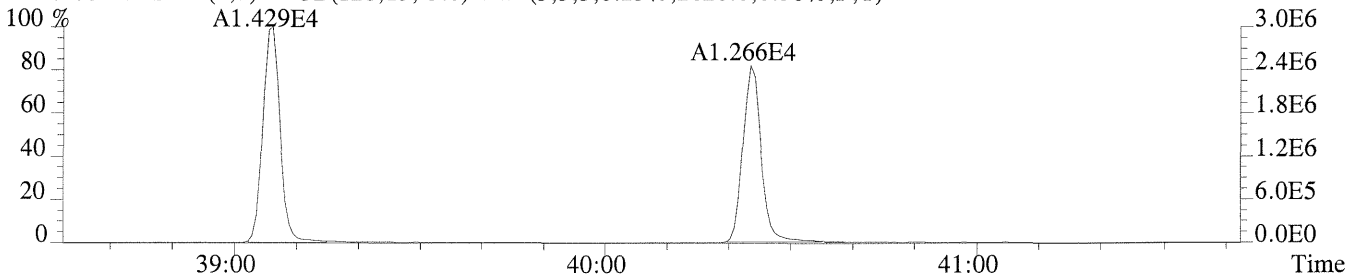
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.50%,F,T)



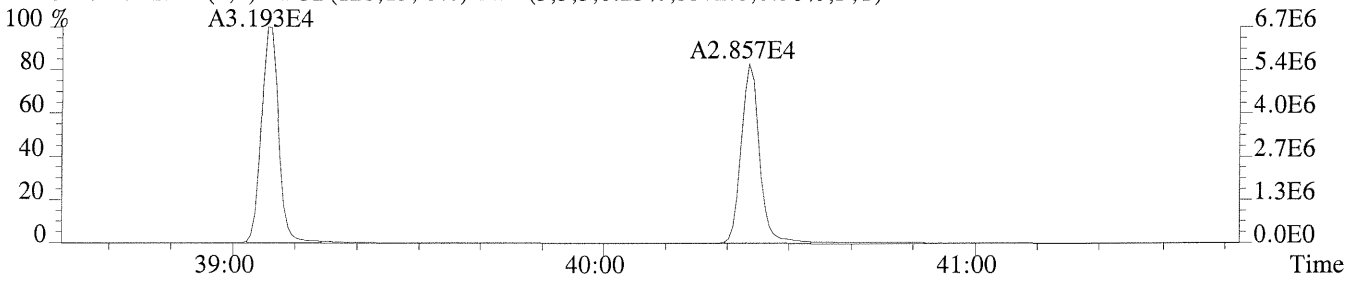
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.50%,F,T)



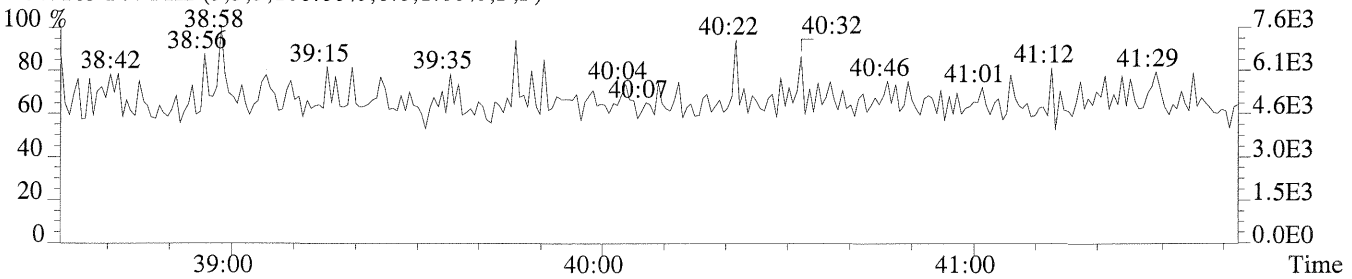
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2620.0,0.50%,F,T)



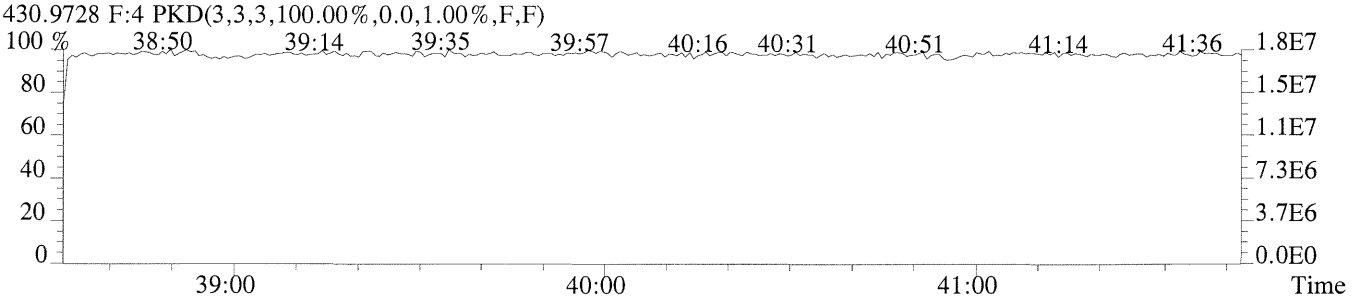
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3372.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

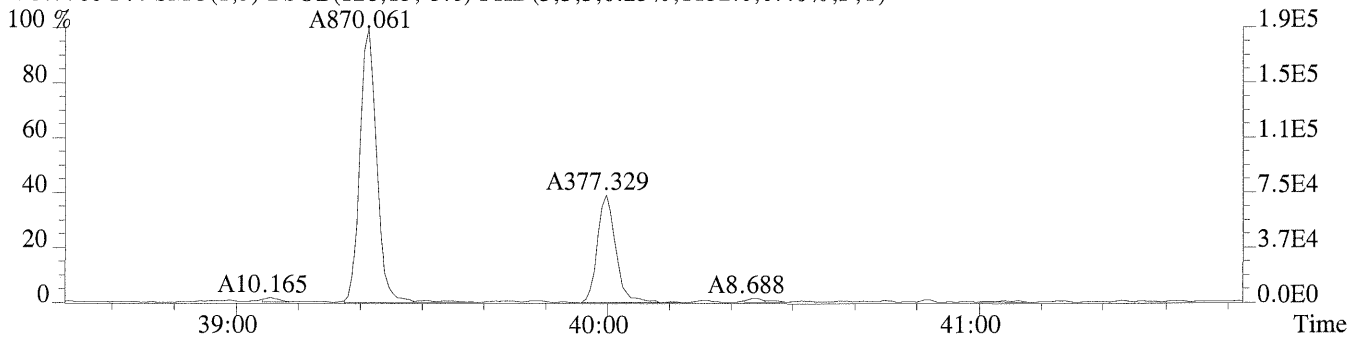


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

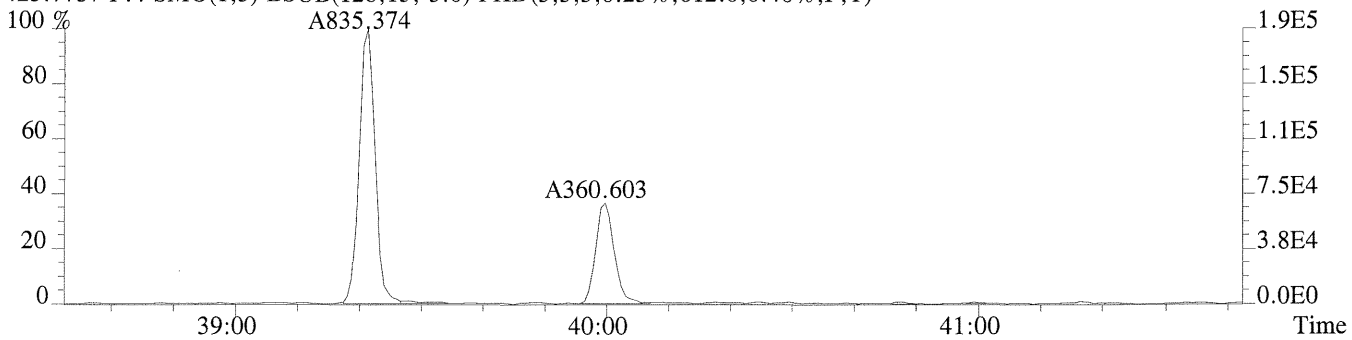


File:P114453 #1-288 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

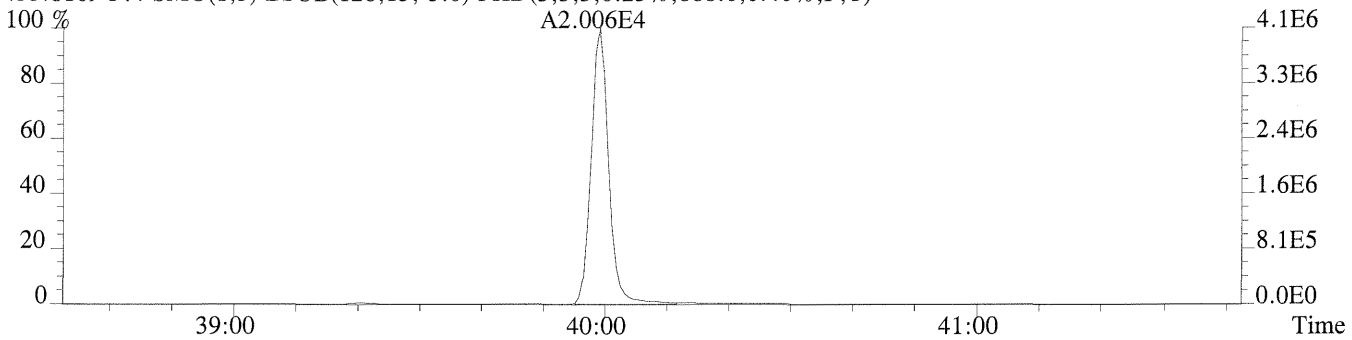
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1132.0,0.40%,F,T)



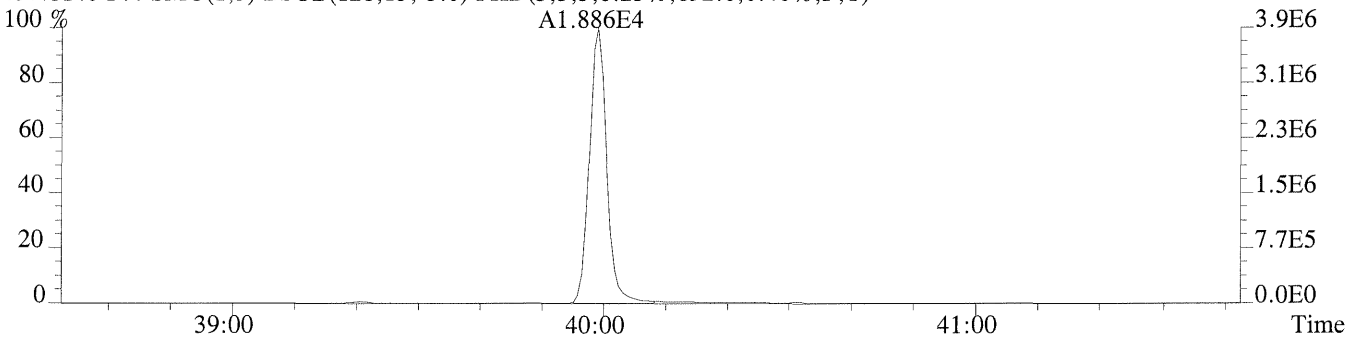
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,612.0,0.40%,F,T)



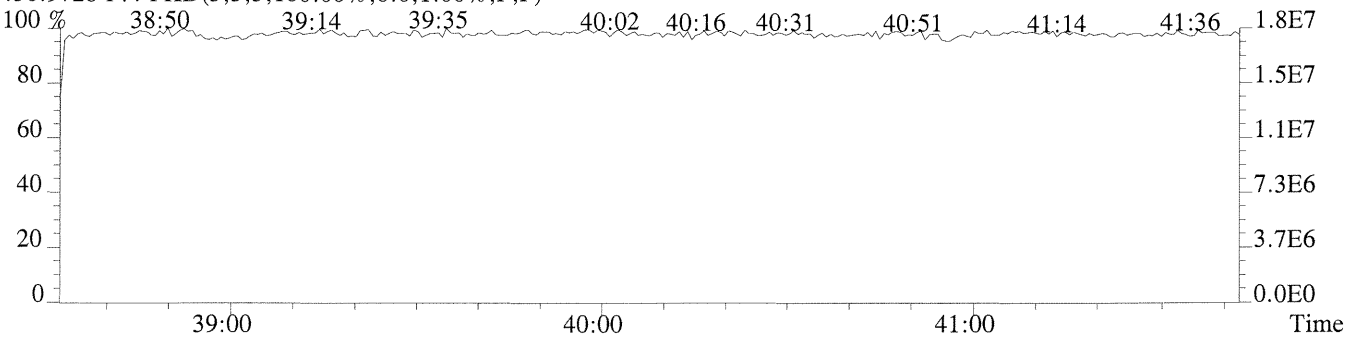
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,888.0,0.40%,F,T)



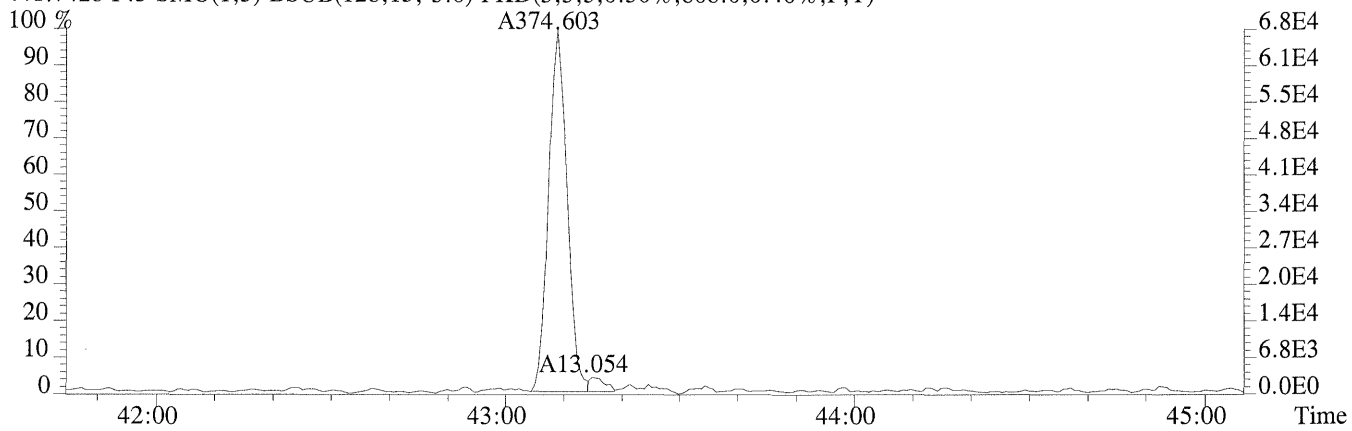
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)



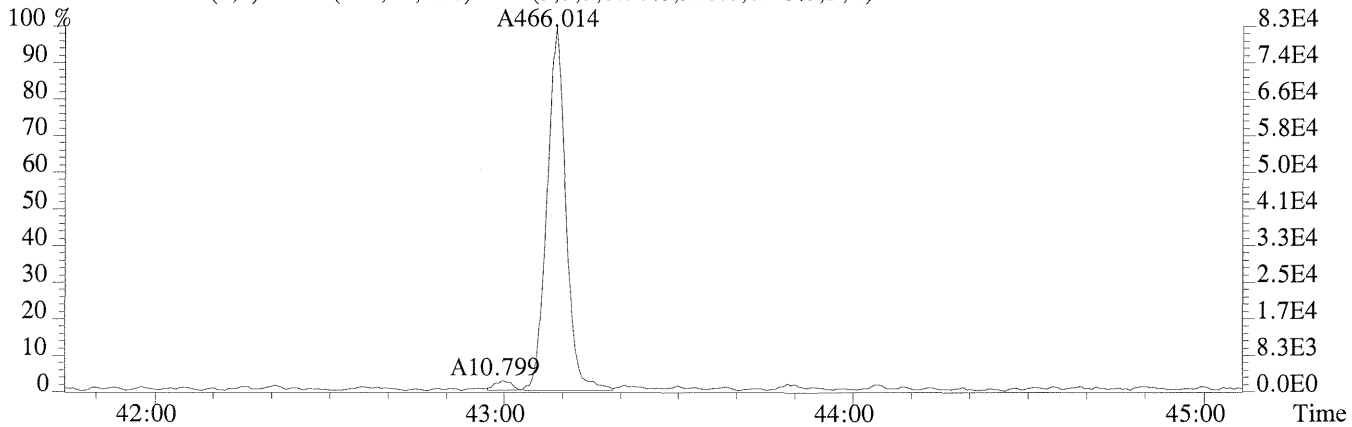
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



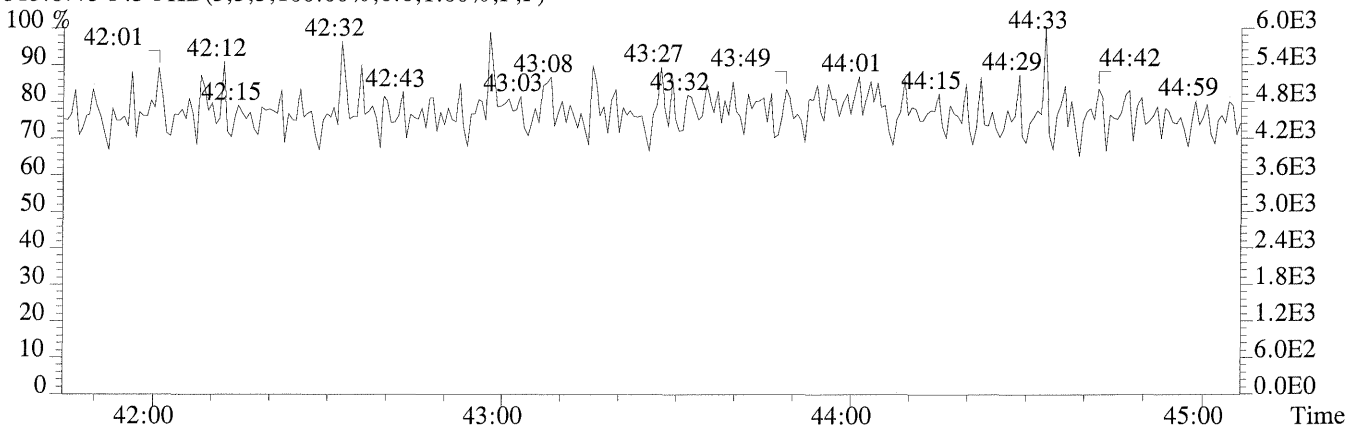
File:P114453 #1-310 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,808.0,0.40%,F,T)



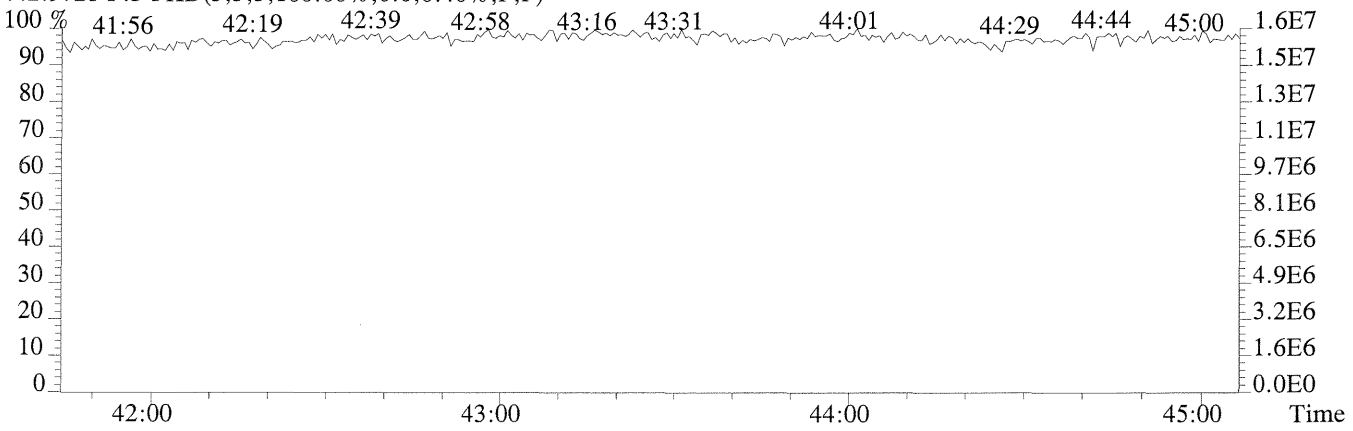
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,920.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

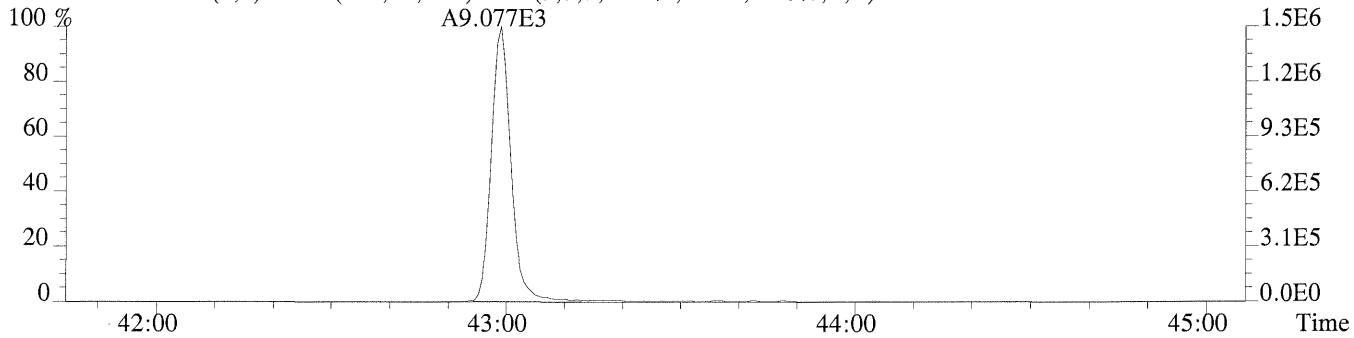


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

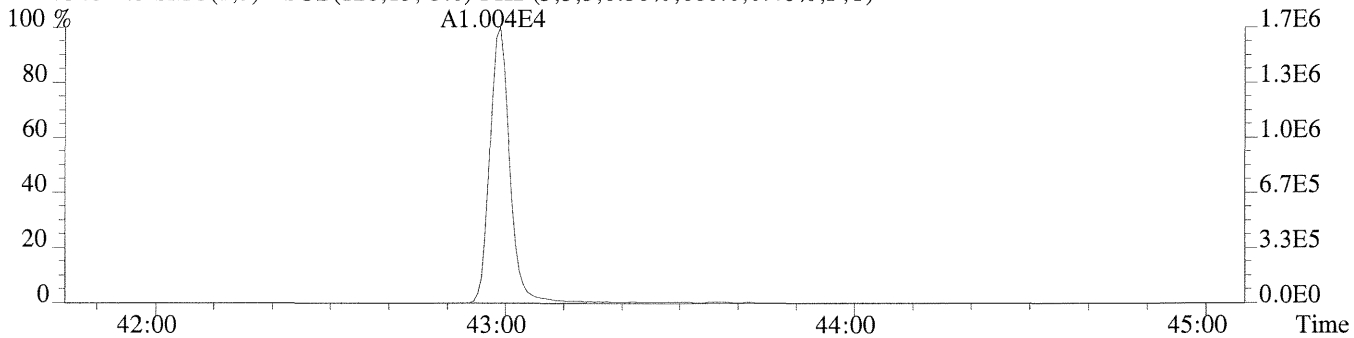


File:P114453 #1-310 Acq: 9-JUN-2011 14:55:13 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

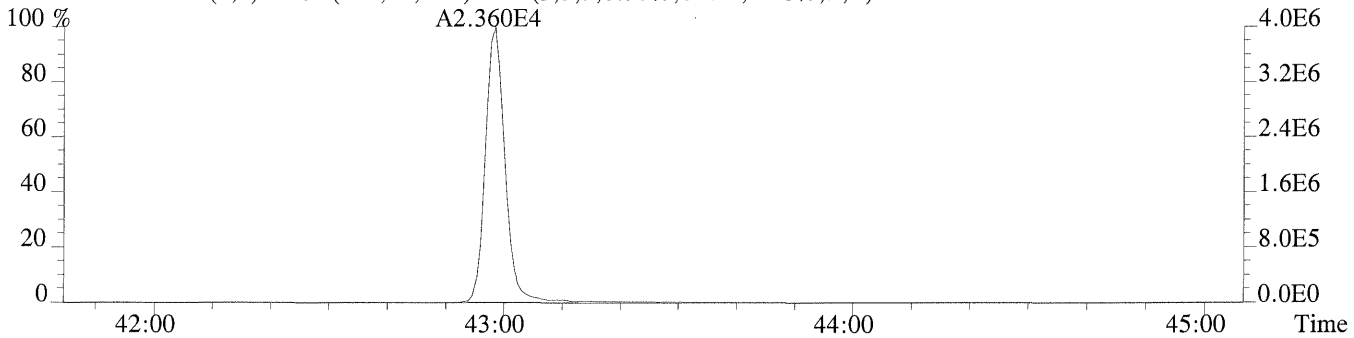
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,576.0,0.40%,F,T)



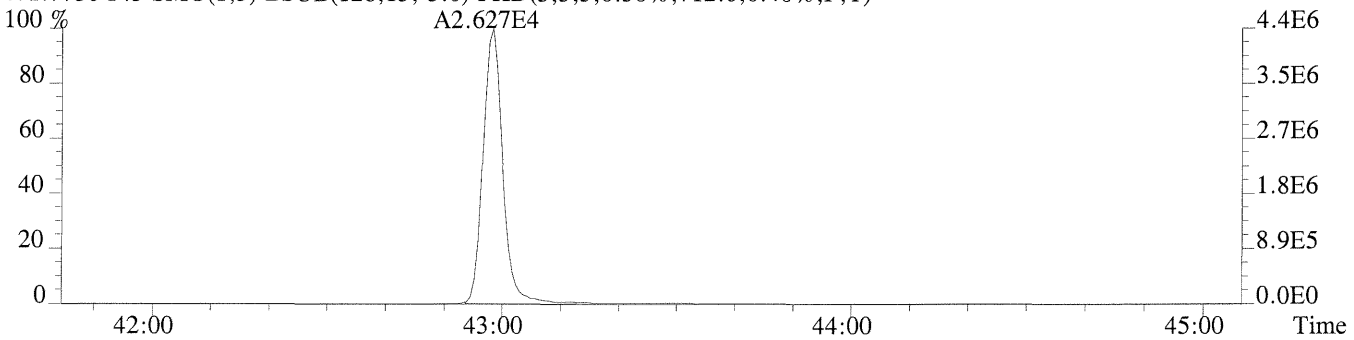
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,680.0,0.40%,F,T)



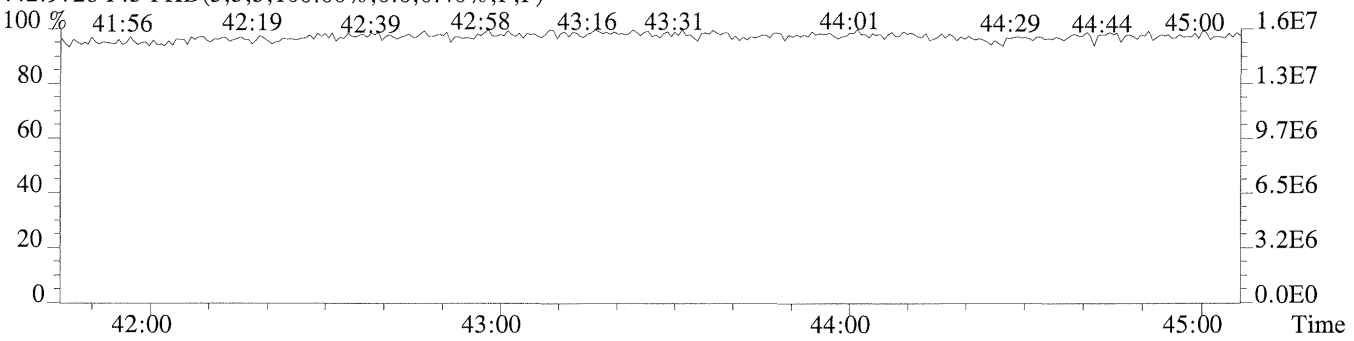
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,712.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

Page 1

EPA SAMPLE NO.
SJSF002-IDW

Run #17 Filename U1406╗#1 Samp: 1 Inj: 1 Acquired: 9-JUN-11 15:54:38
Processed: 10-JUN-11 10:37:46 Sample ID: E1100611-002

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	rrf
1	Unk	2,3,7,8-TCDF	22:23	1.713e+02	2.421e+02	0.71	yes	n	0.975
2	IS	13C-2,3,7,8-TCDF	22:21	4.384e+04	5.584e+04	0.79	yes	n	1.228
3	RS/RT	13C-1,2,3,4-TCDD	21:04	5.263e+04	6.698e+04	0.79	yes	n	-
4	C/Up	37Cl-2,3,7,8-TCDD	20:51	4.136e+04					0.962

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	2.90e+04	1.98e+03	1.5e+01	3.90e+04	1.67e+03	2.3e+01
2	13C-2,3,7,8-TCDF	6.66e+06	2.98e+03	2.2e+03	8.48e+06	4.26e+03	2.0e+03
3	13C-1,2,3,4-TCDD	9.39e+06	6.19e+03	1.5e+03	1.20e+07	2.58e+03	4.7e+03
4	37Cl-2,3,7,8-TCDD	7.25e+06	1.47e+03	4.9e+03			

--- 2378-TCDF EDL Calculation---

$$EDL = \frac{(1.980e+03 + 1.668e+03) \times 2000 \times 2.5 \text{ pg}}{(6.657e+06 + 8.483e+06) \times (1030 \text{ mL}) \times 1 \text{ L} / 1000 \text{ mL} \times 0.97} = 1.21 \text{ pg/L}$$

MC 06/10/11

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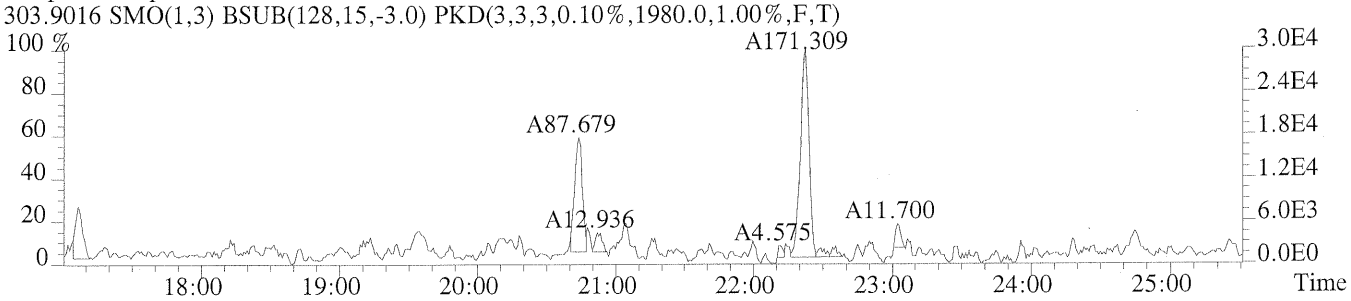
Office(713)266-1599. Fax(713)266-0130

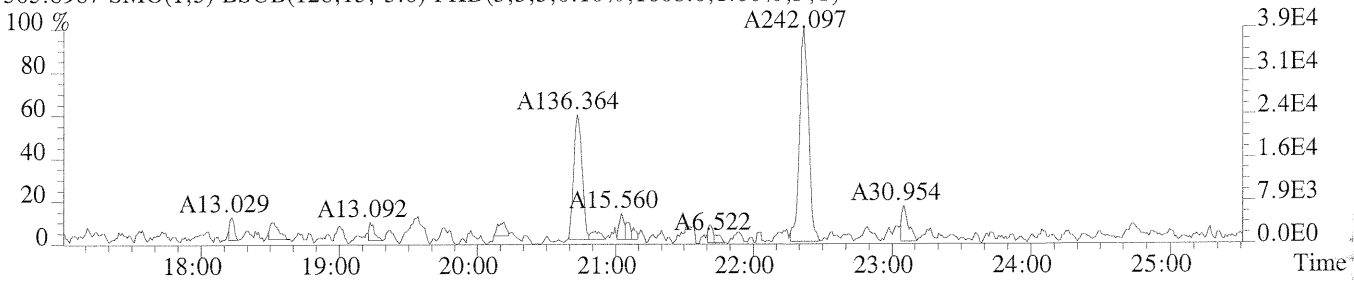
TCDFRESPB.FRM

File:U140620 #1-709 Acq: 9-JUN-2011 15:54:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

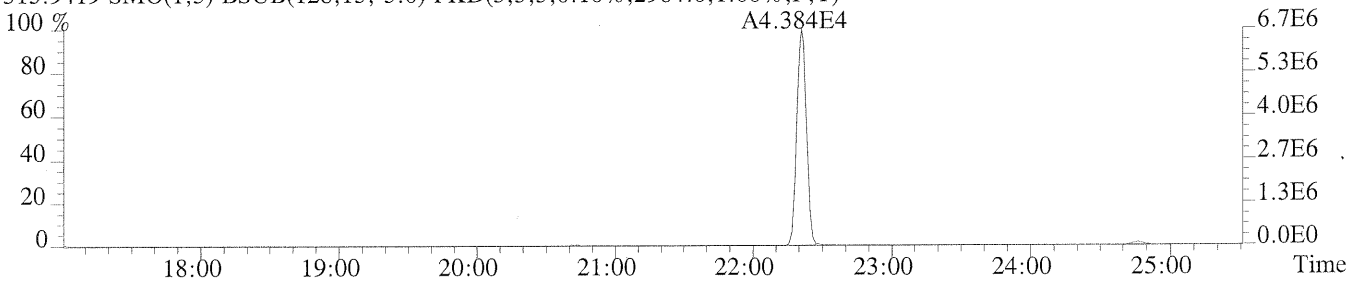
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1980.0,1.00%,F,T)



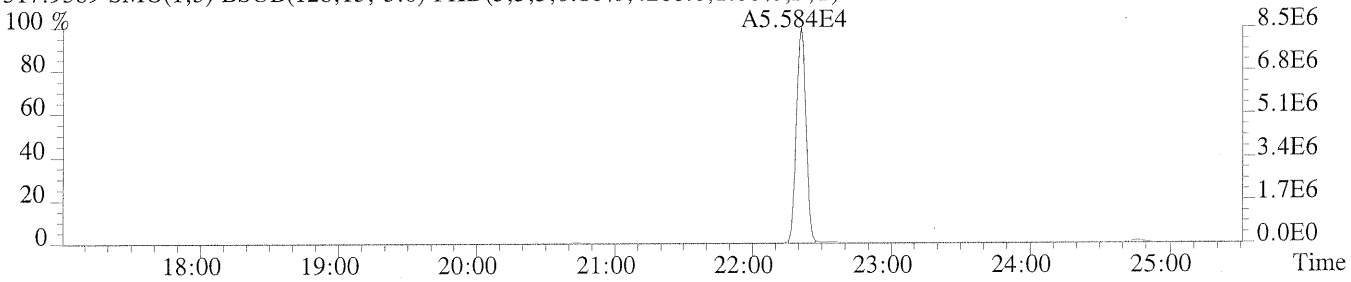
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1668.0,1.00%,F,T)



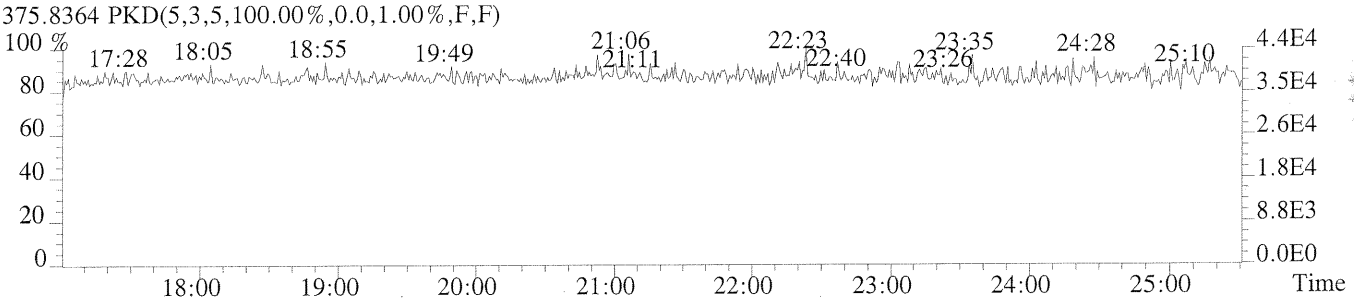
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2984.0,1.00%,F,T)



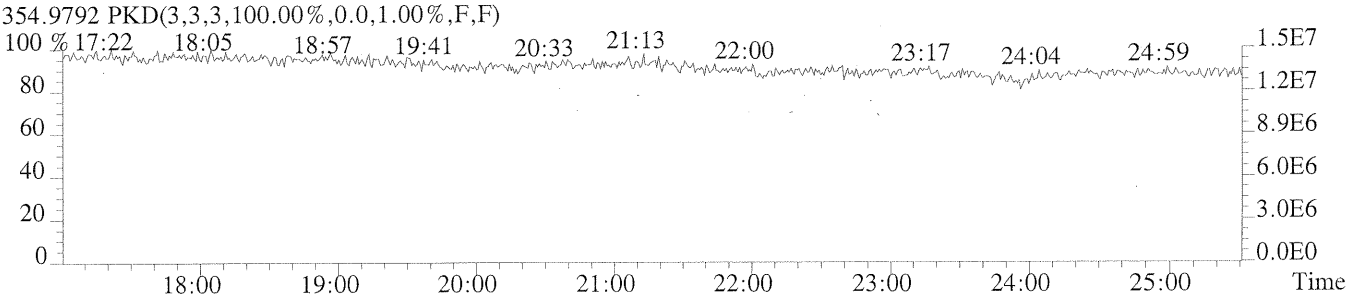
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4260.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

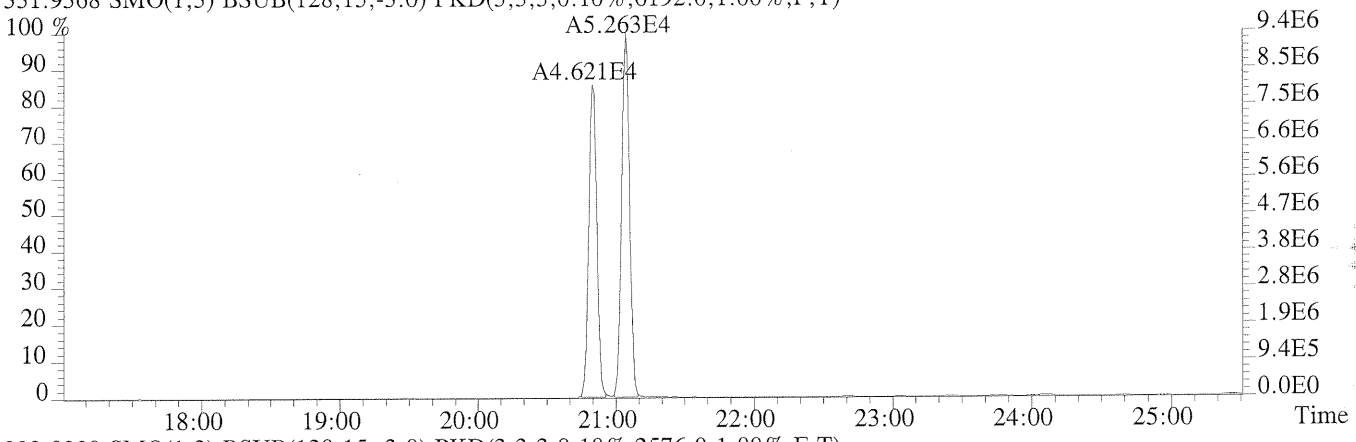


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

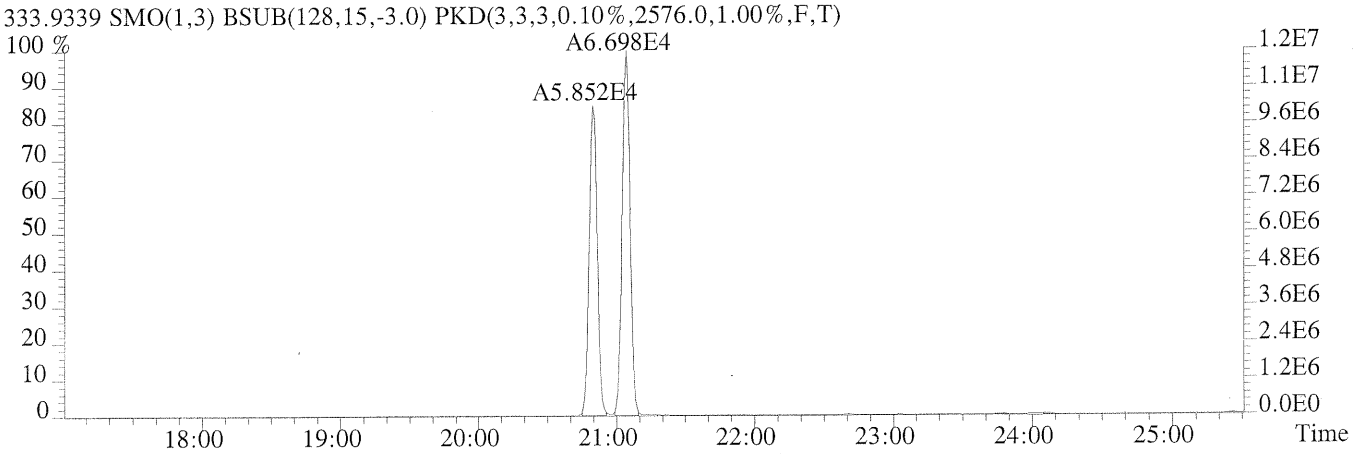


File:U140620 #1-709 Acq: 9-JUN-2011 15:54:38 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:E1100611-002 SJSF002-IDW

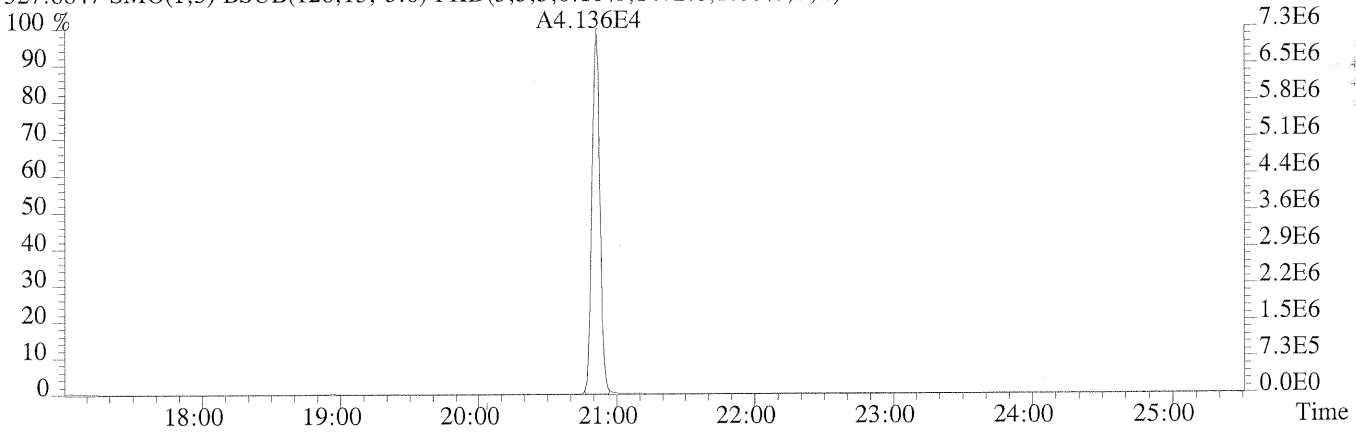
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,6192.0,1.00%,F,T)



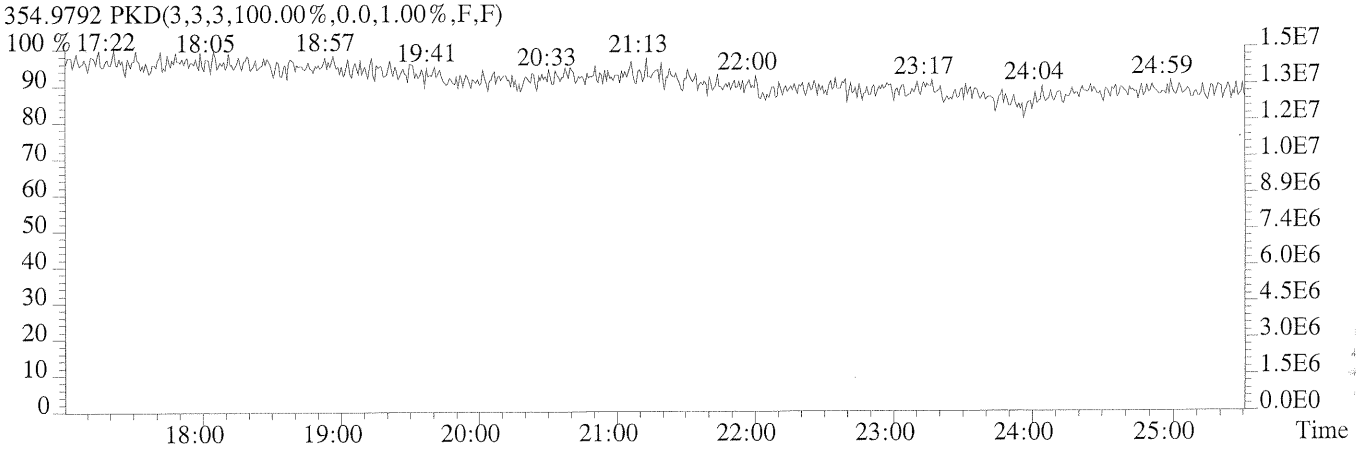
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2576.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1472.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P114457 Samp: 1 Inj: 1 Acquired: 9-JUN-11 18:33:33
Processed: 22-JUN-11 12:28:39 Sample ID: EQ1100270-01

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	NotFnd	*	*	*	no	no	0.900
2	Unk	1,2,3,7,8-PeCDF	NotFnd	*	*	*	no	no	0.941
3	Unk	2,3,4,7,8-PeCDF	NotFnd	*	*	*	no	no	1.028
4	Unk	1,2,3,4,7,8-HxCDF	NotFnd	*	*	*	no	no	1.235
5	Unk	1,2,3,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.199
6	Unk	2,3,4,6,7,8-HxCDF	NotFnd	*	*	*	no	no	1.147
7	Unk	1,2,3,7,8,9-HxCDF	NotFnd	*	*	*	no	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	NotFnd	*	*	*	no	yes	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	NotFnd	*	*	*	no	no	1.438
10	Unk	OCDF	43:10	1.530e+01	1.759e+01	0.87	yes	yes	1.225
11	Unk	2,3,7,8-TCDD	NotFnd	*	*	*	no	no	1.029
12	Unk	1,2,3,7,8-PeCDD	NotFnd	*	*	*	no	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	NotFnd	*	*	*	no	no	1.110
14	Unk	1,2,3,6,7,8-HxCDD	NotFnd	*	*	*	no	no	0.906
15	Unk	1,2,3,7,8,9-HxCDD	NotFnd	*	*	*	no	no	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	39:59	1.565e+01	1.381e+01	1.13	yes	yes	1.001
17	Unk	OCDD	42:58	4.472e+01	5.585e+01	0.80	yes	yes	1.058
18	IS	13C-2,3,7,8-TCDF	28:23	2.086e+04	2.630e+04	0.79	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:48	3.465e+04	2.165e+04	1.60	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.081e+04	1.933e+04	1.59	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	1.641e+04	3.183e+04	0.52	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	1.828e+04	3.541e+04	0.52	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:58	1.754e+04	3.357e+04	0.52	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:40	1.484e+04	2.831e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.332e+04	2.970e+04	0.45	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	1.149e+04	2.553e+04	0.45	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:14	2.080e+04	2.600e+04	0.80	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.357e+04	1.481e+04	1.59	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	2.356e+04	1.823e+04	1.29	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:09	2.478e+04	1.914e+04	1.29	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	1.877e+04	1.805e+04	1.04	yes	no	0.907
32	IS	13C-OCDD	42:58	2.158e+04	2.411e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	2.458e+04	3.082e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	2.710e+04	2.137e+04	1.27	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:15	1.848e+04				no	1.054

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
METHOD BLANK

Run #9 Filename P114457 Samp: 1 Inj: 1 Acquired: 9-JUN-11 18:33:33
Processed: 22-JUN-11 12:28:391 LAB. ID: EQ1100270-01

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	*	5.20e+02	*	*	7.08e+02	*
2	1,2,3,7,8-PeCDF	*	5.56e+02	*	*	6.88e+02	*
3	2,3,4,7,8-PeCDF	*	5.56e+02	*	*	6.88e+02	*
4	1,2,3,4,7,8-HxCDF	*	8.08e+02	*	*	5.80e+02	*
5	1,2,3,6,7,8-HxCDF	*	8.08e+02	*	*	5.80e+02	*
6	2,3,4,6,7,8-HxCDF	*	8.08e+02	*	*	5.80e+02	*
7	1,2,3,7,8,9-HxCDF	*	8.08e+02	*	*	5.80e+02	*
8	1,2,3,4,6,7,8-HpCDF	*	1.05e+03	*	*	7.84e+02	*
9	1,2,3,4,7,8,9-HpCDF	*	1.05e+03	*	*	7.84e+02	*
10	OCDF	3.33e+03	6.12e+02	5.4e+00	3.65e+03	7.44e+02	4.9e+00
11	2,3,7,8-TCDD	*	6.76e+02	*	*	5.60e+02	*
12	1,2,3,7,8-PeCDD	*	6.48e+02	*	*	5.32e+02	*
13	1,2,3,4,7,8-HxCDD	*	7.40e+02	*	*	6.44e+02	*
14	1,2,3,6,7,8-HxCDD	*	7.40e+02	*	*	6.44e+02	*
15	1,2,3,7,8,9-HxCDD	*	7.40e+02	*	*	6.44e+02	*
16	1,2,3,4,6,7,8-HpCDD	3.43e+03	7.40e+02	4.6e+00	3.24e+03	5.56e+02	5.8e+00
17	OCDD	8.48e+03	6.44e+02	1.3e+01	9.70e+03	4.40e+02	2.2e+01
18	13C-2,3,7,8-TCDF	3.27e+06	5.28e+02	6.2e+03	4.17e+06	7.52e+02	5.5e+03
19	13C-1,2,3,7,8-PeCDF	6.60e+06	5.32e+02	1.2e+04	4.12e+06	7.36e+02	5.6e+03
20	13C-2,3,4,7,8-PeCDF	5.95e+06	5.32e+02	1.1e+04	3.76e+06	7.36e+02	5.1e+03
21	13C-1,2,3,4,7,8-HxCDF	3.67e+06	4.80e+02	7.6e+03	7.11e+06	8.36e+02	8.5e+03
22	13C-1,2,3,6,7,8-HxCDF	3.79e+06	4.80e+02	7.9e+03	7.32e+06	8.36e+02	8.8e+03
23	13C-2,3,4,6,7,8-HxCDF	3.84e+06	4.80e+02	8.0e+03	7.30e+06	8.36e+02	8.7e+03
24	13C-1,2,3,7,8,9-HxCDF	3.09e+06	4.80e+02	6.4e+03	5.88e+06	8.36e+02	7.0e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.84e+06	1.31e+03	2.2e+03	6.36e+06	3.12e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.25e+06	1.31e+03	1.7e+03	4.95e+06	3.12e+03	1.6e+03
27	13C-2,3,7,8-TCDD	3.49e+06	1.50e+03	2.3e+03	4.38e+06	8.60e+02	5.1e+03
28	13C-1,2,3,7,8-PeCDD	4.56e+06	5.36e+02	8.5e+03	2.86e+06	5.96e+02	4.8e+03
29	13C-1,2,3,4,7,8-HxCDD	5.27e+06	6.36e+02	8.3e+03	4.12e+06	6.00e+02	6.9e+03
30	13C-1,2,3,6,7,8-HxCDD	5.21e+06	6.36e+02	8.2e+03	4.13e+06	6.00e+02	6.9e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.70e+06	7.44e+02	5.0e+03	3.57e+06	6.56e+02	5.4e+03
32	13C-OCDD	3.57e+06	7.72e+02	4.6e+03	4.02e+06	3.84e+02	1.0e+04
33	13C-1,2,3,4-TCDD	4.28e+06	1.50e+03	2.9e+03	5.35e+06	8.60e+02	6.2e+03
34	13C-1,2,3,7,8,9-HxCDD	5.72e+06	6.36e+02	9.0e+03	4.54e+06	6.00e+02	7.6e+03
35	37Cl-2,3,7,8-TCDD	3.19e+06	7.72e+02	4.1e+03			

umbia Analytical Services, Inc.
08 Park Row, Suite 320
uston, TX 77084
ffice:(713)266-1599. Fax:(713)266-0130

Columbia Analytical Services, Inc.
Peak List Summary

CLIENT ID.

METHOD BLANK

Entry: 43 Totals Name: Total Hepta-Dioxins

Run: 9 File: P114457 Sample:1 Injection:1 Function:4

Acquired: 9-JUN-11 18:33:33 Processed: 22-JUN-11 12:28:39

Mass: 423.7766 425.7737 Response:

#	RT	Resp	Resp Ratio	Meet	Tot Resp	Name	Mod1?	Mod2
1	39:59	1.56e+01	1.38e+01	1.13	yes	2.95e+01	1,2,3,4,6,7,8-HpCDD	y	y

Columbia Analytical Services, Inc.
10108 Park Row, Suite 320
Houston, TX 77084
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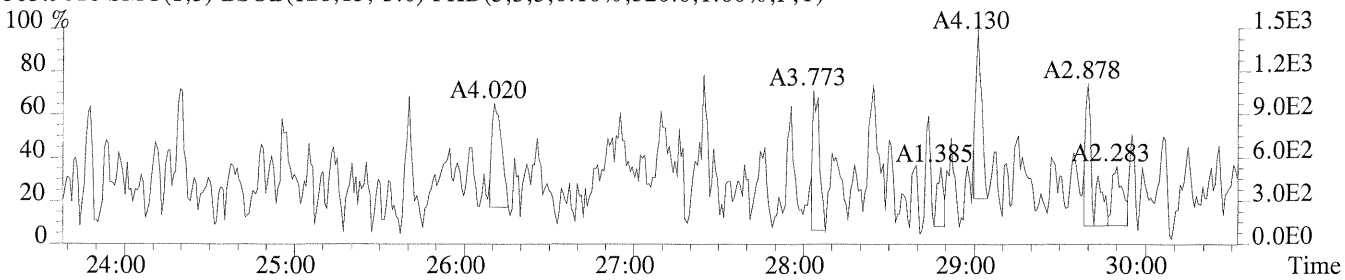
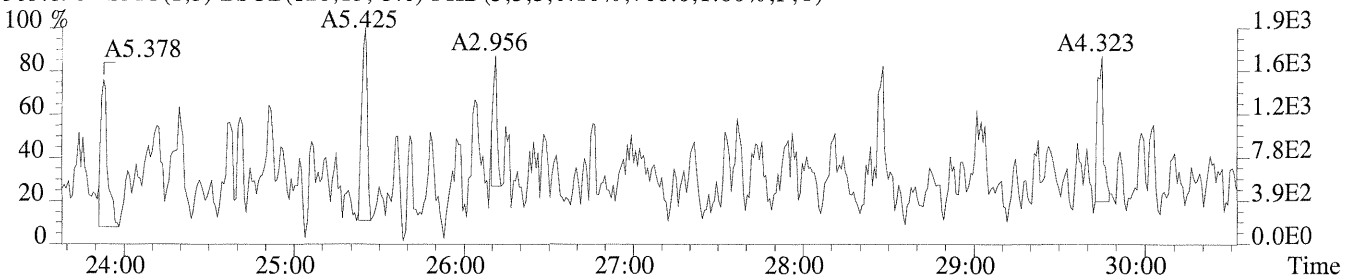
File:P114457 #1-575 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

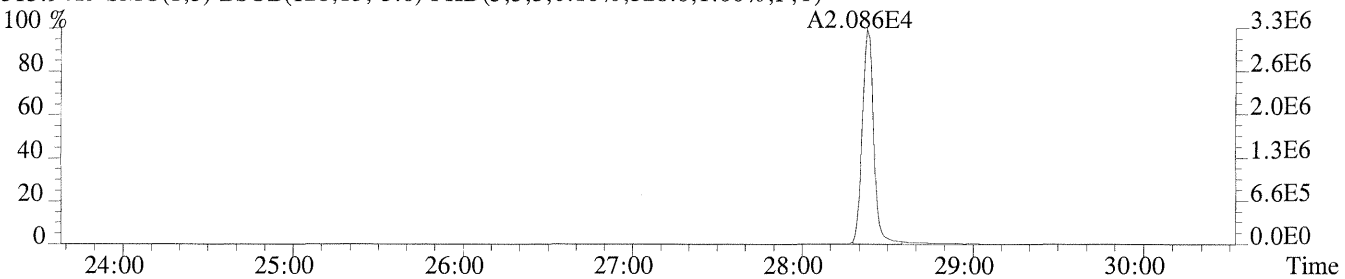
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,520.0,1.00%,F,T)



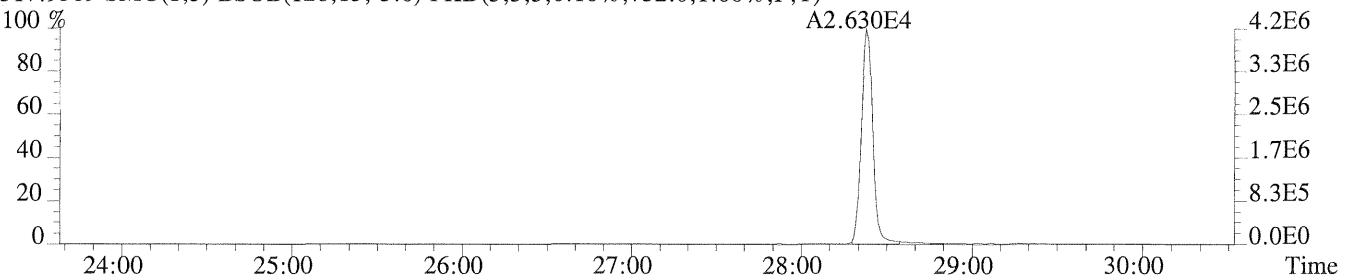
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,708.0,1.00%,F,T)



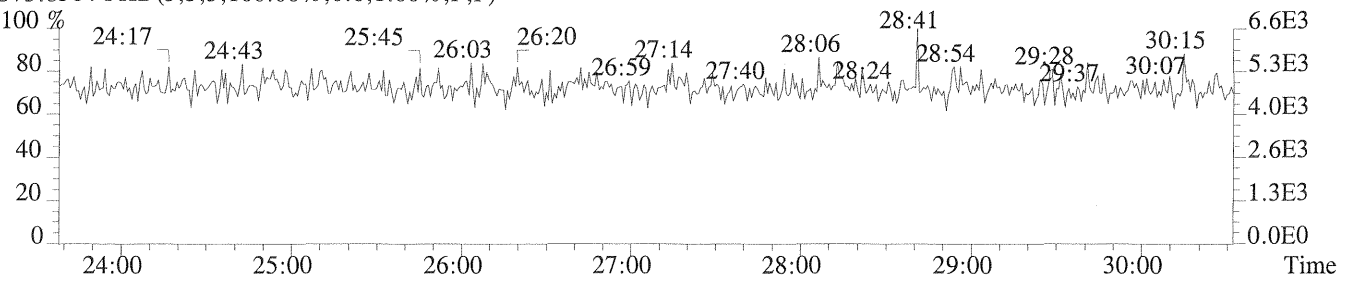
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



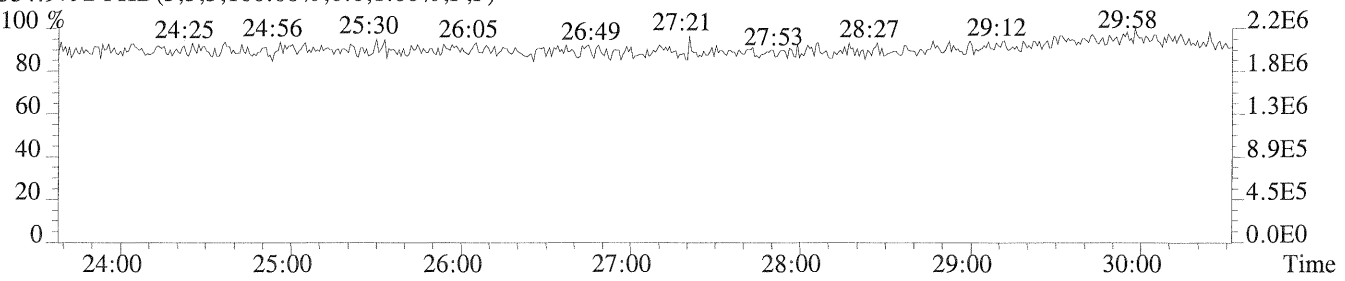
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,752.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

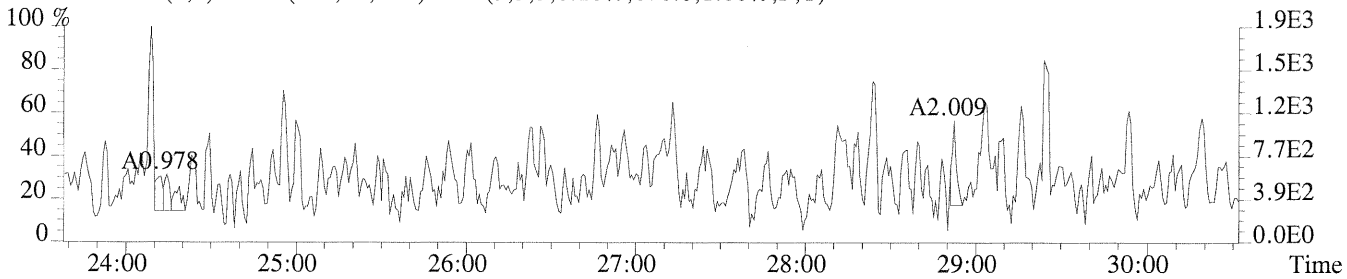


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

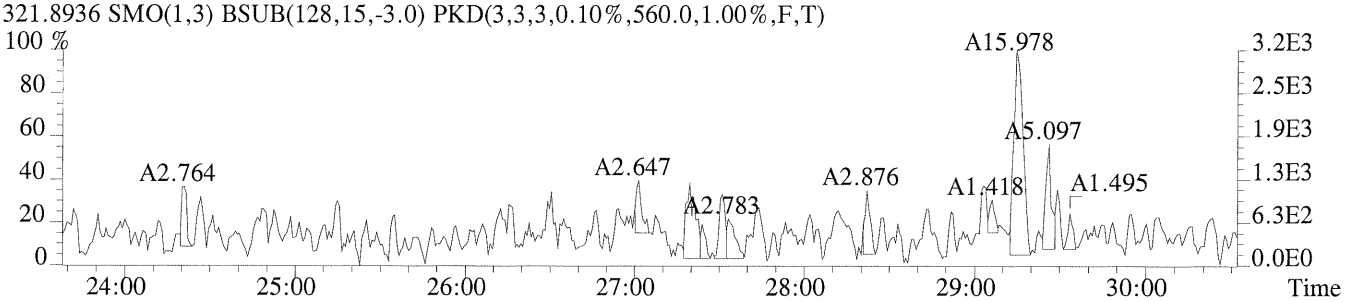


File:P114457 #1-575 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

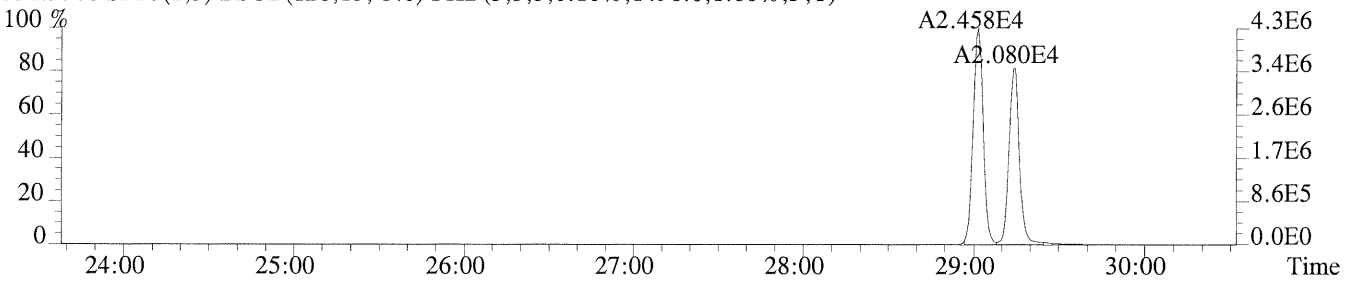
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,676.0,1.00%,F,T)



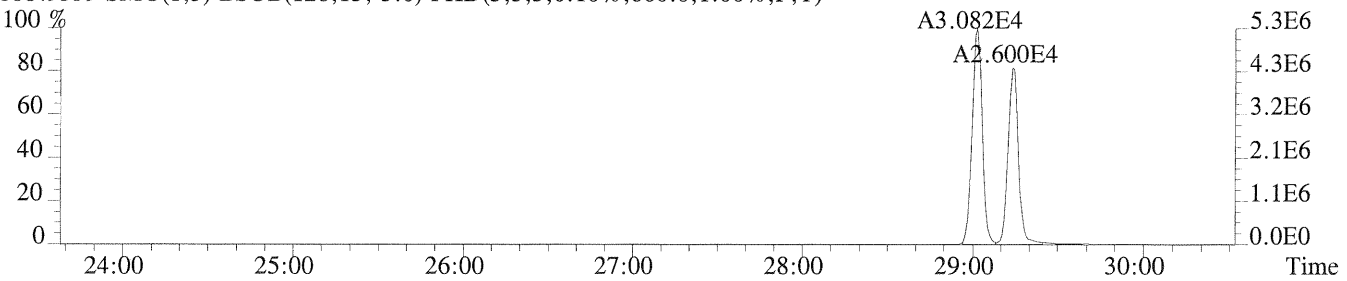
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



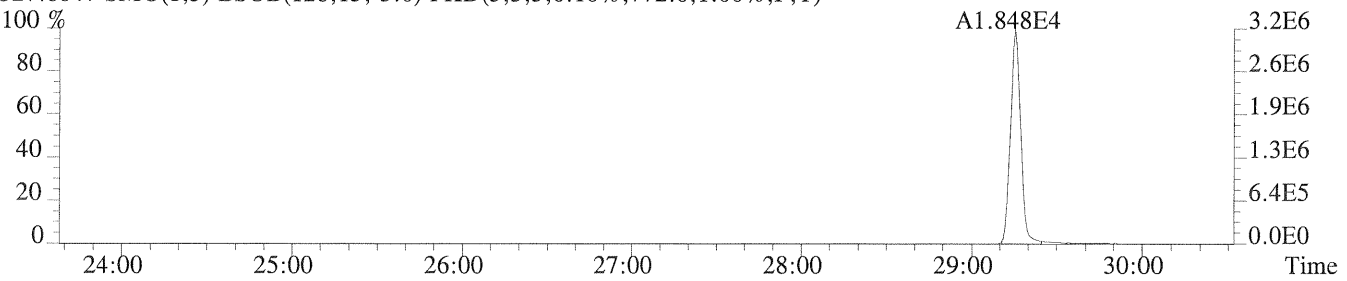
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1496.0,1.00%,F,T)



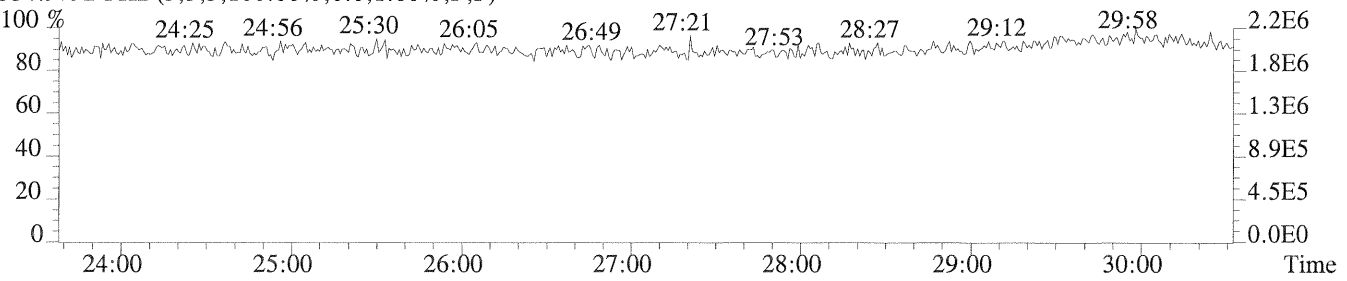
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,860.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)

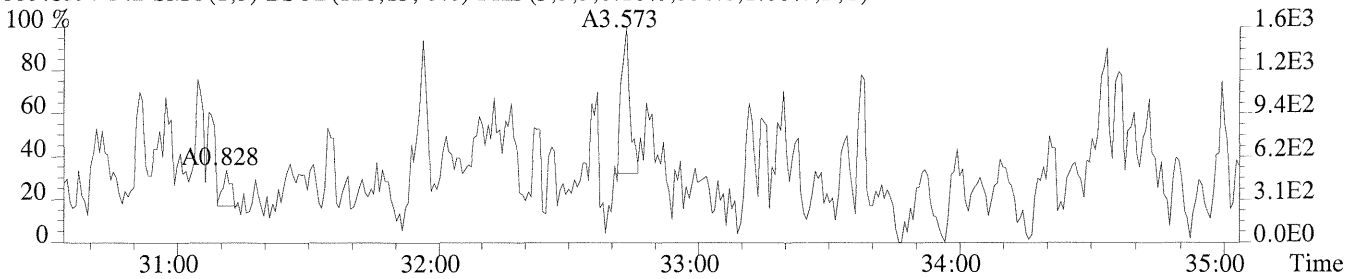


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

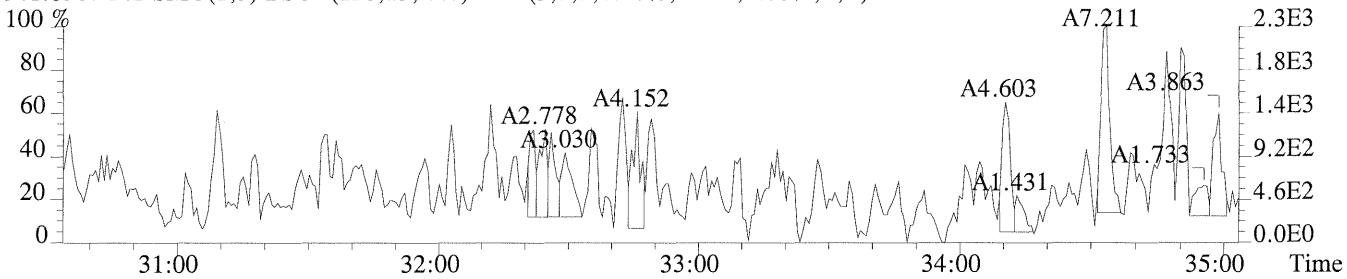


File:P114457 #1-408 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

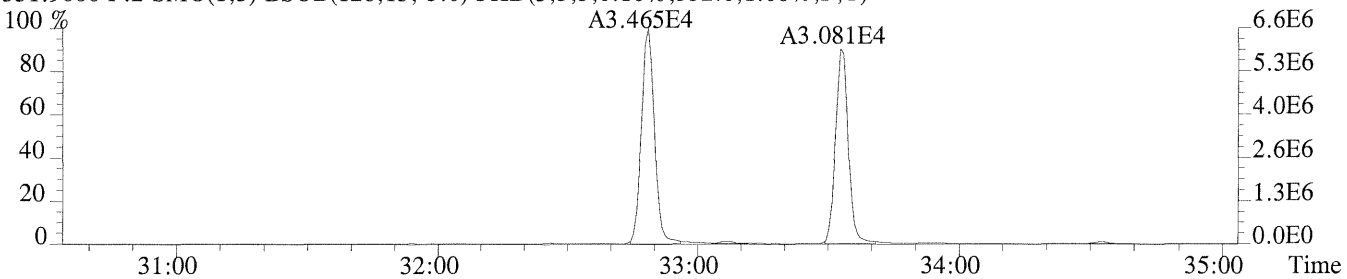
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



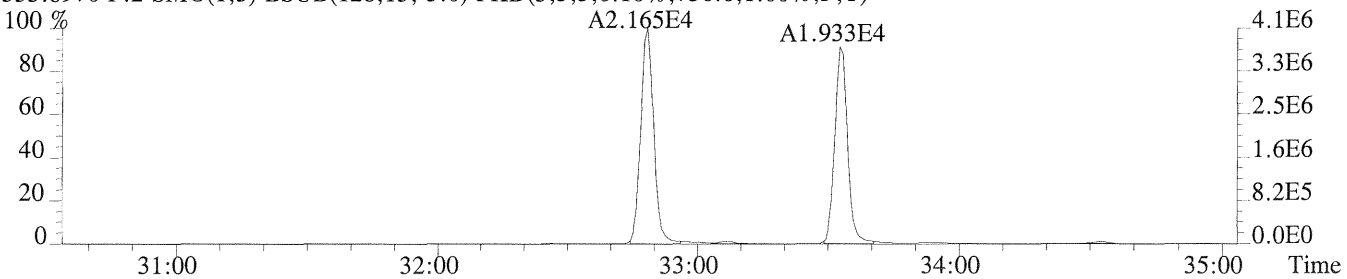
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,688.0,1.00%,F,T)



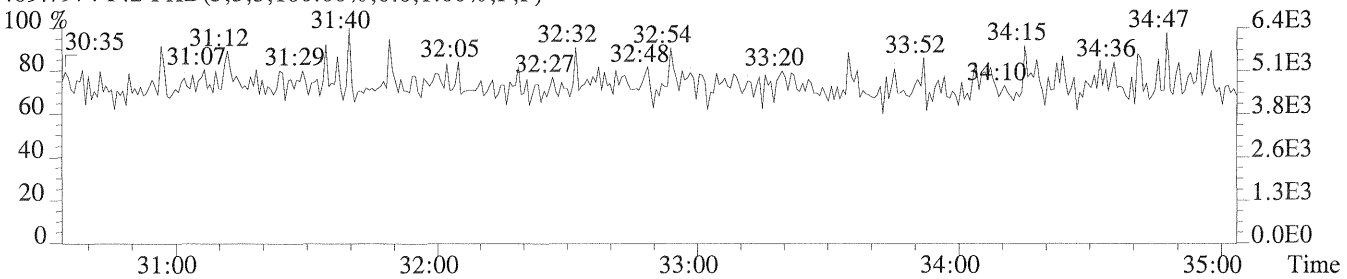
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



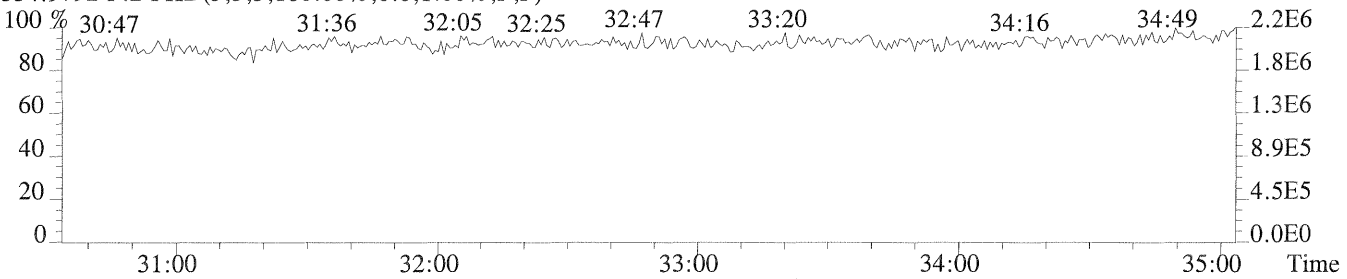
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

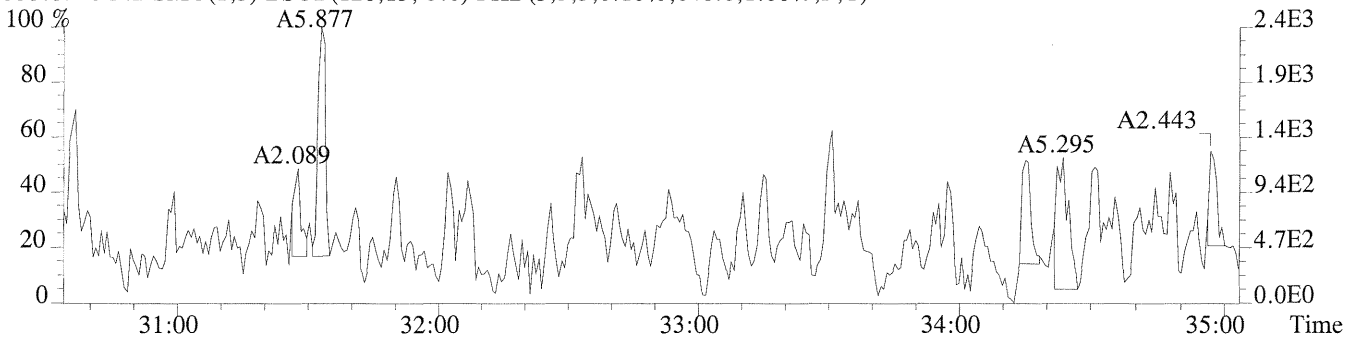


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

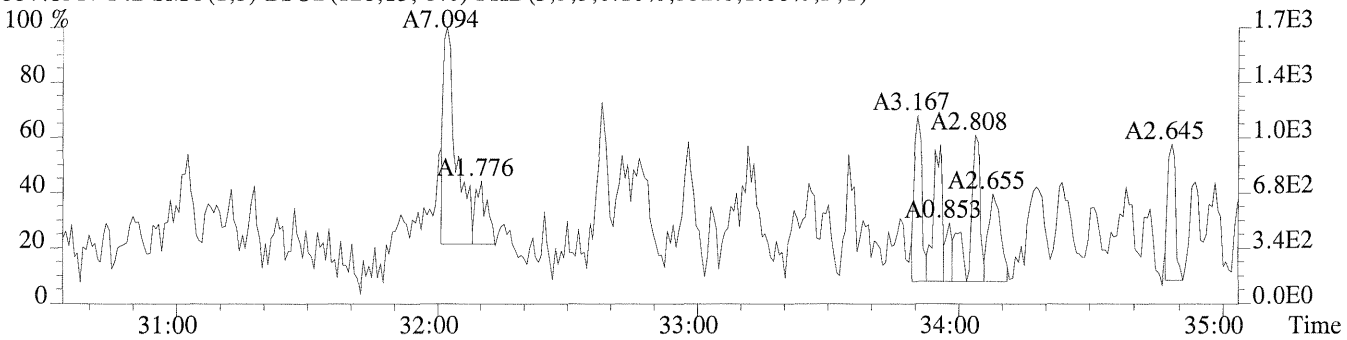


File:P114457 #1-408 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

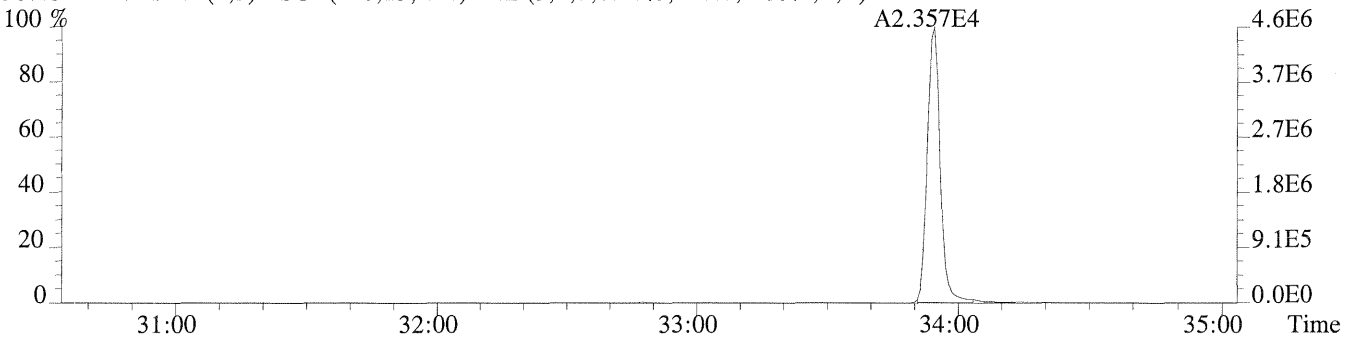
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



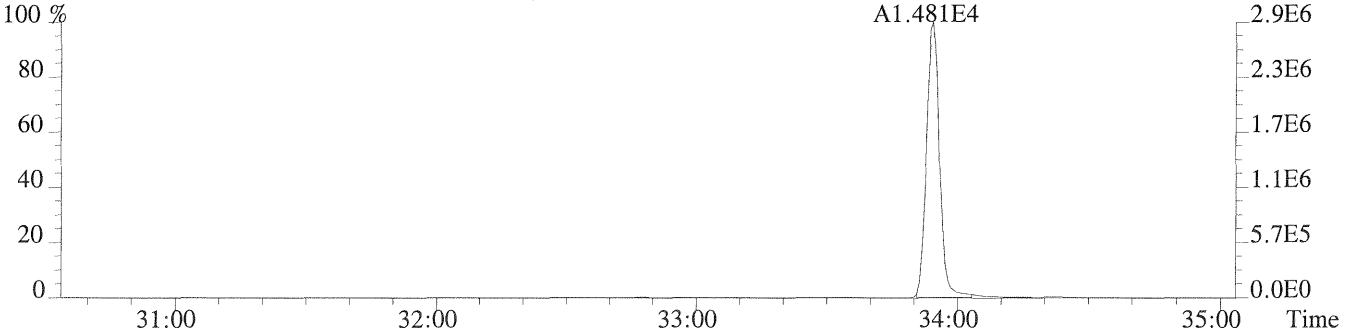
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



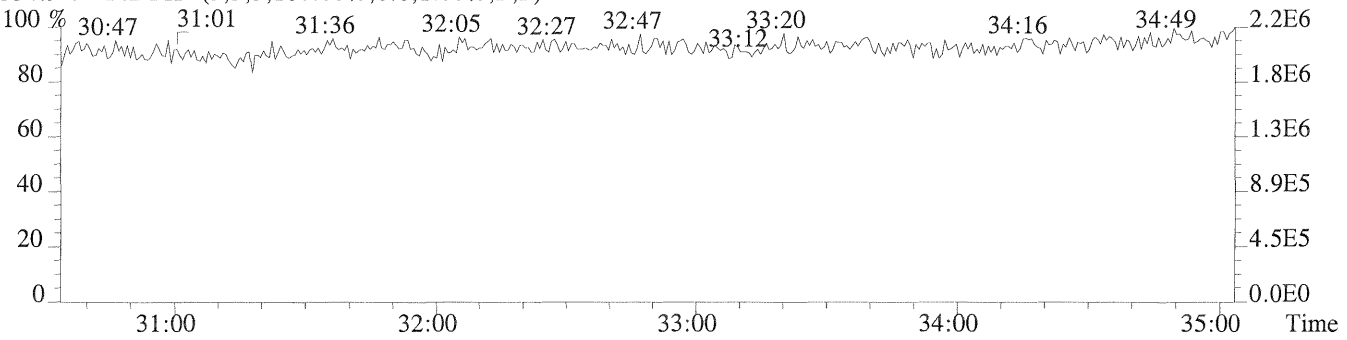
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

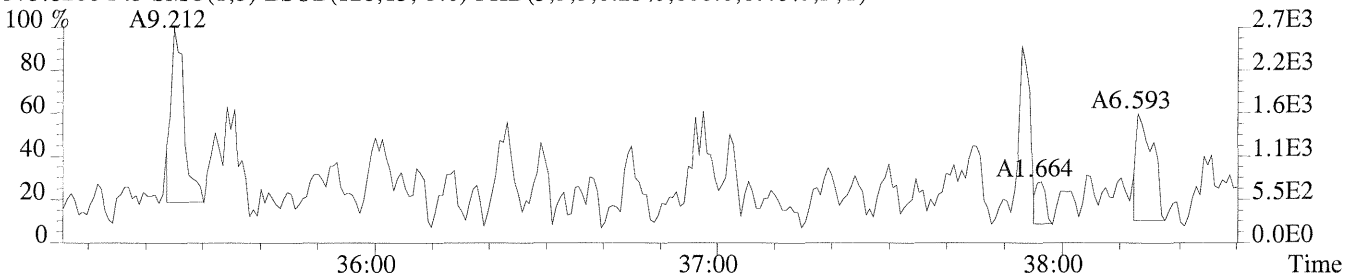


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

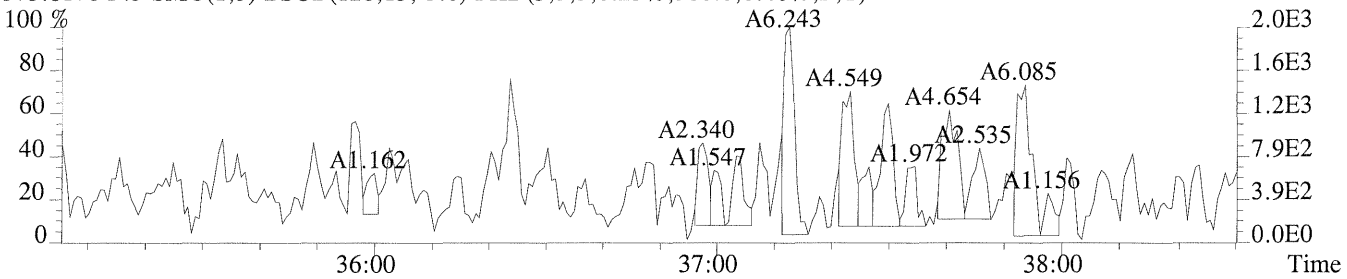


File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

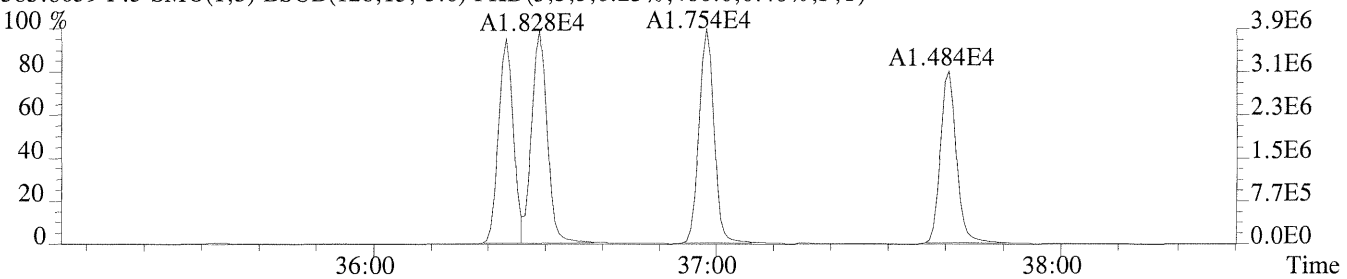
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,808.0,0.40%,F,T)



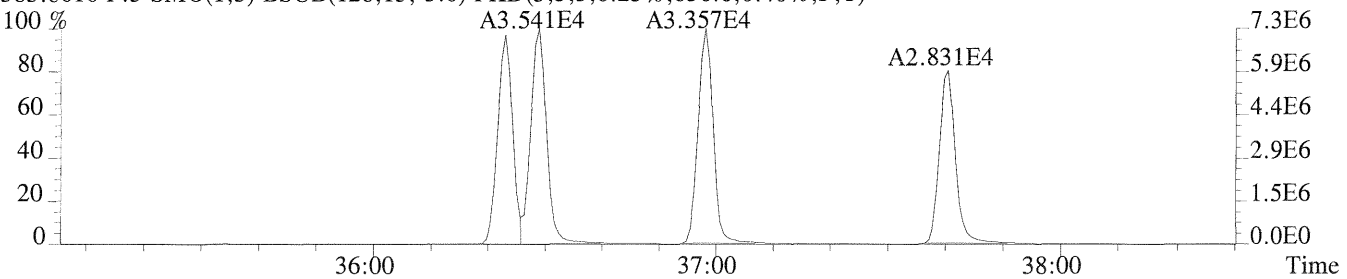
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,580.0,0.40%,F,T)



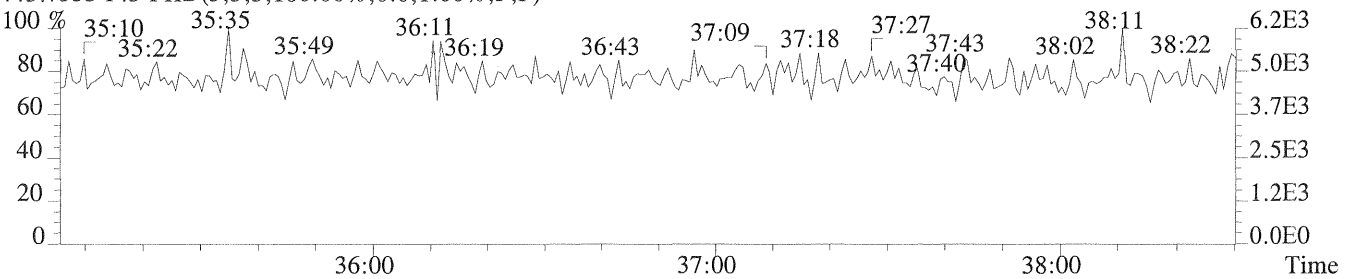
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,480.0,0.40%,F,T)



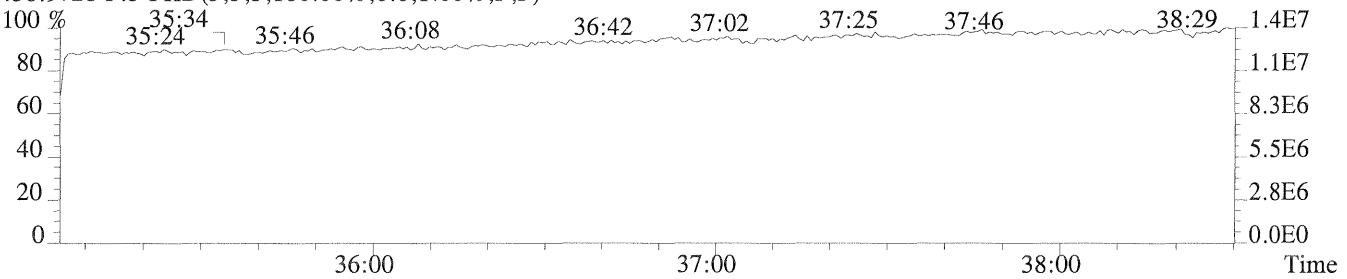
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,836.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

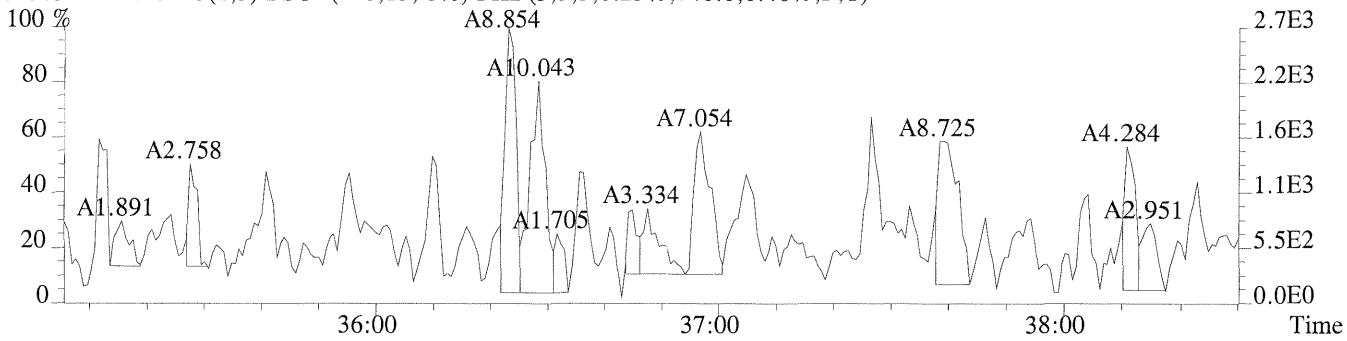


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

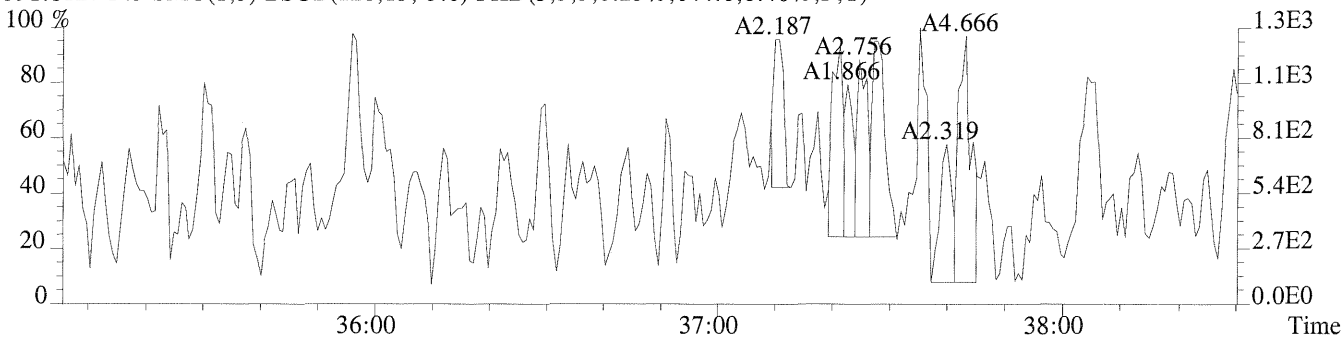


File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

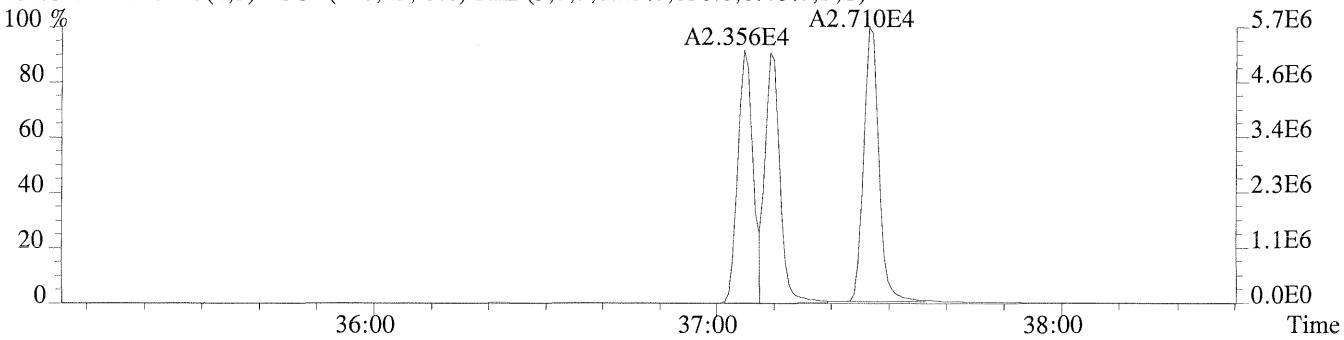
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



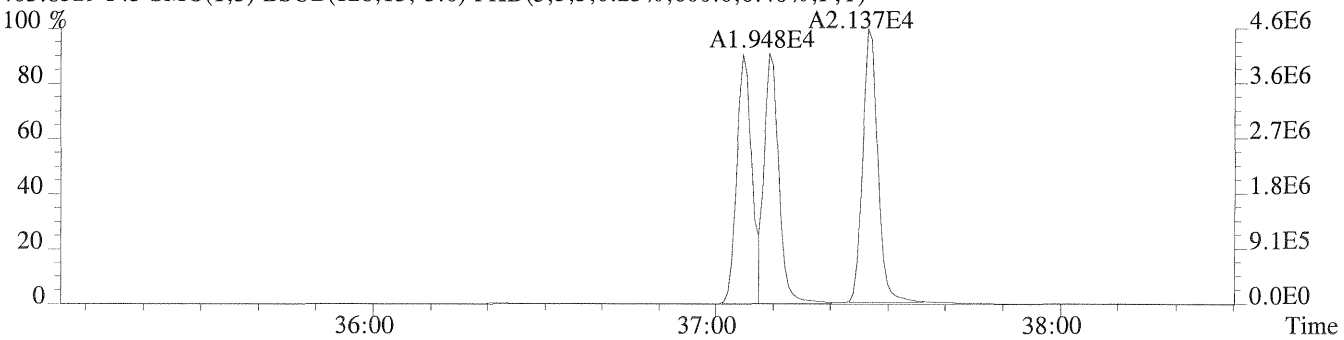
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,644.0,0.40%,F,T)



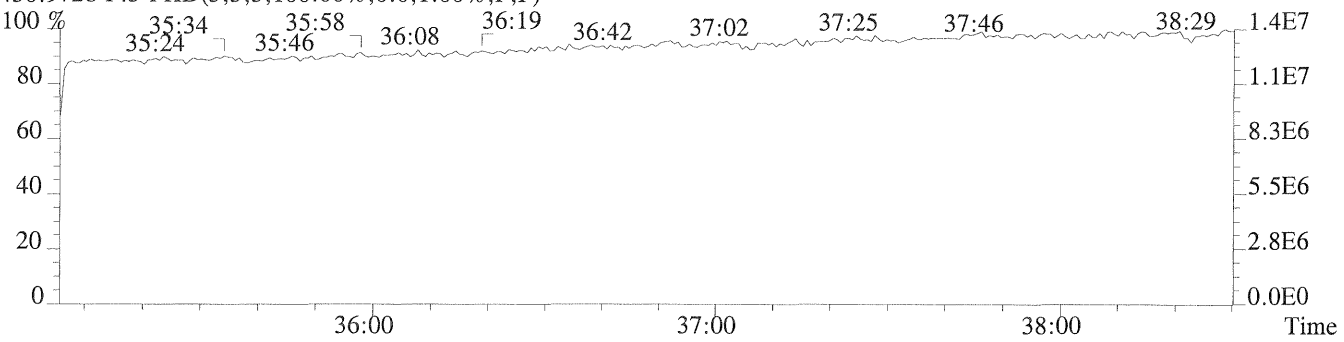
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)

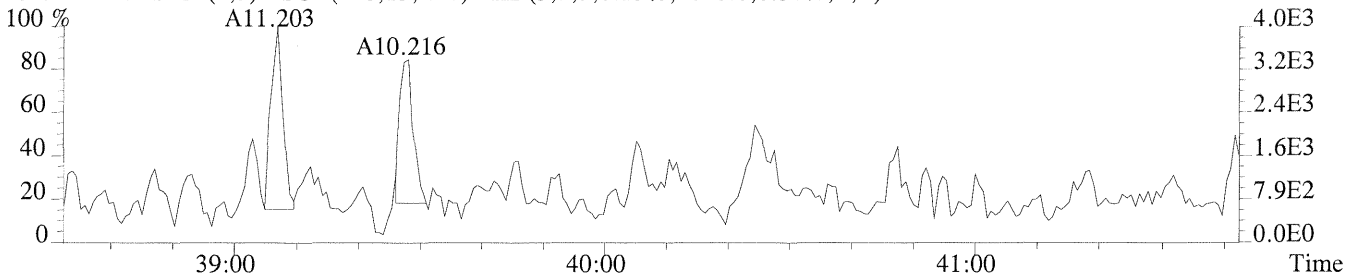


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

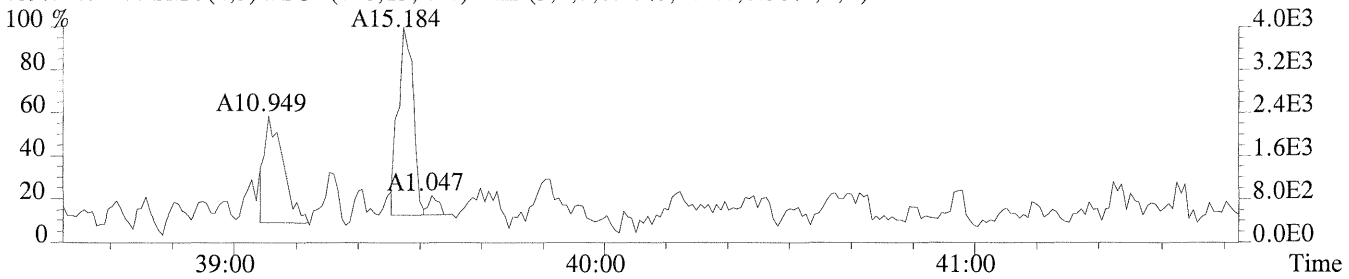


File:P114457 #1-288 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

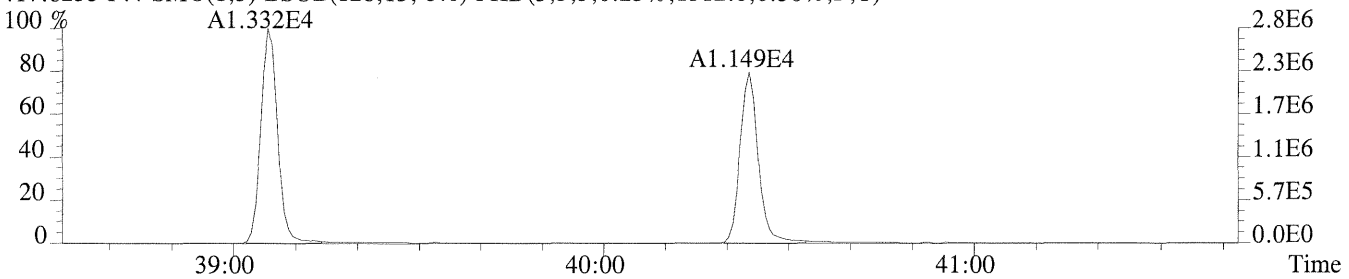
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1048.0,0.50%,F,T)



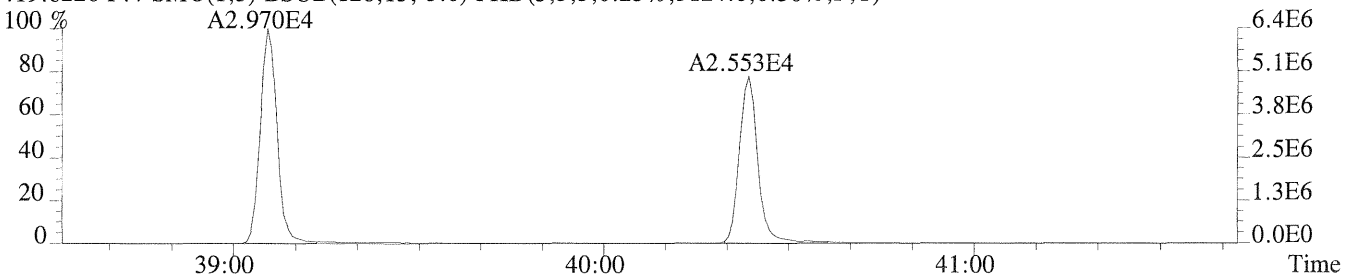
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,784.0,0.50%,F,T)



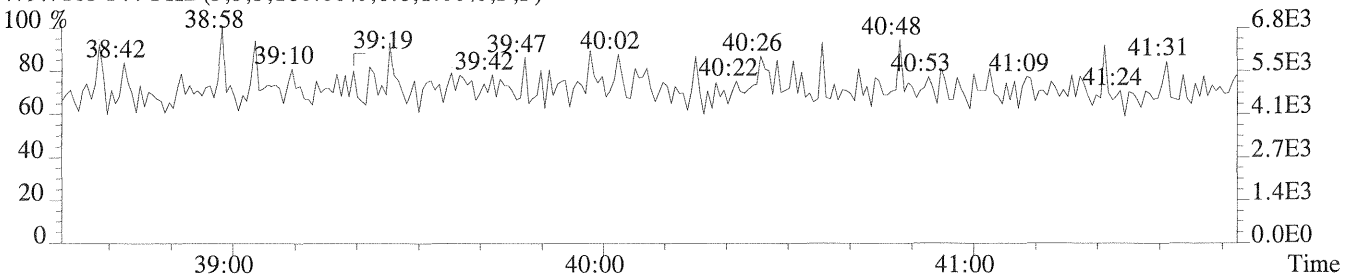
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1312.0,0.50%,F,T)



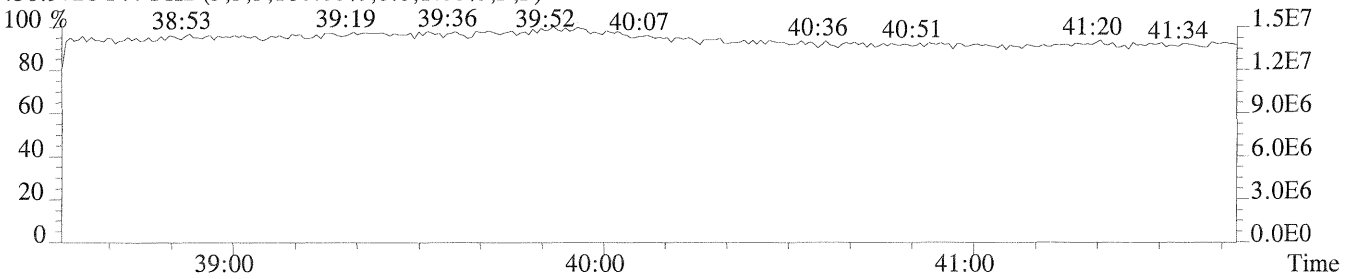
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3124.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

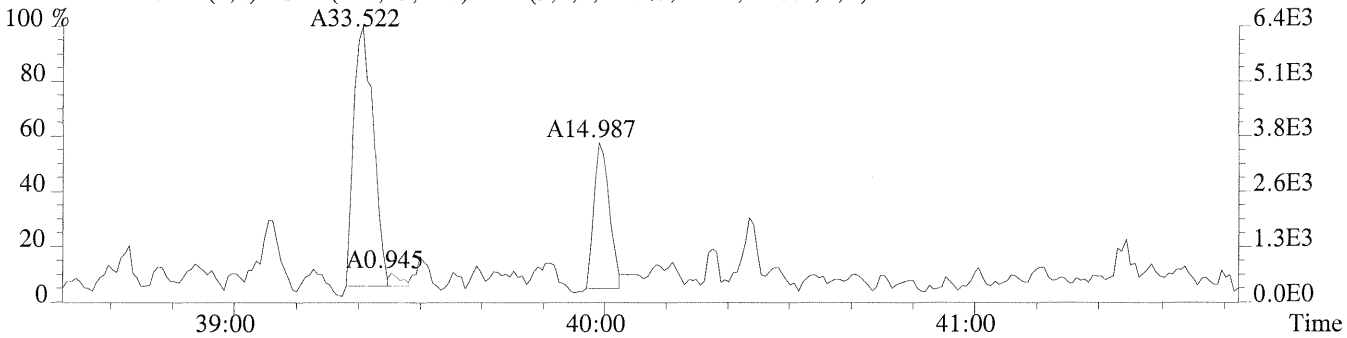


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

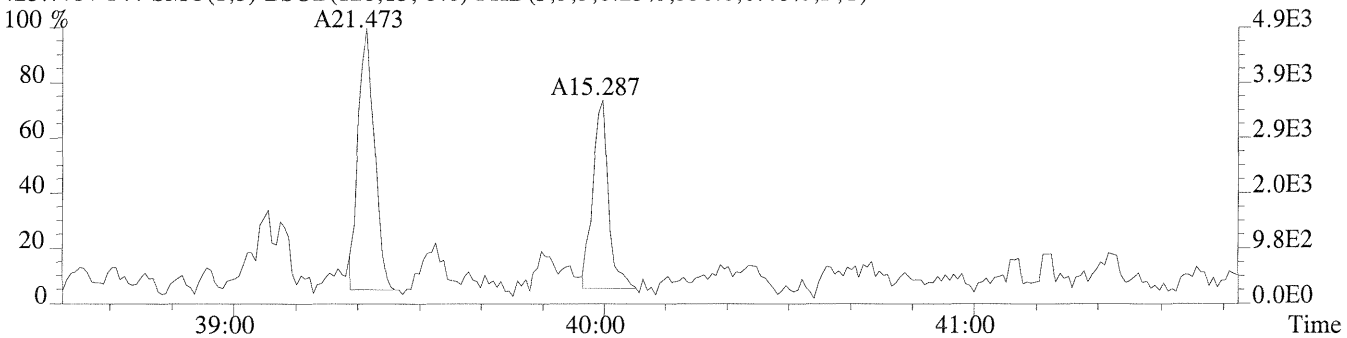


File:P114457 #1-288 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

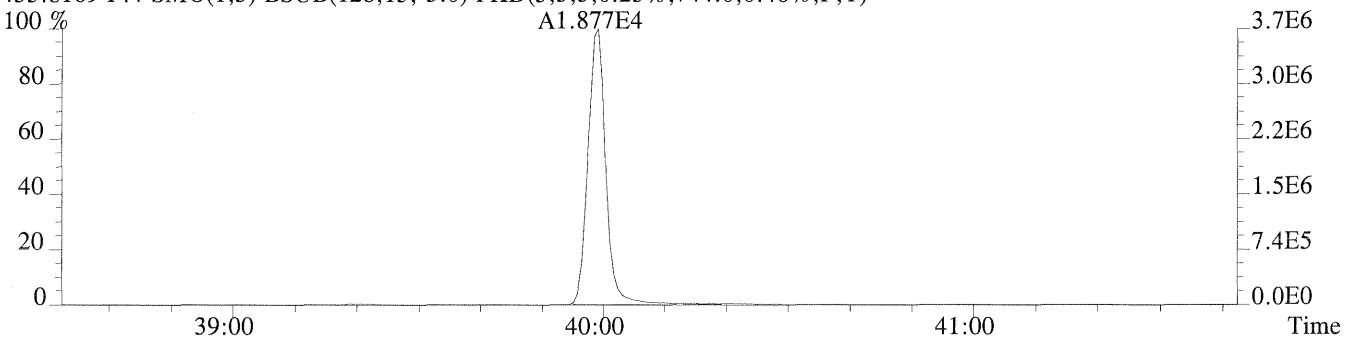
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



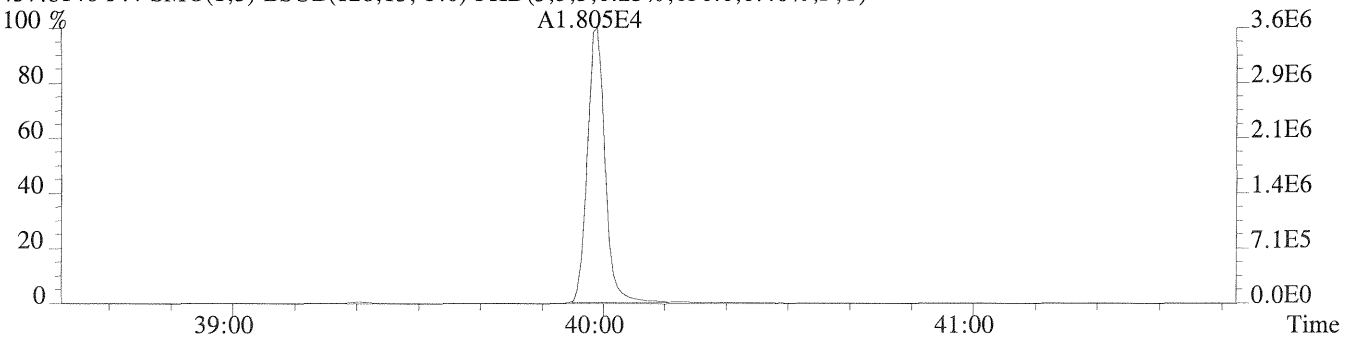
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



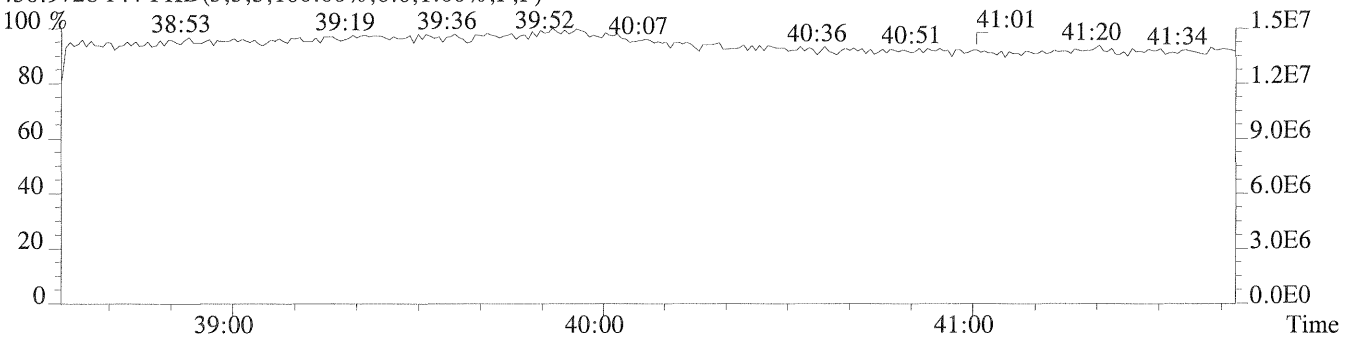
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,744.0,0.40%,F,T)



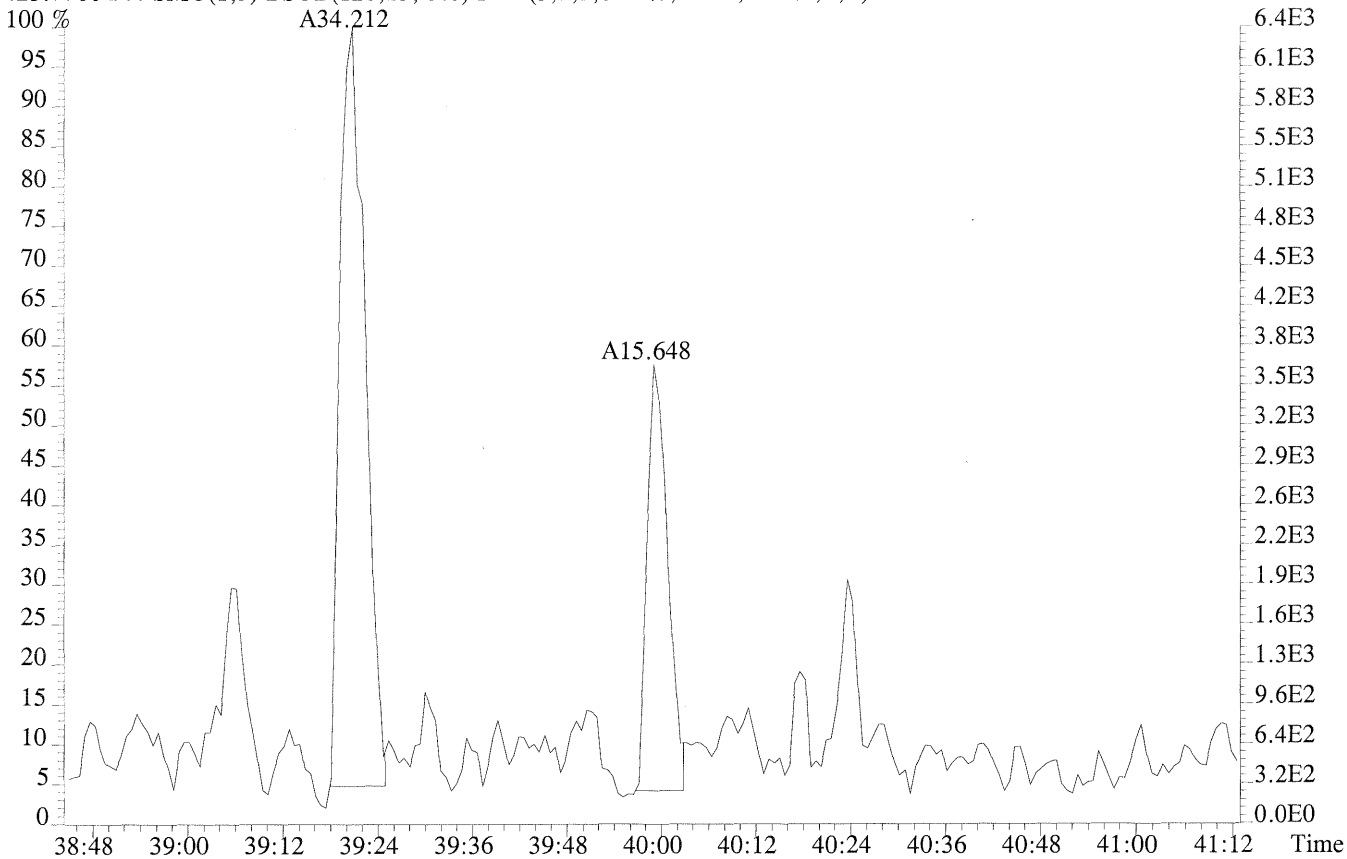
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



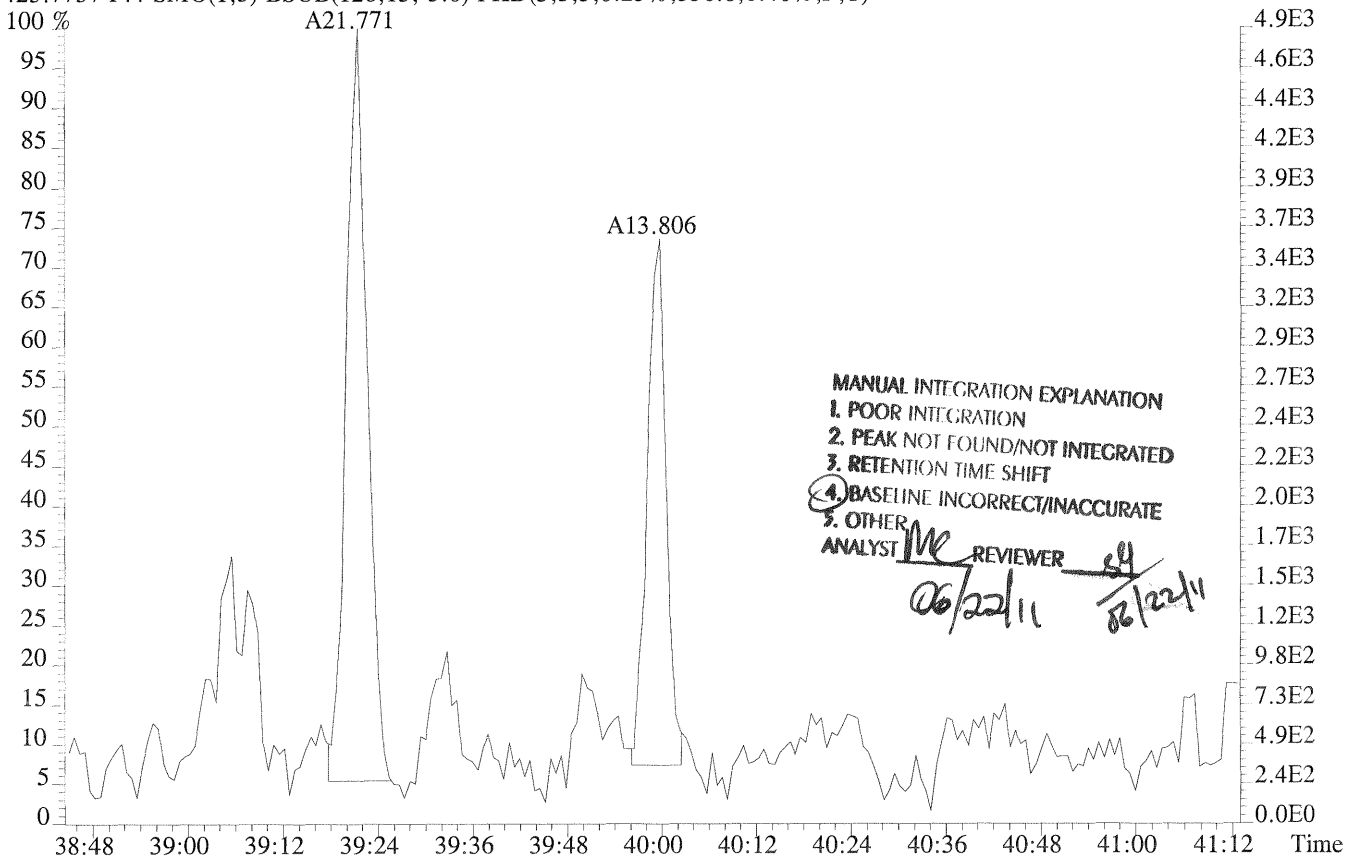
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P114457 #1-288 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)



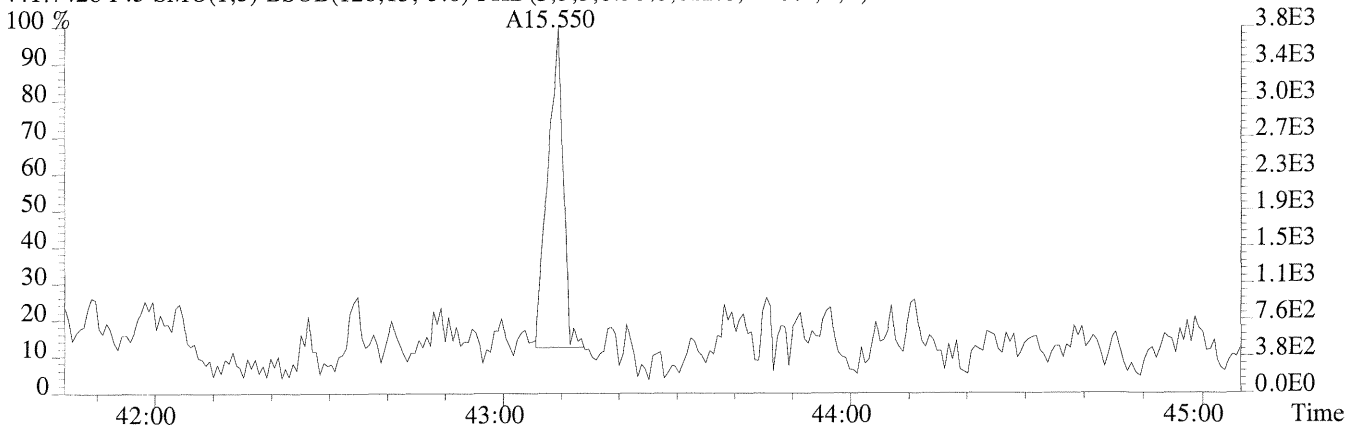
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,556.0,0.40%,F,T)



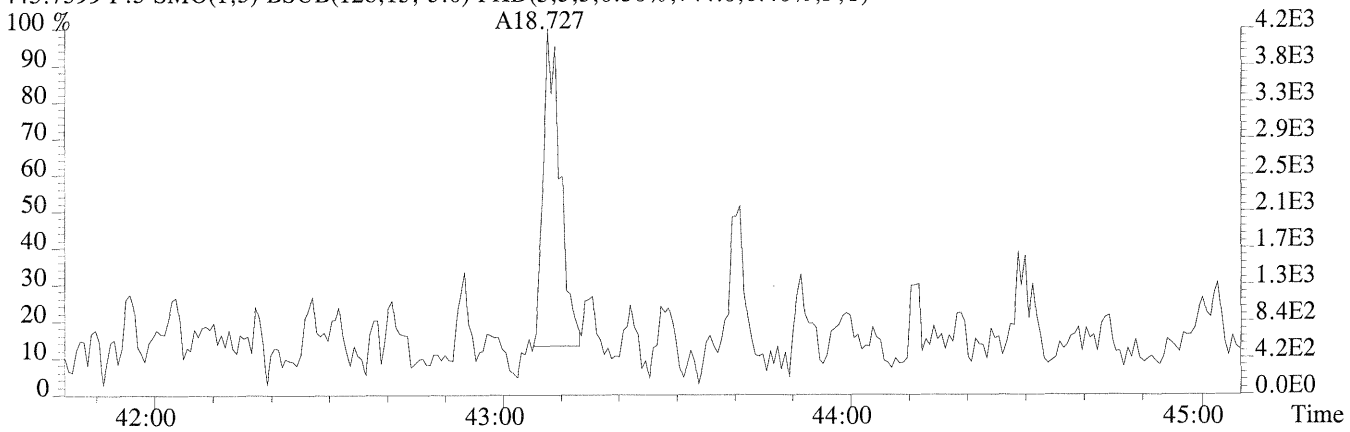
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST ME REVIEWER SH
06/22/11 06/22/11

File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

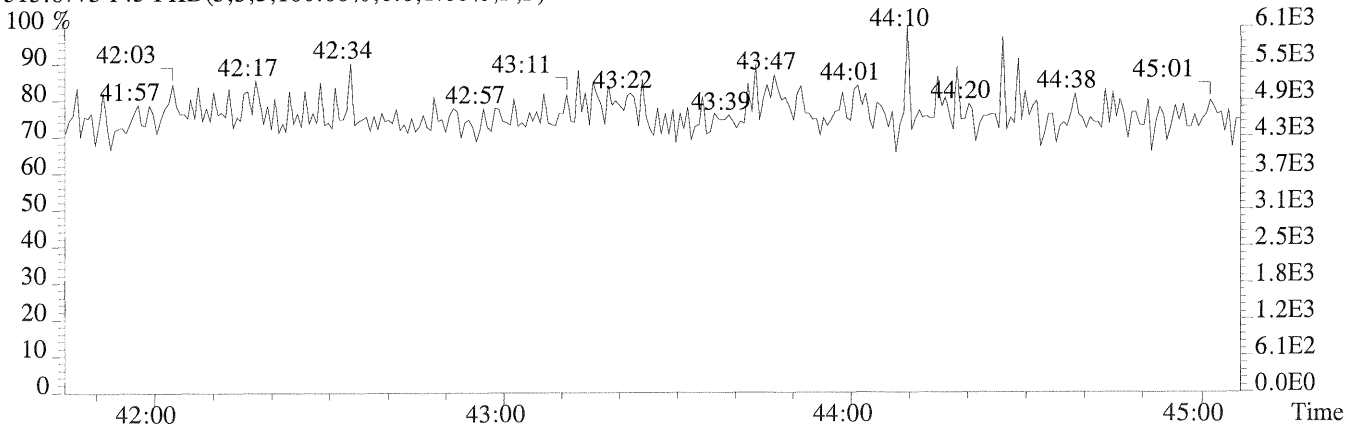
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



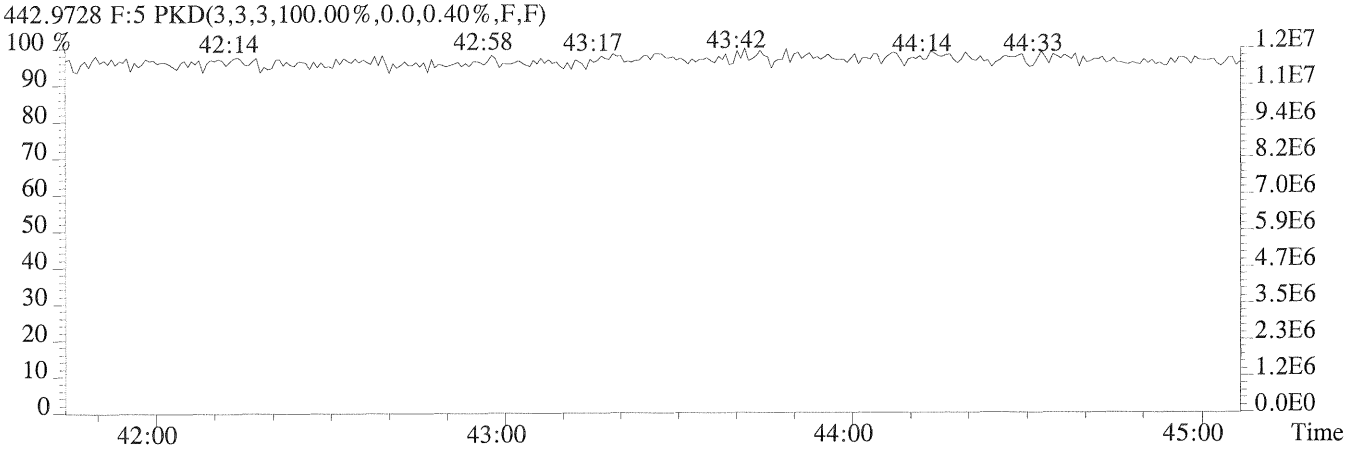
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



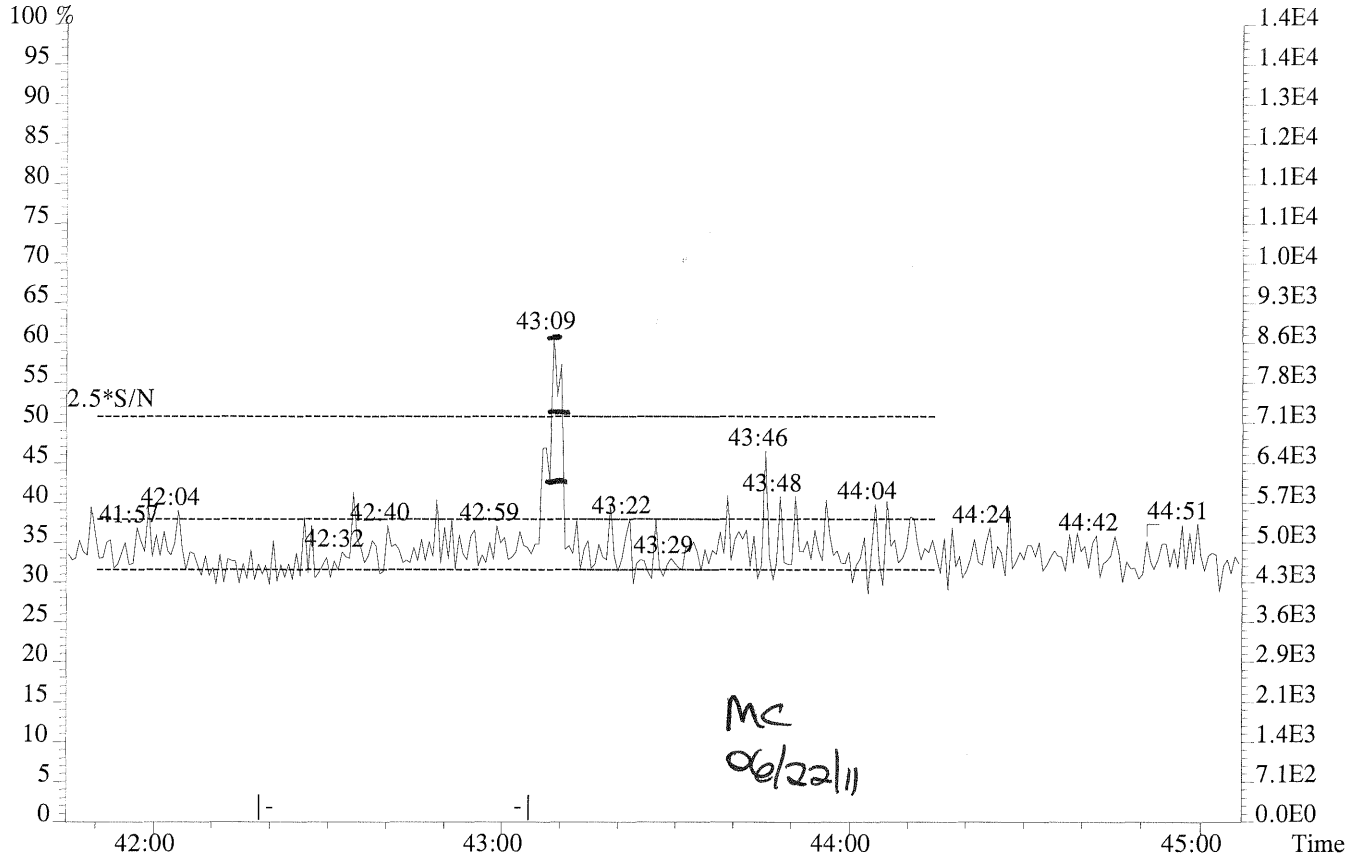
513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



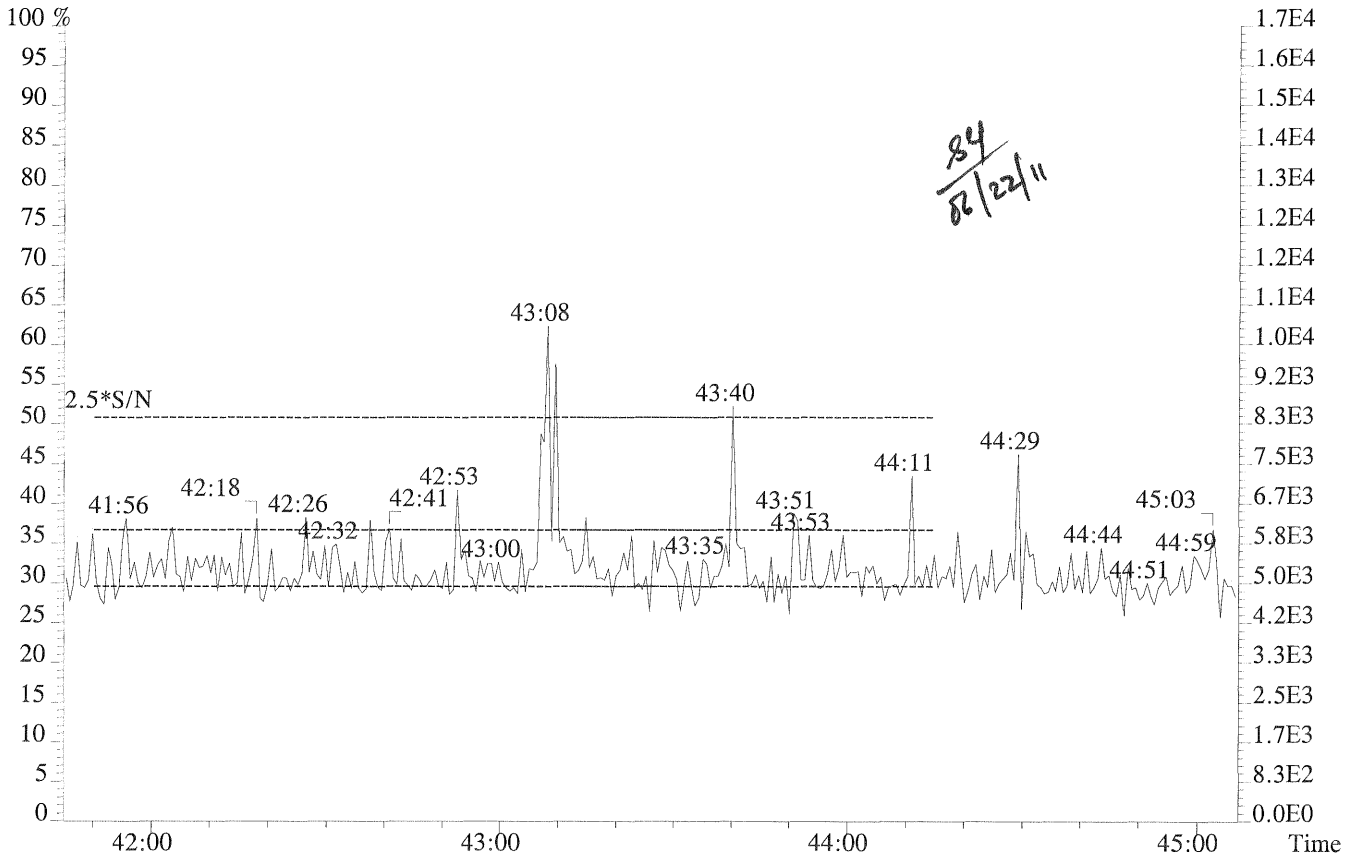
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



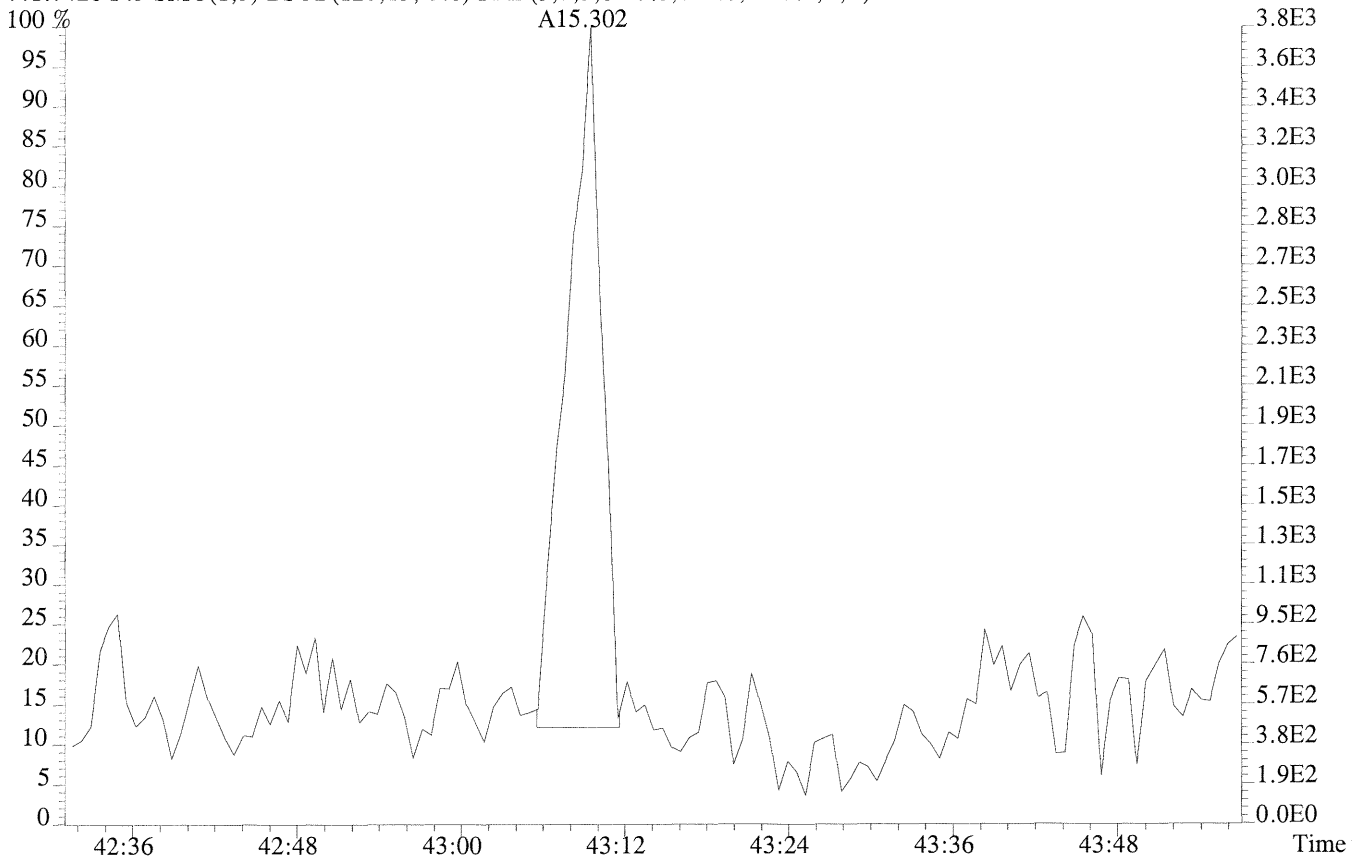
File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB
441.7428 F:5



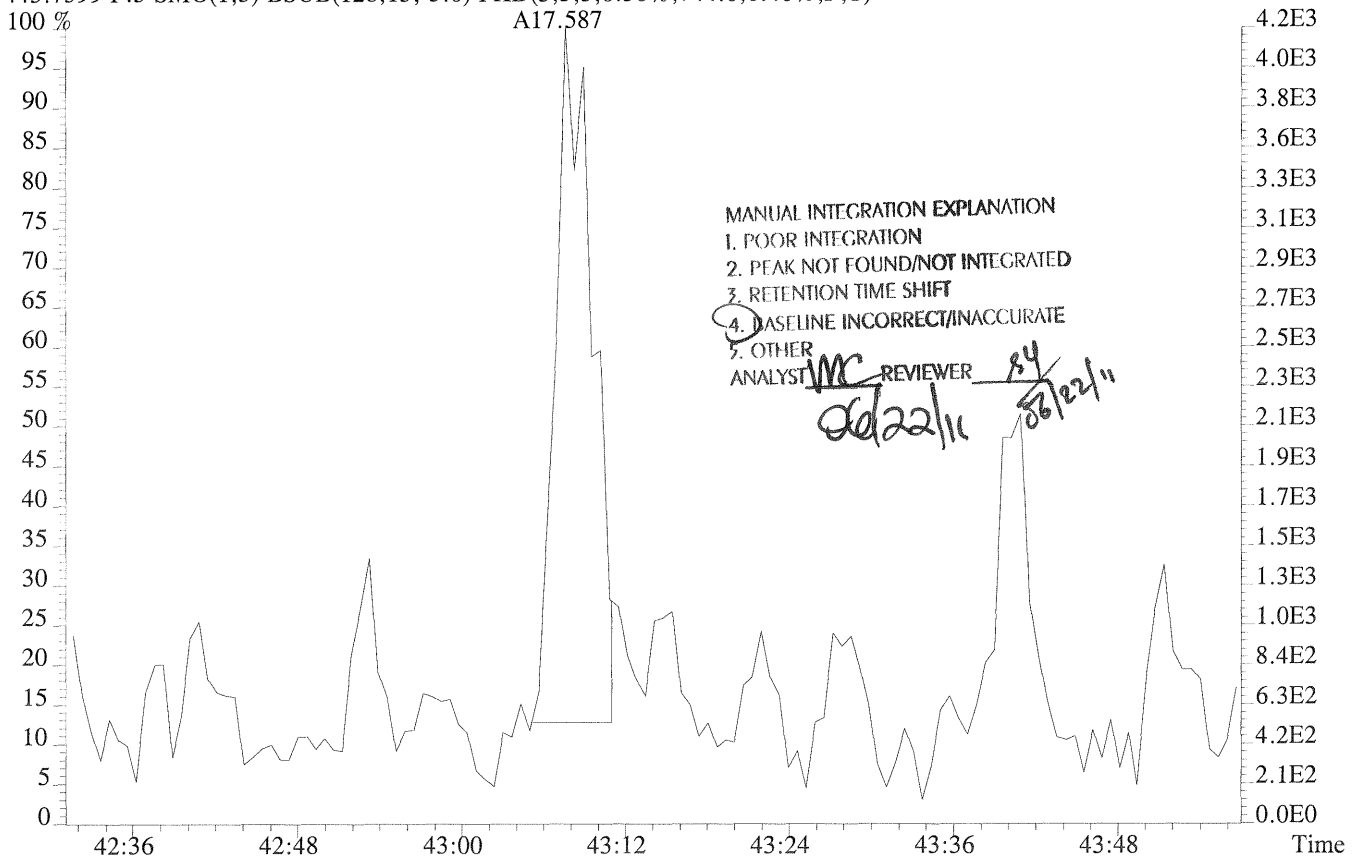
443.7399 F:5



File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



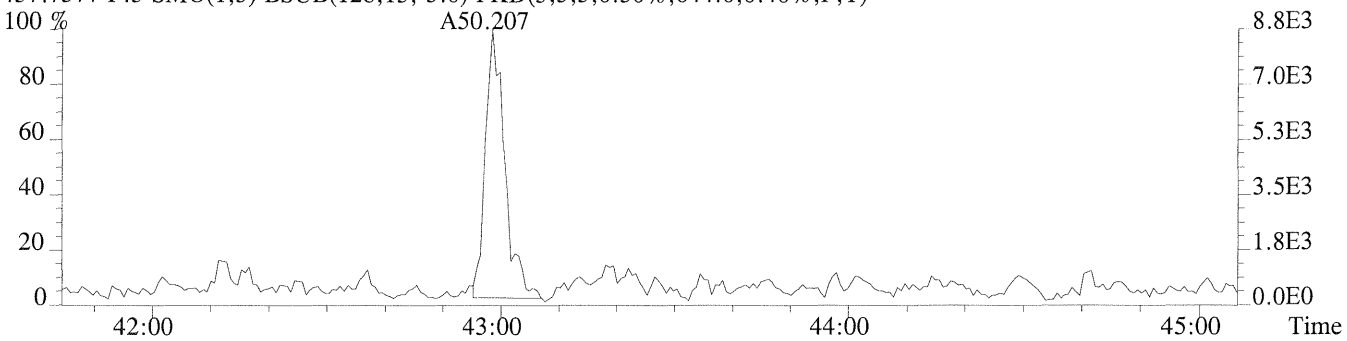
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,744.0,0.40%,F,T)



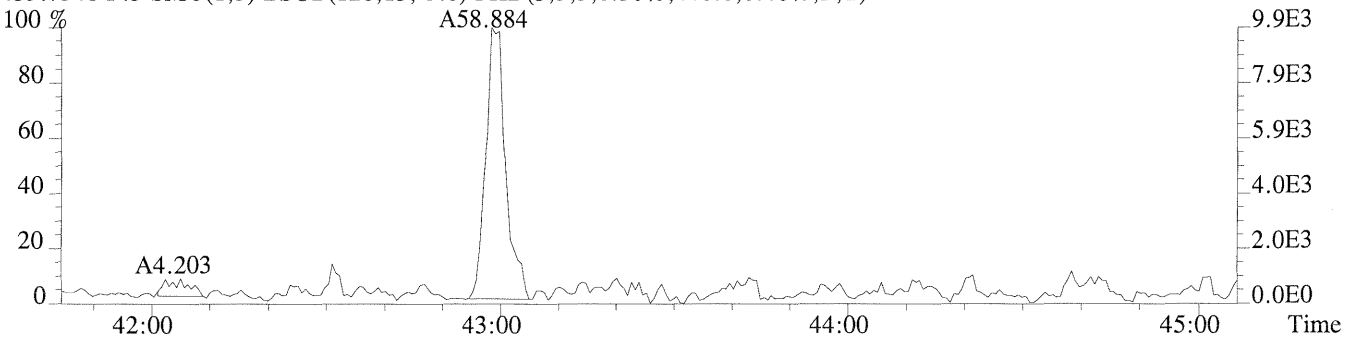
MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST MC 06/22/11 REVIEWER SY 06/22/11

File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB

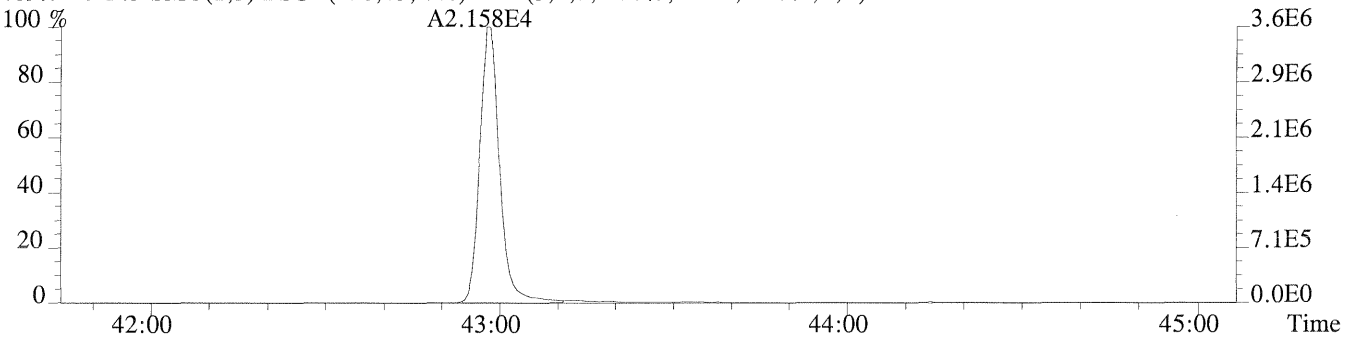
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



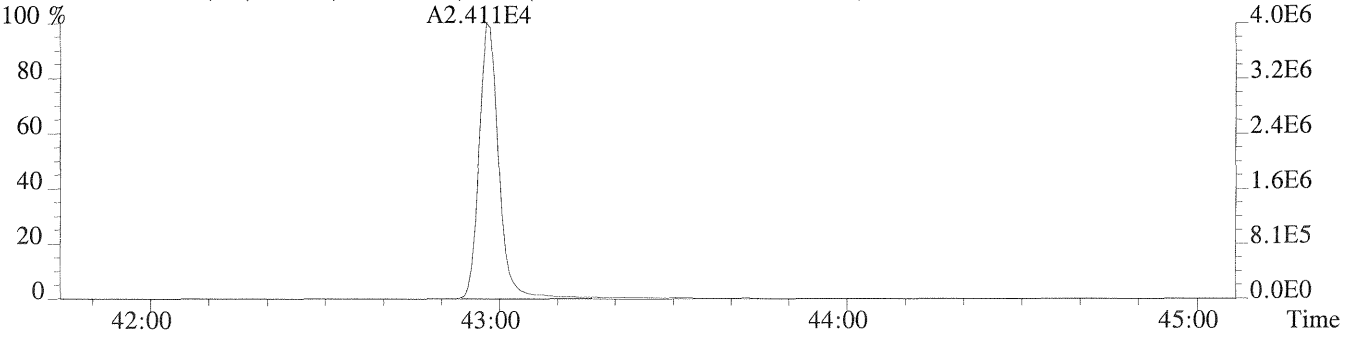
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



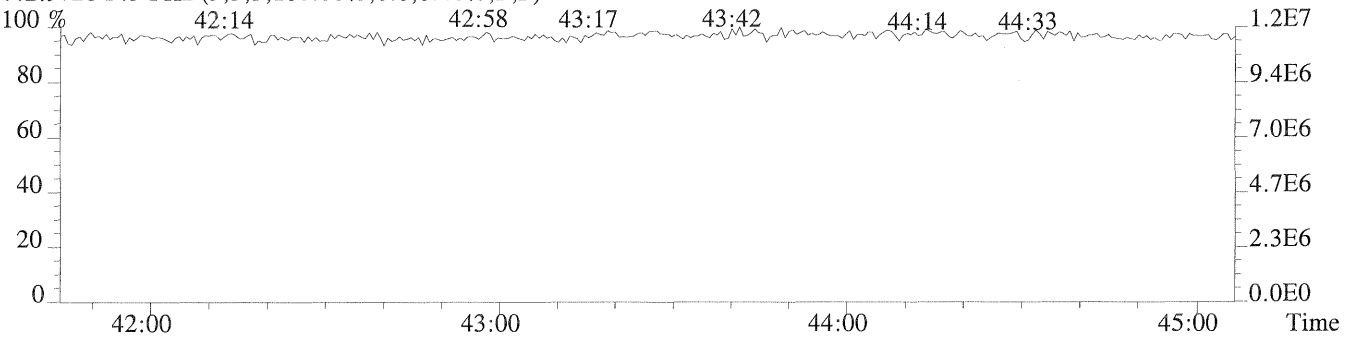
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,772.0,0.40%,F,T)



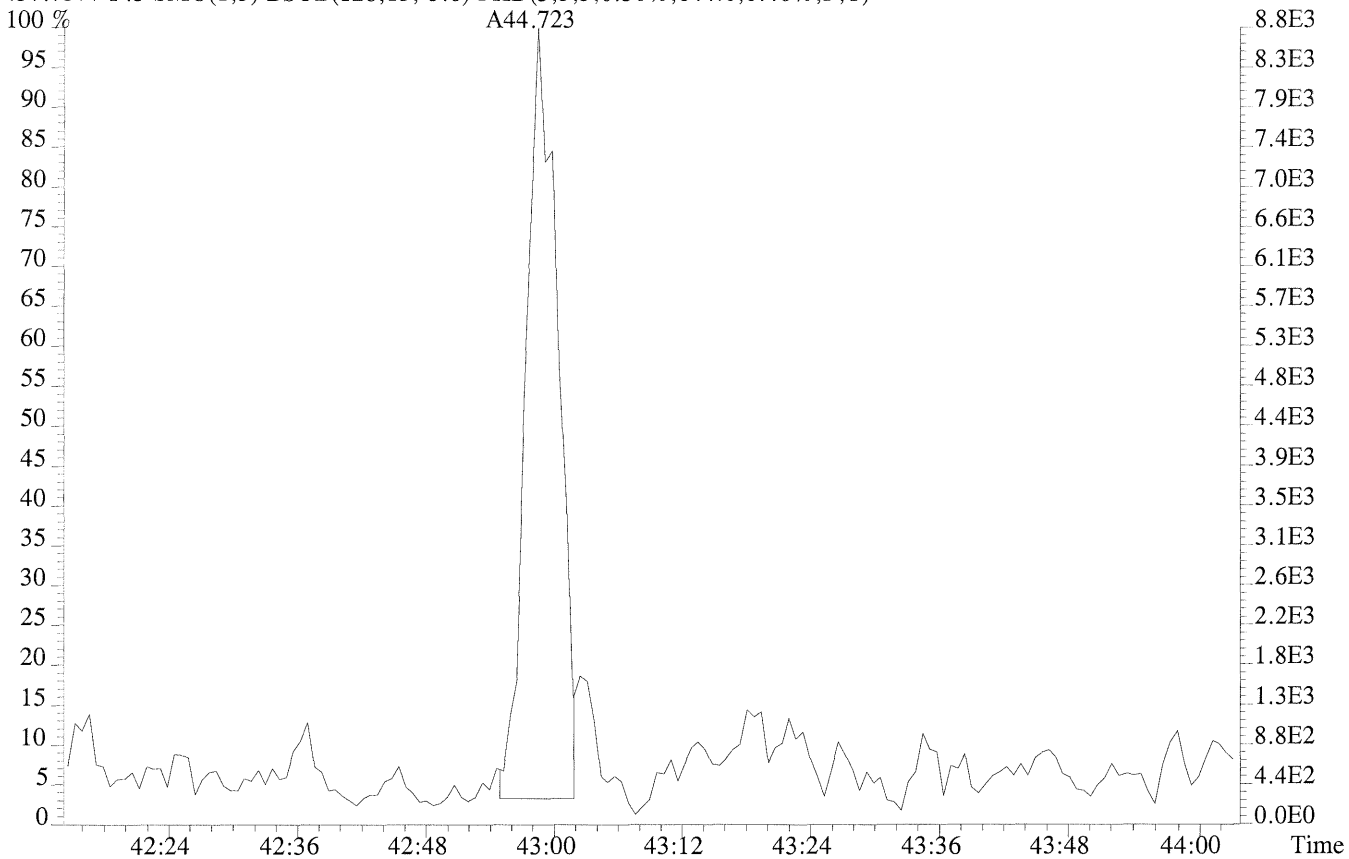
471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



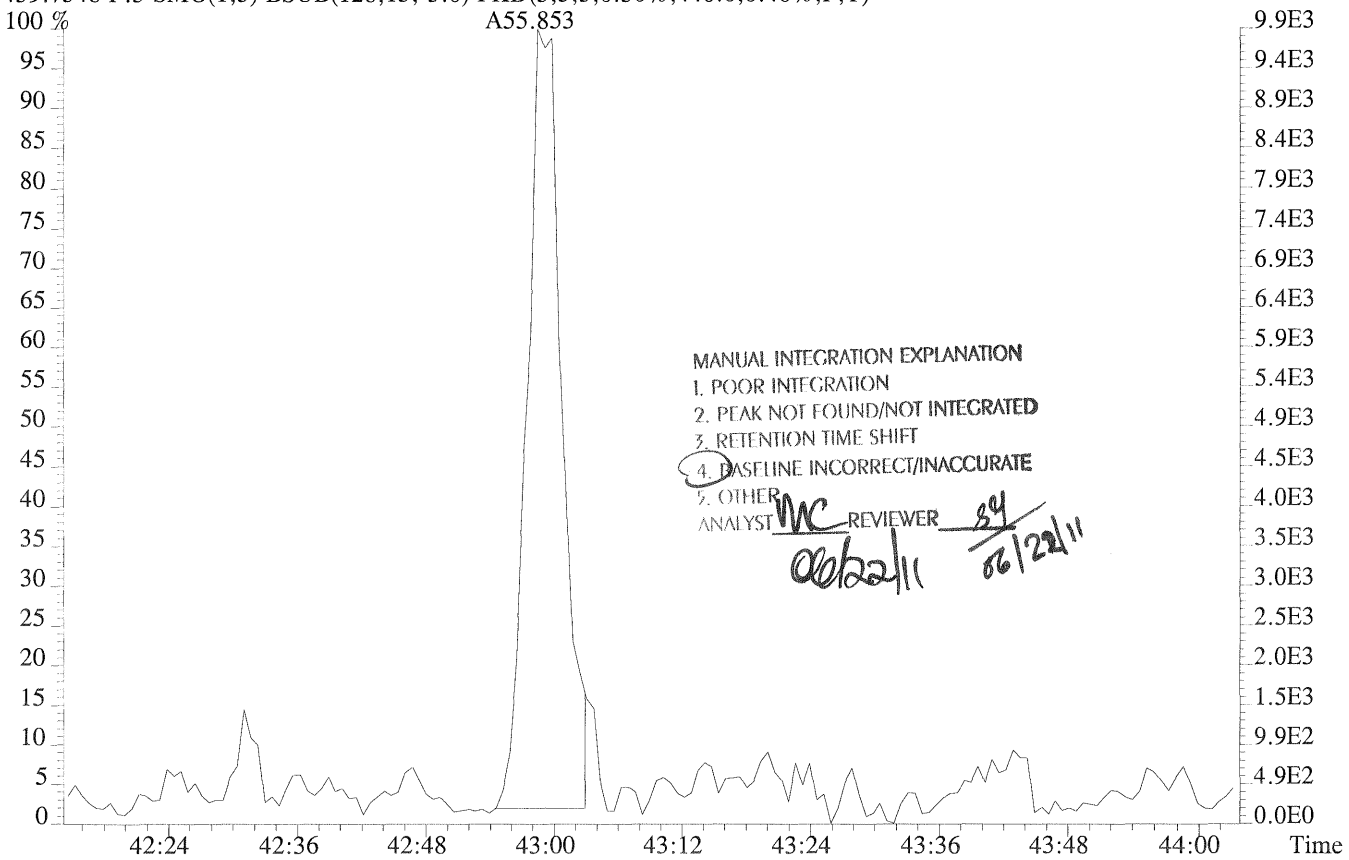
442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



File:P114457 #1-310 Acq: 9-JUN-2011 18:33:33 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-01 MB
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,440.0,0.40%,F,T)



MANUAL INTEGRATION EXPLANATION
1. POOR INTEGRATION
2. PEAK NOT FOUND/NOT INTEGRATED
3. RETENTION TIME SHIFT
4. BASELINE INCORRECT/INACCURATE
5. OTHER
ANALYST MC 06/22/11 REVIEWER BY 06/22/11

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
LCS

Run #16 Filename P114464 Samp: 1 Inj: 1 Acquired: 10-JUN-11 00:07:19
Processed: 22-JUN-11 12:29:05 Sample ID: EQ1100270-02

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	1.674e+03	2.158e+03	0.78	yes	no	0.900
2	Unk	1,2,3,7,8-PeCDF	32:50	1.466e+04	9.208e+03	1.59	yes	no	0.941
3	Unk	2,3,4,7,8-PeCDF	33:35	1.396e+04	8.787e+03	1.59	yes	no	1.028
4	Unk	1,2,3,4,7,8-HxCDF	36:24	1.631e+04	1.316e+04	1.24	yes	no	1.235
5	Unk	1,2,3,6,7,8-HxCDF	36:30	1.778e+04	1.408e+04	1.26	yes	no	1.199
6	Unk	2,3,4,6,7,8-HxCDF	36:59	1.619e+04	1.282e+04	1.26	yes	no	1.147
7	Unk	1,2,3,7,8,9-HxCDF	37:41	1.416e+04	1.172e+04	1.21	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	1.448e+04	1.374e+04	1.05	yes	no	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	40:25	1.224e+04	1.162e+04	1.05	yes	no	1.438
10	Unk	OCDF	43:09	1.507e+04	1.673e+04	0.90	yes	no	1.225
11	Unk	2,3,7,8-TCDD	29:16	1.599e+03	1.991e+03	0.80	yes	no	1.029
12	Unk	1,2,3,7,8-PeCDD	33:56	1.087e+04	6.818e+03	1.59	yes	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	37:06	1.195e+04	9.539e+03	1.25	yes	no	1.110
14	Unk	1,2,3,6,7,8-HxCDD	37:11	1.123e+04	8.715e+03	1.29	yes	no	0.906
15	Unk	1,2,3,7,8,9-HxCDD	37:28	1.093e+04	8.770e+03	1.25	yes	no	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	8.622e+03	8.253e+03	1.04	yes	no	1.001
17	Unk	OCDD	42:59	1.161e+04	1.332e+04	0.87	yes	no	1.058
18	IS	13C-2,3,7,8-TCDF	28:24	1.943e+04	2.457e+04	0.79	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:49	3.462e+04	2.155e+04	1.61	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.037e+04	1.931e+04	1.57	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:24	1.728e+04	3.283e+04	0.53	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:30	1.914e+04	3.598e+04	0.53	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	1.760e+04	3.348e+04	0.53	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	1.509e+04	2.880e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.280e+04	2.839e+04	0.45	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	1.129e+04	2.481e+04	0.45	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:15	1.928e+04	2.467e+04	0.78	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.424e+04	1.519e+04	1.60	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	2.368e+04	1.887e+04	1.26	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:10	2.433e+04	1.947e+04	1.25	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	1.742e+04	1.633e+04	1.07	yes	no	0.907
32	IS	13C-OCDD	42:58	2.265e+04	2.515e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	2.451e+04	3.078e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	2.842e+04	2.266e+04	1.25	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	1.807e+04				no	1.054

Columbia Analytical Services, Inc.
19408 Park Row., Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
LCS

Run #16 Filename P114464 Samp: 1 Inj: 1 Acquired: 10-JUN-11 00:07:19
Processed: 22-JUN-11 12:29:051 LAB. ID: EQ1100270-02

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.67e+05	5.44e+02	4.9e+02	3.44e+05	5.32e+02	6.5e+02
2	1,2,3,7,8-PeCDF	2.76e+06	5.92e+02	4.7e+03	1.73e+06	7.36e+02	2.4e+03
3	2,3,4,7,8-PeCDF	2.62e+06	5.92e+02	4.4e+03	1.64e+06	7.36e+02	2.2e+03
4	1,2,3,4,7,8-HxCDF	3.63e+06	5.72e+02	6.3e+03	2.89e+06	6.88e+02	4.2e+03
5	1,2,3,6,7,8-HxCDF	3.72e+06	5.72e+02	6.5e+03	2.97e+06	6.88e+02	4.3e+03
6	2,3,4,6,7,8-HxCDF	3.62e+06	5.72e+02	6.3e+03	2.83e+06	6.88e+02	4.1e+03
7	1,2,3,7,8,9-HxCDF	2.90e+06	5.72e+02	5.1e+03	2.37e+06	6.88e+02	3.4e+03
8	1,2,3,4,6,7,8-HpCDF	3.23e+06	1.94e+03	1.7e+03	3.05e+06	2.18e+03	1.4e+03
9	1,2,3,4,7,8,9-HpCDF	2.33e+06	1.94e+03	1.2e+03	2.22e+06	2.18e+03	1.0e+03
10	OCDF	2.49e+06	6.12e+02	4.1e+03	2.78e+06	7.32e+02	3.8e+03
11	2,3,7,8-TCDD	2.76e+05	5.48e+02	5.0e+02	3.34e+05	4.80e+02	7.0e+02
12	1,2,3,7,8-PeCDD	2.09e+06	5.04e+02	4.1e+03	1.30e+06	4.64e+02	2.8e+03
13	1,2,3,4,7,8-HxCDD	2.69e+06	5.36e+02	5.0e+03	2.13e+06	5.24e+02	4.1e+03
14	1,2,3,6,7,8-HxCDD	2.48e+06	5.36e+02	4.6e+03	1.94e+06	5.24e+02	3.7e+03
15	1,2,3,7,8,9-HxCDD	2.42e+06	5.36e+02	4.5e+03	1.93e+06	5.24e+02	3.7e+03
16	1,2,3,4,6,7,8-HpCDD	1.74e+06	6.64e+02	2.6e+03	1.66e+06	5.24e+02	3.2e+03
17	OCDD	1.96e+06	3.84e+02	5.1e+03	2.26e+06	5.88e+02	3.8e+03
18	13C-2,3,7,8-TCDF	3.02e+06	7.48e+02	4.0e+03	3.77e+06	6.72e+02	5.6e+03
19	13C-1,2,3,7,8-PeCDF	6.51e+06	3.76e+02	1.7e+04	4.03e+06	4.64e+02	8.7e+03
20	13C-2,3,4,7,8-PeCDF	5.79e+06	3.76e+02	1.5e+04	3.72e+06	4.64e+02	8.0e+03
21	13C-1,2,3,4,7,8-HxCDF	3.81e+06	5.72e+02	6.7e+03	7.29e+06	4.68e+02	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	4.04e+06	5.72e+02	7.1e+03	7.48e+06	4.68e+02	1.6e+04
23	13C-2,3,4,6,7,8-HxCDF	3.88e+06	5.72e+02	6.8e+03	7.36e+06	4.68e+02	1.6e+04
24	13C-1,2,3,7,8,9-HxCDF	3.15e+06	5.72e+02	5.5e+03	5.94e+06	4.68e+02	1.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	2.84e+06	1.69e+03	1.7e+03	6.27e+06	2.44e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.16e+06	1.69e+03	1.3e+03	4.78e+06	2.44e+03	2.0e+03
27	13C-2,3,7,8-TCDD	3.12e+06	1.27e+03	2.5e+03	3.99e+06	7.88e+02	5.1e+03
28	13C-1,2,3,7,8-PeCDD	4.61e+06	5.44e+02	8.5e+03	2.93e+06	4.08e+02	7.2e+03
29	13C-1,2,3,4,7,8-HxCDD	5.25e+06	9.60e+02	5.5e+03	4.20e+06	6.92e+02	6.1e+03
30	13C-1,2,3,6,7,8-HxCDD	5.38e+06	9.60e+02	5.6e+03	4.31e+06	6.92e+02	6.2e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.55e+06	7.16e+02	5.0e+03	3.35e+06	4.72e+02	7.1e+03
32	13C-OCDD	3.81e+06	5.80e+02	6.6e+03	4.19e+06	4.32e+02	9.7e+03
33	13C-1,2,3,4-TCDD	4.19e+06	1.27e+03	3.3e+03	5.28e+06	7.88e+02	6.7e+03
34	13C-1,2,3,7,8,9-HxCDD	6.26e+06	9.60e+02	6.5e+03	4.94e+06	6.92e+02	7.1e+03
35	37Cl-2,3,7,8-TCDD	3.03e+06	7.04e+02	4.3e+03			

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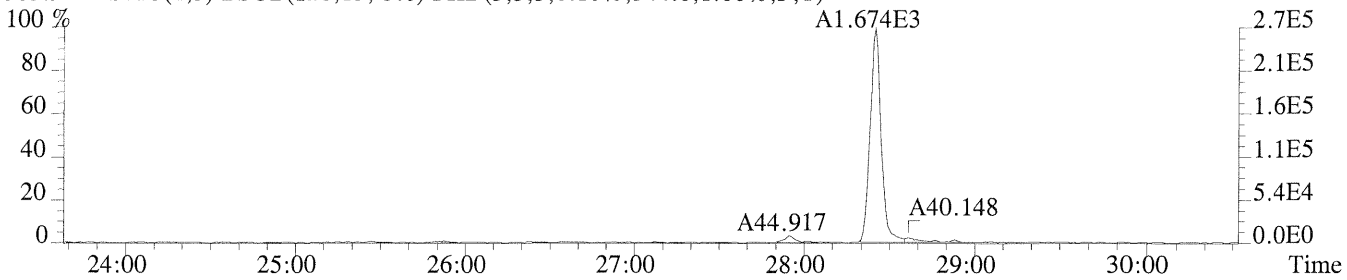
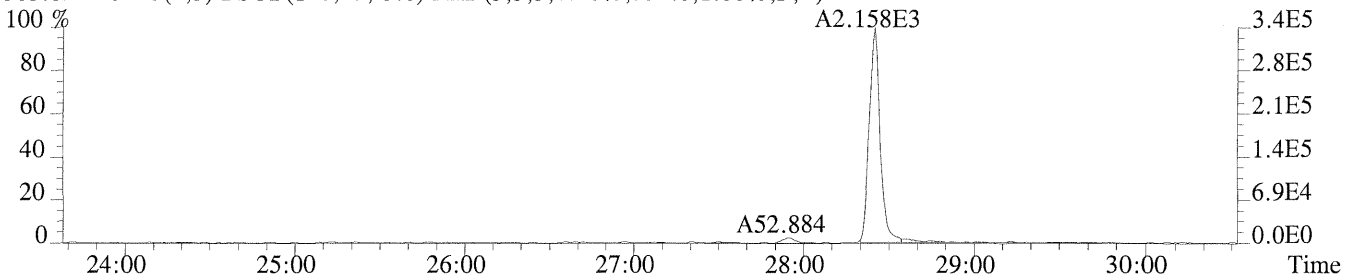
File:P114464 #1-575 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

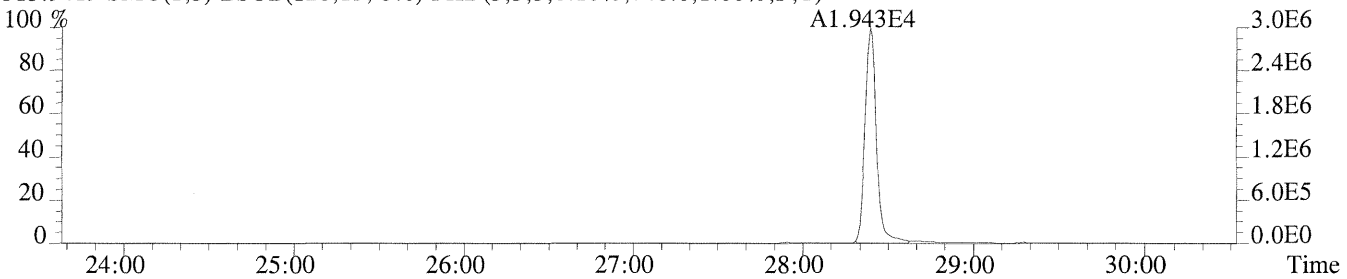
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



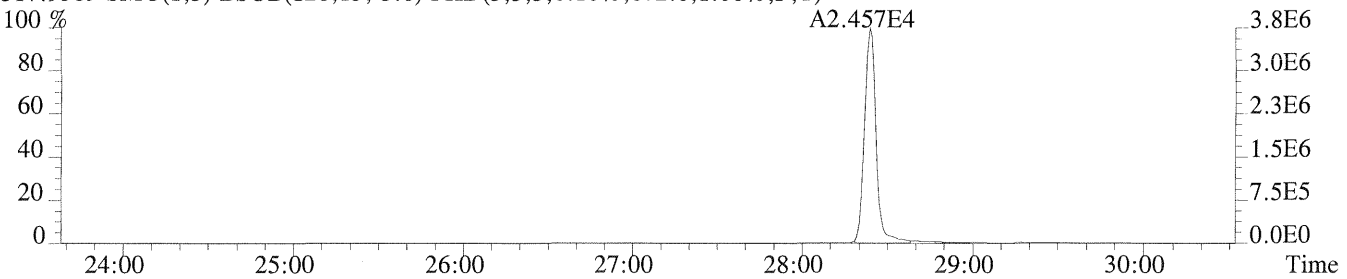
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)



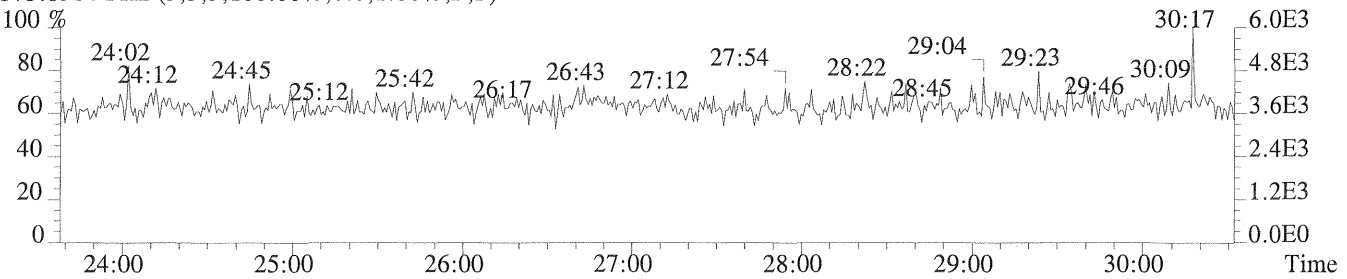
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



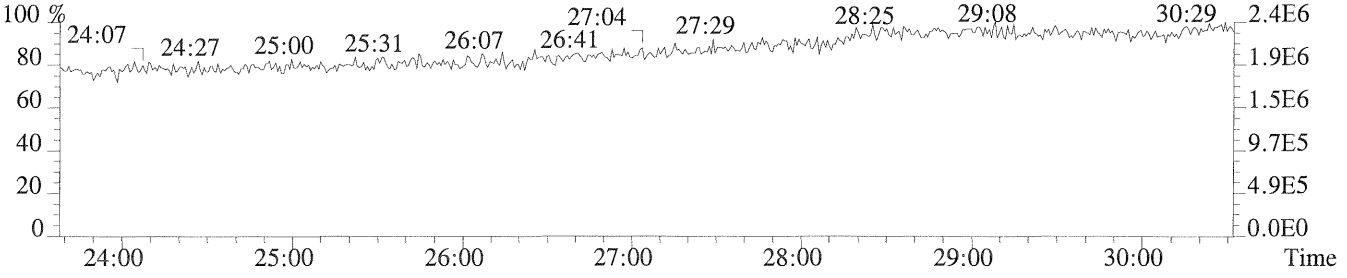
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

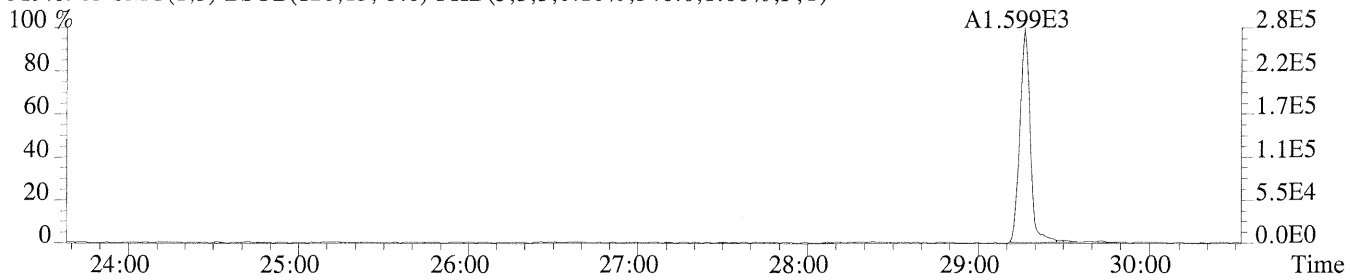


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

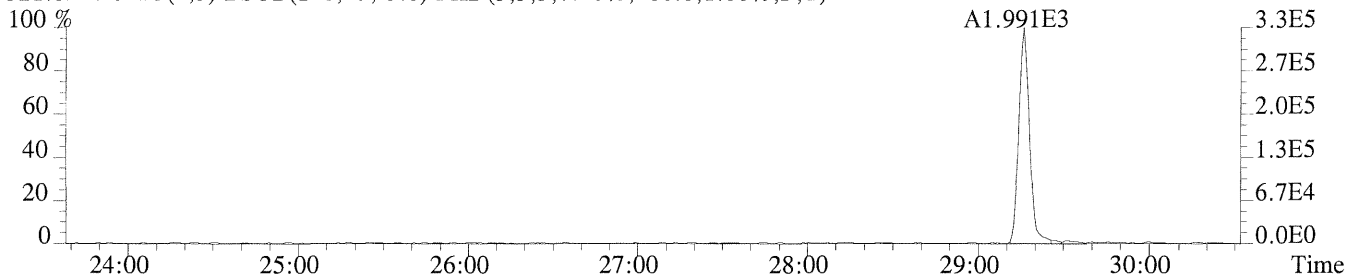


File:P114464 #1-575 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

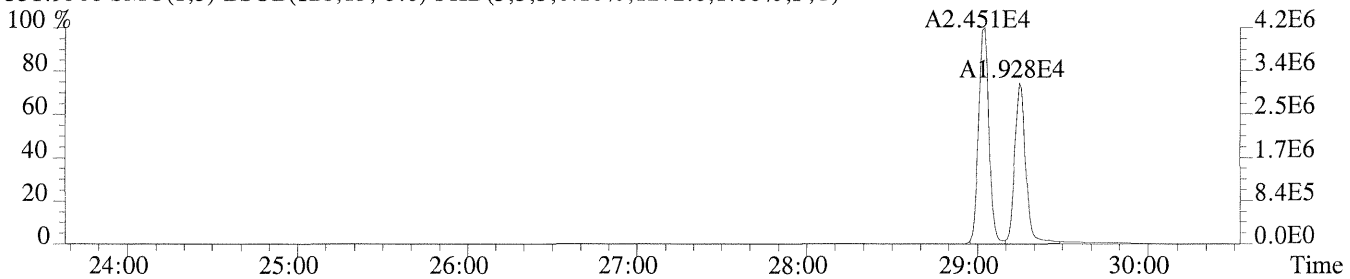
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,548.0,1.00%,F,T)



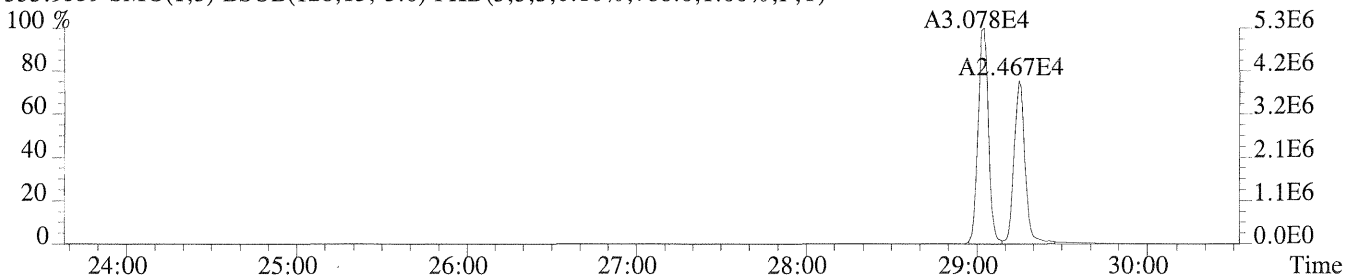
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,480.0,1.00%,F,T)



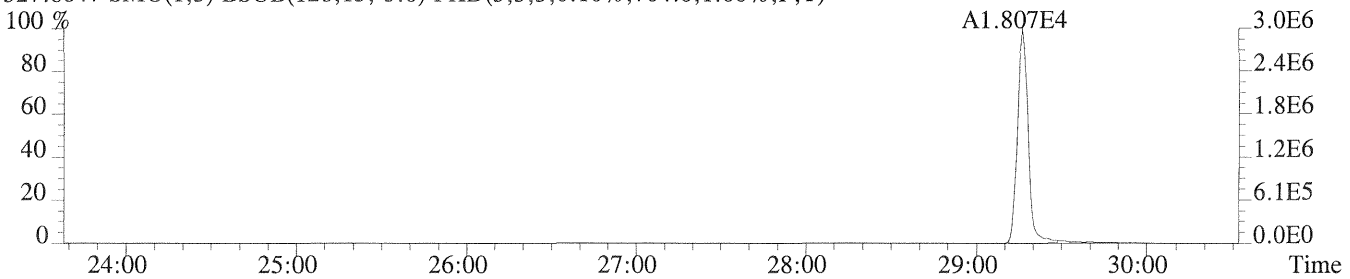
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1272.0,1.00%,F,T)



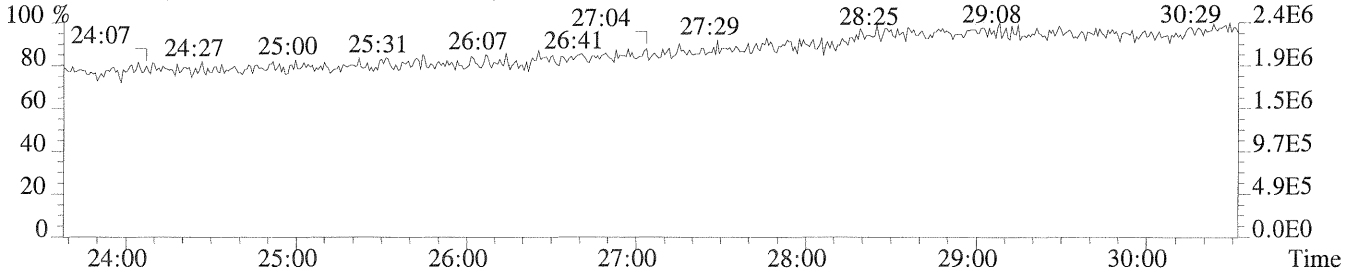
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,704.0,1.00%,F,T)

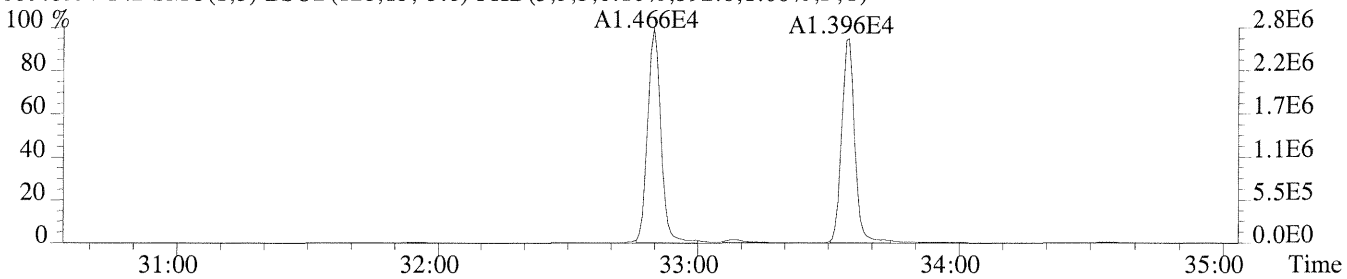


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

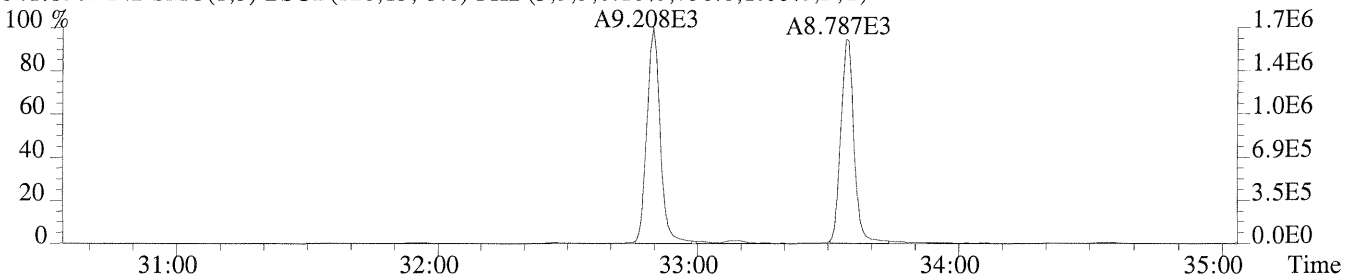


File:P114464 #1-408 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

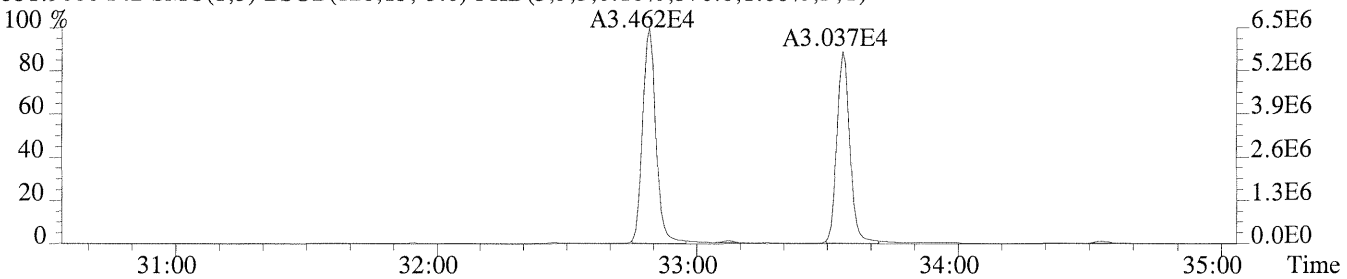
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



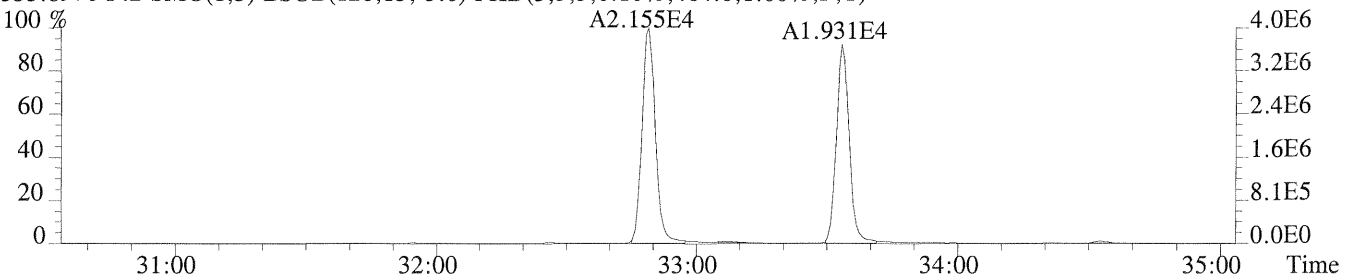
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,736.0,1.00%,F,T)



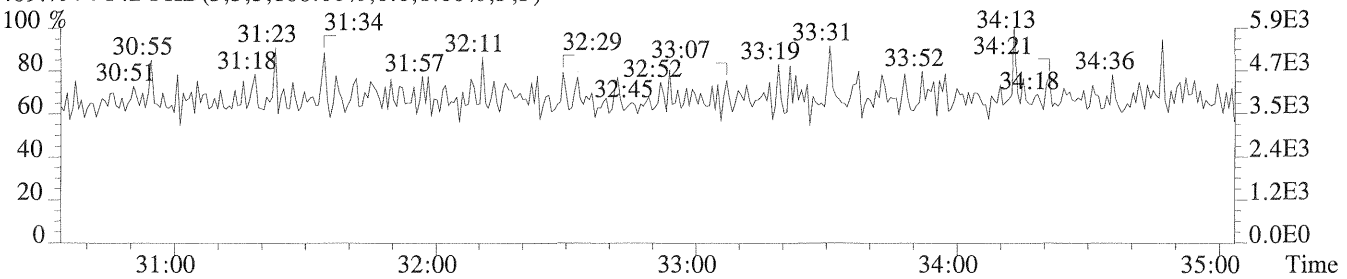
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,376.0,1.00%,F,T)



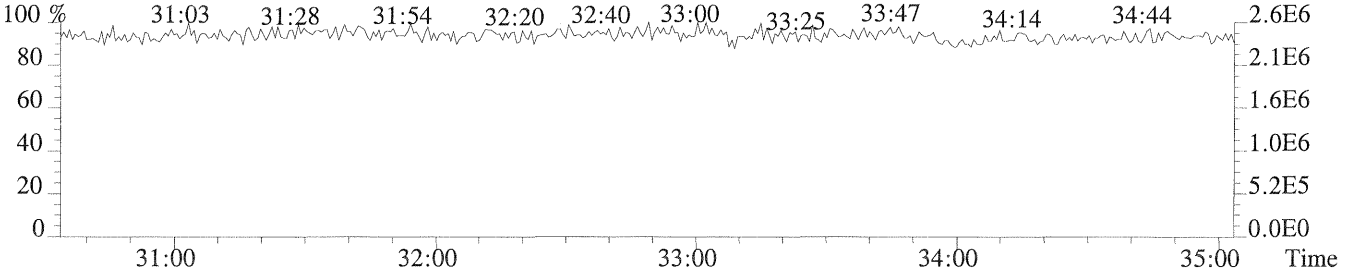
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

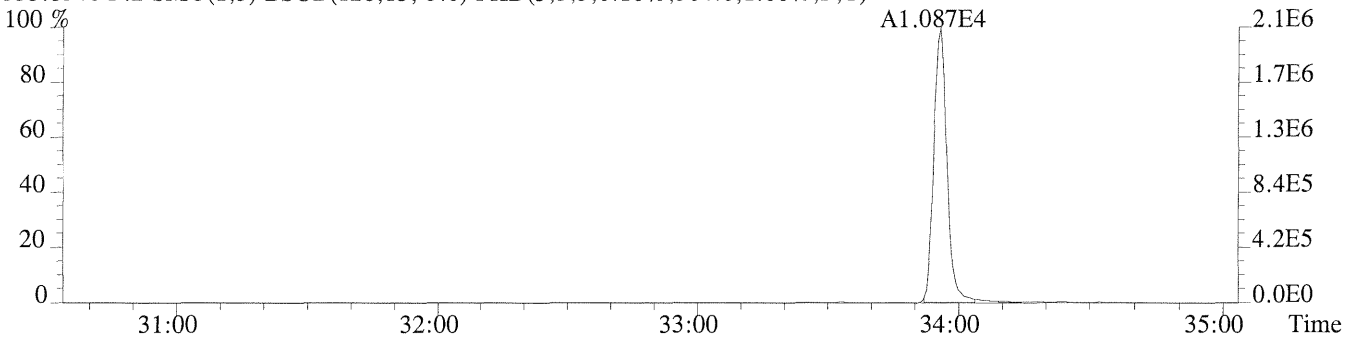


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

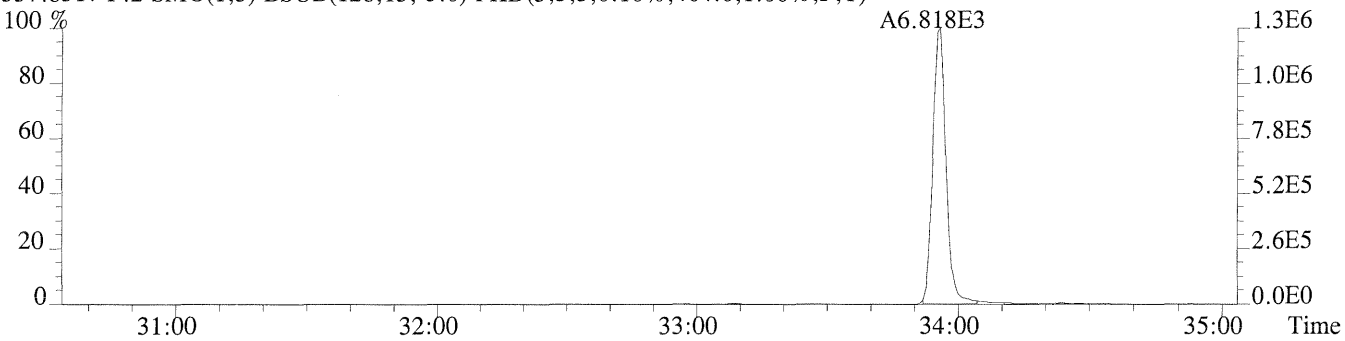


File:P114464 #1-408 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

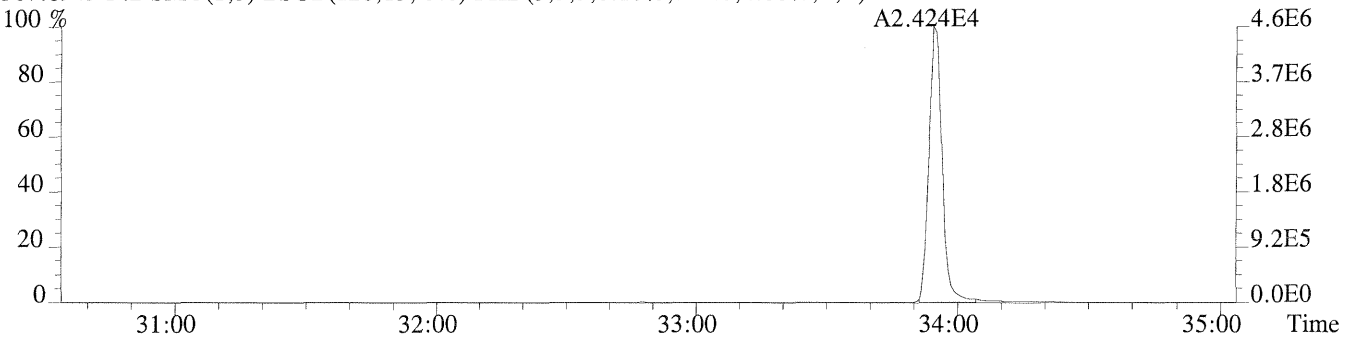
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,504.0,1.00%,F,T)



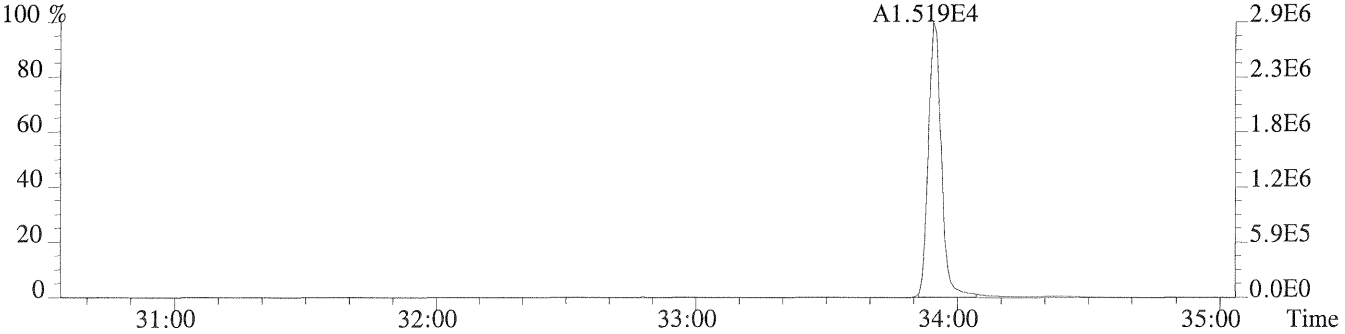
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,464.0,1.00%,F,T)



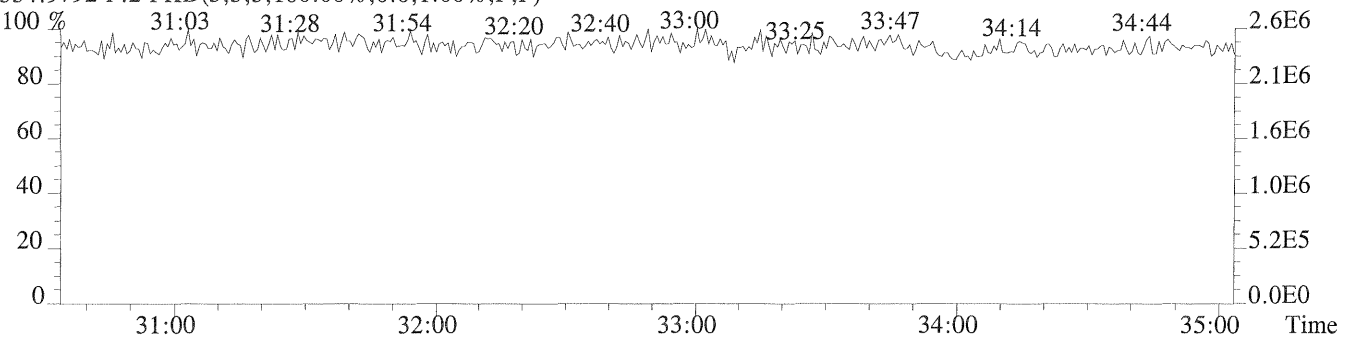
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,408.0,1.00%,F,T)

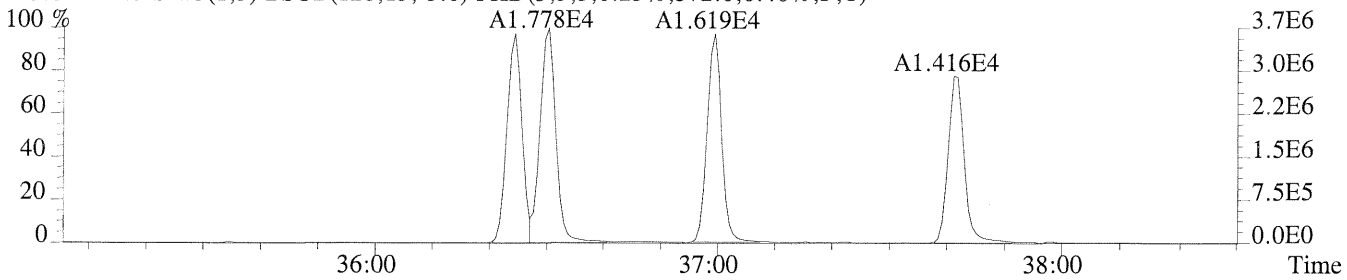


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

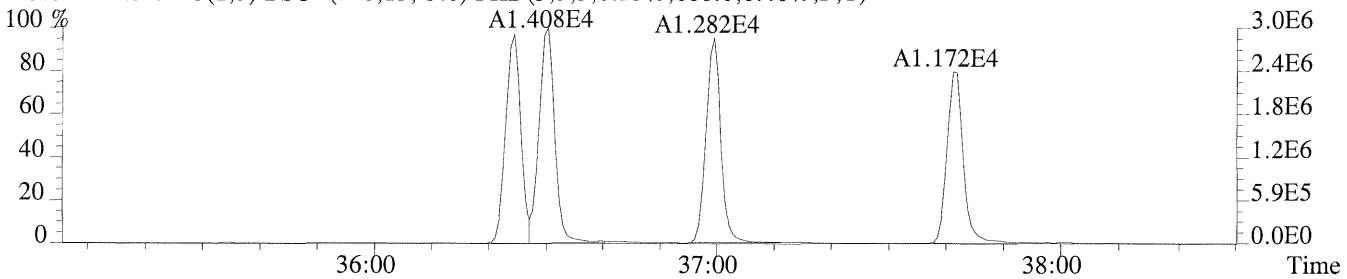


File:P114464 #1-310 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

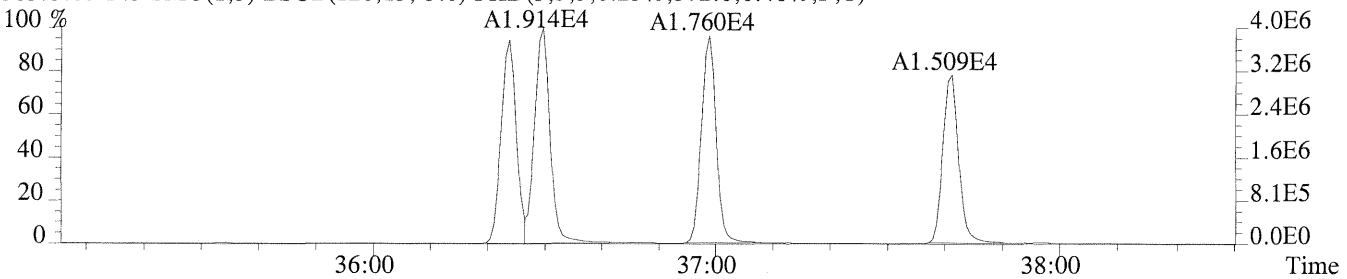
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



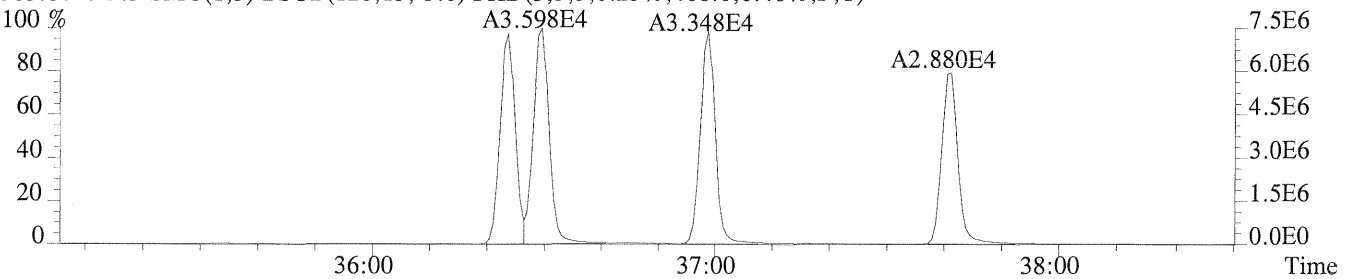
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



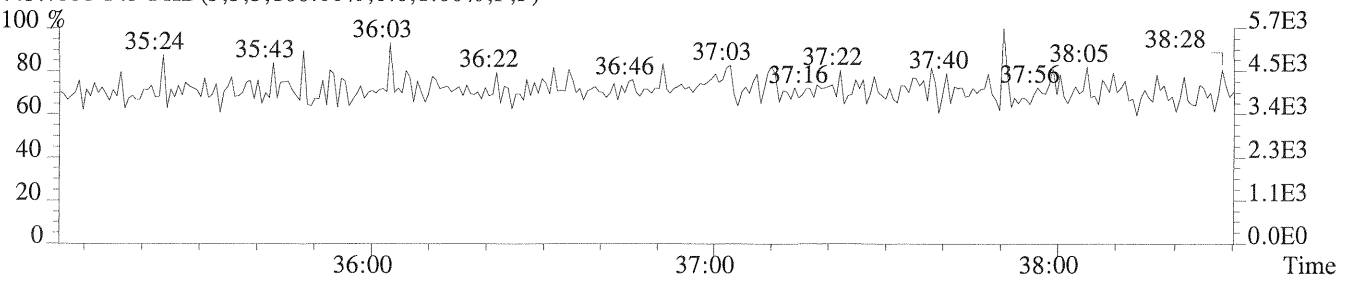
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)



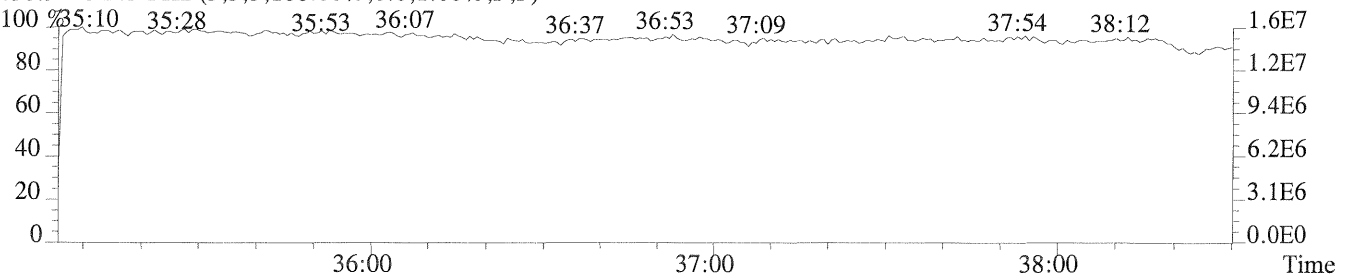
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,468.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

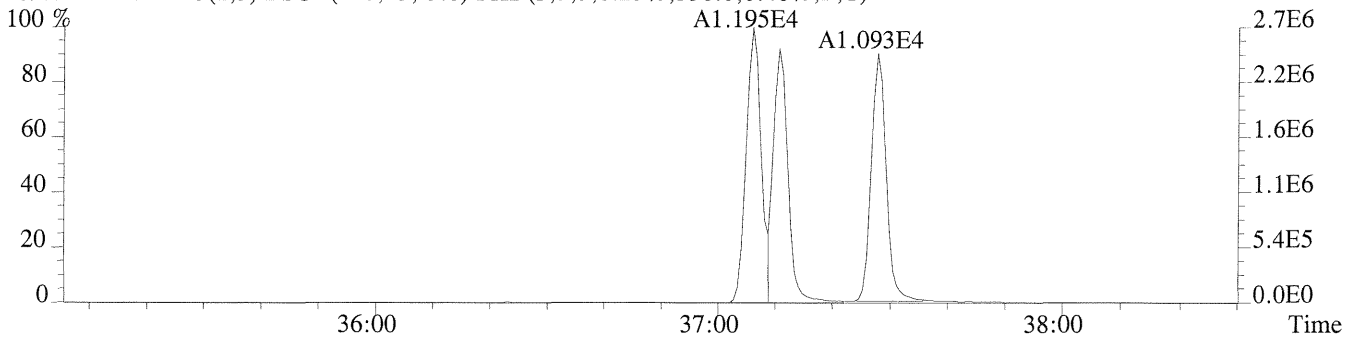


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

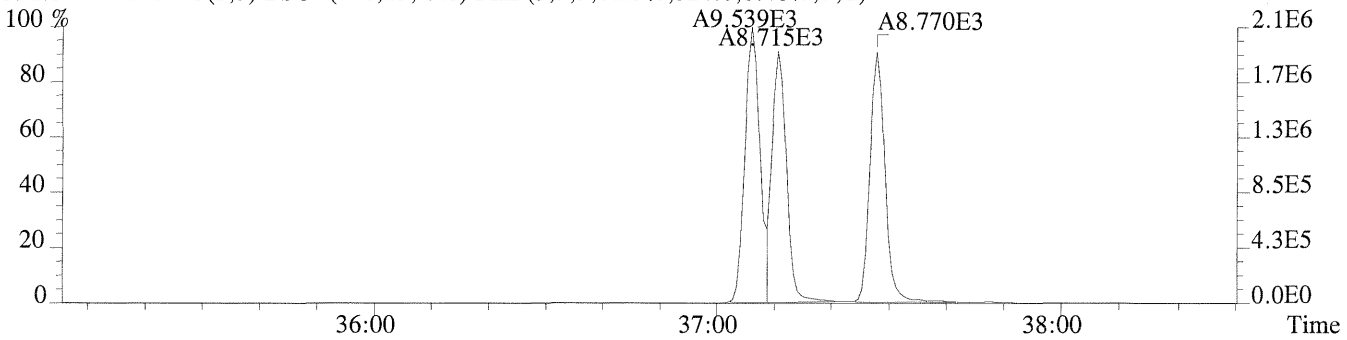


File:P114464 #1-310 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

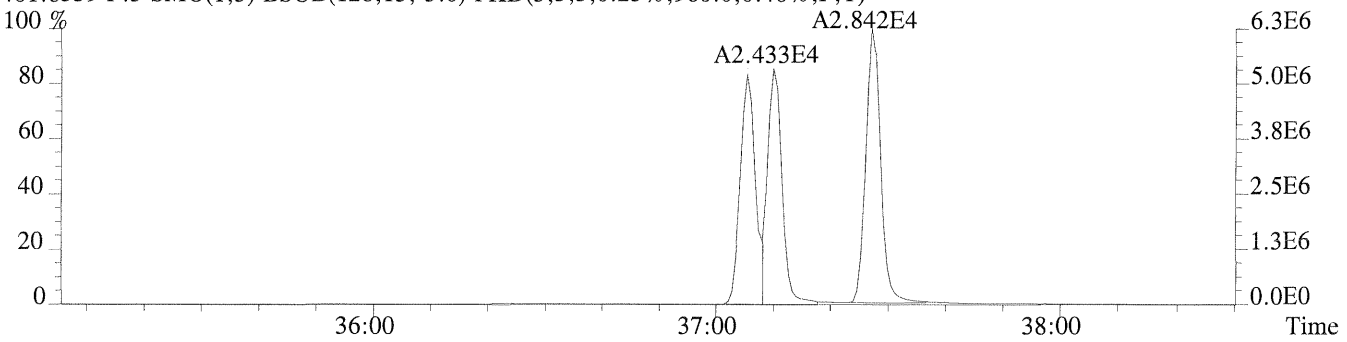
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,536.0,0.40%,F,T)



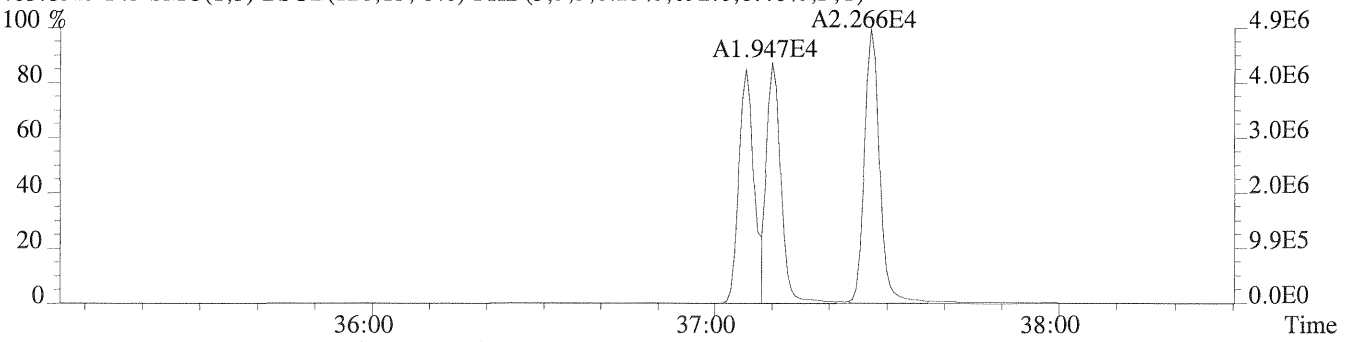
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



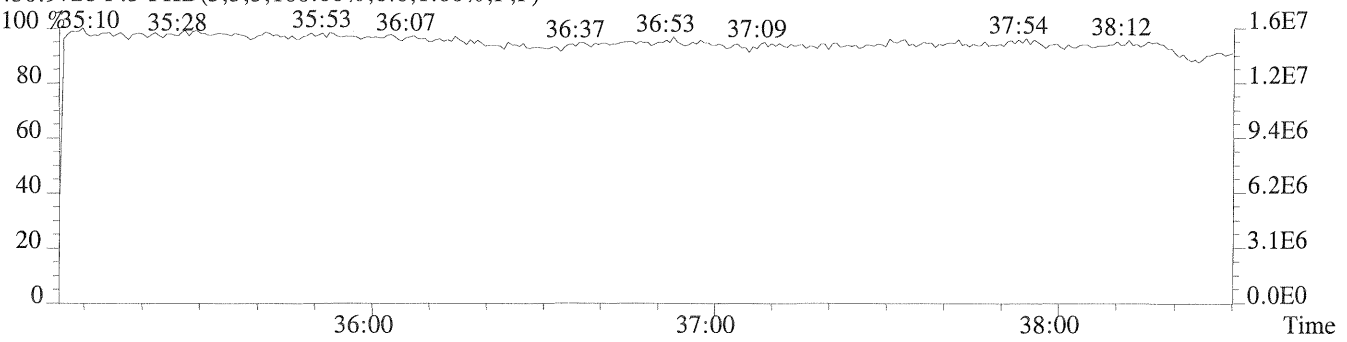
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,692.0,0.40%,F,T)

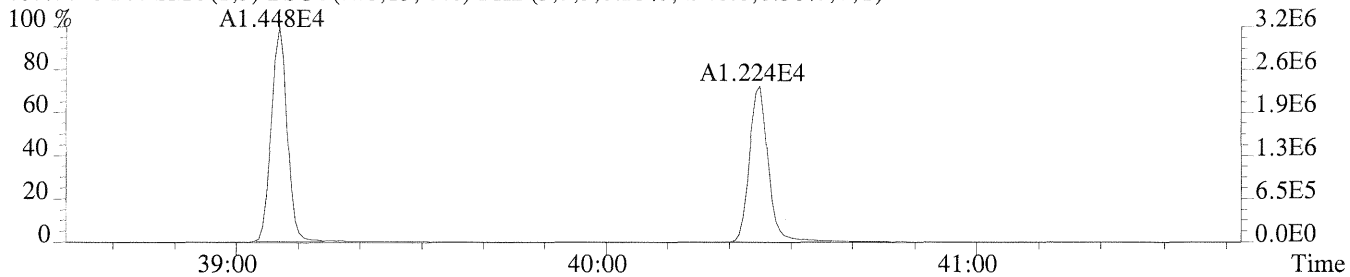


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

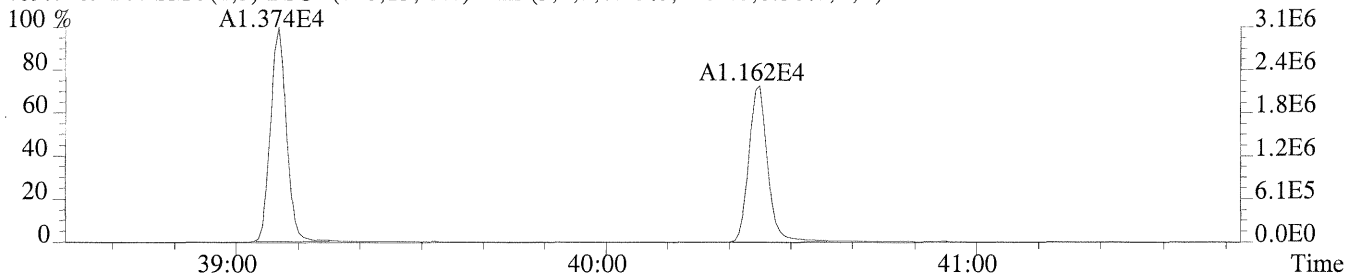


File:P114464 #1-288 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

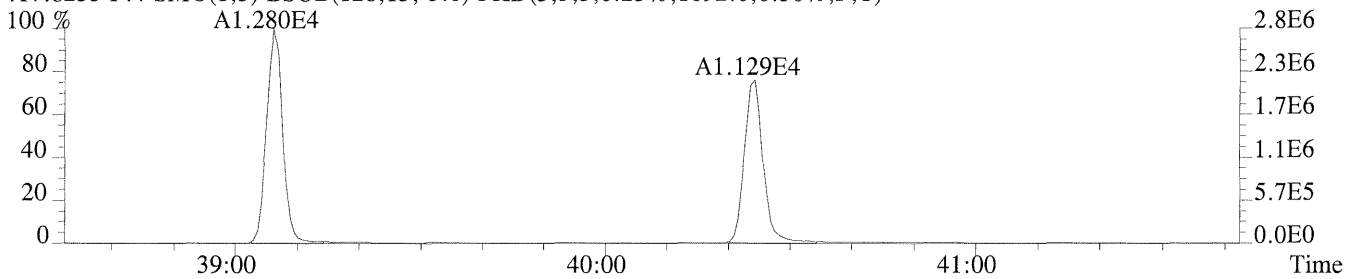
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1940.0,0.50%,F,T)



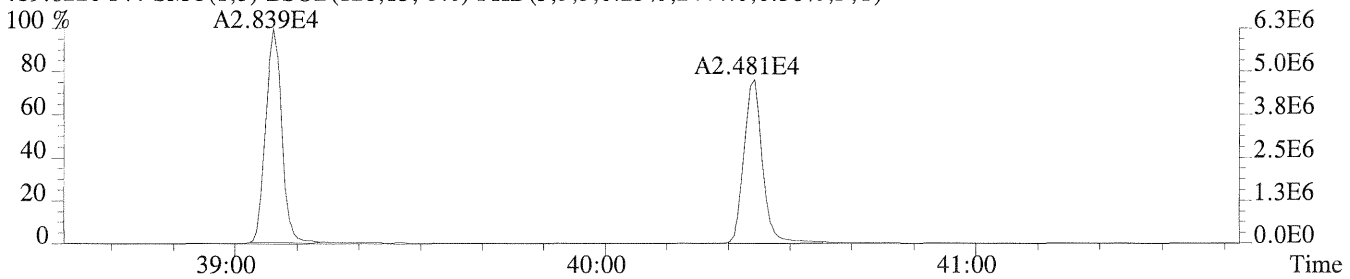
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2184.0,0.50%,F,T)



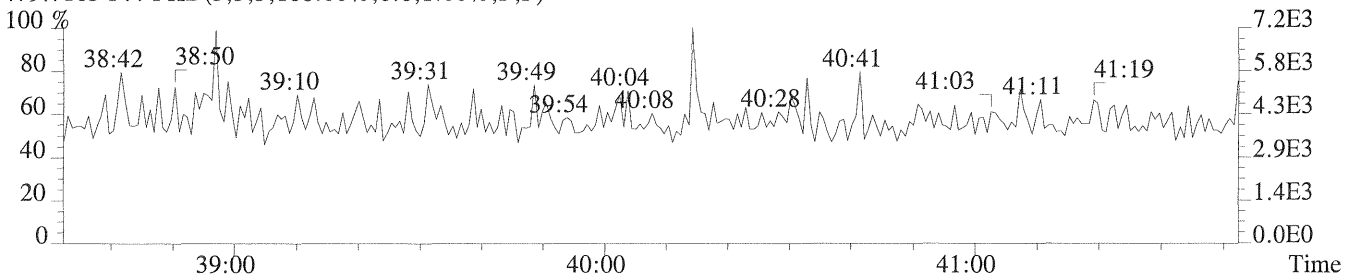
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1692.0,0.50%,F,T)



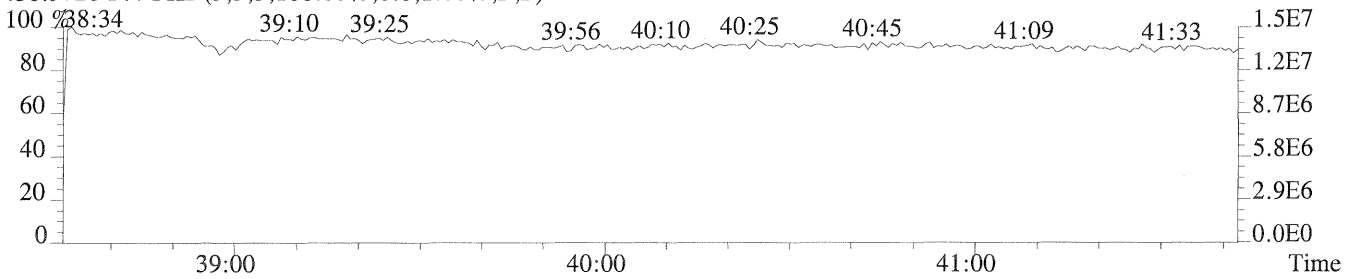
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2444.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

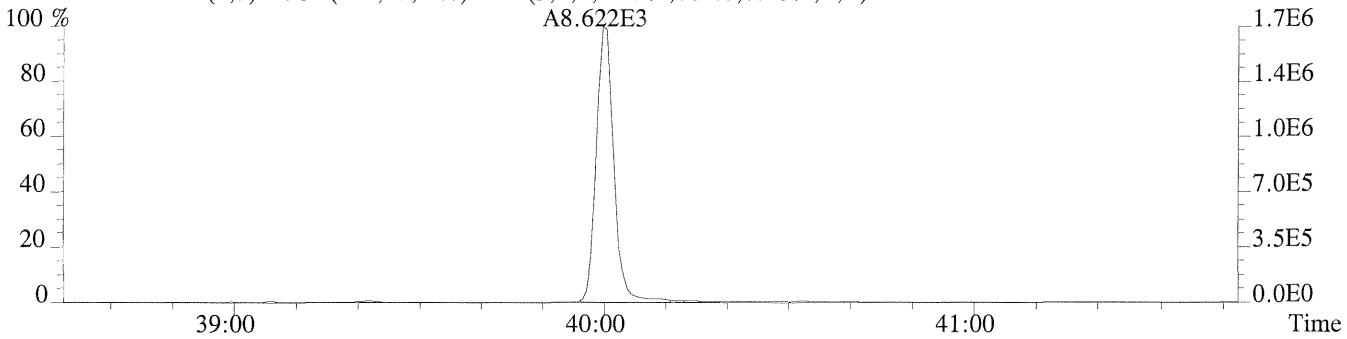


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

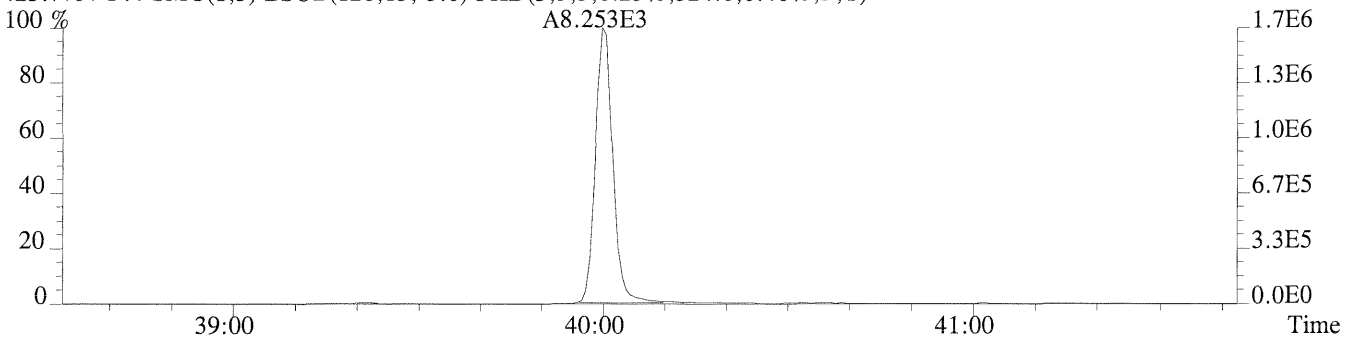


File:P114464 #1-288 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

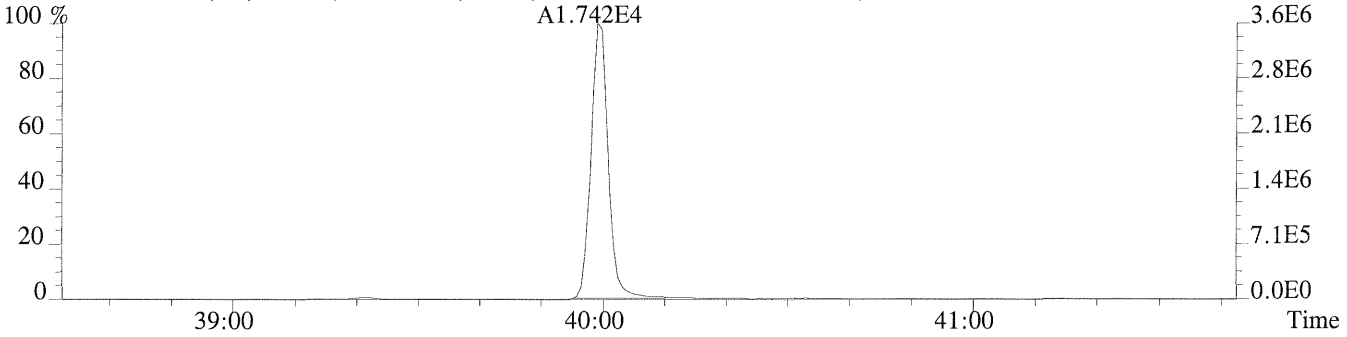
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



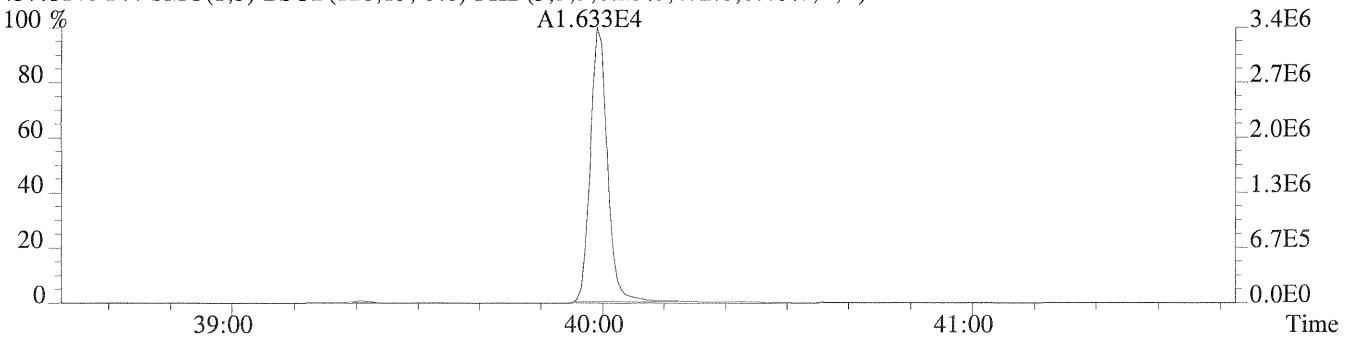
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,524.0,0.40%,F,T)



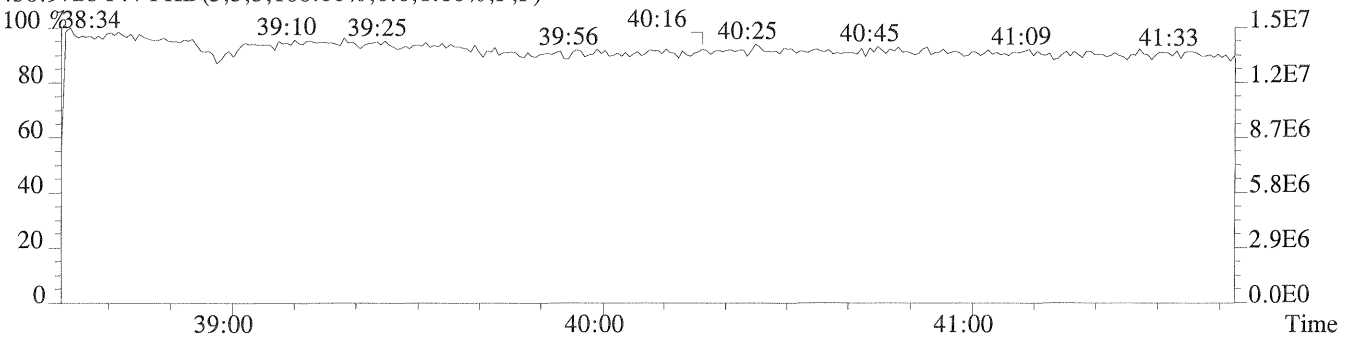
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,716.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,472.0,0.40%,F,T)

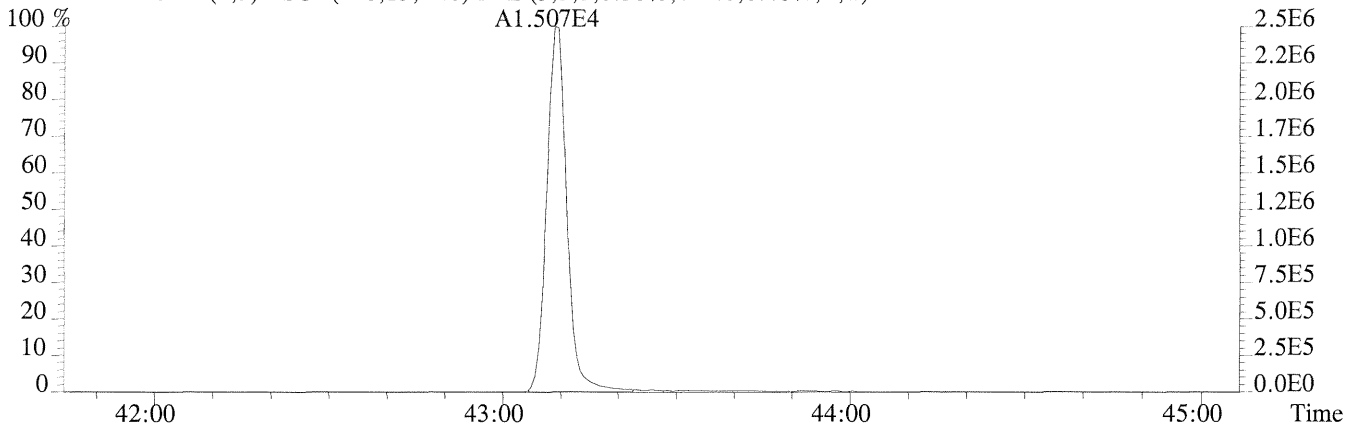


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

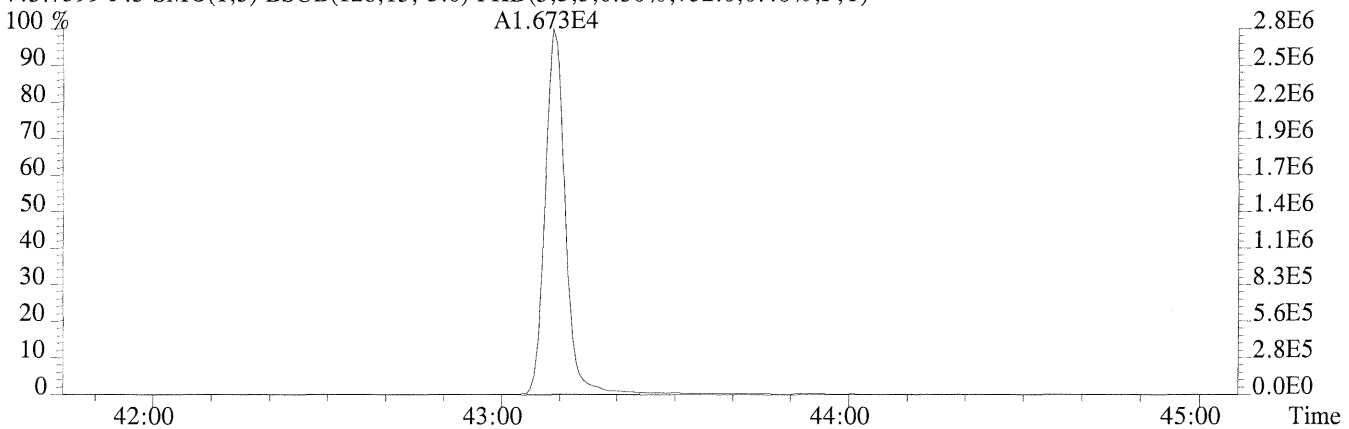


File:P114464 #1-310 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

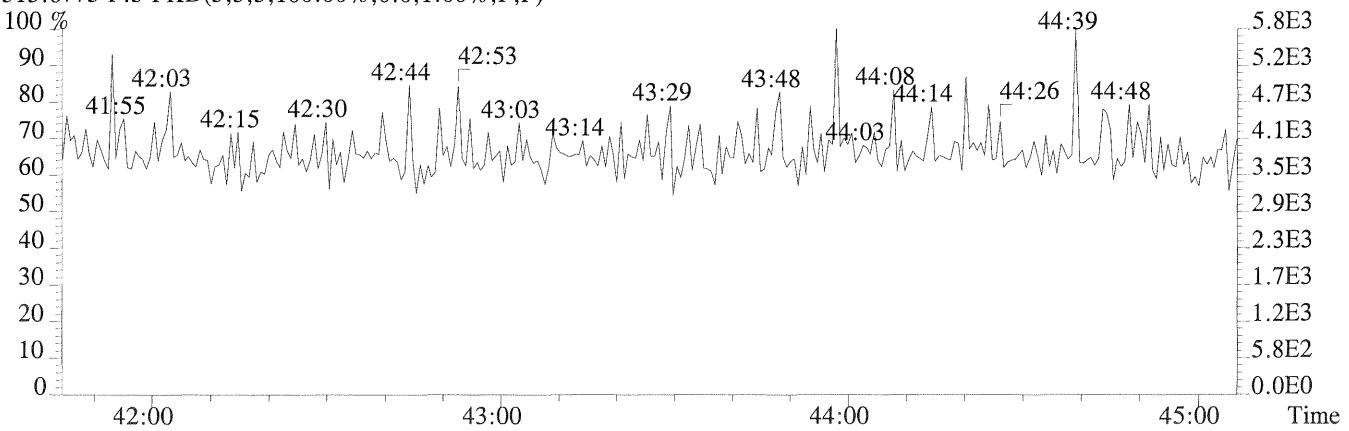
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,612.0,0.40%,F,T)



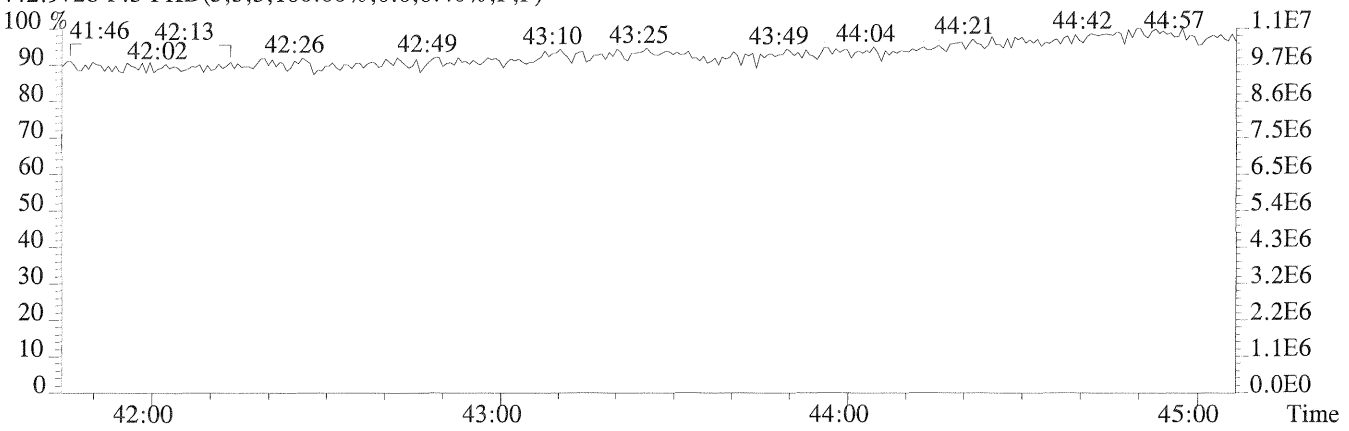
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,732.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

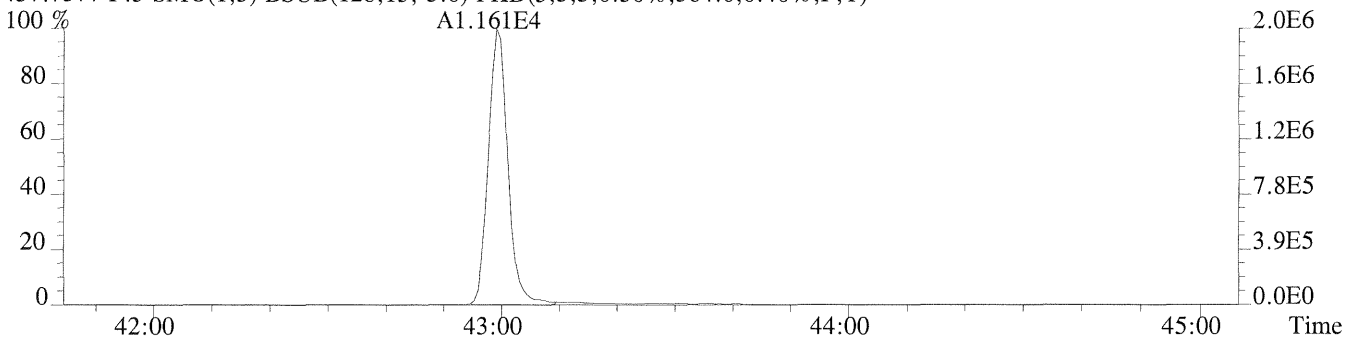


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

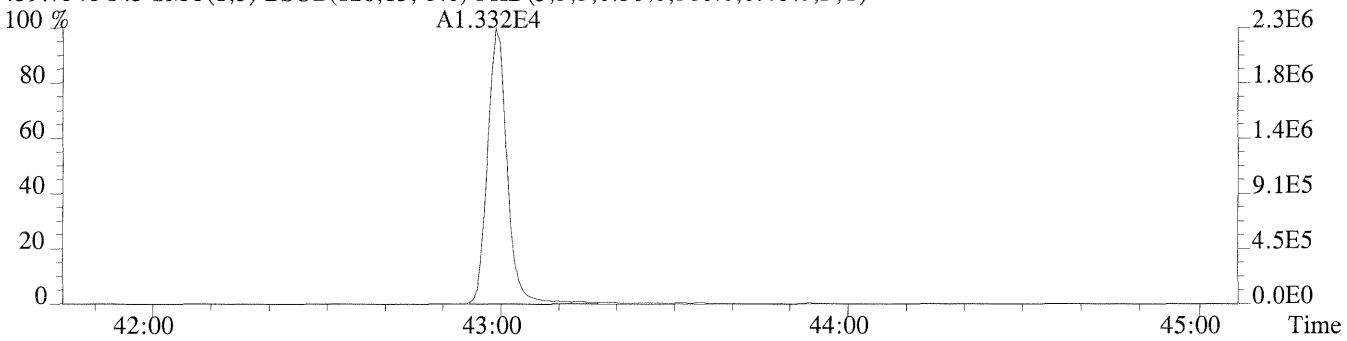


File:P114464 #1-310 Acq:10-JUN-2011 00:07:19 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-02 LCS

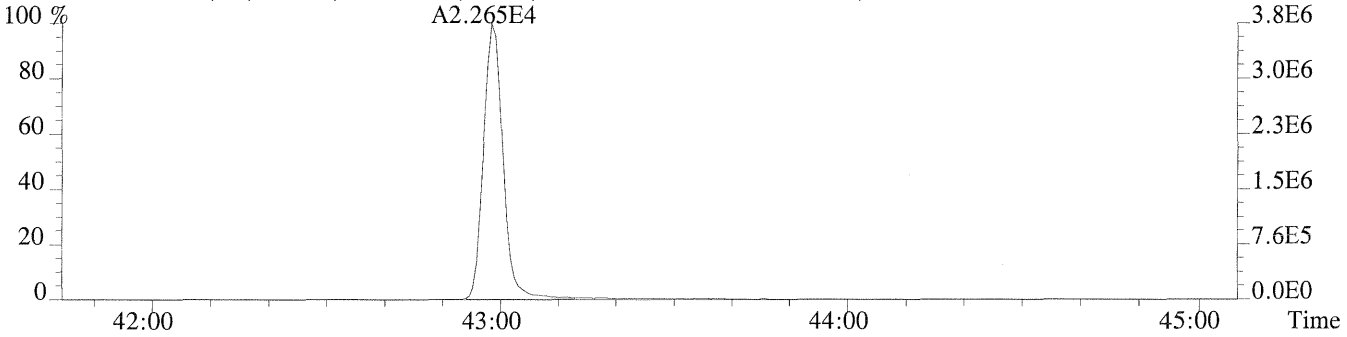
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,384.0,0.40%,F,T)



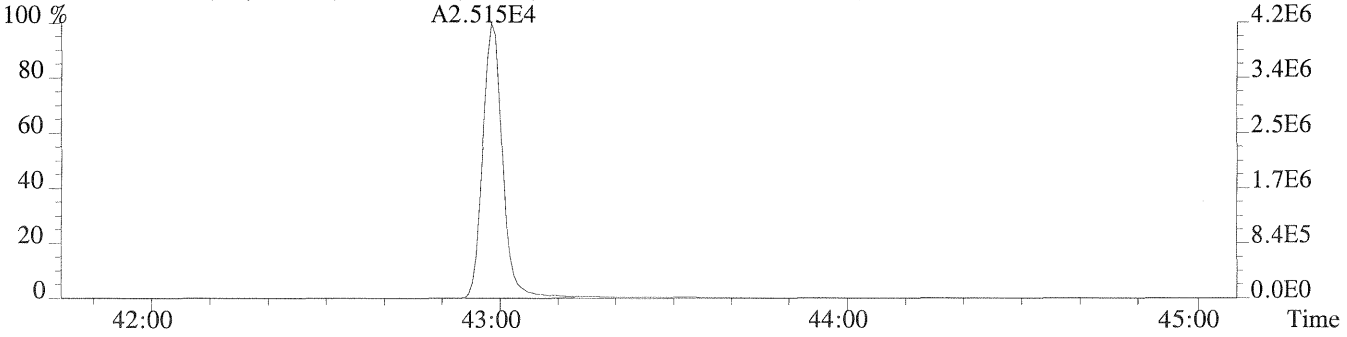
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,588.0,0.40%,F,T)



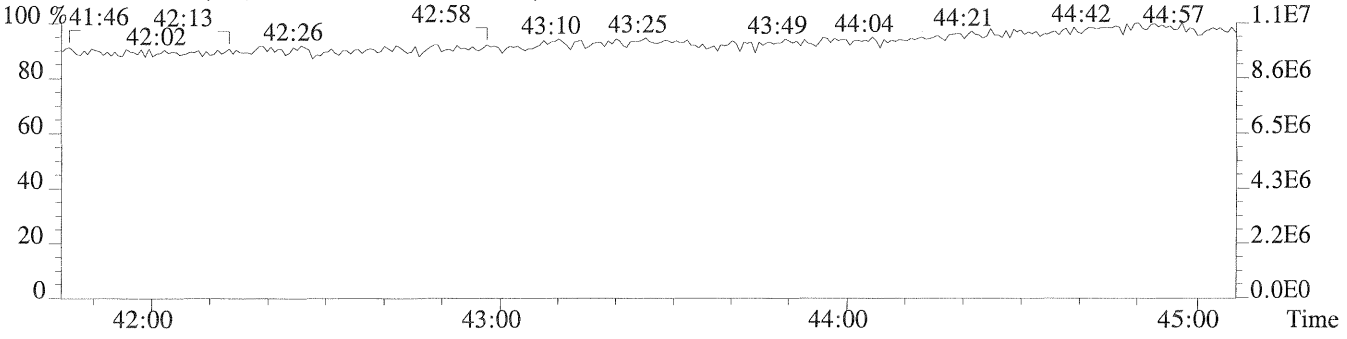
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,580.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,432.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
DLCS

Run #17 Filename P114465 Samp: 1 Inj: 1 Acquired: 10-JUN-11 00:54:59
Processed: 22-JUN-11 12:29:09 Sample ID: EQ1100270-03

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:25	1.820e+03	2.346e+03	0.78	yes	no	0.900
2	Unk	1,2,3,7,8-PeCDF	32:50	1.522e+04	9.661e+03	1.58	yes	no	0.941
3	Unk	2,3,4,7,8-PeCDF	33:34	1.484e+04	9.569e+03	1.55	yes	no	1.028
4	Unk	1,2,3,4,7,8-HxCDF	36:24	1.756e+04	1.425e+04	1.23	yes	no	1.235
5	Unk	1,2,3,6,7,8-HxCDF	36:30	1.865e+04	1.517e+04	1.23	yes	no	1.199
6	Unk	2,3,4,6,7,8-HxCDF	36:59	1.683e+04	1.409e+04	1.19	yes	no	1.147
7	Unk	1,2,3,7,8,9-HxCDF	37:41	1.540e+04	1.205e+04	1.28	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	1.529e+04	1.464e+04	1.04	yes	no	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	40:25	1.297e+04	1.245e+04	1.04	yes	no	1.438
10	Unk	OCDF	43:09	1.558e+04	1.724e+04	0.90	yes	no	1.225
11	Unk	2,3,7,8-TCDD	29:16	1.737e+03	2.206e+03	0.79	yes	no	1.029
12	Unk	1,2,3,7,8-PeCDD	33:56	1.145e+04	7.279e+03	1.57	yes	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	37:06	1.285e+04	1.034e+04	1.24	yes	no	1.110
14	Unk	1,2,3,6,7,8-HxCDD	37:11	1.175e+04	9.221e+03	1.27	yes	no	0.906
15	Unk	1,2,3,7,8,9-HxCDD	37:28	1.165e+04	9.348e+03	1.25	yes	no	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	8.993e+03	8.723e+03	1.03	yes	no	1.001
17	Unk	OCDD	42:59	1.209e+04	1.385e+04	0.87	yes	no	1.058
18	IS	13C-2,3,7,8-TCDF	28:24	2.190e+04	2.719e+04	0.81	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:49	3.761e+04	2.350e+04	1.60	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	3.403e+04	2.102e+04	1.62	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:24	1.880e+04	3.617e+04	0.52	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:30	2.046e+04	3.844e+04	0.53	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	1.906e+04	3.712e+04	0.51	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:40	1.652e+04	3.154e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	1.395e+04	3.069e+04	0.45	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	1.223e+04	2.722e+04	0.45	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:15	2.168e+04	2.768e+04	0.78	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	2.630e+04	1.643e+04	1.60	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	2.644e+04	2.072e+04	1.28	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:10	2.660e+04	2.108e+04	1.26	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	1.907e+04	1.796e+04	1.06	yes	no	0.907
32	IS	13C-OCDD	42:58	2.431e+04	2.700e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	2.748e+04	3.426e+04	0.80	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	3.079e+04	2.438e+04	1.26	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	1.924e+04				no	1.054

Columbia Analytical Services, Inc.
19408 Park Row., Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
DLCS

Run #17 Filename P114465 Samp: 1 Inj: 1 Acquired: 10-JUN-11 00:54:59
Processed: 22-JUN-11 12:29:091 LAB. ID: EQ1100270-03

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.76e+05	5.00e+02	5.5e+02	3.69e+05	6.04e+02	6.1e+02
2	1,2,3,7,8-PeCDF	2.87e+06	5.24e+02	5.5e+03	1.82e+06	8.48e+02	2.2e+03
3	2,3,4,7,8-PeCDF	2.85e+06	5.24e+02	5.4e+03	1.84e+06	8.48e+02	2.2e+03
4	1,2,3,4,7,8-HxCDF	3.91e+06	6.48e+02	6.0e+03	3.13e+06	4.52e+02	6.9e+03
5	1,2,3,6,7,8-HxCDF	3.83e+06	6.48e+02	5.9e+03	3.07e+06	4.52e+02	6.8e+03
6	2,3,4,6,7,8-HxCDF	3.75e+06	6.48e+02	5.8e+03	3.04e+06	4.52e+02	6.7e+03
7	1,2,3,7,8,9-HxCDF	3.21e+06	6.48e+02	5.0e+03	2.50e+06	4.52e+02	5.5e+03
8	1,2,3,4,6,7,8-HpCDF	3.39e+06	1.76e+03	1.9e+03	3.22e+06	1.72e+03	1.9e+03
9	1,2,3,4,7,8,9-HpCDF	2.50e+06	1.76e+03	1.4e+03	2.41e+06	1.72e+03	1.4e+03
10	OCDF	2.63e+06	6.00e+02	4.4e+03	2.95e+06	7.52e+02	3.9e+03
11	2,3,7,8-TCDD	2.87e+05	5.16e+02	5.6e+02	3.61e+05	4.40e+02	8.2e+02
12	1,2,3,7,8-PeCDD	2.24e+06	6.00e+02	3.7e+03	1.43e+06	4.96e+02	2.9e+03
13	1,2,3,4,7,8-HxCDD	2.86e+06	4.64e+02	6.2e+03	2.28e+06	7.76e+02	2.9e+03
14	1,2,3,6,7,8-HxCDD	2.63e+06	4.64e+02	5.7e+03	2.07e+06	7.76e+02	2.7e+03
15	1,2,3,7,8,9-HxCDD	2.56e+06	4.64e+02	5.5e+03	2.06e+06	7.76e+02	2.7e+03
16	1,2,3,4,6,7,8-HpCDD	1.81e+06	5.08e+02	3.6e+03	1.77e+06	4.40e+02	4.0e+03
17	OCDD	2.08e+06	5.16e+02	4.0e+03	2.38e+06	4.88e+02	4.9e+03
18	13C-2,3,7,8-TCDF	3.39e+06	6.04e+02	5.6e+03	4.22e+06	6.84e+02	6.2e+03
19	13C-1,2,3,7,8-PeCDF	6.93e+06	4.32e+02	1.6e+04	4.32e+06	6.44e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	6.64e+06	4.32e+02	1.5e+04	4.21e+06	6.44e+02	6.5e+03
21	13C-1,2,3,4,7,8-HxCDF	4.14e+06	5.44e+02	7.6e+03	7.89e+06	6.32e+02	1.2e+04
22	13C-1,2,3,6,7,8-HxCDF	4.24e+06	5.44e+02	7.8e+03	7.89e+06	6.32e+02	1.2e+04
23	13C-2,3,4,6,7,8-HxCDF	4.22e+06	5.44e+02	7.8e+03	8.06e+06	6.32e+02	1.3e+04
24	13C-1,2,3,7,8,9-HxCDF	3.33e+06	5.44e+02	6.1e+03	6.48e+06	6.32e+02	1.0e+04
25	13C-1,2,3,4,6,7,8-HpCDF	3.11e+06	1.53e+03	2.0e+03	6.81e+06	3.18e+03	2.1e+03
26	13C-1,2,3,4,7,8,9-HpCDF	2.37e+06	1.53e+03	1.5e+03	5.26e+06	3.18e+03	1.7e+03
27	13C-2,3,7,8-TCDD	3.56e+06	2.02e+03	1.8e+03	4.53e+06	6.44e+02	7.0e+03
28	13C-1,2,3,7,8-PeCDD	4.98e+06	6.20e+02	8.0e+03	3.15e+06	4.24e+02	7.4e+03
29	13C-1,2,3,4,7,8-HxCDD	5.89e+06	6.56e+02	9.0e+03	4.60e+06	6.40e+02	7.2e+03
30	13C-1,2,3,6,7,8-HxCDD	5.89e+06	6.56e+02	9.0e+03	4.69e+06	6.40e+02	7.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.91e+06	6.00e+02	6.5e+03	3.66e+06	3.20e+02	1.1e+04
32	13C-OCDD	4.17e+06	5.32e+02	7.8e+03	4.60e+06	5.64e+02	8.2e+03
33	13C-1,2,3,4-TCDD	4.74e+06	2.02e+03	2.3e+03	5.95e+06	6.44e+02	9.2e+03
34	13C-1,2,3,7,8,9-HxCDD	6.72e+06	6.56e+02	1.0e+04	5.30e+06	6.40e+02	8.3e+03
35	37Cl-2,3,7,8-TCDD	3.19e+06	8.68e+02	3.7e+03			

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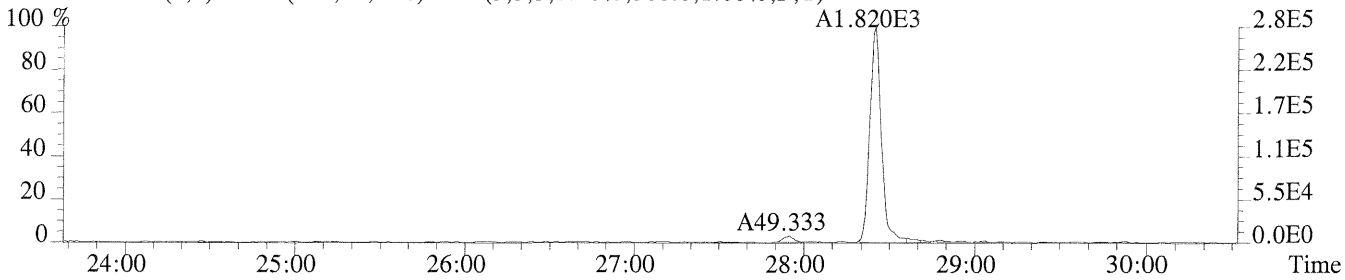
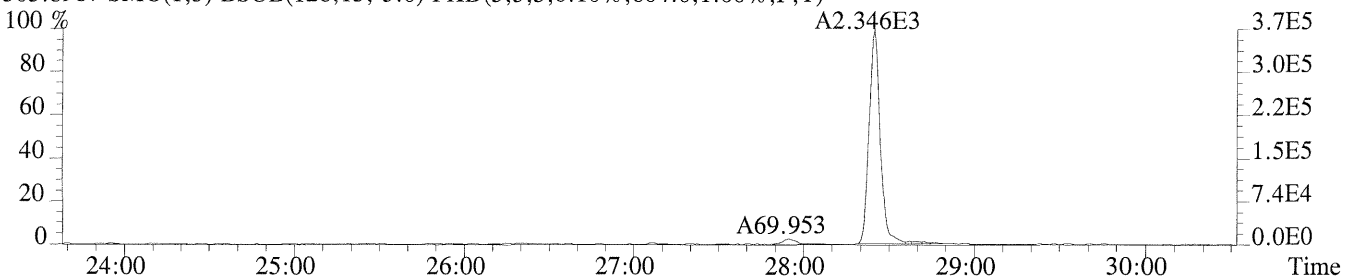
File:P114465 #1-575 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

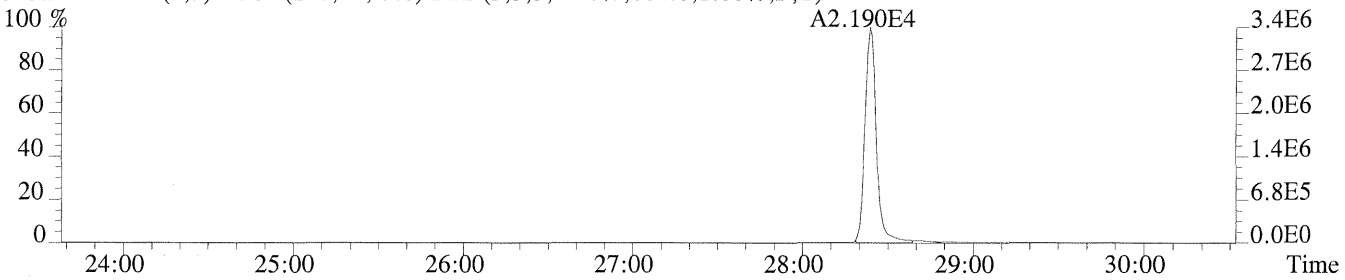
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,500.0,1.00%,F,T)



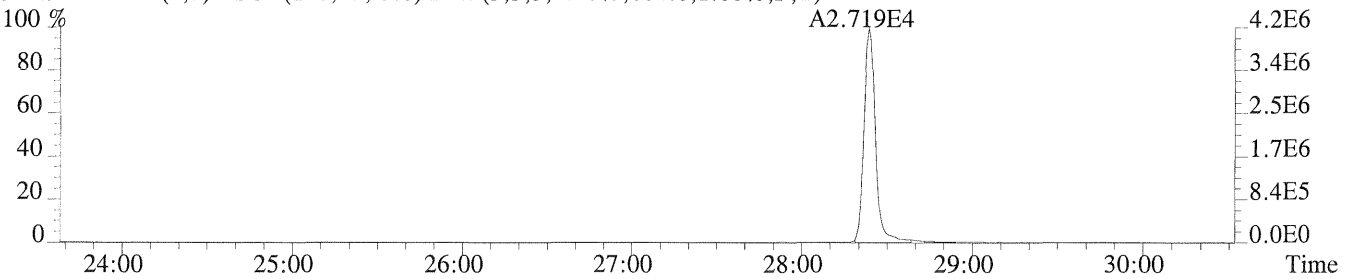
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



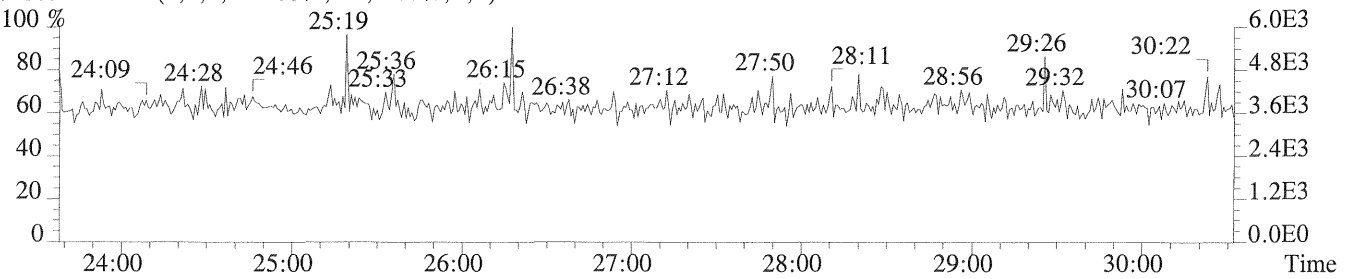
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



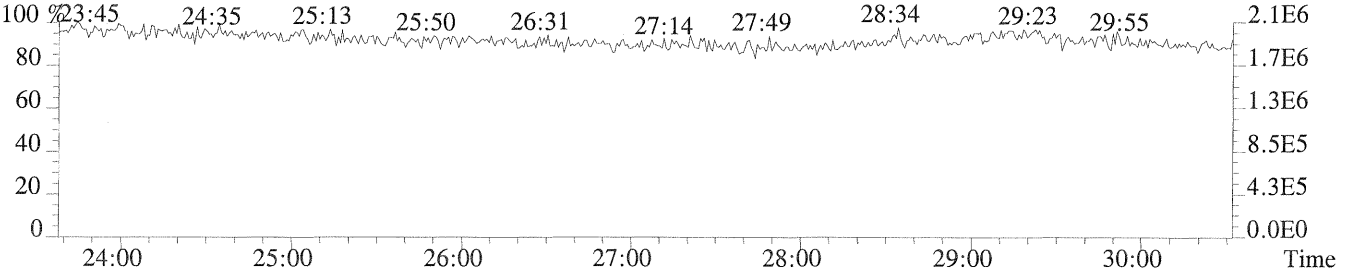
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

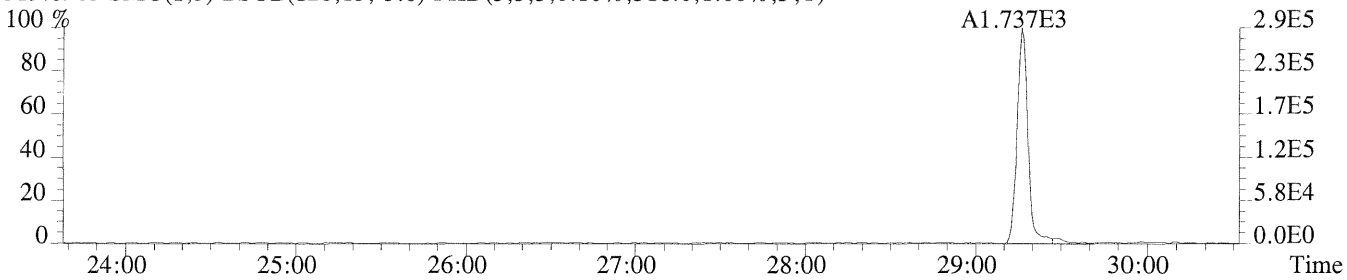


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

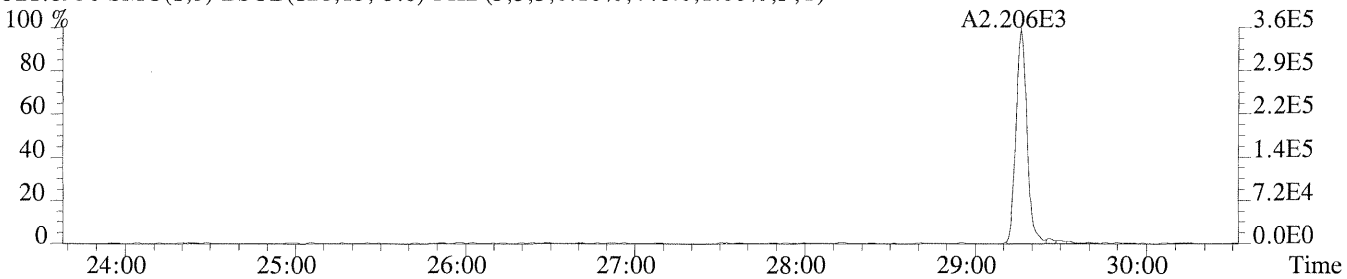


File:P114465 #1-575 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

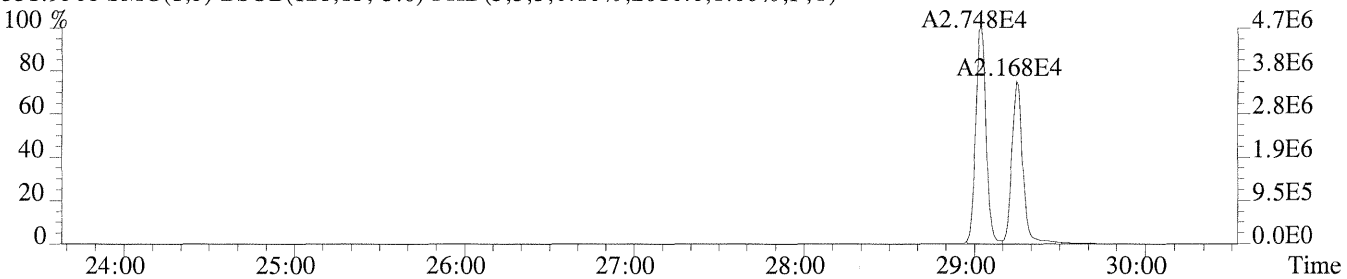
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



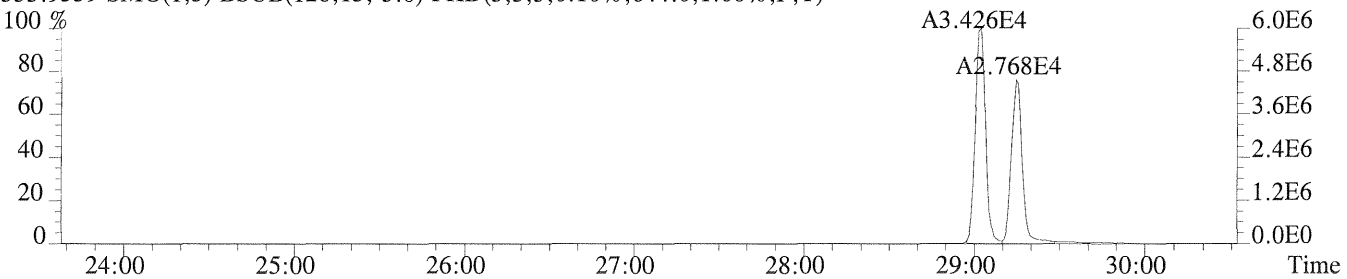
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)



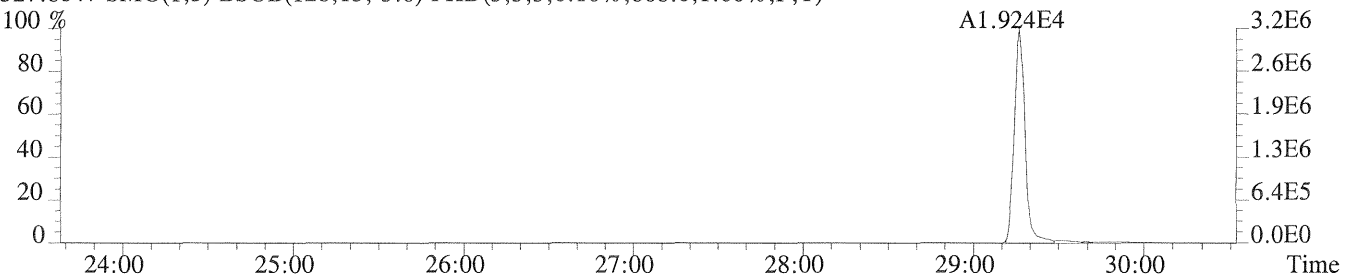
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2016.0,1.00%,F,T)



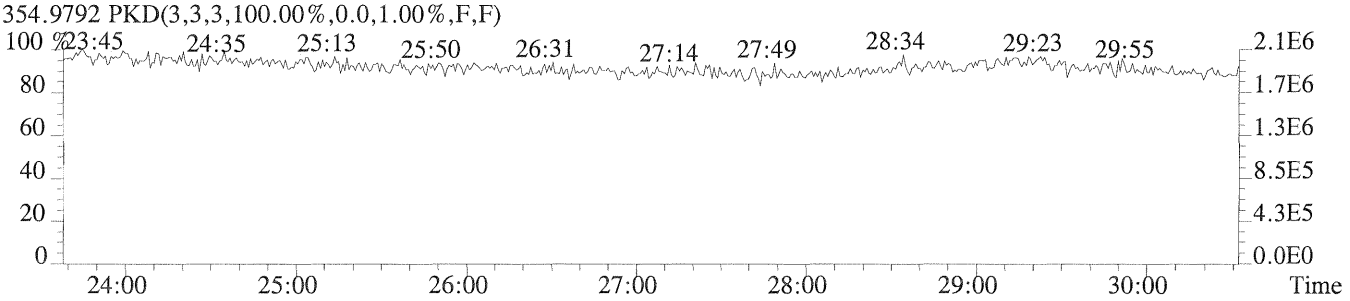
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)

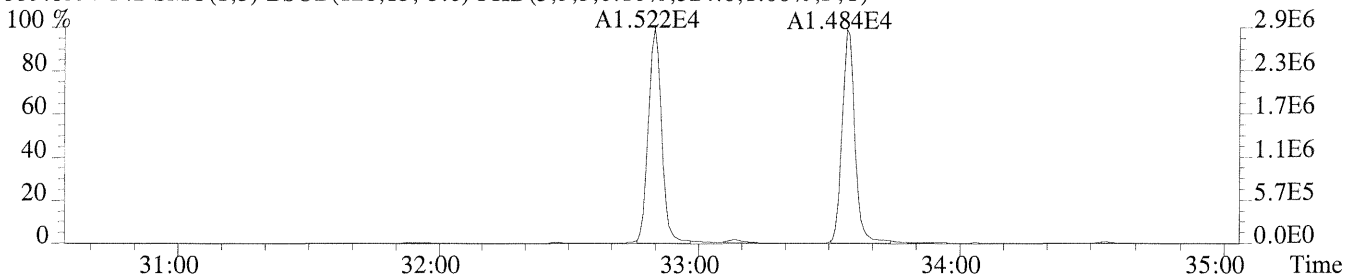


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

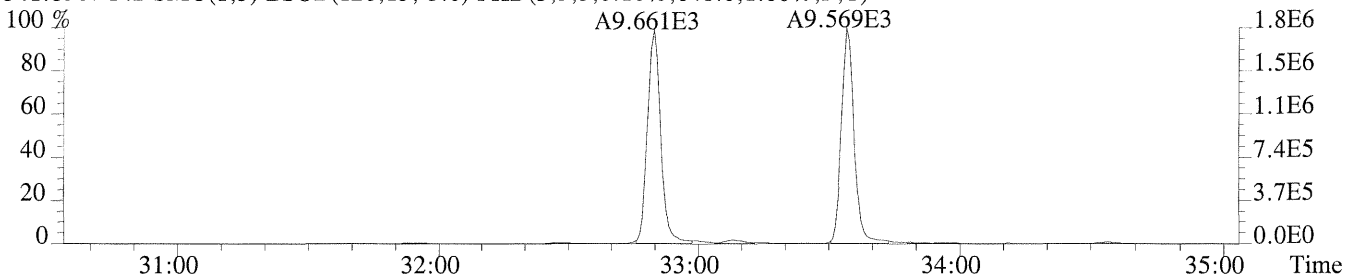


File:P114465 #1-408 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

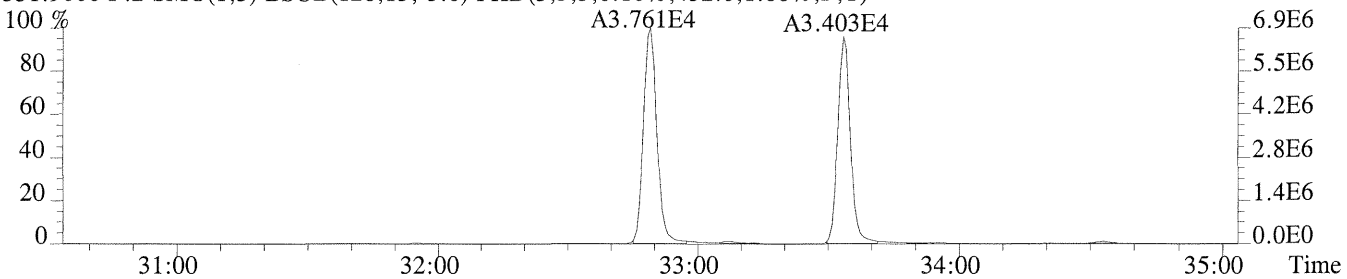
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



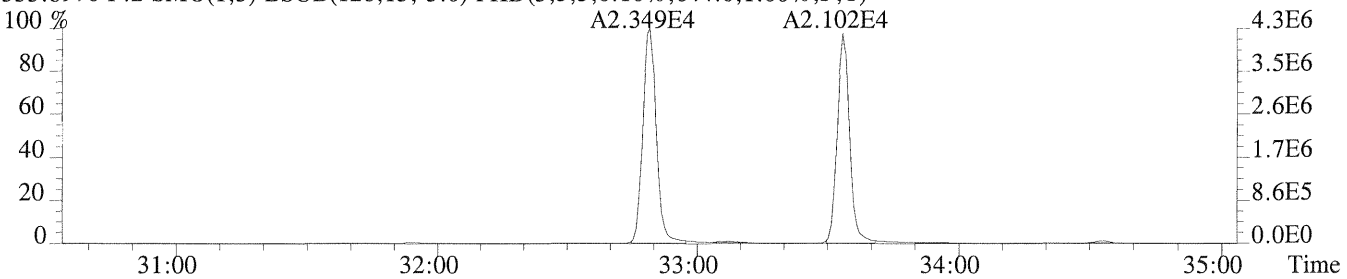
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



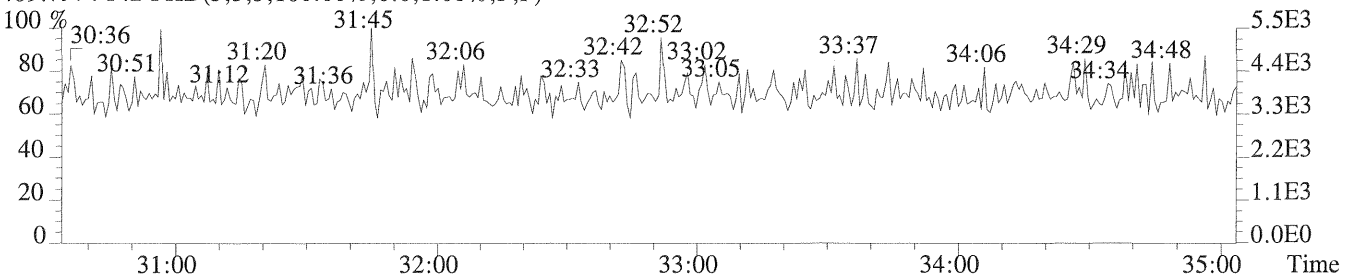
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,432.0,1.00%,F,T)



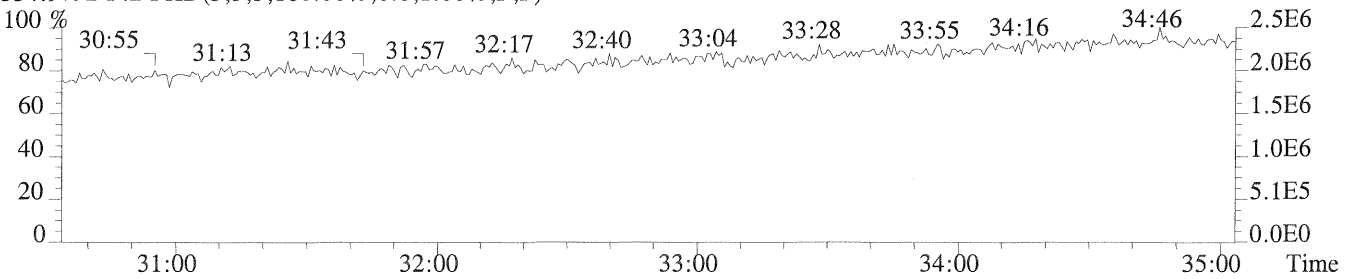
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

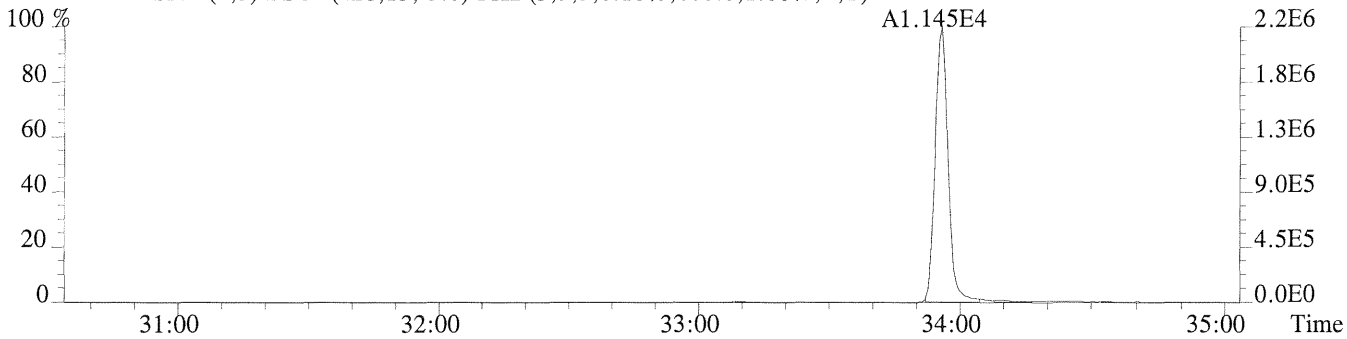


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

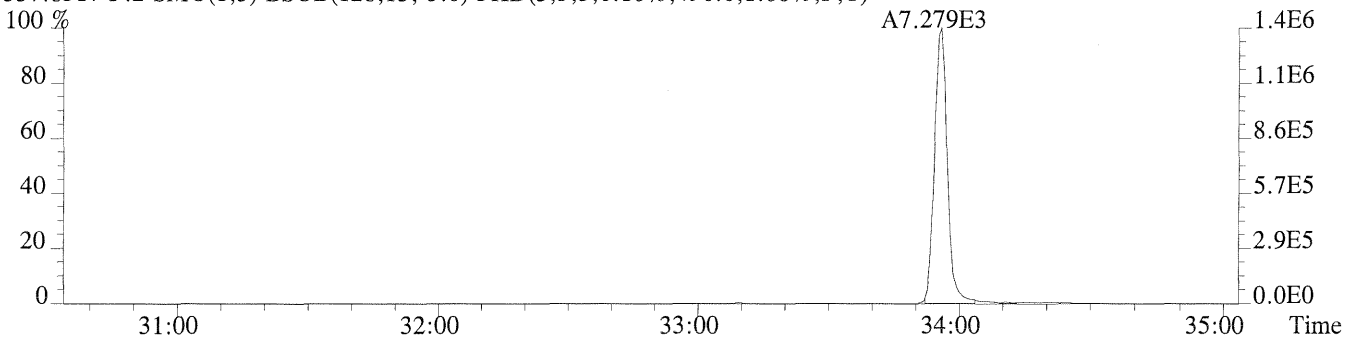


File:P114465 #1-408 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

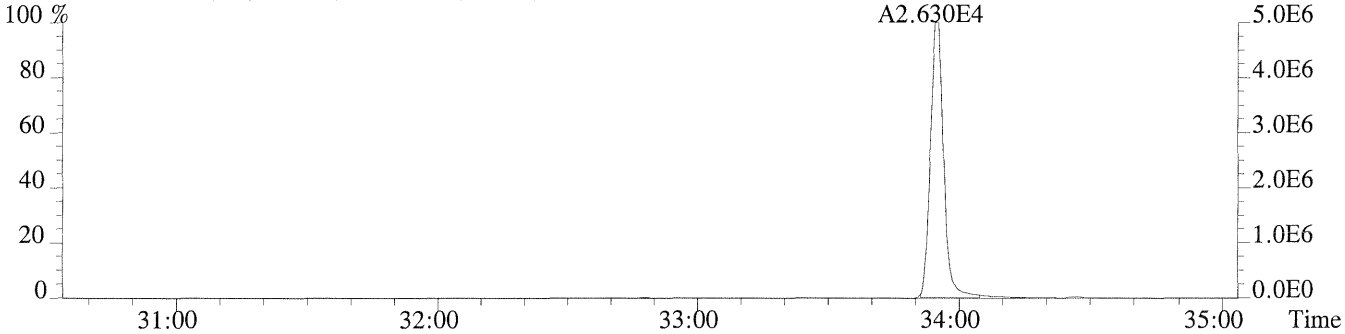
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,600.0,1.00%,F,T)



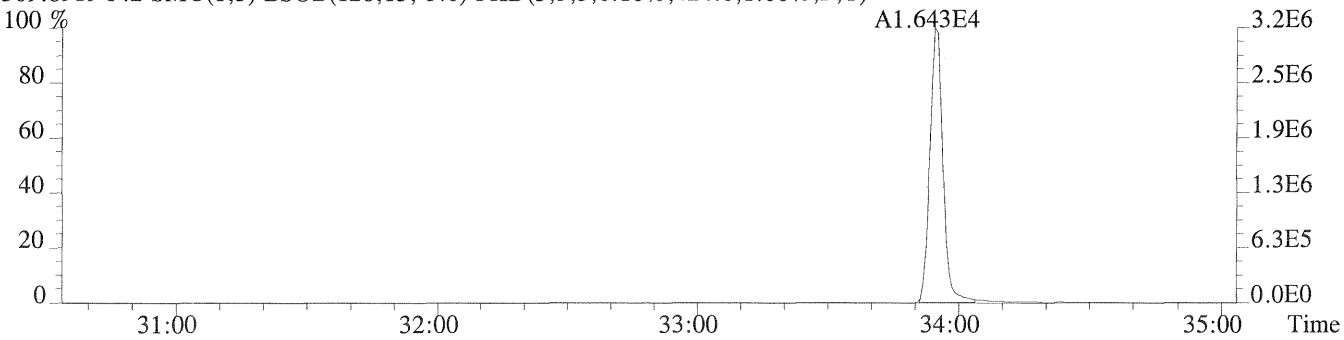
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,496.0,1.00%,F,T)



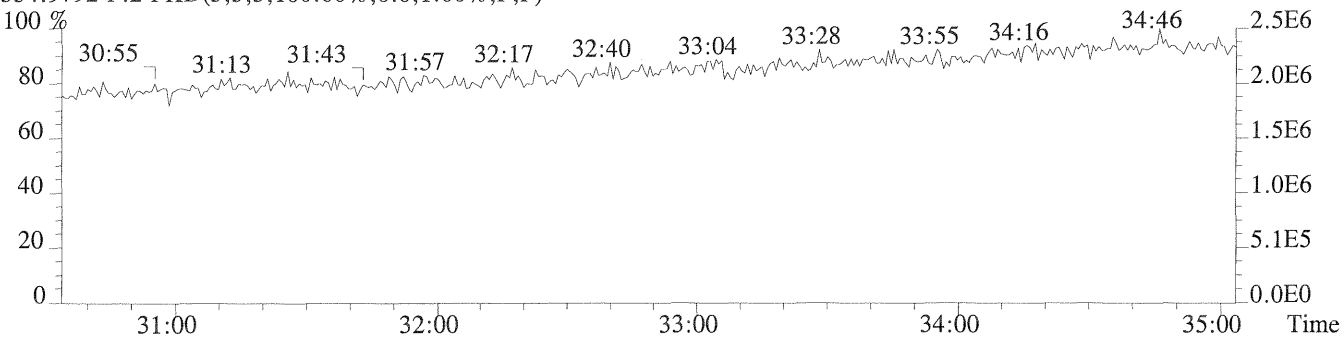
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)

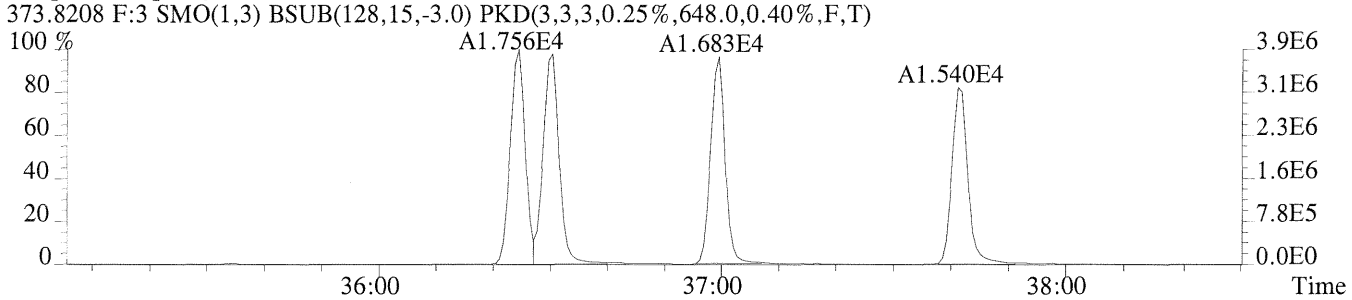


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

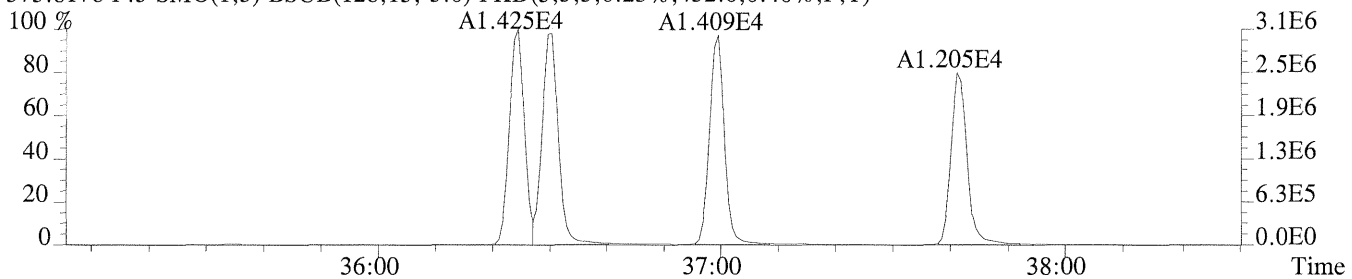


File:P114465 #1-310 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

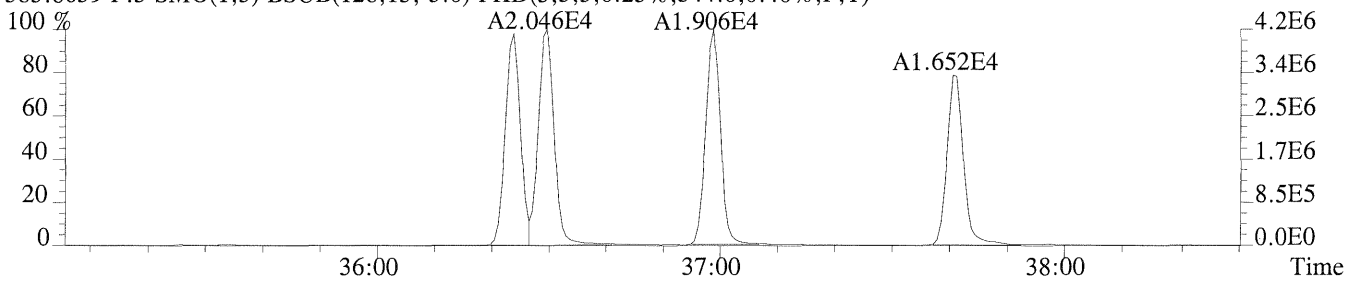
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,648.0,0.40%,F,T)



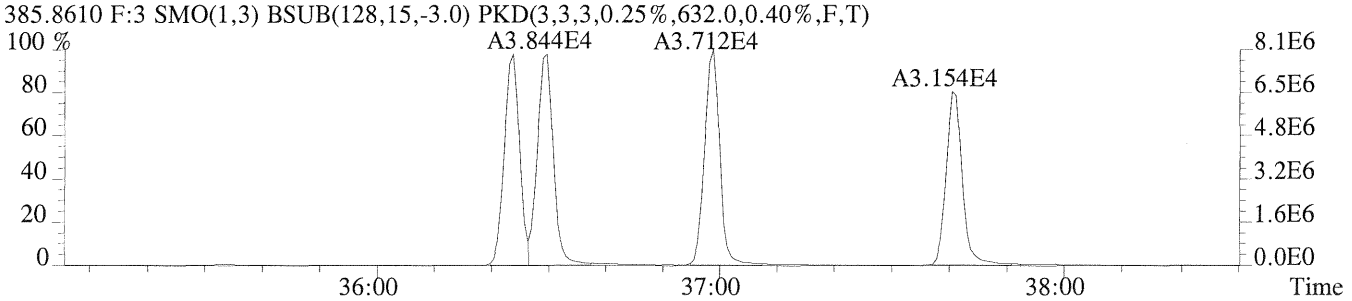
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,452.0,0.40%,F,T)



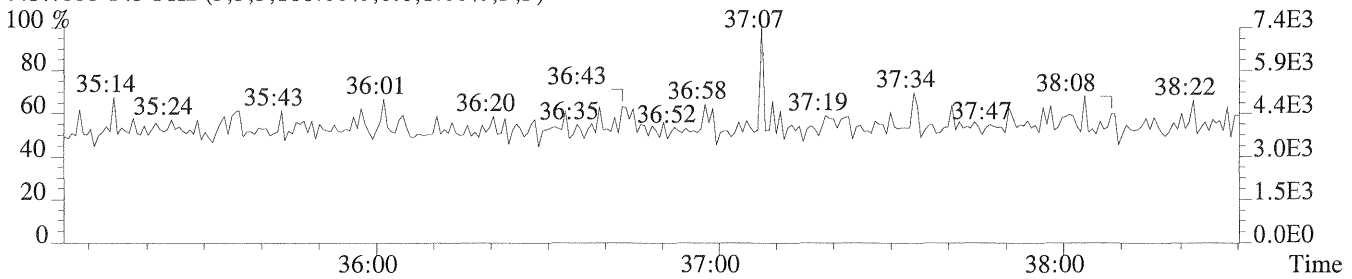
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,544.0,0.40%,F,T)



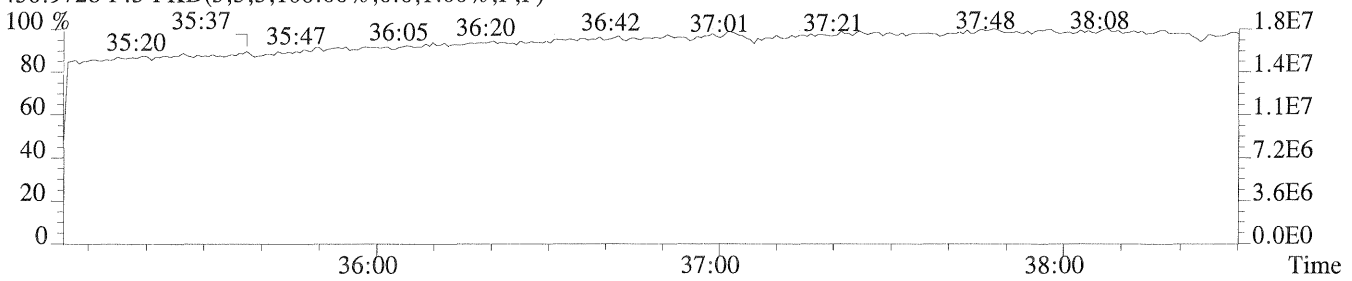
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,632.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

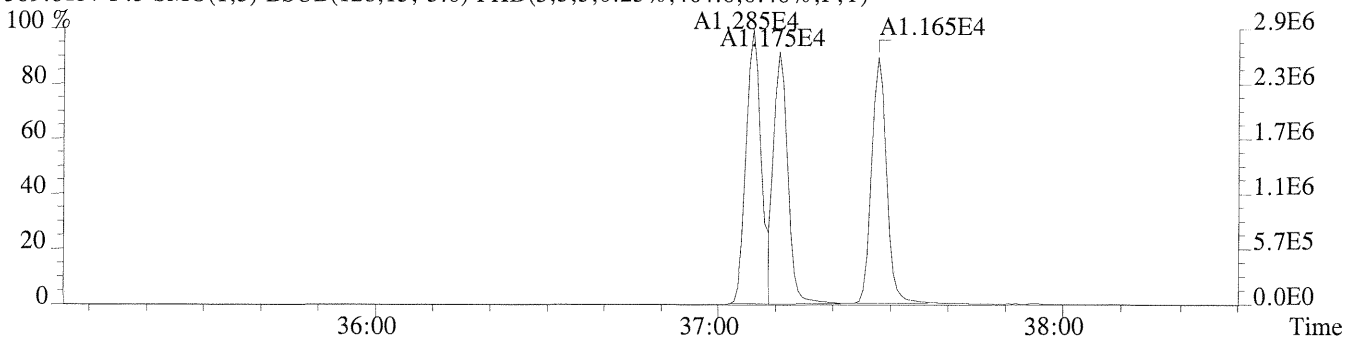


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

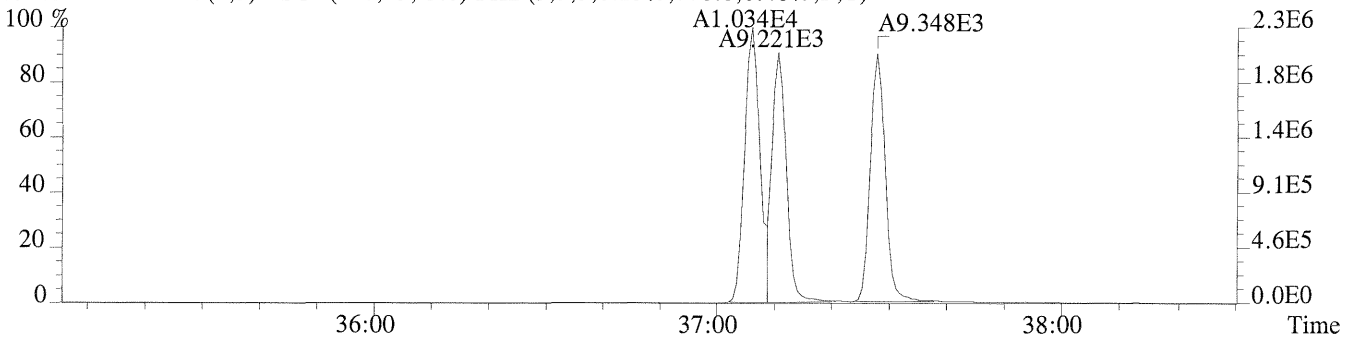


File:P114465 #1-310 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

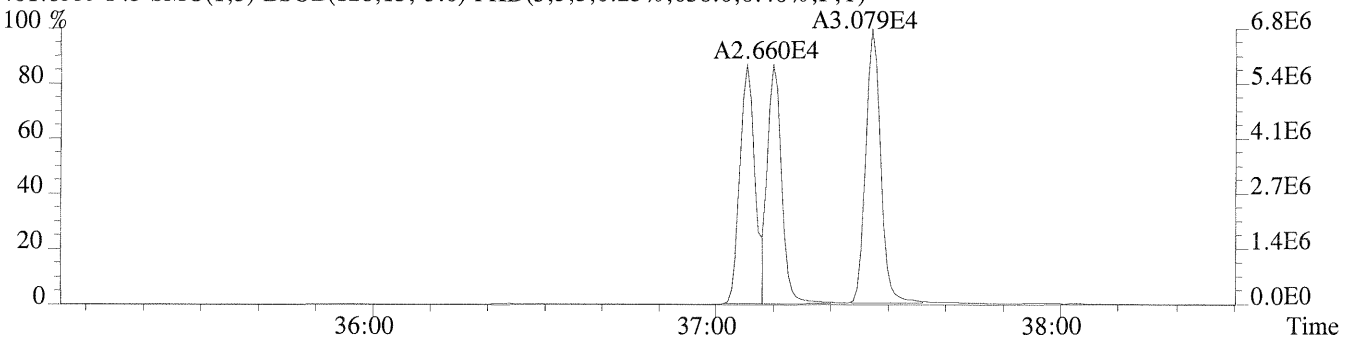
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,464.0,0.40%,F,T)



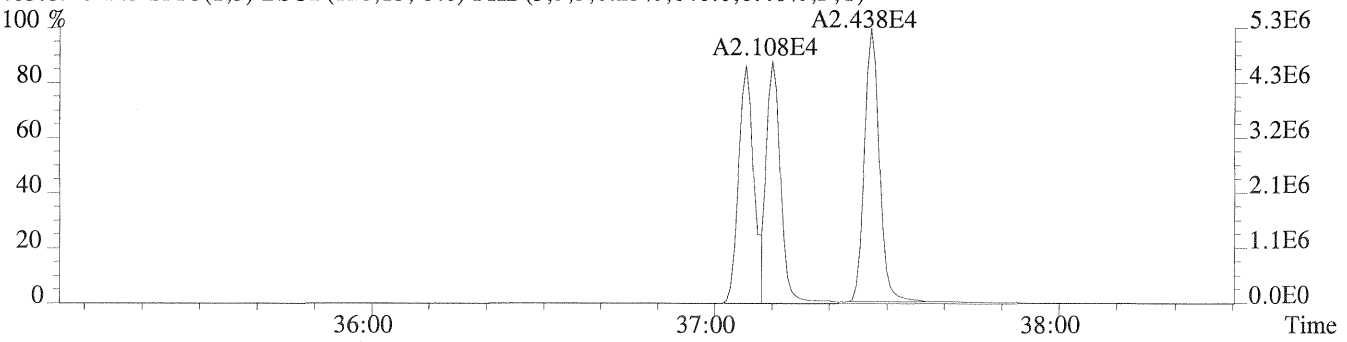
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



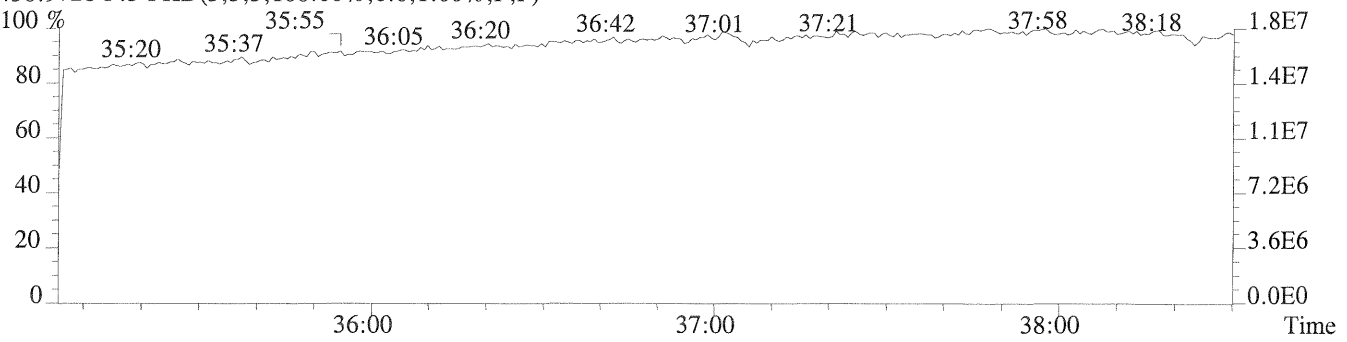
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,656.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)

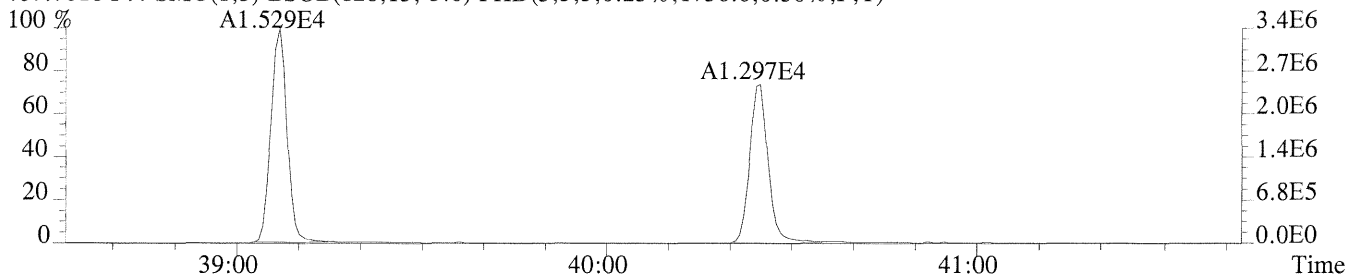


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

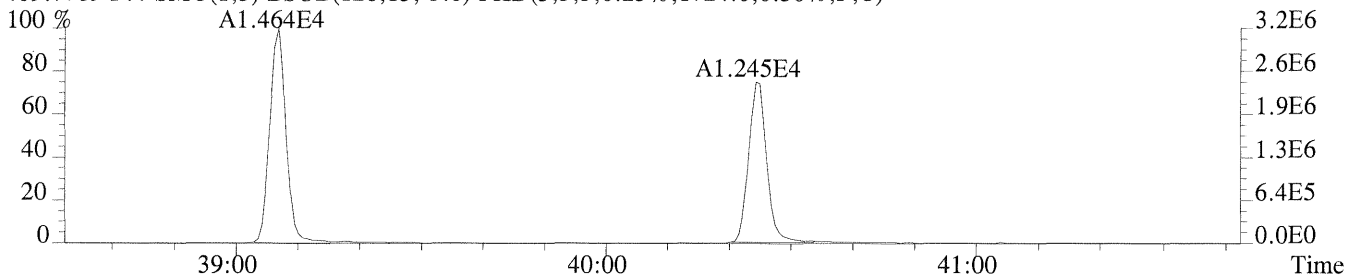


File:P114465 #1-288 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

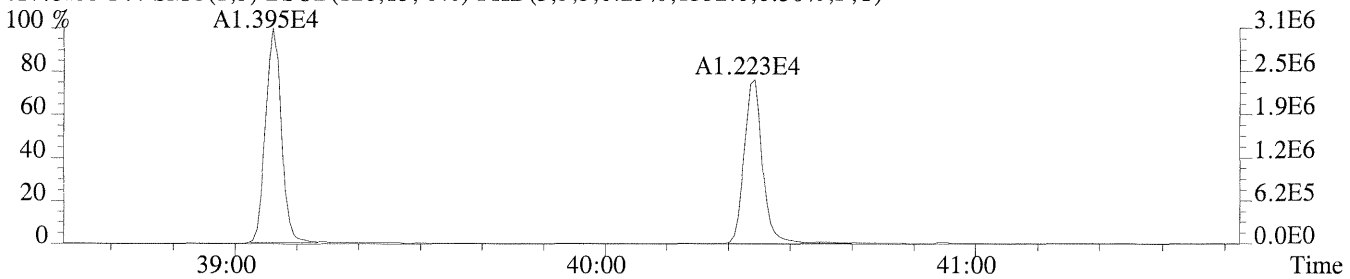
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.50%,F,T)



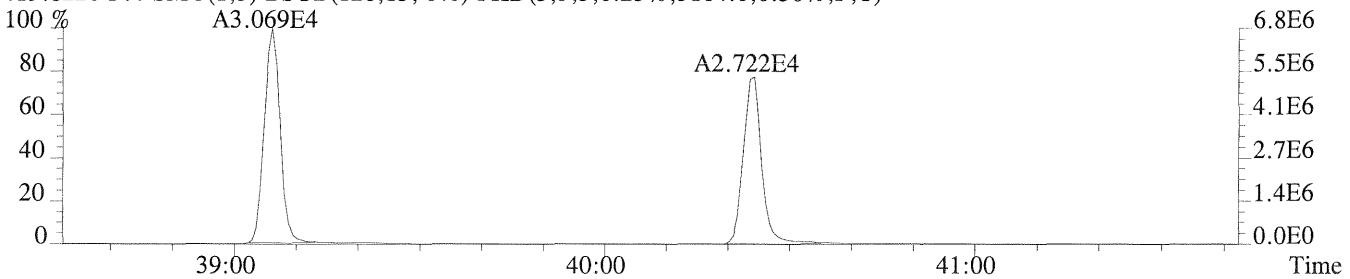
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.50%,F,T)



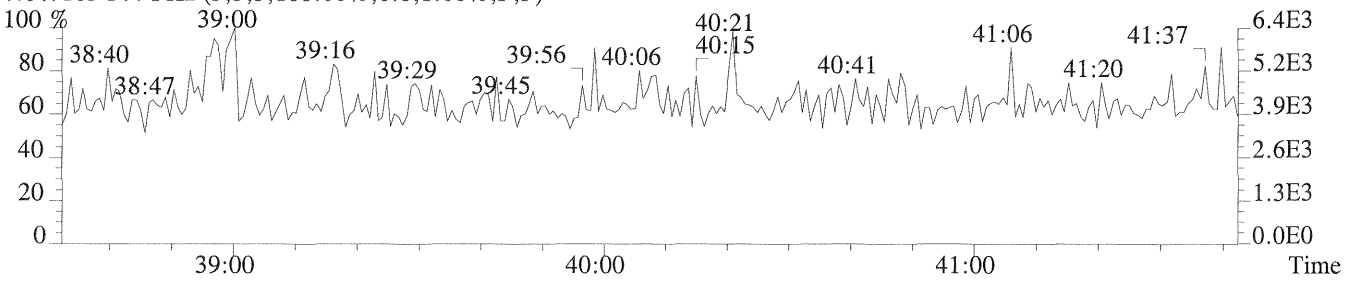
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1532.0,0.50%,F,T)



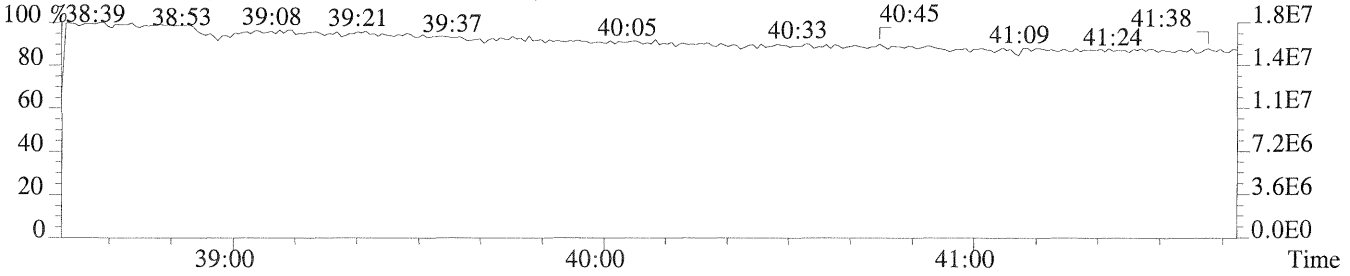
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3184.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

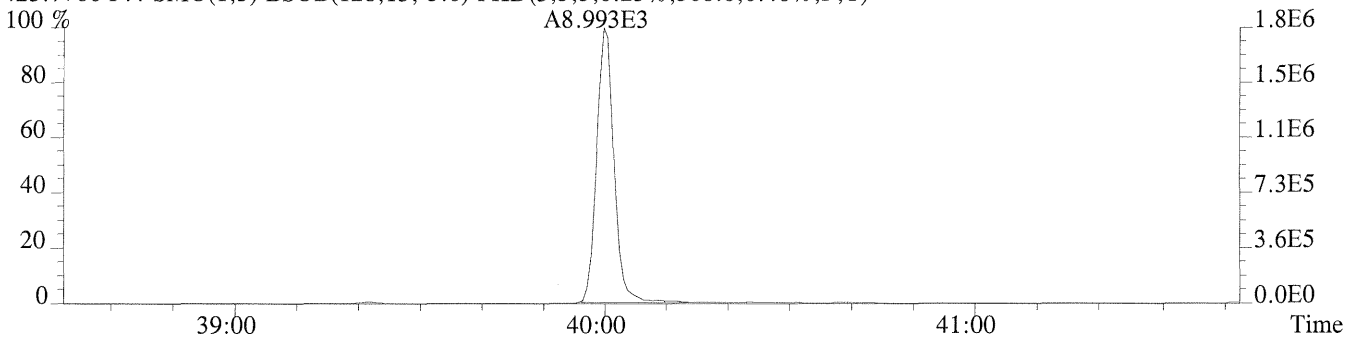


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

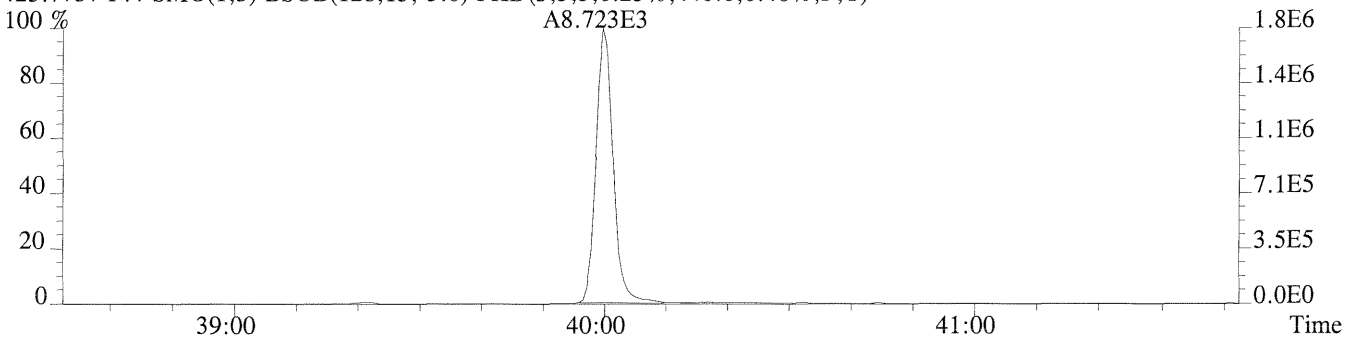


File:P114465 #1-288 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

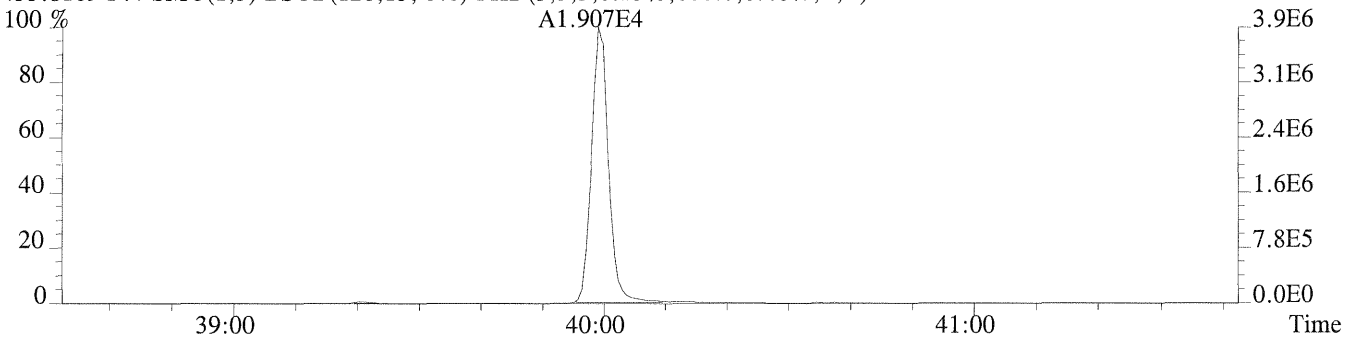
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,508.0,0.40%,F,T)



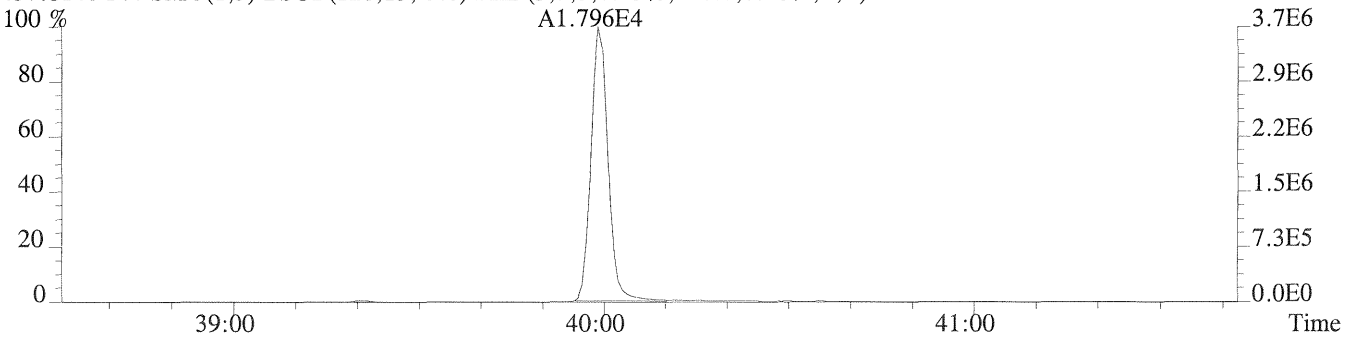
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,440.0,0.40%,F,T)



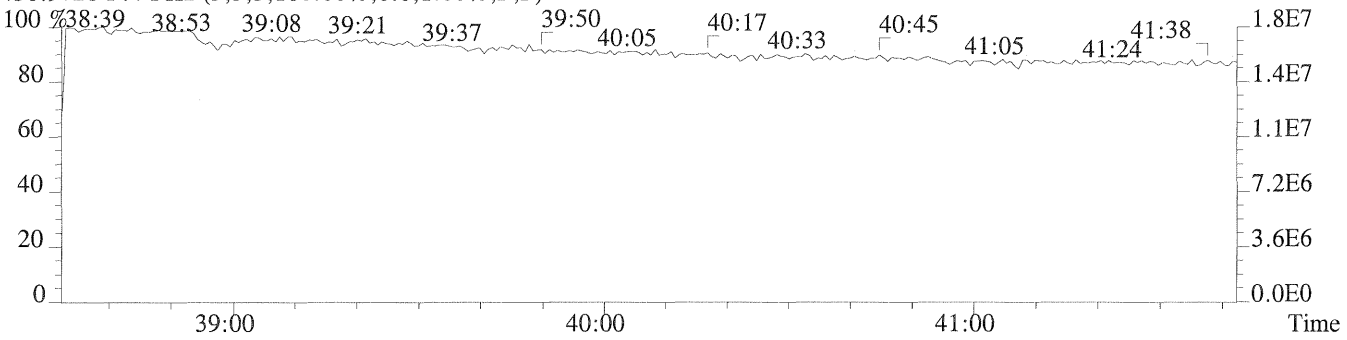
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,600.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,320.0,0.40%,F,T)

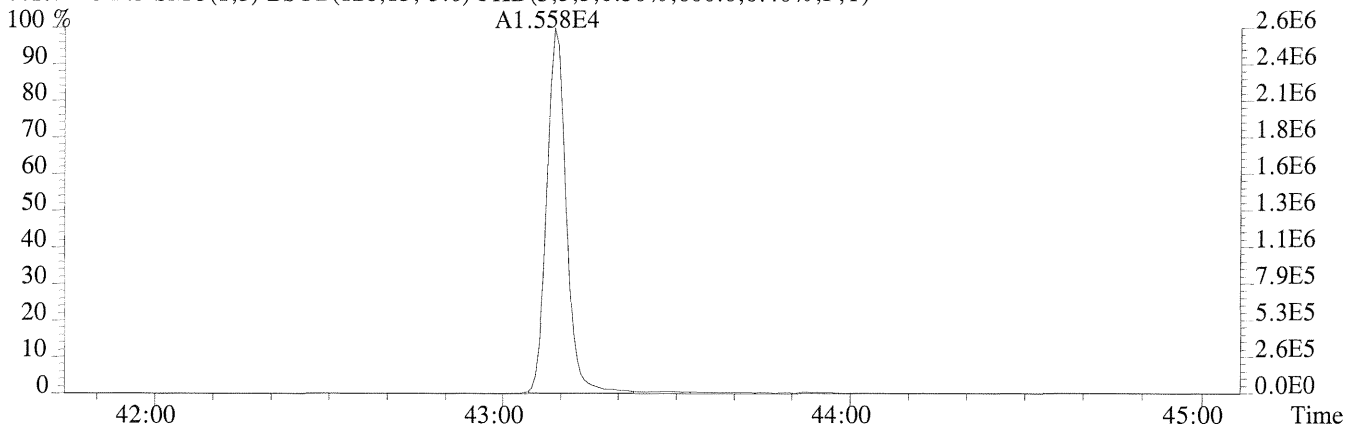


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

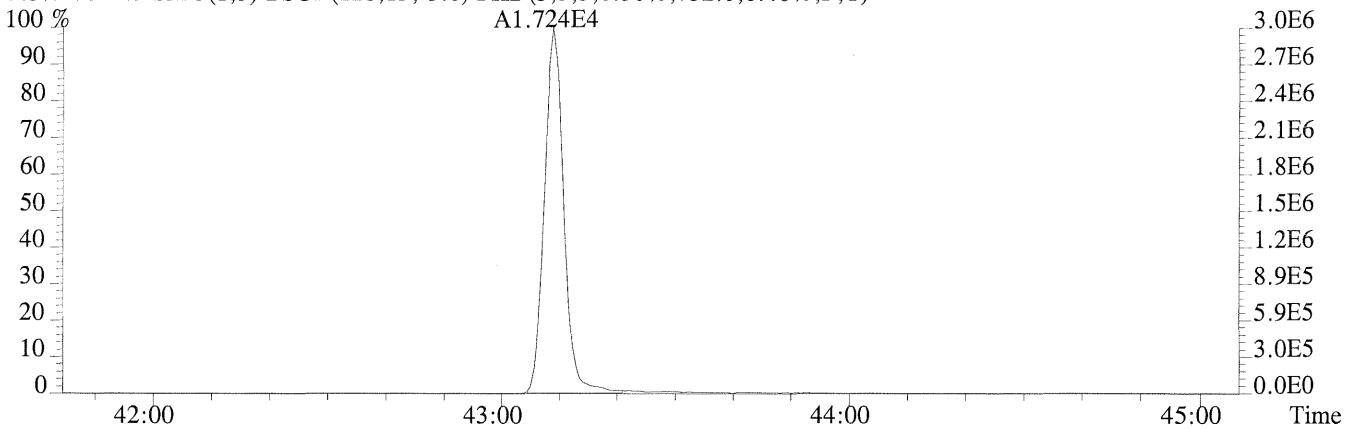


File:P114465 #1-310 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

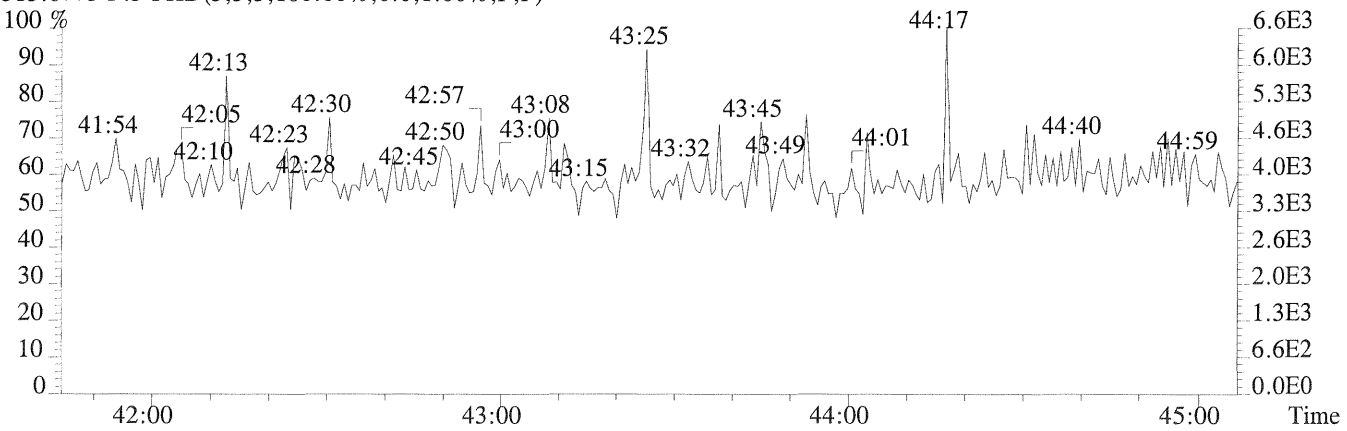
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,600.0,0.40%,F,T)



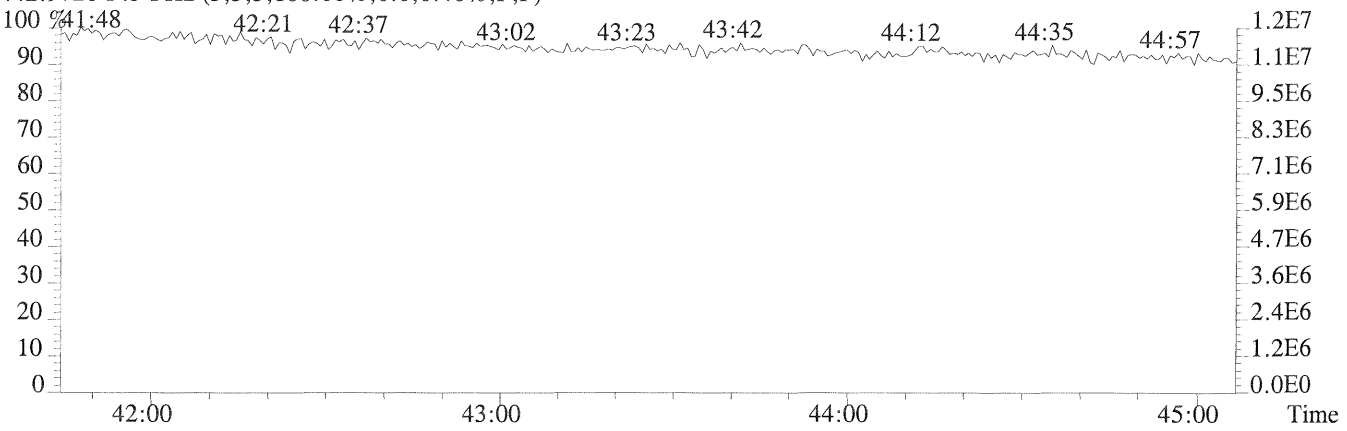
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,752.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

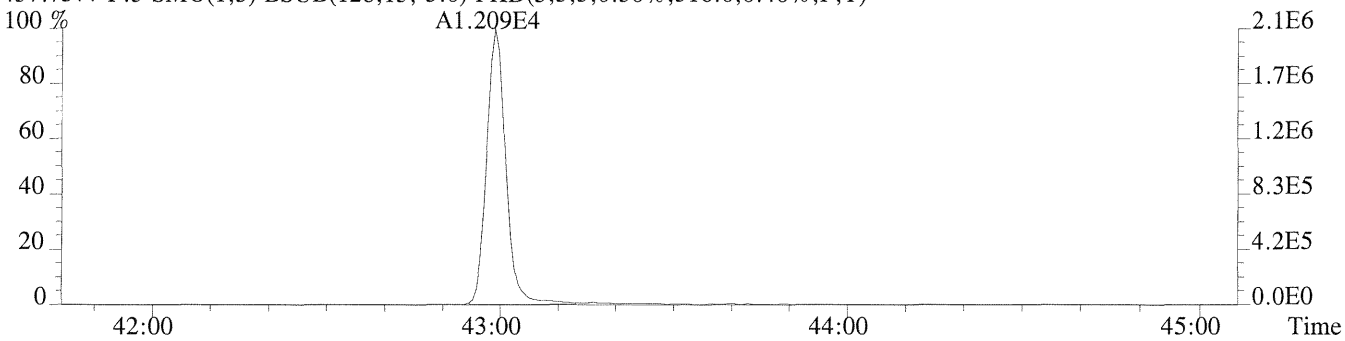


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

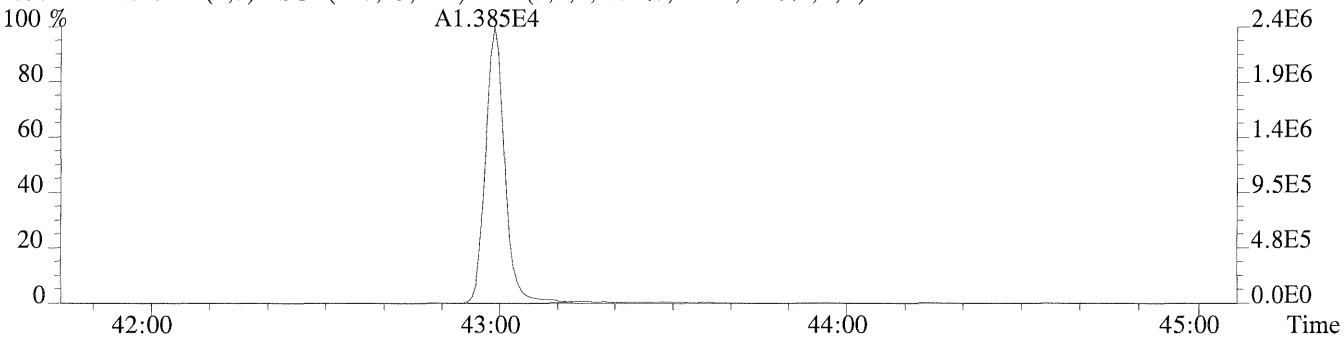


File:P114465 #1-310 Acq:10-JUN-2011 00:54:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:EQ1100270-03 DLCS

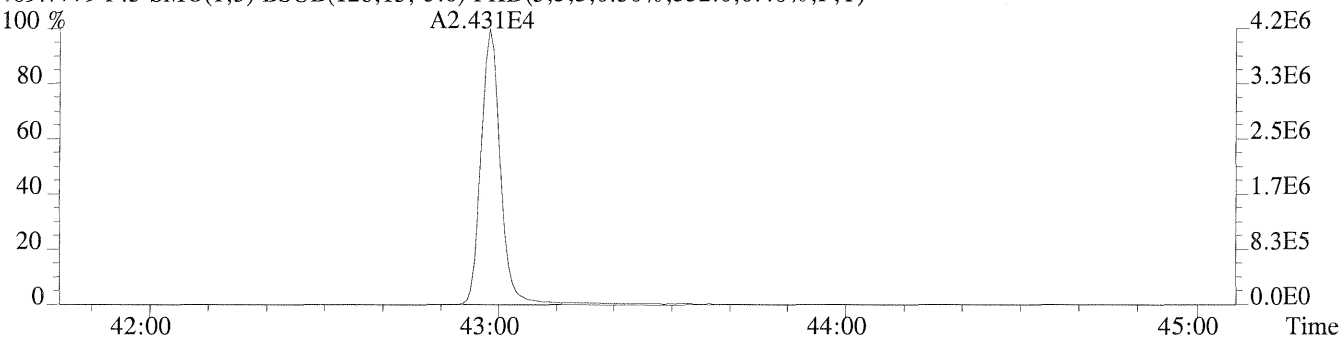
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,516.0,0.40%,F,T)



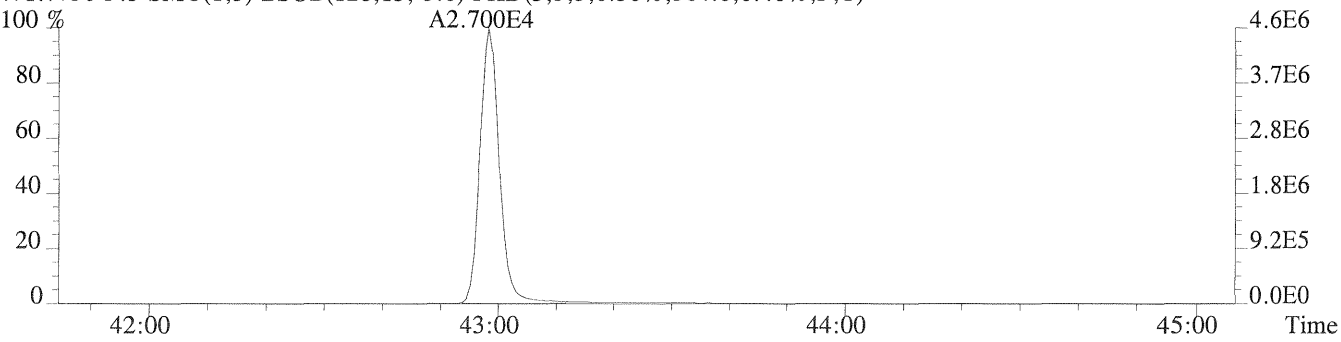
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,488.0,0.40%,F,T)



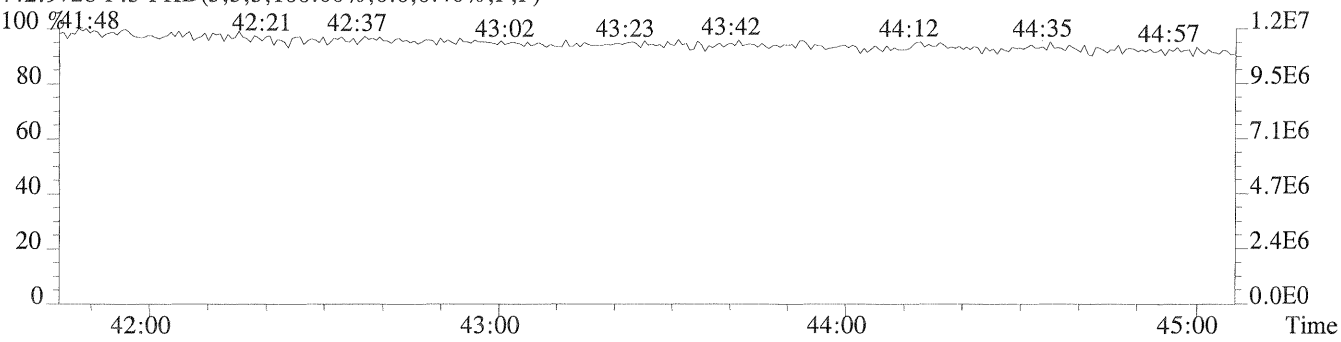
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,532.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,564.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services INC

Continuing Calibration

19408 Park Row, Suite 320, Houston, TX 77084
Phone (713)266-1599 Fax (713)266-0130
www.caslab.com

An Employee Owned Company

RW/CS3 Daily Calibration QC Checklist

Calibration File Name: P114443

Circle one: Beginning / Ending

Date: 9 Jun 11

Method: 1613 / 1613E / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	—	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	—	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	—	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	—	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	NA
Ending Calibration injected prior to end of 12 hour clock	—	NA

Analyst: Cee

Second QC: [illegible]

ccalqc.xls 02/08/00

USEPA - CLP

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: E-HRMS-0

Init. Calib. Date: 03/24/11

Init. Calib.Times: 08:49

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P114442	9-JUN-11	05:07:03
CCAL CS3	CCAL CS3	P114443	9-JUN-11	05:59:02
METHOD BLANK	EQ1100265-01	P114444	9-JUN-11	07:07:02
11-02253 09188 FIS	E1100603-001	P114445	9-JUN-11	07:53:45
11-02253 09189 FIS	E1100603-002	P114446	9-JUN-11	08:41:26
468-2011-0603B150	E1100609-001	P114447	9-JUN-11	09:29:07
COMPOSITE	K1104726-003	P114448	9-JUN-11	10:16:46
BLEACH PLANT COMPO	K1104777-003	P114449	9-JUN-11	11:04:27
LCS	EQ1100265-02	P114450	9-JUN-11	11:52:08
DLCS	EQ1100265-03	P114451	9-JUN-11	12:39:50
SJSF001-IDW	E1100611-001	P114452	9-JUN-11	14:09:20
SJSF002-IDW	E1100611-002	P114453	9-JUN-11	14:55:13
11-8854 RAW RIVER	E1100613-001	P114454	9-JUN-11	15:42:54

FORM V-HR CDD-3 DLM01.3

8290F5pp.frm (7 pt ical)

Sample List Report MassLynx 4.1

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1110609.SPL
Last Modified: Thursday, June 09, 2011 14:08:49 Central Daylight Time
Printed: Thursday, June 09, 2011 16:50:17 Central Daylight Time

Page Position (1, 1)

C:P114443RES

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	06/09/11	05:07	P114442	WINDOW DEFINE	D11-100-5	[illegible]	HRMS CHECK 05:03	8290cas	8290CAS
2		05:59	P114443	CCAL CS3	D11-50-1			8290cas	8290CAS
3		07:07	P114444	EQ1100265-01	MB			8290cas	8290CAS
4		07:53	P114445	E1100603-001	11-02253 09188 Fish Oil			8290cas	8290CAS
5		08:41	P114446	E1100603-002	11-02253 09189 Fish Oil			8290cas	8290CAS
6		09:29	P114447	E1100609-001	468-2011-0603B150			8290cas	8290CAS
7		10:16	P114448	K1104726-003	Composite			8290cas	8290CAS
8		11:04	P114449	K1104777-003	Bleach Plant Composite			8290cas	8290CAS
9		11:52	P114450	EQ1100265-02	LCS			8290cas	8290CAS
10		12:39	P114451	EQ1100265-03	DLCS			8290cas	8290CAS
11		14:09	P114452	E1100611-001	SJSF001-IDW			8290cas	8290CAS
12		14:55	P114453	E1100611-002	SJSF002-IDW			8290cas	8290CAS
13		15:42	P114454	E1100613-001	11-8854 Raw River Water		HRMS CHECK 16:48	8290cas	8290CAS
14			---	---	---			8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18			---	---	---			8290cas	8290CAS
19			---	---	---			8290cas	8290CAS
20			---	---	---			8290cas	8290CAS
21	---	---	---	---	---	---	---	8290cas	8290CAS
22	---	---	---	---	---	---	---	8290cas	8290CAS
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27	---	---	---	---	---	---	---	8290cas	8290CAS
28	---	---	---	---	---	---	---	8290cas	8290CAS
29	---	---	---	---	---	---	---	8290cas	8290CAS
30	---	---	---	---	---	---	---	8290cas	8290CAS
31	---	---	---	---	---	---	---	8290cas	8290CAS
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34	---	---	---	---	---	---	---	8290cas	8290CAS
35	---	---	---	---	---	---	---	8290cas	8290CAS
36	---	---	---	---	---	---	---	8290cas	8290CAS
37	---	---	---	---	---	---	---	8290cas	8290CAS
38	---	---	---	---	---	---	---	8290cas	8290CAS
39	---	---	---	---	---	---	Reviewed By: [illegible] 6/10/11	8290cas	8290CAS

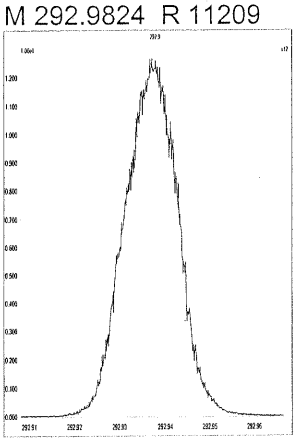
-077

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

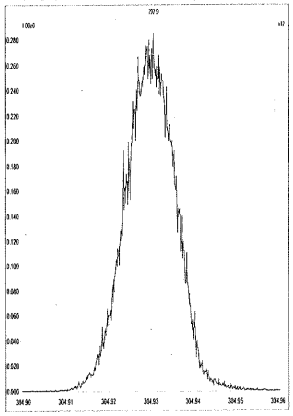
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, June 09, 2011 05:03:33 Central Daylight Time

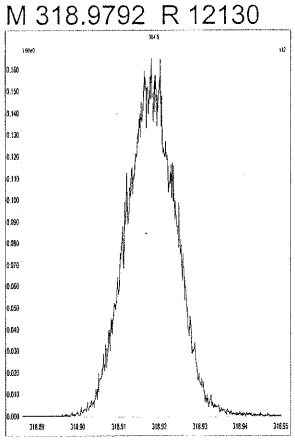
M 292.9824 R 11209



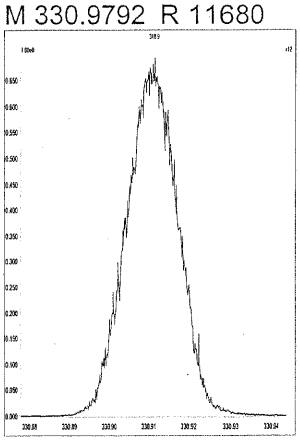
M 304.9824 R 11365



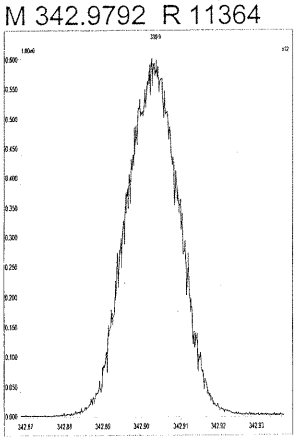
M 318.9792 R 12130



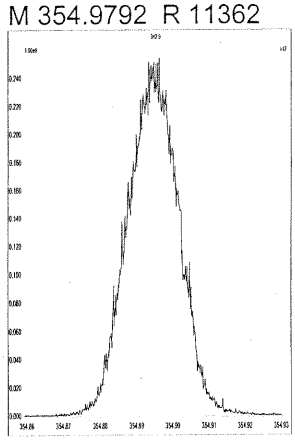
M 330.9792 R 11680



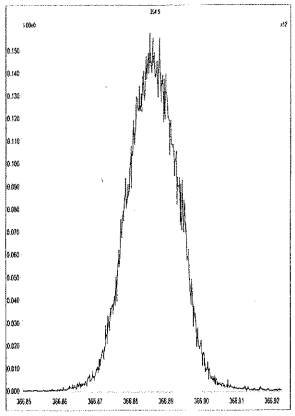
M 342.9792 R 11364



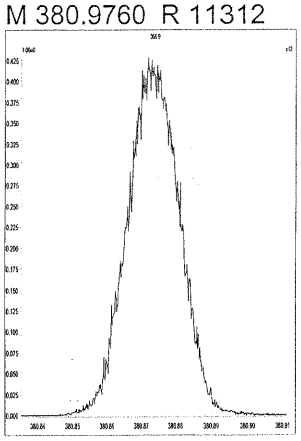
M 354.9792 R 11362



M 366.9792 R 11517



M 380.9760 R 11312

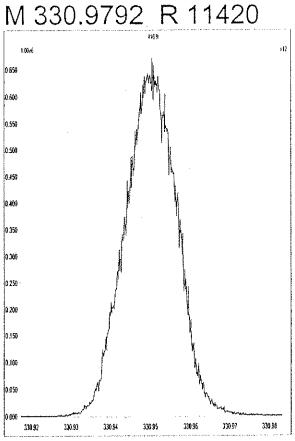


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

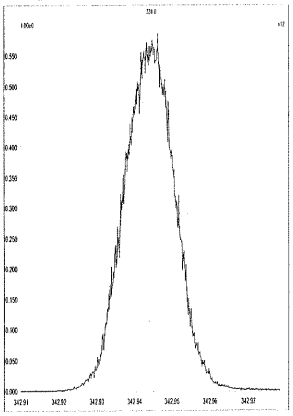
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, June 09, 2011 05:04:00 Central Daylight Time

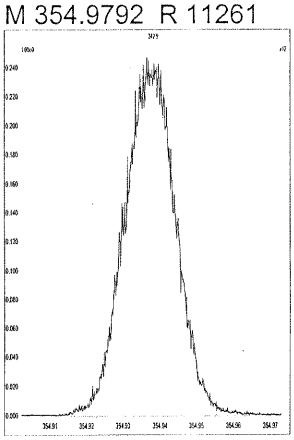
M 330.9792 R 11420



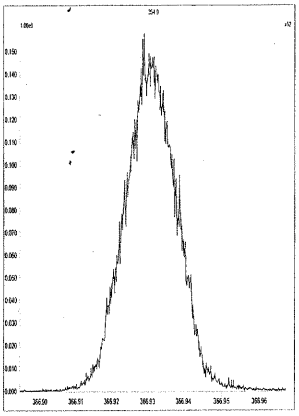
M 342.9792 R 11163



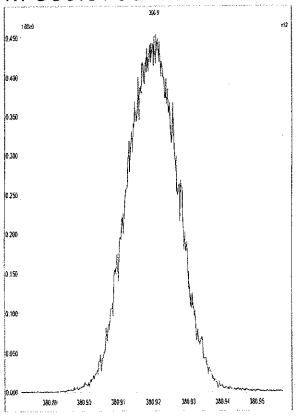
M 354.9792 R 11261



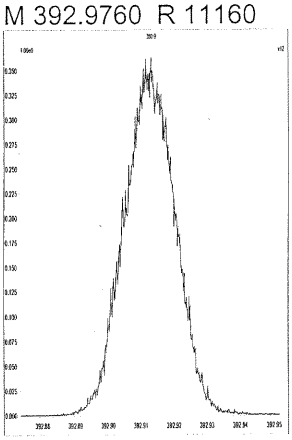
M 366.9792 R 11735



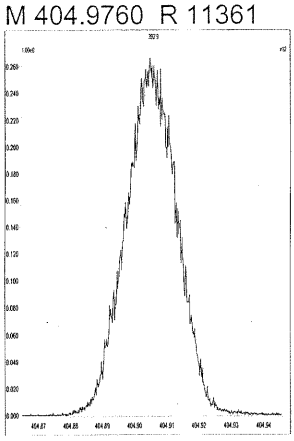
M 380.9760 R 11263



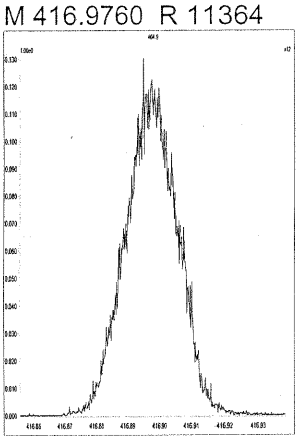
M 392.9760 R 11160



M 404.9760 R 11361



M 416.9760 R 11364

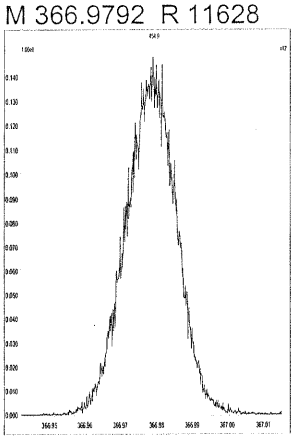


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

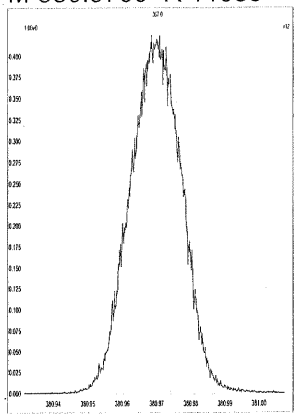
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, June 09, 2011 05:04:31 Central Daylight Time

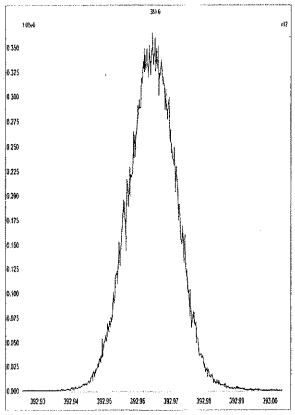
M 366.9792 R 11628



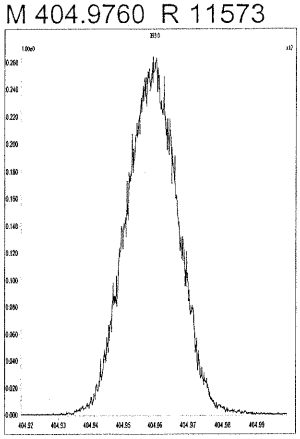
M 380.9760 R 11685



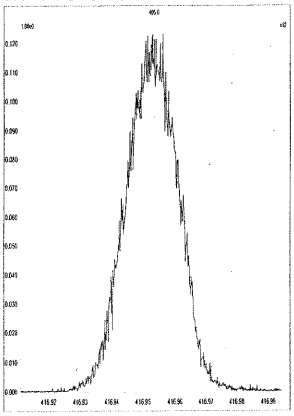
M 392.9760 R 11629



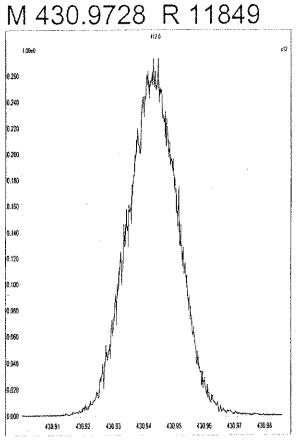
M 404.9760 R 11573



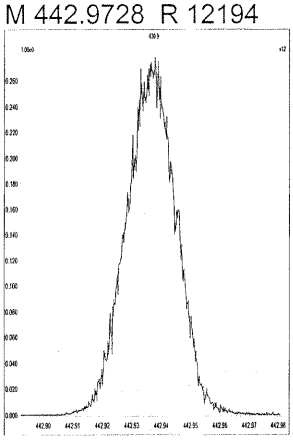
M 416.9760 R 11523



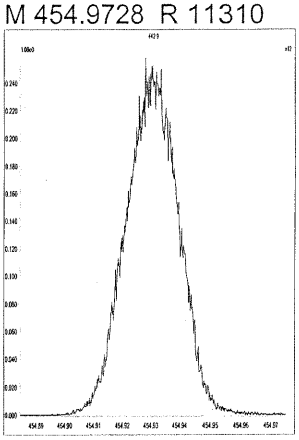
M 430.9728 R 11849



M 442.9728 R 12194



M 454.9728 R 11310

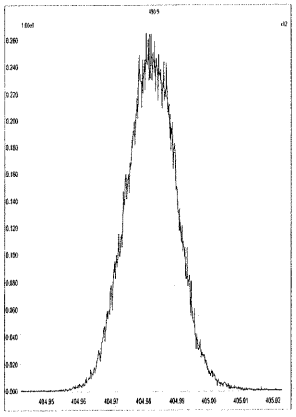


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

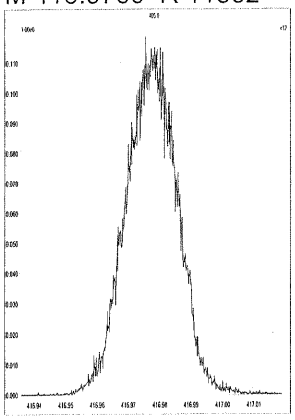
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, June 09, 2011 05:04:59 Central Daylight Time

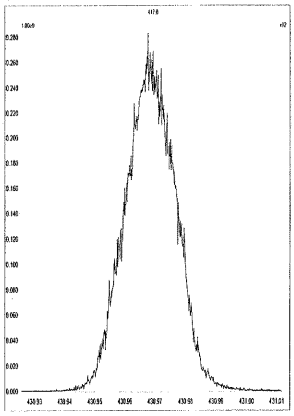
M 404.9760 R 11468



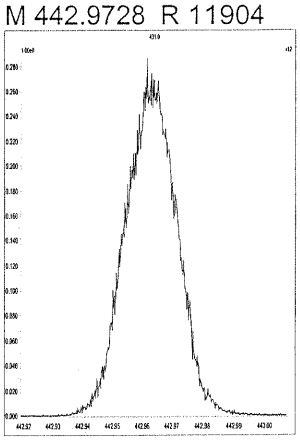
M 416.9760 R 11362



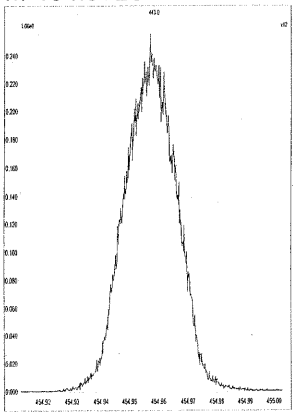
M 430.9728 R 11849



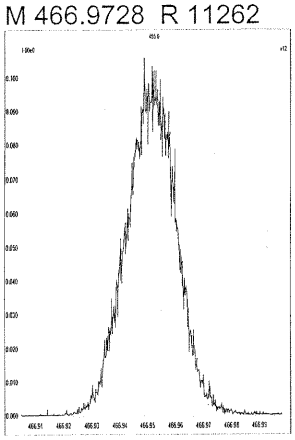
M 442.9728 R 11904



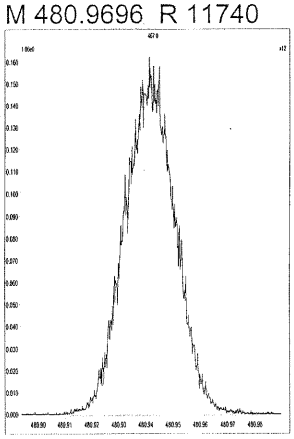
M 454.9728 R 11630



M 466.9728 R 11262



M 480.9696 R 11740

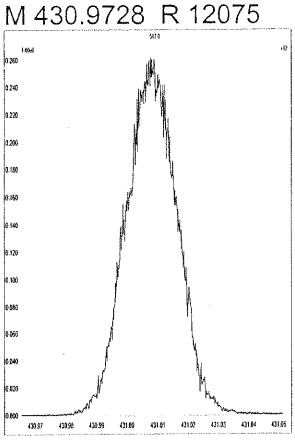


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

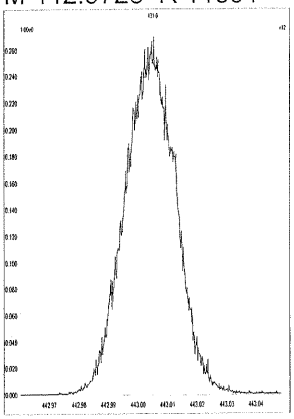
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, June 09, 2011 05:05:26 Central Daylight Time

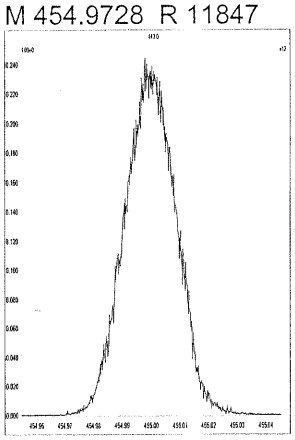
M 430.9728 R 12075



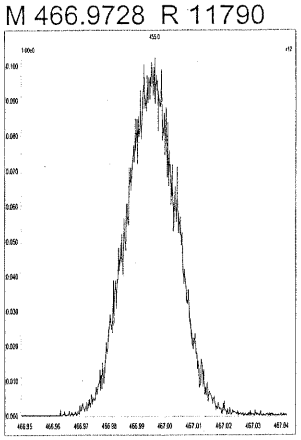
M 442.9728 R 11364



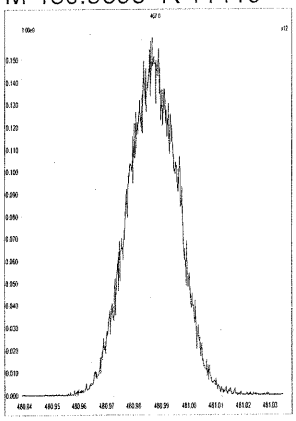
M 454.9728 R 11847



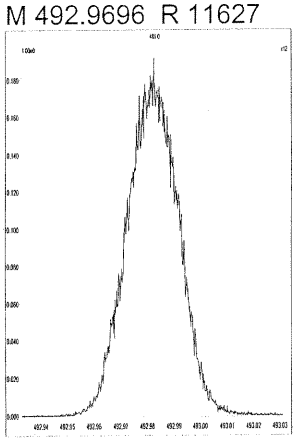
M 466.9728 R 11790



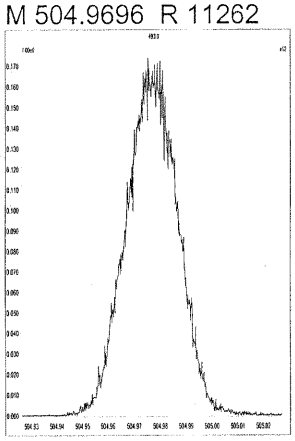
M 480.9696 R 11416



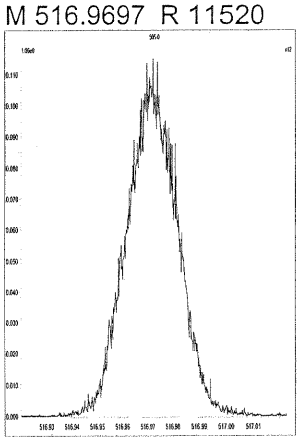
M 492.9696 R 11627



M 504.9696 R 11262



M 516.9697 R 11520

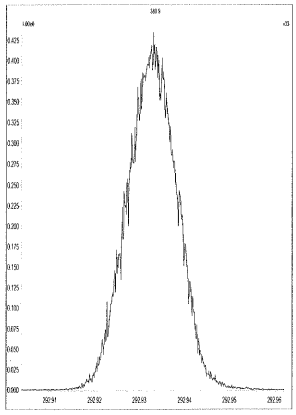


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

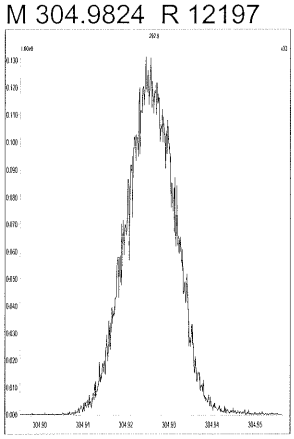
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, June 09, 2011 16:48:46 Central Daylight Time

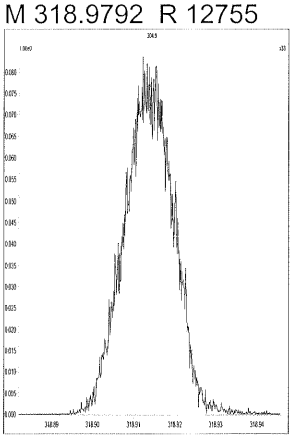
M 292.9824 R 11790



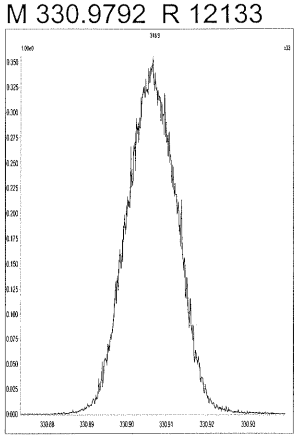
M 304.9824 R 12197



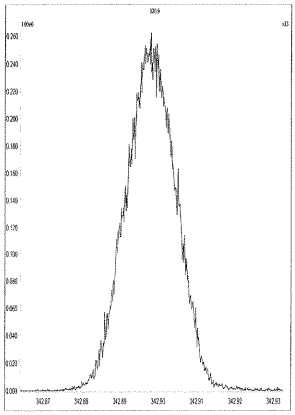
M 318.9792 R 12755



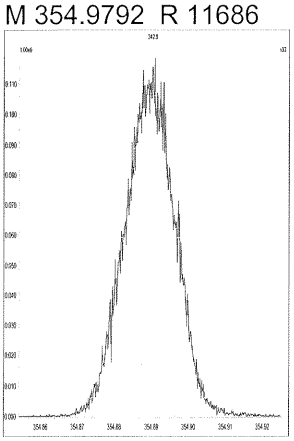
M 330.9792 R 12133



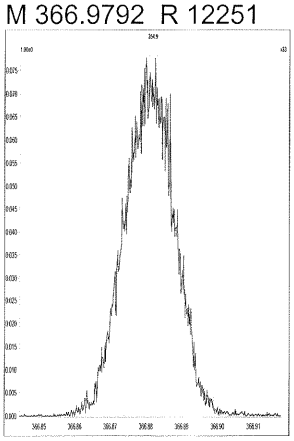
M 342.9792 R 11849



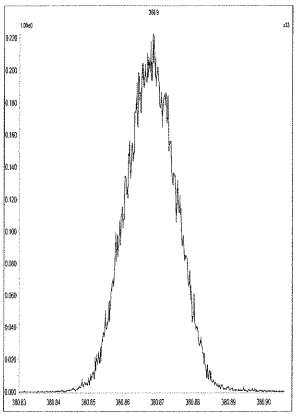
M 354.9792 R 11686



M 366.9792 R 12251



M 380.9760 R 11900

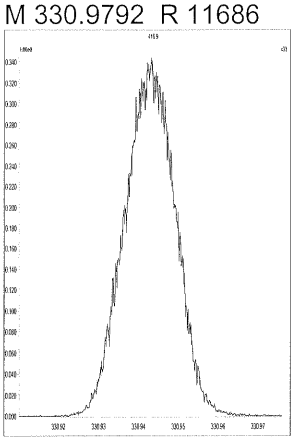


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

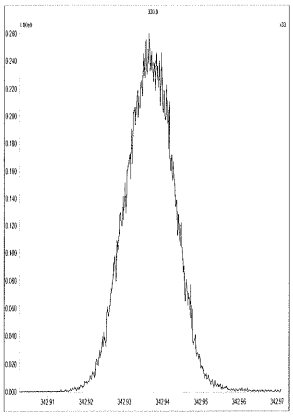
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, June 09, 2011 16:49:08 Central Daylight Time

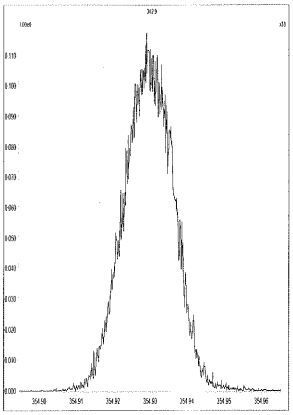
M 330.9792 R 11686



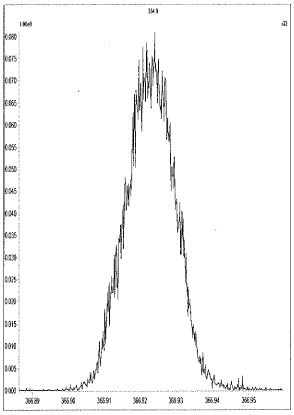
M 342.9792 R 12016



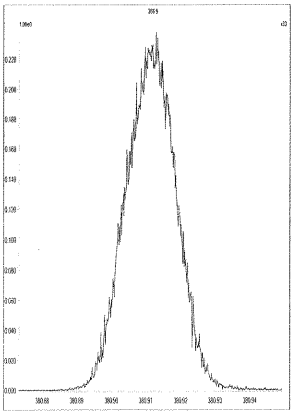
M 354.9792 R 12500



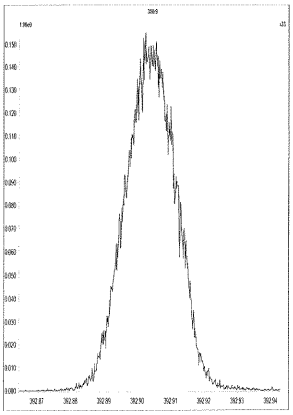
M 366.9792 R 11903



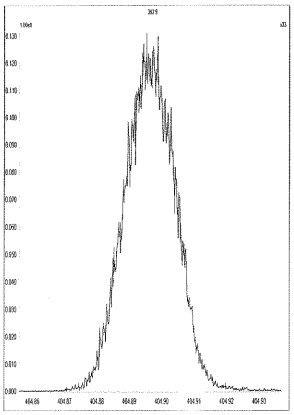
M 380.9760 R 11575



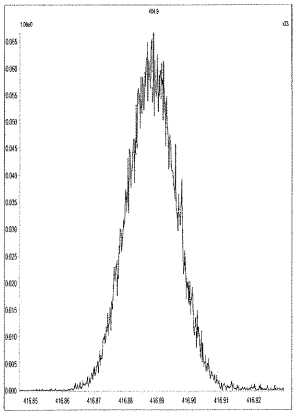
M 392.9760 R 11792



M 404.9760 R 11365



M 416.9760 R 11628

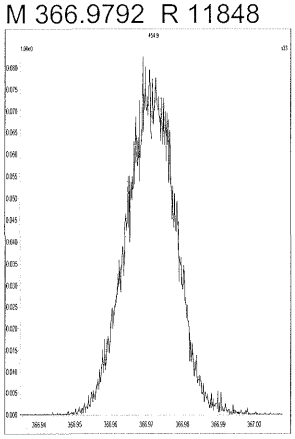


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

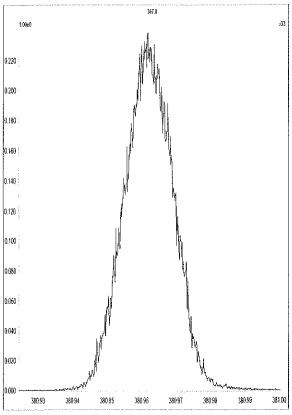
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, June 09, 2011 16:49:27 Central Daylight Time

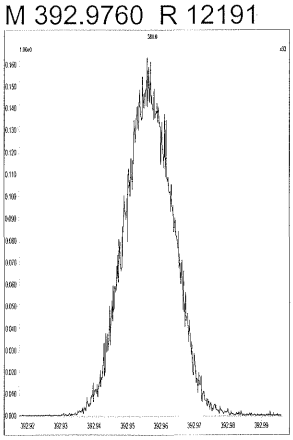
M 366.9792 R 11848



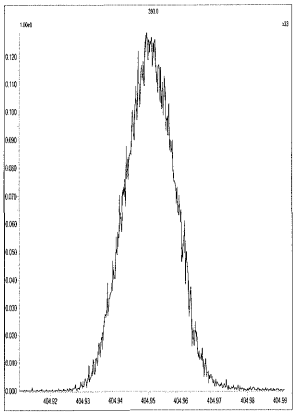
M 380.9760 R 12193



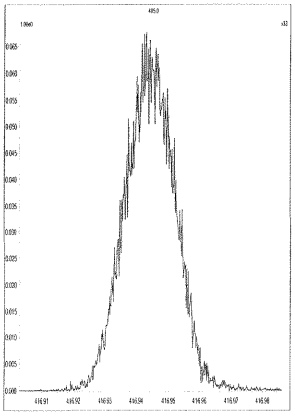
M 392.9760 R 12191



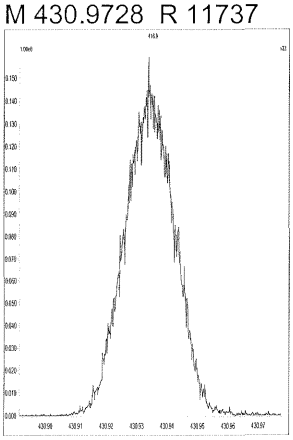
M 404.9760 R 12194



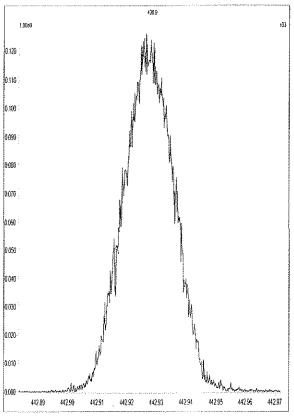
M 416.9760 R 12252



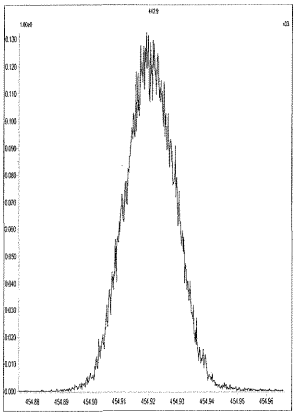
M 430.9728 R 11737



M 442.9728 R 12134



M 454.9728 R 11789

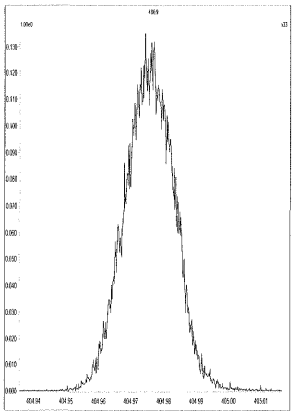


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

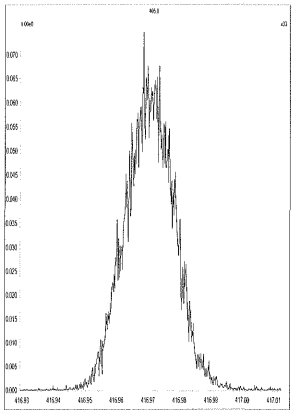
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, June 09, 2011 16:49:44 Central Daylight Time

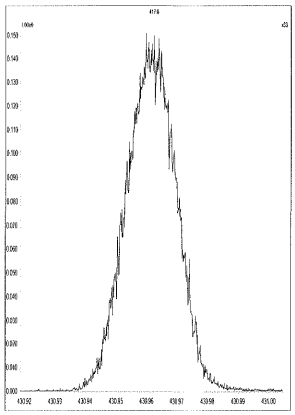
M 404.9760 R 11904



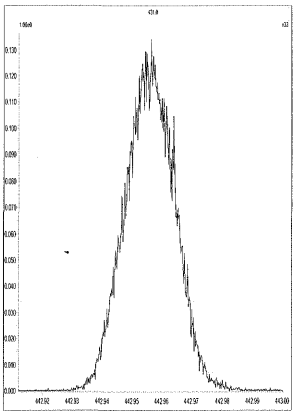
M 416.9760 R 11846



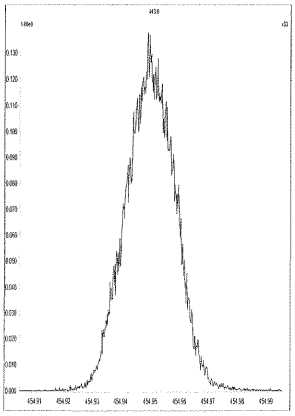
M 430.9728 R 11963



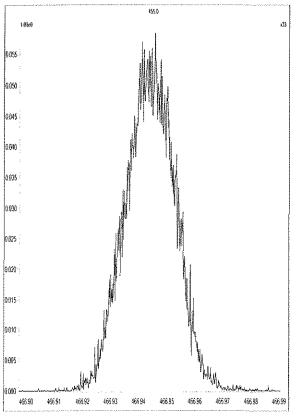
M 442.9728 R 11908



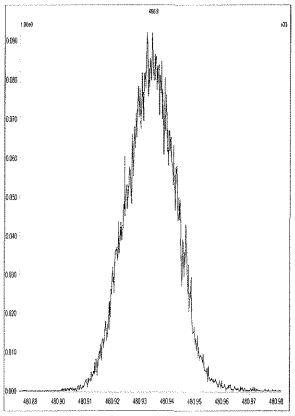
M 454.9728 R 11846



M 466.9728 R 12195



M 480.9696 R 11467

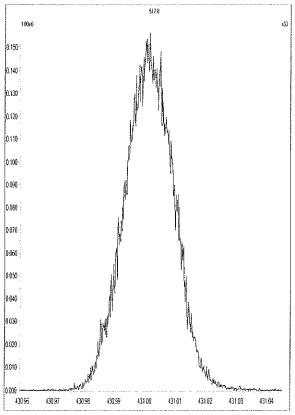


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

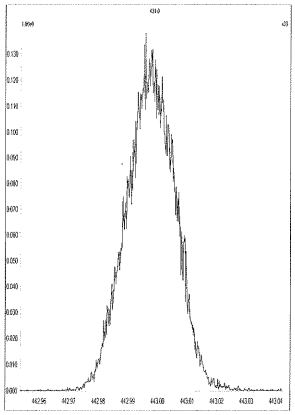
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, June 09, 2011 16:50:02 Central Daylight Time

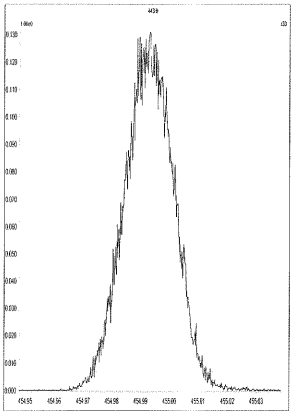
M 430.9728 R 11795



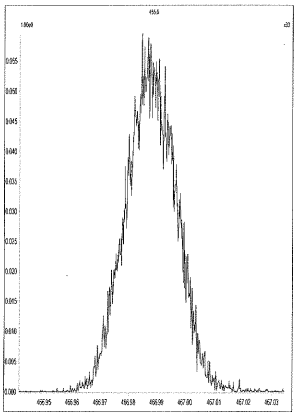
M 442.9728 R 11738



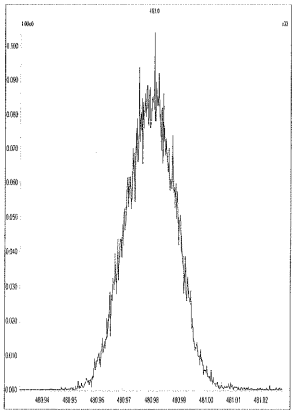
M 454.9728 R 12076



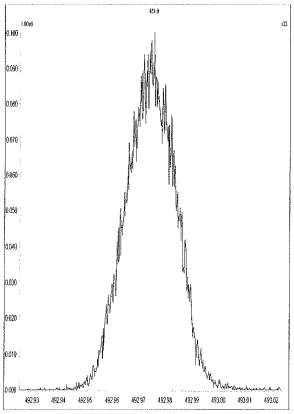
M 466.9728 R 12192



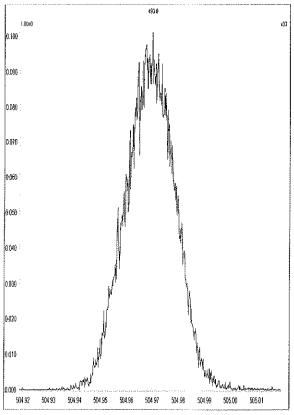
M 480.9696 R 11360



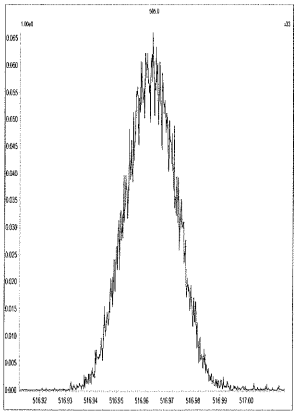
M 492.9696 R 11736



M 504.9696 R 11683



M 516.9697 R 11682



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

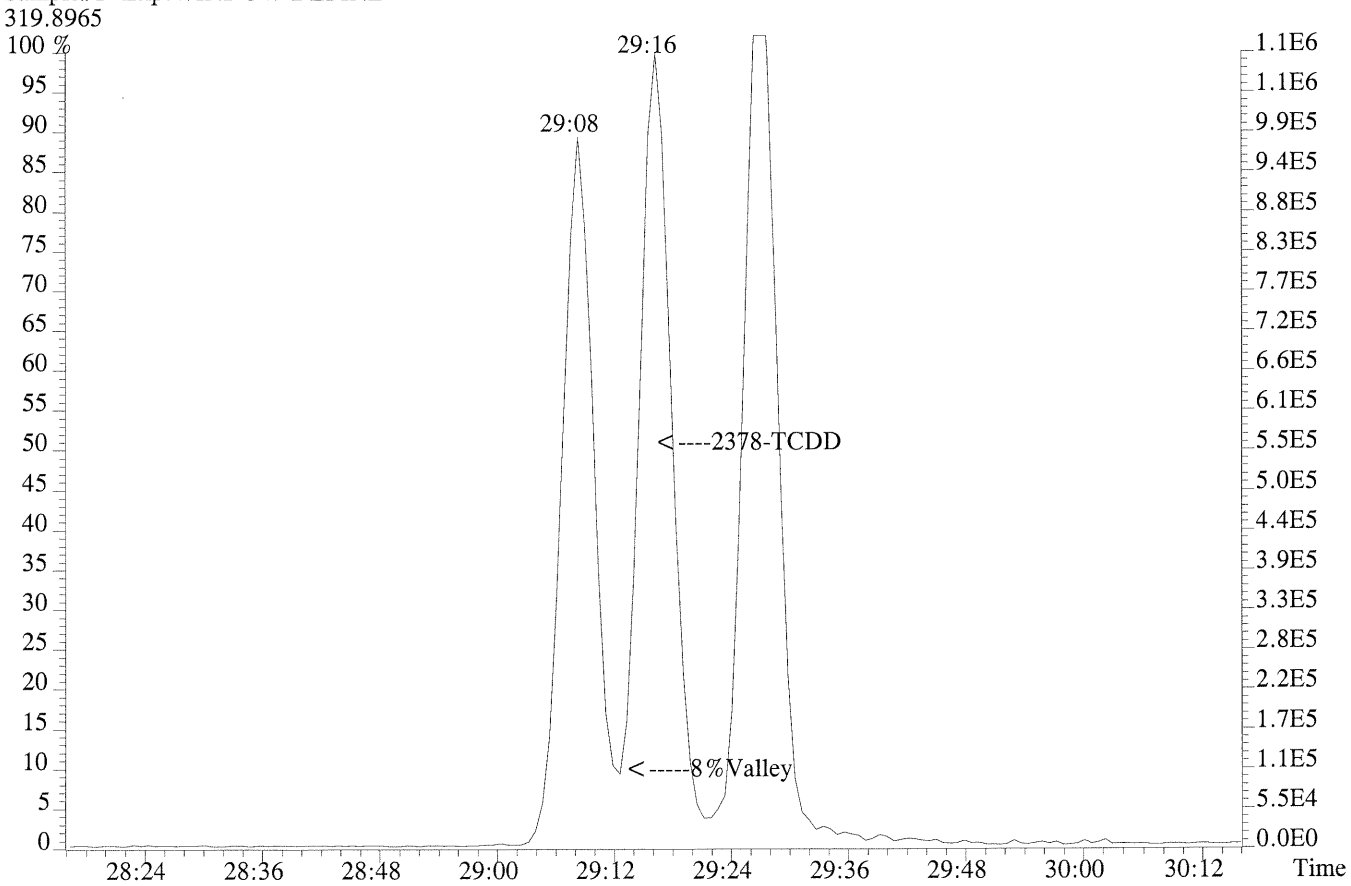
WDM

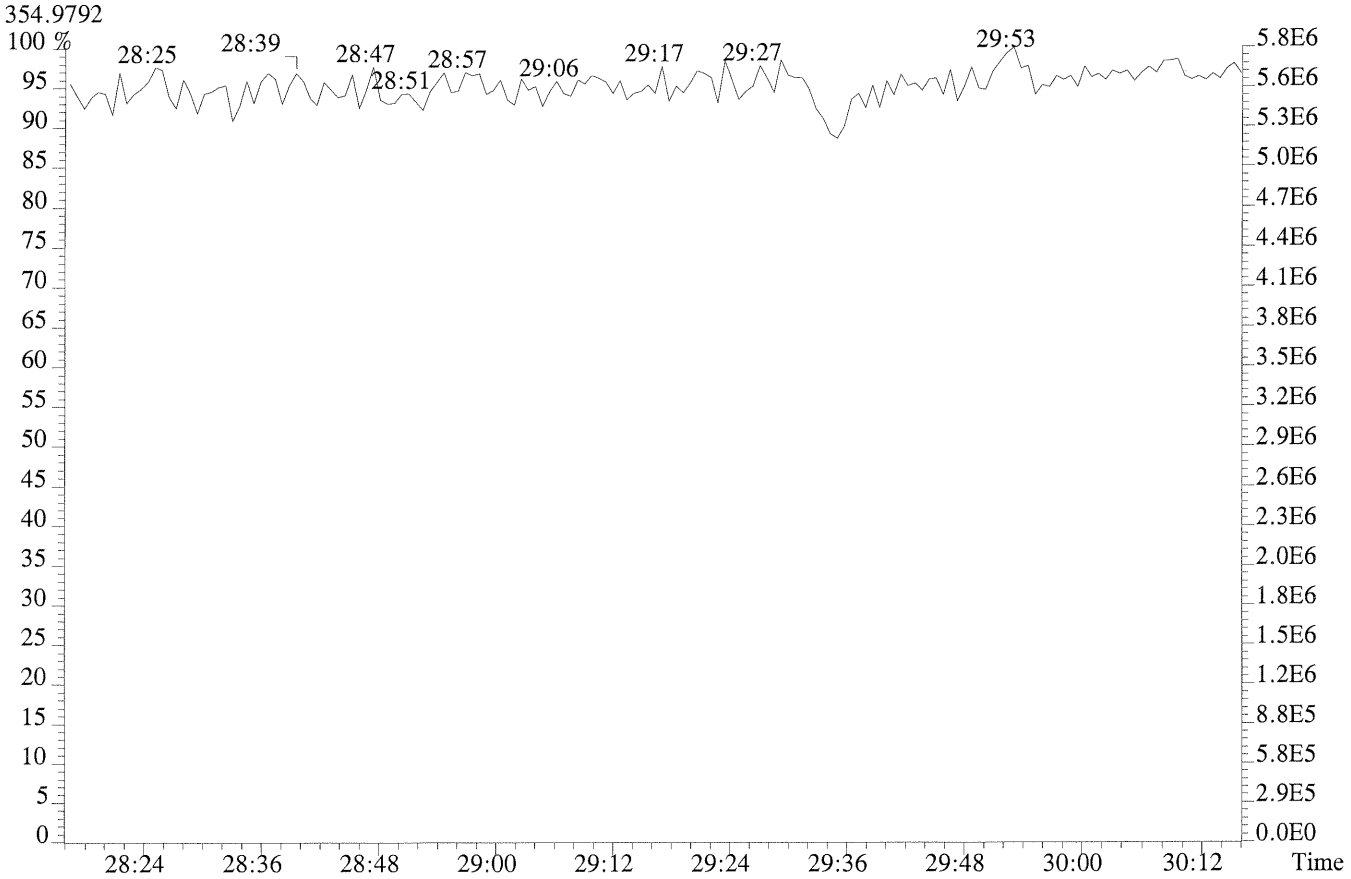
Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P114442
Date Analyzed: 9-JUN-2011
Time Analyzed: 05:07:03

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:20	30:25
TCDD	26:10	30:23
PeCDF	30:40	34:34
PeCDD	32:03	34:26
HxCDF	35:26	37:45
HxCDD	35:56	37:25
HpCDF	39:06	40:24
HpCDD	39:22	40:00

% Valley 2378-TCDD: 8 %

File:P114442 #1-577 Acq: 9-JUN-2011 05:07:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





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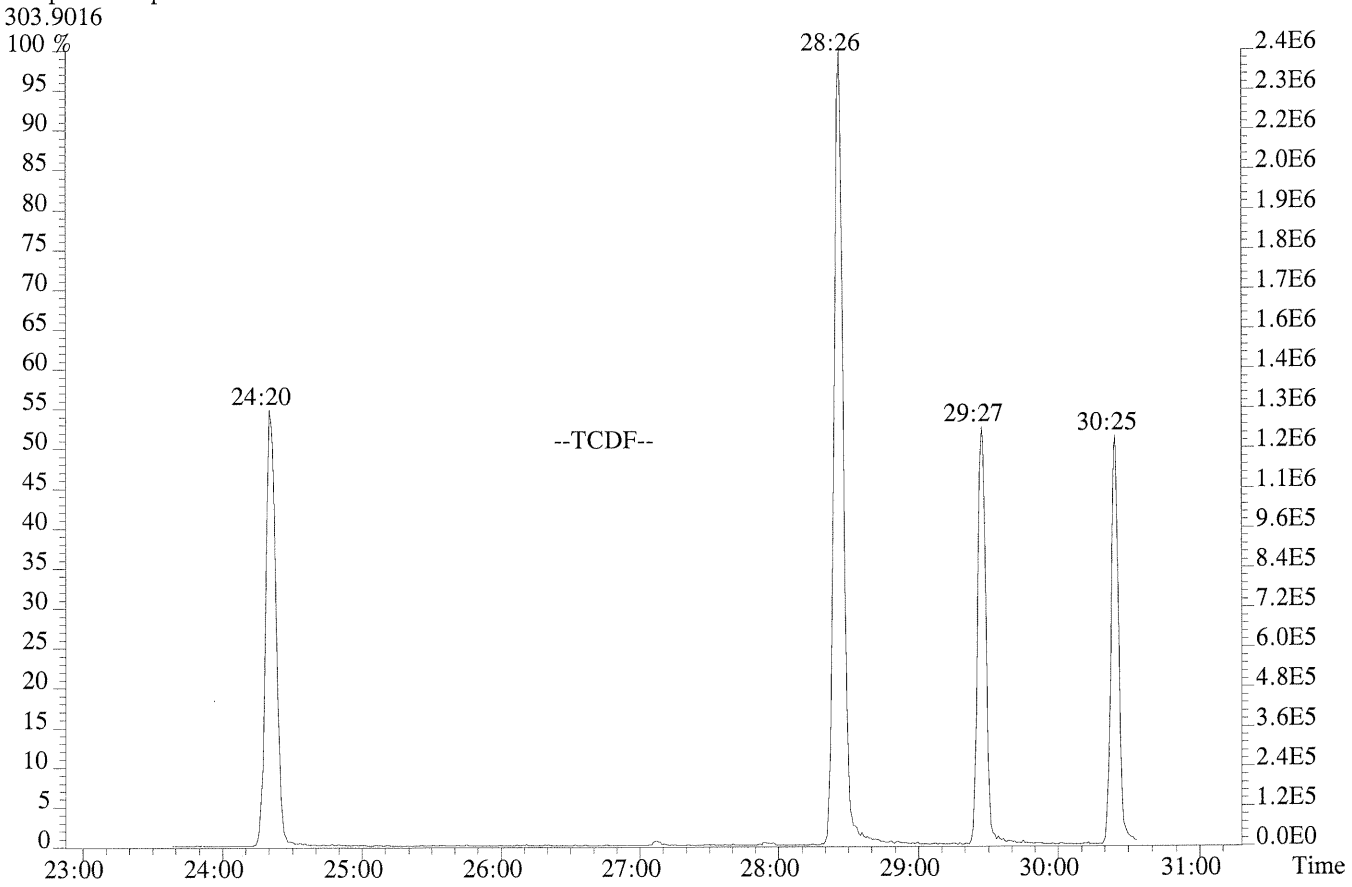
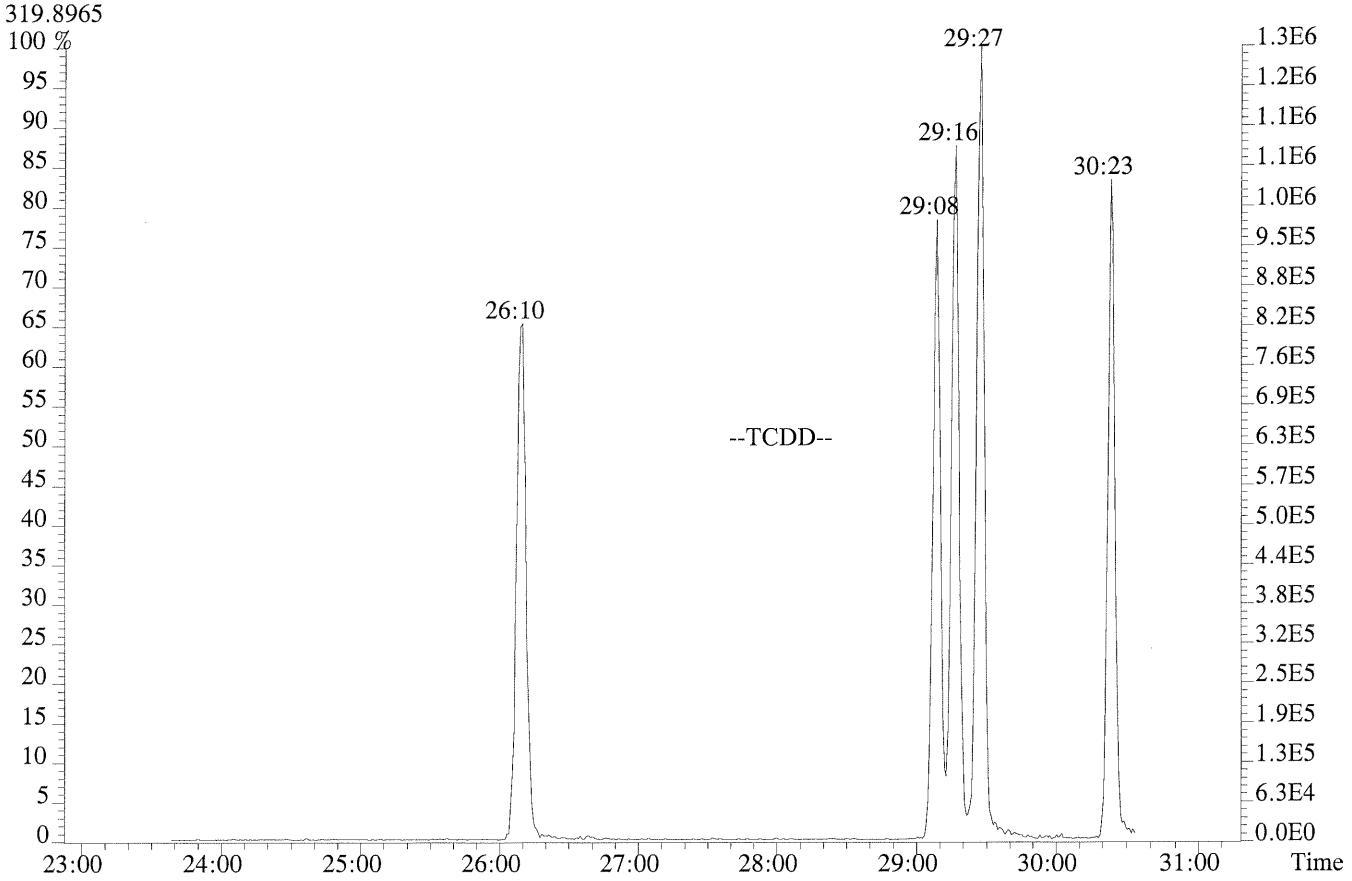
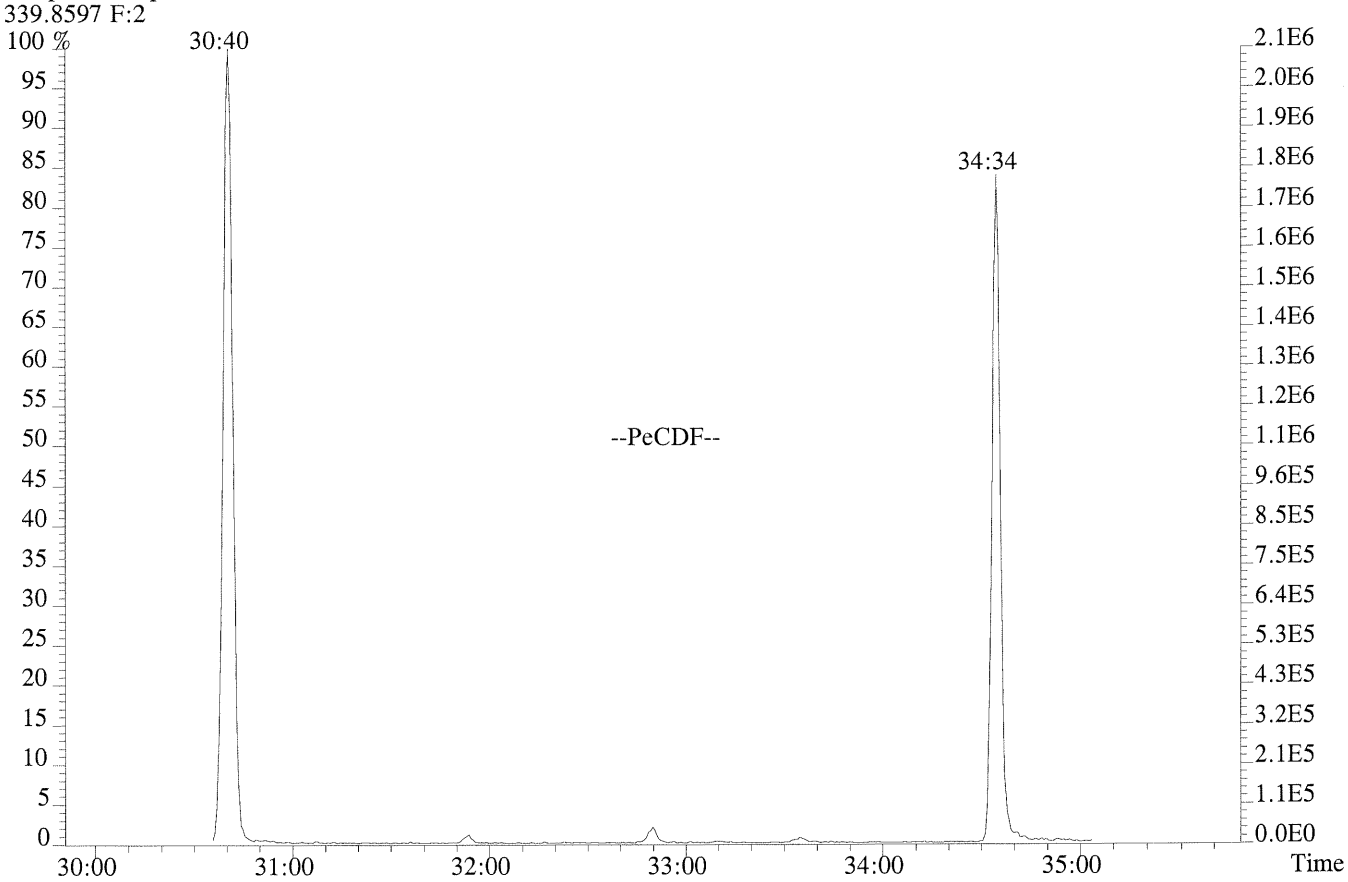
Sample#1 Exp:WINDOW DEFINE

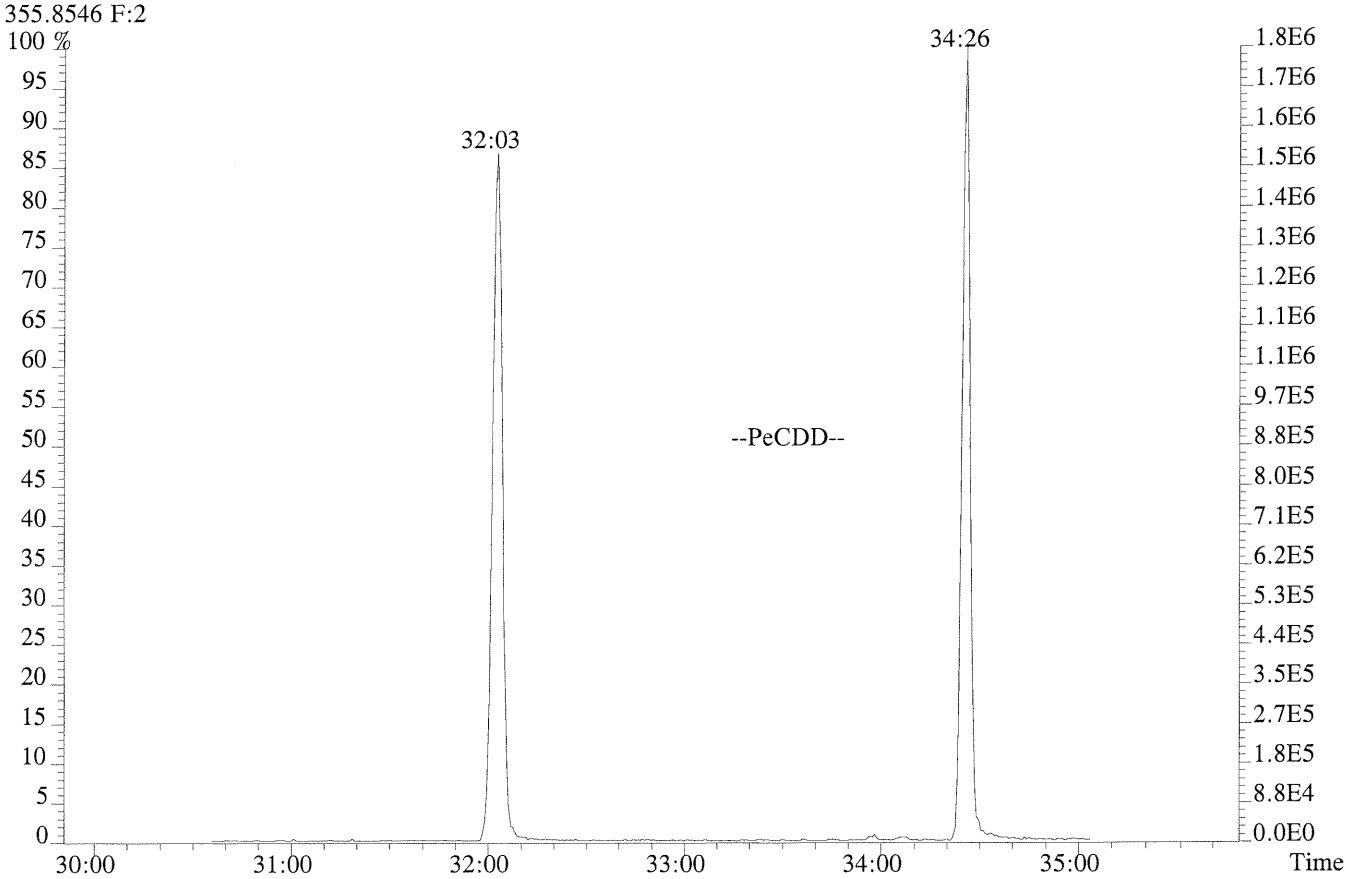




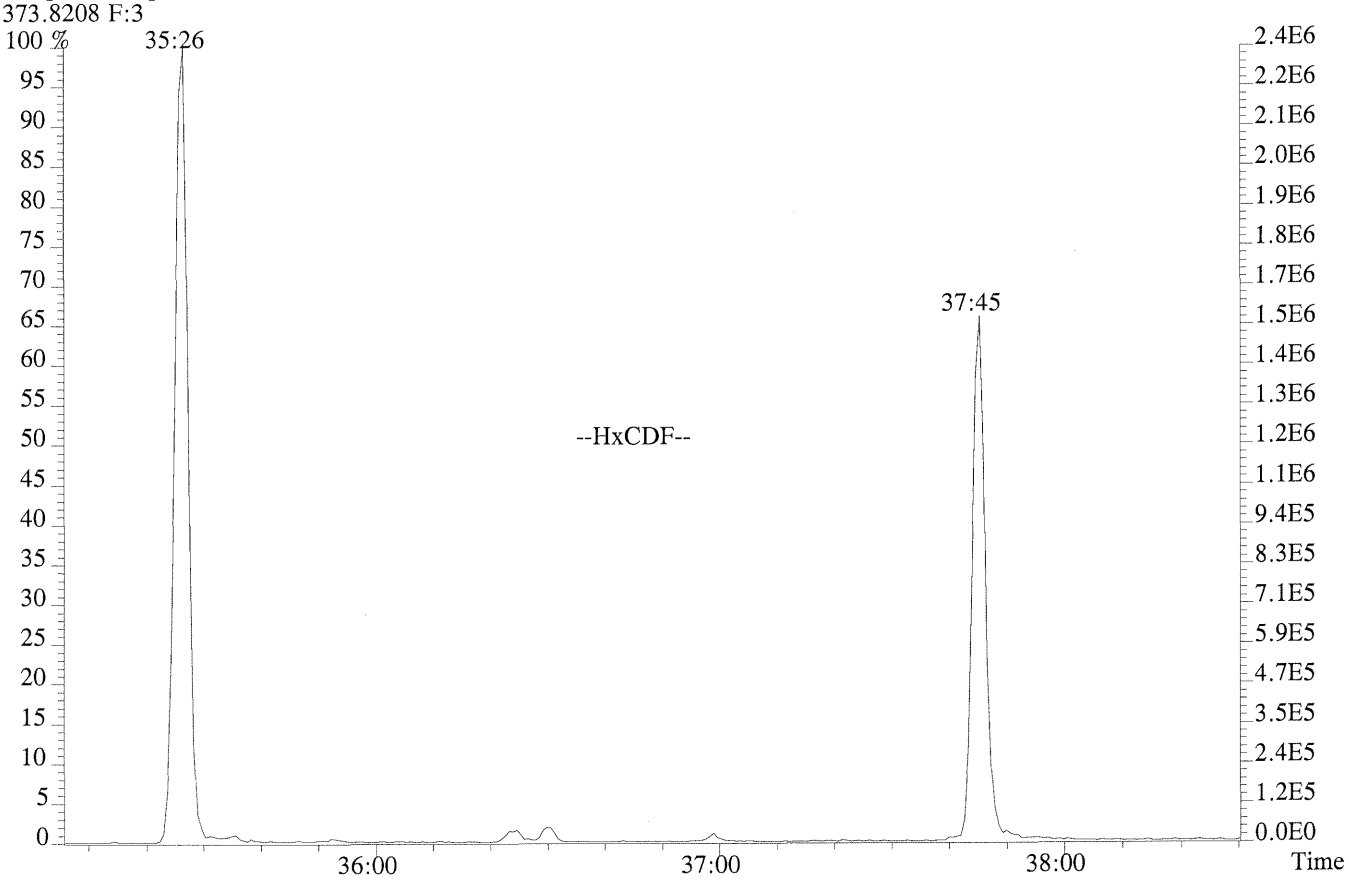
File:P114442 #1-406 Acq: 9-JUN-2011 05:07:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597 F:2



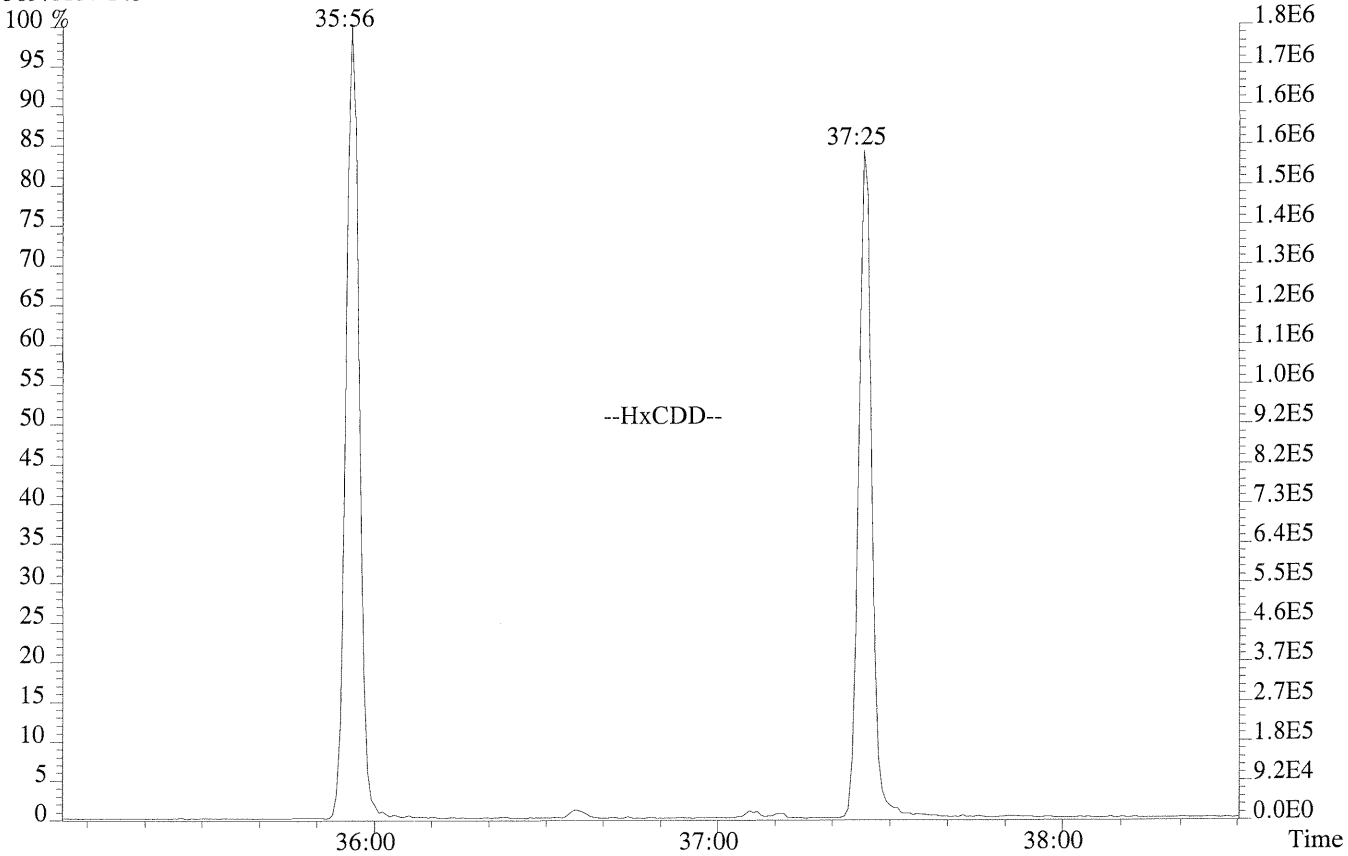
355.8546 F:2



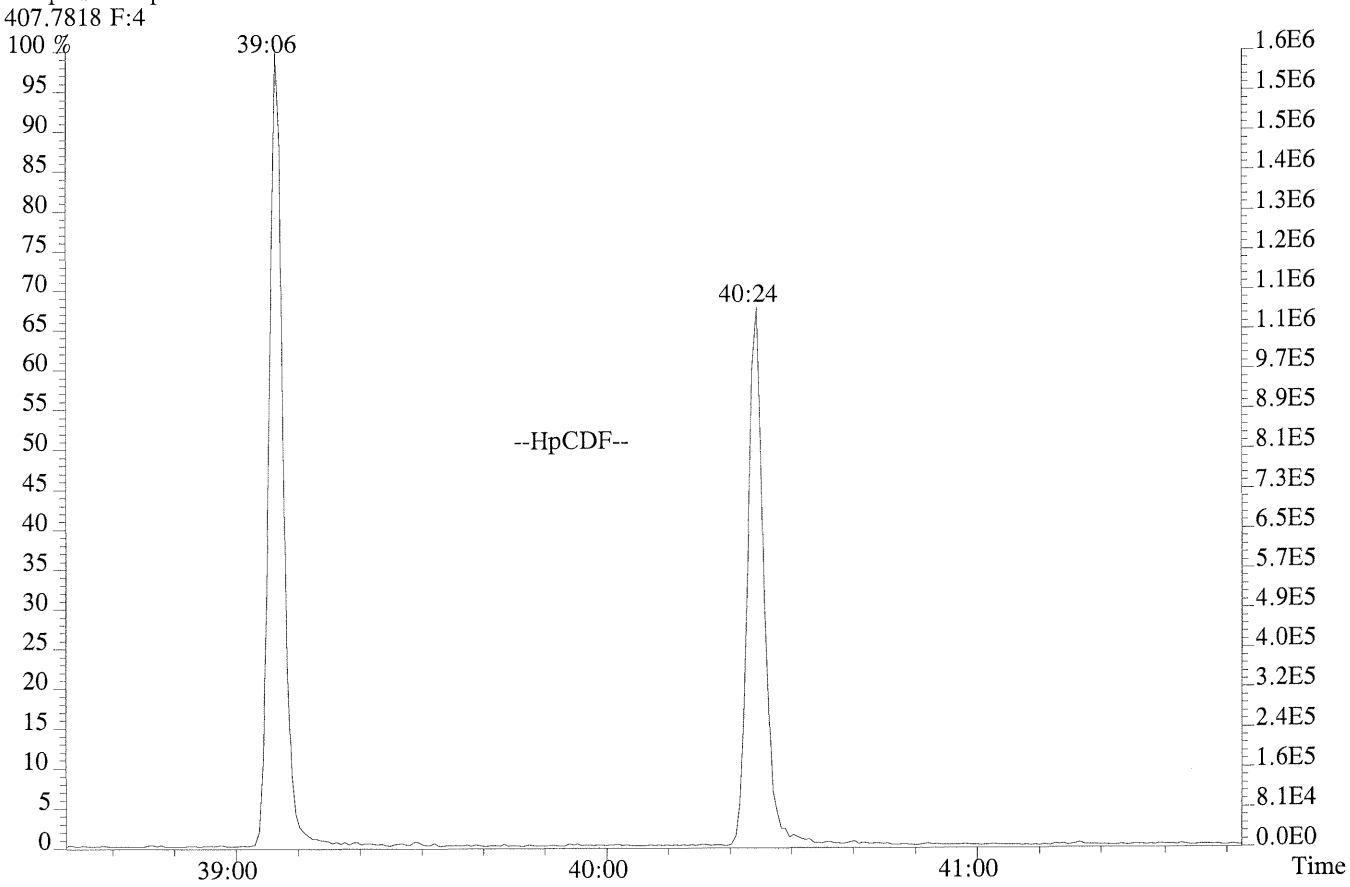
File:P114442 #1-310 Acq: 9-JUN-2011 05:07:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

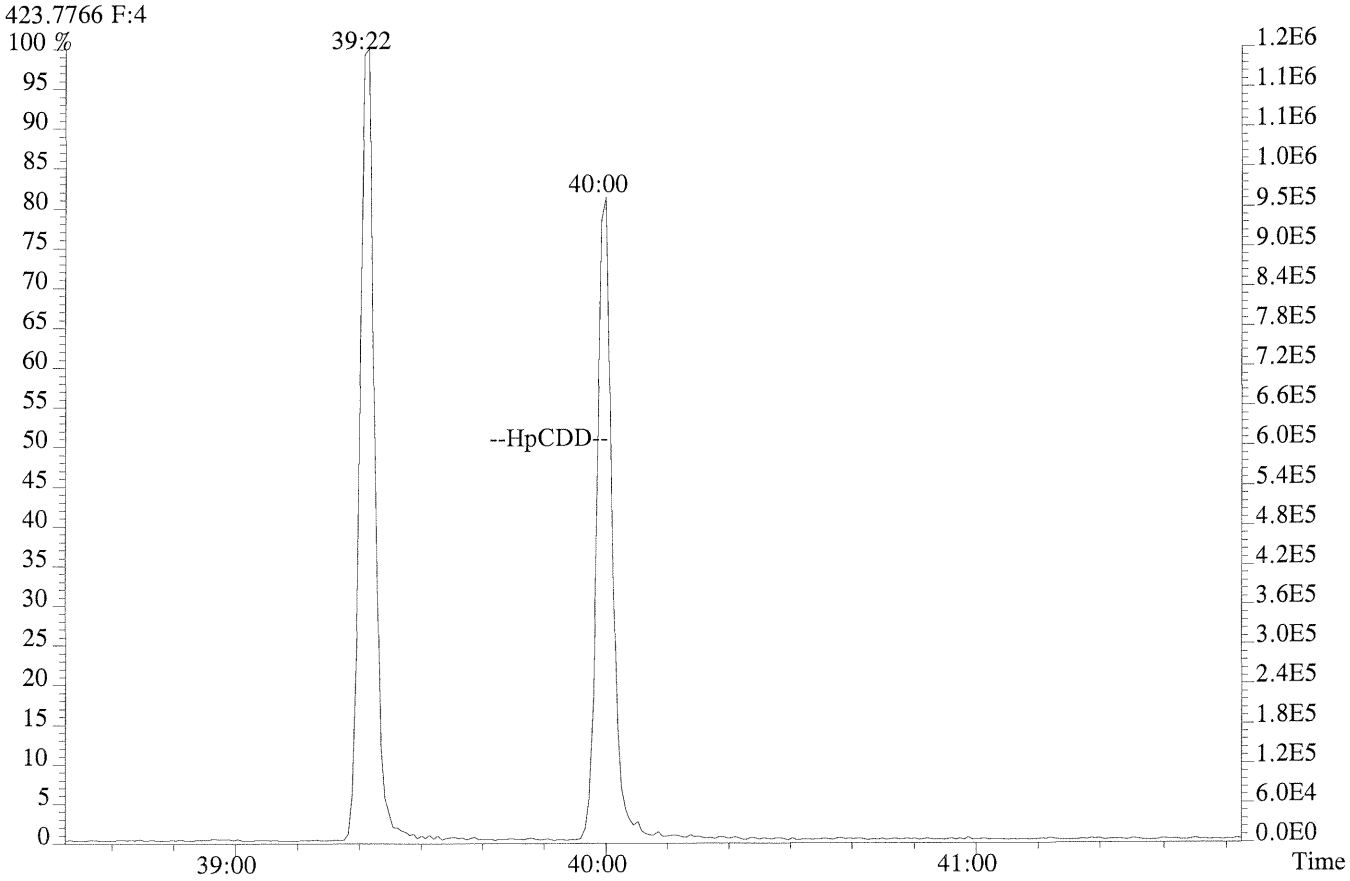


389.8157 F:3



File:P114442 #1-288 Acq: 9-JUN-2011 05:07:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/24/11

Instrument ID: E-HRMS-03 GC Column ID: DB-5

VER Data Filename: P114443 Analysis Date: 9-JUN-11 Time: 05:59:02

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.76	0.65-0.89	9.8	7.8 - 12.9
1,2,3,7,8-PeCDD	M+2/M+4	1.54	1.32-1.78	49	39 - 65
1,2,3,4,7,8-HxCDD	M+2/M+4	1.23	1.05-1.43	50	39 - 64
1,2,3,6,7,8-HxCDD	M+2/M+4	1.29	1.05-1.43	49	39 - 64
1,2,3,7,8,9-HxCDD	M+2/M+4	1.22	1.05-1.43	50	41 - 61
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	49	43 - 58
OCDD	M+2/M+4	0.88	0.76-1.02	92	79 - 126
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	10.0	8.4 - 12.0
1,2,3,7,8-PeCDF	M+2/M+4	1.60	1.32-1.78	49	41 - 60
2,3,4,7,8-PeCDF	M+2/M+4	1.55	1.32-1.78	48	41 - 61
1,2,3,4,7,8-HxCDF	M+2/M+4	1.21	1.05-1.43	48	45 - 56
1,2,3,6,7,8-HxCDF	M+2/M+4	1.22	1.05-1.43	48	44 - 57
1,2,3,7,8,9-HxCDF	M+2/M+4	1.23	1.05-1.43	49	45 - 56
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	49	44 - 57
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.02	0.88-1.20	48	45 - 55
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.05	0.88-1.20	49	43 - 58
OCDF	M+2/M+4	0.90	0.76-1.02	96	63 - 159

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range as specified in Table 6, Method 1613B, under VER.

6/90

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/24/11

Instrument ID: E-HRMS-03 GC Column ID: DB-5

VER Data Filename: P114443 Analysis Date: 9-JUN-11 Time: 05:59:02

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)
LABELED COMPOUNDS					
13C-2,3,7,8-TCDD	M/M+2	0.78	0.65-0.89	102	82 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.60	1.32-1.78	109	62 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.24	1.05-1.43	96	85 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	96	85 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.06	0.88-1.20	98	72 - 138
13C-OCDD	M+2/M+4	0.90	0.76-1.02	193	96 - 415
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	103	71 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.57	1.32-1.78	106	76 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.56	1.32-1.78	107	77 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	100	76 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	93	70 - 143
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.52	0.43-0.59	99	74 - 135
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.53	0.43-0.59	97	73 - 137
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	95	78 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.44	0.37-0.51	93	77 - 129
CLEANUP STANDARD					
37Cl-2,3,7,8-TCDD				10.6	7.8 - 12.7

(1) See Table 8, Method 1613B, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613B.

(3) Contract-required concentration range, as specified in Table 6, Method 1613B, under VER.

(4) No ion abundance ratio; report concentration found.

6/90

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
CCAL CS3

Run #8 Filename P114443 Samp: 1 Inj: 1 Acquired: 9-JUN-11 05:59:02
Processed: 10-JUN-11 09:31:27 Sample ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRF
1	Unk	2,3,7,8-TCDF	28:24	1.581e+03	2.037e+03	0.78	yes	no	0.900
2	Unk	1,2,3,7,8-PeCDF	32:50	1.121e+04	7.022e+03	1.60	yes	no	0.941
3	Unk	2,3,4,7,8-PeCDF	33:34	1.082e+04	6.977e+03	1.55	yes	no	1.028
4	Unk	1,2,3,4,7,8-HxCDF	36:24	9.788e+03	8.067e+03	1.21	yes	no	1.235
5	Unk	1,2,3,6,7,8-HxCDF	36:30	1.010e+04	8.267e+03	1.22	yes	no	1.199
6	Unk	2,3,4,6,7,8-HxCDF	36:59	9.456e+03	7.648e+03	1.24	yes	no	1.147
7	Unk	1,2,3,7,8,9-HxCDF	37:41	8.606e+03	6.997e+03	1.23	yes	no	1.158
8	Unk	1,2,3,4,6,7,8-HpCDF	39:07	8.422e+03	8.228e+03	1.02	yes	no	1.398
9	Unk	1,2,3,4,7,8,9-HpCDF	40:24	7.118e+03	6.747e+03	1.05	yes	no	1.438
10	Unk	OCDF	43:09	1.100e+04	1.229e+04	0.90	yes	no	1.225
11	Unk	2,3,7,8-TCDD	29:16	1.261e+03	1.655e+03	0.76	yes	no	1.029
12	Unk	1,2,3,7,8-PeCDD	33:55	7.738e+03	5.026e+03	1.54	yes	no	0.949
13	Unk	1,2,3,4,7,8-HxCDD	37:06	7.102e+03	5.783e+03	1.23	yes	no	1.110
14	Unk	1,2,3,6,7,8-HxCDD	37:11	6.911e+03	5.363e+03	1.29	yes	no	0.906
15	Unk	1,2,3,7,8,9-HxCDD	37:28	7.251e+03	5.964e+03	1.22	yes	no	1.038
16	Unk	1,2,3,4,6,7,8-HpCDD	39:60	5.893e+03	5.565e+03	1.06	yes	no	1.001
17	Unk	OCDD	42:59	9.035e+03	1.029e+04	0.88	yes	no	1.058
18	IS	13C-2,3,7,8-TCDF	28:24	1.768e+04	2.235e+04	0.79	yes	no	1.383
19	IS	13C-1,2,3,7,8-PeCDF	32:49	2.418e+04	1.538e+04	1.57	yes	no	1.336
20	IS	13C-2,3,4,7,8-PeCDF	33:33	2.192e+04	1.402e+04	1.56	yes	no	1.206
21	IS	13C-1,2,3,4,7,8-HxCDF	36:24	1.042e+04	1.994e+04	0.52	yes	no	1.155
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	1.081e+04	2.099e+04	0.51	yes	no	1.303
23	IS	13C-2,3,4,6,7,8-HxCDF	36:59	1.053e+04	1.971e+04	0.53	yes	no	1.188
24	IS	13C-1,2,3,7,8,9-HxCDF	37:40	9.484e+03	1.810e+04	0.52	yes	no	1.058
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	7.682e+03	1.725e+04	0.45	yes	no	0.997
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	6.017e+03	1.373e+04	0.44	yes	no	0.807
27	IS	13C-2,3,7,8-TCDD	29:15	1.274e+04	1.626e+04	0.78	yes	no	1.018
28	IS	13C-1,2,3,7,8-PeCDD	33:55	1.700e+04	1.061e+04	1.60	yes	no	0.906
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	1.288e+04	1.035e+04	1.24	yes	no	0.921
30	IS	13C-1,2,3,6,7,8-HxCDD	37:10	1.554e+04	1.220e+04	1.27	yes	no	1.095
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	1.203e+04	1.136e+04	1.06	yes	no	0.907
32	IS	13C-OCDD	42:58	1.889e+04	2.090e+04	0.90	yes	no	0.785
33	RS/RT	13C-1,2,3,4-TCDD	29:02	1.249e+04	1.548e+04	0.81	yes	no	-
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	1.457e+04	1.175e+04	1.24	yes	no	-
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	3.112e+03				no	1.054

Columbia Analytical Services, Inc.
19408 Park Row., Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL CS3

Run #8 Filename P114443 Samp: 1 Inj: 1 Acquired: 9-JUN-11 05:59:02
Processed: 10-JUN-11 09:31:271 LAB. ID: CCAL CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.63e+05	7.48e+02	3.5e+02	3.37e+05	5.84e+02	5.8e+02
2	1,2,3,7,8-PeCDF	2.25e+06	7.20e+02	3.1e+03	1.39e+06	1.05e+03	1.3e+03
3	2,3,4,7,8-PeCDF	2.28e+06	7.20e+02	3.2e+03	1.47e+06	1.05e+03	1.4e+03
4	1,2,3,4,7,8-HxCDF	2.17e+06	9.00e+02	2.4e+03	1.75e+06	6.24e+02	2.8e+03
5	1,2,3,6,7,8-HxCDF	2.19e+06	9.00e+02	2.4e+03	1.78e+06	6.24e+02	2.8e+03
6	2,3,4,6,7,8-HxCDF	2.11e+06	9.00e+02	2.3e+03	1.71e+06	6.24e+02	2.7e+03
7	1,2,3,7,8,9-HxCDF	1.91e+06	9.00e+02	2.1e+03	1.56e+06	6.24e+02	2.5e+03
8	1,2,3,4,6,7,8-HpCDF	1.85e+06	1.48e+03	1.2e+03	1.79e+06	1.36e+03	1.3e+03
9	1,2,3,4,7,8,9-HpCDF	1.44e+06	1.48e+03	9.7e+02	1.39e+06	1.36e+03	1.0e+03
10	OCDF	1.94e+06	6.64e+02	2.9e+03	2.09e+06	7.20e+02	2.9e+03
11	2,3,7,8-TCDD	2.26e+05	9.40e+02	2.4e+02	2.89e+05	7.48e+02	3.9e+02
12	1,2,3,7,8-PeCDD	1.57e+06	5.68e+02	2.8e+03	1.04e+06	3.20e+02	3.2e+03
13	1,2,3,4,7,8-HxCDD	1.69e+06	6.40e+02	2.6e+03	1.34e+06	8.52e+02	1.6e+03
14	1,2,3,6,7,8-HxCDD	1.51e+06	6.40e+02	2.4e+03	1.17e+06	8.52e+02	1.4e+03
15	1,2,3,7,8,9-HxCDD	1.64e+06	6.40e+02	2.6e+03	1.33e+06	8.52e+02	1.6e+03
16	1,2,3,4,6,7,8-HpCDD	1.23e+06	6.64e+02	1.8e+03	1.17e+06	5.16e+02	2.3e+03
17	OCDD	1.59e+06	7.76e+02	2.0e+03	1.78e+06	3.44e+02	5.2e+03
18	13C-2,3,7,8-TCDF	2.99e+06	8.08e+02	3.7e+03	3.82e+06	9.20e+02	4.2e+03
19	13C-1,2,3,7,8-PeCDF	4.67e+06	6.16e+02	7.6e+03	2.97e+06	4.44e+02	6.7e+03
20	13C-2,3,4,7,8-PeCDF	4.59e+06	6.16e+02	7.4e+03	2.93e+06	4.44e+02	6.6e+03
21	13C-1,2,3,4,7,8-HxCDF	2.23e+06	2.72e+02	8.2e+03	4.31e+06	1.14e+03	3.8e+03
22	13C-1,2,3,6,7,8-HxCDF	2.34e+06	2.72e+02	8.6e+03	4.57e+06	1.14e+03	4.0e+03
23	13C-2,3,4,6,7,8-HxCDF	2.35e+06	2.72e+02	8.6e+03	4.34e+06	1.14e+03	3.8e+03
24	13C-1,2,3,7,8,9-HxCDF	2.15e+06	2.72e+02	7.9e+03	4.05e+06	1.14e+03	3.5e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.72e+06	1.67e+03	1.0e+03	3.76e+06	1.91e+03	2.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.23e+06	1.67e+03	7.4e+02	2.83e+06	1.91e+03	1.5e+03
27	13C-2,3,7,8-TCDD	2.26e+06	2.19e+03	1.0e+03	2.94e+06	8.16e+02	3.6e+03
28	13C-1,2,3,7,8-PeCDD	3.54e+06	7.72e+02	4.6e+03	2.20e+06	4.40e+02	5.0e+03
29	13C-1,2,3,4,7,8-HxCDD	3.07e+06	6.76e+02	4.5e+03	2.43e+06	5.96e+02	4.1e+03
30	13C-1,2,3,6,7,8-HxCDD	3.42e+06	6.76e+02	5.1e+03	2.71e+06	5.96e+02	4.5e+03
31	13C-1,2,3,4,6,7,8-HpCDD	2.58e+06	6.16e+02	4.2e+03	2.43e+06	4.92e+02	4.9e+03
32	13C-OCDD	3.32e+06	5.40e+02	6.2e+03	3.64e+06	7.40e+02	4.9e+03
33	13C-1,2,3,4-TCDD	2.18e+06	2.19e+03	9.9e+02	2.74e+06	8.16e+02	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	3.28e+06	6.76e+02	4.8e+03	2.64e+06	5.96e+02	4.4e+03
35	37Cl-2,3,7,8-TCDD	5.48e+05	5.64e+02	9.7e+02			

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
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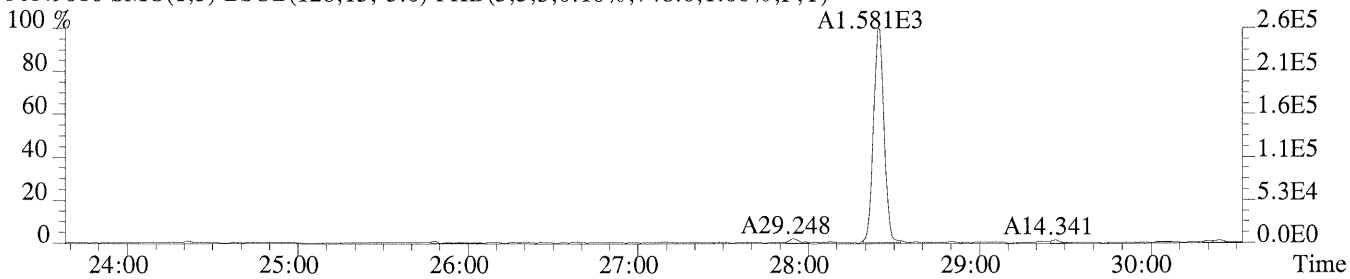
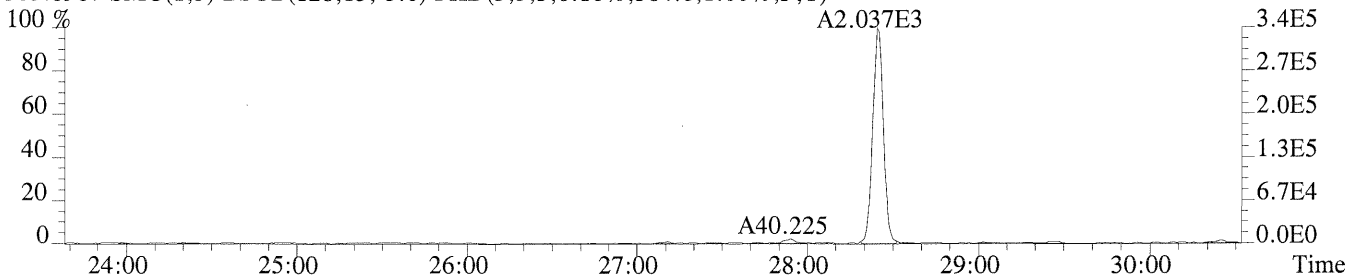
Office:(713)266-1599. Fax:(713)266-0130

File:P114443 #1-575 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

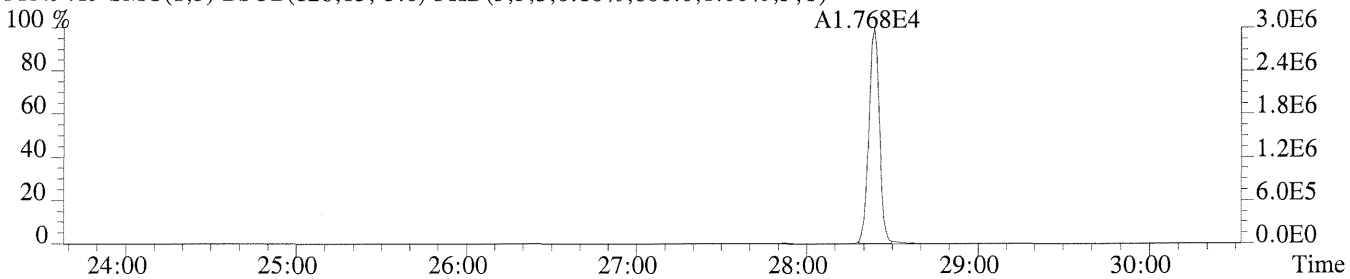
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



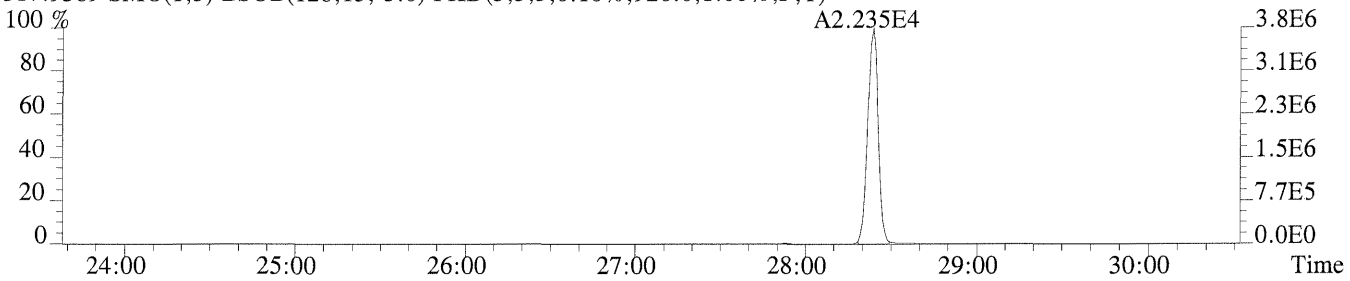
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



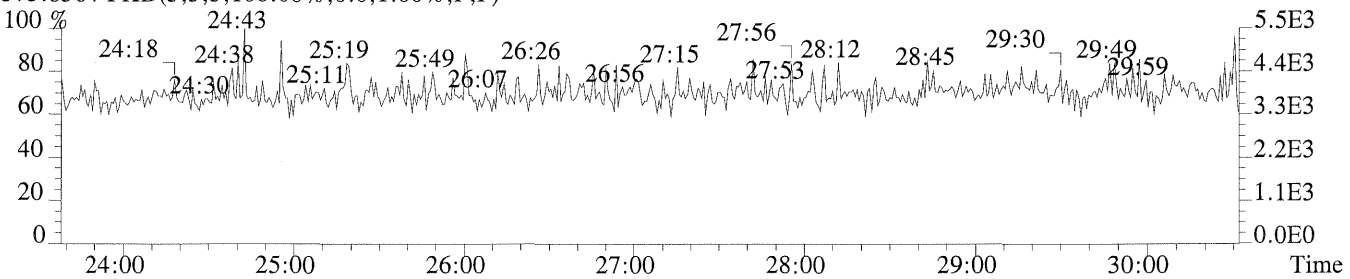
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



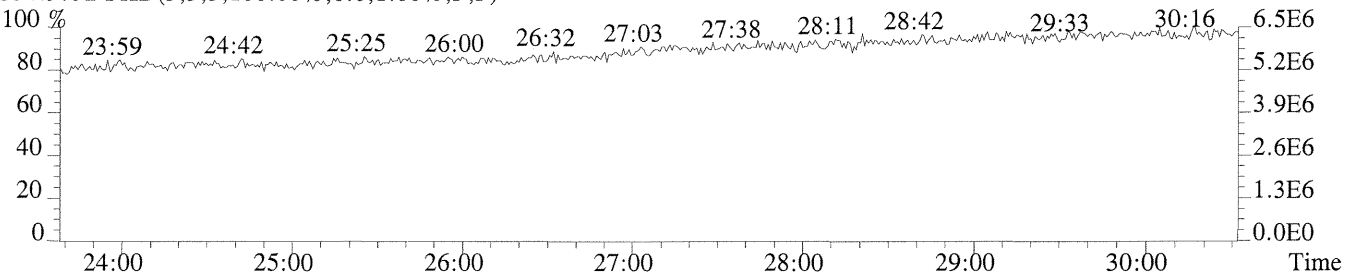
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,920.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

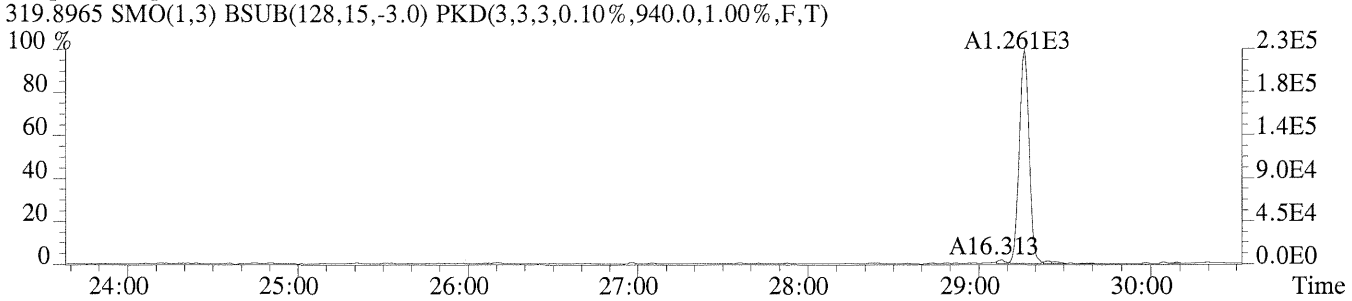


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

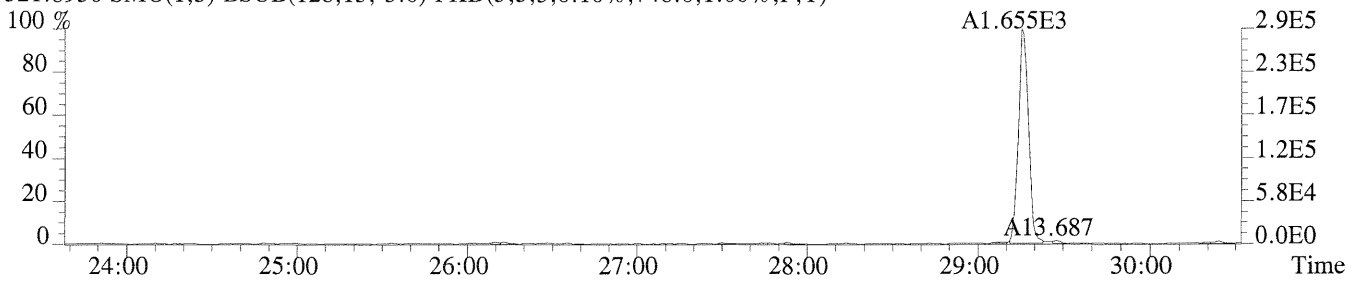


File:P114443 #1-575 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

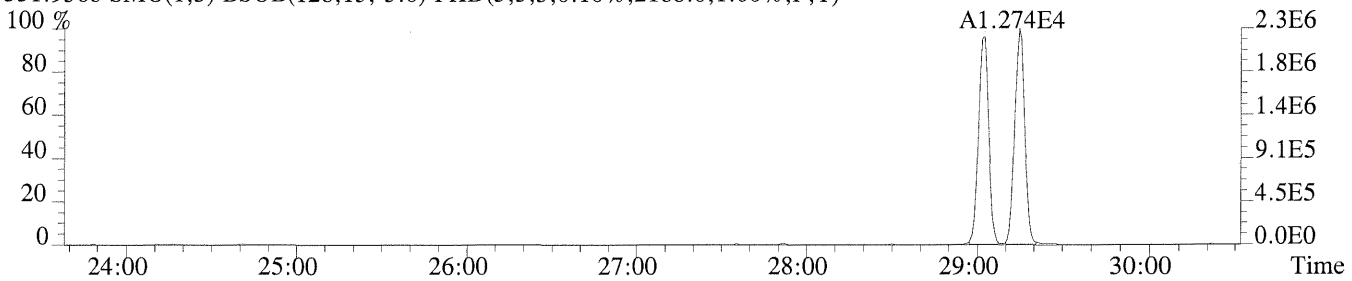
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,940.0,1.00%,F,T)



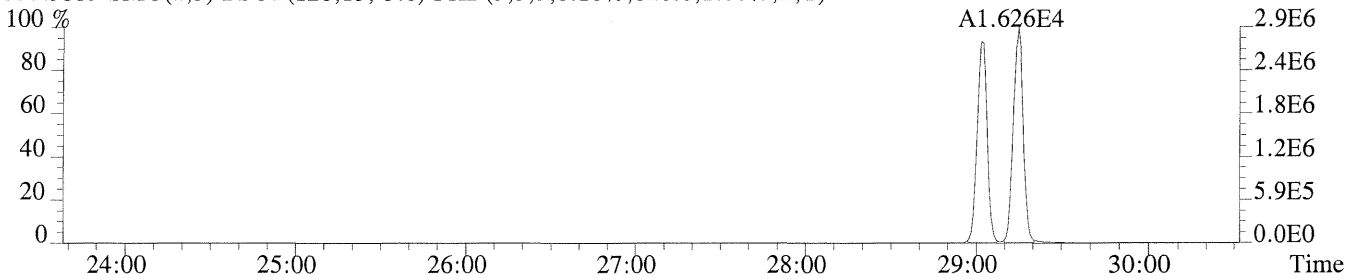
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



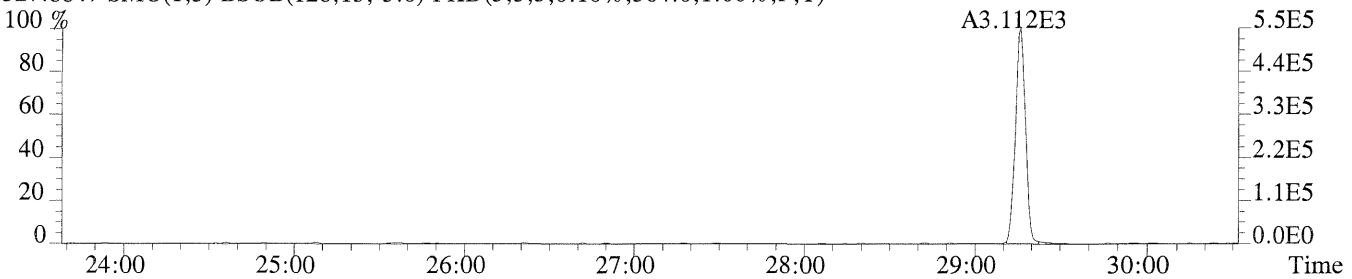
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2188.0,1.00%,F,T)



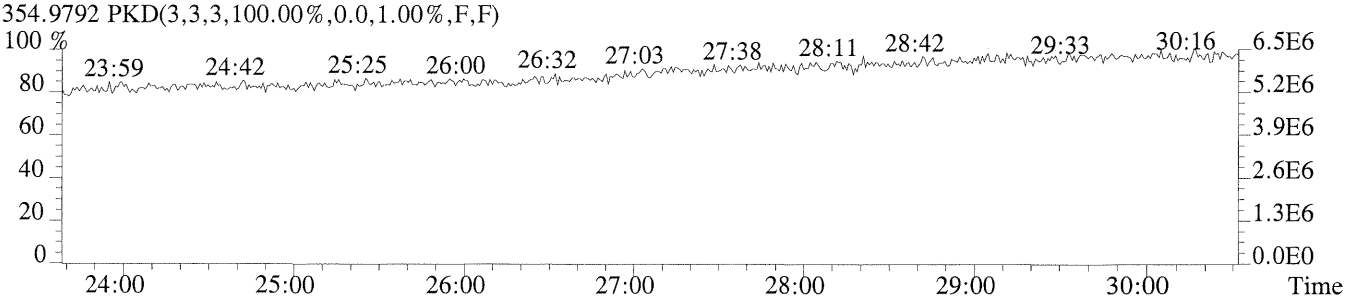
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,816.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)

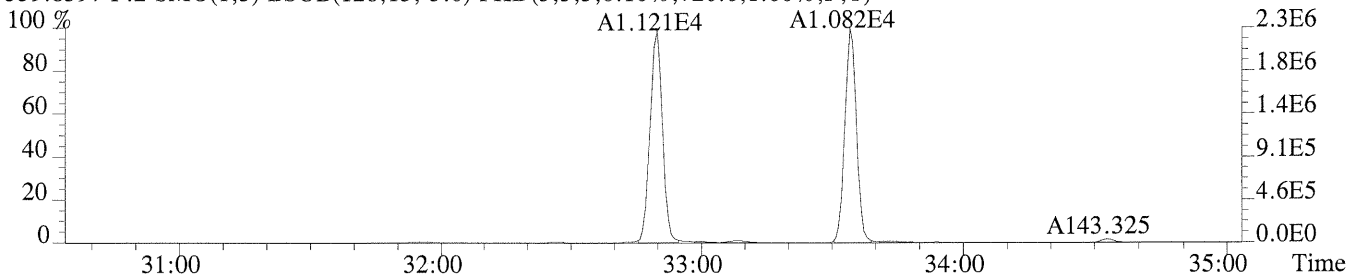


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

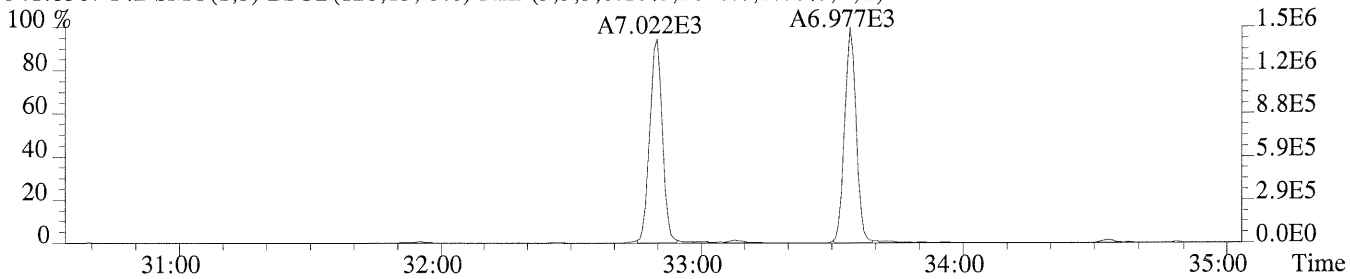


File:P114443 #1-408 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

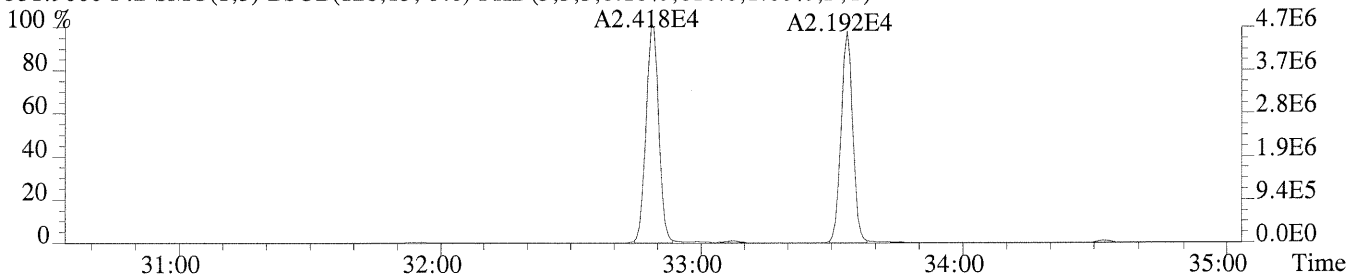
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



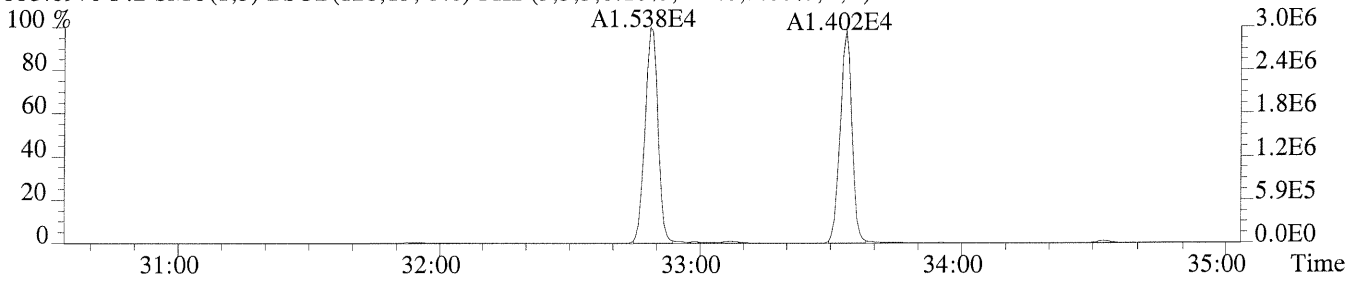
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1048.0,1.00%,F,T)



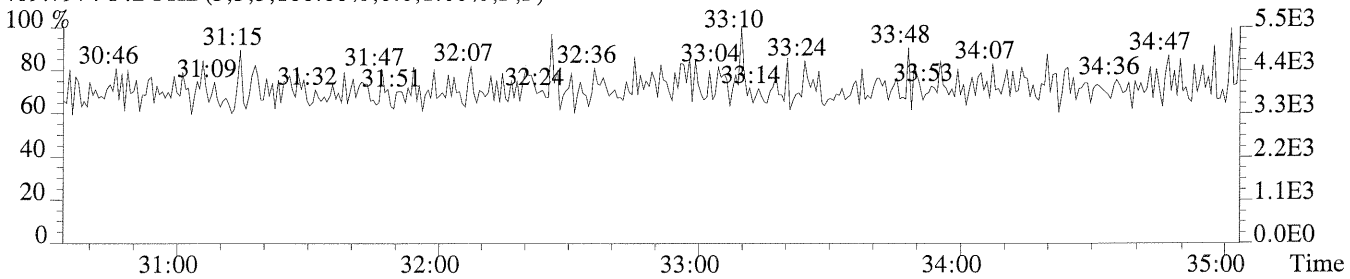
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



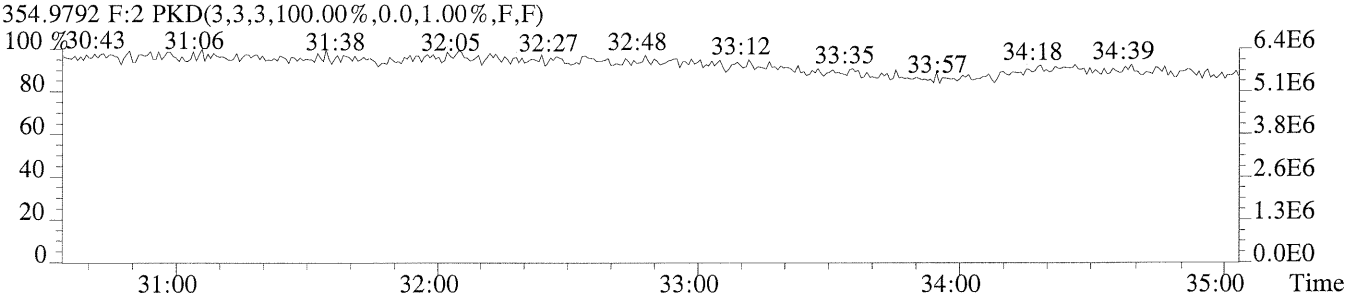
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

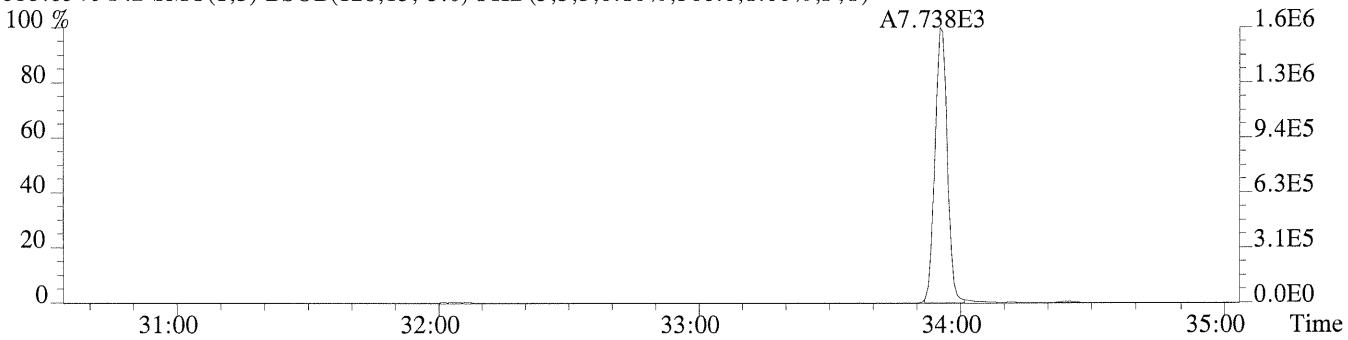


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

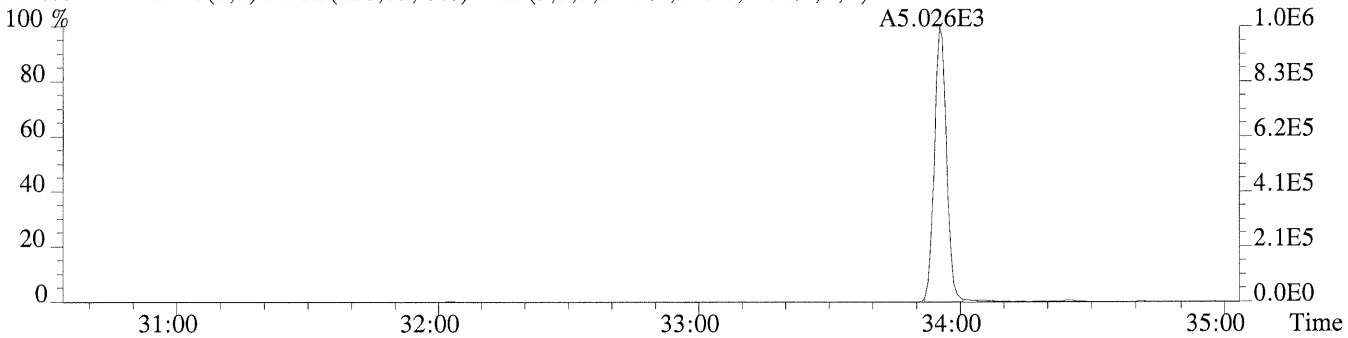


File:P114443 #1-408 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

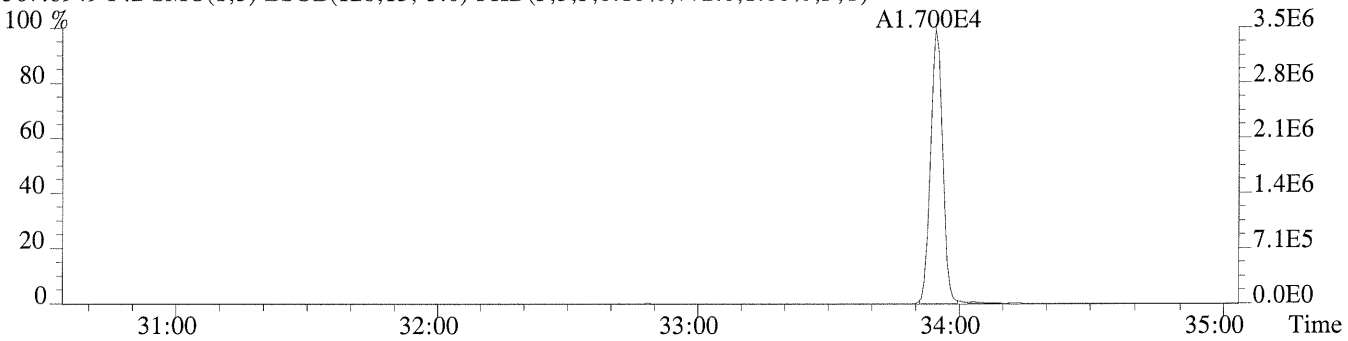
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,568.0,1.00%,F,T)



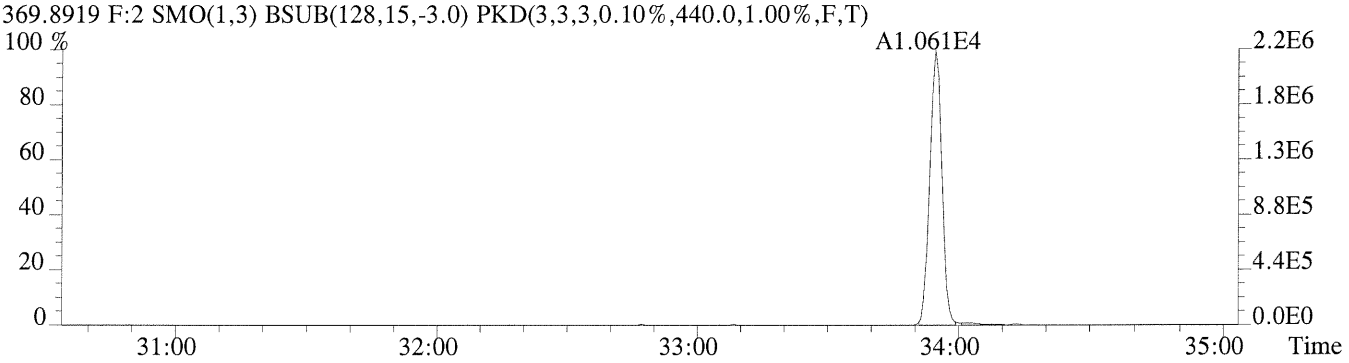
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,320.0,1.00%,F,T)



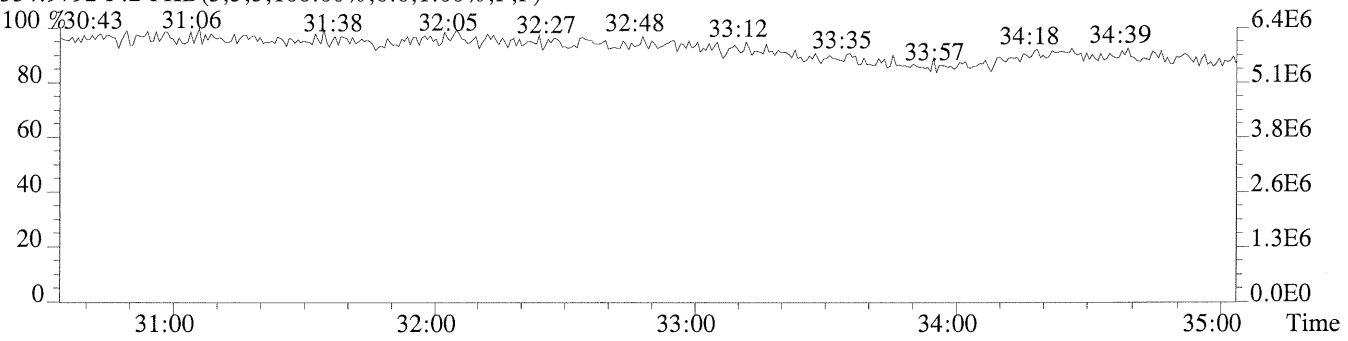
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,440.0,1.00%,F,T)

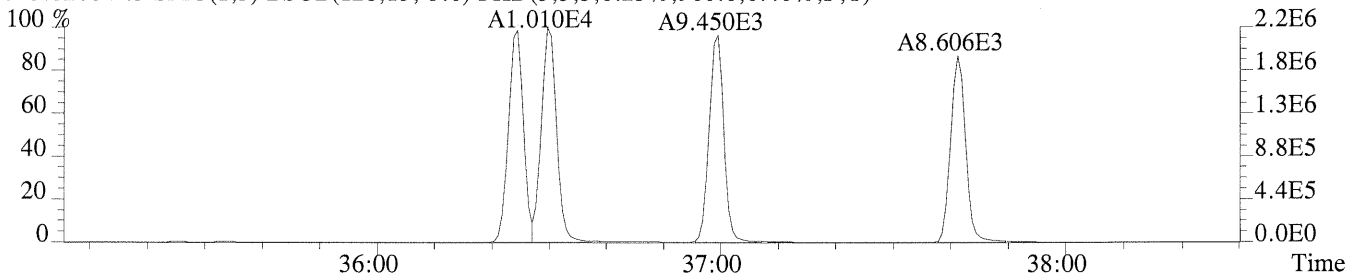


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

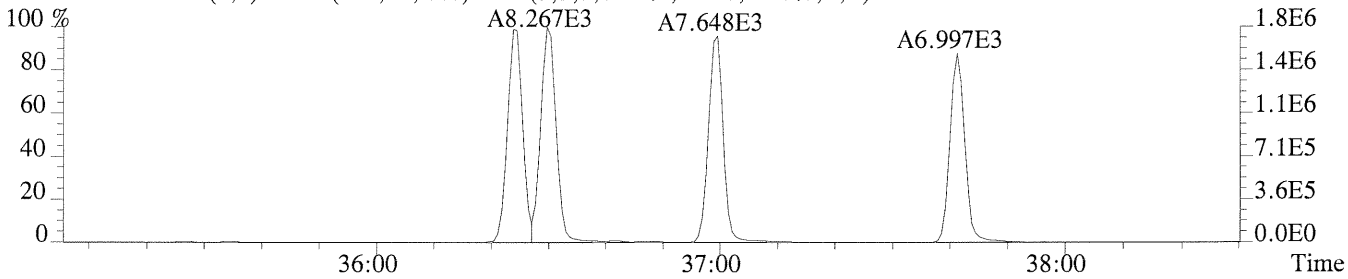


File:P114443 #1-310 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

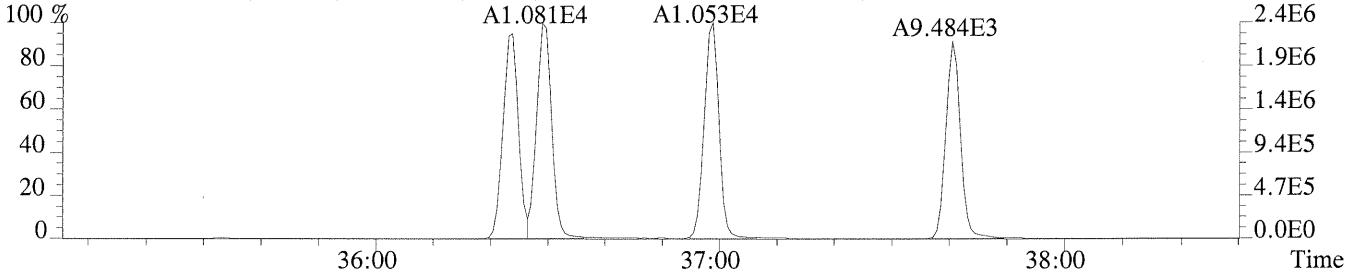
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



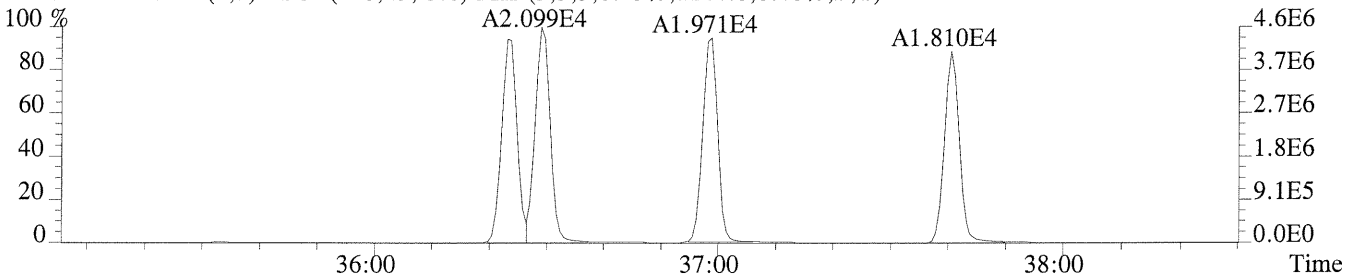
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,624.0,0.40%,F,T)



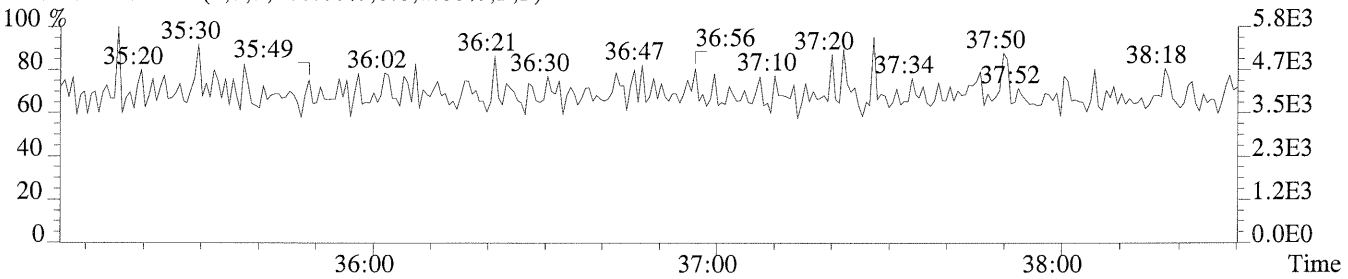
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,272.0,0.40%,F,T)



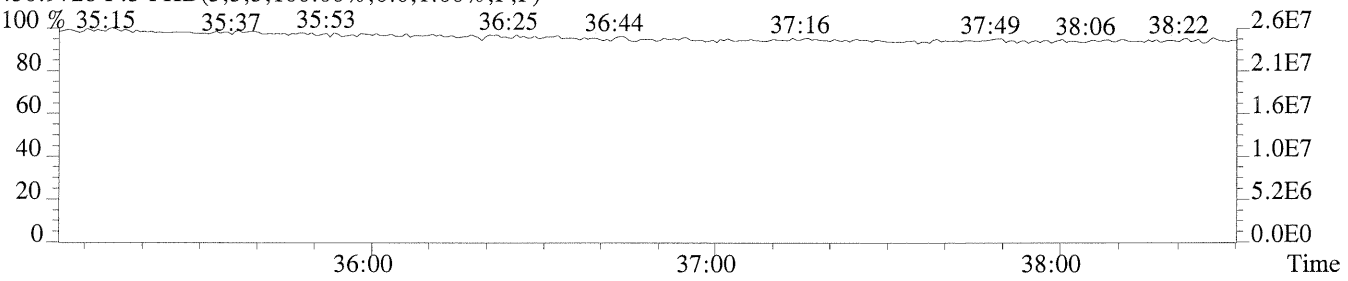
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1144.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

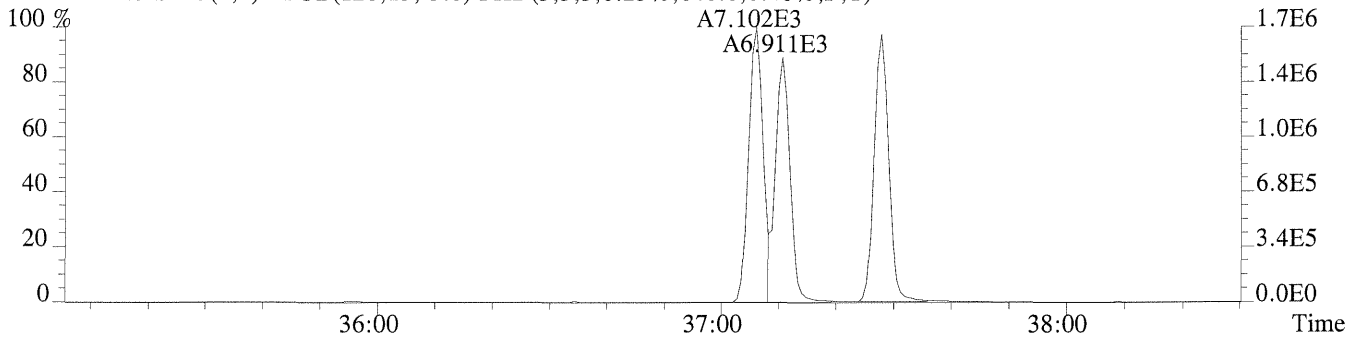


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

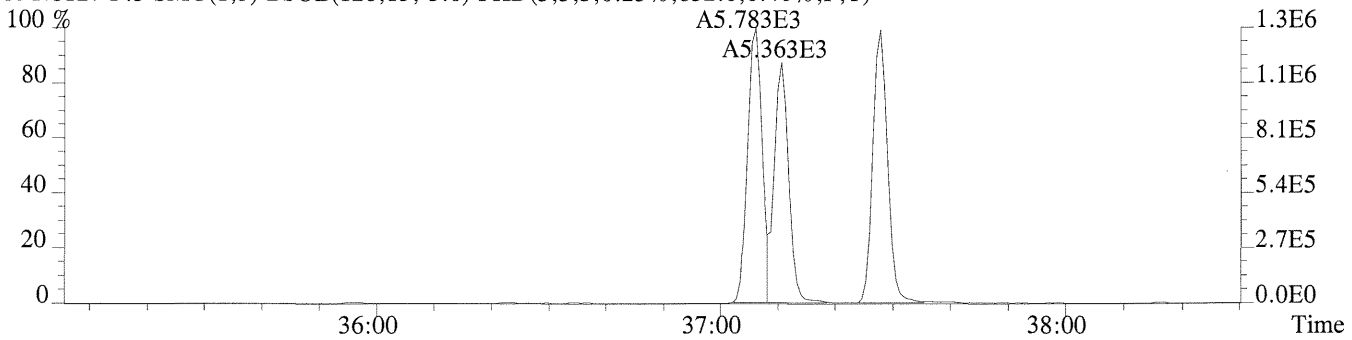


File:P114443 #1-310 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

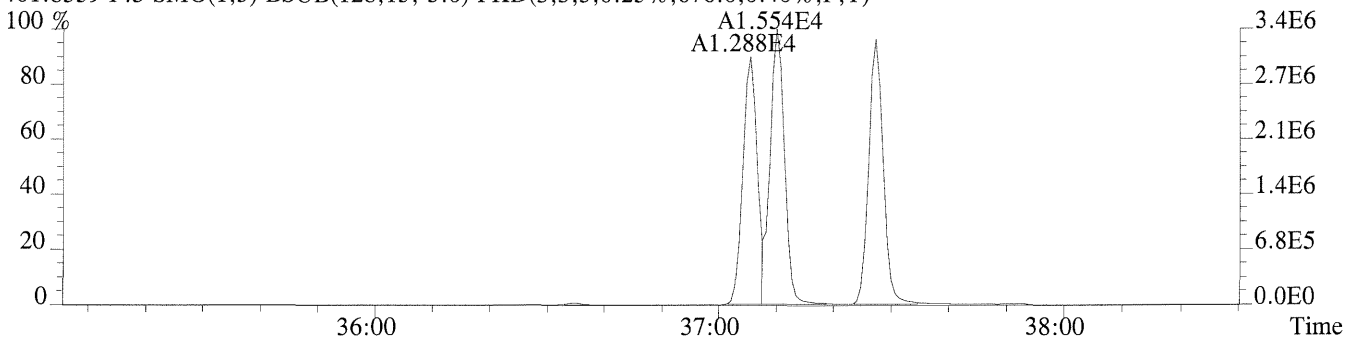
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



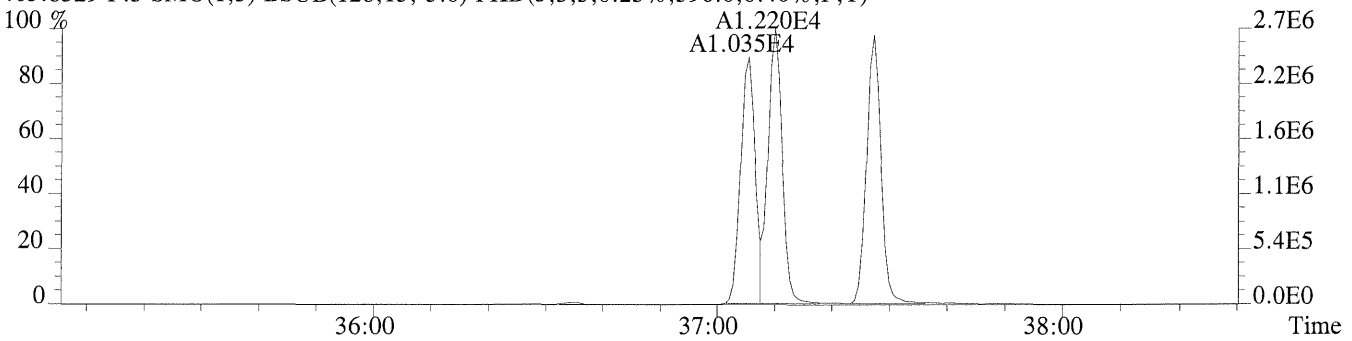
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



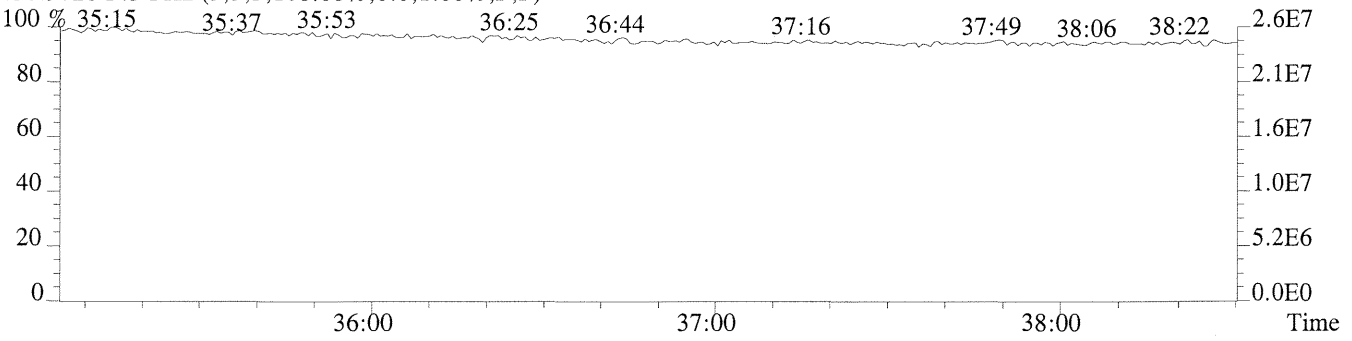
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,676.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,596.0,0.40%,F,T)

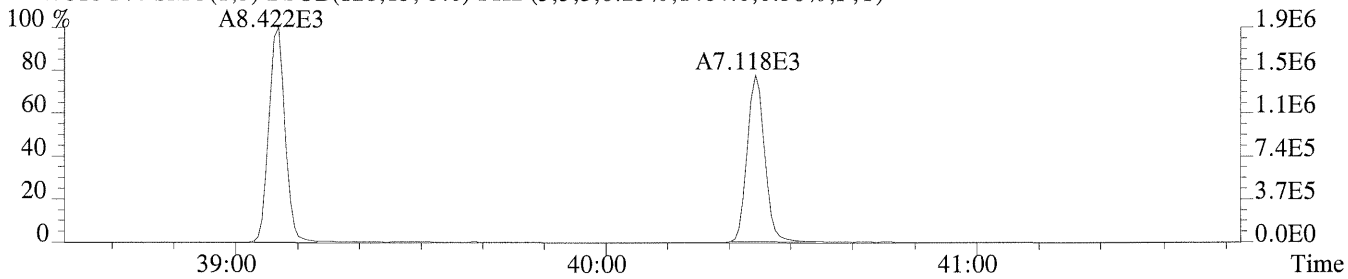


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

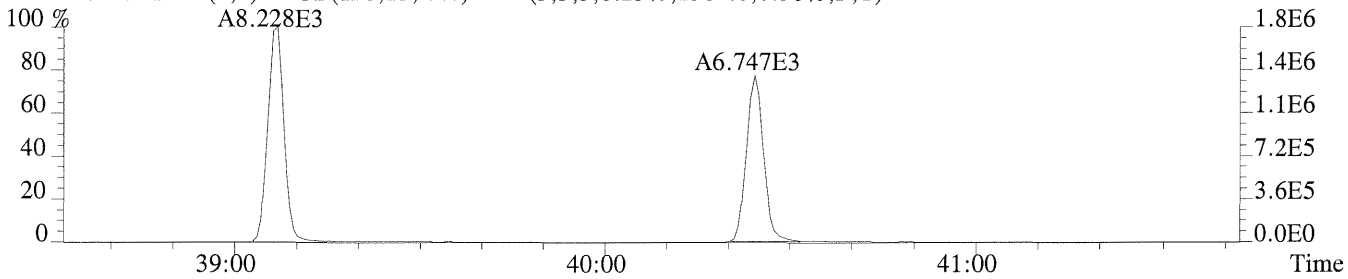


File:P114443 #1-288 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

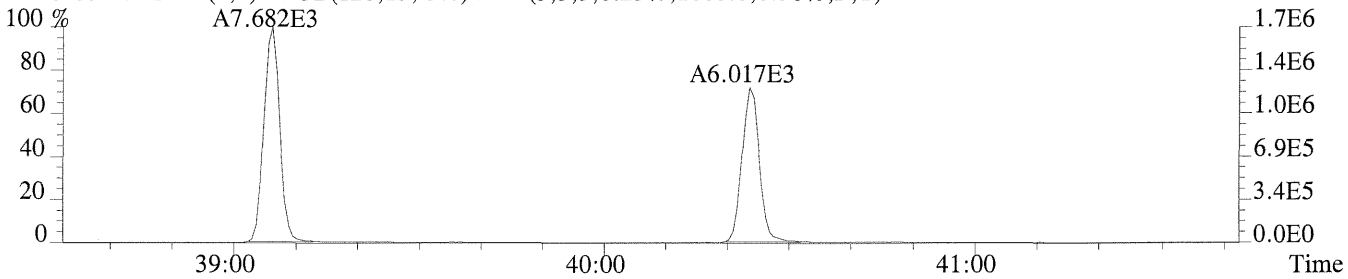
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1484.0,0.50%,F,T)



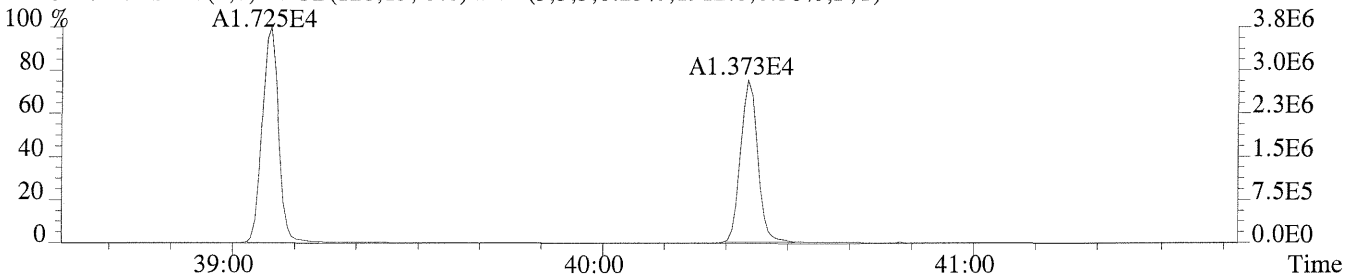
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1364.0,0.50%,F,T)



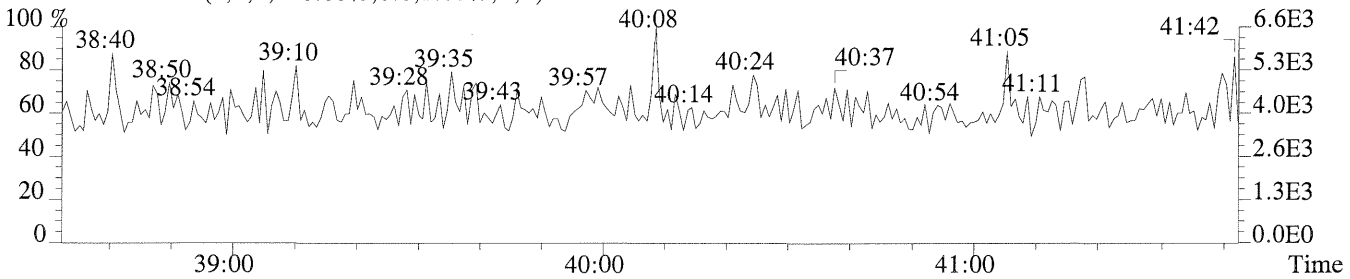
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1668.0,0.50%,F,T)



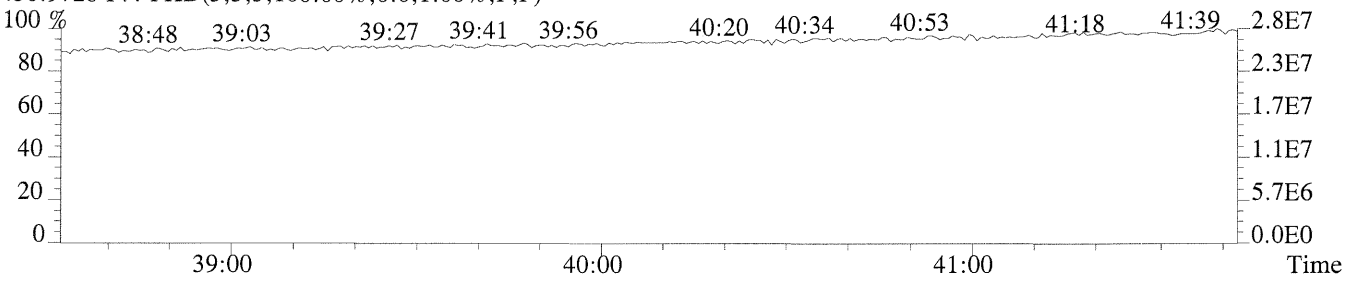
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1912.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

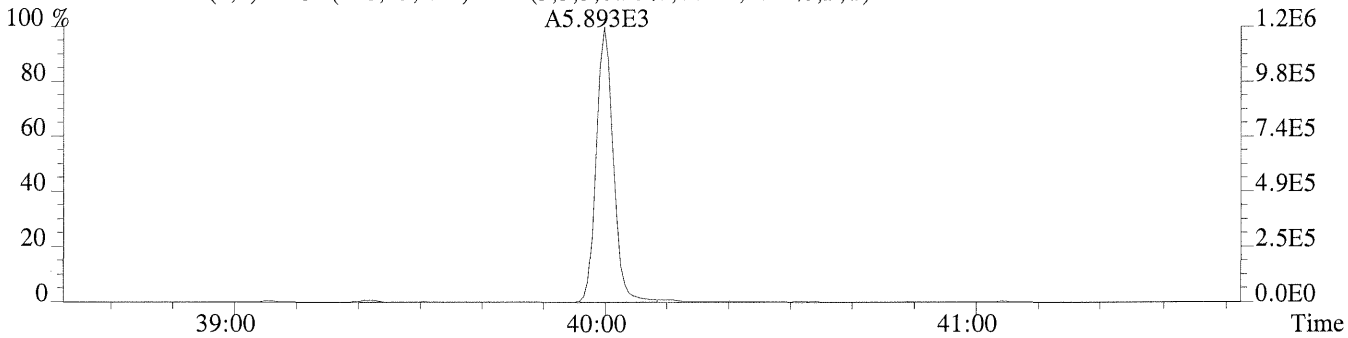


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

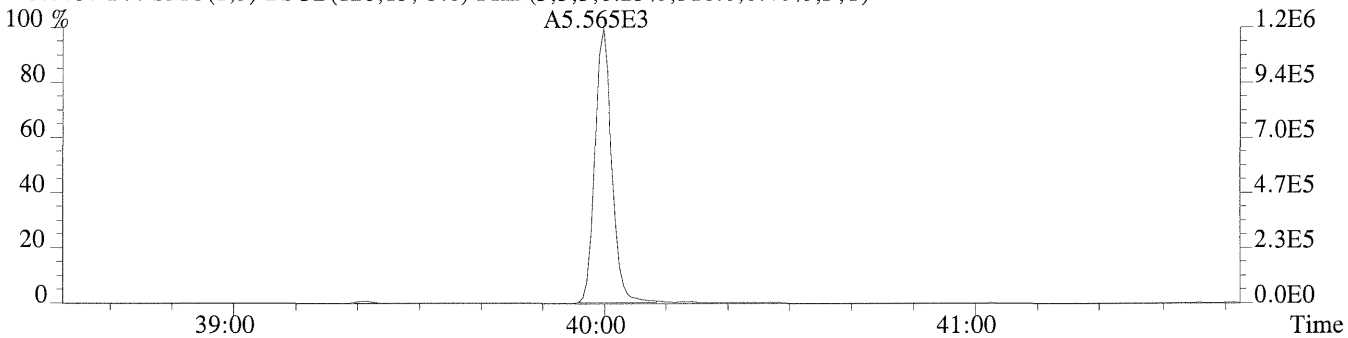


File:P114443 #1-288 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

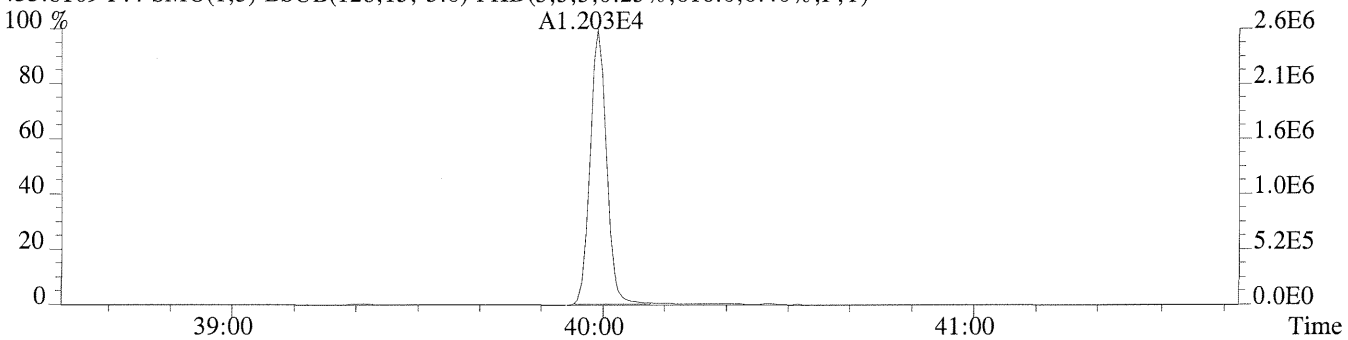
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,664.0,0.40%,F,T)



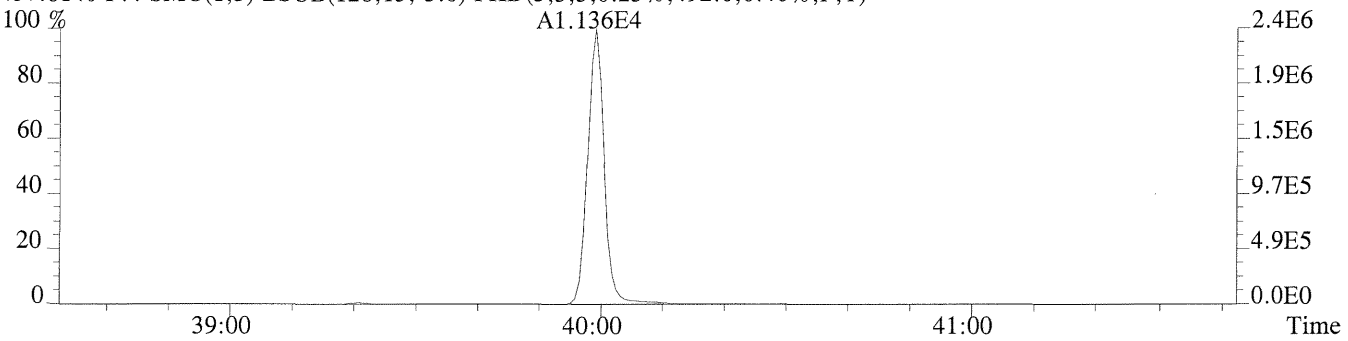
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,516.0,0.40%,F,T)



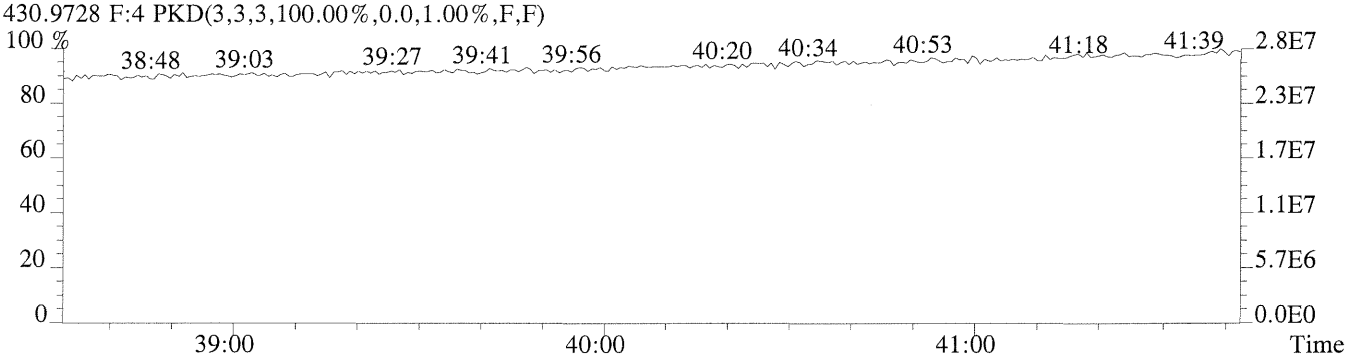
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,616.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,492.0,0.40%,F,T)

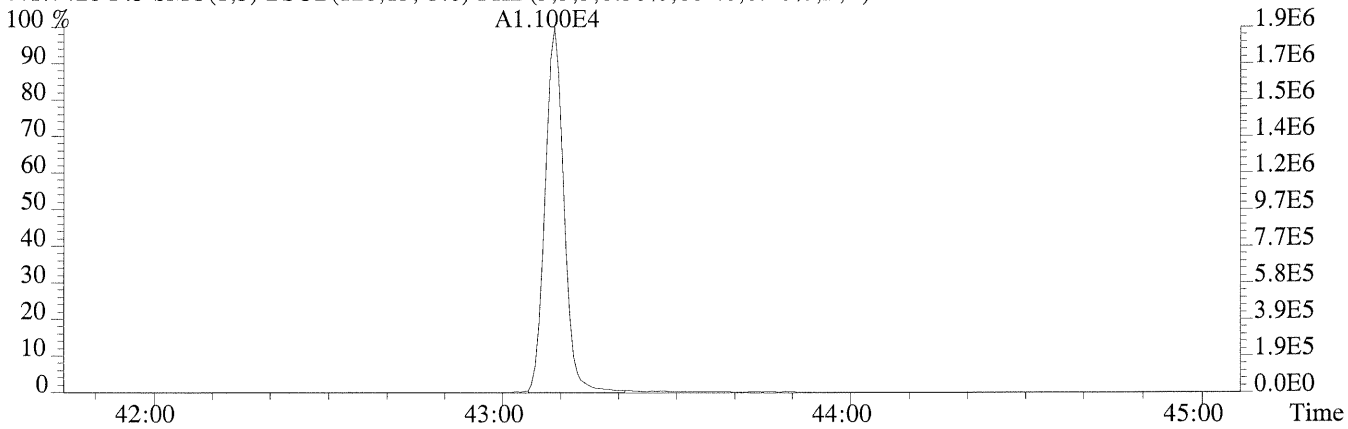


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

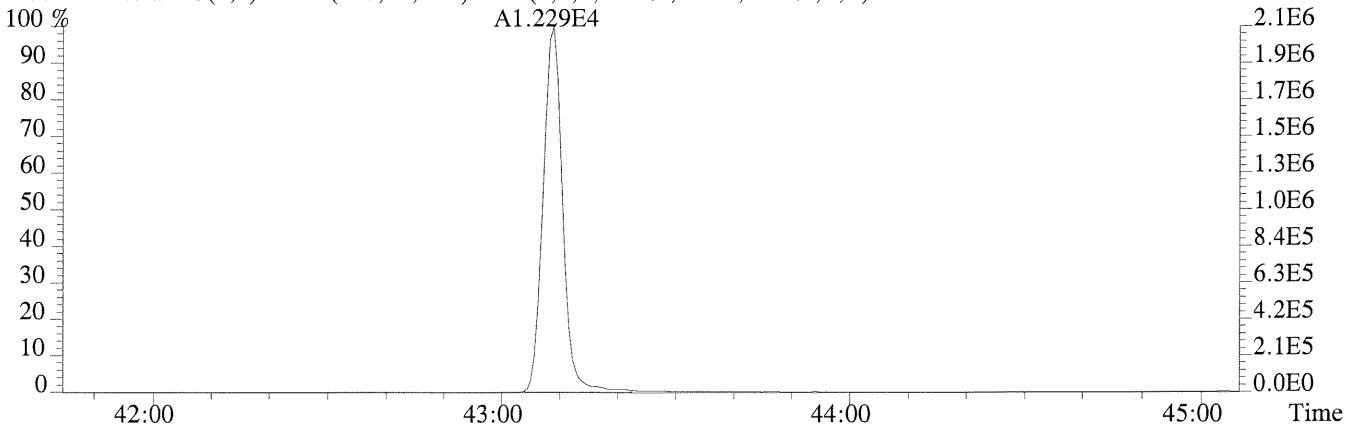


File:P114443 #1-310 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

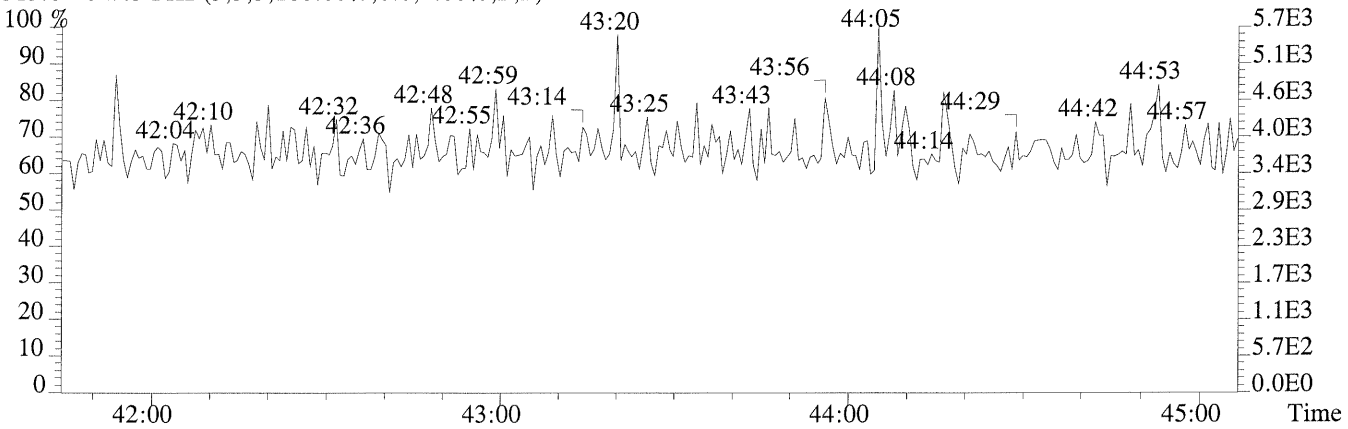
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



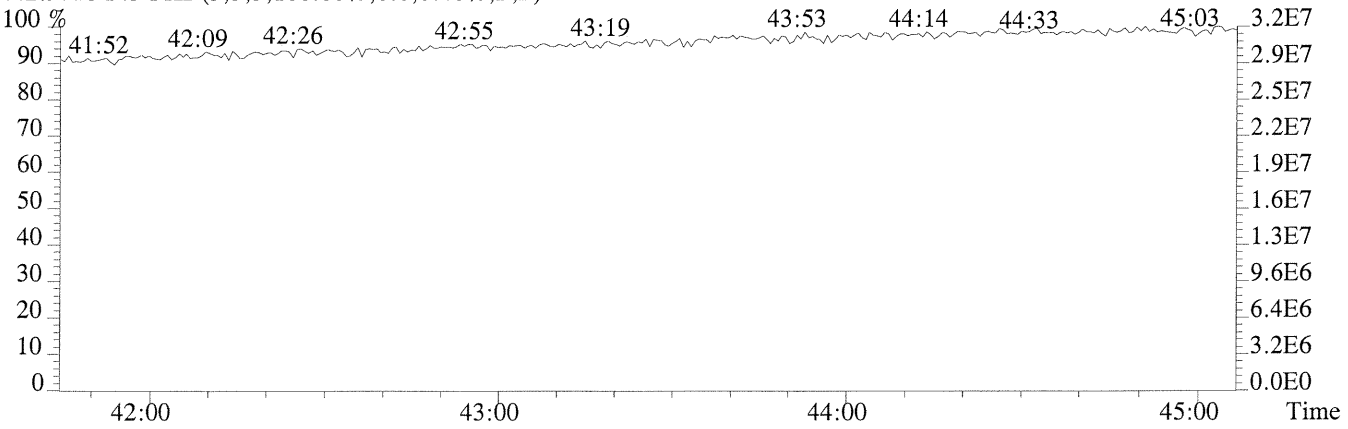
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,720.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

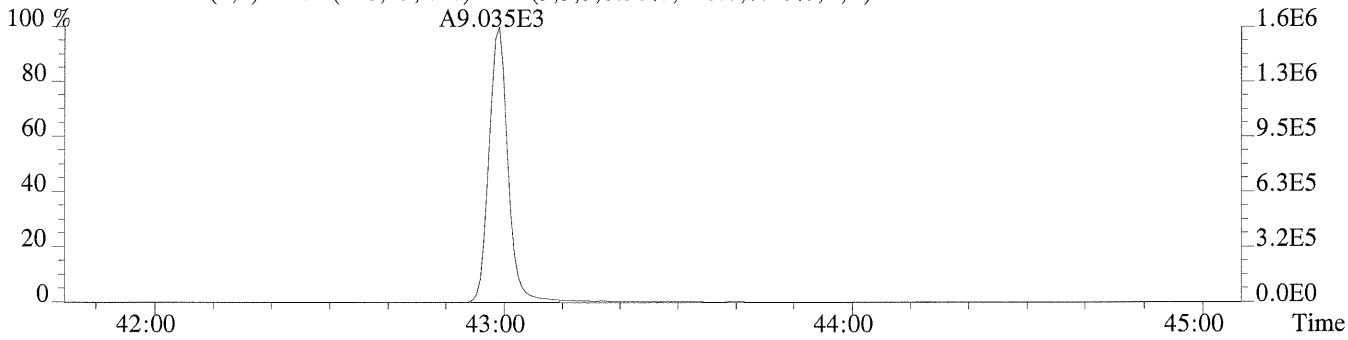


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

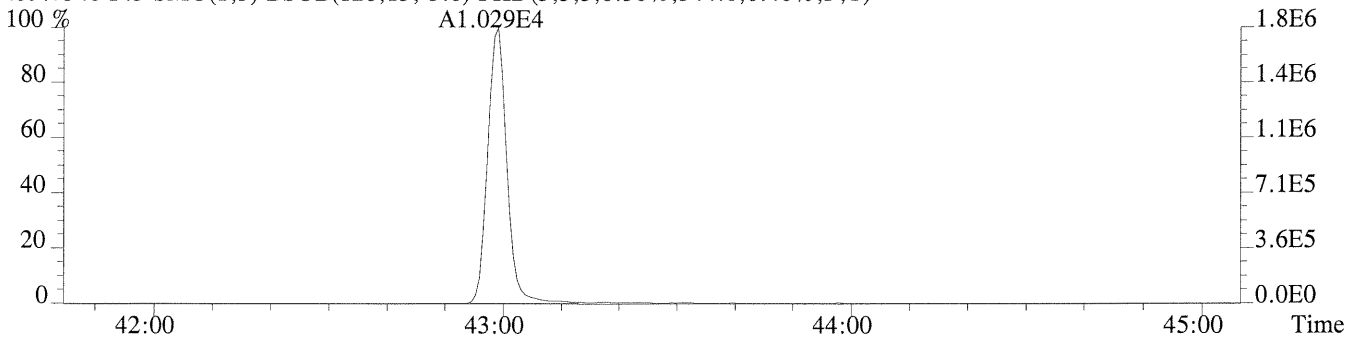


File:P114443 #1-310 Acq: 9-JUN-2011 05:59:02 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

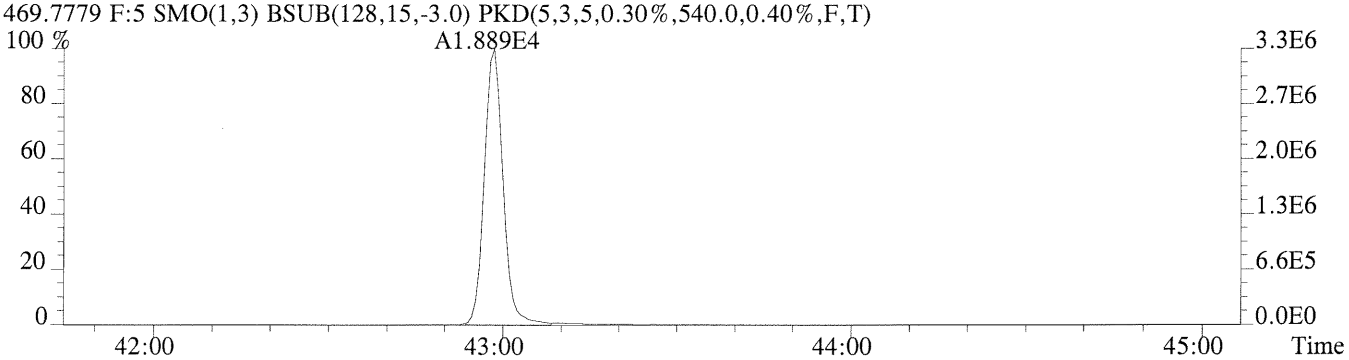
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,776.0,0.40%,F,T)



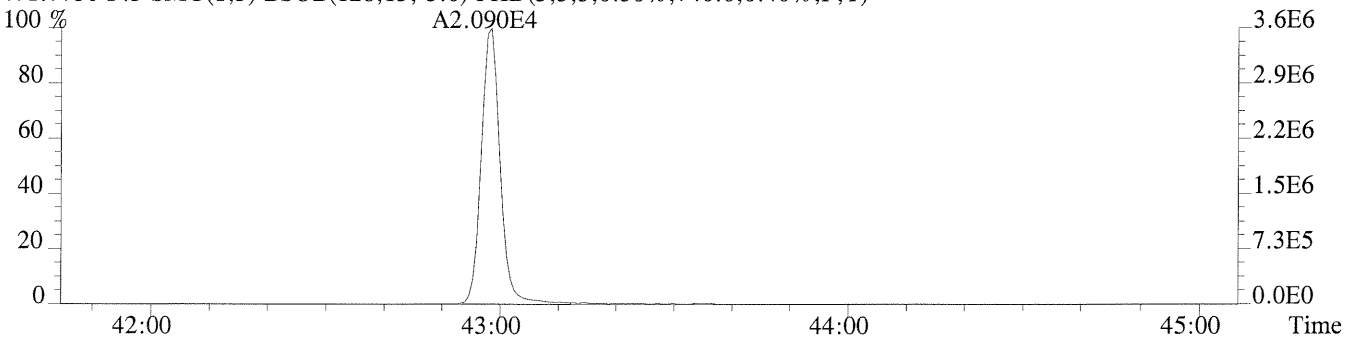
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,344.0,0.40%,F,T)



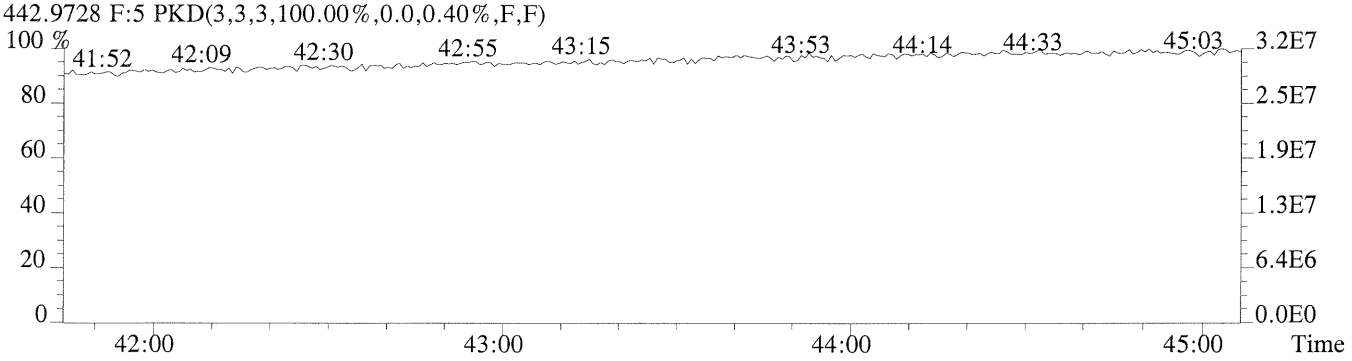
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,740.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



RW/CS3 Daily Calibration QC Checklist

Calibration File Name: P114455

Date: 06/09/11 - 06/10/11

Circle one: Beginning / Ending

Method: 1613 / 1613E / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N/A	N/A
Ending Calibration injected prior to end of 12 hour clock	N/A	N/A

Analyst: MC

Second QC: 84

ccalqc.xls 02/08/00

USEPA - CLP

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 03/24/11

Init. Calib.Times: 08:49

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P114456	9-JUN-11	17:47:41
CCAL CS3	CCAL CS3	P114455	9-JUN-11	16:50:57
METHOD BLANK	EQ1100270-01	P114457	9-JUN-11	18:33:33
1106-10233-001	E1100600-001	P114458	9-JUN-11	19:21:16
006CT	E1100601-001	P114459	9-JUN-11	20:08:56
T77527-1X	DO NOT USE	P114460	9-JUN-11	20:56:36
T77530-1X	E1100606-001	P114461	9-JUN-11	21:44:17
T77495-1X	E1100607-001	P114462	9-JUN-11	22:31:58
T77519-1X	E1100608-001	P114463	9-JUN-11	23:19:38
LCS	EQ1100270-02	P114464	10-JUN-11	00:07:19
DLCS	EQ1100270-03	P114465	10-JUN-11	00:54:59

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1110609B.SPL
Last Modified: Thursday, June 09, 2011 17:21:11 Central Daylight Time
Printed: Friday, June 10, 2011 04:10:58 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

P114455RES

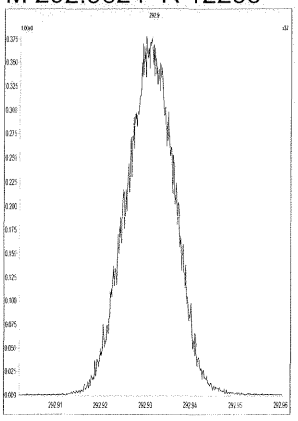
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	06/09/11	16:50	P114455	CCAL CS3	D11-50-1		HRMS CHECK 17:45	8290cas	8290CAS
2		17:47 18:- MC 06/10/11	P114456	WINDOW DEFINE	D11-100-5			8290cas	8290CAS
3		18:33	P114457	EQ1100270-01	MB			8290cas	8290CAS
4		19:21	P114458	E1100600-001	1106-10233-001			8290cas	8290CAS
5		20:08	P114459	E1100601-001	006CT			8290cas	8290CAS
6		20:56	P114460	E1100605-001	T77527-1X		NEEDS RE-EXTRACTED	8290cas	8290CAS
7		21:44	P114461	E1100606-001	T77530-1X			8290cas	8290CAS
8		22:31	P114462	E1100607-001	T77495-1X			8290cas	8290CAS
9		23:19	P114463	E1100608-001	T77519-1X			8290cas	8290CAS
10	06/10/11	00:07	P114464	EQ1100270-02	LCS			8290cas	8290CAS
11	06/10/11	00:54	P114465	EQ1100270-03	DLCS		HRMS CHECK 01:50	8290cas	8290CAS
12			---	---	---			8290cas	8290CAS
13			---	---	---			8290cas	8290CAS
14			---	---	---			8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18			---	---	---			8290cas	8290CAS
19			---	---	---			8290cas	8290CAS
20			---	---	---			8290cas	8290CAS
21	---	---	---	---	---	---	---	8290cas	8290CAS
22	---	---	---	---	---	---	---	8290cas	8290CAS
23	---	---	---	---	---	---	---	8290cas	8290CAS
24	---	---	---	---	---	---	---	8290cas	8290CAS
25	---	---	---	---	---	---	---	8290cas	8290CAS
26	---	---	---	---	---	---	---	8290cas	8290CAS
27	---	---	---	---	---	---	---	8290cas	8290CAS
28	---	---	---	---	---	---	---	8290cas	8290CAS
29	---	---	---	---	---	---	---	8290cas	8290CAS
30	---	---	---	---	---	---	---	8290cas	8290CAS
31	---	---	---	---	---	---	---	8290cas	8290CAS
32	---	---	---	---	---	---	---	8290cas	8290CAS
33	---	---	---	---	---	---	---	8290cas	8290CAS
34	---	---	---	---	---	---	---	8290cas	8290CAS
35	---	---	---	---	---	---	---	8290cas	8290CAS
36	---	---	---	---	---	---	---	8290cas	8290CAS
37	---	---	---	---	---	---	---	8290cas	8290CAS
38	---	---	---	---	---	---	---	8290cas	8290CAS
39	---	---	---	---	---	---	Reviewed By: MC	8290cas	8290CAS

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

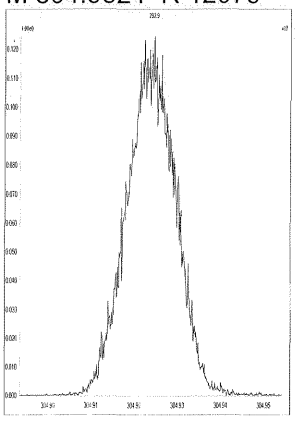
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, June 09, 2011 17:45:57 Central Daylight Time

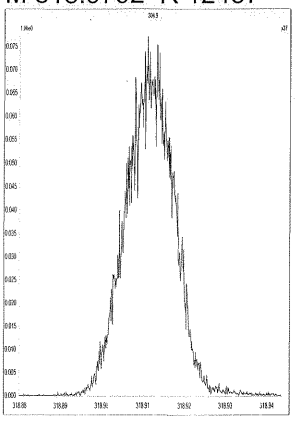
M 292.9824 R 12253



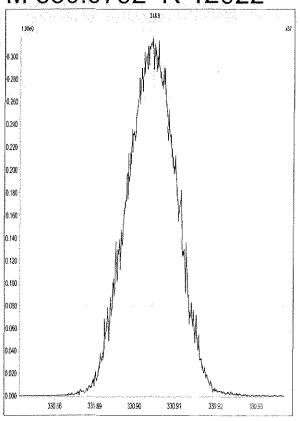
M 304.9824 R 12079



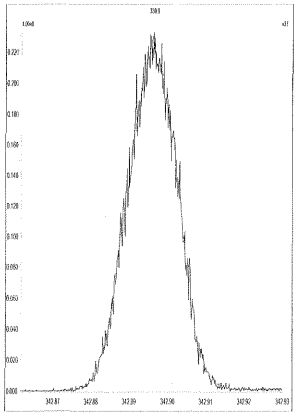
M 318.9792 R 12437



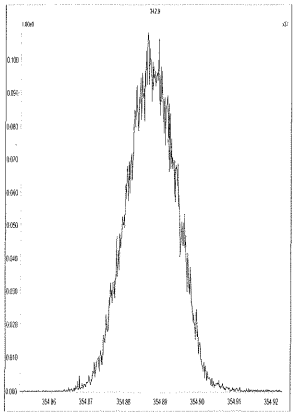
M 330.9792 R 12022



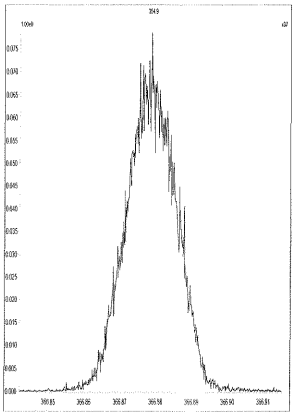
M 342.9792 R 11732



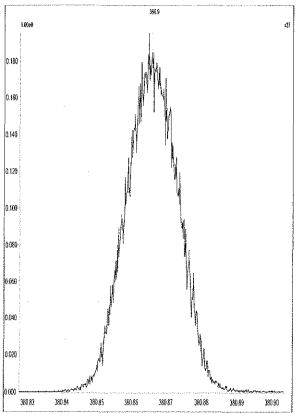
M 354.9792 R 11791



M 366.9792 R 12312



M 380.9760 R 11682

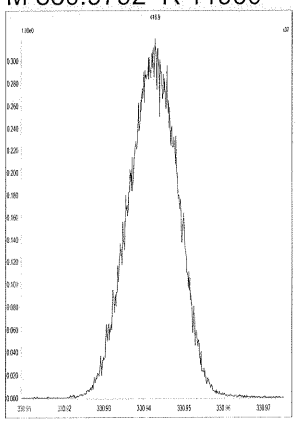


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

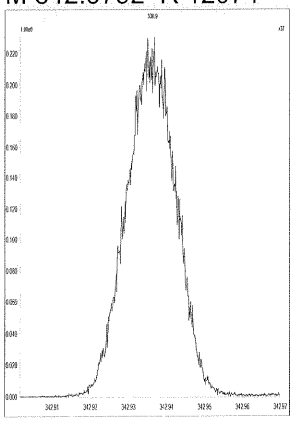
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, June 09, 2011 17:46:29 Central Daylight Time

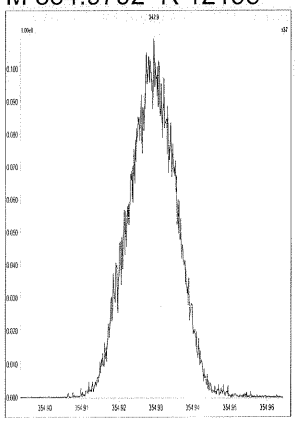
M 330.9792 R 11960



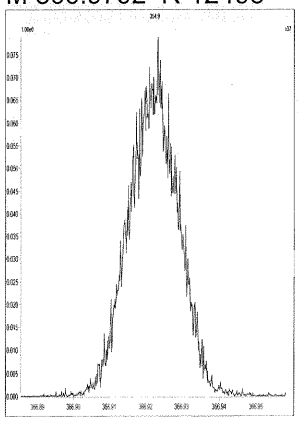
M 342.9792 R 12074



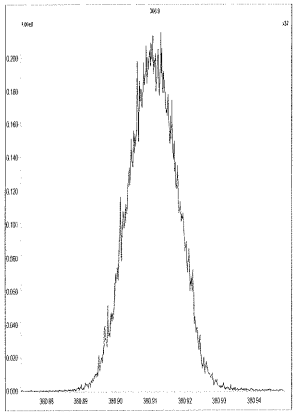
M 354.9792 R 12195



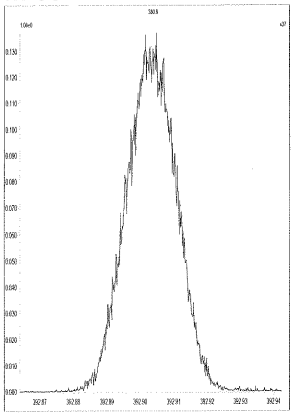
M 366.9792 R 12498



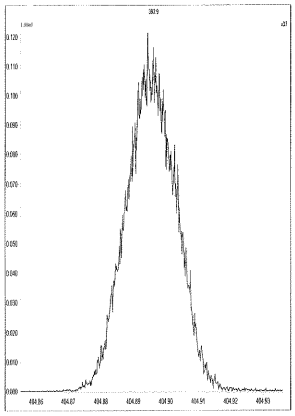
M 380.9760 R 11738



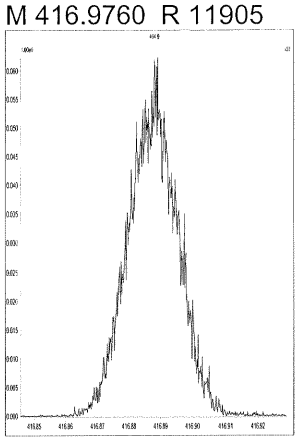
M 392.9760 R 11627



M 404.9760 R 11465



M 416.9760 R 11905

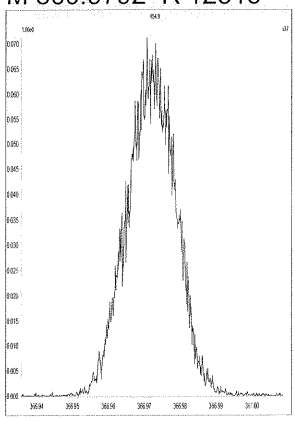


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

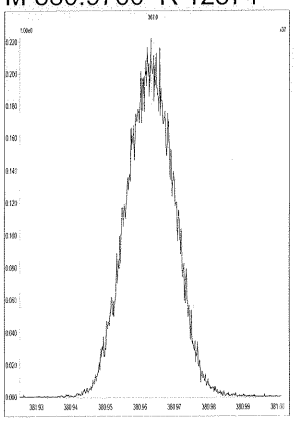
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, June 09, 2011 17:46:47 Central Daylight Time

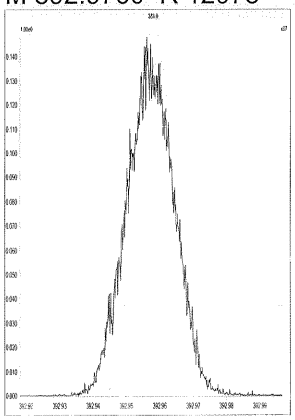
M 366.9792 R 12315



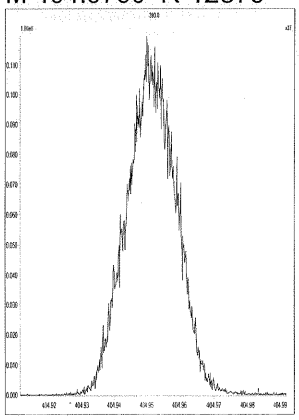
M 380.9760 R 12374



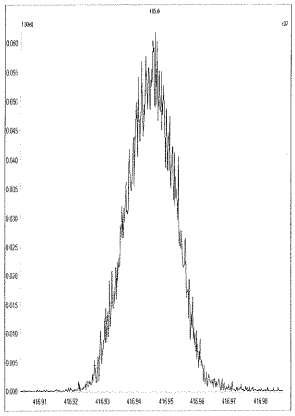
M 392.9760 R 12078



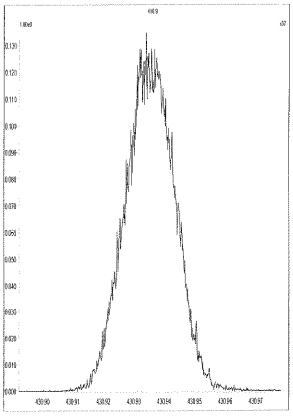
M 404.9760 R 12375



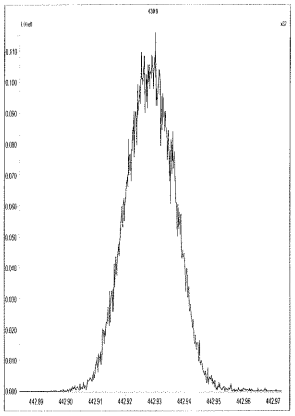
M 416.9760 R 12623



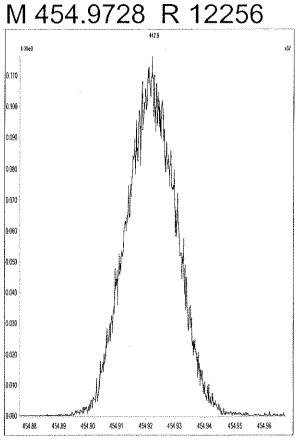
M 430.9728 R 11468



M 442.9728 R 11791



M 454.9728 R 12256

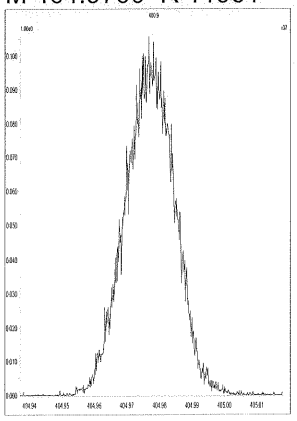


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

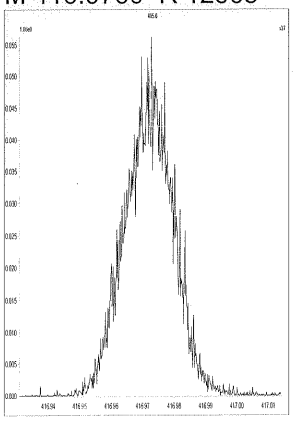
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, June 09, 2011 17:47:04 Central Daylight Time

M 404.9760 R 11961



M 416.9760 R 12565



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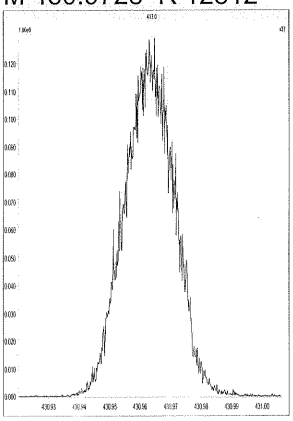

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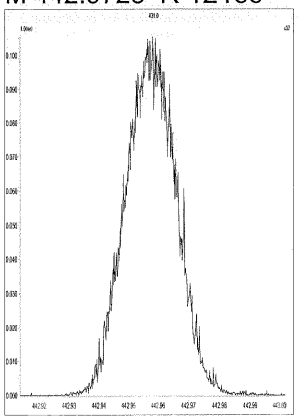

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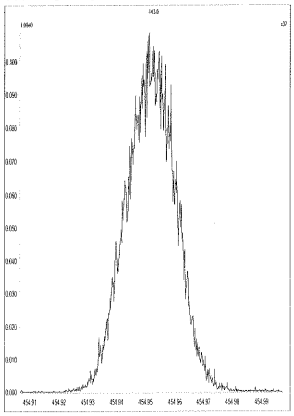

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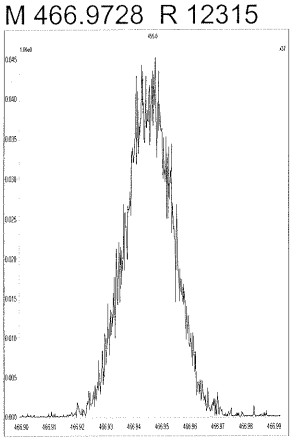

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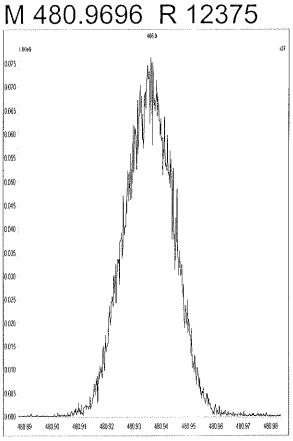

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

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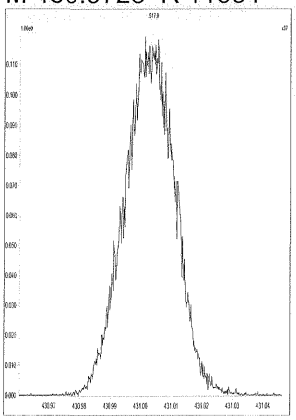

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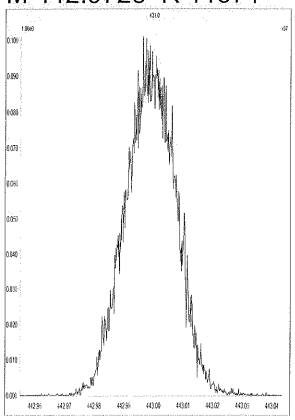

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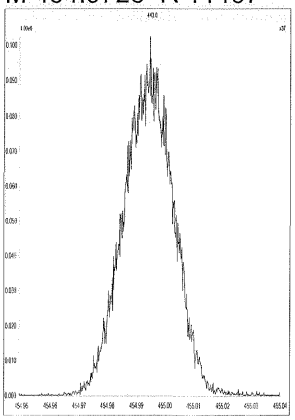

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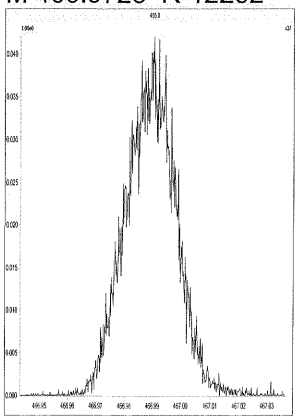

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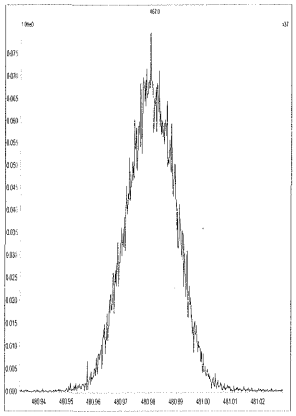

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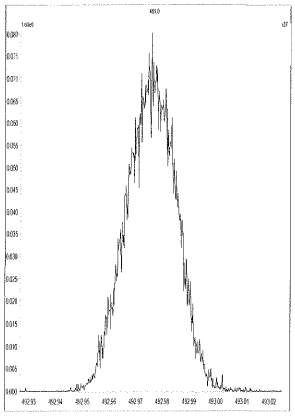
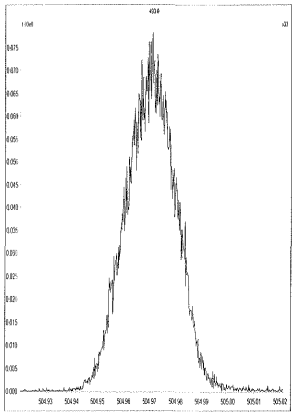


M 504.9696 R 12078



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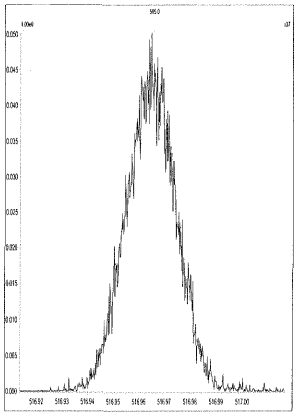

Resolution Check Report **MassLynx 4.1** Page 1 of 3

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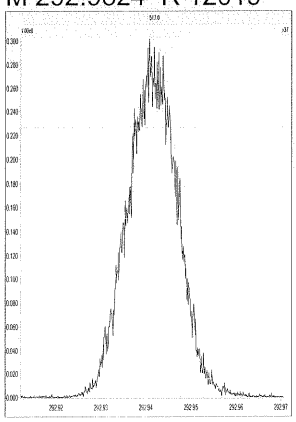

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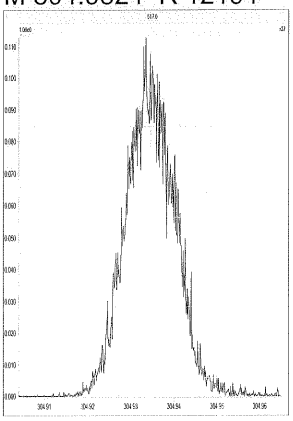

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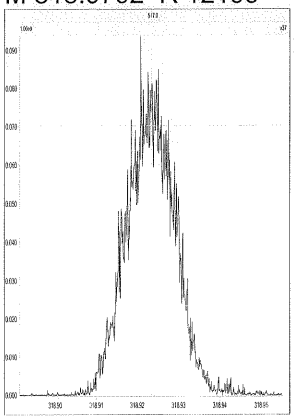

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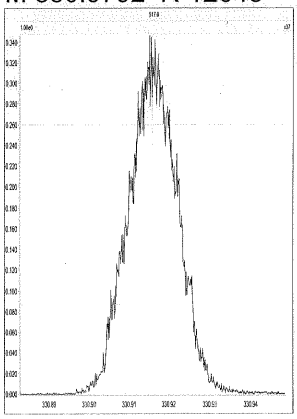

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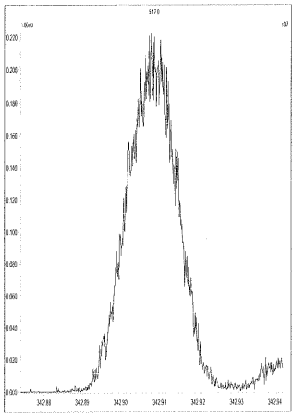

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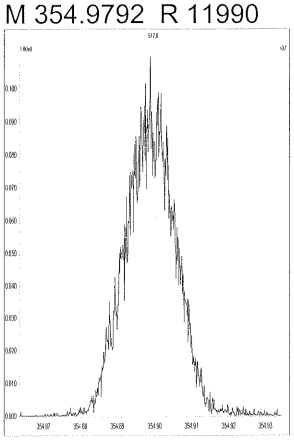

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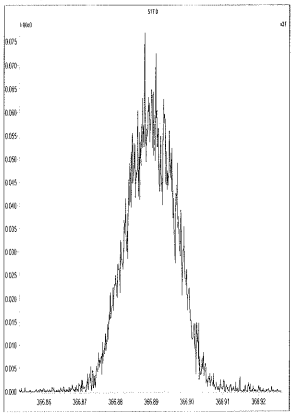

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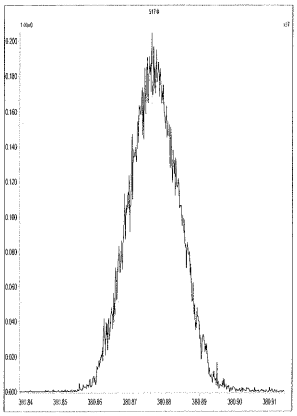

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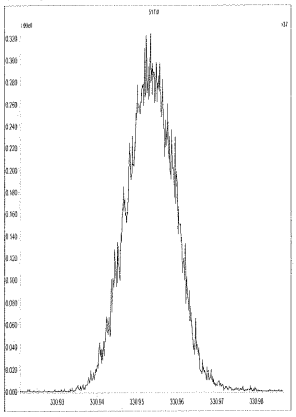

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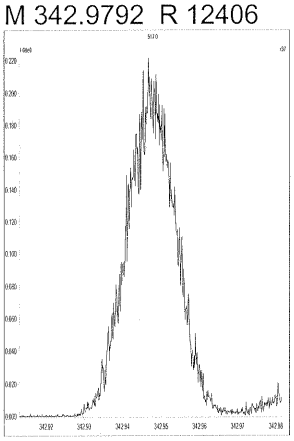

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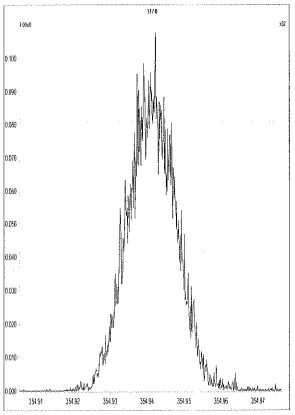

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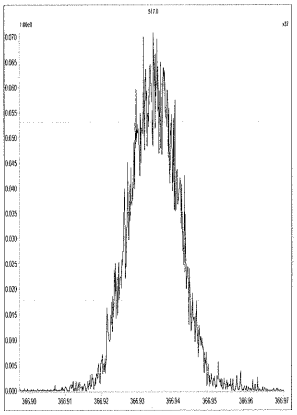

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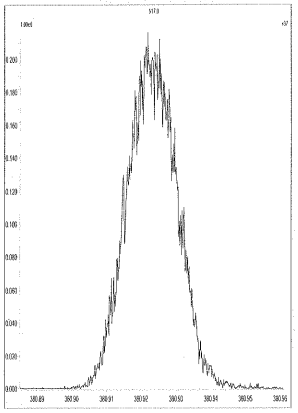

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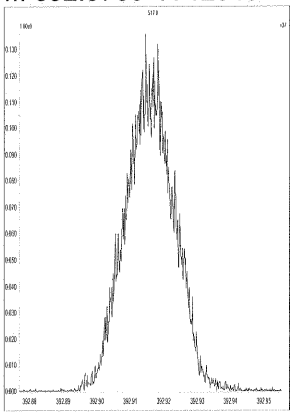

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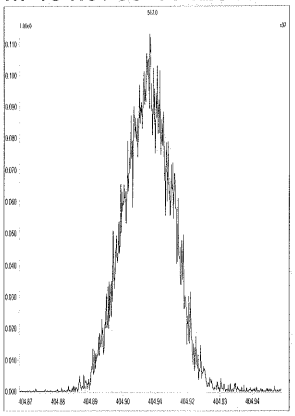

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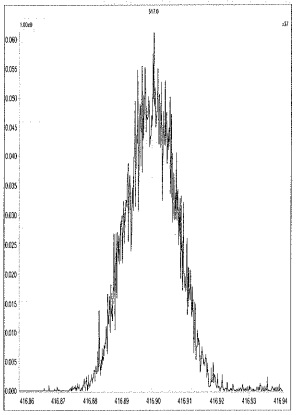

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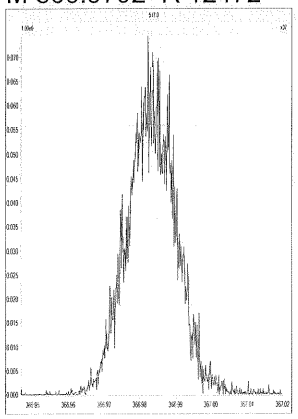

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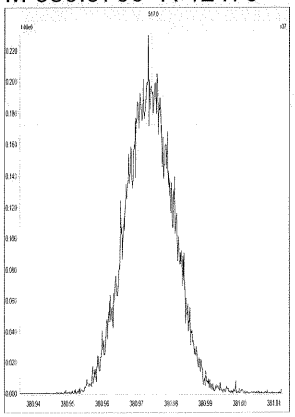

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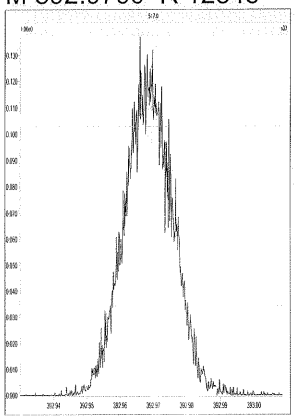

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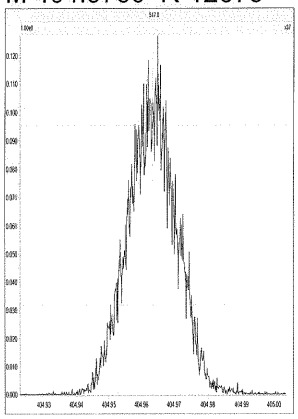

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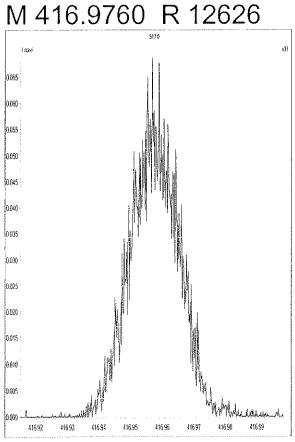

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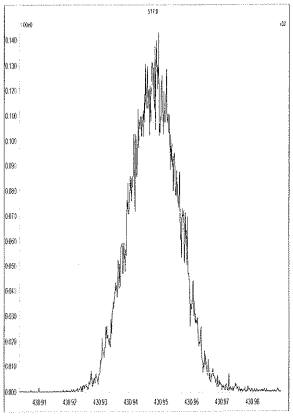

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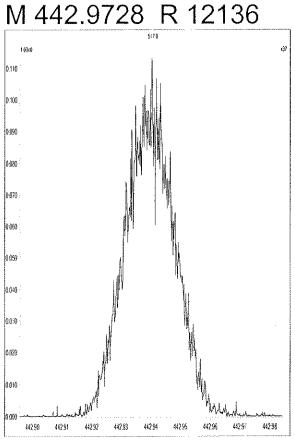

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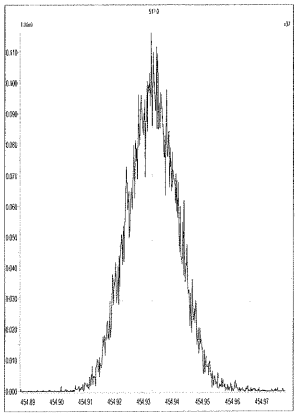

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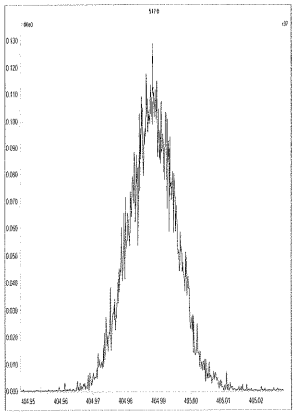

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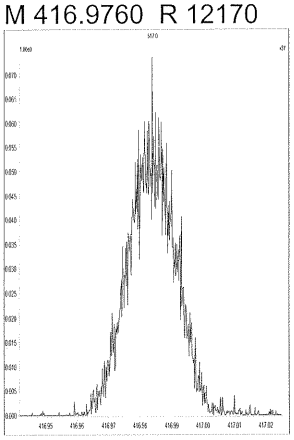

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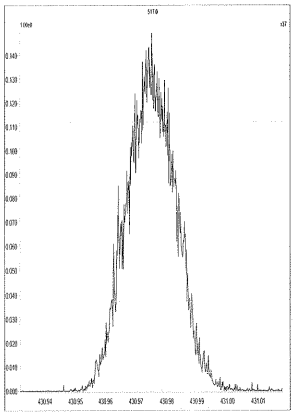

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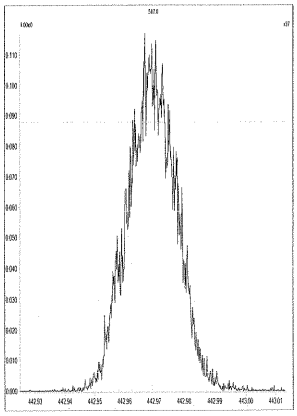

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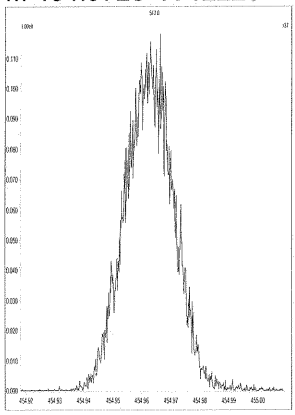

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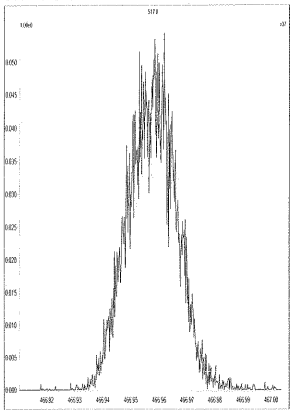

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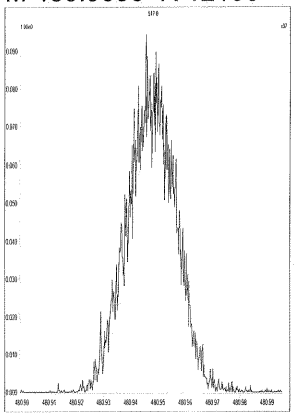

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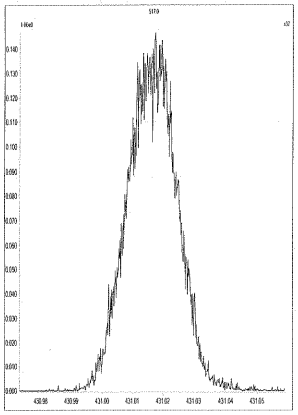

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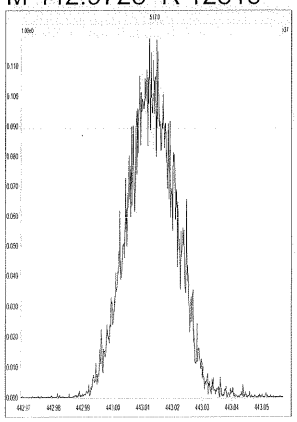

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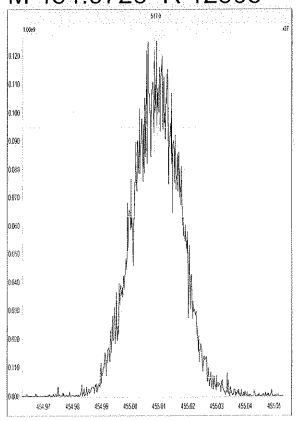

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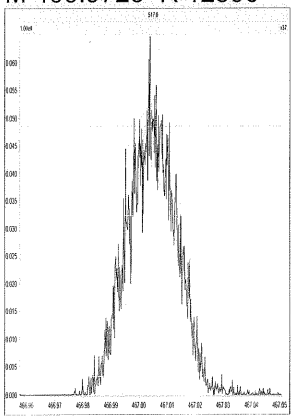

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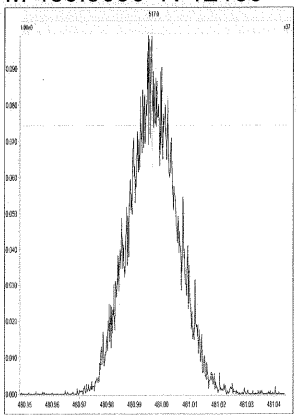

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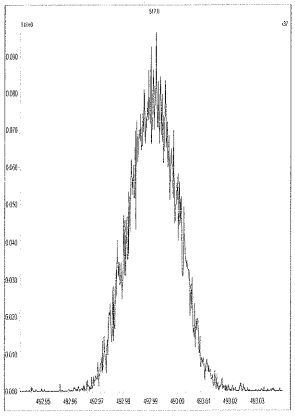

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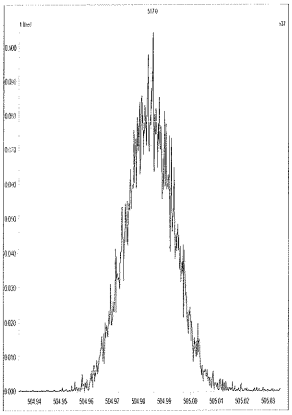

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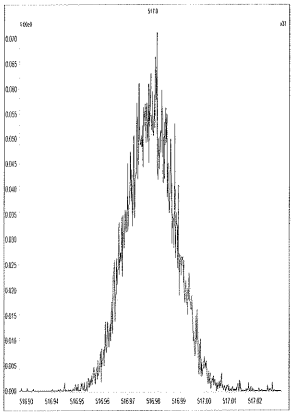


5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

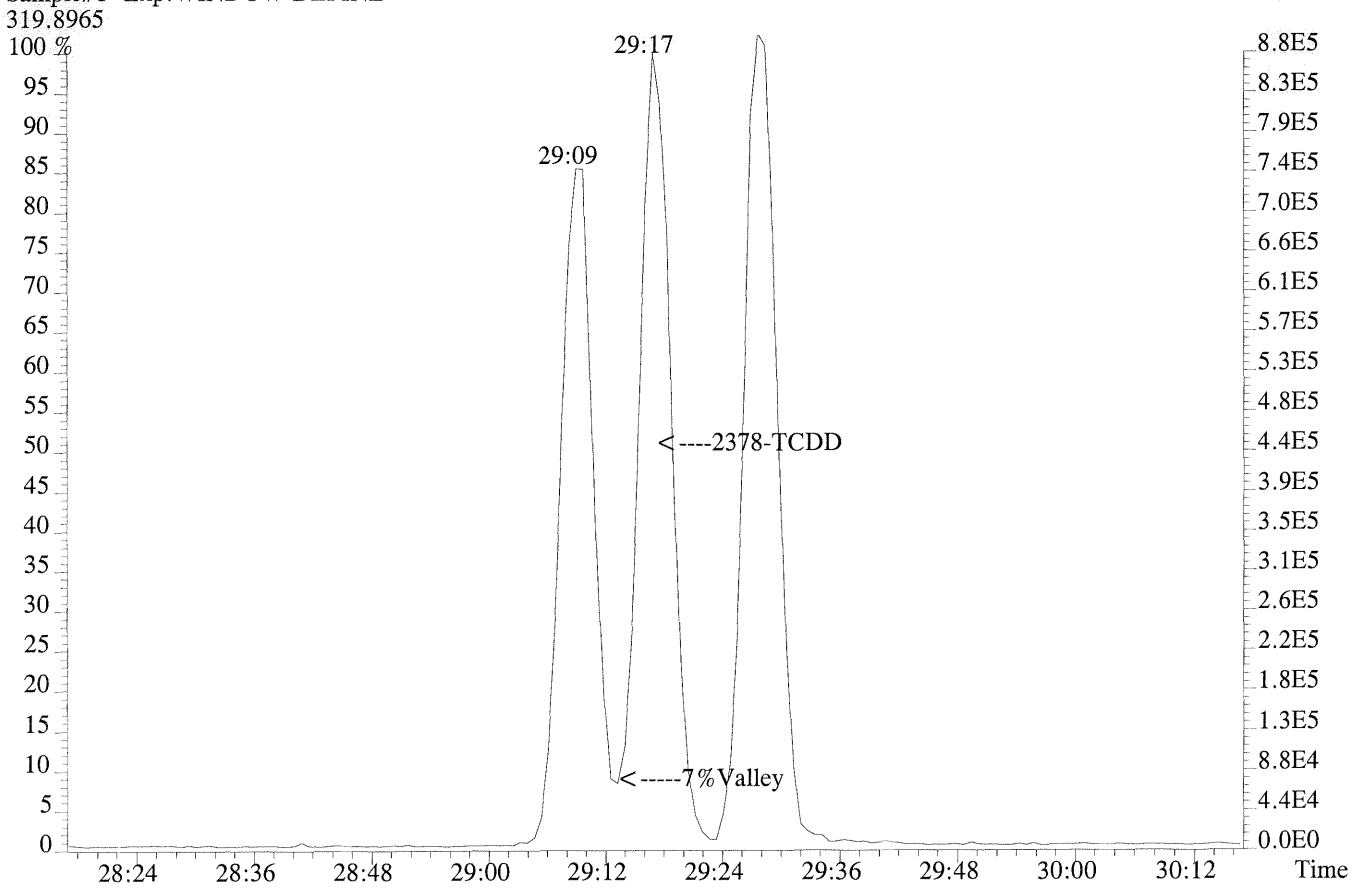
WDM

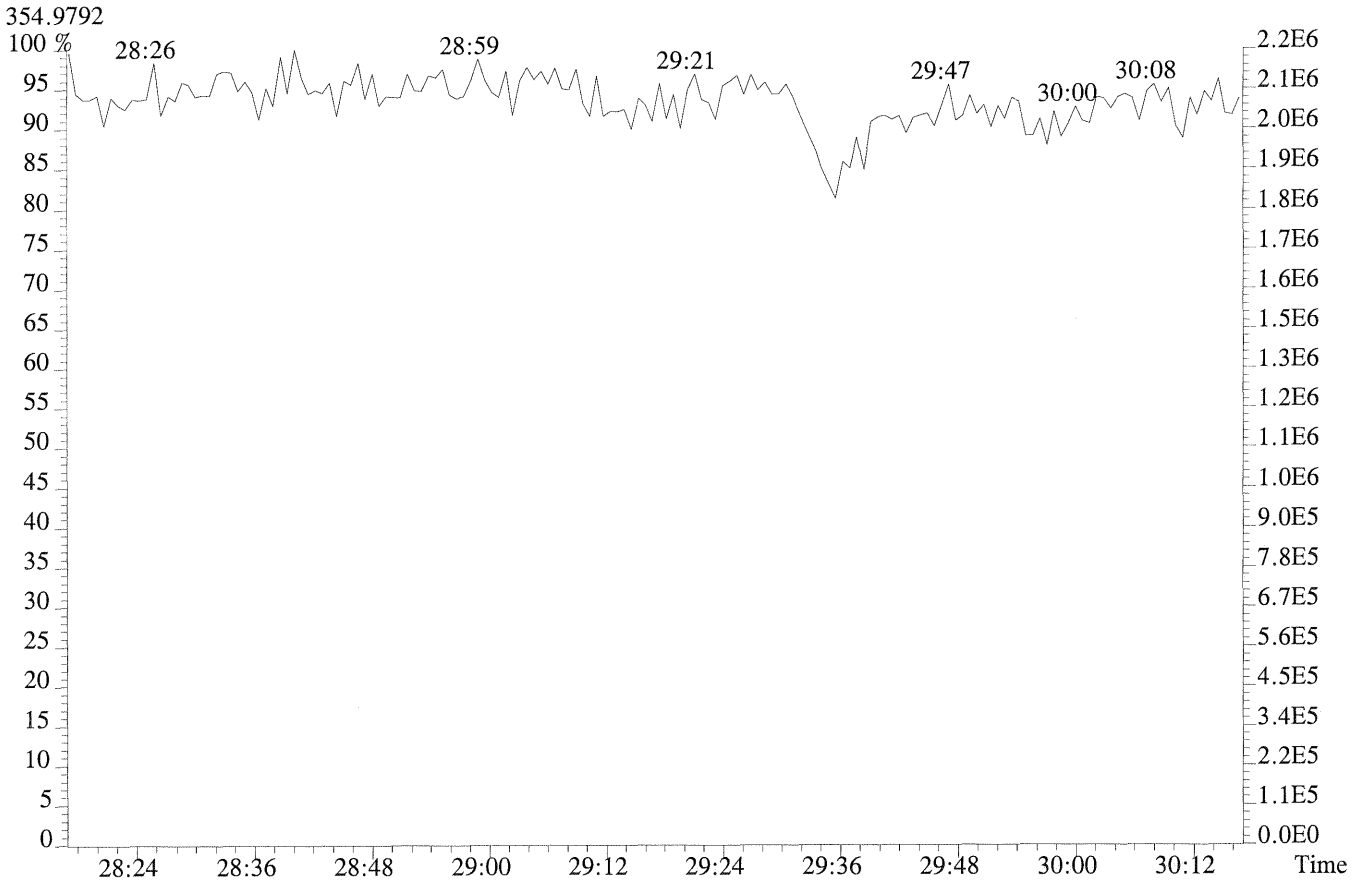
Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: _____ SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P114456
Date Analyzed: 9-JUN-2011
Time Analyzed: 17:47:41

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	24:22	30:25
TCDD	26:10	30:25
PeCDF	30:41	34:35
PeCDD	32:04	34:26
HxCDF	35:27	37:46
HxCDD	35:57	37:27
HpCDF	39:08	40:25
HpCDD	39:22	40:00

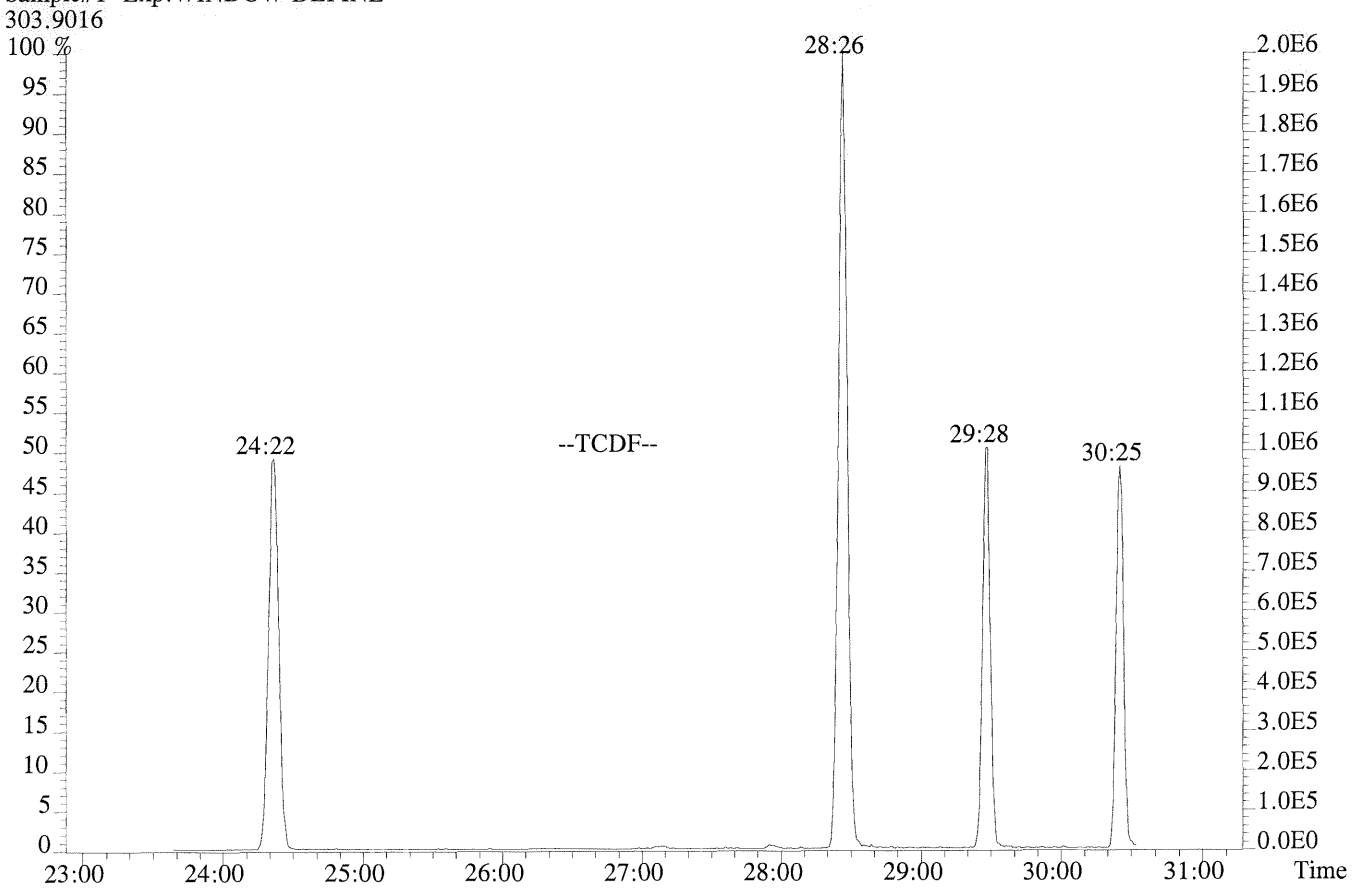
% Valley 2378-TCDD: 7 %

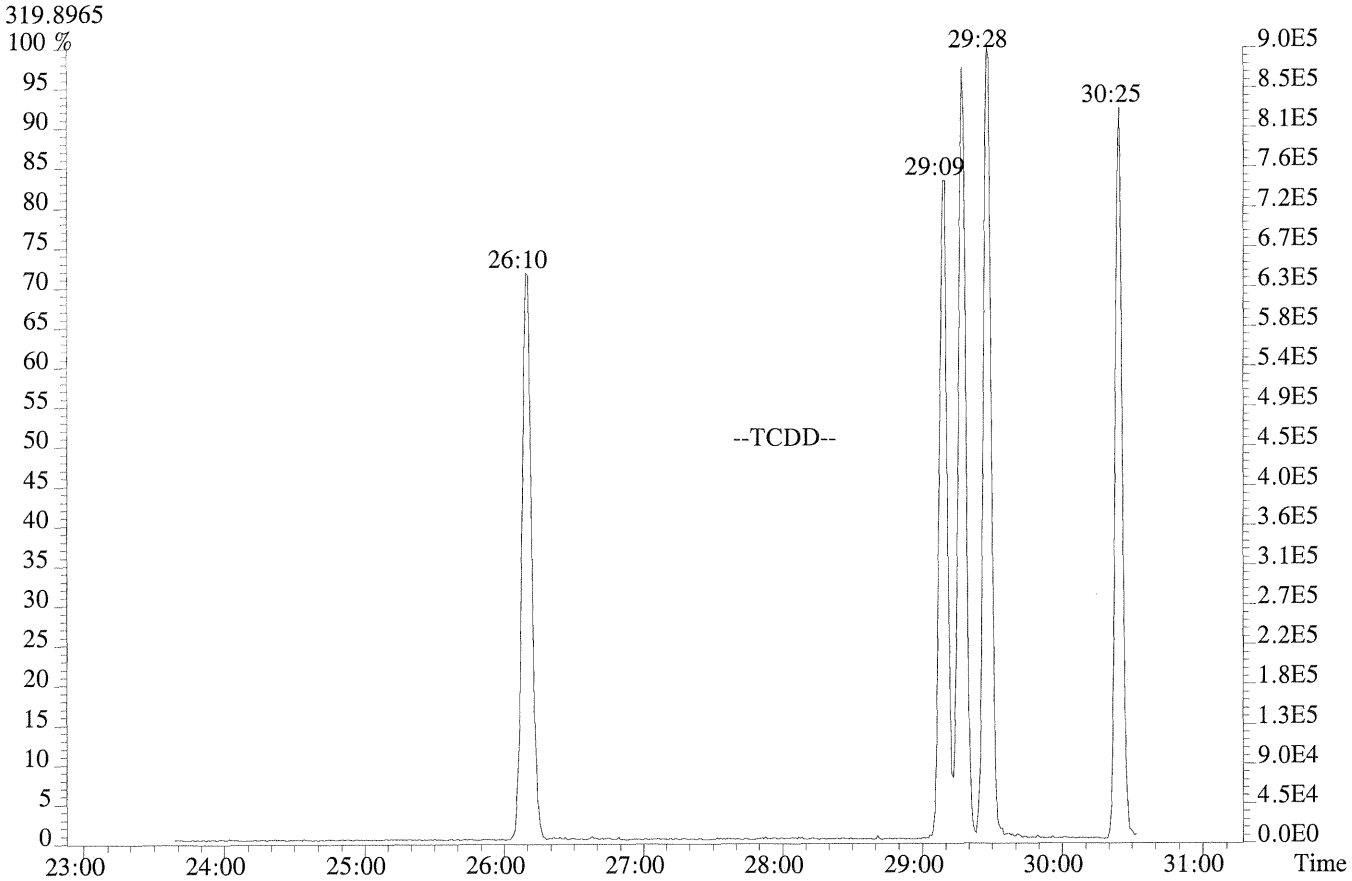
File:P114456 #1-575 Acq: 9-JUN-2011 17:47:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



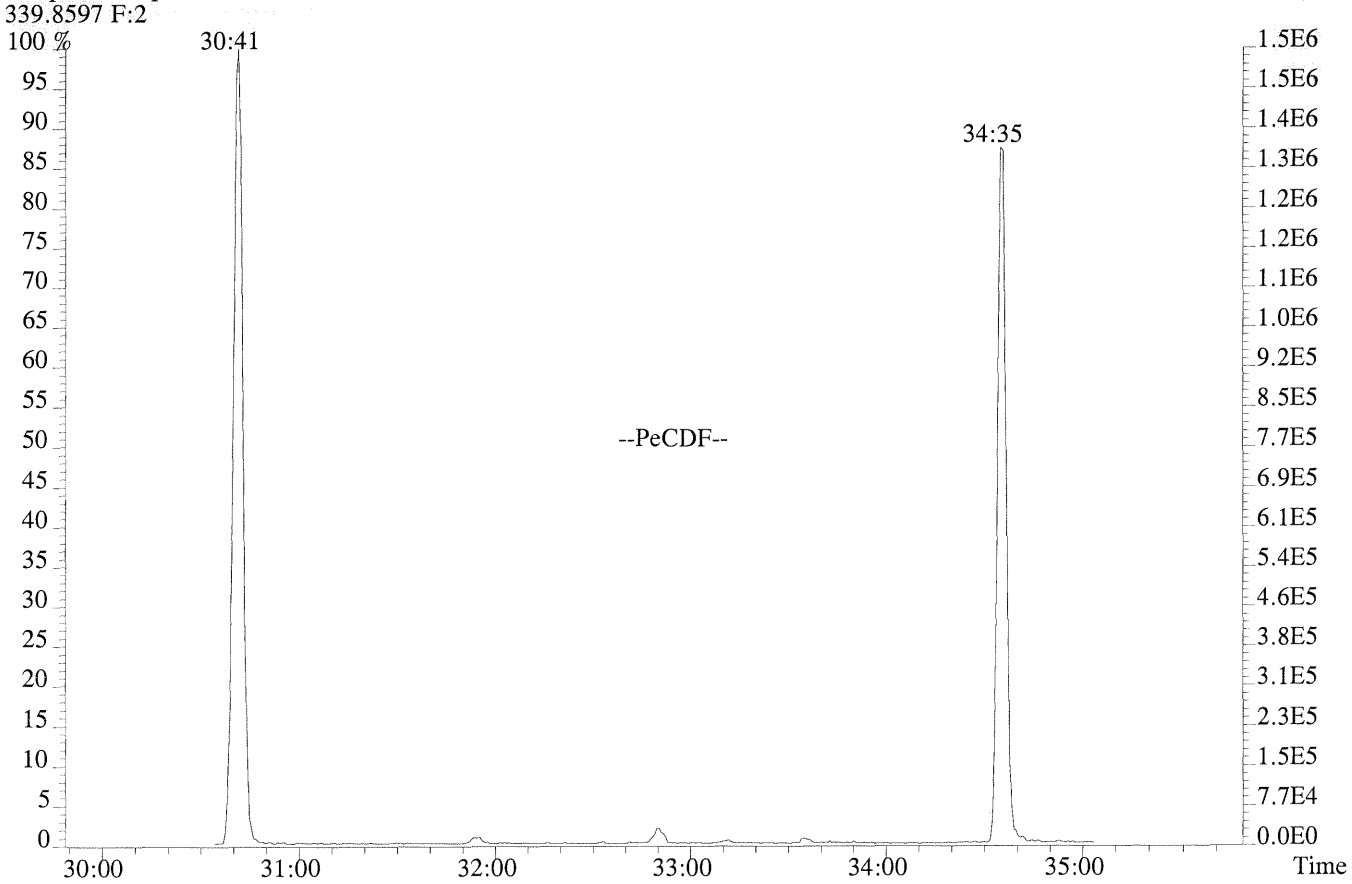


File:P114456 #1-575 Acq: 9-JUN-2011 17:47:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

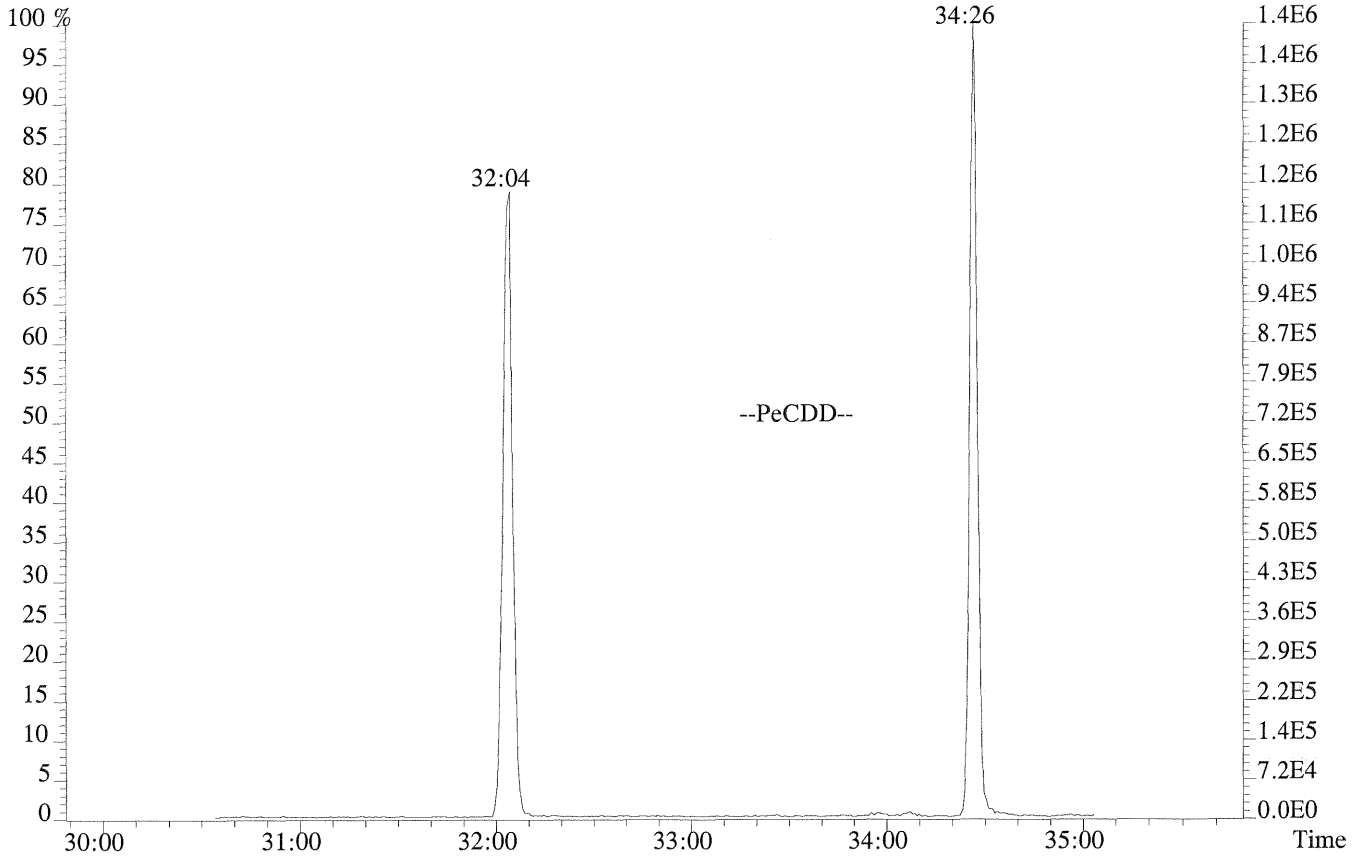




File:P114456 #1-408 Acq: 9-JUN-2011 17:47:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597 F:2



355.8546 F:2



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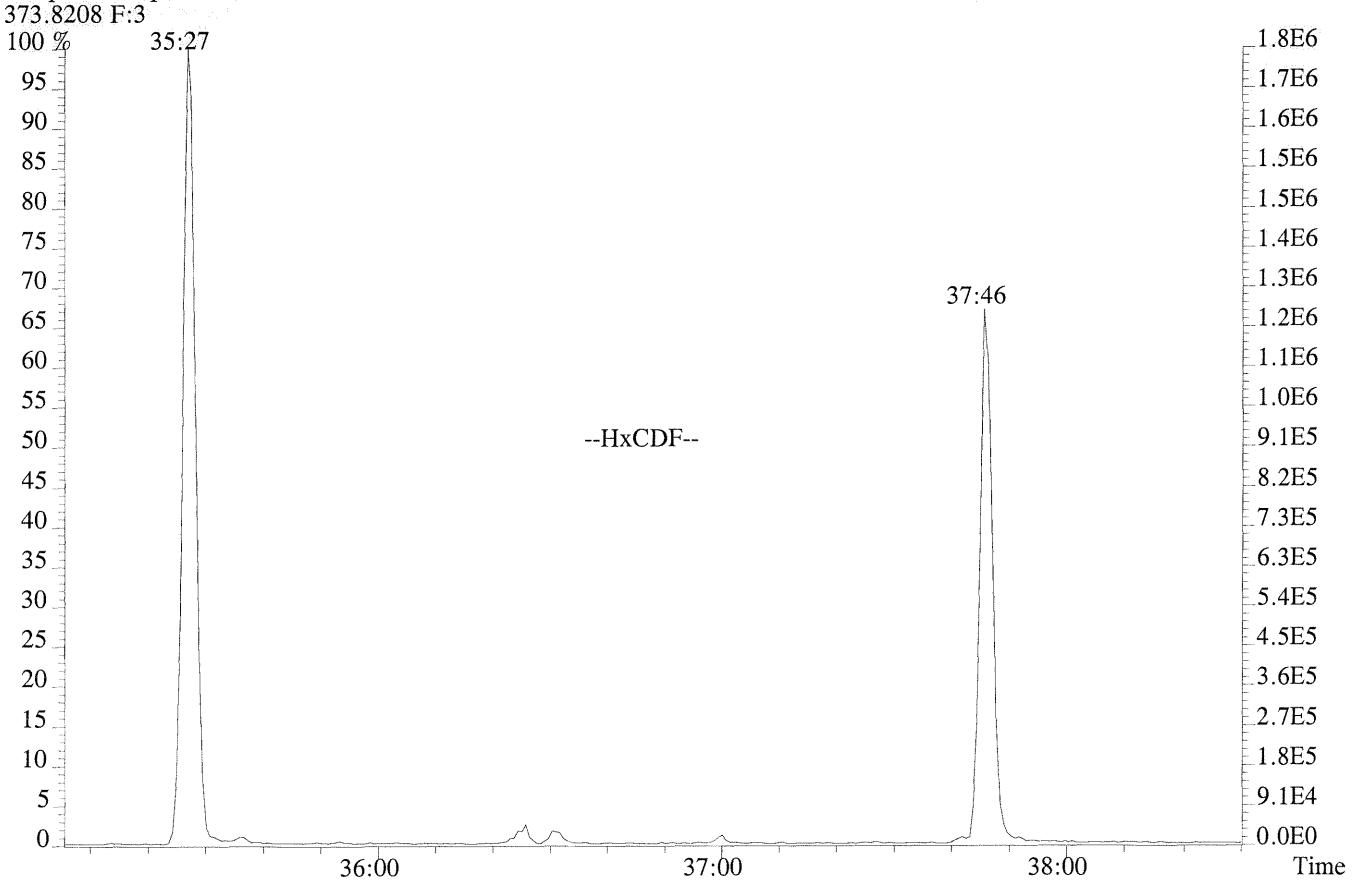
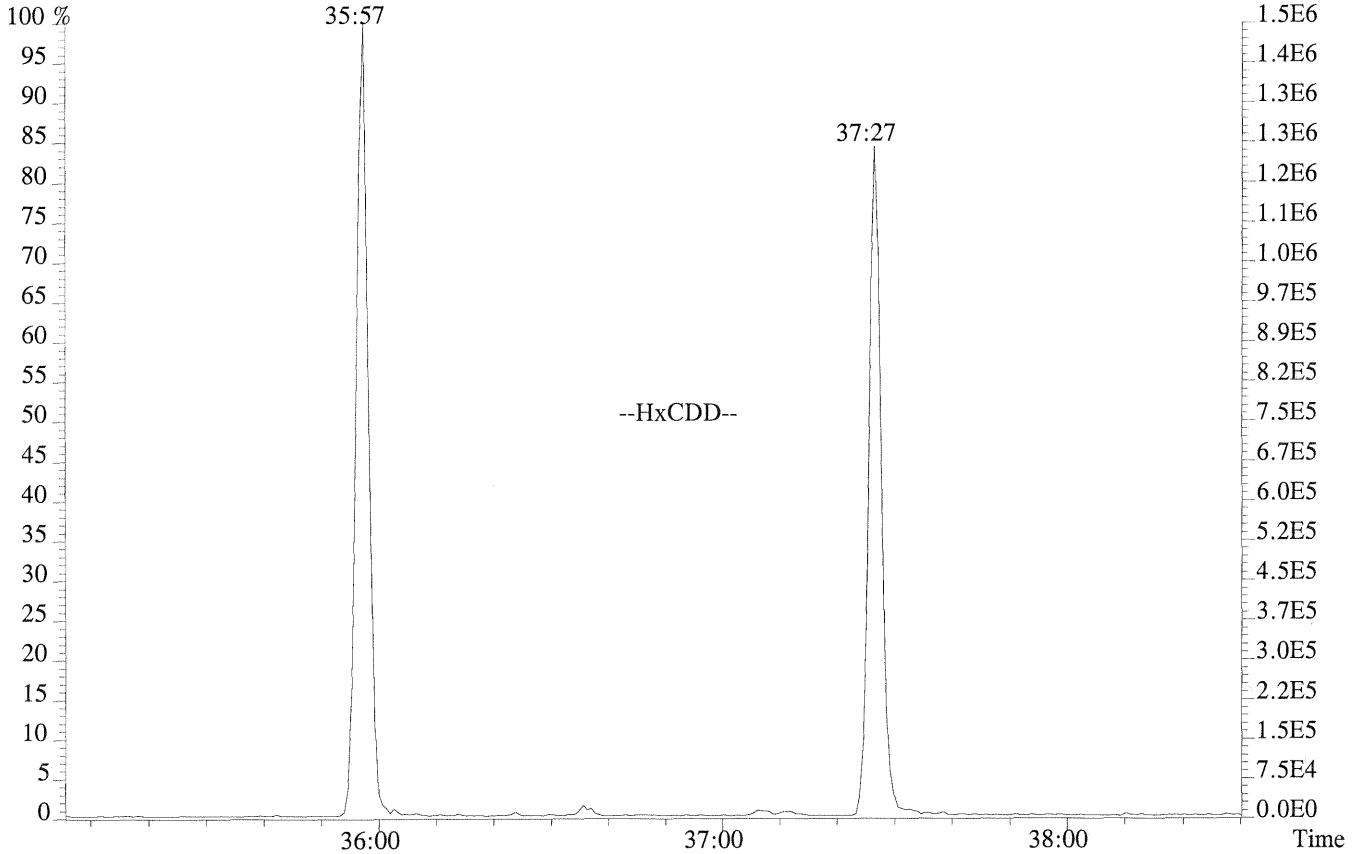
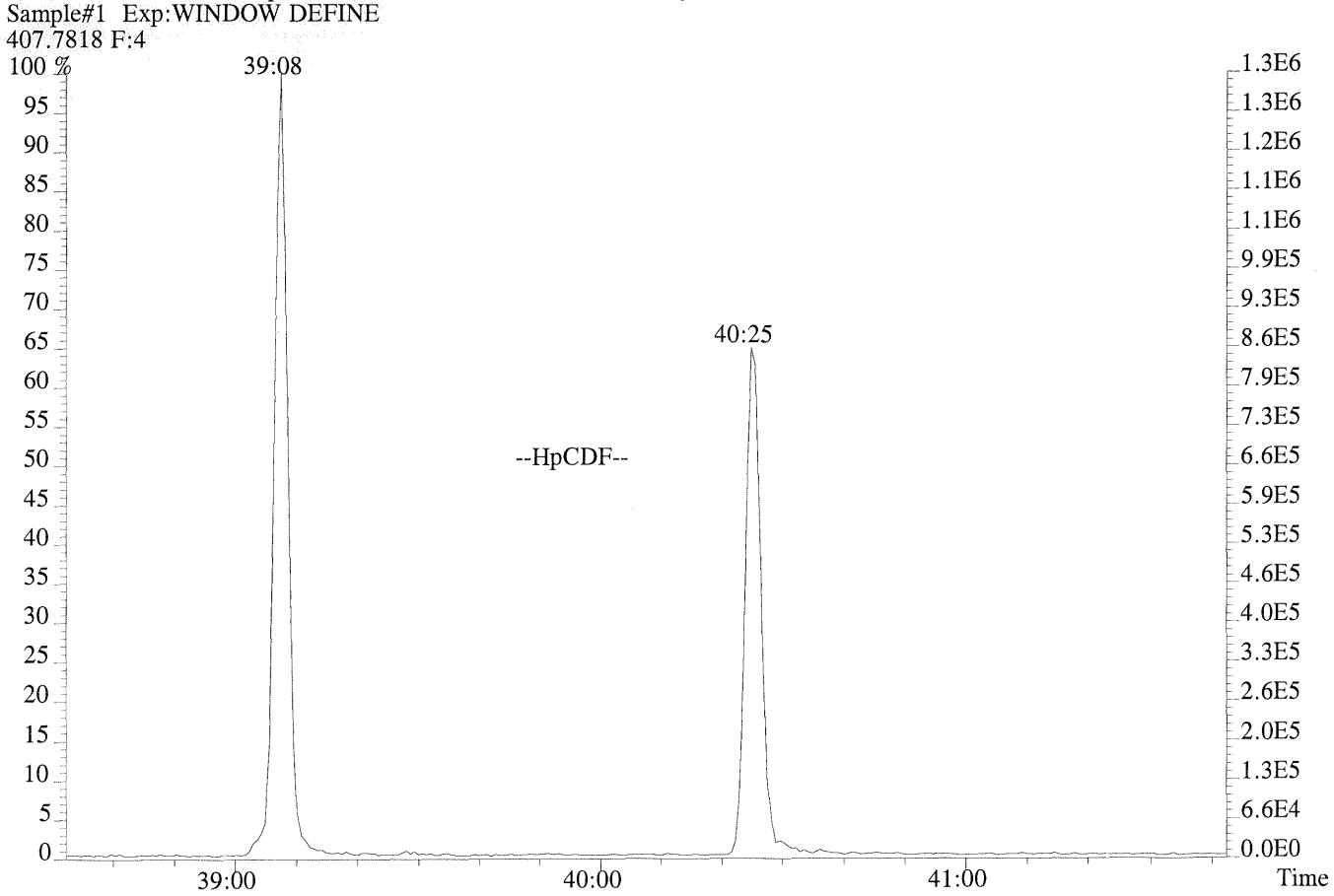
Sample#1 Exp:WINDOW DEFINE
373.8208 F:3

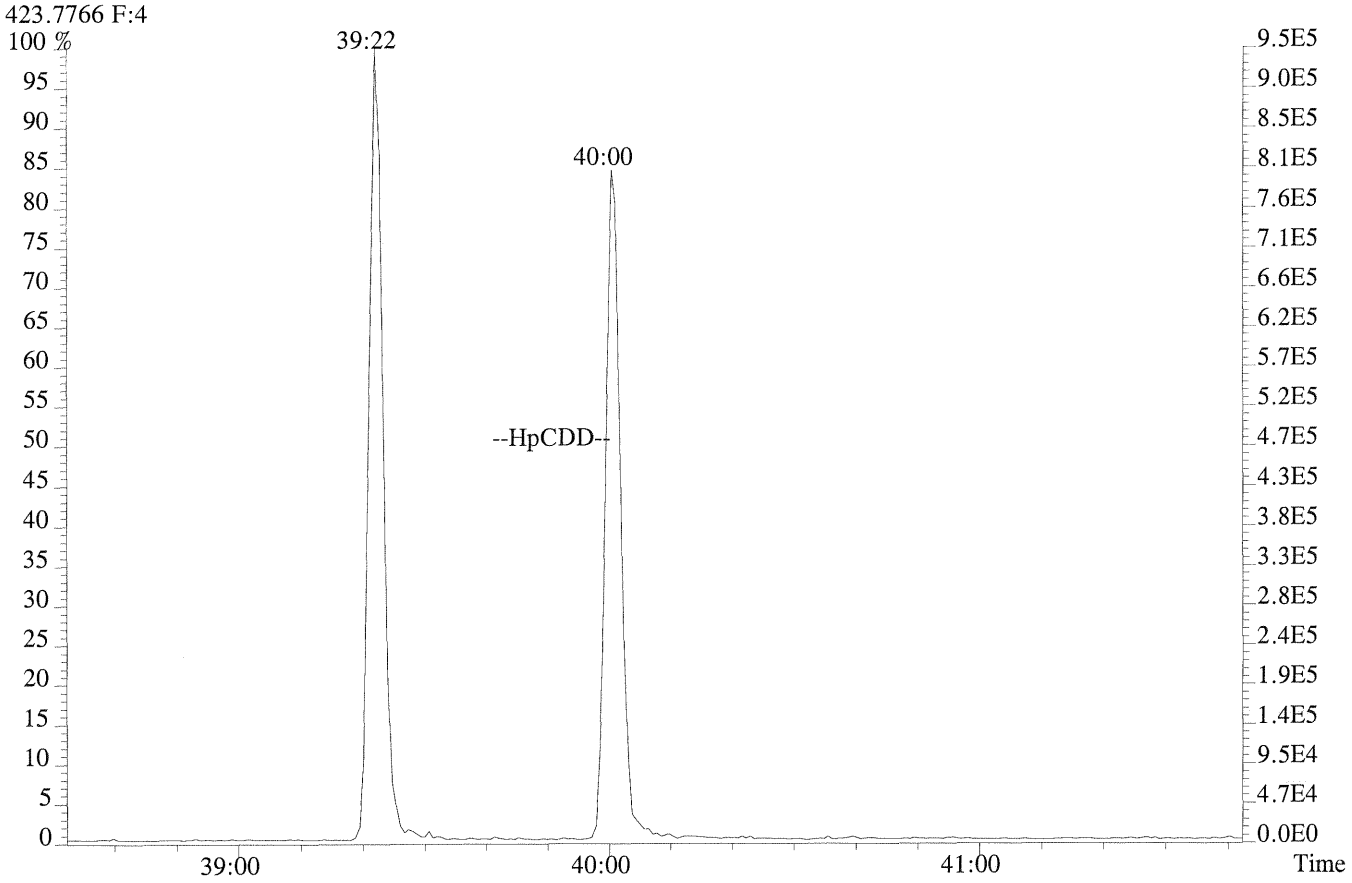


389.8157 F:3



File:P114456 #1-288 Acq: 9-JUN-2011 17:47:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE





FORM 4A
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/24/11

Instrument ID: AutoSpec-Premier GC Column ID: DB-5

VER Data Filename: P114455 Analysis Date: 9-JUN-11 Time: 16:50:57

NATIVE ANALYTES	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)
2,3,7,8-TCDD	M/M+2	0.81	0.65-0.89	8.9	7.8 - 12.9
1,2,3,7,8-PeCDD	M+2/M+4	1.62	1.32-1.78	49	39 - 65
1,2,3,4,7,8-HxCDD	M+2/M+4	1.22	1.05-1.43	48	39 - 64
1,2,3,6,7,8-HxCDD	M+2/M+4	1.30	1.05-1.43	49	39 - 64
1,2,3,7,8,9-HxCDD	M+2/M+4	1.30	1.05-1.43	49	41 - 61
1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.04	0.88-1.20	50	43 - 58
OCDD	M+2/M+4	0.88	0.76-1.02	94	79 - 126
2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	9.7	8.4 - 12.0
1,2,3,7,8-PeCDF	M+2/M+4	1.58	1.32-1.78	49	41 - 60
2,3,4,7,8-PeCDF	M+2/M+4	1.51	1.32-1.78	49	41 - 61
1,2,3,4,7,8-HxCDF	M+2/M+4	1.26	1.05-1.43	47	45 - 56
1,2,3,6,7,8-HxCDF	M+2/M+4	1.25	1.05-1.43	48	44 - 57
1,2,3,7,8,9-HxCDF	M+2/M+4	1.22	1.05-1.43	48	45 - 56
2,3,4,6,7,8-HxCDF	M+2/M+4	1.24	1.05-1.43	48	44 - 57
1,2,3,4,6,7,8-HpCDF	M+2/M+4	1.01	0.88-1.20	50	45 - 55
1,2,3,4,7,8,9-HpCDF	M+2/M+4	1.02	0.88-1.20	48	43 - 58
OCDF	M+2/M+4	0.90	0.76-1.02	96	63 - 159

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range as specified in Table 6, Method 1613, under VER.

6/90

FORM 4B
PCDD/PCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Episode No.:

Contract No.: SAS No.:

Initial Calibration Date: 03/24/11

Instrument ID: AutoSpec-Premier GC Column ID: DB-5

VER Data Filename: P114455 Analysis Date: 9-JUN-11 Time: 16:50:57

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CONC. FOUND	CONC. RANGE (3) (ng/mL)
LABELED COMPOUNDS					
13C-2,3,7,8-TCDD	M/M+2	0.79	0.65-0.89	93	82 - 121
13C-1,2,3,7,8-PeCDD	M+2/M+4	1.57	1.32-1.78	100	62 - 160
13C-1,2,3,4,7,8-HxCDD	M+2/M+4	1.26	1.05-1.43	97	85 - 117
13C-1,2,3,6,7,8-HxCDD	M+2/M+4	1.27	1.05-1.43	99	85 - 118
13C-1,2,3,4,6,7,8-HpCDD	M+2/M+4	1.07	0.88-1.20	99	72 - 138
13C-OCDD	M+2/M+4	0.92	0.76-1.02	198	96 - 415
13C-2,3,7,8-TCDF	M/M+2	0.80	0.65-0.89	95	71 - 140
13C-1,2,3,7,8-PeCDF	M+2/M+4	1.62	1.32-1.78	96	76 - 130
13C-2,3,4,7,8-PeCDF	M+2/M+4	1.61	1.32-1.78	100	77 - 130
13C-1,2,3,4,7,8-HxCDF	M/M+2	0.52	0.43-0.59	102	76 - 131
13C-1,2,3,6,7,8-HxCDF	M/M+2	0.51	0.43-0.59	100	70 - 143
13C-1,2,3,7,8,9-HxCDF	M/M+2	0.53	0.43-0.59	93	74 - 135
13C-2,3,4,6,7,8-HxCDF	M/M+2	0.52	0.43-0.59	101	73 - 137
13C-1,2,3,4,6,7,8-HpCDF	M/M+2	0.45	0.37-0.51	99	78 - 129
13C-1,2,3,4,7,8,9-HpCDF	M/M+2	0.45	0.37-0.51	96	77 - 129
CLEANUP STANDARD					
37Cl-2,3,7,8-TCDD				9.3	7.9 - 12.7

(1) See Table 8, Method 1613, for m/z specifications.

(2) Ion Abundance Ratio Control Limits as specified in Table 9, Method 1613.

(3) Contract-required concentration range, as specified in Table 6, Method 1613, under VER.

(4) No ion abundance ratio; report concentration found.

6/90

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
CCAL CS3

Run #8 Filename P114455 #1 Samp: 1 Inj: 1 Acquired: 9-JUN-11 16:50:57
Processed: 22-JUN-11 12:28:35 LAB. ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	28:25	9.470e+02	1.188e+03	0.80	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:50	6.741e+03	4.278e+03	1.58	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:34	6.768e+03	4.481e+03	1.51	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	36:24	6.283e+03	4.972e+03	1.26	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:30	6.749e+03	5.412e+03	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:59	5.970e+03	4.801e+03	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:41	4.880e+03	3.999e+03	1.22	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	39:06	5.662e+03	5.596e+03	1.01	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	40:24	4.371e+03	4.304e+03	1.02	yes	no	1.000
10	Unk	OCDF	43:09	7.084e+03	7.855e+03	0.90	yes	no	1.004
11	Unk	2,3,7,8-TCDD	29:16	7.195e+02	8.864e+02	0.81	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:55	4.879e+03	3.020e+03	1.62	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	37:05	4.285e+03	3.520e+03	1.22	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	37:11	4.419e+03	3.411e+03	1.30	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:28	4.657e+03	3.576e+03	1.30	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	40:00	3.709e+03	3.572e+03	1.04	yes	no	1.000
17	Unk	OCDD	42:59	5.891e+03	6.679e+03	0.88	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	28:24	1.085e+04	1.358e+04	0.80	yes	no	0.978
19	IS	13C-1,2,3,7,8-PeCDF	32:48	1.481e+04	9.168e+03	1.62	yes	no	1.130
20	IS	13C-2,3,4,7,8-PeCDF	33:33	1.392e+04	8.630e+03	1.61	yes	no	1.156
21	IS	13C-1,2,3,4,7,8-HxCDF	36:23	6.541e+03	1.270e+04	0.52	yes	no	0.972
22	IS	13C-1,2,3,6,7,8-HxCDF	36:29	7.181e+03	1.397e+04	0.51	yes	no	0.974
23	IS	13C-2,3,4,6,7,8-HxCDF	36:58	6.649e+03	1.283e+04	0.52	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:41	5.594e+03	1.049e+04	0.53	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	39:06	4.967e+03	1.115e+04	0.45	yes	no	1.044
26	IS	13C-1,2,3,4,7,8,9-HpCDF	40:24	3.911e+03	8.754e+03	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	29:15	7.735e+03	9.812e+03	0.79	yes	no	1.007
28	IS	13C-1,2,3,7,8-PeCDD	33:55	1.030e+04	6.549e+03	1.57	yes	no	1.168
29	IS	13C-1,2,3,4,7,8-HxCDD	37:05	8.127e+03	6.465e+03	1.26	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	37:10	9.921e+03	7.834e+03	1.27	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:59	7.583e+03	7.087e+03	1.07	yes	no	1.068
32	IS	13C-OCDD	42:58	1.211e+04	1.319e+04	0.92	yes	no	1.147
33	RS/RT	13C-1,2,3,4-TCDD	29:02	8.318e+03	1.029e+04	0.81	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	37:27	9.190e+03	7.118e+03	1.29	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	29:16	1.828e+03				no	1.008

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
CCAL CS3

Run #8 Filename P114455 Samp: 1 Inj: 1 Acquired: 9-JUN-11 16:50:57
Processed: 22-JUN-11 12:28:351 LAB. ID: CCAL CS3

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.48e+05	4.56e+02	3.2e+02	1.68e+05	7.16e+02	2.4e+02
2	1,2,3,7,8-PeCDF	1.20e+06	5.36e+02	2.2e+03	7.41e+05	6.84e+02	1.1e+03
3	2,3,4,7,8-PeCDF	1.29e+06	5.36e+02	2.4e+03	8.46e+05	6.84e+02	1.2e+03
4	1,2,3,4,7,8-HxCDF	1.36e+06	4.36e+02	3.1e+03	1.09e+06	4.08e+02	2.7e+03
5	1,2,3,6,7,8-HxCDF	1.38e+06	4.36e+02	3.2e+03	1.12e+06	4.08e+02	2.7e+03
6	2,3,4,6,7,8-HxCDF	1.26e+06	4.36e+02	2.9e+03	9.77e+05	4.08e+02	2.4e+03
7	1,2,3,7,8,9-HxCDF	9.58e+05	4.36e+02	2.2e+03	7.94e+05	4.08e+02	1.9e+03
8	1,2,3,4,6,7,8-HpCDF	1.21e+06	6.88e+02	1.8e+03	1.21e+06	7.40e+02	1.6e+03
9	1,2,3,4,7,8,9-HpCDF	8.39e+05	6.88e+02	1.2e+03	8.22e+05	7.40e+02	1.1e+03
10	OCDF	1.17e+06	5.08e+02	2.3e+03	1.27e+06	8.36e+02	1.5e+03
11	2,3,7,8-TCDD	1.19e+05	4.72e+02	2.5e+02	1.42e+05	6.44e+02	2.2e+02
12	1,2,3,7,8-PeCDD	8.76e+05	5.88e+02	1.5e+03	5.46e+05	3.64e+02	1.5e+03
13	1,2,3,4,7,8-HxCDD	9.41e+05	6.68e+02	1.4e+03	7.88e+05	5.84e+02	1.3e+03
14	1,2,3,6,7,8-HxCDD	8.73e+05	6.68e+02	1.3e+03	6.71e+05	5.84e+02	1.1e+03
15	1,2,3,7,8,9-HxCDD	9.26e+05	6.68e+02	1.4e+03	6.95e+05	5.84e+02	1.2e+03
16	1,2,3,4,6,7,8-HpCDD	7.48e+05	7.00e+02	1.1e+03	7.06e+05	5.32e+02	1.3e+03
17	OCDD	9.78e+05	4.28e+02	2.3e+03	1.10e+06	6.16e+02	1.8e+03
18	13C-2,3,7,8-TCDF	1.57e+06	8.28e+02	1.9e+03	1.97e+06	9.64e+02	2.0e+03
19	13C-1,2,3,7,8-PeCDF	2.62e+06	4.24e+02	6.2e+03	1.64e+06	5.44e+02	3.0e+03
20	13C-2,3,4,7,8-PeCDF	2.61e+06	4.24e+02	6.2e+03	1.60e+06	5.44e+02	2.9e+03
21	13C-1,2,3,4,7,8-HxCDF	1.40e+06	7.24e+02	1.9e+03	2.76e+06	5.48e+02	5.0e+03
22	13C-1,2,3,6,7,8-HxCDF	1.47e+06	7.24e+02	2.0e+03	2.86e+06	5.48e+02	5.2e+03
23	13C-2,3,4,6,7,8-HxCDF	1.41e+06	7.24e+02	2.0e+03	2.67e+06	5.48e+02	4.9e+03
24	13C-1,2,3,7,8,9-HxCDF	1.10e+06	7.24e+02	1.5e+03	2.05e+06	5.48e+02	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	1.04e+06	8.52e+02	1.2e+03	2.36e+06	1.29e+03	1.8e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.53e+05	8.52e+02	8.8e+02	1.67e+06	1.29e+03	1.3e+03
27	13C-2,3,7,8-TCDD	1.19e+06	1.57e+03	7.6e+02	1.50e+06	5.16e+02	2.9e+03
28	13C-1,2,3,7,8-PeCDD	1.83e+06	4.28e+02	4.3e+03	1.16e+06	5.96e+02	2.0e+03
29	13C-1,2,3,4,7,8-HxCDD	1.78e+06	5.68e+02	3.1e+03	1.43e+06	7.40e+02	1.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.96e+06	5.68e+02	3.4e+03	1.55e+06	7.40e+02	2.1e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.49e+06	6.96e+02	2.1e+03	1.39e+06	5.32e+02	2.6e+03
32	13C-OCDD	1.98e+06	4.48e+02	4.4e+03	2.17e+06	5.40e+02	4.0e+03
33	13C-1,2,3,4-TCDD	1.37e+06	1.57e+03	8.7e+02	1.73e+06	5.16e+02	3.4e+03
34	13C-1,2,3,7,8,9-HxCDD	1.81e+06	5.68e+02	3.2e+03	1.39e+06	7.40e+02	1.9e+03
35	37Cl-2,3,7,8-TCDD	2.91e+05	7.72e+02	3.8e+02			

Columbia Analytical Services, Inc.
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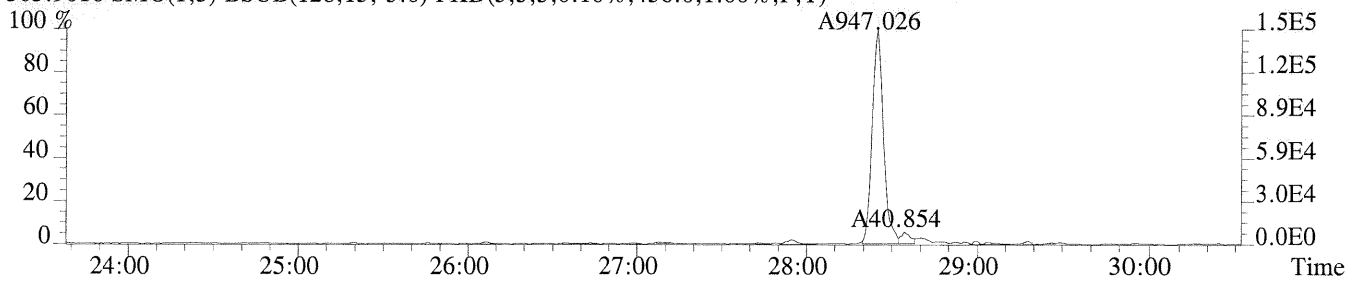
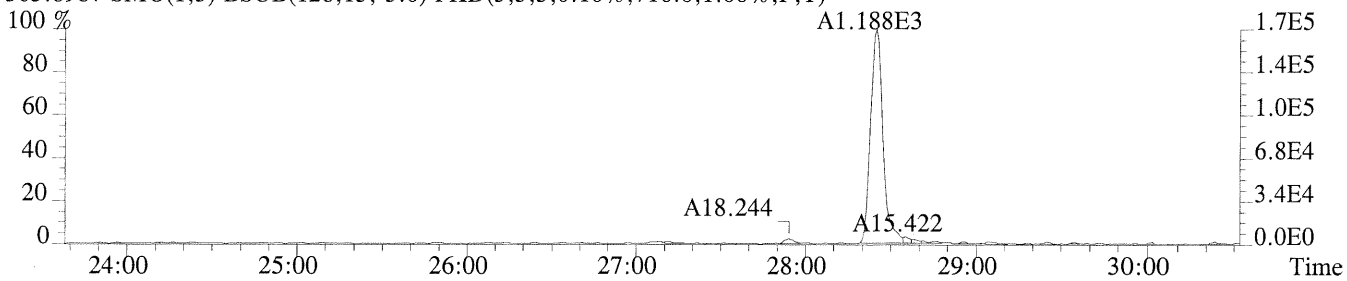
Office:(713)266-1599. Fax:(713)266-0130

File:P114455 #1-575 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

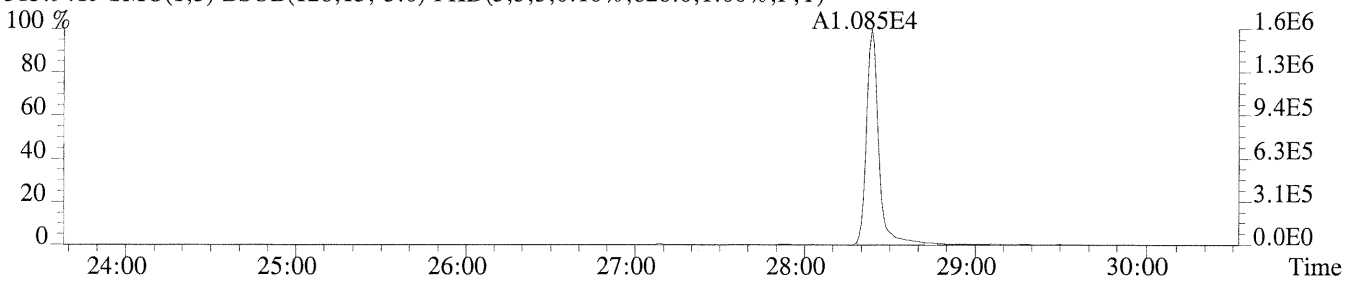
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,456.0,1.00%,F,T)



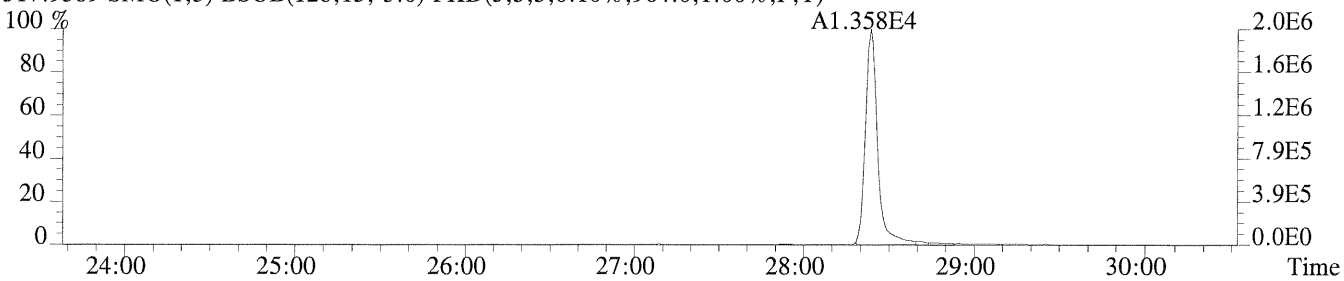
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,716.0,1.00%,F,T)



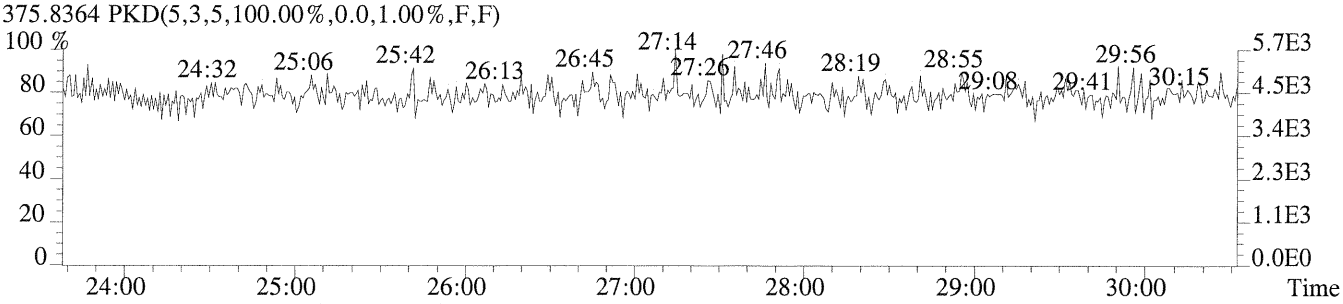
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



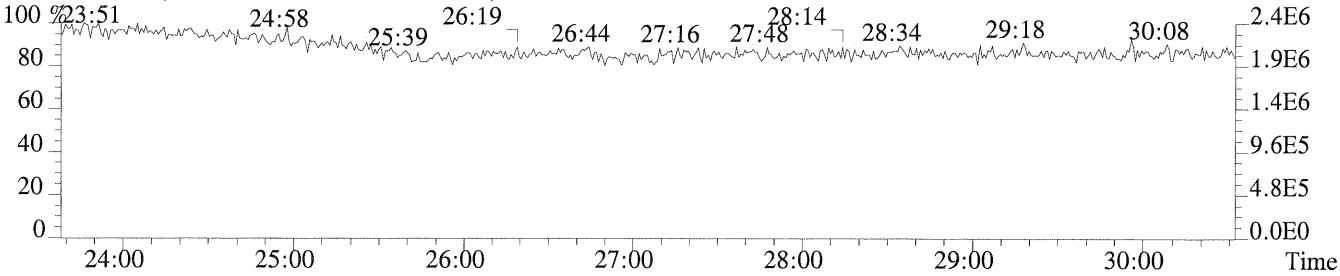
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,964.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

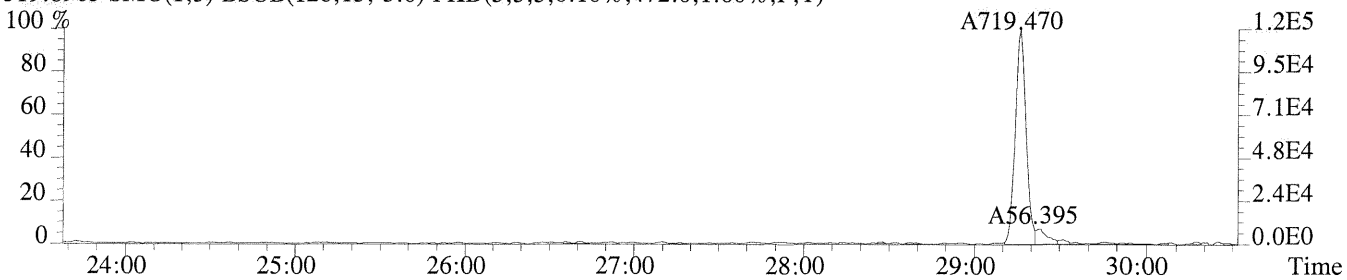


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

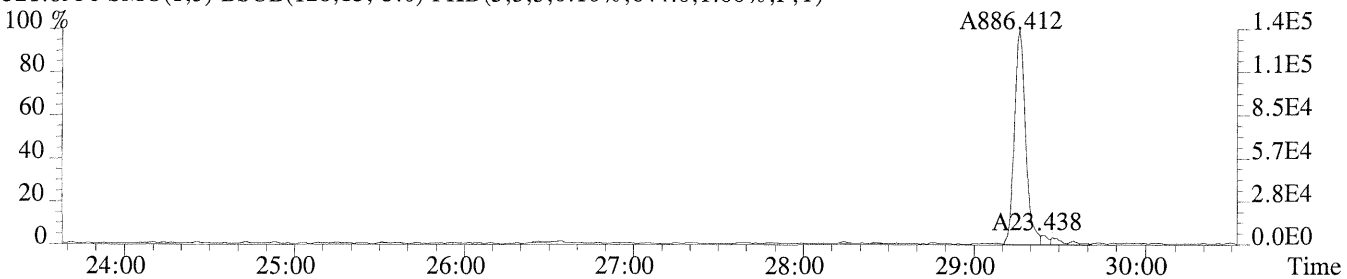


File:P114455 #1-575 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

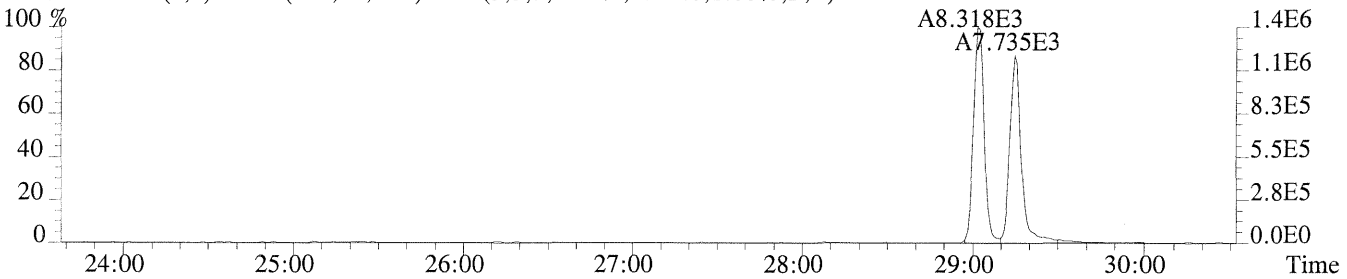
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,472.0,1.00%,F,T)



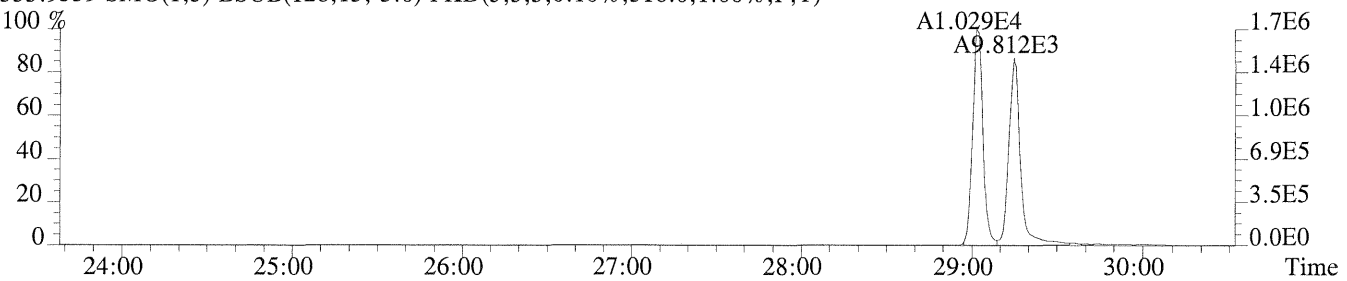
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,644.0,1.00%,F,T)



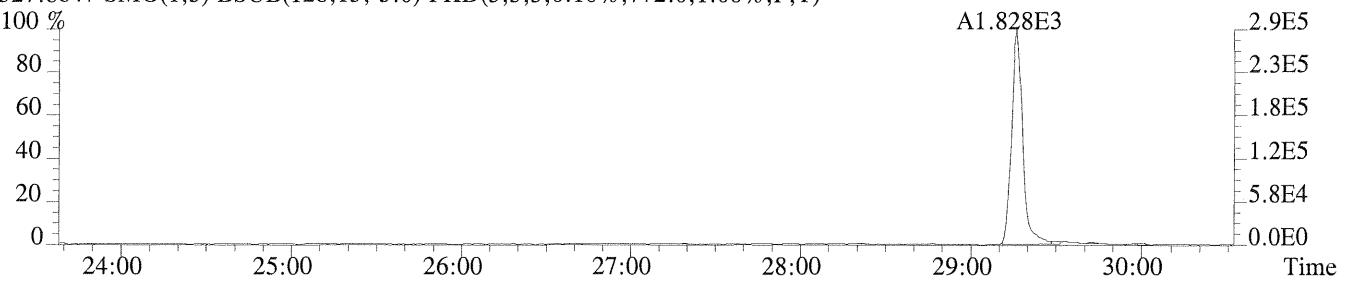
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1572.0,1.00%,F,T)



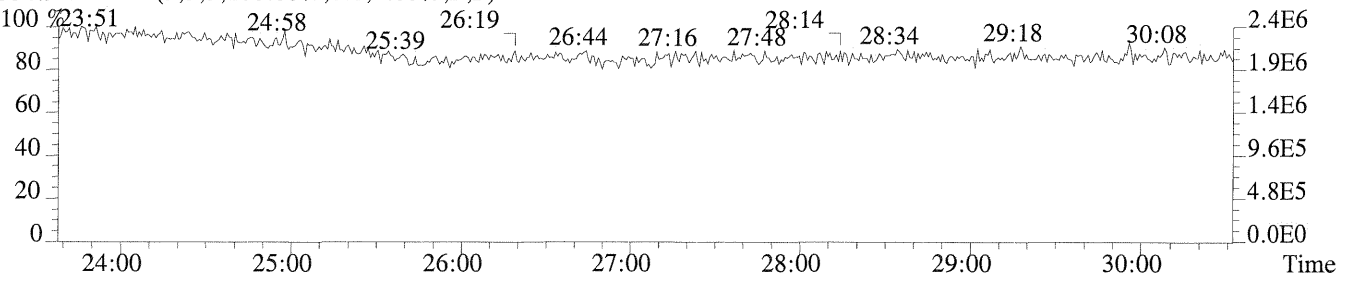
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,516.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,772.0,1.00%,F,T)

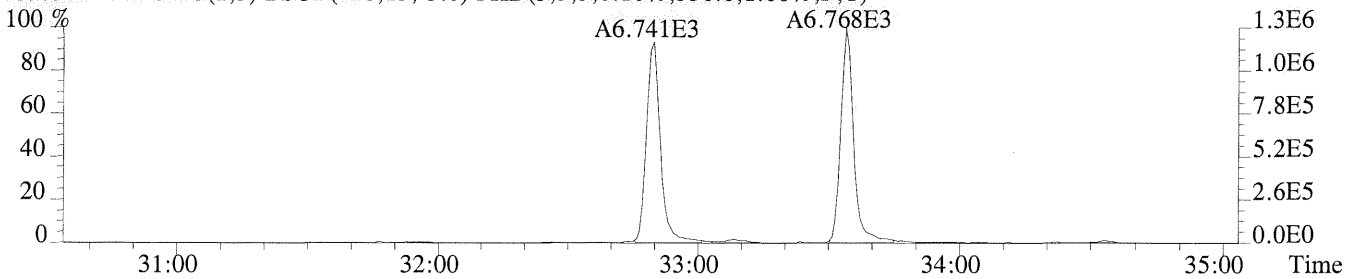


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

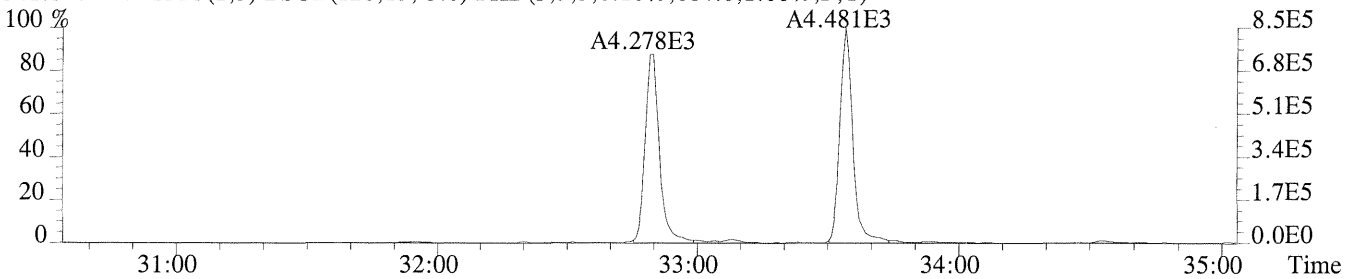


File:P114455 #1-408 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

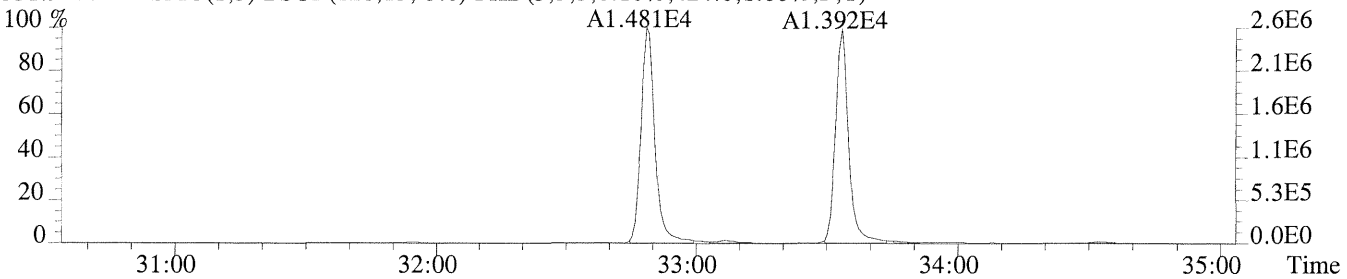
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



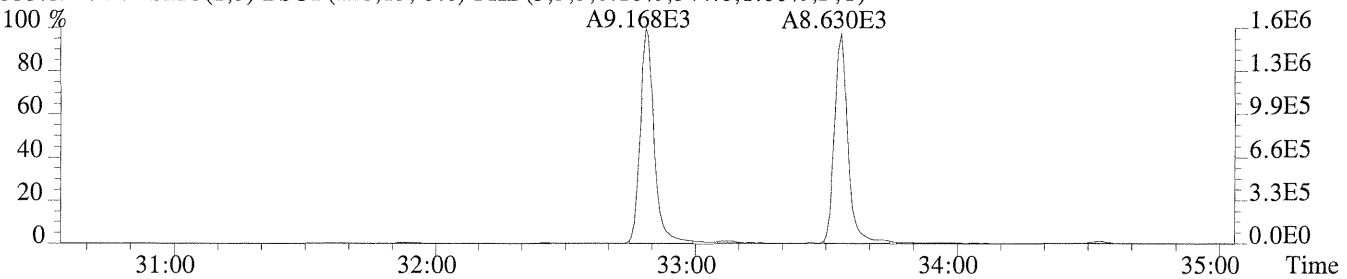
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



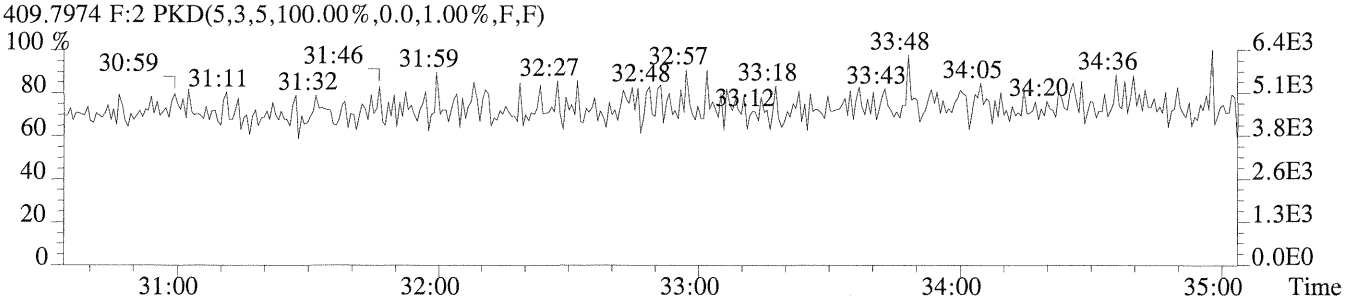
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,424.0,1.00%,F,T)



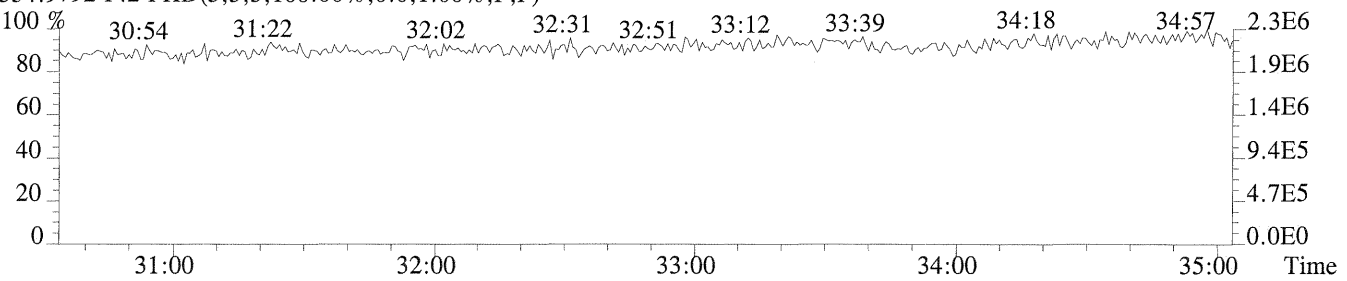
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,544.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

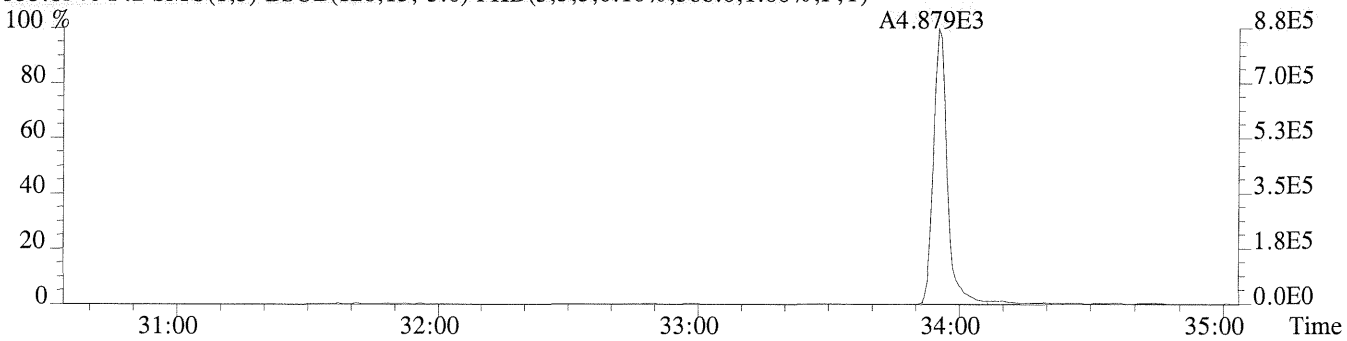


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

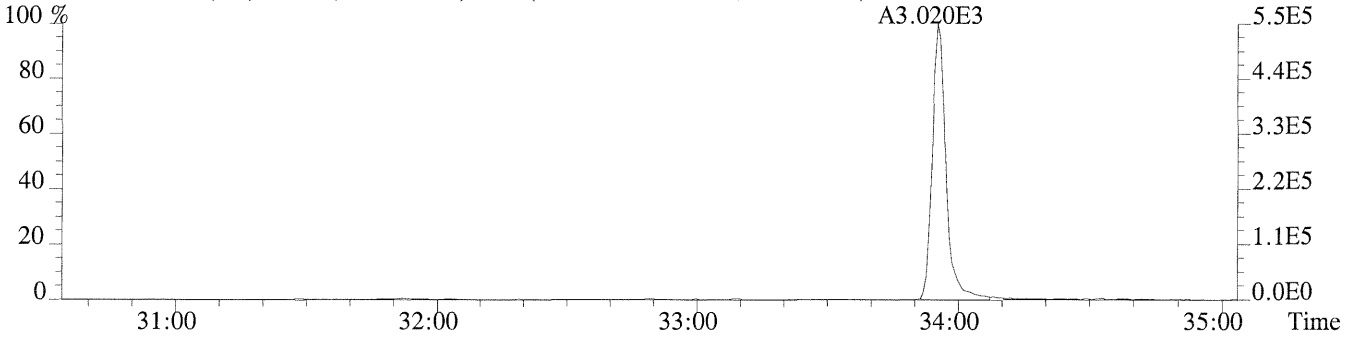


File:P114455 #1-408 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

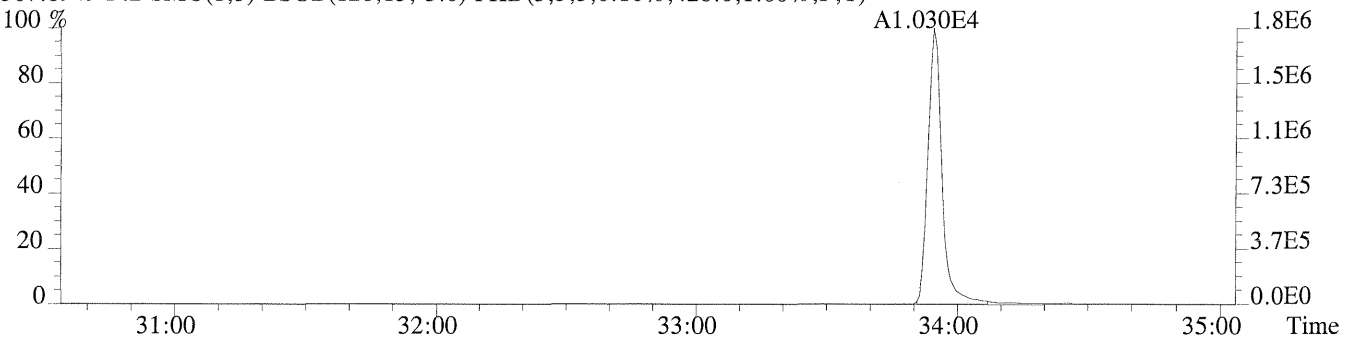
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



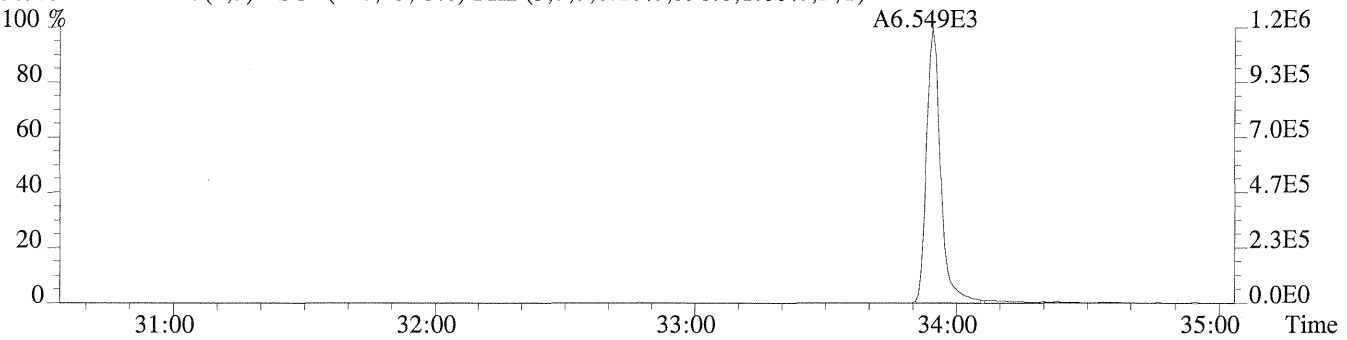
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,364.0,1.00%,F,T)



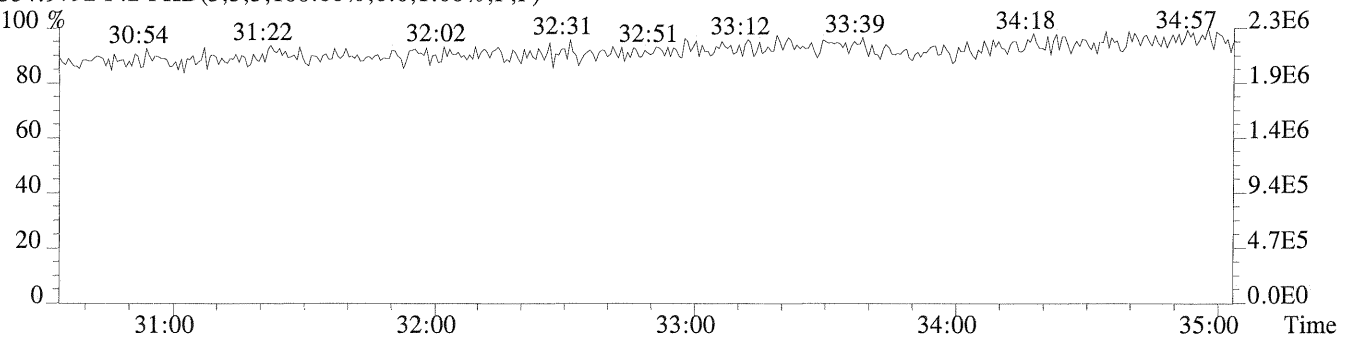
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,428.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)

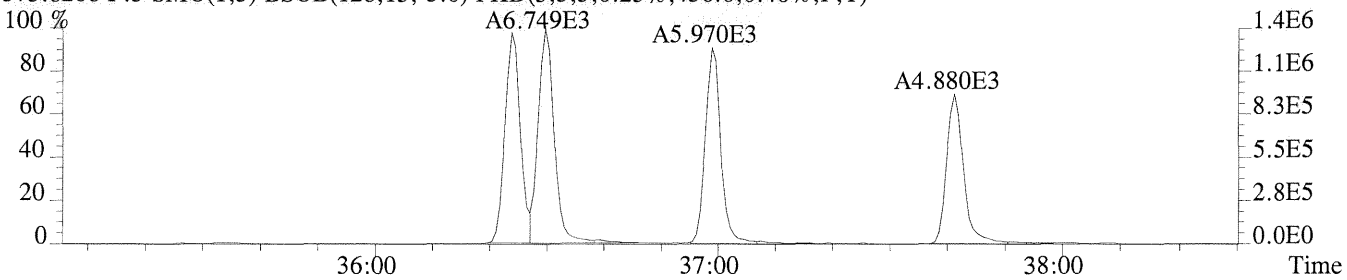


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

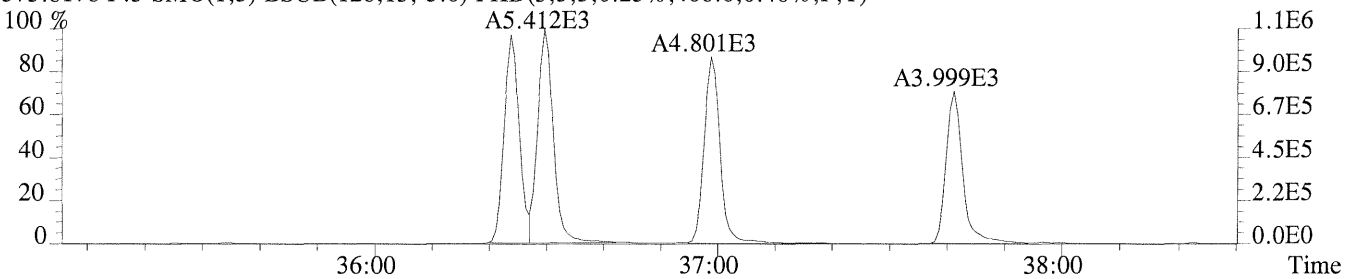


File:P114455 #1-310 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

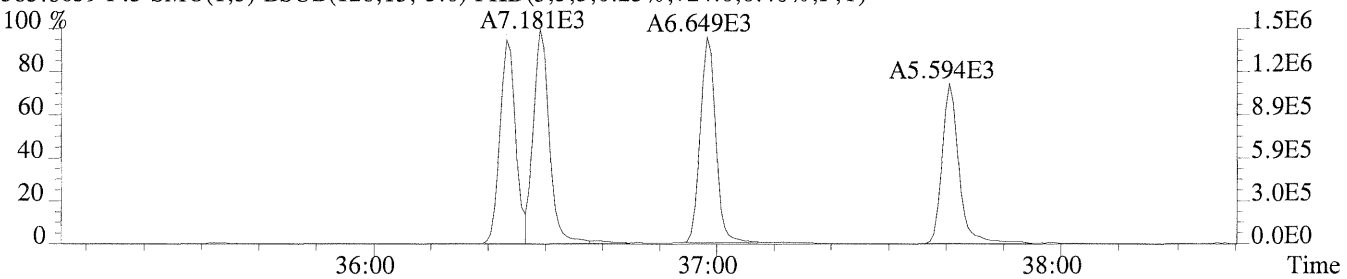
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,436.0,0.40%,F,T)



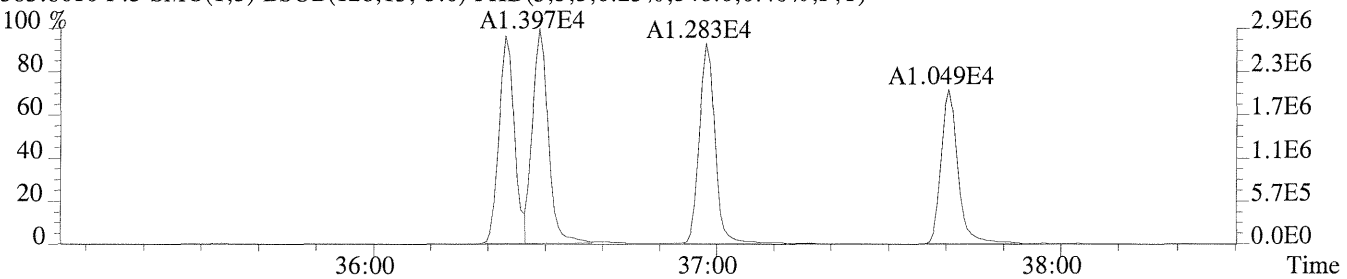
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



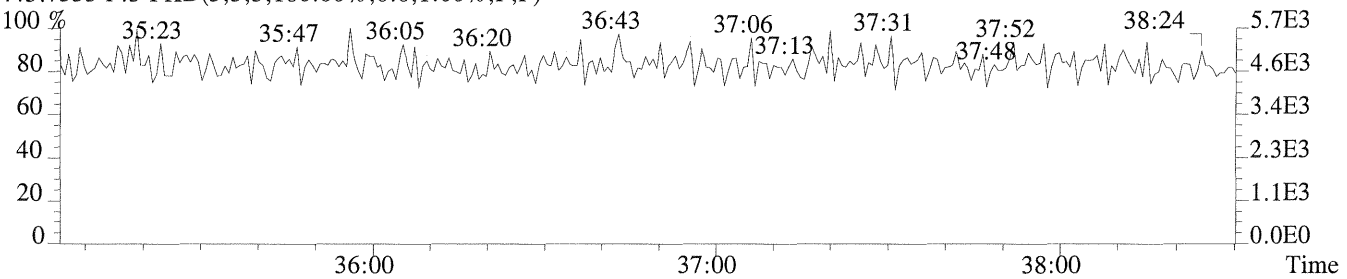
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



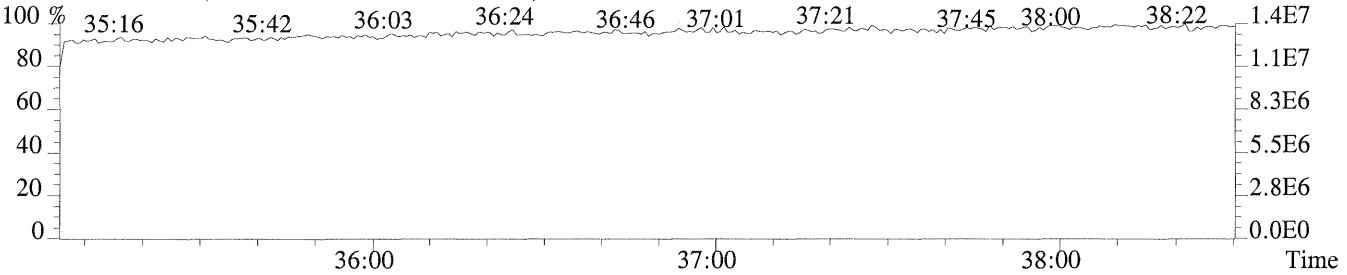
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

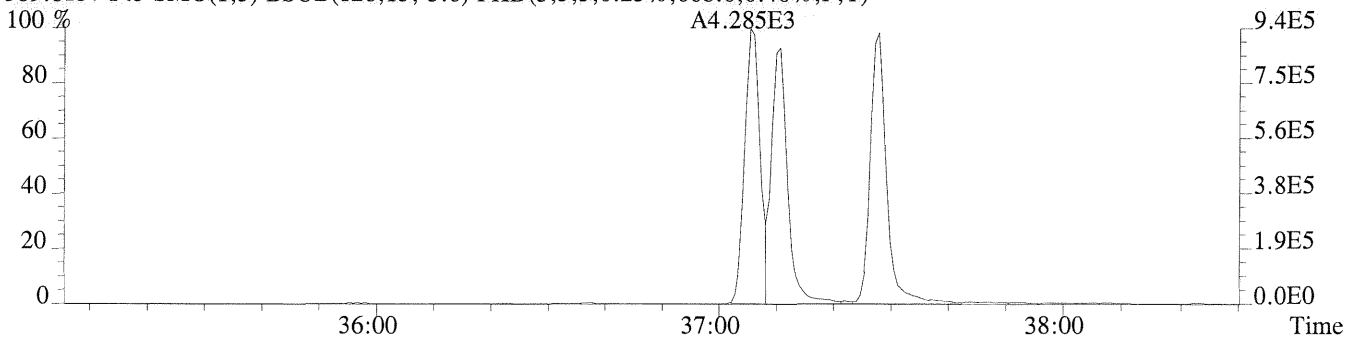


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

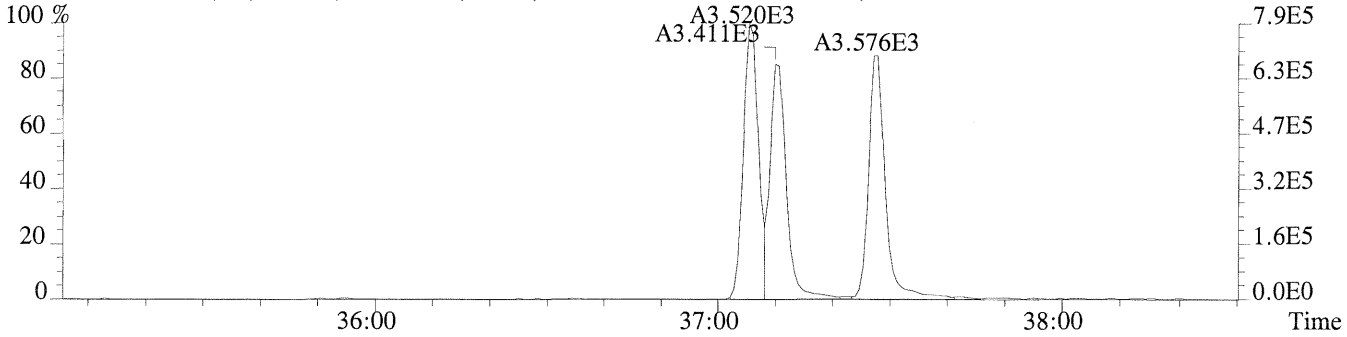


File:P114455 #1-310 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

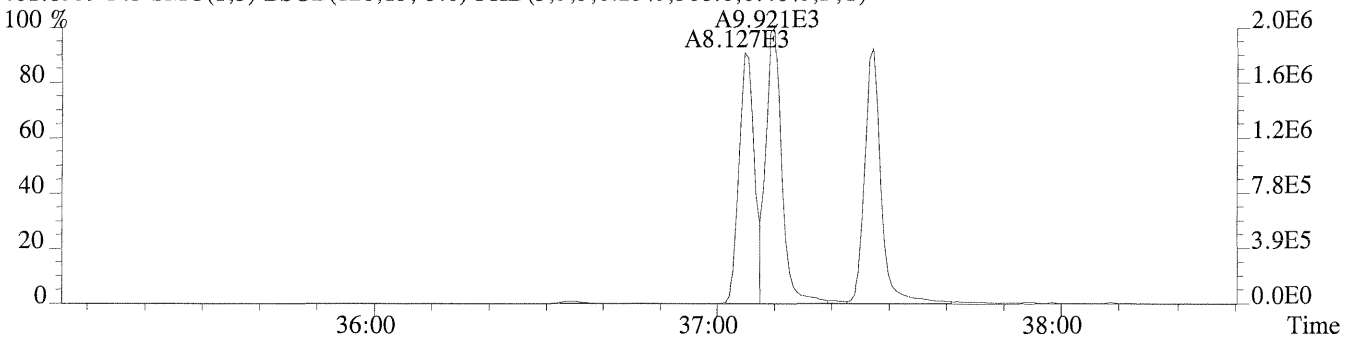
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,668.0,0.40%,F,T)



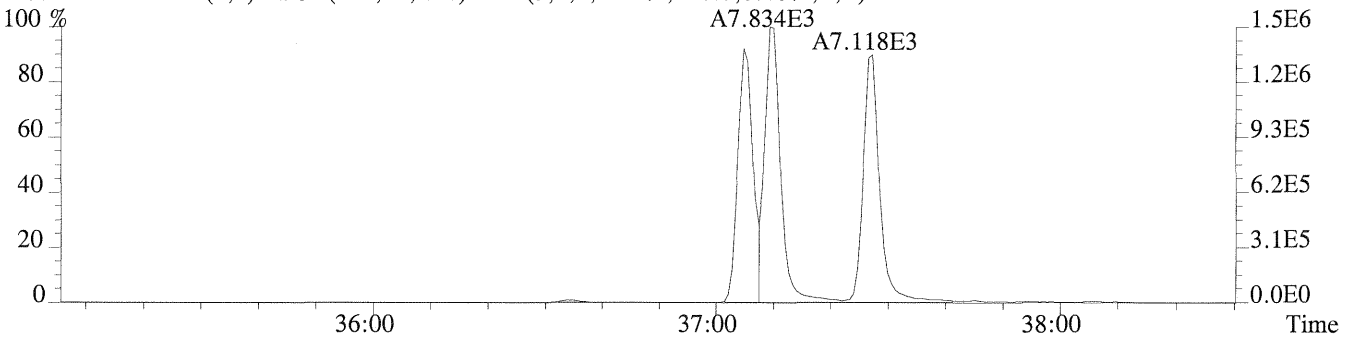
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,584.0,0.40%,F,T)



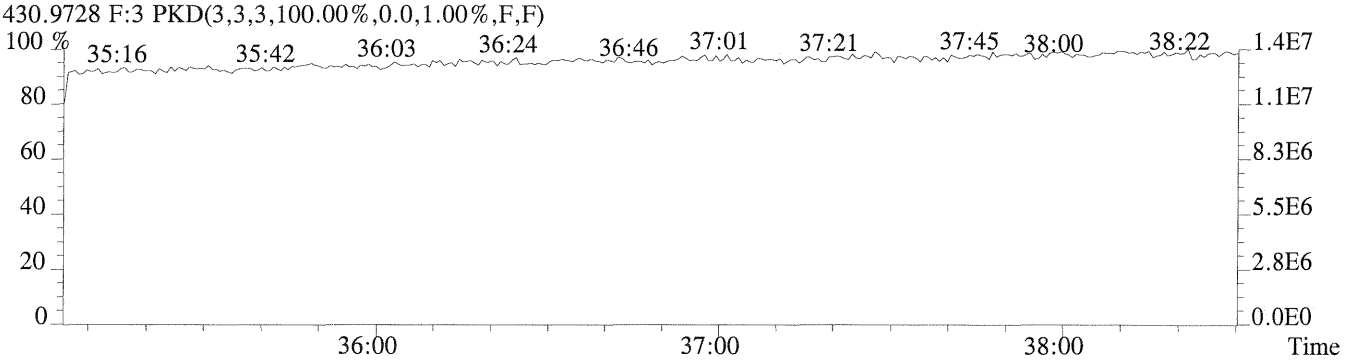
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.40%,F,T)

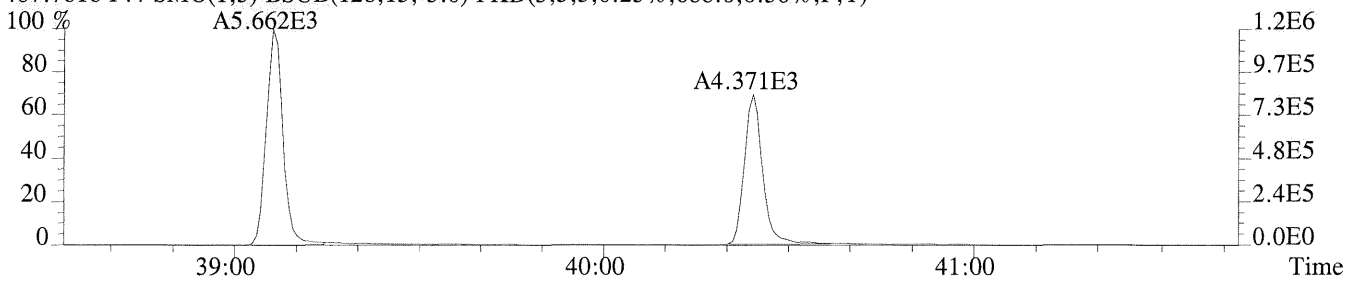


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

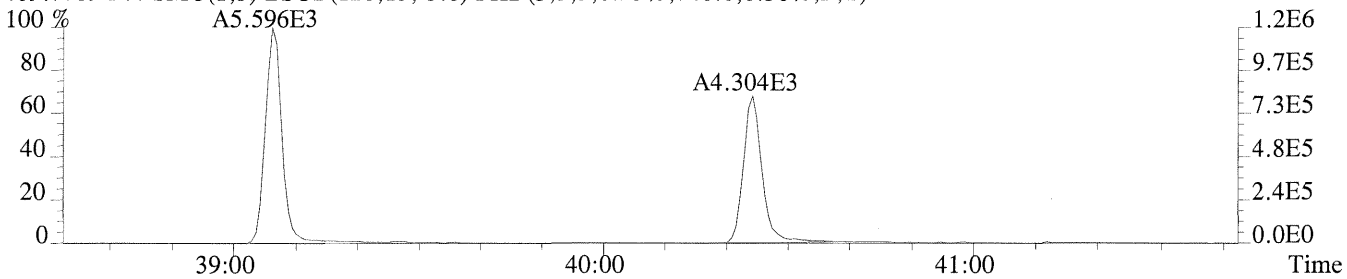


File:P114455 #1-288 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

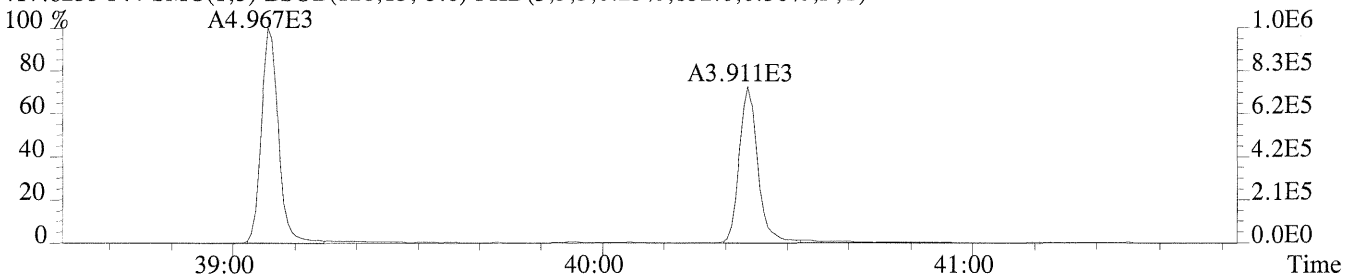
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.50%,F,T)



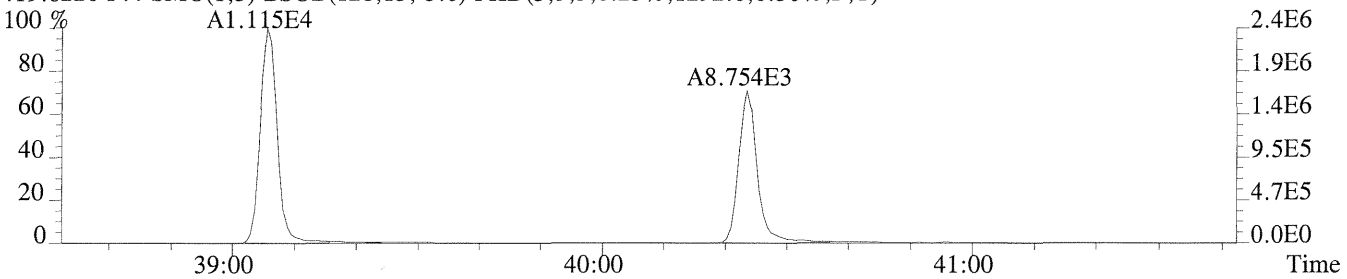
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,740.0,0.50%,F,T)



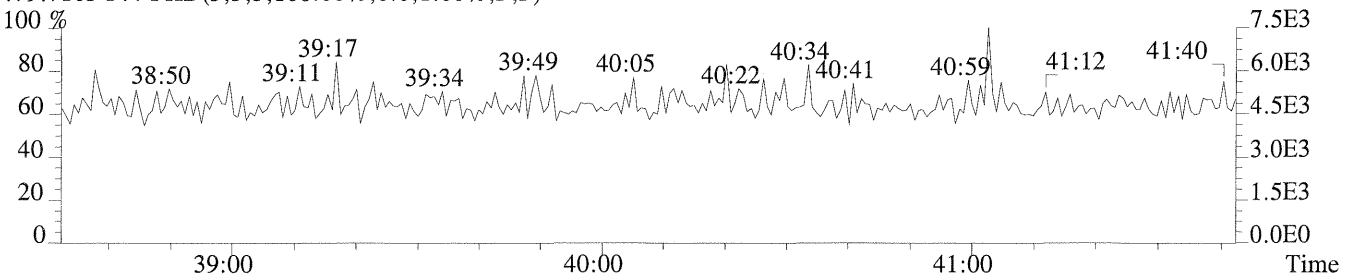
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.50%,F,T)



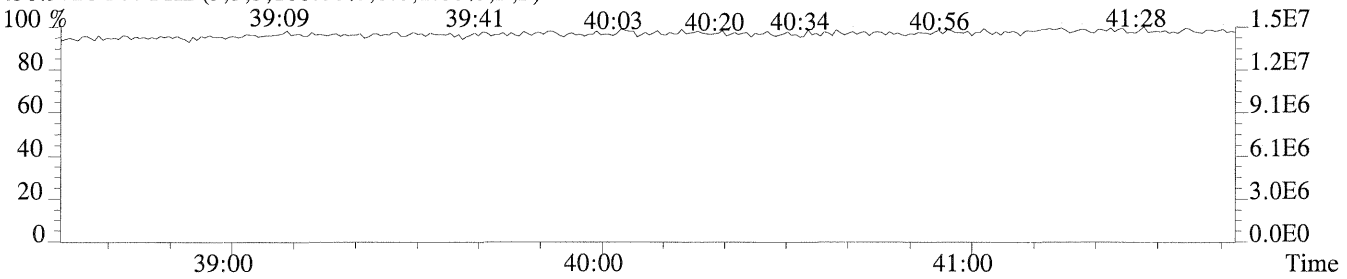
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1292.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

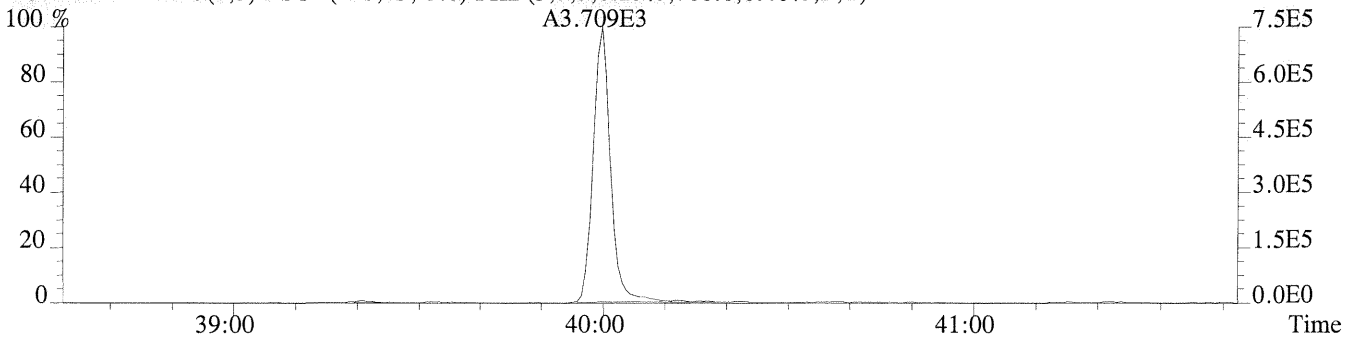


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

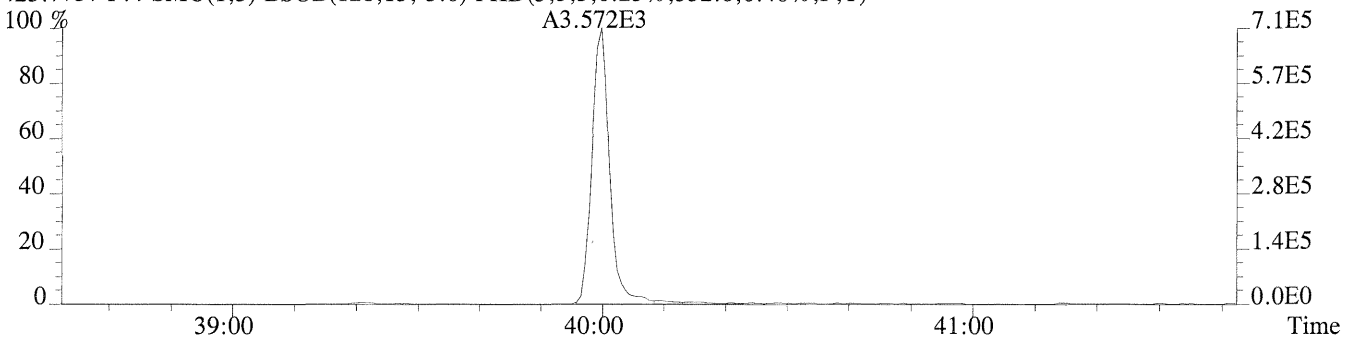


File:P114455 #1-288 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

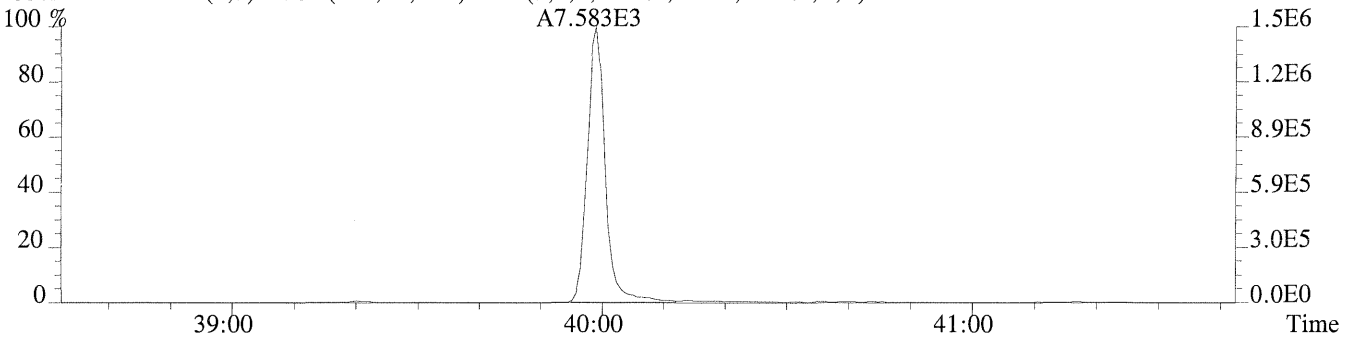
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



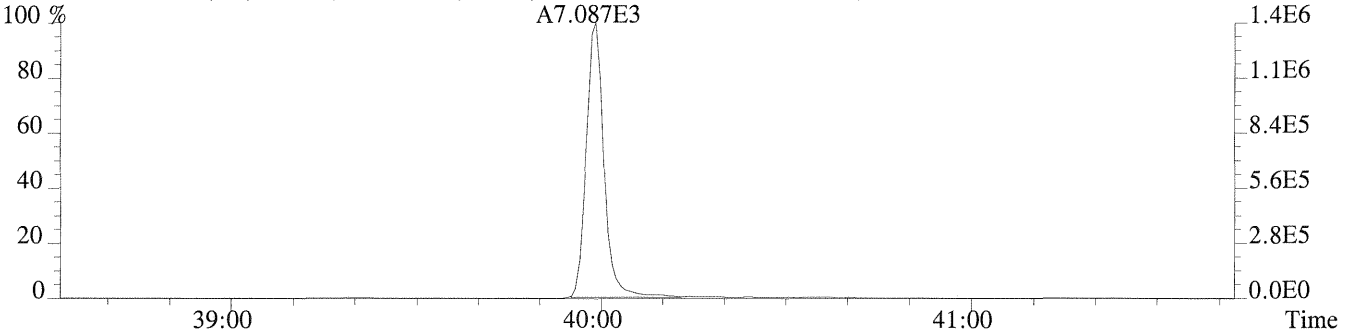
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)



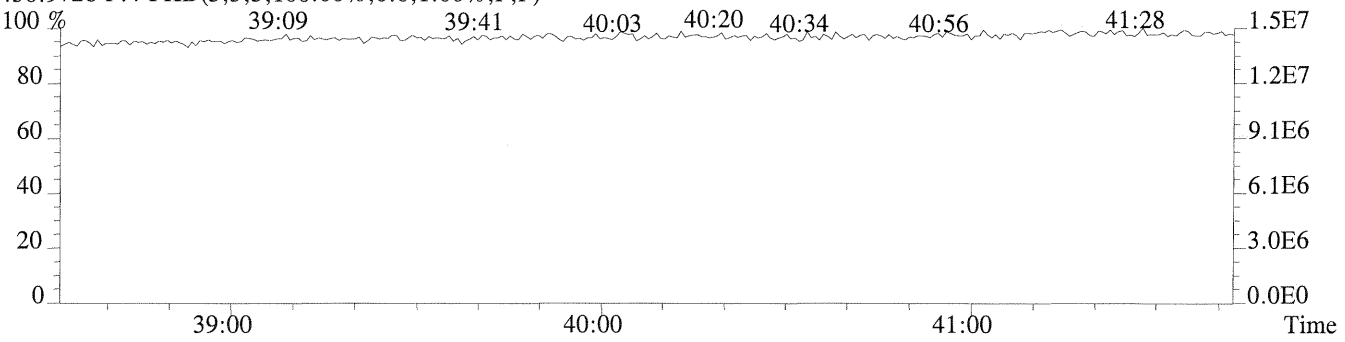
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,696.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,532.0,0.40%,F,T)

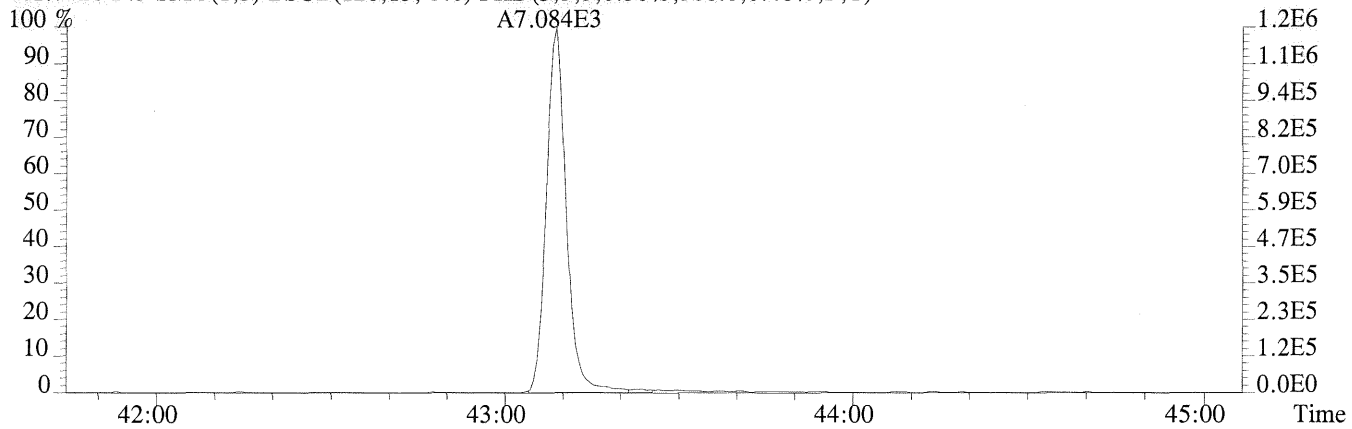


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

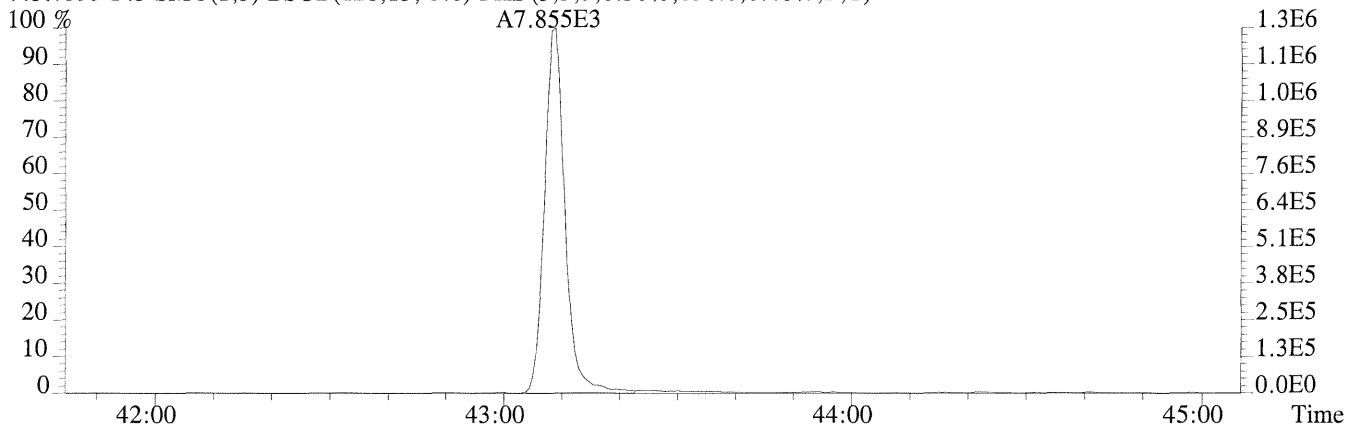


File:P114455 #1-310 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

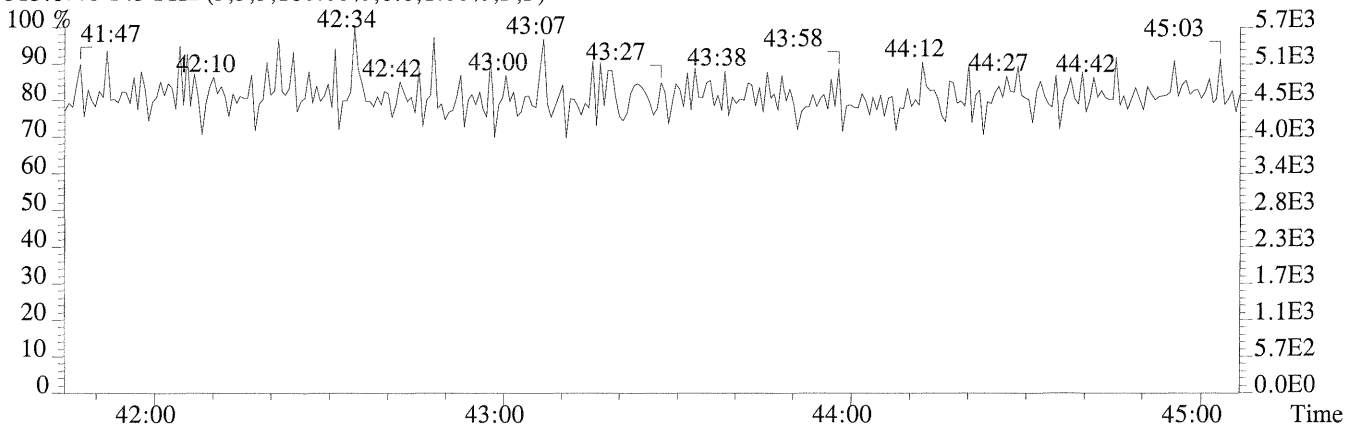
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,508.0,0.40%,F,T)



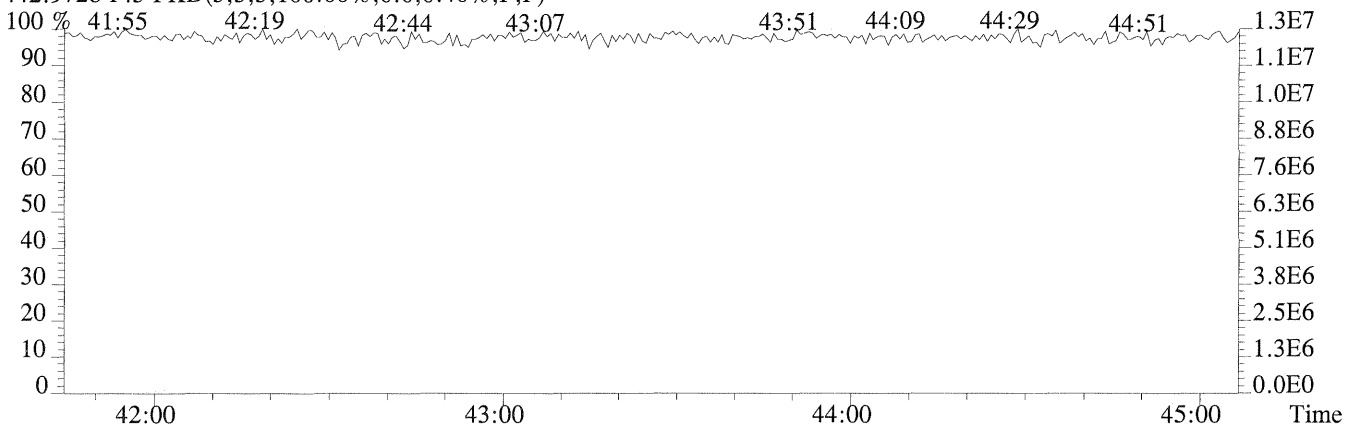
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,836.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

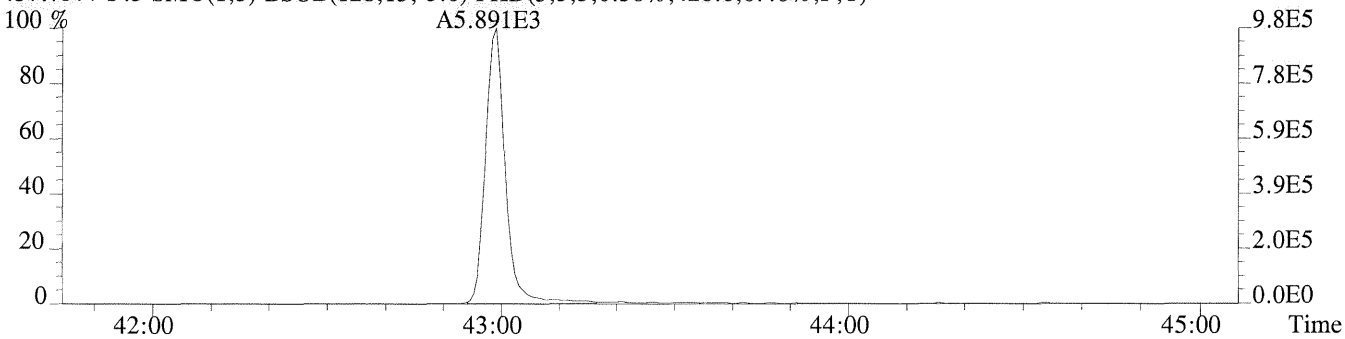


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

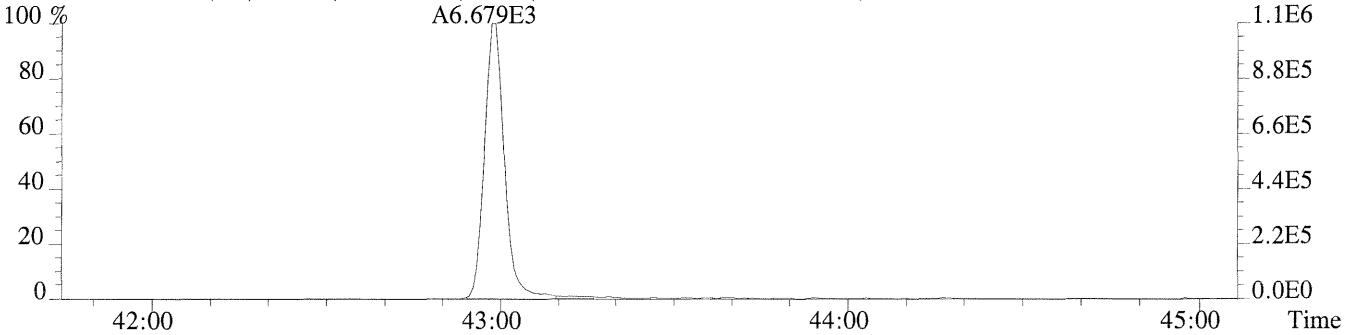


File:P114455 #1-310 Acq: 9-JUN-2011 16:50:57 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

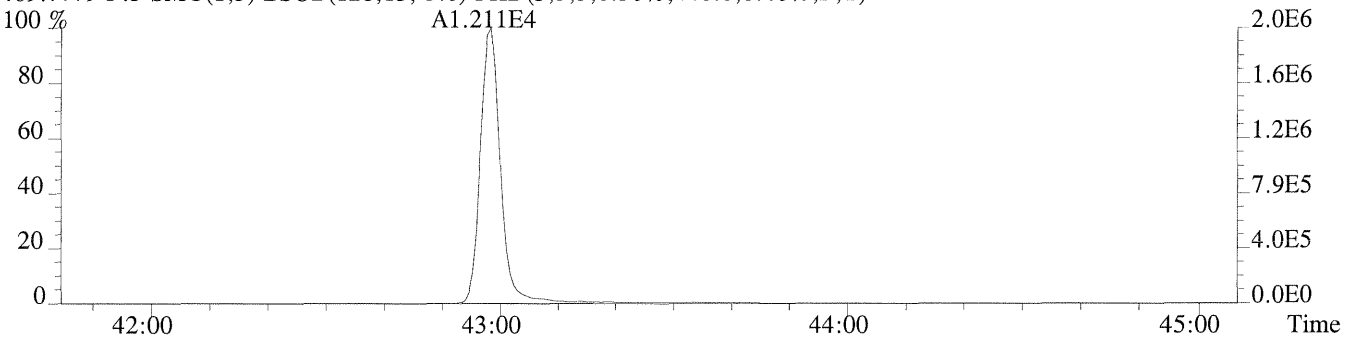
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,428.0,0.40%,F,T)



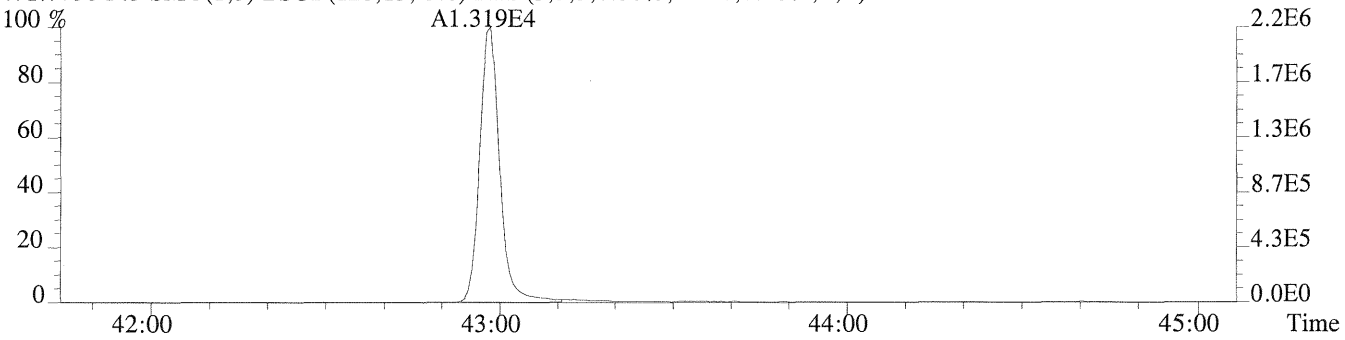
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



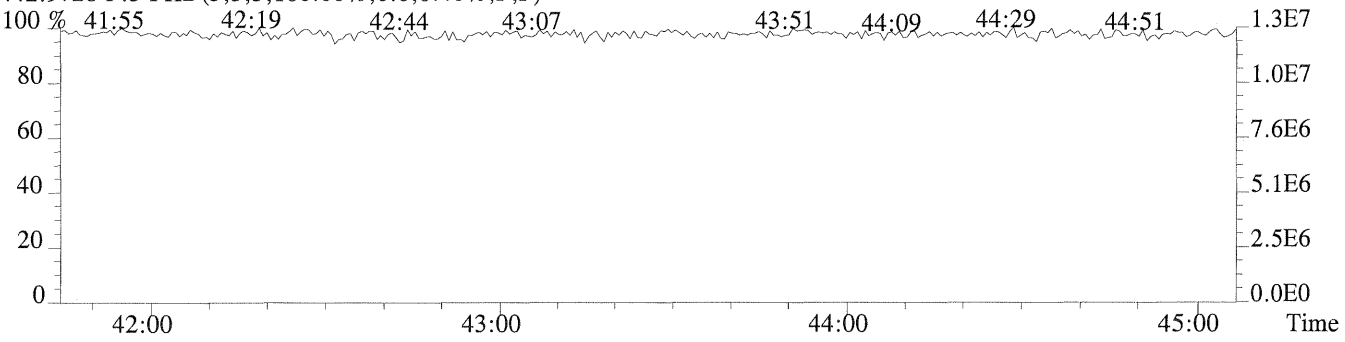
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,448.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,540.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



RW/CS3 Daily Calibration QC Checklist

Calibration File Name: U140611~U140621

Date: 09 JUN. '11

Circle one: Beginning / Ending

Method: 1613 / 1613E / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	✓	N/A
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	N.A.	N/A
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	N.A.	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature]

Second QC: MC

ccalqc.xls 02/08/00

USEPA - CLP

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-225 ID: 0.25 (mm) Instrument ID: AutoSpec-Ultima

Init. Calib. Date: 03/31/11

Init. Calib.Times: 07:57

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
COLUMN PERFORMANCE		U140610	9-JUN-11	08:37:23
CCAL CS3		U140611	9-JUN-11	09:13:51
INST BLANK		U140612	9-JUN-11	10:14:10
2090-50-506	E1100604-001	U140613	9-JUN-11	10:40:25
M34-B23/24-COMP	K1104538-001	U140614	9-JUN-11	11:17:26
M34-B30/32-COMP	K1104538-002	U140615	9-JUN-11	11:54:27
M34-B35/37-COMP	K1104538-003	U140616	9-JUN-11	12:31:28
M34-B55/56-COMP	K1104538-004	U140617	9-JUN-11	13:08:29
468-2011-0603B150	E1100609-001	U140618	9-JUN-11	13:45:34
DO NOT USE	E1100611-001	U140619	9-JUN-11	15:28:37
SJSF002-IDW	E1100611-002	U140620	9-JUN-11	15:54:38
CCAL CS3		U140621	9-JUN-11	16:56:35

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1110609.SPL
Last Modified: Thursday, June 09, 2011 16:56:31 Central Daylight Time
Printed: Thursday, June 09, 2011 17:32:12 Central Daylight Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

D: U140611 RES

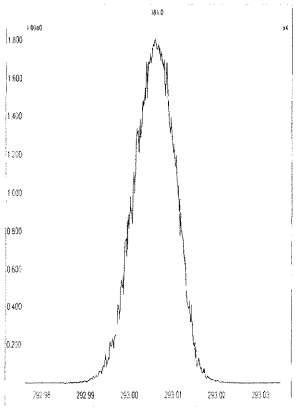
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	06/09/11	07:04	U140609	COLUMN PERFORMANCE	D4-59-1		HRMS CHECK 08:30	TCDFCAS	TCDFCAS
2		08:37	U140610	COLUMN PERFORMANCE	D4-59-1			TCDFCAS	TCDFCAS
3		09:13	U140611	CCAL CS3	D11-50-1			TCDFCAS	TCDFCAS
4		10:14	U140612	INST. BLANK	8290BLNK			TCDFCAS	TCDFCAS
5		10:46	U140613	E1100604-001	2090-50-506			TCDFCAS	TCDFCAS
6		11:17	U140614	K1104538-001	M34-B23/24-COMP			TCDFCAS	TCDFCAS
7		11:54	U140615	K1104538-002	M34-B30/32-COMP			TCDFCAS	TCDFCAS
8		12:21	U140616	K1104538-003	M34-B35/37-COMP			TCDFCAS	TCDFCAS
9		13:08	U140617	K1104538-004	M34-B55/56-COMP			TCDFCAS	TCDFCAS
10		13:45	U140618	E1100609-001	468-2011-0603B150			TCDFCAS	TCDFCAS
11		15:28	U140619	E1100611-001	SJSF001-IDW		NEED RE-INJECTED	TCDFCAS	TCDFCAS
12		15:54	U140620	E1100611-002	SJSF002-IDW			TCDFCAS	TCDFCAS
13		16:56	U140621	CCAL CS3	D11-50-1		HRMS CHECK 17:24	TCDFCAS	TCDFCAS
14			---	---	---			TCDFCAS	TCDFCAS
15			---	---	---			TCDFCAS	TCDFCAS
16			---	---	---			TCDFCAS	TCDFCAS
17			---	---	---			TCDFCAS	TCDFCAS
18			---	---	---			TCDFCAS	TCDFCAS
19			---	---	---			TCDFCAS	TCDFCAS
20			---	---	---			TCDFCAS	TCDFCAS
21			---	---	---			TCDFCAS	TCDFCAS
22			---	---	---			TCDFCAS	TCDFCAS
23			---	---	---			TCDFCAS	TCDFCAS
24			---	---	---			---	---
25			---	---	---			1668EPA	1668EPA
26			---	---	---			8290cas	8290CAS
27			---	---	---			TCDFCAS	TCDFCAS
28			---	---	---			---	---
29			---	---	---			---	---
30	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---
32	---	---	---	---	---	---	---	---	---
33	---	---	---	---	---	---	---	---	---
34	---	---	---	---	---	---	---	---	---
35	---	---	---	---	---	---	---	---	---
36	---	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	Reviewed By: _____	---	---
39	---	---	---	---	---	---	---	---	---

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

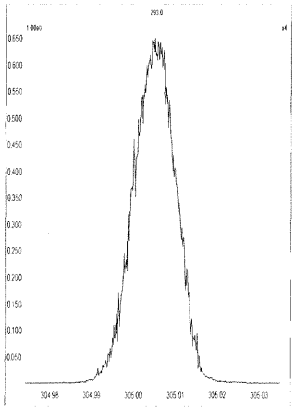
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, June 09, 2011 08:30:01 Central Daylight Time

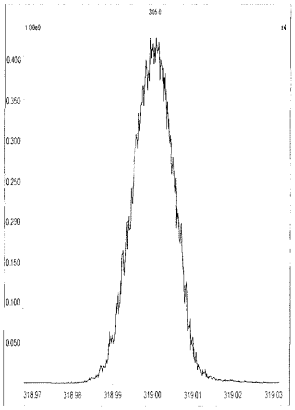
M 292.9824 R 14206



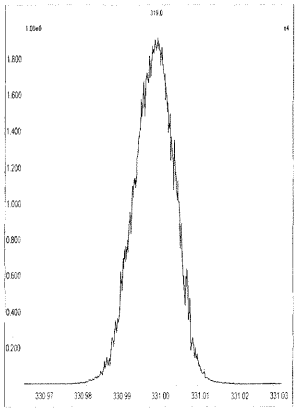
M 304.9824 R 13972



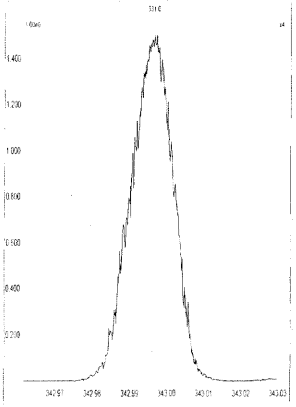
M 318.9792 R 13510



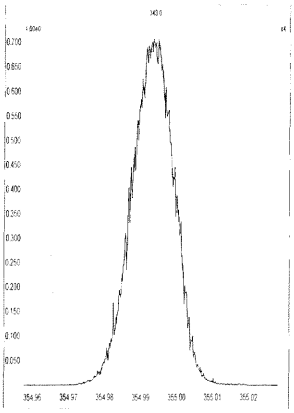
M 330.9792 R 13588



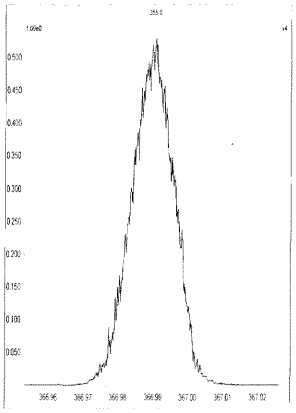
M 342.9792 R 14044



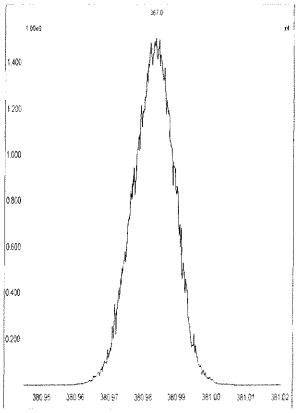
M 354.9792 R 13437



M 366.9792 R 13736



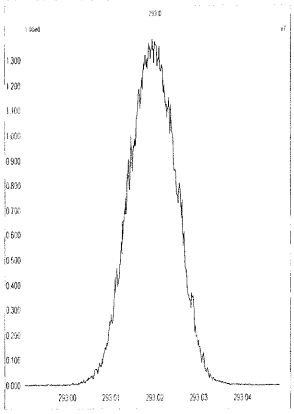
M 380.9760 R 13156



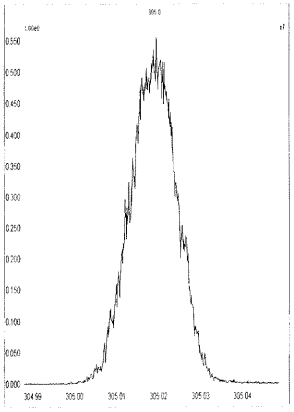
Resolution Check Report **MassLynx 4.1** Page 1 of 1

Printed: Thursday, June 09, 2011 17:24:26 Central Daylight Time

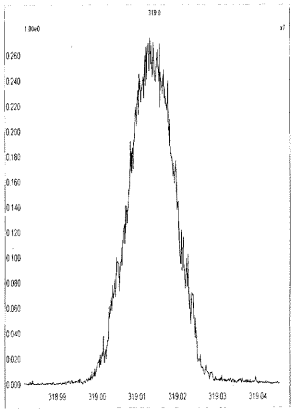
M 292.9824 R 11933



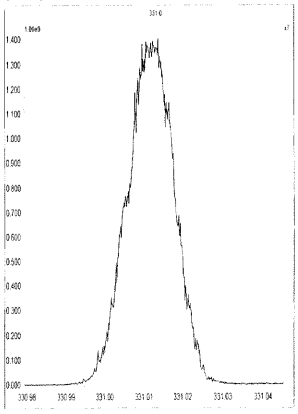
M 304.9824 R 12106



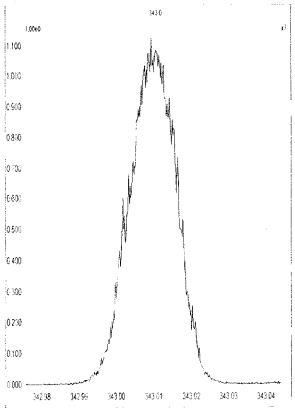
M 318.9792 R 12195



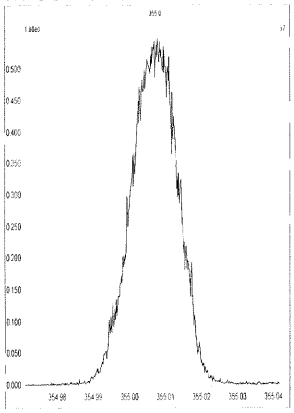
M 330.9792 R 12345



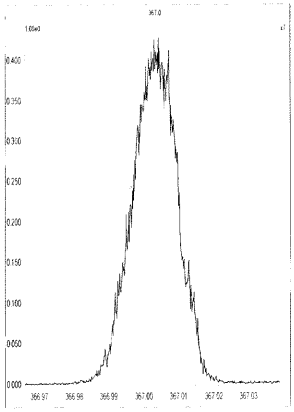
M 342.9792 R 12628



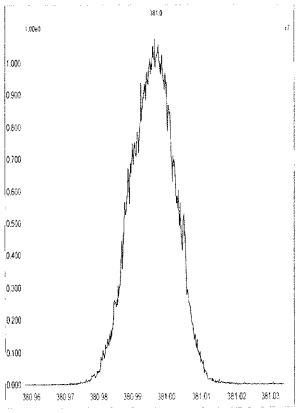
M 354.9792 R 12345



M 366.9792 R 12499



M 380.9760 R 12692



USEPA - CLP
5DFB

PCDD/PCDF WINDOW DEFINING MIX SUMMARY

EPA SAMPLE NO.

Column Perform

Lab Name: Columbia Analytical Services Contract: _____

Lab Code: TX01411 Case No.: _____ Client No.: _____ SDG No.: _____

GC Column: 30m DB-225 ID: 0.25 (mm) Lab File ID: U14610

Instrument ID: AutoSpec-Ultima Date Analyzed: 06/09/11

Time Analyzed: 08:37:23

Percent Valley deterimation for DB-5 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

1478-TCDD/2378-TCDD: _____

QUALITY CONTROL (QC) LIMITS: _____

Percent Valley between the TCDD isomers must be less than or equal to 25%.

Percent Valley deterimation for DB-225 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

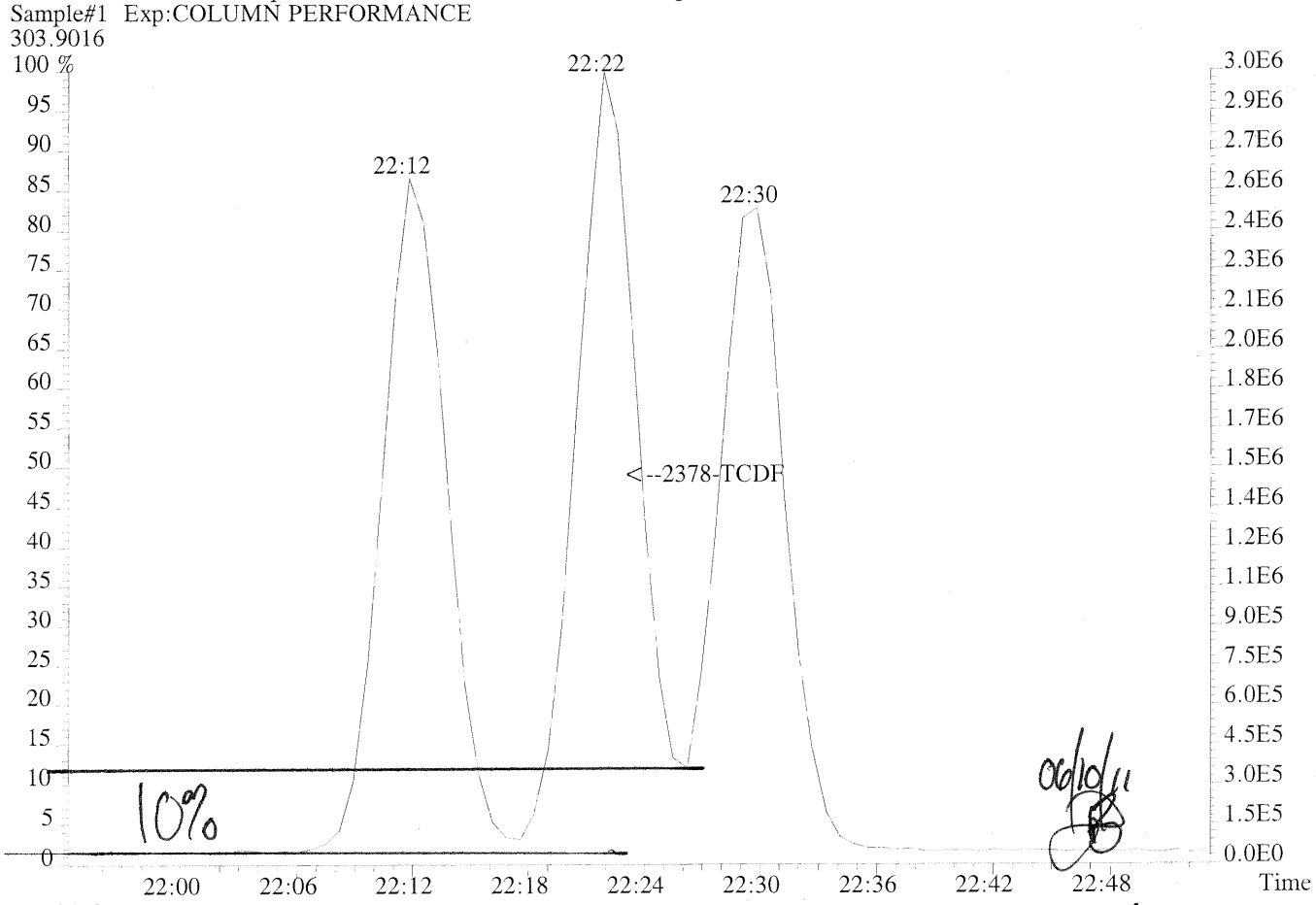
2347-TCDF/2378-TCDF: 10

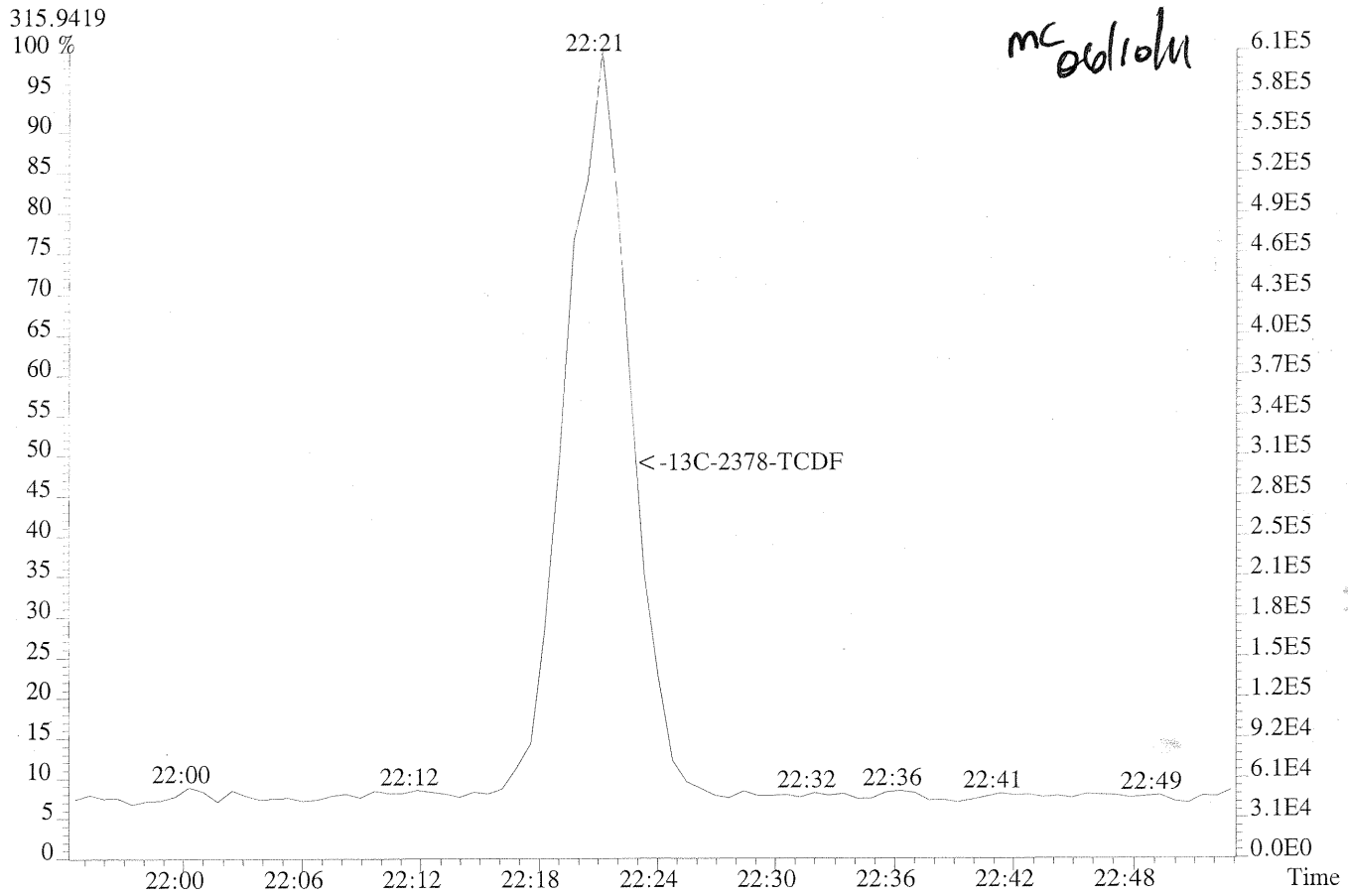
QUALITY CONTROL (QC) LIMITS:

Percent Valley between the TCDF/TCDF isomers must be less than or equal to 25%.

Analyst Init: _____ FORM V-HR CDD-2 DLM02.0

File:U140610 #1-709 Acq: 9-JUN-2011 08:37:23 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:COLUMN PERFORMANCE





FORM 4A
TCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Contract No.:

Lab Code: TX01411 Case No.: Client No: SDG No.:

Initial Calibration Date: 03/31/11

Instrument ID.: AutoSpec_Ultima GC COLUMN ID: DB-225

VER Data Filename: U140611 Analysis Date: 9-JUN-11 Time: 09:13:51

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	0.92	0.97	-5.62
Labeled Compounds						
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.30	1.23	5.58
Cleanup Standard						
37Cl-2,3,7,8-TCDD				1.00	0.96	3.78

Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
CCAL CS3

Run #8 Filename U140611 Samp: 1 Inj: 1 Acquired: 9-JUN-11 09:13:51
Processed: 10-JUN-11 10:37:43 Sample ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:22	3.460e+03	4.412e+03	0.78	yes	no
2	IS	13C-2,3,7,8-TCDF	22:20	3.765e+04	4.795e+04	0.79	yes	no
3	RS/RT	13C-1,2,3,4-TCDD	21:04	2.914e+04	3.689e+04	0.79	yes	no
4	C/Up	37Cl-2,3,7,8-TCDD	20:50	6.591e+03				

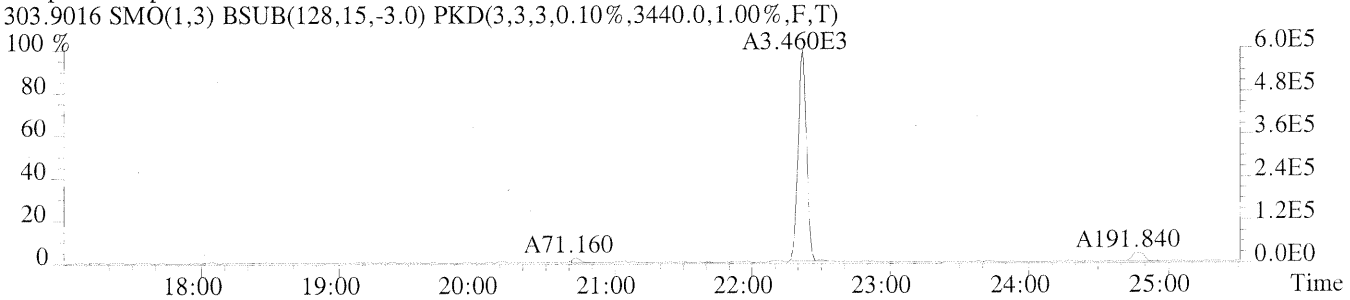
Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	5.97e+05	3.44e+03	1.7e+02	7.37e+05	2.80e+03	2.6e+02
2	13C-2,3,7,8-TCDF	5.59e+06	3.20e+03	1.7e+03	7.11e+06	4.54e+03	1.6e+03
3	13C-1,2,3,4-TCDD	4.92e+06	5.19e+03	9.5e+02	6.31e+06	1.93e+03	3.3e+03
4	37Cl-2,3,7,8-TCDD	1.13e+06	2.88e+03	3.9e+02			

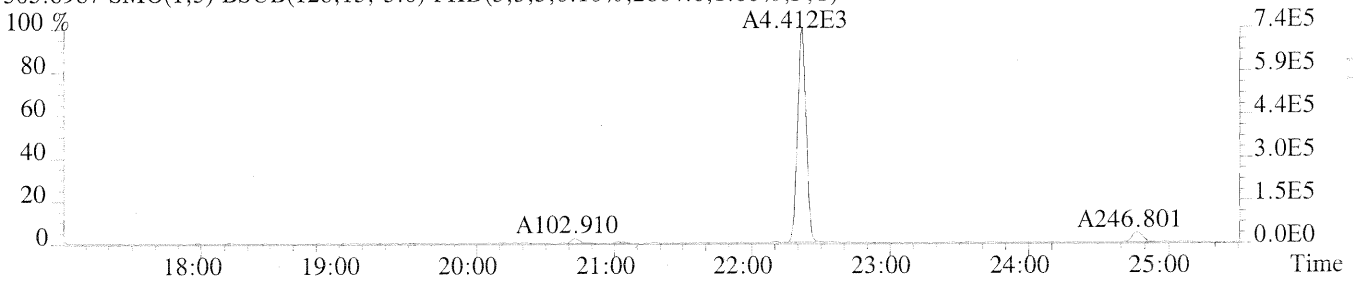
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

File:U140611 #1-709 Acq: 9-JUN-2011 09:13:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

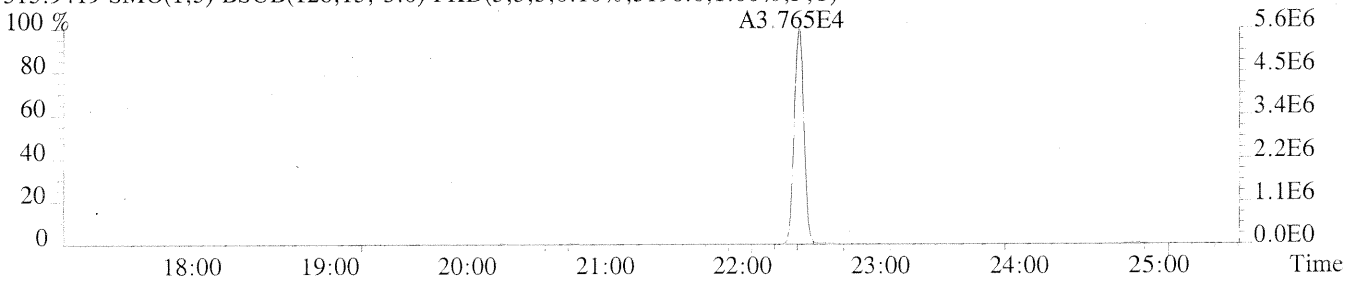
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3440.0,1.00%,F,T)



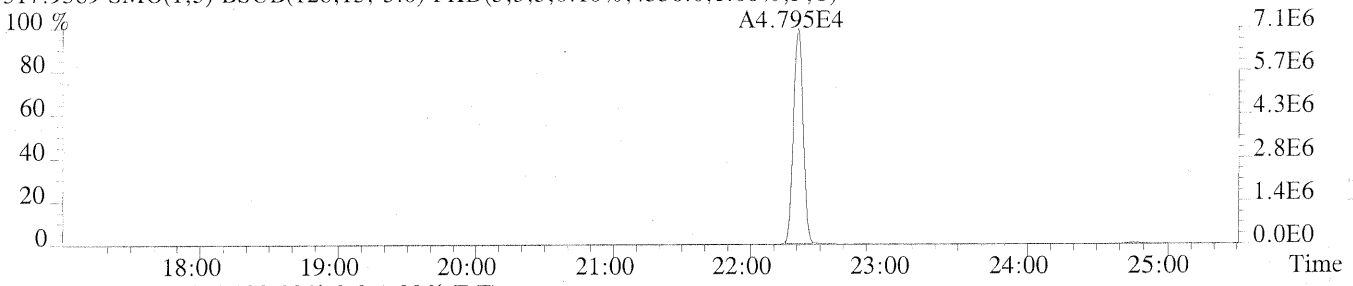
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2804.0,1.00%,F,T)



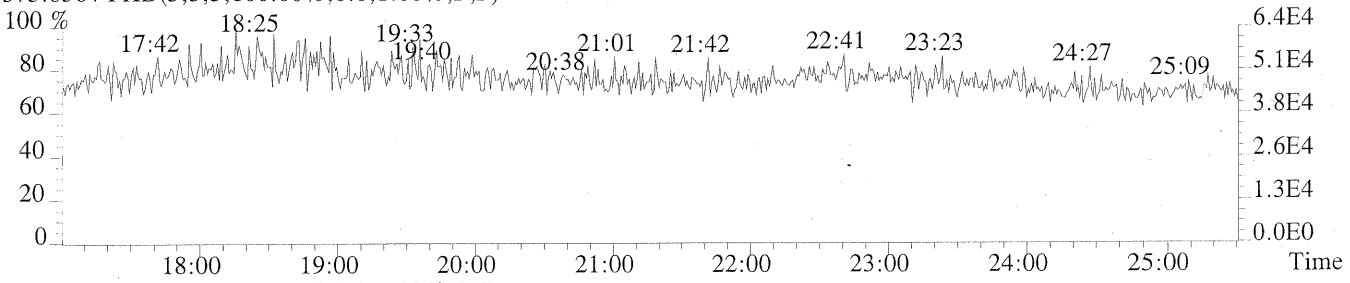
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3196.0,1.00%,F,T)



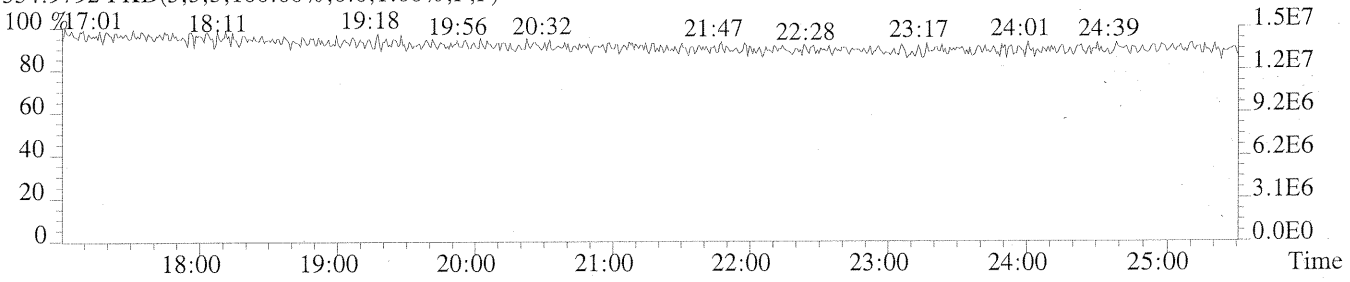
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4536.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

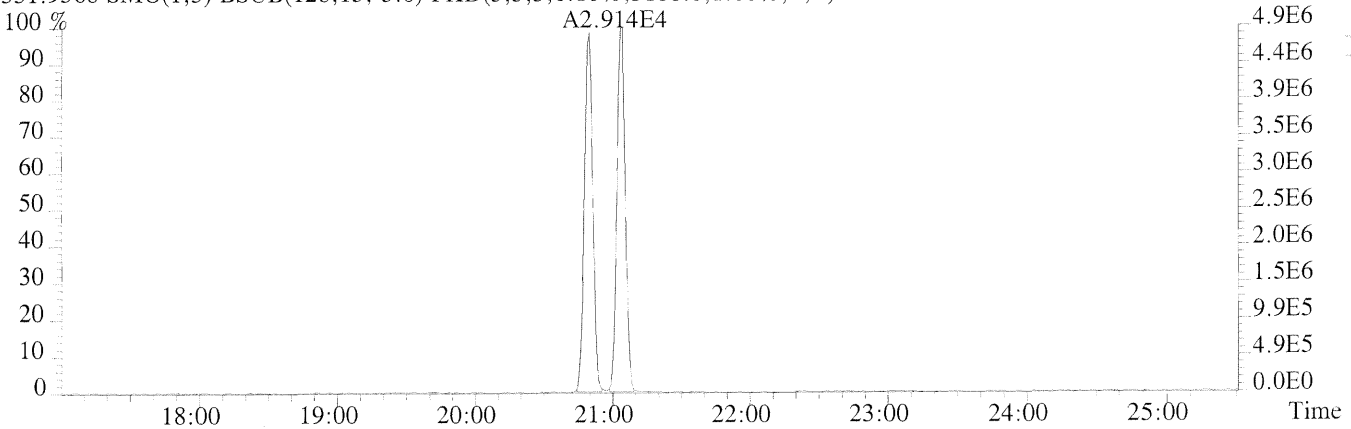


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

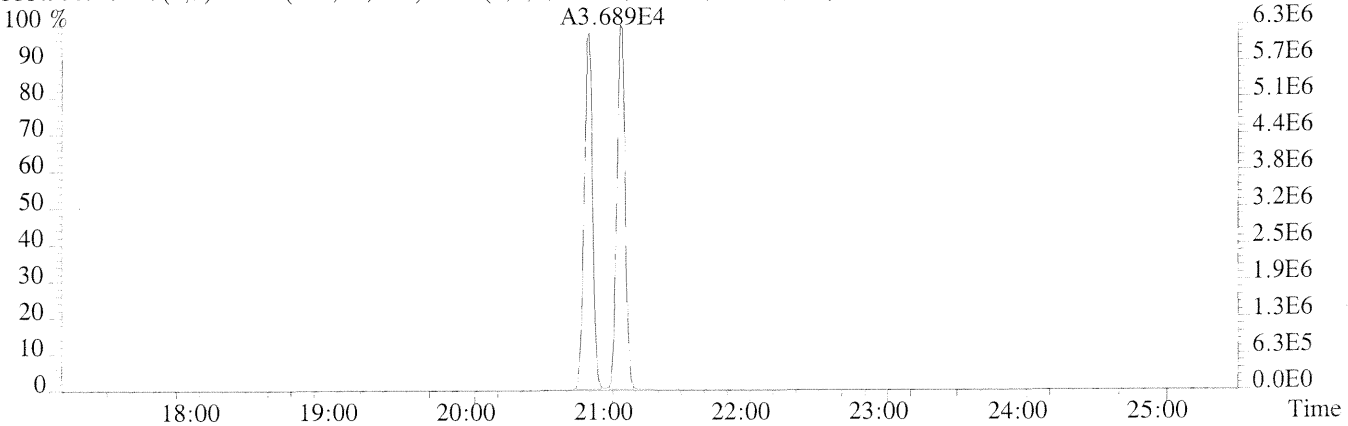


File:U140611 #1-709 Acq: 9-JUN-2011 09:13:51 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

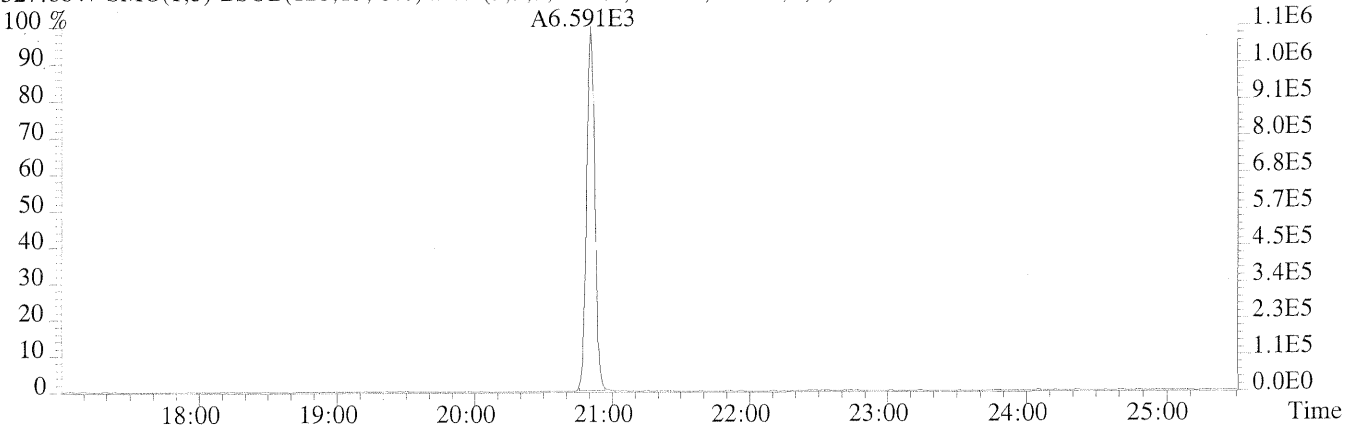
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5188.0,1.00%,F,T)



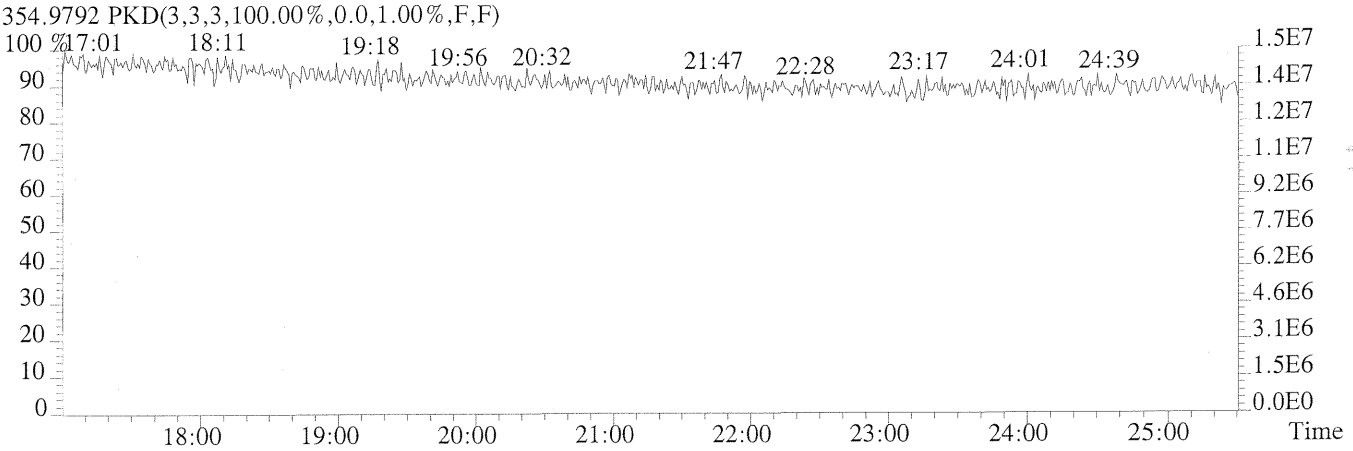
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1928.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2876.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



FORM 4A
TCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Contract No.:

Lab Code: TX01411 Case No.: Client No: SDG No.:

Initial Calibration Date: 03/31/11

Instrument ID.: AutoSpec_Ultima GC COLUMN ID: DB-225

VER Data Filename: U140621 Analysis Date: 9-JUN-11 Time: 16:56:35

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDF	M/M+2	0.78	0.65-0.89	0.95	0.97	-2.40
Labeled Compounds						
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.32	1.23	7.43
Cleanup Standard						
37Cl-2,3,7,8-TCDD				1.04	0.96	8.19

Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
CCAL CS3

Run #18 Filename U140621 Samp: 1 Inj: 1 Acquired: 9-JUN-11 16:56:35
Processed: 10-JUN-11 10:37:47 Sample ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:22	3.046e+03	3.910e+03	0.78	yes	no
2	IS	13C-2,3,7,8-TCDF	22:21	3.226e+04	4.088e+04	0.79	yes	no
3	RS/RT	13C-1,2,3,4-TCDD	21:04	2.445e+04	3.099e+04	0.79	yes	no
4	C/Up	37Cl-2,3,7,8-TCDD	20:50	5.770e+03				

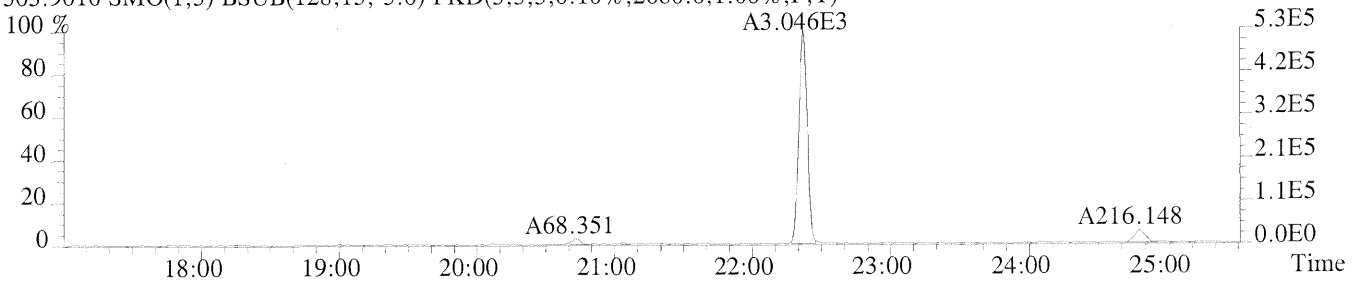
Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	5.25e+05	2.68e+03	2.0e+02	6.66e+05	2.57e+03	2.6e+02
2	13C-2,3,7,8-TCDF	4.88e+06	3.06e+03	1.6e+03	6.15e+06	3.01e+03	2.0e+03
3	13C-1,2,3,4-TCDD	4.35e+06	4.90e+03	8.9e+02	5.48e+06	2.80e+03	2.0e+03
4	37Cl-2,3,7,8-TCDD	9.81e+05	1.92e+03	5.1e+02			

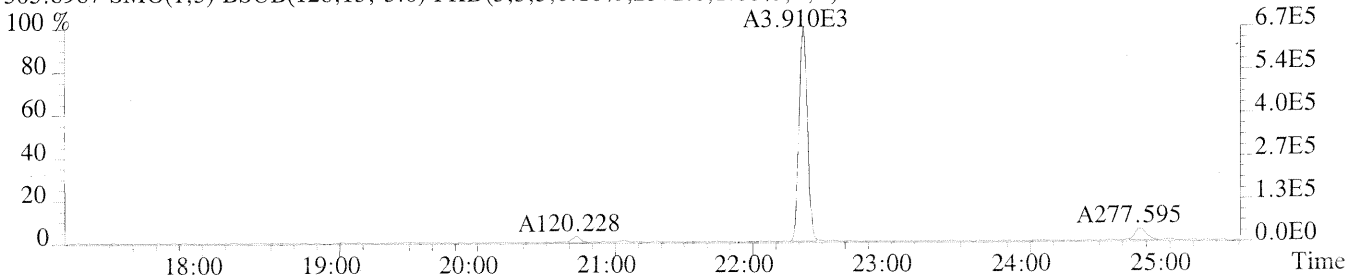
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

File:U140621 #1-709 Acq: 9-JUN-2011 16:56:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

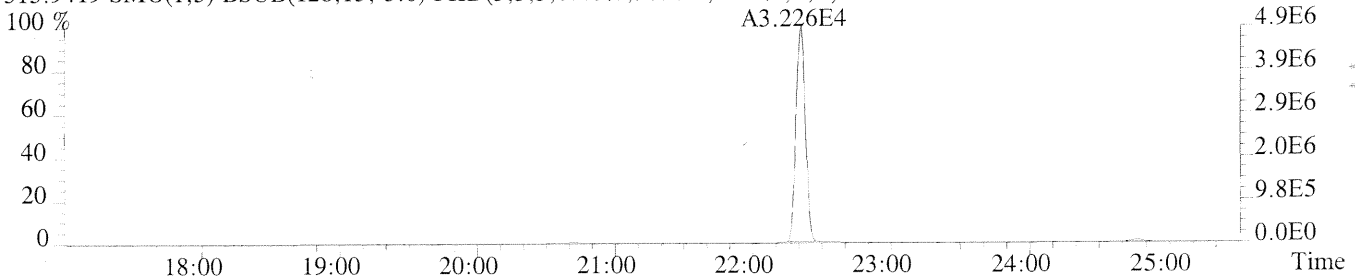
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2680.0,1.00%,F,T)



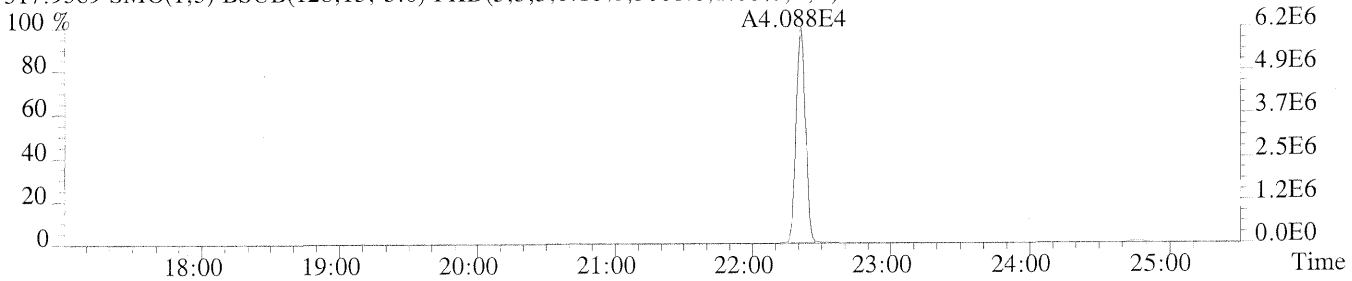
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2572.0,1.00%,F,T)



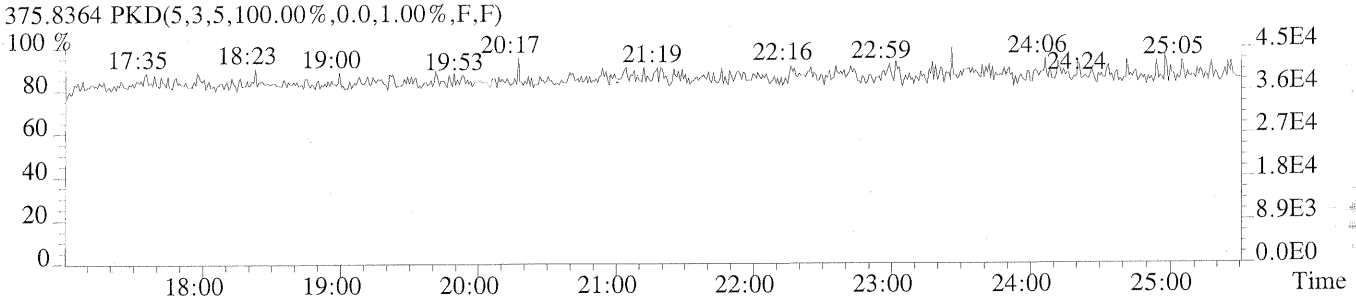
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3056.0,1.00%,F,T)



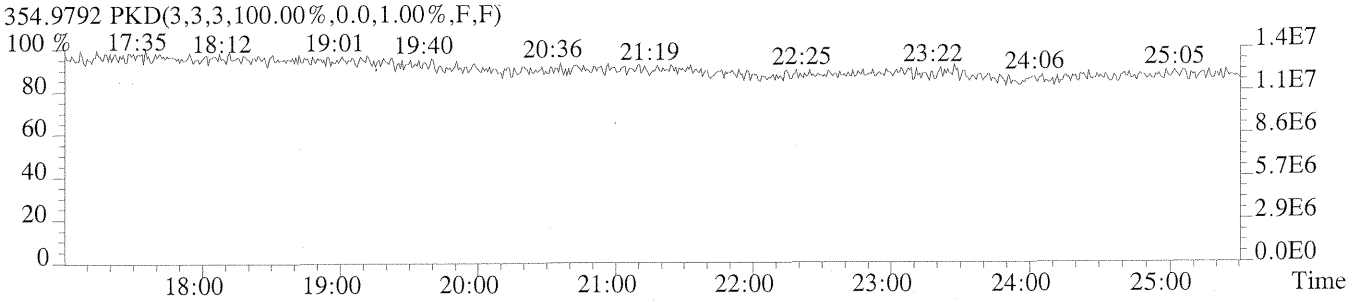
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3008.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

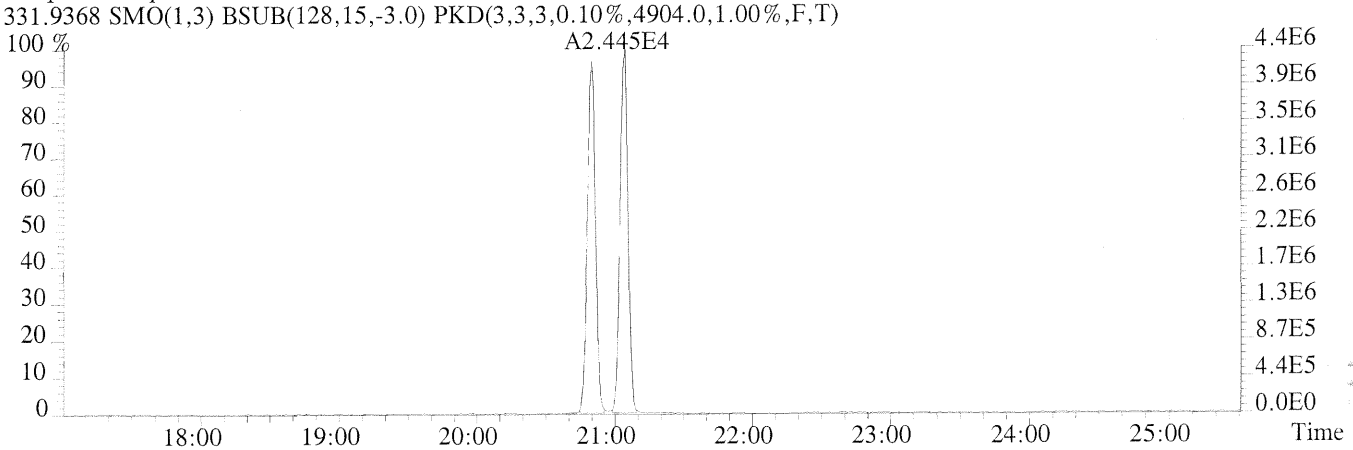


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

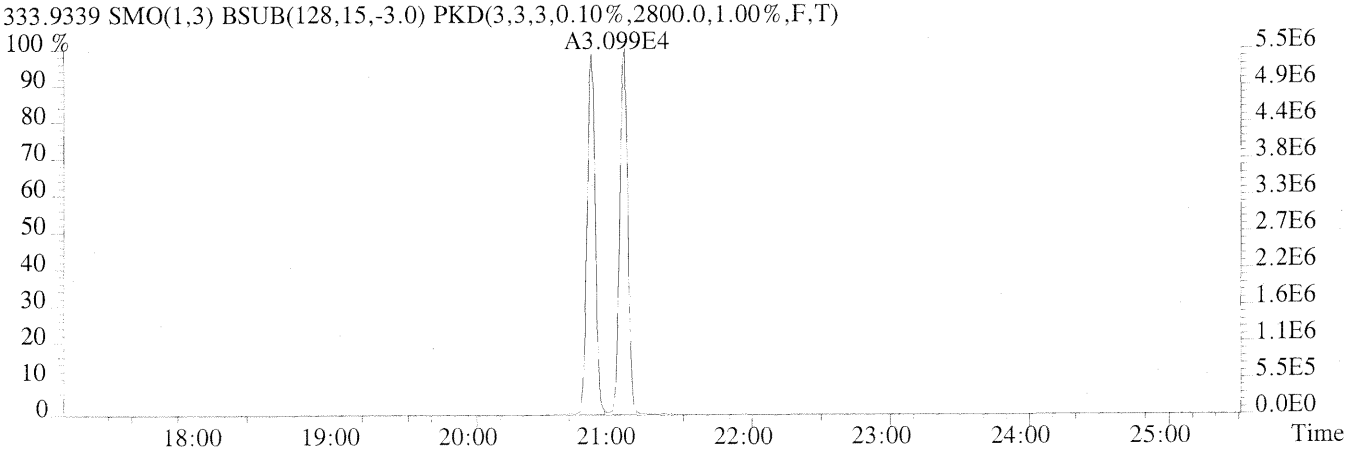


File:U140621 #1-709 Acq: 9-JUN-2011 16:56:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

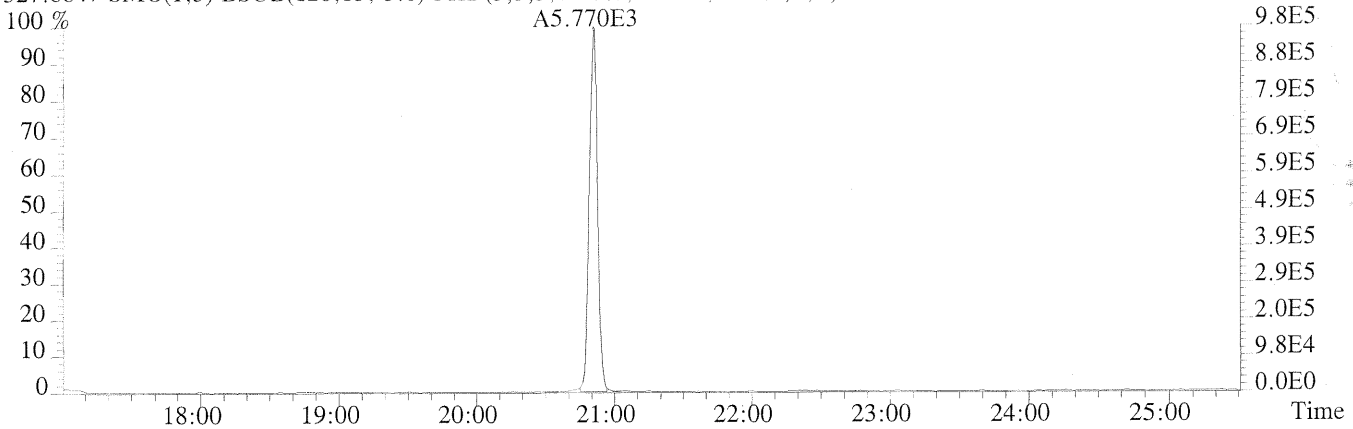
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4904.0,1.00%,F,T)



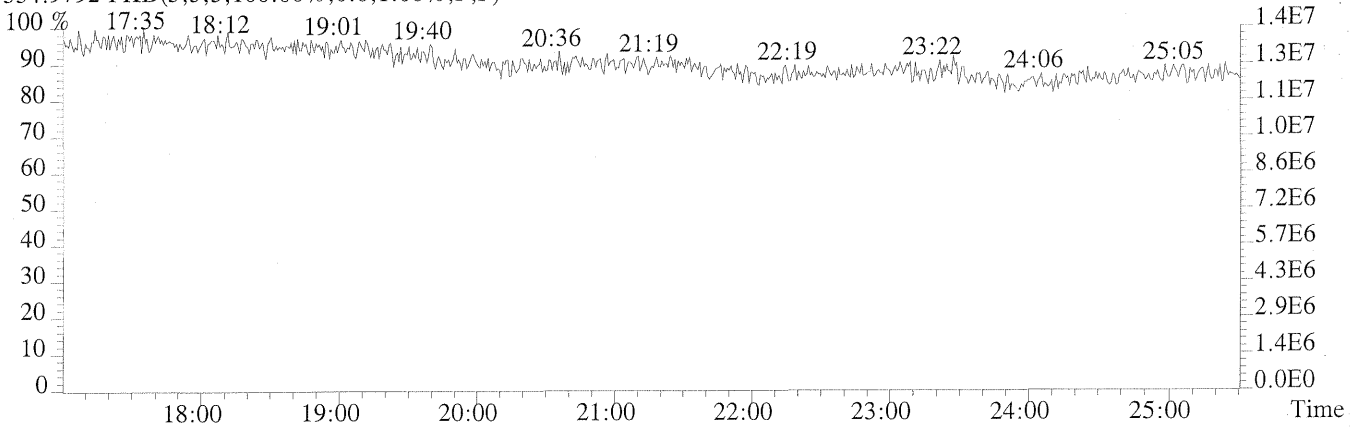
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2800.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1920.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



RW/CS3 Daily Calibration QC Checklist

Calibration File Name: U140622-U140636

Circle one: Beginning / Ending

Date: 06/10/11 – 06/11/11

Method: 1613 / 1613E / VCP / Tetra / TCDD Only / TCDF Conf / VCP Conf / 8280 / M23 / TO-9A

Retention Window/Column Performance Check:	Analyst	Second Check
Windows in and first and last eluters labeled	NA	✓ A
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and its closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or its closest eluters (HRMS Only)	✓	✓

CS3 Continuing Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20% (HRMS Only)	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented (HRMS Only)	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	NA	N/A
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50% (LRMS Only)	NA	N/A
Ending Calibration injected prior to end of 12 hour clock	✓	✓

Analyst: [signature] Second QC: BY

ccalqc.xls 02/08/00

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: DB-225 ID: 0.25 (mm) Instrument ID: AutoSpec-Ultima

Init. Calib. Date: 03/31/11

Init. Calib.Times: 07:57

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
COLUMN PERFORMANCE		U140623	10-JUN-11	17:16:41
CCAL CS3	CCAL CS3	U140622	10-JUN-11	16:34:41
INST. BLANK	INST. BLANK	U140624	10-JUN-11	17:42:47
SLUDGE #1-3	DO NOT USE	U140625	10-JUN-11	18:42:08
IR7SB87-2	E1100588-001	U140626	10-JUN-11	19:08:53
IR7SB87-1	E1100588-002	U140627	10-JUN-11	19:45:54
IR7SB92-1	E1100588-005	U140628	10-JUN-11	20:22:54
IR7SB92-2	DO NOT USE	U140629	10-JUN-11	20:59:56
BD-15-5	E1100502-006	U140630	10-JUN-11	21:36:57
BD-10-5	E1100502-015	U140631	10-JUN-11	22:14:00
2123A COMPOSITE	K1104754-011	U140632	10-JUN-11	22:51:01
2220A COMPOSITE	K1104754-014	U140633	10-JUN-11	23:28:03
SJSF001-IDW	E1100611-001	U140634	11-JUN-11	00:05:03
CCAL CS3	CCAL CS3	U140636	11-JUN-11	01:19:08

Sample List Report MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1110610.SPL
Last Modified: Friday, June 10, 2011 18:41:33 Central Daylight Time
Printed: Monday, June 13, 2011 05:11:24 Central Daylight Time

Columbia Analytical Services™
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

e: U140622res

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments		GC Met	Acq Met
1	06/10/11	16:34	U140622	CCAL CS3	D11-50-1		HLMS CHECK 16:34		TCDFCAS	TCDFCAS
2		17:16	U140623	COLUMN PERFORMANCE	D4-59-1		HLMS CHECK 17:16		TCDFCAS	TCDFCAS
3		17:42	U140624	INST. BLANK	8290BLNK			8290	TCDFCAS	TCDFCAS
4		18:42	U140625	E1100550-001	Sludge #1-3			1613	TCDFCAS	TCDFCAS
5		19:08	U140626	E1100588-001	IR7SB87-2			8290	TCDFCAS	TCDFCAS
6		19:45	U140627	E1100588-002	IR7SB87-1			"	TCDFCAS	TCDFCAS
7		20:22	U140628	E1100588-005	IR7SB92-1			"	TCDFCAS	TCDFCAS
8		20:59	U140629	E1100588-006	IR7SB92-2			"	TCDFCAS	TCDFCAS
9		21:36	U140630	E1100502-006	BD-15-5			"	TCDFCAS	TCDFCAS
10		22:14	U140631	E1100502-015	BD-10-5			"	TCDFCAS	TCDFCAS
11		22:51	U140632	K1104754-011	2123A Composite			"	TCDFCAS	TCDFCAS
12		23:28	U140633	K1104754-014	2220A Composite			"	TCDFCAS	TCDFCAS
13	06/11/11	00:05	U140634	E1100611-001	SJSF001-IDW			1613	TCDFCAS	TCDFCAS
14		00:42	U140635	TEST	---				TCDFCAS	TCDFCAS
15		01:19	U140636	CCAL CS3	D11-50-1		HLMS CHECK 01:57		TCDFCAS	TCDFCAS
16			---	---	---				TCDFCAS	TCDFCAS
17			---	---	---				TCDFCAS	TCDFCAS
18			---	---	---				TCDFCAS	TCDFCAS
19			---	---	---				TCDFCAS	TCDFCAS
20			---	---	---				TCDFCAS	TCDFCAS
21			---	---	---				TCDFCAS	TCDFCAS
22			---	---	---				TCDFCAS	TCDFCAS
23			---	---	---				TCDFCAS	TCDFCAS
24			---	---	---				---	---
25			---	---	---				1668EPA	1668EPA
26			---	---	---				8290cas	8290CAS
27			---	---	---				TCDFCAS	TCDFCAS
28			---	---	---				---	---
29			---	---	---				---	---
30	---	---	---	---	---	---	---		---	---
31	---	---	---	---	---	---	---		---	---
32	---	---	---	---	---	---	---		---	---
33	---	---	---	---	---	---	---		---	---
34	---	---	---	---	---	---	---		---	---
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36	---	---	---	---	---	---	---		---	---
37	---	---	---	---	---	---	---		---	---
38	---	---	---	---	---	---			---	---
39	---	---	---	---	---	---	---		---	---

Reviewed By: gc

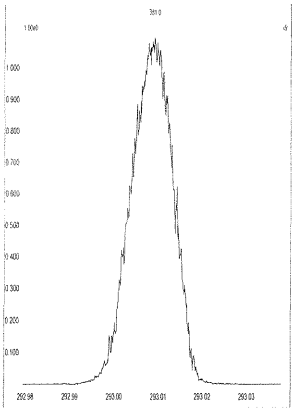
052

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

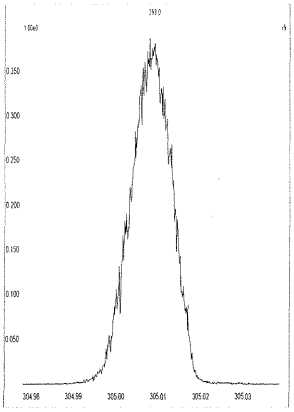
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, June 10, 2011 16:34:22 Central Daylight Time

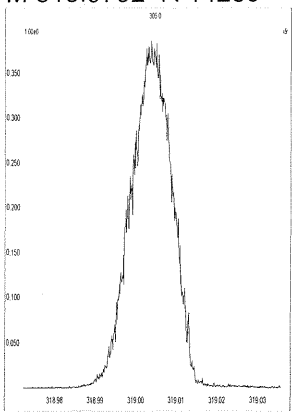
M 292.9824 R 14536



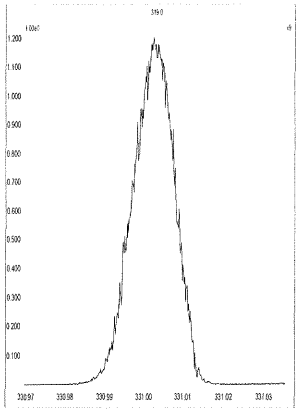
M 304.9824 R 14203



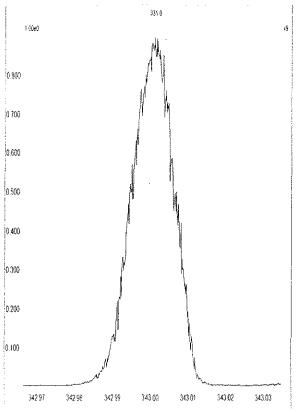
M 318.9792 R 14289



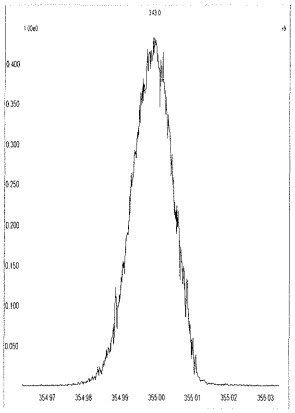
M 330.9792 R 14529



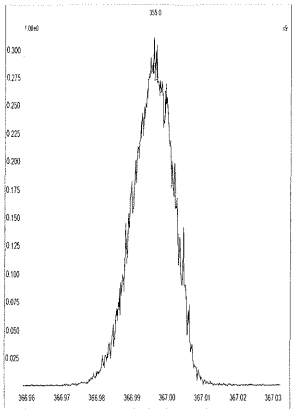
M 342.9792 R 14203



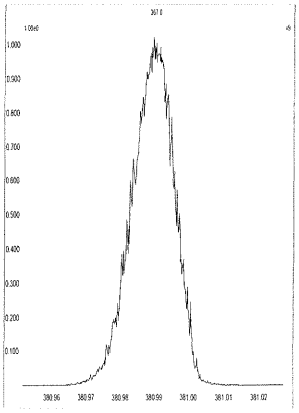
M 354.9792 R 14127



M 366.9792 R 13441



M 380.9760 R 13735

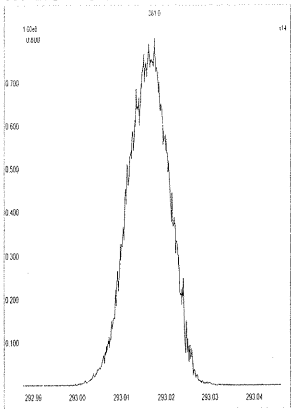


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

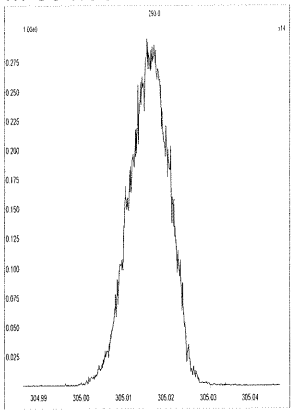
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Friday, June 10, 2011 17:16:00 Central Daylight Time

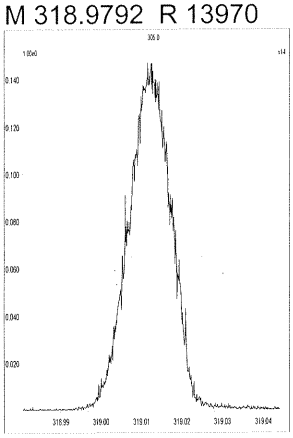
M 292.9824 R 14039



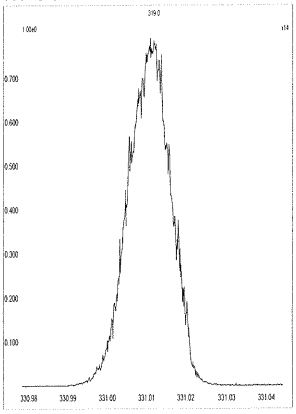
M 304.9824 R 14367



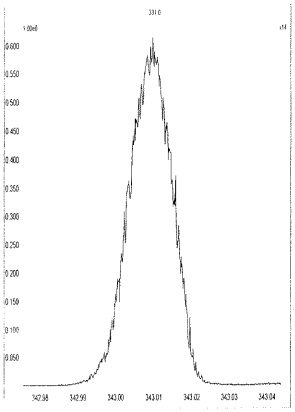
M 318.9792 R 13970



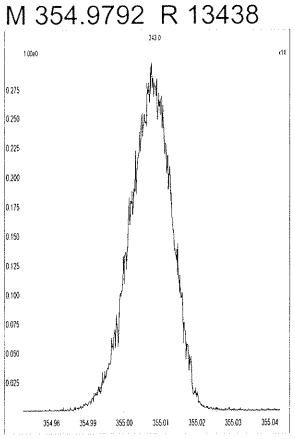
M 330.9792 R 13814



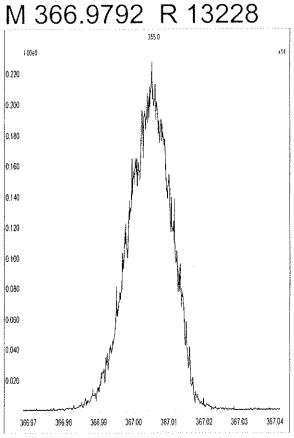
M 342.9792 R 13440



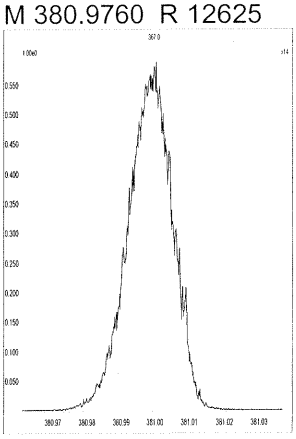
M 354.9792 R 13438



M 366.9792 R 13228



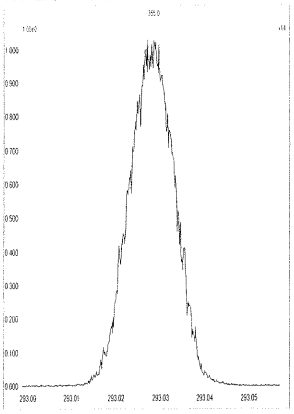
M 380.9760 R 12625



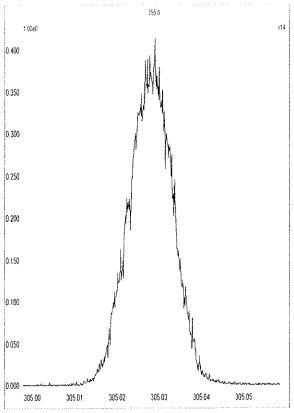
Resolution Check Report **MassLynx 4.1** Page 1 of 1

Printed: Saturday, June 11, 2011 01:57:59 Central Daylight Time

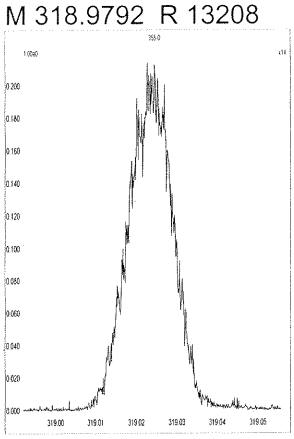
M 292.9824 R 12658



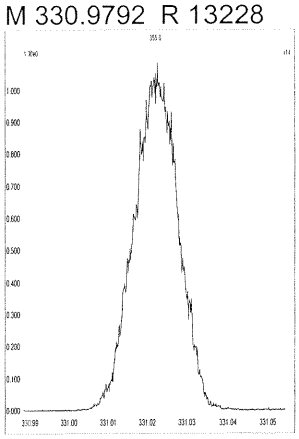
M 304.9824 R 12988



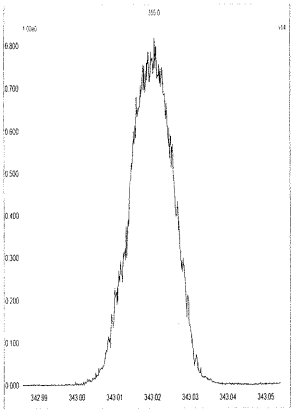
M 318.9792 R 13208



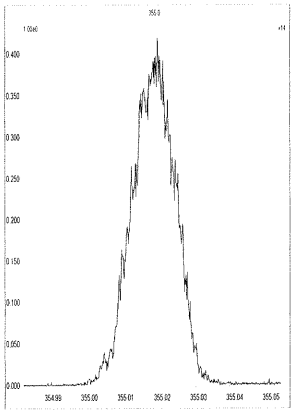
M 330.9792 R 13228



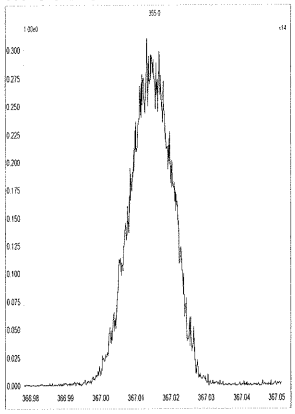
M 342.9792 R 13340



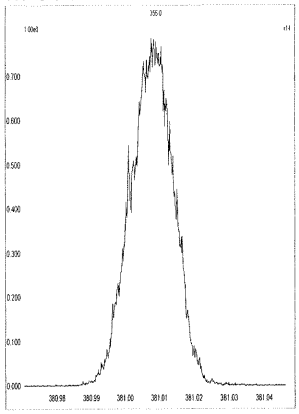
M 354.9792 R 13432



M 366.9792 R 13890



M 380.9760 R 13661



USEPA - CLP
5DFB

PCDD/PCDF WINDOW DEFINING MIX SUMMARY

EPA SAMPLE NO.
Column Perform

Lab Name: Columbia Analytical Services Contract: _____

Lab Code: TX01411 Case No.: _____ Client No.: _____ SDG No.: _____

GC Column: 30m DB-225 ID: 0.25 (mm) Lab File ID: U140623

Instrument ID: Ultima AutoSpec Date Analyzed: 06/10/11

Time Analyzed: 17:16:41

Percent Valley determination for DB-5 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

1478-TCDD/2378-TCDD: _____

QUALITY CONTROL (QC) LIMITS: _____

Percent Valley between the TCDD isomers must be less than or equal to 25%.

Percent Valley determination for DB-225 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

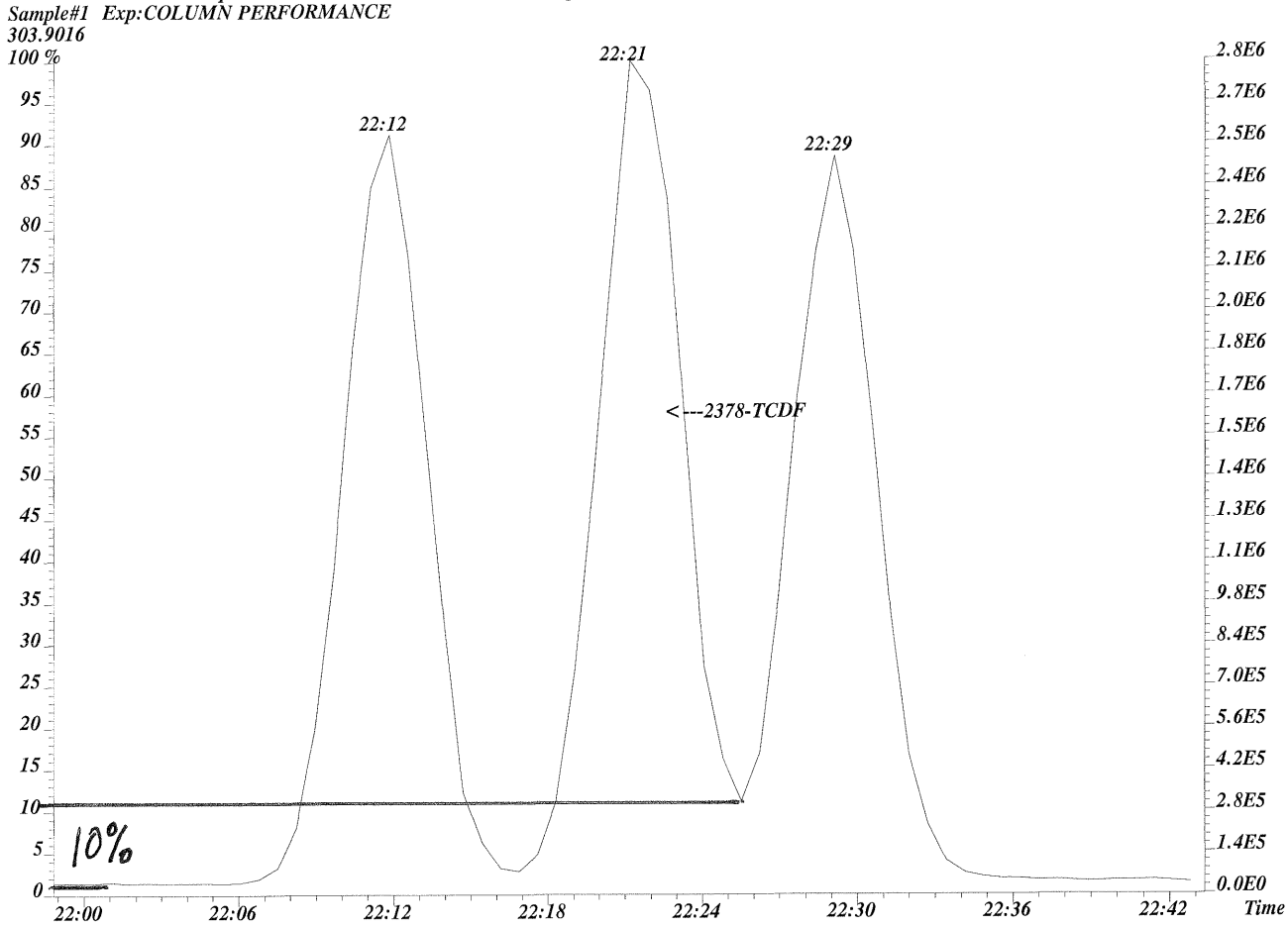
2347-TCDF/2378-TCDF: 10%

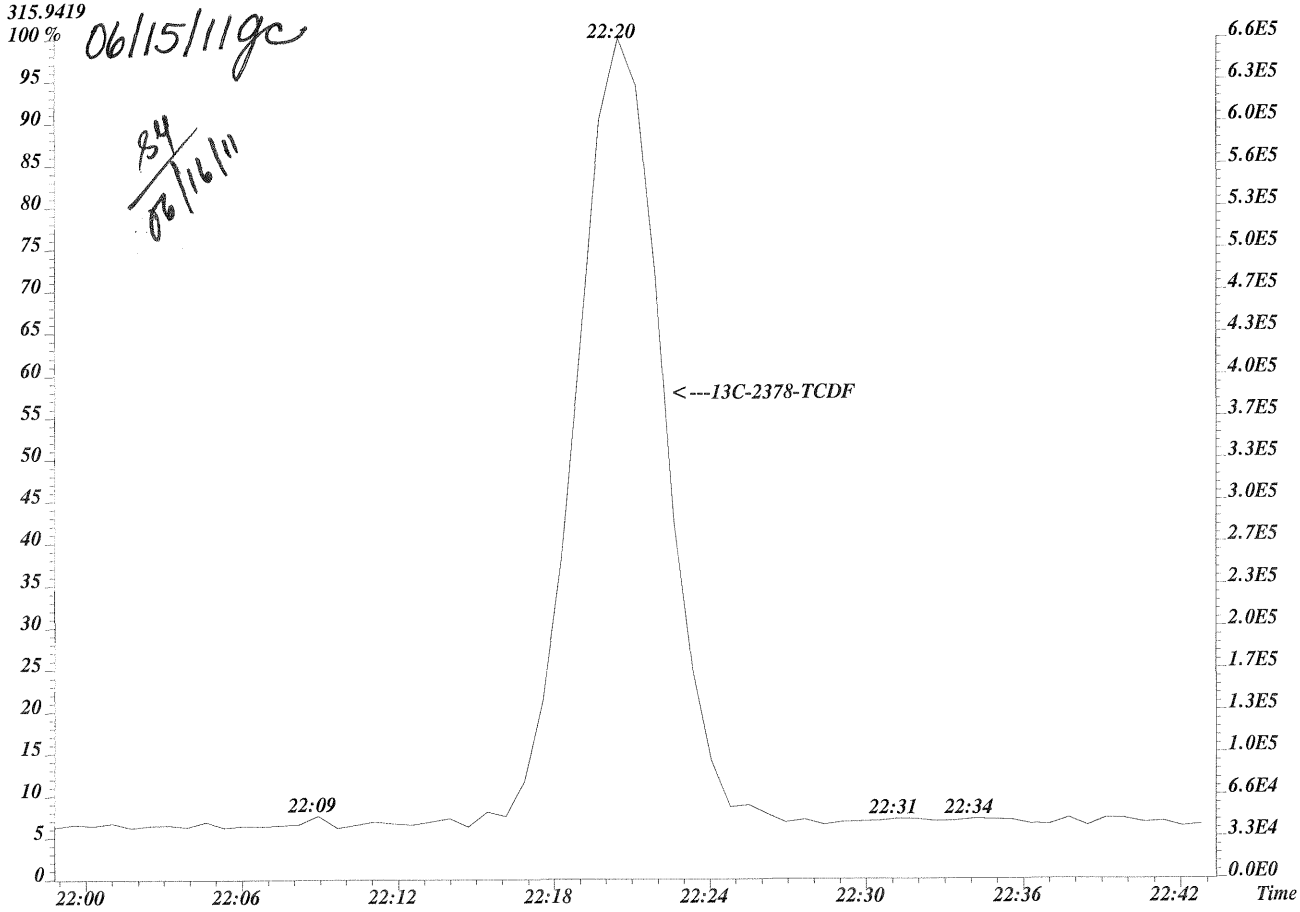
QUALITY COTROL (QC) LIMITS:

Percent Valley between the TCDF/TCDF isomers must be less than or equal to 25%.

Analyst Init: JC FORM V-HR CDD-2 DLM02.0

File:U140623 #1-709 Acq:10-JUN-2011 17:16:41 Probe EI+ Magnet SIR VG BioTech Mass spectrom
Sample#1 Exp:COLUMN PERFORMANCE





FORM 4A
TCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Contract No.:

Lab Code: TX01411 Case No.: Client No: SDG No.:

Initial Calibration Date: 03/31/11

Instrument ID.: AutoSpec_Ultima GC COLUMN ID: DB-225

VER Data Filename: U140622 Analysis Date: 10-JUN-11 Time: 16:34:41

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	0.95	0.97	-2.57
Labeled Compounds						
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.34	1.23	8.82
Cleanup Standard						
37Cl-2,3,7,8-TCDD				1.03	0.96	7.14

Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
CCAL CS3

Run #8 Filename U140622 Samp: 1 Inj: 1 Acquired: 10-JUN-11 16:34:41
Processed: 15-JUN-11 06:33:13 Sample ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:23	3.599e+03	4.699e+03	0.77	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:21	3.856e+04	4.884e+04	0.79	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:05	2.915e+04	3.626e+04	0.80	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:51	6.742e+03				n

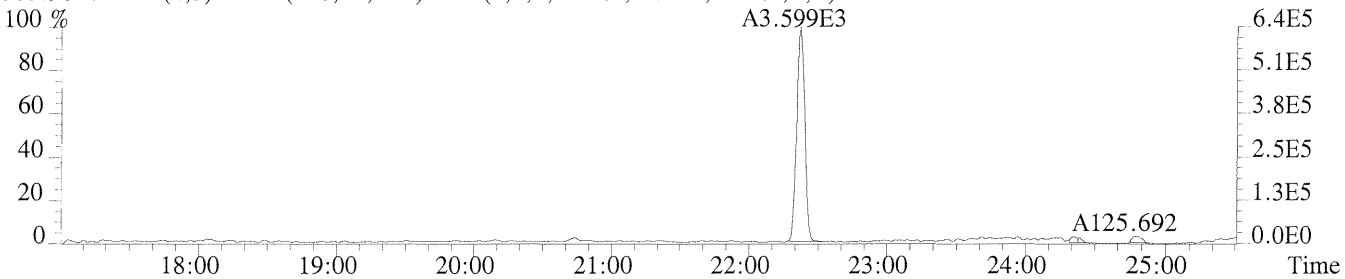
Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	6.31e+05	8.50e+03	7.4e+01	8.34e+05	1.02e+04	8.2e+01
2	13C-2,3,7,8-TCDF	5.96e+06	4.27e+03	1.4e+03	7.54e+06	3.41e+03	2.2e+03
3	13C-1,2,3,4-TCDD	5.07e+06	5.77e+03	8.8e+02	6.34e+06	4.10e+03	1.5e+03
4	37Cl-2,3,7,8-TCDD	1.19e+06	2.34e+03	5.1e+02			

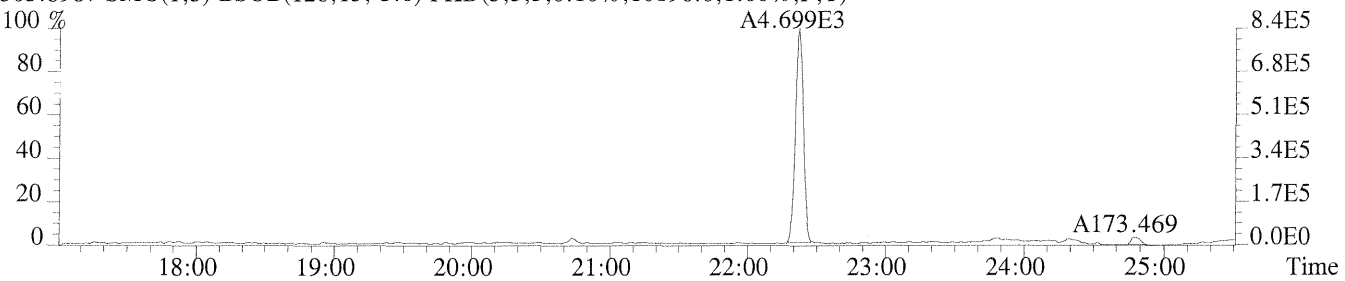
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

File:U140622 #1-709 Acq:10-JUN-2011 16:34:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

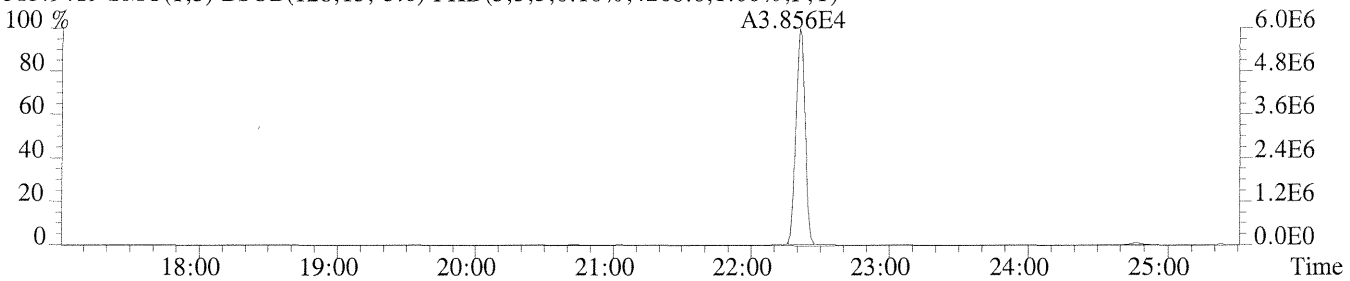
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,8496.0,1.00%,F,T)



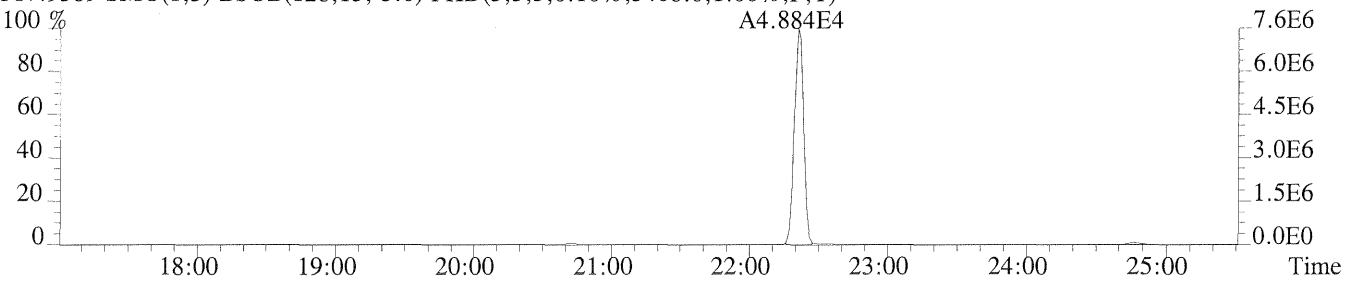
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10196.0,1.00%,F,T)



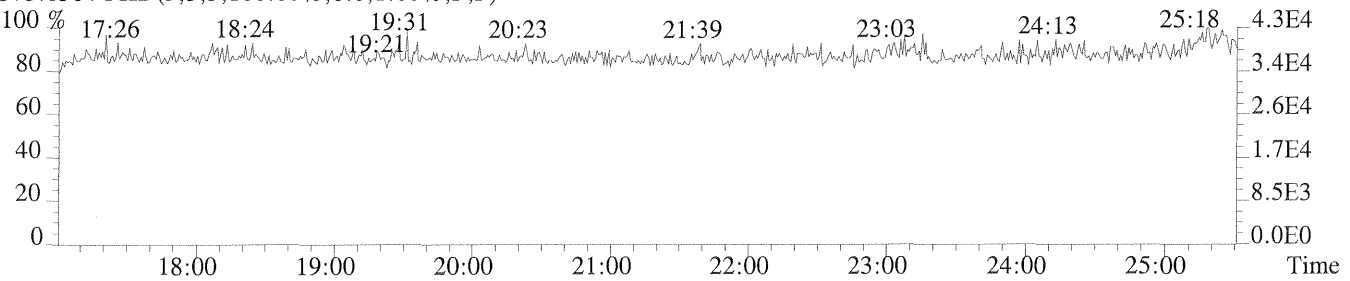
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4268.0,1.00%,F,T)



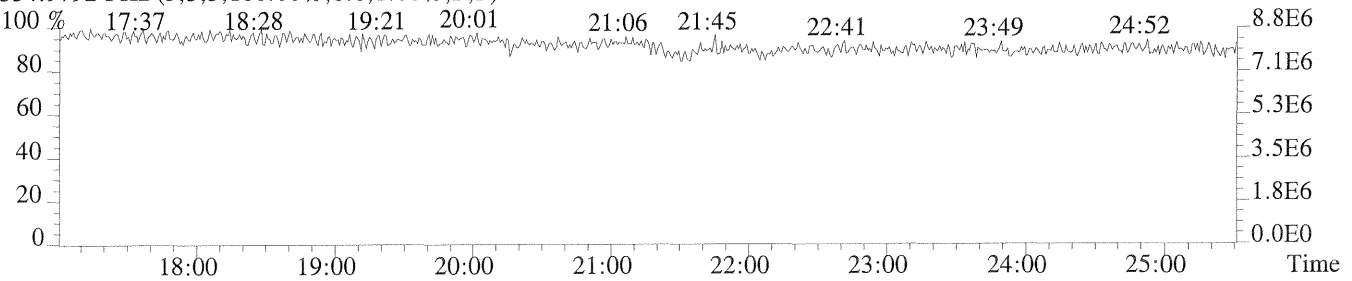
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3408.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

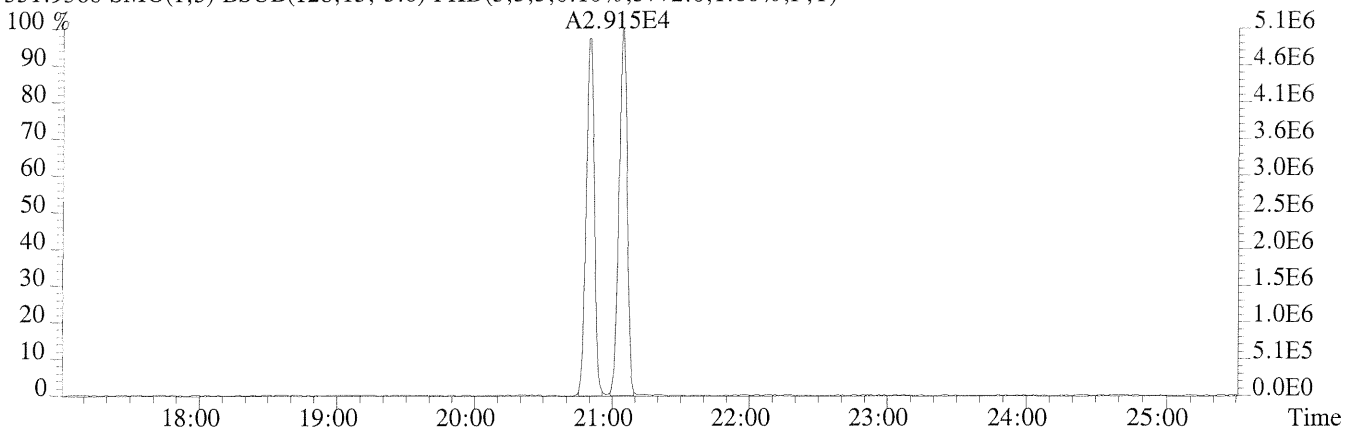


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

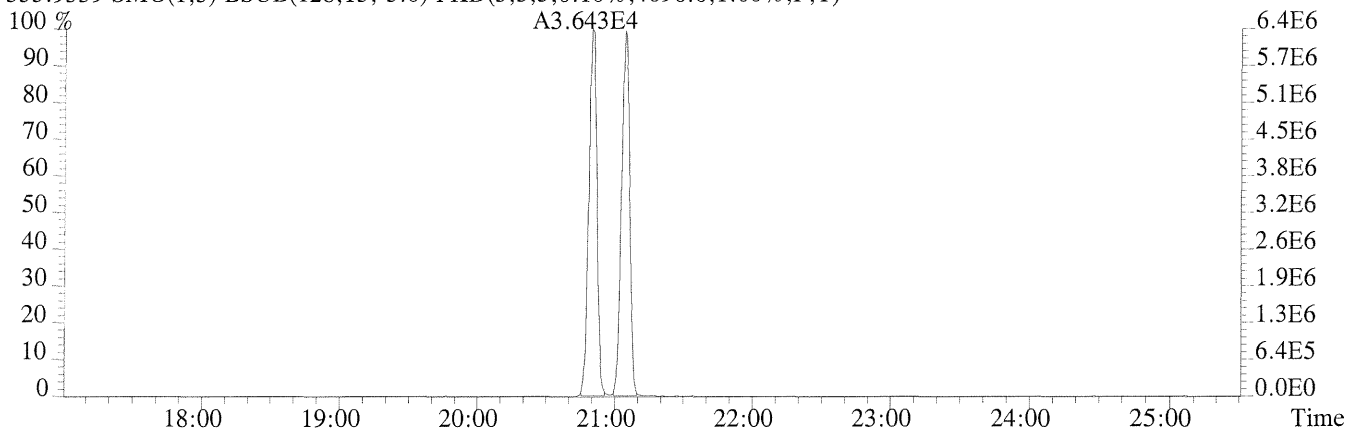


File:U140622 #1-709 Acq:10-JUN-2011 16:34:41 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

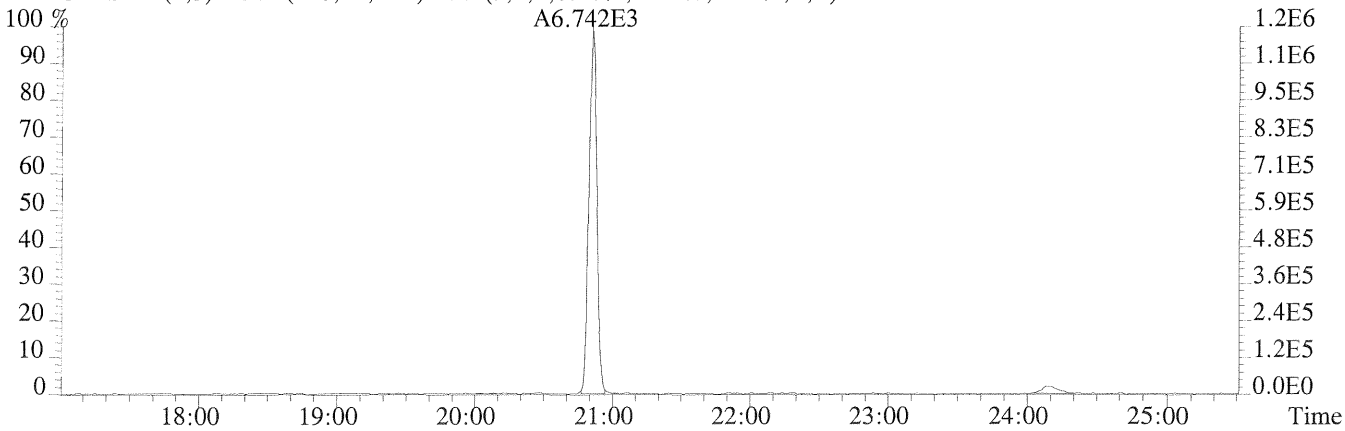
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5772.0,1.00%,F,T)



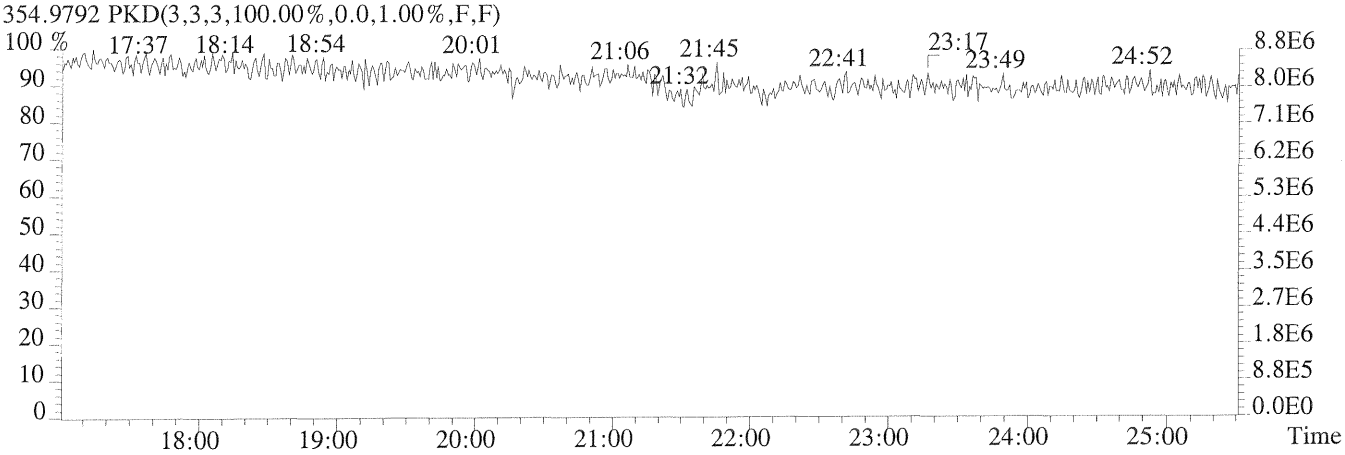
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4096.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2344.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



FORM 4A
TCDF CALIBRATION VERIFICATION

Lab Name: Columbia Analytical Services Contract No.:

Lab Code: TX01411 Case No.: Client No: SDG No.:

Initial Calibration Date: 03/31/11

Instrument ID.: AutoSpec_Ultima GC COLUMN ID: DB-225

VER Data Filename: U140636 Analysis Date: 11-JUN-11 Time: 01:19:08

	M/Z'S FORMING RATIO (1)	ION ABUND. RATIO	QC LIMITS (2)	CCAL. RRF	MEAN RRF	%D (3)
NATIVE ANALYTES						
2,3,7,8-TCDF	M/M+2	0.77	0.65-0.89	0.93	0.97	-4.98
Labeled Compounds						
13C-2,3,7,8-TCDF	M/M+2	0.79	0.65-0.89	1.33	1.23	8.16
Cleanup Standard						
37Cl-2,3,7,8-TCDD				1.04	0.96	7.83

Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
CCAL CS3

Run #20 Filename U140636 Samp: 1 Inj: 1 Acquired: 11-JUN-11 01:19:08
Processed: 15-JUN-11 06:33:27 Sample ID: CCAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	
1	Unk	2,3,7,8-TCDF	22:23	3.658e+03	4.728e+03	0.77	yes	n	n
2	IS	13C-2,3,7,8-TCDF	22:22	4.010e+04	5.046e+04	0.79	yes	n	n
3	RS/RT	13C-1,2,3,4-TCDD	21:05	3.009e+04	3.810e+04	0.79	yes	n	n
4	C/Up	37Cl-2,3,7,8-TCDD	20:52	7.073e+03				n	

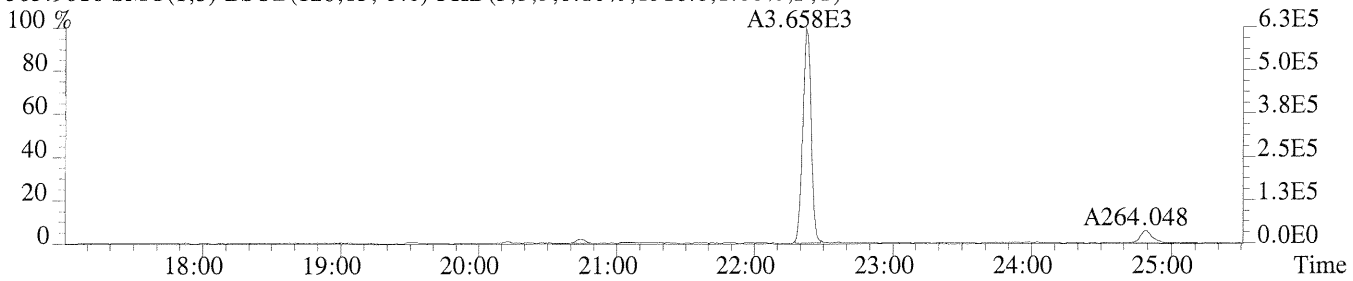
Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	6.28e+05	1.52e+03	4.1e+02	8.16e+05	2.07e+03	3.9e+02
2	13C-2,3,7,8-TCDF	5.97e+06	3.23e+03	1.9e+03	7.50e+06	3.20e+03	2.3e+03
3	13C-1,2,3,4-TCDD	5.11e+06	3.50e+03	1.5e+03	6.49e+06	2.24e+03	2.9e+03
4	37Cl-2,3,7,8-TCDD	1.17e+06	1.07e+03	1.1e+03			

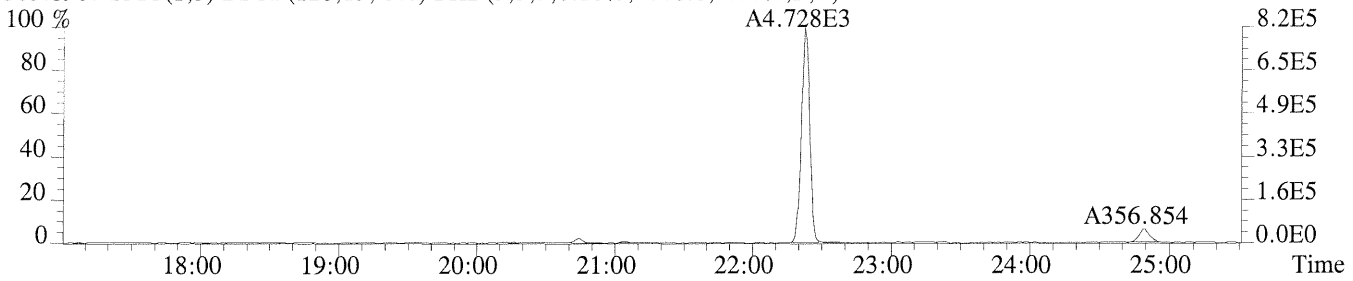
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

File:U140636 #1-709 Acq:11-JUN-2011 01:19:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

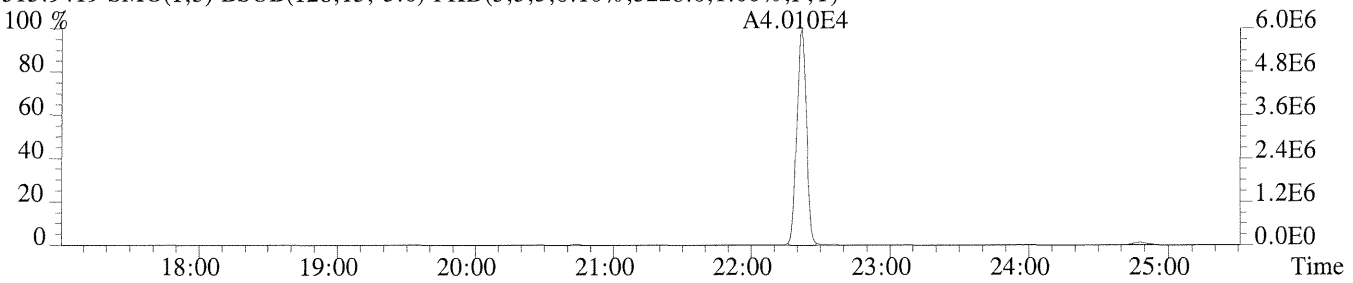
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1516.0,1.00%,F,T)



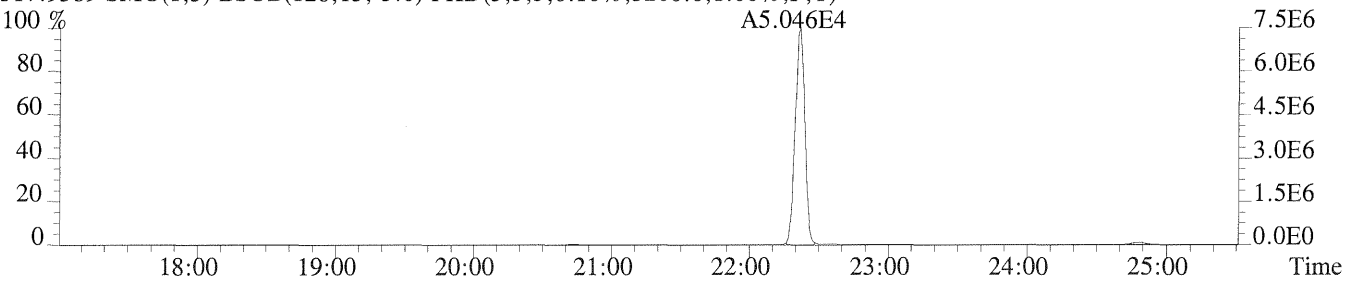
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2068.0,1.00%,F,T)



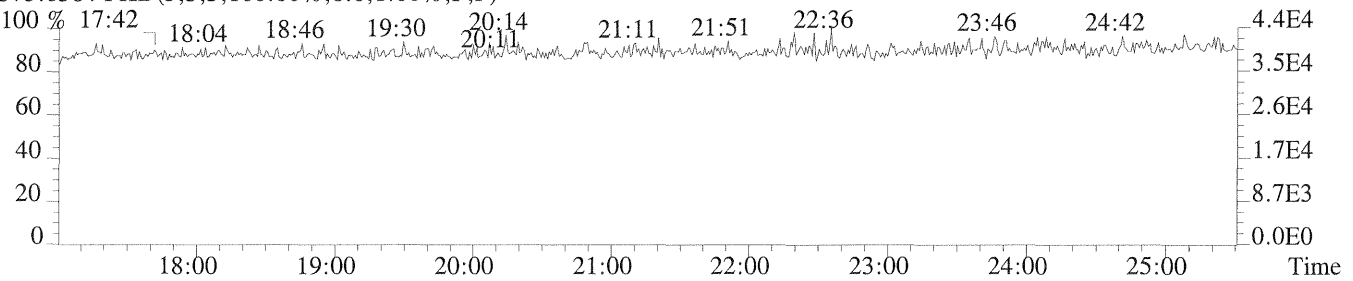
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3228.0,1.00%,F,T)



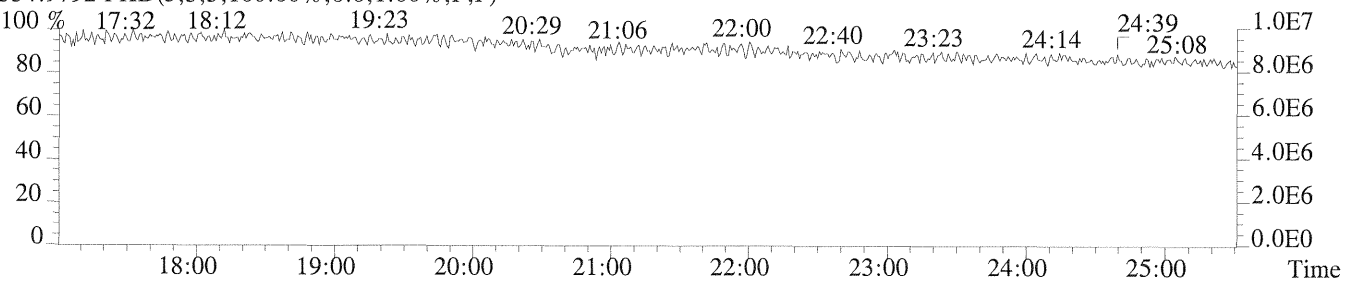
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3200.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

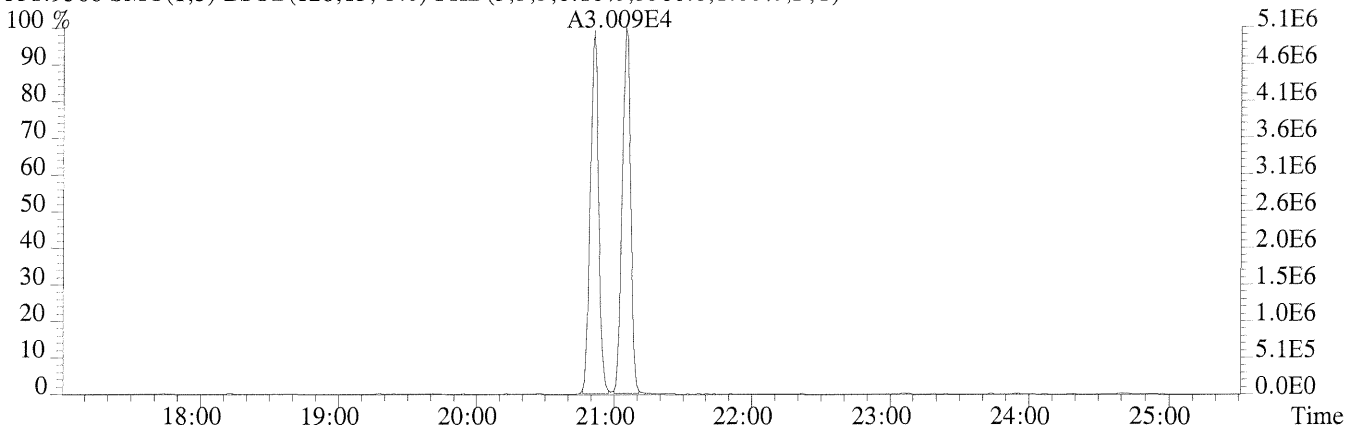


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

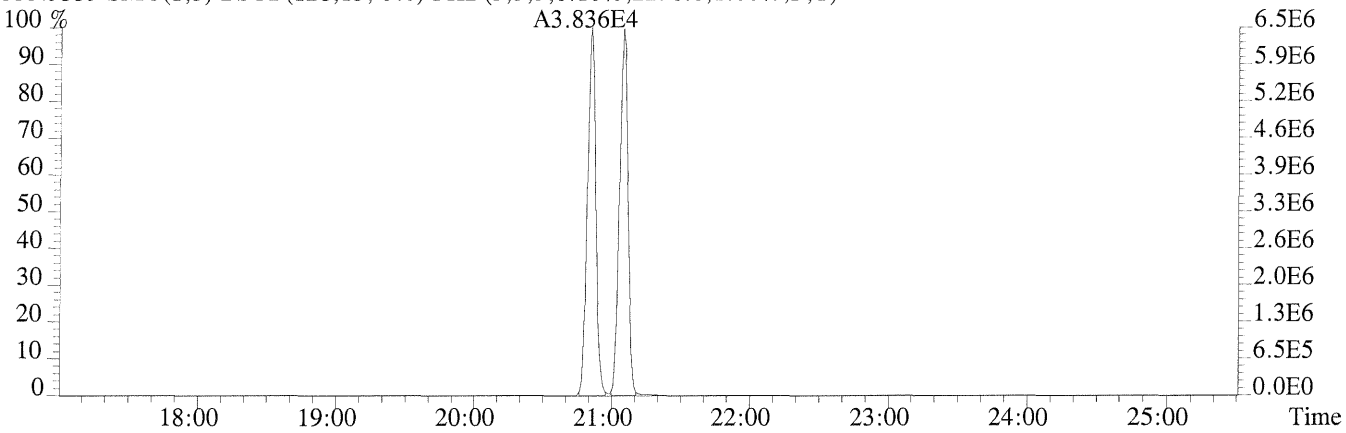


File:U140636 #1-709 Acq:11-JUN-2011 01:19:08 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:CCAL CS3

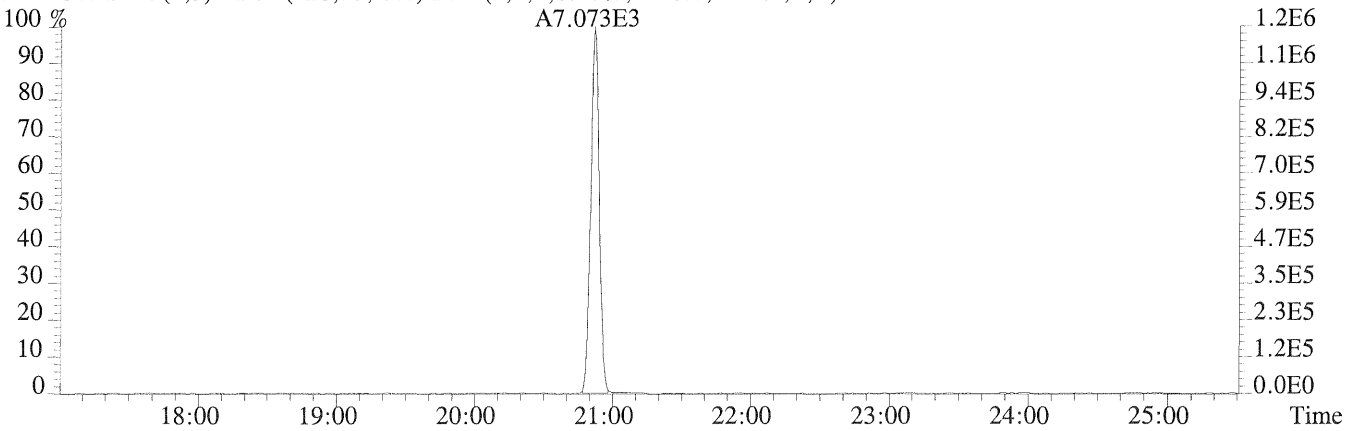
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3500.0,1.00%,F,T)



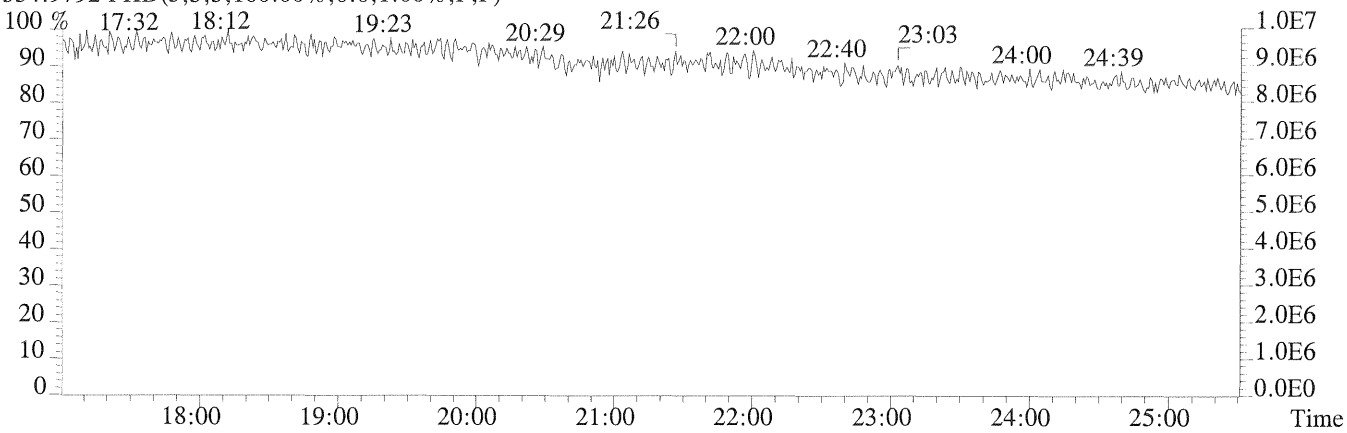
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2236.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services INC

Initial Calibration

19408 Park Row, Suite 320, Houston, TX 77084
Phone (713)266-1599 Fax (713)266-0130
www.caslab.com

An Employee Owned Company

Initial Calibration QC Checklist

ICAL Name: P110324 1613 I

Date: 24 Mar 11

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	✓	✓
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	✓	✓
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	NA	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: cel Second QC: MC

icalqc.xls 02-23-00

5DFC
PCDD/PCDF/PCB ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: SDG No.:

GC Column: DB-5 ID: 0.25 (mm) Instrument ID: AutoSpec-Premier

Init. Calib. Date: 03/24/11

Init. Calib.Times: 08:49:28

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
WINDOW DEFINE		P113050	24-MAR-11	08:49:28
ICAL CS0.1	D12-9-3B	P113055	24-MAR-11	13:37:15
ICAL CS1	D12-2-1BA	P113054	24-MAR-11	12:41:29
ICAL CS2	D12-2-1BB	P113053	24-MAR-11	11:34:03
ICAL CS3	D12-2-1BC	P113051	24-MAR-11	09:42:03
ICAL CS4	D12-2-1BD	P113056	24-MAR-11	14:31:12
ICAL CS5	D12-2-1BE	P113057	24-MAR-11	15:17:25
ICAL CS6	D10-83-1B	P113058	24-MAR-11	16:12:36

Sample List Report

MassLynx 4.1

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\P1110324.SPL
Last Modified: Thursday, March 24, 2011 16:40:07 Central Daylight Time
Printed: Thursday, March 24, 2011 16:40:39 Central Daylight Time

Page Position (1, 1)

P110324T09I
C: P110324I613I
P110324M23I

	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	03/24/11	08:49	P113050	WINDOW DEFINE	D11-100-5		HLMS CHECK 08:47	8290cas	8290CAS
2		09:42	P113051	ICAL CS3	D12-2-1BC			8290cas	8290CAS
3		10:47	P113052	CCAL CS3	D12-5-1B		2nd Src	8290cas	8290CAS
4		11:34	P113053	ICAL CS2	D12-2-1BB			8290cas	8290CAS
5		12:41	P113054	ICAL CS1	D12-2-1BA			8290cas	8290CAS
6		13:37	P113055	ICAL S0.1	D12-9-3B			8290cas	8290CAS
7		14:31	P113056	ICAL CS4	D12-2-1BD			8290cas	8290CAS
8		15:17	P113057	ICAL CS5	D12-2-1BE			8290cas	8290CAS
9		16:12	P113058	ICAL CS6	D10-83-1B		HLMS CHECK 17:04	8290cas	8290CAS
10			---	---	---			8290cas	8290CAS
11			---	---	---			8290cas	8290CAS
12			---	---	---			8290cas	8290CAS
13			---	---	---			8290cas	8290CAS
14			---	---	---			8290cas	8290CAS
15			---	---	---			8290cas	8290CAS
16			---	---	---			8290cas	8290CAS
17			---	---	---			8290cas	8290CAS
18			---	---	---			8290cas	8290CAS
19	---	---	---	---	---	---	---	8290cas	8290CAS
20	---	---	---	---	---	---	---	8290cas	8290CAS
21	---	---	---	---	---	---	---	8290cas	8290CAS
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35	---	---	---	---	---	---	---	8290cas	8290CAS
36	---	---	---	---	---	---	---	8290cas	8290CAS
37	---	---	---	---	---	---		8290cas	8290CAS

Reviewed By: CEE
3/25/11

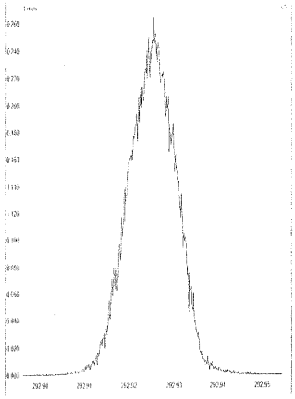
067

Experiment Calibration Report MassLynx 4.1 Page 1 of 1

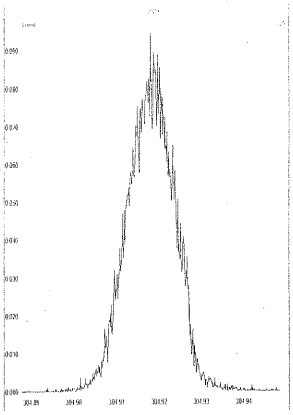
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 24, 2011 08:47:48 Central Daylight Time

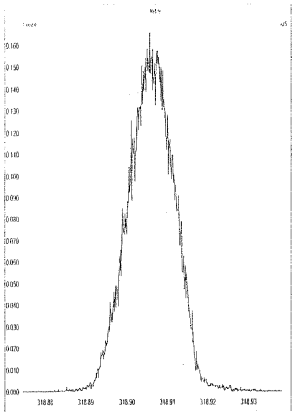
M 292.9824 R 12374



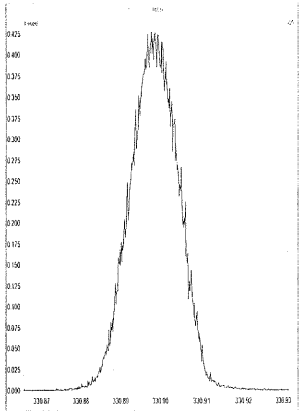
M 304.9824 R 13022



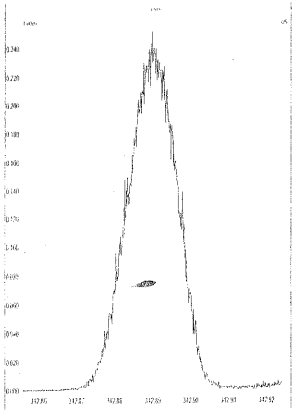
M 318.9792 R 12754



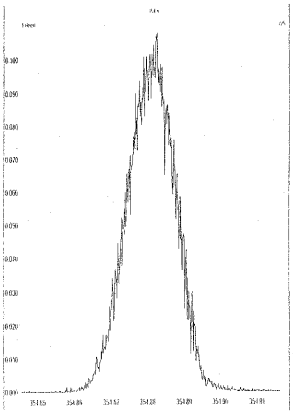
M 330.9792 R 12752



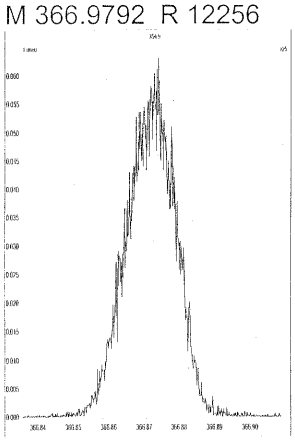
M 342.9792 R 11962



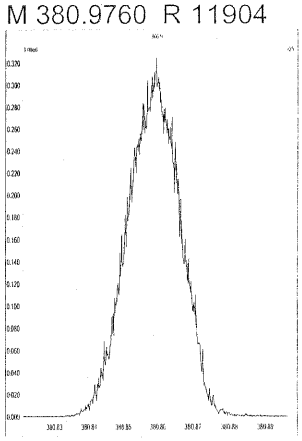
M 354.9792 R 11903



M 366.9792 R 12256



M 380.9760 R 11904

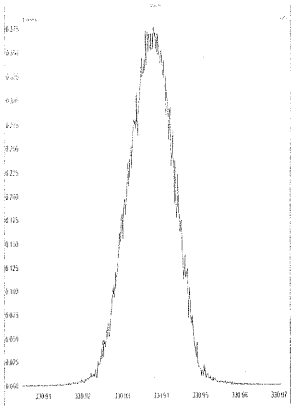


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

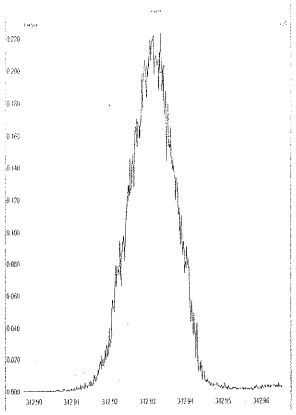
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, March 24, 2011 08:48:06 Central Daylight Time

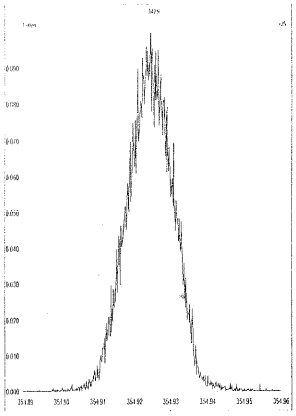
M 330.9792 R 12561



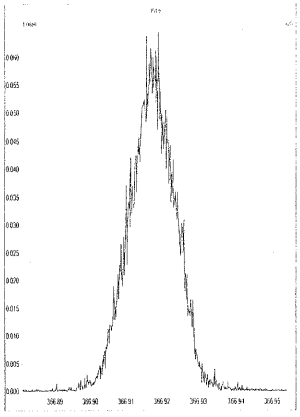
M 342.9792 R 12565



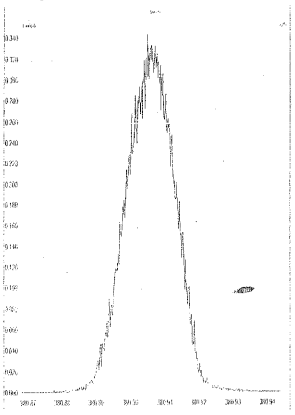
M 354.9792 R 13298



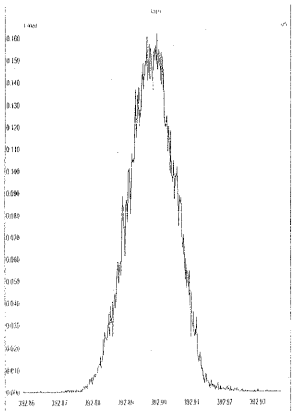
M 366.9792 R 13155



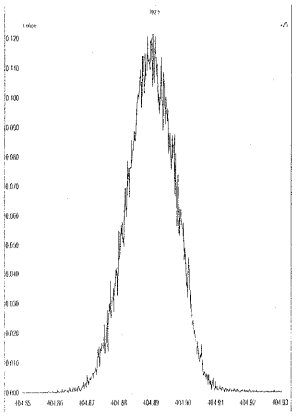
M 380.9760 R 12316



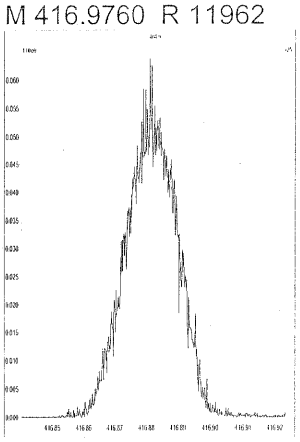
M 392.9760 R 12018



M 404.9760 R 11684



M 416.9760 R 11962

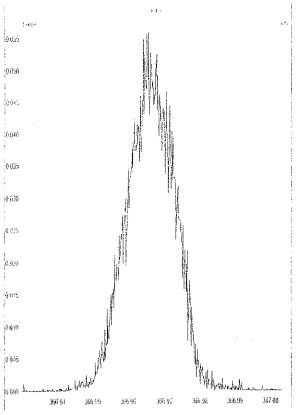


Experiment Calibration Report MassLynx 4.1

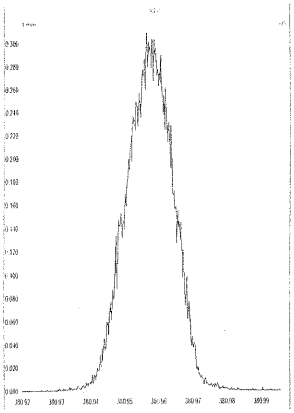
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, March 24, 2011 08:48:25 Central Daylight Time

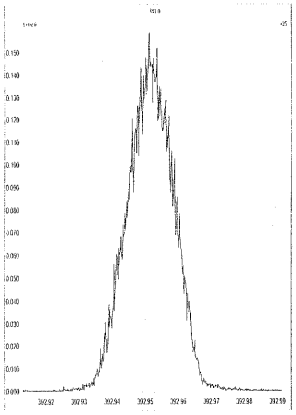
M 366.9792 R 13020



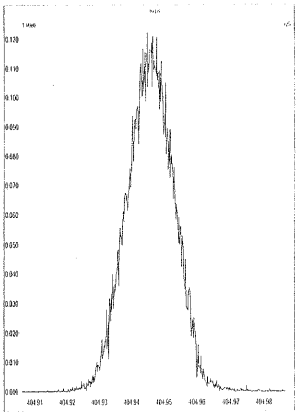
M 380.9760 R 12624



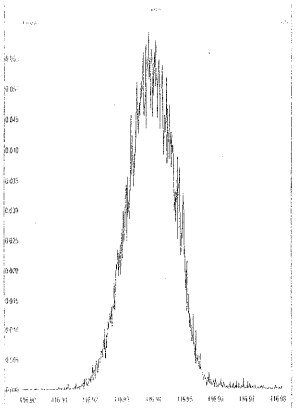
M 392.9760 R 12821



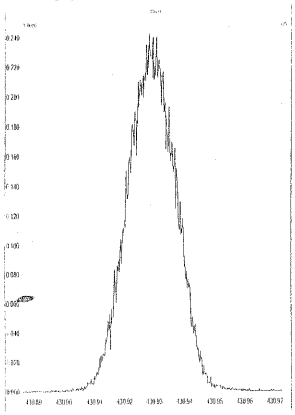
M 404.9760 R 12952



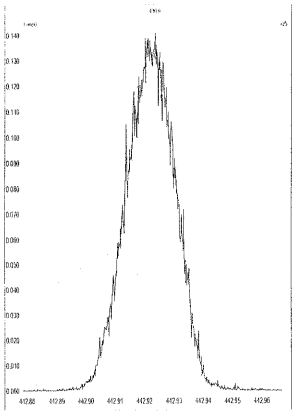
M 416.9760 R 12197



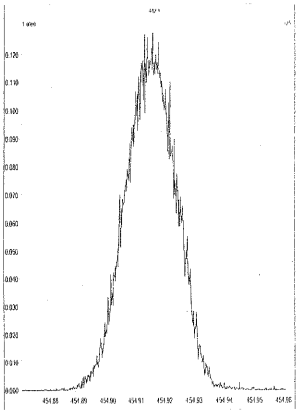
M 430.9728 R 12136



M 442.9728 R 12193



M 454.9728 R 11902

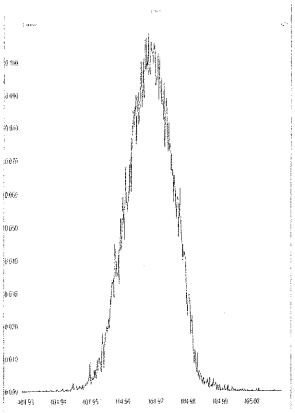


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

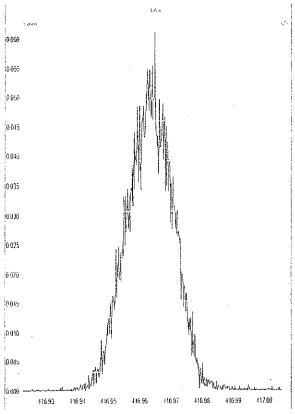
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, March 24, 2011 08:48:42 Central Daylight Time

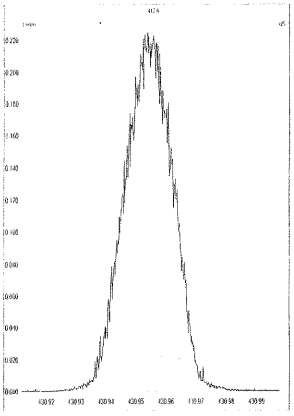
M 404.9760 R 12886



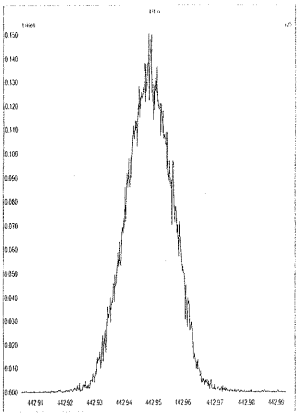
M 416.9760 R 13091



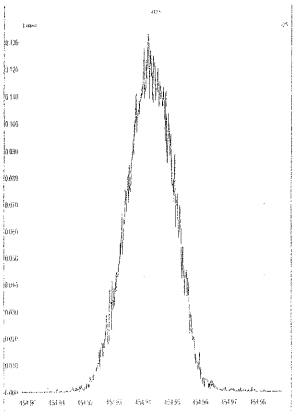
M 430.9728 R 12627



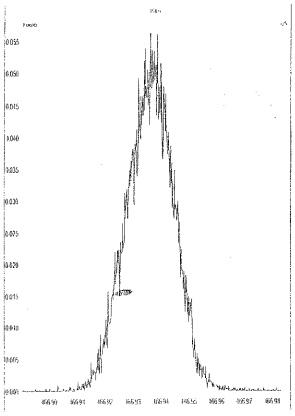
M 442.9728 R 12437



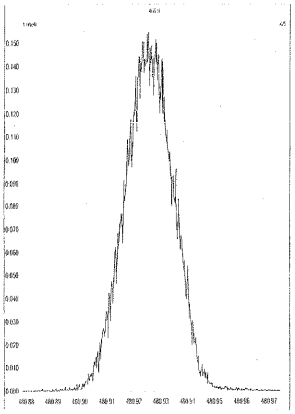
M 454.9728 R 12374



M 466.9728 R 12755



M 480.9696 R 12080

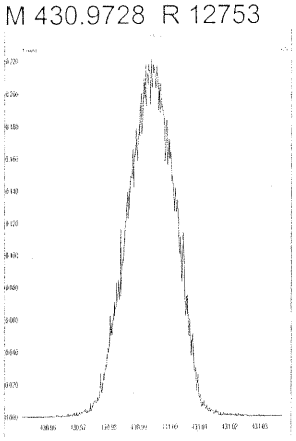


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

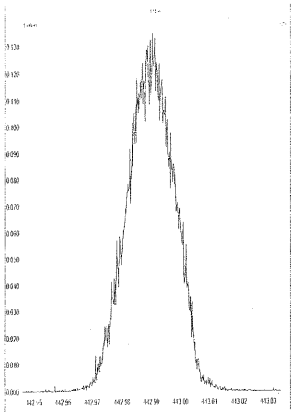
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, March 24, 2011 08:49:00 Central Daylight Time

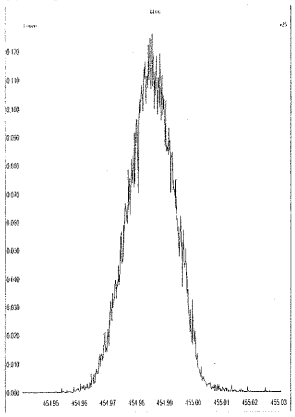
M 430.9728 R 12753



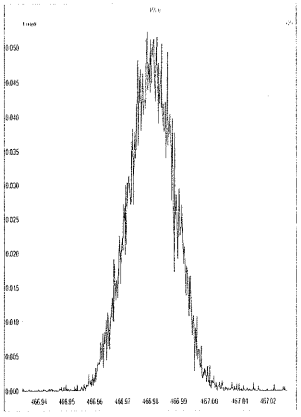
M 442.9728 R 12500



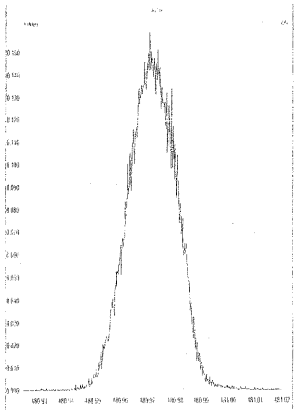
M 454.9728 R 12314



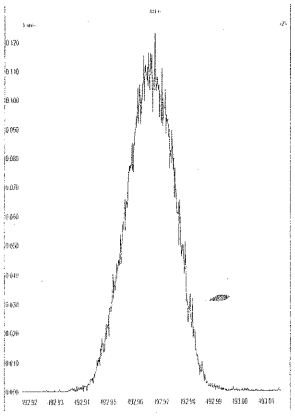
M 466.9728 R 12564



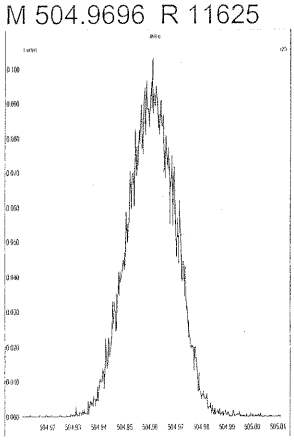
M 480.9696 R 12500



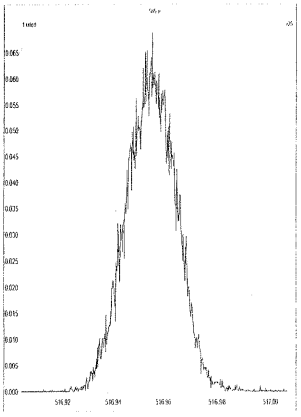
M 492.9696 R 11903



M 504.9696 R 11625



M 516.9697 R 11627

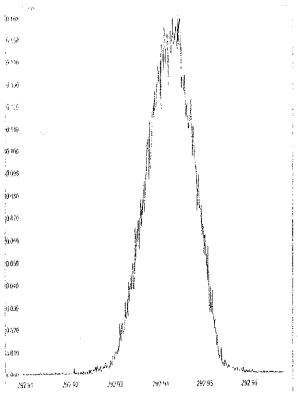


Experiment Calibration Report MassLynx 4.1 Page 1 of 1

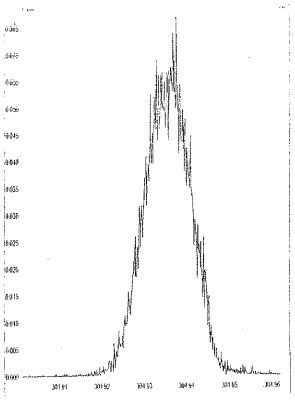
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 24, 2011 17:04:12 Central Daylight Time

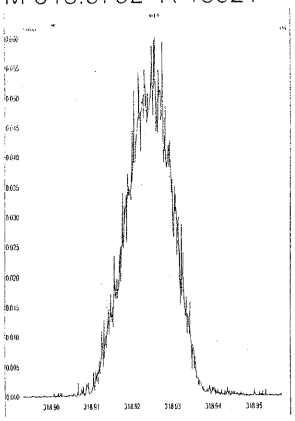
M 292.9824 R 12561



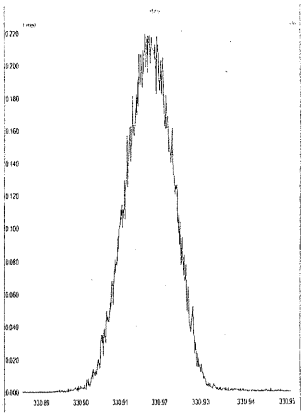
M 304.9824 R 12496



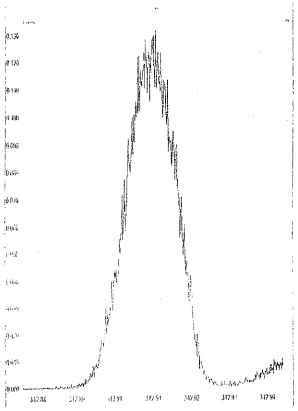
M 318.9792 R 13021



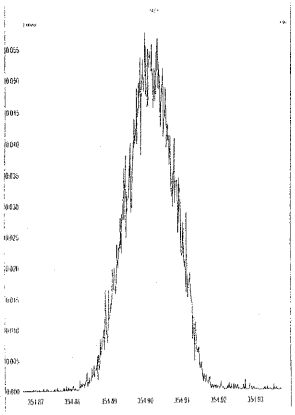
M 330.9792 R 12441



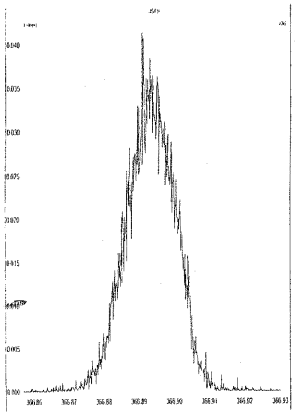
M 342.9792 R 12137



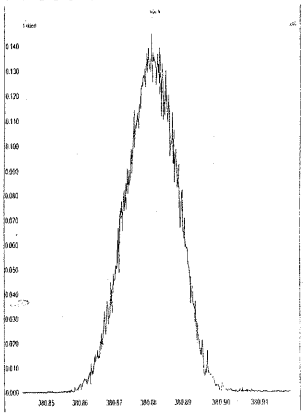
M 354.9792 R 12375



M 366.9792 R 11959



M 380.9760 R 10965

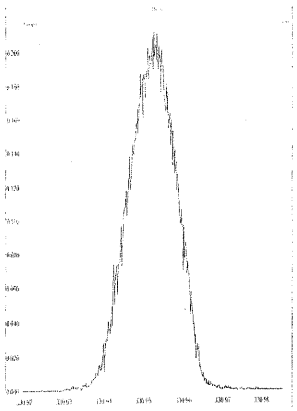


Experiment Calibration Report MassLynx 4.1

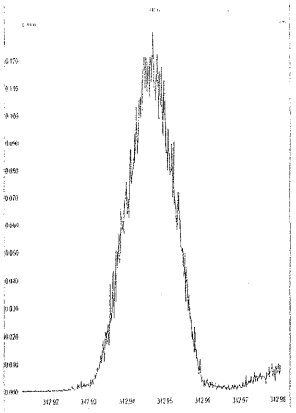
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 2 @ 200 (ppm)

Printed: Thursday, March 24, 2011 17:04:30 Central Daylight Time

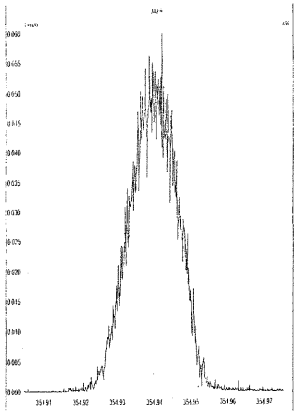
M 330.9792 R 12754



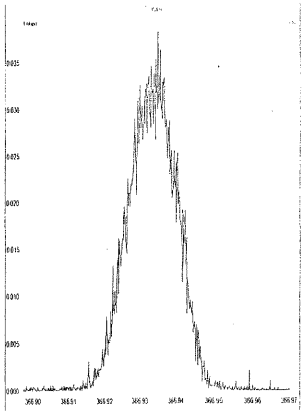
M 342.9792 R 12435



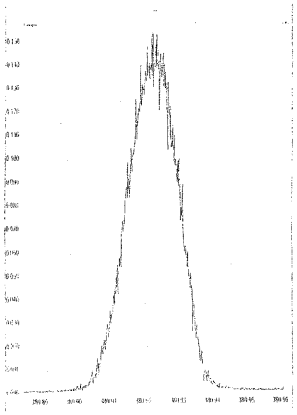
M 354.9792 R 13587



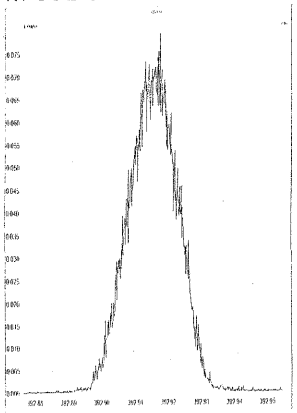
M 366.9792 R 12890



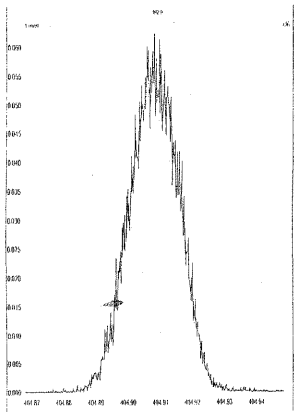
M 380.9760 R 12312



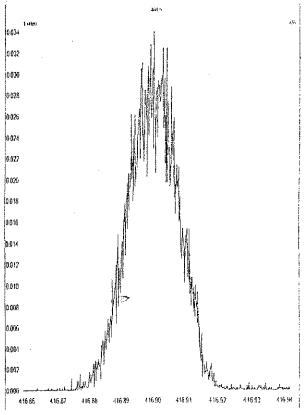
M 392.9760 R 12195



M 404.9760 R 11907



M 416.9760 R 13016

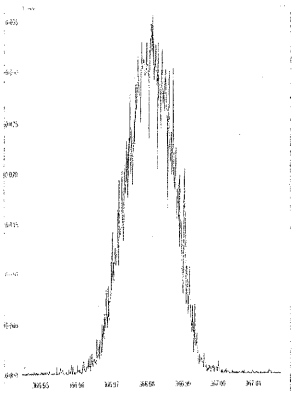


Experiment Calibration Report MassLynx 4.1 Page 1 of 1

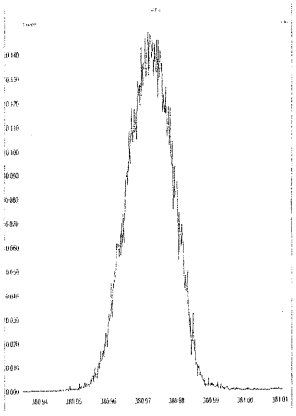
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 3 @ 200 (ppm)

Printed: Thursday, March 24, 2011 17:04:49 Central Daylight Time

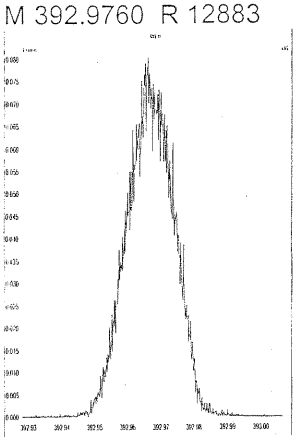
M 366.9792 R 12820



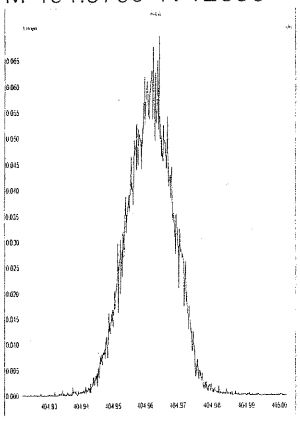
M 380.9760 R 13024



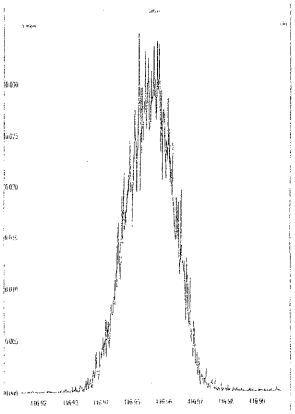
M 392.9760 R 12883



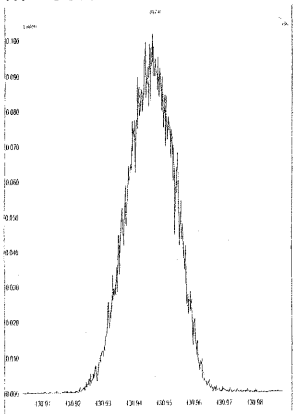
M 404.9760 R 12690



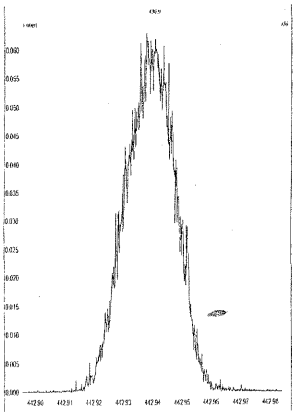
M 416.9760 R 12252



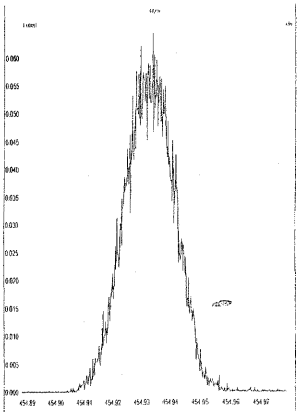
M 430.9728 R 12372



M 442.9728 R 12076



M 454.9728 R 12079

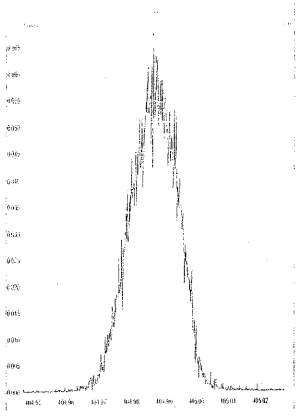


Experiment Calibration Report MassLynx 4.1

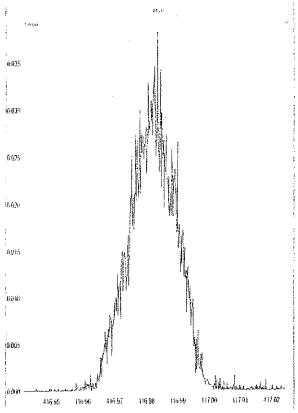
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 4 @ 200 (ppm)

Printed: Thursday, March 24, 2011 17:05:06 Central Daylight Time

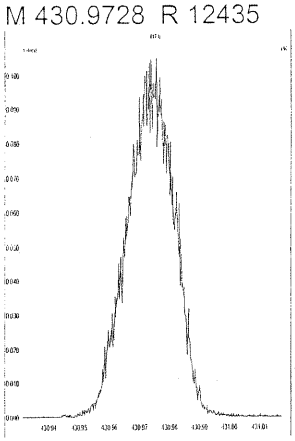
M 404.9760 R 13369



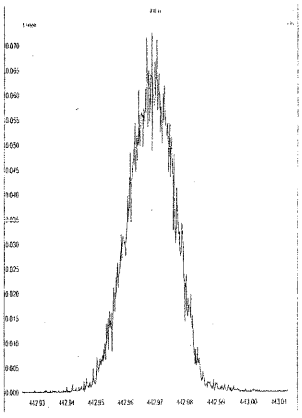
M 416.9760 R 13024



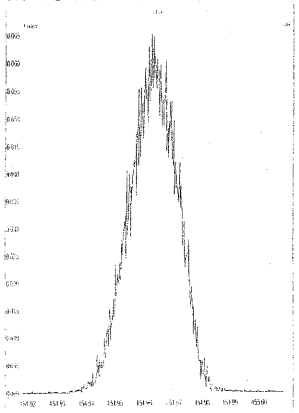
M 430.9728 R 12435



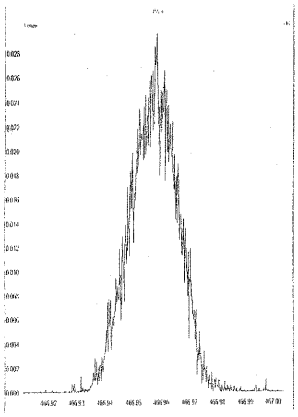
M 442.9728 R 12500



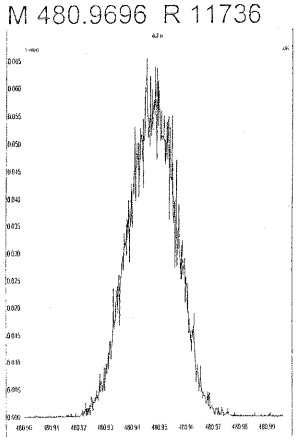
M 454.9728 R 13160



M 466.9728 R 13813



M 480.9696 R 11736

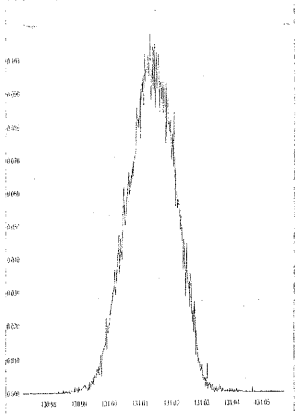


Experiment Calibration Report MassLynx 4.1 Page 1 of 1

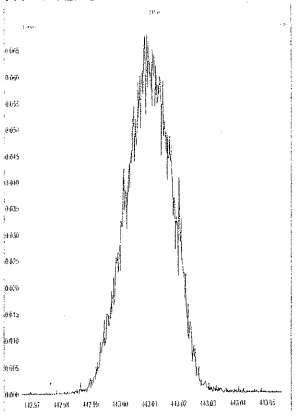
File: Experiment: 8290CAS.exp Reference: Pfk.ref Function: 5 @ 200 (ppm)

Printed: Thursday, March 24, 2011 17:05:24 Central Daylight Time

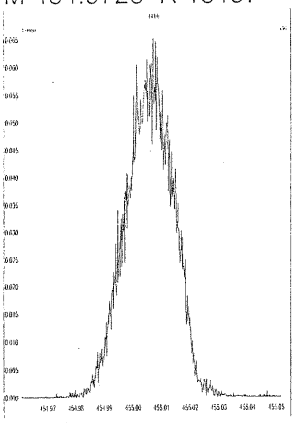
M 430.9728 R 12134



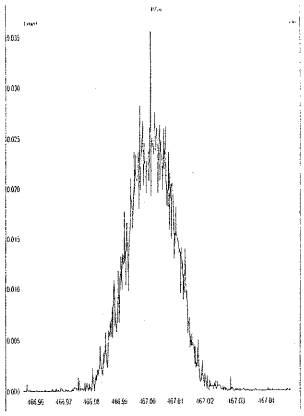
M 442.9728 R 12564



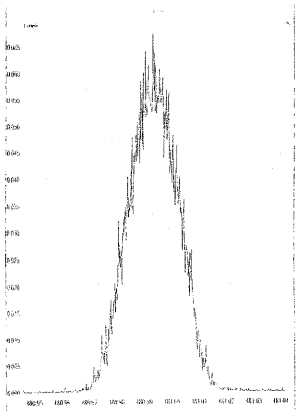
M 454.9728 R 13157



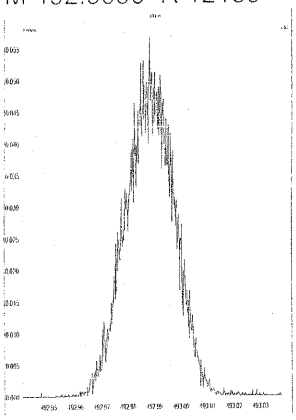
M 466.9728 R 12757



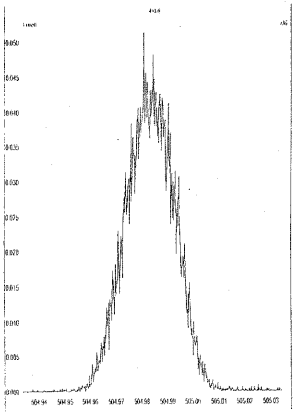
M 480.9696 R 12020



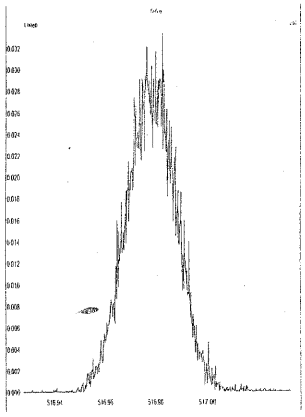
M 492.9696 R 12135



M 504.9696 R 11794



M 516.9697 R 11574



5DFA

WINDOW DEFINING MIX SUMMARY

CLIENT ID:

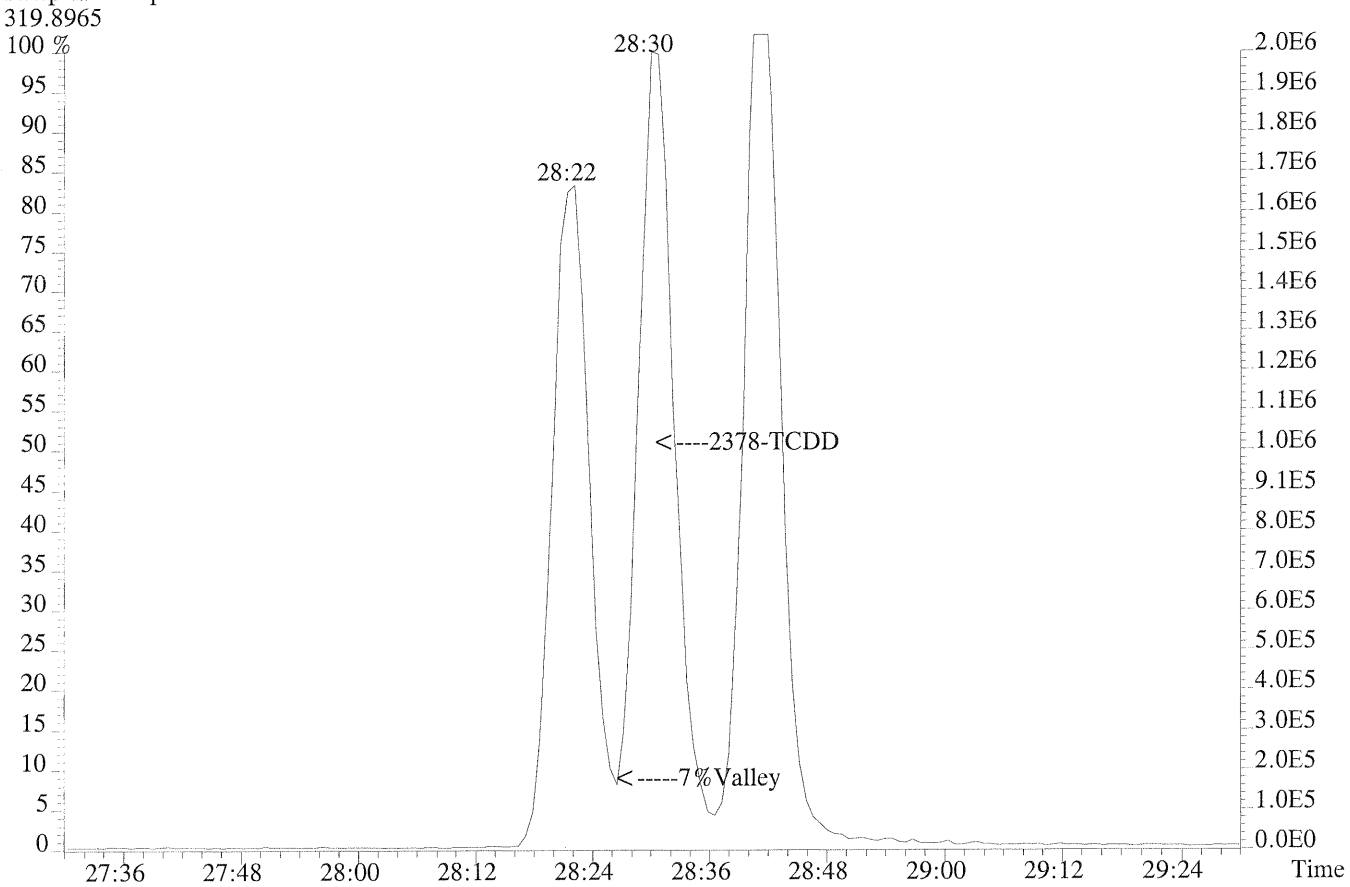
WDM

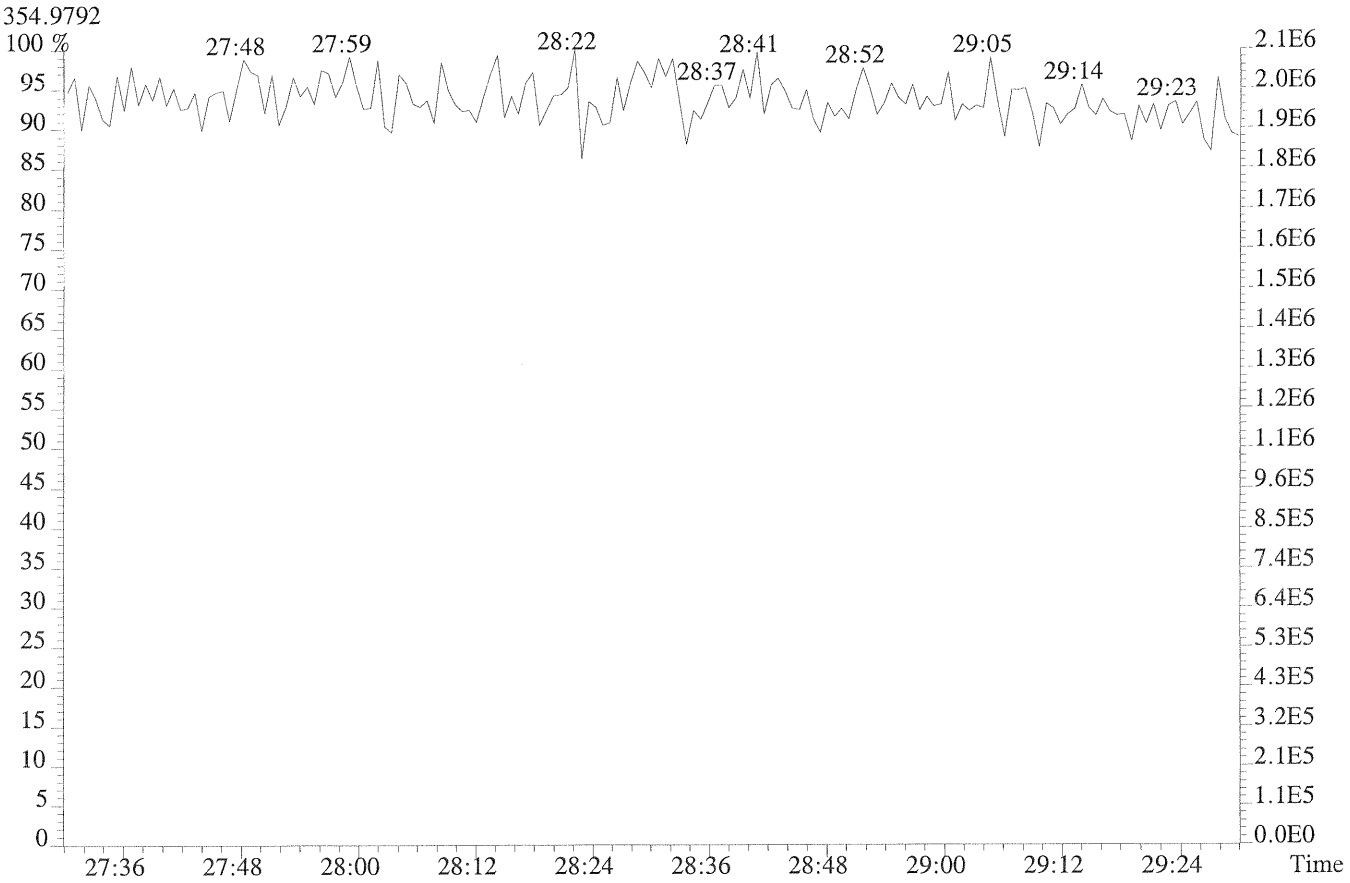
Lab Name: COLUMBIA ANALYTICAL SERVICES
Lab Code: CAS Case No.: SDG No.:
GC Column: DB-5 ID: 0.25 (mm) Lab File ID: P113050
Date Analyzed: 24-MAR-2011
Time Analyzed: 08:49:28

Congener	Retention Time First Eluting	Retention Time Last Eluting
TCDF	23:22	29:41
TCDD	25:07	29:41
PeCDF	29:59	34:02
PeCDD	31:26	33:53
HxCDF	34:56	37:17
HxCDD	35:26	36:58
HpCDF	38:39	39:54
HpCDD	38:54	39:31

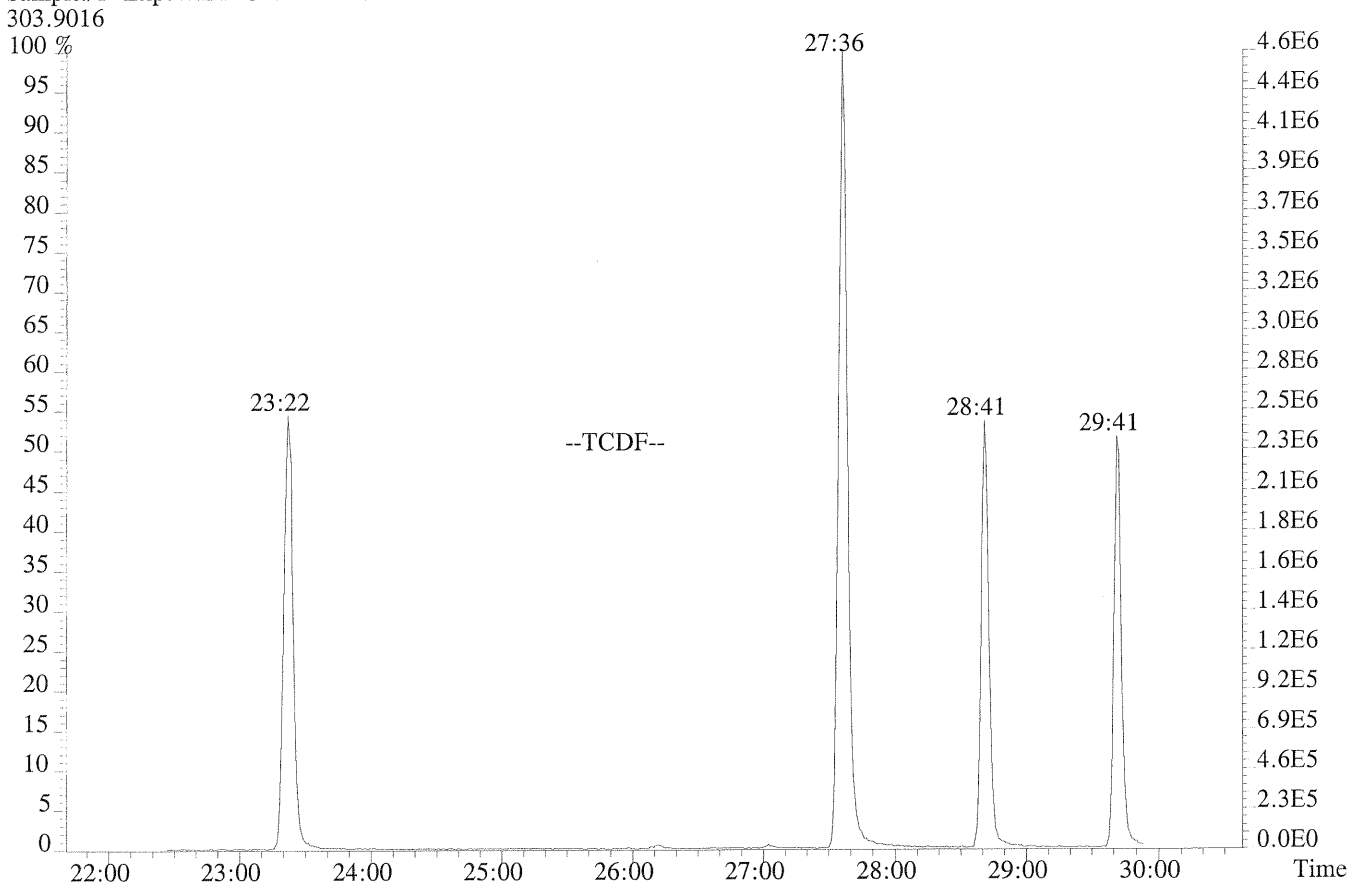
% Valley 2378-TCDD: 7 %

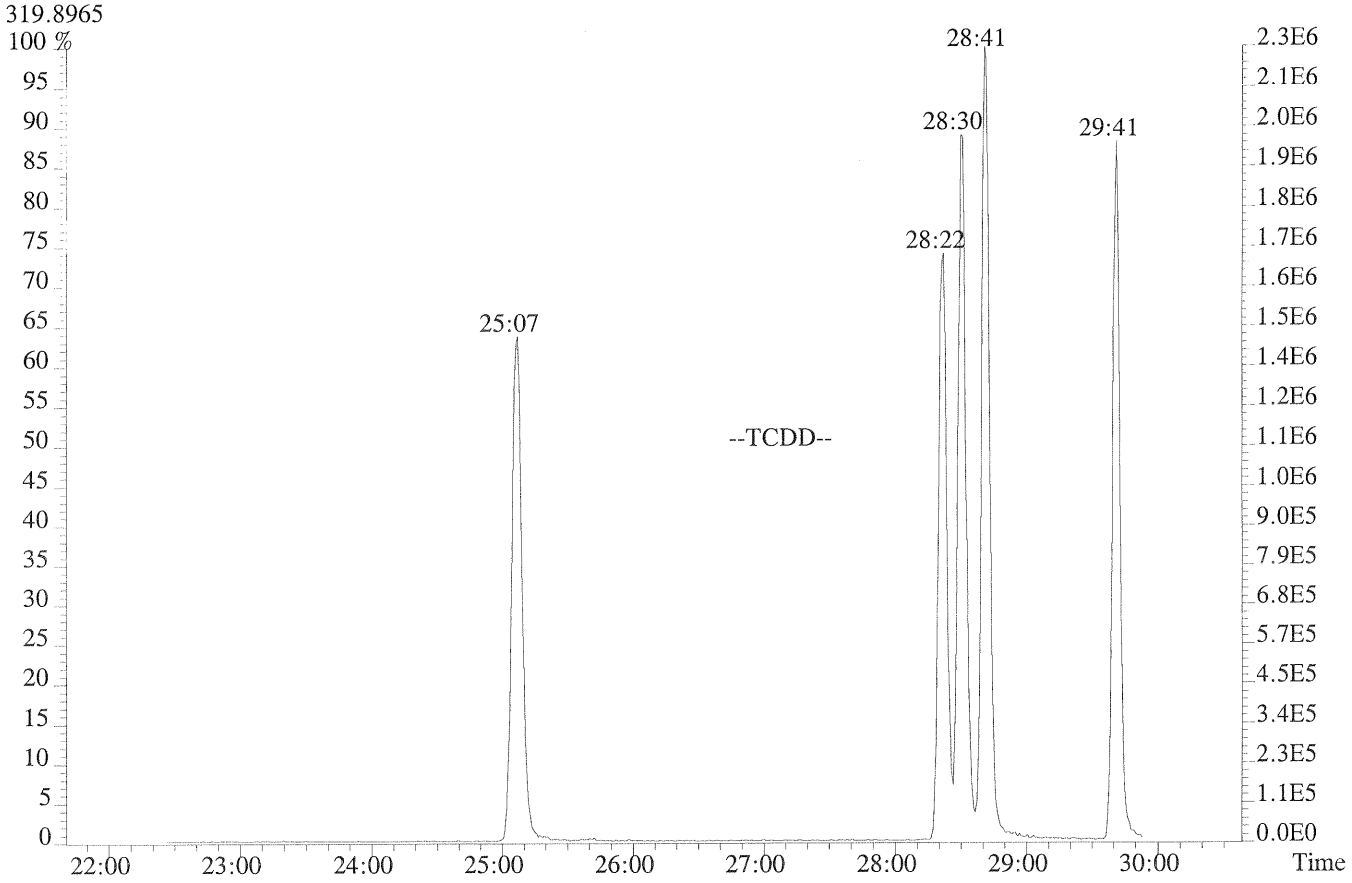
File:P113050 #1-621 Acq:24-MAR-2011 08:49:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE



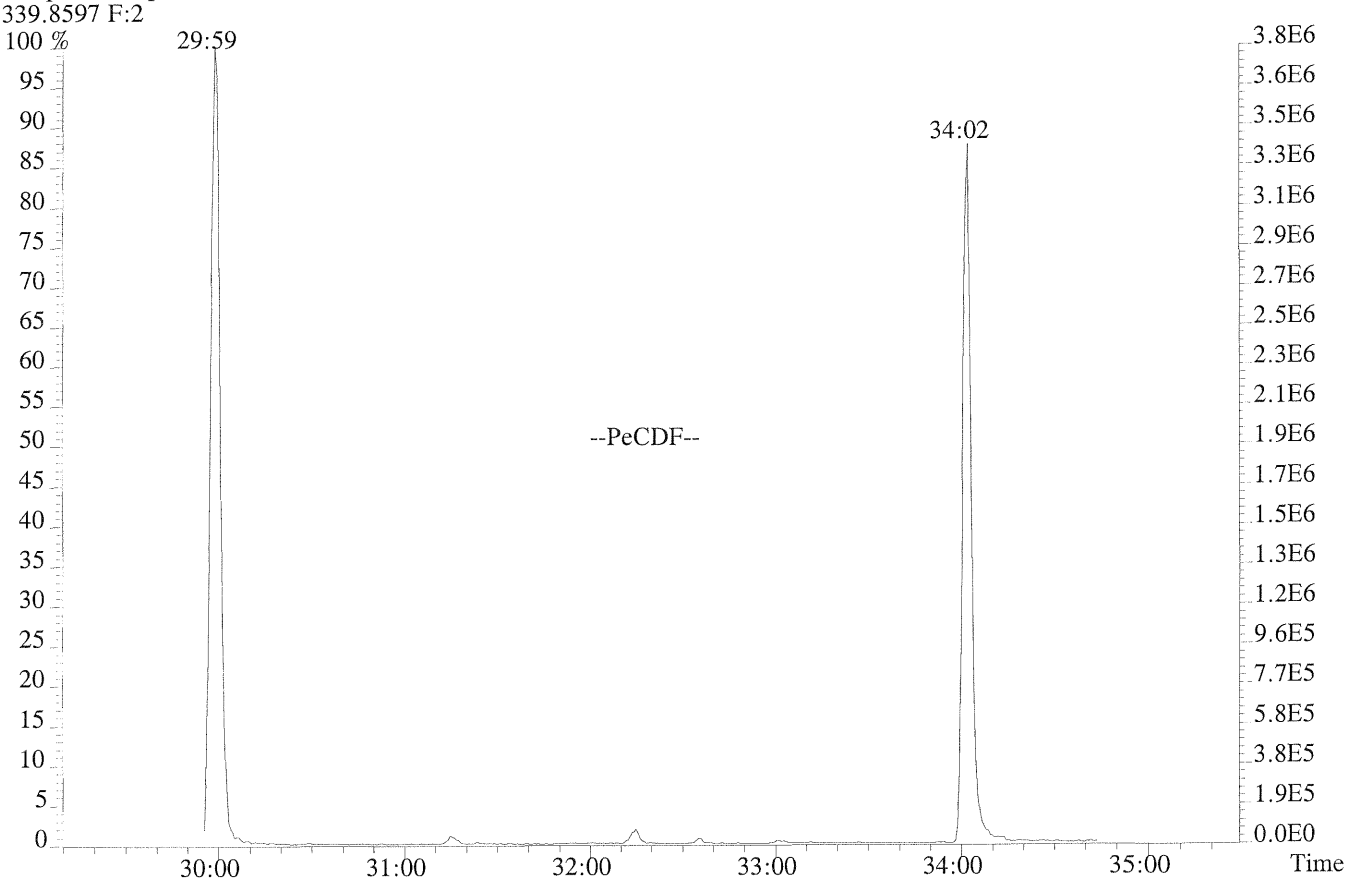


File:P113050 #1-621 Acq:24-MAR-2011 08:49:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

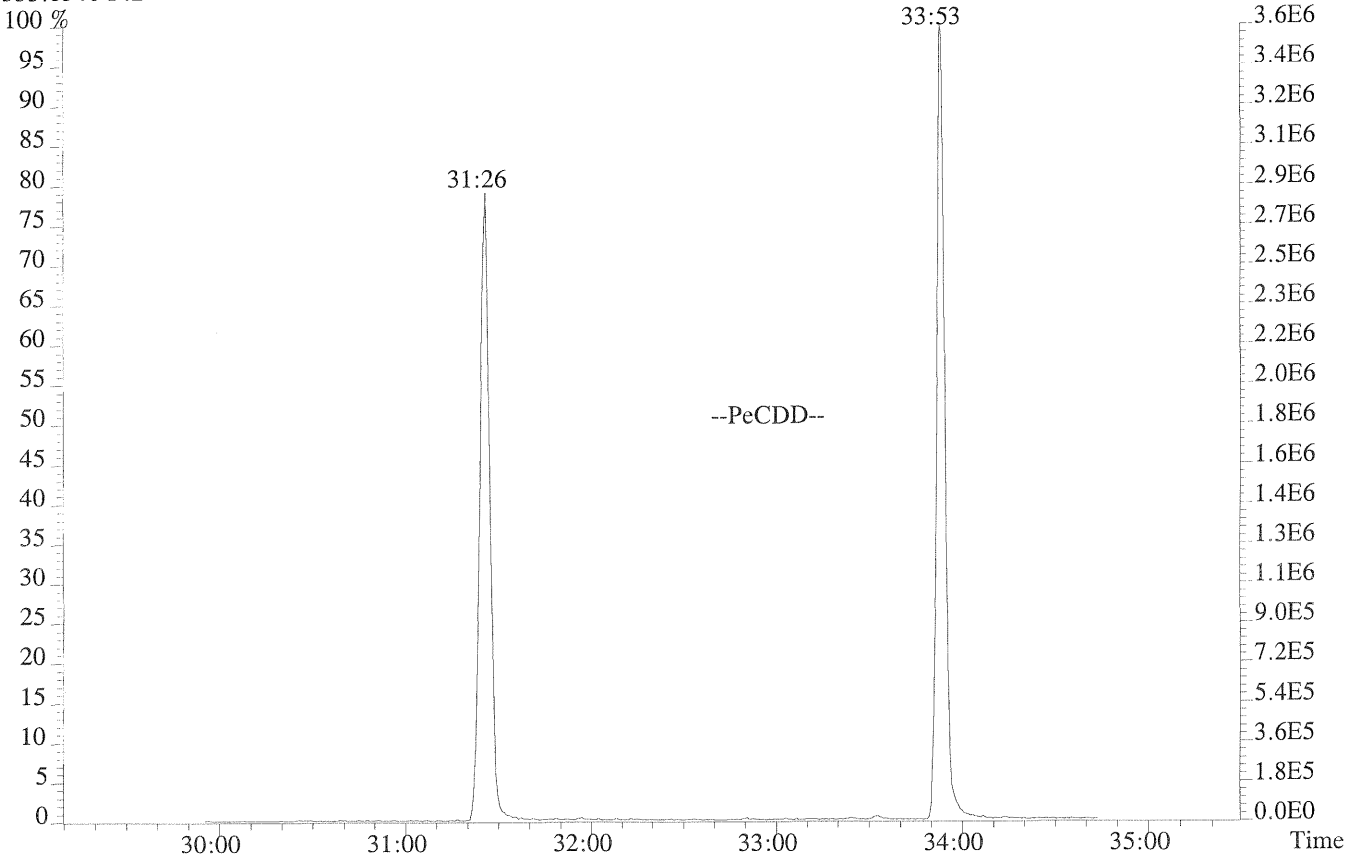




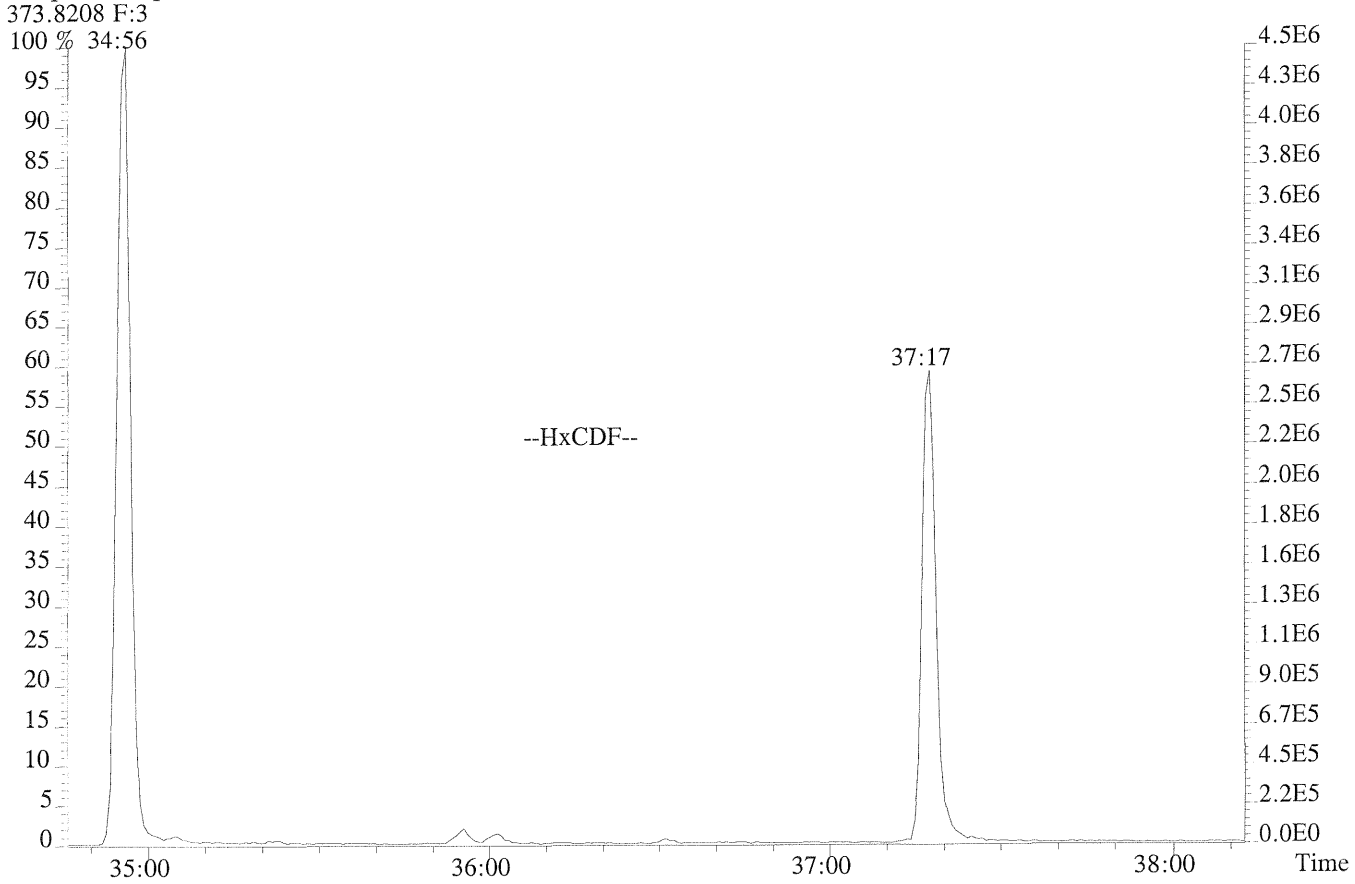
File:P113050 #1-437 Acq:24-MAR-2011 08:49:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
339.8597 F:2

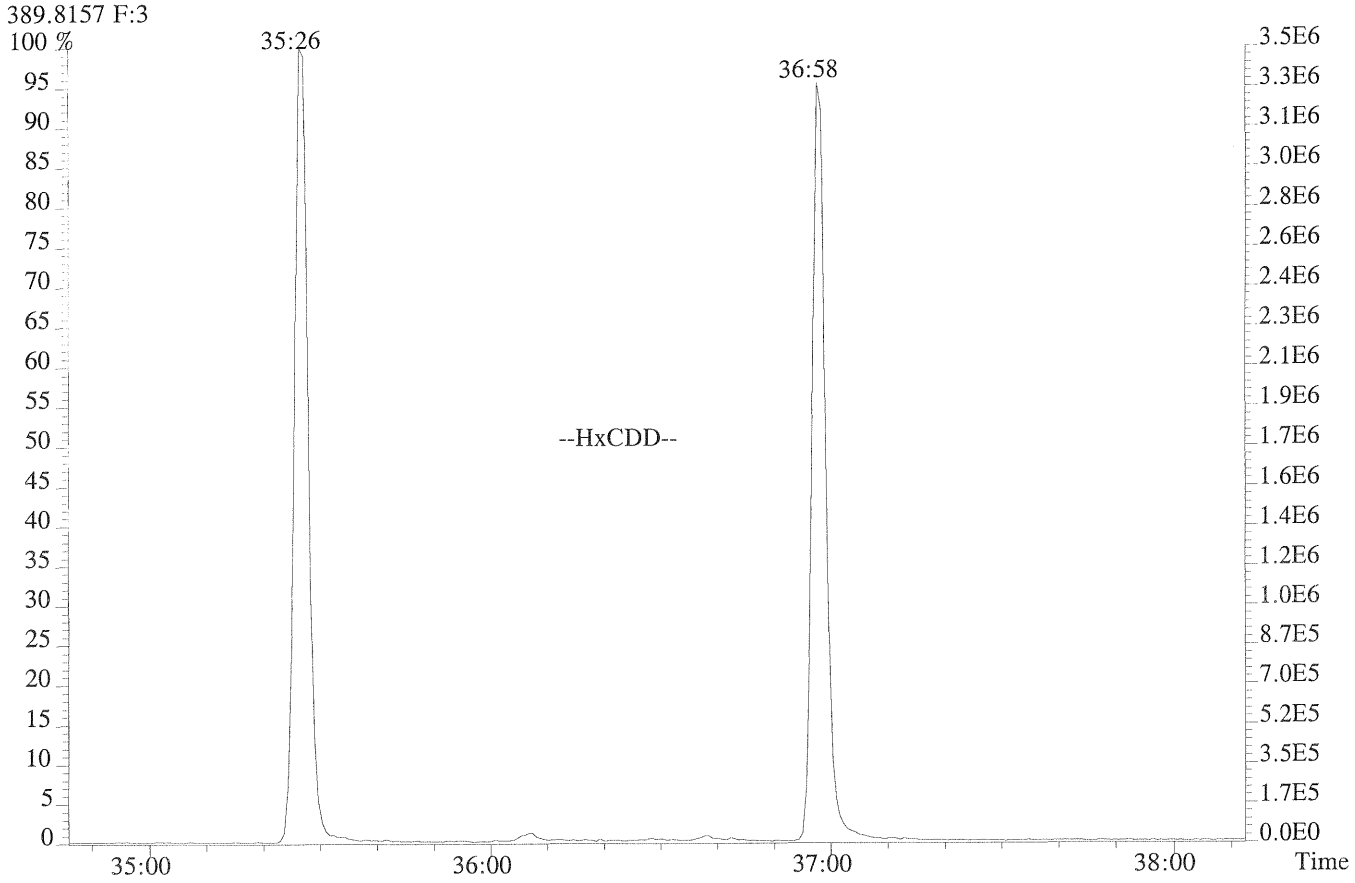


355.8546 F:2

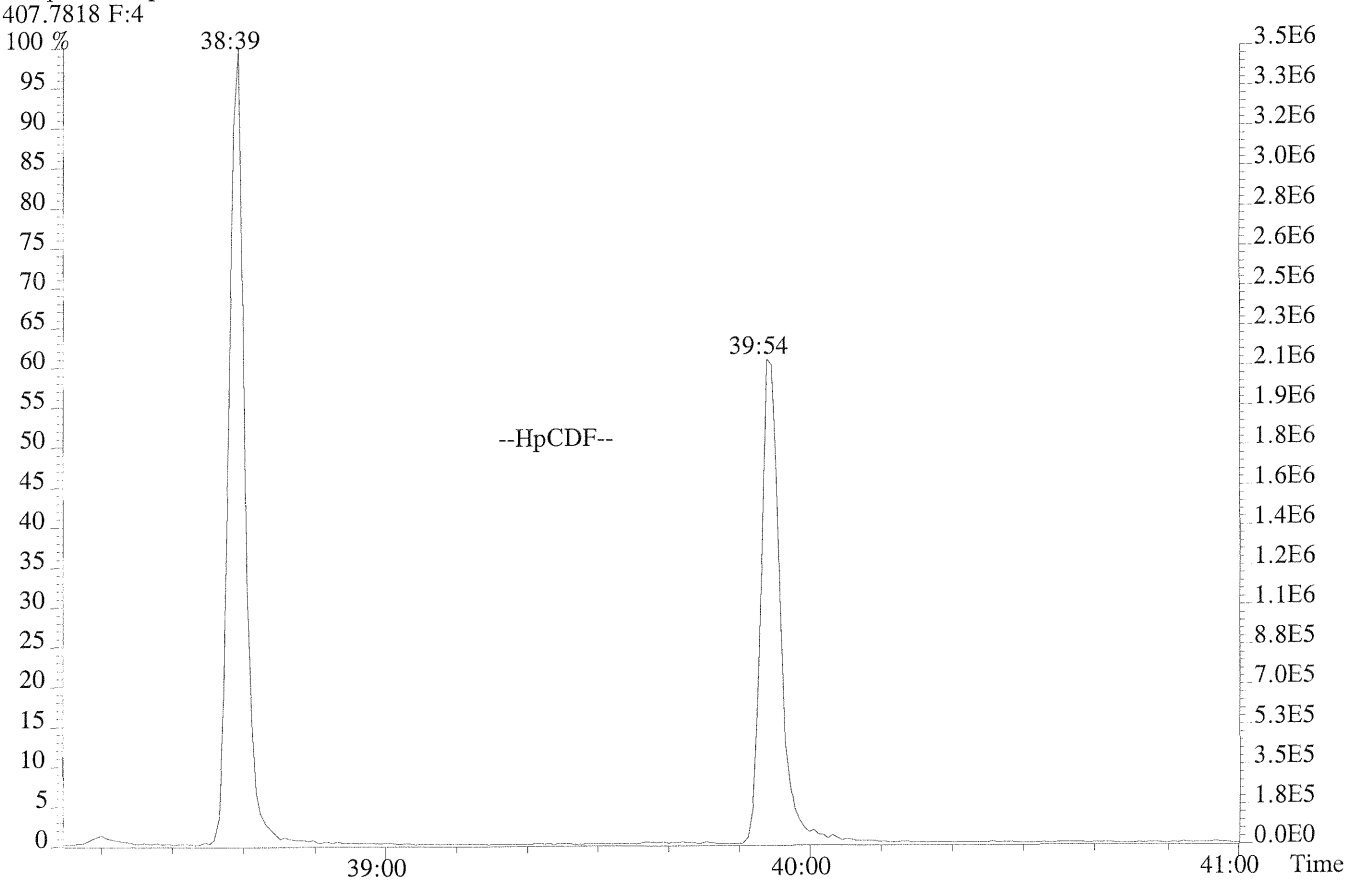


File:P113050 #1-313 Acq:24-MAR-2011 08:49:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE

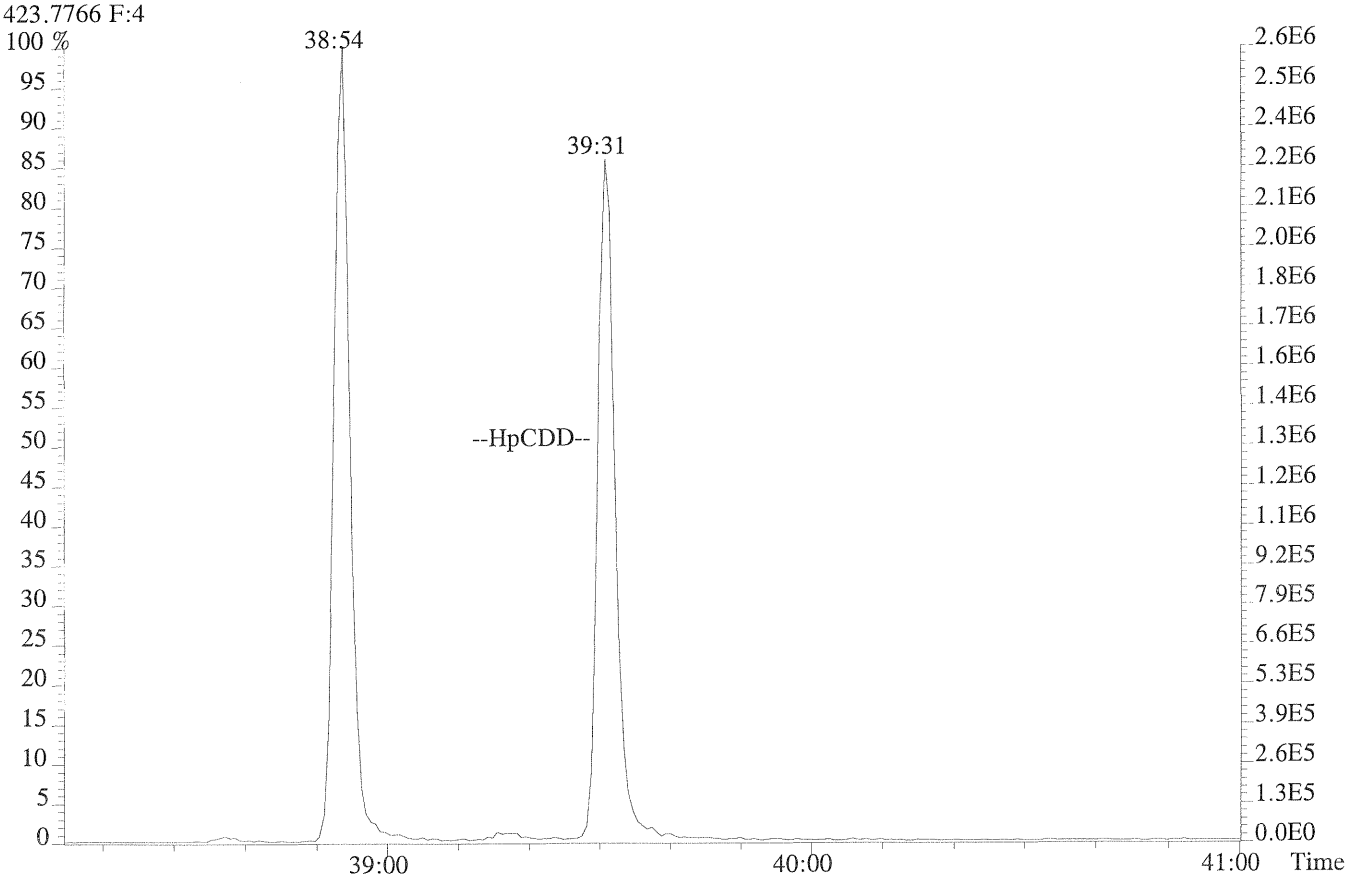




File:P113050 #1-251 Acq:24-MAR-2011 08:49:28 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:WINDOW DEFINE
407.7818 F:4



423.7766 F:4



USEPA - CLP
6DFAp7
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: Columbia Analytical Services Contract No.:
Lab Code: TX01411 Case No.: TO No.: SDG No.:
GC Column: DB-5 ID: 0.25(mm) Instrument ID: AutoSpec-Premier
Init. Calib. Date(s).: 03/24/11
Init. Calib. Time.: 08:49

	RR/RRF							MEAN		QC
Target Analytes	CS0.1	CS1	CS2	CS3	CS4	CS5	CS6	RR/RRF	%RSD	LIMITS
2,3,7,8-TCDD	1.09	0.97	0.99	0.96	0.99	1.01	1.20	1.03	8.33	+/-20%
2,3,7,8-TCDF	0.68	0.85	0.93	0.88	0.91	0.93	1.12	0.90	14.26	+/-20%
1,2,3,7,8-PeCDF	0.74	0.95	0.99	0.94	0.95	0.96	1.06	0.94	10.50	+/-20%
1,2,3,7,8-PeCDD	0.85	0.92	0.97	0.93	0.95	0.96	1.08	0.95	7.32	+/-20%
2,3,4,7,8-PeCDF	0.92	1.00	1.06	1.02	1.03	1.03	1.15	1.03	6.70	+/-20%
1,2,3,4,7,8-HxCDF	1.25	1.18	1.25	1.17	1.20	1.22	1.36	1.23	5.14	+/-20%
1,2,3,6,7,8-HxCDF	1.14	1.17	1.19	1.16	1.19	1.20	1.34	1.20	5.29	+/-20%
1,2,3,4,7,8-HxCDD	0.89	1.09	1.22	1.14	1.14	1.11	1.18	1.11	9.57	+/-20%
1,2,3,6,7,8-HxCDD	0.84	0.88	0.88	0.86	0.88	0.91	1.09	0.91	9.07	+/-20%
1,2,3,7,8,9-HxCDD	0.90	1.03	1.04	1.06	1.06	1.08	1.10	1.04	6.25	+/-20%
2,3,4,6,7,8-HxCDF	1.04	1.13	1.17	1.12	1.15	1.15	1.27	1.15	5.84	+/-20%
1,2,3,7,8,9-HxCDF	1.06	1.14	1.15	1.14	1.15	1.17	1.28	1.16	5.62	+/-20%
1,2,3,4,6,7,8-HpCDF	1.35	1.41	1.43	1.36	1.35	1.38	1.50	1.40	4.02	+/-20%
1,2,3,4,6,7,8-HpCDD	0.96	0.99	1.01	0.98	0.99	1.01	1.07	1.00	3.61	+/-20%
1,2,3,4,7,8,9-HpCDF	1.25	1.40	1.45	1.38	1.39	1.41	1.79	1.44	11.67	+/-20%
OCDD	1.21	1.08	1.05	0.98	1.00	1.00	1.10	1.06	7.50	+/-20%
OCDF	1.23	1.15	1.21	1.17	1.22	1.24	1.36	1.22	5.47	+/-20%
Labeled Compounds										
13C-2,3,7,8-TCDD	0.96	0.98	0.99	1.05	1.02	1.05	1.07	1.02	3.96	+/-35%
13C-1,2,3,7,8-PeCDD	0.93	0.77	0.78	0.99	0.91	0.97	1.00	0.91	10.19	+/-35%
13C-1,2,3,4,7,8-HxCDD	1.14	0.92	0.88	0.84	0.84	0.90	0.91	0.92	11.21	+/-35%
13C-1,2,3,6,7,8-HxCDD	1.15	1.12	1.16	1.10	1.06	1.03	1.05	1.10	4.61	+/-35%
13C-1,2,3,4,6,7,8-HpCDD	0.95	0.85	0.87	0.95	0.92	0.93	0.88	0.91	4.15	+/-35%
13C-OCDD	0.74	0.67	0.72	0.88	0.83	0.86	0.80	0.79	10.09	+/-35%
13C-2,3,7,8-TCDF	1.50	1.31	1.34	1.38	1.35	1.40	1.40	1.38	4.50	+/-35%
13C-1,2,3,7,8-PeCDF	1.52	1.21	1.19	1.33	1.30	1.38	1.43	1.34	8.85	+/-35%
13C-2,3,4,7,8-PeCDF	1.27	1.02	1.04	1.25	1.22	1.31	1.33	1.21	10.35	+/-35%
13C-1,2,3,4,7,8-HxCDF	1.17	1.22	1.19	1.10	1.10	1.15	1.16	1.15	3.77	+/-35%
13C-1,2,3,6,7,8-HxCDF	1.32	1.41	1.37	1.27	1.25	1.24	1.26	1.30	5.19	+/-35%
13C-2,3,4,6,7,8-HxCDF	1.27	1.20	1.21	1.15	1.15	1.16	1.17	1.19	3.58	+/-35%
13C-1,2,3,7,8,9-HxCDF	1.12	1.02	1.03	1.06	1.05	1.08	1.04	1.06	3.30	+/-35%
13C-1,2,3,4,6,7,8-HpCDF	1.04	1.00	0.97	0.98	0.99	1.00	0.99	1.00	2.34	+/-35%
13C-1,2,3,4,7,8,9-HpCDF	0.87	0.72	0.75	0.85	0.83	0.84	0.80	0.81	6.99	+/-35%

37Cl-2,3,7,8-TCDD	0.88	0.96	1.05	1.05	1.06	1.11	1.26	1.05	11.02	+/-35%

1. 123789-HxCDD Relative Response (RR) is calculated based on the labeled analogs of the other two HxCDDs.

2. OCDF RR is calculated based on the labeled analog of OCDD

USEPA - CLP
6DFBP7
CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION

Lab Name: Columbia Analytical Services Contract No.:
Lab Code: TX01411 Case No.: TO No.: SDG No.:
GC Column: DB-5 ID: 0.25(mm) Instrument ID: AutoSpec-Premier
Init. Calib. Date(s).: 03/24/11
Init. Calib. Time.: 08:49

Target Analytes	SELECTED IONS	ION ABUNDANCE RATIO CS.1	CS1	CS2	CS3	CS4	CS5	CS6	FLAG	ION RATIO QC LIMITS
2,3,7,8-TCDD	320/322	0.73	0.85	0.79	0.76	0.76	0.77	0.78		0.65-0.89
2,3,7,8-TCDF	304/306	0.84	0.68	0.76	0.77	0.77	0.77	0.77		0.65-0.89
1,2,3,7,8-PeCDF	340/342	1.65	1.56	1.58	1.55	1.54	1.56	1.56		1.32-1.78
1,2,3,7,8-PeCDD	356/358	1.40	1.51	1.60	1.57	1.56	1.56	1.57		1.32-1.78
2,3,4,7,8-PeCDF	340/342	1.47	1.58	1.59	1.57	1.55	1.56	1.56		1.32-1.78
1,2,3,4,7,8-HxCDF	374/376	1.30	1.23	1.24	1.23	1.24	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDF	374/376	1.15	1.17	1.25	1.24	1.25	1.26	1.26		1.05-1.43
1,2,3,4,7,8-HxCDD	390/392	1.26	1.19	1.28	1.34	1.33	1.25	1.25		1.05-1.43
1,2,3,6,7,8-HxCDD	390/392	1.33	1.21	1.29	1.17	1.18	1.25	1.24		1.05-1.43
1,2,3,7,8,9-HxCDD	390/392	1.41	1.20	1.23	1.24	1.23	1.25	1.25		1.05-1.43
2,3,4,6,7,8-HxCDF	374/376	1.19	1.23	1.24	1.23	1.24	1.25	1.25		1.05-1.43
1,2,3,7,8,9-HxCDF	374/376	1.35	1.27	1.26	1.23	1.25	1.25	1.25		1.05-1.43
1,2,3,4,6,7,8-HpCDF	408/410	1.09	1.01	1.03	1.03	1.04	1.04	1.04		0.88-1.20
1,2,3,4,6,7,8-HpCDD	424/426	0.99	0.98	1.04	1.07	1.05	1.04	1.03		0.88-1.20
1,2,3,4,7,8,9-HpCDF	408/410	1.08	1.03	1.01	1.05	1.04	1.03	1.05		0.88-1.20
OCDD	458/460	0.83	0.92	0.91	0.88	0.89	0.89	0.89		0.76-1.02
OCDF	442/444	0.94	0.91	0.91	0.90	0.91	0.92	0.91		0.76-1.02
Labeled Compounds										
13C-2,3,7,8-TCDD	332/334	0.79	0.79	0.79	0.78	0.80	0.79	0.80		0.65-0.89
13C-1,2,3,7,8-PeCDD	368/370	1.56	1.57	1.55	1.57	1.58	1.56	1.59		1.32-1.78
13C-1,2,3,4,7,8-HxCDD	402/404	1.26	1.26	1.26	1.27	1.26	1.27	1.27		1.05-1.43
13C-1,2,3,6,7,8-HxCDD	402/404	1.27	1.27	1.28	1.28	1.27	1.26	1.27		1.05-1.43
13C-1,2,3,4,6,7,8-HpCDD	424/426	1.06	1.05	1.06	1.04	1.05	1.05	1.06		0.88-1.20
13C-OCDD	470/472	0.90	0.90	0.90	0.90	0.89	0.90	0.91		0.76-1.02
13C-2,3,7,8-TCDF	316/318	0.78	0.79	0.79	0.79	0.78	0.79	0.78		0.65-0.89
13C-1,2,3,7,8-PeCDF	352/354	1.56	1.57	1.58	1.59	1.58	1.56	1.57		1.32-1.78
13C-2,3,4,7,8-PeCDF	352/354	1.57	1.56	1.57	1.56	1.57	1.57	1.58		1.32-1.78
13C-1,2,3,4,7,8-HxCDF	384/386	0.53	0.53	0.54	0.51	0.52	0.53	0.52		0.43-0.59
13C-1,2,3,6,7,8-HxCDF	384/386	0.53	0.52	0.50	0.51	0.53	0.53	0.54		0.43-0.59
13C-2,3,4,6,7,8-HxCDF	384/386	0.53	0.54	0.53	0.52	0.53	0.53	0.53		0.43-0.59
13C-1,2,3,7,8,9-HxCDF	384/386	0.53	0.52	0.52	0.52	0.52	0.52	0.51		0.43-0.59
13C-1,2,3,4,6,7,8-HpCDF	418/420	0.45	0.45	0.45	0.45	0.45	0.45	0.46		0.37-0.51
13C-1,2,3,4,7,8,9-HpCDF	418/420	0.45	0.44	0.44	0.44	0.44	0.44	0.45		0.37-0.51

Internal Standards									
13C-1,2,3,4-TCDD	332/334	0.80	0.79	0.80	0.79	0.80	0.81	0.81	0.65-0.89
13C-1,2,3,7,8,9-HxCDD	402/404	1.25	1.25	1.23	1.27	1.29	1.26	1.26	1.05-1.43

Quality Control (QC) limits represent +/- 15% window around the theoretical ion abundance ratio. The laboratory must flag any analyte in any calibration solution which does not meet the ion abundance ratio QC limit by placing an asterisk in the flag column.

Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS0.1

Run #1 Filename P113055 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 13:37:15
Processed: 25-MAR-11 11:28:42 LAB. ID: D12-9-3B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:35	1.105e+02	1.316e+02	0.84	yes	yes	1.001
2	Unk	1,2,3,7,8-PeCDF	32:14	8.244e+02	4.984e+02	1.65	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:00	8.193e+02	5.575e+02	1.47	yes	no	1.000
4	Unk	1,2,3,4,7,8-HxCDF	35:55	7.549e+02	5.826e+02	1.30	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:01	7.440e+02	6.461e+02	1.15	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:31	6.596e+02	5.553e+02	1.19	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:14	6.296e+02	4.653e+02	1.35	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	6.720e+02	6.183e+02	1.09	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:55	5.175e+02	4.775e+02	1.08	yes	no	1.000
10	Unk	OCDF	42:33	8.041e+02	8.562e+02	0.94	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:30	1.047e+02	1.439e+02	0.73	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:24	5.416e+02	3.860e+02	1.40	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:38	5.205e+02	4.145e+02	1.26	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	5.078e+02	3.818e+02	1.33	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	36:60	5.556e+02	3.945e+02	1.41	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	4.160e+02	4.208e+02	0.99	yes	no	1.000
17	Unk	OCDD	42:23	7.405e+02	8.901e+02	0.83	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:34	1.553e+05	1.994e+05	0.78	yes	no	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:13	2.192e+05	1.402e+05	1.56	yes	no	1.141
20	IS	13C-2,3,4,7,8-PeCDF	32:60	1.831e+05	1.167e+05	1.57	yes	no	1.169
21	IS	13C-1,2,3,4,7,8-HxCDF	35:54	7.396e+04	1.408e+05	0.53	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	36:00	8.399e+04	1.591e+05	0.53	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	8.030e+04	1.529e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:13	7.093e+04	1.350e+05	0.53	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:39	5.967e+04	1.322e+05	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:54	4.956e+04	1.098e+05	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	28:29	1.007e+05	1.268e+05	0.79	yes	no	1.009
28	IS	13C-1,2,3,7,8-PeCDD	33:23	1.336e+05	8.579e+04	1.56	yes	no	1.182
29	IS	13C-1,2,3,4,7,8-HxCDD	36:37	1.170e+05	9.304e+04	1.26	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	1.181e+05	9.312e+04	1.27	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	8.958e+04	8.491e+04	1.06	yes	no	1.068
32	IS	13C-OCDD	42:23	1.284e+05	1.422e+05	0.90	yes	no	1.146
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.048e+05	1.318e+05	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:60	1.022e+05	8.145e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:30	2.094e+02				no	1.009

Columbia Analytical Services, Inc.
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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS0.1

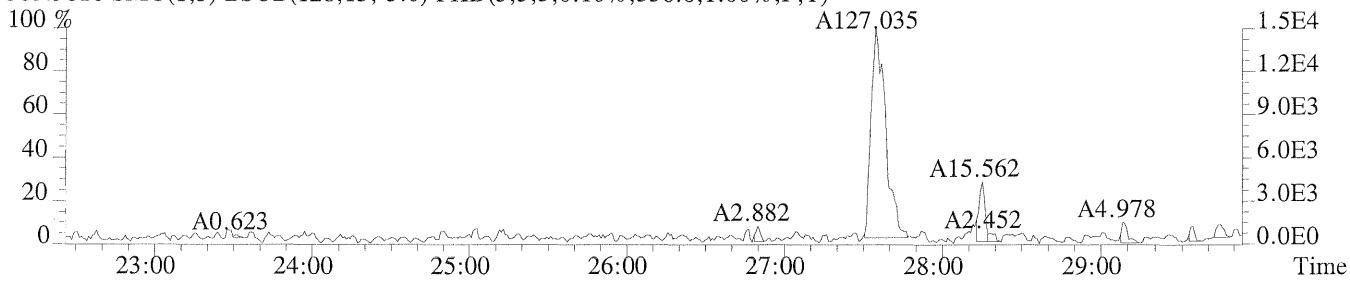
Run #1 Filename P113055 Samp: 1 Inj: 1 Acquired: 24-MAR-11 13:37:15
Processed: 25-MAR-11 11:28:421 LAB. ID: D12-9-3B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.46e+04	5.36e+02	2.7e+01	1.86e+04	6.72e+02	2.8e+01
2	1,2,3,7,8-PeCDF	1.33e+05	5.88e+02	2.3e+02	8.22e+04	5.28e+02	1.6e+02
3	2,3,4,7,8-PeCDF	1.39e+05	5.88e+02	2.4e+02	9.79e+04	5.28e+02	1.9e+02
4	1,2,3,4,7,8-HxCDF	1.56e+05	5.48e+02	2.8e+02	1.20e+05	5.68e+02	2.1e+02
5	1,2,3,6,7,8-HxCDF	1.47e+05	5.48e+02	2.7e+02	1.31e+05	5.68e+02	2.3e+02
6	2,3,4,6,7,8-HxCDF	1.31e+05	5.48e+02	2.4e+02	1.11e+05	5.68e+02	2.0e+02
7	1,2,3,7,8,9-HxCDF	1.16e+05	5.48e+02	2.1e+02	8.86e+04	5.68e+02	1.6e+02
8	1,2,3,4,6,7,8-HpCDF	1.44e+05	1.16e+03	1.2e+02	1.29e+05	7.80e+02	1.6e+02
9	1,2,3,4,7,8,9-HpCDF	9.56e+04	1.16e+03	8.3e+01	9.12e+04	7.80e+02	1.2e+02
10	OCDF	1.31e+05	7.88e+02	1.7e+02	1.37e+05	8.00e+02	1.7e+02
11	2,3,7,8-TCDD	1.57e+04	5.40e+02	2.9e+01	2.29e+04	7.12e+02	3.2e+01
12	1,2,3,7,8-PeCDD	8.93e+04	6.16e+02	1.5e+02	6.26e+04	5.36e+02	1.2e+02
13	1,2,3,4,7,8-HxCDD	1.07e+05	9.60e+02	1.1e+02	9.04e+04	8.44e+02	1.1e+02
14	1,2,3,6,7,8-HxCDD	1.02e+05	9.60e+02	1.1e+02	7.96e+04	8.44e+02	9.4e+01
15	1,2,3,7,8,9-HxCDD	1.07e+05	9.60e+02	1.1e+02	8.02e+04	8.44e+02	9.5e+01
16	1,2,3,4,6,7,8-HpCDD	8.58e+04	1.02e+03	8.4e+01	8.41e+04	7.80e+02	1.1e+02
17	OCDD	1.23e+05	9.00e+02	1.4e+02	1.45e+05	9.24e+02	1.6e+02
18	13C-2,3,7,8-TCDF	2.19e+07	1.13e+03	1.9e+04	2.78e+07	7.80e+02	3.6e+04
19	13C-1,2,3,7,8-PeCDF	3.91e+07	5.52e+02	7.1e+04	2.48e+07	5.56e+02	4.5e+04
20	13C-2,3,4,7,8-PeCDF	3.35e+07	5.52e+02	6.1e+04	2.13e+07	5.56e+02	3.8e+04
21	13C-1,2,3,4,7,8-HxCDF	1.59e+07	7.32e+02	2.2e+04	3.04e+07	1.17e+03	2.6e+04
22	13C-1,2,3,6,7,8-HxCDF	1.70e+07	7.32e+02	2.3e+04	3.24e+07	1.17e+03	2.8e+04
23	13C-2,3,4,6,7,8-HxCDF	1.67e+07	7.32e+02	2.3e+04	3.20e+07	1.17e+03	2.7e+04
24	13C-1,2,3,7,8,9-HxCDF	1.41e+07	7.32e+02	1.9e+04	2.66e+07	1.17e+03	2.3e+04
25	13C-1,2,3,4,6,7,8-HpCDF	1.27e+07	2.99e+03	4.2e+03	2.78e+07	2.46e+03	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	9.28e+06	2.99e+03	3.1e+03	2.03e+07	2.46e+03	8.2e+03
27	13C-2,3,7,8-TCDD	1.54e+07	2.09e+03	7.4e+03	1.93e+07	7.48e+02	2.6e+04
28	13C-1,2,3,7,8-PeCDD	2.31e+07	5.72e+02	4.0e+04	1.46e+07	5.56e+02	2.6e+04
29	13C-1,2,3,4,7,8-HxCDD	2.60e+07	1.07e+03	2.4e+04	2.05e+07	1.26e+03	1.6e+04
30	13C-1,2,3,6,7,8-HxCDD	2.48e+07	1.07e+03	2.3e+04	1.97e+07	1.26e+03	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.83e+07	1.16e+03	1.6e+04	1.72e+07	8.52e+02	2.0e+04
32	13C-OCDD	2.16e+07	1.07e+03	2.0e+04	2.38e+07	9.04e+02	2.6e+04
33	13C-1,2,3,4-TCDD	1.69e+07	2.09e+03	8.1e+03	2.12e+07	7.48e+02	2.8e+04
34	13C-1,2,3,7,8,9-HxCDD	2.13e+07	1.07e+03	2.0e+04	1.68e+07	1.26e+03	1.3e+04
35	37Cl-2,3,7,8-TCDD	2.97e+04	7.60e+02	3.9e+01			

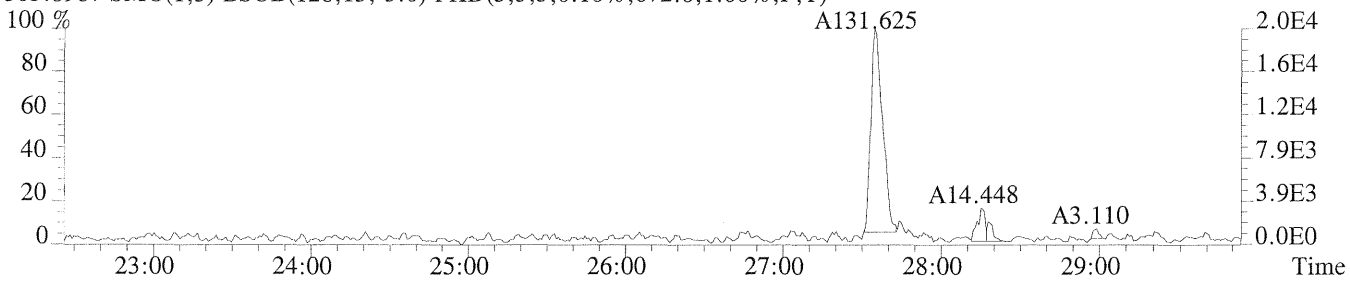
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office:(713)266-1599. Fax:(713)266-0130

File:P113055 #1-621 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

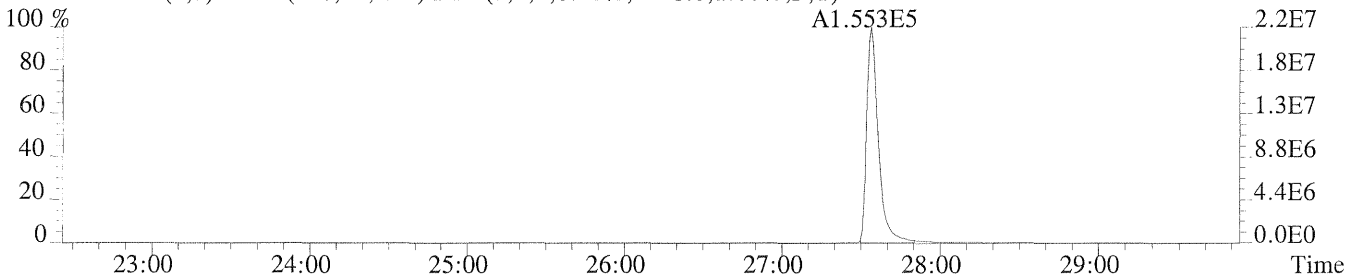
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



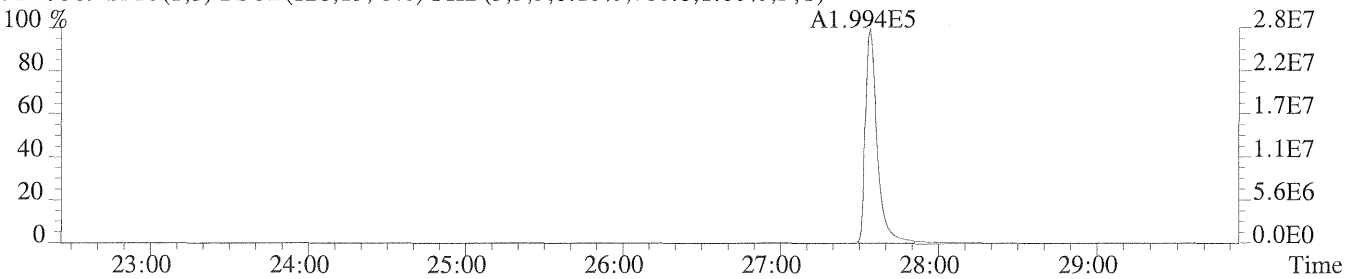
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)



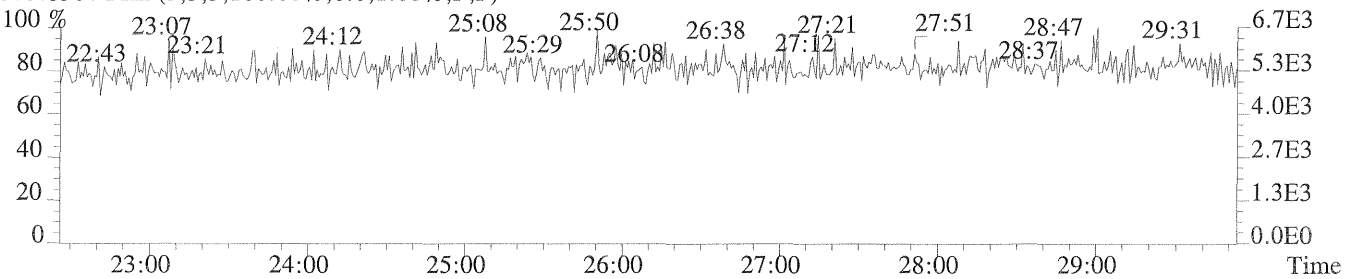
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1128.0,1.00%,F,T)



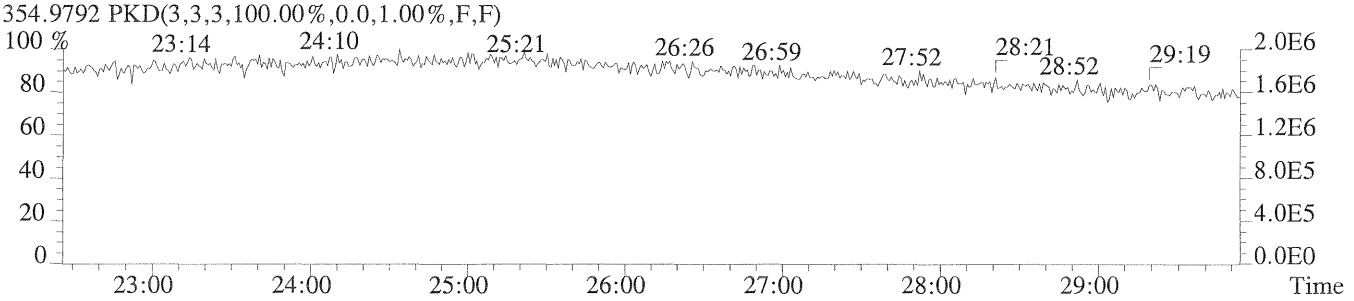
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,780.0,1.00%,F,T)



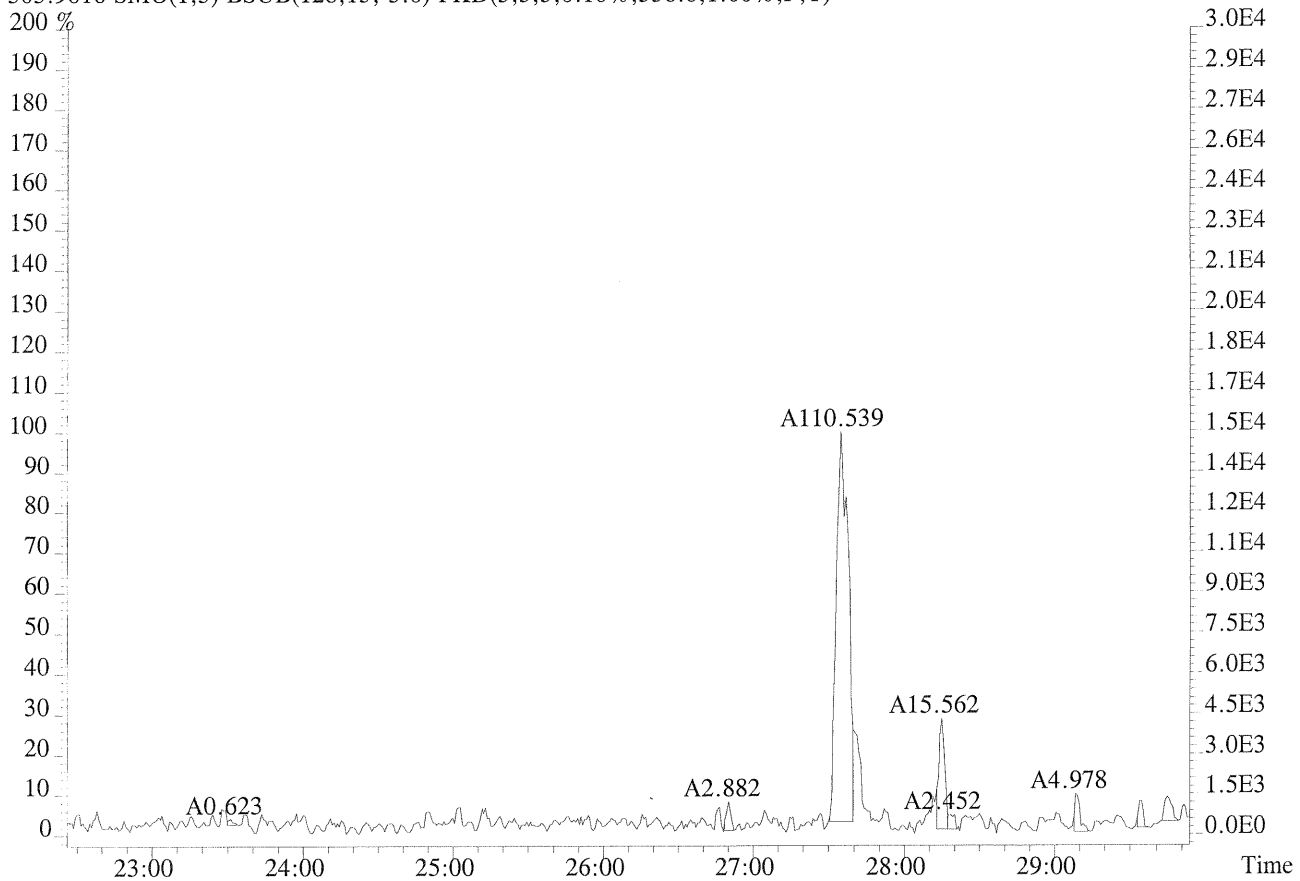
375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



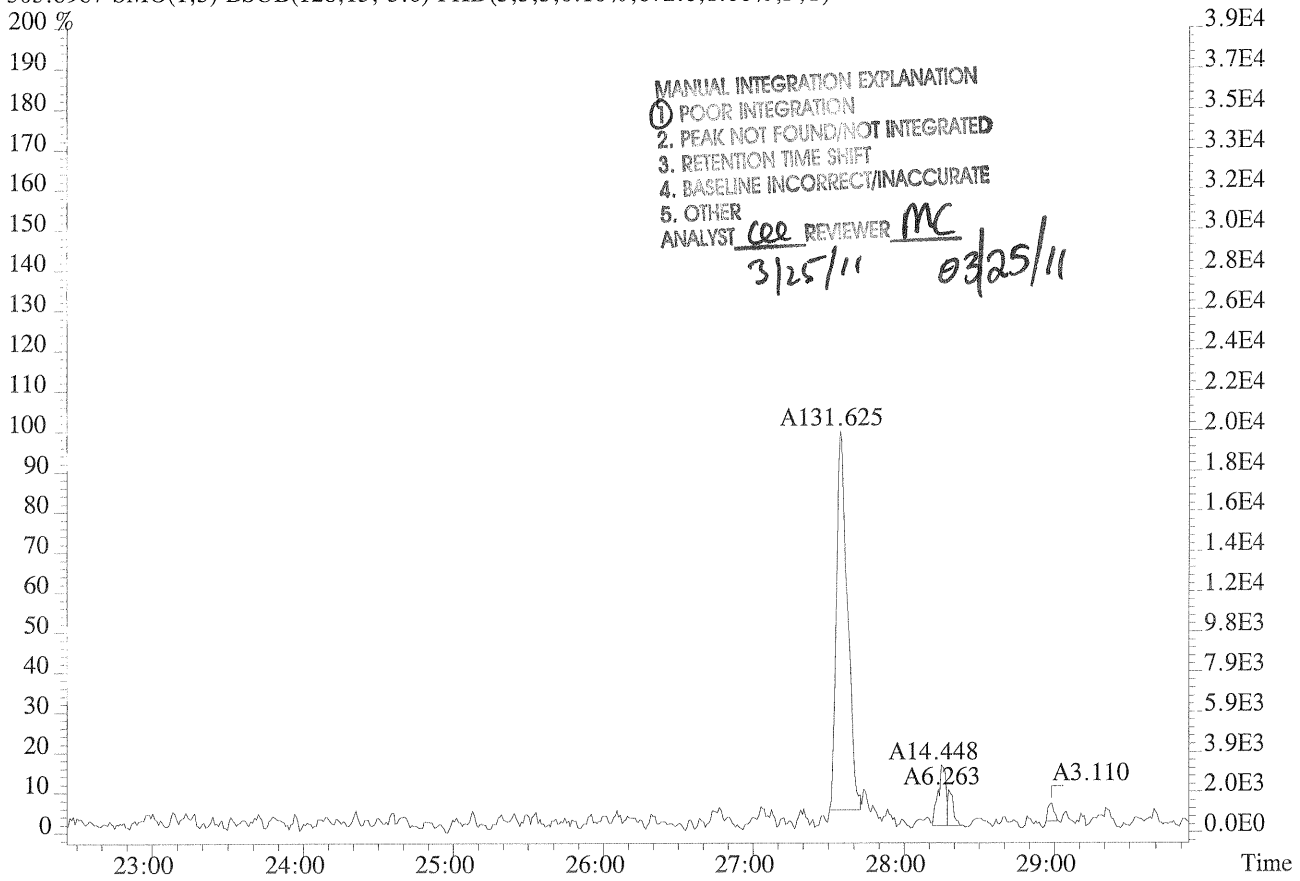
354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



File:P113055 #1-621 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass s£
Sample#1 Exp:ICAL CS0.1
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)

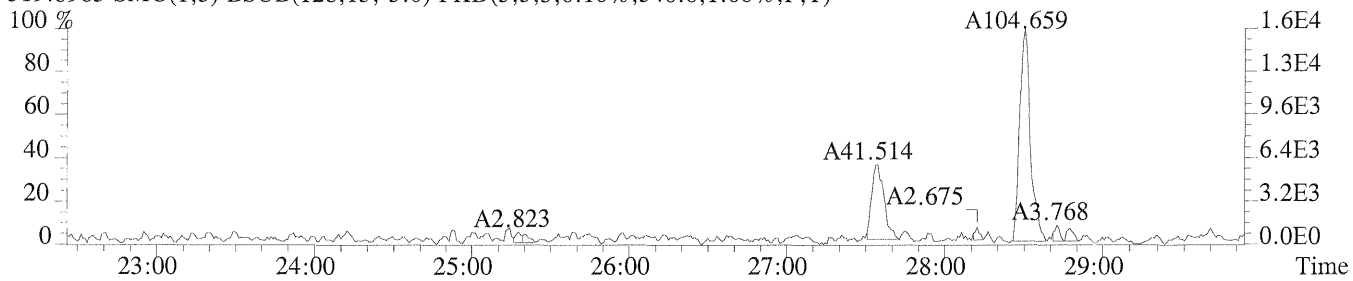


305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,672.0,1.00%,F,T)

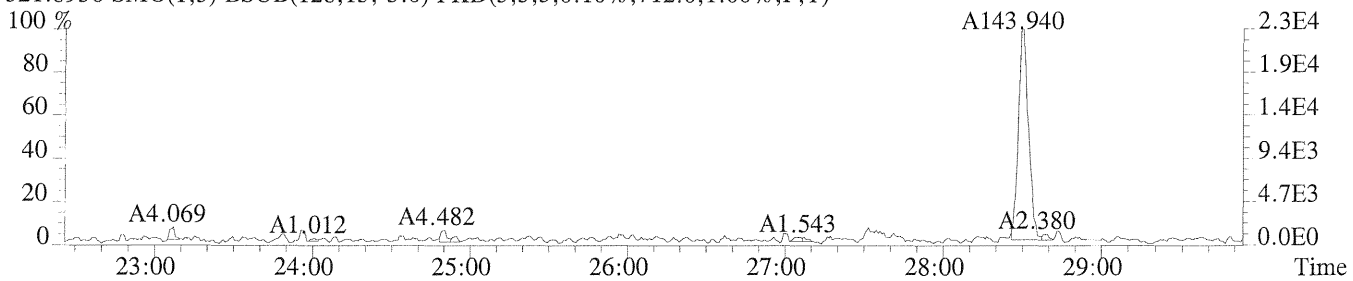


File:P113055 #1-621 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

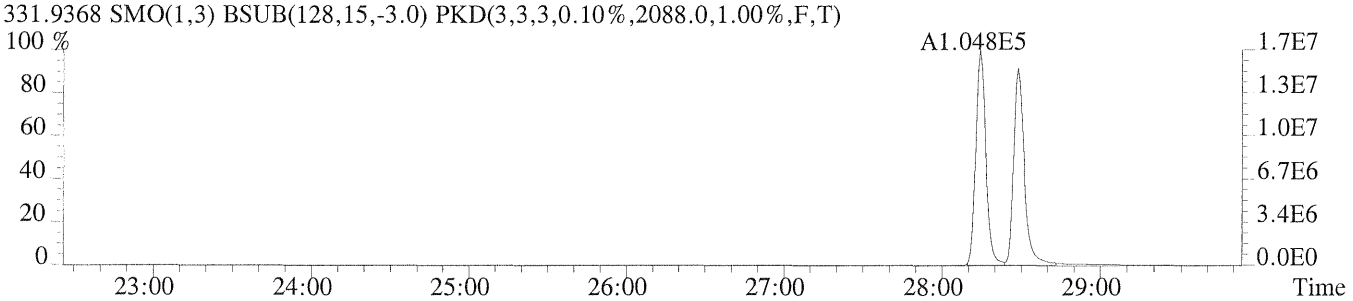
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,540.0,1.00%,F,T)



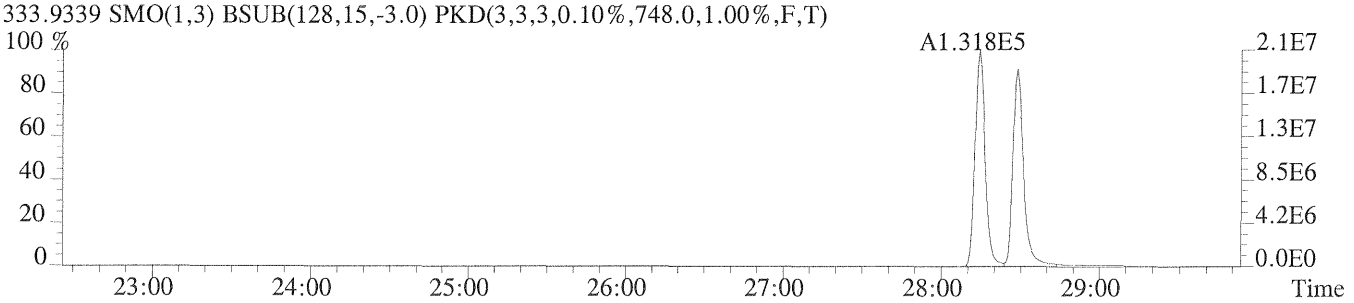
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



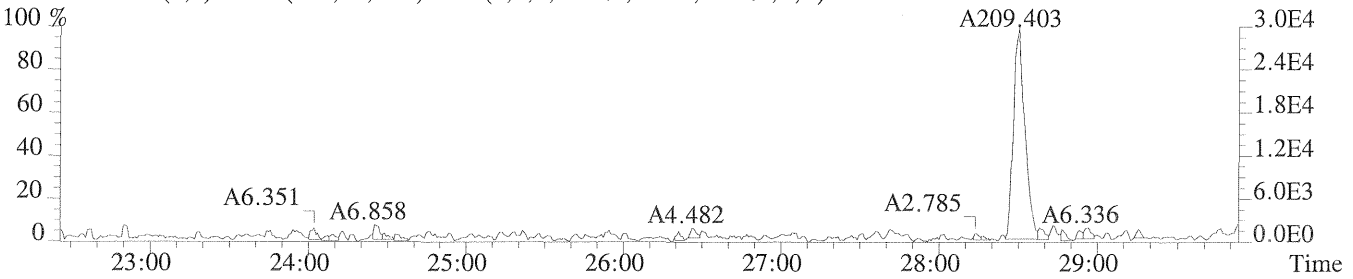
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2088.0,1.00%,F,T)



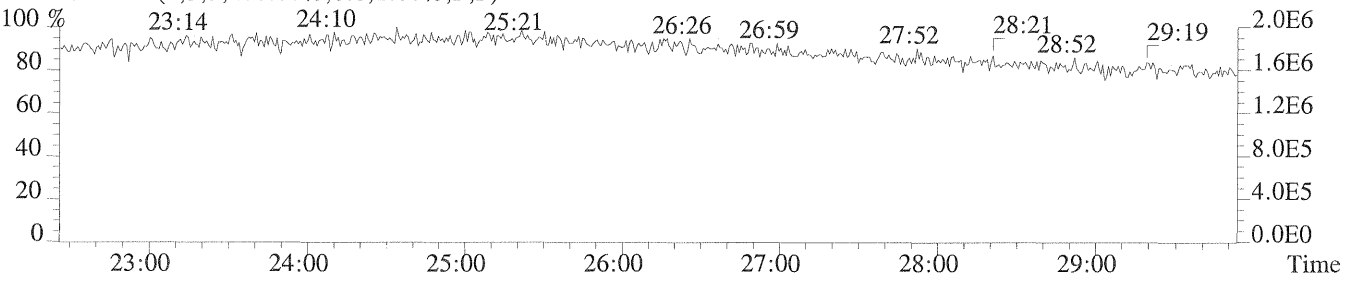
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)

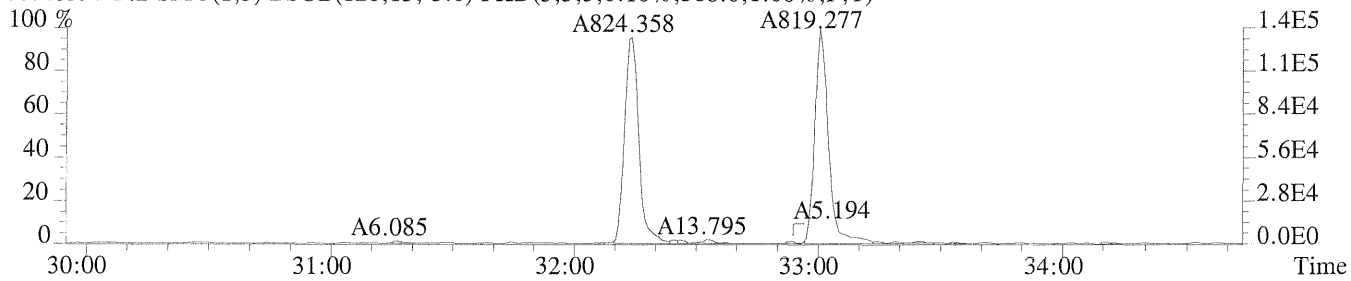


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

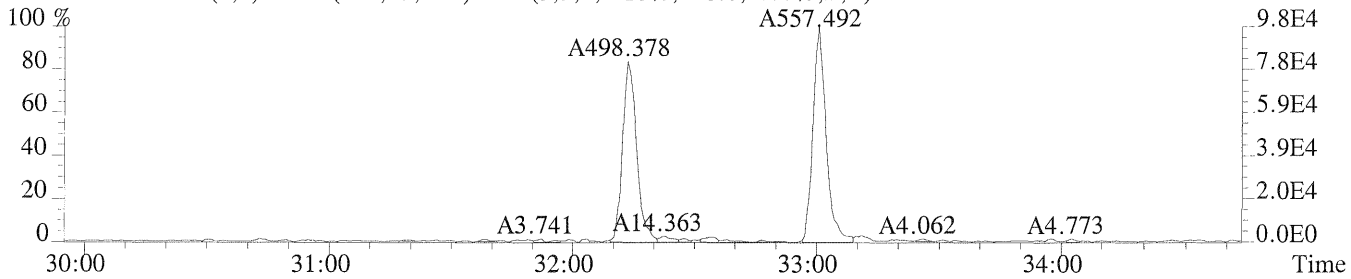


File:P113055 #1-437 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

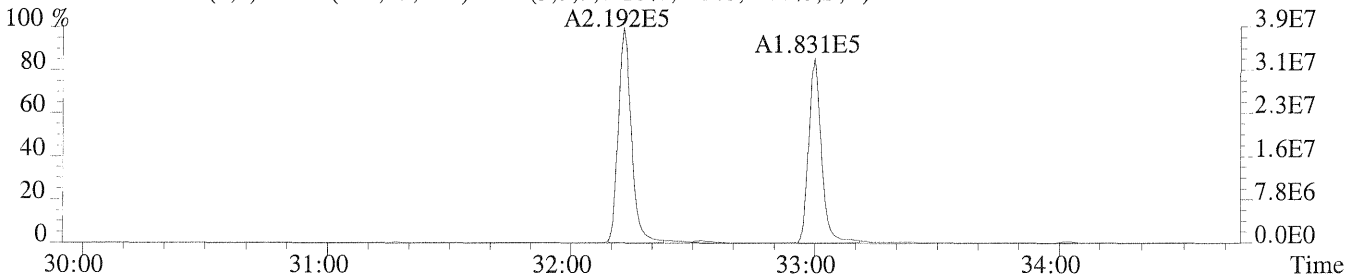
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,588.0,1.00%,F,T)



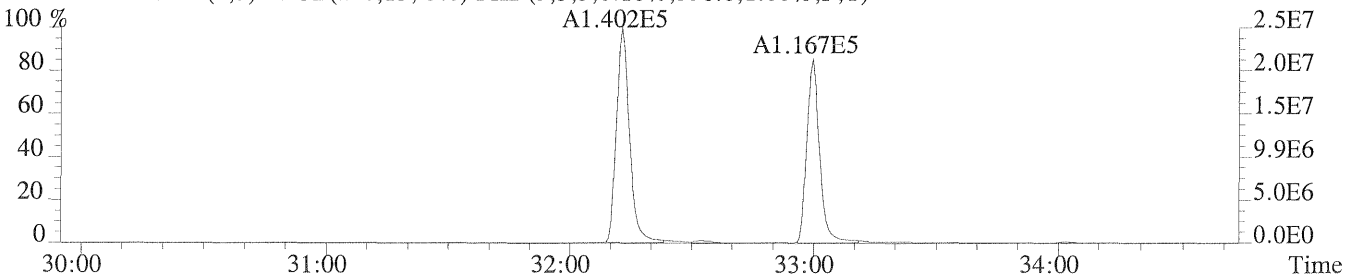
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)



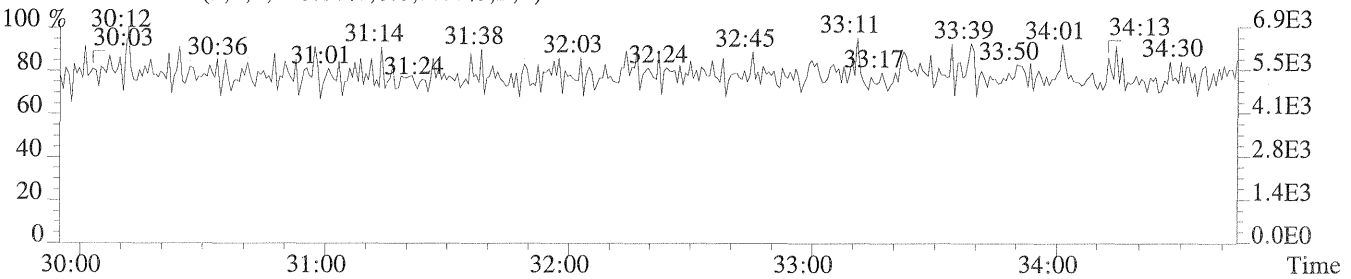
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



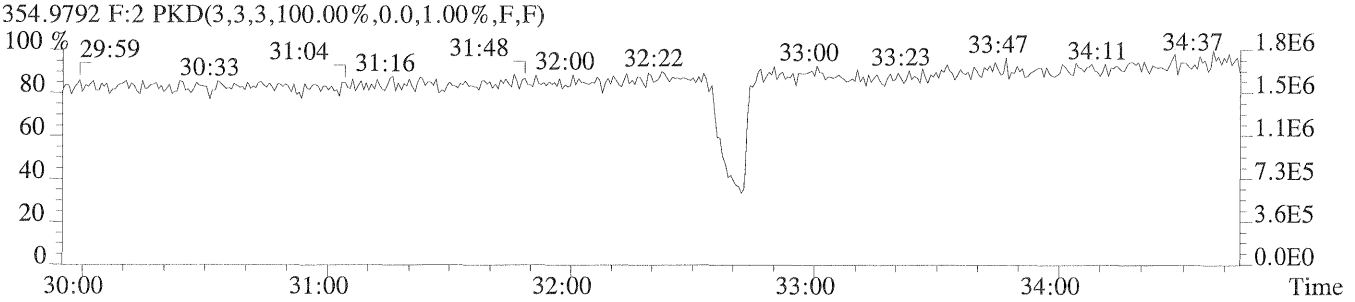
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

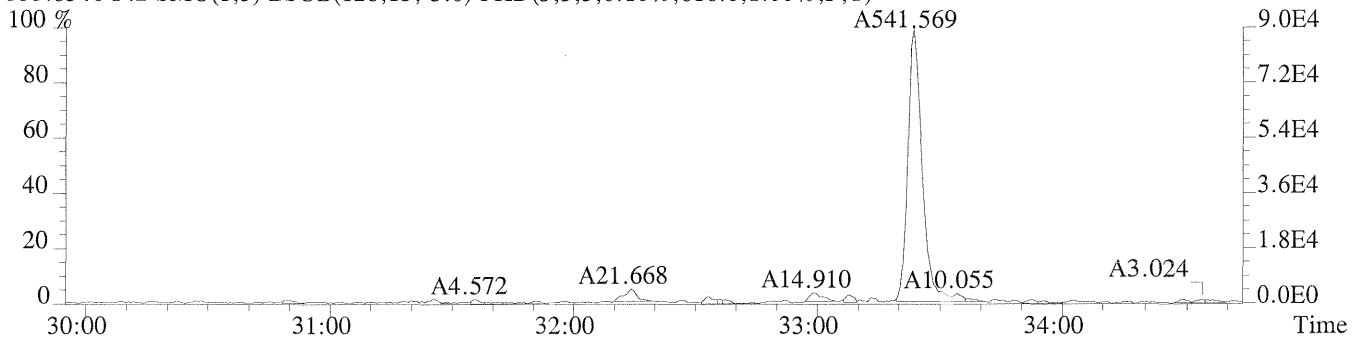


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

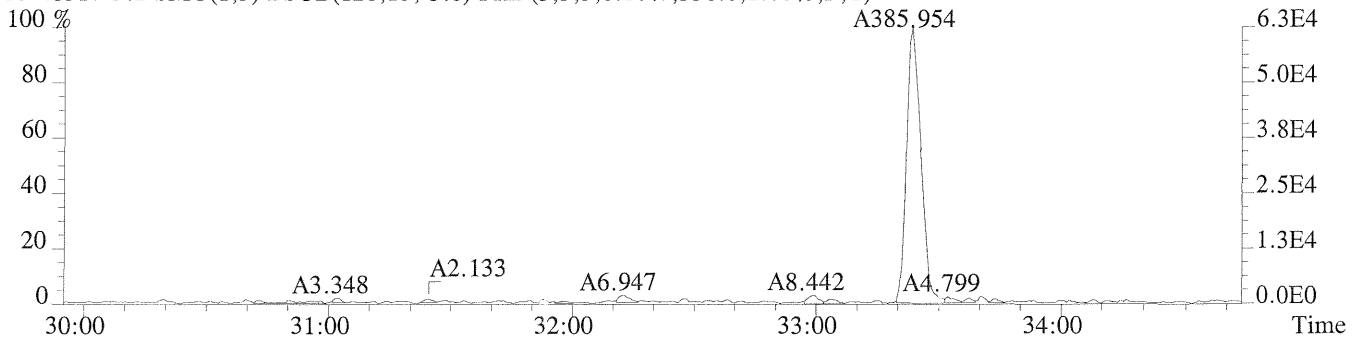


File:P113055 #1-437 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

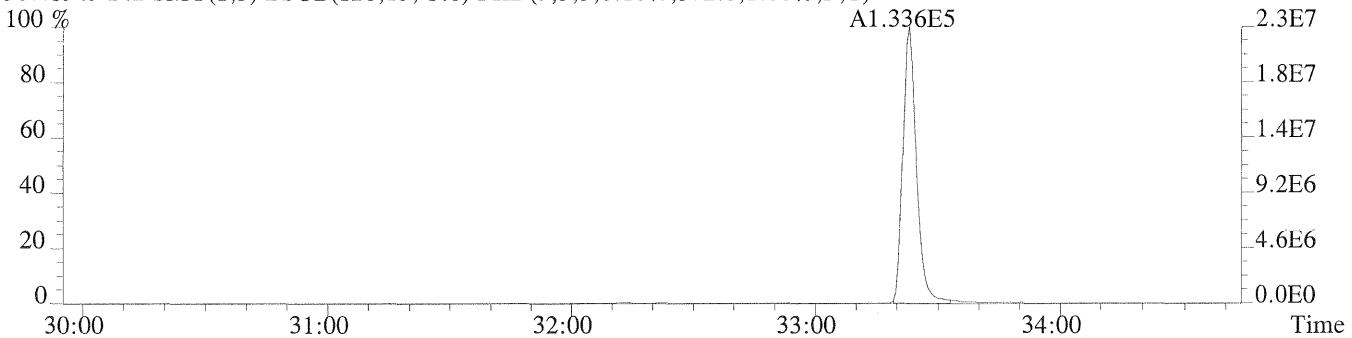
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,616.0,1.00%,F,T)



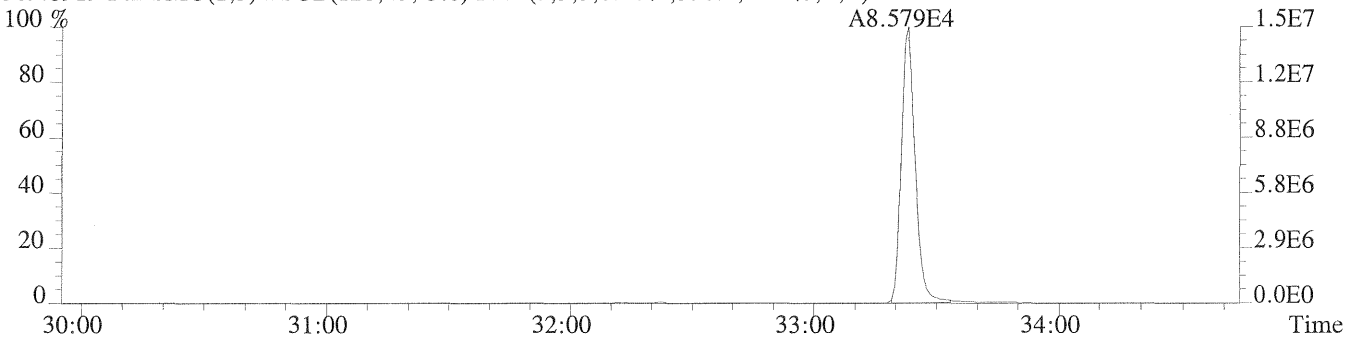
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,536.0,1.00%,F,T)



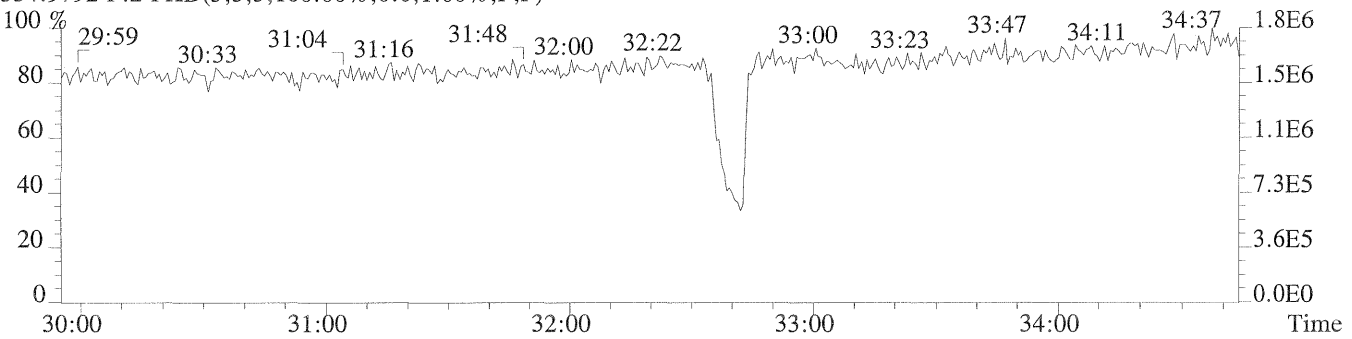
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,572.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,556.0,1.00%,F,T)

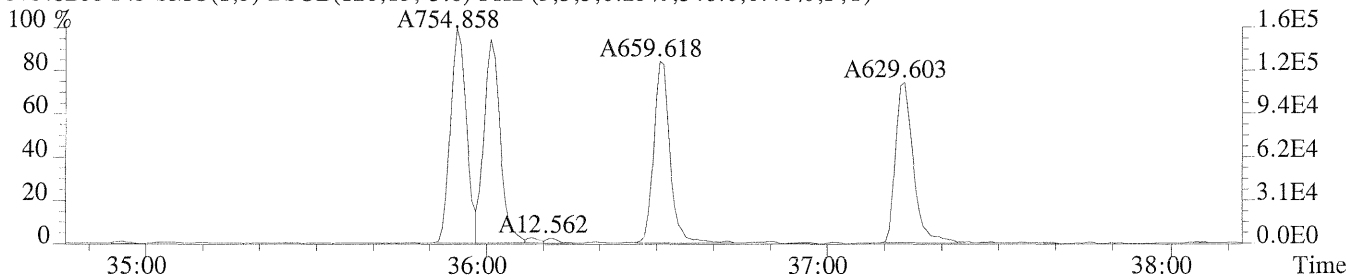


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

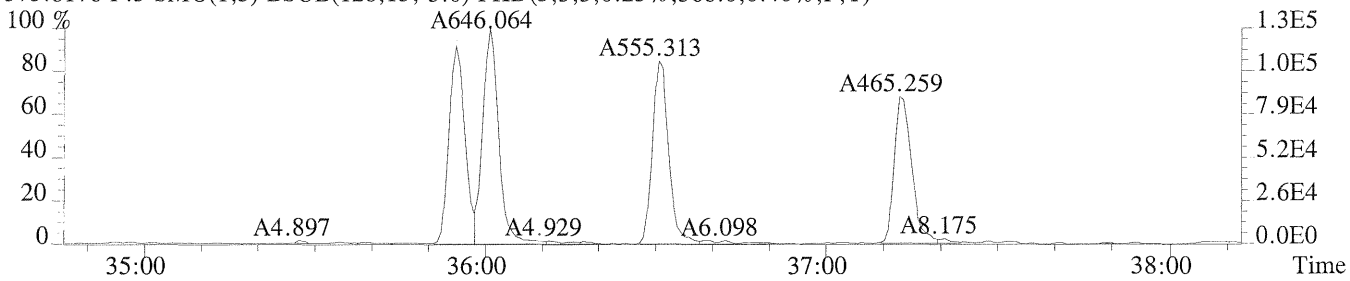


File:P113055 #1-313 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

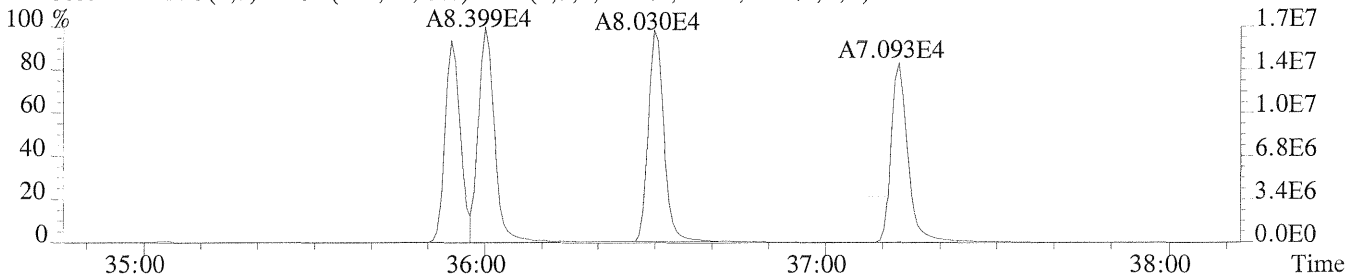
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,548.0,0.40%,F,T)



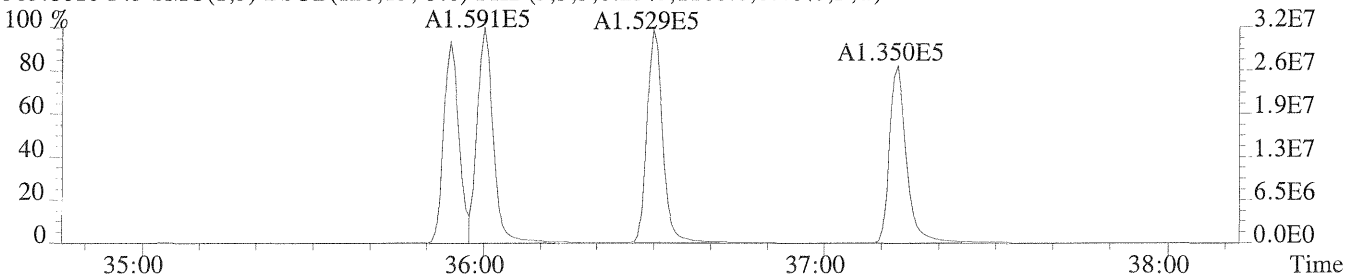
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,568.0,0.40%,F,T)



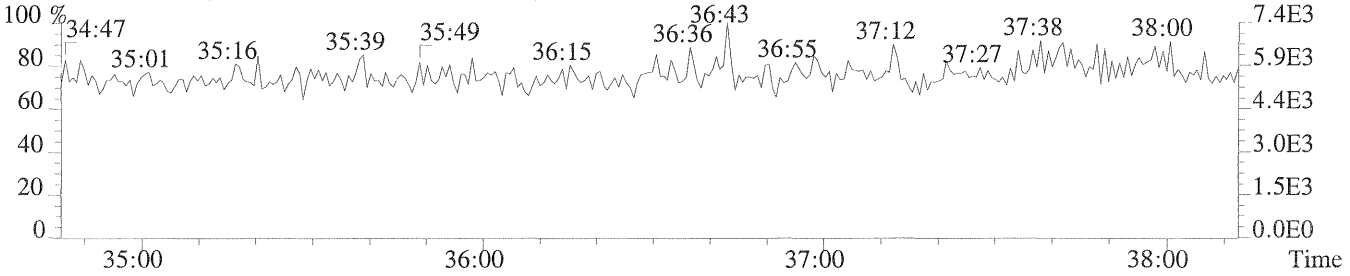
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)



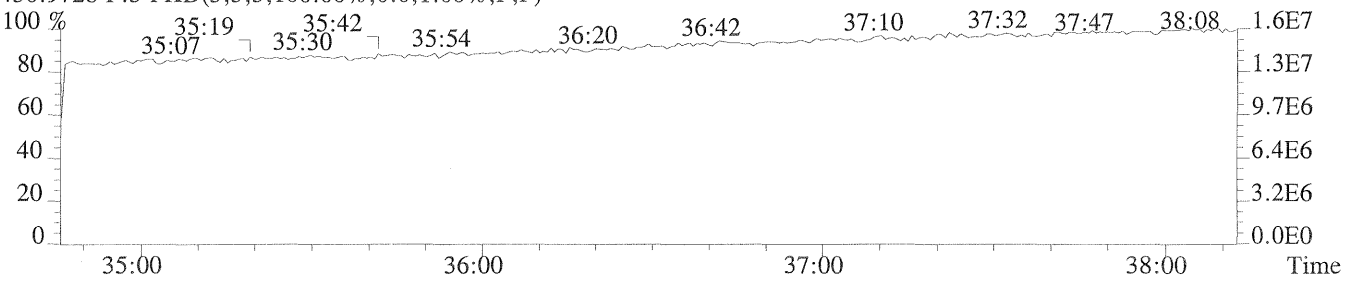
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

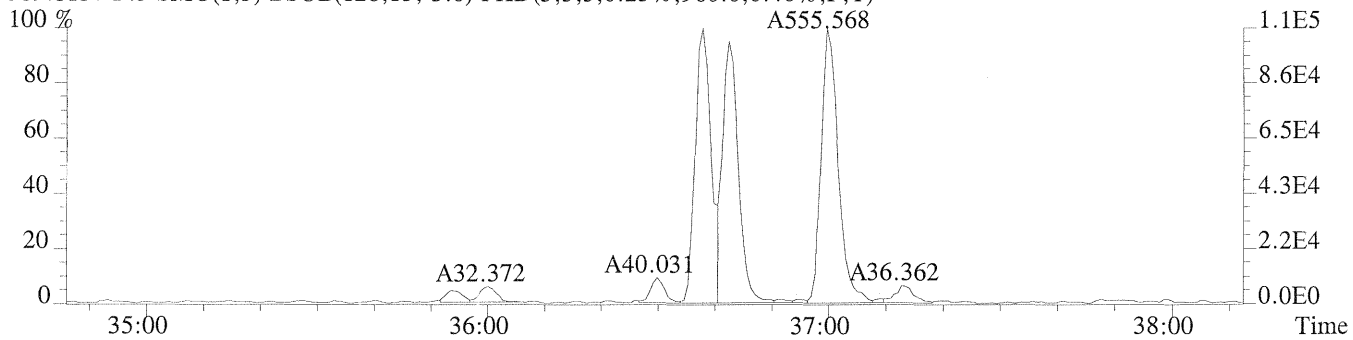


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

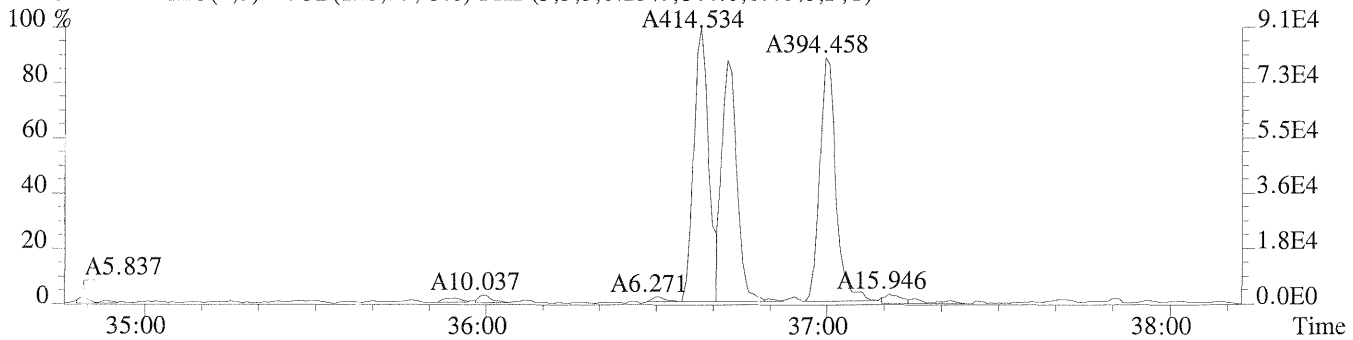


File:P113055 #1-313 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

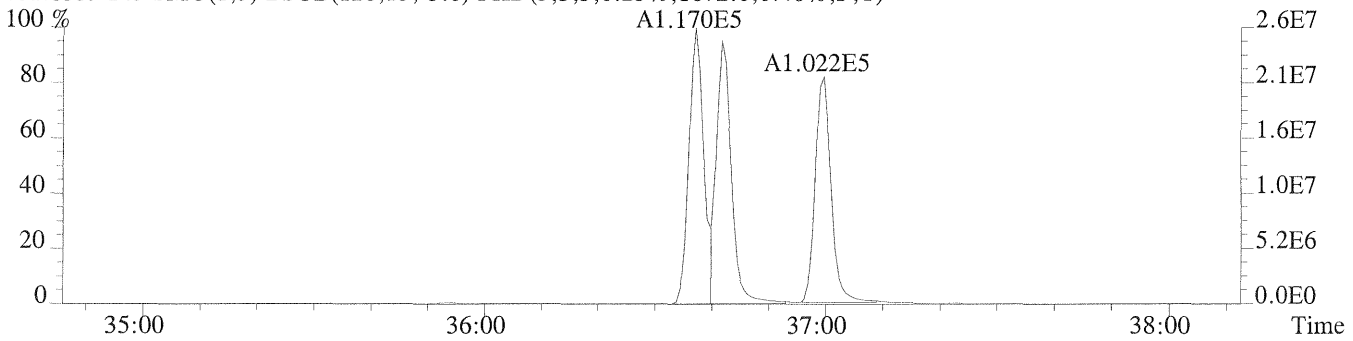
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,960.0,0.40%,F,T)



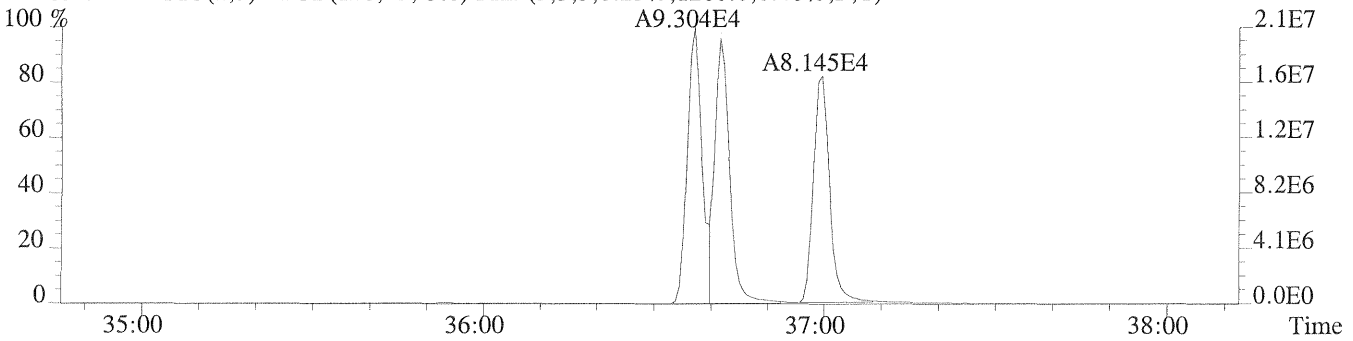
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,844.0,0.40%,F,T)



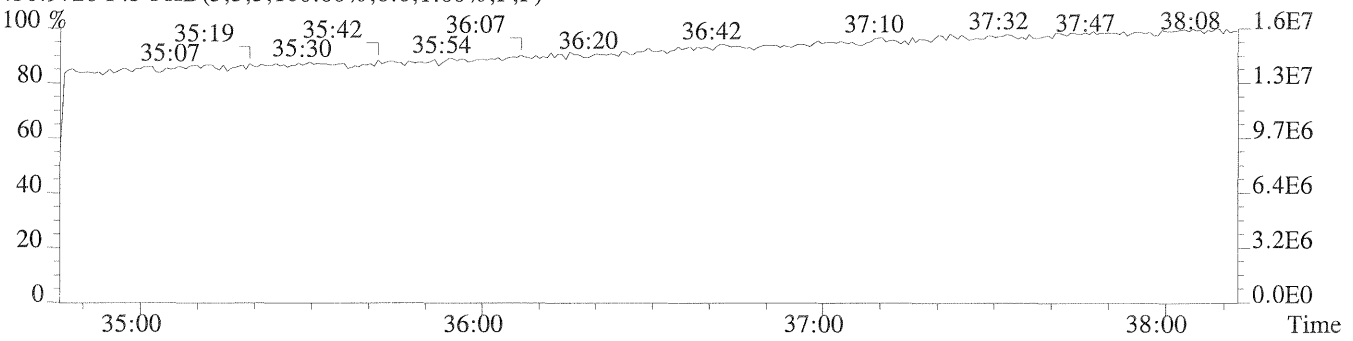
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1072.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)

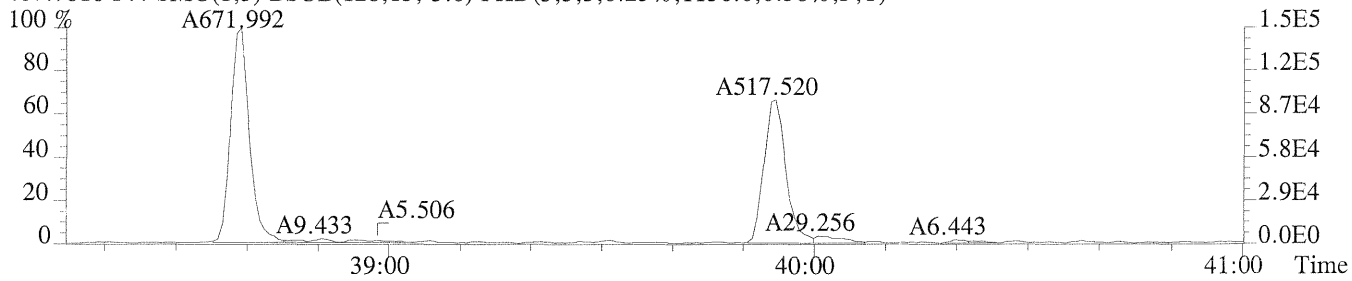


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

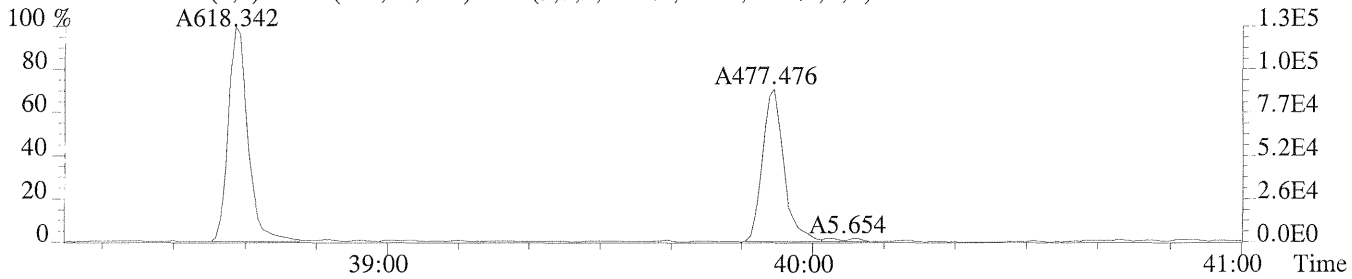


File:P113055 #1-251 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

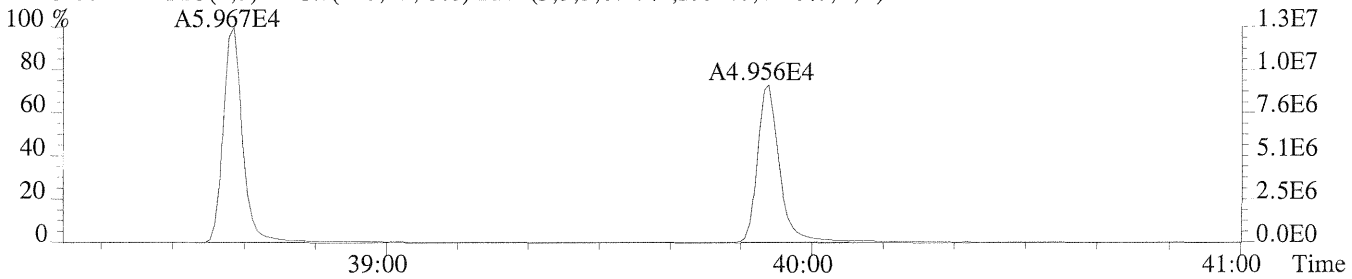
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1156.0,0.50%,F,T)



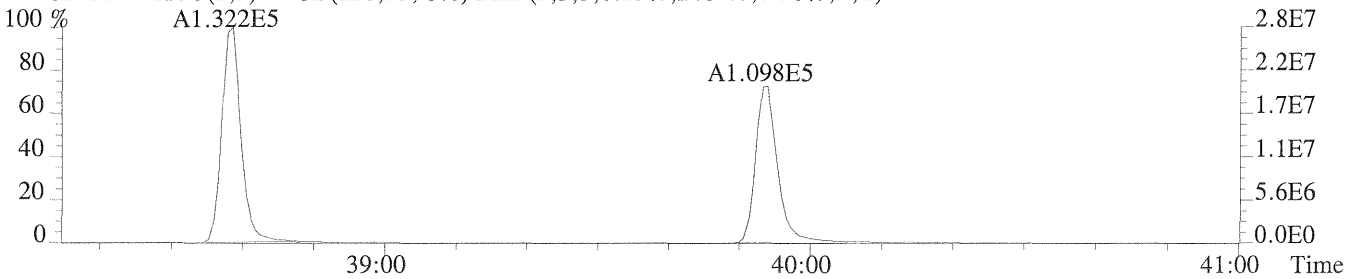
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.50%,F,T)



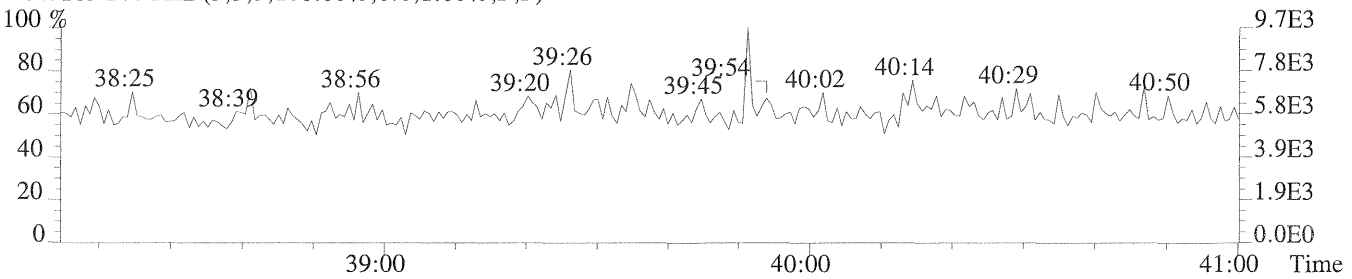
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2992.0,0.50%,F,T)



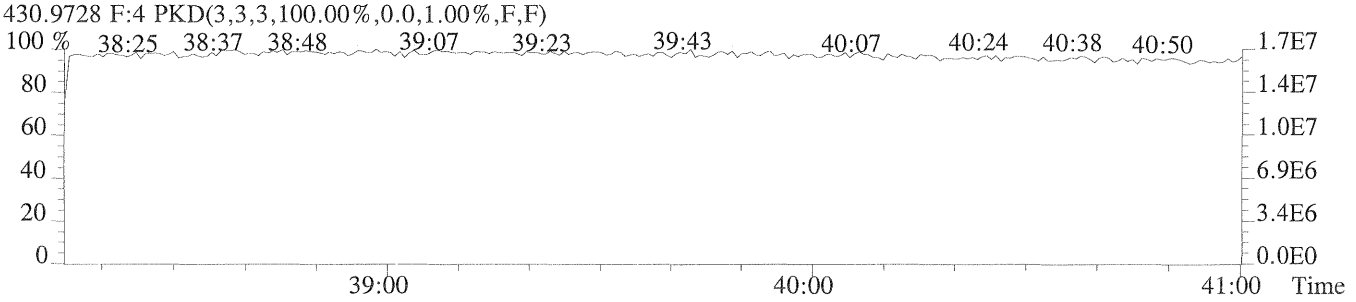
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2464.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

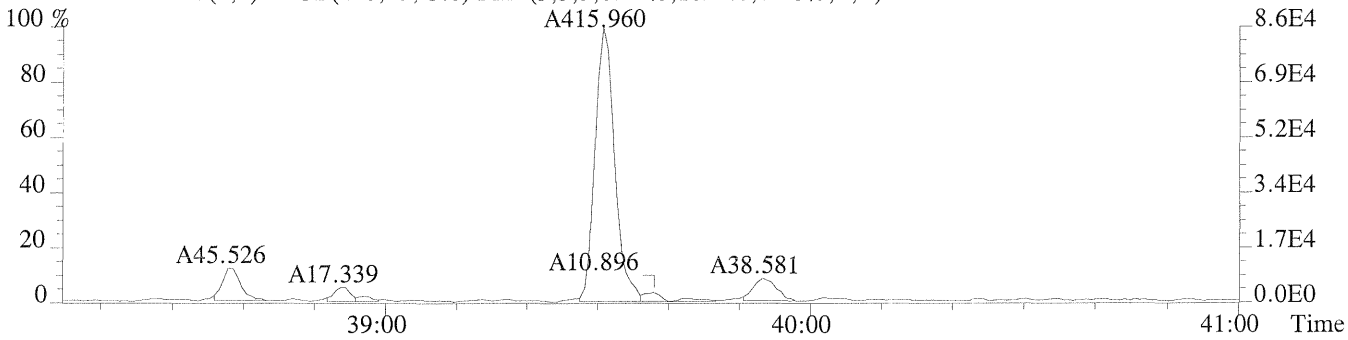


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

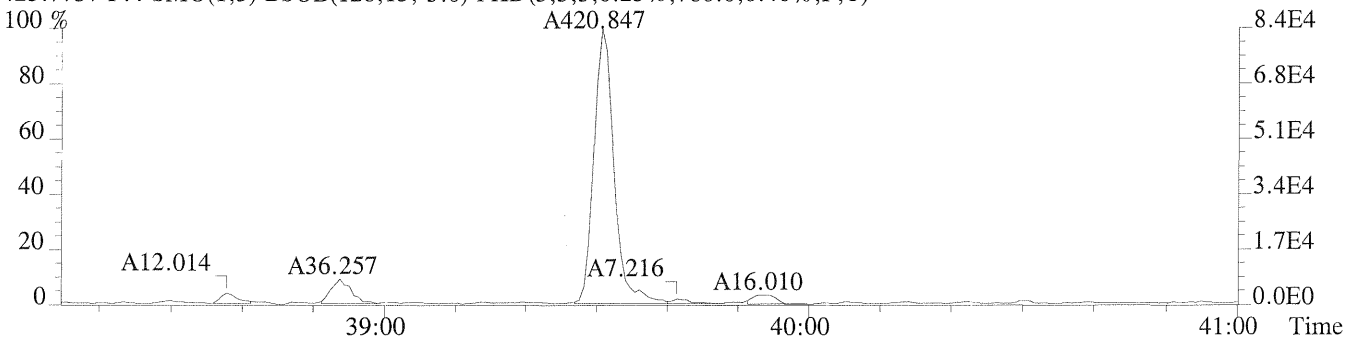


File:P113055 #1-251 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

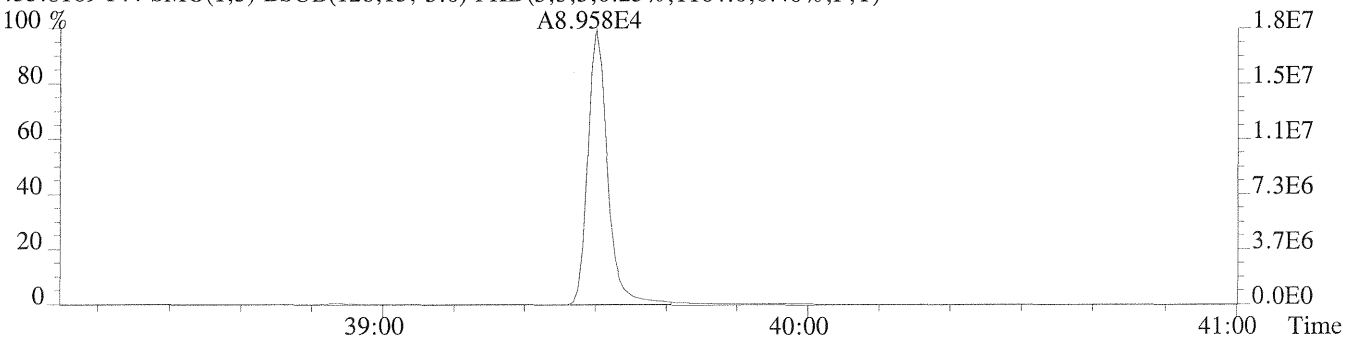
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



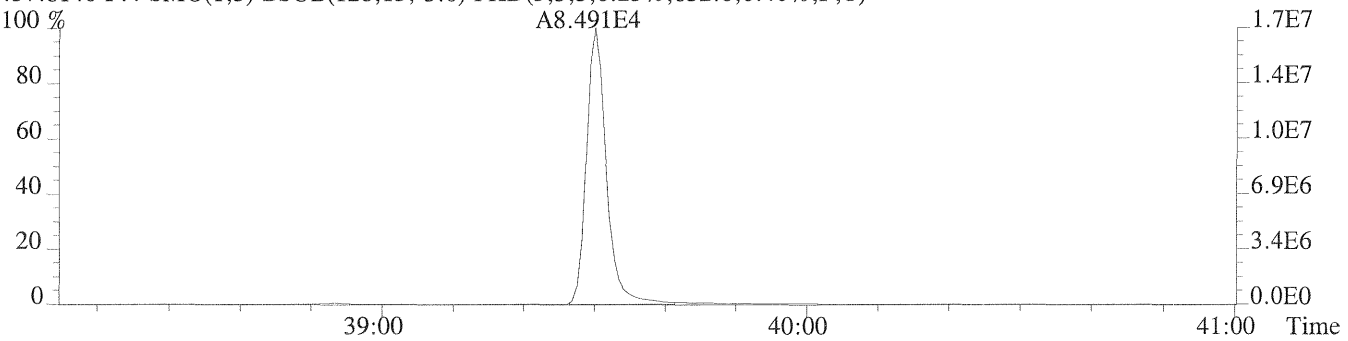
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



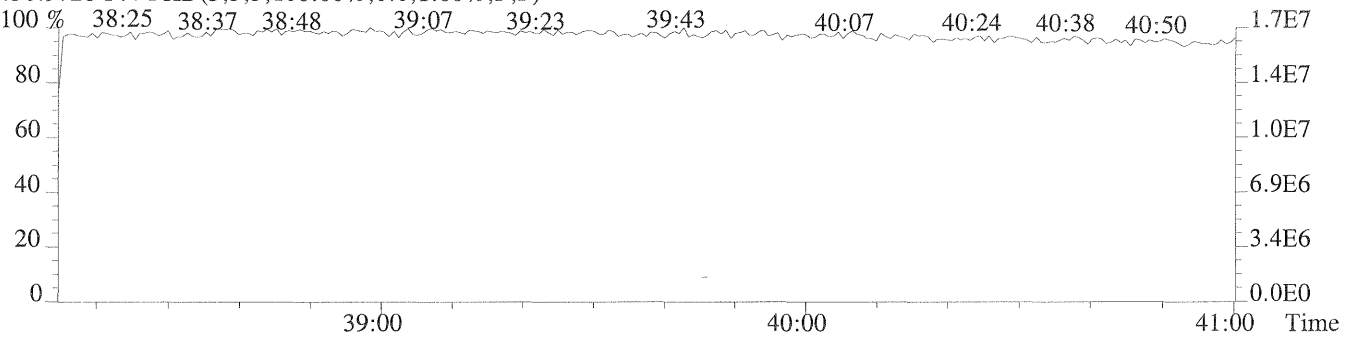
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1164.0,0.40%,F,T)



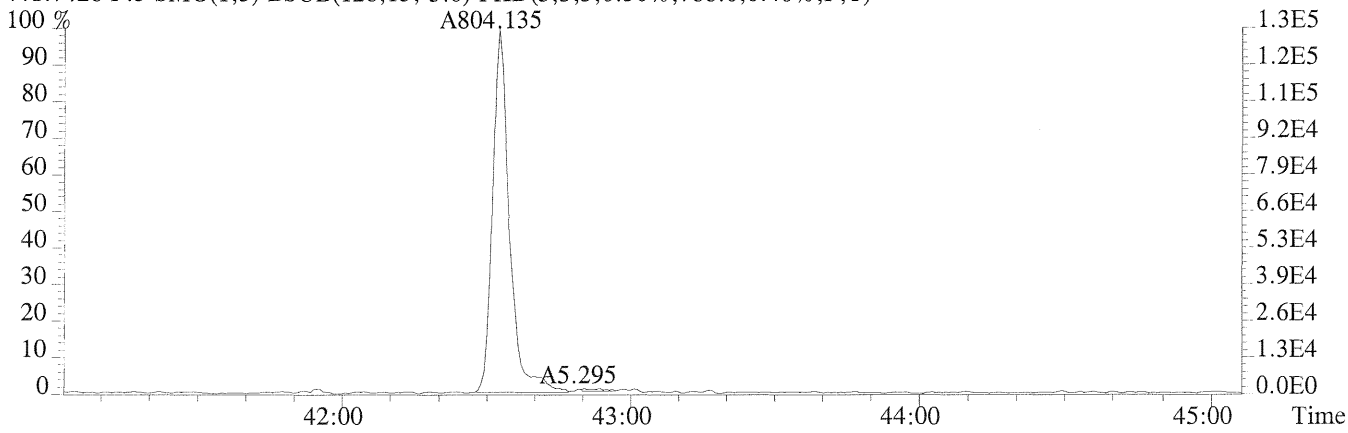
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,852.0,0.40%,F,T)



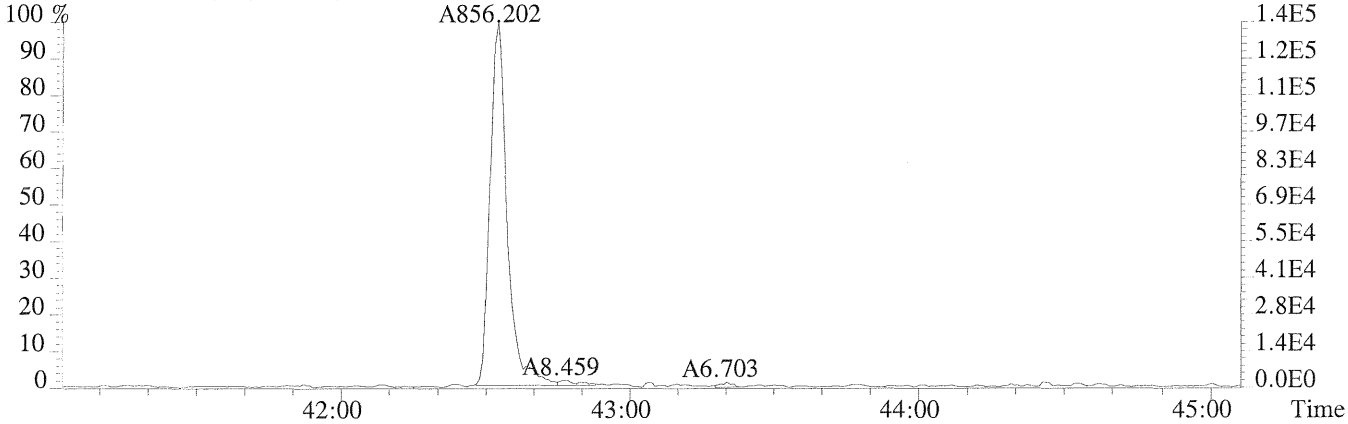
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



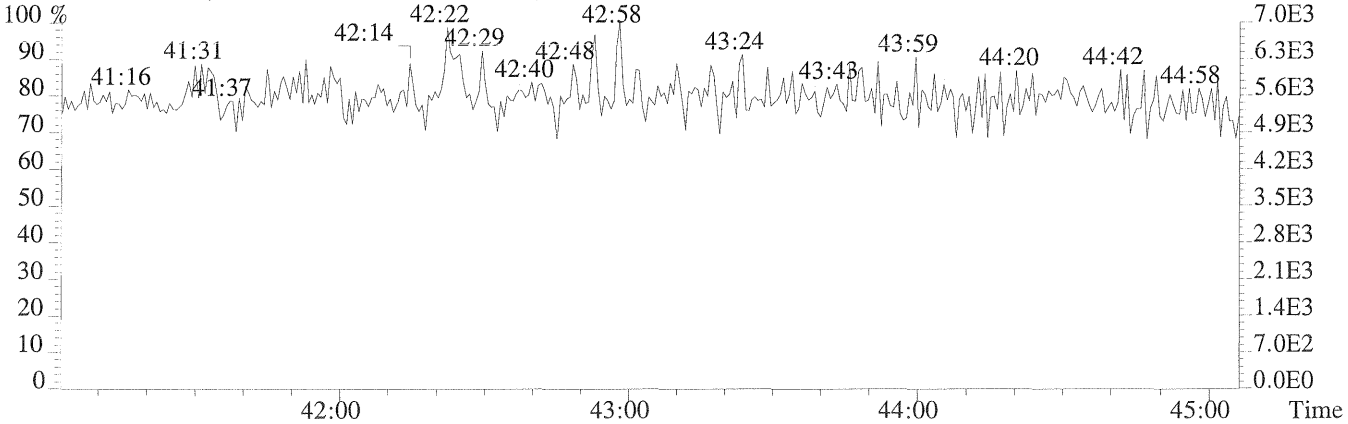
File:P113055 #1-374 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,788.0,0.40%,F,T)



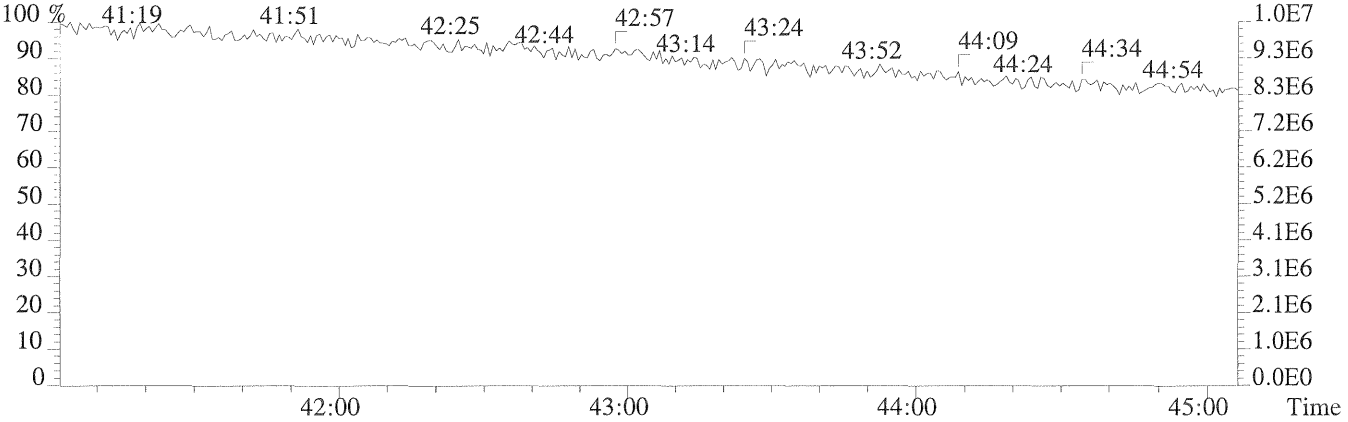
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

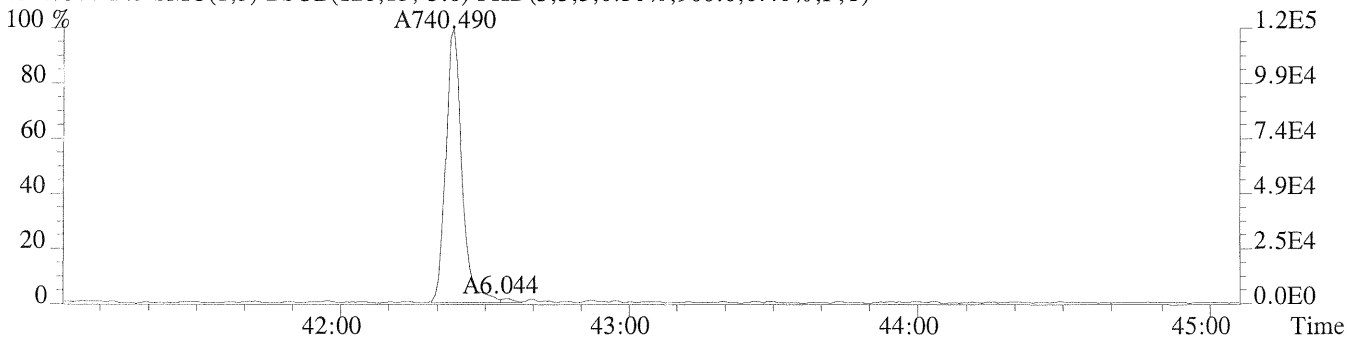


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

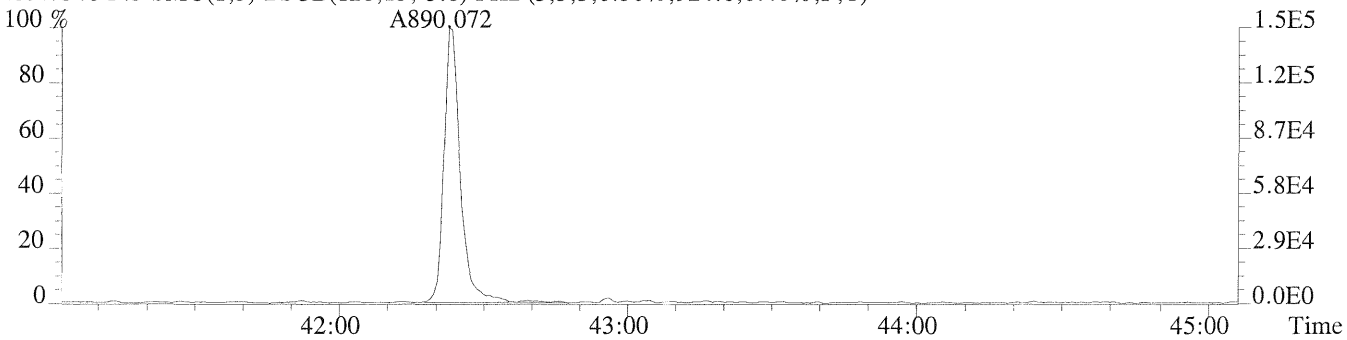


File:P113055 #1-374 Acq:24-MAR-2011 13:37:15 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

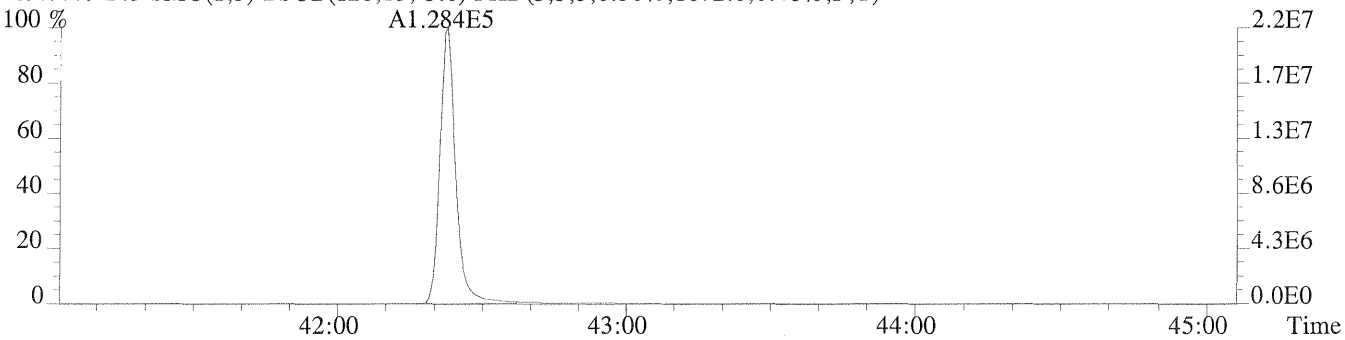
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,900.0,0.40%,F,T)



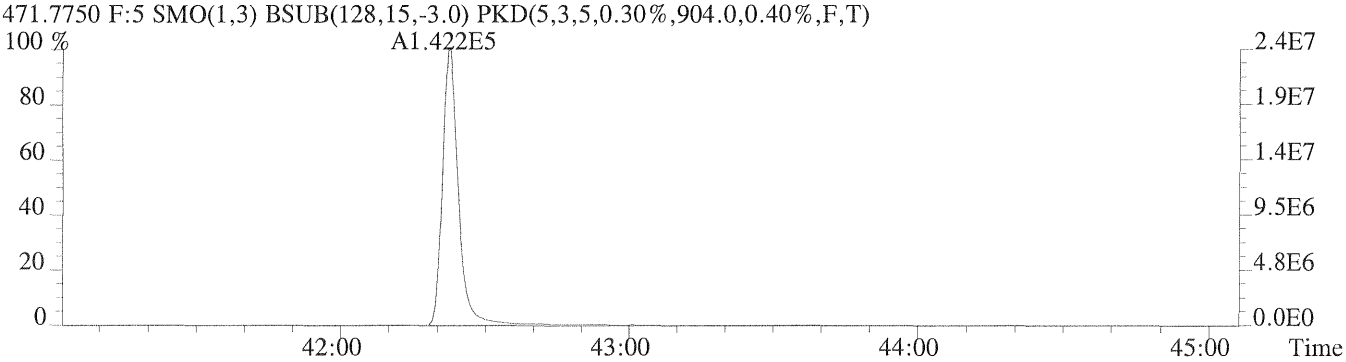
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,924.0,0.40%,F,T)



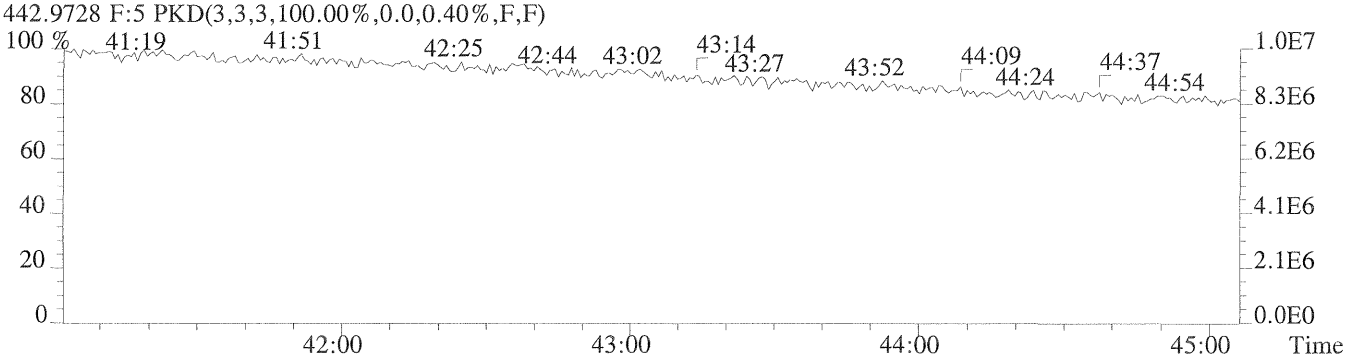
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1072.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,904.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS1

Run #2 Filename P113054 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 12:41:29
Processed: 25-MAR-11 11:45:03 LAB. ID: D12-2-1BA

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:36	2.741e+02	4.020e+02	0.68	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:14	2.121e+03	1.356e+03	1.56	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:00	1.896e+03	1.197e+03	1.58	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:54	1.663e+03	1.349e+03	1.23	yes	yes	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.874e+03	1.600e+03	1.17	yes	yes	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:31	1.563e+03	1.273e+03	1.23	yes	yes	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.355e+03	1.073e+03	1.26	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	1.490e+03	1.469e+03	1.01	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	1.065e+03	1.038e+03	1.03	yes	no	1.000
10	Unk	OCDF	42:32	1.535e+03	1.689e+03	0.91	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:30	2.639e+02	3.118e+02	0.85	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:22	1.301e+03	8.629e+02	1.51	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:37	1.151e+03	9.636e+02	1.19	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	1.139e+03	9.379e+02	1.21	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:00	1.201e+03	1.002e+03	1.20	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	39:31	8.805e+02	8.967e+02	0.98	yes	no	1.000
17	Unk	OCDD	42:23	1.459e+03	1.586e+03	0.92	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:34	7.009e+04	9.009e+04	0.78	yes	yes	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:13	8.949e+04	5.699e+04	1.57	yes	no	1.141
20	IS	13C-2,3,4,7,8-PeCDF	32:59	7.563e+04	4.845e+04	1.56	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	3.518e+04	6.686e+04	0.53	yes	no	0.970
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	4.064e+04	7.790e+04	0.52	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	3.501e+04	6.535e+04	0.54	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	2.900e+04	5.611e+04	0.52	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	2.615e+04	5.782e+04	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	1.839e+04	4.159e+04	0.44	yes	no	1.078
27	IS	13C-2,3,7,8-TCDD	28:29	5.242e+04	6.670e+04	0.79	yes	no	1.009
28	IS	13C-1,2,3,7,8-PeCDD	33:21	5.755e+04	3.657e+04	1.57	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	4.317e+04	3.426e+04	1.26	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	5.264e+04	4.153e+04	1.27	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:30	3.668e+04	3.483e+04	1.05	yes	no	1.068
32	IS	13C-OCDD	42:22	5.330e+04	5.920e+04	0.90	yes	no	1.146
33	RS/RT	13C-1,2,3,4-TCDD	28:14	5.381e+04	6.773e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	4.658e+04	3.723e+04	1.25	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:30	5.847e+02				no	1.009

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS1

Run #2 Filename P113054 Samp: 1 Inj: 1 Acquired: 24-MAR-11 12:41:29
Processed: 25-MAR-11 11:45:031 LAB. ID: D12-2-1BA

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.08e+04	6.84e+02	4.5e+01	5.23e+04	7.00e+02	7.5e+01
2	1,2,3,7,8-PeCDF	3.47e+05	6.68e+02	5.2e+02	2.15e+05	7.24e+02	3.0e+02
3	2,3,4,7,8-PeCDF	3.33e+05	6.68e+02	5.0e+02	2.14e+05	7.24e+02	3.0e+02
4	1,2,3,4,7,8-HxCDF	3.54e+05	8.04e+02	4.4e+02	2.78e+05	6.20e+02	4.5e+02
5	1,2,3,6,7,8-HxCDF	3.56e+05	8.04e+02	4.4e+02	3.03e+05	6.20e+02	4.9e+02
6	2,3,4,6,7,8-HxCDF	3.12e+05	8.04e+02	3.9e+02	2.44e+05	6.20e+02	3.9e+02
7	1,2,3,7,8,9-HxCDF	2.37e+05	8.04e+02	3.0e+02	1.95e+05	6.20e+02	3.1e+02
8	1,2,3,4,6,7,8-HpCDF	3.20e+05	1.17e+03	2.7e+02	3.11e+05	7.68e+02	4.1e+02
9	1,2,3,4,7,8,9-HpCDF	1.98e+05	1.17e+03	1.7e+02	1.88e+05	7.68e+02	2.4e+02
10	OCDF	2.33e+05	6.04e+02	3.9e+02	2.51e+05	6.92e+02	3.6e+02
11	2,3,7,8-TCDD	3.76e+04	8.12e+02	4.6e+01	4.31e+04	7.12e+02	6.0e+01
12	1,2,3,7,8-PeCDD	2.25e+05	6.48e+02	3.5e+02	1.49e+05	6.32e+02	2.4e+02
13	1,2,3,4,7,8-HxCDD	2.48e+05	7.92e+02	3.1e+02	2.13e+05	9.00e+02	2.4e+02
14	1,2,3,6,7,8-HxCDD	2.16e+05	7.92e+02	2.7e+02	1.90e+05	9.00e+02	2.1e+02
15	1,2,3,7,8,9-HxCDD	2.40e+05	7.92e+02	3.0e+02	1.91e+05	9.00e+02	2.1e+02
16	1,2,3,4,6,7,8-HpCDD	1.77e+05	6.88e+02	2.6e+02	1.69e+05	4.08e+02	4.1e+02
17	OCDD	2.38e+05	6.56e+02	3.6e+02	2.50e+05	4.60e+02	5.4e+02
18	13C-2,3,7,8-TCDF	9.09e+06	1.37e+03	6.6e+03	1.17e+07	7.56e+02	1.5e+04
19	13C-1,2,3,7,8-PeCDF	1.52e+07	9.24e+02	1.6e+04	9.65e+06	6.32e+02	1.5e+04
20	13C-2,3,4,7,8-PeCDF	1.36e+07	9.24e+02	1.5e+04	8.65e+06	6.32e+02	1.4e+04
21	13C-1,2,3,4,7,8-HxCDF	7.36e+06	9.48e+02	7.8e+03	1.42e+07	1.70e+03	8.4e+03
22	13C-1,2,3,6,7,8-HxCDF	7.81e+06	9.48e+02	8.2e+03	1.51e+07	1.70e+03	8.9e+03
23	13C-2,3,4,6,7,8-HxCDF	7.13e+06	9.48e+02	7.5e+03	1.33e+07	1.70e+03	7.8e+03
24	13C-1,2,3,7,8,9-HxCDF	5.35e+06	9.48e+02	5.6e+03	1.03e+07	1.70e+03	6.1e+03
25	13C-1,2,3,4,6,7,8-HpCDF	5.45e+06	1.18e+03	4.6e+03	1.21e+07	2.00e+03	6.0e+03
26	13C-1,2,3,4,7,8,9-HpCDF	3.28e+06	1.18e+03	2.8e+03	7.56e+06	2.00e+03	3.8e+03
27	13C-2,3,7,8-TCDD	7.36e+06	1.94e+03	3.8e+03	9.34e+06	7.96e+02	1.2e+04
28	13C-1,2,3,7,8-PeCDD	1.03e+07	9.12e+02	1.1e+04	6.60e+06	7.48e+02	8.8e+03
29	13C-1,2,3,4,7,8-HxCDD	9.53e+06	1.30e+03	7.3e+03	7.58e+06	9.64e+02	7.9e+03
30	13C-1,2,3,6,7,8-HxCDD	1.04e+07	1.30e+03	8.0e+03	8.10e+06	9.64e+02	8.4e+03
31	13C-1,2,3,4,6,7,8-HpCDD	7.09e+06	7.76e+02	9.1e+03	6.67e+06	7.64e+02	8.7e+03
32	13C-OCDD	8.83e+06	5.92e+02	1.5e+04	9.84e+06	5.92e+02	1.7e+04
33	13C-1,2,3,4-TCDD	8.27e+06	1.94e+03	4.3e+03	1.04e+07	7.96e+02	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	9.57e+06	1.30e+03	7.4e+03	7.67e+06	9.64e+02	8.0e+03
35	37Cl-2,3,7,8-TCDD	8.17e+04	1.39e+03	5.9e+01			

Columbia Analytical Services, Inc.
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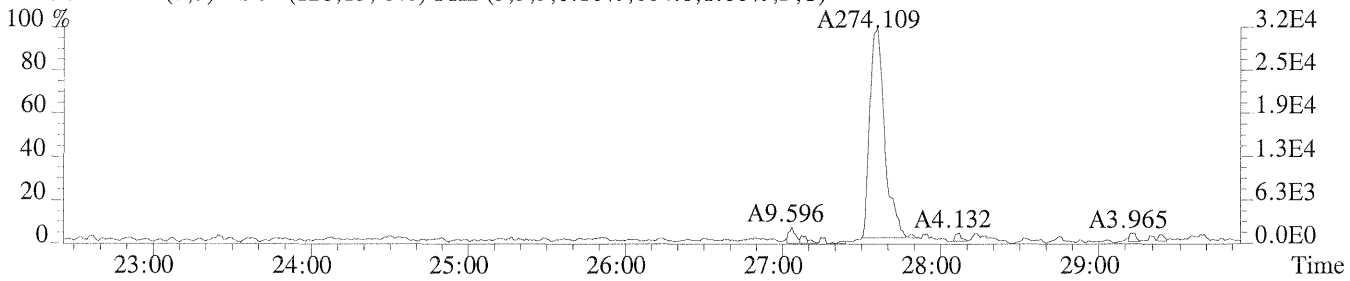
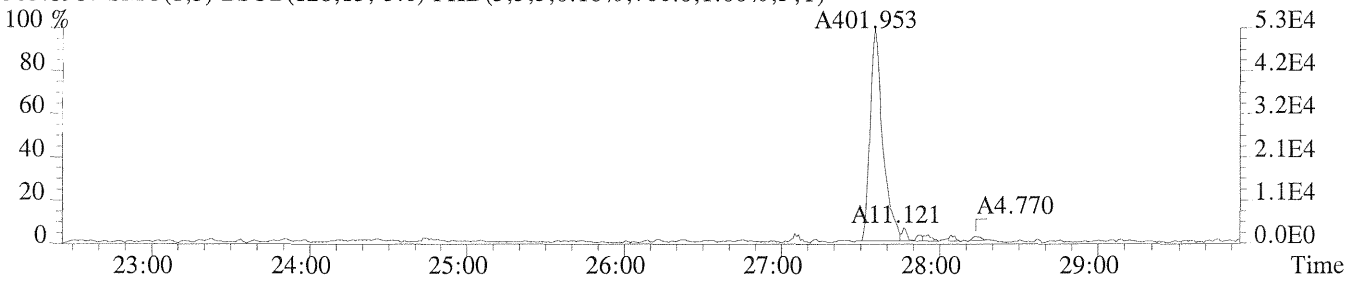
Office:(713)266-1599. Fax:(713)266-0130

File:P113054 #1-621 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

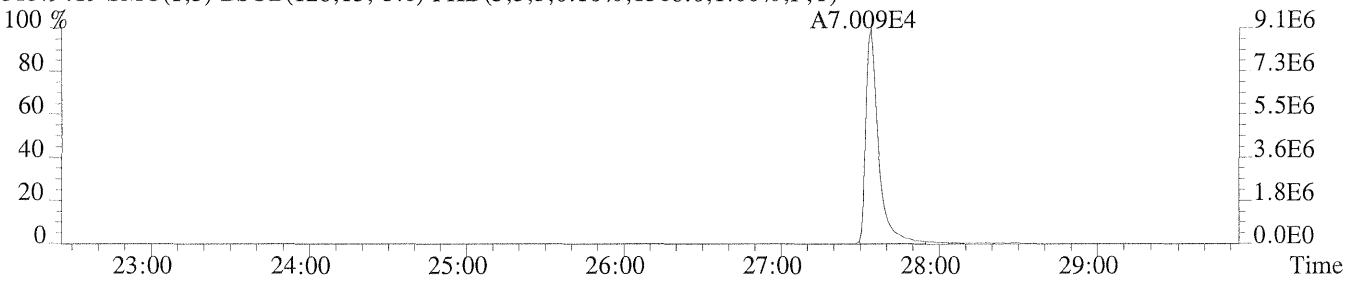
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,684.0,1.00%,F,T)



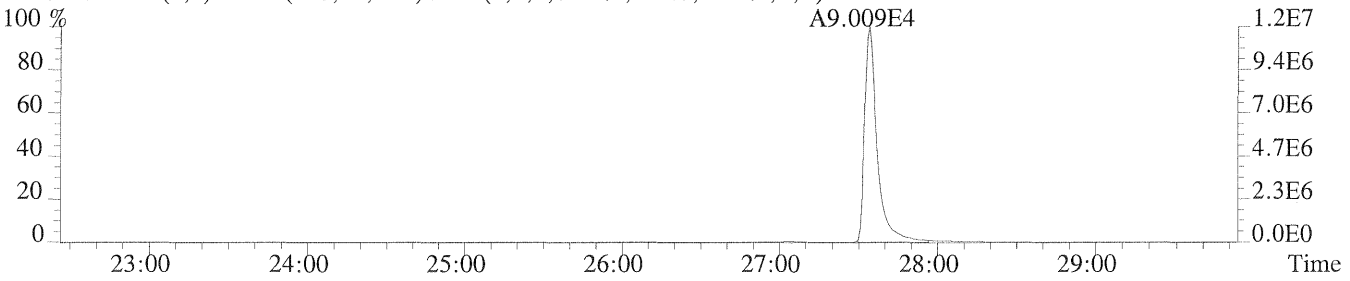
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,700.0,1.00%,F,T)



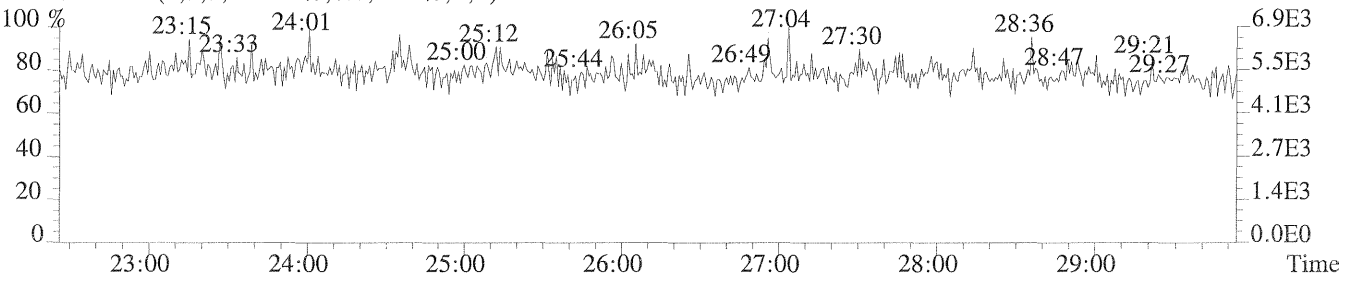
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1368.0,1.00%,F,T)



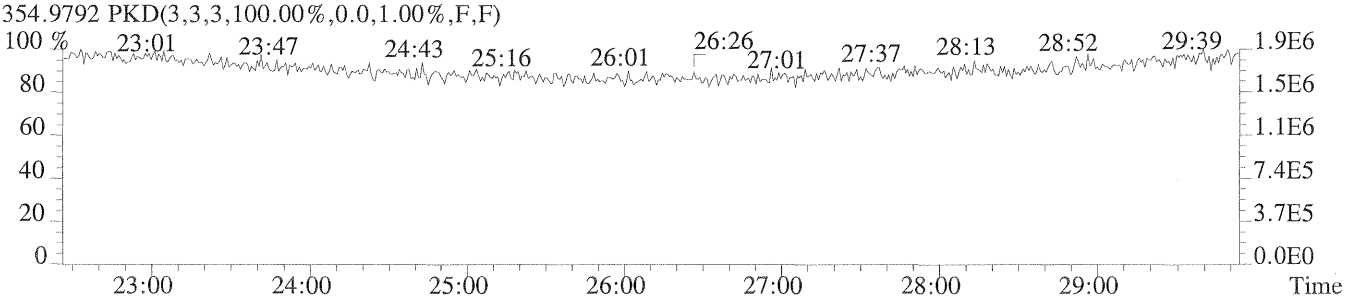
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

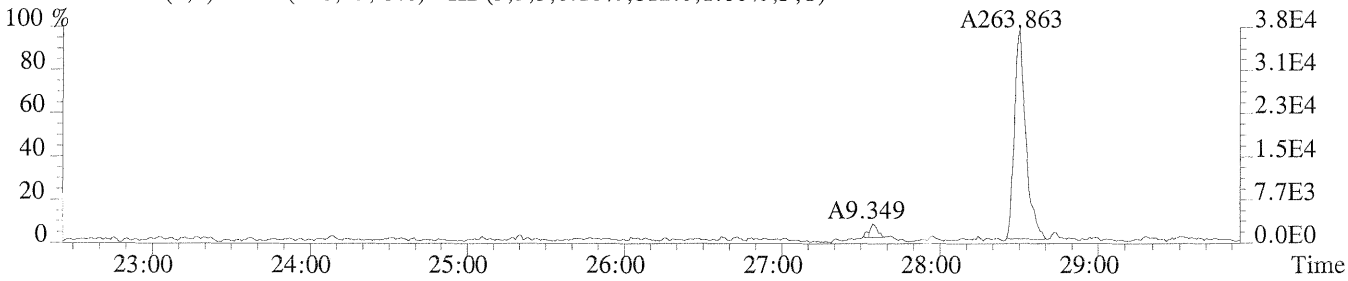


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

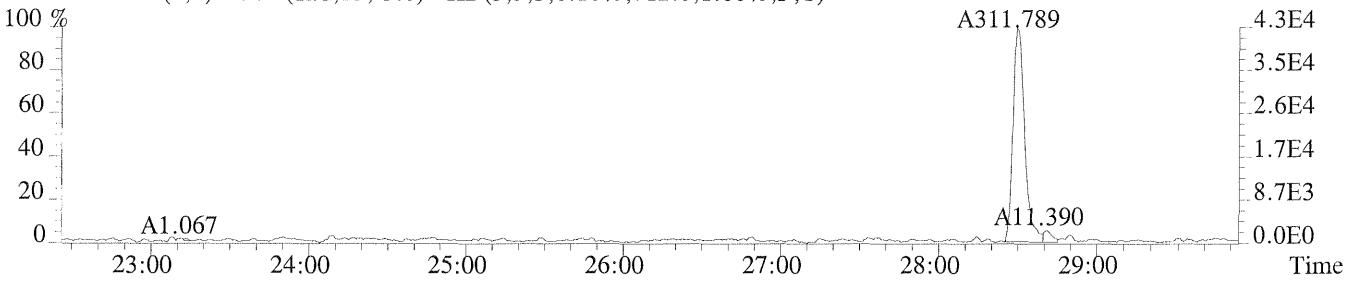


File:P113054 #1-621 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

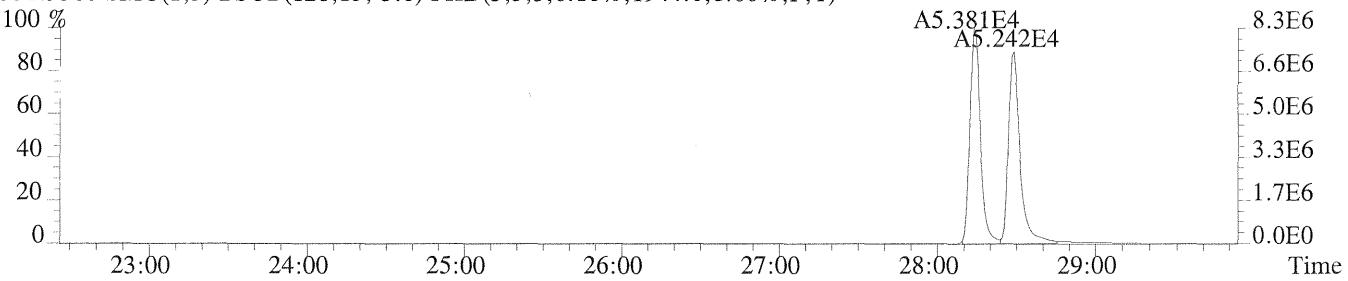
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



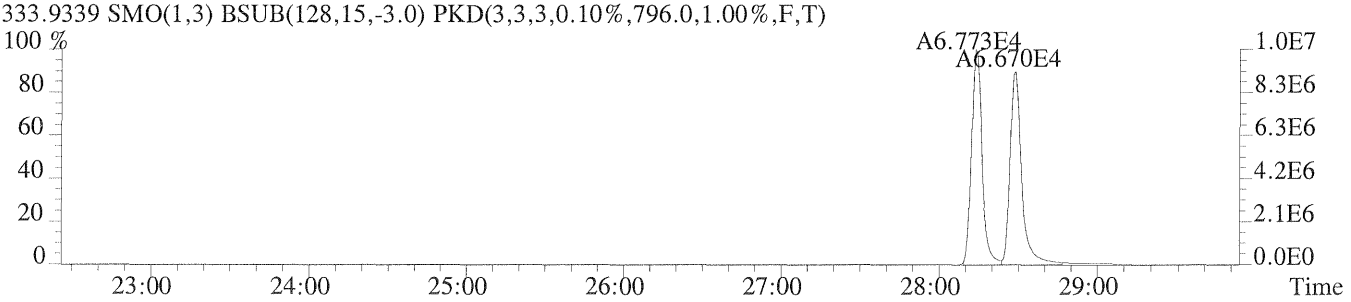
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



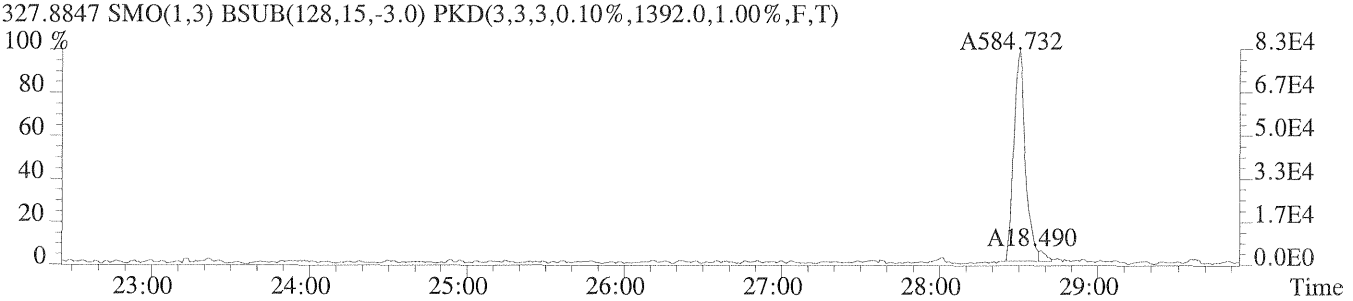
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1944.0,1.00%,F,T)



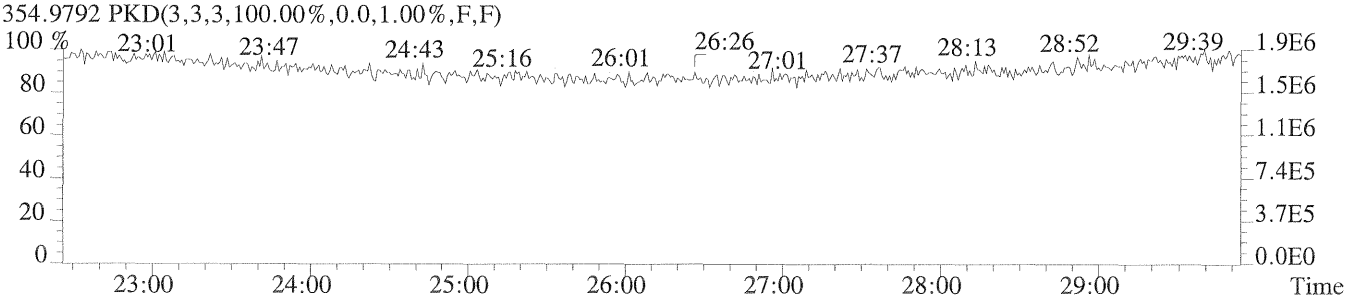
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,796.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1392.0,1.00%,F,T)

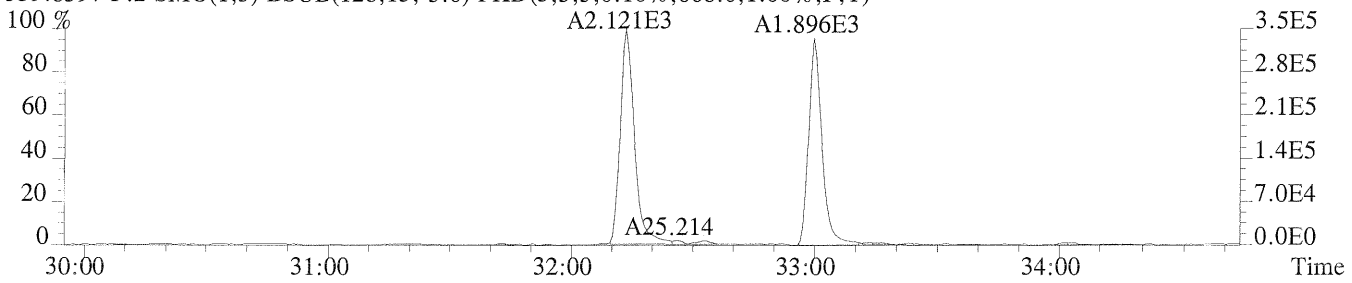


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

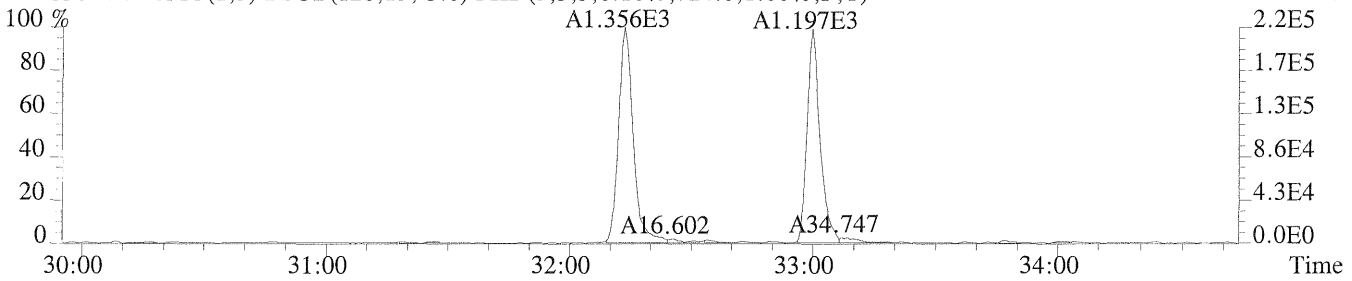


File:P113054 #1-437 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

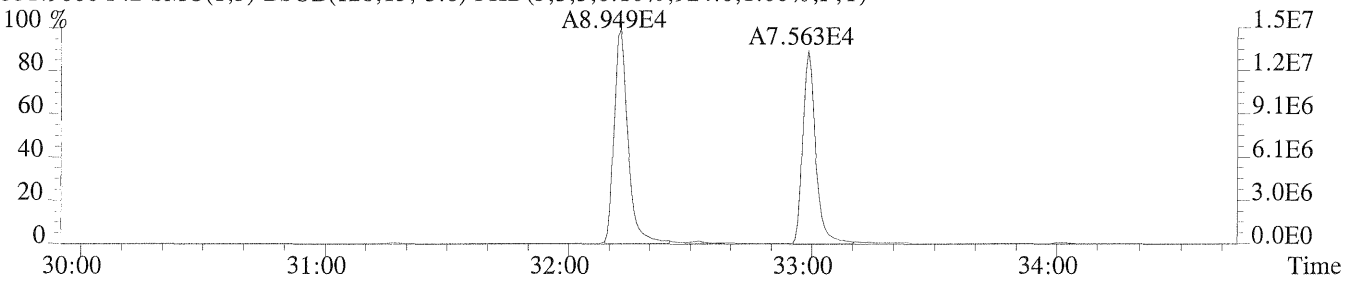
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,668.0,1.00%,F,T)



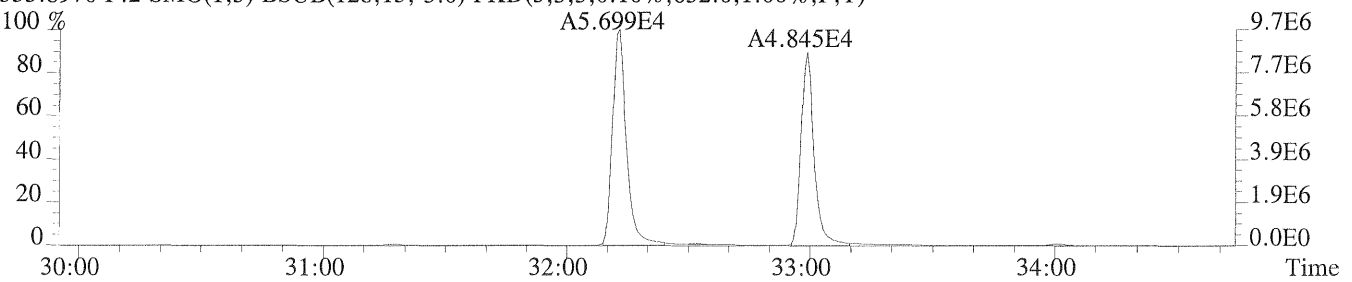
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



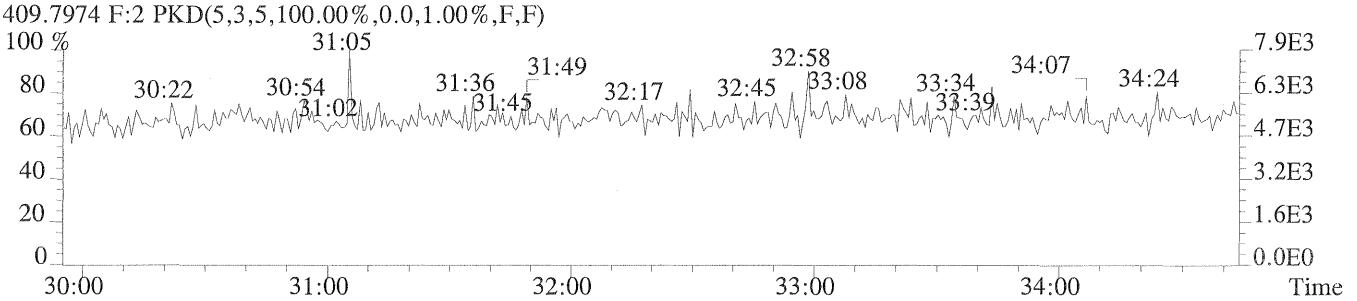
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



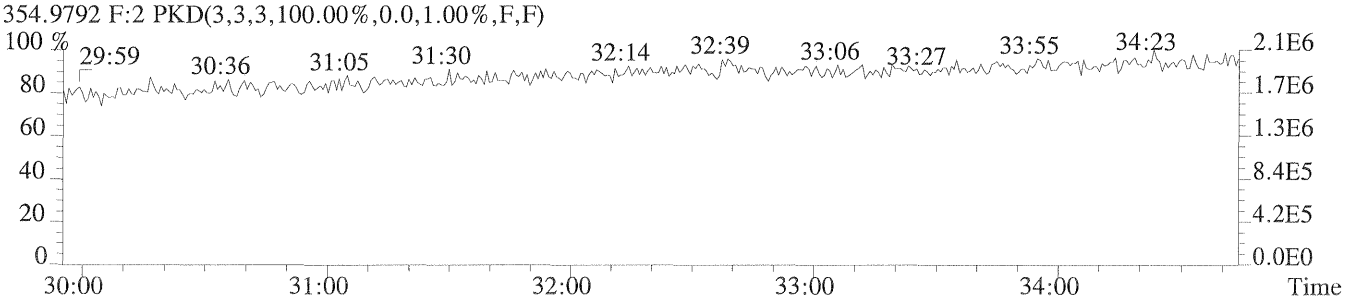
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

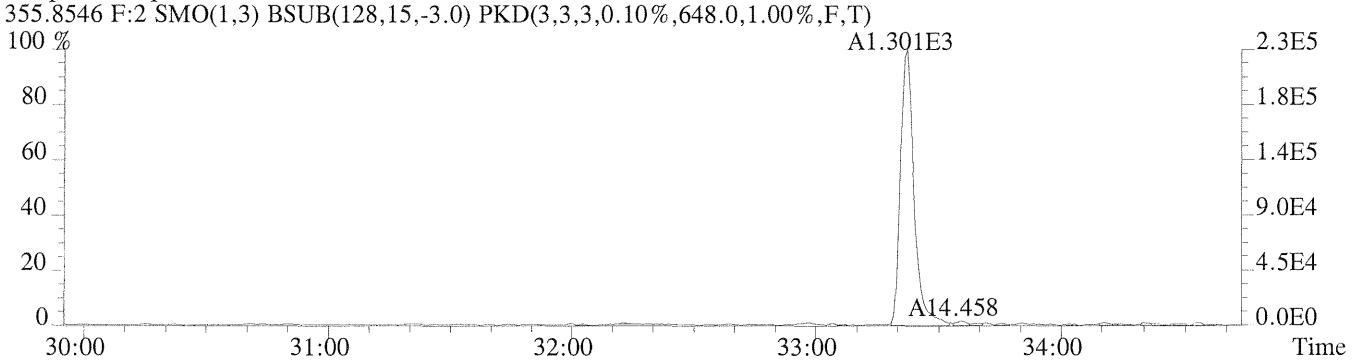


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

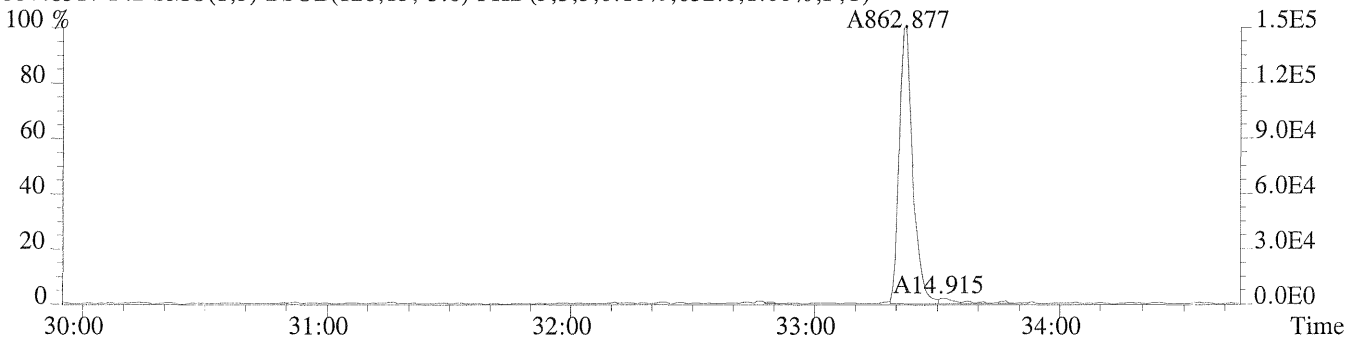


File:P113054 #1-437 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

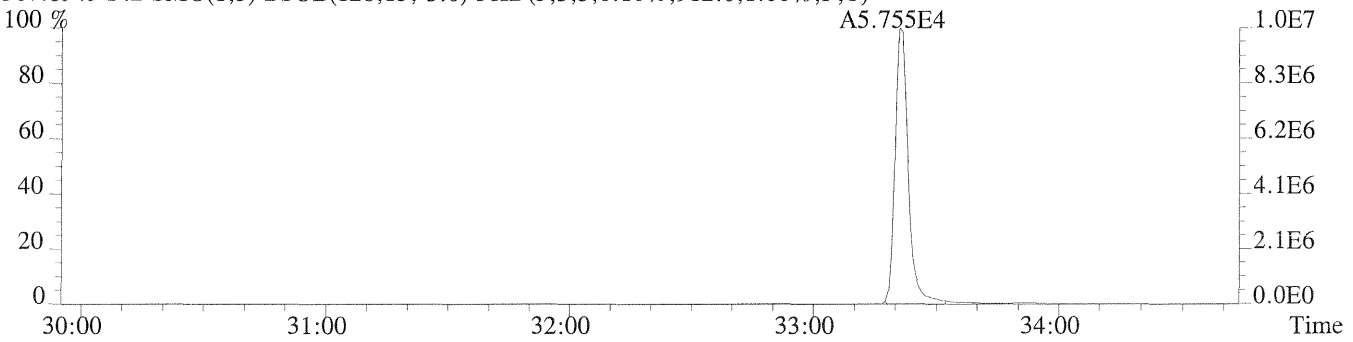
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,648.0,1.00%,F,T)



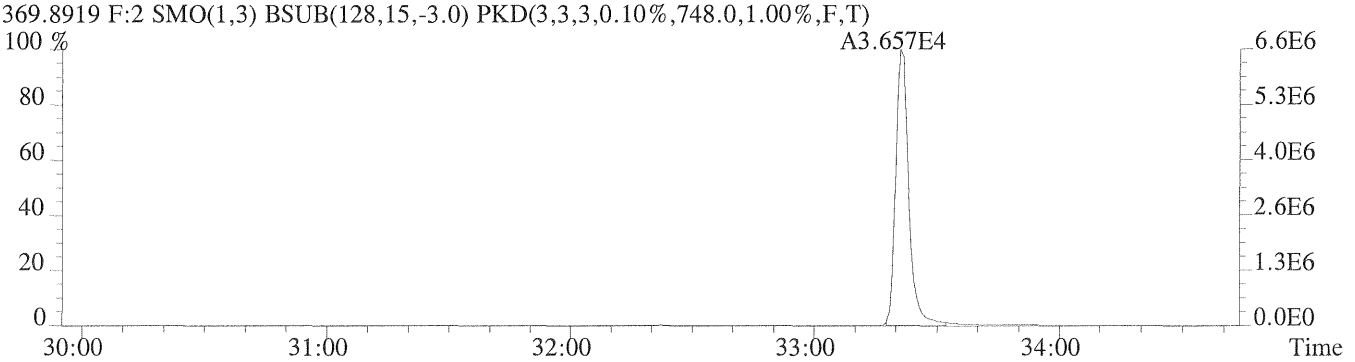
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



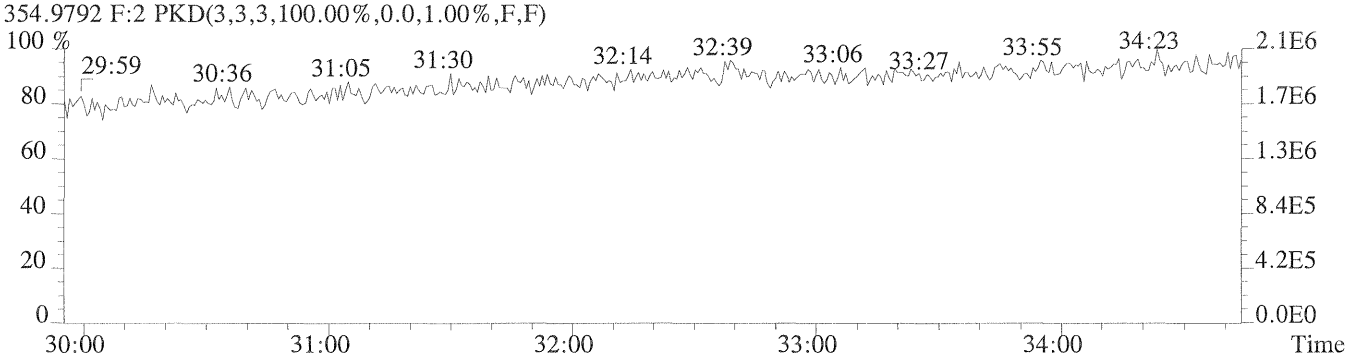
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)

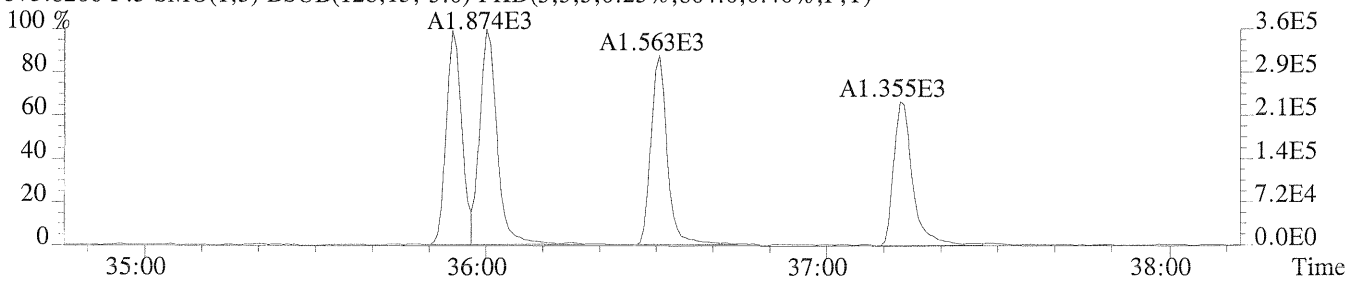


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

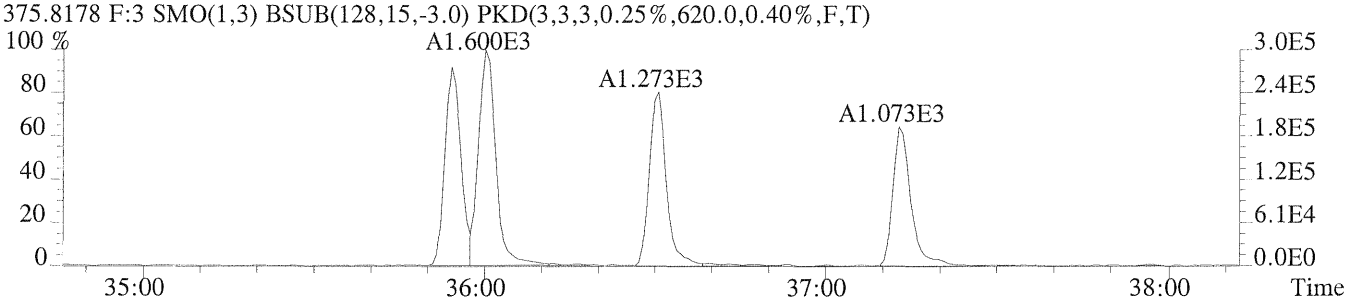


File:P113054 #1-313 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

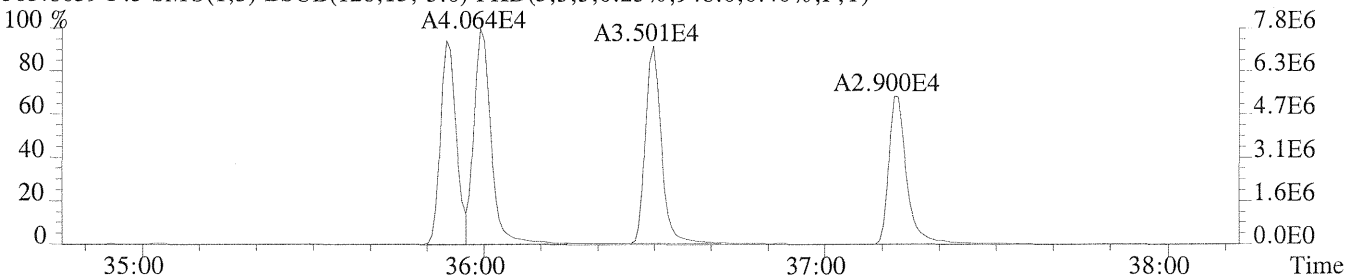
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,804.0,0.40%,F,T)



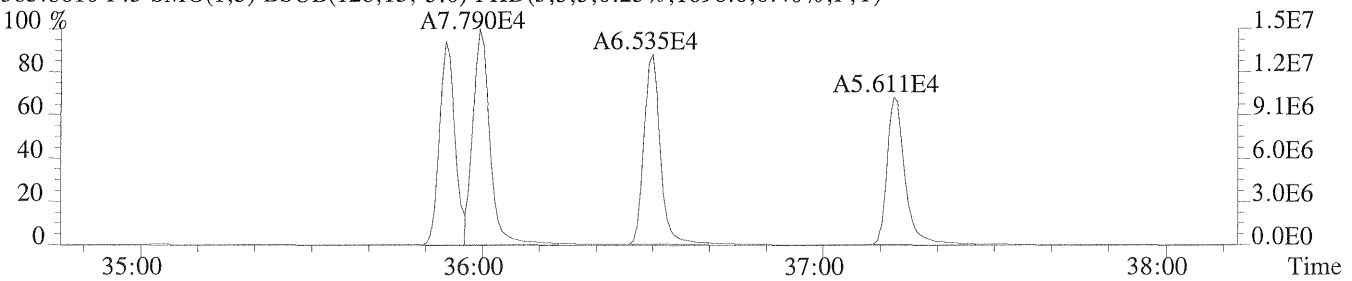
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,620.0,0.40%,F,T)



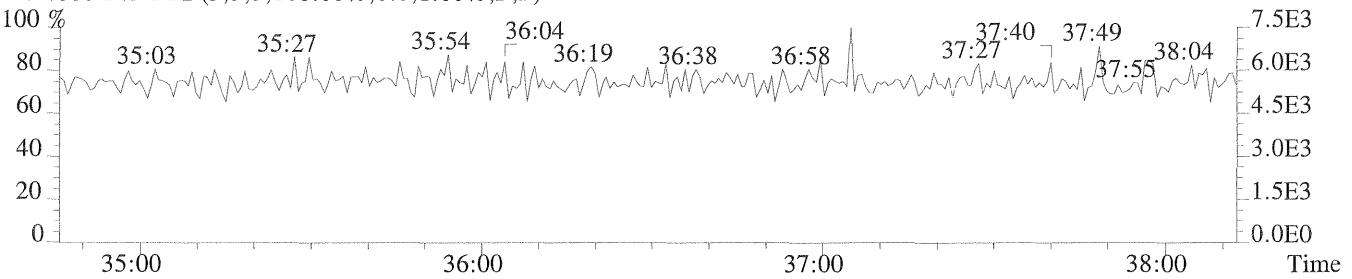
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,948.0,0.40%,F,T)



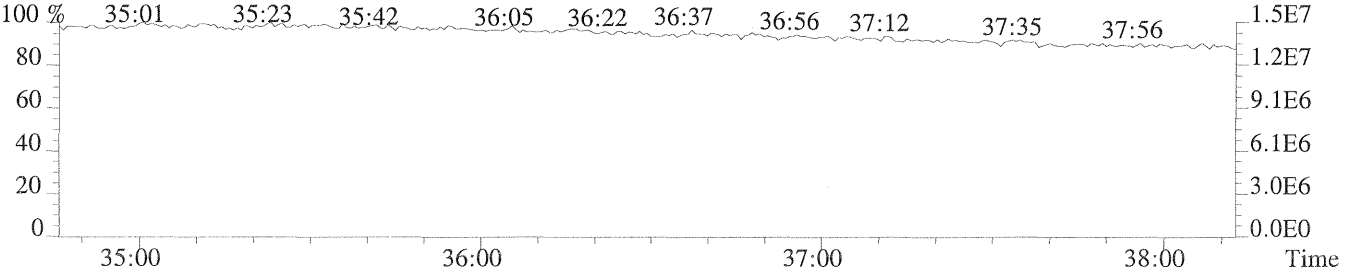
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1696.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

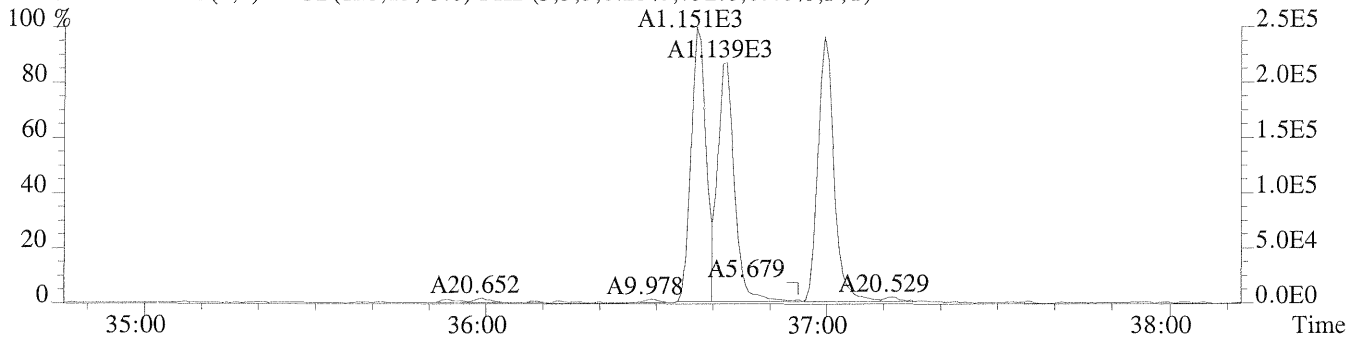


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

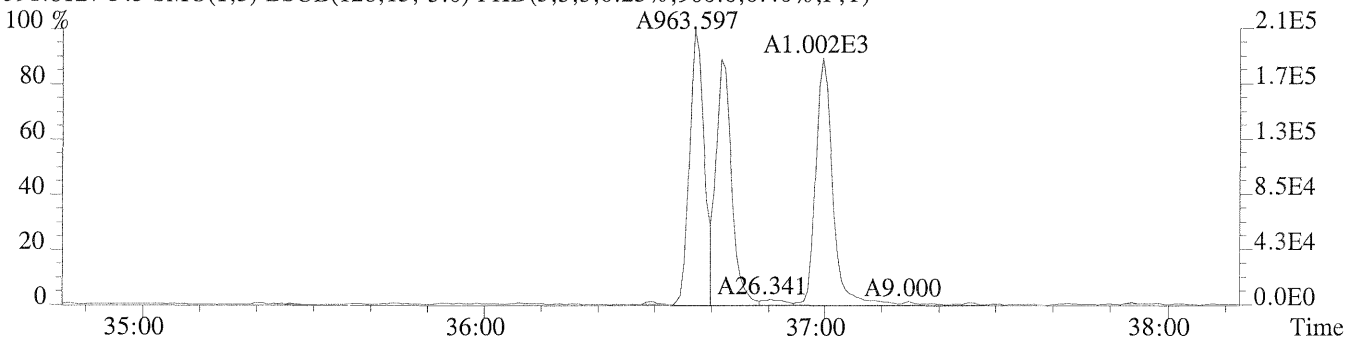


File:P113054 #1-313 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

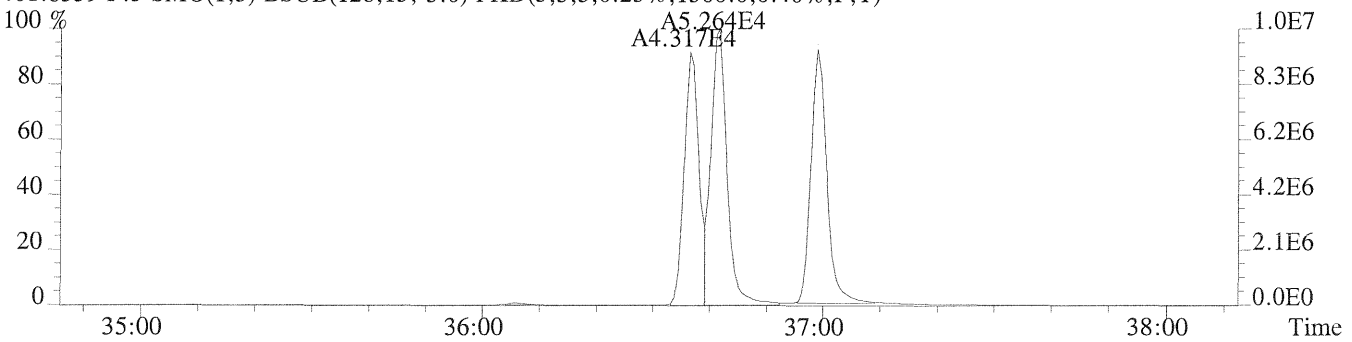
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,792.0,0.40%,F,T)



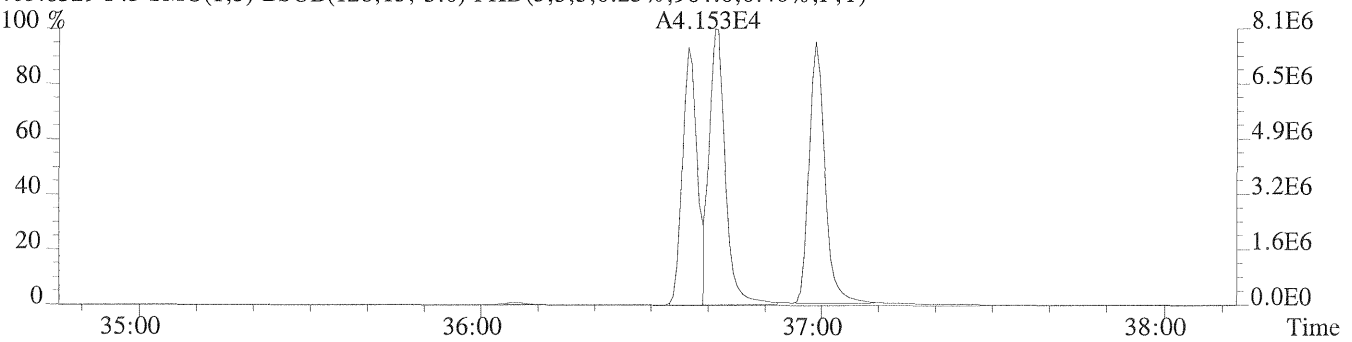
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,900.0,0.40%,F,T)



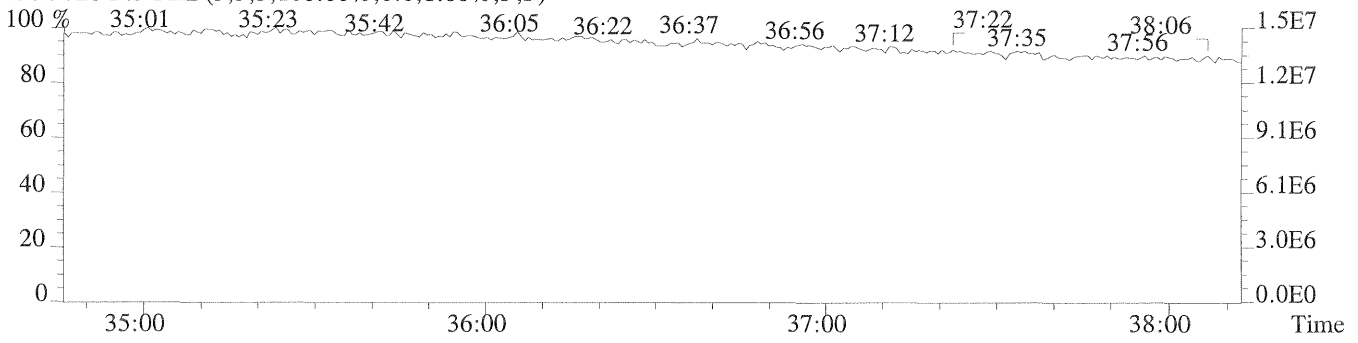
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1300.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)

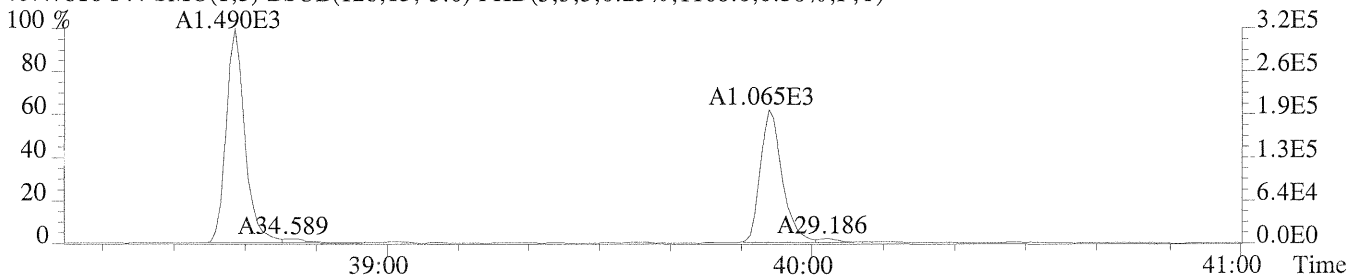


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

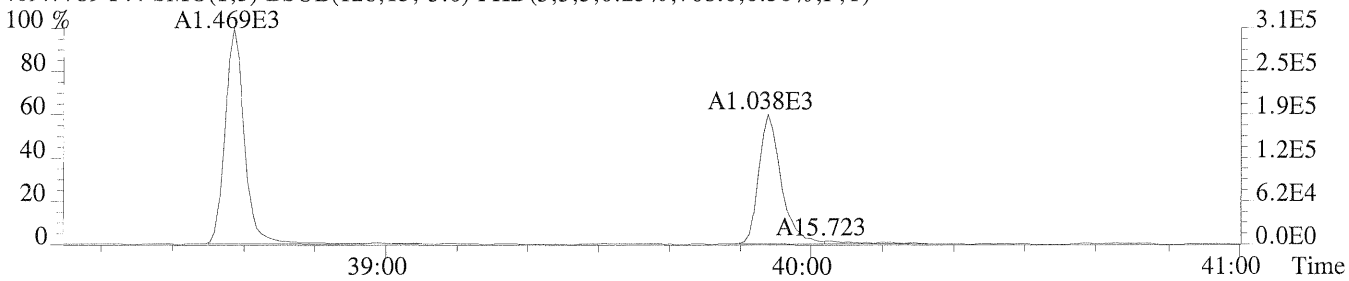


File:P113054 #1-251 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

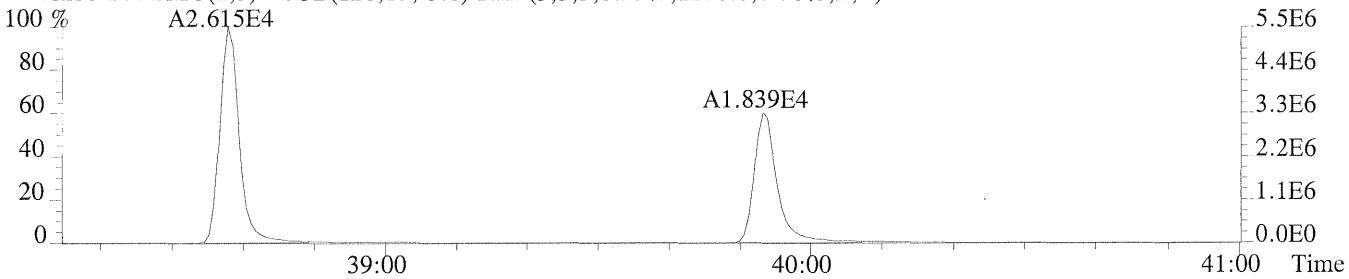
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1168.0,0.50%,F,T)



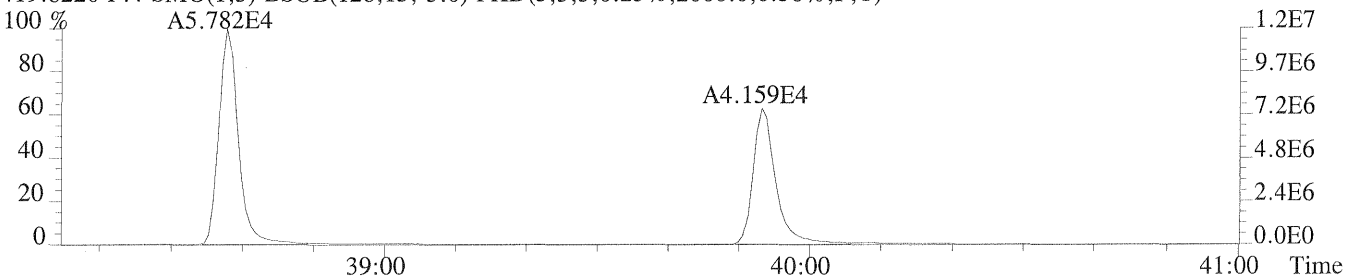
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,768.0,0.50%,F,T)



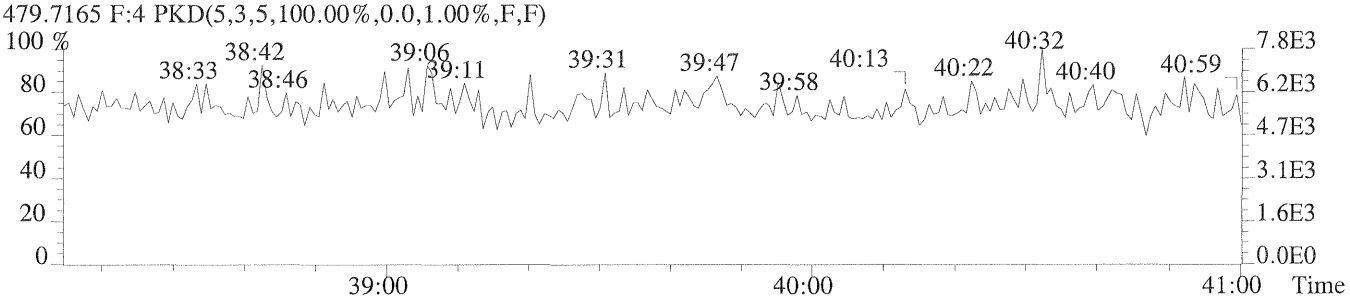
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1176.0,0.50%,F,T)



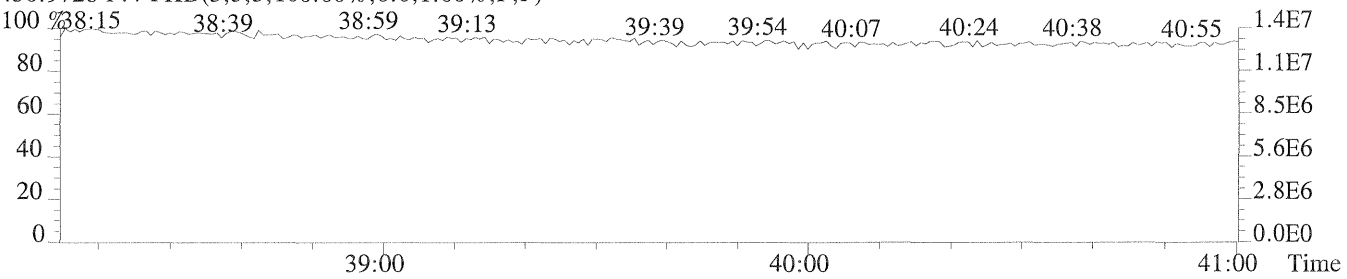
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2000.0,0.50%,F,T)



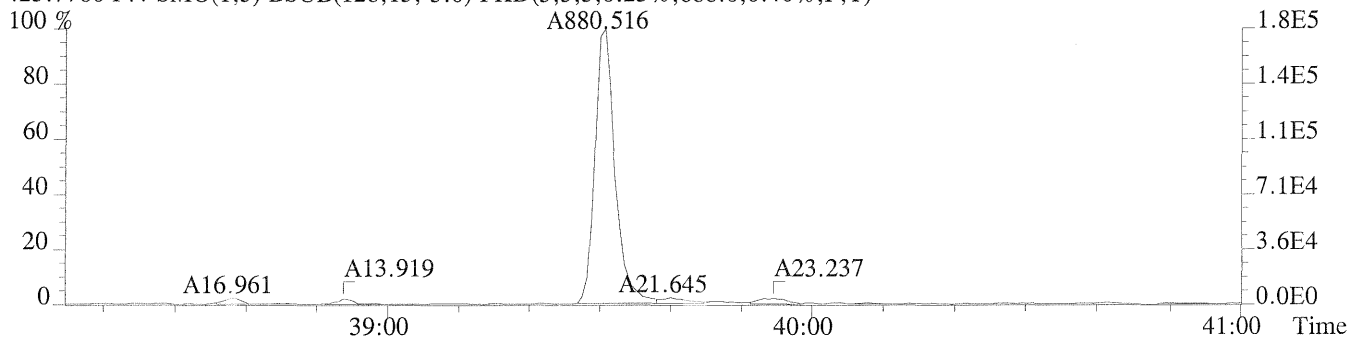
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



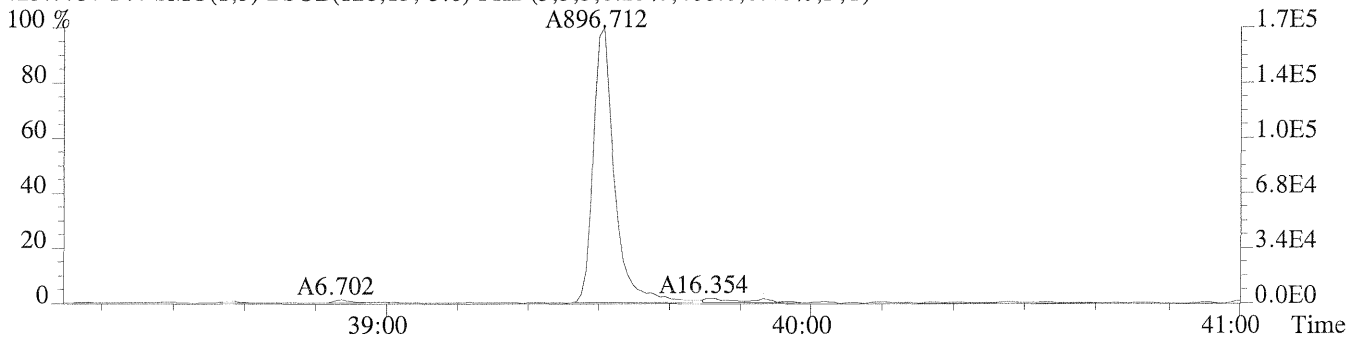
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



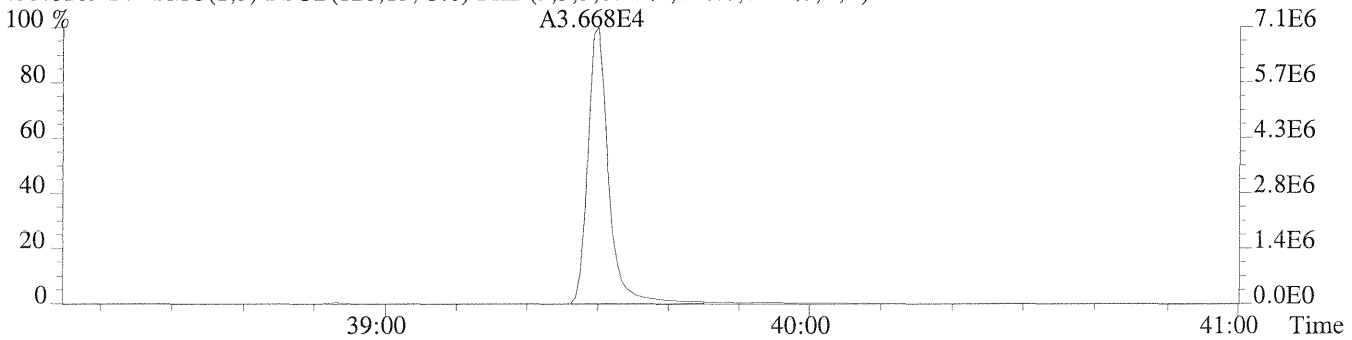
File:P113054 #1-251 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,688.0,0.40%,F,T)



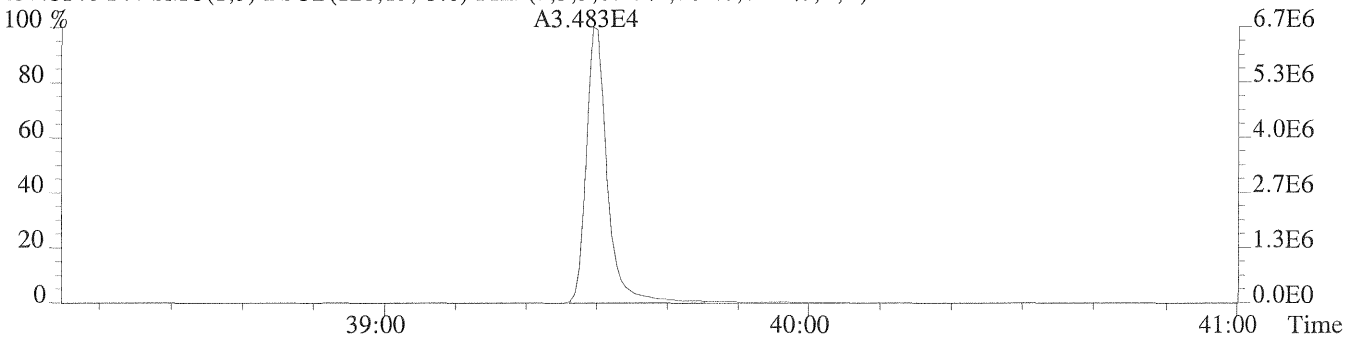
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,408.0,0.40%,F,T)



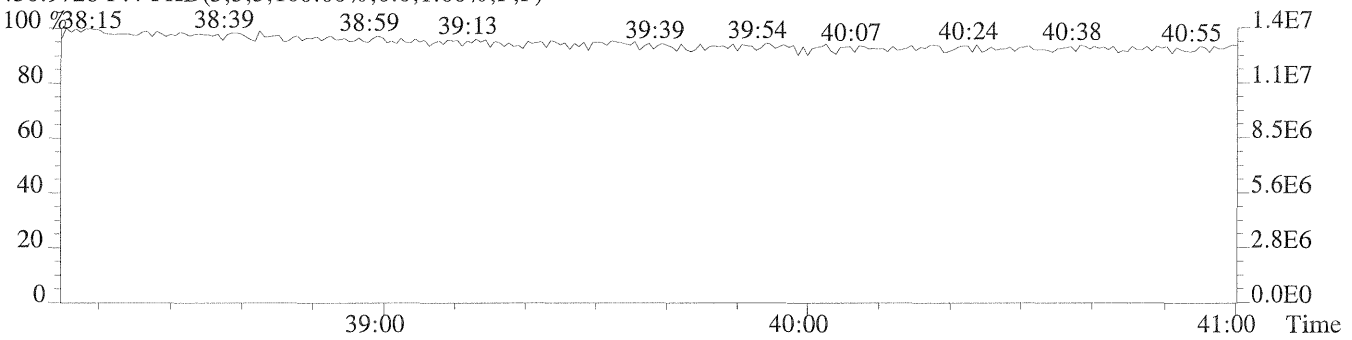
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,776.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)

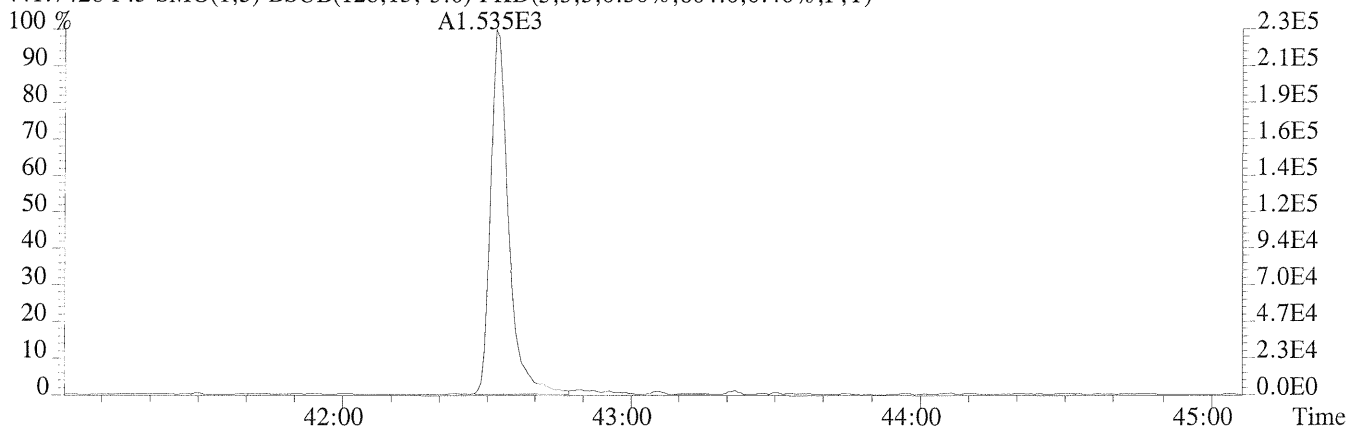


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

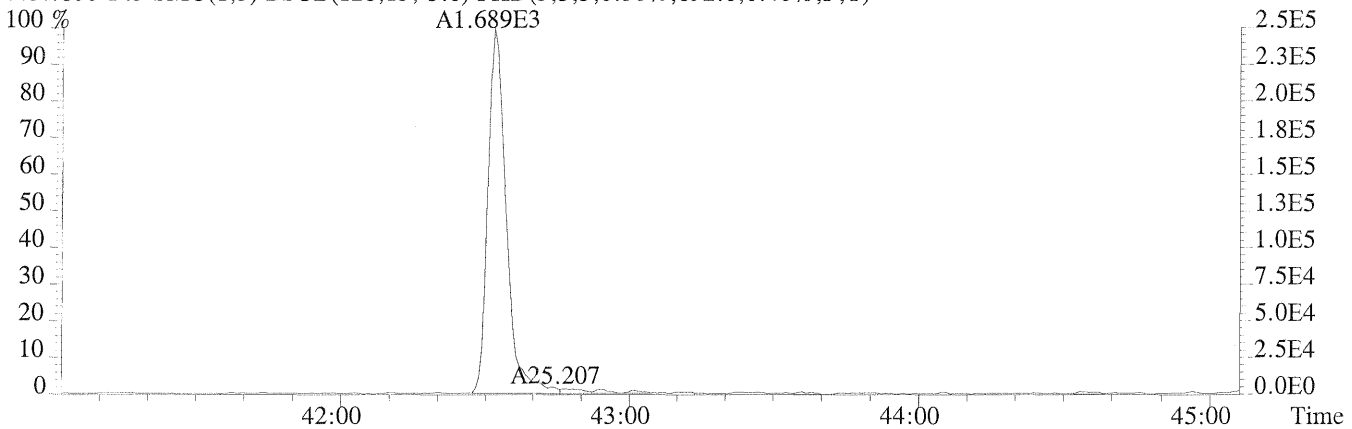


File:P113054 #1-374 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

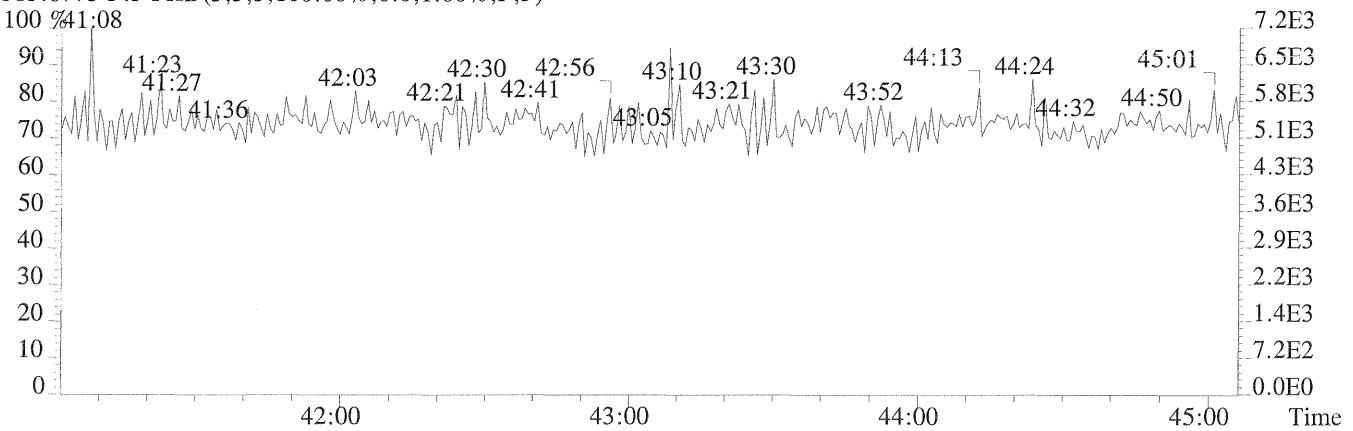
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,604.0,0.40%,F,T)



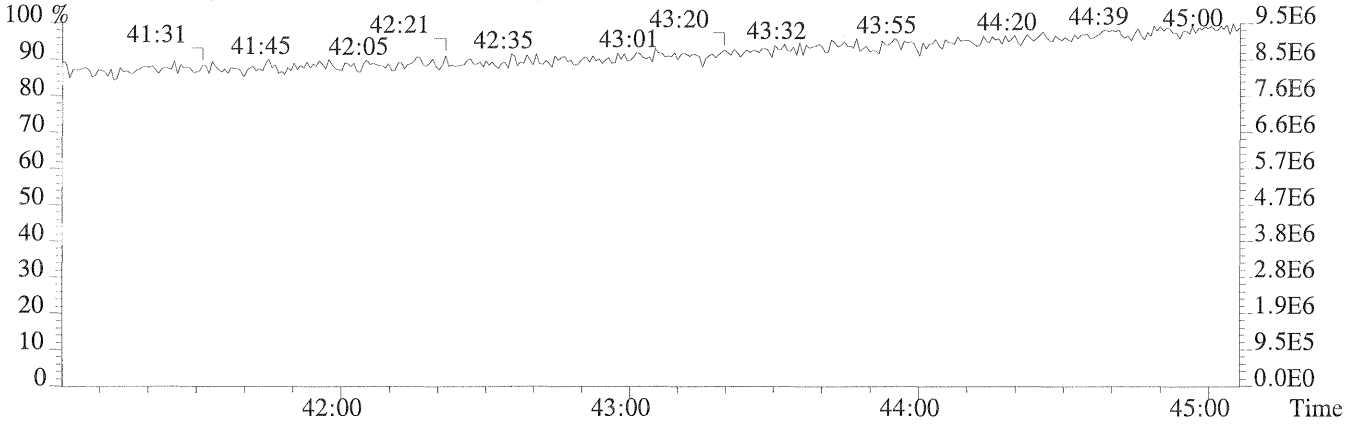
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,692.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

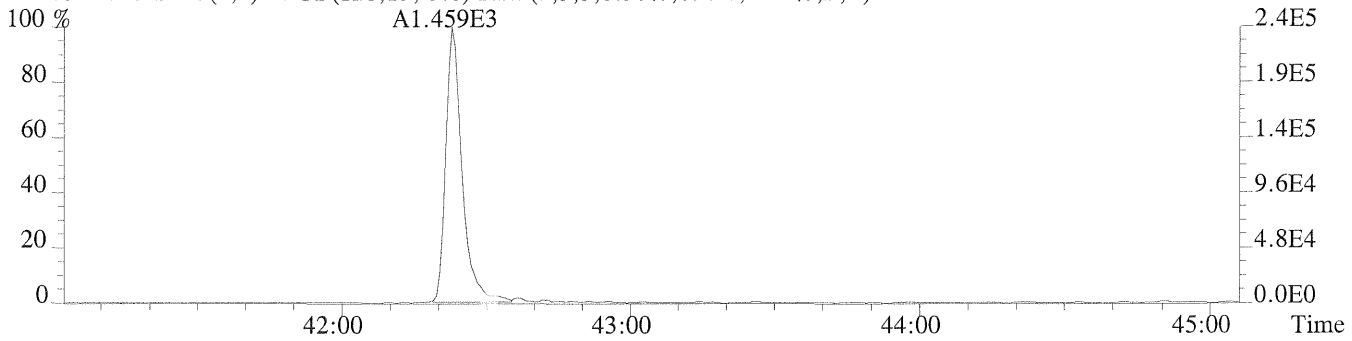


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

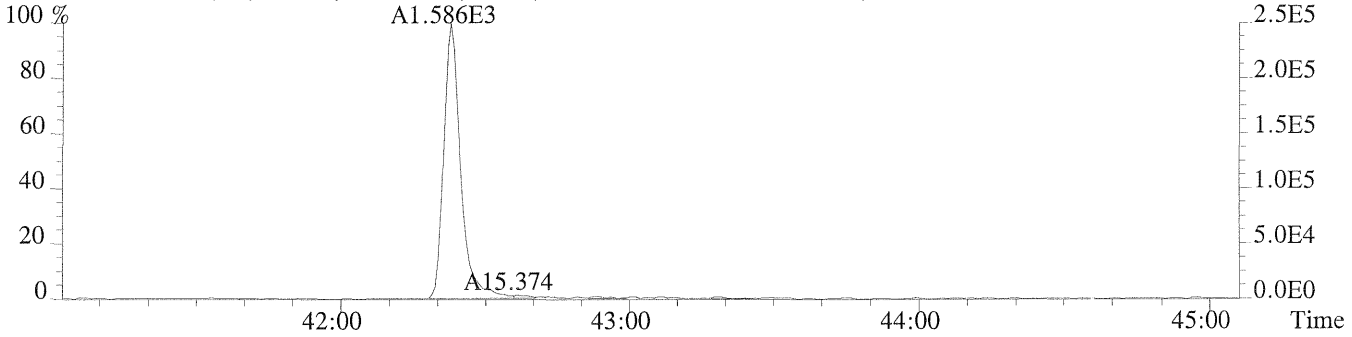


File:P113054 #1-374 Acq:24-MAR-2011 12:41:29 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

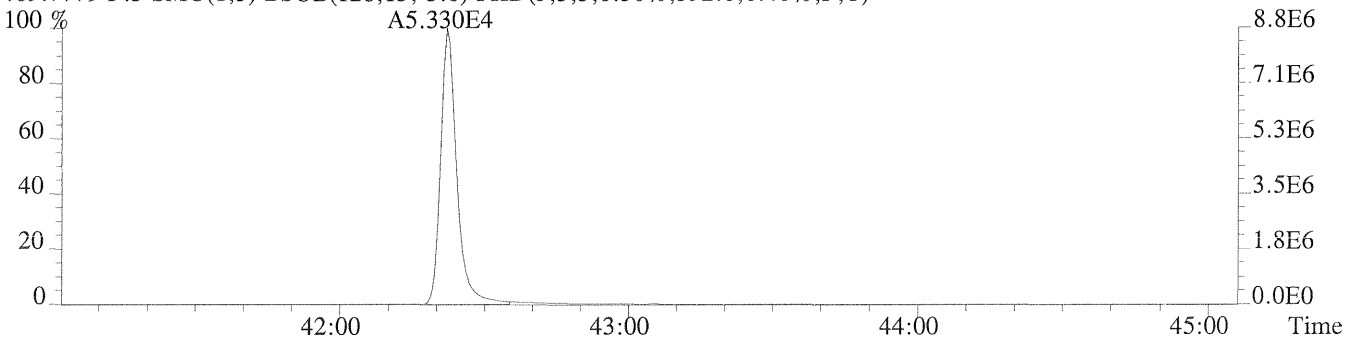
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



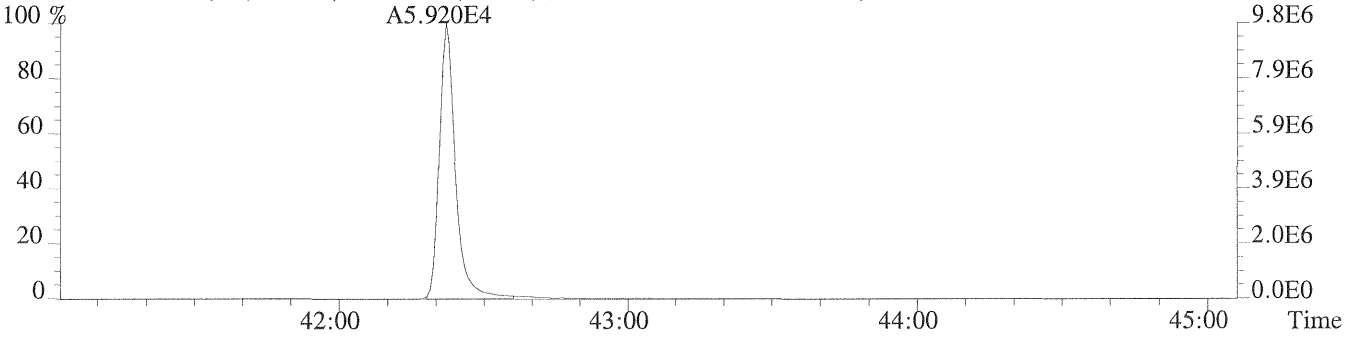
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,460.0,0.40%,F,T)



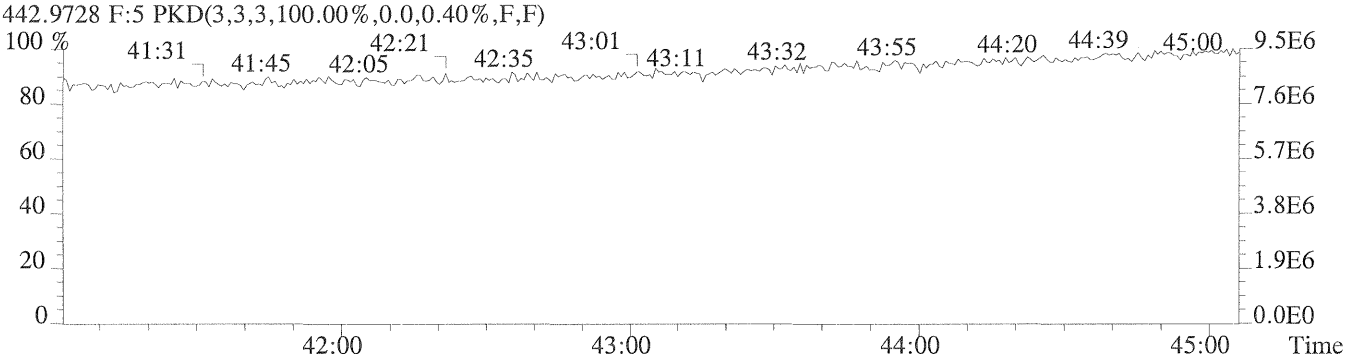
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,592.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS2

Run #3 Filename P113053 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 11:34:03
Processed: 25-MAR-11 12:14:50 LAB. ID: D12-2-1BB

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:35	1.607e+03	2.105e+03	0.76	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:14	1.066e+04	6.759e+03	1.58	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:00	1.004e+04	6.313e+03	1.59	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:54	8.914e+03	7.194e+03	1.24	yes	yes	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:00	9.762e+03	7.819e+03	1.25	yes	yes	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:30	8.450e+03	6.823e+03	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:13	7.142e+03	5.671e+03	1.26	yes	yes	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:39	7.612e+03	7.411e+03	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	5.886e+03	5.806e+03	1.01	yes	no	1.000
10	Unk	OCDF	42:32	8.876e+03	9.791e+03	0.91	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:29	1.297e+03	1.634e+03	0.79	yes	no	1.000
12	Unk	1,2,3,7,8-PeCDD	33:22	6.965e+03	4.345e+03	1.60	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:37	6.497e+03	5.062e+03	1.28	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	6.141e+03	4.775e+03	1.29	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:00	6.319e+03	5.122e+03	1.23	yes	no	1.009
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	4.847e+03	4.668e+03	1.04	yes	no	1.000
17	Unk	OCDD	42:23	7.709e+03	8.466e+03	0.91	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:34	8.766e+04	1.112e+05	0.79	yes	no	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:12	1.082e+05	6.859e+04	1.58	yes	no	1.140
20	IS	13C-2,3,4,7,8-PeCDF	32:59	9.461e+04	6.031e+04	1.57	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	4.478e+04	8.364e+04	0.54	yes	no	0.970
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	4.952e+04	9.830e+04	0.50	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	4.531e+04	8.534e+04	0.53	yes	no	0.986
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.799e+04	7.314e+04	0.52	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	3.239e+04	7.268e+04	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	2.460e+04	5.616e+04	0.44	yes	no	1.078
27	IS	13C-2,3,7,8-TCDD	28:29	6.541e+04	8.257e+04	0.79	yes	no	1.009
28	IS	13C-1,2,3,7,8-PeCDD	33:21	7.070e+04	4.574e+04	1.55	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	5.275e+04	4.171e+04	1.26	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	6.994e+04	5.478e+04	1.28	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	4.844e+04	4.580e+04	1.06	yes	no	1.068
32	IS	13C-OCDD	42:22	7.297e+04	8.134e+04	0.90	yes	no	1.146
33	RS/RT	13C-1,2,3,4-TCDD	28:14	6.601e+04	8.274e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	5.942e+04	4.849e+04	1.23	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:29	3.132e+03				no	1.009

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS2

Run #3 Filename P113053 Samp: 1 Inj: 1 Acquired: 24-MAR-11 11:34:03
Processed: 25-MAR-11 12:14:501 LAB. ID: D12-2-1BB

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	1.85e+05	5.96e+02	3.1e+02	2.57e+05	6.20e+02	4.2e+02
2	1,2,3,7,8-PeCDF	1.74e+06	4.44e+02	3.9e+03	1.09e+06	1.01e+03	1.1e+03
3	2,3,4,7,8-PeCDF	1.75e+06	4.44e+02	3.9e+03	1.11e+06	1.01e+03	1.1e+03
4	1,2,3,4,7,8-HxCDF	1.84e+06	9.52e+02	1.9e+03	1.49e+06	7.60e+02	2.0e+03
5	1,2,3,6,7,8-HxCDF	1.85e+06	9.52e+02	1.9e+03	1.52e+06	7.60e+02	2.0e+03
6	2,3,4,6,7,8-HxCDF	1.69e+06	9.52e+02	1.8e+03	1.34e+06	7.60e+02	1.8e+03
7	1,2,3,7,8,9-HxCDF	1.37e+06	9.52e+02	1.4e+03	1.07e+06	7.60e+02	1.4e+03
8	1,2,3,4,6,7,8-HpCDF	1.54e+06	1.38e+03	1.1e+03	1.50e+06	1.90e+03	7.9e+02
9	1,2,3,4,7,8,9-HpCDF	1.07e+06	1.38e+03	7.7e+02	1.04e+06	1.90e+03	5.5e+02
10	OCDF	1.39e+06	6.08e+02	2.3e+03	1.52e+06	5.28e+02	2.9e+03
11	2,3,7,8-TCDD	1.75e+05	6.52e+02	2.7e+02	2.21e+05	5.84e+02	3.8e+02
12	1,2,3,7,8-PeCDD	1.22e+06	8.36e+02	1.5e+03	7.69e+05	6.32e+02	1.2e+03
13	1,2,3,4,7,8-HxCDD	1.41e+06	9.52e+02	1.5e+03	1.09e+06	1.02e+03	1.1e+03
14	1,2,3,6,7,8-HxCDD	1.26e+06	9.52e+02	1.3e+03	1.00e+06	1.02e+03	9.8e+02
15	1,2,3,7,8,9-HxCDD	1.24e+06	9.52e+02	1.3e+03	1.01e+06	1.02e+03	9.9e+02
16	1,2,3,4,6,7,8-HpCDD	9.54e+05	7.20e+02	1.3e+03	9.07e+05	6.40e+02	1.4e+03
17	OCDD	1.23e+06	5.72e+02	2.2e+03	1.35e+06	6.24e+02	2.2e+03
18	13C-2,3,7,8-TCDF	1.17e+07	9.68e+02	1.2e+04	1.48e+07	8.48e+02	1.7e+04
19	13C-1,2,3,7,8-PeCDF	1.86e+07	5.64e+02	3.3e+04	1.18e+07	9.36e+02	1.3e+04
20	13C-2,3,4,7,8-PeCDF	1.69e+07	5.64e+02	3.0e+04	1.07e+07	9.36e+02	1.1e+04
21	13C-1,2,3,4,7,8-HxCDF	9.47e+06	1.02e+03	9.2e+03	1.82e+07	1.14e+03	1.6e+04
22	13C-1,2,3,6,7,8-HxCDF	9.92e+06	1.02e+03	9.7e+03	1.90e+07	1.14e+03	1.7e+04
23	13C-2,3,4,6,7,8-HxCDF	9.25e+06	1.02e+03	9.0e+03	1.77e+07	1.14e+03	1.5e+04
24	13C-1,2,3,7,8,9-HxCDF	7.33e+06	1.02e+03	7.2e+03	1.41e+07	1.14e+03	1.2e+04
25	13C-1,2,3,4,6,7,8-HpCDF	6.78e+06	2.58e+03	2.6e+03	1.49e+07	2.08e+03	7.2e+03
26	13C-1,2,3,4,7,8,9-HpCDF	4.56e+06	2.58e+03	1.8e+03	1.01e+07	2.08e+03	4.9e+03
27	13C-2,3,7,8-TCDD	9.38e+06	1.74e+03	5.4e+03	1.18e+07	9.52e+02	1.2e+04
28	13C-1,2,3,7,8-PeCDD	1.30e+07	6.32e+02	2.1e+04	8.45e+06	5.28e+02	1.6e+04
29	13C-1,2,3,4,7,8-HxCDD	1.24e+07	1.62e+03	7.6e+03	9.66e+06	1.08e+03	9.0e+03
30	13C-1,2,3,6,7,8-HxCDD	1.37e+07	1.62e+03	8.5e+03	1.09e+07	1.08e+03	1.0e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.69e+06	7.20e+02	1.3e+04	9.14e+06	7.80e+02	1.2e+04
32	13C-OCDD	1.20e+07	5.52e+02	2.2e+04	1.34e+07	6.32e+02	2.1e+04
33	13C-1,2,3,4-TCDD	1.04e+07	1.74e+03	6.0e+03	1.28e+07	9.52e+02	1.3e+04
34	13C-1,2,3,7,8,9-HxCDD	1.20e+07	1.62e+03	7.4e+03	9.59e+06	1.08e+03	8.9e+03
35	37Cl-2,3,7,8-TCDD	4.28e+05	1.02e+03	4.2e+02			

Columbia Analytical Services, Inc.
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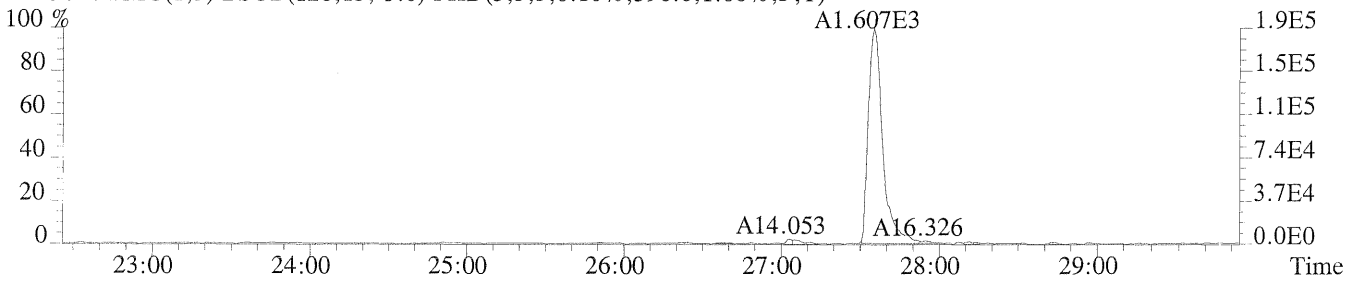
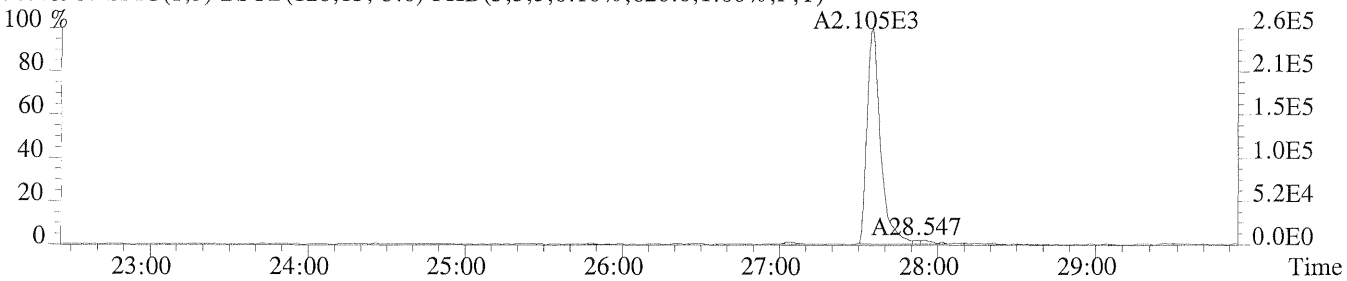
File:P113053 #1-621 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

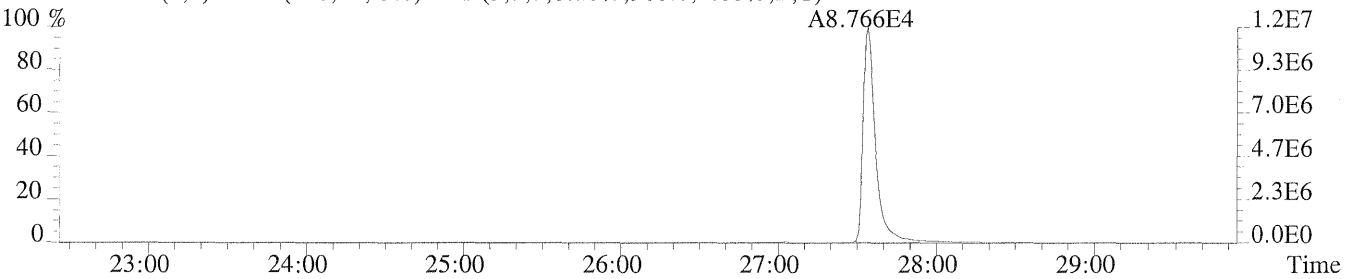
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



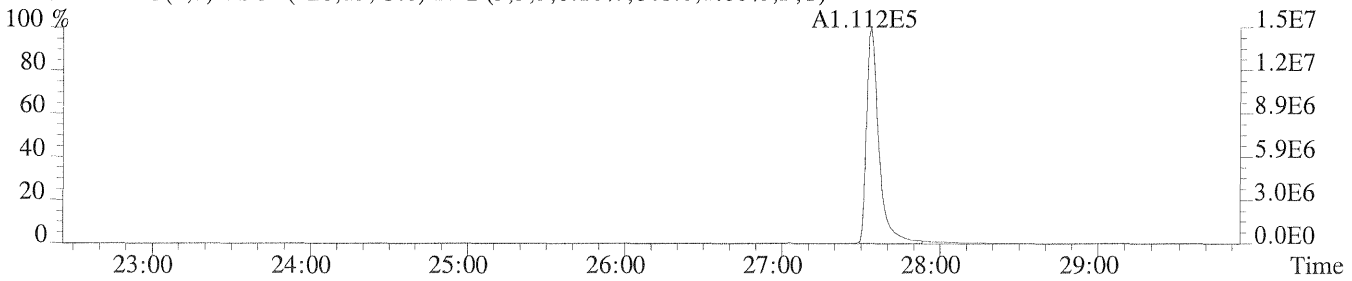
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,620.0,1.00%,F,T)



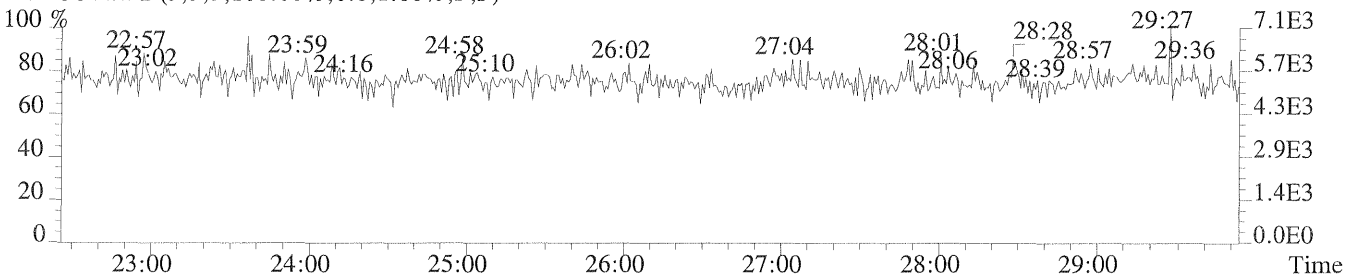
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,968.0,1.00%,F,T)



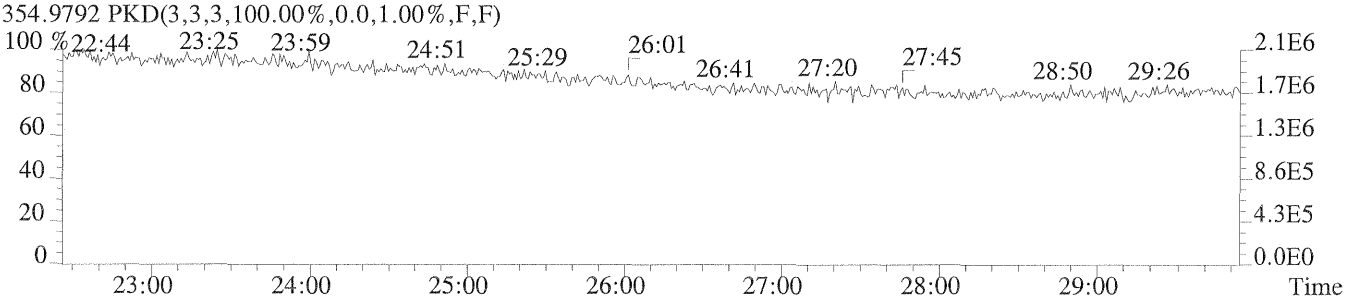
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

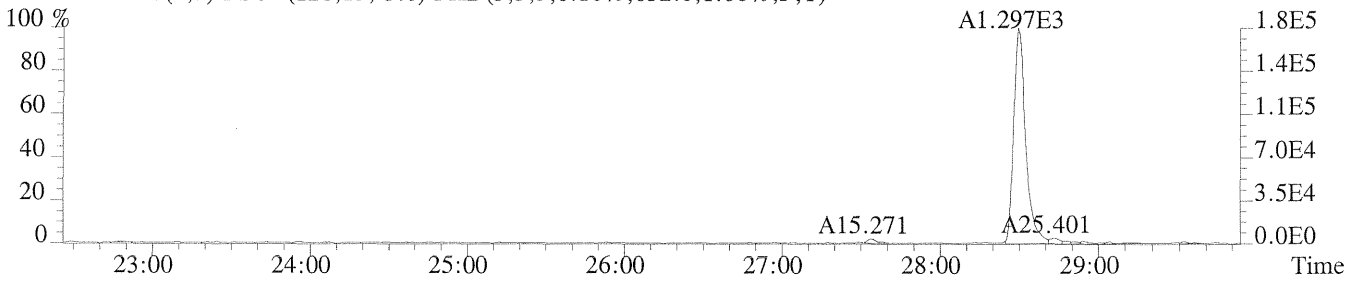


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

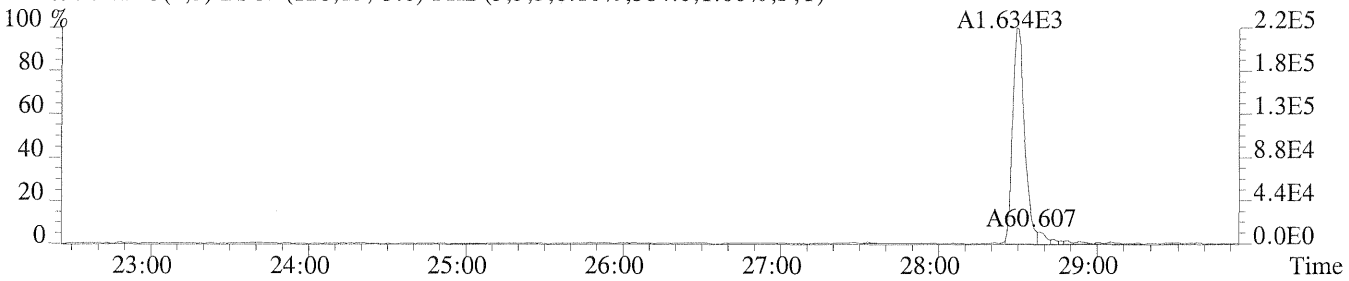


File:P113053 #1-621 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

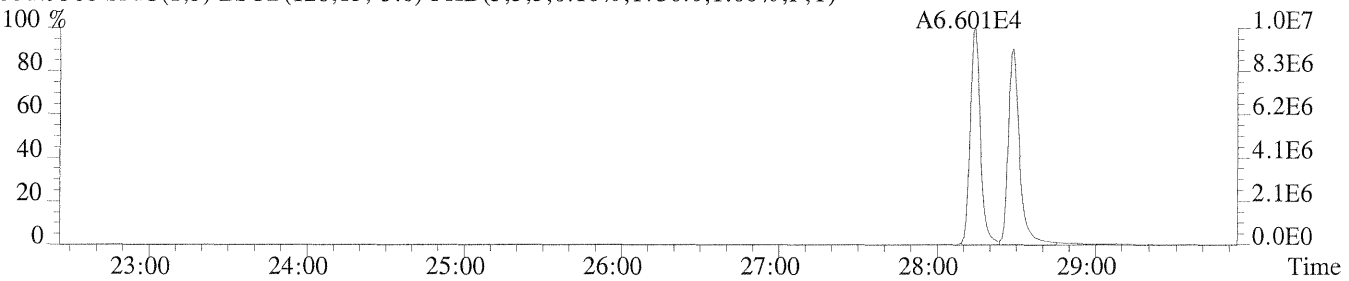
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,652.0,1.00%,F,T)



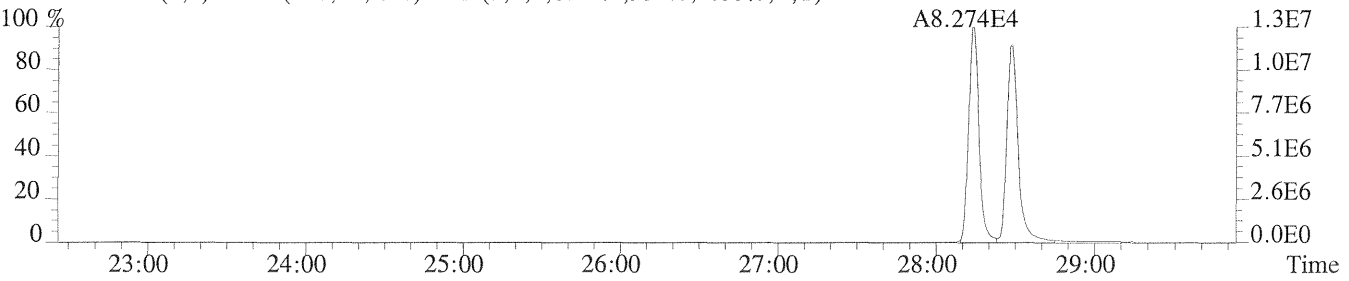
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,584.0,1.00%,F,T)



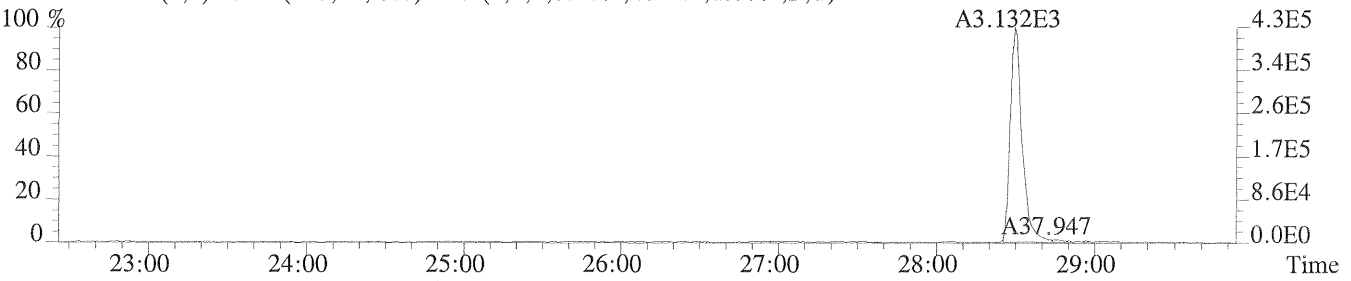
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1736.0,1.00%,F,T)



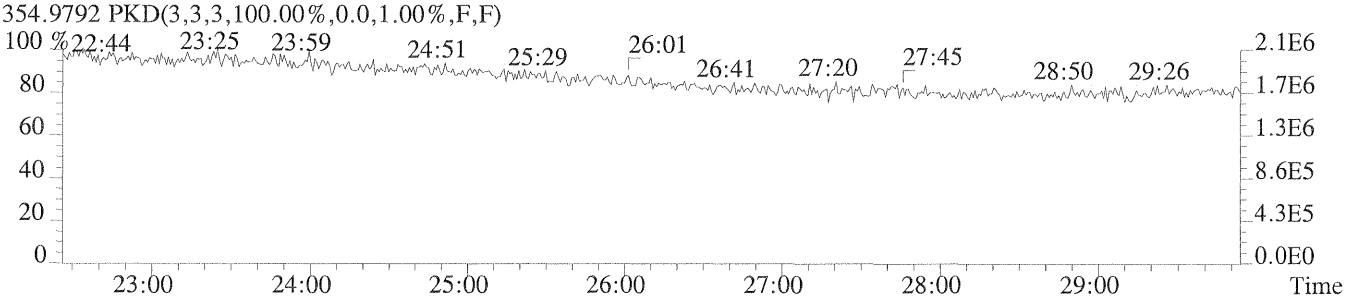
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,952.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1020.0,1.00%,F,T)

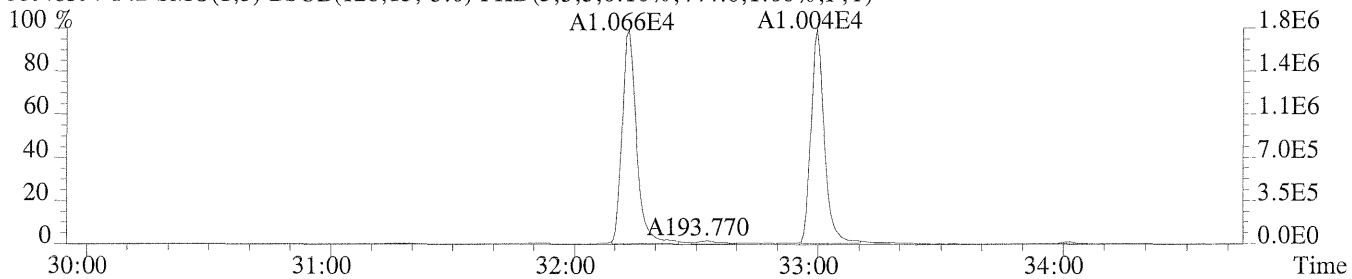


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

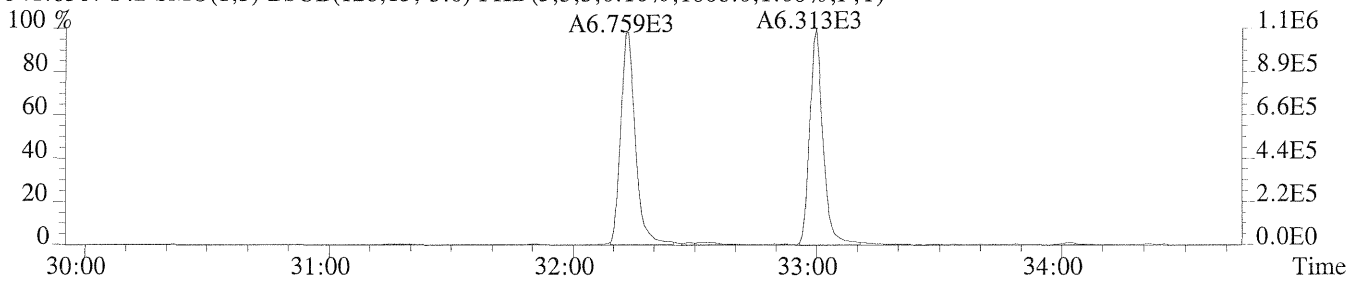


File:P113053 #1-437 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

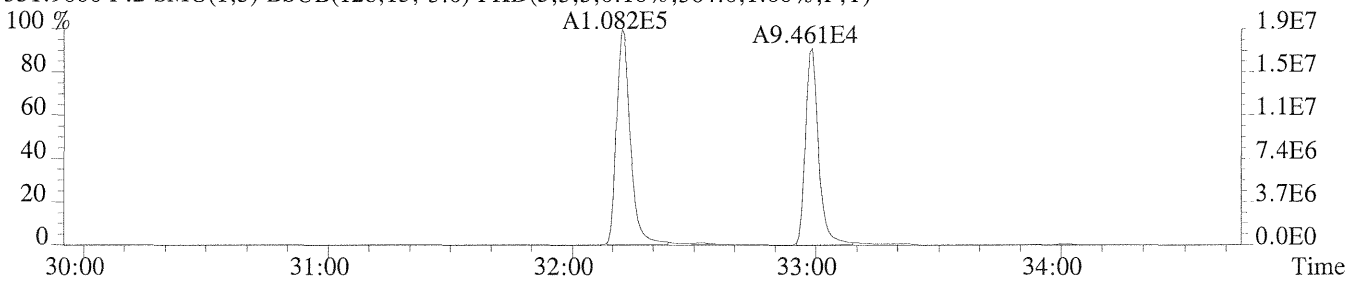
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,444.0,1.00%,F,T)



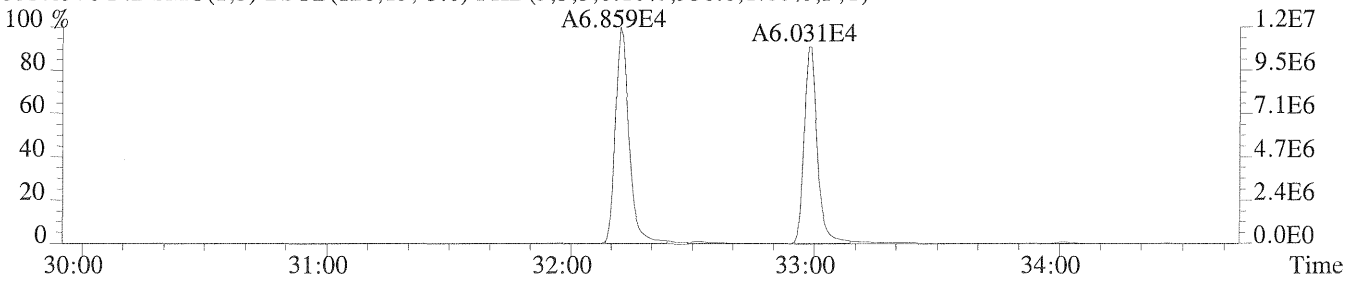
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1008.0,1.00%,F,T)



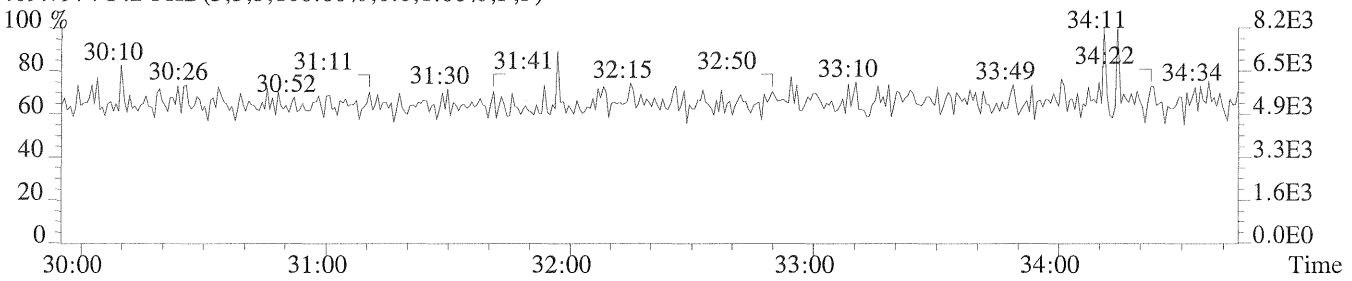
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,564.0,1.00%,F,T)



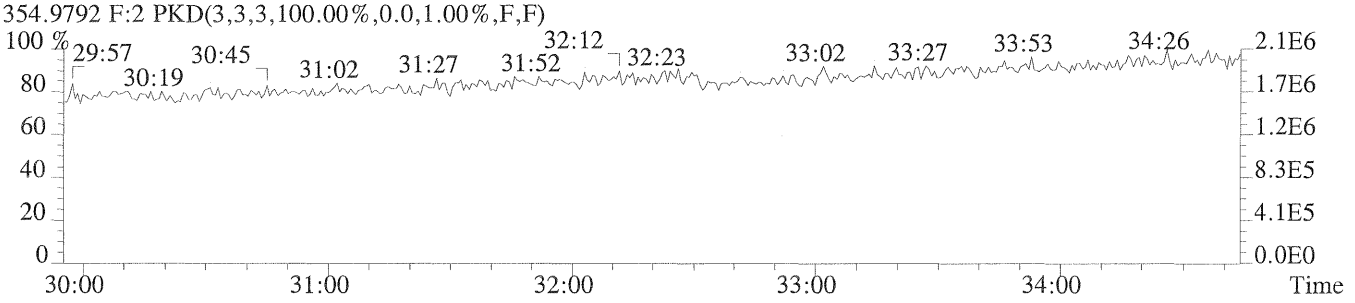
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,936.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

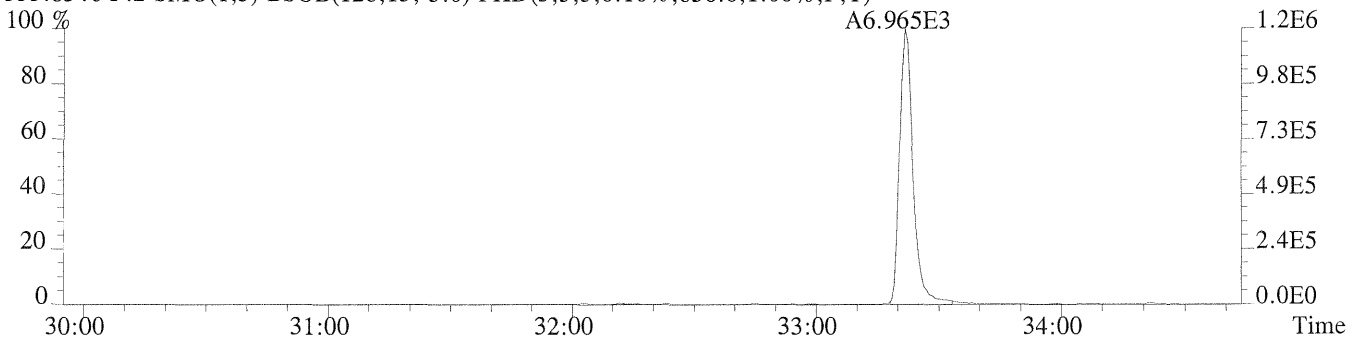


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

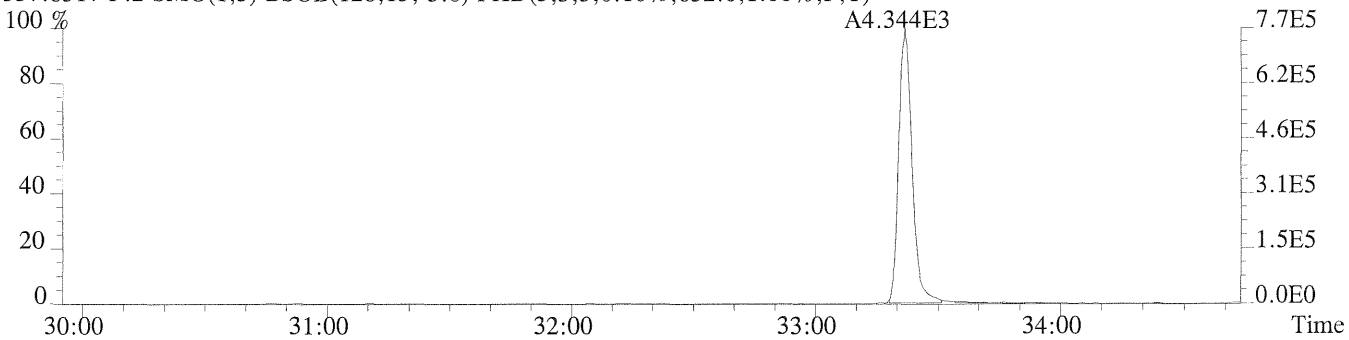


File:P113053 #1-437 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

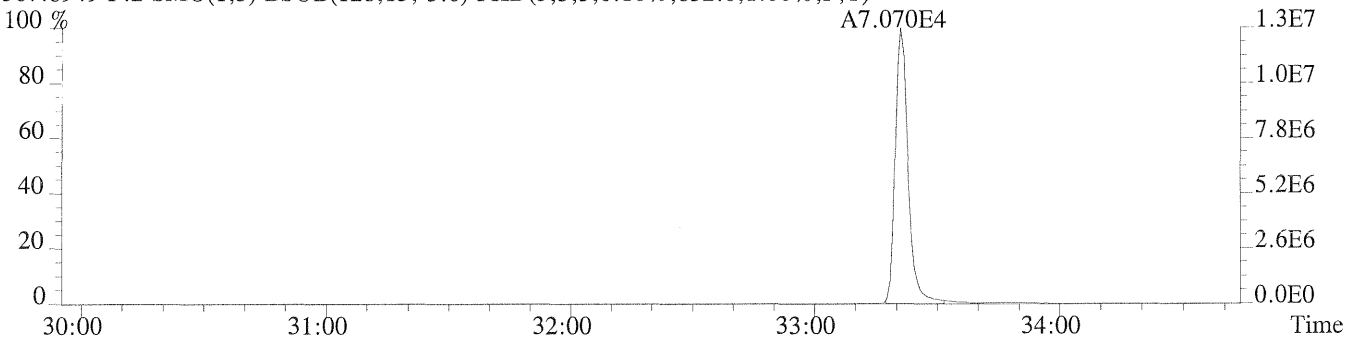
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,836.0,1.00%,F,T)



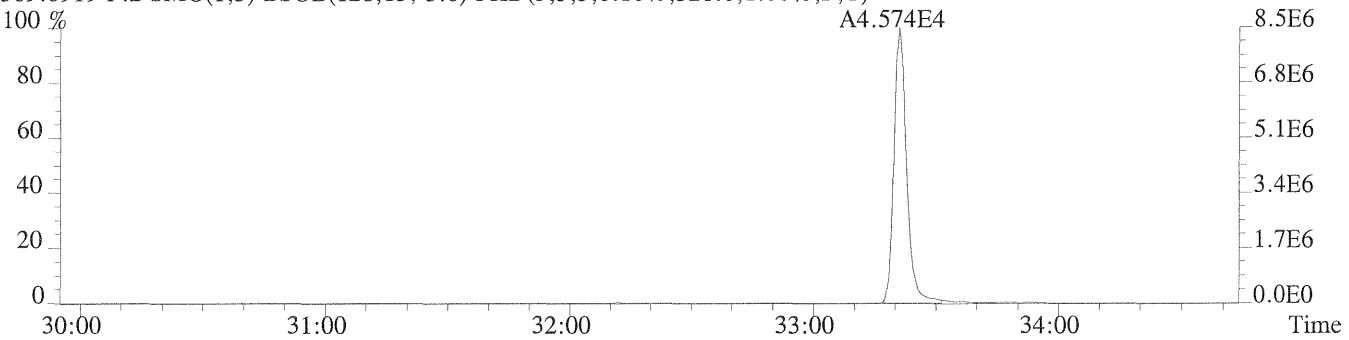
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



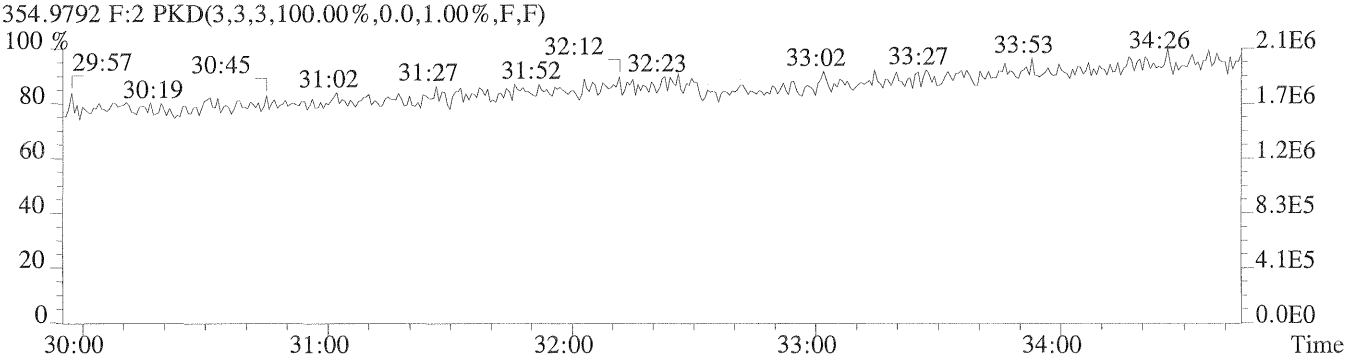
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,632.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,528.0,1.00%,F,T)

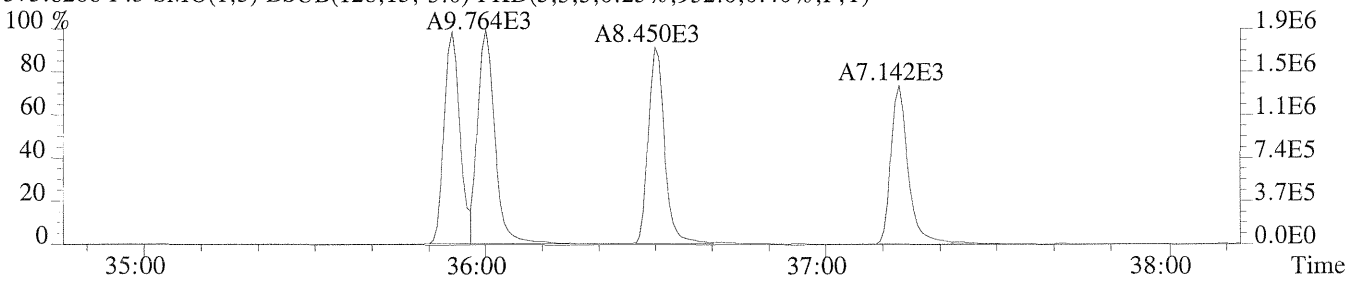


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

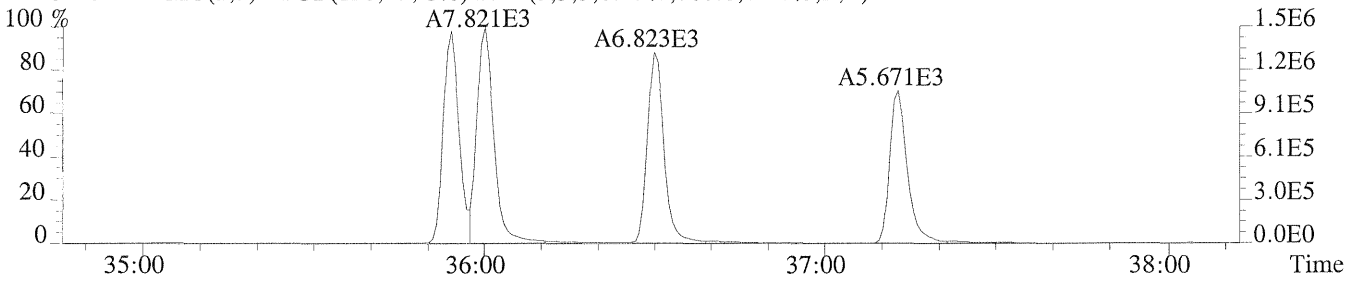


File:P113053 #1-313 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

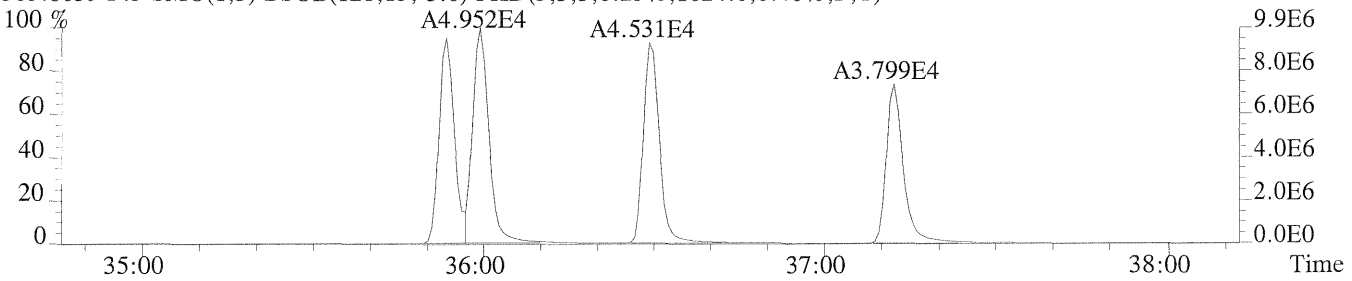
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



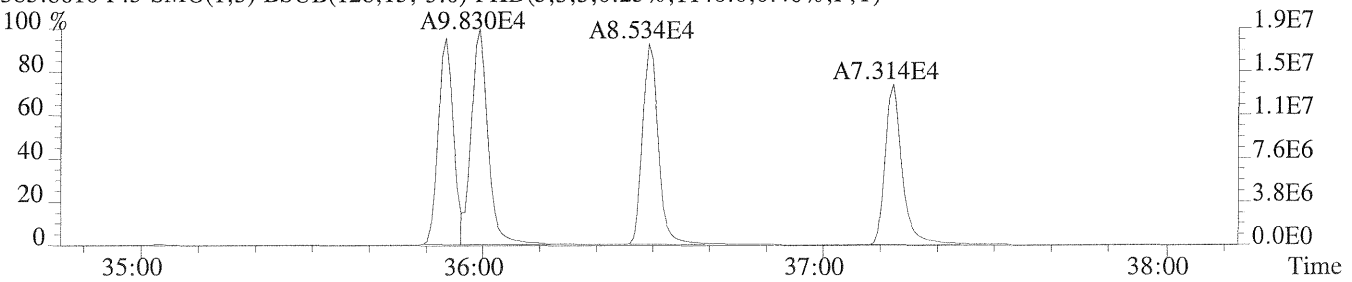
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,760.0,0.40%,F,T)



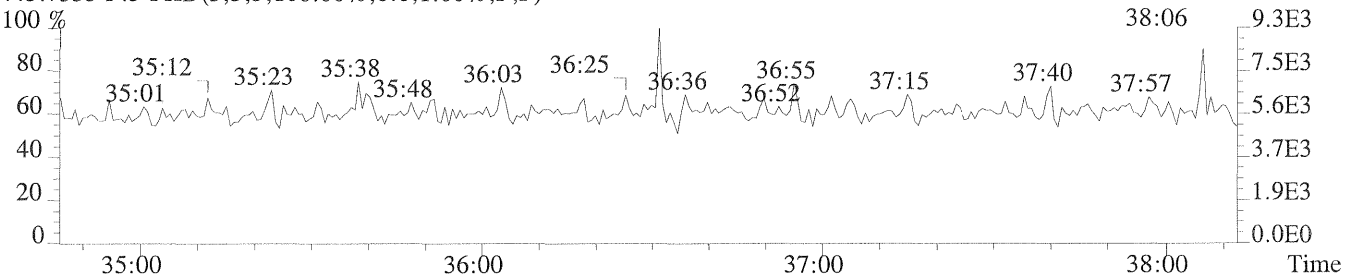
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1024.0,0.40%,F,T)



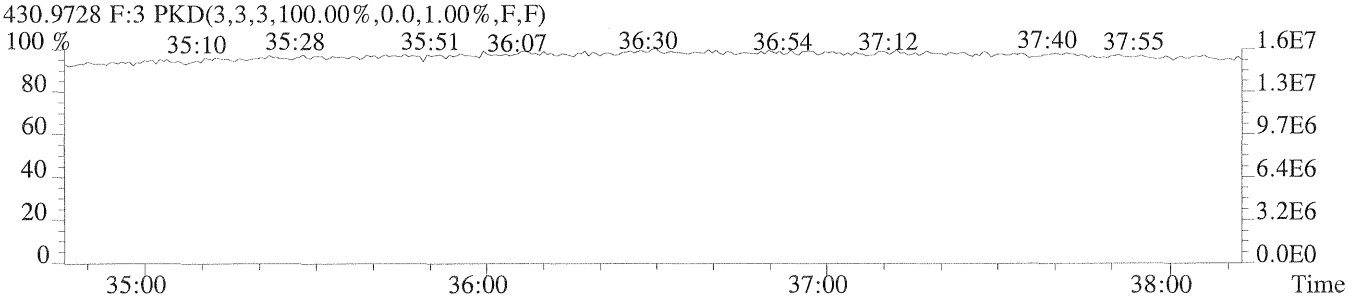
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1140.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

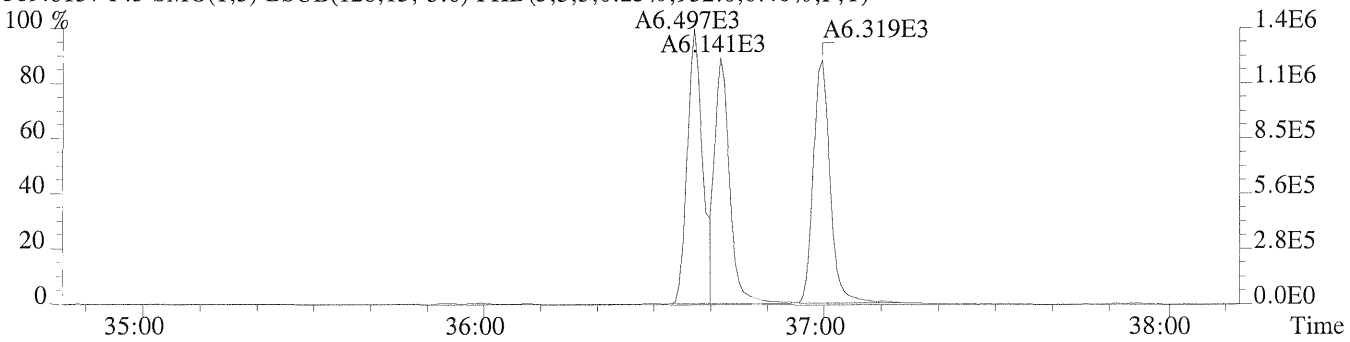


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

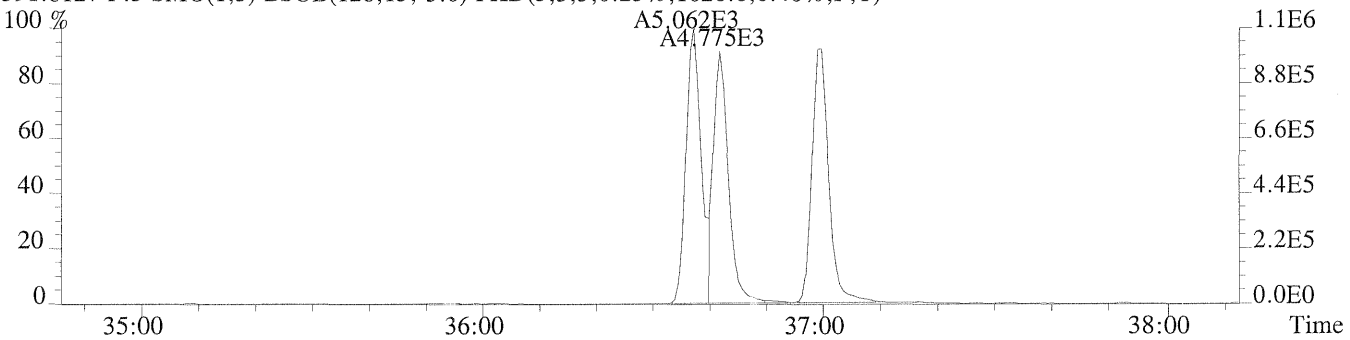


File:P113053 #1-313 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

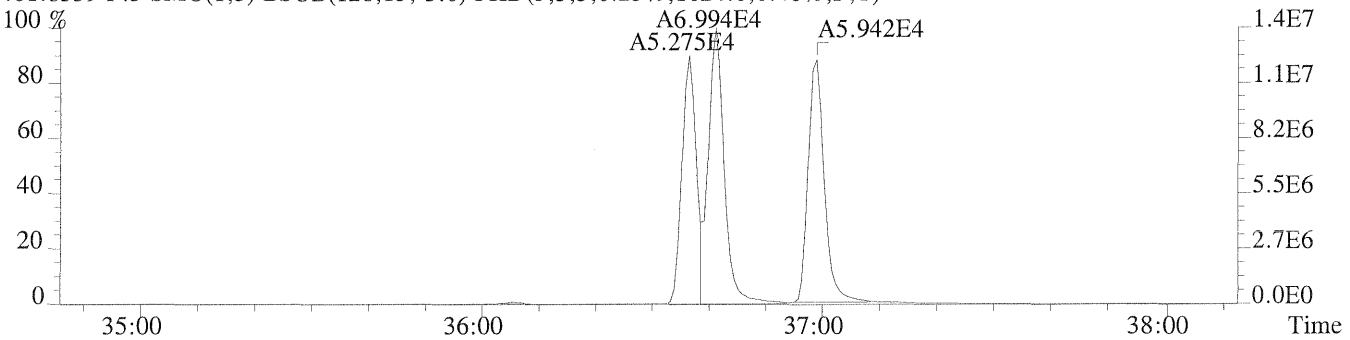
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,952.0,0.40%,F,T)



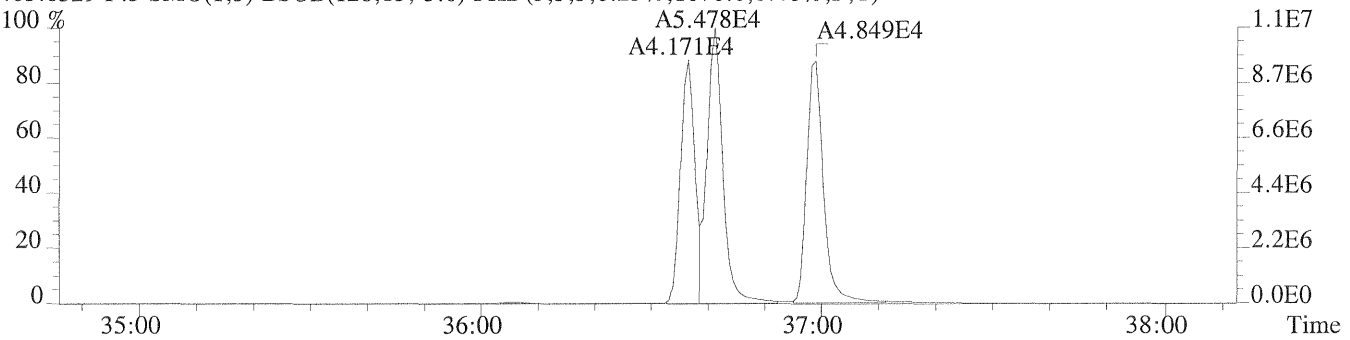
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1020.0,0.40%,F,T)



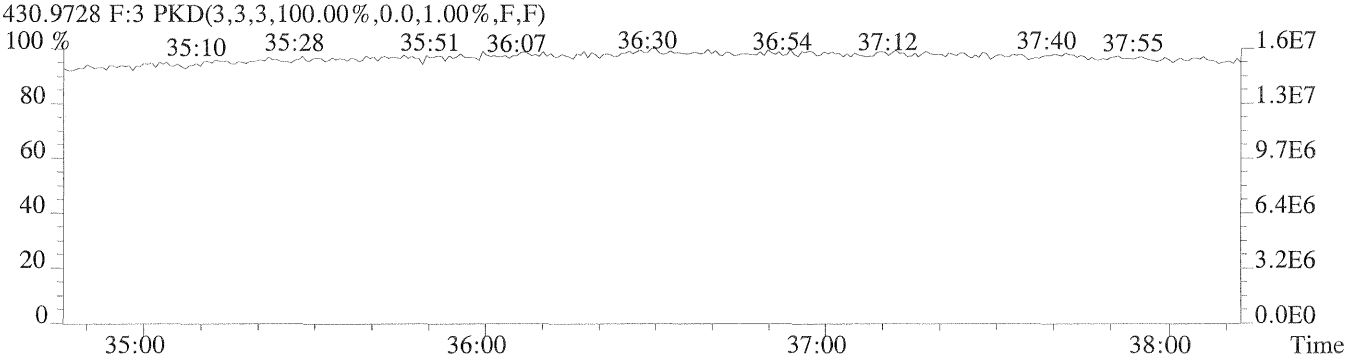
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1624.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1076.0,0.40%,F,T)

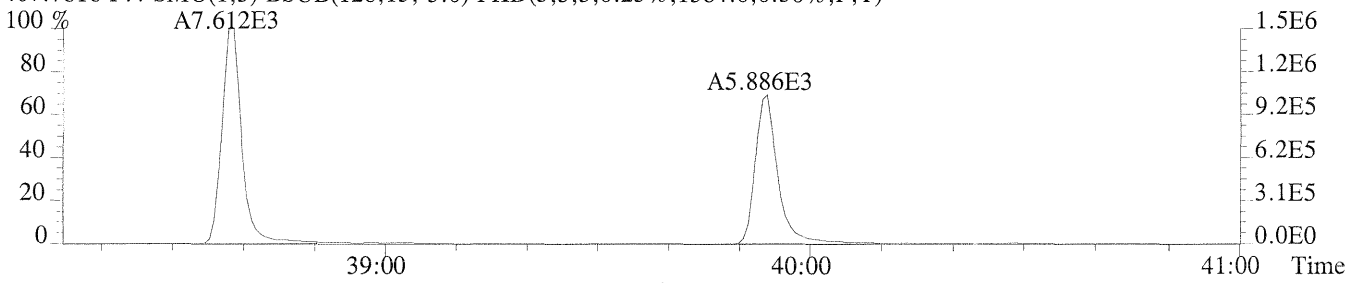


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

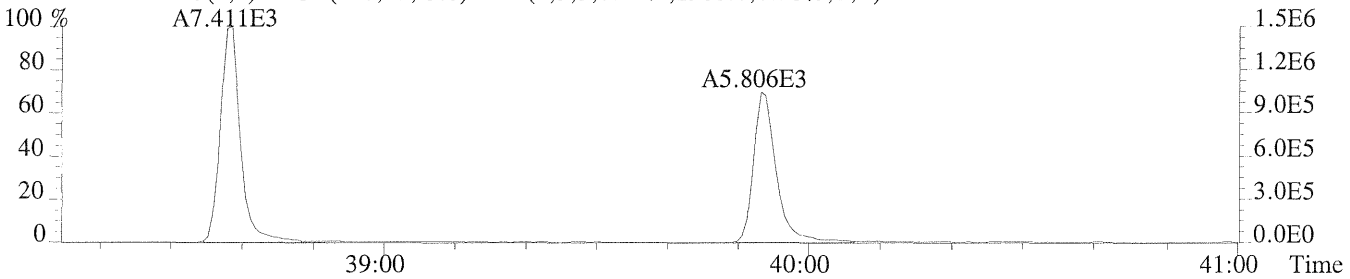


File:P113053 #1-251 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

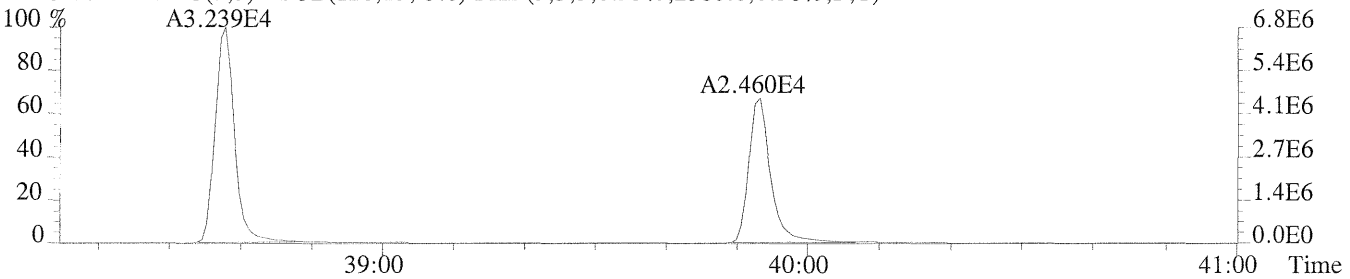
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1384.0,0.50%,F,T)



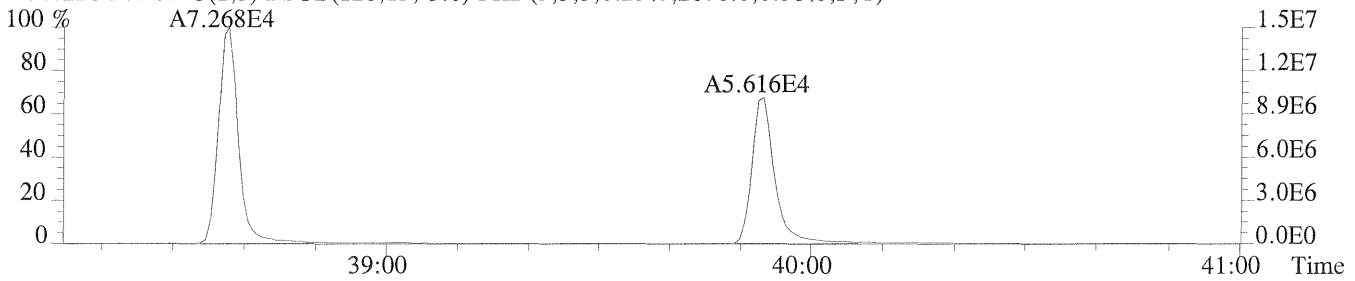
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1900.0,0.50%,F,T)



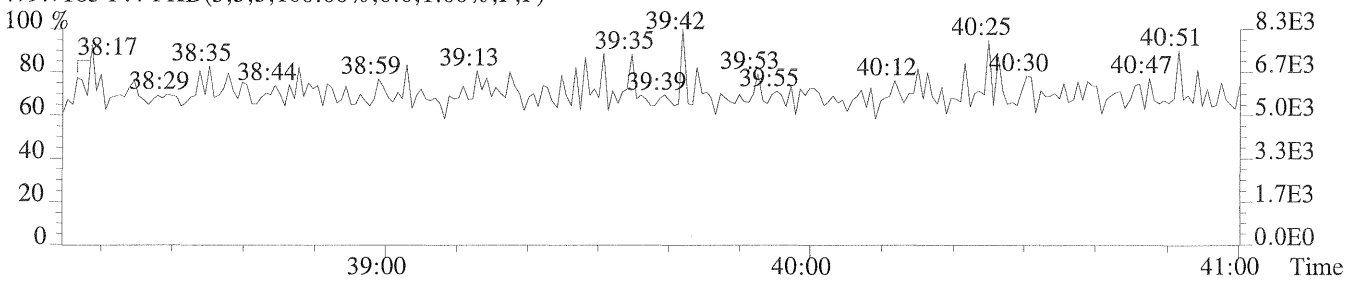
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2580.0,0.50%,F,T)



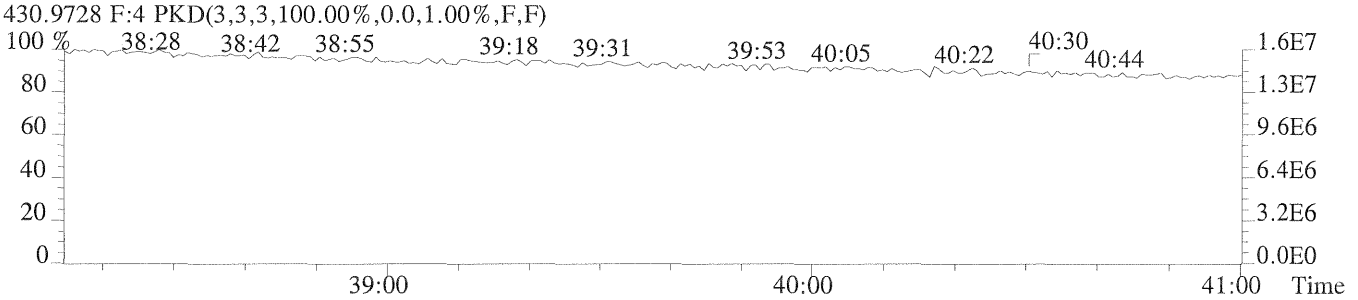
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2076.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

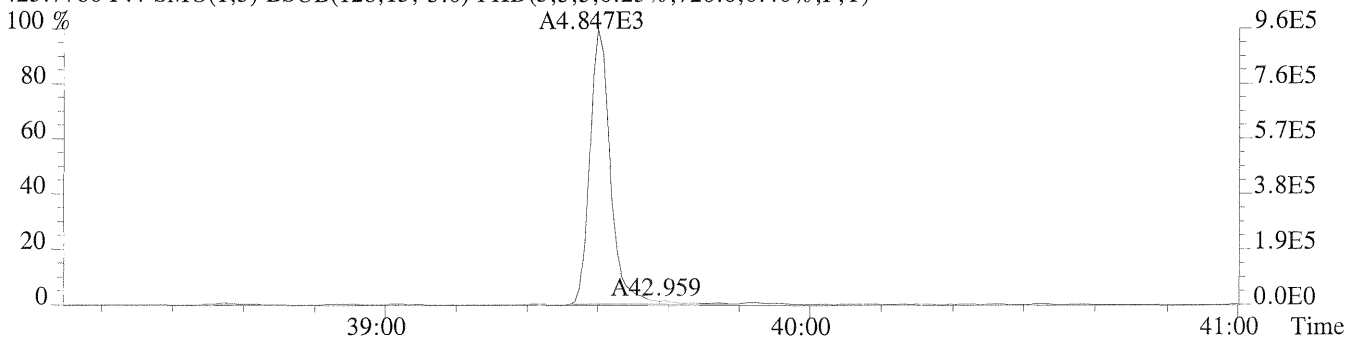


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

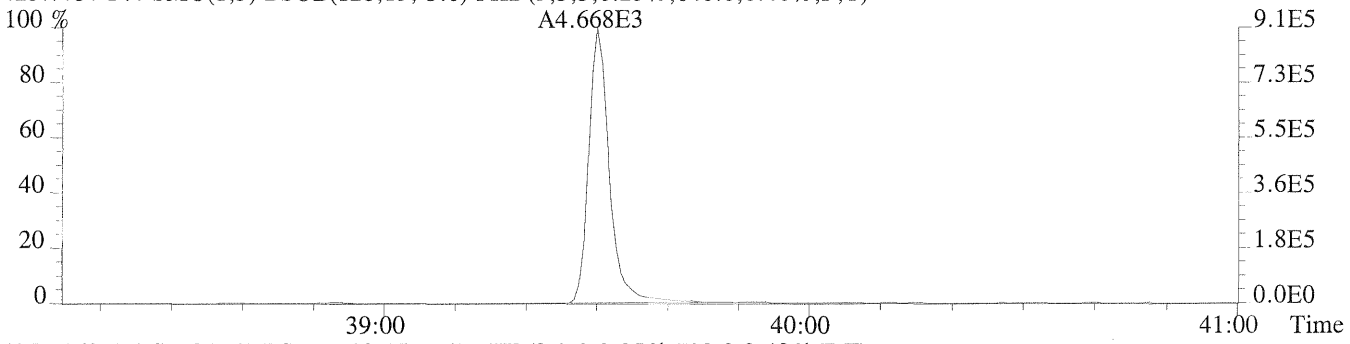


File:P113053 #1-251 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

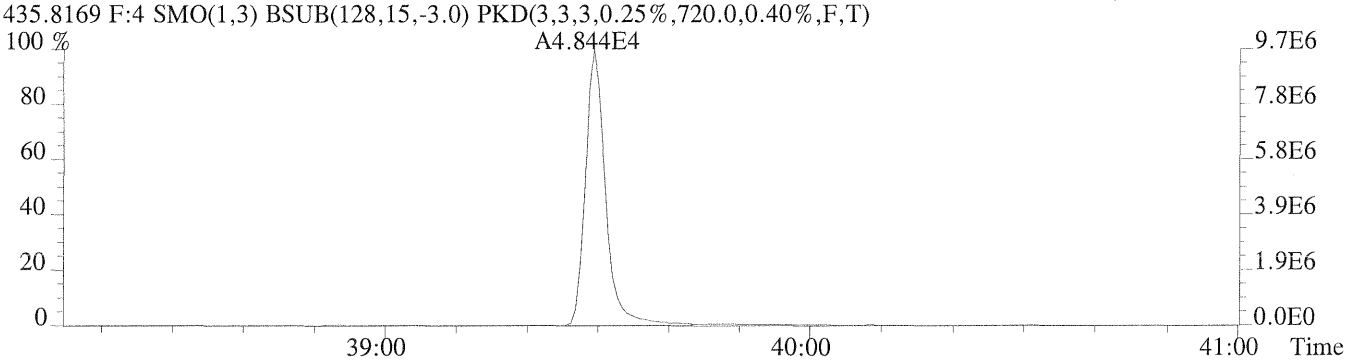
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



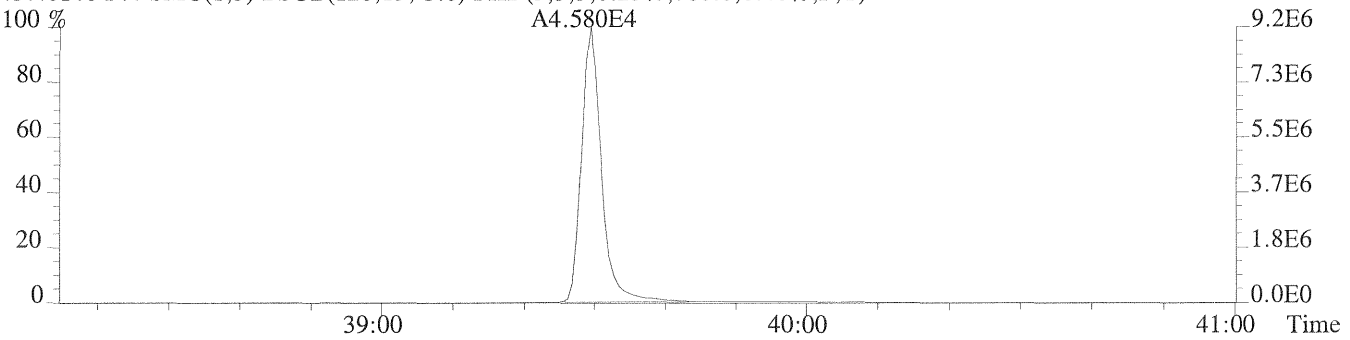
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,640.0,0.40%,F,T)



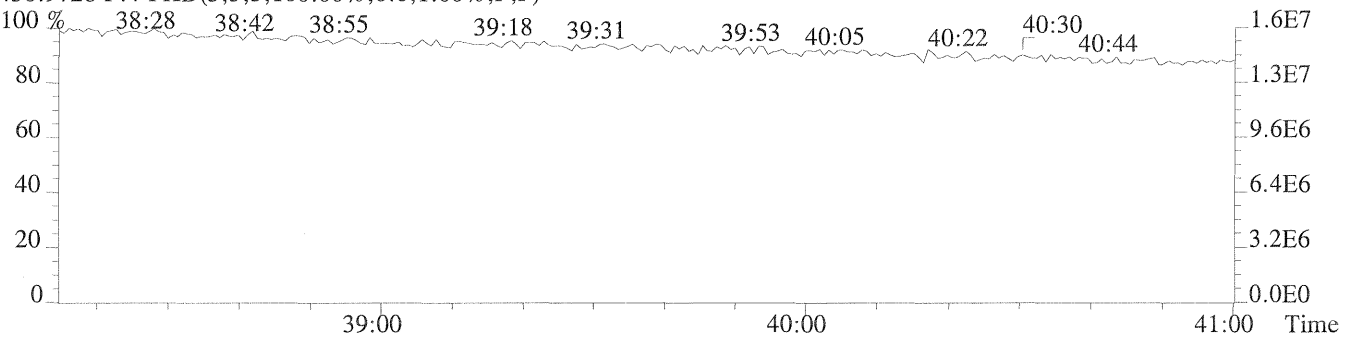
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,720.0,0.40%,F,T)



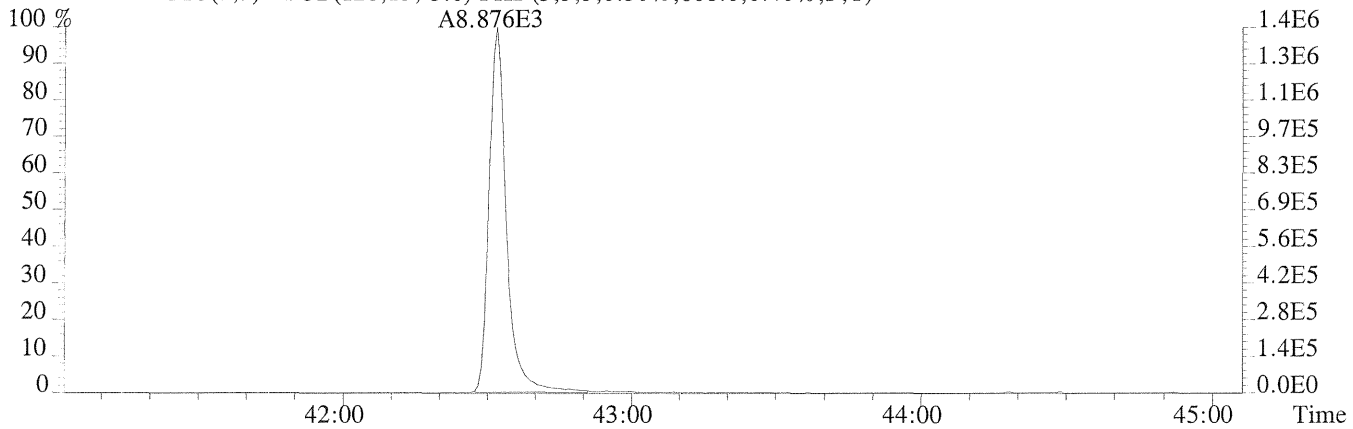
437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,780.0,0.40%,F,T)



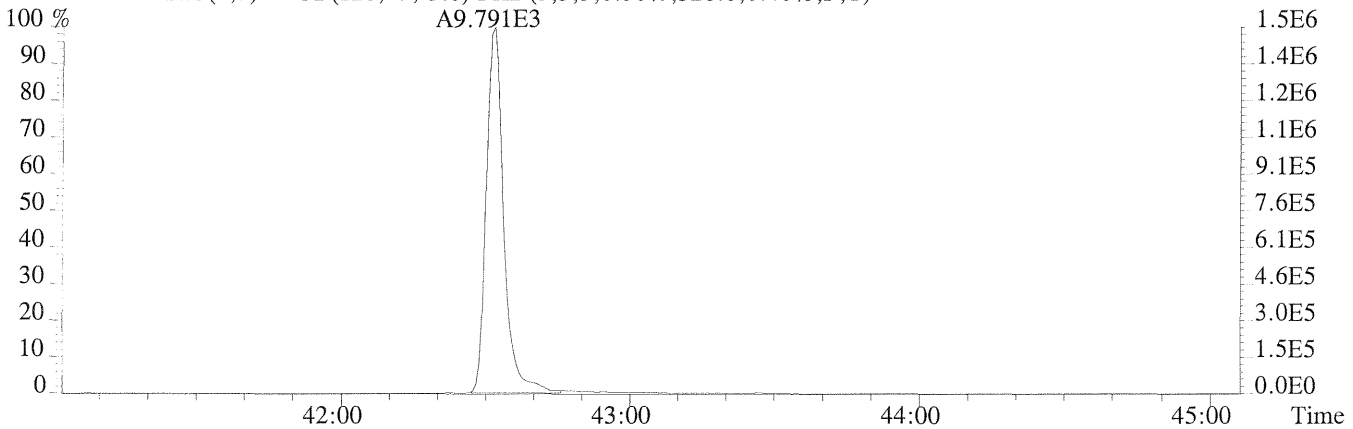
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



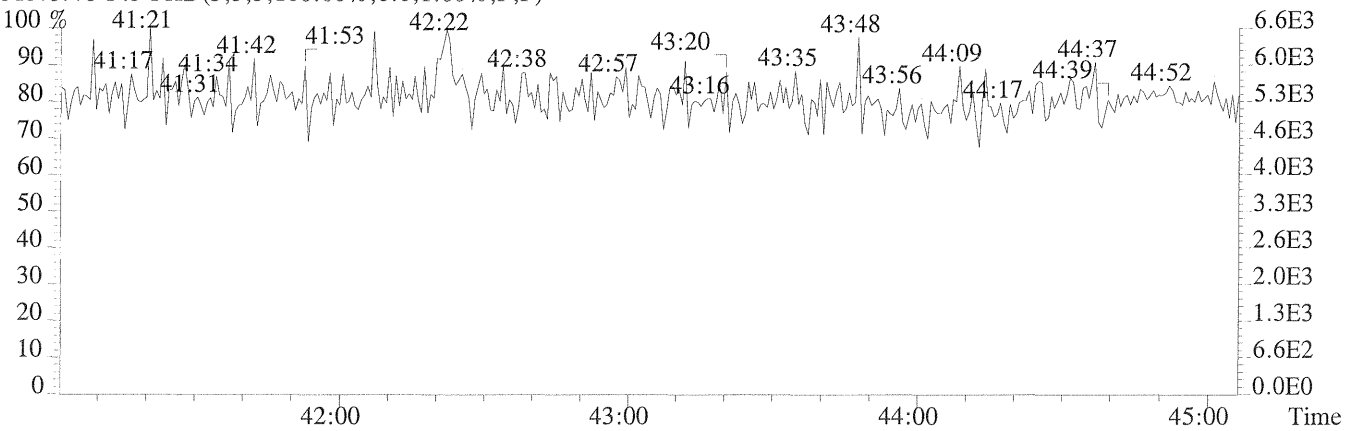
File:P113053 #1-374 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,608.0,0.40%,F,T)



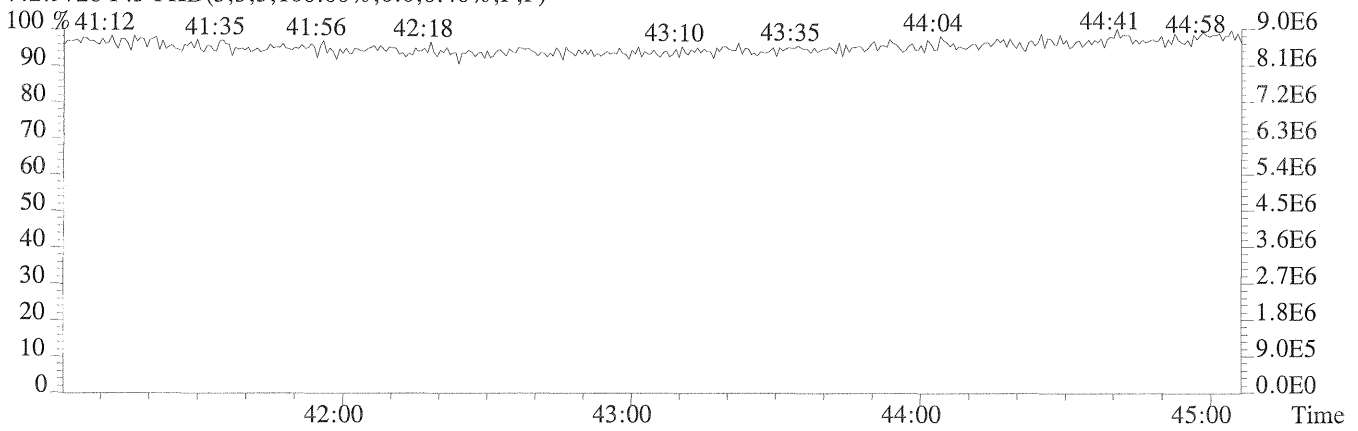
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,528.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

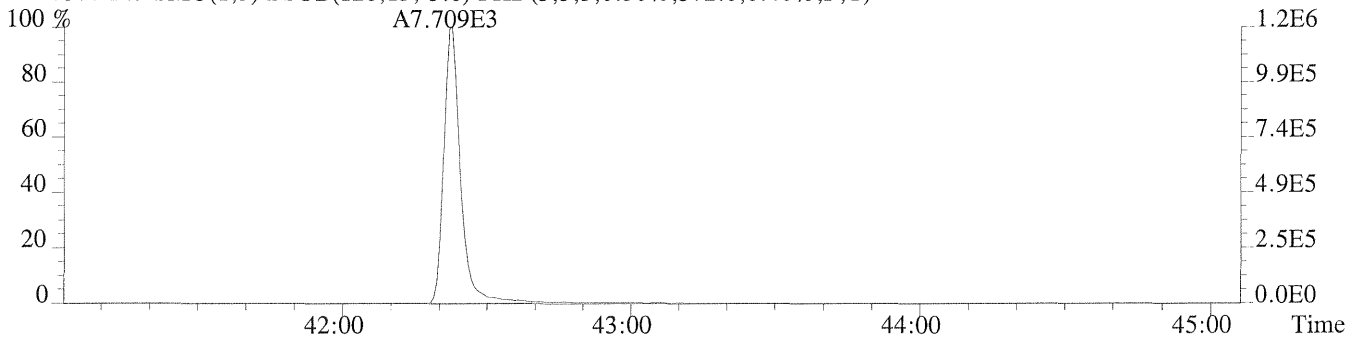


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

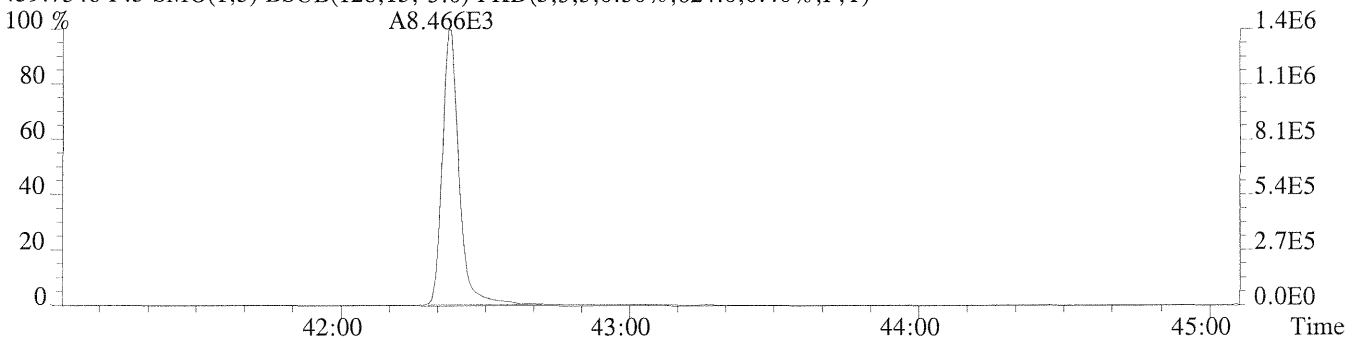


File:P113053 #1-374 Acq:24-MAR-2011 11:34:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

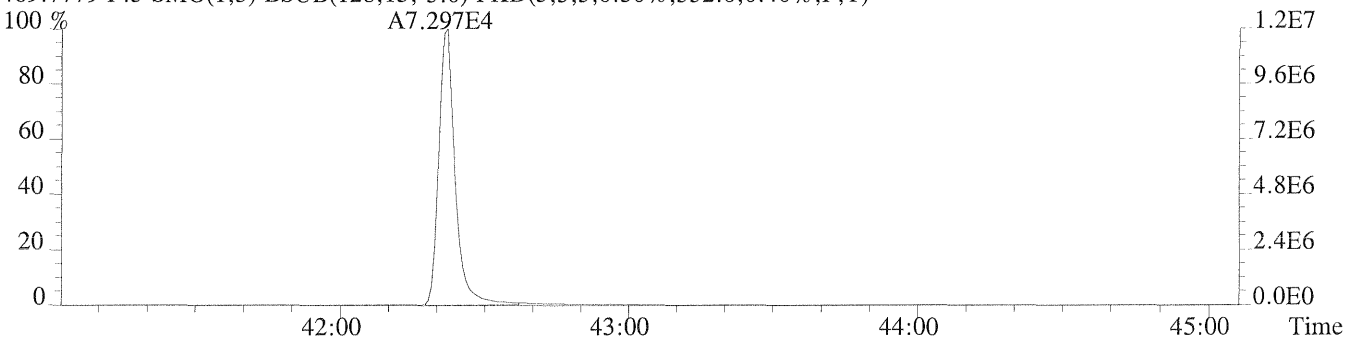
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,572.0,0.40%,F,T)



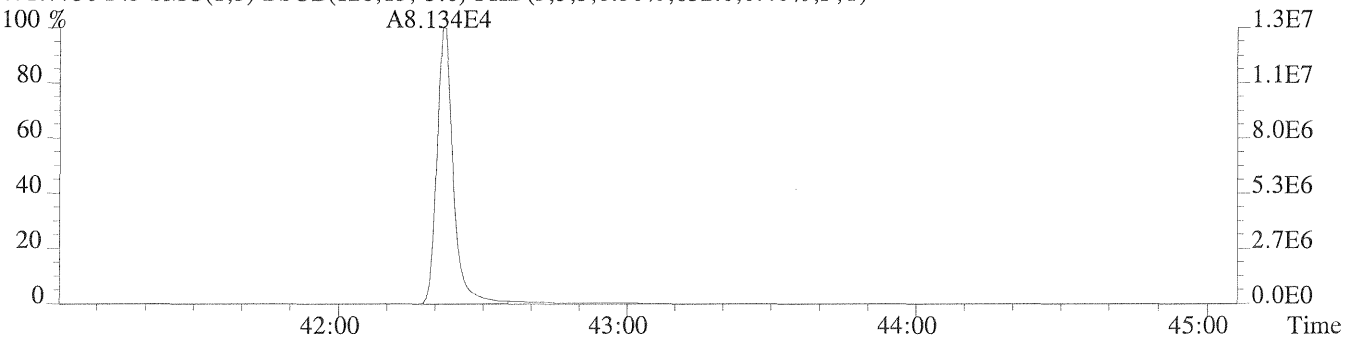
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,624.0,0.40%,F,T)



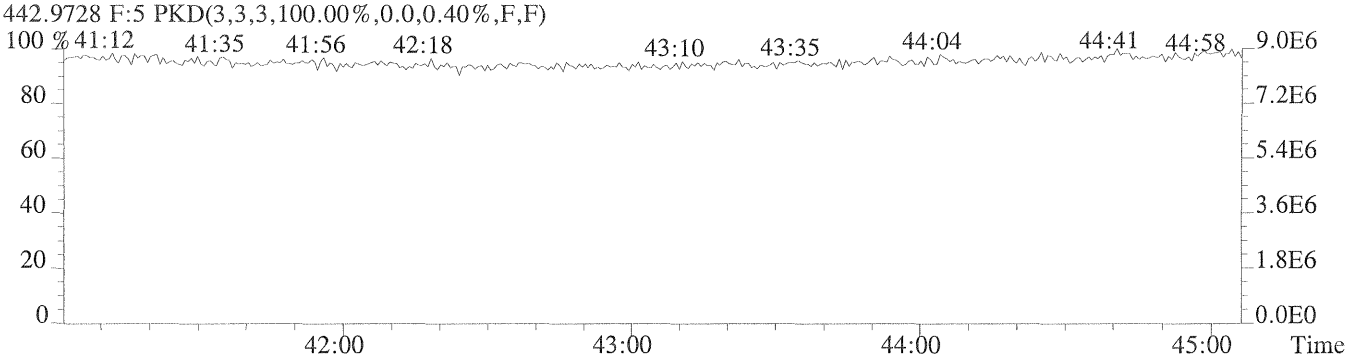
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,552.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,632.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS3

Run #4 Filename P113051 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 09:42:03
Processed: 25-MAR-11 12:15:07 LAB. ID: D12-2-1BC

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:35	5.287e+03	6.771e+03	0.78	yes	yes	1.001
2	Unk	1,2,3,7,8-PeCDF	32:13	3.749e+04	2.423e+04	1.55	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:00	3.871e+04	2.461e+04	1.57	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:54	3.282e+04	2.673e+04	1.23	yes	yes	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:00	3.765e+04	3.049e+04	1.24	yes	yes	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:30	3.279e+04	2.666e+04	1.23	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:13	3.088e+04	2.504e+04	1.23	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	3.117e+04	3.017e+04	1.03	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:53	2.745e+04	2.621e+04	1.05	yes	no	1.000
10	Unk	OCDF	42:31	4.513e+04	5.003e+04	0.90	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:30	4.292e+03	5.668e+03	0.76	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:22	2.763e+04	1.763e+04	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:37	2.533e+04	1.886e+04	1.34	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	2.355e+04	2.006e+04	1.17	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:00	2.633e+04	2.115e+04	1.24	yes	no	1.009
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	2.208e+04	2.055e+04	1.07	yes	no	1.000
17	Unk	OCDD	42:22	3.714e+04	4.199e+04	0.88	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:34	6.038e+04	7.638e+04	0.79	yes	no	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:12	8.063e+04	5.085e+04	1.59	yes	no	1.140
20	IS	13C-2,3,4,7,8-PeCDF	32:59	7.571e+04	4.842e+04	1.56	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	3.432e+04	6.706e+04	0.51	yes	no	0.970
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	3.963e+04	7.748e+04	0.51	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	3.641e+04	6.971e+04	0.52	yes	no	0.986
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	3.358e+04	6.417e+04	0.52	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	2.807e+04	6.194e+04	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	2.388e+04	5.415e+04	0.44	yes	no	1.078
27	IS	13C-2,3,7,8-TCDD	28:29	4.528e+04	5.838e+04	0.78	yes	no	1.009
28	IS	13C-1,2,3,7,8-PeCDD	33:21	5.971e+04	3.805e+04	1.57	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	4.353e+04	3.432e+04	1.27	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	5.677e+04	4.443e+04	1.28	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	4.446e+04	4.262e+04	1.04	yes	no	1.068
32	IS	13C-OCDD	42:21	7.687e+04	8.542e+04	0.90	yes	no	1.145
33	RS/RT	13C-1,2,3,4-TCDD	28:14	4.376e+04	5.521e+04	0.79	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	5.150e+04	4.063e+04	1.27	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:30	1.037e+04				no	1.009

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19408 Park Row, Suite 320
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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS3

Run #4 Filename P113051 Samp: 1 Inj: 1 Acquired: 24-MAR-11 09:42:03
Processed: 25-MAR-11 12:15:071 LAB. ID: D12-2-1BC

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	6.78e+05	6.80e+02	1.0e+03	8.44e+05	8.68e+02	9.7e+02
2	1,2,3,7,8-PeCDF	6.32e+06	5.60e+02	1.1e+04	4.05e+06	8.08e+02	5.0e+03
3	2,3,4,7,8-PeCDF	6.92e+06	5.60e+02	1.2e+04	4.35e+06	8.08e+02	5.4e+03
4	1,2,3,4,7,8-HxCDF	7.09e+06	8.80e+02	8.1e+03	5.74e+06	7.56e+02	7.6e+03
5	1,2,3,6,7,8-HxCDF	7.34e+06	8.80e+02	8.3e+03	5.90e+06	7.56e+02	7.8e+03
6	2,3,4,6,7,8-HxCDF	6.79e+06	8.80e+02	7.7e+03	5.57e+06	7.56e+02	7.4e+03
7	1,2,3,7,8,9-HxCDF	5.89e+06	8.80e+02	6.7e+03	4.73e+06	7.56e+02	6.3e+03
8	1,2,3,4,6,7,8-HpCDF	6.46e+06	4.20e+03	1.5e+03	6.31e+06	4.26e+03	1.5e+03
9	1,2,3,4,7,8,9-HpCDF	5.03e+06	4.20e+03	1.2e+03	4.84e+06	4.26e+03	1.1e+03
10	OCDF	7.47e+06	6.16e+02	1.2e+04	8.37e+06	8.32e+02	1.0e+04
11	2,3,7,8-TCDD	6.06e+05	9.76e+02	6.2e+02	7.93e+05	8.88e+02	8.9e+02
12	1,2,3,7,8-PeCDD	4.99e+06	8.48e+02	5.9e+03	3.22e+06	5.52e+02	5.8e+03
13	1,2,3,4,7,8-HxCDD	5.50e+06	7.08e+02	7.8e+03	4.33e+06	6.36e+02	6.8e+03
14	1,2,3,6,7,8-HxCDD	5.00e+06	7.08e+02	7.1e+03	4.00e+06	6.36e+02	6.3e+03
15	1,2,3,7,8,9-HxCDD	5.24e+06	7.08e+02	7.4e+03	4.24e+06	6.36e+02	6.7e+03
16	1,2,3,4,6,7,8-HpCDD	4.49e+06	8.76e+02	5.1e+03	4.26e+06	4.24e+02	1.0e+04
17	OCDD	6.32e+06	6.48e+02	9.8e+03	7.20e+06	6.56e+02	1.1e+04
18	13C-2,3,7,8-TCDF	8.24e+06	1.10e+03	7.5e+03	1.03e+07	1.06e+03	9.7e+03
19	13C-1,2,3,7,8-PeCDF	1.43e+07	6.28e+02	2.3e+04	9.02e+06	7.44e+02	1.2e+04
20	13C-2,3,4,7,8-PeCDF	1.38e+07	6.28e+02	2.2e+04	8.87e+06	7.44e+02	1.2e+04
21	13C-1,2,3,4,7,8-HxCDF	7.59e+06	5.60e+02	1.4e+04	1.47e+07	8.56e+02	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	7.92e+06	5.60e+02	1.4e+04	1.50e+07	8.56e+02	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	7.70e+06	5.60e+02	1.4e+04	1.47e+07	8.56e+02	1.7e+04
24	13C-1,2,3,7,8,9-HxCDF	6.61e+06	5.60e+02	1.2e+04	1.24e+07	8.56e+02	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	5.94e+06	1.49e+03	4.0e+03	1.29e+07	1.20e+03	1.1e+04
26	13C-1,2,3,4,7,8,9-HpCDF	4.45e+06	1.49e+03	3.0e+03	1.01e+07	1.20e+03	8.4e+03
27	13C-2,3,7,8-TCDD	6.92e+06	2.81e+03	2.5e+03	8.85e+06	1.30e+03	6.8e+03
28	13C-1,2,3,7,8-PeCDD	1.13e+07	7.48e+02	1.5e+04	7.24e+06	7.12e+02	1.0e+04
29	13C-1,2,3,4,7,8-HxCDD	1.03e+07	1.18e+03	8.7e+03	8.01e+06	7.28e+02	1.1e+04
30	13C-1,2,3,6,7,8-HxCDD	1.15e+07	1.18e+03	9.8e+03	9.14e+06	7.28e+02	1.3e+04
31	13C-1,2,3,4,6,7,8-HpCDD	9.19e+06	7.00e+02	1.3e+04	8.67e+06	5.72e+02	1.5e+04
32	13C-OCDD	1.32e+07	6.68e+02	2.0e+04	1.49e+07	6.64e+02	2.2e+04
33	13C-1,2,3,4-TCDD	6.90e+06	2.81e+03	2.5e+03	8.71e+06	1.30e+03	6.7e+03
34	13C-1,2,3,7,8,9-HxCDD	1.07e+07	1.18e+03	9.0e+03	8.43e+06	7.28e+02	1.2e+04
35	37Cl-2,3,7,8-TCDD	1.45e+06	1.14e+03	1.3e+03			

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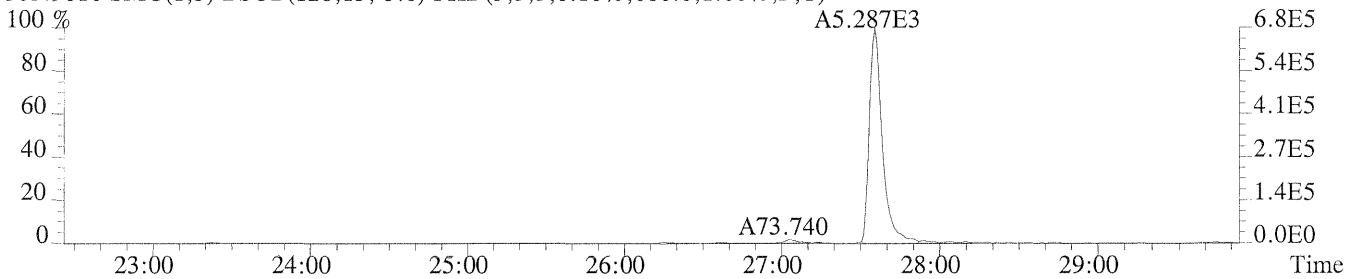
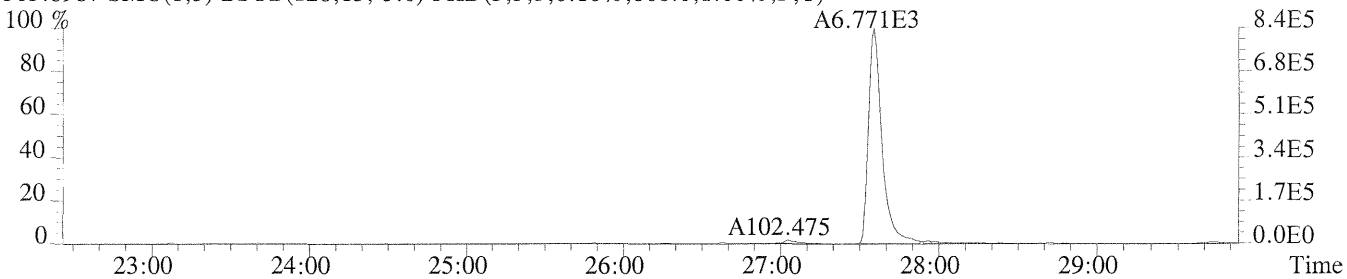
File:P113051 #1-621 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

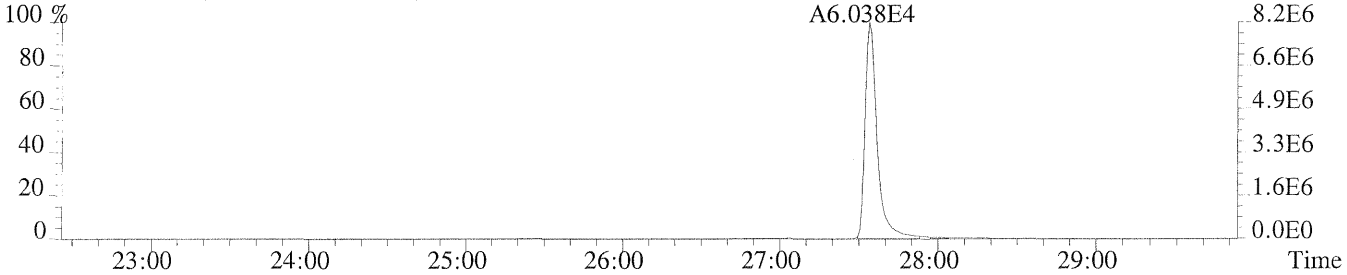
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



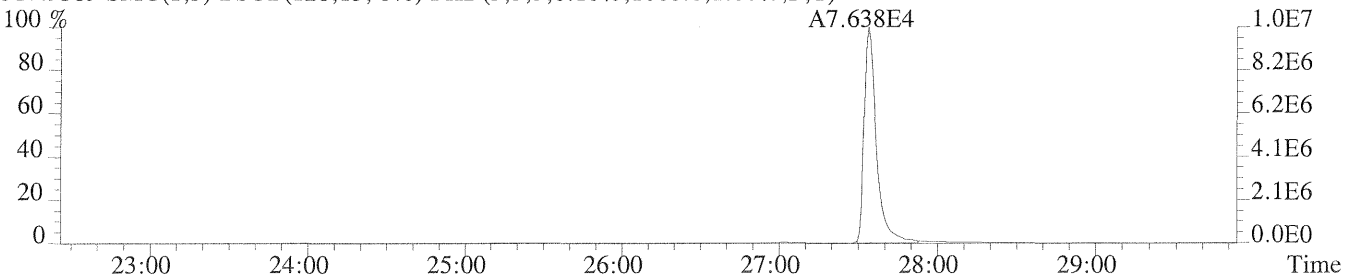
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,868.0,1.00%,F,T)



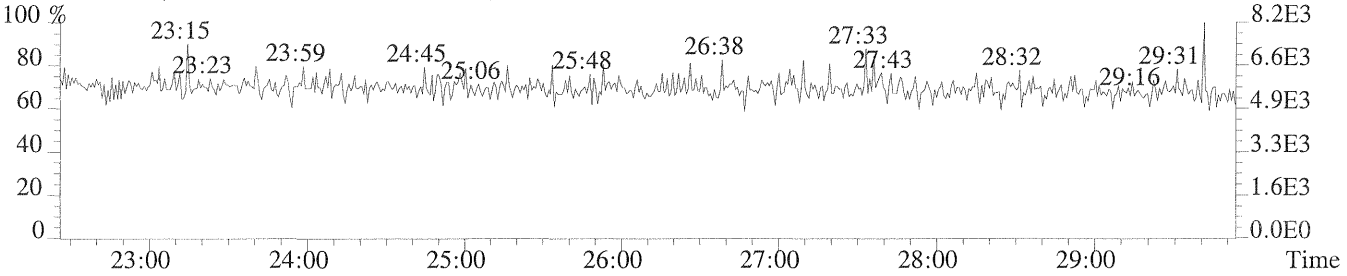
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1104.0,1.00%,F,T)



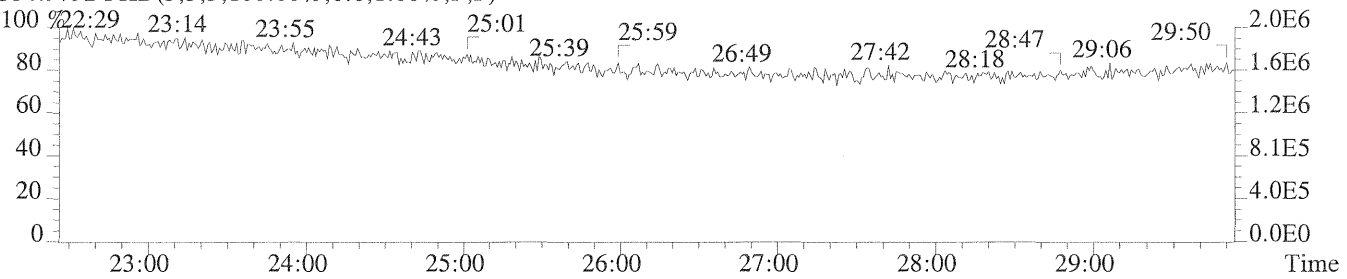
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1060.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

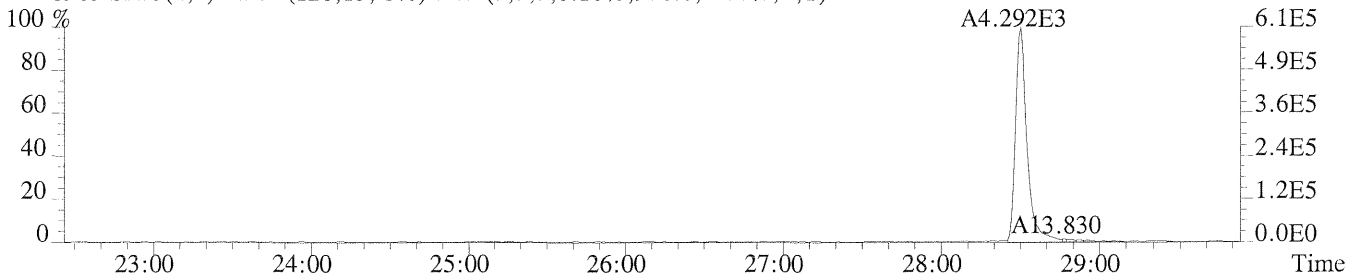


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

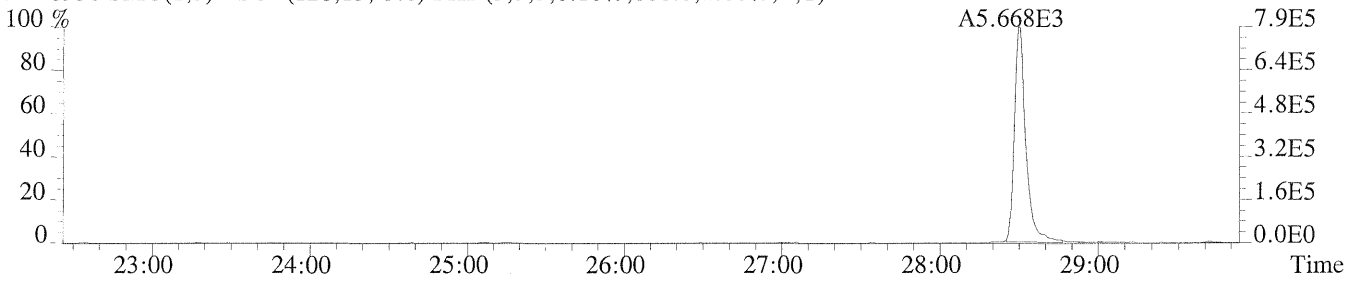


File:P113051 #1-621 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

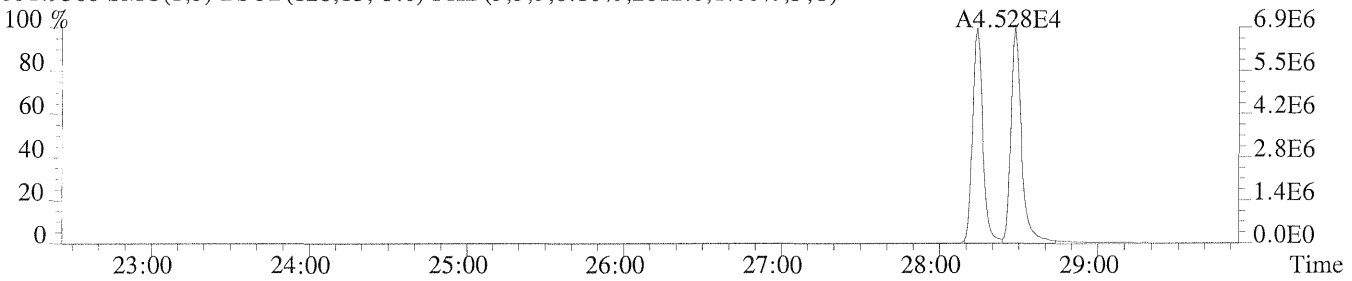
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,976.0,1.00%,F,T)



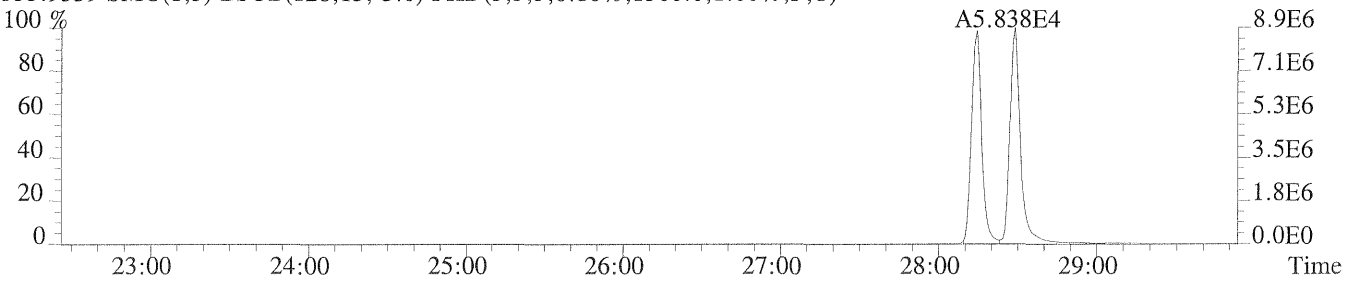
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,888.0,1.00%,F,T)



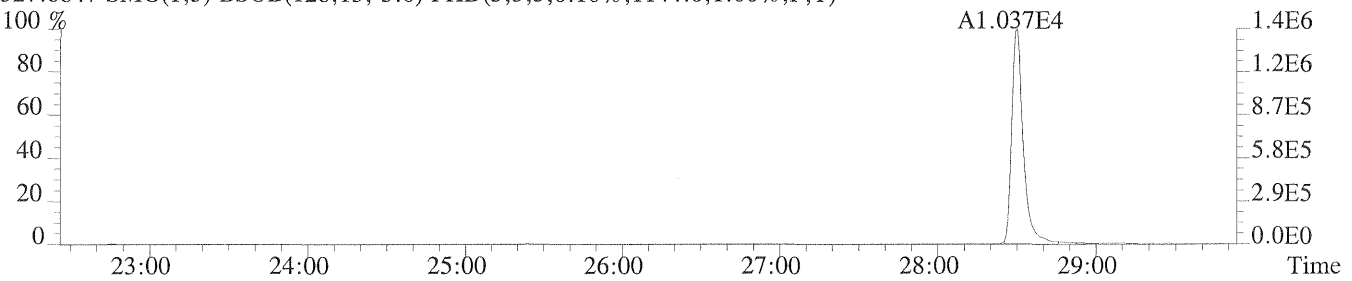
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2812.0,1.00%,F,T)



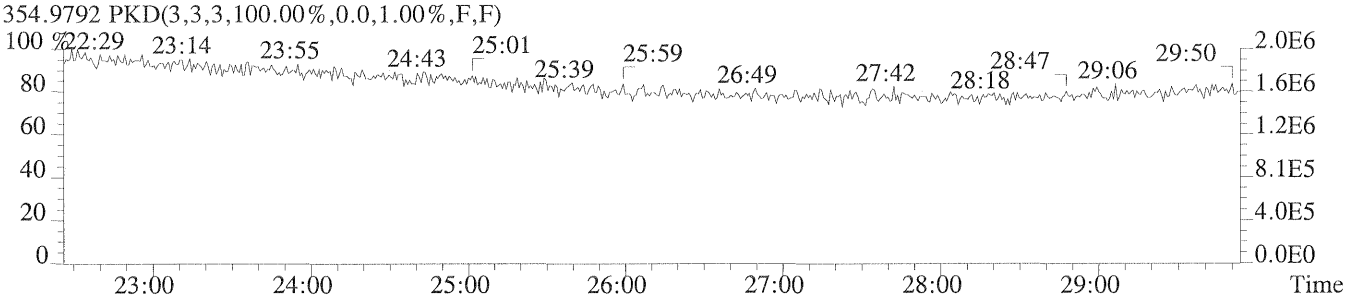
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1300.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1144.0,1.00%,F,T)

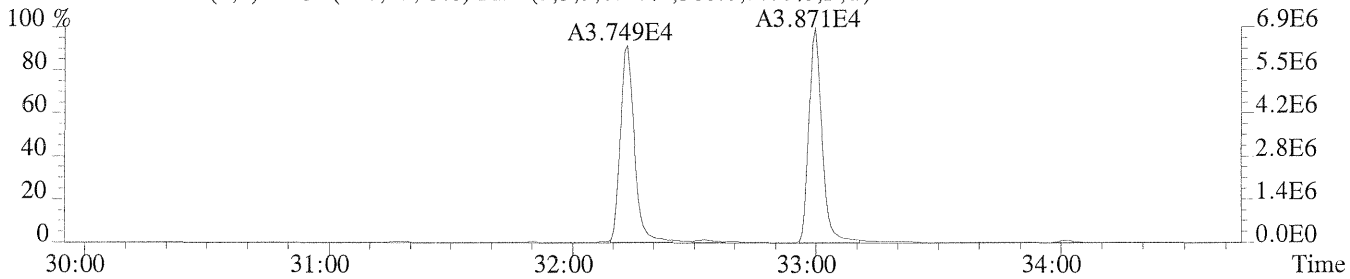


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

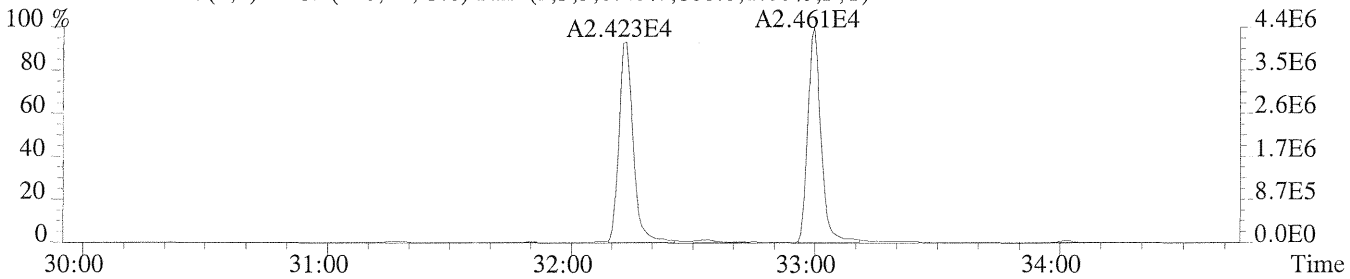


File:P113051 #1-437 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

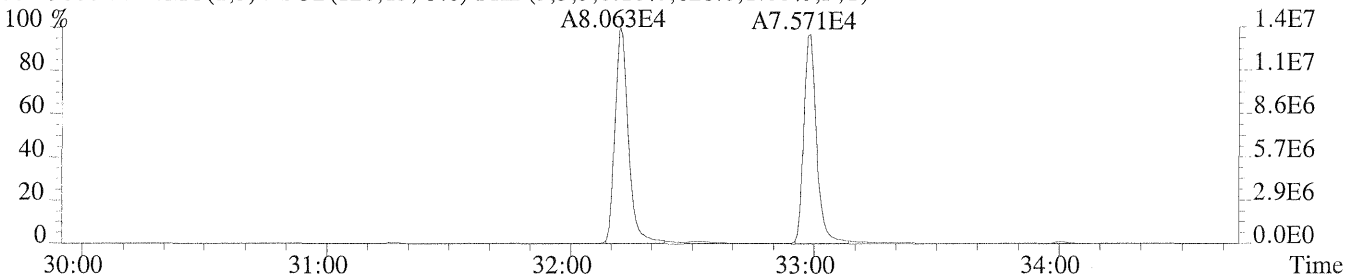
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,560.0,1.00%,F,T)



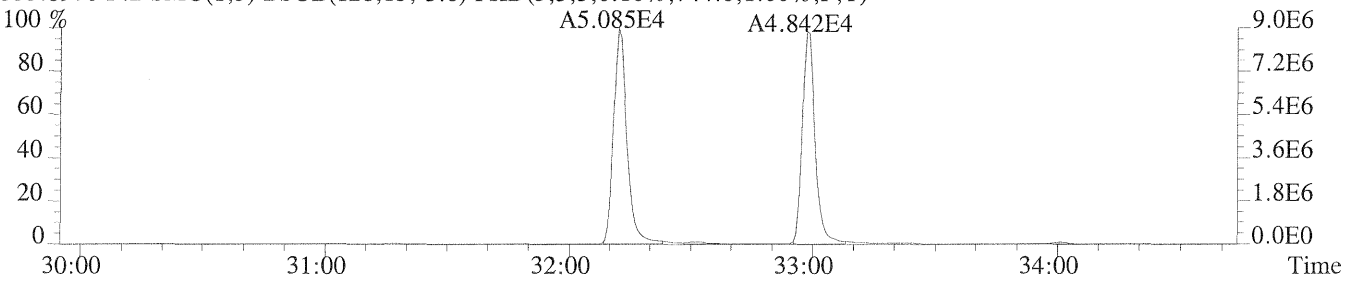
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,808.0,1.00%,F,T)



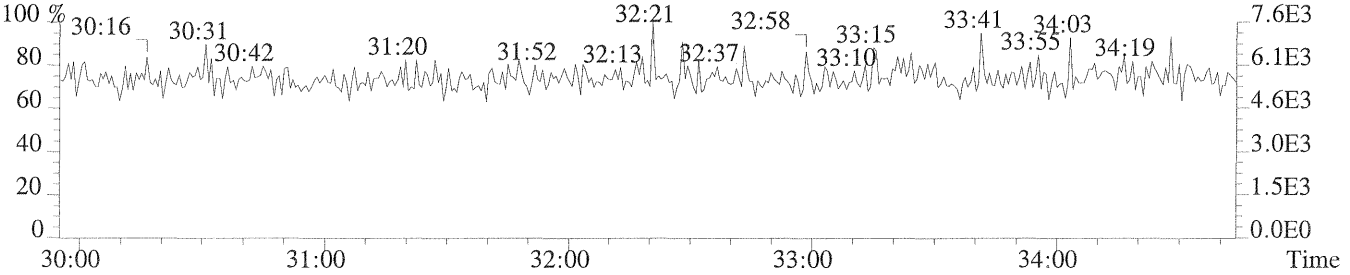
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,628.0,1.00%,F,T)



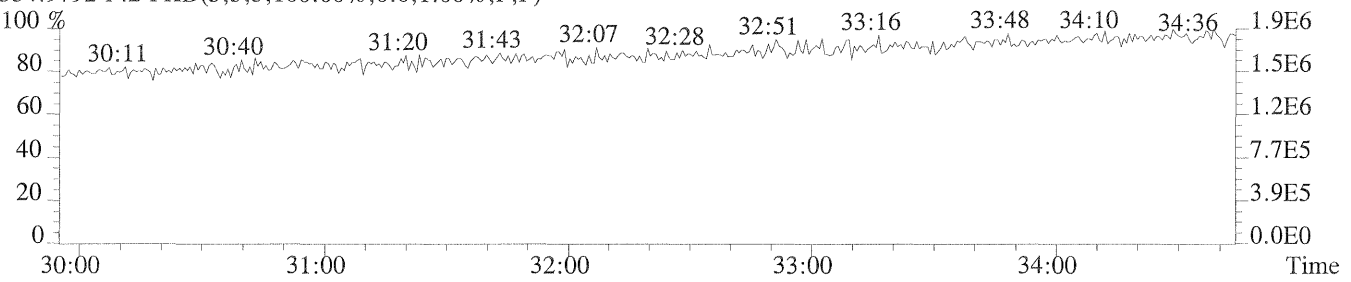
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,744.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

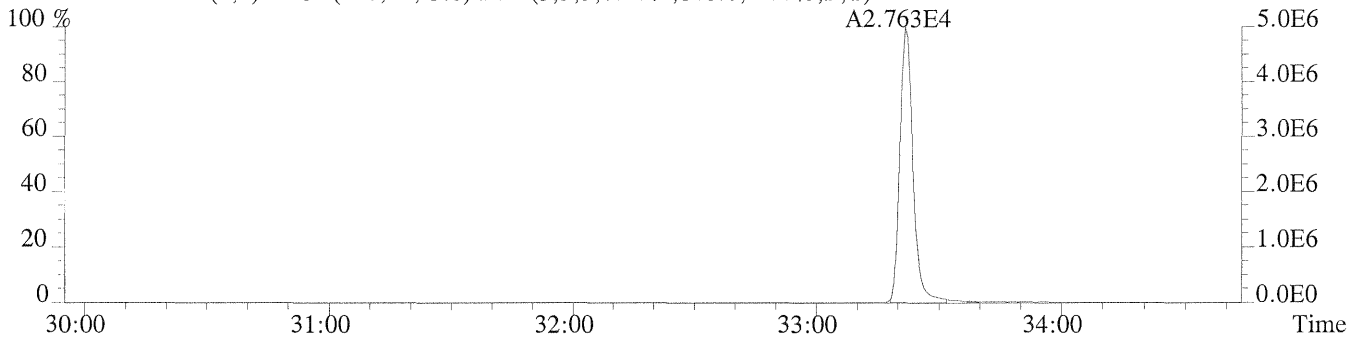


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

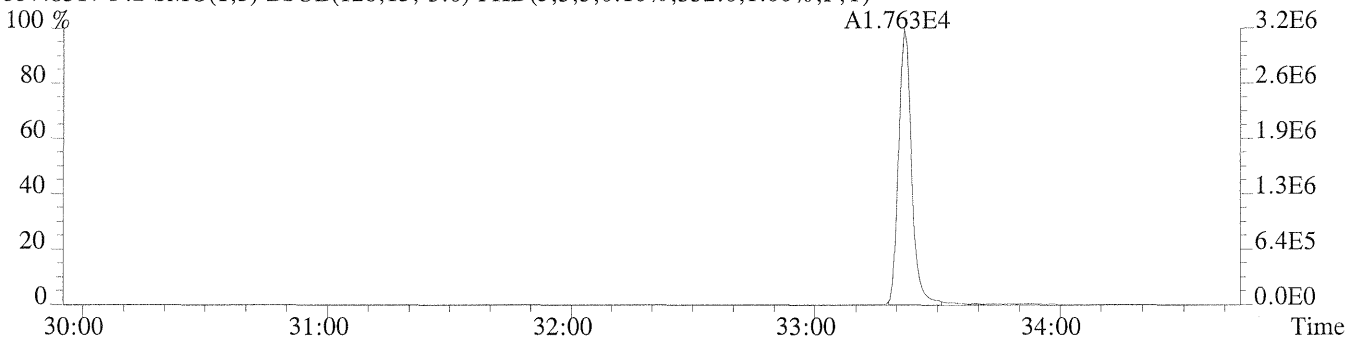


File:P113051 #1-437 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

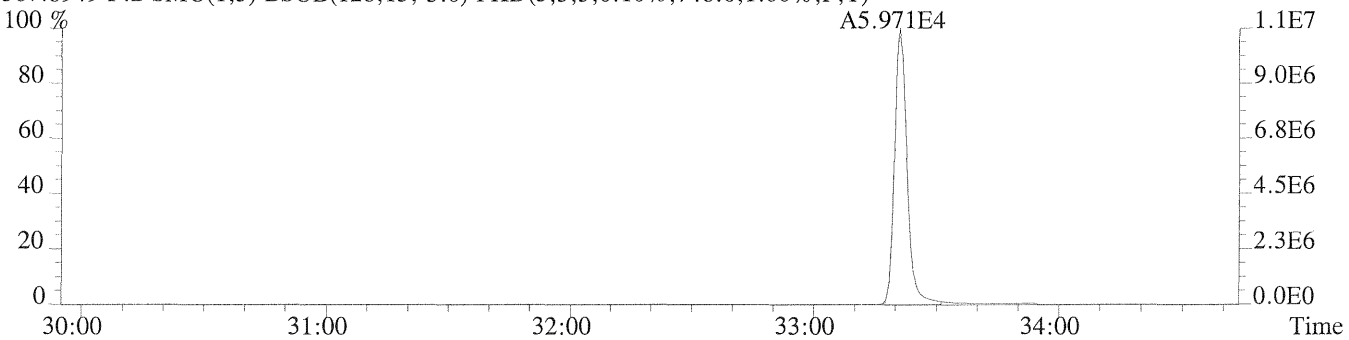
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



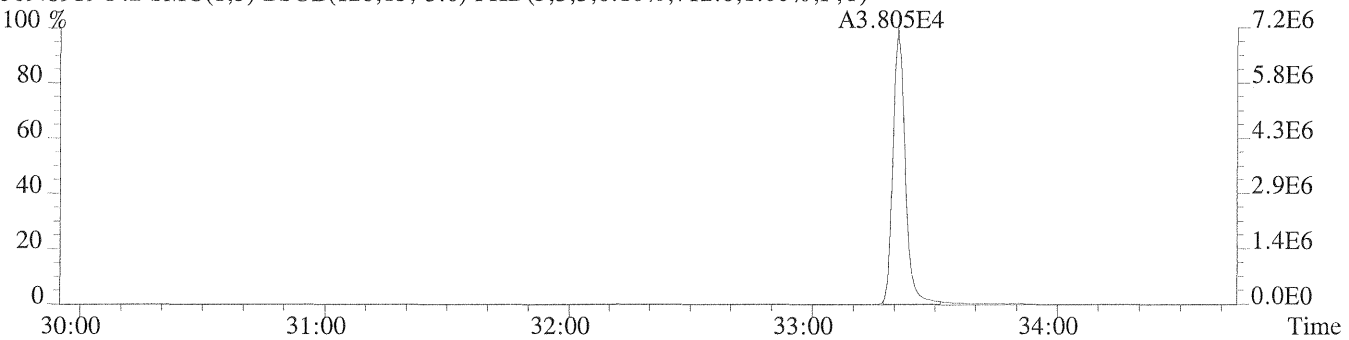
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,552.0,1.00%,F,T)



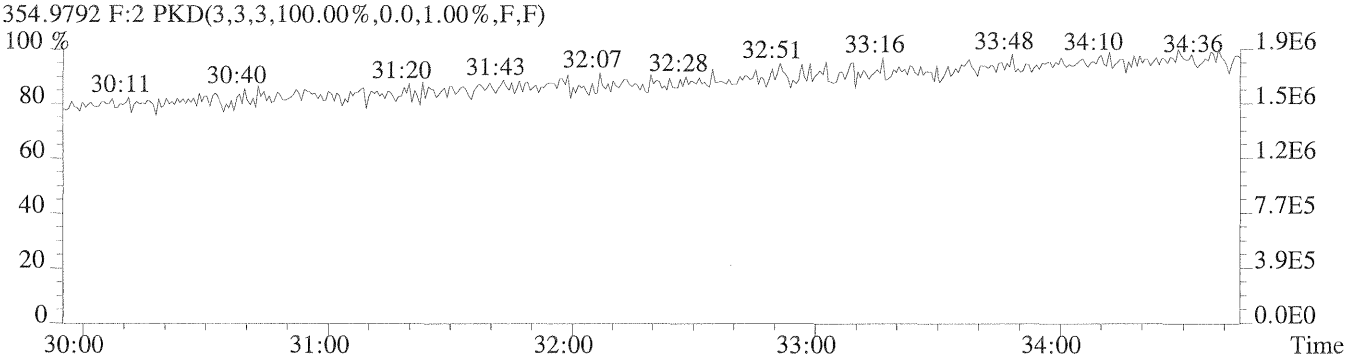
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)

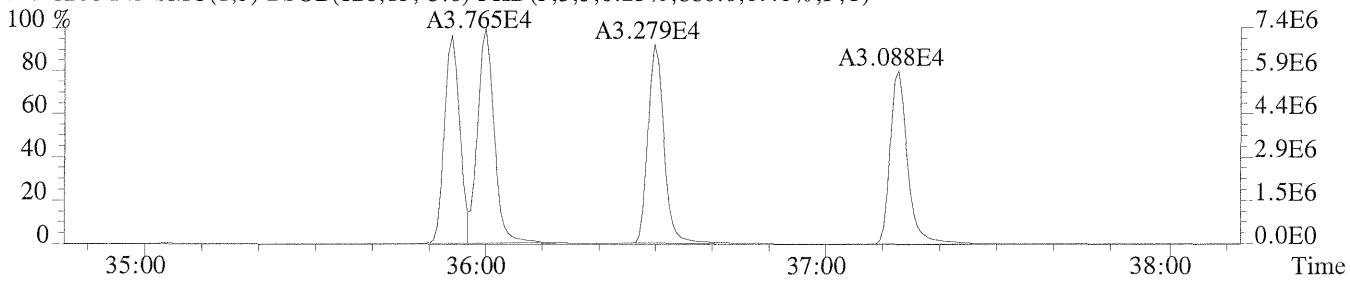


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

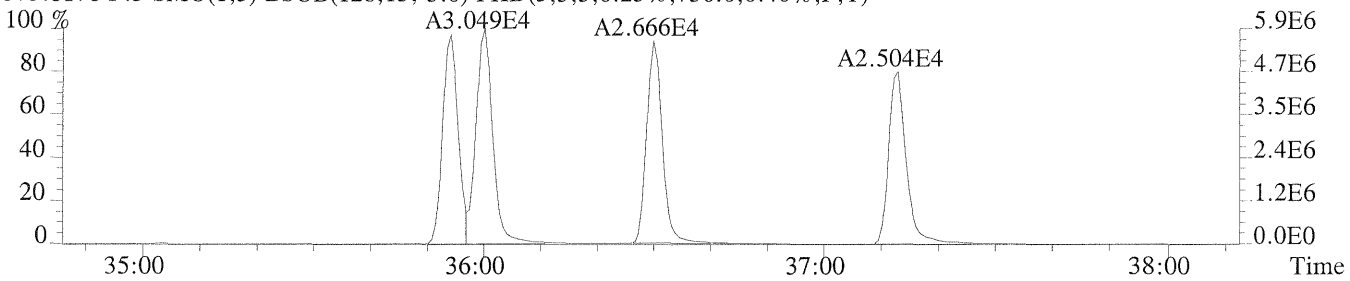


File:P113051 #1-313 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

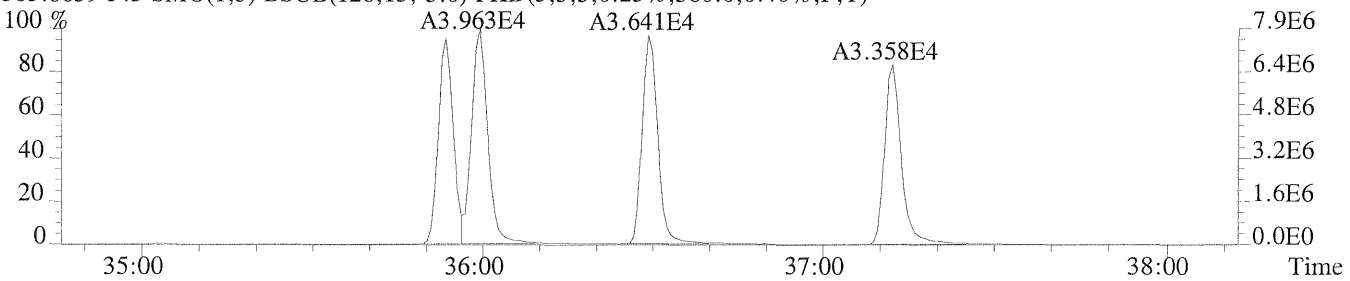
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,880.0,0.40%,F,T)



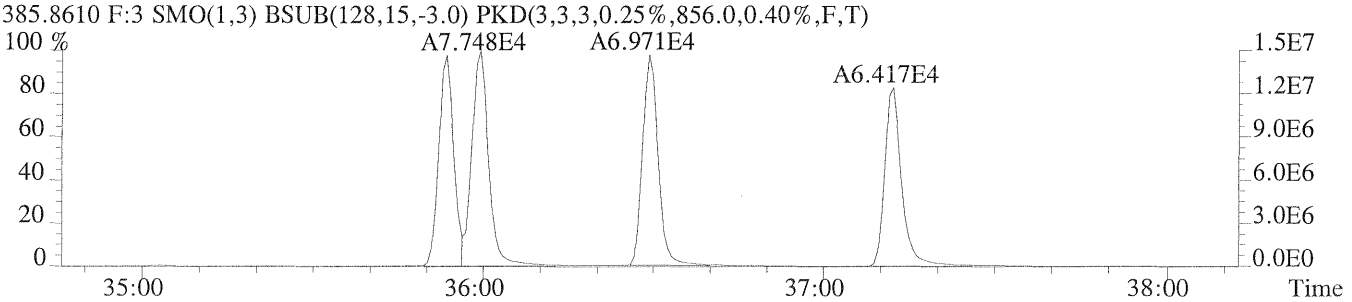
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,756.0,0.40%,F,T)



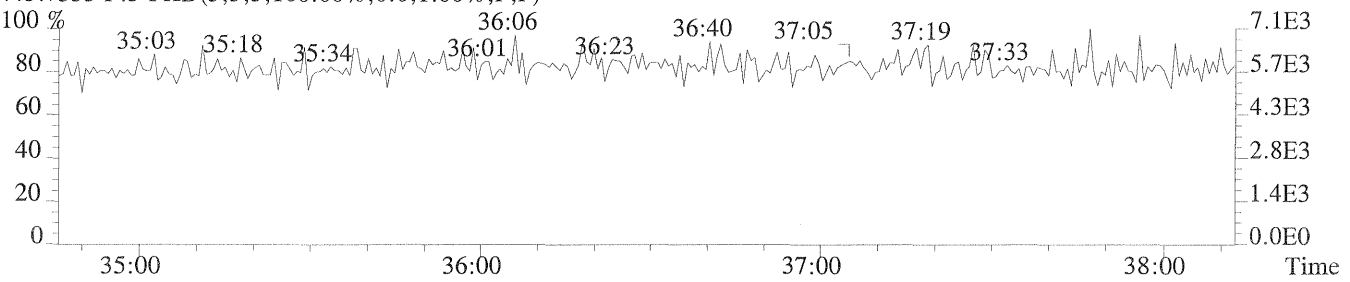
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,560.0,0.40%,F,T)



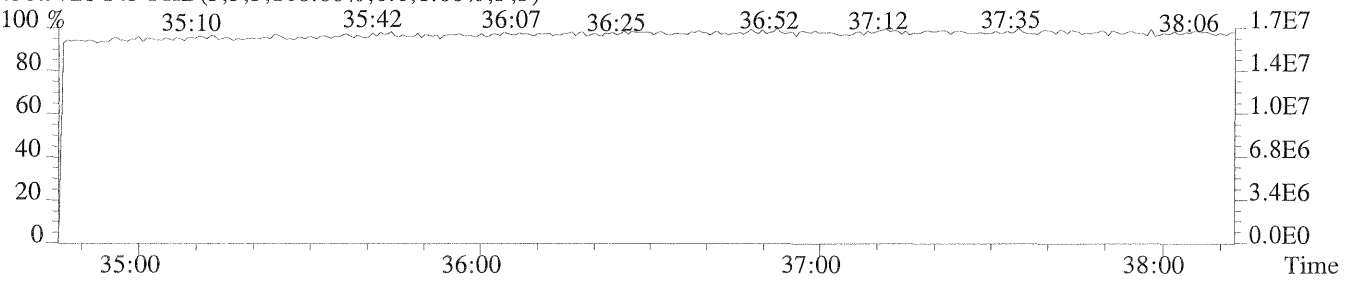
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,856.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

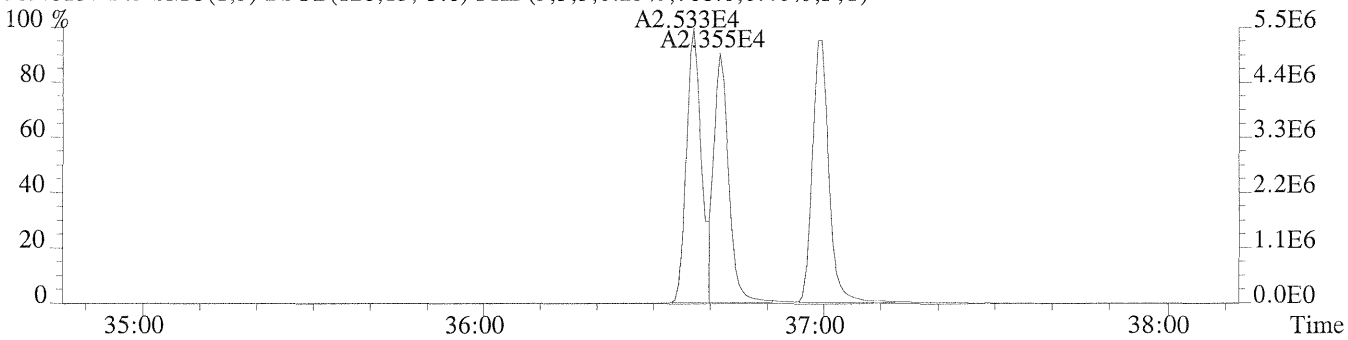


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

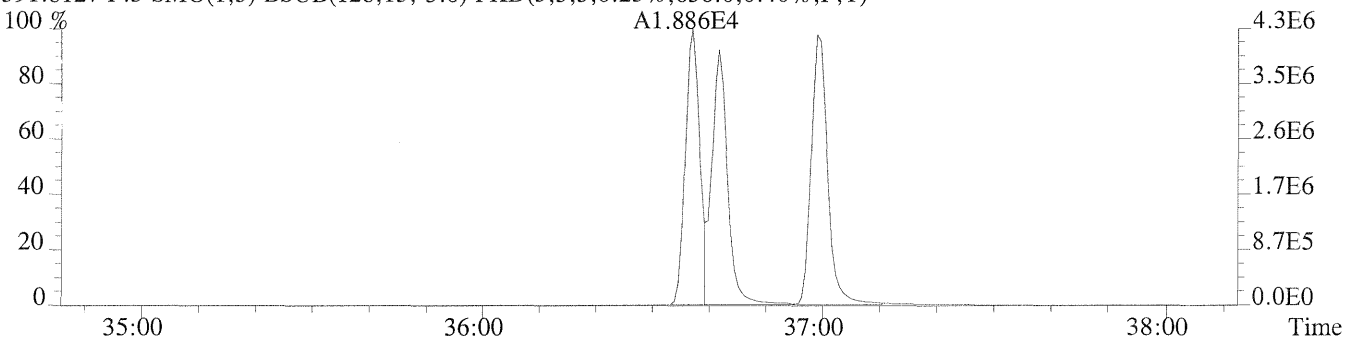


File:P113051 #1-313 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

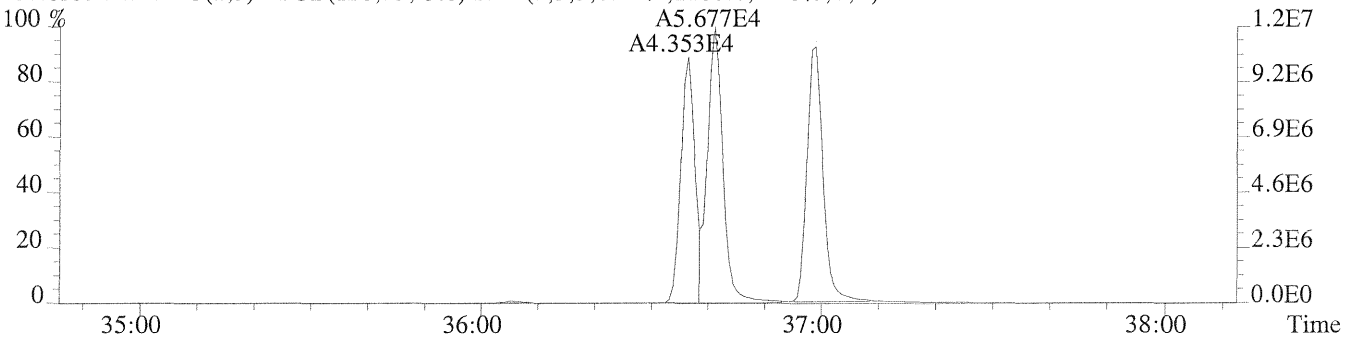
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,708.0,0.40%,F,T)



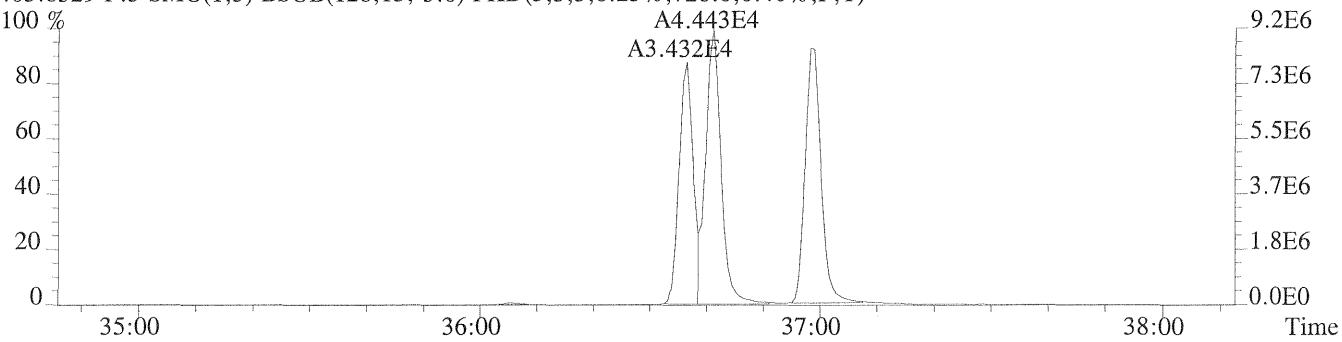
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,636.0,0.40%,F,T)



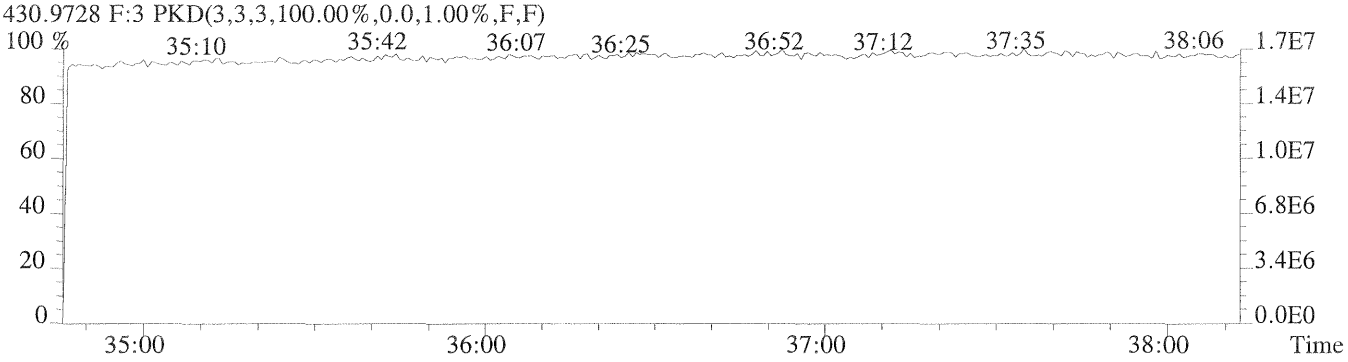
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1180.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,728.0,0.40%,F,T)

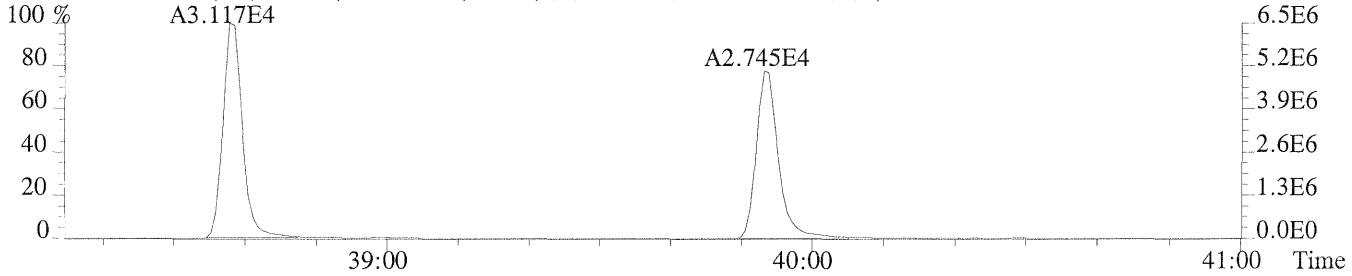


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

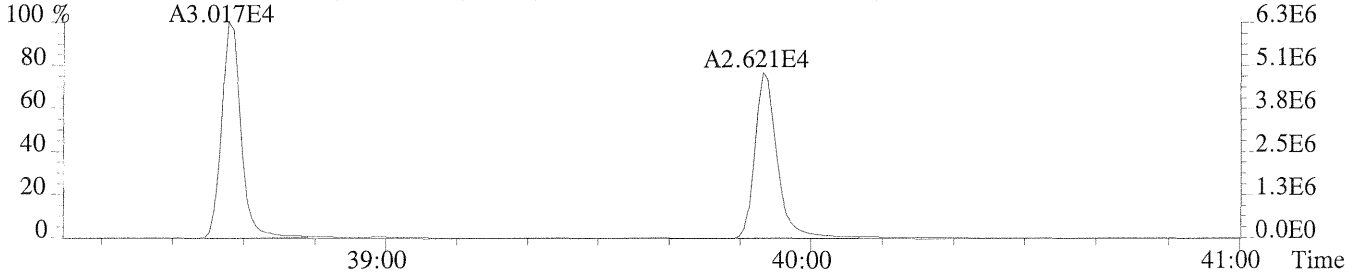


File:P113051 #1-251 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

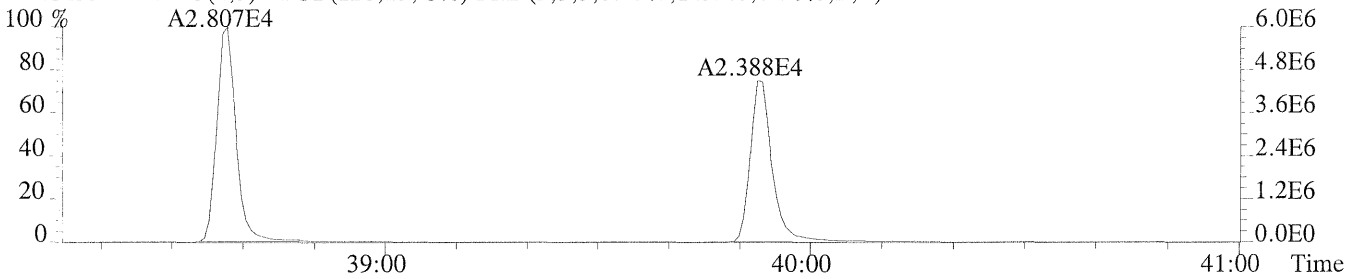
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4204.0,0.50%,F,T)



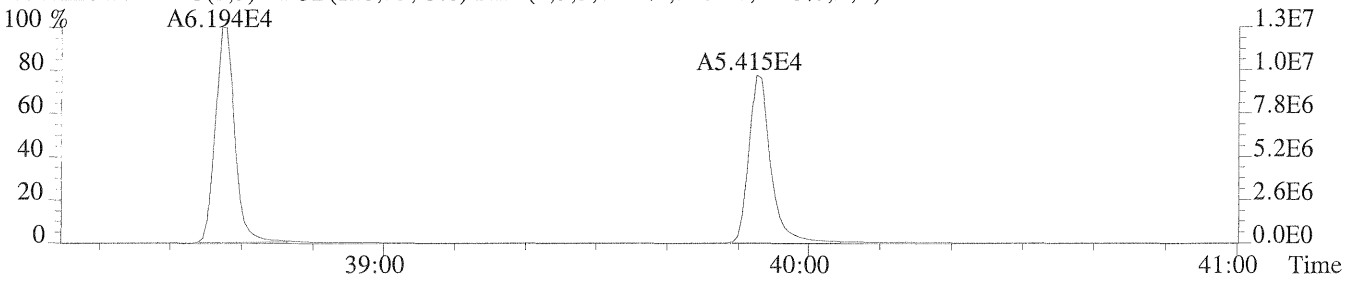
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,4260.0,0.50%,F,T)



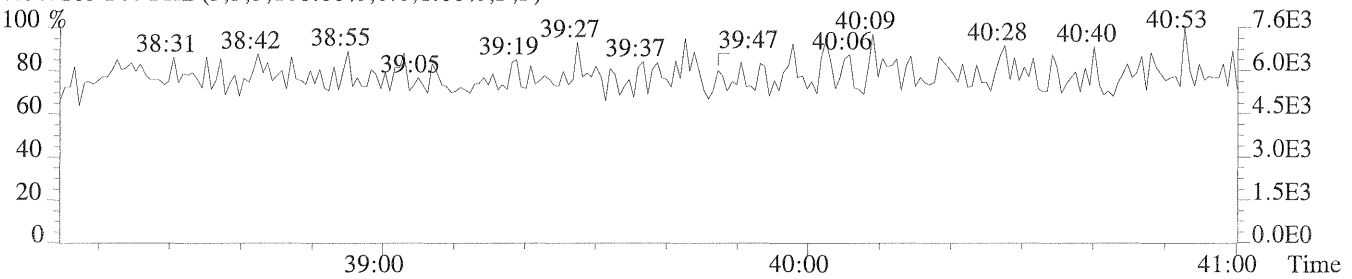
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1492.0,0.50%,F,T)



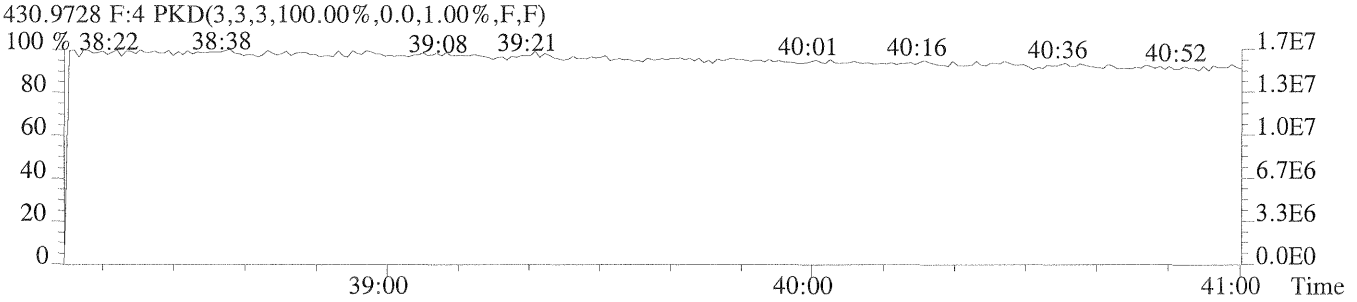
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

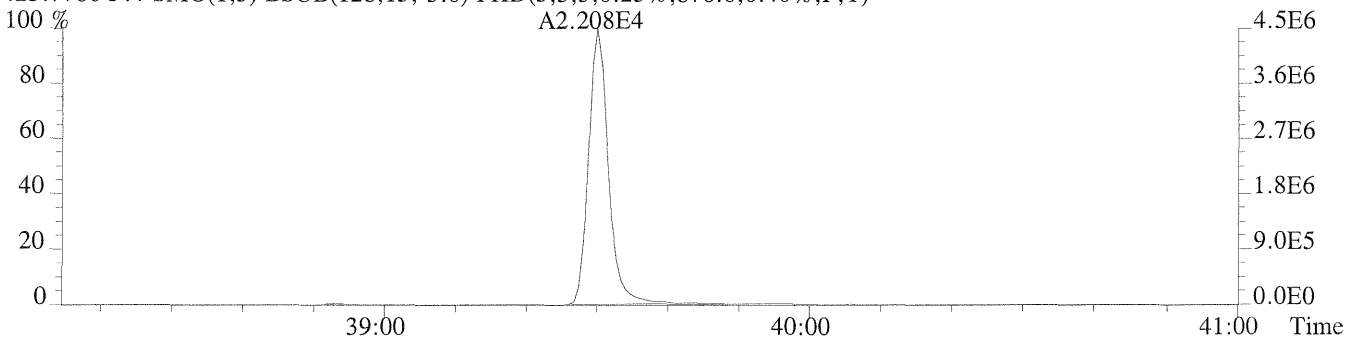


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

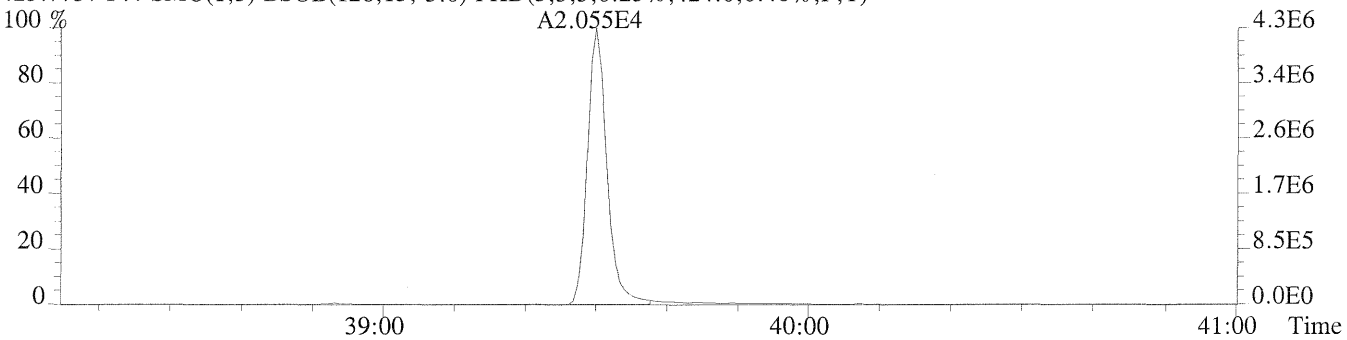


File:P113051 #1-251 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

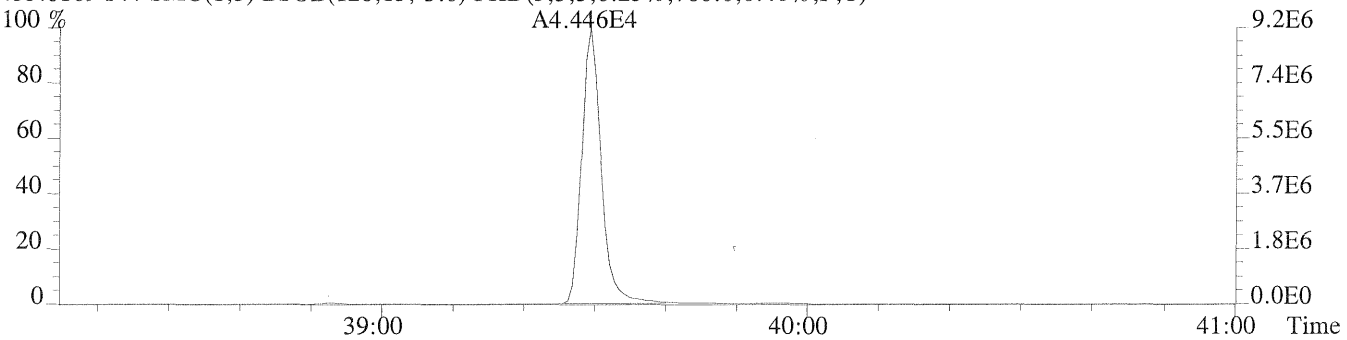
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,876.0,0.40%,F,T)



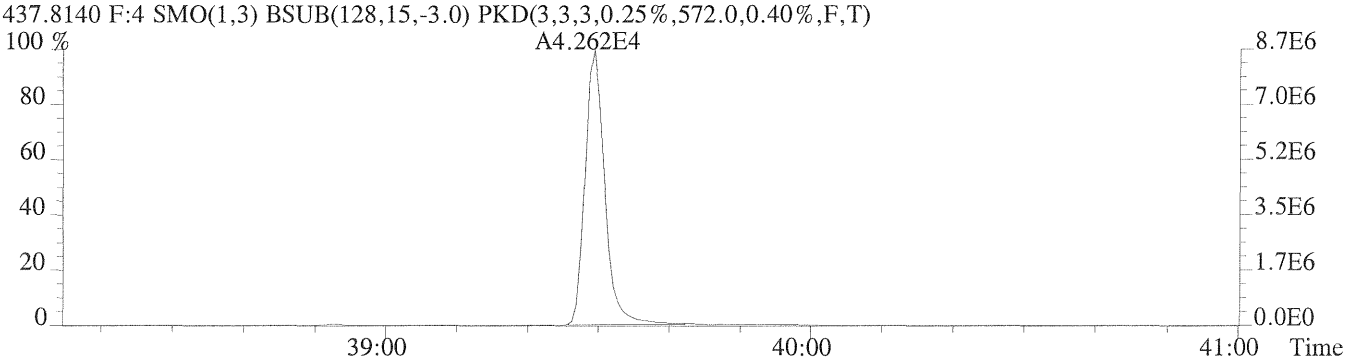
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,424.0,0.40%,F,T)



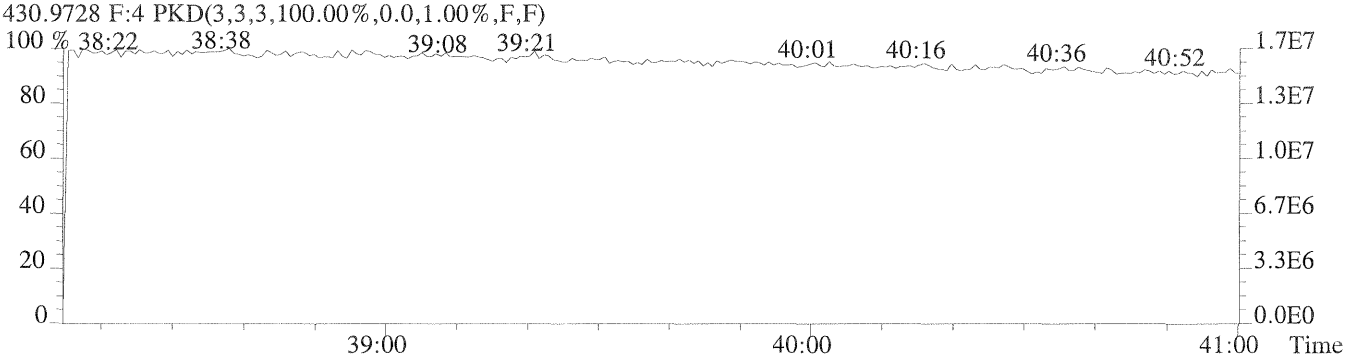
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,700.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,572.0,0.40%,F,T)

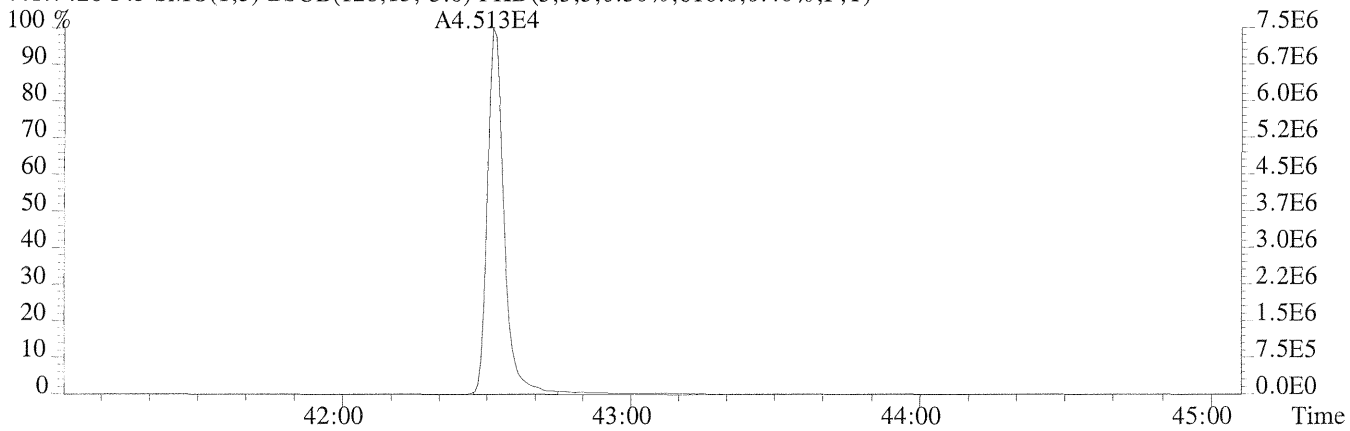


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

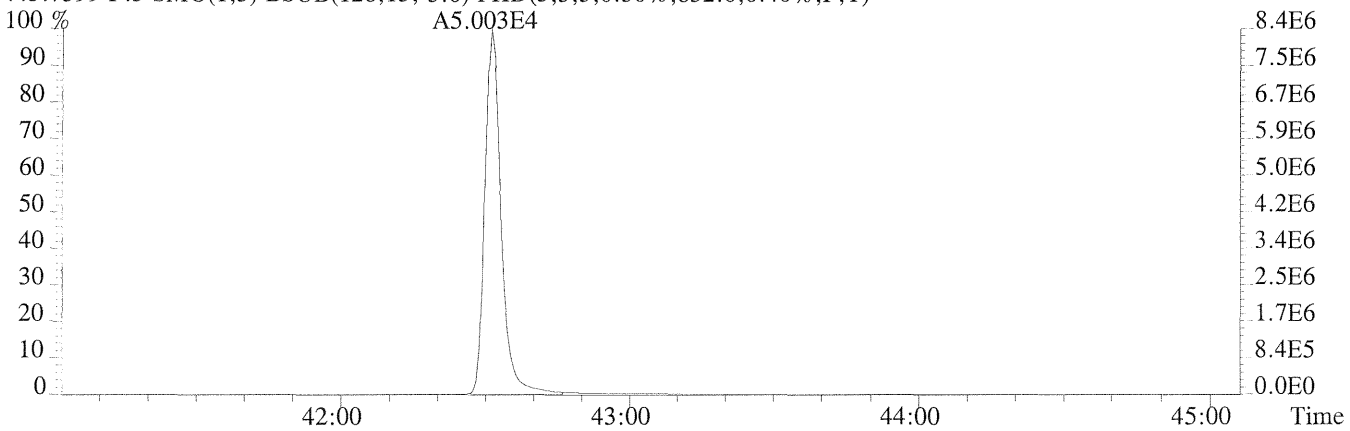


File:P113051 #1-374 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

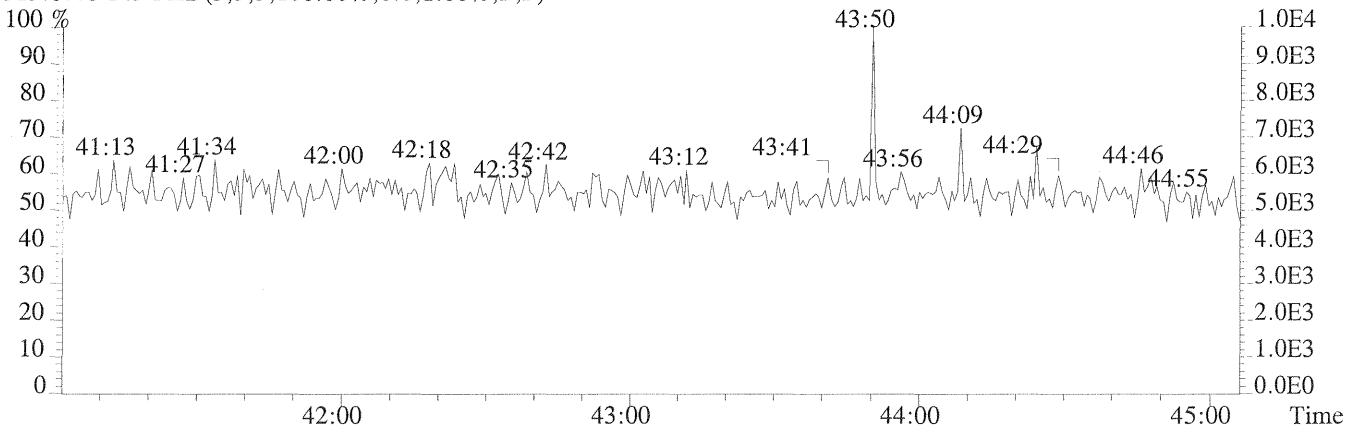
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



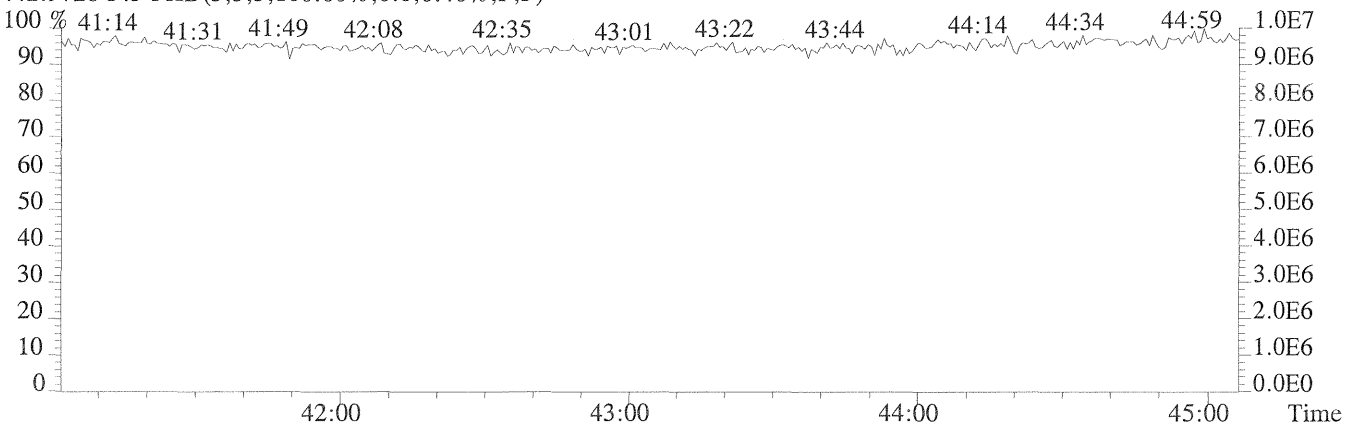
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,832.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

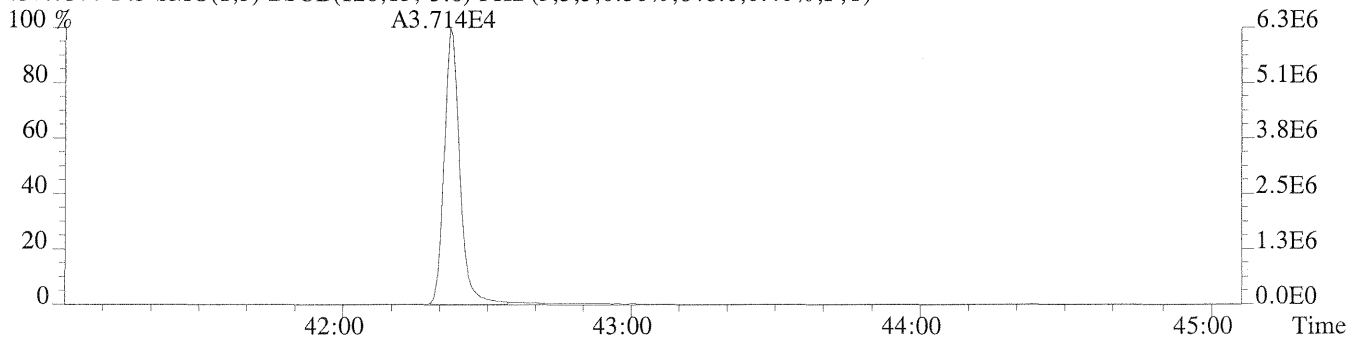


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

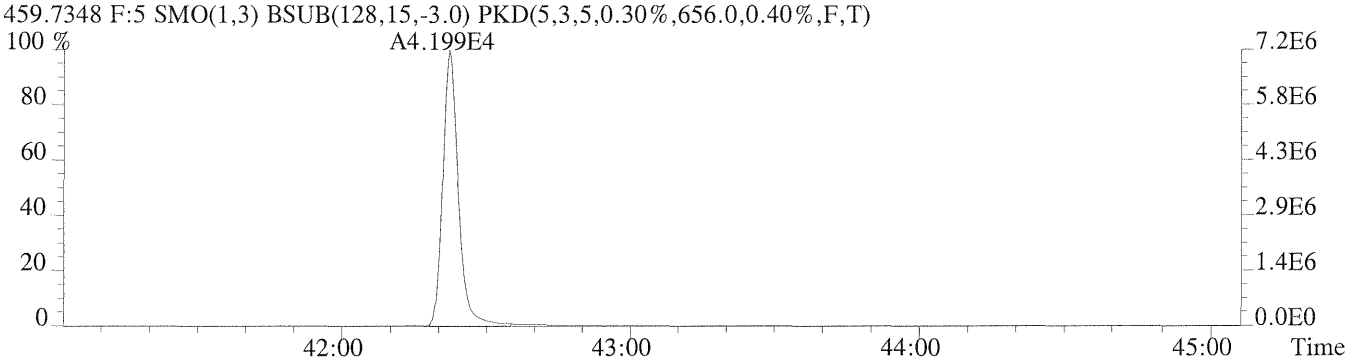


File:P113051 #1-374 Acq:24-MAR-2011 09:42:03 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

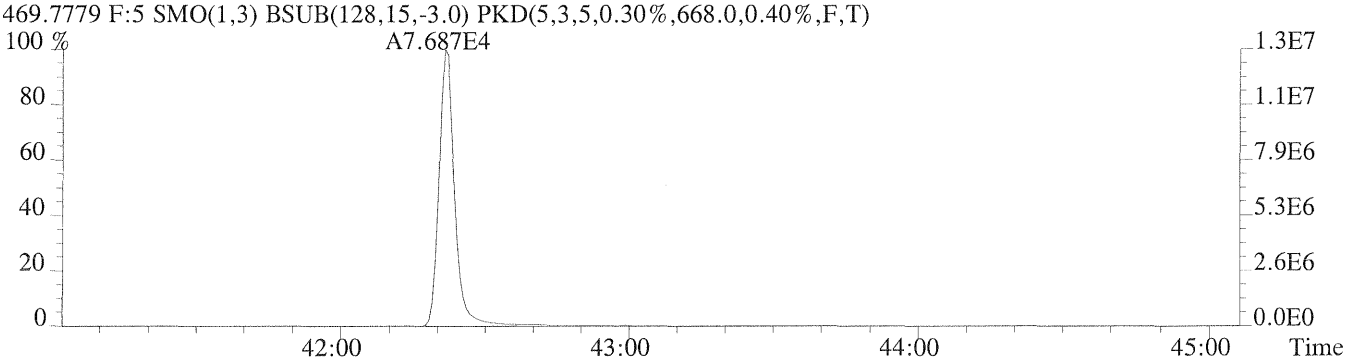
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,648.0,0.40%,F,T)



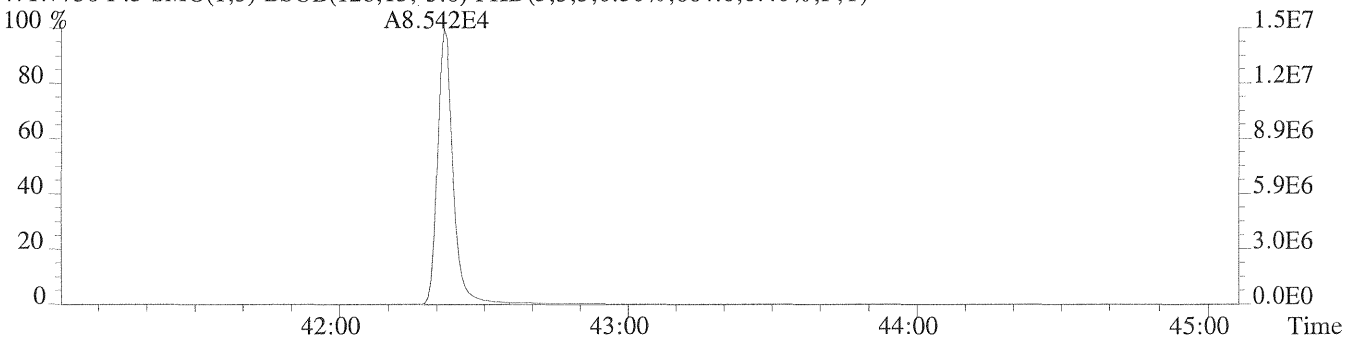
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,656.0,0.40%,F,T)



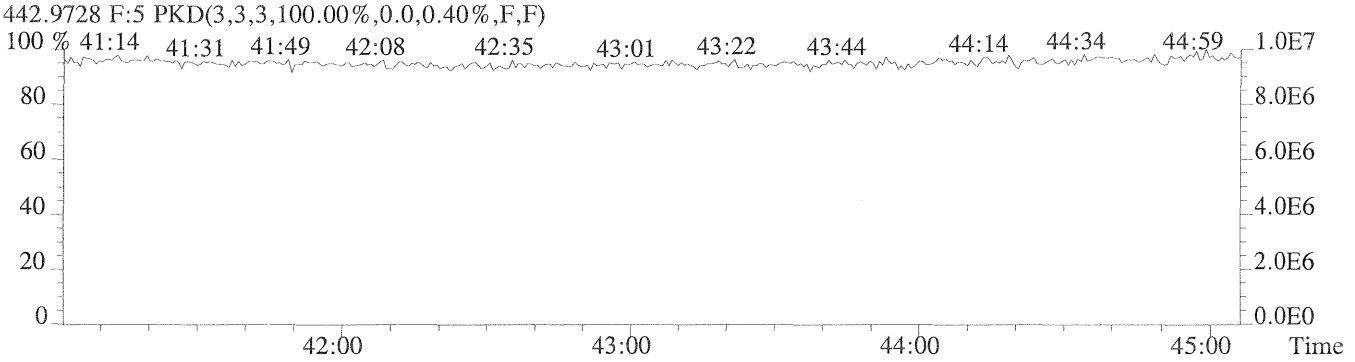
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,668.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,664.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS4

Run #5 Filename P113056 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 14:31:12
Processed: 25-MAR-11 12:15:25 LAB. ID: D12-2-1BD

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:35	2.926e+04	3.820e+04	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:13	2.062e+05	1.337e+05	1.54	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	32:59	2.088e+05	1.345e+05	1.55	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:54	1.734e+05	1.393e+05	1.24	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.949e+05	1.556e+05	1.25	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:30	1.730e+05	1.397e+05	1.24	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:13	1.584e+05	1.271e+05	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.612e+05	1.544e+05	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:53	1.388e+05	1.336e+05	1.04	yes	no	1.000
10	Unk	OCDF	42:31	2.267e+05	2.494e+05	0.91	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:29	2.392e+04	3.135e+04	0.76	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:22	1.440e+05	9.231e+04	1.56	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:37	1.296e+05	9.766e+04	1.33	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	1.193e+05	1.013e+05	1.18	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	36:59	1.309e+05	1.068e+05	1.23	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	1.094e+05	1.044e+05	1.05	yes	no	1.000
17	Unk	OCDD	42:22	1.834e+05	2.062e+05	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:33	8.099e+04	1.034e+05	0.78	yes	no	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:12	1.091e+05	6.927e+04	1.58	yes	no	1.140
20	IS	13C-2,3,4,7,8-PeCDF	32:58	1.022e+05	6.511e+04	1.57	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	4.440e+04	8.545e+04	0.52	yes	no	0.970
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	5.075e+04	9.637e+04	0.53	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	4.685e+04	8.921e+04	0.53	yes	no	0.986
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	4.238e+04	8.184e+04	0.52	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	3.620e+04	8.077e+04	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	3.010e+04	6.782e+04	0.44	yes	no	1.078
27	IS	13C-2,3,7,8-TCDD	28:28	6.204e+04	7.795e+04	0.80	yes	no	1.008
28	IS	13C-1,2,3,7,8-PeCDD	33:21	7.632e+04	4.816e+04	1.58	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	5.553e+04	4.414e+04	1.26	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	7.010e+04	5.536e+04	1.27	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	5.540e+04	5.299e+04	1.05	yes	no	1.068
32	IS	13C-OCDD	42:21	9.228e+04	1.032e+05	0.89	yes	no	1.145
33	RS/RT	13C-1,2,3,4-TCDD	28:14	6.092e+04	7.614e+04	0.80	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	6.636e+04	5.160e+04	1.29	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:29	5.831e+04				no	1.009

Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS4

Run #5 Filename P113056 Samp: 1 Inj: 1 Acquired: 24-MAR-11 14:31:12
Processed: 25-MAR-11 12:15:251 LAB. ID: D12-2-1BD

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.77e+06	4.48e+02	8.4e+03	4.95e+06	5.80e+02	8.5e+03
2	1,2,3,7,8-PeCDF	3.68e+07	7.76e+02	4.7e+04	2.39e+07	7.92e+02	3.0e+04
3	2,3,4,7,8-PeCDF	3.86e+07	7.76e+02	5.0e+04	2.51e+07	7.92e+02	3.2e+04
4	1,2,3,4,7,8-HxCDF	3.80e+07	1.23e+03	3.1e+04	3.04e+07	1.50e+03	2.0e+04
5	1,2,3,6,7,8-HxCDF	3.90e+07	1.23e+03	3.2e+04	3.10e+07	1.50e+03	2.1e+04
6	2,3,4,6,7,8-HxCDF	3.70e+07	1.23e+03	3.0e+04	2.99e+07	1.50e+03	2.0e+04
7	1,2,3,7,8,9-HxCDF	3.09e+07	1.23e+03	2.5e+04	2.50e+07	1.50e+03	1.7e+04
8	1,2,3,4,6,7,8-HpCDF	3.39e+07	1.71e+04	2.0e+03	3.25e+07	6.48e+03	5.0e+03
9	1,2,3,4,7,8,9-HpCDF	2.60e+07	1.71e+04	1.5e+03	2.53e+07	6.48e+03	3.9e+03
10	OCDF	3.90e+07	6.76e+02	5.8e+04	4.32e+07	6.44e+02	6.7e+04
11	2,3,7,8-TCDD	3.57e+06	6.92e+02	5.2e+03	4.58e+06	5.96e+02	7.7e+03
12	1,2,3,7,8-PeCDD	2.72e+07	7.56e+02	3.6e+04	1.75e+07	5.92e+02	3.0e+04
13	1,2,3,4,7,8-HxCDD	2.87e+07	1.26e+03	2.3e+04	2.27e+07	9.64e+02	2.4e+04
14	1,2,3,6,7,8-HxCDD	2.57e+07	1.26e+03	2.0e+04	2.06e+07	9.64e+02	2.1e+04
15	1,2,3,7,8,9-HxCDD	2.70e+07	1.26e+03	2.1e+04	2.21e+07	9.64e+02	2.3e+04
16	1,2,3,4,6,7,8-HpCDD	2.26e+07	1.01e+03	2.2e+04	2.16e+07	7.24e+02	3.0e+04
17	OCDD	3.14e+07	7.36e+02	4.3e+04	3.54e+07	5.96e+02	5.9e+04
18	13C-2,3,7,8-TCDF	1.15e+07	1.10e+03	1.0e+04	1.47e+07	8.12e+02	1.8e+04
19	13C-1,2,3,7,8-PeCDF	2.06e+07	9.24e+02	2.2e+04	1.31e+07	7.20e+02	1.8e+04
20	13C-2,3,4,7,8-PeCDF	1.99e+07	9.24e+02	2.2e+04	1.27e+07	7.20e+02	1.8e+04
21	13C-1,2,3,4,7,8-HxCDF	9.89e+06	7.64e+02	1.3e+04	1.89e+07	1.10e+03	1.7e+04
22	13C-1,2,3,6,7,8-HxCDF	1.03e+07	7.64e+02	1.4e+04	1.97e+07	1.10e+03	1.8e+04
23	13C-2,3,4,6,7,8-HxCDF	1.02e+07	7.64e+02	1.3e+04	1.96e+07	1.10e+03	1.8e+04
24	13C-1,2,3,7,8,9-HxCDF	8.73e+06	7.64e+02	1.1e+04	1.66e+07	1.10e+03	1.5e+04
25	13C-1,2,3,4,6,7,8-HpCDF	7.84e+06	3.86e+03	2.0e+03	1.73e+07	3.68e+03	4.7e+03
26	13C-1,2,3,4,7,8,9-HpCDF	5.83e+06	3.86e+03	1.5e+03	1.30e+07	3.68e+03	3.5e+03
27	13C-2,3,7,8-TCDD	9.81e+06	1.93e+03	5.1e+03	1.23e+07	7.40e+02	1.7e+04
28	13C-1,2,3,7,8-PeCDD	1.50e+07	7.12e+02	2.1e+04	9.43e+06	6.12e+02	1.5e+04
29	13C-1,2,3,4,7,8-HxCDD	1.33e+07	1.76e+03	7.6e+03	1.05e+07	1.44e+03	7.3e+03
30	13C-1,2,3,6,7,8-HxCDD	1.45e+07	1.76e+03	8.3e+03	1.15e+07	1.44e+03	8.0e+03
31	13C-1,2,3,4,6,7,8-HpCDD	1.17e+07	8.20e+02	1.4e+04	1.11e+07	7.32e+02	1.5e+04
32	13C-OCDD	1.61e+07	6.16e+02	2.6e+04	1.81e+07	5.68e+02	3.2e+04
33	13C-1,2,3,4-TCDD	9.48e+06	1.93e+03	4.9e+03	1.20e+07	7.40e+02	1.6e+04
34	13C-1,2,3,7,8,9-HxCDD	1.38e+07	1.76e+03	7.9e+03	1.08e+07	1.44e+03	7.5e+03
35	37Cl-2,3,7,8-TCDD	8.41e+06	9.12e+02	9.2e+03			

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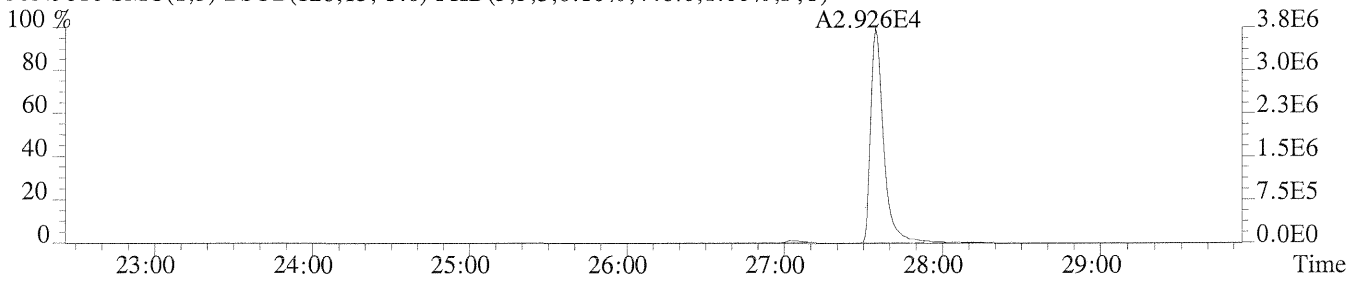
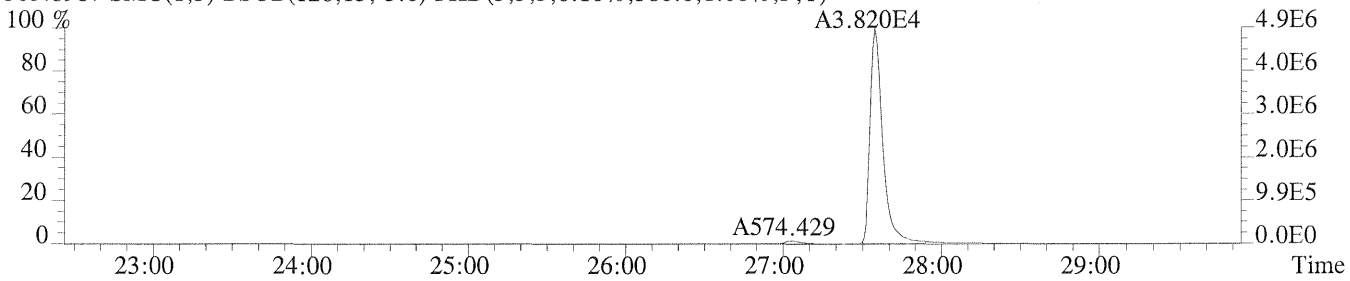
File:P113056 #1-621 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

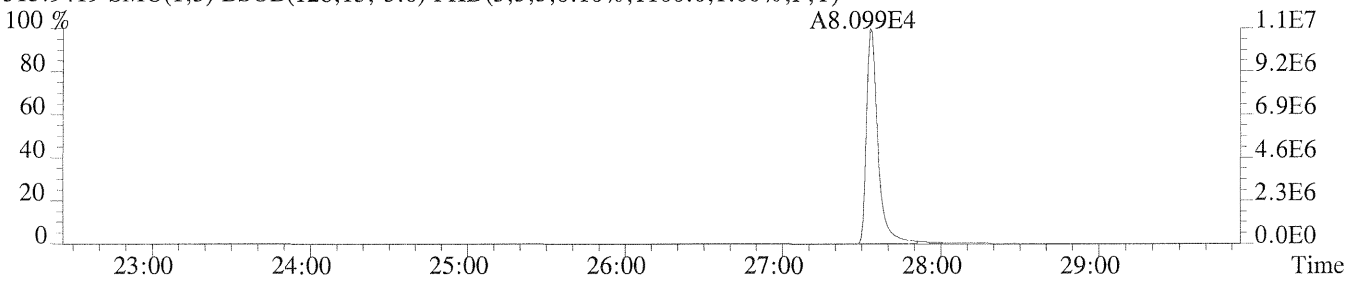
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



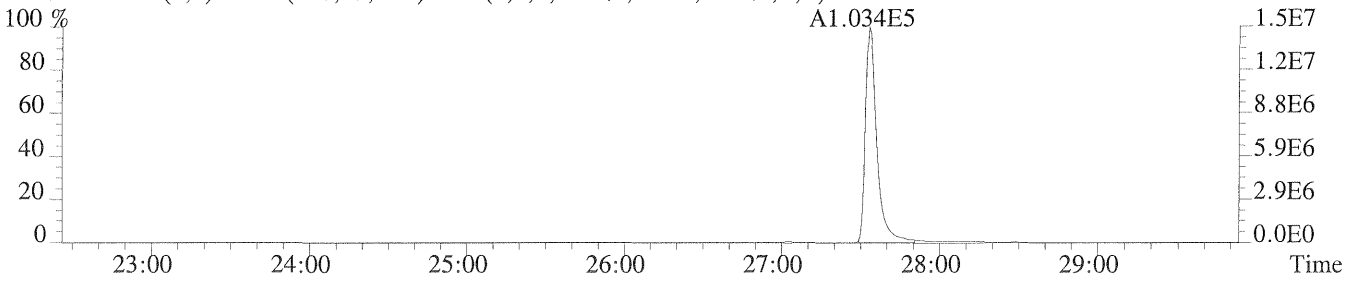
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,580.0,1.00%,F,T)



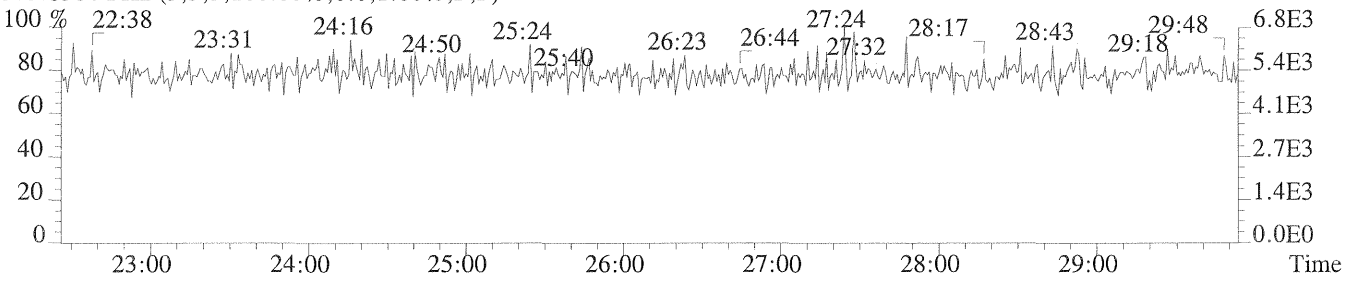
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1100.0,1.00%,F,T)



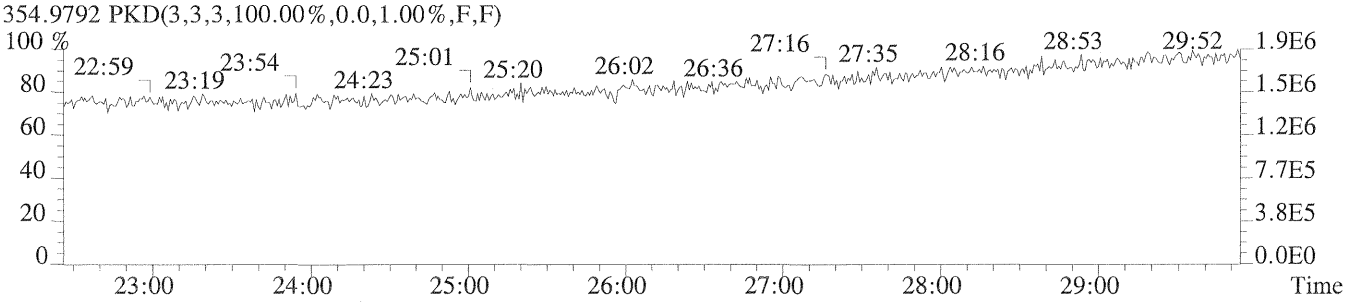
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,812.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

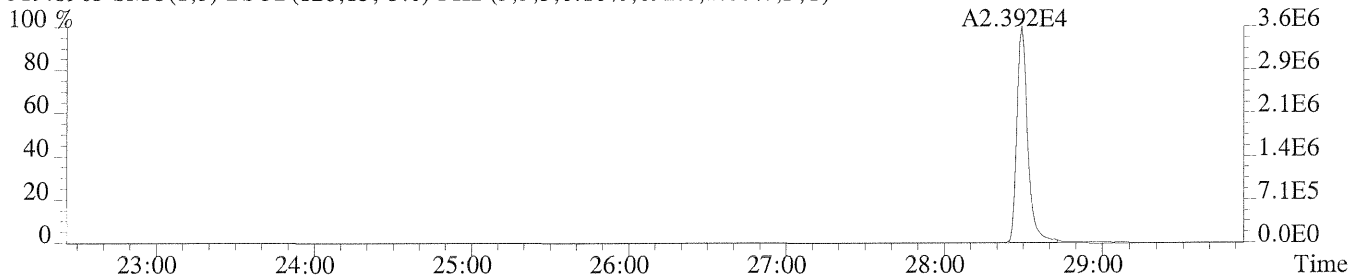


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

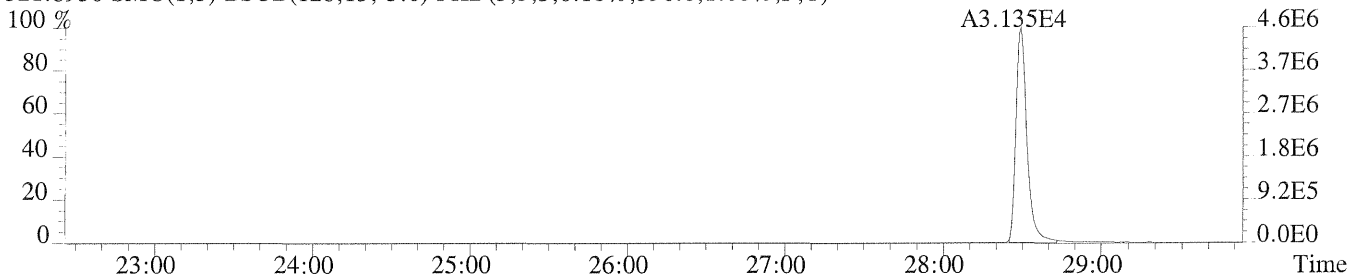


File:P113056 #1-621 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

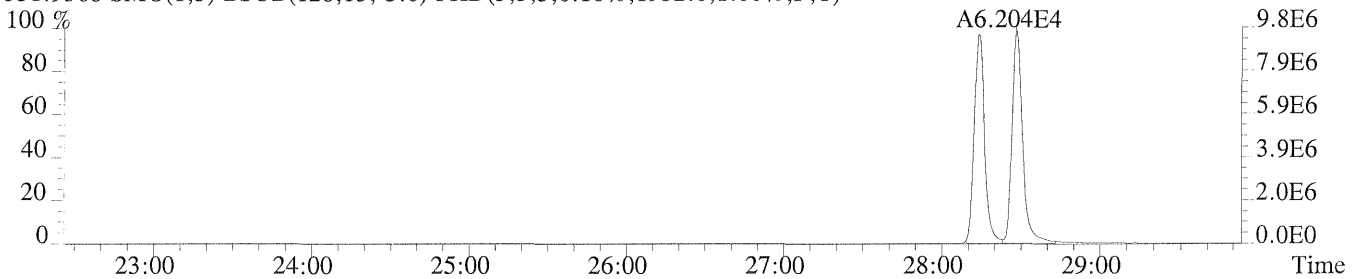
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,692.0,1.00%,F,T)



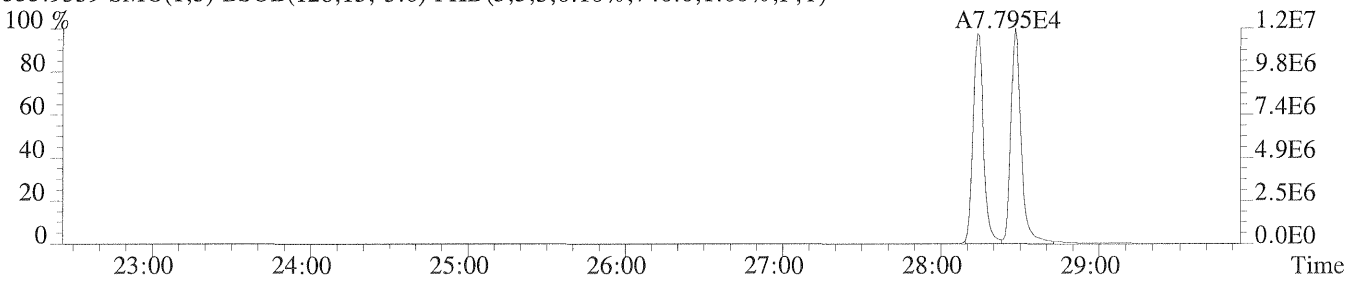
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,596.0,1.00%,F,T)



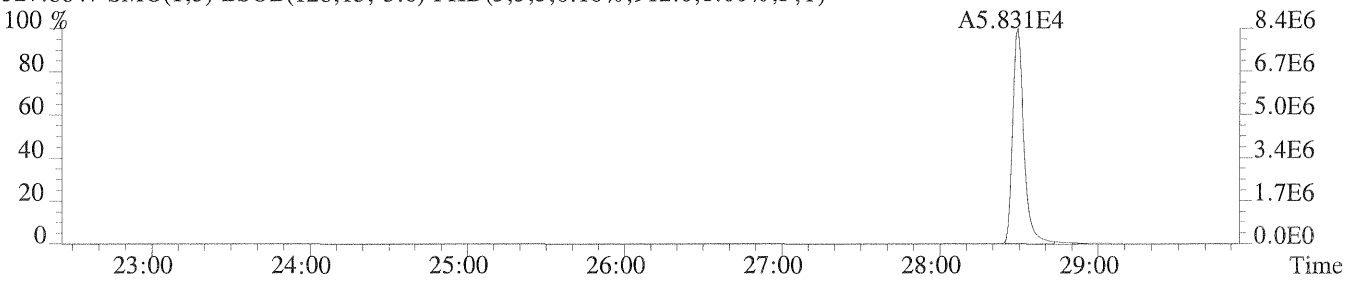
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1932.0,1.00%,F,T)



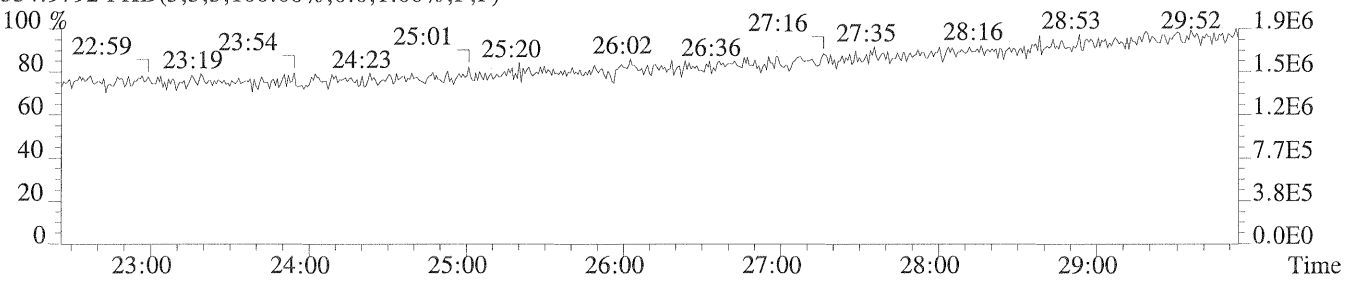
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,740.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,912.0,1.00%,F,T)

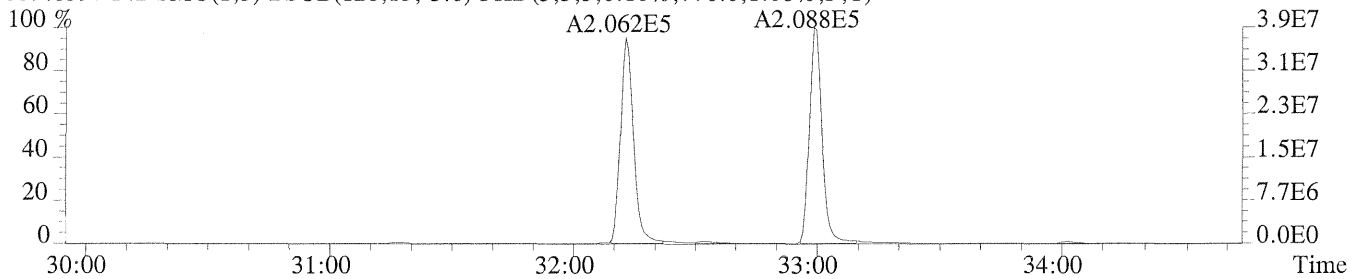


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

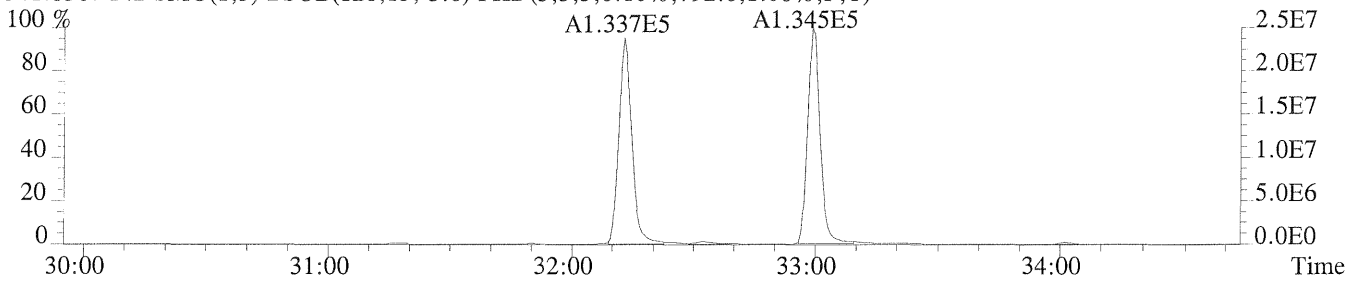


File:P113056 #1-437 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

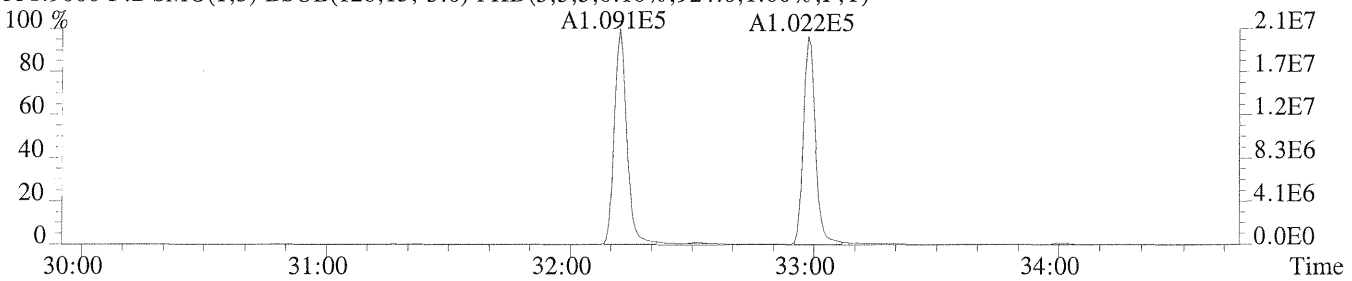
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



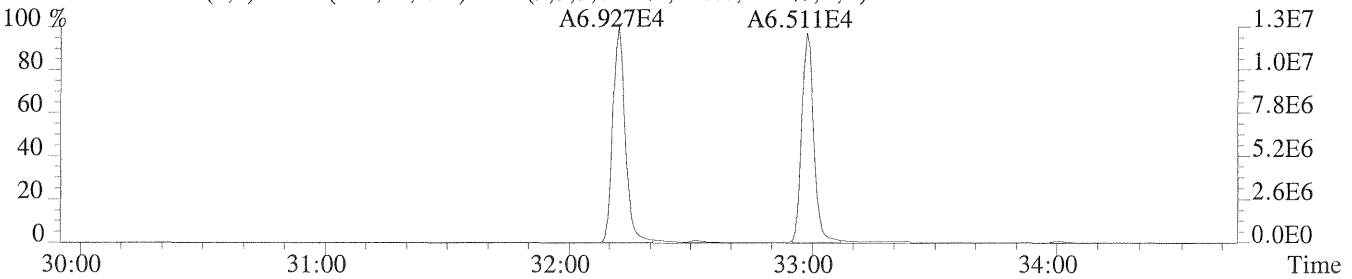
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,792.0,1.00%,F,T)



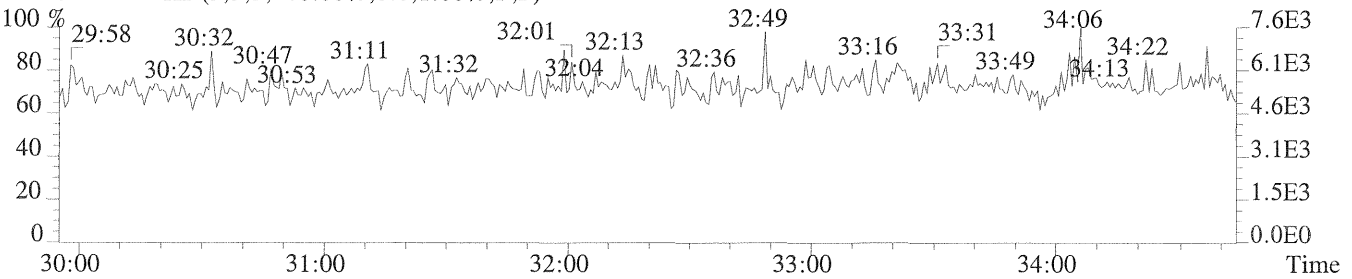
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,924.0,1.00%,F,T)



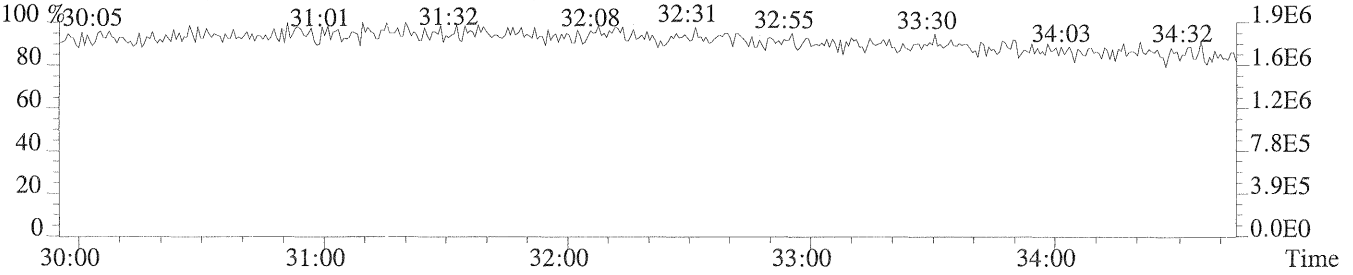
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,720.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

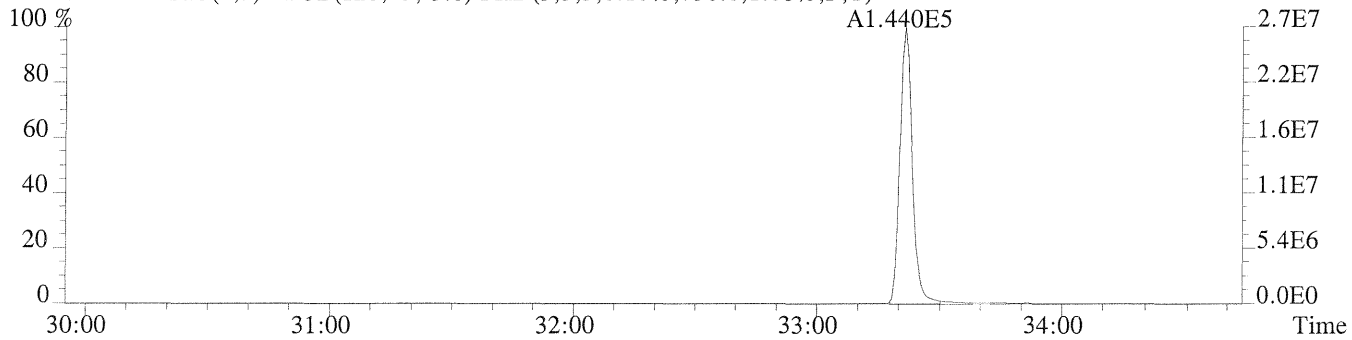


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

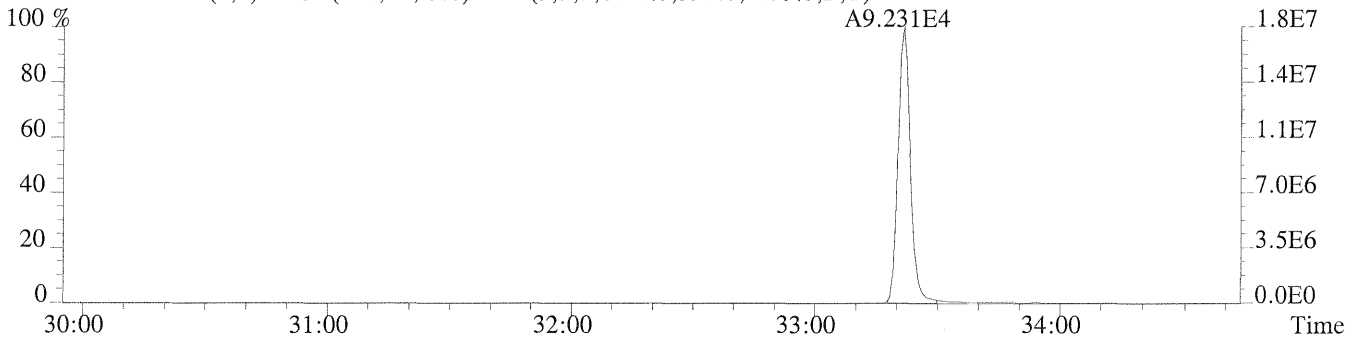


File:P113056 #1-437 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

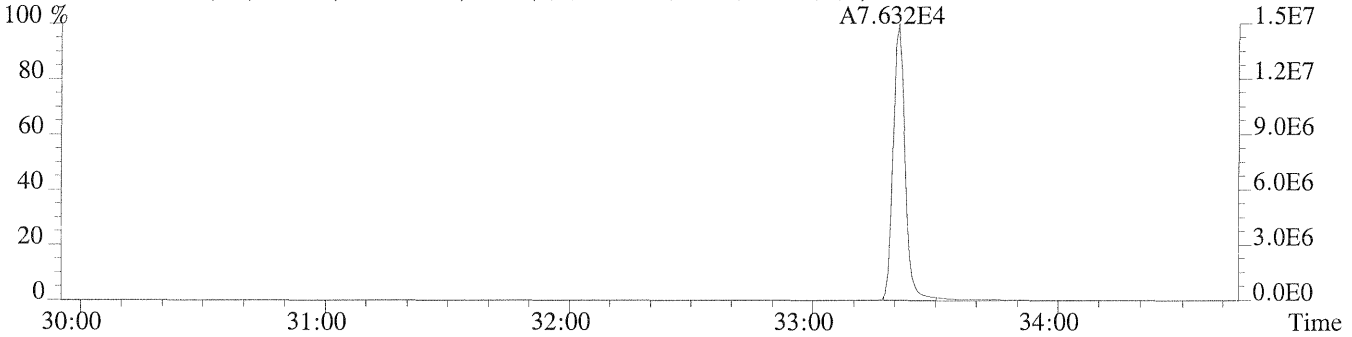
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,756.0,1.00%,F,T)



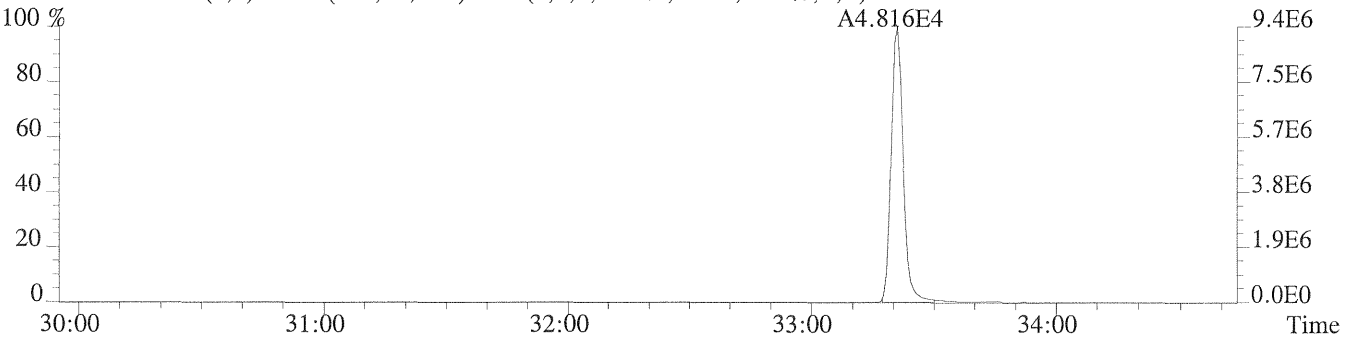
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,592.0,1.00%,F,T)



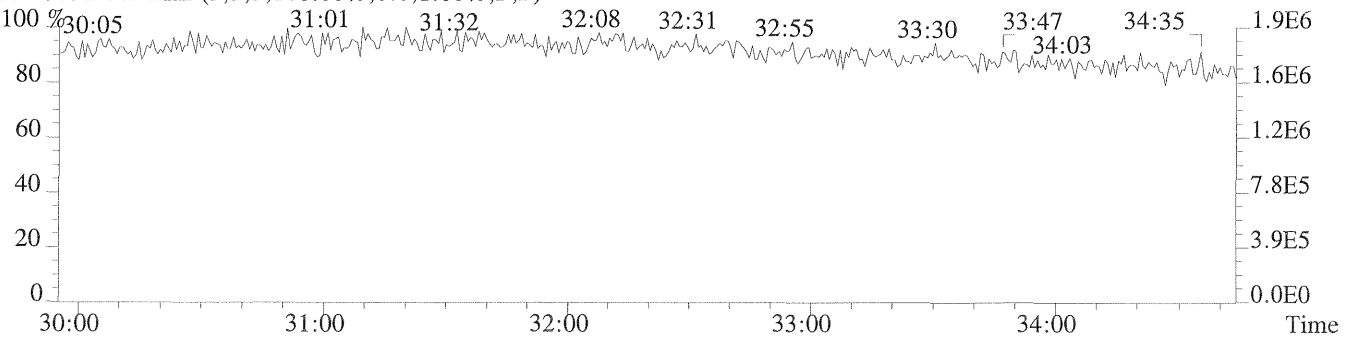
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,612.0,1.00%,F,T)

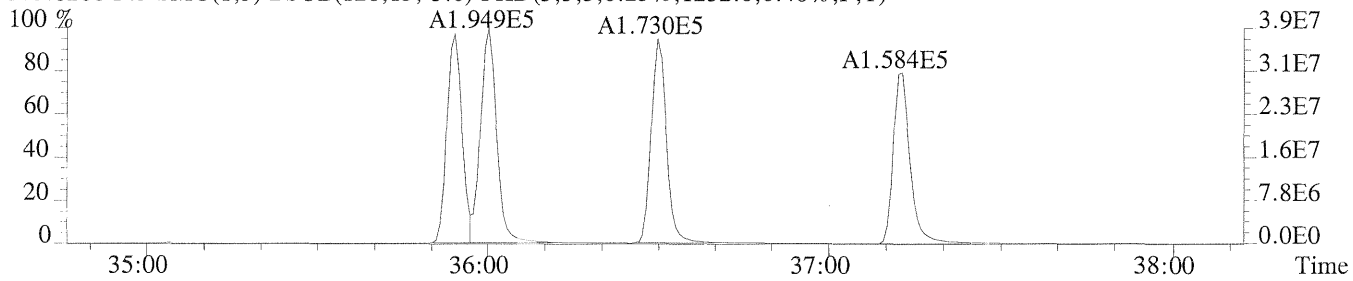


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

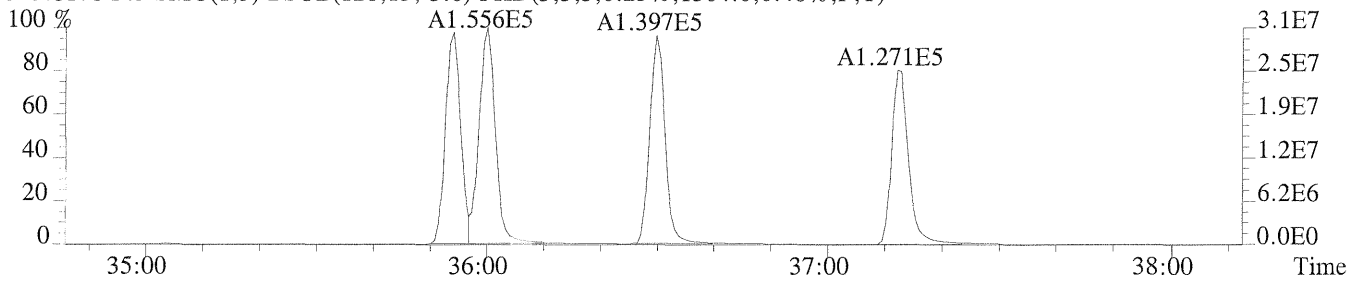


File:P113056 #1-313 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

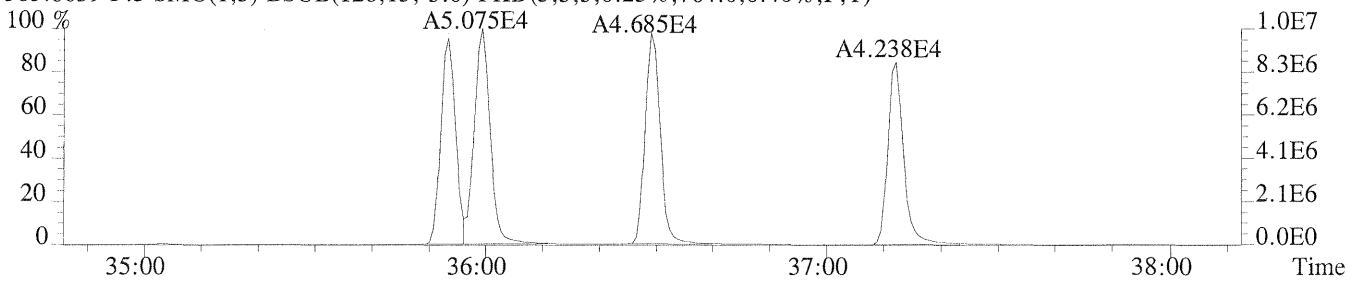
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1232.0,0.40%,F,T)



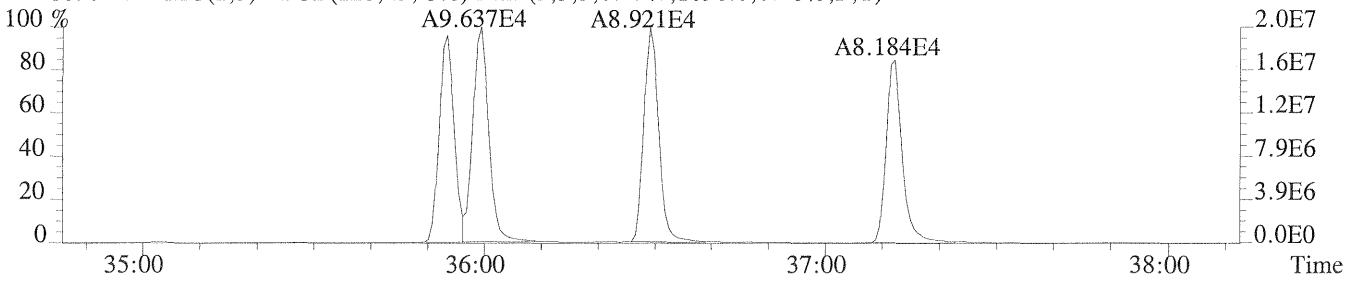
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1504.0,0.40%,F,T)



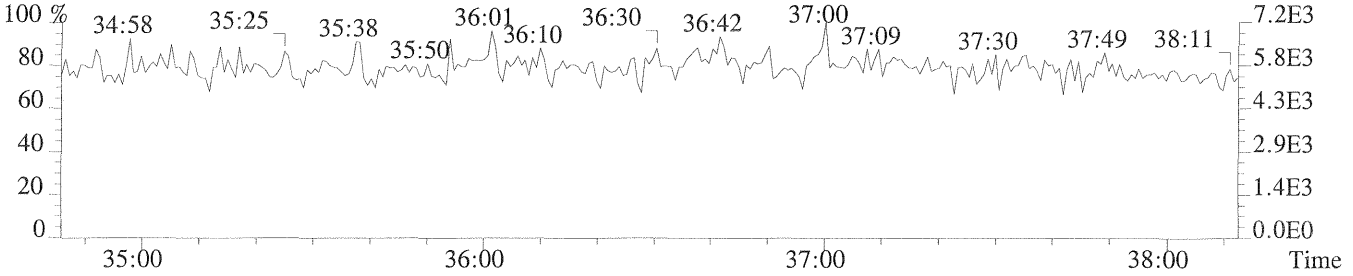
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,764.0,0.40%,F,T)



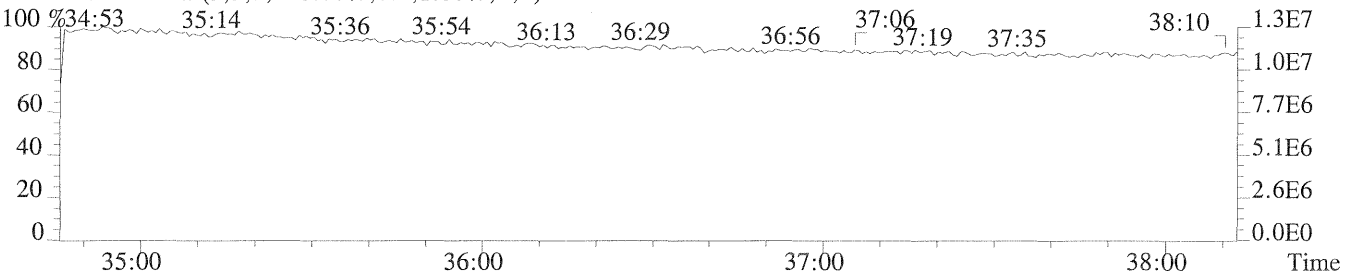
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1096.0,0.40%,F,T)



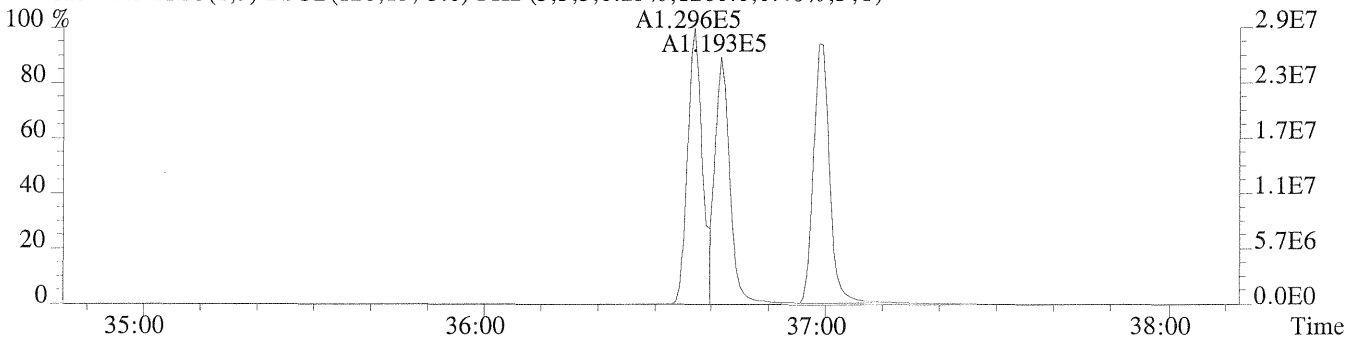
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



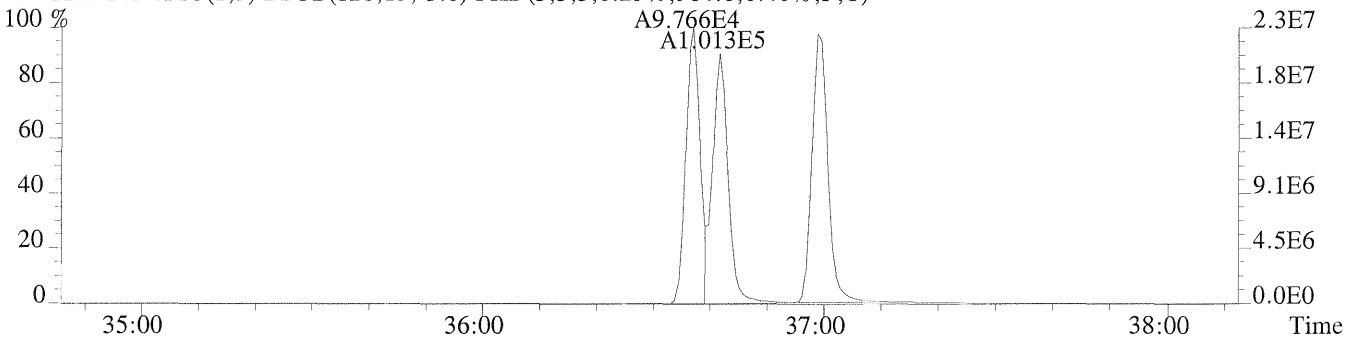
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



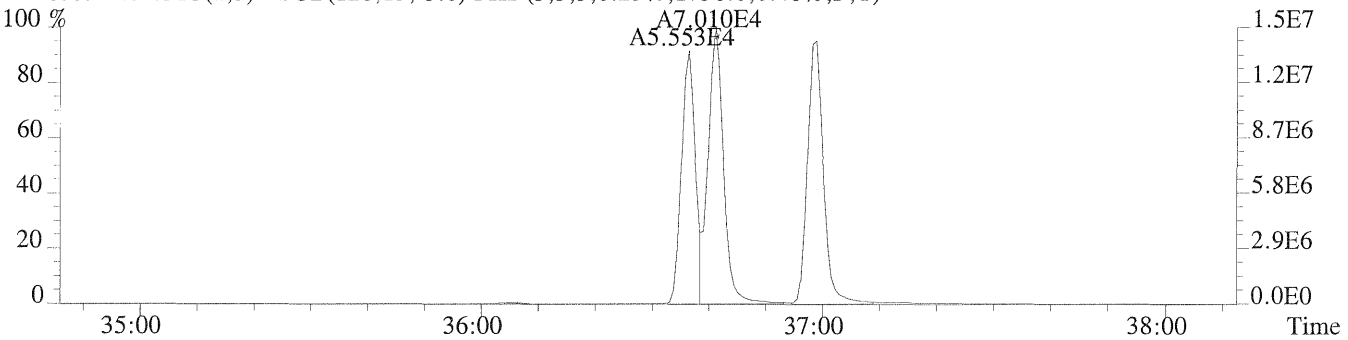
File:P113056 #1-313 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1260.0,0.40%,F,T)



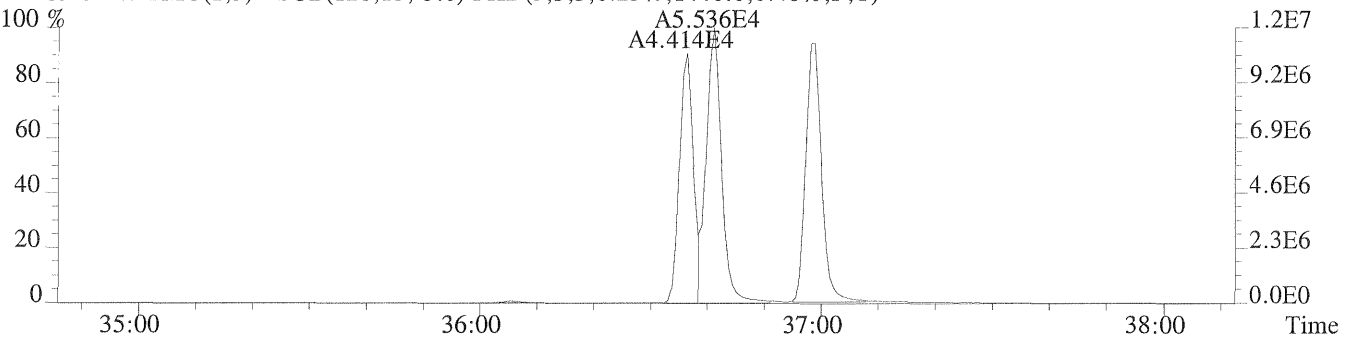
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,964.0,0.40%,F,T)



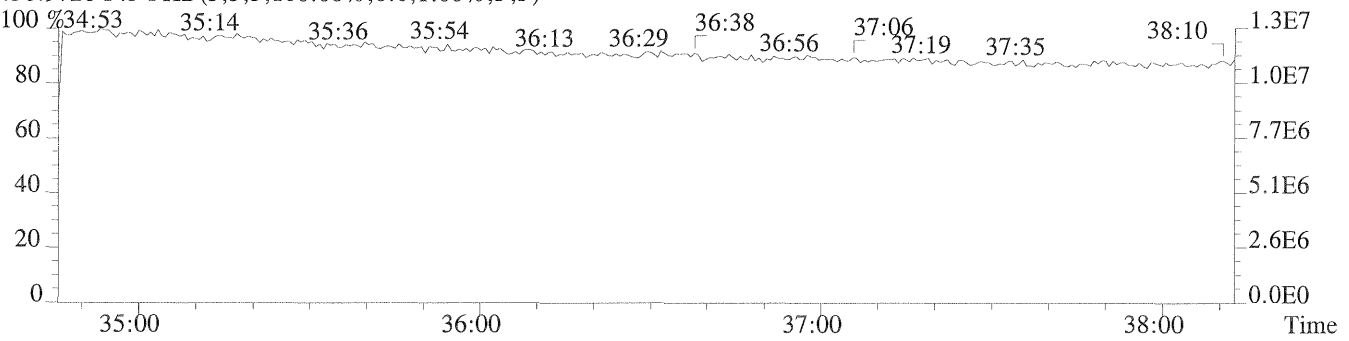
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1756.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1440.0,0.40%,F,T)

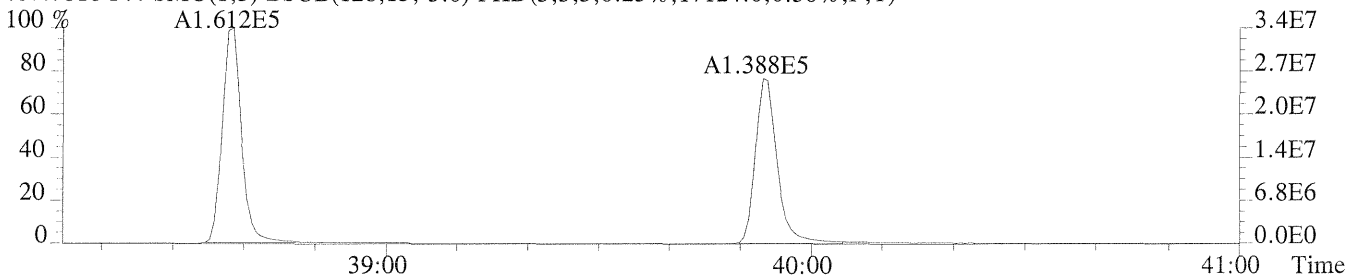


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

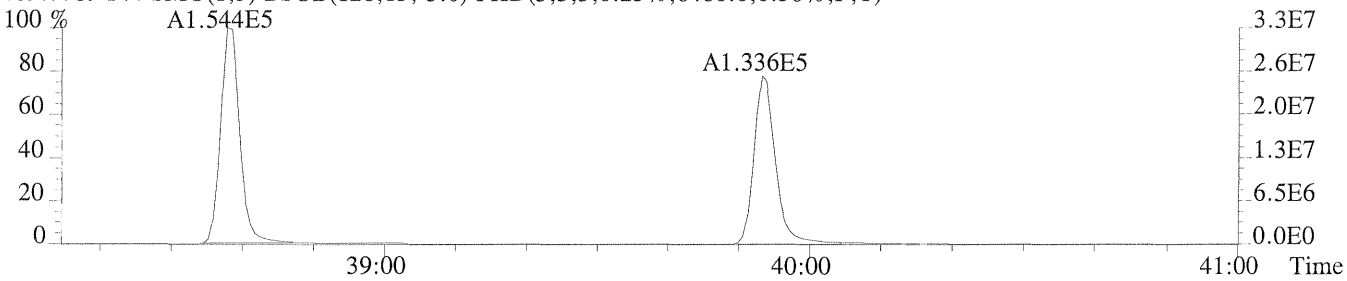


File:P113056 #1-251 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

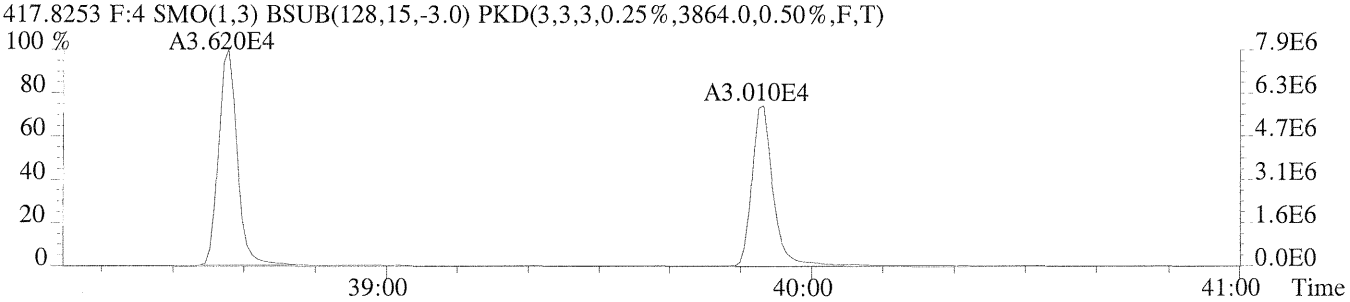
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,17124.0,0.50%,F,T)



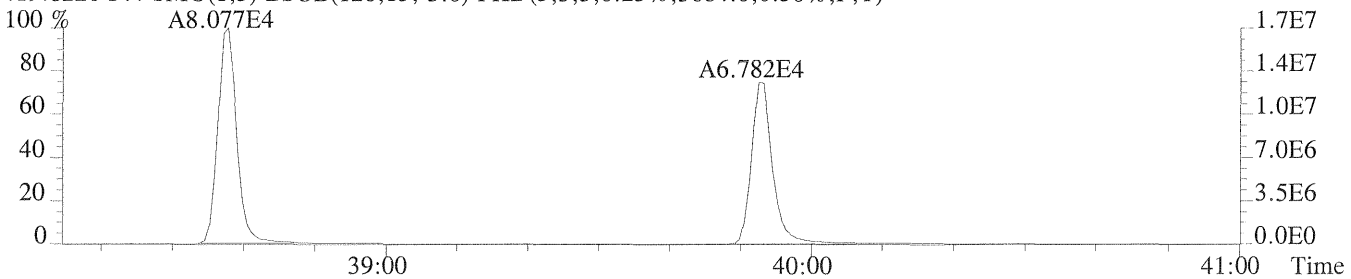
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6480.0,0.50%,F,T)



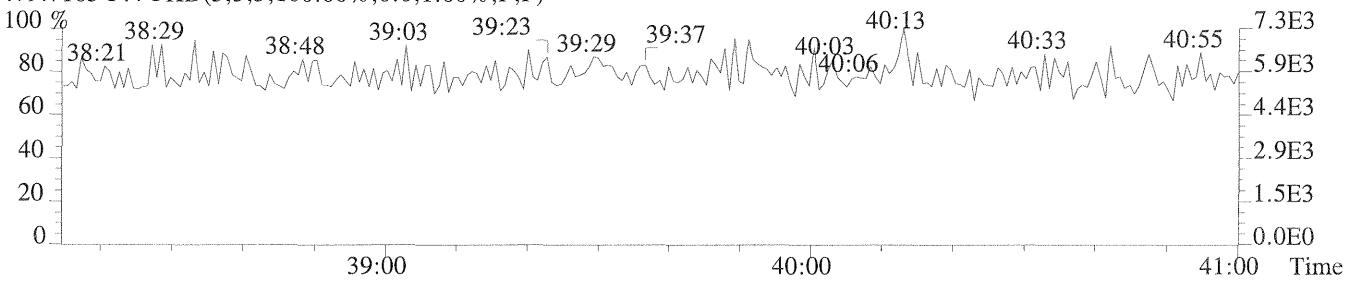
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3864.0,0.50%,F,T)



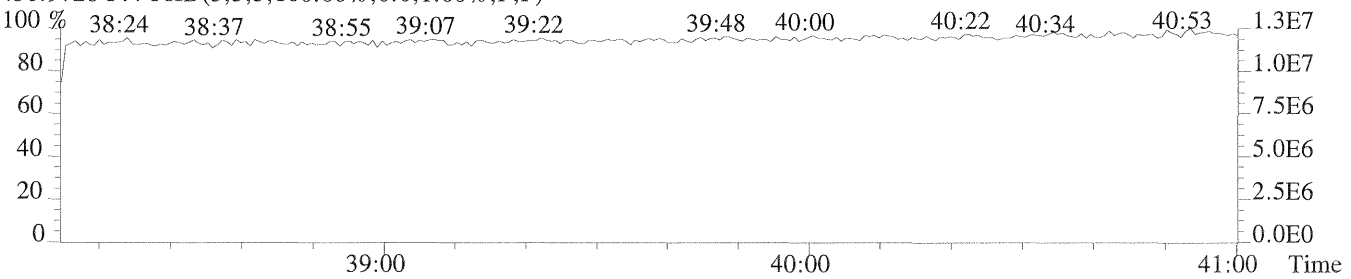
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3684.0,0.50%,F,T)



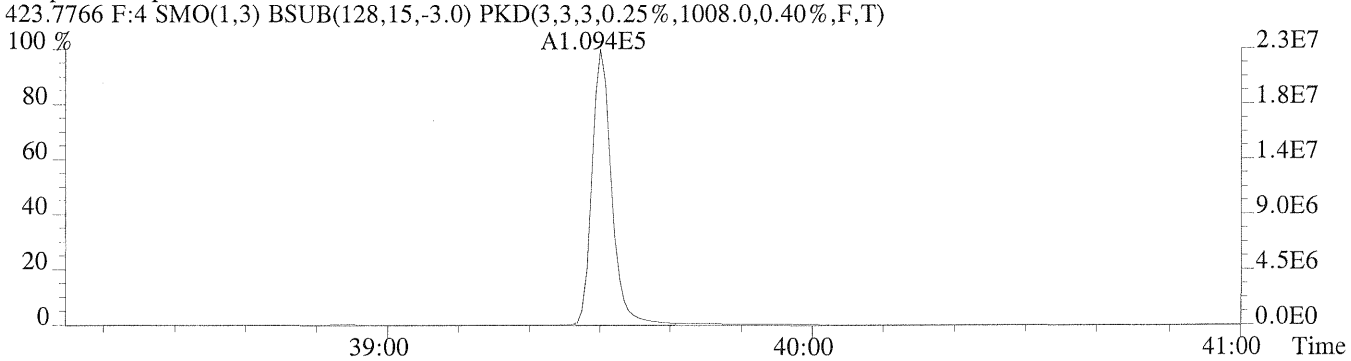
479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



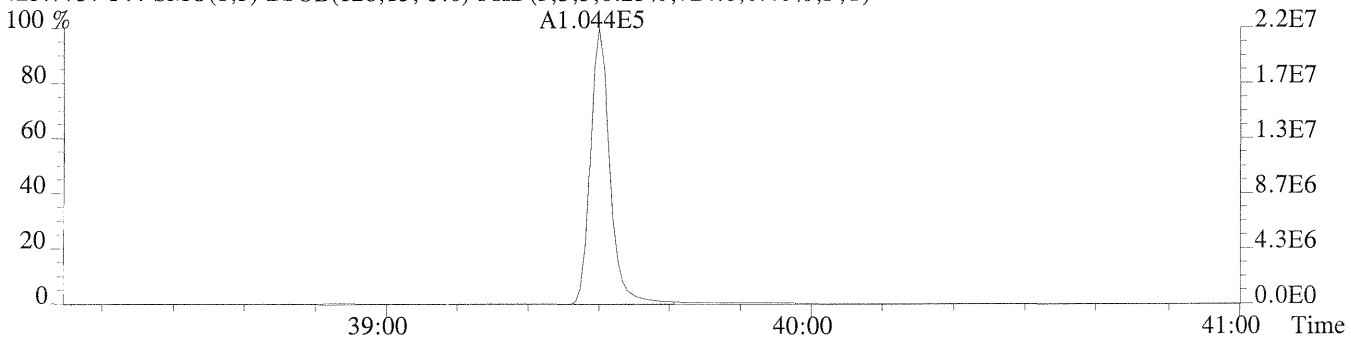
430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



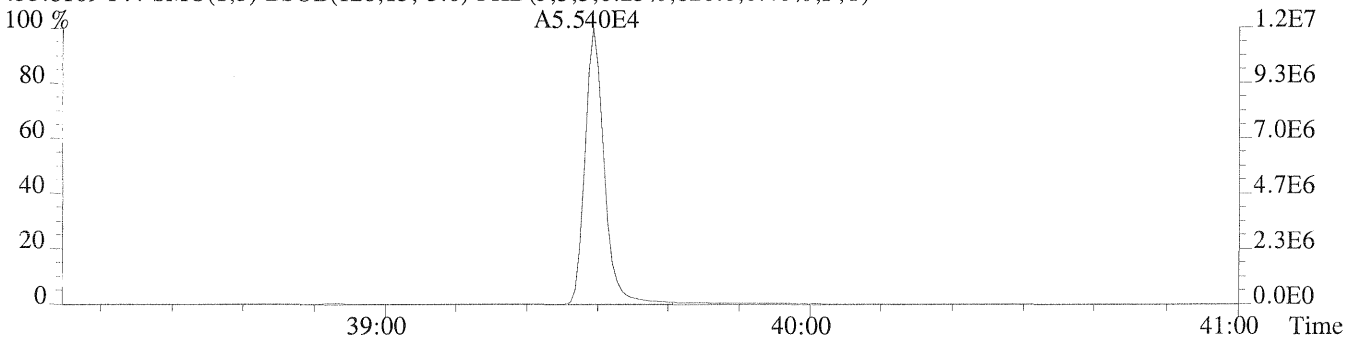
File:P113056 #1-251 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1008.0,0.40%,F,T)



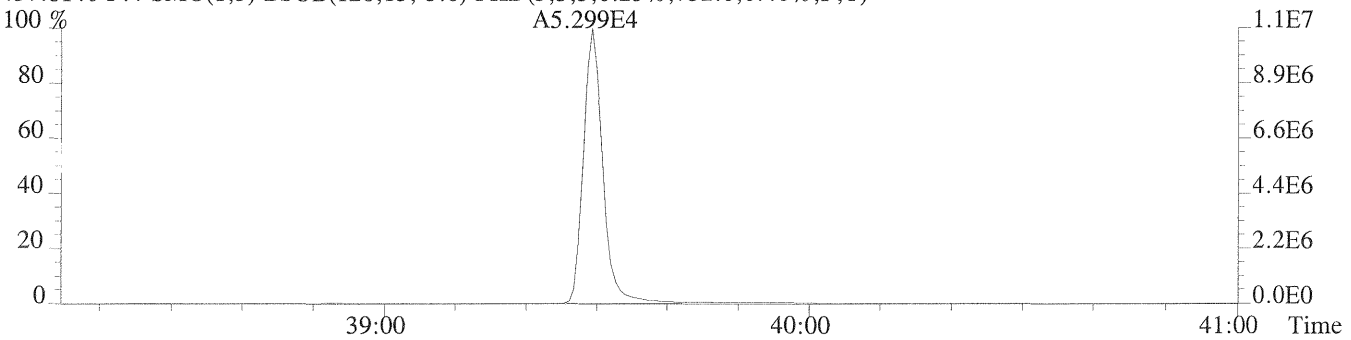
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,724.0,0.40%,F,T)



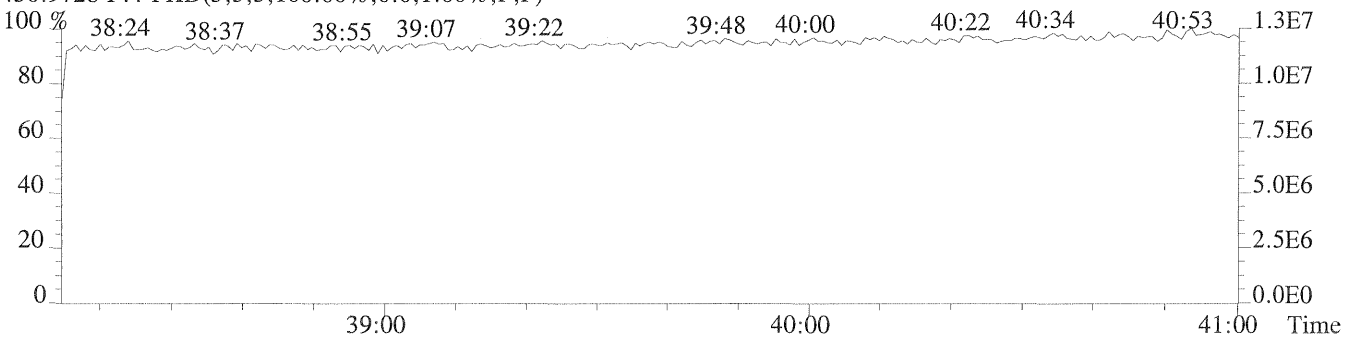
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,732.0,0.40%,F,T)

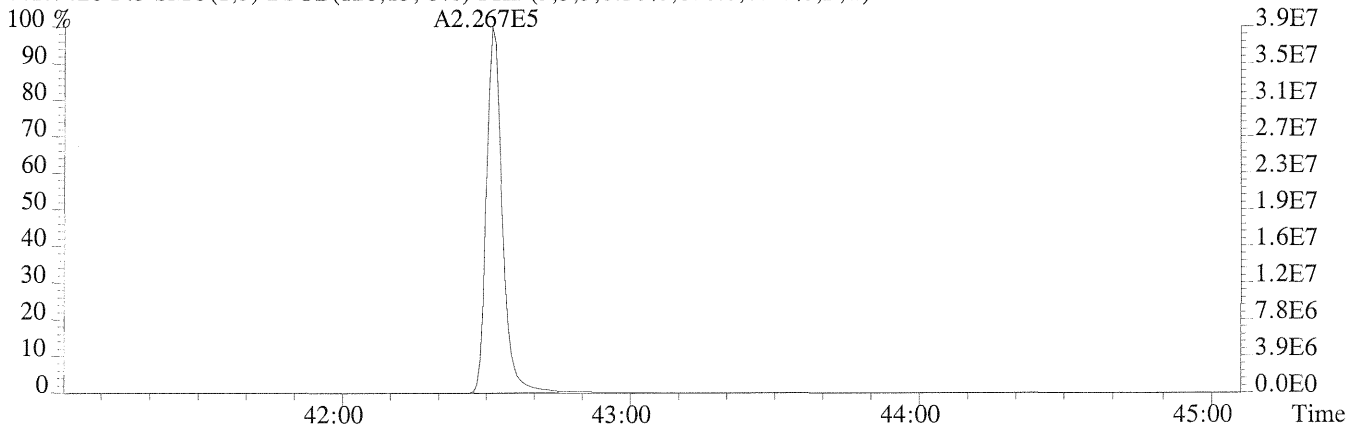


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

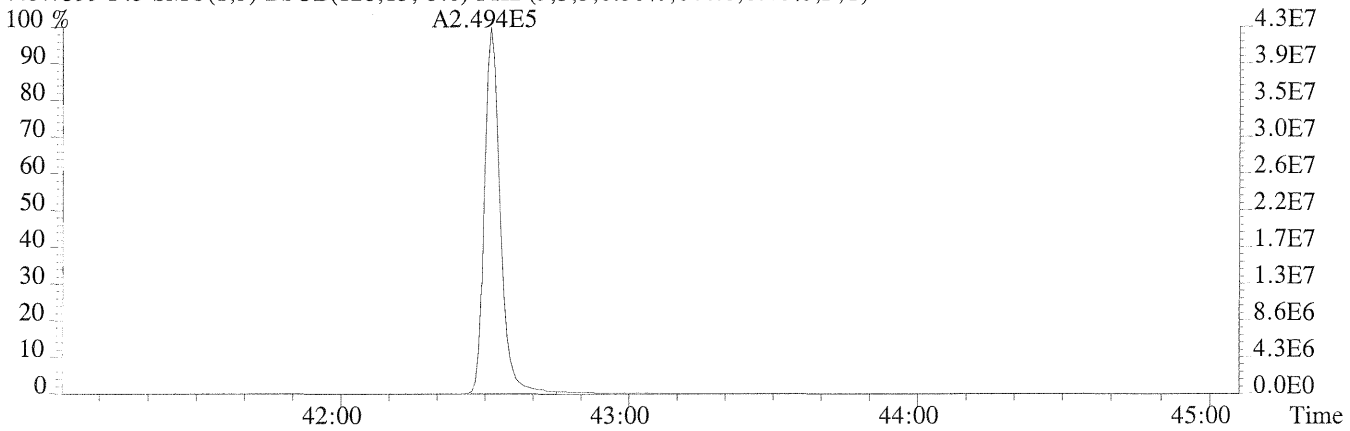


File:P113056 #1-374 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

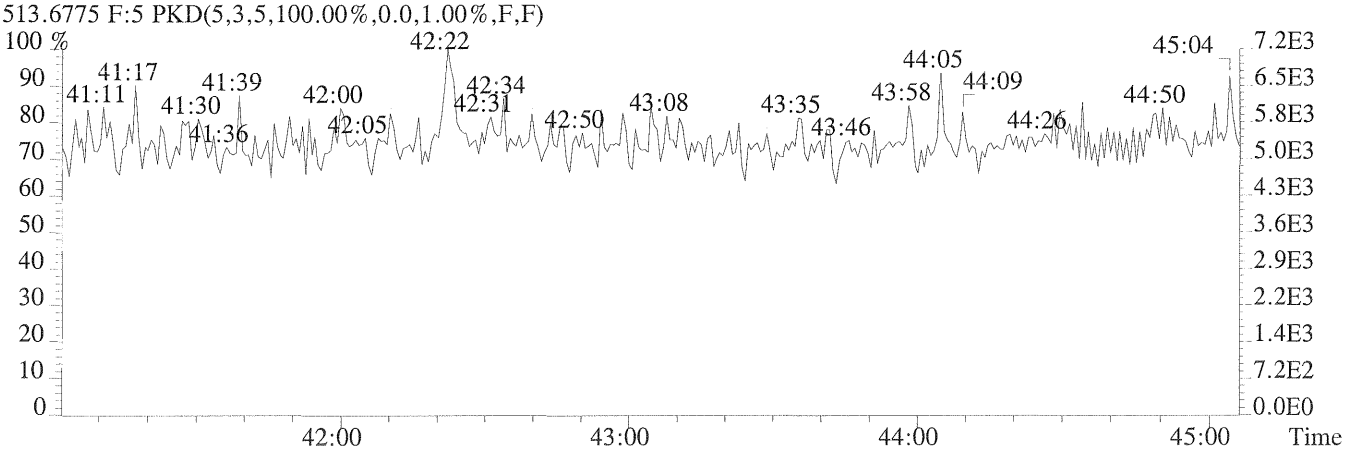
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,676.0,0.40%,F,T)



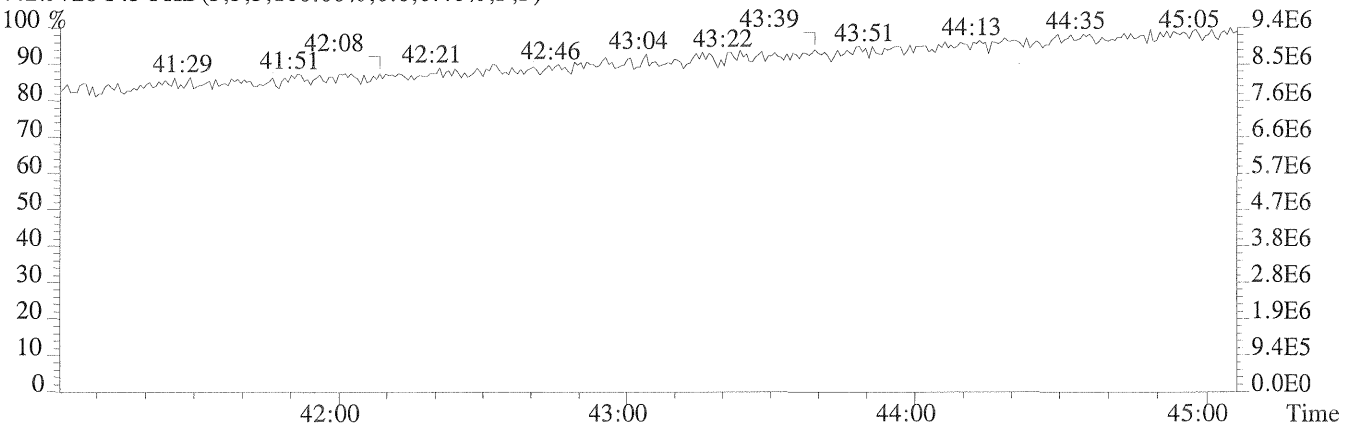
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,644.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

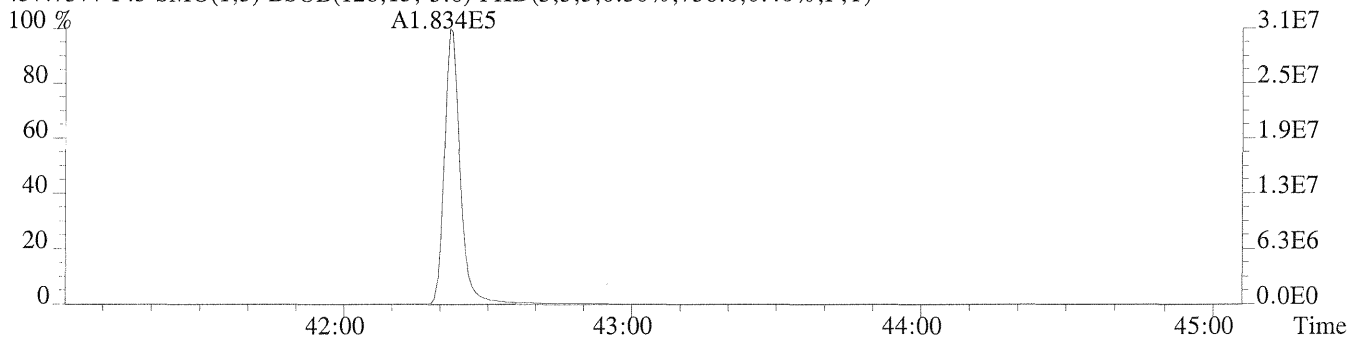


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

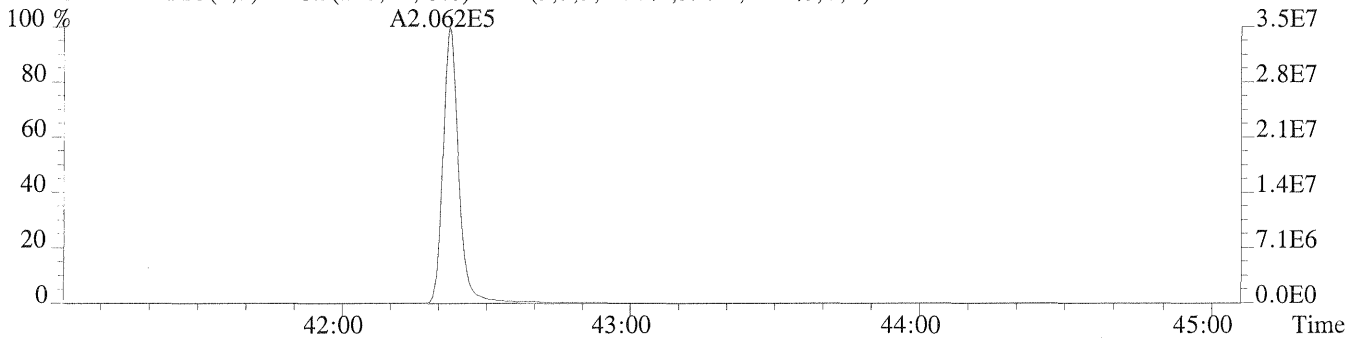


File:P113056 #1-374 Acq:24-MAR-2011 14:31:12 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

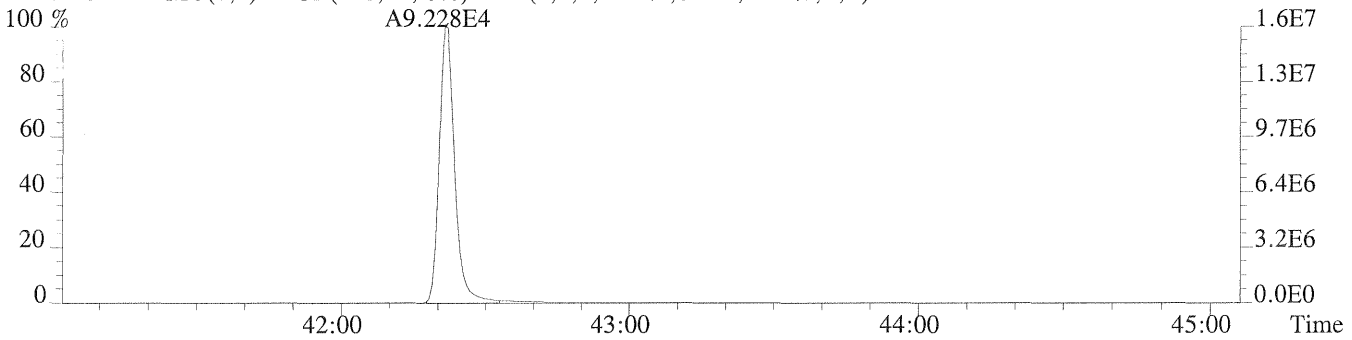
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,736.0,0.40%,F,T)



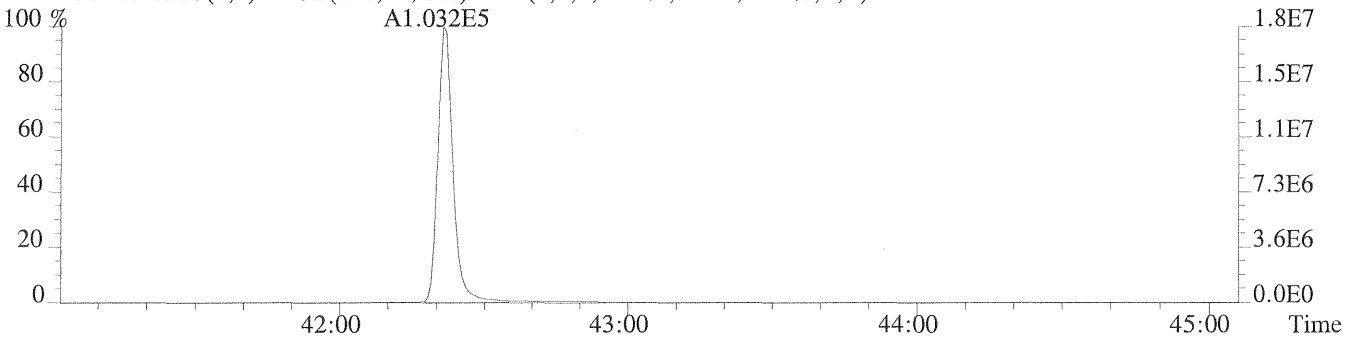
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,596.0,0.40%,F,T)



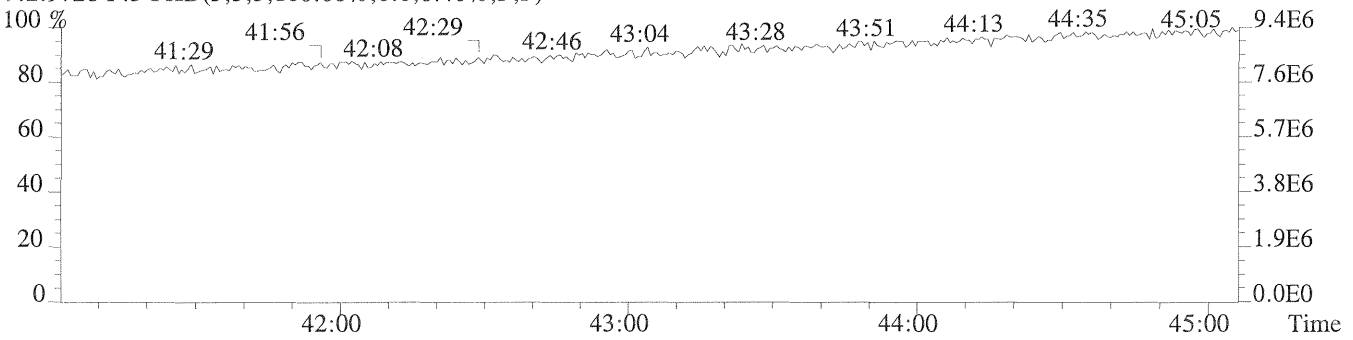
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,616.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,568.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS5

Run #6 Filename P113057 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 15:17:25
Processed: 25-MAR-11 12:15:42 LAB. ID: D12-2-1BE

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:35	1.650e+05	2.141e+05	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:13	1.181e+06	7.554e+05	1.56	yes	no	1.001
3	Unk	2,3,4,7,8-PeCDF	33:00	1.197e+06	7.660e+05	1.56	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:54	1.066e+06	8.525e+05	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	36:00	1.129e+06	8.972e+05	1.26	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:30	1.015e+06	8.150e+05	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:13	9.606e+05	7.665e+05	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	9.634e+05	9.224e+05	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:54	8.242e+05	7.990e+05	1.03	yes	no	1.000
10	Unk	OCDF	42:32	1.405e+06	1.534e+06	0.92	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:29	1.353e+05	1.749e+05	0.77	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:22	8.202e+05	5.266e+05	1.56	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:37	7.617e+05	6.099e+05	1.25	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	7.142e+05	5.693e+05	1.25	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	37:00	7.869e+05	6.308e+05	1.25	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	6.522e+05	6.241e+05	1.04	yes	no	1.000
17	Unk	OCDD	42:23	1.114e+06	1.251e+06	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:33	8.986e+04	1.141e+05	0.79	yes	no	0.976
19	IS	13C-1,2,3,7,8-PeCDF	32:12	1.226e+05	7.851e+04	1.56	yes	no	1.140
20	IS	13C-2,3,4,7,8-PeCDF	32:58	1.162e+05	7.422e+04	1.57	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	5.402e+04	1.029e+05	0.53	yes	no	0.970
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	5.844e+04	1.111e+05	0.53	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:30	5.496e+04	1.038e+05	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:12	5.083e+04	9.687e+04	0.52	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:38	4.240e+04	9.396e+04	0.45	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	3.545e+04	7.984e+04	0.44	yes	no	1.078
27	IS	13C-2,3,7,8-TCDD	28:28	6.768e+04	8.558e+04	0.79	yes	no	1.008
28	IS	13C-1,2,3,7,8-PeCDD	33:21	8.580e+04	5.491e+04	1.56	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	6.879e+04	5.436e+04	1.27	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:42	7.837e+04	6.216e+04	1.26	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	6.507e+04	6.182e+04	1.05	yes	no	1.068
32	IS	13C-OCDD	42:22	1.119e+05	1.244e+05	0.90	yes	no	1.146
33	RS/RT	13C-1,2,3,4-TCDD	28:14	6.514e+04	8.066e+04	0.81	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:59	7.628e+04	6.052e+04	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:29	3.230e+05				no	1.009

Columbia Analytical Services, Inc.
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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS5

Run #6 Filename P113057 Samp: 1 Inj: 1 Acquired: 24-MAR-11 15:17:25
Processed: 25-MAR-11 12:15:421 LAB. ID: D12-2-1BE

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	2.31e+07	7.88e+02	2.9e+04	2.99e+07	8.52e+02	3.5e+04
2	1,2,3,7,8-PeCDF	2.23e+08	8.20e+02	2.7e+05	1.43e+08	6.80e+02	2.1e+05
3	2,3,4,7,8-PeCDF	2.34e+08	8.20e+02	2.9e+05	1.49e+08	6.80e+02	2.2e+05
4	1,2,3,4,7,8-HxCDF	2.38e+08	1.97e+03	1.2e+05	1.89e+08	1.20e+03	1.6e+05
5	1,2,3,6,7,8-HxCDF	2.45e+08	1.97e+03	1.2e+05	1.95e+08	1.20e+03	1.6e+05
6	2,3,4,6,7,8-HxCDF	2.21e+08	1.97e+03	1.1e+05	1.79e+08	1.20e+03	1.5e+05
7	1,2,3,7,8,9-HxCDF	2.04e+08	1.97e+03	1.0e+05	1.62e+08	1.20e+03	1.4e+05
8	1,2,3,4,6,7,8-HpCDF	2.16e+08	1.24e+04	1.7e+04	2.07e+08	8.55e+03	2.4e+04
9	1,2,3,4,7,8,9-HpCDF	1.64e+08	1.24e+04	1.3e+04	1.57e+08	8.55e+03	1.8e+04
10	OCDF	2.52e+08	8.24e+02	3.1e+05	2.77e+08	1.18e+03	2.3e+05
11	2,3,7,8-TCDD	2.17e+07	8.48e+02	2.6e+04	2.77e+07	5.76e+02	4.8e+04
12	1,2,3,7,8-PeCDD	1.66e+08	7.76e+02	2.1e+05	1.07e+08	6.04e+02	1.8e+05
13	1,2,3,4,7,8-HxCDD	1.75e+08	1.00e+03	1.7e+05	1.40e+08	1.27e+03	1.1e+05
14	1,2,3,6,7,8-HxCDD	1.52e+08	1.00e+03	1.5e+05	1.22e+08	1.27e+03	9.6e+04
15	1,2,3,7,8,9-HxCDD	1.73e+08	1.00e+03	1.7e+05	1.38e+08	1.27e+03	1.1e+05
16	1,2,3,4,6,7,8-HpCDD	1.36e+08	1.55e+03	8.8e+04	1.32e+08	1.15e+03	1.1e+05
17	OCDD	2.05e+08	7.16e+02	2.9e+05	2.30e+08	7.96e+02	2.9e+05
18	13C-2,3,7,8-TCDF	1.41e+07	1.26e+03	1.1e+04	1.80e+07	8.04e+02	2.2e+04
19	13C-1,2,3,7,8-PeCDF	2.44e+07	8.32e+02	2.9e+04	1.56e+07	4.48e+02	3.5e+04
20	13C-2,3,4,7,8-PeCDF	2.36e+07	8.32e+02	2.8e+04	1.52e+07	4.48e+02	3.4e+04
21	13C-1,2,3,4,7,8-HxCDF	1.22e+07	1.10e+03	1.1e+04	2.33e+07	1.22e+03	1.9e+04
22	13C-1,2,3,6,7,8-HxCDF	1.28e+07	1.10e+03	1.2e+04	2.45e+07	1.22e+03	2.0e+04
23	13C-2,3,4,6,7,8-HxCDF	1.21e+07	1.10e+03	1.1e+04	2.30e+07	1.22e+03	1.9e+04
24	13C-1,2,3,7,8,9-HxCDF	1.12e+07	1.10e+03	1.0e+04	2.13e+07	1.22e+03	1.7e+04
25	13C-1,2,3,4,6,7,8-HpCDF	9.68e+06	2.45e+03	4.0e+03	2.15e+07	6.33e+03	3.4e+03
26	13C-1,2,3,4,7,8,9-HpCDF	7.38e+06	2.45e+03	3.0e+03	1.63e+07	6.33e+03	2.6e+03
27	13C-2,3,7,8-TCDD	1.18e+07	2.27e+03	5.2e+03	1.49e+07	7.48e+02	2.0e+04
28	13C-1,2,3,7,8-PeCDD	1.81e+07	6.64e+02	2.7e+04	1.15e+07	5.32e+02	2.2e+04
29	13C-1,2,3,4,7,8-HxCDD	1.60e+07	1.25e+03	1.3e+04	1.27e+07	8.20e+02	1.5e+04
30	13C-1,2,3,6,7,8-HxCDD	1.68e+07	1.25e+03	1.3e+04	1.34e+07	8.20e+02	1.6e+04
31	13C-1,2,3,4,6,7,8-HpCDD	1.38e+07	1.15e+03	1.2e+04	1.33e+07	1.11e+03	1.2e+04
32	13C-OCDD	2.09e+07	9.96e+02	2.1e+04	2.31e+07	8.28e+02	2.8e+04
33	13C-1,2,3,4-TCDD	1.04e+07	2.27e+03	4.6e+03	1.28e+07	7.48e+02	1.7e+04
34	13C-1,2,3,7,8,9-HxCDD	1.73e+07	1.25e+03	1.4e+04	1.37e+07	8.20e+02	1.7e+04
35	37Cl-2,3,7,8-TCDD	5.07e+07	1.11e+03	4.6e+04			

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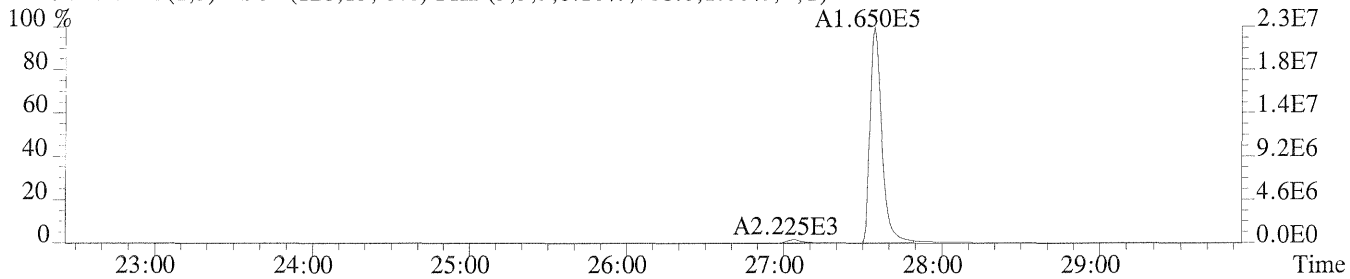
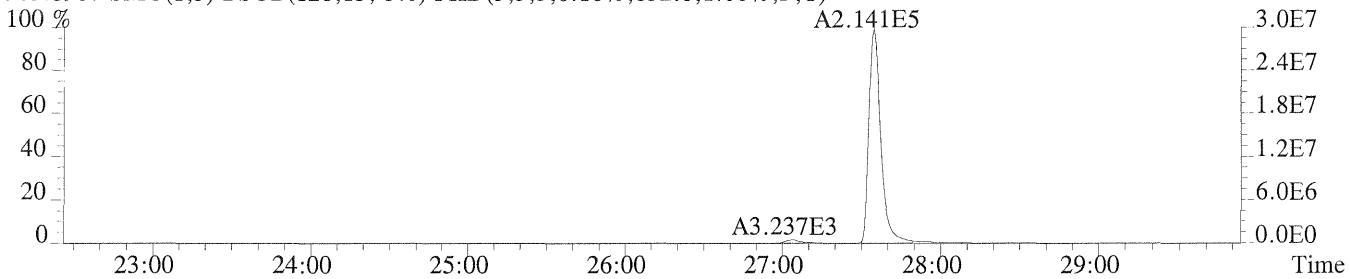
File:P113057 #1-621 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

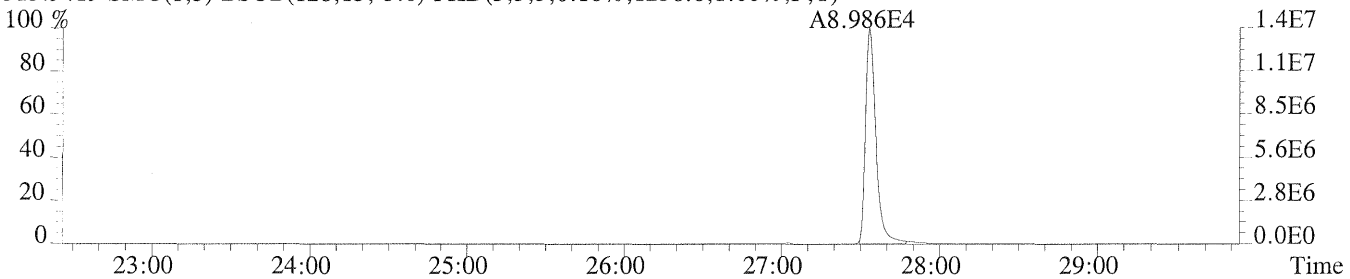
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,788.0,1.00%,F,T)



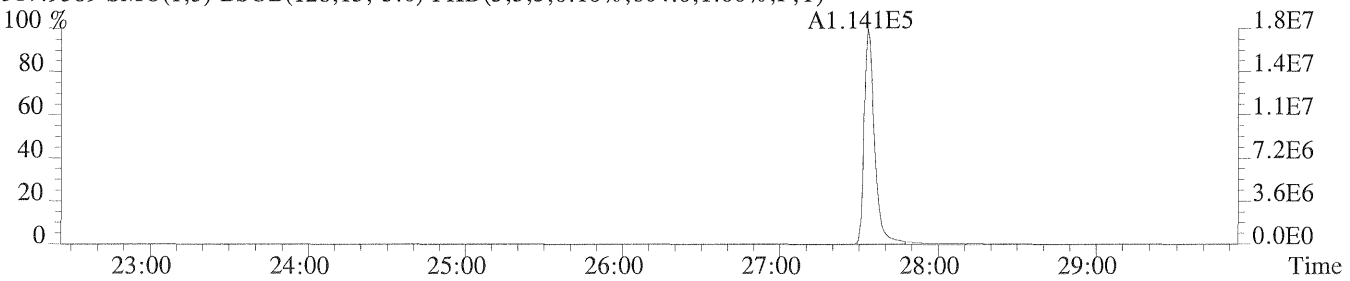
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



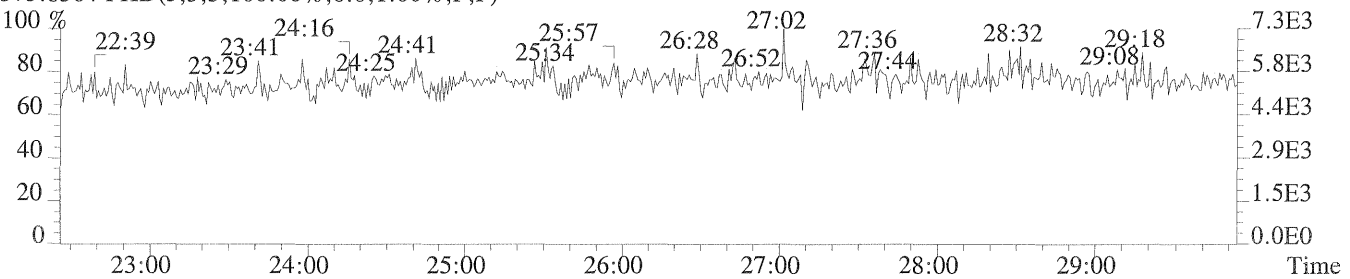
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1256.0,1.00%,F,T)



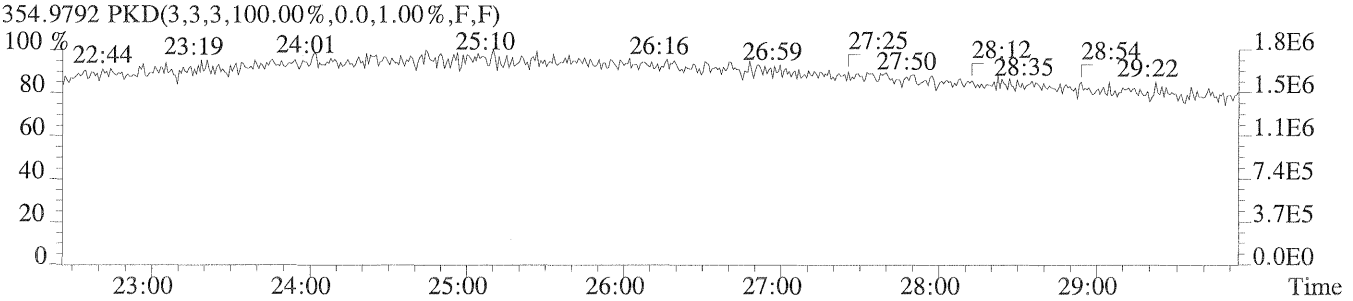
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,804.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

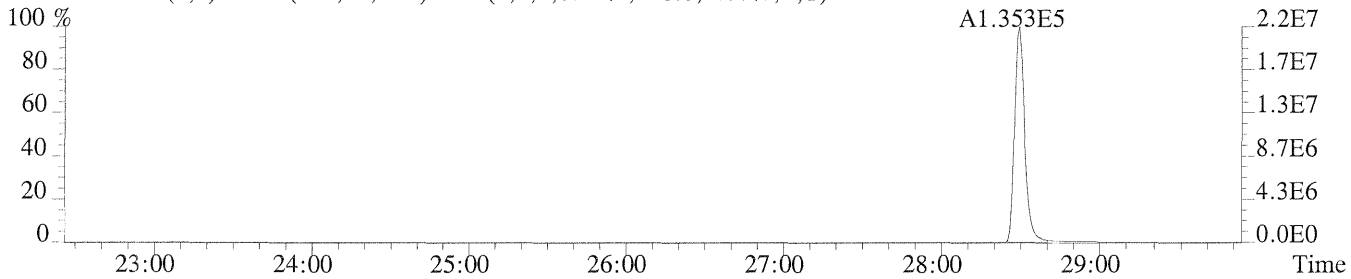


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

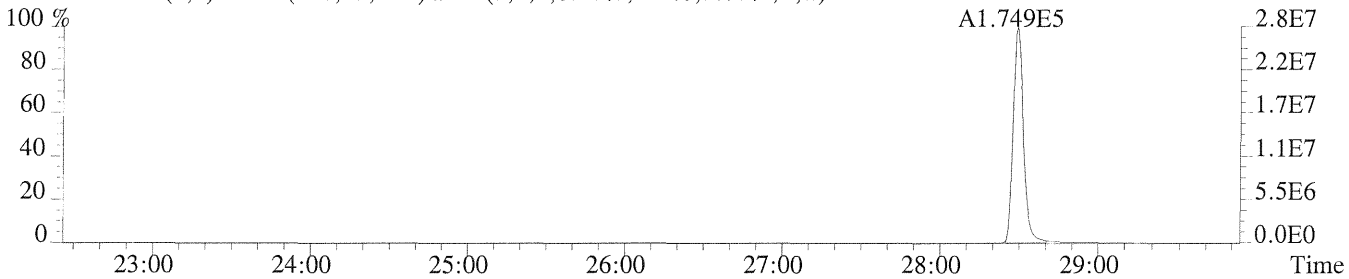


File:P113057 #1-621 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

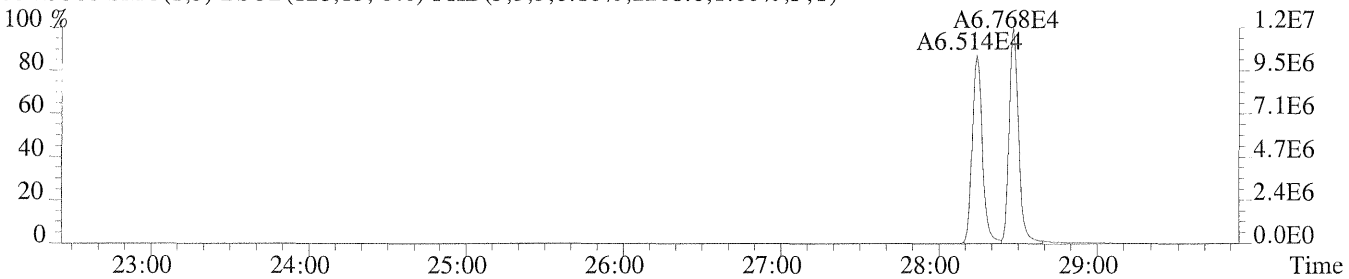
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,848.0,1.00%,F,T)



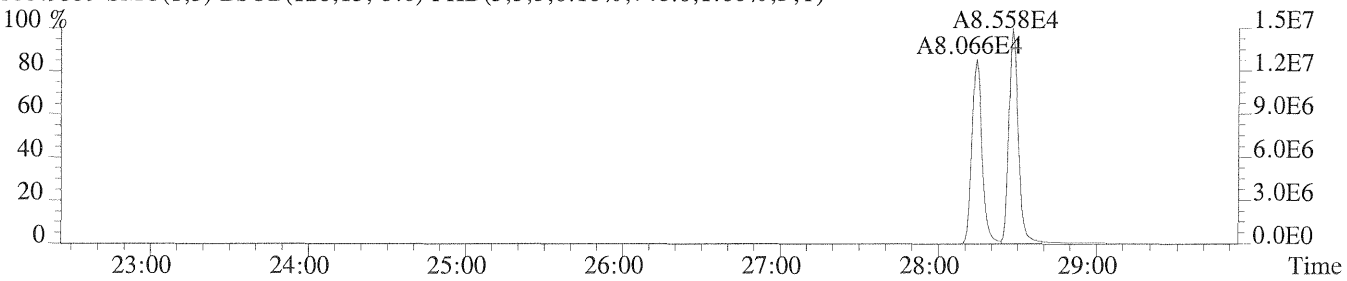
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,576.0,1.00%,F,T)



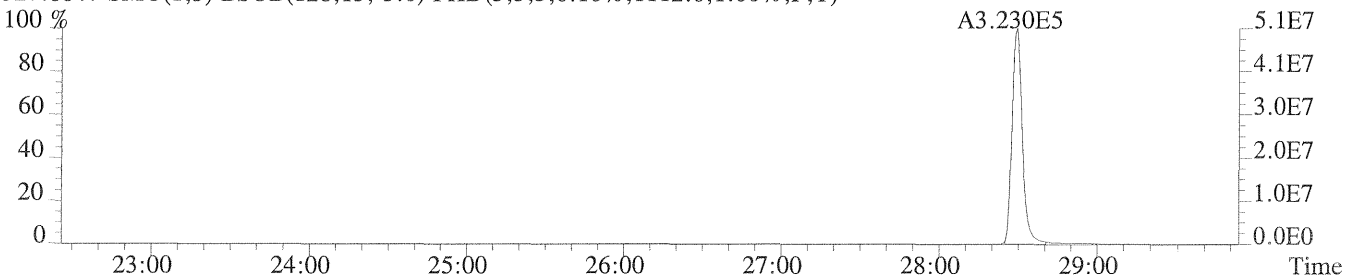
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2268.0,1.00%,F,T)



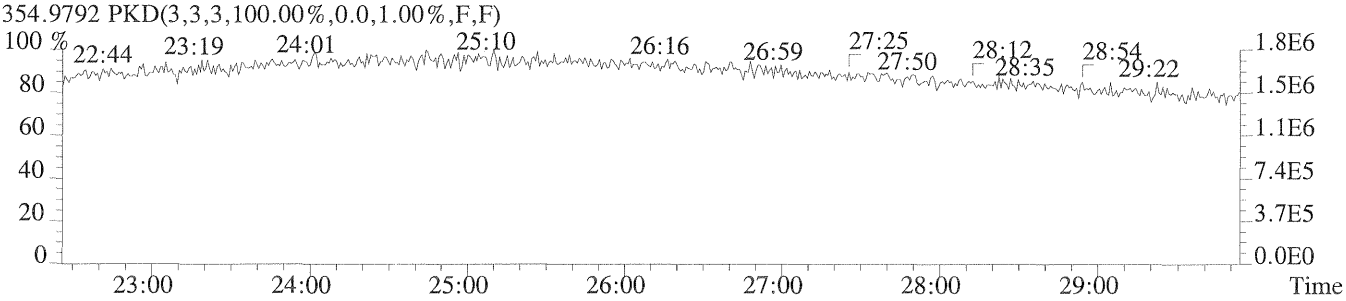
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,748.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1112.0,1.00%,F,T)

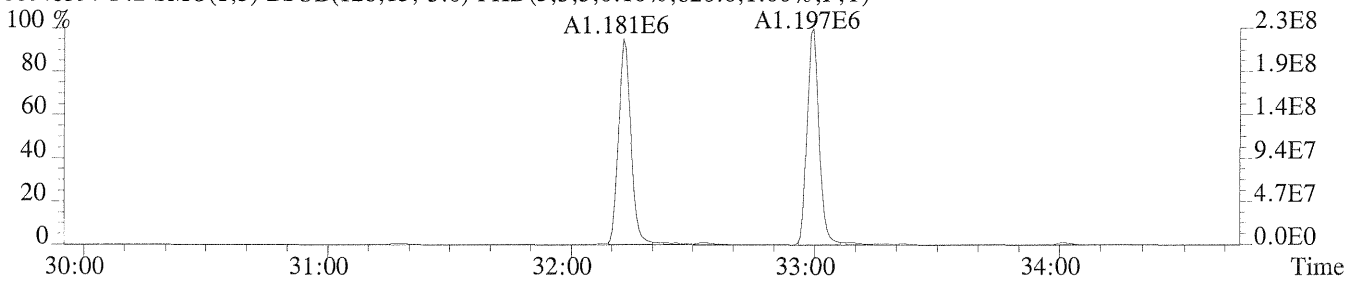


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

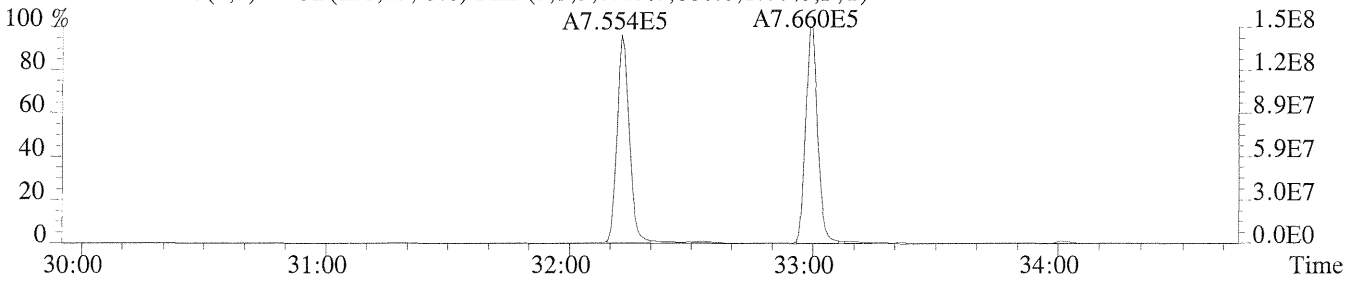


File:P113057 #1-437 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

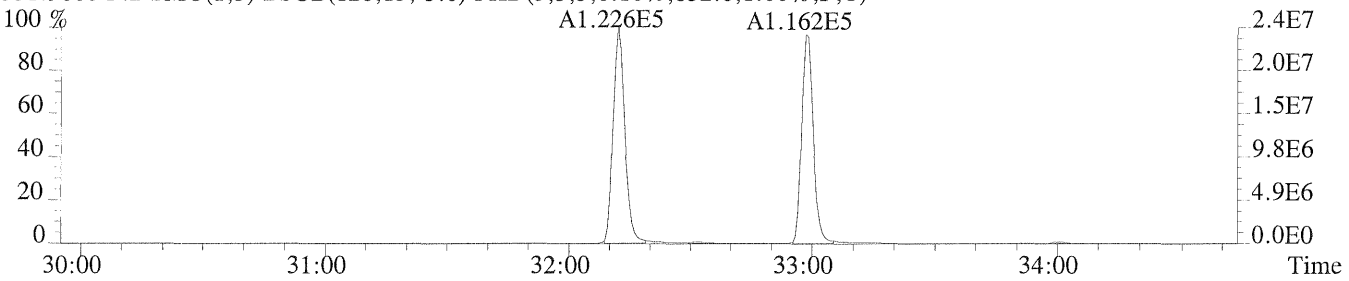
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,820.0,1.00%,F,T)



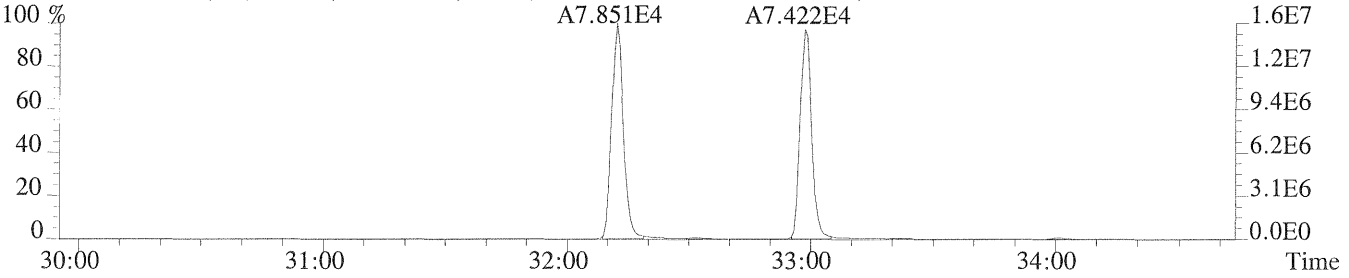
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,680.0,1.00%,F,T)



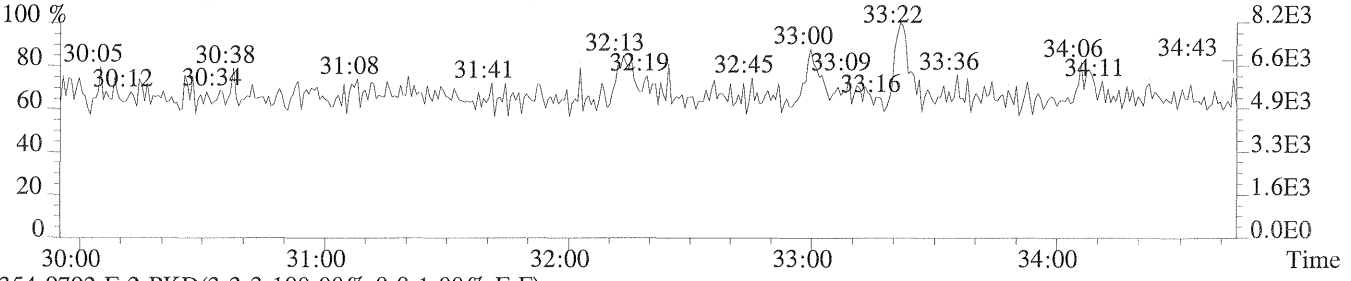
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



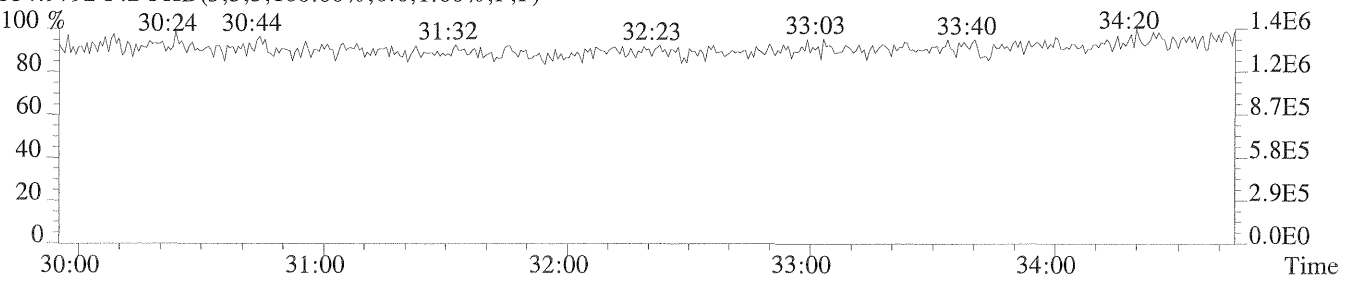
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,448.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

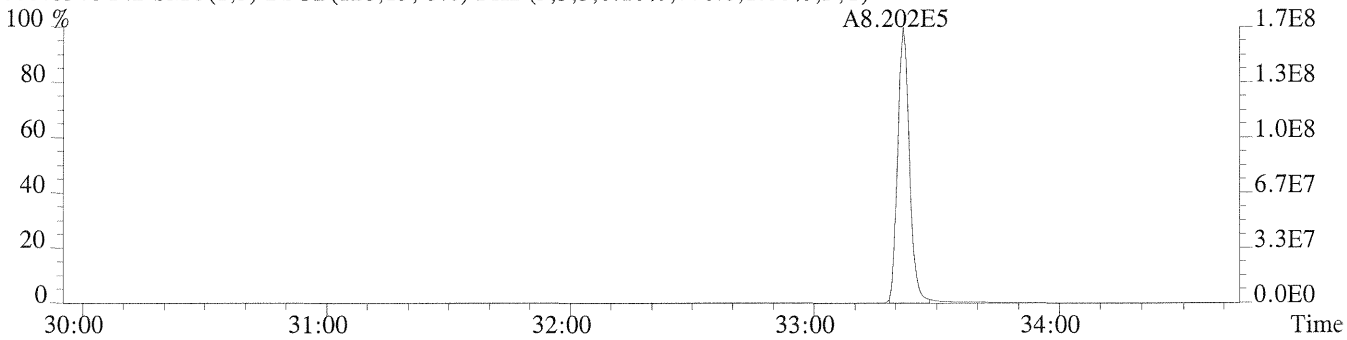


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

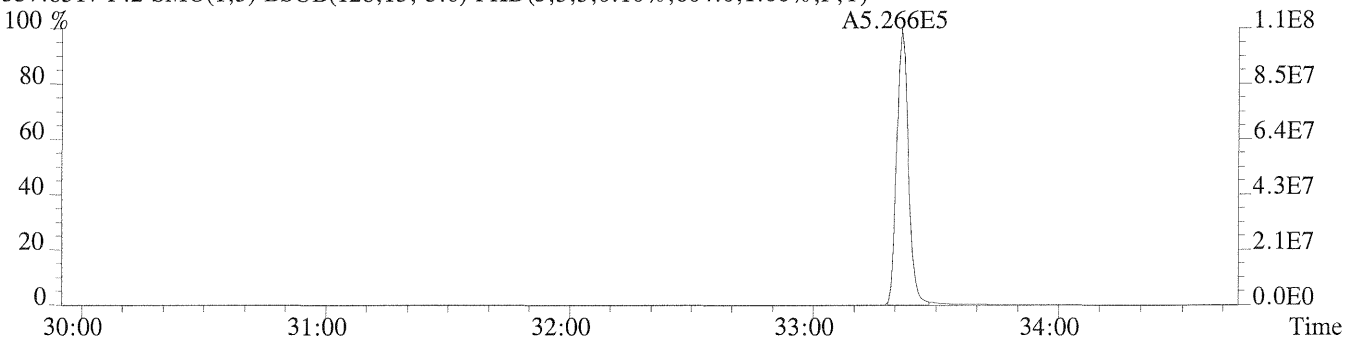


File:P113057 #1-437 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

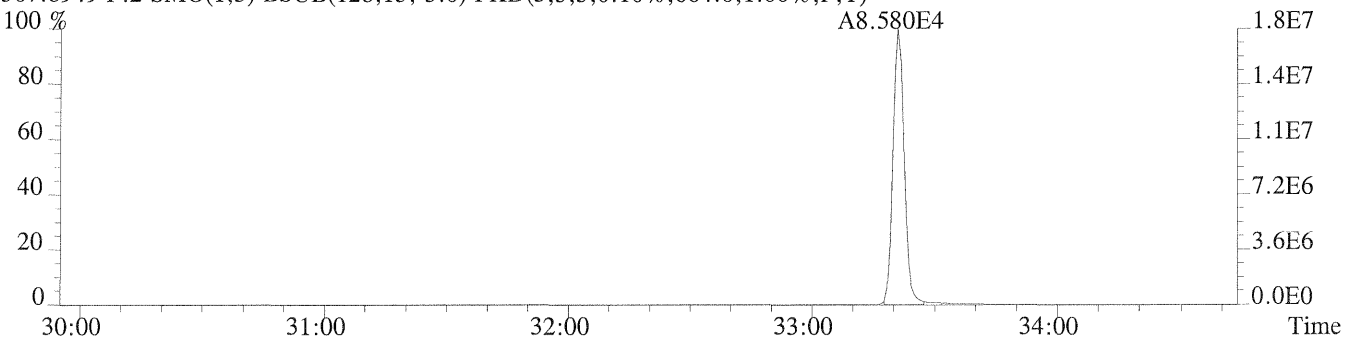
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)



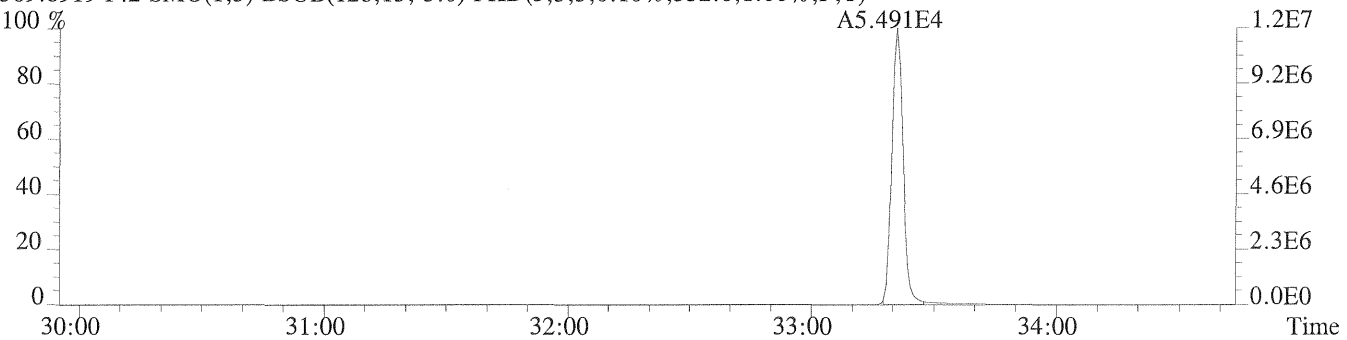
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,604.0,1.00%,F,T)



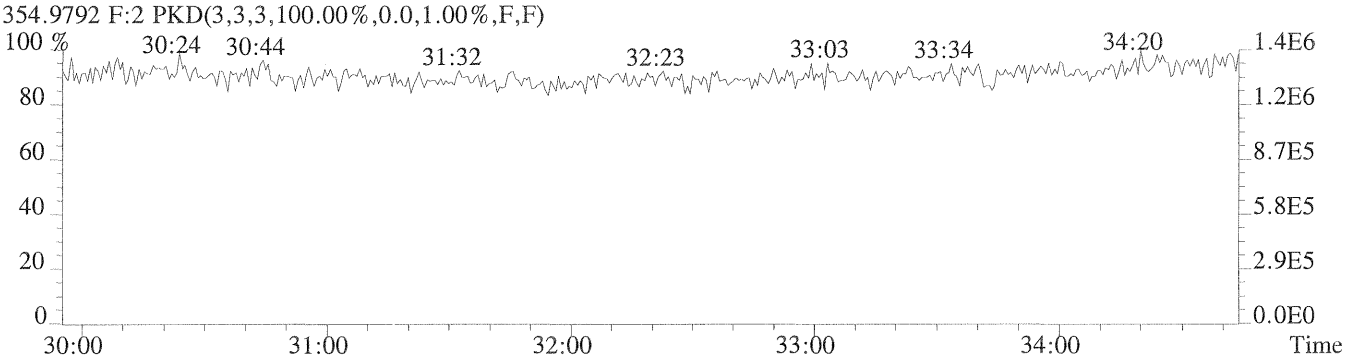
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,664.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,532.0,1.00%,F,T)

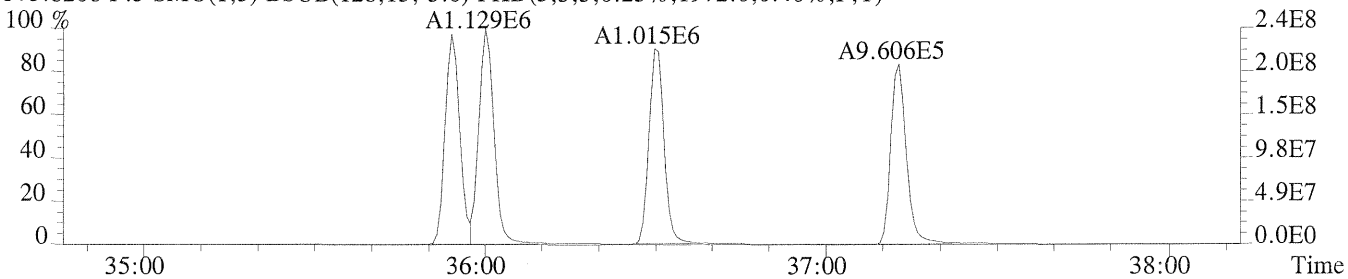


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

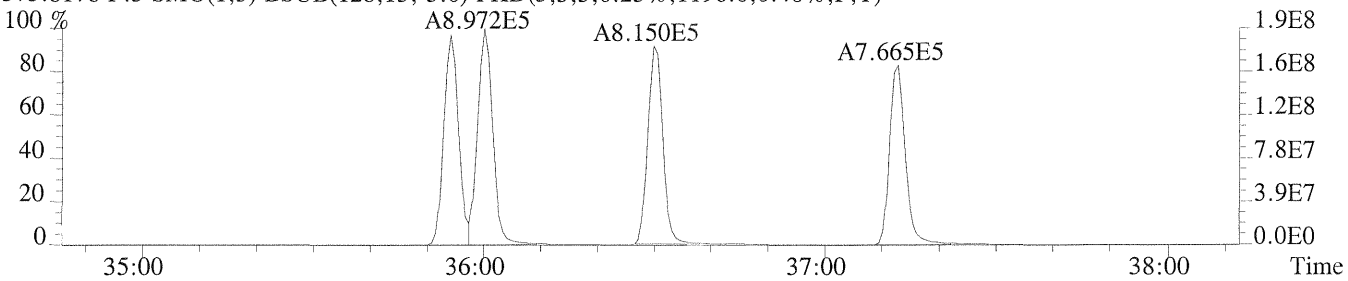


File:P113057 #1-313 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

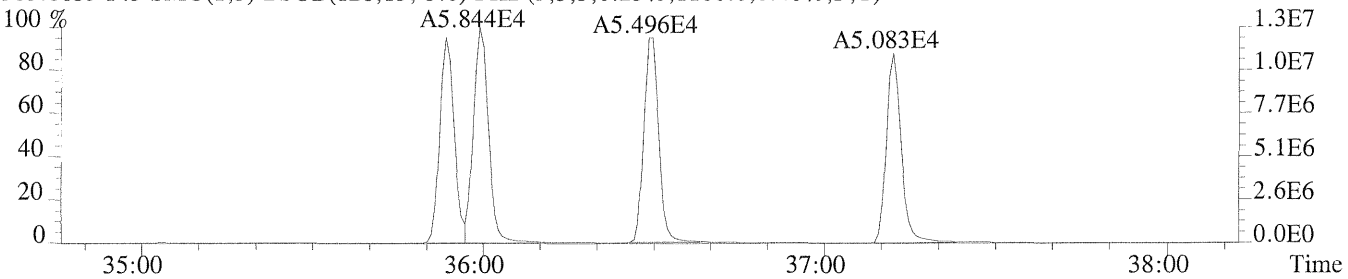
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1972.0,0.40%,F,T)



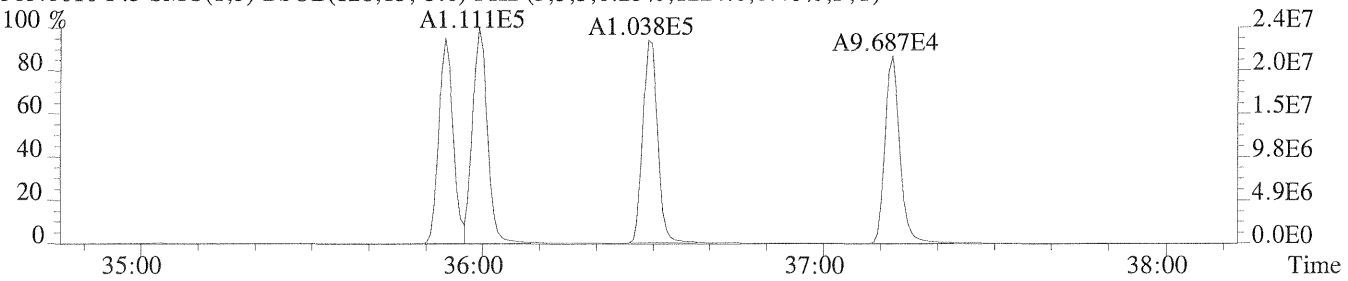
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1196.0,0.40%,F,T)



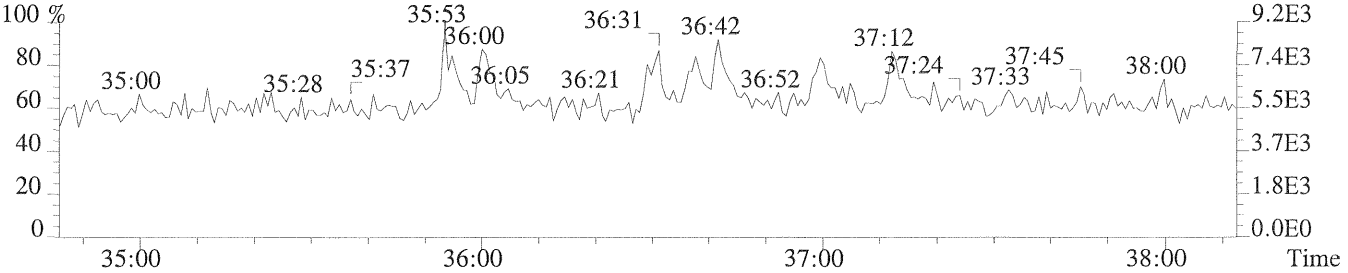
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1100.0,0.40%,F,T)



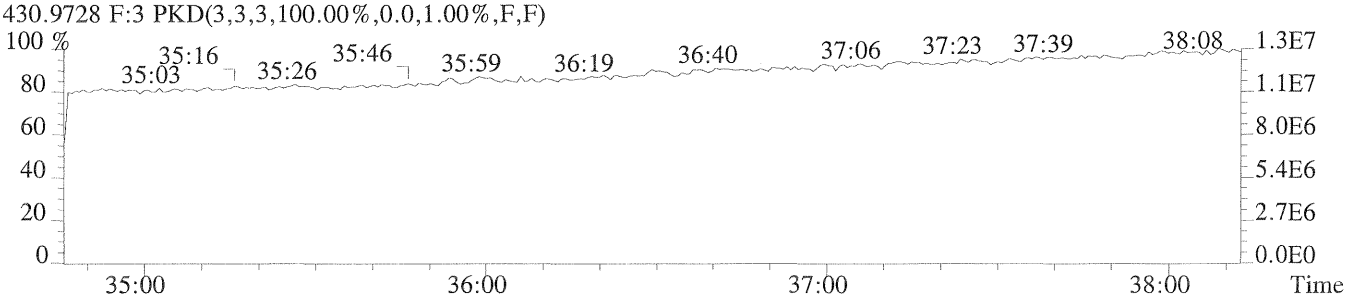
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1224.0,0.40%,F,T)



445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

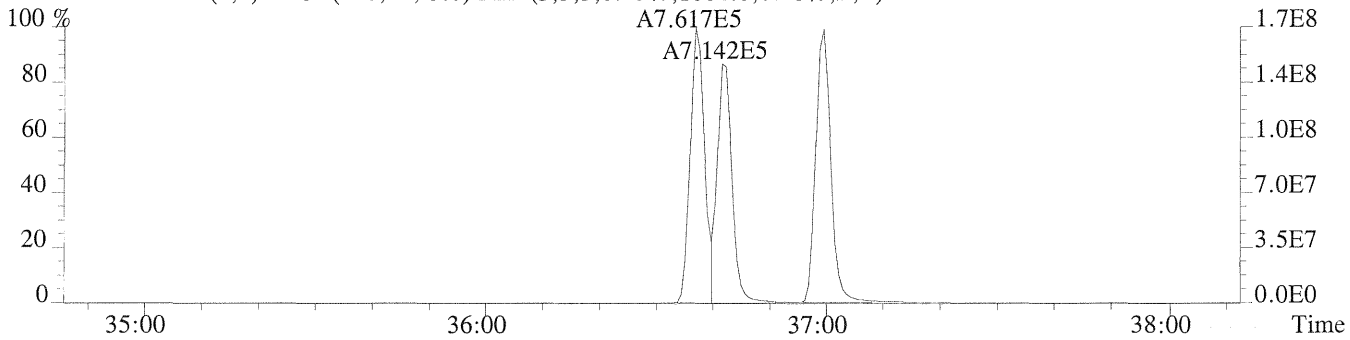


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

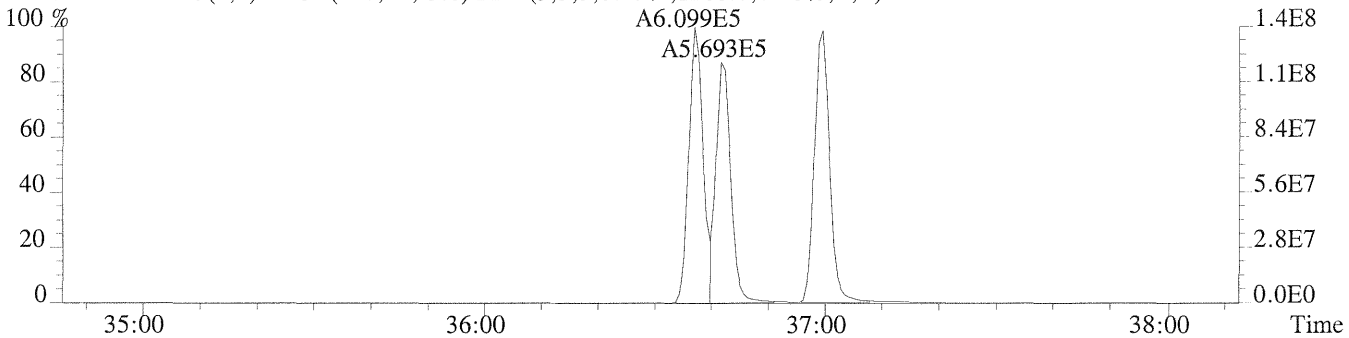


File:P113057 #1-313 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

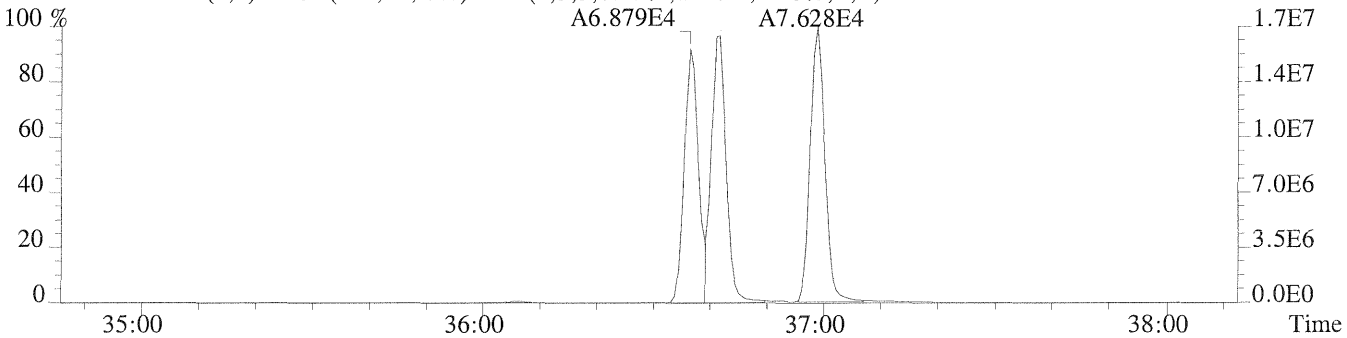
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1004.0,0.40%,F,T)



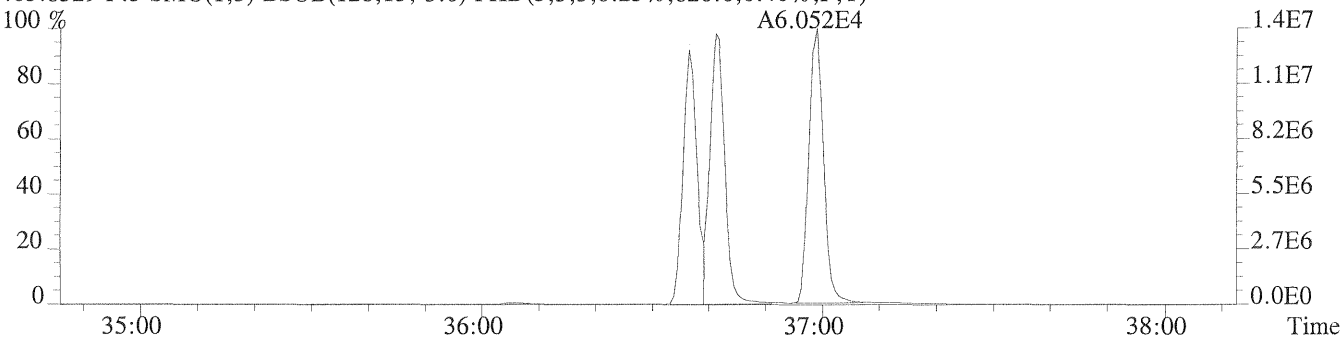
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1268.0,0.40%,F,T)



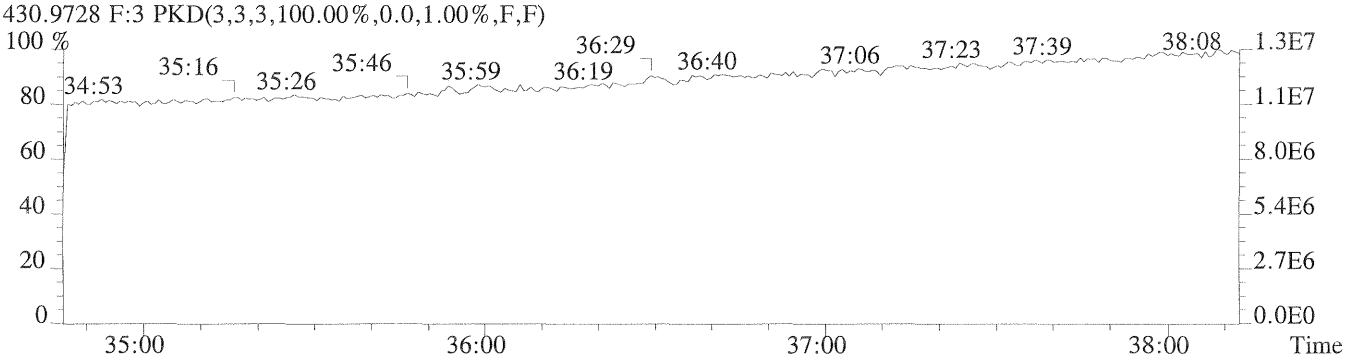
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1248.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,820.0,0.40%,F,T)

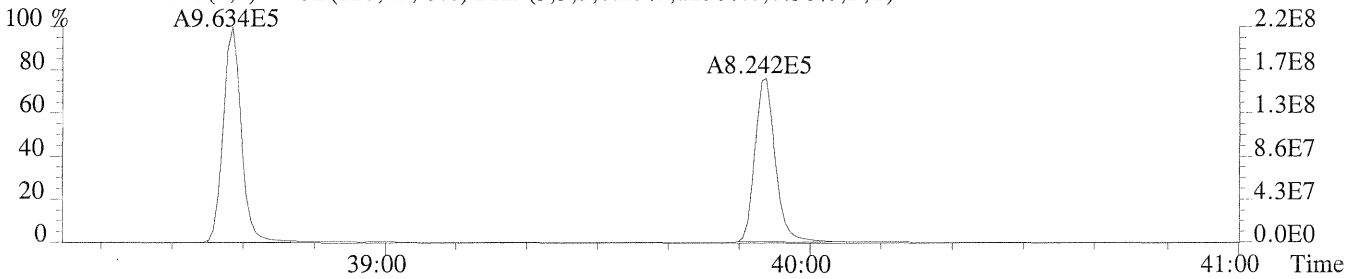


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

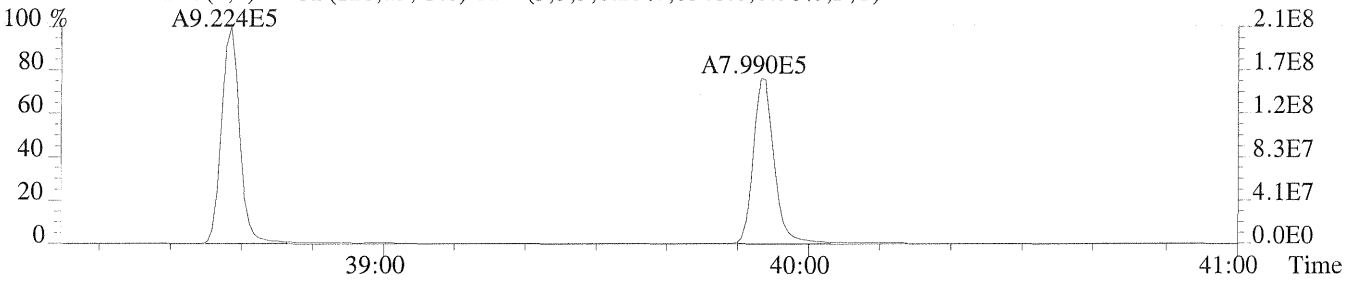


File:P113057 #1-251 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

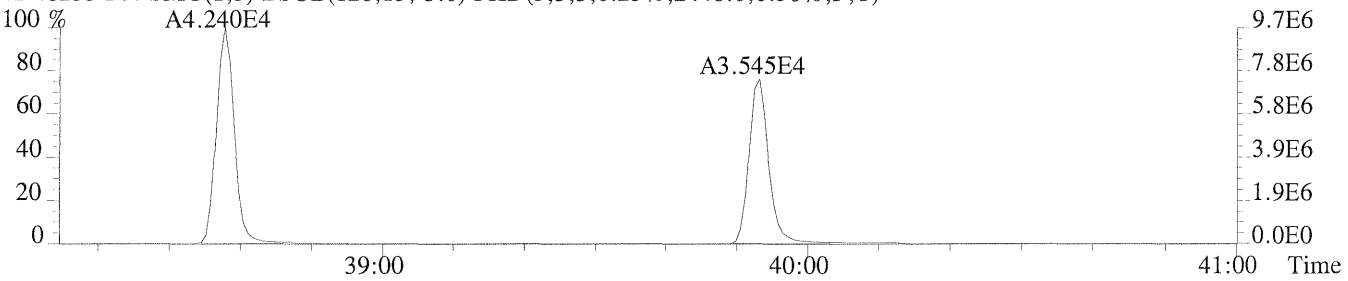
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,12380.0,0.50%,F,T)



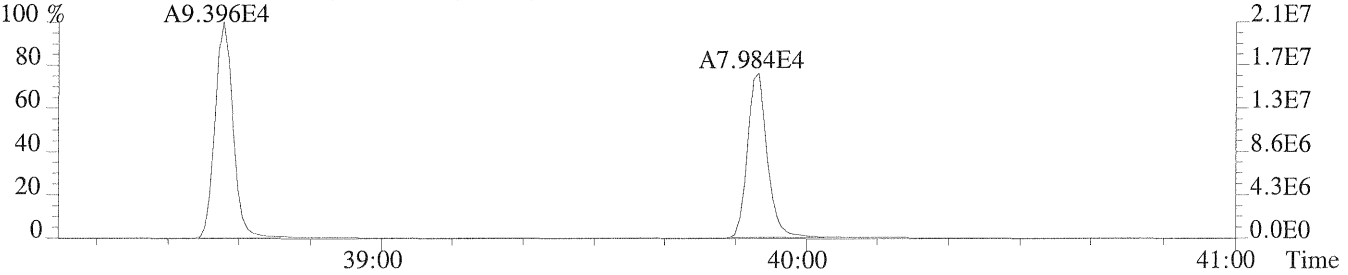
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,8548.0,0.50%,F,T)



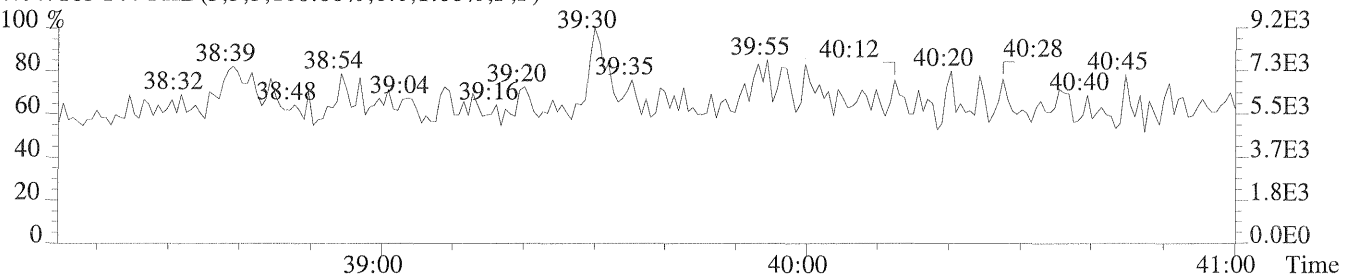
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2448.0,0.50%,F,T)



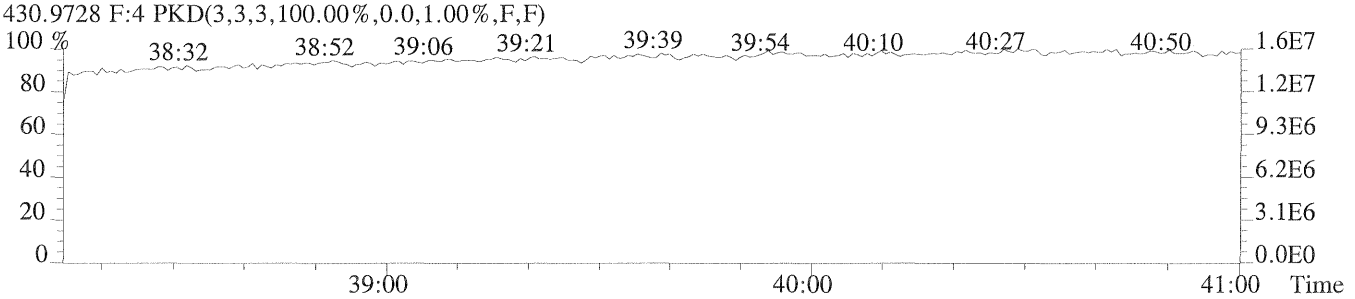
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,6332.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

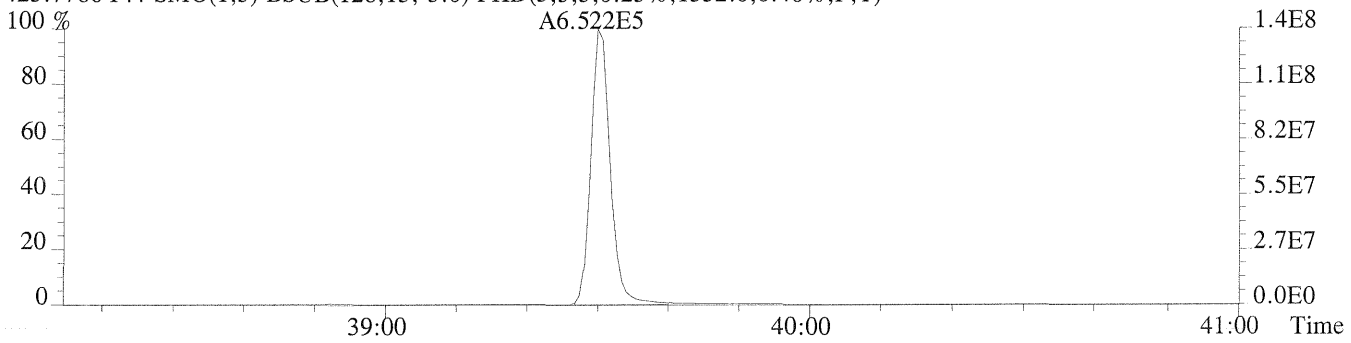


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

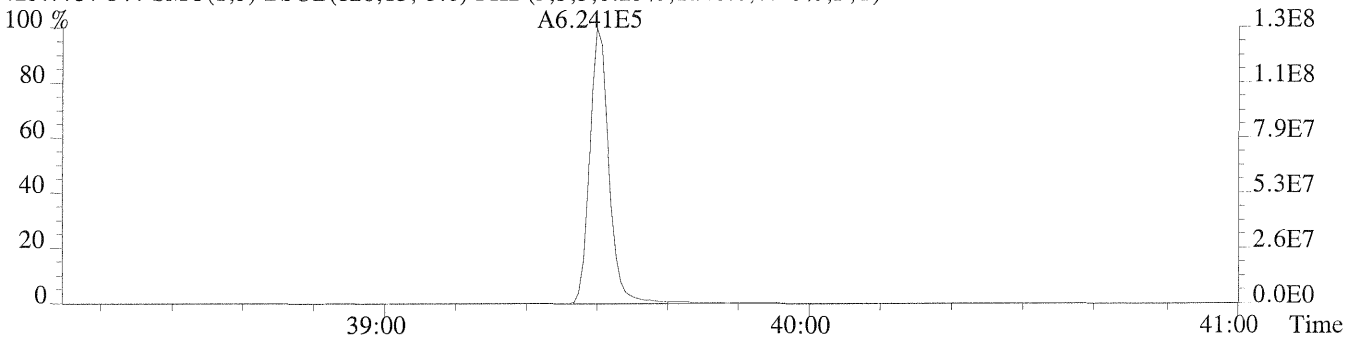


File:P113057 #1-251 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

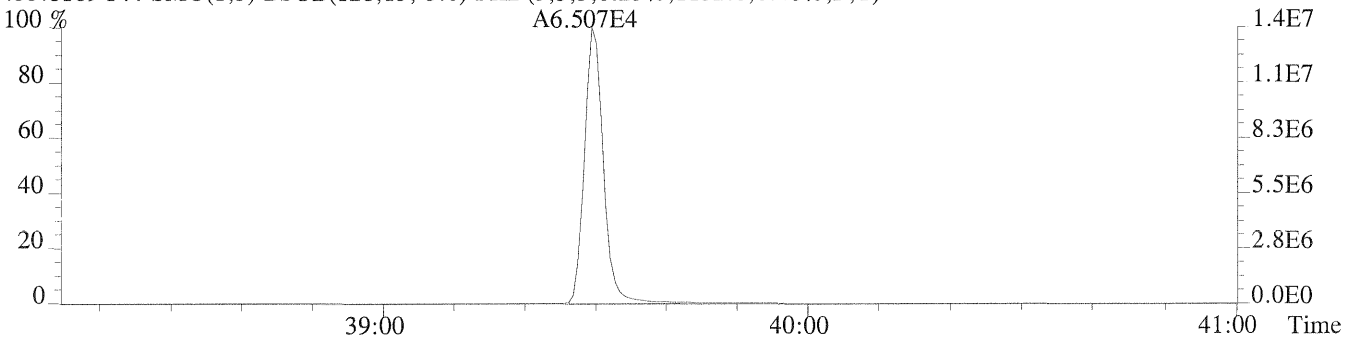
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1552.0,0.40%,F,T)



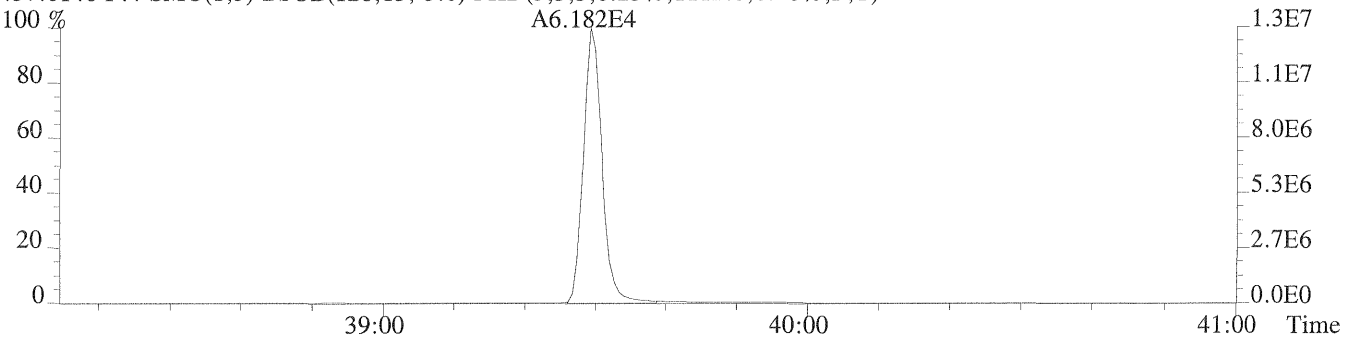
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1148.0,0.40%,F,T)



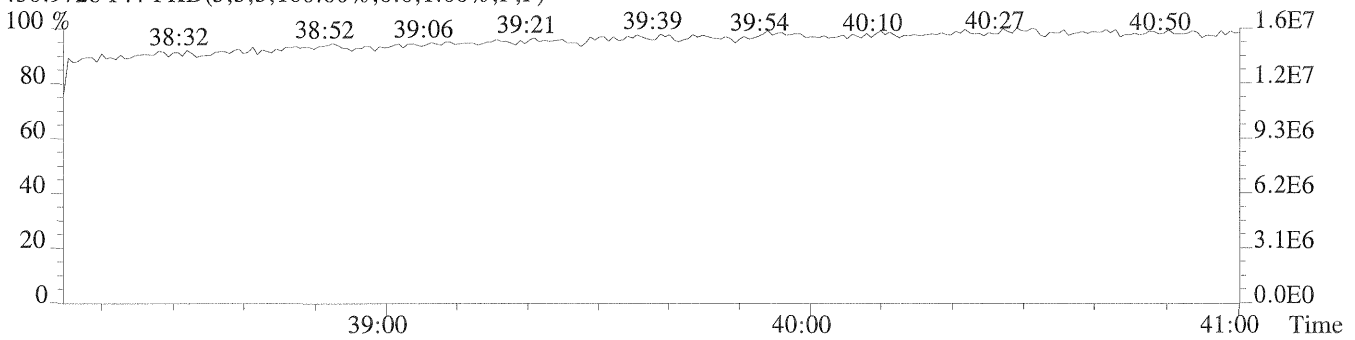
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1152.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1112.0,0.40%,F,T)

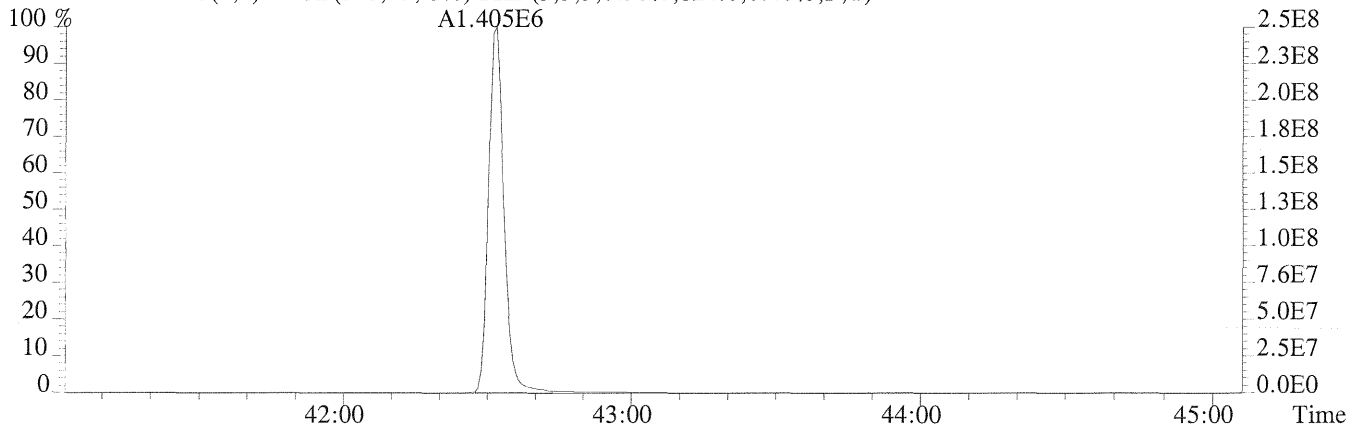


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

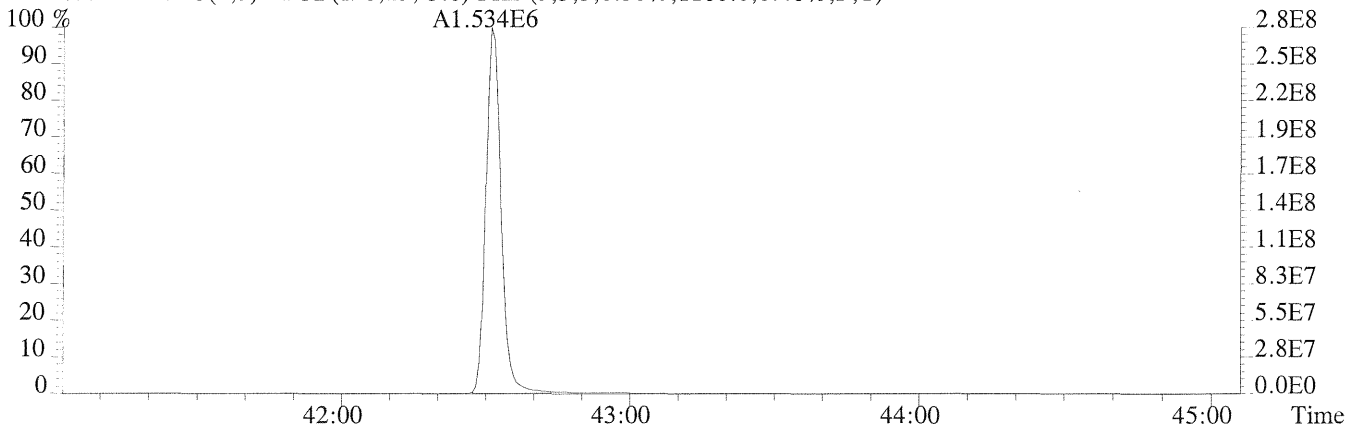


File:P113057 #1-374 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

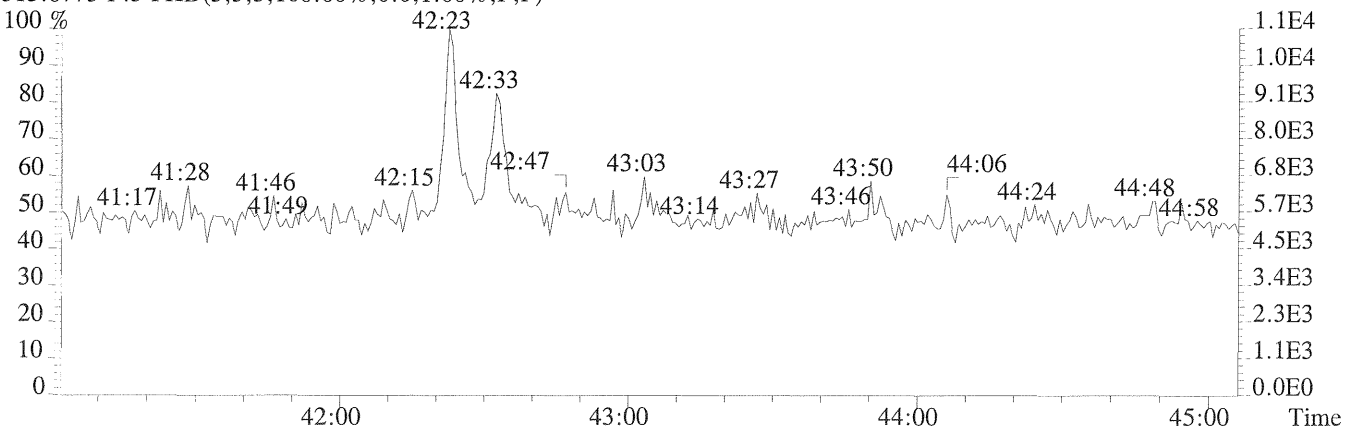
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,824.0,0.40%,F,T)



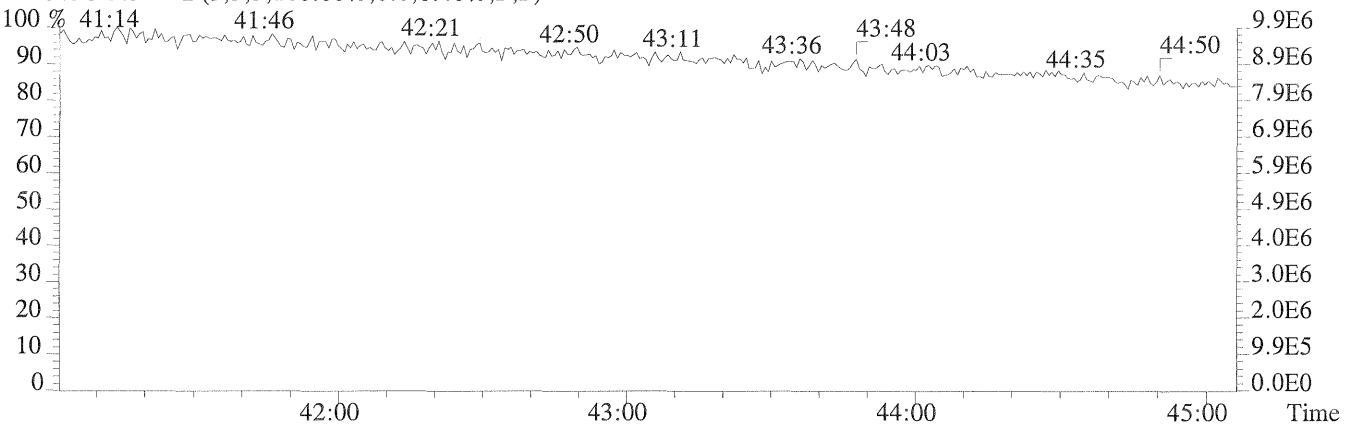
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1180.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

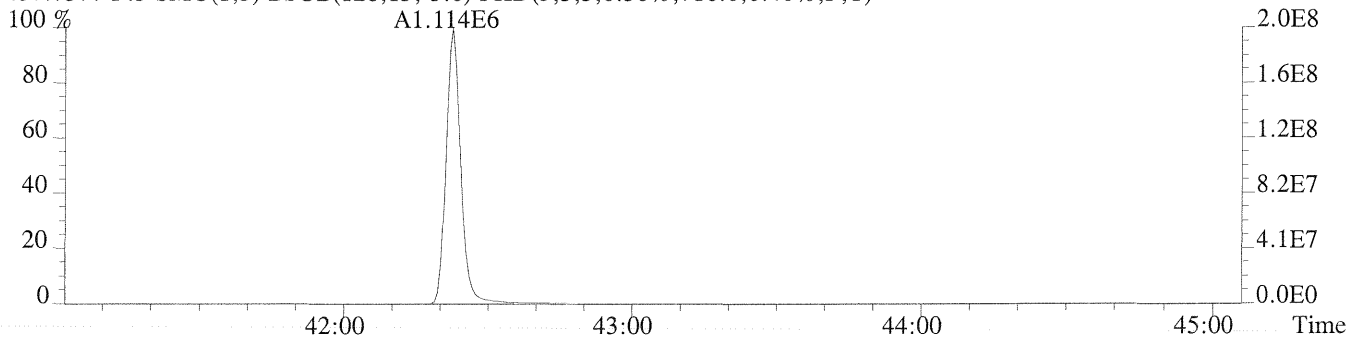


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

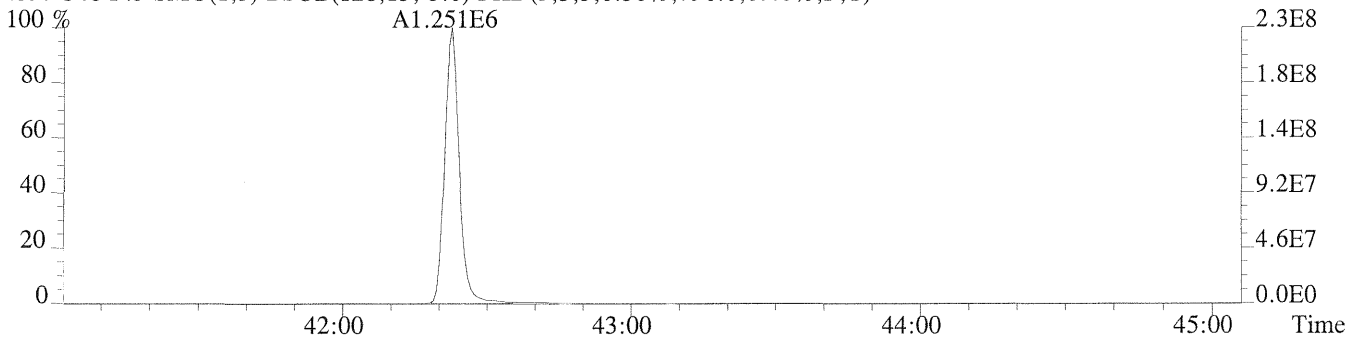


File:P113057 #1-374 Acq:24-MAR-2011 15:17:25 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

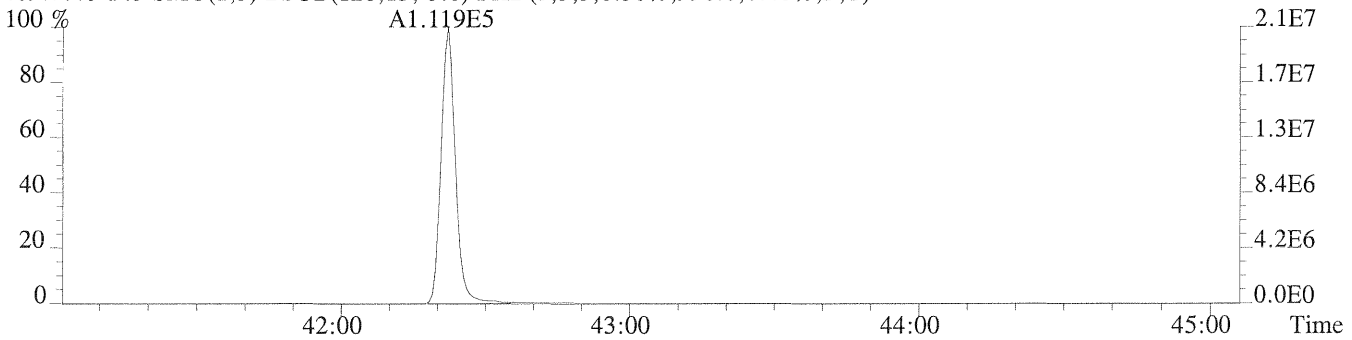
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,716.0,0.40%,F,T)



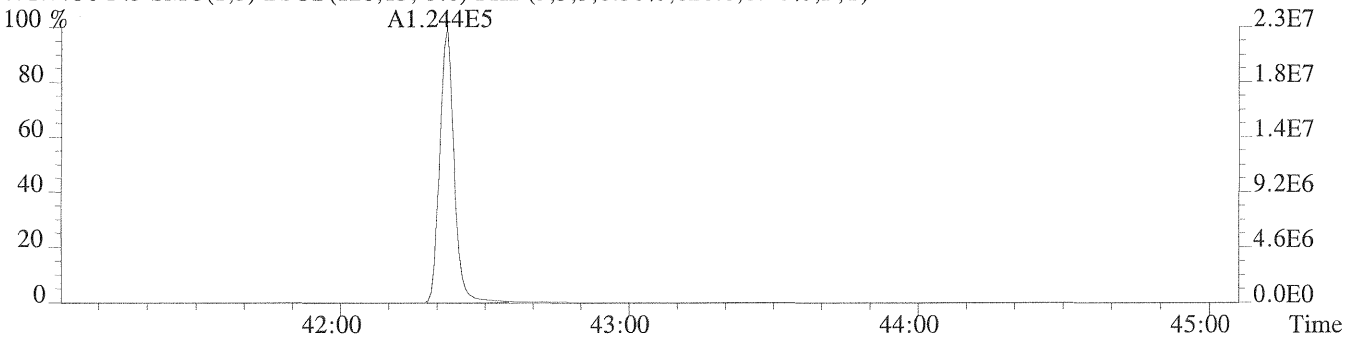
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,796.0,0.40%,F,T)



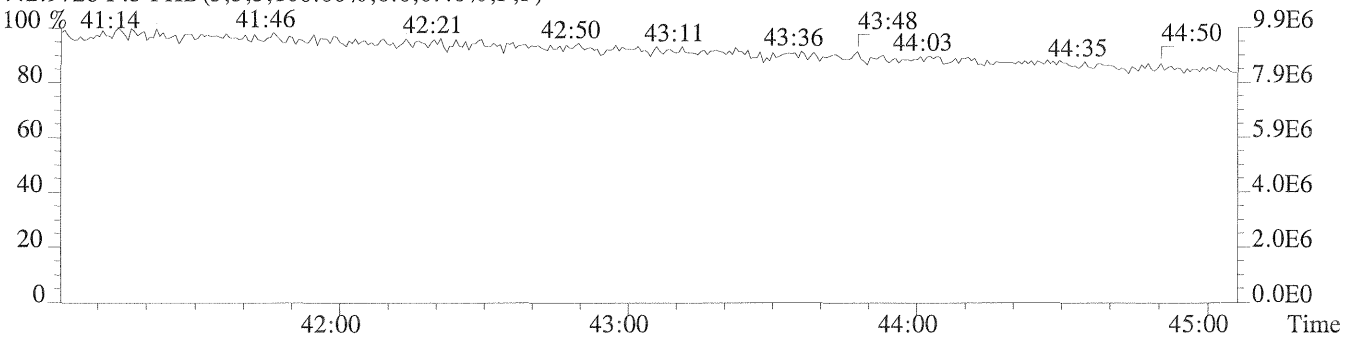
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,996.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,828.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

CLIENT ID.
ICAL CS6

Run #7 Filename P113058 #1 Samp: 1 Inj: 1 Acquired: 24-MAR-11 16:12:36
Processed: 25-MAR-11 12:16:00 LAB. ID: D10-83-1B

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?	RRT
1	Unk	2,3,7,8-TCDF	27:34	2.419e+05	3.151e+05	0.77	yes	no	1.001
2	Unk	1,2,3,7,8-PeCDF	32:12	1.644e+06	1.052e+06	1.56	yes	no	1.000
3	Unk	2,3,4,7,8-PeCDF	32:59	1.664e+06	1.063e+06	1.56	yes	no	1.001
4	Unk	1,2,3,4,7,8-HxCDF	35:53	1.477e+06	1.183e+06	1.25	yes	no	1.000
5	Unk	1,2,3,6,7,8-HxCDF	35:59	1.578e+06	1.256e+06	1.26	yes	no	1.000
6	Unk	2,3,4,6,7,8-HxCDF	36:30	1.390e+06	1.111e+06	1.25	yes	no	1.000
7	Unk	1,2,3,7,8,9-HxCDF	37:12	1.255e+06	1.002e+06	1.25	yes	no	1.000
8	Unk	1,2,3,4,6,7,8-HpCDF	38:38	1.285e+06	1.233e+06	1.04	yes	no	1.000
9	Unk	1,2,3,4,7,8,9-HpCDF	39:53	1.227e+06	1.173e+06	1.05	yes	no	1.000
10	Unk	OCDF	42:31	1.746e+06	1.914e+06	0.91	yes	no	1.004
11	Unk	2,3,7,8-TCDD	28:28	1.990e+05	2.565e+05	0.78	yes	no	1.001
12	Unk	1,2,3,7,8-PeCDD	33:21	1.166e+06	7.439e+05	1.57	yes	no	1.000
13	Unk	1,2,3,4,7,8-HxCDD	36:36	1.002e+06	8.044e+05	1.25	yes	no	1.000
14	Unk	1,2,3,6,7,8-HxCDD	36:42	1.061e+06	8.571e+05	1.24	yes	no	1.000
15	Unk	1,2,3,7,8,9-HxCDD	36:59	1.011e+06	8.119e+05	1.25	yes	no	1.008
16	Unk	1,2,3,4,6,7,8-HpCDD	39:30	8.094e+05	7.867e+05	1.03	yes	no	1.000
17	Unk	OCDD	42:22	1.395e+06	1.564e+06	0.89	yes	no	1.000
18	IS	13C-2,3,7,8-TCDF	27:32	2.194e+04	2.796e+04	0.78	yes	no	0.975
19	IS	13C-1,2,3,7,8-PeCDF	32:12	3.112e+04	1.979e+04	1.57	yes	no	1.140
20	IS	13C-2,3,4,7,8-PeCDF	32:58	2.909e+04	1.838e+04	1.58	yes	no	1.168
21	IS	13C-1,2,3,4,7,8-HxCDF	35:53	1.342e+04	2.566e+04	0.52	yes	no	0.971
22	IS	13C-1,2,3,6,7,8-HxCDF	35:59	1.483e+04	2.758e+04	0.54	yes	no	0.973
23	IS	13C-2,3,4,6,7,8-HxCDF	36:29	1.372e+04	2.576e+04	0.53	yes	no	0.987
24	IS	13C-1,2,3,7,8,9-HxCDF	37:11	1.194e+04	2.325e+04	0.51	yes	no	1.006
25	IS	13C-1,2,3,4,6,7,8-HpCDF	38:37	1.052e+04	2.298e+04	0.46	yes	no	1.045
26	IS	13C-1,2,3,4,7,8,9-HpCDF	39:53	8.347e+03	1.845e+04	0.45	yes	no	1.079
27	IS	13C-2,3,7,8-TCDD	28:27	1.698e+04	2.110e+04	0.80	yes	no	1.008
28	IS	13C-1,2,3,7,8-PeCDD	33:20	2.178e+04	1.369e+04	1.59	yes	no	1.181
29	IS	13C-1,2,3,4,7,8-HxCDD	36:36	1.714e+04	1.355e+04	1.27	yes	no	0.990
30	IS	13C-1,2,3,6,7,8-HxCDD	36:41	1.975e+04	1.559e+04	1.27	yes	no	0.992
31	IS	13C-1,2,3,4,6,7,8-HpCDD	39:29	1.531e+04	1.443e+04	1.06	yes	no	1.068
32	IS	13C-OCDD	42:21	2.566e+04	2.830e+04	0.91	yes	no	1.146
33	RS/RT	13C-1,2,3,4-TCDD	28:14	1.591e+04	1.972e+04	0.81	yes	no	*
34	RS/RT	13C-1,2,3,7,8,9-HxCDD	36:58	1.879e+04	1.491e+04	1.26	yes	no	*
35	C/Up	37Cl-2,3,7,8-TCDD	28:28	4.474e+05				no	1.008

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Columbia Analytical Services,Inc.
Signal/Noise Height Ratio Summary

CLIENT ID.
ICAL CS6

Run #7 Filename P113058 Samp: 1 Inj: 1 Acquired: 24-MAR-11 16:12:36
Processed: 25-MAR-11 12:16:001 LAB. ID: D10-83-1B

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N Rat.2
1	2,3,7,8-TCDF	3.45e+07	9.16e+02	3.8e+04	4.44e+07	8.32e+02	5.3e+04
2	1,2,3,7,8-PeCDF	3.13e+08	7.24e+02	4.3e+05	2.00e+08	8.28e+02	2.4e+05
3	2,3,4,7,8-PeCDF	3.27e+08	7.24e+02	4.5e+05	2.07e+08	8.28e+02	2.5e+05
4	1,2,3,4,7,8-HxCDF	3.30e+08	3.13e+03	1.1e+05	2.65e+08	2.11e+03	1.3e+05
5	1,2,3,6,7,8-HxCDF	3.40e+08	3.13e+03	1.1e+05	2.71e+08	2.11e+03	1.3e+05
6	2,3,4,6,7,8-HxCDF	3.03e+08	3.13e+03	9.7e+04	2.40e+08	2.11e+03	1.1e+05
7	1,2,3,7,8,9-HxCDF	2.70e+08	3.13e+03	8.6e+04	2.13e+08	2.11e+03	1.0e+05
8	1,2,3,4,6,7,8-HpCDF	2.89e+08	2.21e+04	1.3e+04	2.78e+08	1.36e+04	2.0e+04
9	1,2,3,4,7,8,9-HpCDF	2.52e+08	2.21e+04	1.1e+04	2.39e+08	1.36e+04	1.8e+04
10	OCDF	3.21e+08	1.04e+03	3.1e+05	3.46e+08	1.28e+03	2.7e+05
11	2,3,7,8-TCDD	3.17e+07	7.84e+02	4.0e+04	4.12e+07	8.52e+02	4.8e+04
12	1,2,3,7,8-PeCDD	2.35e+08	9.60e+02	2.4e+05	1.50e+08	7.60e+02	2.0e+05
13	1,2,3,4,7,8-HxCDD	2.32e+08	1.51e+03	1.5e+05	1.86e+08	1.22e+03	1.5e+05
14	1,2,3,6,7,8-HxCDD	2.29e+08	1.51e+03	1.5e+05	1.83e+08	1.22e+03	1.5e+05
15	1,2,3,7,8,9-HxCDD	2.26e+08	1.51e+03	1.5e+05	1.81e+08	1.22e+03	1.5e+05
16	1,2,3,4,6,7,8-HpCDD	1.69e+08	1.72e+03	9.8e+04	1.64e+08	1.16e+03	1.4e+05
17	OCDD	2.57e+08	6.96e+02	3.7e+05	2.88e+08	1.22e+03	2.4e+05
18	13C-2,3,7,8-TCDF	3.49e+06	1.35e+03	2.6e+03	4.44e+06	1.07e+03	4.2e+03
19	13C-1,2,3,7,8-PeCDF	6.20e+06	7.12e+02	8.7e+03	3.96e+06	6.60e+02	6.0e+03
20	13C-2,3,4,7,8-PeCDF	5.94e+06	7.12e+02	8.3e+03	3.80e+06	6.60e+02	5.8e+03
21	13C-1,2,3,4,7,8-HxCDF	2.99e+06	1.20e+03	2.5e+03	5.81e+06	1.40e+03	4.2e+03
22	13C-1,2,3,6,7,8-HxCDF	3.23e+06	1.20e+03	2.7e+03	6.07e+06	1.40e+03	4.3e+03
23	13C-2,3,4,6,7,8-HxCDF	3.09e+06	1.20e+03	2.6e+03	5.68e+06	1.40e+03	4.1e+03
24	13C-1,2,3,7,8,9-HxCDF	2.67e+06	1.20e+03	2.2e+03	5.17e+06	1.40e+03	3.7e+03
25	13C-1,2,3,4,6,7,8-HpCDF	2.42e+06	1.92e+03	1.3e+03	5.25e+06	2.00e+03	2.6e+03
26	13C-1,2,3,4,7,8,9-HpCDF	1.80e+06	1.92e+03	9.4e+02	3.89e+06	2.00e+03	1.9e+03
27	13C-2,3,7,8-TCDD	3.00e+06	2.29e+03	1.3e+03	3.72e+06	1.08e+03	3.4e+03
28	13C-1,2,3,7,8-PeCDD	4.58e+06	5.24e+02	8.7e+03	2.89e+06	7.76e+02	3.7e+03
29	13C-1,2,3,4,7,8-HxCDD	3.95e+06	1.58e+03	2.5e+03	3.16e+06	1.04e+03	3.0e+03
30	13C-1,2,3,6,7,8-HxCDD	4.34e+06	1.58e+03	2.7e+03	3.45e+06	1.04e+03	3.3e+03
31	13C-1,2,3,4,6,7,8-HpCDD	3.24e+06	9.24e+02	3.5e+03	3.09e+06	9.08e+02	3.4e+03
32	13C-OCDD	4.79e+06	8.00e+02	6.0e+03	5.27e+06	9.36e+02	5.6e+03
33	13C-1,2,3,4-TCDD	2.45e+06	2.29e+03	1.1e+03	3.06e+06	1.08e+03	2.8e+03
34	13C-1,2,3,7,8,9-HxCDD	4.28e+06	1.58e+03	2.7e+03	3.42e+06	1.04e+03	3.3e+03
35	37Cl-2,3,7,8-TCDD	7.11e+07	1.54e+03	4.6e+04			

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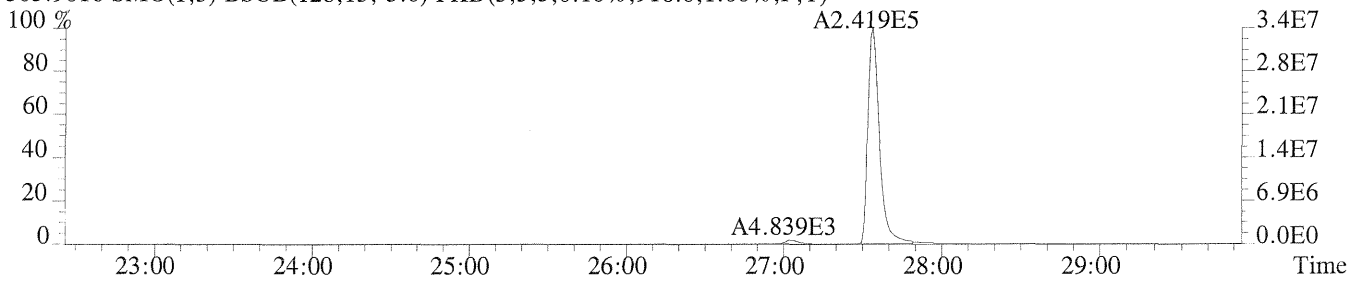
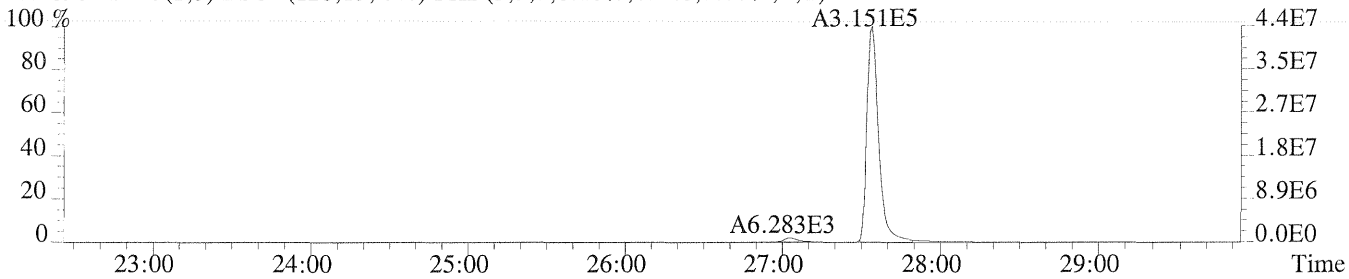
File:P113058 #1-621 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

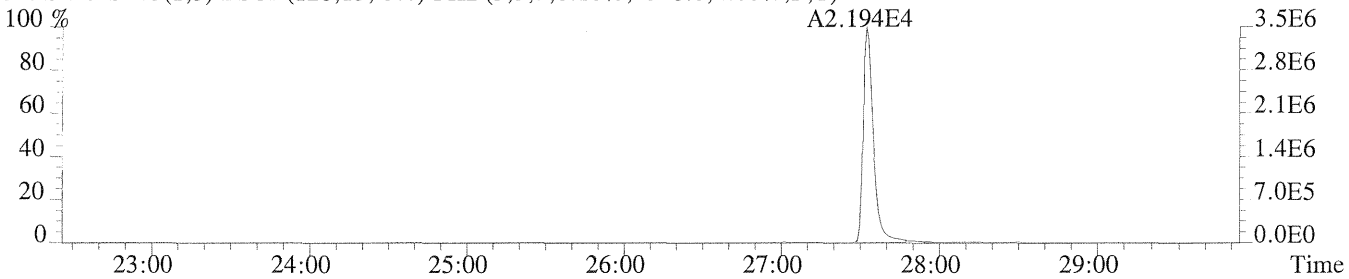
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,916.0,1.00%,F,T)



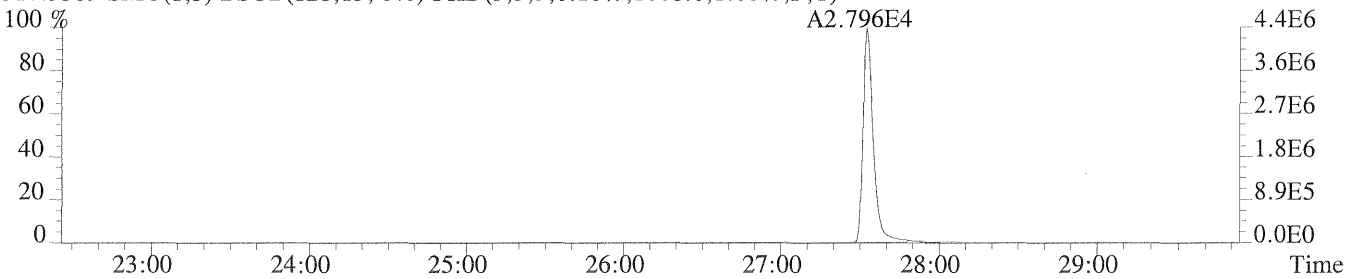
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,832.0,1.00%,F,T)



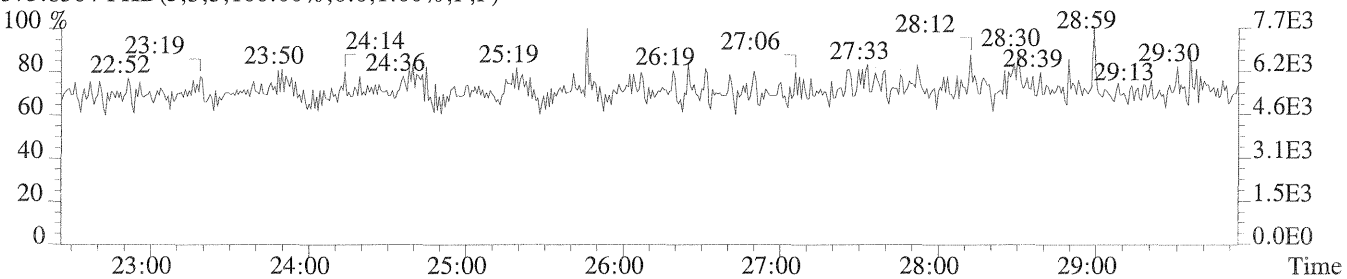
315.9419 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1348.0,1.00%,F,T)



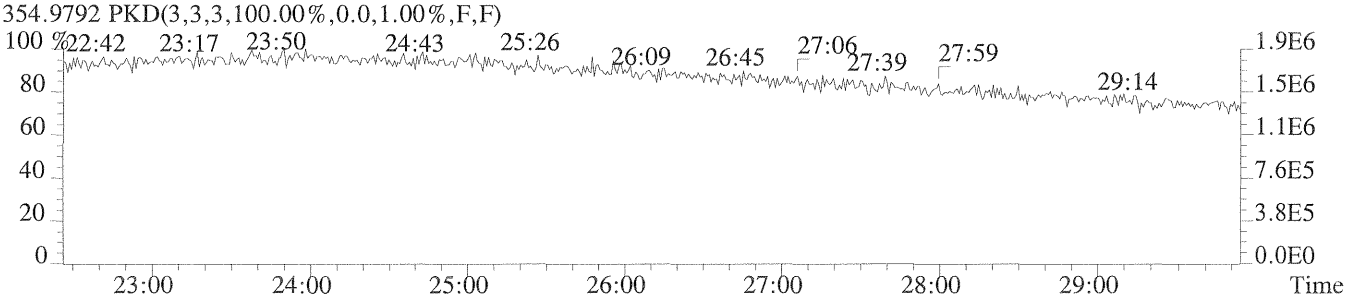
317.9389 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1068.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

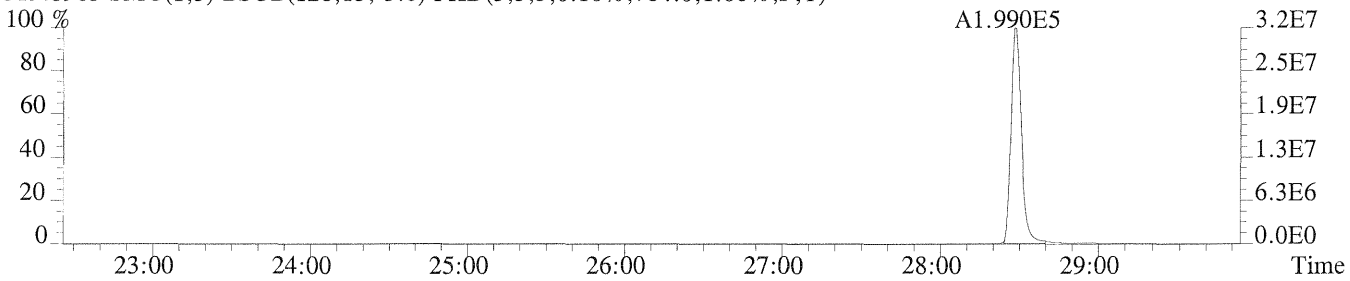


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

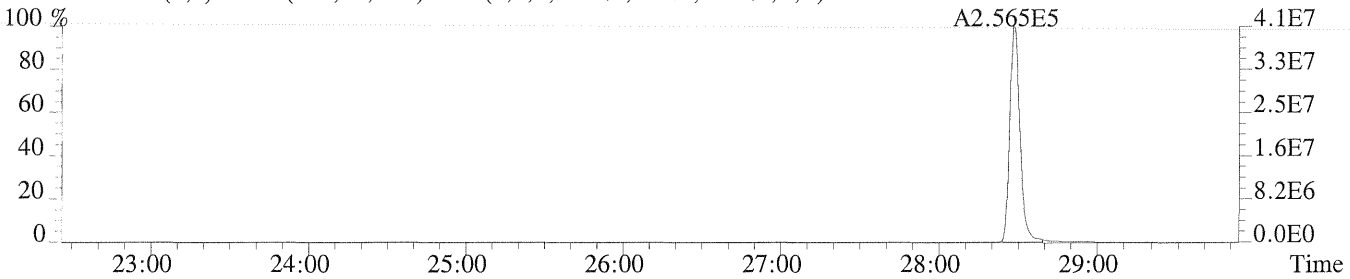


File:P113058 #1-621 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

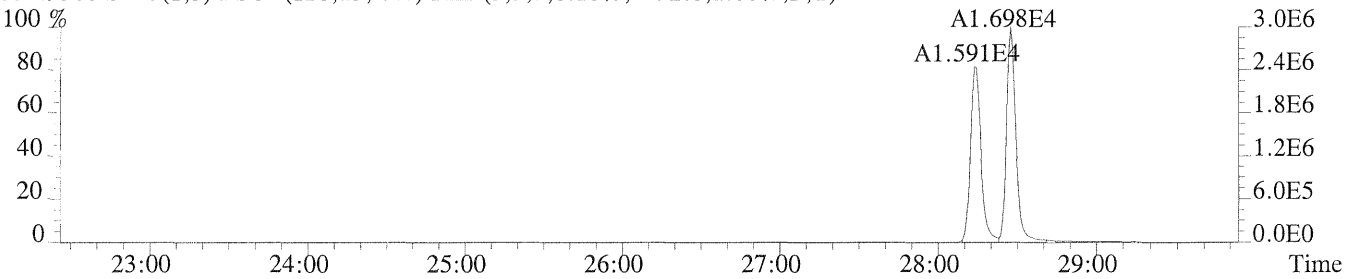
319.8965 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,784.0,1.00%,F,T)



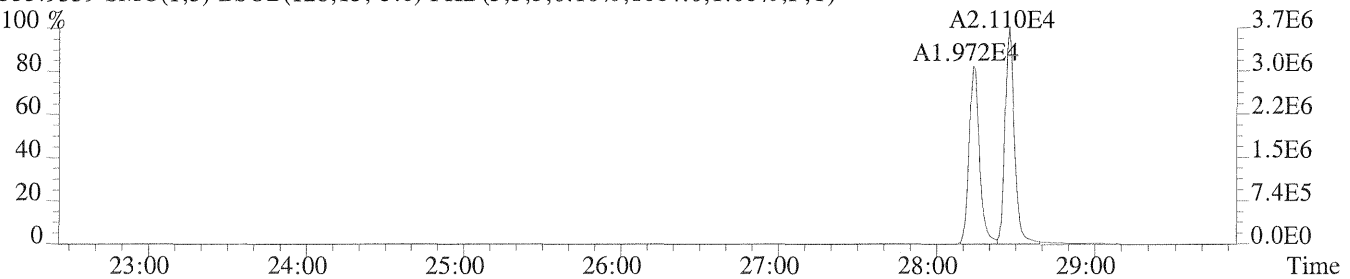
321.8936 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,852.0,1.00%,F,T)



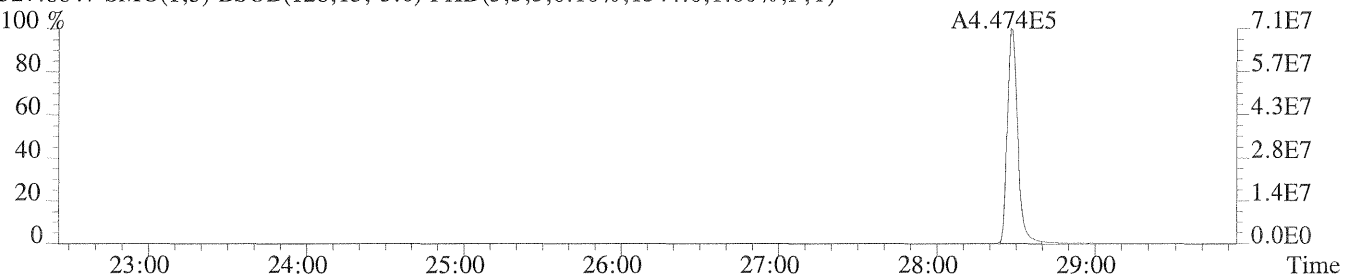
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2292.0,1.00%,F,T)



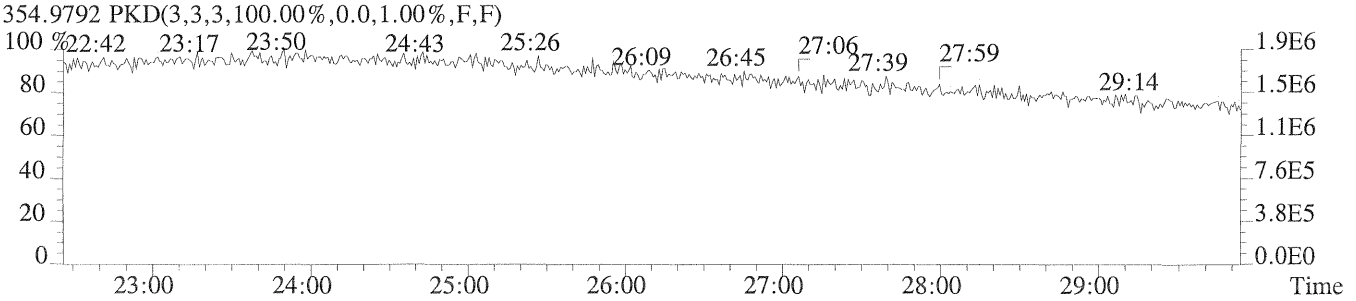
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1084.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1544.0,1.00%,F,T)

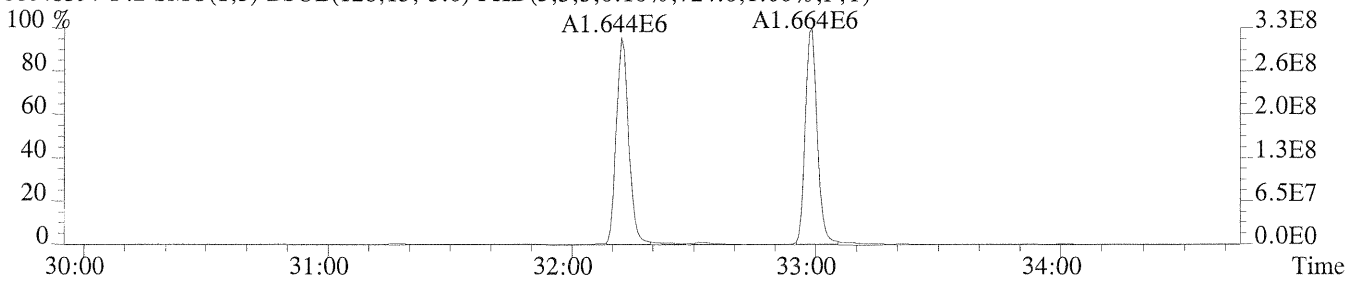


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

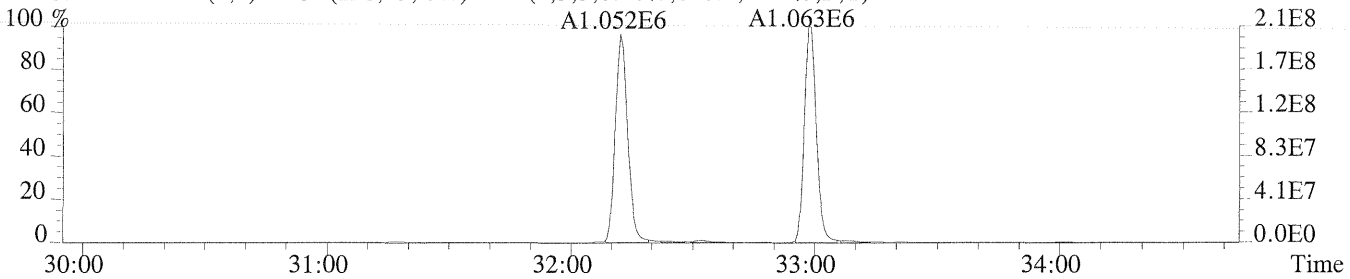


File:P113058 #1-437 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

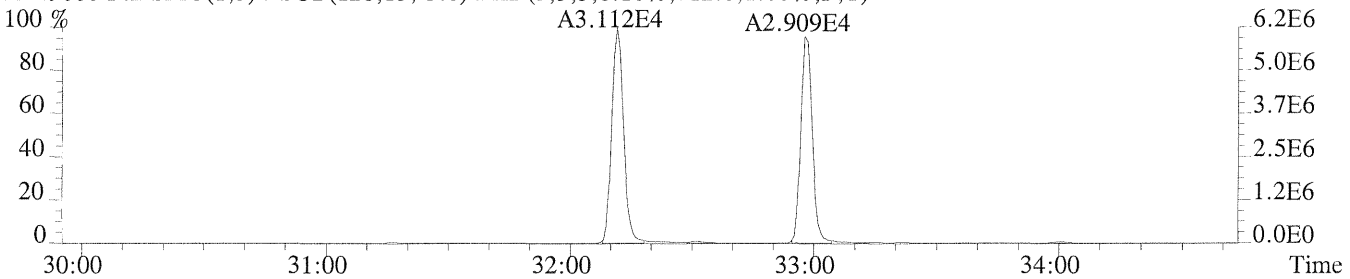
339.8597 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,724.0,1.00%,F,T)



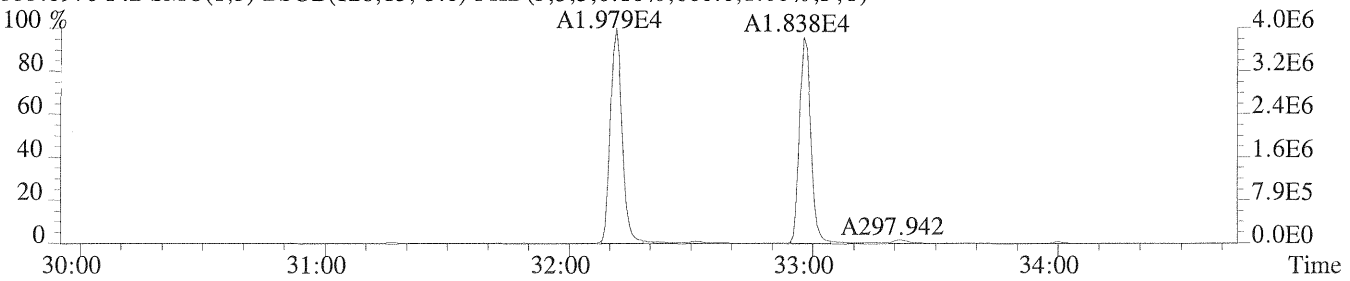
341.8567 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,828.0,1.00%,F,T)



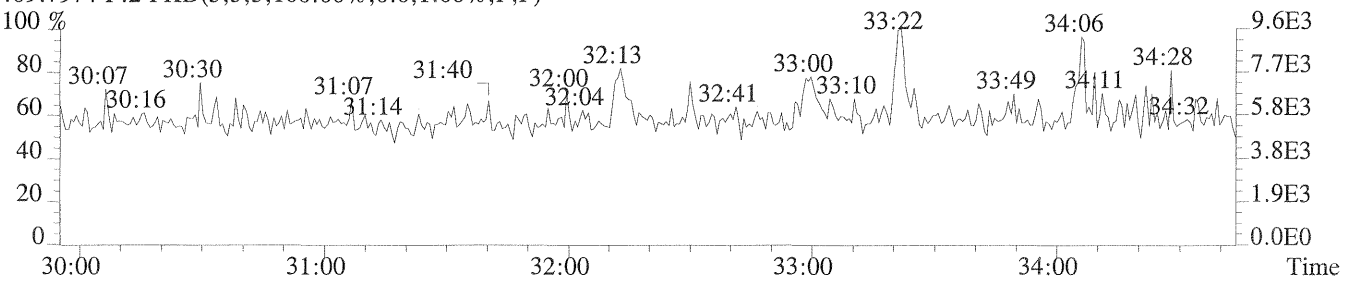
351.9000 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,712.0,1.00%,F,T)



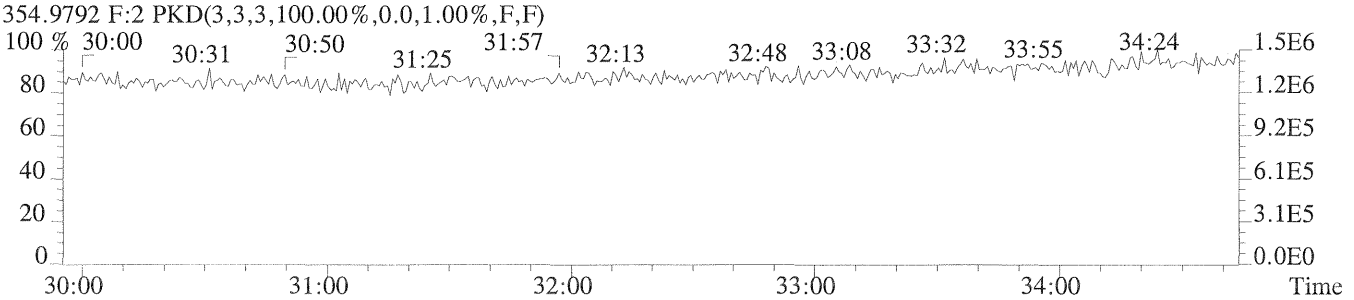
353.8970 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,660.0,1.00%,F,T)



409.7974 F:2 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

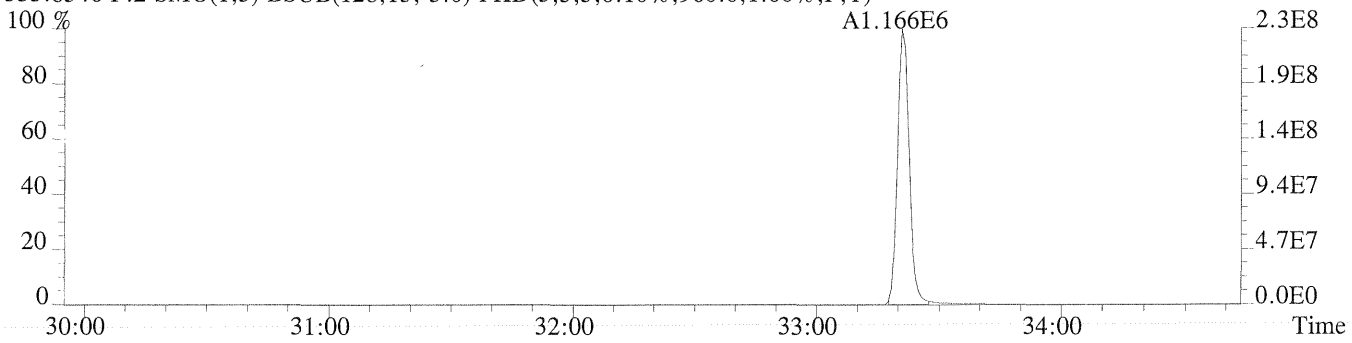


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

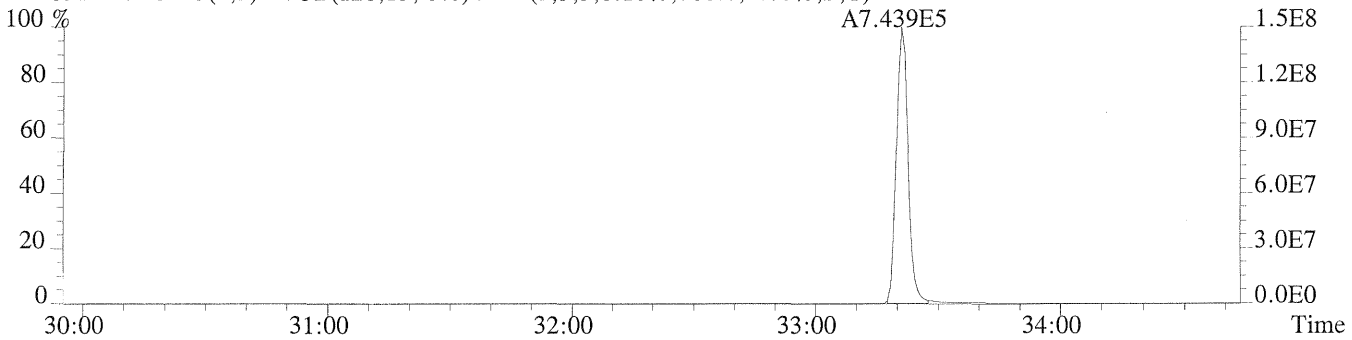


File:P113058 #1-437 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

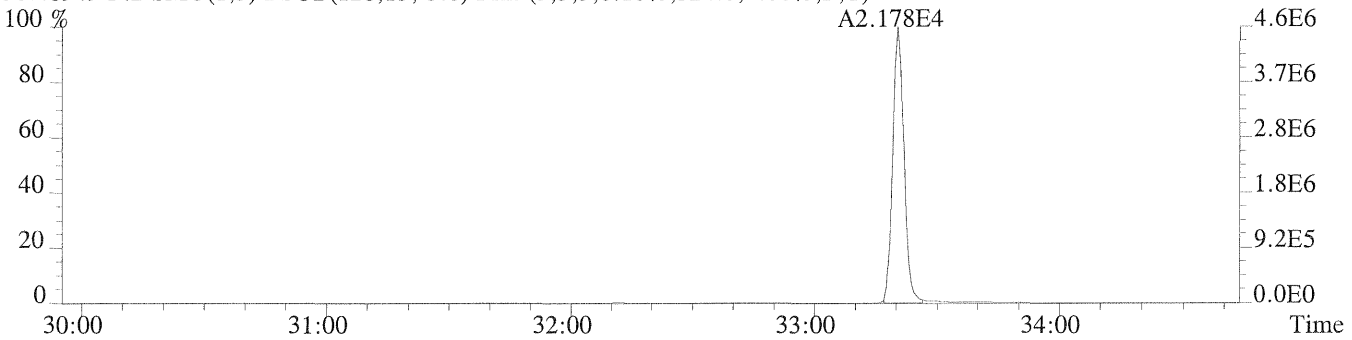
355.8546 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,960.0,1.00%,F,T)



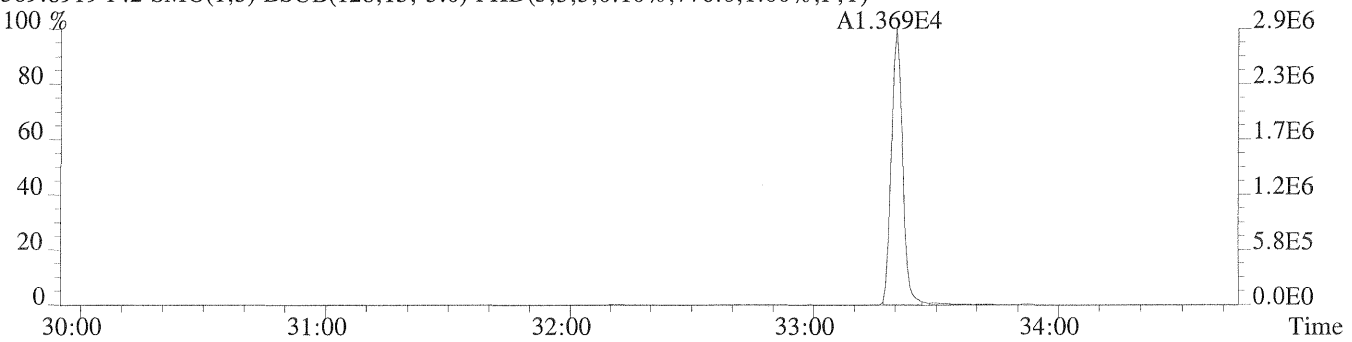
357.8517 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,760.0,1.00%,F,T)



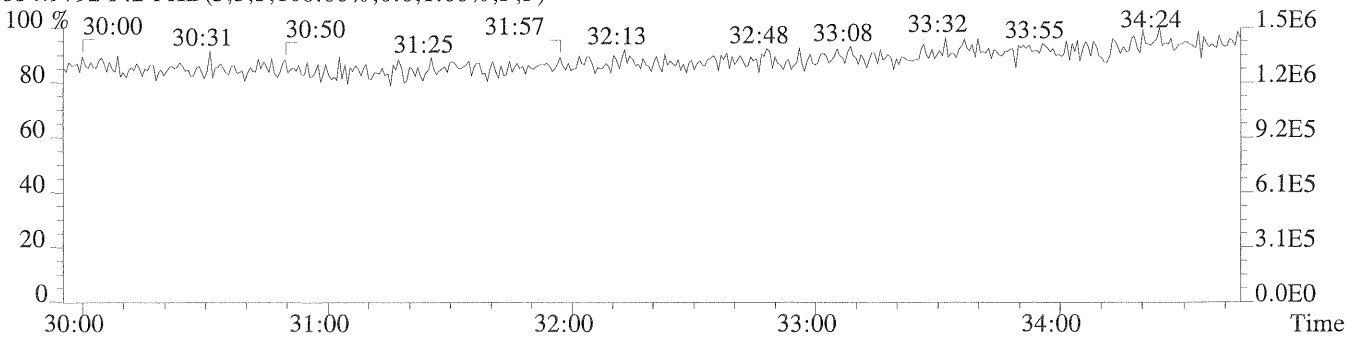
367.8949 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,524.0,1.00%,F,T)



369.8919 F:2 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,776.0,1.00%,F,T)

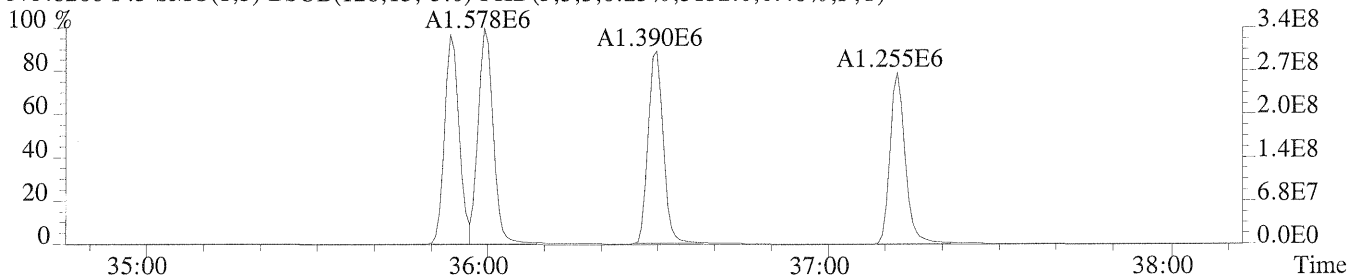


354.9792 F:2 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

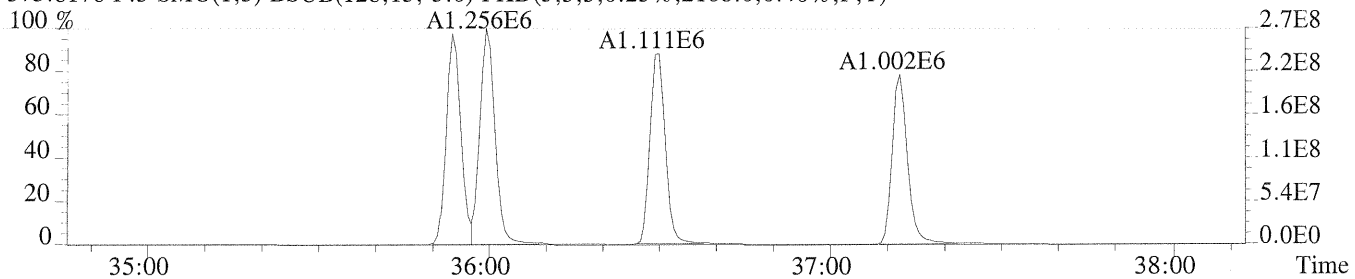


File:P113058 #1-313 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

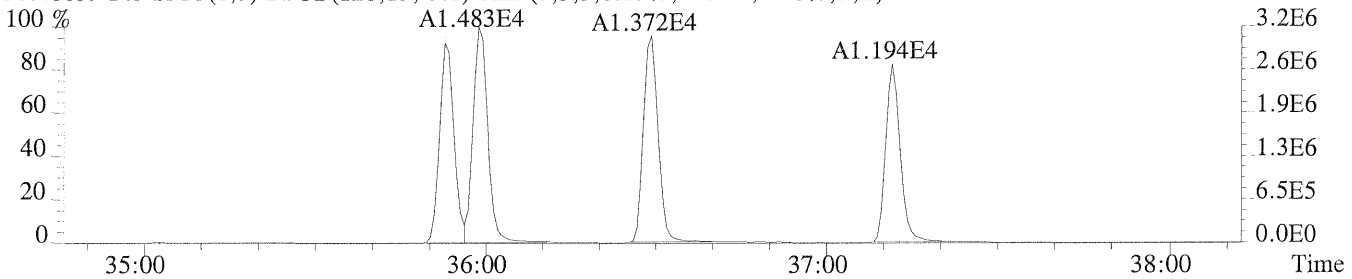
373.8208 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,3132.0,0.40%,F,T)



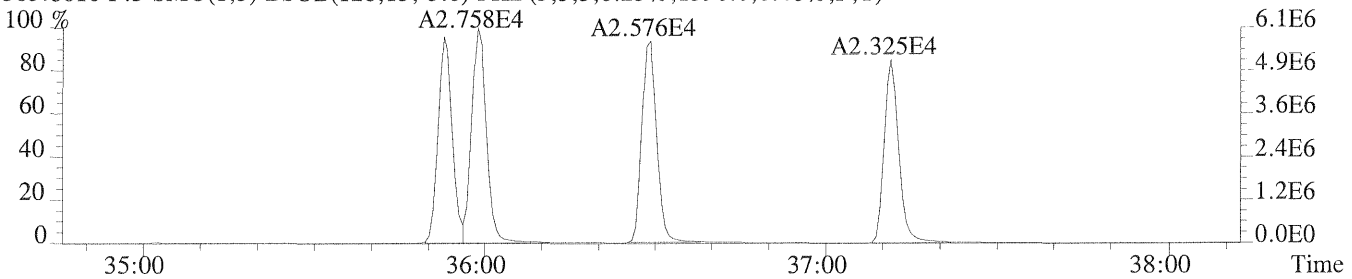
375.8178 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,2108.0,0.40%,F,T)



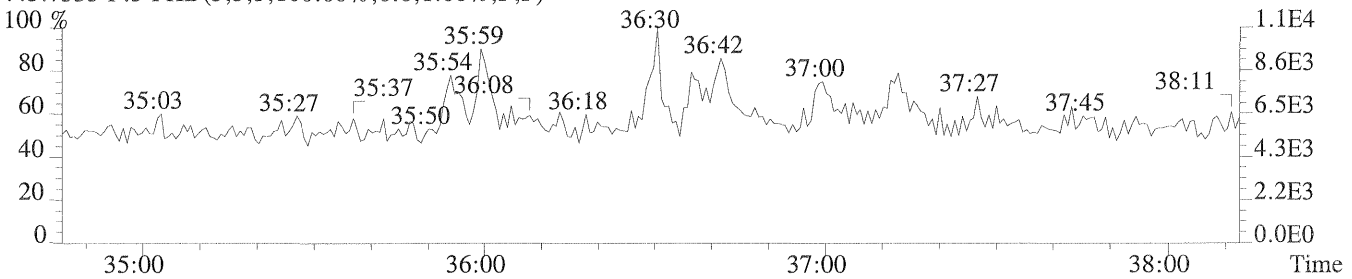
383.8639 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1204.0,0.40%,F,T)



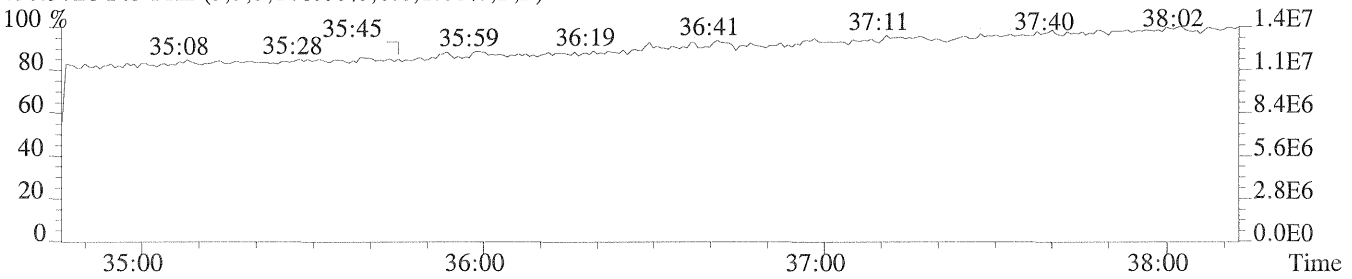
385.8610 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1396.0,0.40%,F,T)



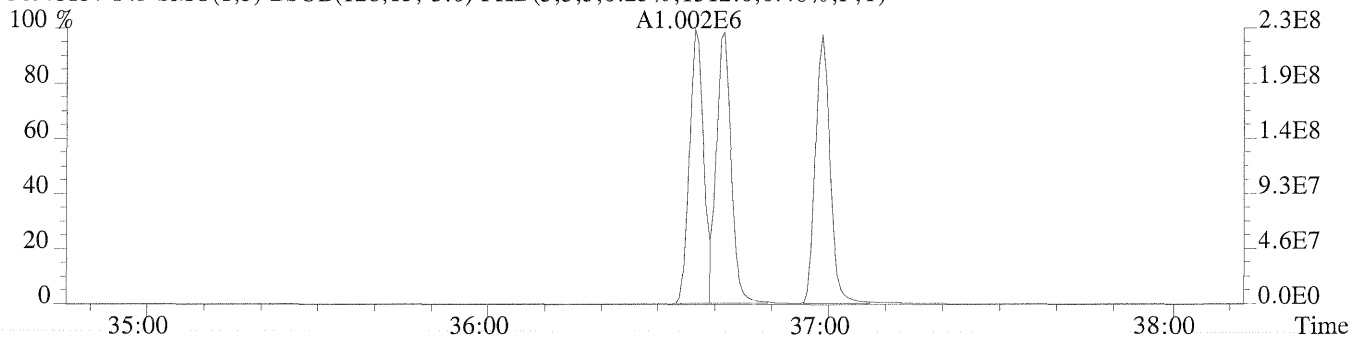
445.7555 F:3 PKD(5,3,5,100.00%,0.0,1.00%,F,F)



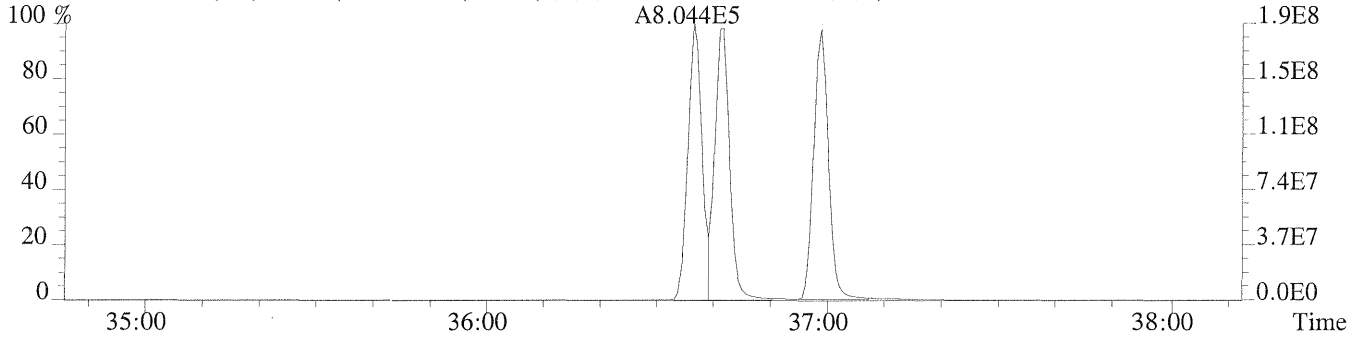
430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



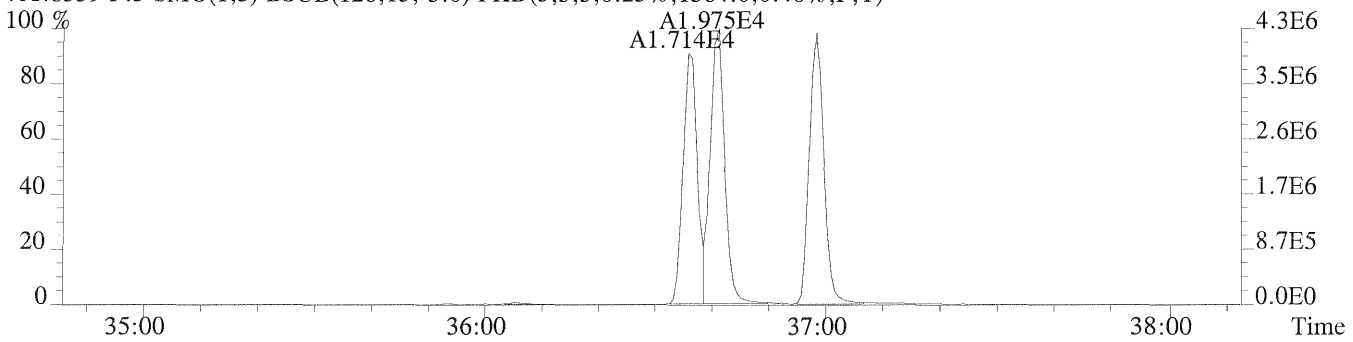
File:P113058 #1-313 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6
389.8157 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1512.0,0.40%,F,T)



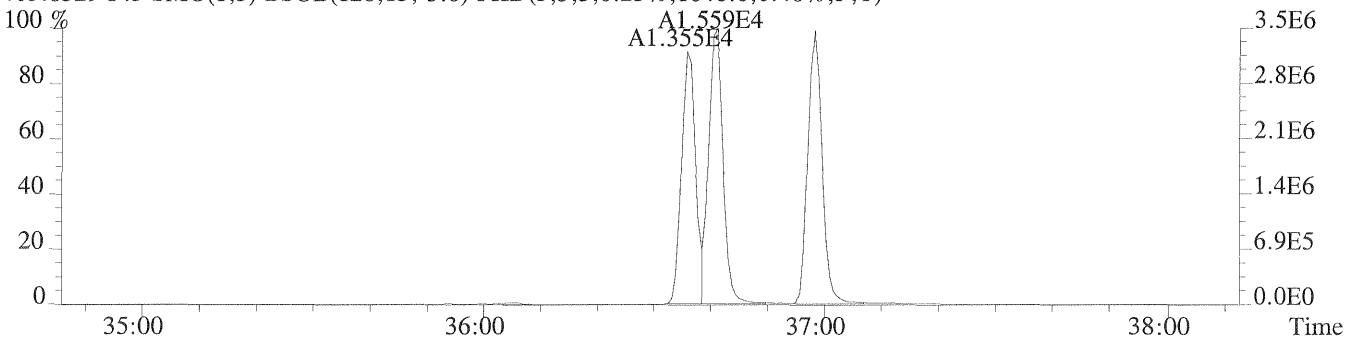
391.8127 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1216.0,0.40%,F,T)



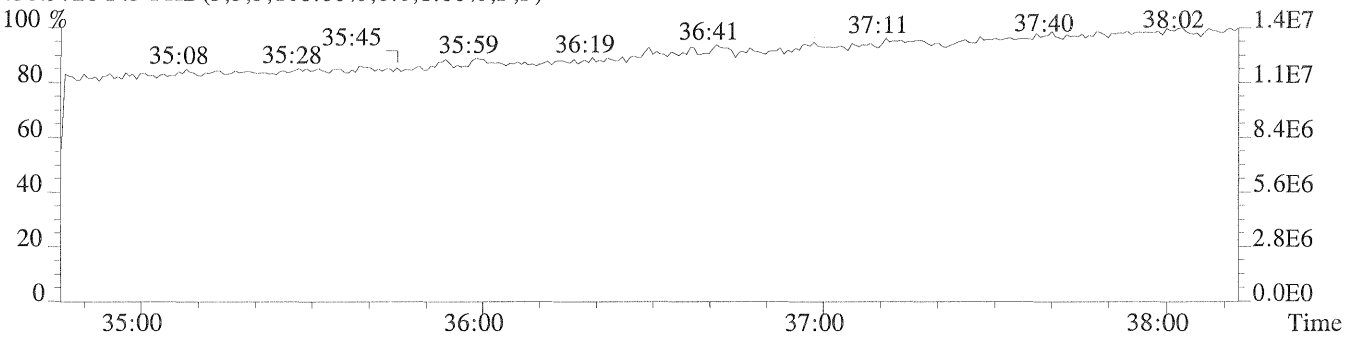
401.8559 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1584.0,0.40%,F,T)



403.8529 F:3 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1040.0,0.40%,F,T)

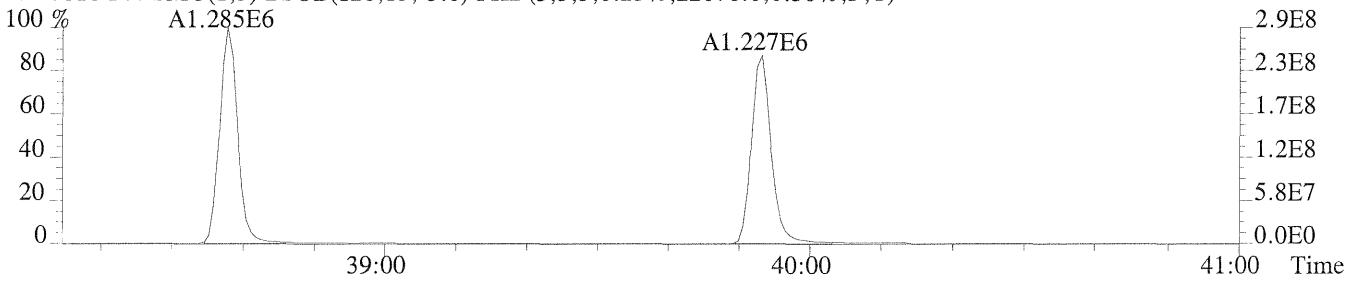


430.9728 F:3 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

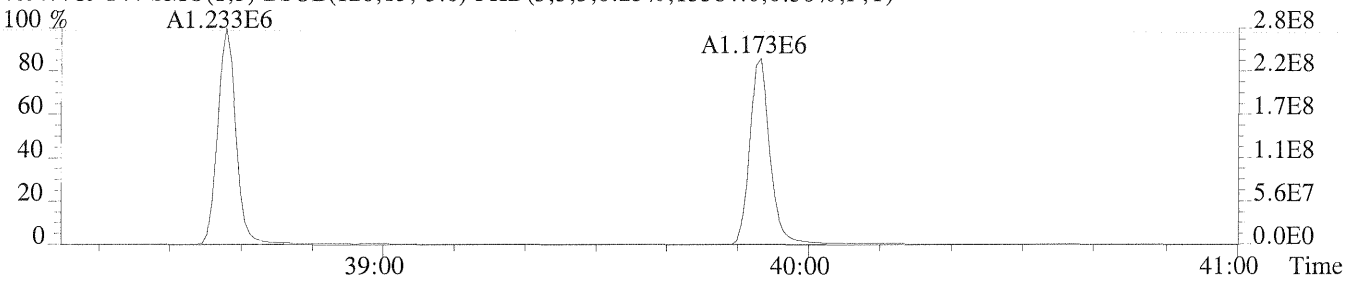


File:P113058 #1-251 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

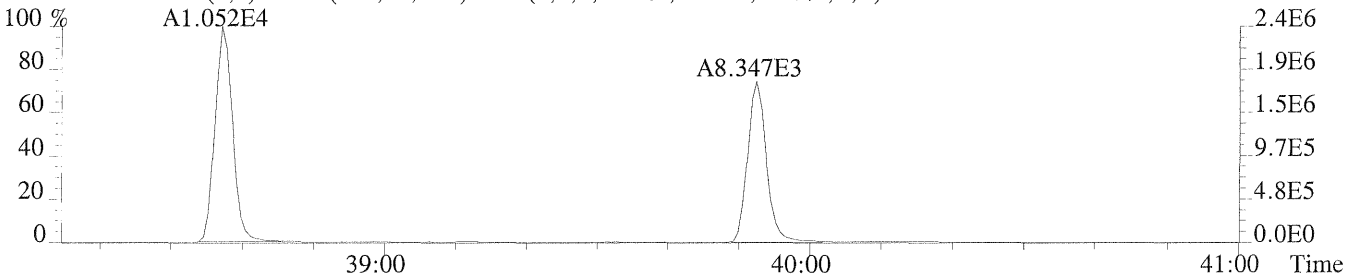
407.7818 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,22076.0,0.50%,F,T)



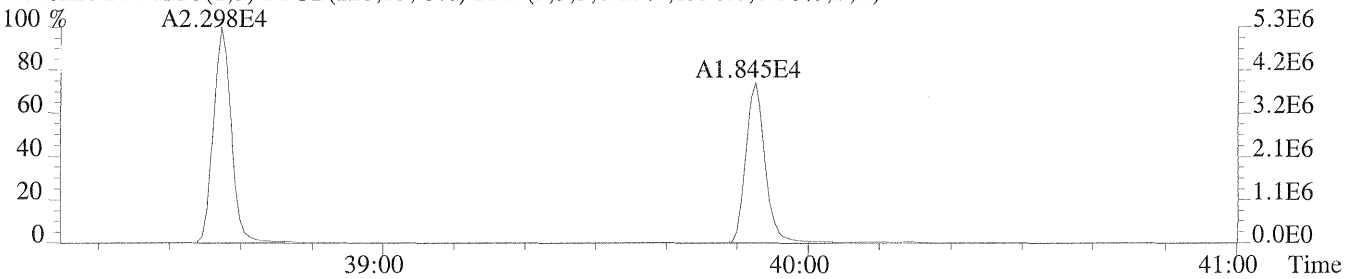
409.7789 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,13584.0,0.50%,F,T)



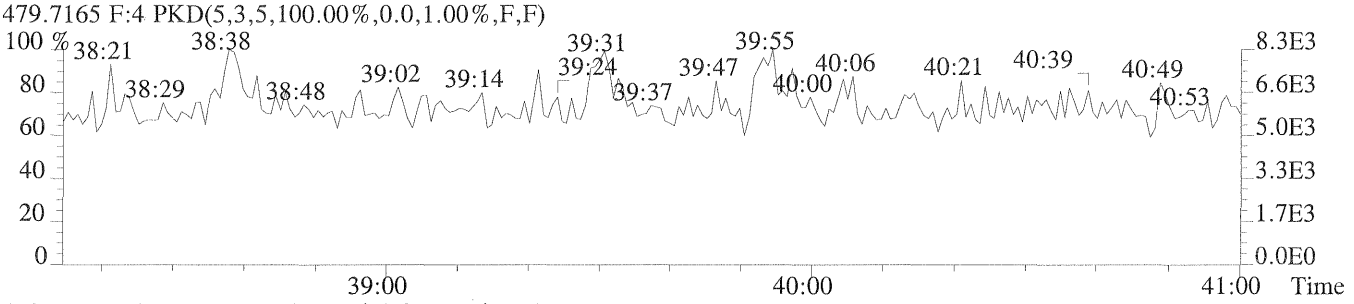
417.8253 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1916.0,0.50%,F,T)



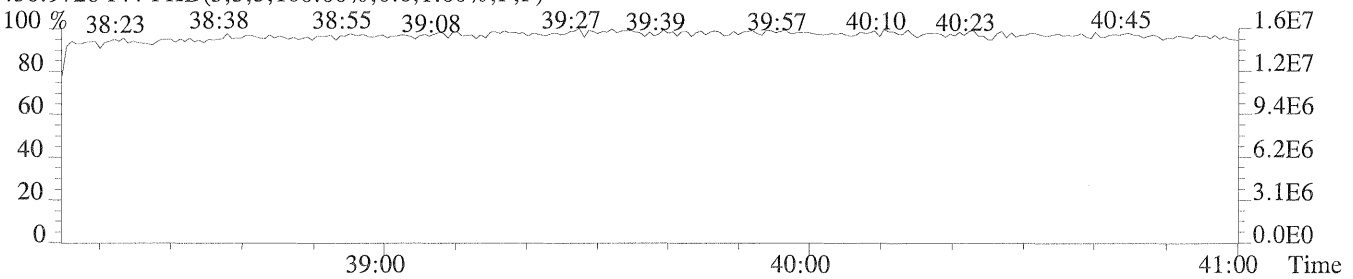
419.8220 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1996.0,0.50%,F,T)



479.7165 F:4 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

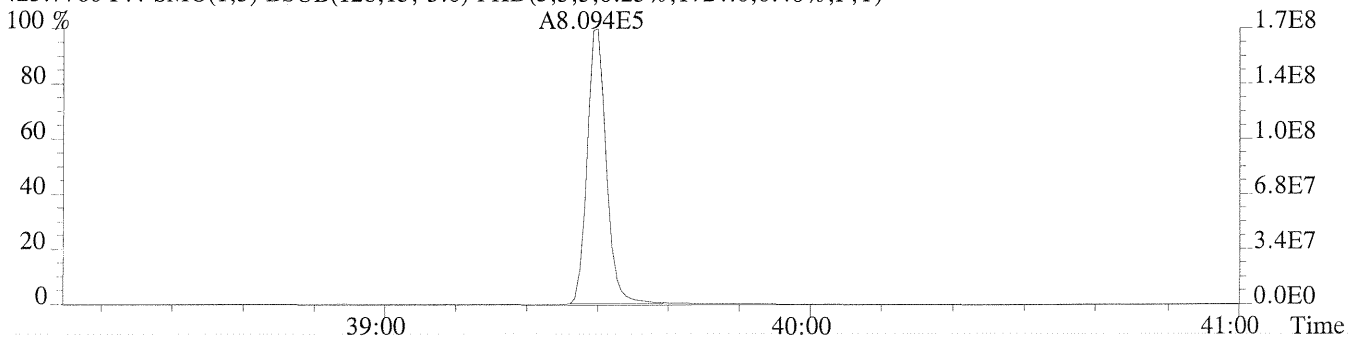


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

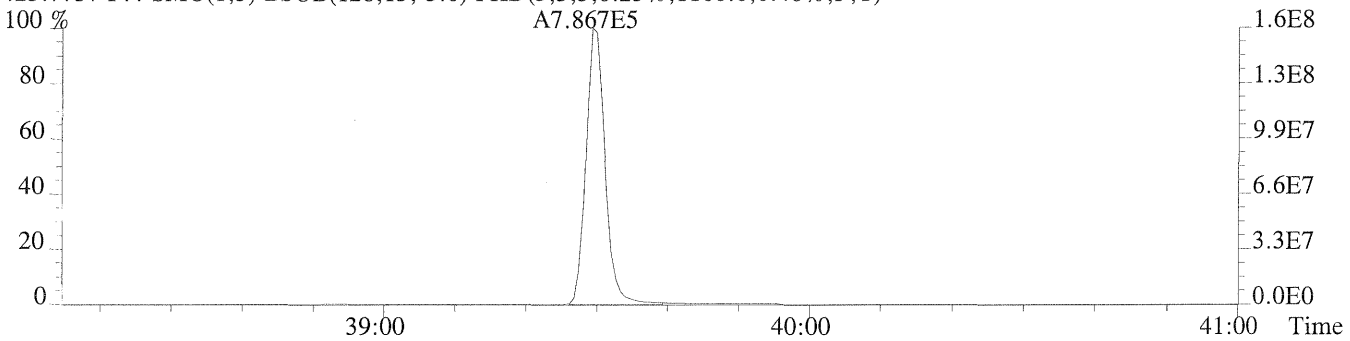


File:P113058 #1-251 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

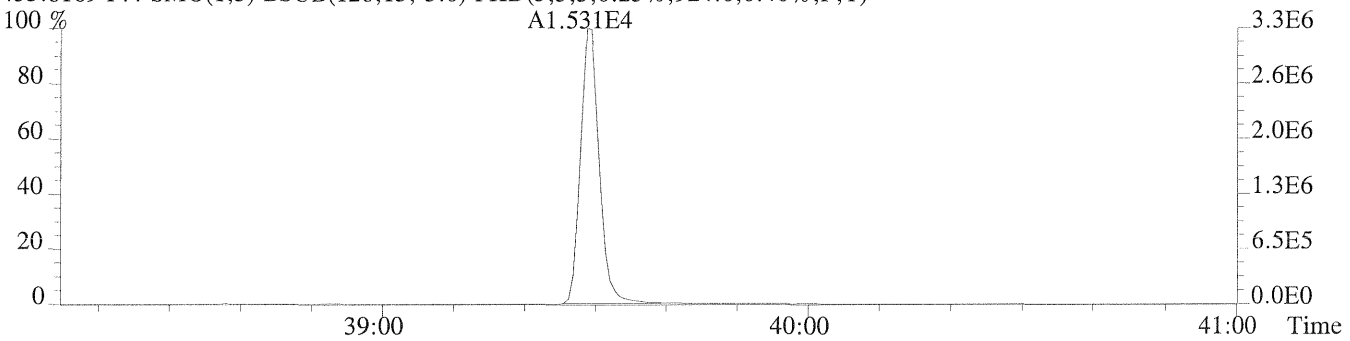
423.7766 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1724.0,0.40%,F,T)



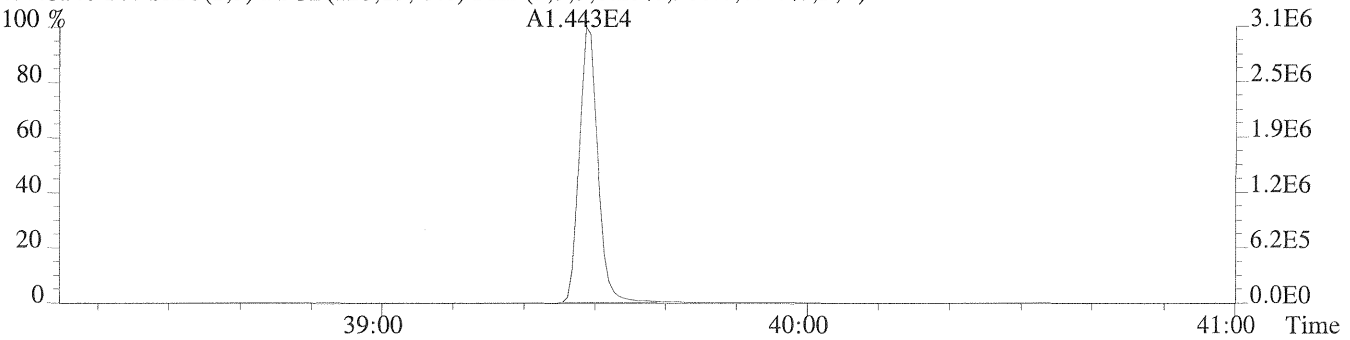
425.7737 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,1160.0,0.40%,F,T)



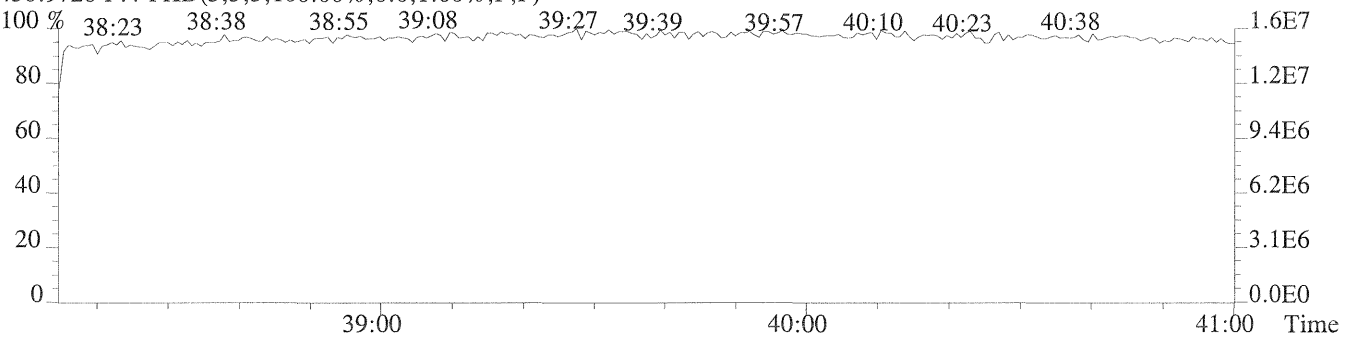
435.8169 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,924.0,0.40%,F,T)



437.8140 F:4 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.25%,908.0,0.40%,F,T)

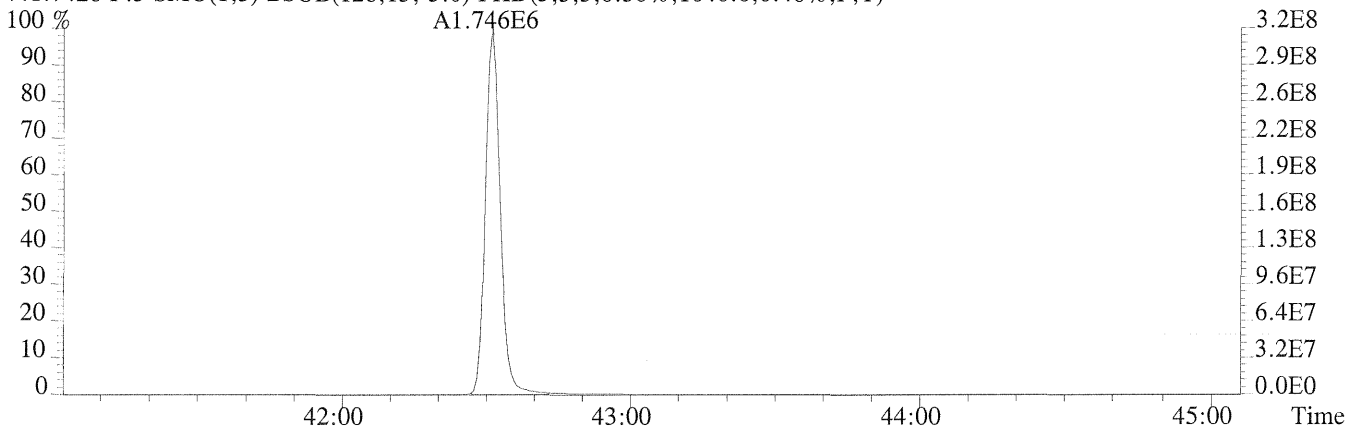


430.9728 F:4 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

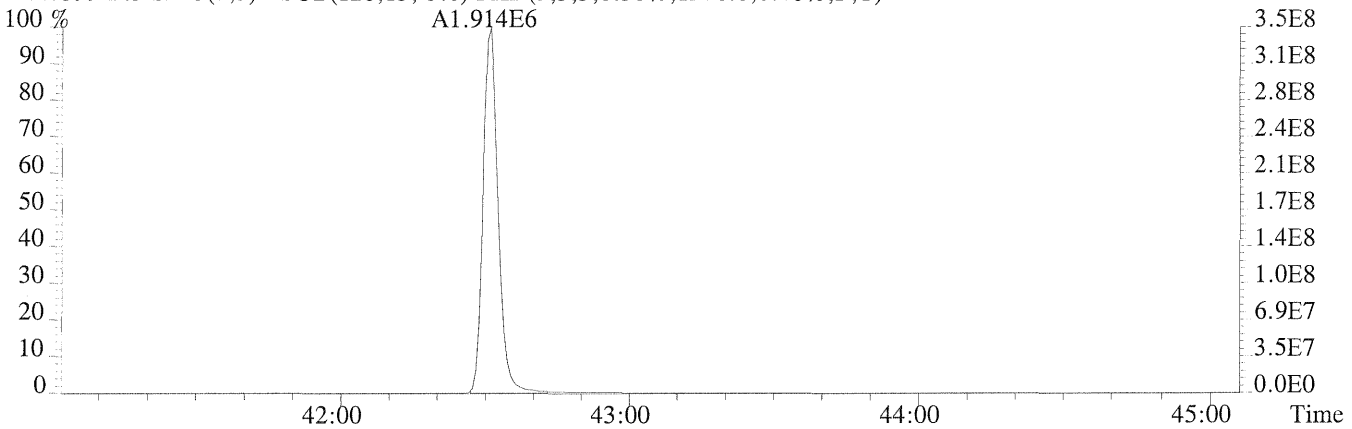


File:P113058 #1-374 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

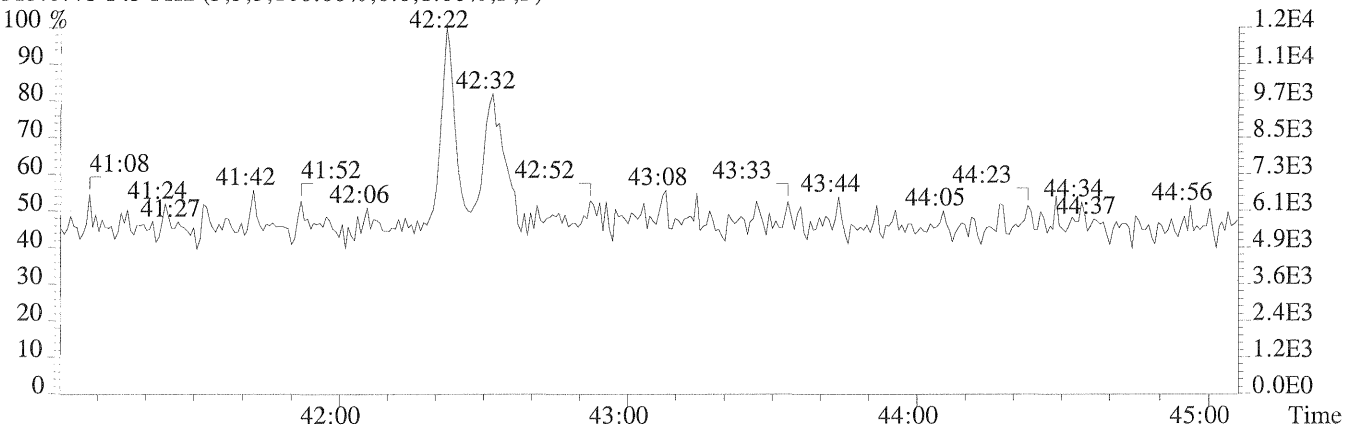
441.7428 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1040.0,0.40%,F,T)



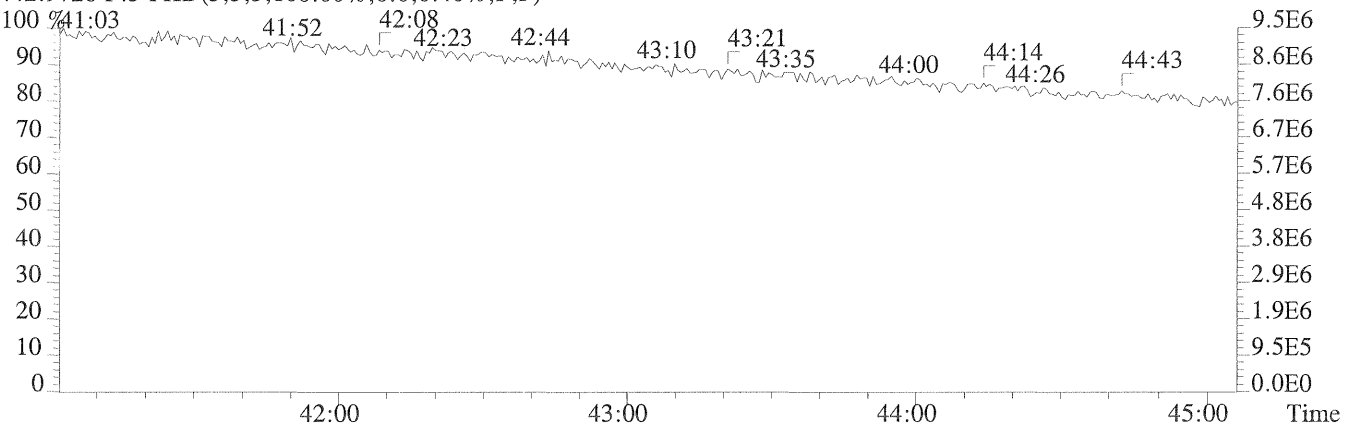
443.7399 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1276.0,0.40%,F,T)



513.6775 F:5 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

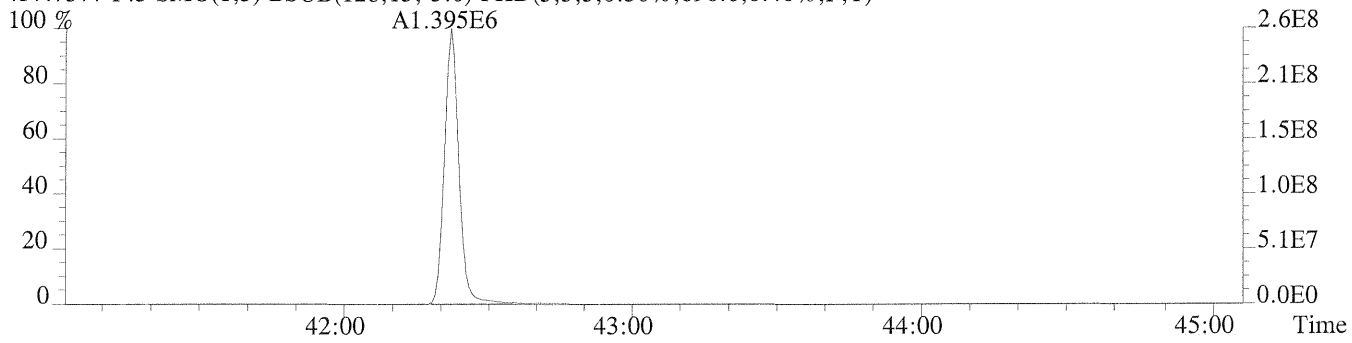


442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)

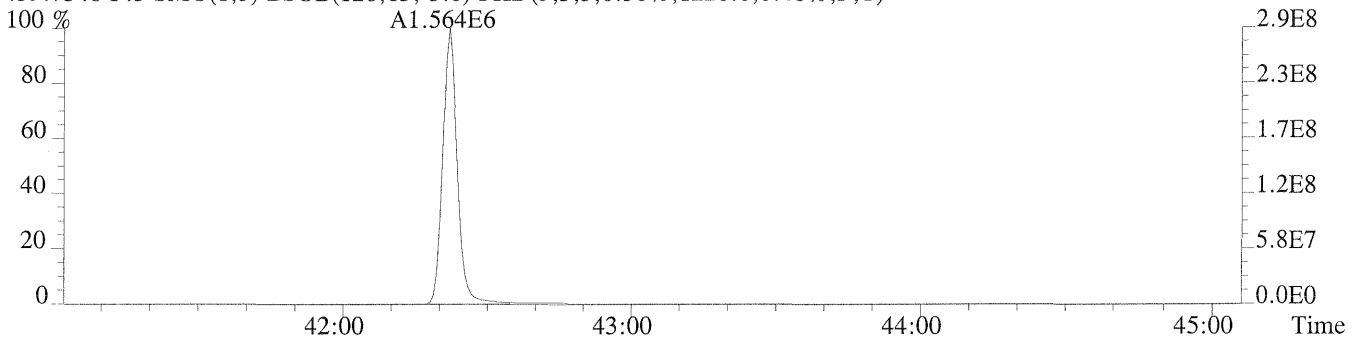


File:P113058 #1-374 Acq:24-MAR-2011 16:12:36 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

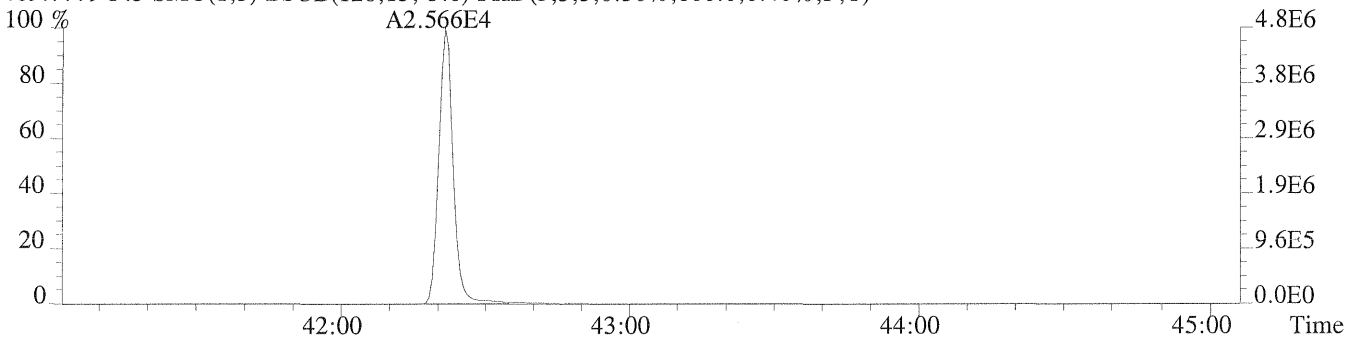
457.7377 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,696.0,0.40%,F,T)



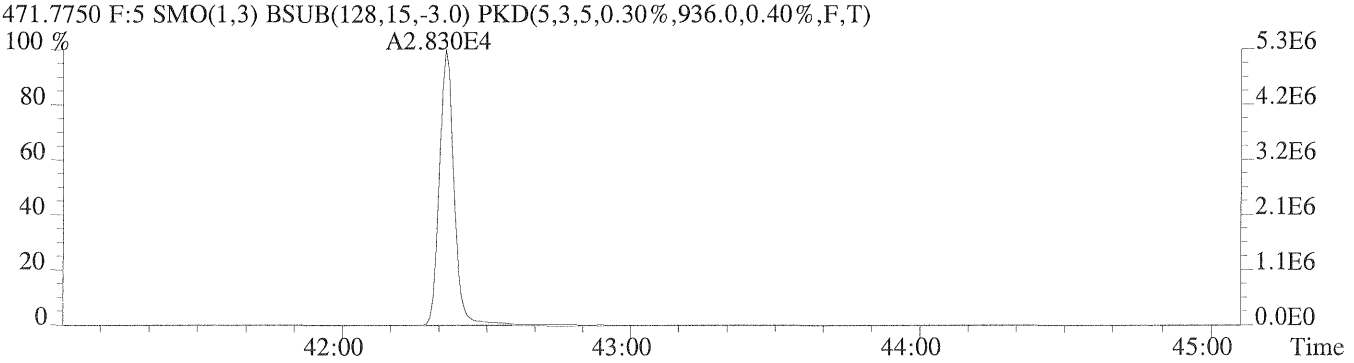
459.7348 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,1220.0,0.40%,F,T)



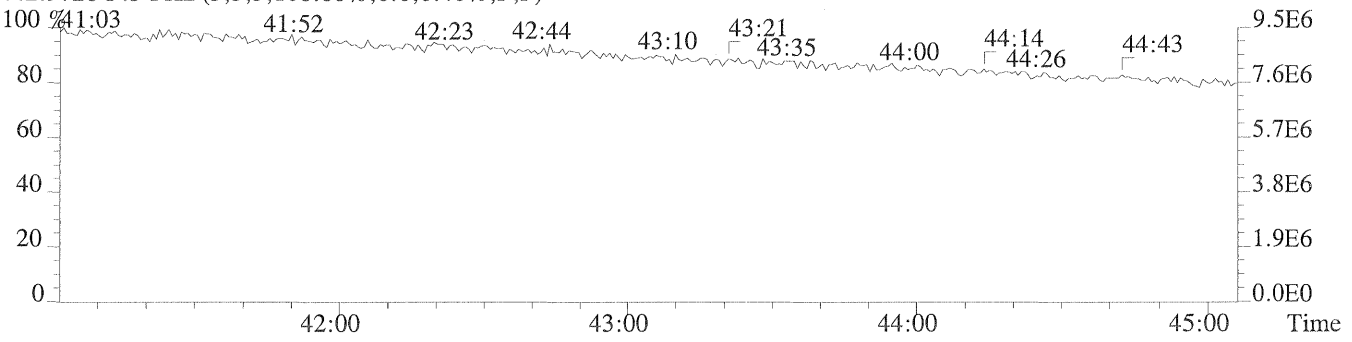
469.7779 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,800.0,0.40%,F,T)



471.7750 F:5 SMO(1,3) BSUB(128,15,-3.0) PKD(5,3,5,0.30%,936.0,0.40%,F,T)



442.9728 F:5 PKD(3,3,3,100.00%,0.0,0.40%,F,F)



Initial Calibration QC Checklist

ICAL Name: U110331TCDFIN

Date: 03/31/11

Method: 1613 / 8290 / Tetra / TCDD Only / TCDF Conf / 8280 / 613 / M23 / TO-9

Retention Window/Column Performance Check	Analyst	Second Check
Windows in and first and last eluters labeled	N/A	N/A
Column Performance shows less than or equal to 25% valley between column specific 2378 isomer and it's closest eluters	✓	✓
No QC ion deflections affect column specific 2378 isomer or it's closest eluters	✓	✓

Initial Calibration	Analyst	Second Check
Percent RSD within method criteria	✓	✓
All relative abundance ratios meet method criteria	✓	✓
No QC ion deflections of greater than 20%	✓	✓
Mass spectrometer resolution greater than or equal to 10,000 and documented	✓	✓
2378-TCDD elutes at 25 minutes or later on the DB-5 column	N/A	N/A
Signal-to-noise of all target analytes and their labeled standards at least 10:1	✓	✓
Valley between labeled 123478 and 123678 HxCDD peaks less than or equal to 50%	N/A	N/A
All Manual Intergrations signed and dated and first and final copies of Ical summary included	✓	✓

Analyst: LL Second QC: mc

icalqc.xls 02-23-00

USEPA - CLP

5DFC
PCDD/PCDF ANALYTICAL SEQUENCE SUMMARY

Lab Name: Columbia Analytical Services Contract:

Lab Code: TX01411 Case No.: Client No.: SDG No.:

GC Column: db5 ID: 0.25 (mm) Instrument ID: AutoSpec-Ultima

Init. Calib. Date: 03/31/11

Init. Calib.Times: 07:57

THE ANALYTICAL SEQUENCE OF STANDARDS, SAMPLES, BLANKS, AND LABORATORY CONTROL SAMPLES (LCSs) IS AS FOLLOWS:

EPA SAMPLE NO.	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
COLUMN PERFORM		U139561	31-MAR-11	07:57:22
ICAL CS0.1	ICAL CS0.1	U139562	31-MAR-11	09:59:59
ICAL CS1	ICAL CS1	U139563	31-MAR-11	10:40:07
ICAL CS2	ICAL CS2	U139564	31-MAR-11	11:07:09
ICAL CS3	ICAL CS3	U139565	31-MAR-11	11:46:58
ICAL CS4	ICAL CS4	U139566	31-MAR-11	12:25:35
ICAL CS5	ICAL CS5	U139567	31-MAR-11	13:11:43
ICAL CS6	ICAL CS6	U139568	31-MAR-11	13:54:44

Sample List Report

MassLynx 4.1

Sample List: C:\MassLynx\CASHOUSTON.PRO\SampleDB\U1110331.SPL
Last Modified: Thursday, March 31, 2011 17:32:39 Central Standard Time
Printed: Friday, April 01, 2011 03:59:26 Central Standard Time

Columbia Analytical Services
19408 Park Row
Suite 320
Houston, Texas 77084

Page Position (1, 1)

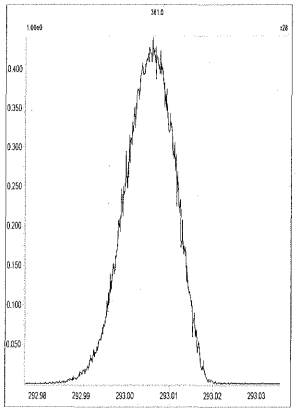
	Date	Time	File Name	Sample ID	Client ID	Analyst	Comments	GC Met	Acq Met
1	03/31/11	07:57	U139561	COLUMN PERFORMANCE	D4-59-1	KL	HLMS CHECK 07:56	TCDFCAS	TCDFCAS
2		09:59	U139562	ICAL CS0.1	D12-9-3B			TCDFCAS	TCDFCAS
3		10:40	U139563	ICAL CS1	D12-2-1BA			TCDFCAS	TCDFCAS
4		11:07	U139564	ICAL CS2	D12-2-1BB			TCDFCAS	TCDFCAS
5		11:46	U139565	ICAL CS3	D12-2-1BC			TCDFCAS	TCDFCAS
6		12:25	U139566	ICAL CS4	D12-2-1BD			TCDFCAS	TCDFCAS
7		13:11	U139567	ICAL CS5	D12-2-1BE			TCDFCAS	TCDFCAS
8		13:54	U139568	ICAL CS6	D10-83-1B			TCDFCAS	TCDFCAS
9		14:49	U139569	CCAL CS3 (2ND REF)	D12-5-1B		HLMS CHECK 15:46	TCDFCAS	TCDFCAS
10		16:31	U139570	INST BLANK	1613		1613	TCDFCAS	TCDFCAS
11		17:02	U139571	E1100304-001	032811PUF01		TOA	TCDFCAS	TCDFCAS
12		17:32	U139572	E1100304-002	032811PUF05		HLMS CHECK 17:31 TOA	TCDFCAS	TCDFCAS
13		17:59	U139573	J1101100-002	F5386		1613	TCDFCAS	TCDFCAS
14		18:36	U139574	E1100278-001	U004756-01 K		HLMS CHECK 19:15 1613	TCDFCAS	TCDFCAS
15			---	---	---			TCDFCAS	TCDFCAS
16			---	---	---			TCDFCAS	TCDFCAS
17			---	---	---			TCDFCAS	TCDFCAS
18			---	---	---			TCDFCAS	TCDFCAS
19			---	---	---			TCDFCAS	TCDFCAS
20			---	---	---			TCDFCAS	TCDFCAS
21			---	---	---			TCDFCAS	TCDFCAS
22			---	---	---			TCDFCAS	TCDFCAS
23			---	---	---			TCDFCAS	TCDFCAS
24			---	---	---			---	---
25			---	---	---			1668EPA	1668EPA
26			---	---	---			8290cas	8290CAS
27			---	---	---			TCDFCAS	TCDFCAS
28			---	---	---			---	---
29			---	---	---			---	---
30	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---
32	---	---	---	---	---	---	---	---	---
33	---	---	---	---	---	---	---	---	---
34	---	---	---	---	---	---	---	---	---
35	---	---	---	---	---	---	---	---	---
36	---	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	Reviewed By: _____	---	---
39	---	---	---	---	---	---	---	---	---

Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

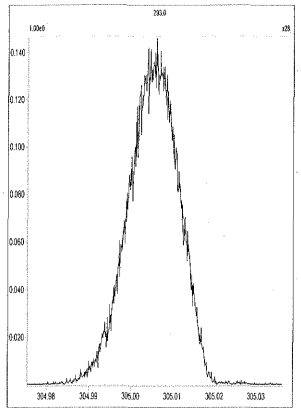
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 31, 2011 07:56:16 Central Standard Time

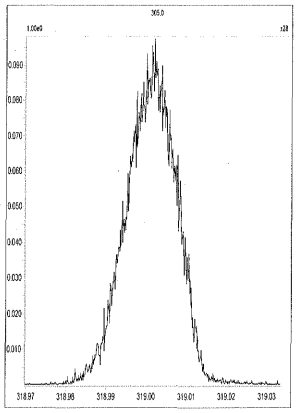
M 292.9824 R 11365



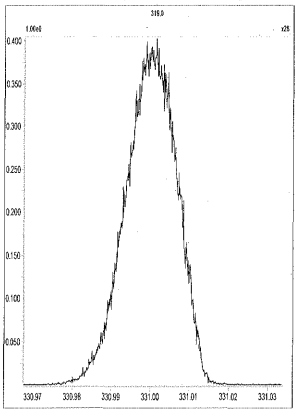
M 304.9824 R 11061



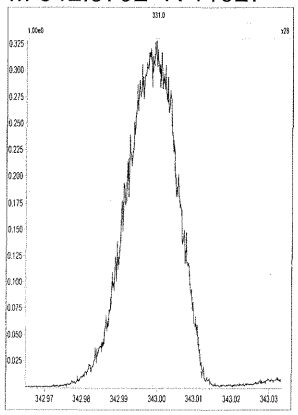
M 318.9792 R 11577



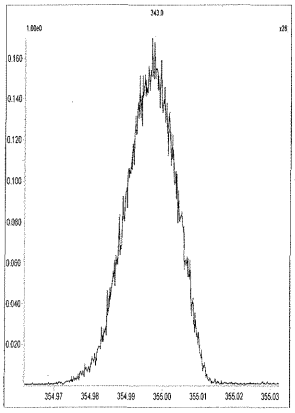
M 330.9792 R 11262



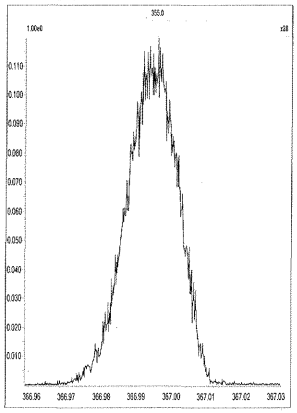
M 342.9792 R 11627



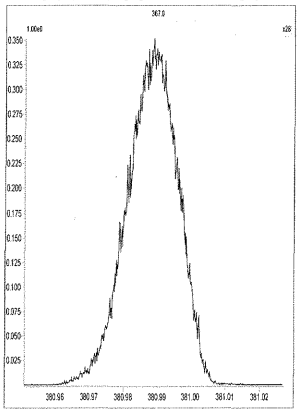
M 354.9792 R 11413



M 366.9792 R 11206



M 380.9760 R 11260

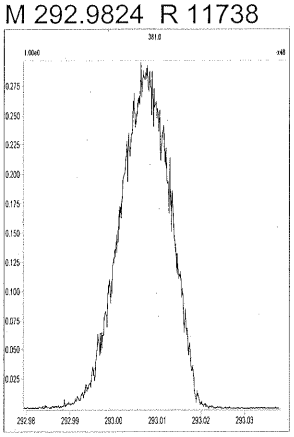


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

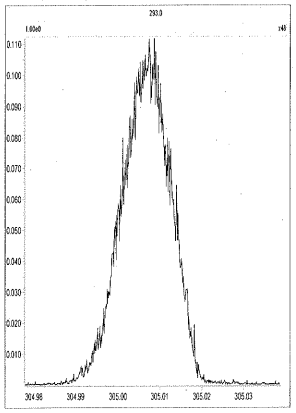
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 31, 2011 15:46:37 Central Standard Time

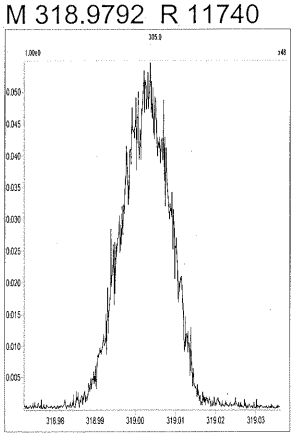
M 292.9824 R 11738



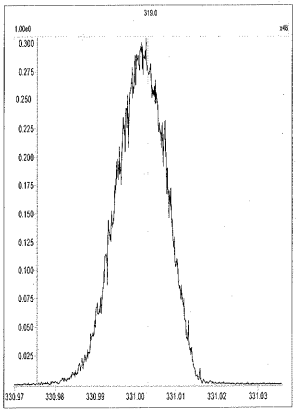
M 304.9824 R 11904



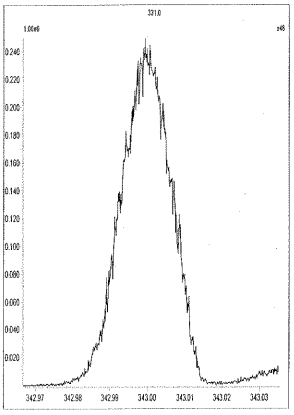
M 318.9792 R 11740



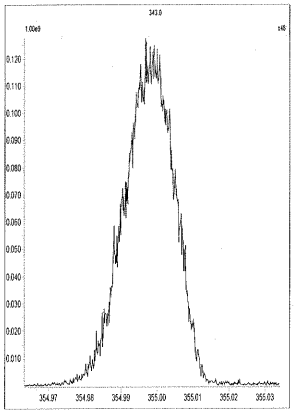
M 330.9792 R 11963



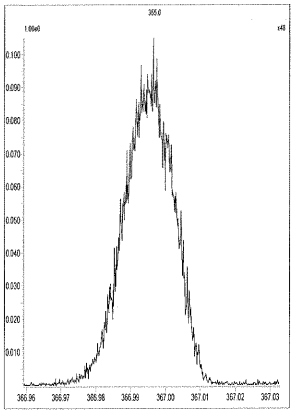
M 342.9792 R 11578



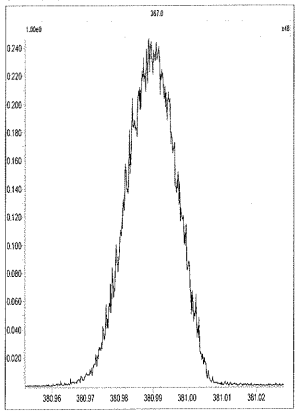
M 354.9792 R 11789



M 366.9792 R 11261



M 380.9760 R 11414

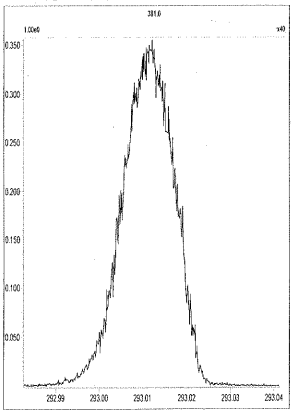


Experiment Calibration Report **MassLynx 4.1** Page 1 of 1

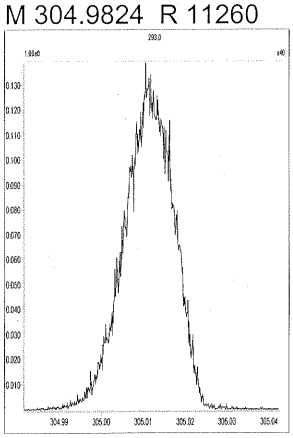
File: Experiment: TCDFCAS.exp Reference: pfk.ref Function: 1 @ 200 (ppm)

Printed: Thursday, March 31, 2011 17:31:56 Central Standard Time

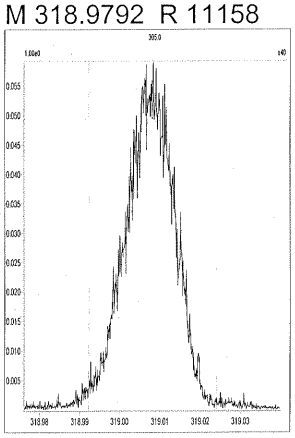
M 292.9824 R 11212



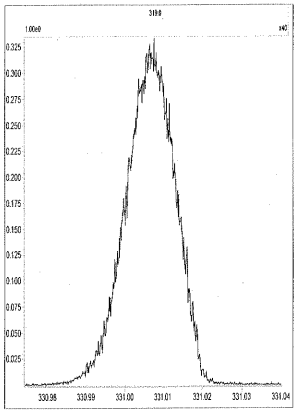
M 304.9824 R 11260



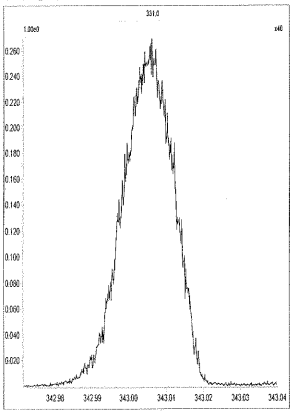
M 318.9792 R 11158



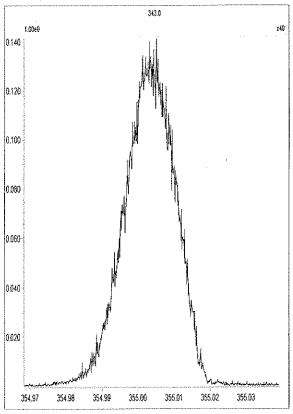
M 330.9792 R 11416



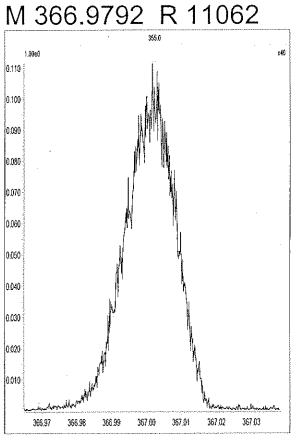
M 342.9792 R 11311



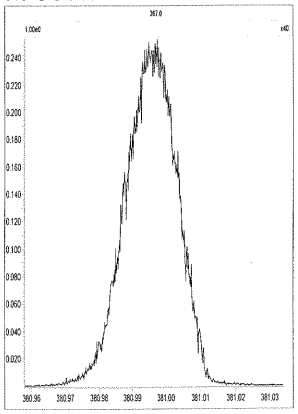
M 354.9792 R 11361



M 366.9792 R 11062



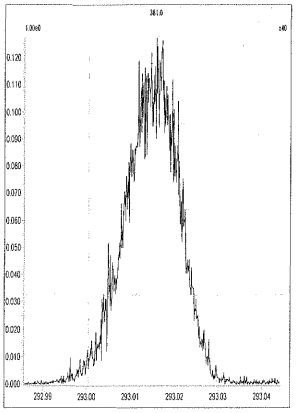
M 380.9760 R 11061



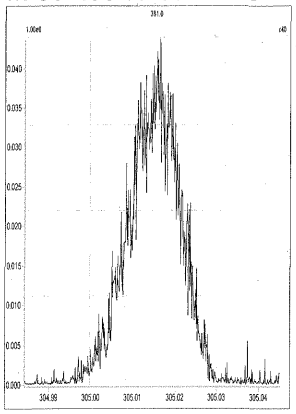
Resolution Check Report **MassLynx 4.1** Page 1 of 1

Printed: Thursday, March 31, 2011 19:15:18 Central Standard Time

M 292.9824 R 10330



M 304.9824 R 11118



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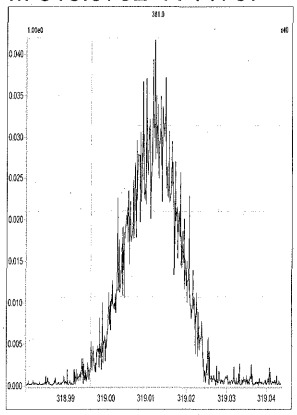
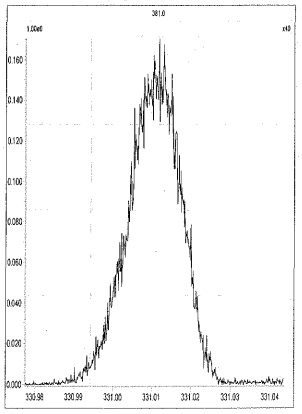
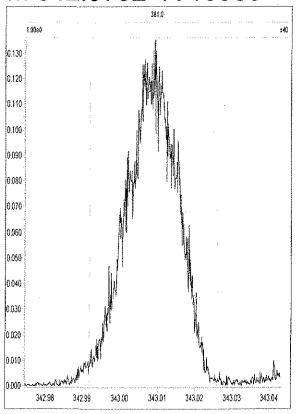


M 330.9792 R 10729



M 342.9792 R 10988



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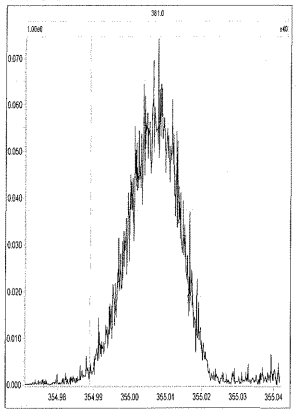
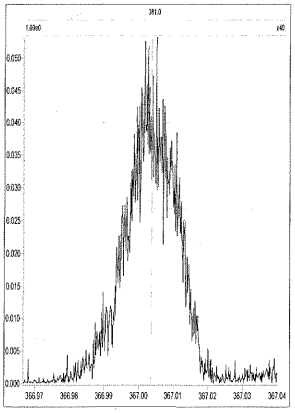
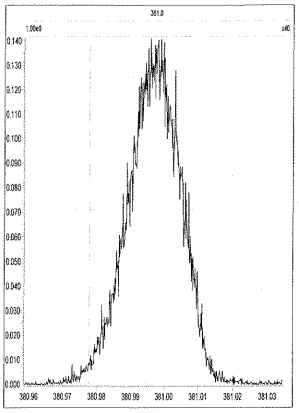


M 366.9792 R 11709



M 380.9760 R 11111



USEPA - CLP
5DFB

PCDD/PCDF WINDOW DEFINING MIX SUMMARY

EPA SAMPLE NO.

Column Perform

Lab Name: Columbia Analytical Services Contract: _____

Lab Code: TX01411 Case No.: _____ Client No.: _____ SDG No.: _____

GC Column: 30m DB-225 ID: 0.25 (mm) Lab File ID: U139561

Instrument ID: Ultima AutoSpec Date Analyzed: 03/31/11

Time Analyzed: 07:57:22

Percent Valley determination for DB-5 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

1478-TCDD/2378-TCDD: _____

QUALITY CONTROL (QC) LIMITS: _____

Percent Valley between the TCDD isomers must be less than or equal to 25%.

Percent Valley determination for DB-225 (or equivalent) Column -
For the Column Performance Solution beginning the 12-hour period:

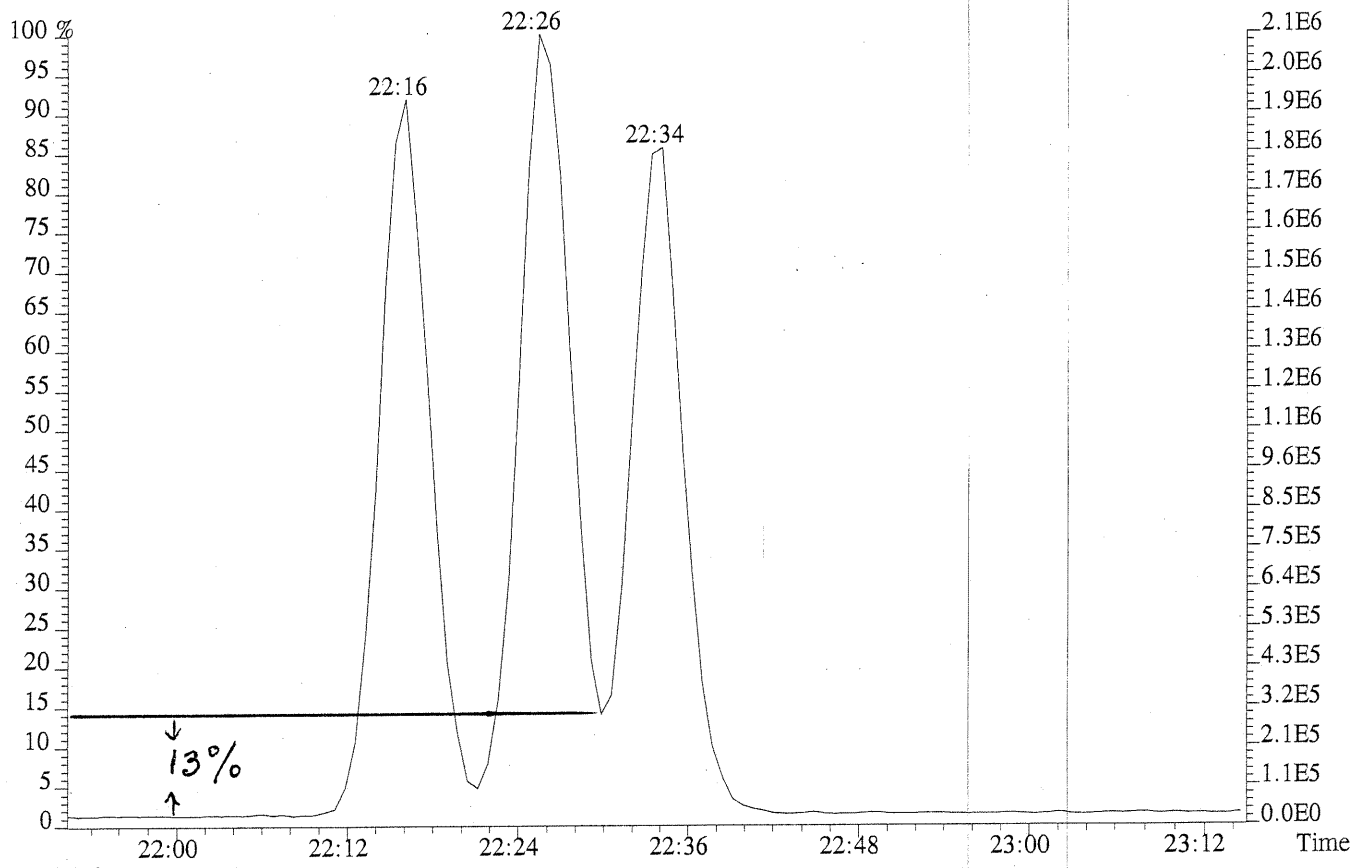
2347-TCDF/2378-TCDF: 13%

QUALITY COTROL (QC) LIMITS:

Percent Valley between the TCDF/TCDF isomers must be less than or equal to 25%.

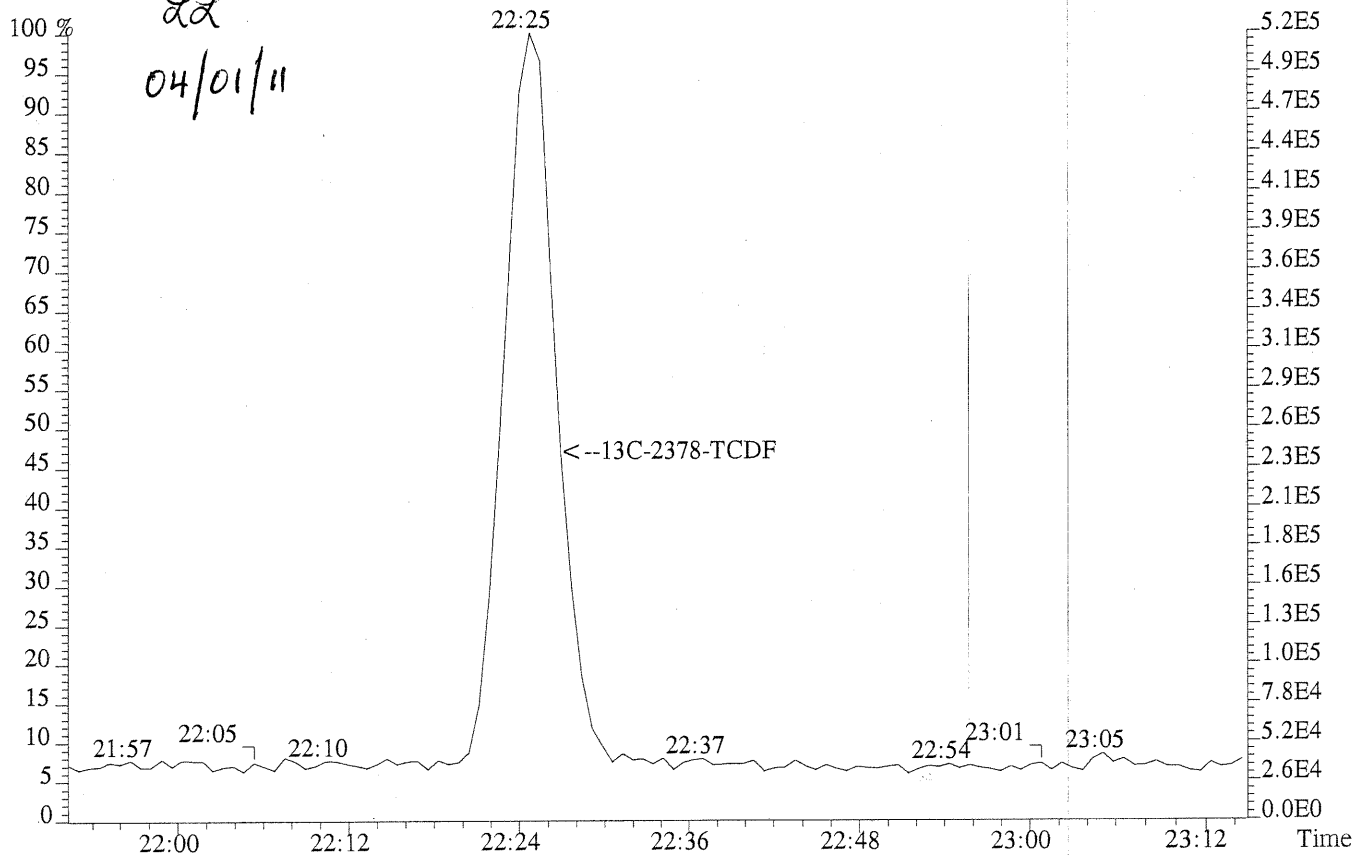
Analyst Init: LL FORM V-HR CDD-2 DLM02.0

File:U139561 #1-709 Acq:31-MAR-2011 07:57:22 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:COLUMN PERFORMANCE
303.9016



315.9419

LL
04/01/11



USEPA - CLP
TCDFF6-7
CDD/CDF INITIAL CALIBRATION RESPONSE FACTOR SUMMARY
HIGH RESOLUTION

Lab Name: Columbia Analytical Services Contract No.:
Lab Code: TX01411 Case No.: TO No.: SDG No.:
GC Column: DB-225 ID: 0.25(mm) Instrument ID: AutoSpec-Ultima
Init. Calib. Date(s).: 03/31/11
Init. Calib. Time.: 11:46

Target Analytes	RR/RRF CS0.5	CS1	CS2	CS3	CS4	CS5	CS6	MEAN RR/RRF	%RSD	QC LIMITS
2,3,7,8-TCDF	0.84	1.04	0.97	0.94	0.95	0.95	1.12	0.97	8.85	+/-20%
Labeled Compounds										
13C-2,3,7,8-TCDF	1.39	1.22	1.18	1.21	1.20	1.20	1.19	1.23	5.90	+/-35%
37Cl-2,3,7,8-TCDD	0.97	0.99	0.97	0.92	0.93	0.93	1.02	0.96	3.88	+/-35%

CDD/CDF INITIAL CALIBRATION ION ABUNDANCE RATIO SUMMARY
HIGH RESOLUTION
ION ABUNDANCE RATIO

Target Analyte	SELECTED IONS	CS0.5	CS1	CS2	CS3	CS4	CS5	CS6	FLAG	ION RATIO QC lIMITS
2,3,7,8-TCDF	303.902/305.899	0.80	0.73	0.77	0.78	0.77	0.77	0.76		0.65-0.89
Labelled Compound										
13C-2,3,7,8-TCDF	315.942/317.939	0.78	0.79	0.78	0.78	0.78	0.79	0.78		0.65-0.89
Internal Standard										
13C-1,2,3,4-TCDD	331.937/333.934	0.78	0.78	0.78	0.78	0.78	0.79	0.79		0.65-0.89

Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS0.1

Run #1 Filename U139562 Samp: 1 Inj: 1 Acquired: 31-MAR-11 09:59:59
Processed: 1-APR-11 06:11:33 Sample ID: ICAL CS0.1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:25	1.039e+02	1.304e+02	0.80	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:25	1.220e+05	1.556e+05	0.78	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:08	8.771e+04	1.120e+05	0.78	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:55	1.942e+02				n

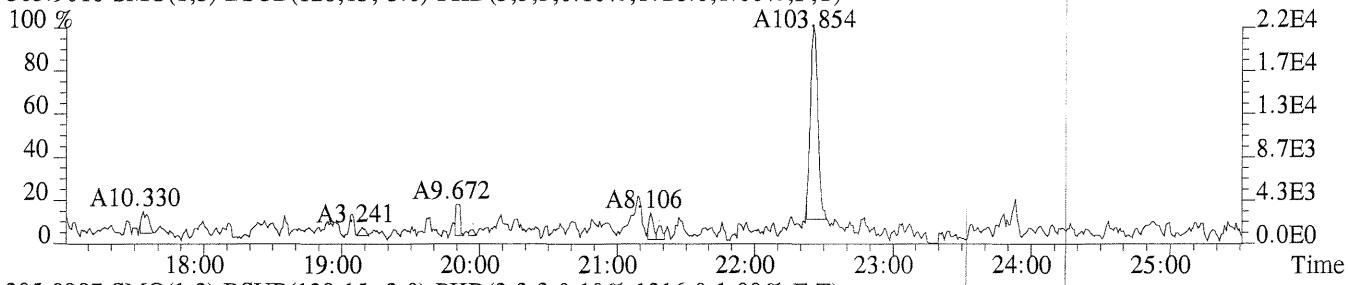
Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	1.93e+04	1.73e+03	1.1e+01	2.15e+04	1.32e+03	1.6e+01
2	13C-2,3,7,8-TCDF	1.78e+07	3.39e+03	5.3e+03	2.27e+07	5.45e+03	4.2e+03
3	13C-1,2,3,4-TCDD	1.45e+07	3.16e+03	4.6e+03	1.84e+07	2.54e+03	7.2e+03
4	37Cl-2,3,7,8-TCDD	3.12e+04	1.80e+03	1.7e+01			

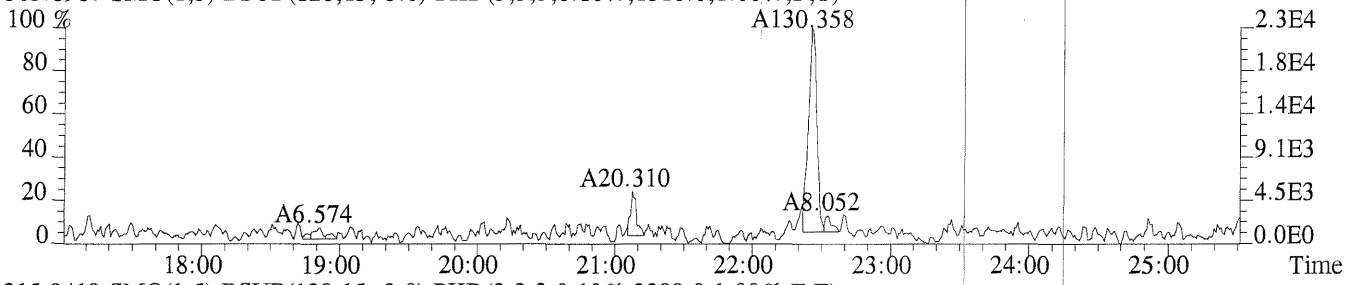
Columbia Analytical Services, Inc.
19408 Park Row, Suite 320
Houston, TX 77084
Office(713)266-1599. Fax(713)266-0130

File:U139562 #1-709 Acq:31-MAR-2011 09:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

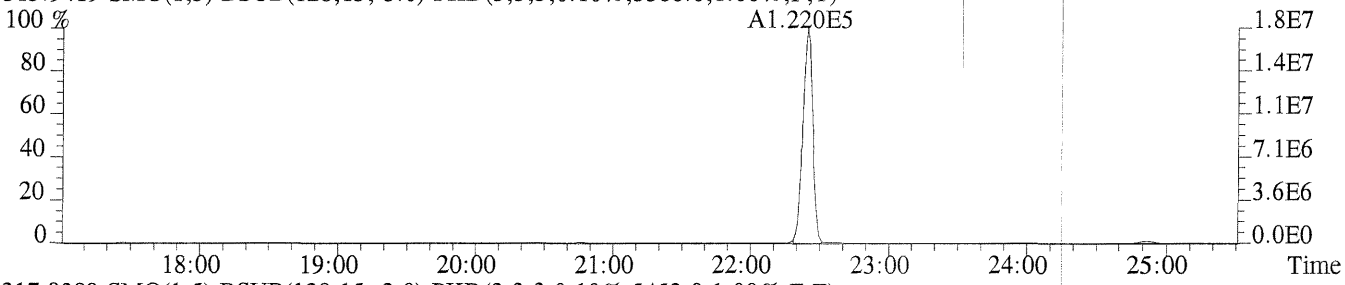
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1728.0,1.00%,F,T)



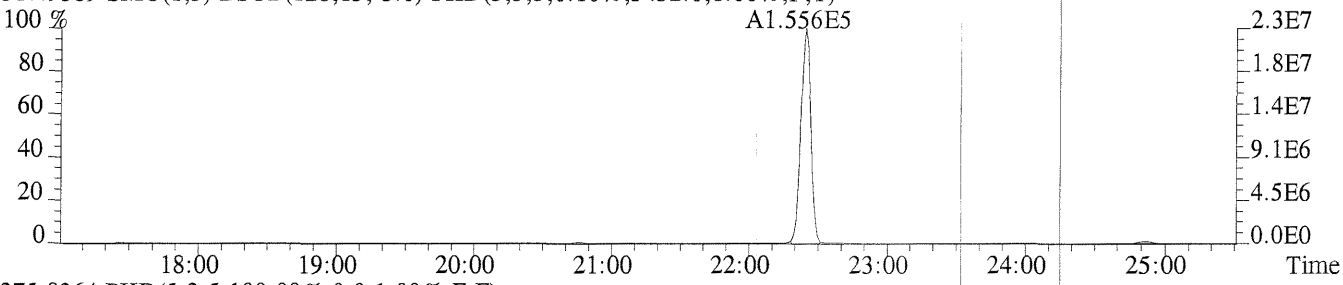
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1316.0,1.00%,F,T)



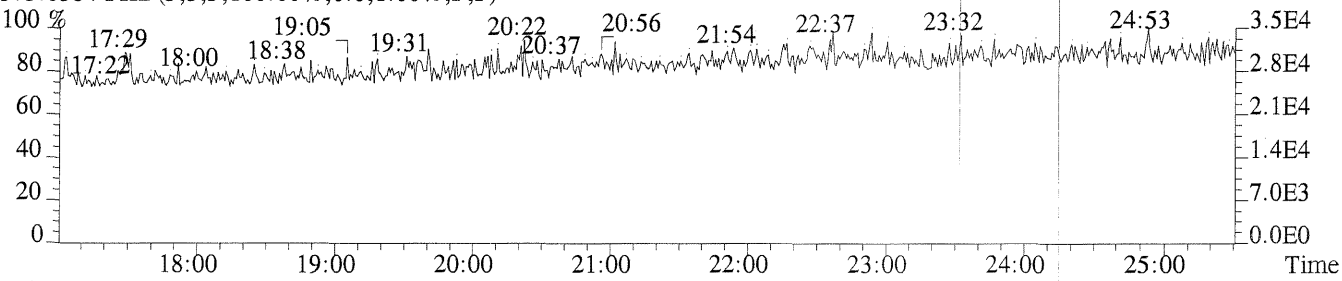
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3388.0,1.00%,F,T)



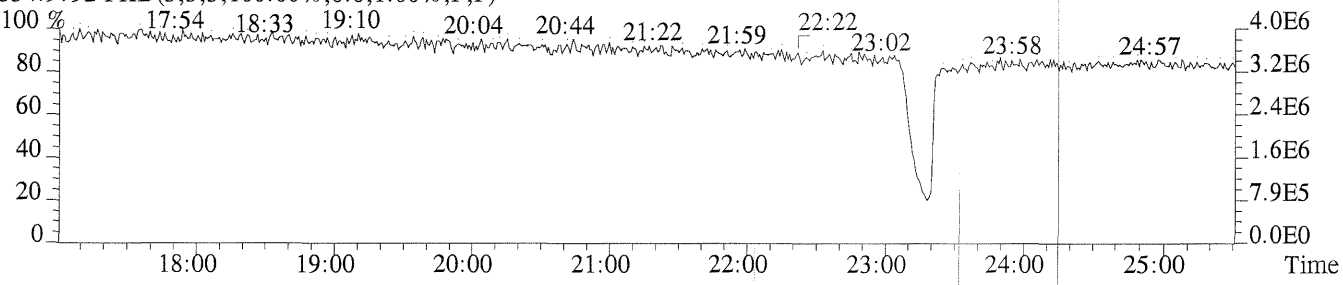
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5452.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

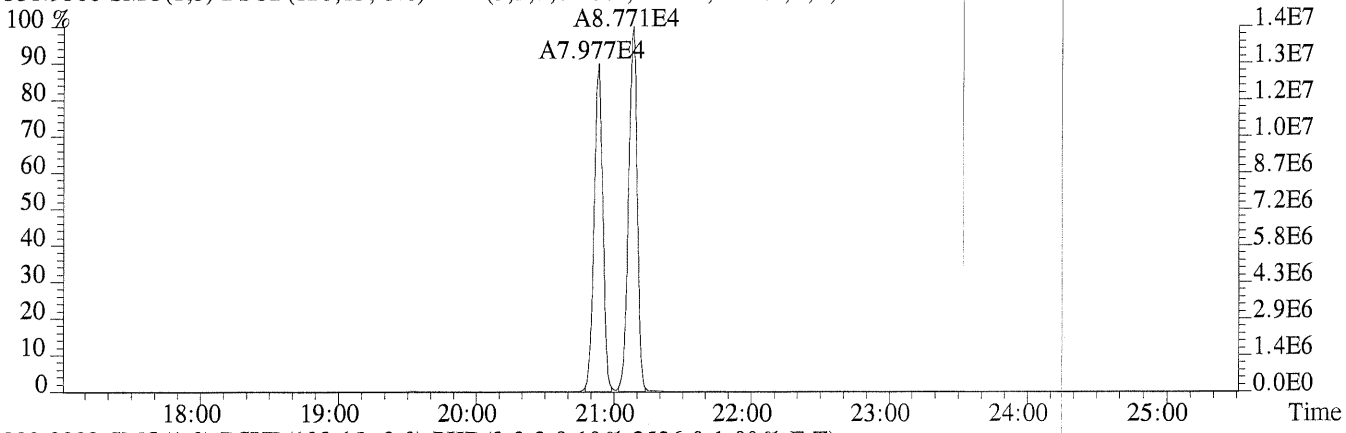


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

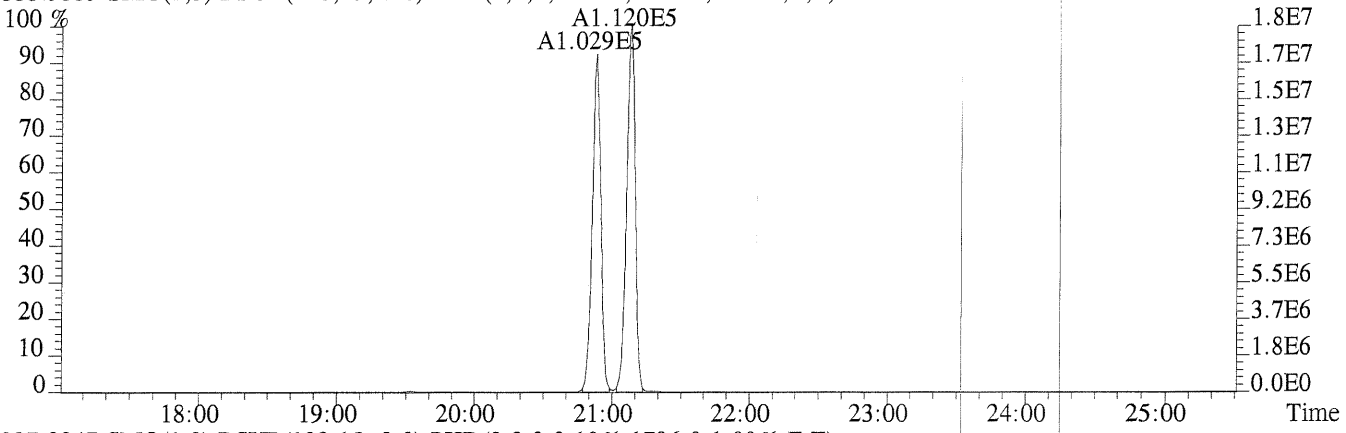


File:U139562 #1-709 Acq:31-MAR-2011 09:59:59 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS0.1

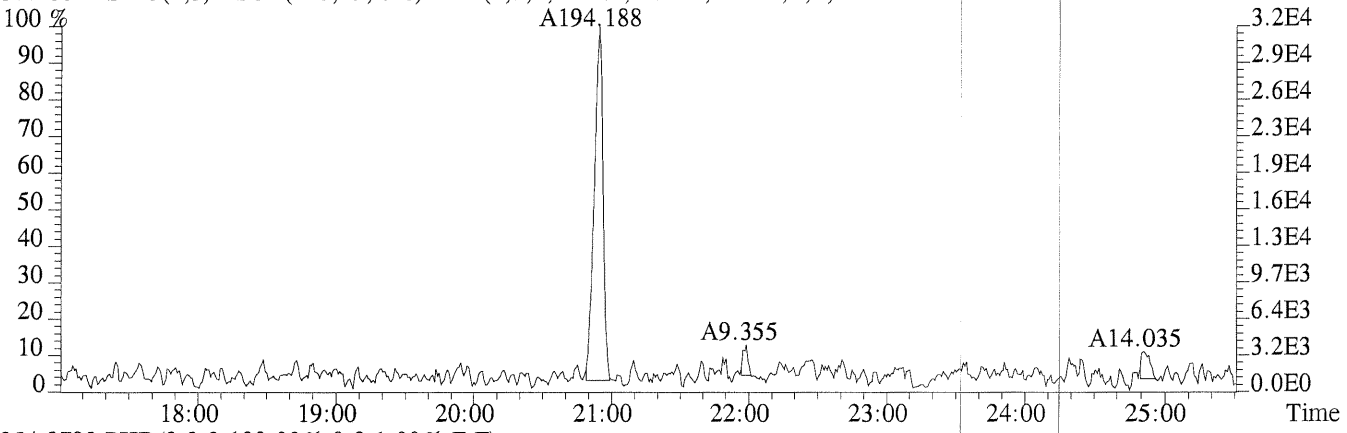
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3160.0,1.00%,F,T)



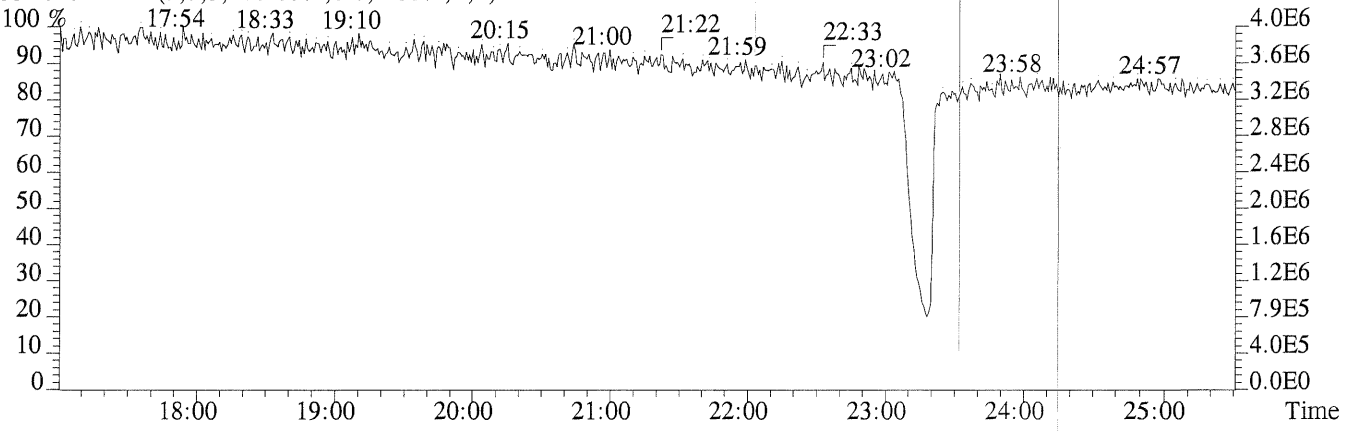
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2536.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1796.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS1

Run #2 Filename U139563 Samp: 1 Inj: 1 Acquired: 31-MAR-11 10:40:07
Processed: 1-APR-11 07:26:11 Sample ID: ICAL CS1

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:26	4.269e+02	5.857e+02	0.73	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:24	8.543e+04	1.088e+05	0.79	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:08	6.975e+04	8.951e+04	0.78	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	7.845e+02				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	7.43e+04	1.51e+03	4.9e+01	9.75e+04	1.40e+03	7.0e+01
2	13C-2,3,7,8-TCDF	1.28e+07	3.02e+03	4.2e+03	1.63e+07	9.58e+03	1.7e+03
3	13C-1,2,3,4-TCDD	1.19e+07	3.40e+03	3.5e+03	1.52e+07	1.74e+03	8.7e+03
4	37Cl-2,3,7,8-TCDD	1.26e+05	1.56e+03	8.1e+01			

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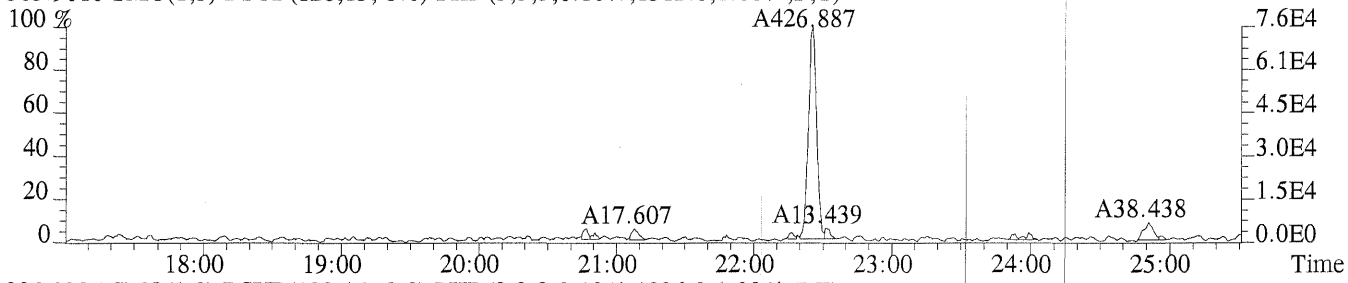
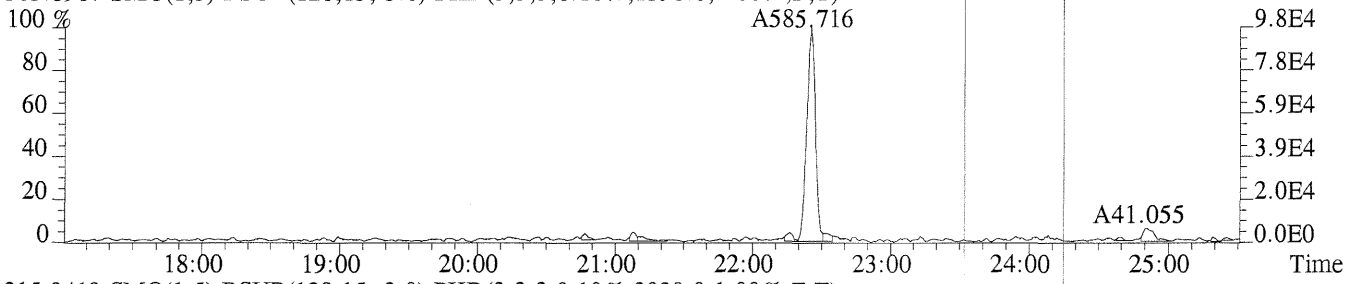
File:U139563 #1-709 Acq:31-MAR-2011 10:40:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

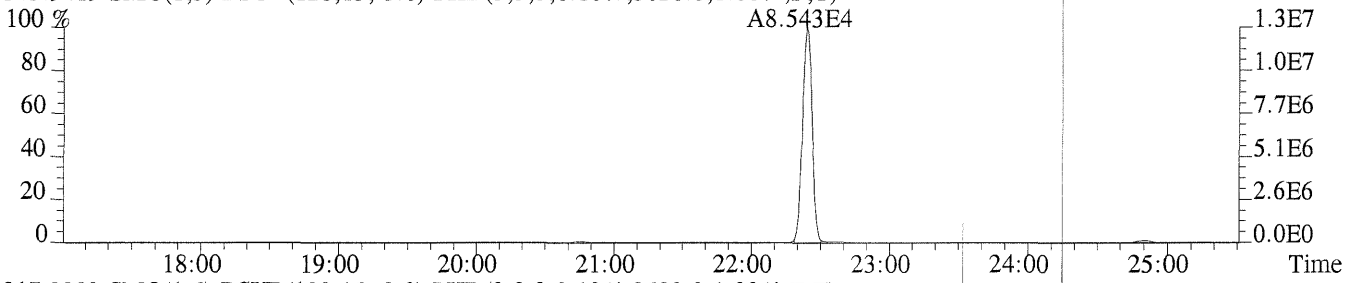
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1512.0,1.00%,F,T)



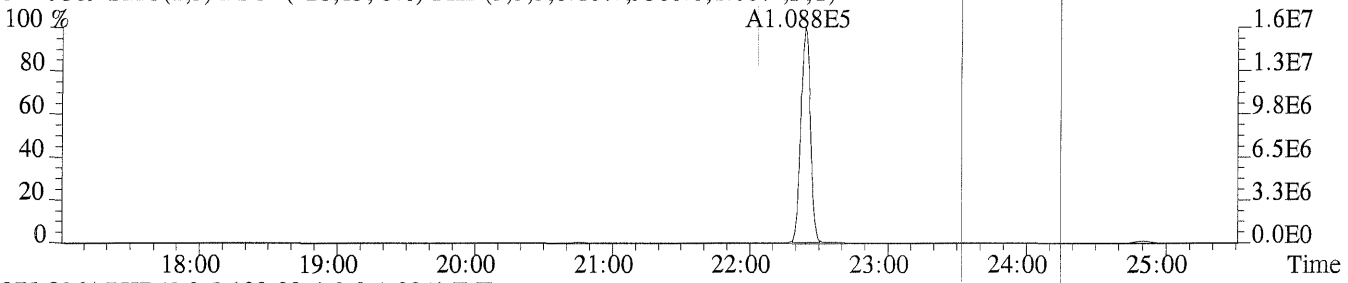
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1396.0,1.00%,F,T)



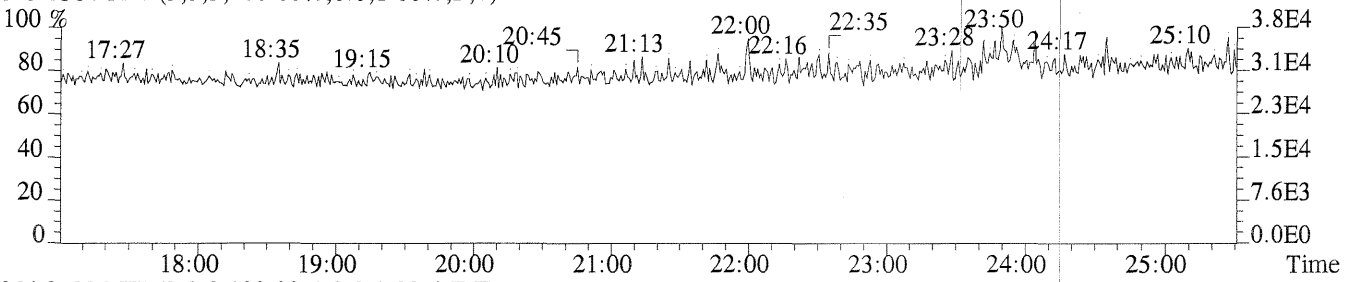
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3020.0,1.00%,F,T)



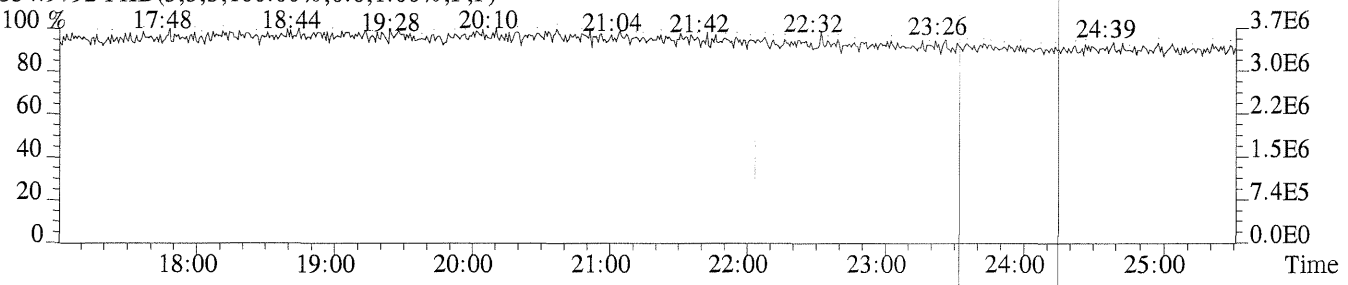
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9580.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

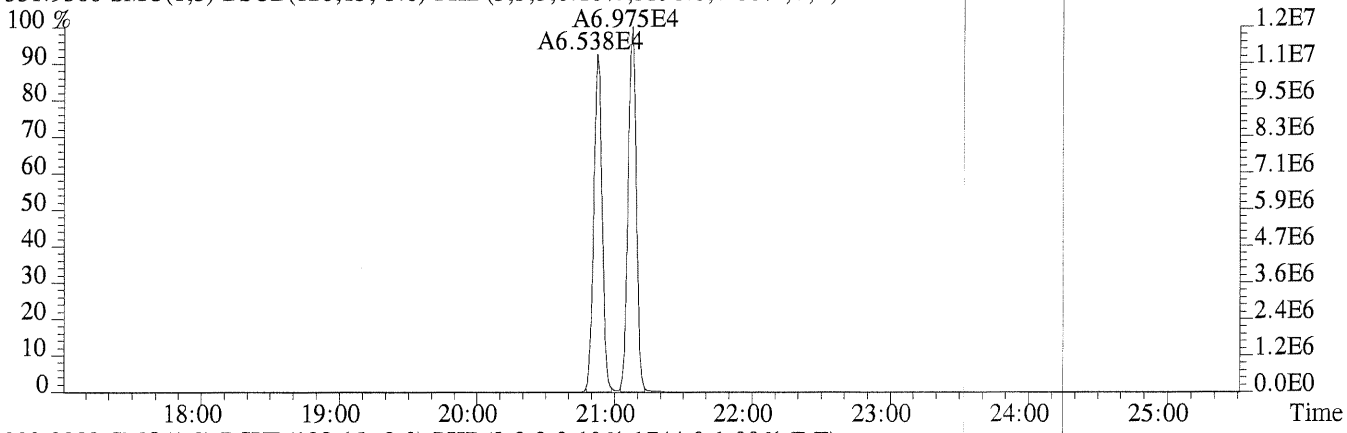


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

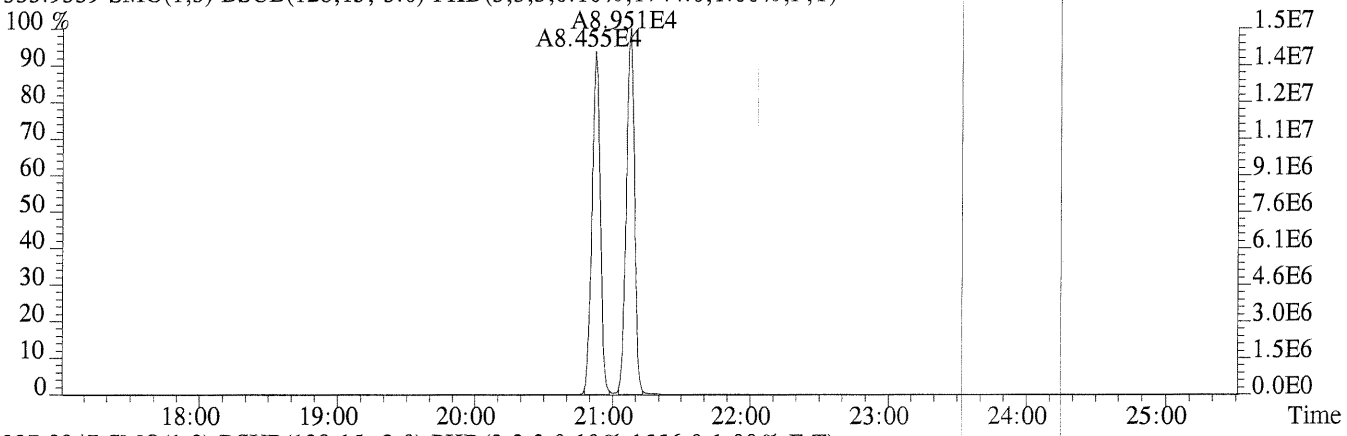


File:U139563 #1-709 Acq:31-MAR-2011 10:40:07 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS1

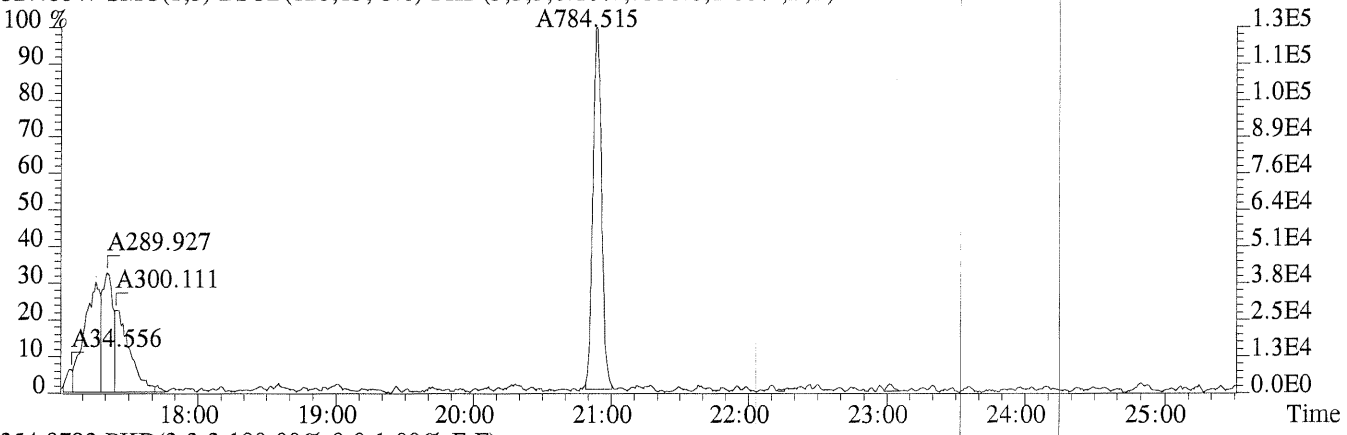
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3396.0,1.00%,F,T)



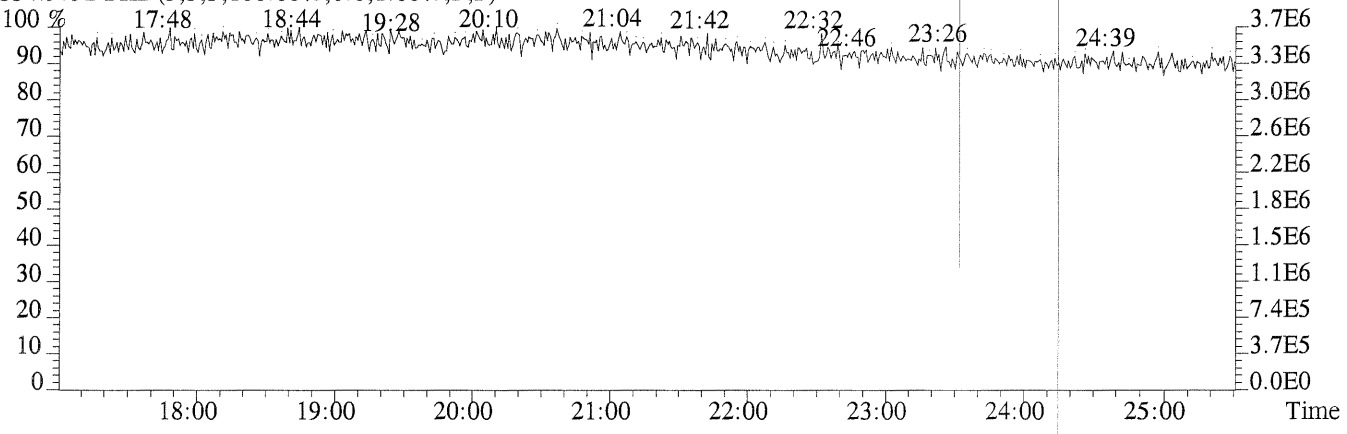
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1744.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1556.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS2

Run #3 Filename U139564 Samp: 1 Inj: 1 Acquired: 31-MAR-11 11:07:09
Processed: 1-APR-11 07:29:09 Sample ID: ICAL CS2

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:25	1.271e+03	1.654e+03	0.77	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:24	6.572e+04	8.427e+04	0.78	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:08	5.570e+04	7.109e+04	0.78	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	2.459e+03				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	2.10e+05	1.38e+03	1.5e+02	2.74e+05	1.14e+03	2.4e+02
2	13C-2,3,7,8-TCDF	9.72e+06	4.20e+03	2.3e+03	1.25e+07	9.73e+03	1.3e+03
3	13C-1,2,3,4-TCDD	9.31e+06	2.94e+03	3.2e+03	1.18e+07	2.26e+03	5.3e+03
4	37Cl-2,3,7,8-TCDD	4.08e+05	1.34e+03	3.1e+02			

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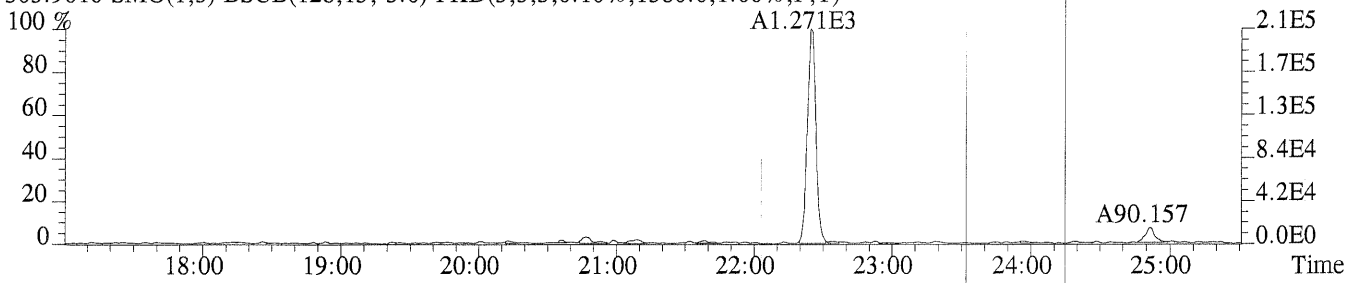
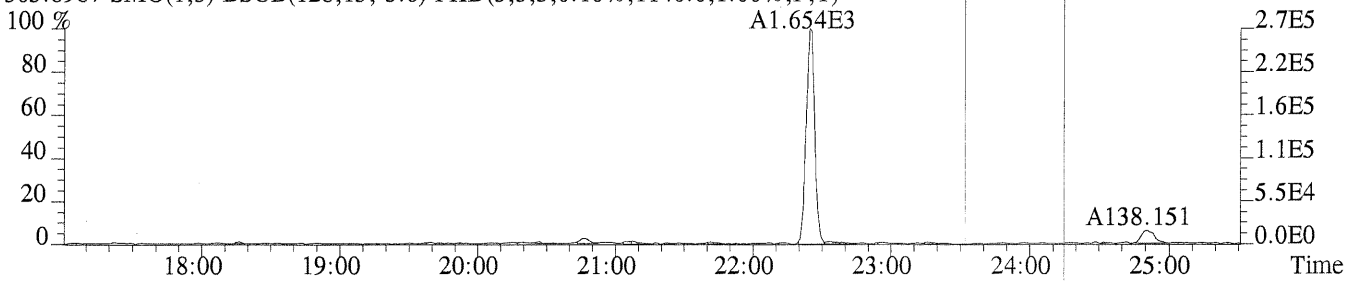
File:U139564 #1-709 Acq:31-MAR-2011 11:07:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

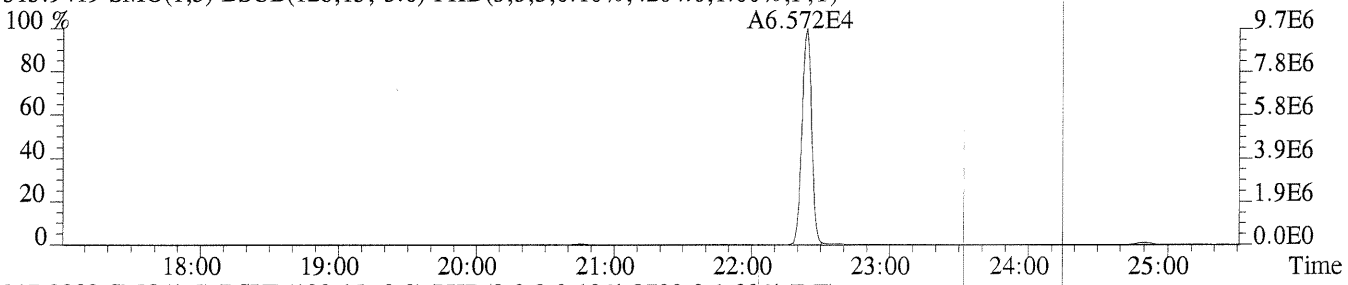
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1380.0,1.00%,F,T)



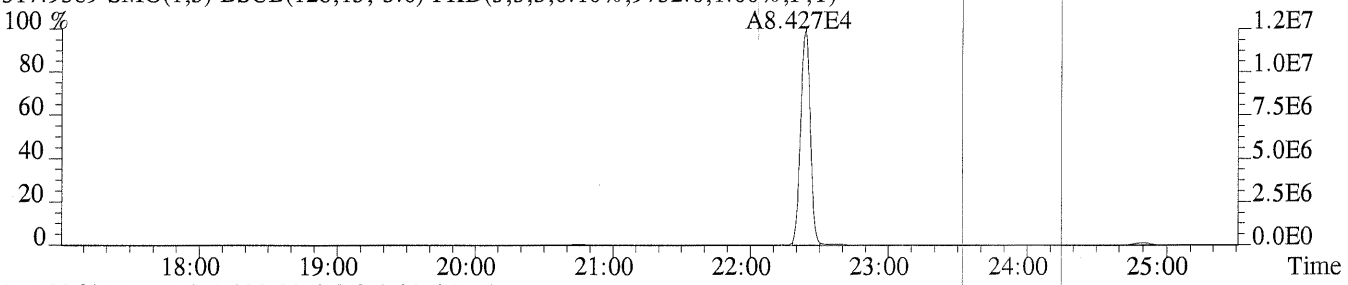
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1140.0,1.00%,F,T)



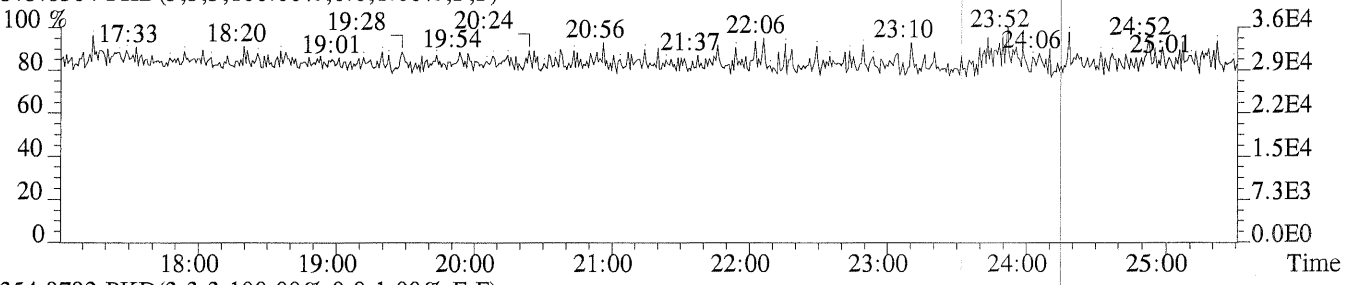
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4204.0,1.00%,F,T)



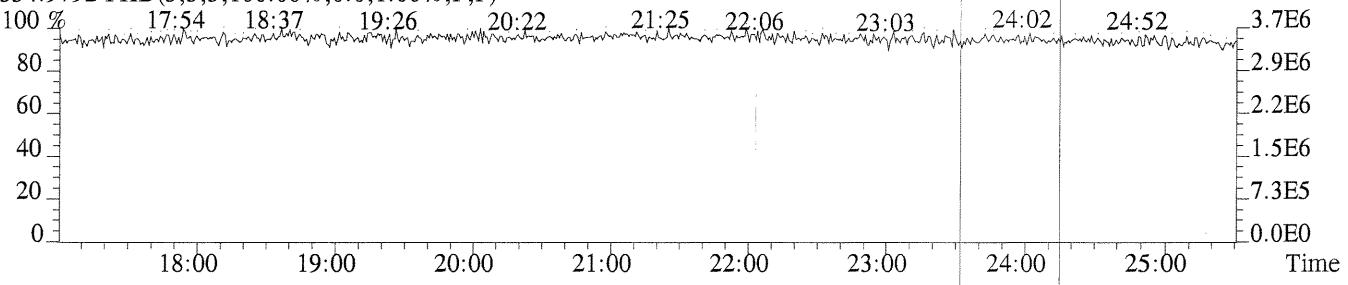
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,9732.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

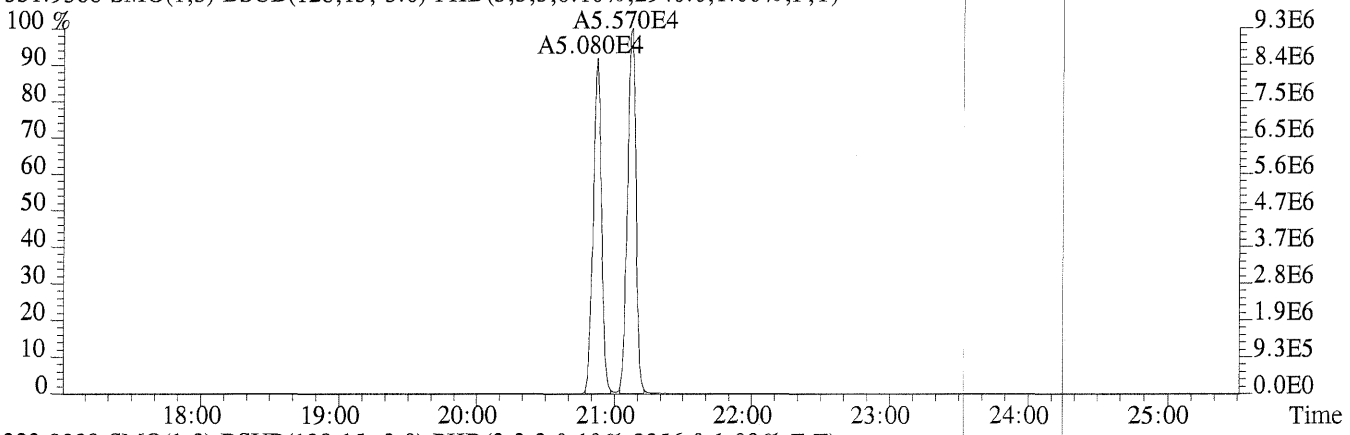


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

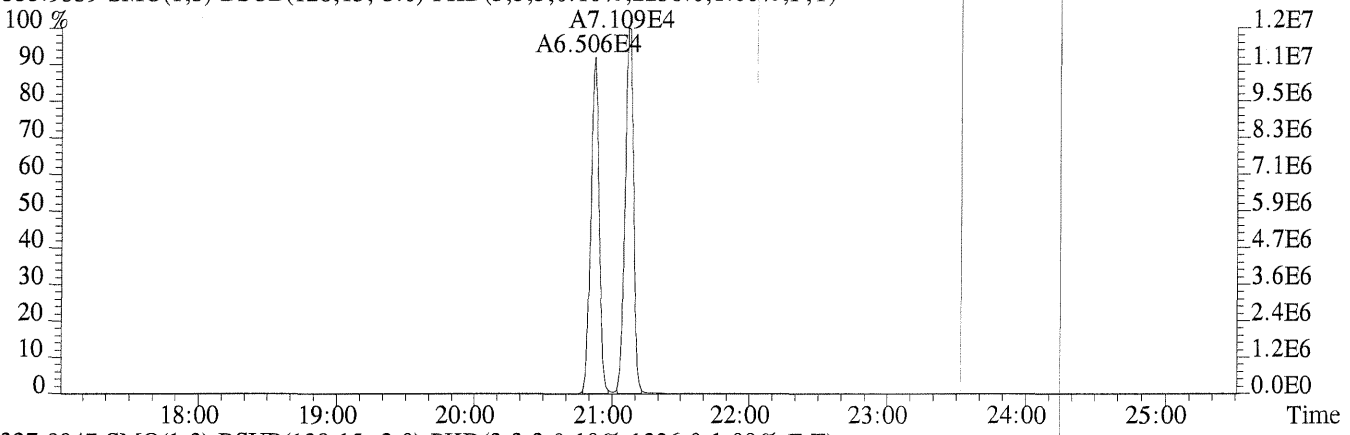


File:U139564 #1-709 Acq:31-MAR-2011 11:07:09 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS2

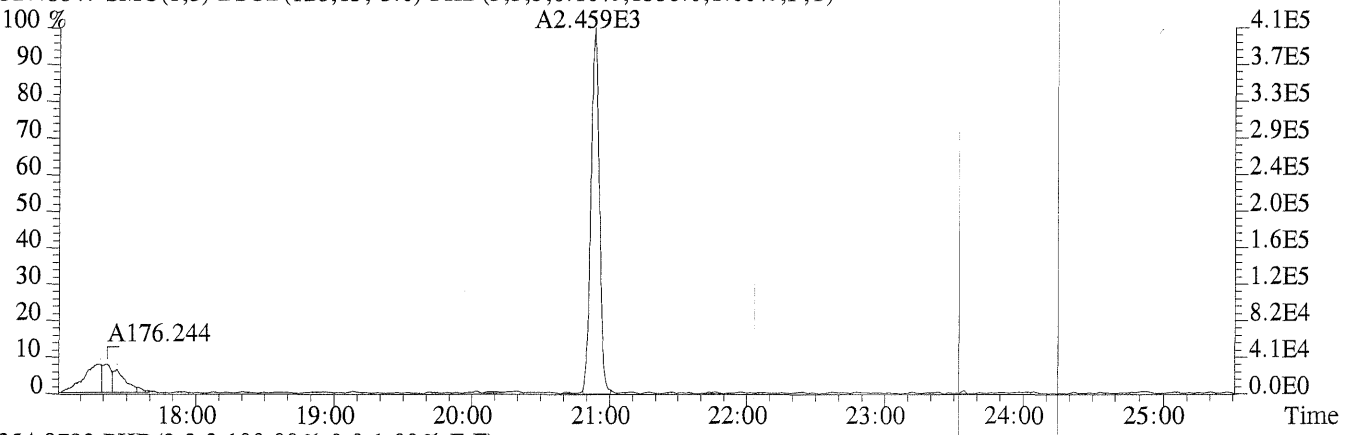
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2940.0,1.00%,F,T)



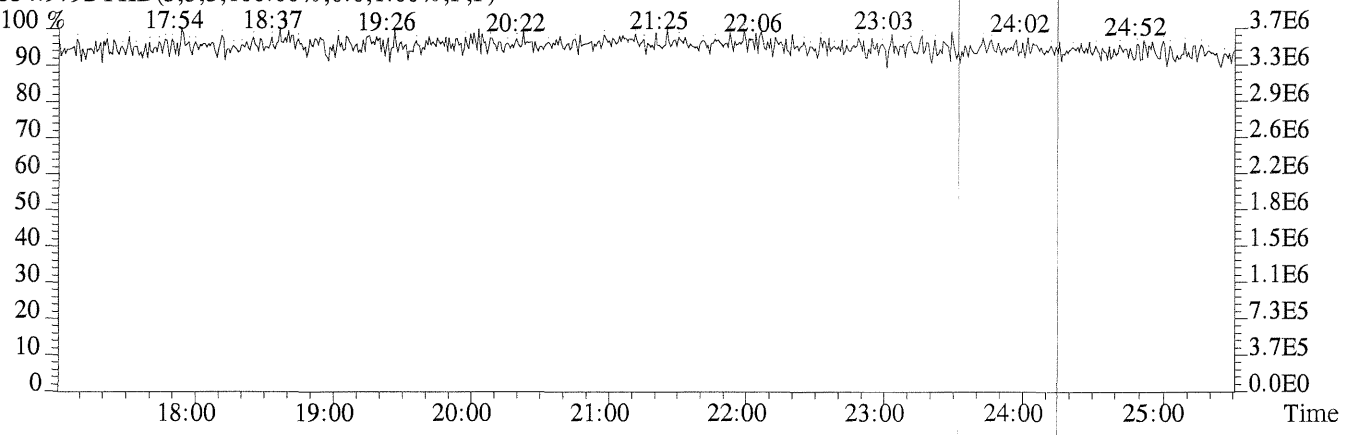
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2256.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1336.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS3

Run #4 Filename U139565 Samp: 1 Inj: 1 Acquired: 31-MAR-11 11:46:58
Processed: 1-APR-11 07:29:10 Sample ID: ICAL CS3

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:25	4.753e+03	6.103e+03	0.78	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:24	5.088e+04	6.482e+04	0.78	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:08	4.166e+04	5.375e+04	0.78	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	8.796e+03				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	7.57e+05	1.48e+03	5.1e+02	9.77e+05	1.43e+03	6.8e+02
2	13C-2,3,7,8-TCDF	7.52e+06	4.02e+03	1.9e+03	9.57e+06	3.62e+03	2.6e+03
3	13C-1,2,3,4-TCDD	6.94e+06	2.61e+03	2.7e+03	8.85e+06	2.43e+03	3.6e+03
4	37Cl-2,3,7,8-TCDD	1.44e+06	1.62e+03	8.9e+02			

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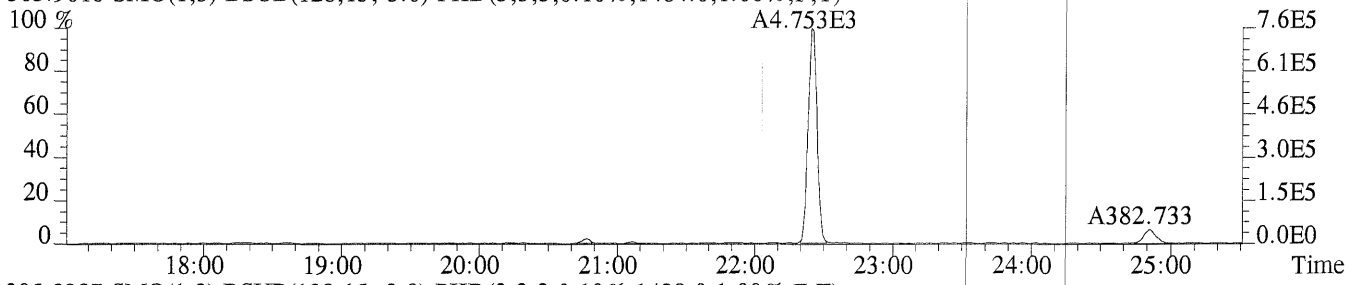
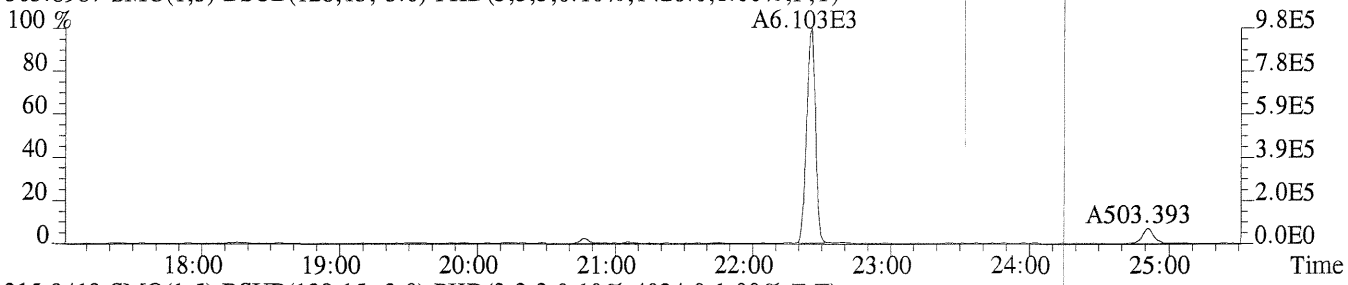
File:U139565 #1-709 Acq:31-MAR-2011 11:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

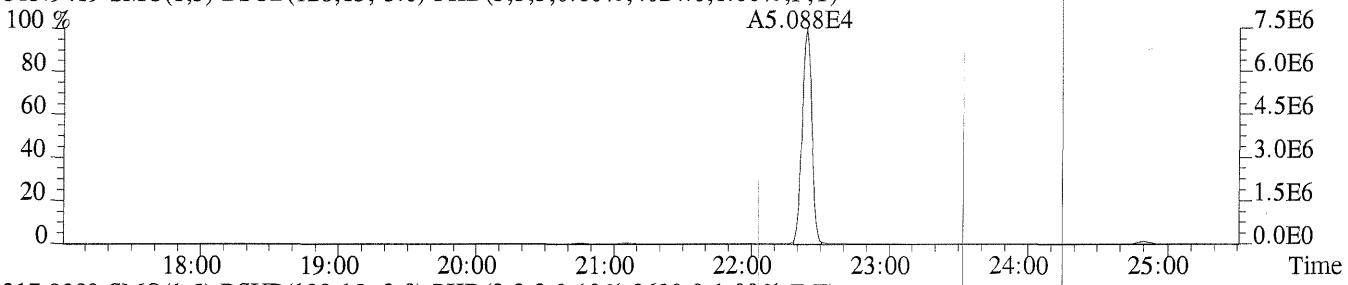
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1484.0,1.00%,F,T)



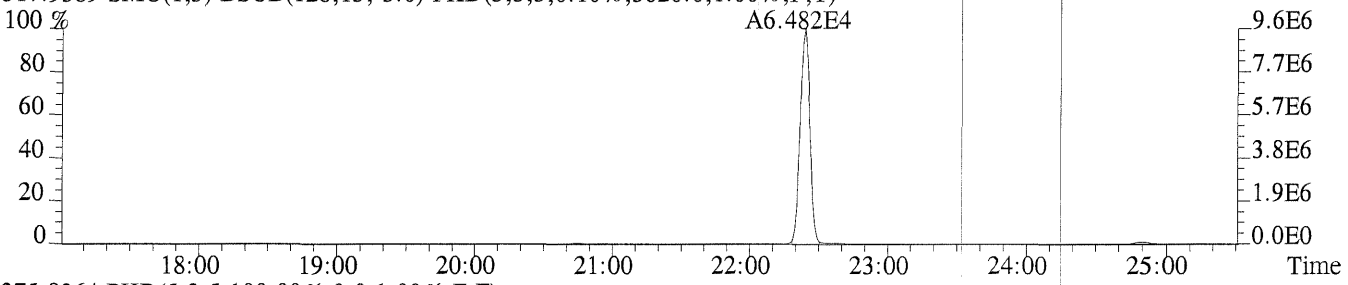
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1428.0,1.00%,F,T)



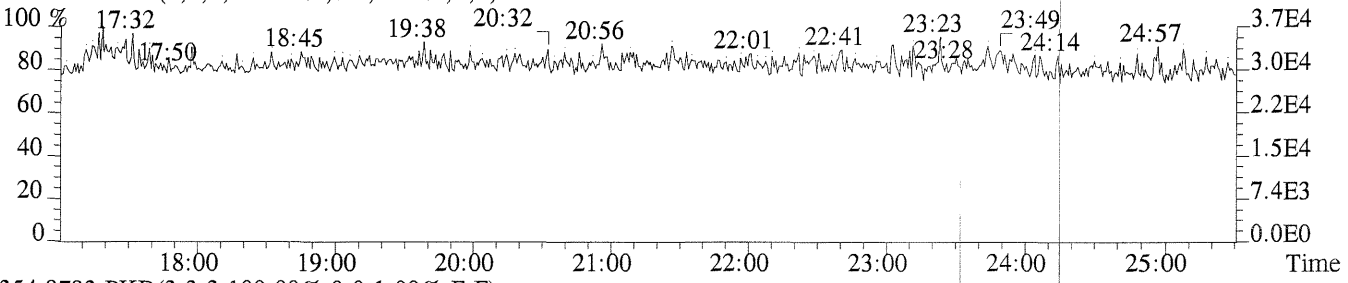
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4024.0,1.00%,F,T)



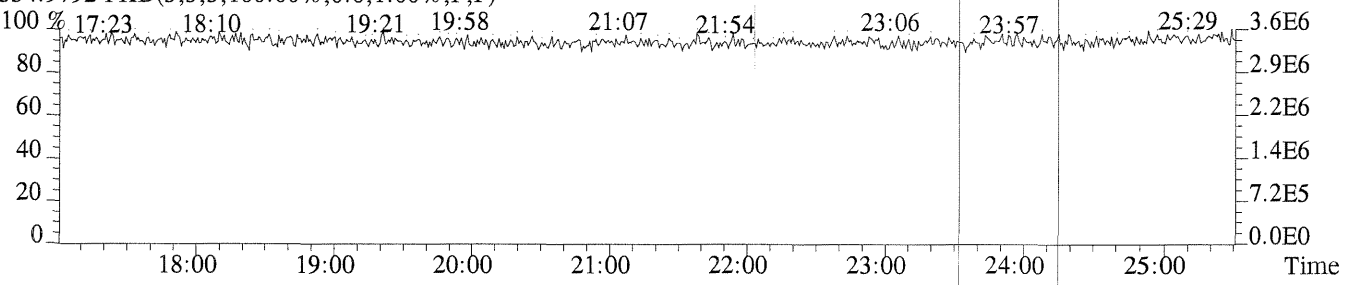
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3620.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

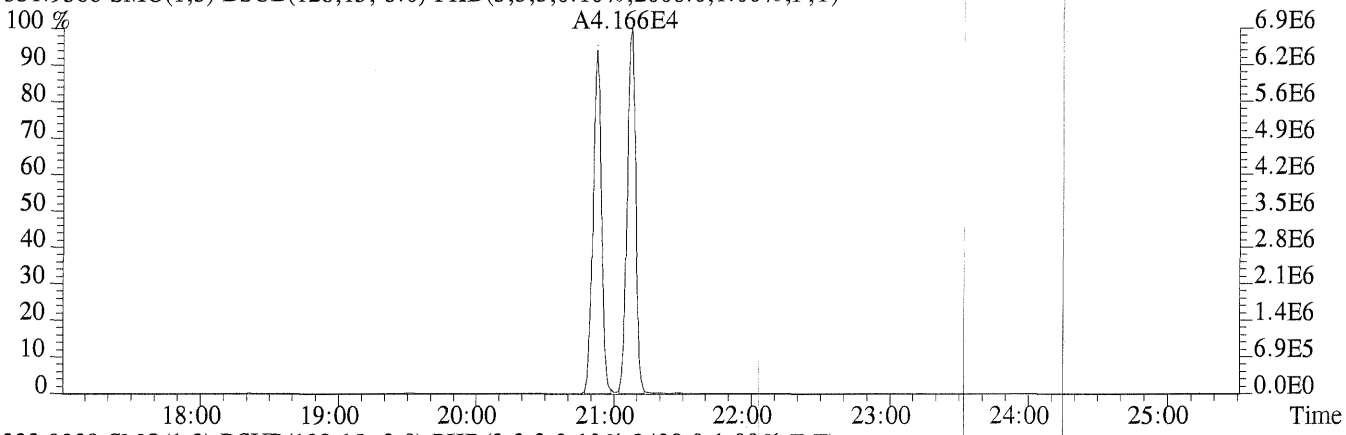


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

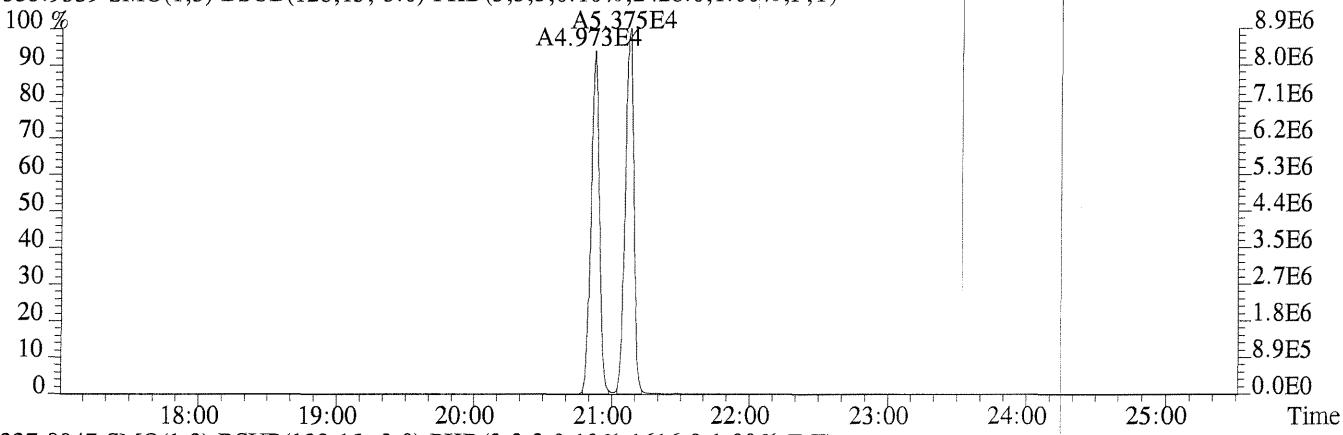


File:U139565 #1-709 Acq:31-MAR-2011 11:46:58 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS3

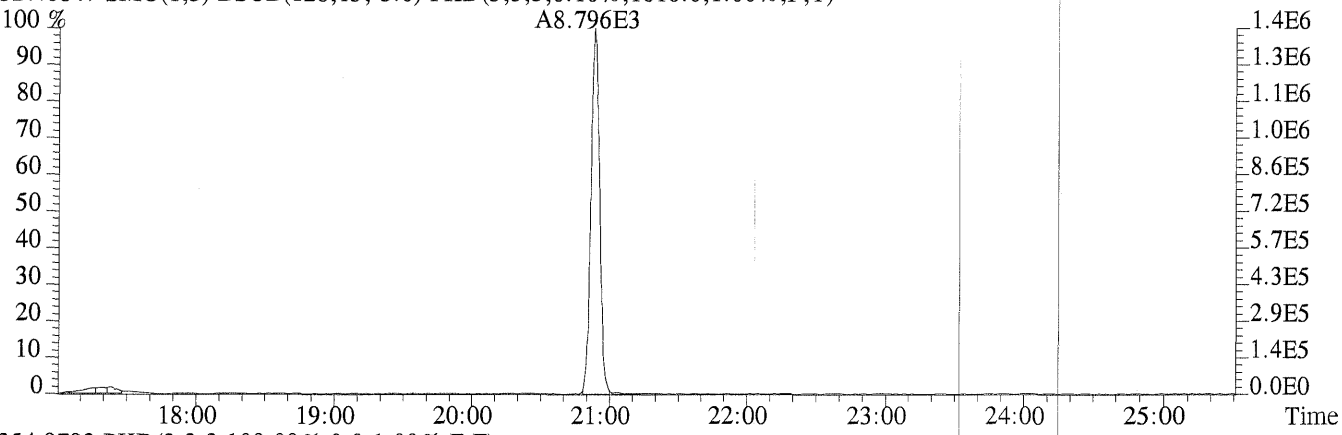
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2608.0,1.00%,F,T)



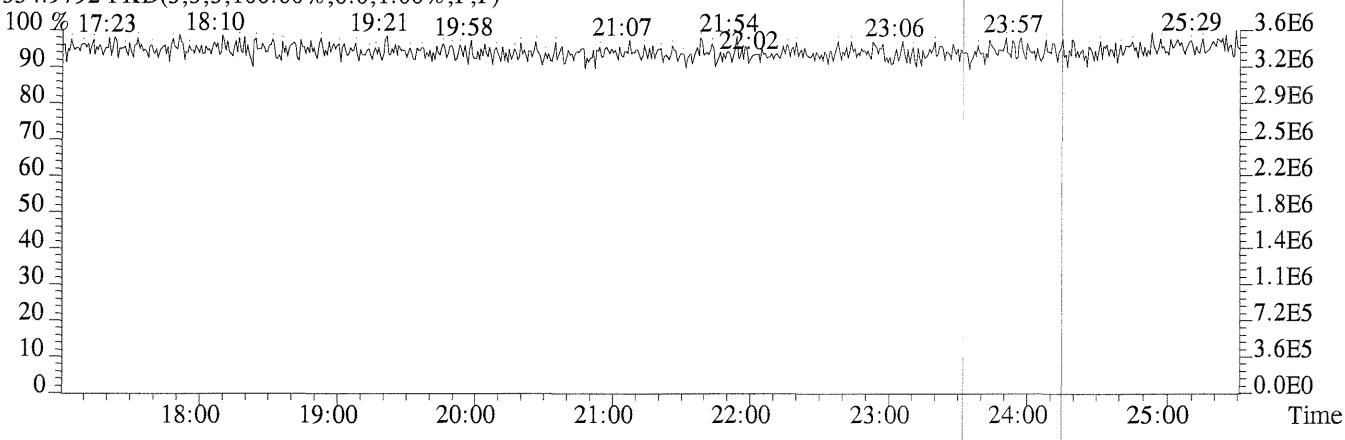
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2428.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1616.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS4

Run #5 Filename U139566 Samp: 1 Inj: 1 Acquired: 31-MAR-11 12:25:35
Processed: 1-APR-11 07:29:11 Sample ID: ICAL CS4

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:26	2.773e+04	3.590e+04	0.77	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:25	7.337e+04	9.367e+04	0.78	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:08	6.112e+04	7.802e+04	0.78	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:54	5.168e+04				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	4.52e+06	1.44e+03	3.2e+03	5.90e+06	1.99e+03	3.0e+03
2	13C-2,3,7,8-TCDF	1.06e+07	5.46e+03	1.9e+03	1.36e+07	1.16e+04	1.2e+03
3	13C-1,2,3,4-TCDD	1.02e+07	2.79e+03	3.6e+03	1.31e+07	1.96e+03	6.7e+03
4	37Cl-2,3,7,8-TCDD	8.46e+06	2.53e+03	3.3e+03			

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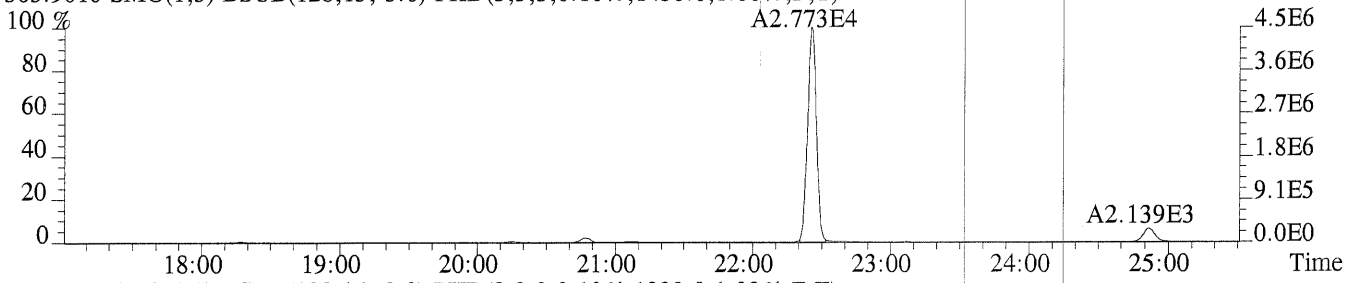
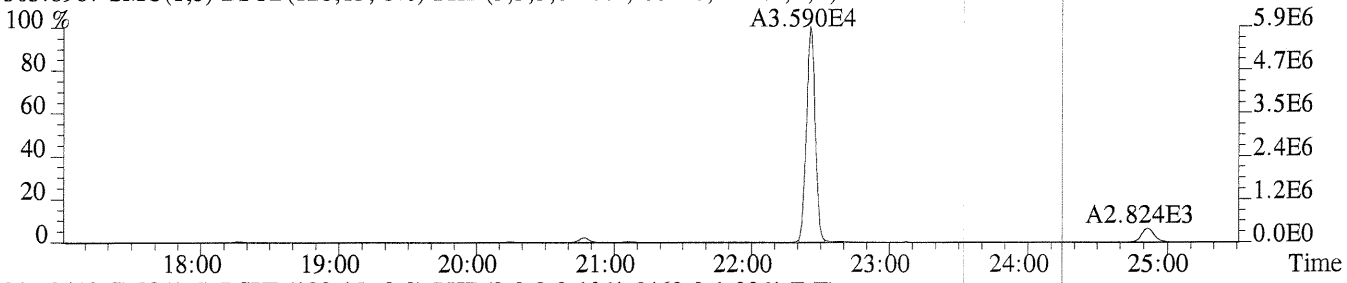
File:U139566 #1-709 Acq:31-MAR-2011 12:25:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

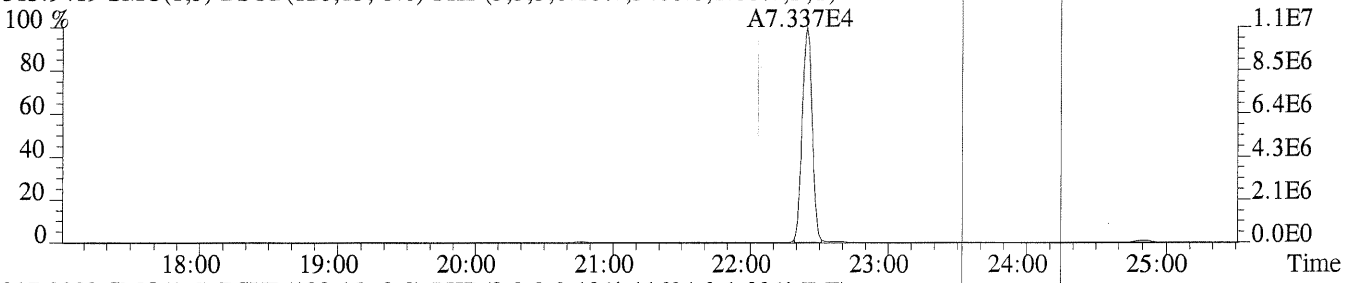
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1436.0,1.00%,F,T)



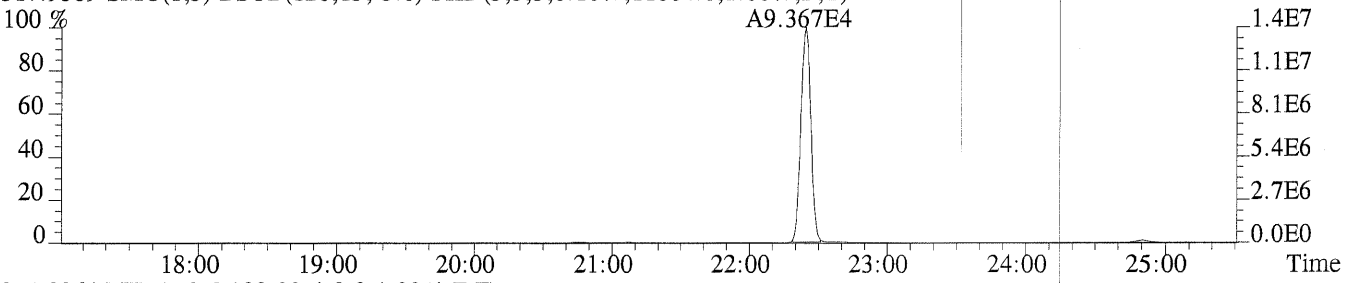
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1992.0,1.00%,F,T)



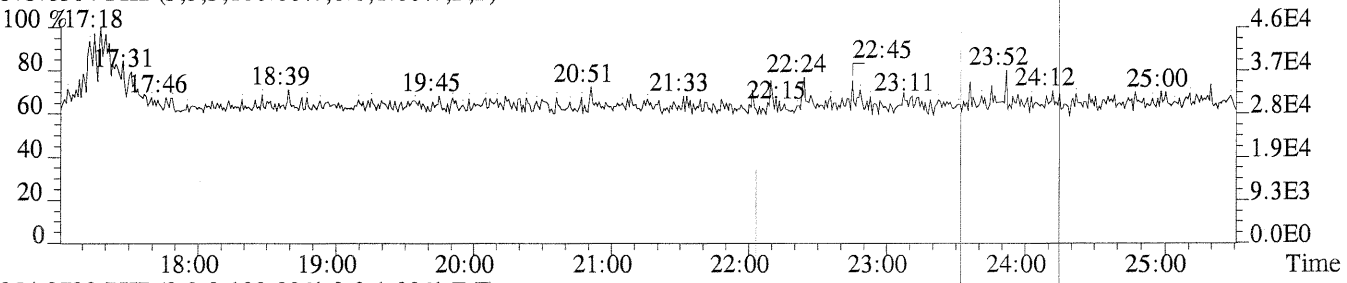
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5460.0,1.00%,F,T)



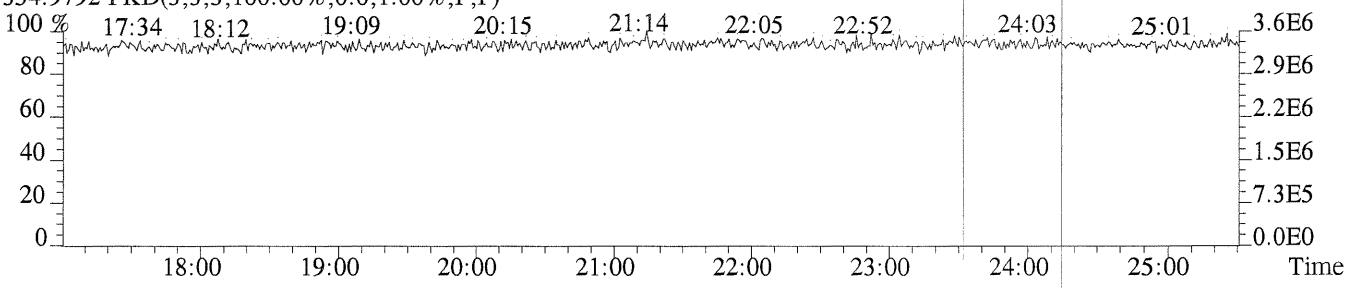
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,11604.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

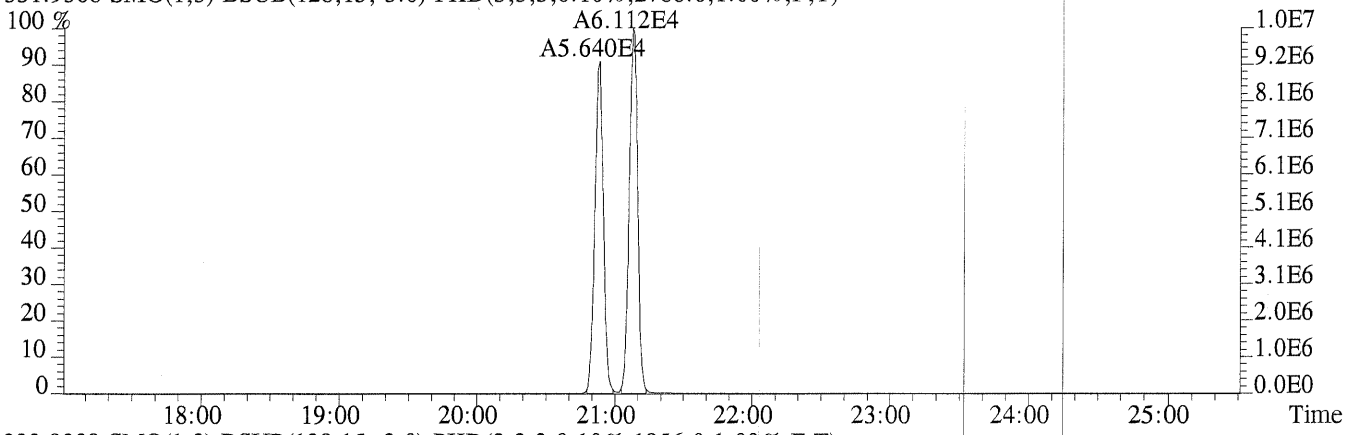


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

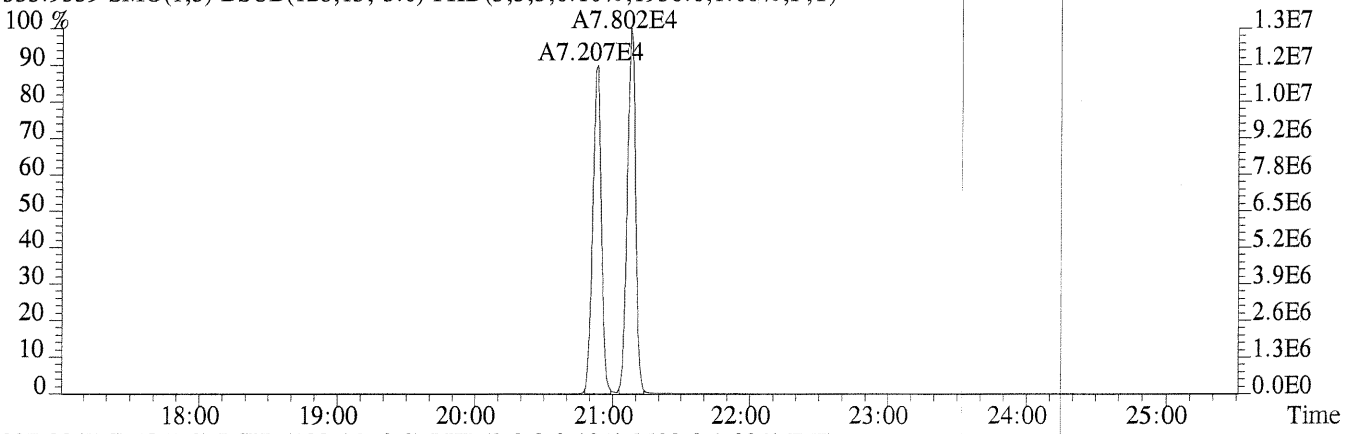


File:U139566 #1-709 Acq:31-MAR-2011 12:25:35 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS4

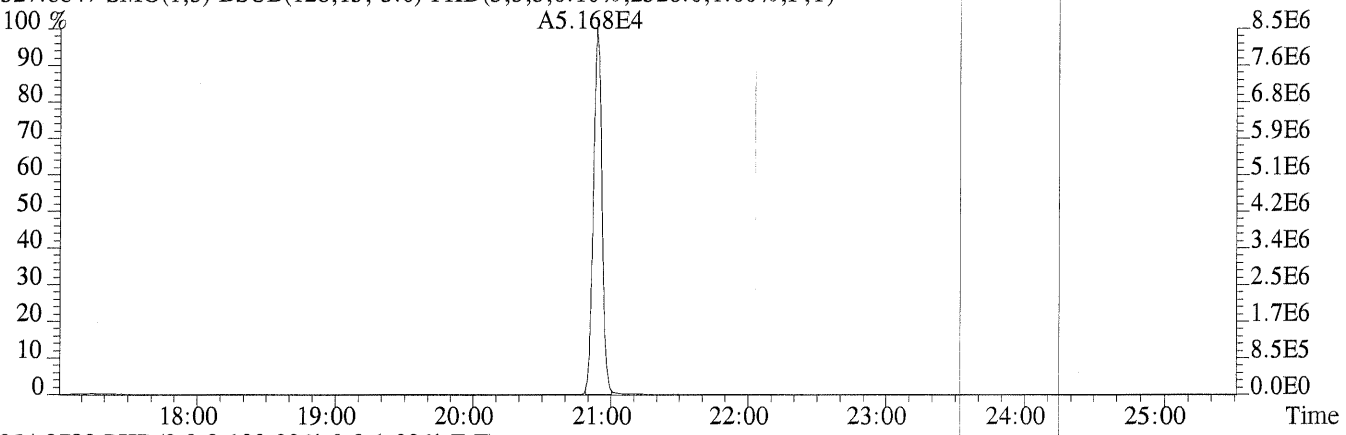
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2788.0,1.00%,F,T)



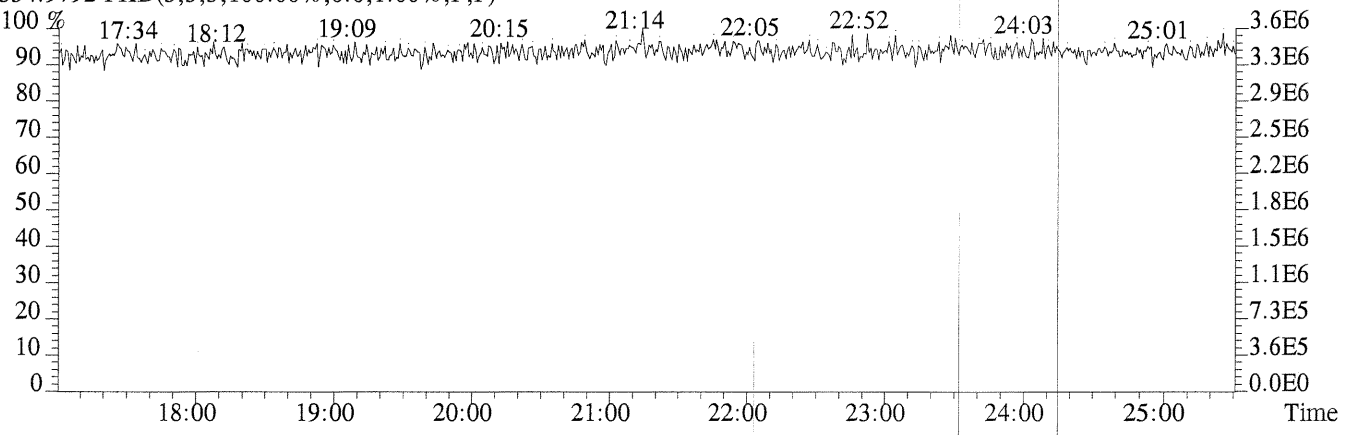
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1956.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2528.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS5

Run #6 Filename U139567 Samp: 1 Inj: 1 Acquired: 31-MAR-11 13:11:43
Processed: 1-APR-11 07:29:13 Sample ID: ICAL CS5

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:25	1.458e+05	1.903e+05	0.77	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:24	7.773e+04	9.874e+04	0.79	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:07	6.533e+04	8.229e+04	0.79	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	2.748e+05				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	2.39e+07	2.10e+03	1.1e+04	3.15e+07	2.22e+03	1.4e+04
2	13C-2,3,7,8-TCDF	1.16e+07	3.66e+03	3.2e+03	1.47e+07	1.03e+04	1.4e+03
3	13C-1,2,3,4-TCDD	1.07e+07	1.96e+03	5.4e+03	1.34e+07	2.01e+03	6.7e+03
4	37Cl-2,3,7,8-TCDD	4.49e+07	2.46e+03	1.8e+04			

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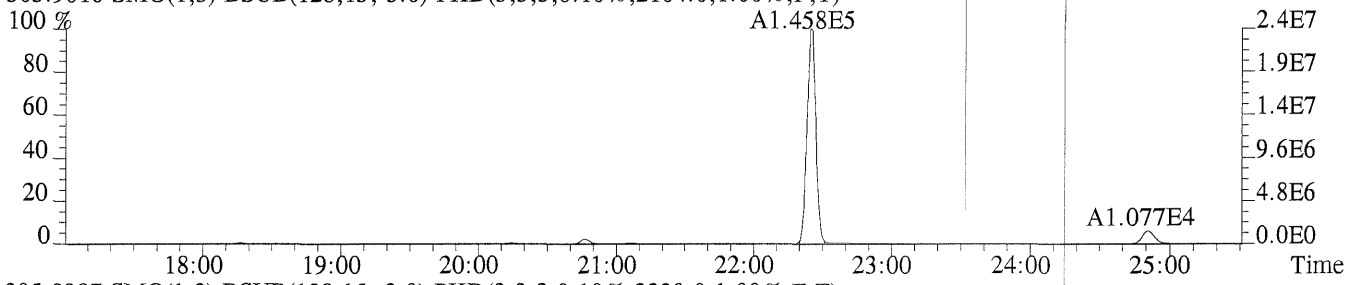
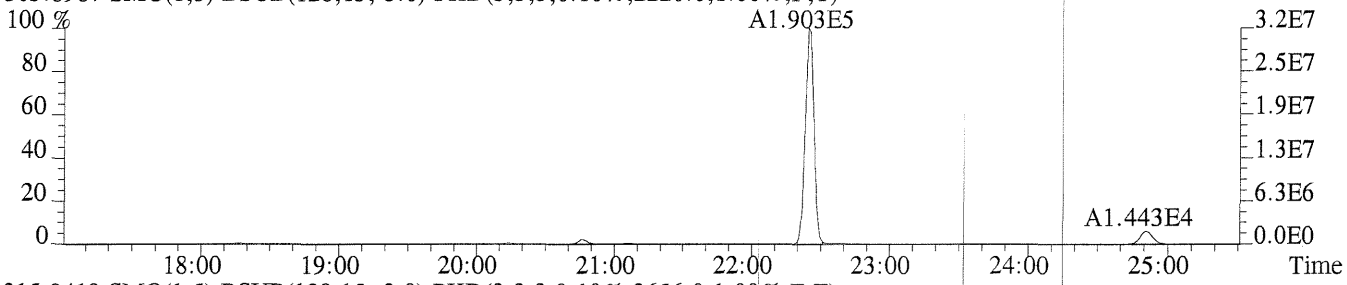
File:U139567 #1-709 Acq:31-MAR-2011 13:11:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

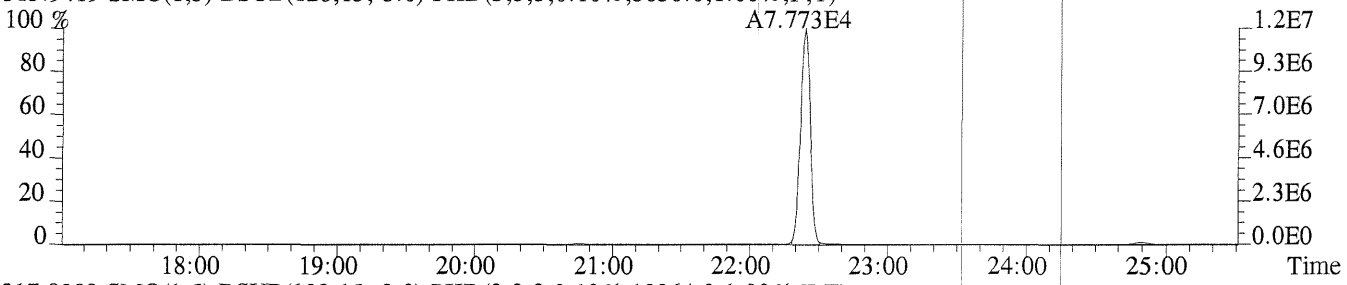
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2104.0,1.00%,F,T)



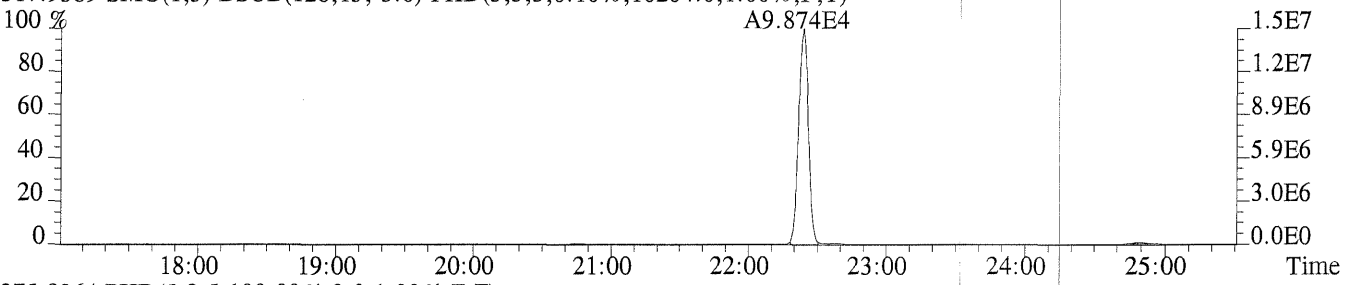
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2220.0,1.00%,F,T)



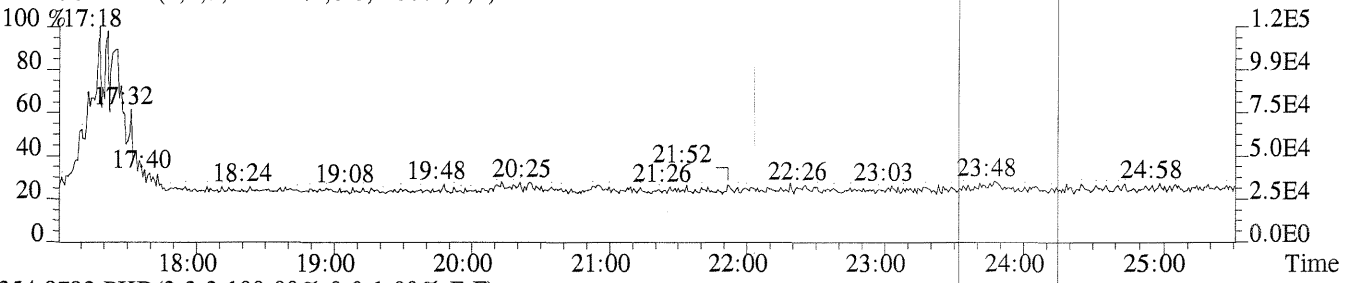
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3656.0,1.00%,F,T)



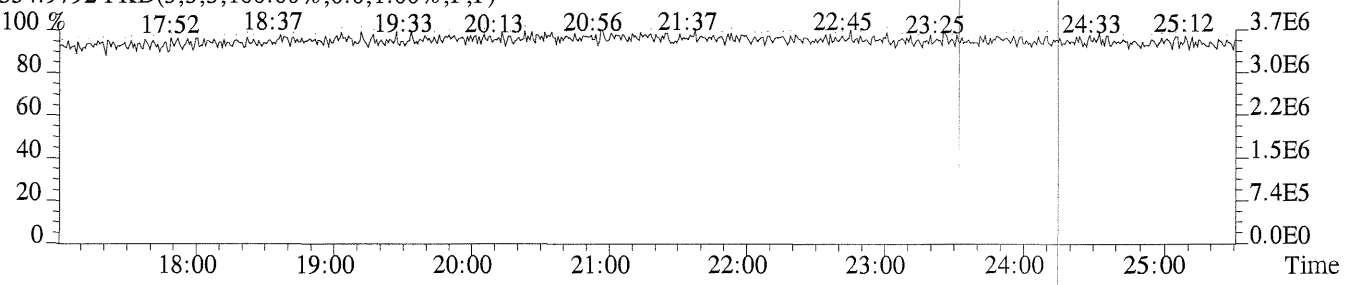
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10264.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

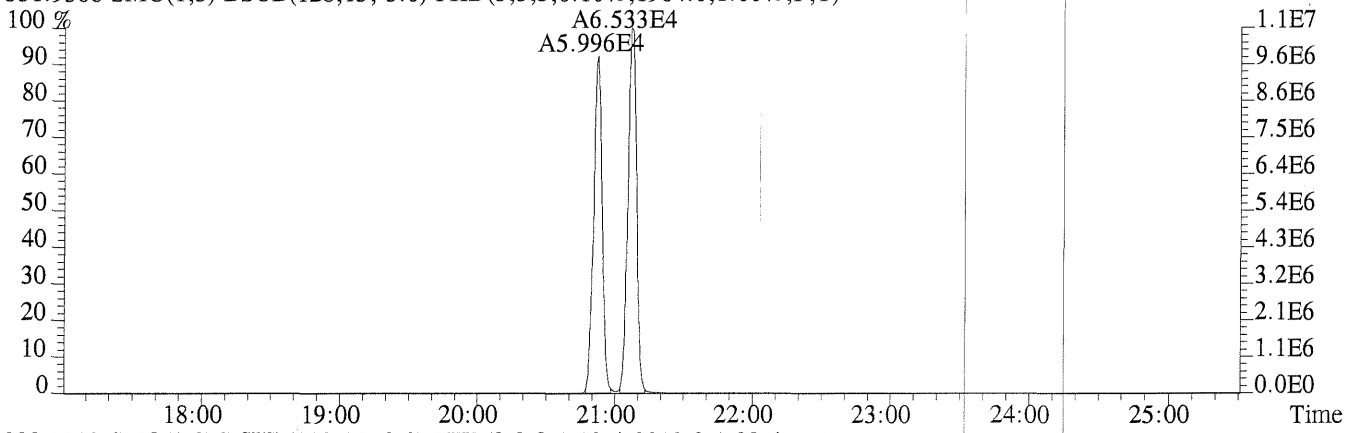


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

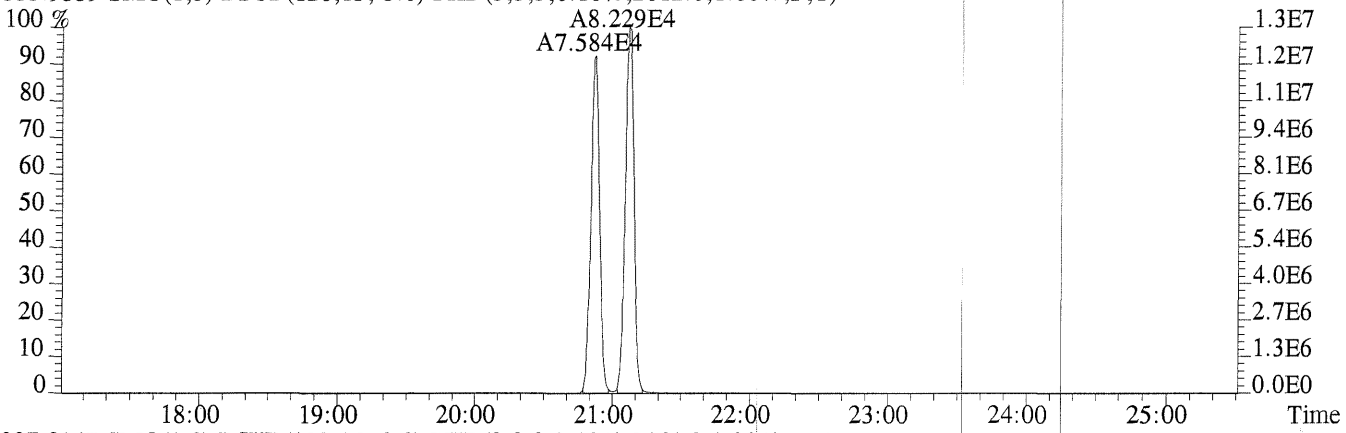


File:U139567 #1-709 Acq:31-MAR-2011 13:11:43 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS5

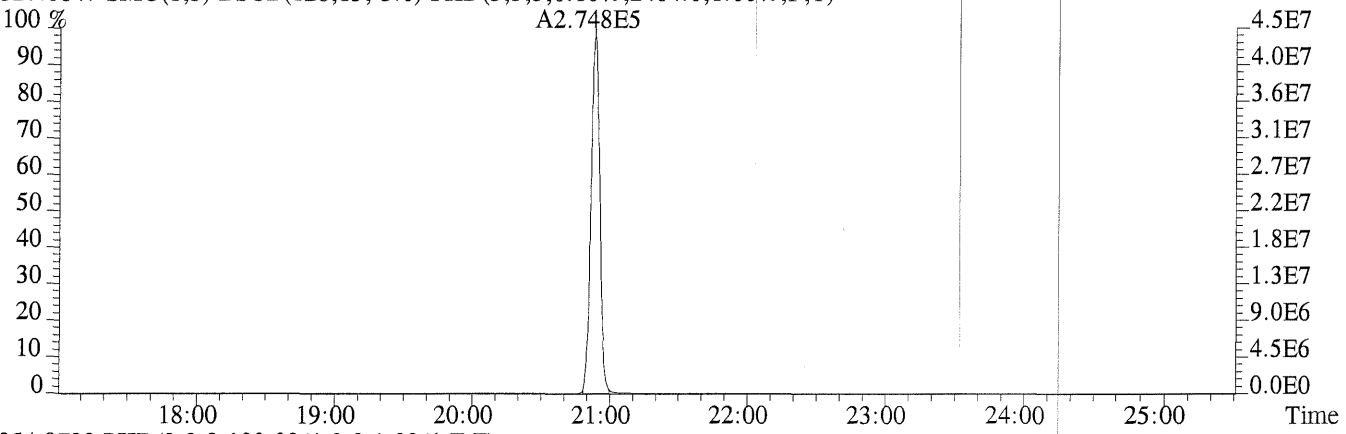
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1964.0,1.00%,F,T)



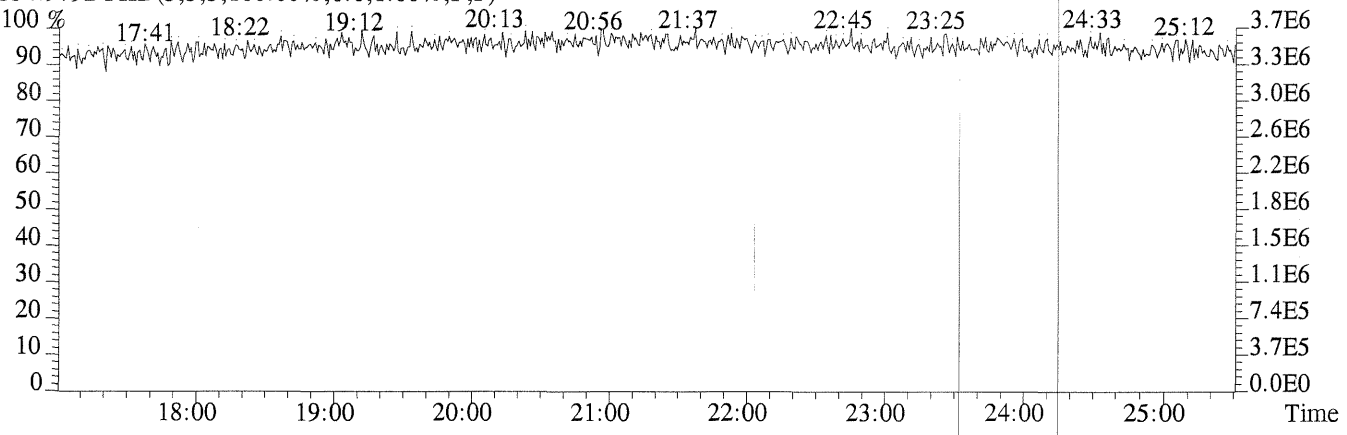
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2012.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,2464.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services, Inc.
Sample Response Summary

EPA SAMPLE NO.
ICAL CS6

Run #7 Filename U139568 Samp: 1 Inj: 1 Acquired: 31-MAR-11 13:54:44
Processed: 1-APR-11 07:29:14 Sample ID: ICAL CS6

	Typ	Name	RT-1	Resp 1	Resp 2	Ratio	Meet	Mod?
1	Unk	2,3,7,8-TCDF	22:25	1.419e+05	1.857e+05	0.76	yes	n|n
2	IS	13C-2,3,7,8-TCDF	22:24	1.282e+04	1.649e+04	0.78	yes	n|n
3	RS/RT	13C-1,2,3,4-TCDD	21:07	1.080e+04	1.375e+04	0.79	yes	n|n
4	C/Up	37Cl-2,3,7,8-TCDD	20:53	2.516e+05				n

Signal/Noise Height Ratio Summary

	Name	Signal 1	Noise 1	S/N Rat.1	Signal 2	Noise 2	S/N
1	2,3,7,8-TCDF	2.39e+07	7.52e+03	3.2e+03	3.14e+07	5.50e+03	5.7e+03
2	13C-2,3,7,8-TCDF	1.92e+06	4.19e+03	4.6e+02	2.45e+06	1.00e+04	2.4e+02
3	13C-1,2,3,4-TCDD	1.82e+06	3.59e+03	5.1e+02	2.31e+06	1.76e+03	1.3e+03
4	37Cl-2,3,7,8-TCDD	4.17e+07	1.98e+03	2.1e+04			

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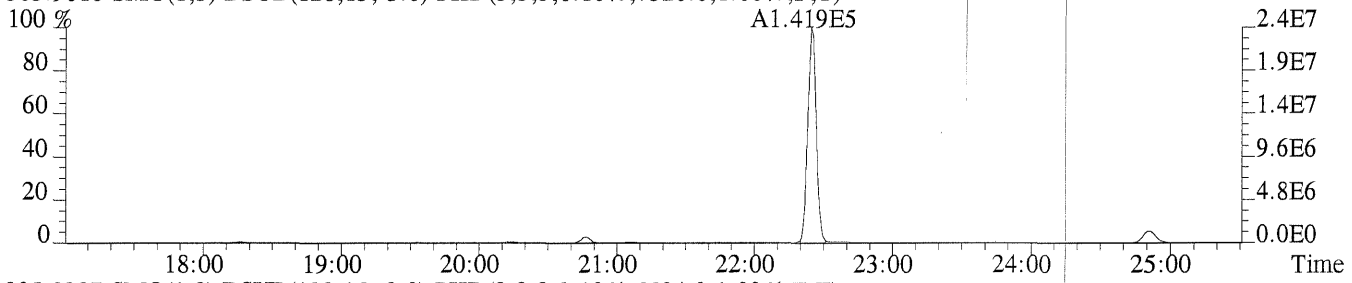
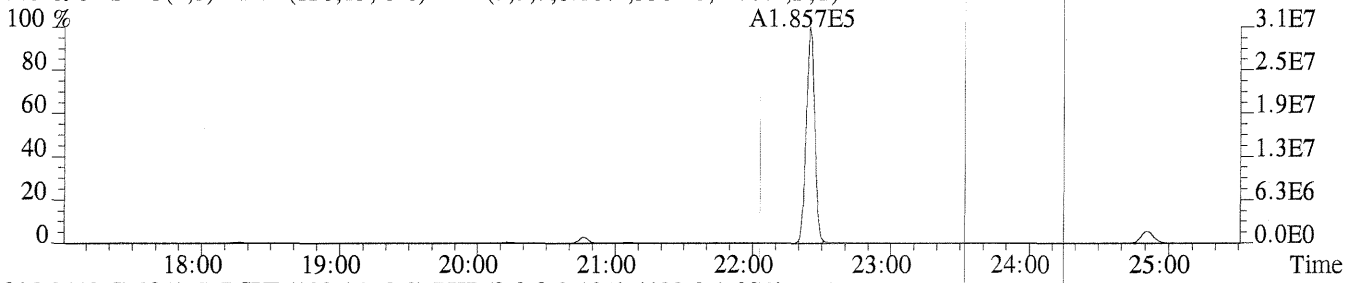
File:U139568 #1-709 Acq:31-MAR-2011 13:54:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

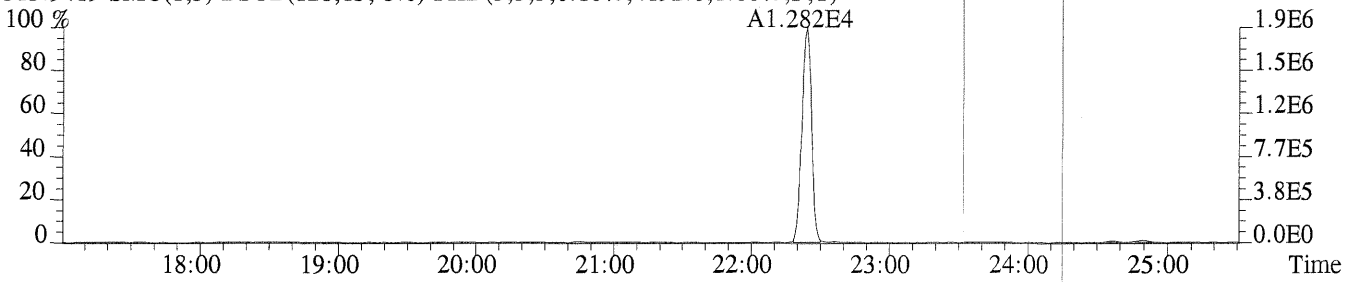
303.9016 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,7520.0,1.00%,F,T)



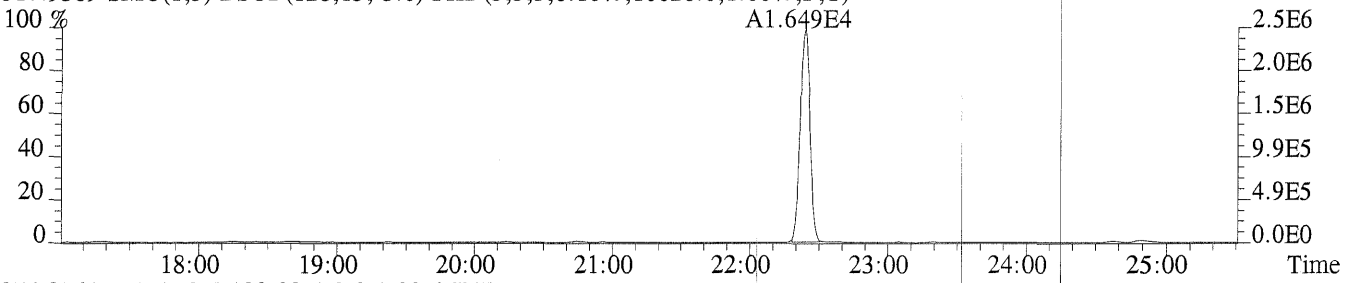
305.8987 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,5504.0,1.00%,F,T)



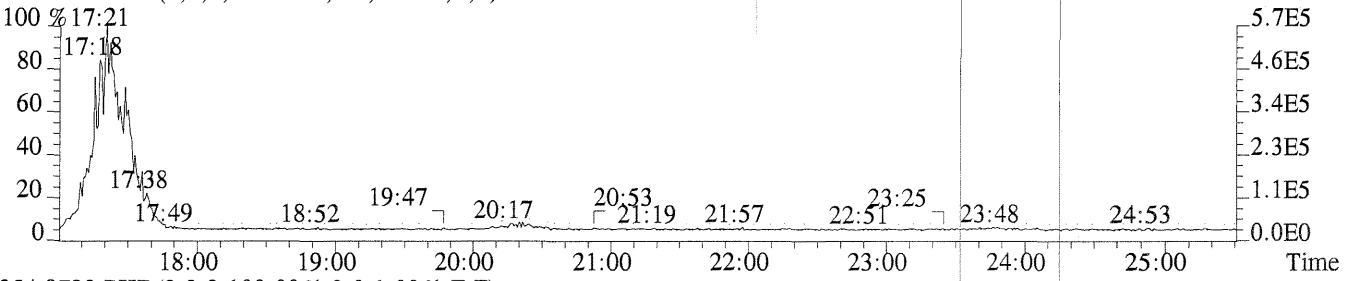
315.9419 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,4192.0,1.00%,F,T)



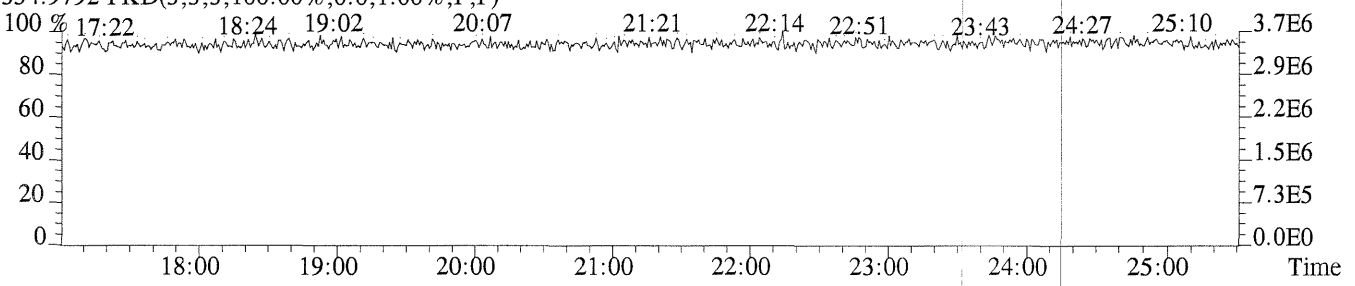
317.9389 SMO(1,5) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,10028.0,1.00%,F,T)



375.8364 PKD(5,3,5,100.00%,0.0,1.00%,F,F)

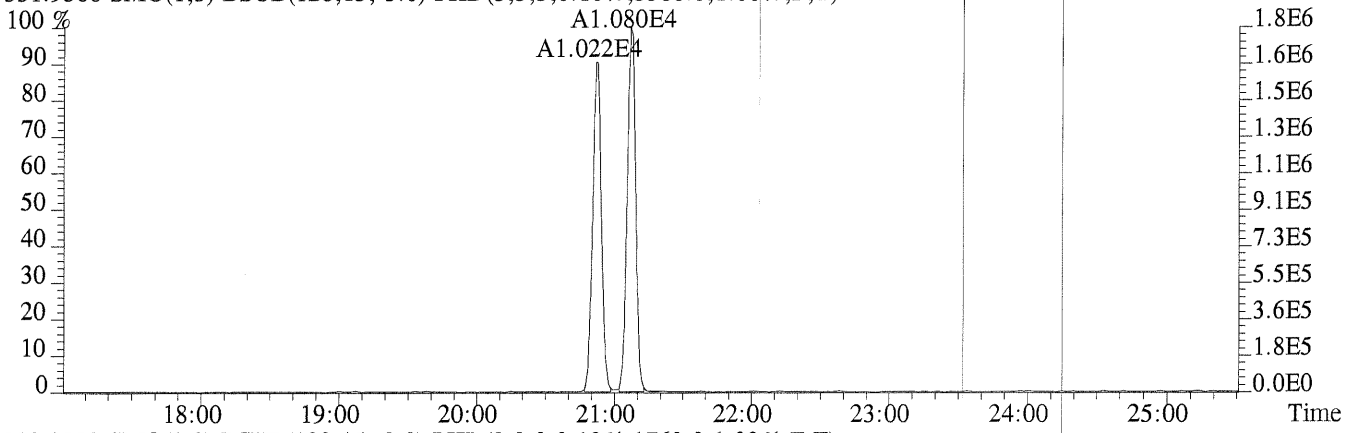


354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)

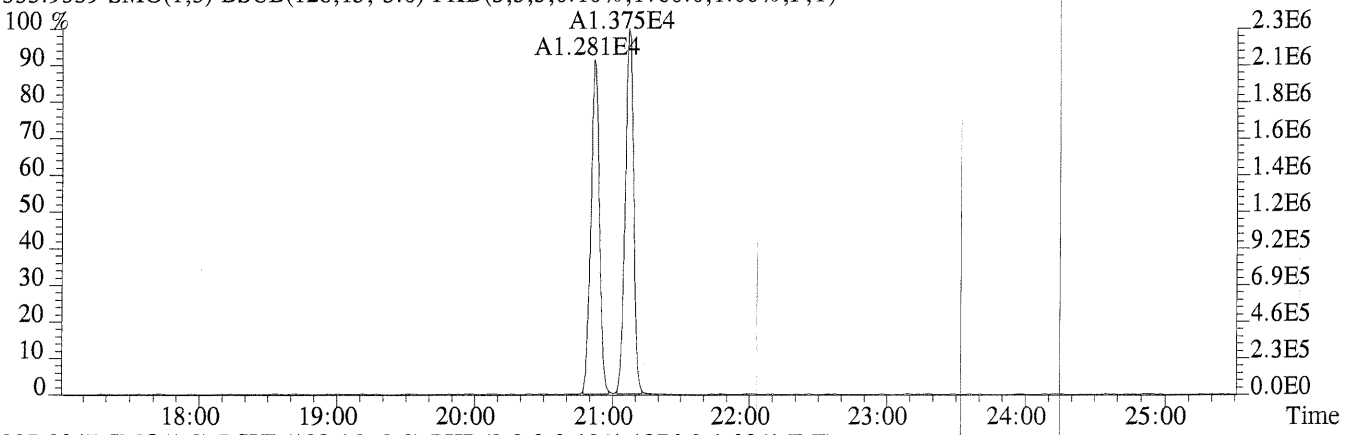


File:U139568 #1-709 Acq:31-MAR-2011 13:54:44 Probe EI+ Magnet SIR VG BioTech Mass spect£
Sample#1 Exp:ICAL CS6

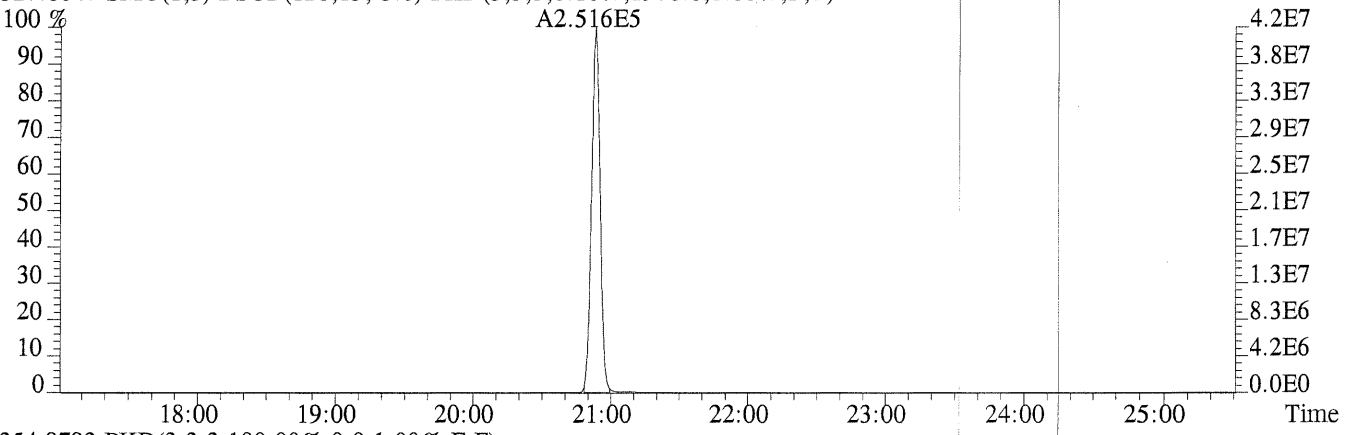
331.9368 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,3588.0,1.00%,F,T)



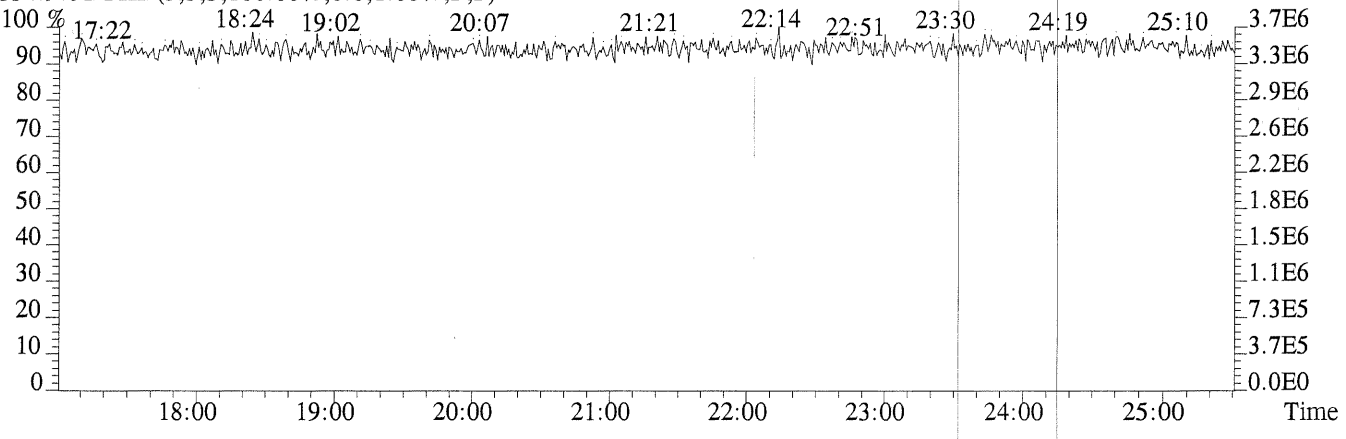
333.9339 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1760.0,1.00%,F,T)



327.8847 SMO(1,3) BSUB(128,15,-3.0) PKD(3,3,3,0.10%,1976.0,1.00%,F,T)



354.9792 PKD(3,3,3,100.00%,0.0,1.00%,F,F)



Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 20, 2011 Analytical Report for Service Request No: K1104854

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 01, 2011. For your reference, these analyses have been assigned our service request number K1104854.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata

Gregory Salata, Ph.D.
Project Chemist

GS/jw

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1104854
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/01/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Seven water samples were received for analysis at Columbia Analytical Services on 06/01/11. Except as noted on the cooler receipt and preservation form included in this data package the samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Suspended Solids by Standard Method 2540 D:
Sample SJUSL001-AS004-N was received past holding time remaining. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Suspended Solids in sample SJUSL001-AS008-N was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

Approved by Gregory Galatty **Date** 6/23/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K4854

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: [signature]

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS004-N	5/24/2011	15:32		Water	1															X				
SJUSL001-AS005-N	5/26/2011	03:32		Water	1															X				
SJUSL001-AS006-N	5/27/2011	03:19		Water	1															X				
SJUSL001-AS007-N	5/28/2011	13:58		Water	1															X				
SJUSL001-AS008-N	5/30/2011	01:58		Water	1															X				
SJUSL001-AS009-N	5/31/2011	10:04		Water	1															X				
SJUSL001-AS009-D	na	na		Water	1															X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: [signature]	Date/Time: 5/31/11 17:00	Signature: [signature]	Date/Time: 6/1/11 1010	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name: SHOPKINS	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

8

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Greg

Client / Project: Anchor Service Request *K11* 4854

Received: 6/1/11 Opened: 6/1/11 By: SN Unloaded: 6/1/11 By: SN

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.3		282		12 3E6 849 01 3416 5722	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

SHORT HOLD TIME

Notes, Discrepancies, & Resolutions: _____

Page 1 *of* _____

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104854
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	5/24/11 - 5/31/11
Sample Matrix:	Water	**Date Received:**	6/ 1/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS004-N	K1104854-001	**12.5**		5.0	5.0	1	NA	6/1/11 09:30	*
SJUSL001-AS005-N	K1104854-002	**16.5**		5.0	5.0	1	NA	6/1/11 09:30	
SJUSL001-AS006-N	K1104854-003	**22.0**		5.0	5.0	1	NA	6/1/11 09:30	
SJUSL001-AS007-N	K1104854-004	**10.5**		5.0	5.0	1	NA	6/1/11 09:30	
SJUSL001-AS008-N	K1104854-005	**16.0**		5.0	5.0	1	NA	6/1/11 09:30	
SJUSL001-AS009-N	K1104854-006	**22.0**		5.0	5.0	1	NA	6/1/11 09:30	
SJUSL001-AS009-D	K1104854-007	**20.0**		5.0	5.0	1	NA	6/1/11 09:30	
Method Blank	K1104854-MB	ND	U	5.0	5.0	1	NA	6/1/11 09:30	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104854
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	5/30/11
Sample Matrix:	Water	**Date Received:**	6/1/11
		Date Analyzed:	6/ 1/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SJUSL001-AS008-N	**Units:**	mg/L
Lab Code:	K1104854-005	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS008-N DUP Duplicate Sample K1104854-005DUP1 Result	Average	RPD		RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	16.0	18.0	17.0	12	*	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104854
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	6/1/11
		Date Analyzed:	6/ 1/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SJUSL001-AS009-D	**Units:**	mg/L
Lab Code:	K1104854-007	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS009-D DUP Duplicate Sample K1104854-007DUP2 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	20.0	21.0	20.5	5	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1104854
Date Analyzed: 6/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1104854-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	232	240	97	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1104854
Date Analyzed: 6/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1104854-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	236	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1104854
Date Analyzed: 6/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1104854-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	230	240	96	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1104854
Date Analyzed: 6/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1104854-LCS4 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	232	240	97	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1104854
Date Analyzed: 6/ 1/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1104854-LCS5 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	230	240	96	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Original

Work Request # K3812, K4829, K4842, K4845, K4854,

Tier: I I I I I

Date Analyzed: 6-1-11

Analyst: KC JM

Analysis: TSS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no/NA
a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
d.	Are results for methods blanks all ND?	yes/no/NA
e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?	yes/no/NA
7.	Are all samples labelled correctly?	yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)	yes/no/NA
9.	Are detection limits and units reported correctly?	yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?	yes/no/NA
11.	Is the unused space on the benchsheet crossed out?	yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

Final Approved by: [signature] Date: 6/8/11

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 248329 **Method/Testcode:** SM 2540 D/TSS

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1103812-044	Solids, Total Suspended (TSS)	N/A		Water	17.00 mg/L	100 ml	17 mg/L	1	10	10			6/1/11 09:30	N	I
1103812-045	Solids, Total Suspended (TSS)	N/A		Water	58.00 mg/L	100 ml	58 mg/L	1	10	10			6/1/11 09:30	N	I
1103812-049	Solids, Total Suspended (TSS)	N/A		Water	26.00 mg/L	50 ml	26 mg/L	1	20	20			6/1/11 09:30	N	I
1103812-050	Solids, Total Suspended (TSS)	N/A		Water	48.00 mg/L	50 ml	48 mg/L	1	20	20			6/1/11 09:30	N	I
1104829-001	Solids, Total Suspended (TSS)	N/A		Water	11.50 mg/L	200 ml	11.5 mg/L	1	5.0	5.0			6/1/11 09:30	N	I
1104842-001	Solids, Total Suspended (TSS)	N/A		Water	96.00 mg/L	50 ml	96 mg/L	1	20	20			6/1/11 09:30	N	I
1104845-001	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/1/11 09:30	N	I
1104854-001	Solids, Total Suspended (TSS)	N/A		Water	12.50 mg/L	200 ml	12.5 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-002	Solids, Total Suspended (TSS)	N/A		Water	16.50 mg/L	200 ml	16.5 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-003	Solids, Total Suspended (TSS)	N/A		Water	22.00 mg/L	200 ml	22.0 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-004	Solids, Total Suspended (TSS)	N/A		Water	10.50 mg/L	200 ml	10.5 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-005	Solids, Total Suspended (TSS)	N/A		Water	16.00 mg/L	200 ml	16.0 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-006	Solids, Total Suspended (TSS)	N/A		Water	22.00 mg/L	200 ml	22.0 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
1104854-007	Solids, Total Suspended (TSS)	N/A		Water	20.00 mg/L	200 ml	20.0 mg/L	1	5.0	5.0			6/1/11 09:30	N	V
Q1105339-01	Solids, Total Suspended (TSS)	DUP	K1104854-005	Water	18.00 mg/L	200 ml	18.0 mg/L	1	5.0	5.0		1 12*	6/1/11 09:30	N	V
Q1105339-02	Solids, Total Suspended (TSS)	DUP	K1104854-007	Water	21.00 mg/L	200 ml	21.0 mg/L	1	5.0	5.0		5	6/1/11 09:30	N	V
Q1105339-03	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/1/11 09:30	N	I
Q1105339-04	Solids, Total Suspended (TSS)	LCS		Water	236.00 mg/L	50 ml	236 mg/L	1	20	20	98		6/1/11 09:30	N	I
Q1105339-05	Solids, Total Suspended (TSS)	LCS		Water	230.00 mg/L	50 ml	230 mg/L	1	20	20	96		6/1/11 09:30	N	I
Q1105339-06	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/1/11 09:30	N	I
Q1105339-07	Solids, Total Suspended (TSS)	LCS		Water	230.00 mg/L	50 ml	230 mg/L	1	20	20	96		6/1/11 09:30	N	I
Q1105339-08	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/1/11 09:30	N	I

1 Results are < 5 times MKL.
KC 6/7/11

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Work Order #.: K3812, K4829, K4842, K4845, K4854, Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0732	0.0732		0.0733	-0.0001	-0.40	<4.0
LCS	2		50	0.0842	0.0840		0.0726	0.0116	232	232
K1103812-044	3		100	0.0740	0.0741		0.0723	0.0017	17.0	17.0
K1103812-045	4		100	0.0783	0.0783		0.0725	0.0058	58.0	58.0
K1103812-049	5		50	0.0748	0.0748		0.0735	0.0013	26.0	26.0
K1103812-050	19		50	0.0760	0.0759		0.0736	0.0024	48.0	48.0
K1104829-001	20		200	0.0762	0.0762		0.0739	0.0023	11.5	11.5
K1104842-001	8		50	0.0787	0.0786		0.0739	0.0048	96.0	96.0
K1104845-001	9		200	0.0723	0.0722		0.0723	0.0000	0.00	<5.0
K1104854-001	10		200	0.0766	0.0766		0.0741	0.0025	12.5	12.5
K1104854-002	11		200	0.0757	0.0758		0.0724	0.0033	16.5	16.5
K1104854-003	12		200	0.0777	0.0777		0.0733	0.0044	22.0	22.0
K1104854-004	13		200	0.0754	0.0754		0.0733	0.0021	10.5	10.5
K1104854-005	14		200	0.0772	0.0773		0.0740	0.0032	16.0	16.0
K1104854-006	15		200	0.0795	0.0794		0.0751	0.0044	22.0	22.0
K1104854-007	16		200	0.0771	0.0771		0.0731	0.0040	20.0	20.0
K1104854-005D	17		200	0.0772	0.0772		0.0736	0.0036	18.0	18.0
K1104854-007D	18		200	0.0774	0.0774		0.0732	0.0042	21.0	21.0
LCS1	21		50	0.0844	0.0840		0.0726	0.0118	236	236
LCS2	22		50	0.0854	0.0847	0.0840	0.0739	0.0115	230	230
LCS3	23		50	0.0857	0.0857		0.0741	0.0116	232	232
LCS4	24		50	0.0825	0.0822		0.0710	0.0115	230	230

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-O T.V. = 240 % Rec =

Wt (1)	Start		Wt (2)	Start		Wt (3)	Start	
	Stop			Stop			Stop	
Wt (1)	Start	105	Wt (2)	Start 105		Wt (3)	Start	K-BALANCE #31
Temp	Stop	105	Temp	Stop 105		Temp	Stop	date time

Analyzed By: KC/JM Date Analyzed: 6/1/2011 9:30

Reviewed By: Date Reviewed: 6/8/11

Original

Work Request # (K3812) K4860, K4869, K4872, K4861, K4862, K4867, K4854

Tier: I II I V I I I V

Date Analyzed: 6-2-11

Analyst: KC - JM

Analysis: TSS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS:

Final Approved by: [signature] Date: 6/8/11

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 248506 **Method/Testcode:** SM 2540 D/TSS

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1103812-051	Solids, Total Suspended (TSS)	N/A		Water	18.00 mg/L	50 ml	20 mg/L U	1	20	20			6/2/11 02:15	N	I
1103812-052	Solids, Total Suspended (TSS)	N/A		Water	18.00 mg/L	50 ml	20 mg/L U	1	20	20			6/2/11 02:15	N	I
1104860-001	Solids, Total Suspended (TSS)	N/A		Water	24.00 mg/L	100 ml	24 mg/L	1	10	10			6/2/11 02:15	N	II
1104861-001	Solids, Total Suspended (TSS)	N/A		Water	4.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	I
1104861-002	Solids, Total Suspended (TSS)	N/A		Water	9.50 mg/L	200 ml	9.5 mg/L	1	5.0	5.0			6/2/11 02:15	N	I
1104861-003	Solids, Total Suspended (TSS)	N/A		Water	3.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	I
1104862-001	Solids, Total Suspended (TSS)	N/A		Water	44.00 mg/L	50 ml	44 mg/L	1	20	20			6/2/11 02:15	N	I
1104867-001	Solids, Total Suspended (TSS)	N/A		Water	338.00 mg/L	50 ml	338 mg/L	1	20	20			6/2/11 02:15	N	I
1104869-001	Solids, Total Suspended (TSS)	N/A		Water	1.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	I
1104869-002	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	I
1104872-001	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	Y	V
1104872-002	Solids, Total Suspended (TSS)	N/A		Water	3.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
1104872-003	Solids, Total Suspended (TSS)	N/A		Water	4.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
1104872-004	Solids, Total Suspended (TSS)	N/A		Water	7.50 mg/L	200 ml	7.5 mg/L	1	5.0	5.0			6/2/11 02:15	N	V
1104872-005	Solids, Total Suspended (TSS)	N/A		Water	11.50 mg/L	200 ml	11.5 mg/L	1	5.0	5.0			6/2/11 02:15	N	V
1104872-006	Solids, Total Suspended (TSS)	N/A		Water	5.00 mg/L	200 ml	5.0 mg/L	1	5.0	5.0			6/2/11 02:15	N	V
1104872-007	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
1104872-008	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
1104872-009	Solids, Total Suspended (TSS)	N/A		Water	7.50 mg/L	200 ml	7.5 mg/L	1	5.0	5.0			6/2/11 02:15	N	V
1104872-010	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
1104872-011	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	V
Q1105350-01	Solids, Total Suspended (TSS)	DUP	K1104872-001	Water	4.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/2/11 02:15	N	V
Q1105350-02	Solids, Total Suspended (TSS)	DUP	K1104872-007	Water	2.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/2/11 02:15	N	V
Q1105350-03	Solids, Total Suspended (TSS)	DUP	K1104861-003	Water	3.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/2/11 02:15	N	I

ndicates Final Result is not yet adjusted for Solids because it has not yet been determined.

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Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 248506 **Method/Testcode:** SM 2540 D/TSS

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
Q1105350-04	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	4.0 ~~5.0~~	~~5.0~~ ①			6/2/11 02:15	N	I
Q1105350-05	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/2/11 02:15	N	I
Q1105350-06	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	~~5.0~~	~~5.0~~			6/2/11 02:15	N	I
Q1105350-07	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/2/11 02:15	N	I
Q1105350-08	Solids, Total Suspended (TSS)	LCS		Water	234.00 mg/L	50 ml	234 mg/L	1	20	20	98		6/2/11 02:15	N	I

① MDL = PQL
4.0
KC 6/7/11

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ndicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

248506

Work Order #.: K3812, K4860, K4869, K4872, K4861, K4862, K4867, K4854

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0736	0.0735		0.0736	0.0000	0.00	<4.0
MB	2		250	0.0749	0.0749		0.0750	-0.0001	-0.40	<4.0
LCS	3		50	0.0852	0.0850		0.0736	0.0116	232	232
K1103812-051	4		50	0.0731	0.0732		0.0722	0.0009	18.0	18.0
K1103812-052	5		50	0.0742	0.0742		0.0733	0.0009	18.0	18.0
K1104860-001	6		100	0.0762	0.0763		0.0738	0.0024	24.0	24.0
K1104869-001	7		200	0.0726	0.0726		0.0723	0.0003	1.50	<5.0
K1104869-002	8		200	0.0739	0.0740		0.0738	0.0001	0.50	<5.0
K1104872-001	9		200	0.0737	0.0738		0.0728	0.0009	4.50	<5.0
K1104872-002	10		200	0.0739	0.0740		0.0733	0.0006	3.00	<5.0
K1104872-003	11		200	0.0739	0.0741		0.0731	0.0008	4.00	<5.0
K1104872-004	12		200	0.0742	0.0743		0.0727	0.0015	7.50	7.50
K1104872-005	13		200	0.0742	0.0743		0.0719	0.0023	11.5	11.5
K1104872-006	14		200	0.0742	0.0743		0.0732	0.0010	5.00	5.00
K1104872-007	15		200	0.0741	0.0742		0.0737	0.0004	2.00	<5.0
K1104872-008	16		200	0.0730	0.0730		0.0726	0.0004	2.00	<5.0
K1104872-009	17		200	0.0742	0.0742		0.0727	0.0015	7.50	7.5
K1104872-010	18		200	0.0730	0.0733		0.0726	0.0004	2.00	<5.0
K1104872-011	19		200	0.0738	0.0740		0.0729	0.0009	4.50	<5.0
K1104861-001	20		200	0.0734	0.0734		0.0726	0.0008	4.00	<5.0
K1104861-002	21		200	0.0735	0.0736		0.0716	0.0019	9.50	9.50
K1104861-003	22		200	0.0738	0.0739		0.0732	0.0006	3.00	<5.0
K1104862-001	23		50	0.0756	0.0755		0.0734	0.0022	44.0	44.0
K1104872-001D	24		200	0.0746	0.0747		0.0738	0.0008	4.00	<5.0
K1104872-007D	25		200	0.0739	0.0739		0.0734	0.0005	2.50	<5.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-O T.V. = 240 % Rec = 97/98

Wt (1)	Start	15:00	Wt (2)	Start 11:00		Wt (3)	Start	
	Stop	8:30		Stop 13:30			Stop	
Wt (1)	Start	105	Wt (2)	Start 105		Wt (3)	Start	K-BALANCE #31
Temp	Stop	105	Temp	Stop 105		Temp	Stop	date time

Analyzed By: jm / KC Date Analyzed: 6/2/2011 2:15

Reviewed By: Date Reviewed: 6/8/11

K4872-1/1d $\bar{x}$ = ND RPD = —

K4872-7/7d $\bar{x}$ = ND RPD = —

K4861-3/3d $\bar{x}$ = ND RPD = —

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	26		250	0.0728	0.0728		0.0729	-0.0001	-0.40	<4.0
LCS	27		50	0.0839	0.0839		0.0722	0.0117	234	234
K1104867-001	28		50	0.0895	0.0895		0.0726	0.0169	338	338
K1104854-004	29		200	0.0765	0.0766		0.0739	0.0026	13.0	13.0
K1104854-005	30		200	0.0765	0.0766		0.0730	0.0035	17.5	17.5
K1104854-006	31		200	0.0793	0.0794		0.0751	0.0042	21.0	21.0
K1104854-007	32		200	0.0783	0.0784		0.0733	0.0050	25.0	25.0
K1104861-003D	33		200	0.0728	0.0729		0.0722	0.0006	3.00	<5.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml)

K-Balance #31

			date	time
Analyzed By:	Smlkc	Date Analyzed:	6/2/2011	2:15
Reviewed By:		Date Reviewed:	6/8/11	

6-2-11TSS

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1104854	Convent	K1104854-001	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-002	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-003	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-004	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-005	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-006	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-007	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-MB	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-LCS1	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-LCS2	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-LCS3	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-LCS4	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-LCS5	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-005DUP	Water	SM2540D		6/1/2011		
CAS_K	K1104854	Convent	K1104854-007DUP	Water	SM2540D		6/1/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	248329	BALANCE	K-Balance-31	6/1/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1104854	Convent	6/1/2011	6/1/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	248329		

lab	labqc_samp	qc_type	comments
CAS_K	K1104854-MB	MethodBlank	
CAS_K	K1104854-LCS1	LCS	
CAS_K	K1104854-LCS2	LCS	
CAS_K	K1104854-LCS3	LCS	
CAS_K	K1104854-LCS4	LCS	
CAS_K	K1104854-LCS5	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1104854	Convent	K1104854-001	Water	SM2540D	TSS	Unfilt	1	12.5	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-002	Water	SM2540D	TSS	Unfilt	1	16.5	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-003	Water	SM2540D	TSS	Unfilt	1	22	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-004	Water	SM2540D	TSS	Unfilt	1	10.5	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-005	Water	SM2540D	TSS	Unfilt	1	16	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-006	Water	SM2540D	TSS	Unfilt	1	22	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-007	Water	SM2540D	TSS	Unfilt	1	20	mg/L		Y	5	5	5				248329	248329
CAS_K	K1104854	Convent	K1104854-005DUP	Water	SM2540D	TSS	Unfilt	2	18	mg/L		Y	5	5	5		*		248329	248329
CAS_K	K1104854	Convent	K1104854-007DUP	Water	SM2540D	TSS	Unfilt	2	21	mg/L		Y	5	5	5				248329	248329

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1104854-001	090557-01.02	SJUSL001-AS004-N	NA	6/1/2011	
CAS_K	K1104854-002	090557-01.02	SJUSL001-AS005-N	NA	6/1/2011	
CAS_K	K1104854-003	090557-01.02	SJUSL001-AS006-N	NA	6/1/2011	
CAS_K	K1104854-004	090557-01.02	SJUSL001-AS007-N	NA	6/1/2011	
CAS_K	K1104854-005	090557-01.02	SJUSL001-AS008-N	NA	6/1/2011	
CAS_K	K1104854-006	090557-01.02	SJUSL001-AS009-N	NA	6/1/2011	
CAS_K	K1104854-007	090557-01.02	SJUSL001-AS009-D	NA	6/1/2011	
CAS_K	K1104854-MB			K1104854-MB	NA	NA
CAS_K	K1104854-LCS1			K1104854-LCS1	NA	NA
CAS_K	K1104854-LCS2			K1104854-LCS2	NA	NA
CAS_K	K1104854-LCS3			K1104854-LCS3	NA	NA
CAS_K	K1104854-LCS4			K1104854-LCS4	NA	NA
CAS_K	K1104854-LCS5			K1104854-LCS5	NA	NA
CAS_K	K1104854-005DUP	090557-01.02	SJUSL001-AS008-N	NA	6/1/2011	
CAS_K	K1104854-007DUP	090557-01.02	SJUSL001-AS009-D	NA	6/1/2011	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	248329	K1104854-LCS1	TSS	Unfilt	L	240	232	80	115	mg/L	
CAS_K	248329	K1104854-LCS2	TSS	Unfilt	L	240	236	80	115	mg/L	
CAS_K	248329	K1104854-LCS3	TSS	Unfilt	L	240	230	80	115	mg/L	
CAS_K	248329	K1104854-LCS4	TSS	Unfilt	L	240	232	80	115	mg/L	
CAS_K	248329	K1104854-LCS5	TSS	Unfilt	L	240	230	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	248329	K1104854-MB	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 28, 2011 Analytical Report for Service Request No: K1104871

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Bed Property Study/090557-01.02

Dear Craig:

Enclosed are the results of the sample submitted to our laboratory on June 01, 2011. For your reference, these analyses have been assigned our service request number K1104871.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Received:**	06/01/11
Sample Matrix:	Soil		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One soil sample was received for analysis at Columbia Analytical Services on 06/01/11. The sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by _____ **Date** 06/28/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K4871

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Bed Property Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	GRAIN SIZE (ASTM D422)	SPECIFIC GRAVITY (ASTM D854)	MOISTURE CONTENT (ASTM D2216)		REMARKS
SJBP069-GR2-N	5/17/2011	17:05		Soil	1													X	X	X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 5/25/11 13:57	Signature:	Date/Time: 6/1/11 1010	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name: Brad Tobin	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Greg

Client / Project: Anchor Service Request *K11* 4871

Received: 6-1-11 Opened: 6-1-11 By: BT Unloaded: 6-1-11 By: BT

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? _____

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
* N/A	-	-		1Z3E6849033400 7621	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* popcorn
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: * NO cooling agent in box

Page 1 *of* _____

Total Solids

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Results

Client: Integral Consulting, Incorporated
Project: San Jacinto River Be/090557-01.02
Sample Matrix: Soil

Service Request: K1104871

Total Solids

Prep Method: NONE
Analysis Method: 160.3M
Test Notes:

Units: PERCENT
Basis: Wet

Sample Name	Lab Code	Date Collected	Date Received	Date Analyzed	Result	Result Notes
SJBP069-GR2-N	K1104871-001	05/17/2011	06/01/2011	06/02/2011	76.3	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Be/090557-01.02	**Date Collected:**	05/17/2011
Sample Matrix:	Soil	**Date Received:**	06/01/2011
		Date Analyzed:	06/02/2011

Duplicate Sample Summary

Total Solids

Prep Method:	NONE	**Units:**	PERCENT
Analysis Method:	160.3M	**Basis:**	Wet
Test Notes:			

Sample Name	Lab Code	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
SJBP069-GR2-N	K1104871-001	76.3	76.6	76.5	<1	

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/2011
Sample Matrix:	Soil	**Date Received:**	6/1/2011

Water Content

Prep Method:	NONE	Units:	PERCENT
Analysis Method:	ASTM D2216	Basis:	WET
Test Notes:			

Sample Name	Lab Code	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Result	Result Notes
SJBP069-GR2-N	K1104871-001	-		1	NA	6/2/2011	31.0	

1A/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/2011
Sample Matrix:	Soil	**Date Received:**	6/1/2011
		Date Extracted:	NA
		Date Analyzed:	6/2/2011

Duplicate Summary
Inorganic Parameters

Sample Name:	SJBP069-GR2-N	Units:	PERCENT
Lab Code:	K1104871-001DUP	Basis:	WET
Test Notes:			

Analyte	Prep Method	Analysis Method	MRL	Sample Result	Duplicate Sample Result	Average	Relative Percent Difference	Result Notes
Water Content	NONE	ASTM D2216	-	31.0	30.5	31	2	

DUP/020597p

COLUMBIA ANALYTICAL SERVICES, INC.

EPA Method 160.3 - Total Solids

Group ID:	KWG1104972	Run # 248545		**Reviewed By:**	BNK
Analyst:	ABradbur				
Date Acquired:	06/02/2011 00:00	**Oven TempStart:**	105 DEG C	**Date Reviewed:**	6/6/11
Date Completed:	06/03/2011 00:00	**Oven TempEnd:**	105 DEG C		

#	Lab Code	Client ID	Matrix	Tare	Tare+Wet	Tare+Dry	% Solids	QC Ref Sample	Comments
1	J1102259-005	OBOD-SS-A-MAY-11	SOIL	1.30g	11.42g	11.41g	99.9		
2	J1102259-006	OBOD-SS-B-MAY-11	SOIL	1.32g	11.47g	11.43g	99.6		
3	J1102259-007	OBOD-SS-C-MAY-11	SOIL	1.32g	11.46g	11.42g	99.6		
4	J1102259-008	OBOD-SS-D-MAY-11	SOIL	1.31g	11.47g	11.42g	99.5		
5	J1102259-009	OBOD-SS-E-MAY-11	SOIL	1.30g	11.39g	11.35g	99.6		
6	J1102259-010	OBOD-SS-F-MAY-11	SOIL	1.30g	11.42g	11.36g	99.4		
7	J1102260-001	OBOD-SS-EAST-MAY11	SOIL	1.32g	11.43g	11.40g	99.7		
8	J1102260-002	OBOD-SS-SOUTH-MAY11	SOIL	1.30g	11.47g	11.43g	99.6		
9	J1102260-003	OBOD-SS-WEST-MAY11	SOIL	1.31g	11.48g	11.46g	99.8		
10	K1104719-001	SPC-1-052411	SEDIMENT	1.30g	12.30g	10.04g	79.5		
11	K1104719-002	SPC-2-052411	SEDIMENT	1.30g	11.84g	9.66g	79.3		
12	K1104719-003	SPC-3-052411	SEDIMENT	1.31g	13.17g	9.34g	67.7		
13	K1104721-001	SW1B-SD-052411	SEDIMENT	1.31g	12.85g	8.03g	58.2		
14	K1104721-002	SW2B-SD-052411	SEDIMENT	1.31g	20.39g	2.97g	8.70		
15	K1104721-003	SW3B-SD-052411	SEDIMENT	1.31g	24.69g	5.03g	15.9		
16	K1104721-004	SW-FD-052411	SEDIMENT	1.31g	14.50g	3.30g	15.1		
17	K1104734-001	AA-2	SLUDGE, SOLID	1.31g	12.15g	7.64g	58.4		
18	K1104735-006	Wood Chips	MISC. SOLID	1.30g	10.33g	9.59g	91.8		
19	K1104735-007	Secondary Sludge	MISC. SOLID	1.29g	13.34g	2.93g	13.6		
20	K1104735-008	Pulp Recycle Slurry	MISC. SOLID	1.29g	16.88g	2.20g	5.84		
21	K1104735-009	Corrugating Medium	MISC. SOLID	1.29g	5.19g	4.91g	92.8		
22	K1104740-001	Location 1 (0-1)	SEDIMENT	1.31g	12.79g	10.72g	82.0		
23	K1104740-002	Location 1 (1-2)	SEDIMENT	1.30g	12.86g	10.61g	80.5		

15

Group ID:	KWG1104972	248545		**Reviewed By:**	BDK
Analyst:	ABradbur				
Date Acquired:	06/02/2011 00:00	**Oven TempStart:**	105 DEG C	**Date Reviewed:**	6/6/11
Date Completed:	06/03/2011 00:00	**Oven TempEnd:**	105 DEG C		

#	Lab Code	Client ID	Matrix	Tare	Tare+Wet	Tare+Dry	% Solids	QC Ref Sample	Comments
24	K1104740-003	Location 1 (2-3)	SEDIMENT	1.29g	12.73g	9.86g	74.9		
25	K1104740-004	Location 1 (3-4)	SEDIMENT	1.30g	12.91g	8.92g	65.6		
26	K1104740-005	Location 1 (4-5)	SEDIMENT	1.31g	13.44g	9.00g	63.4		
27	K1104740-006	Location 1 (5-6)	SEDIMENT	1.30g	12.88g	8.23g	59.8		
28	K1104740-007	Location 1 (6-7)	SEDIMENT	1.30g	12.95g	8.59g	62.6		
29	K1104740-008	Location 1 (7-8)	SEDIMENT	1.31g	12.10g	8.58g	67.4		
30	K1104740-009	Location 2 (0-1)	SEDIMENT	1.30g	12.68g	10.88g	84.2		
31	K1104740-010	Location 2 (1-2)	SEDIMENT	1.31g	12.77g	11.01g	84.6		
32	K1104740-011	Location 3 (0-1)	SEDIMENT	1.30g	13.11g	11.01g	82.2		
33	K1104740-012	Location 3 (1-2)	SEDIMENT	1.30g	13.02g	10.85g	81.5		
34	K1104740-013	Location 4 (0-1)	SEDIMENT	1.30g	12.10g	9.83g	79.0		
35	K1104740-014	Location 4 (1-2)	SEDIMENT	1.29g	13.41g	10.99g	80.0		
36	K1104740-015	Location 4 (2-3)	SEDIMENT	1.29g	13.16g	10.52g	77.8		
37	K1104740-016	Location 4 (3-4)	SEDIMENT	1.29g	13.54g	10.26g	73.2		
38	K1104740-017	Location 4 (4-5)	SEDIMENT	1.31g	13.01g	9.68g	71.5		
39	K1104764-001	RC Belt Cake	SOIL	1.30g	12.28g	3.00g	15.5		
40	K1104800-001	SD-105-052511-1	SEDIMENT	1.30g	12.61g	8.49g	63.6		
41	K1104800-002	SD-104-052511-1	SEDIMENT	1.30g	13.11g	7.67g	53.9		
42	K1104800-003	SD-104-052511-3	SEDIMENT	1.29g	12.62g	7.14g	51.6		
43	K1104800-004	SD-102-052511-1	SEDIMENT	1.31g	13.44g	9.13g	64.5		
44	K1104800-005	SD-101-052611-1	SEDIMENT	1.31g	20.49g	15.40g	73.5		
45	K1104800-006	SD-101-052611-3	SEDIMENT	1.32g	14.92g	12.31g	80.8		
46	K1104800-007	SD-100-052611-1	SEDIMENT	1.32g	14.69g	5.51g	31.3		
47	K1104800-008	SD-100-052611-3	SEDIMENT	1.31g	11.62g	4.86g	34.4		
48	K1104800-009	SD-100-052611-2	SEDIMENT	1.32g	13.06g	5.24g	33.4		
49	K1104800-010	SD-100-052611-32	SEDIMENT	1.31g	12.16g	5.30g	36.8		
50	K1104810-001	1105274-01	SEDIMENT	1.32g	14.98g	5.69g	32.0		
51	K1104810-002	1105274-02	SEDIMENT	1.31g	14.37g	11.45g	77.6		
52	K1104810-003	1105274-03	SEDIMENT	1.31g	13.93g	11.65g	81.9		
53	K1104825-001	052311_301	SOIL	1.32g	12.35g	11.08g	88.5		
54	K1104838-002	Somat	SOIL	1.31g	13.26g	2.38g	8.95		

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Group ID:	KWG1104972	248545		**Reviewed By:**	BDK
Analyst:	ABradbur				
Date Acquired:	06/02/2011 00:00	**Oven TempStart:**	105 DEG C	**Date Reviewed:**	6/6/11
Date Completed:	06/03/2011 00:00	**Oven TempEnd:**	105 DEG C		

#	Lab Code	Client ID	Matrix	Tare	Tare+Wet	Tare+Dry	% Solids	QC Ref Sample	Comments
55	K1104847-001	CAT-02V	SOIL	1.31g	5.78g	5.72g	98.7		
56	K1104847-002	PIT-DET-03V	SOIL	1.32g	5.73g	5.73g	100		
57	K1104847-003	SWN-03V	SOIL	1.32g	5.55g	5.55g	100		
58	K1104871-001	SJBP069-GR2-N	SOIL	1.31g	14.36g	11.27g	76.3		
59	KWG1104972-14	Duplicate Client Sample	SEDIMENT	1.29g	13.01g	9.08g	66.5	K1104719-003	$\bar{x}$ = 67.1 RPD = 2
60	KWG1104972-15	Duplicate Client Sample	SEDIMENT	1.29g	12.49g	7.79g	58.0	K1104721-001	$\bar{x}$ = 58.1 RPD < 1
61	KWG1104972-16	Duplicate Client Sample	SLUDGE, SOLID	1.31g	12.27g	7.69g	58.2	K1104734-001	$\bar{x}$ = 58.3 RPD < 1
62	KWG1104972-17	Duplicate Client Sample	MISC. SOLID	1.30g	10.42g	9.73g	92.4	K1104735-006	$\bar{x}$ = 92.1 RPD < 1
63	KWG1104972-18	Duplicate Client Sample	SEDIMENT	1.30g	13.27g	11.15g	82.3	K1104740-011	$\bar{x}$ = 82.3 RPD < 1
64	KWG1104972-19	Duplicate Client Sample	SOIL	1.29g	12.17g	2.99g	15.6	K1104764-001	$\bar{x}$ = 15.6 RPD < 1
65	KWG1104972-20	Duplicate Client Sample	SEDIMENT	1.31g	12.08g	8.08g	62.9	K1104800-001	$\bar{x}$ = 63.3 RPD = 1
66	KWG1104972-21	Duplicate Client Sample	SEDIMENT	1.31g	13.58g	5.57g	34.7	K1104810-001	$\bar{x}$ = 33.4 RPD = 8
67	KWG1104972-22	Duplicate Client Sample	SOIL	1.31g	14.05g	12.67g	89.2	K1104825-001	$\bar{x}$ = 88.9 RPD < 1
68	KWG1104972-23	Duplicate Client Sample	SOIL	1.31g	13.99g	2.44g	8.91	K1104838-002	$\bar{x}$ = 8.93 RPD < 1
69	KWG1104972-24	Duplicate Client Sample	SOIL	1.29g	6.29g	6.29g	100	K1104847-003	$\bar{x}$ = 100 RPD < 1
70	KWG1104972-26	Duplicate Client Sample	SOIL	1.30g	15.80g	12.41g	76.6	K1104871-001	$\bar{x}$ = 76.5 RPD < 1
71	KWG1104972-28	Duplicate Client Sample	SOIL	1.31g	11.51g	11.47g	99.6	J1102260-002	$\bar{x}$ = 99.6 RPD < 1
72	KWG1104972-29	Duplicate Client Sample	SEDIMENT	1.29g	12.77g	10.51g	80.3	K1104740-002	$\bar{x}$ = 80.4 RPD < 1

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COLUMBIA ANALYTICAL SERVICES, INC.

Service Request #: K1104871 Method: ASTM D2216

Analysis For: Water Content

Lab Code	Tare (g)	Tare + Wet Wt (g)	Tare + Dry Wt (g)	Water Mass (g)	Solid Mass (g)	% Water Content
K1104871-001	1.31	14.36	11.27	3.09	9.96	31.0%
K1104871-001 DUP	1.3	15.80	12.41	3.39	11.11	30.5%

Oven Temp : 105 Time In : 6/2/11 16:30 Time Out : 6/3/11 9:30

Comments:

K1104871-1/d $\bar{x}$ = 30.8 RPD = 2

Analyst:	Adam Bradbury	Date:	6/2/2011
Reviewed By:		Date:	

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/11
Sample Matrix:	Soil	**Date Received:**	6/ 1/11
		Units:	NONE
Analysis Method:	ASTM D854	**Basis:**	As Received

Specific Gravity

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJBP069-GR2-N	K1104871-001	**1.85**		-		1	NA	6/15/11	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/11
Sample Matrix:	Soil	**Date Received:**	6/1/11
		Date Analyzed:	6/15/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SJBP069-GR2-N	**Units:**	NONE
Lab Code:	K1104871-001	**Basis:**	As Received

Analyte Name	Method	MRL	MDL	Sample Result	SJBP069-GR2-NDUP Duplicate Sample K1104871-001DUP Result	Average	RPD	RPD Limit
Specific Gravity	ASTM D854	-		1.85	1.82	1.84	2	20

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/2011
Sample Matrix:	Soil	**Date Received:**	6/1/2011
		Date Analyzed:	6/16/2011

Particle Size Determination
Puget Sound Estuary Program Protocol

Sample Name: SJBP069-GR2-N
Lab Code: K1104871-001

Sand Fraction:	Dry Weight (Grams)	54.5177
Sand Fraction:	Weight Recovered (Grams)	54.2405
Sand Fraction:	Percent Recovery	99.5

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel (>2.00 mm)	<-1 Ø	0.0000	0.00
Sand, Very Coarse (1.00 mm to 2.00 mm)	-1 to 0 Ø	0.0491	0.08
Sand, Coarse (0.500 mm to 1.00 mm)	0 to 1 Ø	0.3190	0.54
Sand, Medium (0.250 mm to 0.500 mm)	1 to 2 Ø	6.8253	11.6
Sand, Fine (0.125 mm to 0.250 mm)	2 to 3 Ø	32.0736	54.7
Sand, Very Fine (0.0625 mm to 0.125 mm)	3 to 4 Ø	14.5000	24.7
Silt (0.0039 mm to 0.0625 mm)	4 to 8 Ø	1.6650	2.84
Clay (< 0.0039 mm)	> 8 Ø	1.8200	3.10
	Total	57.2520	97.6

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/2011
Sample Matrix:	Soil	**Date Received:**	6/1/2011
		Date Analyzed:	6/16/2011

Particle Size Determination
Puget Sound Estuary Program Protocol

Sample Name: SJBP069-GR2-N
Lab Code: K1104871-001DUP

Sand Fraction: Dry Weight (Grams)	51.9313
Sand Fraction: Weight Recovered (Grams)	51.2465
Sand Fraction: Percent Recovery	98.7

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel (>2.00 mm)	<-1 Ø	0.0000	0.00
Sand, Very Coarse (1.00 mm to 2.00 mm)	-1 to 0 Ø	0.0143	0.03
Sand, Coarse (0.500 mm to 1.00 mm)	0 to 1 Ø	0.3057	0.56
Sand, Medium (0.250 mm to 0.500 mm)	1 to 2 Ø	6.4227	11.8
Sand, Fine (0.125 mm to 0.250 mm)	2 to 3 Ø	34.7093	63.7
Sand, Very Fine (0.0625 mm to 0.125 mm)	3 to 4 Ø	9.4055	17.3
Silt (0.0039 mm to 0.0625 mm)	4 to 8 Ø	1.4350	2.63
Clay (< 0.0039 mm)	> 8 Ø	1.7550	3.22
	Total	54.0475	99.1

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1104871
Project:	San Jacinto River Bed Property Study/090557-01.02	**Date Collected:**	5/17/2011
Sample Matrix:	Soil	**Date Received:**	6/1/2011
		Date Analyzed:	6/16/2011

Particle Size Determination
Puget Sound Estuary Program Protocol

Sample Name: SJBP069-GR2-N
Lab Code: K1104871-001TRP

Sand Fraction:	Dry Weight (Grams)	56.1826
Sand Fraction:	Weight Recovered (Grams)	56.0478
Sand Fraction:	Percent Recovery	99.8

Description	Phi Size	Dry Weight (Grams)	Percent of Total Weight Recovered
Gravel (>2.00 mm)	<-1 Ø	0.0000	0.00
Sand, Very Coarse (1.00 mm to 2.00 mm)	-1 to 0 Ø	0.0321	0.06
Sand, Coarse (0.500 mm to 1.00 mm)	0 to 1 Ø	0.3249	0.57
Sand, Medium (0.250 mm to 0.500 mm)	1 to 2 Ø	7.1696	12.6
Sand, Fine (0.125 mm to 0.250 mm)	2 to 3 Ø	34.1472	59.8
Sand, Very Fine (0.0625 mm to 0.125 mm)	3 to 4 Ø	13.9031	24.3
Silt (0.0039 mm to 0.0625 mm)	4 to 8 Ø	1.4100	2.47
Clay (< 0.0039 mm)	> 8 Ø	1.8000	3.15
	Total	58.7869	103

Work Request # Original ( ) J1102261, R1104871

Tier: T V

Date Analyzed: 06/15/11

Analyst: SR

Analysis: ASTM D 854/Sp Gr.

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? yes/no/NA
2. Holding times met for all analyses and for all samples? yes/no/NA
3. Are calculations correct? yes/no/NA
4. Is the reporting basis correct? (Dry Weight) yes/no/NA
5. All quality control criteria met? yes/no/NA
   a. Is the calibration curve correlation coefficient ≥ 0.995? yes/no/NA
   b. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
   c. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
   d. Are results for methods blanks all ND? yes/no/NA
   e. Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA
   f. Are all exceptions explained? yes/no/NA
6. Are all service requests that apply attached? yes/no/NA
7. Are all samples labelled correctly? yes/no/NA
8. Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample) yes/no/NA
9. Are detection limits and units reported correctly? yes/no/NA
10. Are proper Analysis/Extraction stickers included on report? yes/no/NA
11. Is the unused space on the benchsheet crossed out? yes/no/NA
12. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS:

Final Approved by: BOK Date: 6/15/11 DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-05 **Analyst:** SRISTESKA **Analysis Lot:** 250137 **Method/Testcode:** ASTM D854/Sp Grav

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1102261-001	Specific Gravity	N/A		Ash	1.47 NONE	g	1.47 NONE	1		0.00				N	I
1104871-001	Specific Gravity	N/A		Soil	1.85 NONE	g	1.85 NONE	1		0.00				N	V
Q1105732-01	Specific Gravity	DUP	K1104871-001	Soil	1.82 NONE	g	1.82 NONE	1		0.00		2		N	V

BDK

6/15/11

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indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Columbia Analytical Services Inc.

Service Request #: J1102261-K1104871 Method: ASTM D 854-83

Analysis For: Specific Gravity Matrix: Soil / Solid

Sample Number	Tare	Wet Weight (Wo)	Water Weight (Wa)	Sample Weight (Wb)	T (C)	Specific Gravity
J1102261-001	45.6135	2.3893	94.5740	95.3418	22.0	1.47
K1104871-001	45.6135	2.0537	94.5740	95.5168	22.0	1.85
K1104871-001D	45.6135	2.2506	94.5740	95.5870	22.0	1.82
					22.0	#DIV/0!
					22.0	#DIV/0!
					22.0	#DIV/0!
					22.0	#DIV/0!
					22.0	#DIV/0!

Calculation : $\frac{Wo}{[Wo + (Wa-Wb)]}$

Wo = Wet Weight (Sample)
Wa = Water Weight
Wb = Sample + Water Weight

Comments:

Analyzed By:	SR	Date:	6/15/11
Reviewed By:	BDK	Date:	6/15/11

J1102261 PIC.06.15.11.SR.xls

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Method: PSEP Particle Size
Puget Sound Protocol

Service Request #: K1104871
Sample #: K1104871-001

Client:	Integral Consulting, Incorporated
Project:	San Jacinto River Bed Property Study/090557-01.02
Sample Matrix:	Soil

Sample Name:	SJBP069-GR2-N
Date Collected:	5/17/2011
Date Received:	6/1/2011
Date Analyzed:	6/16/2011

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 2.00 mm (g)	10	0.0000	0.0000
V.C. Sand, 1.00 mm (g)	18	0.0491	0.0644
C. Sand, 0.500 mm (g)	35	0.3190	0.4181
M. Sand, 0.250 mm (g)	60	6.8253	8.9453
F. Sand, 0.125 mm (g)	120	32.0736	42.0362
V.F. Sand, 0.0625 mm (g)	230	14.5000	19.0039
S/C <0.0625 mm (g)	Pan	0.4735	0.6206

Total (g) Recov'd	54.2405
Total (%) Recov'd	99.5

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	158.7129
Grams Beaker (Tare)	104.1952
GramsGravel/Sand	54.5177

I. Sample Preparation

Grams As Received Sample	76.8702
Percent (%) Solids	76.3
Grams Oven Dried Sample	58.6520

III. Determination of Silt/Clay Fraction

Temperature: 21 Time Start: 08:00AM Time Finish: 09:59AM

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	30.9475	40.6682
Grams of Tare	30.8762	40.6302
Grams of Dispersant Correction	0.0016	0.0016
Grams of Sample	0.0697	0.0364
Total Grams Sample X 50	3.4850	1.8200

Analyst: SR Date: 6/13/2011
Reviewed by: RDK Date: 6/20/11

K1104871WET.SR1

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Method: PSEP Particle Size
Puget Sound Protocol

Service Request #: K1104871
Sample #: K1104871-001DUP

Client:	Integral Consulting, Incorporated
Project:	San Jacinto River Bed Property Study/090557-01.02
Sample Matrix:	Soil

Sample Name:	SJBP069-GR2-N
Date Collected:	5/17/2011
Date Received:	6/1/2011
Date Analyzed:	6/16/2011

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 2.00 mm (g)	10	0.0000	0.0000
V.C. Sand, 1.00 mm (g)	18	0.0143	0.0187
C. Sand, 0.500 mm (g)	35	0.3057	0.4007
M. Sand, 0.250 mm (g)	60	6.4227	8.4177
F. Sand, 0.125 mm (g)	120	34.7093	45.4906
V.F. Sand, 0.0625 mm (g)	230	9.4055	12.3270
S/C <0.0625 mm (g)	Pan	0.3890	0.5098

Total (g) Recov'd	51.2465
Total (%) Recov'd	98.7

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	155.2354
Grams Beaker (Tare)	103.3041
GramsGravel/Sand	51.9313

I. Sample Preparation

Grams As Received Sample	71.4468
Percent (%) Solids	76.3
Grams Oven Dried Sample	54.5139

III. Determination of Silt/Clay Fraction

Temperature: 21 Time Start: 08:00AM Time Finish: 09:59AM

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	40.4439	28.4646
Grams of Tare	40.3785	28.4279
Grams of Dispersant Correction	0.0016	0.0016
Grams of Sample	0.0638	0.0351
Total Grams Sample X 50	3.1900	1.7550

Analyst: SR Date: 6/13/2011
Reviewed by: BDC Date: 6/20/11

K1104871WET.SR1

COLUMBIA ANALYTICAL SERVICES, INC.

1317 South 13th Avenue
Kelso, Wa 98626

Method: PSEP Particle Size
Puget Sound Protocol

Service Request #: K1104871
Sample #: K1104871-001TRP

Client:	Integral Consulting, Incorporated
Project:	San Jacinto River Bed Property Study/090557-01.02
Sample Matrix:	Soil

Sample Name:	SJBP069-GR2-N
Date Collected:	5/17/2011
Date Received:	6/1/2011
Date Analyzed:	6/16/2011

I. Sieving Operation	Sieve #	Weight (g)	As Rec'd (g)
Gravel 2.00 mm (g)	10	0.0000	0.0000
V.C. Sand, 1.00 mm (g)	18	0.0321	0.0421
C. Sand, 0.500 mm (g)	35	0.3249	0.4258
M. Sand, 0.250 mm (g)	60	7.1696	9.3966
F. Sand, 0.125 mm (g)	120	34.1472	44.7539
V.F. Sand, 0.0625 mm (g)	230	13.9031	18.2216
S/C <0.0625 mm (g)	Pan	0.4709	0.6172

Total (g) Recov'd	56.0478
Total (%) Recov'd	99.8

II. Dry Sieving of Gravel/Sand

Grams Gravel/Sand & Beaker	162.2904
Grams Beaker (Tare)	106.1078
GramsGravel/Sand	56.1826

I. Sample Preparation

Grams As Received Sample	74.8689
Percent (%) Solids	76.3
Grams Oven Dried Sample	57.1250

III. Determination of Silt/Clay Fraction

Temperature: 21 Time Start: 08:00AM Time Finish: 09:59AM

	Silt/Clay Fraction	Clay Fraction
Total Volume of Sample (mls)	1000	1000
Amount of Dispersant	10	10
Volume of Aliquot (mls)	20	20
Grams Sample, Dispersant & Tare	29.6938	30.8162
Grams of Tare	29.6280	30.7786
Grams of Dispersant Correction	0.0016	0.0016
Grams of Sample	0.0642	0.0360
Total Grams Sample X 50	3.2100	1.8000

Analyst: SR Date: 6/13/2011
Reviewed by: BDK Date: 6/20/11

K1104871WET.SR1

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
EPA_160.3	Residue, Total, Gravimetric, Dried at 103-105 Deg-C, EPA160.3				EPA_160.3
D2216	Water Content				D2216
D854	Specific Gravity				D854
PSEP	PSEP				PSEP

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1104871	Convent	K1104871-001	Soil	EPA_160.3		6/2/2011		
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	EPA_160.3		6/2/2011		
CAS_K	K1104871	Convent	K1104871-001	Soil	D2216		6/2/2011		
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	D2216		6/2/2011		
CAS_K	K1104871	Convent	K1104871-001	Soil	D854		6/15/2011		
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	D854		6/15/2011		
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP		6/16/2011		
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP		6/16/2011		
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP		6/16/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	KWG1104972	GRAV	OVEN1	6/2/2011
CAS_K	1104871	D2216		6/2/2011
CAS_K	250137	D854	K-Balance-05	6/15/2011
CAS_K	K1104871	GC	NA	6/16/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1104871	Convent	6/2/2011	6/2/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	KWG1104972		
CAS_K	1104871		
CAS_K	250137		
CAS_K	K1104871		

lab	labqc_samp	qc_type	comments

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1104871	Convent	K1104871-001	Soil	EPA_160.3	Solids	WetWt	1	76.3	percent		Y							KWG1104972	KWG1104972
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	EPA_160.3	Solids	WetWt	2	76.6	percent		Y							KWG1104972	KWG1104972
CAS_K	K1104871	Convent	K1104871-001	Soil	D2216	Water Content	WetWt	1	31	percent		Y							1104871	1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	D2216	Water Content	WetWt	2	30.5	percent		Y							1104871	1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	D854	Specific Gravity	WetWt	1	1.85	Unk		Y							250137	250137
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	D854	Specific Gravity	WetWt	2	1.82	Unk		Y							250137	250137
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	Gravel	DryWt	1	0	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	VCoarseSand	DryWt	1	0.08	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	CoarseSand	DryWt	1	0.54	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	Med. Sand	DryWt	1	11.6	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	Fine_Sand	DryWt	1	54.7	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	VeryFineSand	DryWt	1	24.7	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	Silt	DryWt	1	2.84	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001	Soil	PSEP	Clay	DryWt	1	3.1	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	Gravel	DryWt	2	0	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	VCoarseSand	DryWt	2	0.03	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	CoarseSand	DryWt	2	0.56	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	Med. Sand	DryWt	2	11.8	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	Fine_Sand	DryWt	2	63.7	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	VeryFineSand	DryWt	2	17.3	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	Silt	DryWt	2	2.63	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001DUP	Soil	PSEP	Clay	DryWt	2	3.22	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	Gravel	DryWt	1	0	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	VCoarseSand	DryWt	1	0.06	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	CoarseSand	DryWt	1	0.57	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	Med. Sand	DryWt	1	12.6	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	Fine_Sand	DryWt	1	59.8	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	VeryFineSand	DryWt	1	24.3	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	Silt	DryWt	1	2.47	percent		Y							K1104871	K1104871
CAS_K	K1104871	Convent	K1104871-001TRP	Soil	PSEP	Clay	DryWt	1	3.15	percent		Y							K1104871	K1104871

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1104871-001	090557-01.02	SJBP069-GR2-N	NA	6/1/2011	
CAS_K	K1104871-001DUP	090557-01.02	SJBP069-GR2-N	NA	6/1/2011	
CAS_K	K1104871-001TRP	090557-01.02	SJBP069-GR2-N	NA	6/1/2011	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services INC
1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 20, 2011 Analytical Report for Service Request No: K1105162

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 09, 2011. For your reference, these analyses have been assigned our service request number K1105162.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/lg

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/09/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 06/09/11. Except as noted on the cooler receipt and preservation form included in this data package the samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Suspended Solids by Standard Method 2540 D:
Sample SJUSL001-AS010-N was received past holding time remaining. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Suspended Solids in sample Batch QC was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

Approved by Gregory Galatz **Date** 6/23/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K1105162

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TPPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS010-N	6/1/2011	22:14		Water	1															X				
SJUSL001-AS011-N	6/3/2011	10:06		Water	1															X				
SJUSL001-AS012-N	6/4/2011	22:06		Water	1															X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 6/6/11 14:24	Signature:	Date/Time:	Signature:	Date/Time:	Signature: SHOPKINS	Date/Time: 6/9/11 1030
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name:	Firm:	Printed Name:	Firm:	Printed Name:	Firm: CAS

RCOC #1 03/10

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Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Greg

Client / Project: Integral Service Request *K11* 5162

Received: 6/9/11 Opened: 6/9/11 By: SDN Unloaded: 6/9/11 By: SDN

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, front

   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
14.9	16.2	281		1Z 3E4 849 12 3350 9529	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* - melted *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
ALL		X								

SHORT HOLD TIME

Notes, Discrepancies, & Resolutions:

Ice Melted

Page 1 *of* _____

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/ 1/11 - 6/ 4/11
Sample Matrix:	Water	**Date Received:**	6/ 9/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS010-N	K1105162-001	**16.0**		5.0	5.0	1	NA	6/9/11 19:00	*
SJUSL001-AS011-N	K1105162-002	**15.0**		5.0	5.0	1	NA	6/9/11 19:00	
SJUSL001-AS012-N	K1105162-003	**13.0**		5.0	5.0	1	NA	6/9/11 19:00	
Method Blank	K1105162-MB1	ND	U	5.0	5.0	1	NA	6/9/11 19:00	
Method Blank	K1105162-MB2	ND	U	5.0	5.0	1	NA	6/9/11 19:00	
Method Blank	K1105162-MB3	ND	U	5.0	5.0	1	NA	6/9/11 19:00	
Method Blank	K1105162-MB4	ND	U	5.0	5.0	1	NA	6/9/11 19:00	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105103-002	**Basis:**	NA

					Batch QCDUP **Duplicate Sample** K1105103-002DUP1			
Analyte Name	**Method**	**MRL**	**MDL**	**Sample Result**	**Result**	**Average**	**RPD**	**RPD Limit**
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	ND U	ND U	NC	NC	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105151-012	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105151-012DUP2 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	ND U	ND U	NC	NC	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105192-006	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105192-006DUP3 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	5.0	5.5	5.25	10	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105231-001	**Basis:**	NA

					Batch QCDUP **Duplicate Sample** K1105231-001DUP4				
Analyte Name	**Method**	**MRL**	**MDL**	**Sample Result**	**Result**	**Average**	**RPD**		**RPD Limit**
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	61.0	71.5	66.3	16	*	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting. Incorporated	**Service Request:**	K1105162
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/ 9/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105231-009	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105231-009DUP5 Result	Average	RPD	RPD Limit
Solids. Total Suspended (TSS)	SM 2540 D	5.0	5.0	26.5	27.0	26.8	2	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105162
Date Analyzed: 6/ 9/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105162-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	232	240	97	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105162
Date Analyzed: 6/ 9/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105162-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	236	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Work Request # Original (K1104862), 5019, 5071, 5072, 5103, 5151, 5153, 5162, 5192, 5231,

Tier: I, IV, I, I, V, V, II, V, V, V

Date Analyzed: 6/9/11

Analyst: JM

R249630

Analysis: TSS/SM 2540

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.		Is the method name and number correct and appropriate?	yes/no/NA
2.		Holding times met for all analyses and for all samples?	yes/no/NA
3.		Are calculations correct?	yes/no/NA
4.		Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.		All quality control criteria met?	yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.		Are all service requests that apply attached?	yes/no/NA
7.		Are all samples labelled correctly?	yes/no/NA
8.		Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)	yes/no/NA
9.		Are detection limits and units reported correctly?	yes/no/NA
10.		Are proper Analysis/Extraction stickers included on report?	yes/no/NA
11.		Is the unused space on the benchsheet crossed out?	yes/no/NA
12.		Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

12. K1105153 due 6/13

K1105231-001 & 001DUP, High RPD @ 16%
will be retested out of hold for confirmation

Final Approved by: BDK Date: 6/14/11

DQREPORT

Analytical Results Summary

ıstrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 249630 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
104862-016	Solids, Total Suspended (TSS)	N/A		Water	48.00 mg/L	50 ml	48 mg/L	1	20	20			6/9/11 19:00	N	I
104862-017	Solids, Total Suspended (TSS)	N/A		Water	48.00 mg/L	50 ml	48 mg/L	1	20	20			6/9/11 19:00	N	I
104862-019	Solids, Total Suspended (TSS)	N/A		Water	34.00 mg/L	50 ml	34 mg/L	1	20	20			6/9/11 19:00	N	I
105019-001	Solids, Total Suspended (TSS)	N/A		Water	70.00 mg/L	10 ml	100 mg/L U	1	100	100			6/9/11 19:00	N	IV
105071-001	Solids, Total Suspended (TSS)	N/A		Water	208.00 mg/L	25 ml	208 mg/L	1	40	40			6/9/11 19:00	N	I
105071-002	Solids, Total Suspended (TSS)	N/A		Water	224.00 mg/L	25 ml	224 mg/L	1	40	40			6/9/11 19:00	N	I
1105072-001	Solids, Total Suspended (TSS)	N/A		Water	168.00 mg/L	25 ml	168 mg/L	1	40	40			6/9/11 19:00	N	I
1105072-002	Solids, Total Suspended (TSS)	N/A		Water	180.00 mg/L	25 ml	180 mg/L	1	40	40			6/9/11 19:00	N	I
1105103-001	Solids, Total Suspended (TSS)	N/A		Water	-0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105103-002	Solids, Total Suspended (TSS)	N/A		Water	-1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	Y	V
1105151-005	Solids, Total Suspended (TSS)	N/A		Water	-0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-006	Solids, Total Suspended (TSS)	N/A		Water	-1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-007	Solids, Total Suspended (TSS)	N/A		Water	1.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-008	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-009	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-010	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-011	Solids, Total Suspended (TSS)	N/A		Water	1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
1105151-012	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	Y	V
1105153-001	Solids, Total Suspended (TSS)	N/A		Water	1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	II
1105162-001	Solids, Total Suspended (TSS)	N/A		Water	16.00 mg/L	200 ml	16.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105162-002	Solids, Total Suspended (TSS)	N/A		Water	15.00 mg/L	200 ml	15.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105162-003	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 ml	13.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
K1105192-001	Solids, Total Suspended (TSS)	N/A		Water	17.50 mg/L	200 ml	17.5 mg/L	1	5.0	5.0			6/9/11 19:00	Y	V
K1105192-002	Solids, Total Suspended (TSS)	N/A		Water	20.50 mg/L	200 ml	20.5 mg/L	1	5.0	5.0			6/9/11 19:00	N	V

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# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 249630 **Method/Testcode:** SM 2540 D/TSS

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1105192-003	Solids, Total Suspended (TSS)	N/A		Water	12.00 mg/L	200 ml	12.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105192-006	Solids, Total Suspended (TSS)	N/A		Water	5.00 mg/L	200 ml	5.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105192-007	Solids, Total Suspended (TSS)	N/A		Water	24.00 mg/L	200 ml	24.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105192-008	Solids, Total Suspended (TSS)	N/A		Water	17.00 mg/L	200 ml	17.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105231-001.R01	Solids, Total Suspended (TSS)	N/A		Water	61.00 mg/L	200 ml	61.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105231-002	Solids, Total Suspended (TSS)	N/A		Water	17.50 mg/L	200 ml	17.5 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105231-003	Solids, Total Suspended (TSS)	N/A		Water	16.50 mg/L	200 ml	16.5 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
1105231-009	Solids, Total Suspended (TSS)	N/A		Water	26.50 mg/L	200 ml	26.5 mg/L	1	5.0	5.0			6/9/11 19:00	Y	V
1105231-012	Solids, Total Suspended (TSS)	N/A		Water	27.00 mg/L	200 ml	27.0 mg/L	1	5.0	5.0			6/9/11 19:00	N	V
Q1105571-01	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	I
Q1105571-02	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	V
Q1105571-03	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/9/11 19:00	N	V
Q1105571-04	Solids, Total Suspended (TSS)	DUP	K1105151-012	Water	1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/9/11 19:00	N	V2
Q1105571-05	Solids, Total Suspended (TSS)	DUP	K1105103-002	Water	0.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/9/11 19:00	N	IV
Q1105571-06	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	IV
Q1105571-07	Solids, Total Suspended (TSS)	LCS		Water	236.00 mg/L	50 ml	236 mg/L	1	20	20	98		6/9/11 19:00	N	IV
Q1105571-08	Solids, Total Suspended (TSS)	MB		Water	0.80 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/9/11 19:00	N	IV
Q1105571-09	Solids, Total Suspended (TSS)	DUP	K1105192-006	Water	5.50 mg/L	200 ml	5.5 mg/L	1	5.0	5.0		10	6/9/11 19:00	N	IV
Q1105571-10	Solids, Total Suspended (TSS)	DUP	K1105231-001	Water	71.50 mg/L	200 ml	71.5 mg/L	1	5.0	5.0		16*	6/9/11 19:00	N	IV
Q1105571-11	Solids, Total Suspended (TSS)	DUP	K1105231-009	Water	27.00 mg/L	200 ml	27.0 mg/L	1	5.0	5.0		2	6/9/11 19:00	N	IV

BDIC
6/14/11

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Analysis: Total Suspended Solids

Method: EPA SM 2540 D

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	26		250	0.0744	0.0744		0.0744	0.0000	0	<4.0
LCS	27		50	0.0863	0.0863		0.0745	0.0118	236	236.0
K1105192-001	28		200	0.0773	0.0775		0.0738	0.0035	18	17.5
K1105192-002	29		200	0.0782	0.0784		0.0741	0.0041	21	20.5
K1105192-003	30		200	0.0755	0.0756		0.0731	0.0024	12	12.0
K1105192-006	31		200	0.0747	0.0747		0.0737	0.0010	5	5.0
K1105192-007	32		200	0.0779	0.0778		0.0731	0.0048	24	24.0
K1105192-008	33		200	0.0768	0.0767		0.0734	0.0034	17	17.0
K1105072-001	34		25	0.0768	0.0767		0.0726	0.0042	168	168.0
K1105072-002	35		25	0.0780	0.0779		0.0735	0.0045	180	180.0
K1105231-001	36		200	0.0856	0.0856		0.0734	0.0122	61	61.0
K1105231-002	37		200	0.0759	0.0759		0.0724	0.0035	18	17.5
K1105231-003	38		200	0.0759	0.0760		0.0726	0.0033	17	16.5
MB	39		250	0.0733	0.0734		0.0731	0.0002	1	<5.0
K1105192-006D	40		200	0.0757	0.0759		0.0746	0.0011	6	5.5
K1105231-001D	41		200	0.0876	0.0872		0.0733	0.0143	72	71.5
K1105231-009	42		200	0.0784	0.0784		0.0731	0.0053	27	26.5
K1105231-012	43		200	0.0785	0.0784		0.0731	0.0054	27	27.0
K1105231-009D	44		200	0.0785	0.0786		0.0731	0.0054	27	27.0
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml)

			date	time
Analyzed By:	JM	Date Analyzed:	6/9/2011	19:00
Reviewed By:	BDK	Date Reviewed:	6/14/11	

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.: R249630

Analysis: Total Suspended Solids

Method: EPA SM 2540 D

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0744	0.0743		0.0745	-0.0001	0	<4.0
LCS	2		50	0.0872	0.0867		0.0756	0.0116	232	232.0
K1105162-001	3		200	0.0767	0.0766		0.0735	0.0032	16	16
K1104862-016	4		50	0.0763	0.0765		0.0739	0.0024	48	48.0
K1104862-017	5		50	0.0773	0.0774		0.0749	0.0024	48	48.0
K1104862-019	6		50	0.0774	0.0775		0.0757	0.0017	34	34.0
MB	7		250	0.0746	0.0746		0.0747	-0.0001	0	<5.0
K1105162-002	8		200	0.0782	0.0783		0.0752	0.0030	15	15.0
K1105162-003	9		200	0.0781	0.0782		0.0755	0.0026	13	13.0
K1105153-001	10		200	0.0753	0.0755		0.0751	0.0002	1	<5.0
K1105103-001	11		200	0.0756	0.0756		0.0757	-0.0001	-1	<5.0
K1105103-002	12		200	0.0750	0.0750		0.0752	-0.0002	-1	<5.0
K1105151-005	13		200	0.0735	0.0736		0.0736	-0.0001	-1	<5.0
K1105151-006	14		200	0.0739	0.0739		0.0741	-0.0002	-1	<5.0
K1105151-007	15		200	0.0737	0.0738		0.0734	0.0003	2	<5.0
K1105151-008	16		200	0.0735	0.0734		0.0731	0.0004	2	<5.0
K1105151-009	17		200	0.0742	0.0743		0.0735	0.0007	4	<5.0
K1105151-010	18		200	0.0760	0.0760		0.0753	0.0007	4	<5.0
K1105151-011	19		200	0.0758	0.0759		0.0756	0.0002	1	<5.0
K1105151-012	20		200	0.0762	0.0763		0.0762	0.0000	0	<5.0
K1105019-001	21	[1]	10	0.0733	0.0733		0.0726	0.0007	70	70
K1105071-001	22		25	0.0790	0.0791		0.0738	0.0052	208	208
K1105071-002	23		25	0.0806	0.0807		0.0750	0.0056	224	224.0
K1105151-012D	24		200	0.0771	0.0771		0.0769	0.0002	1	<5.0
K1105103-002D	25		200	0.0752	0.0753		0.0752	0.0000	0	<5.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-O T.V. = 240 % Rec =

Wt (1)	Start	17:00	6/10/2011	Wt (2)	S	10:00		Wt (3) Start	[1]: Sample is thick & greasy
	Stop	8:21				11:00		Stop	
Wt (1)	Start	105		Wt (2)	Start 105			Wt (3) Start	K-BALANCE #31
Temp	Stop	105		Temp	Stop 105			Temp Stop	date time

Analyzed By: JM Date Analyzed: 6/9/2011 19:00

Reviewed By: BDK Date Reviewed: 6/14/11

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105162	Convent	K1105162-001	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-002	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-003	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-MB1	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-MB2	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-MB3	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-MB4	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-LCS1	Water	SM2540D		6/9/2011		
CAS_K	K1105162	Convent	K1105162-LCS2	Water	SM2540D		6/9/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	249630	BALANCE	K-Balance-31	6/9/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105162	Convent	6/9/2011	6/9/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	249630		

lab	labqc_samp	qc_type	comments
CAS_K	K1105162-MB1	MethodBlank	
CAS_K	K1105162-MB2	MethodBlank	
CAS_K	K1105162-MB3	MethodBlank	
CAS_K	K1105162-MB4	MethodBlank	
CAS_K	K1105162-LCS1	LCS	
CAS_K	K1105162-LCS2	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105162	Convent	K1105162-001	Water	SM2540D	TSS	Unfilt	1	16	mg/L		Y	5	5	5				249630	249630
CAS_K	K1105162	Convent	K1105162-002	Water	SM2540D	TSS	Unfilt	1	15	mg/L		Y	5	5	5				249630	249630
CAS_K	K1105162	Convent	K1105162-003	Water	SM2540D	TSS	Unfilt	1	13	mg/L		Y	5	5	5				249630	249630

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105162-001	090557-01.02	SJUSL001-AS010-N	NA	6/9/2011	
CAS_K	K1105162-002	090557-01.02	SJUSL001-AS011-N	NA	6/9/2011	
CAS_K	K1105162-003	090557-01.02	SJUSL001-AS012-N	NA	6/9/2011	
CAS_K	K1105162-MB1			K1105162-MB1	NA	NA
CAS_K	K1105162-MB2			K1105162-MB2	NA	NA
CAS_K	K1105162-MB3			K1105162-MB3	NA	NA
CAS_K	K1105162-MB4			K1105162-MB4	NA	NA
CAS_K	K1105162-LCS1			K1105162-LCS1	NA	NA
CAS_K	K1105162-LCS2			K1105162-LCS2	NA	NA

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	249630	K1105162-LCS1	TSS	Unfilt	L	240	232	80	115	mg/L	
CAS_K	249630	K1105162-LCS2	TSS	Unfilt	L	240	236	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	249630	K1105162-MB1	SM2540D	TSS	1	5		mg/L	U
CAS_K	249630	K1105162-MB2	SM2540D	TSS	1	5		mg/L	U
CAS_K	249630	K1105162-MB3	SM2540D	TSS	1	5		mg/L	U
CAS_K	249630	K1105162-MB4	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 20, 2011 Analytical Report for Service Request No: K1105314

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 14, 2011. For your reference, these analyses have been assigned our service request number K1105314.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata

Gregory Salata, Ph.D.
Project Chemist

GS/jw

100% recycled paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105314
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/14/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 06/14/11. Except as noted on the cooler receipt and preservation form included in this data package the samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Suspended Solids by Standard Method 2540 D:
Sample SJUDL001-AS013-N was received past holding time. The analysis was performed as soon as possible after receipt by the laboratory. The data was flagged to indicate the holding time violation.

No other anomalies associated with the analysis of these samples were observed.

Approved by Gregory Salata **Date** 6/23/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K1105314

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM ☐ 1664 SGT ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS013-N	6/6/2011	11:07		Water	1																X				
SJUSL001-AS014-N	6/7/2011	23:07		Water	1																X				
SJUSL001-AS015-N	6/9/2011	12:59		Water	1																X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 6/10/11 14:00	Signature	Date/Time	Signature	Date/Time	Signature: S HOPKINS	Date/Time: 6/14/11 1030
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name	Firm	Printed Name	Firm	Printed Name: CAS	Firm

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Greg

Client / Project: Integral Service Request *K11* 05314

Received: 6/14/11 Opened: 6/14/11 By: SZ Unloaded: 6/14/11 By: SZ

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
19.1	—	290		1Z 3E6 549 07 3644 1329	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
ALL		✓								

SHORT HOLD TIME

Notes, Discrepancies, & Resolutions: _____

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105314
Date Collected: 6/ 6/11 - 6/ 9/11
Date Received: 6/14/11

Analysis Method: SM 2540 D

Units: mg/L
Basis: NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS013-N	K1105314-001	**9.5**		5.0	5.0	1	NA	6/14/11 17:15	*
SJUSL001-AS014-N	K1105314-002	**13.5**		5.0	5.0	1	NA	6/14/11 17:15	
SJUSL001-AS015-N	K1105314-003	**18.5**		5.0	5.0	1	NA	6/14/11 17:15	
Method Blank	K1105314-MB	ND	U	5.0	5.0	1	NA	6/14/11 17:15	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105314
Date Collected: NA
Date Received: NA
Date Analyzed: 6/14/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Batch QC
Lab Code: K1105280-002

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105280-002DUP Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	ND U	ND U	NC	NC	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105314
Date Analyzed: 6/14/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105314-LCS Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	232	240	97	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Work Request # Original (K1105231), 5280, 5314

Tier: V, V, V

Date Analyzed: 6/14/11

Analyst: JM/CES

Analysis: TSS/SM2540D

R 249988

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?	yes/no/NA
2.	Holding times met for all analyses and for all samples?	yes/no/NA ~~AA~~ See note
3.	Are calculations correct?	yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)	yes/no/NA
5.	All quality control criteria met?	yes/no/NA
a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
d.	Are results for methods blanks all ND?	yes/no/NA
e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?	yes/no/NA
7.	Are all samples labelled correctly?	yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)	yes/no/NA
9.	Are detection limits and units reported correctly?	yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?	yes/no/NA
11.	Is the unused space on the benchsheet crossed out?	yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)	yes/no/NA

COMMENTS:

2. K1105231-001 sampled 6/3, reanalyzed 6/14
Value confirms duplicate value

Final Approved by: BDC Date: 6/16/11

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** CSETHE **Analysis Lot:** 249988 **Method/Testcode:** SM 2540 D/TSS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
K1105231-001	Solids, Total Suspended (TSS)	N/A		Water	70.00 mg/L	200 ml	70.0 mg/L	1	5.0	5.0			6/14/11 17:15	N	V
K1105280-001	Solids, Total Suspended (TSS)	N/A		Water	1.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/14/11 17:15	N	V
K1105280-002	Solids, Total Suspended (TSS)	N/A		Water	-0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/14/11 17:15	N	V
K1105280-003	Solids, Total Suspended (TSS)	N/A		Water	236.00 mg/L	50 ml	236 mg/L	1	20	20			6/14/11 17:15	N	V
K1105280-004	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/14/11 17:15	N	V
K1105280-005	Solids, Total Suspended (TSS)	N/A		Water	244.00 mg/L	100 ml	244 mg/L	1	10	10			6/14/11 17:15	N	V
K1105314-001	Solids, Total Suspended (TSS)	N/A		Water	9.50 mg/L	200 ml	9.5 mg/L	1	5.0	5.0			6/14/11 17:15	N	V
K1105314-002	Solids, Total Suspended (TSS)	N/A		Water	13.50 mg/L	200 ml	13.5 mg/L	1	5.0	5.0			6/14/11 17:15	N	V
K1105314-003	Solids, Total Suspended (TSS)	N/A		Water	18.50 mg/L	200 ml	18.5 mg/L	1	5.0	5.0			6/14/11 17:15	N	V
KQ1105757-01	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/14/11 17:15	N	V
KQ1105757-02	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/14/11 17:15	N	V
KQ1105757-03	Solids, Total Suspended (TSS)	DUP	K1105280-002	Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0		NC	6/14/11 17:15	N	V

BDK
6/16/11

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.: R249988

Analysis: Total Suspended Solids

Method: EPA SM 2540 D

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	10		250	0.0724	0.0725		0.0724	0.0000	0	<4.0
LCS	11		50	0.0838	0.0838		0.0722	0.0116	232	232.0
K1105314-001	12		200	0.0749	0.0749		0.0730	0.0019	10	10
K1105314-002	13		200	0.0769	0.0769		0.0742	0.0027	14	13.5
K1105314-003	14		200	0.0774	0.0773		0.0737	0.0037	19	18.5
K1105280-001	15		200	0.0729	0.0730		0.0727	0.0002	1	<5.0
K1105280-002	16		200	0.0761	0.0760		0.0762	-0.0001	-1	<5.0
K1105280-003	17		50	0.0877	0.0877		0.0759	0.0118	236	236.0
K1105280-004	18		200	0.0730	0.0729		0.0729	0.0001	1	<5.0
K1105280-005	19		100	0.0998	0.0999		0.0754	0.0244	244	244
K1105231-001	20	[1]	200	0.0906	0.0906		0.0766	0.0140	70	70.0
K1105280-002d	21		200	0.0739	0.0738		0.0738	0.0001	1	<5.0
	22							0.0000	#DIV/0!	#DIV/0!
	23							0.0000	#DIV/0!	#DIV/0!
	24							0.0000	#DIV/0!	#DIV/0!
	25							0.0000	#DIV/0!	#DIV/0!
	26							0.0000	#DIV/0!	#DIV/0!
	27							0.0000	#DIV/0!	#DIV/0!
	28							0.0000	#DIV/0!	#DIV/0!
	29							0.0000	#DIV/0!	#DIV/0!
	30							0.0000	#DIV/0!	#DIV/0!
	31							0.0000	#DIV/0!	#DIV/0!
	32							0.0000	#DIV/0!	#DIV/0!
	33							0.0000	#DIV/0!	#DIV/0!
	34							0.0000	#DIV/0!	#DIV/0!

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-R T.V. = 240 % Rec =

Wt (1)	Start	18:00	Wt (2)	S	10:45	Wt (3)	Start	[1]: Reanalyzed.
	Stop	9:00			12:45		Stop	
Wt (1)	Start	105	Wt (2)	Start 105		Wt (3)	Start	K-BALANCE #31
Temp	Stop	105	Temp	Stop 105		Temp	Stop	date time

Analyzed By: JM/CES Date Analyzed: 6/14/2011 17:15

Reviewed By: BDC Date Reviewed: 6/16/11

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105314	Convent	K1105314-001	Water	SM2540D		6/14/2011		
CAS_K	K1105314	Convent	K1105314-002	Water	SM2540D		6/14/2011		
CAS_K	K1105314	Convent	K1105314-003	Water	SM2540D		6/14/2011		
CAS_K	K1105314	Convent	K1105314-MB	Water	SM2540D		6/14/2011		
CAS_K	K1105314	Convent	K1105314-LCS	Water	SM2540D		6/14/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	249988	BALANCE	K-Balance-31	6/14/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105314	Convent	6/14/2011	6/14/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	249988		

lab	labqc_samp	qc_type	comments
CAS_K	K1105314-MB	MethodBlank	
CAS_K	K1105314-LCS	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105314	Convent	K1105314-001	Water	SM2540D	TSS	Unfilt	1	9.5	mg/L		Y	5	5	5				249988	249988
CAS_K	K1105314	Convent	K1105314-002	Water	SM2540D	TSS	Unfilt	1	13.5	mg/L		Y	5	5	5				249988	249988
CAS_K	K1105314	Convent	K1105314-003	Water	SM2540D	TSS	Unfilt	1	18.5	mg/L		Y	5	5	5				249988	249988

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105314-001	090557-01.02	SJUSL001-AS013-N	NA	6/14/2011	
CAS_K	K1105314-002	090557-01.02	SJUSL001-AS014-N	NA	6/14/2011	
CAS_K	K1105314-003	090557-01.02	SJUSL001-AS015-N	NA	6/14/2011	
CAS_K	K1105314-MB			K1105314-MB	NA	NA
CAS_K	K1105314-LCS			K1105314-LCS	NA	NA

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	249988	K1105314-LCS	TSS	Unfilt	L	240	232	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	249988	K1105314-MB	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 22, 2011 Analytical Report for Service Request No: K1105409

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 16, 2011. For your reference, these analyses have been assigned our service request number K1105409.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/jw

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105409
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/16/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Three water samples were received for analysis at Columbia Analytical Services on 06/16/11. Except as noted on the cooler receipt and preservation form included in this data package the samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Suspended Solids by SM 2540 D:
The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Suspended Solids sample Batch QC was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

Approved by Gregory [illegible] **Date** 06/22/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K1105409

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: D Del Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625 ☐ 8270 ☐ 8270LL ☐	Volatile Organics 624 ☐ 8260 ☐ 8021 ☐ BTEX ☐	Hydrocarbons (*see below) Gas ☐ Diesel ☐ Oil ☐	Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 SGT ☐ 1664 HEM ☐	PCB's Aroclors ☐ Congeners ☐	Pesticides/Herbicides 608 ☐ 8081A ☐ 8141A ☐ 8151A ☐	Chlorophenolics - 8151M Tri ☐ Tetra ☐ PCP ☐	PAHS 8310 ☐ SIM ☐	Metals, Total or Dissolved (See list below)	Cyanide ☐ Hex-Chrom ☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020 ☐ AOX 1650 ☐ 506 ☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS016-N	6/10/2011	22:36		Water	1															X				
SJUSL001-AS017-N	6/12/2011	10:36		Water	1															X				
SJUSL001-AS018-N	6/13/2011	23:15		Water	1															X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: D Del Nangju	Date/Time: 6/15/11 12:00	Signature: K Smith	Date/Time: 6/16/11 1015	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name: Darla Smith	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

8

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Green

Client / Project: Anchor QEA Service Request *K11* 5409

Received: 6/16/11 Opened: 6/16/11 By: KB Unloaded: 6/16/11 By: KB

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
8.1	✓	281		1Z3E68Y91336720828	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* hard ice
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
All Samples	3-1LP	X								

Notes, Discrepancies, & Resolutions:

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105409
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/10/11 - 6/13/11
Sample Matrix:	Water	**Date Received:**	6/16/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS016-N	K1105409-001	**15.5**		5.0	5.0	1	NA	6/16/11 16:00	
SJUSL001-AS017-N	K1105409-002	**15.0**		5.0	5.0	1	NA	6/16/11 16:00	
SJUSL001-AS018-N	K1105409-003	**14.5**		5.0	5.0	1	NA	6/16/11 16:00	
Method Blank	K1105409-MB1	ND	U	5.0	5.0	1	NA	6/16/11 16:00	
Method Blank	K1105409-MB2	ND	U	5.0	5.0	1	NA	6/16/11 16:00	
Method Blank	K1105409-MB3	ND	U	5.0	5.0	1	NA	6/16/11 16:00	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105409
Date Collected: NA
Date Received: NA
Date Analyzed: 6/16/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Batch QC
Lab Code: K1104991-009

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1104991-009DUP1 Result	Average	RPD		RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	11.0	12.5	11.8	13	*	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105409
Date Collected: NA
Date Received: NA
Date Analyzed: 6/16/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Batch QC
Lab Code: K1105000-001

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105000-001DUP2 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	10.0	11.0	10.5	10	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105409
Date Collected: NA
Date Received: NA
Date Analyzed: 6/16/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Batch QC
Lab Code: K1105000-005

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105000-005DUP3 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	16.0	16.0	16.0	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105409
Date Analyzed: 6/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105409-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	252	240	105	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105409
Date Analyzed: 6/16/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105409-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	254	240	106	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Work Request # Original (K1104862), 4970, 4971, 4978, 4991, 5000, 5115, 5338, 5409

Tier: I, I, I, I, V, V, V, II, V

Date Analyzed: 6/16/11

Analyst: JM

Analysis: TSS/SM2540 D

R 250346

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? yes/no/NA
2. Holding times met for all analyses and for all samples? yes/no/NA
3. Are calculations correct? yes/no/NA
4. Is the reporting basis correct? (Dry Weight) yes/no/NA
5. All quality control criteria met? yes/no/NA
   a. Is the calibration curve correlation coefficient ≥ 0.995? yes/no/NA
   b. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
   c. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
   d. Are results for methods blanks all ND? yes/no/NA
   e. Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA * See note
   f. Are all exceptions explained? yes/no/NA
6. Are all service requests that apply attached? yes/no/NA
7. Are all samples labelled correctly? yes/no/NA
8. Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample) yes/no/NA
9. Are detection limits and units reported correctly? yes/no/NA
10. Are proper Analysis/Extraction stickers included on report? yes/no/NA
11. Is the unused space on the benchsheet crossed out? yes/no/NA
12. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS:

2. Reanalyzed the following samples past holed: K1104862-009, -010, -011, -013, -014; K1104970-001; K1104971-001; K1104978-003, -004; K1104991-001, -002, -003, -004, -005, -006, -007, -008, -009; K1105000-001, -002, -005, -006; K1105115-006.
5e. K1104991-009 & -009 DUP RPD ≥ 10%, $\bar{x}$ < 5 times MRL.
12. K1104970 due 6/14, K1104971 due 6/10, K1104978 due 6/14

Final Approved by: BDK Date: 6/19/11

DQREPORT

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 250346 **Method/Testcode:** SM 2540 D/TSS

ıb Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1104862-009	Solids, Total Suspended (TSS)	N/A		Water	28.00 mg/L	50 ml	28 mg/L	1	20	20			6/16/11 16:00	N	I
1104862-010	Solids, Total Suspended (TSS)	N/A		Water	26.00 mg/L	50 ml	26 mg/L	1	20	20			6/16/11 16:00	N	I
1104862-011	Solids, Total Suspended (TSS)	N/A		Water	58.00 mg/L	50 ml	58 mg/L	1	20	20			6/16/11 16:00	N	I
1104862-013	Solids, Total Suspended (TSS)	N/A		Water	32.00 mg/L	50 ml	32 mg/L	1	20	20			6/16/11 16:00	N	I
1104862-014	Solids, Total Suspended (TSS)	N/A		Water	30.00 mg/L	50 ml	30 mg/L	1	20	20			6/16/11 16:00	N	I
1104970-001	Solids, Total Suspended (TSS)	N/A		Water	232.00 mg/L	25 ml	232 mg/L	1	40	40			6/16/11 16:00	N	I
1104971-001	Solids, Total Suspended (TSS)	N/A		Water	92.00 mg/L	50 ml	92 mg/L	1	20	20			6/16/11 16:00	N	I
1104978-003	Solids, Total Suspended (TSS)	N/A		Water	94.00 mg/L	50 ml	94 mg/L	1	20	20			6/16/11 16:00	N	I
1104978-004	Solids, Total Suspended (TSS)	N/A		Water	12.00 mg/L	50 ml	20 mg/L U	1	20	20			6/16/11 16:00	N	I
1104991-001	Solids, Total Suspended (TSS)	N/A		Water	9.50 mg/L	200 ml	9.5 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1104991-002	Solids, Total Suspended (TSS)	N/A		Water	20.00 mg/L	200 ml	20.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1104991-003	Solids, Total Suspended (TSS)	N/A		Water	66.00 mg/L	200 ml	66.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1104991-004	Solids, Total Suspended (TSS)	N/A		Water	62.50 mg/L	200 ml	62.5 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1104991-005	Solids, Total Suspended (TSS)	N/A		Water	38.50 mg/L	200 ml	38.5 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1104991-006	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	V
1104991-007	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	V
1104991-008	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	V
1104991-009	Solids, Total Suspended (TSS)	N/A		Water	11.00 mg/L	200 ml	11.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1105000-001	Solids, Total Suspended (TSS)	N/A		Water	10.00 mg/L	200 ml	10.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1105000-002	Solids, Total Suspended (TSS)	N/A		Water	75.00 mg/L	200 ml	75.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1105000-005	Solids, Total Suspended (TSS)	N/A		Water	16.00 mg/L	200 ml	16.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1105000-006	Solids, Total Suspended (TSS)	N/A		Water	100.00 mg/L	100 ml	100 mg/L	1	10	10			6/16/11 16:00	N	V
1105338-001	Solids, Total Suspended (TSS)	N/A		Water	5270.00 mg/L	10 ml	5270 mg/L	1	100	100			6/16/11 16:00	N	II
1105338-002	Solids, Total Suspended (TSS)	N/A		Water	5280.00 mg/L	10 ml	5280 mg/L	1	100	100			6/16/11 16:00	N	II

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 250346 **Method/Testcode:** SM 2540 D/TSS

ıb Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
105409-001	Solids, Total Suspended (TSS)	N/A		Water	15.50 mg/L	200 ml	15.5 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
105409-002	Solids, Total Suspended (TSS)	N/A		Water	15.00 mg/L	200 ml	15.0 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
105409-003	Solids, Total Suspended (TSS)	N/A		Water	14.50 mg/L	200 ml	14.5 mg/L	1	5.0	5.0			6/16/11 16:00	N	V
1105416-001	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	V
Q1105787-01	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	II
Q1105787-02	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	II
Q1105787-03	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/16/11 16:00	N	I
Q1105787-04	Solids, Total Suspended (TSS)	LCS		Water	252.00 mg/L	50 ml	252 mg/L	1	20	20	105		6/16/11 16:00	N	I
Q1105787-05	Solids, Total Suspended (TSS)	DUP	K1105000-001	Water	11.00 mg/L	200 ml	11.0 mg/L	1	5.0	5.0		10	6/16/11 16:00	N	V
Q1105787-06	Solids, Total Suspended (TSS)	DUP	K1105000-005	Water	16.00 mg/L	200 ml	16.0 mg/L	1	5.0	5.0		<1	6/16/11 16:00	N	V
Q1105787-07	Solids, Total Suspended (TSS)	LCS		Water	254.00 mg/L	50 ml	254 mg/L	1	20	20	106		6/16/11 16:00	N	I
Q1105787-08	Solids, Total Suspended (TSS)	DUP	K1104991-009	Water	12.50 mg/L	200 ml	12.5 mg/L	1	5.0	5.0		13*	6/16/11 16:00	N	V

19

BDK
6/19/11

# indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.: R250346 Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0713	0.0712		0.0713	0.0000	0	<4.0
MB	2		250	0.0734	0.0734		0.0734	0.0000	0	<4.0
LCS	3		50	0.0861	0.0860		0.0735	0.0126	252	252
K1104862-009	4		50	0.0734	0.0734		0.0720	0.0014	28	28.0
K1104862-010	5		50	0.0741	0.0741		0.0728	0.0013	26	26.0
K1104862-011	6		50	0.0763	0.0763		0.0734	0.0029	58	58.0
K1104862-013	7		50	0.0738	0.0738		0.0722	0.0016	32	32.0
K1104862-014	8		50	0.0739	0.0740		0.0724	0.0015	30	30.0
K1105000-001	9		200	0.0742	0.0742		0.0722	0.0020	10	10.0
K1105000-002	10		200	0.0884	0.0884		0.0734	0.0150	75	75
K1105000-005	11		200	0.0754	0.0755		0.0722	0.0032	16	16.0
K1105000-006	12		100	0.0828	0.0828		0.0728	0.0100	100	100.0
K1104971-001	13		50	0.0771	0.0772		0.0725	0.0046	92	92
K1104991-001	14		200	0.0736	0.0736		0.0717	0.0019	10	9.5
K1104991-002	15		200	0.0793	0.0793		0.0753	0.0040	20	20.0
K1104991-003	16		200	0.0850	0.0850		0.0718	0.0132	66	66.0
K1104991-004	17		200	0.0864	0.0863		0.0739	0.0125	63	62.5
K1104991-005	18		200	0.0805	0.0804		0.0728	0.0077	39	38.5
K1104991-006	19		200	0.0737	0.0738		0.0733	0.0004	2	<5.0
K1104991-007	20		200	0.0730	0.0731		0.0729	0.0001	1	<5.0
K1104991-008	21		200	0.0733	0.0734		0.0726	0.0007	4	<5.0
K1104991-009	22		200	0.0750	0.0750		0.0728	0.0022	11	11
K1104970-001	23		25	0.0793	0.0793		0.0735	0.0058	232	232.0
K1105000-001D	24		200	0.0762	0.0762		0.0740	0.0022	11	11.0
K1105000-005D	25		200	0.0763	0.0764		0.0731	0.0032	16	16.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-O T.V. = 240 % Rec =

Wt (1)	Start	17:05	Wt (2)	S	10:30	Wt (3)	Start	
	Stop	8:45			11:30		Stop	
Wt (1)	Start	105	Wt (2)	Start 105		Wt (3)	Start	K-BALANCE #31
Temp	Stop	105	Temp	Stop 105		Temp	Stop	date time

Analyzed By: JM Date Analyzed: 6/16/2011 16:00

Reviewed By: DK Date Reviewed: 6/19/11

COLUMBIA ANALYTICAL SERVICES, INC.

ɔrk Order #.:
ıalysis: Total Suspended Solids

Method: EPA SM 2540 D

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	26		250	0.0735	0.0734		0.0735	0.0000	0	<4.0
LCS	27		50	0.0853	0.0848		0.0726	0.0127	254	254.0
K1104978-003	28		50	0.0778	0.0778		0.0731	0.0047	94	94.0
K1104978-004	29		50	0.0726	0.0725		0.0720	0.0006	12	12.0
K1105416-001	30		200	0.0728	0.0727		0.0724	0.0004	2	<5.0
K1105338-001	31		10	0.1274	0.1274		0.0747	0.0527	5270	5270.0
K1105338-002	32		10	0.1252	0.1252		0.0724	0.0528	5280	5280.0
K1105115-006	33	[1]	200	0.0767	0.0769		0.0732	0.0035	18	17.5
K1104991-009D	34		200	0.0751	0.0751		0.0726	0.0025	13	12.5
K1105409-001	35		200	0.0743	0.0742		0.0712	0.0031	16	15.5
K1105409-002	36		200	0.0762	0.0763		0.0732	0.0030	15	15.0
K1105409-003	37		200	0.0755	0.0756		0.0726	0.0029	15	14.5
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml)

[1]: Reanalyzed

			date	time
Analyzed By:	JM	Date Analyzed:	6/16/2011	16:00
Reviewed By:	BDK	Date Reviewed:	6/19/11	

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105409	Convent	K1105409-001	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-002	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-003	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-MB1	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-MB2	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-MB3	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-LCS1	Water	SM2540D		6/16/2011		
CAS_K	K1105409	Convent	K1105409-LCS2	Water	SM2540D		6/16/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	250346	BALANCE	K-Balance-31	6/16/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105409	Convent	6/16/2011	6/16/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	250346		

lab	labqc_samp	qc_type	comments
CAS_K	K1105409-MB1	MethodBlank	
CAS_K	K1105409-MB2	MethodBlank	
CAS_K	K1105409-MB3	MethodBlank	
CAS_K	K1105409-LCS1	LCS	
CAS_K	K1105409-LCS2	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105409	Convent	K1105409-001	Water	SM2540D	TSS	Unfilt	1	15.5	mg/L		Y	5	5	5				250346	250346
CAS_K	K1105409	Convent	K1105409-002	Water	SM2540D	TSS	Unfilt	1	15	mg/L		Y	5	5	5				250346	250346
CAS_K	K1105409	Convent	K1105409-003	Water	SM2540D	TSS	Unfilt	1	14.5	mg/L		Y	5	5	5				250346	250346

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105409-001	090557-01.02	SJUSL001-AS016-N	NA	6/16/2011	
CAS_K	K1105409-002	090557-01.02	SJUSL001-AS017-N	NA	6/16/2011	
CAS_K	K1105409-003	090557-01.02	SJUSL001-AS018-N	NA	6/16/2011	
CAS_K	K1105409-MB1			K1105409-MB1	NA	NA
CAS_K	K1105409-MB2			K1105409-MB2	NA	NA
CAS_K	K1105409-MB3			K1105409-MB3	NA	NA
CAS_K	K1105409-LCS1			K1105409-LCS1	NA	NA
CAS_K	K1105409-LCS2			K1105409-LCS2	NA	NA

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	250346	K1105409-LCS1	TSS	Unfilt	L	240	252	80	115	mg/L	
CAS_K	250346	K1105409-LCS2	TSS	Unfilt	L	240	254	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

July 6, 2011 Analytical Report for Service Request No: K1105625

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 22, 2011. For your reference, these analyses have been assigned our service request number K1105625.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/lb

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105625
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/22/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Four water samples were received for analysis at Columbia Analytical Services on 06/22/11. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

Total Suspended Solids by SM 2540 D:
The Relative Percent Difference (RPD) criterion for the replicate analysis of Total Suspended Solids in sample Batch QC was not applicable because the analyte concentration was not significantly greater than the Method Reporting Limit (MRL). Analytical values derived from measurements close to the detection limit are not subject to the same accuracy and precision criteria as results derived from measurements higher on the calibration range for the method.

No other anomalies associated with the analysis of these samples were observed.

Approved by _____ **Date** 07/06/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K1105625

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ ☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐	Hex-Chrom☐	pH, Cond, Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS019-N	6/15/2011	11:15		Water	1																X				
SJUSL001-AS020-N	6/16/2011	23:15		Water	1																X				
SJUSL001-AS021-N	6/18/2011	11:17		Water	1																X				
SJUSL001-AS022-N	6/20/2011	08:36		Water	1																X				

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 6/20/11 12:00	Signature: [illegible]	Date/Time: 6/22/11 1020	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name: [illegible]	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC Bwrap

Client / Project: Integral SHORT HOLD TIME Service Request *K11* 05625

Received: 6/22/11 Opened: 6/22/11 By: AJ Unloaded: 6/22/11 By: AJ

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2F
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-0.3	6.3*	294		1Z3E6849133421 6725	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: * TB in bwrap

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105625
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/15/11 - 6/20/11
Sample Matrix:	Water	**Date Received:**	6/22/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS019-N	K1105625-001	**10.0**		5.0	5.0	1	NA	6/22/11 16:20	
SJUSL001-AS020-N	K1105625-002	**13.0**		5.0	5.0	1	NA	6/22/11 16:20	
SJUSL001-AS021-N	K1105625-003	**10.5**		5.0	5.0	1	NA	6/22/11 16:20	
SJUSL001-AS022-N	K1105625-004	**36.5**		5.0	5.0	1	NA	6/22/11 16:20	
Method Blank	K1105625-MB1	ND	U	5.0	5.0	1	NA	6/22/11 16:20	
Method Blank	K1105625-MB2	ND	U	5.0	5.0	1	NA	6/22/11 16:20	
Method Blank	K1105625-MB3	ND	U	5.0	5.0	1	NA	6/22/11 16:20	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105625
Date Collected: NA
Date Received: NA
Date Analyzed: 6/22/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: Batch QC
Lab Code: K1104862-049

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1104862-049DUP1 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	6.7	6.7	20.7	19.3	20.0	7	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105625
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/22/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105361-001	**Basis:**	NA

					Batch QCDUP **Duplicate Sample** K1105361-001DUP2			
Analyte Name	**Method**	**MRL**	**MDL**	**Sample Result**	**Result**	**Average**	**RPD**	**RPD Limit**
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	ND U	ND U	NC	NC	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105625
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	NA
Sample Matrix:	Water	**Date Received:**	NA
		Date Analyzed:	6/22/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	Batch QC	**Units:**	mg/L
Lab Code:	K1105566-004	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	Batch QCDUP Duplicate Sample K1105566-004DUP3 Result	Average	RPD		RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	11.0	14.0	12.5	24	*	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105625
Date Analyzed: 6/22/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105625-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	226	240	94	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105625
Date Analyzed: 6/22/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105625-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	222	240	93	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

251136

Work Request # Original (KS566) KS579, KS571, KSSSS, KS595, KS561, KS604, KS361

Tier: V II II I V I I V

Date Analyzed: 6/22/11 K4862, KS625

Analyst: JM I V

Analysis: TSS

K110S361

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? yes/no/NA
2. Holding times met for all analyses and for all samples? yes/no/NA
3. Are calculations correct? yes/no/NA
4. Is the reporting basis correct? (Dry Weight) yes/no/NA
5. All quality control criteria met? yes/no/NA
   a. Is the calibration curve correlation coefficient ≥ 0.995? yes/no/NA
   b. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
   c. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
   d. Are results for methods blanks all ND? yes/no/NA
   e. Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA
   f. Are all exceptions explained? yes/no/NA
6. Are all service requests that apply attached? yes/no/NA
7. Are all samples labelled correctly? yes/no/NA
8. Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample) yes/no/NA
9. Are detection limits and units reported correctly? yes/no/NA
10. Are proper Analysis/Extraction stickers included on report? yes/no/NA
11. Is the unused space on the benchsheet crossed out? yes/no/NA
12. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS:

K110S561 - Rush - Due 7/5/11
K110S604 - Rush - Due 7/5/11
K110S361 - Rush, reanalysis - due 6/23
K110S566-004 & 004 & High RPD, T ≤ 5XMRL

Final Approved by: BOK Date: 6/23/11

DQREPORT

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** KCUEVAS **Analysis Lot:** 251136 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
104862-049	Solids, Total Suspended (TSS)	N/A		Water	20.70 mg/L	150 mL	20.7 mg/L	1	6.7	6.7			6/22/11 16:20:00	N	I
104862-050	Solids, Total Suspended (TSS)	N/A		Water	49.00 mg/L	100 mL	49 mg/L	1	10	10			6/22/11 16:20:00	N	I
104862-052	Solids, Total Suspended (TSS)	N/A		Water	11.30 mg/L	150 mL	11.3 mg/L	1	6.7	6.7			6/22/11 16:20:00	N	I
105555-001	Solids, Total Suspended (TSS)	N/A		Water	176.00 mg/L	50 mL	176 mg/L	1	20	20			6/22/11 16:20:00	N	I
105561-001	Solids, Total Suspended (TSS)	N/A		Water	615.00 mg/L	20 mL	615 mg/L	1	50	50			6/22/11 16:20:00	N	I
105566-001	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
105566-002	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
105566-003	Solids, Total Suspended (TSS)	N/A		Water	1.00 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
105566-004	Solids, Total Suspended (TSS)	N/A		Water	11.00 mg/L	200 mL	11.0 mg/L	1	5.0	5.0			6/22/11 16:20:00	Y	V
105566-005	Solids, Total Suspended (TSS)	N/A		Water	1.00 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
105566-006	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
105571-001	Solids, Total Suspended (TSS)	N/A		Water	13.50 mg/L	200 mL	13.5 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	II
105579-001	Solids, Total Suspended (TSS)	N/A		Water	17.50 mg/L	200 mL	17.5 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	II
105579-002	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	II
105595-001	Solids, Total Suspended (TSS)	N/A		Water	22.00 mg/L	200 mL	22.0 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	V
105595-002	Solids, Total Suspended (TSS)	N/A		Water	25.00 mg/L	100 mL	25 mg/L	1	10	10			6/22/11 16:20:00	N	V
105604-002	Solids, Total Suspended (TSS)	N/A		Water	168.00 mg/L	50 mL	168 mg/L	1	20	20			6/22/11 16:20:00	N	I
105625-001	Solids, Total Suspended (TSS)	N/A		Water	10.00 mg/L	200 mL	10.0 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	V
105625-002	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 mL	13.0 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	V
105625-003	Solids, Total Suspended (TSS)	N/A		Water	10.50 mg/L	200 mL	10.5 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	V
105625-004	Solids, Total Suspended (TSS)	N/A		Water	36.50 mg/L	200 mL	36.5 mg/L	1	5.0	5.0			6/22/11 16:20:00	N	V
Q1106076-01	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 mL	4.0 mg/L U	1		4.0			6/22/11 16:20:00	N	V
Q1106076-01	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
Q1106076-02	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 mL	4.0 mg/L U	1		4.0			6/22/11 16:20:00	N	V

ndicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** KCUEVAS **Analysis Lot:** 251136 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
)1106076-02	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
)1106076-03	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 mL	4.0 mg/L U	1		4.0			6/22/11 16:20:00	N	V
)1106076-03	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 mL	5.0 mg/L U	1	5.0	5.0			6/22/11 16:20:00	N	V
)1106076-04	Solids, Total Suspended (TSS)	LCS		Water	226.00 mg/L	50 mL	226 mg/L	1		20	94		6/22/11 16:20:00	N	V
)1106076-04	Solids, Total Suspended (TSS)	LCS		Water	226.00 mg/L	50 mL	226 mg/L	1	20	20	94		6/22/11 16:20:00	N	V
)1106076-05	Solids, Total Suspended (TSS)	LCS		Water	222.00 mg/L	50 mL	222 mg/L	1		20	93		6/22/11 16:20:00	N	V
)1106076-05	Solids, Total Suspended (TSS)	LCS		Water	222.00 mg/L	50 mL	222 mg/L	1	20	20	93		6/22/11 16:20:00	N	V
)1106076-06	Solids, Total Suspended (TSS)	DUP	K1105566-004	Water	14.00 mg/L	200 mL	14.0 mg/L	1	5.0	5.0		24*	6/22/11 16:20:00	N	V
)1106076-07	Solids, Total Suspended (TSS)	DUP	K1104862-049	Water	19.30 mg/L	150 mL	19.3 mg/L	1	6.7	6.7		7	6/22/11 16:20:00	N	I

19

BDK
6/23/11

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Analysis: Total Suspended Solids

Method: EPA SM 2540 D

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0741	0.0740		0.0741	0.0000	0.00	<4.0
MB	2		250	0.0723	0.0724		0.0724	-0.0001	-0.40	<4.0
LCS	3		50	0.0828	0.0829		0.0717	0.0111	222	222
K1105566-001	10		200	0.0712	0.0712		0.0712	0.0000	0.00	<5.0
K1105566-002	5		200	0.0732	0.0734		0.0732	0.0000	0.00	<5.0
K1105566-003	6		200	0.0722	0.0723		0.0720	0.0002	1.00	<5.0
K1105566-004	7		200	0.0755	0.0755		0.0733	0.0022	11.0	11.0
K1105566-004D	8		200	0.0756	0.0757		0.0728	0.0028	14.0	14.0
K1105566-005	9		200	0.0735	0.0734		0.0733	0.0002	1.00	<5.0
K1105566-006	4		200	0.0750	0.0749		0.0746	0.0004	2.00	<5.0
K1105579-001	11		200	0.0765	0.0766		0.0730	0.0035	17.5	17.5
K1105579-002	12		200	0.0752	0.0753		0.0745	0.0007	3.50	<5.0
K1105571-001	13		200	0.0747	0.0748		0.0720	0.0027	13.5	13.5
K1105555-001	14		50	0.0830	0.0828		0.0742	0.0088	176	176
K1105595-001	15		200	0.0782	0.0781		0.0738	0.0044	22.0	22.0
K1105595-002	16		100	0.0771	0.0773		0.0746	0.0025	25.0	25.0
K1105561-001	17		20	0.0846	0.0846		0.0723	0.0123	615	615
K1105604-002	18		50	0.0809	0.0811		0.0725	0.0084	168	168
K1105361-001	19		250	0.0737	0.0736		0.0735	0.0002	0.80	<4.0
K1105361-001D	20		250	0.0739	0.0741		0.0739	0.0000	0.00	<4.0
K1104862-049	21		150	0.0750	0.0751		0.0719	0.0031	20.7	20.7
K1104862-050	22		100	0.0776	0.0778		0.0727	0.0049	49.0	49.0
K1104862-052	23		150	0.0753	0.0753		0.0736	0.0017	11.3	11.3
K1105625-001	24		200	0.0755	0.0754		0.0735	0.0020	10.0	10.0
K1105625-002	25		200	0.0750	0.0751		0.0724	0.0026	13.0	13.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32-S T.V. = 240 % Rec =

Wt (1)	Start	18:49	Wt (2)	Start05:30		Wt (3)	Start	
	Stop	5:00		Stop 06:45			Stop	
Wt (1)	Start	105	Wt (2)	Start 105		Wt (3)	Start	K-BALANCE #31
Temp	Stop	105	Temp	Stop 105		Temp	Stop	date time

Analyzed By: JM Date Analyzed: 6/22/2011 16:20

Reviewed By: BDK Date Reviewed: 6/23/11

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	26		250	0.0734	0.0735		0.0735	-0.0001	0	<4.0
LCS	27		50	0.0848	0.0848		0.0735	0.0113	226	226.0
K1105625-003	28		200	0.0757	0.0758		0.0736	0.0021	11	10.5
K1105625-004	29		200	0.0822	0.0823		0.0749	0.0073	37	36.5
k1104862-049D	30		150	0.0775	0.0775		0.0746	0.0029	19	19.3
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!
								0.0000	#DIV/0!	#DIV/0!

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) K-Balance #31

Analyzed By:		Date Analyzed:	date time
Reviewed By:	BDIC	Date Reviewed:	6/23/11

6-22-11TSS

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105625	Convent	K1105625-001	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-002	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-003	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-004	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-MB1	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-MB2	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-MB3	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-LCS1	Water	SM2540D		6/22/2011		
CAS_K	K1105625	Convent	K1105625-LCS2	Water	SM2540D		6/22/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	251136	BALANCE	K-Balance-31	6/22/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105625	Convent	6/22/2011	6/22/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	251136		

lab	labqc_samp	qc_type	comments
CAS_K	K1105625-MB1	MethodBlank	
CAS_K	K1105625-MB2	MethodBlank	
CAS_K	K1105625-MB3	MethodBlank	
CAS_K	K1105625-LCS1	LCS	
CAS_K	K1105625-LCS2	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105625	Convent	K1105625-001	Water	SM2540D	TSS	Unfilt	1	10	mg/L		Y	5	5	5				251136	251136
CAS_K	K1105625	Convent	K1105625-002	Water	SM2540D	TSS	Unfilt	1	13	mg/L		Y	5	5	5				251136	251136
CAS_K	K1105625	Convent	K1105625-003	Water	SM2540D	TSS	Unfilt	1	10.5	mg/L		Y	5	5	5				251136	251136
CAS_K	K1105625	Convent	K1105625-004	Water	SM2540D	TSS	Unfilt	1	36.5	mg/L		Y	5	5	5				251136	251136

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105625-001	090557-01.02	SJUSL001-AS019-N	NA	6/22/2011	
CAS_K	K1105625-002	090557-01.02	SJUSL001-AS020-N	NA	6/22/2011	
CAS_K	K1105625-003	090557-01.02	SJUSL001-AS021-N	NA	6/22/2011	
CAS_K	K1105625-004	090557-01.02	SJUSL001-AS022-N	NA	6/22/2011	
CAS_K	K1105625-MB1			K1105625-MB1	NA	NA
CAS_K	K1105625-MB2			K1105625-MB2	NA	NA
CAS_K	K1105625-MB3			K1105625-MB3	NA	NA
CAS_K	K1105625-LCS1			K1105625-LCS1	NA	NA
CAS_K	K1105625-LCS2			K1105625-LCS2	NA	NA

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	251136	K1105625-LCS1	TSS	Unfilt	L	240	226	80	115	mg/L	
CAS_K	251136	K1105625-LCS2	TSS	Unfilt	L	240	222	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	251136	K1105625-MB1	SM2540D	TSS	1	5		mg/L	U
CAS_K	251136	K1105625-MB2	SM2540D	TSS	1	5		mg/L	U
CAS_K	251136	K1105625-MB3	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

June 30, 2011 Analytical Report for Service Request No: K1105732

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 24, 2011. For your reference, these analyses have been assigned our service request number K1105732.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/jw

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105732
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	06/24/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 06/24/11. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by Gregory [illegible] **Date** 7/1/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K1105732

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 SGT☐ 1664 HEM☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS023-N	6/21/2011	11:41		Water	1														X					
SJUSL001-AS024-N	6/22/2011	23:41		Water	1														X					

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 6/23/11 10:36	Signature: [illegible]	Date/Time: 6/24/11 1000	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name: Karla Smith	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC GS

Client / Project: Anchor QEA Service Request *K11* 05732

Received: 6/24/11 Opened: 6/24/11 By: [illegible] Unloaded: 6/24/11 By: [illegible]

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2, Front
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
5.5	8.3*	265		1Z 3E6 849 01 3437 9920	

SHORT HOLD TIME

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* hard ice
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: * temp blank on top of the hard ice, not inside deep.

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105732
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/21/11 - 6/22/11
Sample Matrix:	Water	**Date Received:**	6/24/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS023-N	K1105732-001	**13.0**		5.0	5.0	1	NA	6/27/11 11:15	
SJUSL001-AS024-N	K1105732-002	**21.0**		5.0	5.0	1	NA	6/27/11 11:15	
Method Blank	K1105732-MB1	ND	U	5.0	5.0	1	NA	6/27/11 11:15	
Method Blank	K1105732-MB2	ND	U	5.0	5.0	1	NA	6/27/11 11:15	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105732
Date Collected: 6/21/11
Date Received: 6/24/11
Date Analyzed: 6/27/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: SJUSL001-AS023-N
Lab Code: K1105732-001

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS023-N DUP Duplicate Sample K1105732-001DUP1 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	13.0	13.0	13.0	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105732
Date Collected: 6/22/11
Date Received: 6/24/11
Date Analyzed: 6/27/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name: SJUSL001-AS024-N
Lab Code: K1105732-002

Units: mg/L
Basis: NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS024-N DUP Duplicate Sample K1105732-002DUP2 Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	21.0	21.5	21.3	2	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105732
Date Analyzed: 6/27/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105732-LCS Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	236	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Original

Work Request # KS704, KS703, KS732, KS699 251488

Tier: II II II I

Date Analyzed: 6/27/11

Analyst: JM

Analysis: TSS

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS:

Final Approved by: [signature] Date: 6/29/11

DQREPORT

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 251488 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
105699-001	Solids, Total Suspended (TSS)	N/A		Water	53192.00 mg/L	25 ml	53200 mg/L	1	40	40			6/27/11 11:15	N	I
105703-001	Solids, Total Suspended (TSS)	N/A		Water	20.00 mg/L	200 ml	20.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105703-002	Solids, Total Suspended (TSS)	N/A		Water	30.50 mg/L	200 ml	30.5 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105703-003	Solids, Total Suspended (TSS)	N/A		Water	7.50 mg/L	200 ml	7.5 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105703-004	Solids, Total Suspended (TSS)	N/A		Water	6.00 mg/L	200 ml	6.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105703-005	Solids, Total Suspended (TSS)	N/A		Water	5.00 mg/L	200 ml	5.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105703-006	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105703-007	Solids, Total Suspended (TSS)	N/A		Water	-0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105704-001	Solids, Total Suspended (TSS)	N/A		Water	8.00 mg/L	200 ml	8.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105704-002	Solids, Total Suspended (TSS)	N/A		Water	14.50 mg/L	200 ml	14.5 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105704-003	Solids, Total Suspended (TSS)	N/A		Water	46.00 mg/L	200 ml	46.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105704-004	Solids, Total Suspended (TSS)	N/A		Water	2.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105704-005	Solids, Total Suspended (TSS)	N/A		Water	6.00 mg/L	200 ml	6.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	II
105704-006	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105704-007	Solids, Total Suspended (TSS)	N/A		Water	1.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105704-008	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105704-009	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
105732-001	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 ml	13.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	V
105732-002	Solids, Total Suspended (TSS)	N/A		Water	21.00 mg/L	200 ml	21.0 mg/L	1	5.0	5.0			6/27/11 11:15	N	V
Q1106176-01	Solids, Total Suspended (TSS)	MB		Water	-0.80 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/27/11 11:15	N	II
Q1106176-02	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	① ~~5.0~~	~~5.0~~ 4.0 KC			6/27/11 11:15	N	II
Q1106176-03	Solids, Total Suspended (TSS)	LCS		Water	236.00 mg/L	50 ml	236 mg/L	1	20	20	98		6/27/11 11:15	N	II
Q1106176-04	Solids, Total Suspended (TSS)	DUP	K1105732-002	Water	21.50 mg/L	200 ml	21.5 mg/L	1	5.0	5.0		2	6/27/11 11:15	N	V
Q1106176-05	Solids, Total Suspended (TSS)	DUP	K1105732-001	Water	13.00 mg/L	200 ml	13.0 mg/L	1	5.0	5.0		<1	6/27/11 11:15	N	V

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

① MRL = PQL
KC 6/28/11

251488

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.: K5704, K5703, K5732, K5699 Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0735	0.0735		0.0737	-0.0002	-0.80	<4.0
MB	2		250	0.0734	0.0733		0.0735	-0.0001	-0.40	<4.0
LCS	3		50	0.0853	0.0851		0.0735	0.0118	236.0	236
K1105704-001	4		200	0.0761	0.0762		0.0745	0.0016	8.00	8.00
K1105704-002	5		200	0.0749	0.0749		0.0720	0.0029	14.5	14.5
K1105704-003	6		200	0.0817	0.0816		0.0725	0.0092	46.00	46.0
K1105704-004	7		200	0.0743	0.0741		0.0738	0.0005	2.50	<5.0
K1105704-005	8		200	0.0759	0.0758		0.0747	0.0012	6.00	6.00
K1105704-006	9		200	0.0736	0.0737		0.0735	0.0001	0.50	<5.0
K1105704-007	10		200	0.0734	0.0733		0.0731	0.0003	1.50	<5.0
K1105704-008	11		200	0.0729	0.0729		0.0720	0.0009	4.50	<5.0
K1105704-009	12		200	0.0741	0.0740		0.0737	0.0004	2.00	<5.0
K1105703-001	13		200	0.0777	0.0777		0.0737	0.0040	20.0	20.0
K1105703-002	14		200	0.0794	0.0793		0.0733	0.0061	30.5	30.5
K1105703-003	15		200	0.0753	0.0752		0.0738	0.0015	7.50	7.50
K1105703-004	16		200	0.0740	0.0739		0.0728	0.0012	6.00	6.00
K1105703-005	17		200	0.0748	0.0748		0.0738	0.0010	5.00	5.00
K1105703-006	18		200	0.0731	0.0730		0.0722	0.0009	4.50	<5.0
K1105703-007	19		200	0.0735	0.0735		0.0736	-0.0001	-0.50	<5.0
K1105732-001	20		200	0.0773	0.0772		0.0747	0.0026	13.0	13.0
K1105732-002	21		200	0.0783	0.0782		0.0741	0.0042	21.0	21.0
K1105732-001D	22		200	0.0768	0.0767		0.0742	0.0026	13.0	13.0
K1105732-002D	23		200	0.0770	0.0768		0.0727	0.0043	21.5	21.5
K1105699-001	24	[1]	25	1.4029	1.4026		0.0731	1.3298	53192	53200

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32 S T.V. = 240 % Rec =

Wt (1)	Start	12:35		Wt (2)	S 10:00		Wt (3)	Start [1] high amount of sediment
	Stop	8:45			11:05			Stop
Wt (1)	Start	105		Wt (2)	Start 105		Wt (3)	Start
Temp	Stop	105		Temp	Stop 105		Temp	Stop date time

Analyzed By: JM Date Analyzed: 6/27/2011 11:15

Reviewed By: Date Reviewed: 6/29/11

K5732- 1/1d $\bar{x}$ = 13.0 RPD = <1

K5732- 2/2d $\bar{x}$ = 21.3 RPD = 2

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105732	Convent	K1105732-001	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-002	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-MB1	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-MB2	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-LCS	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-001DUP	Water	SM2540D		6/27/2011		
CAS_K	K1105732	Convent	K1105732-002DUP	Water	SM2540D		6/27/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	251488	BALANCE	K-Balance-31	6/27/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105732	Convent	6/27/2011	6/27/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	251488		

lab	labqc_samp	qc_type	comments
CAS_K	K1105732-MB1	MethodBlank	
CAS_K	K1105732-MB2	MethodBlank	
CAS_K	K1105732-LCS	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte
CAS_K	K1105732	Convent	K1105732-001	Water	SM2540D	TSS
CAS_K	K1105732	Convent	K1105732-002	Water	SM2540D	TSS
CAS_K	K1105732	Convent	K1105732-001DUP	Water	SM2540D	TSS
CAS_K	K1105732	Convent	K1105732-002DUP	Water	SM2540D	TSS

meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	
Unfilt	1	13	mg/L		Y	5		5
Unfilt	1	21	mg/L		Y	5		5
Unfilt	2	13	mg/L		Y	5		5
Unfilt	2	21.5	mg/L		Y	5		5

reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
5				251488	251488
5				251488	251488
5				251488	251488
5				251488	251488

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105732-001	090557-01.02	SJUSL001-AS023-N	NA	6/24/2011	
CAS_K	K1105732-002	090557-01.02	SJUSL001-AS024-N	NA	6/24/2011	
CAS_K	K1105732-MB1			K1105732-MB1	NA	NA
CAS_K	K1105732-MB2			K1105732-MB2	NA	NA
CAS_K	K1105732-LCS			K1105732-LCS	NA	NA
CAS_K	K1105732-001DUP	090557-01.02	SJUSL001-AS023-N	NA	6/24/2011	
CAS_K	K1105732-002DUP	090557-01.02	SJUSL001-AS024-N	NA	6/24/2011	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units
CAS_K	251488	K1105732-LCS	TSS	Unfilt	L	240	236	80	115	mg/L

conc_qual

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	251488	K1105732-MB1	SM2540D	TSS	1	5		mg/L	U
CAS_K	251488	K1105732-MB2	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

July 5, 2011 Analytical Report for Service Request No: K1105867

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the samples submitted to our laboratory on June 29, 2011. For your reference, these analyses have been assigned our service request number K1105867.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

for Gregory Salata, Ph.D.
Project Chemist

GS/ln

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client: Integral Consulting
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Service Request No.: K1105867
Date Received: 6/29/11
Sample Matrix: Water

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

Two water samples were received for analysis at Columbia Analytical Services on 6/29/11. The samples were received in good condition and consistent with the accompanying chain of custody form. The samples were stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by Howard Holmes **Date** 7-5-11

Chain of Custody

CHAIN OF CUSTODY

Columbia Analytical Services™

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

SR#: K1105867

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐	Hydrocarbons (*see below) Gas☐ 8021☐ BTEX☐ Diesel☐ Oil☐	☐ Fuel Fingerprint (FIQ) ☐ NW-HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS025-N	6/24/2011	12:13		Water	1														X					
SJUSL001-AS026-N	6/26/2011	00:13		Water	1														X					

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: Daleel Nangju — Date/Time: 6/28/11 17:00	Signature — Date/Time	Signature — Date/Time	Signature: SHOPKINS — Date/Time: 6/29/11 1016
Printed Name: Daleel Nangju — Firm: Anchor QEA	Printed Name — Firm	Printed Name — Firm	Printed Name — Firm: CAS

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC 15

Client / Project: Integral Service Request *K11* 05867

Received: 6/29/11 Opened: 6/29/11 By: SA Unloaded: 6/29/11 By: SA

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2 Side
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
0.4		300		1Z 3E6 8Y9 01 3636 3826	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

SHORT HOLD TIME

Notes, Discrepancies, & Resolutions: _____

General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105867
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/24/11 - 6/26/11
Sample Matrix:	Water	**Date Received:**	6/29/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS025-N	K1105867-001	**15.0**		5.0	5.0	1	NA	6/29/11 05:30	
SJUSL001-AS026-N	K1105867-002	**26.0**		5.0	5.0	1	NA	6/29/11 05:30	
Method Blank	K1105867-MB1	ND	U	5.0	5.0	1	NA	6/29/11 05:30	
Method Blank	K1105867-MB2	ND	U	5.0	5.0	1	NA	6/29/11 05:30	
Method Blank	K1105867-MB3	ND	U	5.0	5.0	1	NA	6/29/11 05:30	
Method Blank	K1105867-MB4	ND	U	5.0	5.0	1	NA	6/29/11 05:30	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105867
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/24/11
Sample Matrix:	Water	**Date Received:**	6/29/11
		Date Analyzed:	6/29/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SJUSL001-AS025-N	**Units:**	mg/L
Lab Code:	K1105867-001	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS025-N DUP Duplicate Sample K1105867-001DUP Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	15.0	15.0	15.0	<1	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105867
Date Analyzed: 6/29/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105867-LCS1 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	236	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105867
Date Analyzed: 6/29/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105867-LCS2 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	232	240	97	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105867
Date Analyzed: 6/29/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105867-LCS3 Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	234	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Original

Work Request # (~~KS778~~) ~~KS748, KS752, KS776, KS773, KS774, KS775,~~

Tier: II I I II I I I

Date Analyzed: 6/29/11 KS760, KS786, KS788, KS771, KS818,

I I II I I

Analyst: KC

Analysis: TSS KS816, KS839, KS842, KS846, KS850,

II II I I

KS899, ~~KS827~~ 5867

I I H2

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1. Is the method name and number correct and appropriate? yes/no/NA
2. Holding times met for all analyses and for all samples? yes/no/NA
3. Are calculations correct? yes/no/NA
4. Is the reporting basis correct? (Dry Weight) yes/no/NA
5. All quality control criteria met? yes/no/NA
   a. Is the calibration curve correlation coefficient ≥ 0.995? yes/no/NA
   b. MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency? yes/no/NA
   c. Are ICVs, CCVs, and CCBs all within acceptance limits? yes/no/NA
   d. Are results for methods blanks all ND? yes/no/NA
   e. Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.) yes/no/NA
   f. Are all exceptions explained? yes/no/NA
6. Are all service requests that apply attached? yes/no/NA
7. Are all samples labelled correctly? yes/no/NA
8. Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample) yes/no/NA
9. Are detection limits and units reported correctly? yes/no/NA
10. Are proper Analysis/Extraction stickers included on report? yes/no/NA
11. Is the unused space on the benchsheet crossed out? yes/no/NA
12. Was analysis turned in by the due date? (n-2) (If not record SR#) yes/no/NA

COMMENTS: RUSH

KS778 - due 7/12
KS748 - due 7/8
KS773 - due 7/5
KS850 - due 7/12

KW05816-001&001D high RPD @55%, $\bar{X} \leq 5 \times MRL$

Final Approved by: BDC Date: 6/30/11

DQREPORT

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** KCUEVAS **Analysis Lot:** 251837 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
105748-002	Solids, Total Suspended (TSS)	N/A		Water	74.00 mg/L	100 ml	74 mg/L	1	10	10			6/29/11 05:30	N	I
105752-001	Solids, Total Suspended (TSS)	N/A		Water	202.00 mg/L	200 ml	202 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
105752-002	Solids, Total Suspended (TSS)	N/A		Water	207.30 mg/L	150 ml	207 mg/L	1	6.7	6.7			6/29/11 05:30	N	V
105752-003	Solids, Total Suspended (TSS)	N/A		Water	141.30 mg/L	150 ml	141 mg/L	1	6.7	6.7			6/29/11 05:30	Y	V
105760-001	Solids, Total Suspended (TSS)	N/A		Water	1620.00 mg/L	5 ml	1620 mg/L	1	200	200			6/29/11 05:30	N	I
105773-001	Solids, Total Suspended (TSS)	N/A		Water	5.60 mg/L	250 ml	5.6 mg/L	1		4.0			6/29/11 05:30	N	V
105774-001	Solids, Total Suspended (TSS)	N/A		Water	1.60 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	V
105775-001	Solids, Total Suspended (TSS)	N/A		Water	2230.00 mg/L	50 ml	2230 mg/L	1		20			6/29/11 05:30	N	V
105775-002	Solids, Total Suspended (TSS)	N/A		Water	7.60 mg/L	250 ml	7.6 mg/L	1		4.0			6/29/11 05:30	N	V
105776-001	Solids, Total Suspended (TSS)	N/A		Water	2390.00 mg/L	50 ml	2390 mg/L	1		20			6/29/11 05:30	N	II
105776-002	Solids, Total Suspended (TSS)	N/A		Water	3.60 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105776-003	Solids, Total Suspended (TSS)	N/A		Water	1716.00 mg/L	50 ml	1720 mg/L	1		20			6/29/11 05:30	N	II
105776-004	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105776-005	Solids, Total Suspended (TSS)	N/A		Water	1214.00 mg/L	50 ml	1210 mg/L	1		20			6/29/11 05:30	N	II
105776-006	Solids, Total Suspended (TSS)	N/A		Water	1.20 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105778-001	Solids, Total Suspended (TSS)	N/A		Water	0.80 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105778-002	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105778-003	Solids, Total Suspended (TSS)	N/A		Water	-0.40 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105778-004	Solids, Total Suspended (TSS)	N/A		Water	0.00 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
105786-001	Solids, Total Suspended (TSS)	N/A		Water	9.00 mg/L	200 ml	9.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	I
105786-002	Solids, Total Suspended (TSS)	N/A		Water	16.00 mg/L	150 ml	16.0 mg/L	1	6.7	6.7			6/29/11 05:30	N	I
105788-001	Solids, Total Suspended (TSS)	N/A		Water	20.00 mg/L	200 ml	20.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
105788-002	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II
105788-003	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II

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ndicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** KCUEVAS **Analysis Lot:** 251837 **Method/Testcode:** SM 2540 D/TSS

ab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1105788-004	Solids, Total Suspended (TSS)	N/A		Water	6.00 mg/L	200 ml	6.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105816-001	Solids, Total Suspended (TSS)	N/A		Water	10.50 mg/L	200 ml	10.5 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105816-002	Solids, Total Suspended (TSS)	N/A		Water	8.50 mg/L	200 ml	8.5 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105816-003	Solids, Total Suspended (TSS)	N/A		Water	10.00 mg/L	200 ml	10.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105816-004	Solids, Total Suspended (TSS)	N/A		Water	11.50 mg/L	200 ml	11.5 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105818-001	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	V
1105818-002	Solids, Total Suspended (TSS)	N/A		Water	5.50 mg/L	200 ml	5.5 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
1105818-003	Solids, Total Suspended (TSS)	N/A		Water	9.00 mg/L	200 ml	9.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
1105818-004	Solids, Total Suspended (TSS)	N/A		Water	10.50 mg/L	200 ml	10.5 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
1105839-001	Solids, Total Suspended (TSS)	N/A		Water	39.00 mg/L	200 ml	39.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	II
1105842-001	Solids, Total Suspended (TSS)	N/A		Water	3.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	I
1105846-001	Solids, Total Suspended (TSS)	N/A		Water	10.00 mg/L	200 ml	10.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	I
1105850-002	Solids, Total Suspended (TSS)	N/A		Water	132.00 mg/L	50 ml	132 mg/L	1	20	20			6/29/11 05:30	N	I
1105867-001	Solids, Total Suspended (TSS)	N/A		Water	15.00 mg/L	200 ml	15.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
1105867-002	Solids, Total Suspended (TSS)	N/A		Water	26.00 mg/L	200 ml	26.0 mg/L	1	5.0	5.0			6/29/11 05:30	N	V
Q1106297-01	Solids, Total Suspended (TSS)	DUP	K1105778-004	Water	0.40 mg/L	250 ml	4.0 mg/L U	1		4.0		NC	6/29/11 05:30	N	II
Q1106297-02	Solids, Total Suspended (TSS)	DUP	K1105752-003	Water	130.70 mg/L	150 ml	131 mg/L	1	6.7	6.7		8	6/29/11 05:30	N	V
Q1106297-03	Solids, Total Suspended (TSS)	DUP	K1105867-001	Water	15.00 mg/L	200 ml	15.0 mg/L	1	5.0	5.0		<1	6/29/11 05:30	N	V
Q1106297-04	Solids, Total Suspended (TSS)	DUP	K1105816-001	Water	18.50 mg/L	200 ml	18.5 mg/L	1	5.0	5.0		55*	6/29/11 05:30	N	II
Q1106297-05	Solids, Total Suspended (TSS)	DUP	K1105788-001	Water	18.50 mg/L	200 ml	18.5 mg/L	1	5.0	5.0		8	6/29/11 05:30	N	II
Q1106297-06	Solids, Total Suspended (TSS)	DUP	K1105752-003	Water		200 mL		1						N	V
Q1106297-07	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
Q1106297-07	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II
Q1106297-08	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II

ndicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Analytical Results Summary

nstrument Name: K-Balance-31 **Analyst:** KCUEVAS **Analysis Lot:** 251837 **Method/Testcode:** SM 2540 D/TSS

b Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
21106297-08	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II
21106297-09	Solids, Total Suspended (TSS)	MB		Water	0.40 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
21106297-09	Solids, Total Suspended (TSS)	MB		Water	0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II
21106297-10	Solids, Total Suspended (TSS)	MB		Water	0.40 mg/L	250 ml	4.0 mg/L U	1		4.0			6/29/11 05:30	N	II
21106297-10	Solids, Total Suspended (TSS)	MB		Water	0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			6/29/11 05:30	N	II
21106297-11	Solids, Total Suspended (TSS)	LCS		Water	236.00 mg/L	50 ml	236 mg/L	1		20	98		6/29/11 05:30	N	II
21106297-11	Solids, Total Suspended (TSS)	LCS		Water	236.00 mg/L	50 ml	236 mg/L	1	20	20	98		6/29/11 05:30	N	II
21106297-12	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1		20	97		6/29/11 05:30	N	II
21106297-12	Solids, Total Suspended (TSS)	LCS		Water	232.00 mg/L	50 ml	232 mg/L	1	20	20	97		6/29/11 05:30	N	II
21106297-13	Solids, Total Suspended (TSS)	LCS		Water	234.00 mg/L	50 ml	234 mg/L	1		20	98		6/29/11 05:30	N	II
21106297-13	Solids, Total Suspended (TSS)	LCS		Water	234.00 mg/L	50 ml	234 mg/L	1	20	20	98		6/29/11 05:30	N	II

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BDK
6/30/11

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

COLUMBIA ANALYTICAL SERVICES, INC.

251857

Work Order #.:

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
mb	1		250	0.0735	0.0735		0.0736	-0.0001	-0.40	<4.0
mb	2		250	0.0728	0.0729		0.0729	-0.0001	0	<4.0
lcs	3		50	0.0879	0.0880		0.0761	0.0118	236.0	236
k1105778-001	4		250	0.0748	0.0749		0.0746	0.0002	0.8	<4.0
k1105778-002	5		250	0.0741	0.0740		0.0741	0.0000	0.0	<4.0
k1105778-003	6		250	0.0727	0.0728		0.0728	-0.0001	-0.40	<4.0
k1105778-004	7		250	0.0752	0.0751		0.0752	0.0000	0.0	<4.0
5778-4dup	8		250	0.0743	0.0744		0.0742	0.0001	0.40	<4.0
k1105748-002	9	THICK	100	0.0808	0.0809		0.0734	0.0074	74.0	74.0
k1105752-001	10		200	0.1133	0.1134		0.0729	0.0404	202	202
k1105752-002	11		150	0.1065	0.1066		0.0754	0.0311	207	207
k1105752-003	12		150	0.0962	0.0962		0.0750	0.0212	141	141
5752-3dup	13		150	0.0928	0.0929		0.0732	0.0196	131	131
k1105776-001	14		50	0.1937	0.1938		0.0742	0.1195	2390	2390
k1105776-002	15		250	0.0736	0.0737		0.0727	0.0009	3.6	<4.0
k1105776-003	16		50	0.1586	0.1587		0.0728	0.0858	1716.0	1720
k1105776-004	17		250	0.0737	0.0738		0.0732	0.0005	2.0	<4.0
k1105776-005	18		50	0.1333	0.1332		0.0726	0.0607	1214.0	1210
k1105776-006	19		250	0.0734	0.0736		0.0731	0.0003	1.2	<4.0
k1105773-001	20		250	0.0744	0.0744		0.0730	0.0014	5.60	5.60
k1105774-001	21		250	0.0740	0.0742		0.0736	0.0004	1.60	<4.0
k1105775-001	22		50	0.1841	0.1841		0.0726	0.1115	2230.00	2230
k1105775-002	23		250	0.0757	0.0756		0.0738	0.0019	7.60	7.60
k1105760-001	24	THICK	5	0.0824	0.0825		0.0743	0.0081	1620.00	1620
k1105786-001	25		200	0.0753	0.0754		0.0735	0.0018	9.00	9.00

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32 T T.V. = 240 % Rec =

Wt (1)	Start	9:30		Wt (2)	Start 05:00		Wt (3)	Start	
	Stop	4:30			Stop 06:00			Stop	
Wt (1)	Start	105		Wt (2)	Start 105		Wt (3)	Start	
Temp	Stop	105		Temp	Stop 105		Temp	Stop	date time

Analyzed By: KC Date Analyzed: 6/29/2011 5:30

Reviewed By: BDC Date Reviewed: 6/30/11

K5778-4/4d $\bar{x}$ = ND RPD = —

K5752-3/3d $\bar{x}$ = 136 RPD = 7

K5788-1/1d $\bar{x}$ = 19.3 RPD = 8

K5867-1/1d $\bar{x}$ = 15 RPD = <1

6-29-11TSS

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	26		250	0.0720	0.0720		0.0719	0.0001	0.40	<4.0
LCS	27		50	0.0847	0.0846		0.0731	0.0116	232	232
k1105786-002	28	L. VOL	150	0.0783	0.0784		0.0759	0.0024	16.0	16.0
k1105788-001	29		200	0.0780	0.0781		0.0740	0.0040	20.00	20.0
k1105788-002	30		200	0.0758	0.0759		0.0757	0.0001	1	<5.0
k1105788-003	31		200	0.0753	0.0754		0.0744	0.0009	4.50	<5.0
k1105788-004	32		200	0.0736	0.0737		0.0724	0.0012	6.00	6.00
K1105771-001	33		200	0.0889	0.0891		0.0730	0.0159	79.50	79.5
5788-1DUP	34		200	0.0788	0.0789		0.0751	0.0037	18.50	18.5
K1105818-001	35		200	0.0730	0.0729		0.0721	0.0009	4.50	<5.0
K1105818-002	36		200	0.0748	0.0749		0.0737	0.0011	5.50	5.50
K1105818-003	37		200	0.0755	0.0756		0.0737	0.0018	9.00	9.00
K1105818-004	38		200	0.0766	0.0767		0.0745	0.0021	10.50	10.5
K1105816-001	39		200	0.0749	0.0751		0.0728	0.0021	10.50	10.5
K1105816-002	40		200	0.0752	0.0753		0.0735	0.0017	8.50	8.50
K1105816-003	41		200	0.0750	0.0752		0.0730	0.0020	10.00	10.0
K1105816-004	42		200	0.0769	0.0771		0.0746	0.0023	11.50	11.5
K1105839-001	43		200	0.0798	0.0799		0.0720	0.0078	39.00	39.0
K1105842-001	44		200	0.0733	0.0733		0.0727	0.0006	3.00	<5.0
K1105846-001	45		200	0.0750	0.0751		0.0730	0.0020	10.00	10.0
K1105850-002	46	THICK	50	0.0809	0.0810		0.0743	0.0066	132.00	132
5816-1DUP	47		200	0.0766	0.0767		0.0729	0.0037	18.50	18.5
K1105699-001	48	REANALYZED	25	1.3942	1.3940		0.0744	1.3198	52792.00	52800
MB	49		250	0.0722	0.0723		0.0721	0.0001	0.40	<4.0
lcs	50		50	0.0838	0.0839		0.0721	0.0117	234.00	234

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml)

Analyzed By:	KC	Date Analyzed:	~~1/3/2011~~ 6/29/11 9:00
Reviewed By:	BDK	Date Reviewed:	6/30/11

① Sample is non homogeneous.

COLUMBIA ANALYTICAL SERVICES, INC.

Work Order #.:

Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number		Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
k1105867-001	51		200	0.0766	0.0767		0.0736	0.0030	15.0	15.0
5867-2	52		200	0.0790	0.0791		0.0738	0.0052	26.0	26.0
5867-1d	53		200	0.0738	0.0739		0.0708	0.0030	15.0	15.0

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml)

			date	time
Analyzed By:	kc	Date Analyzed:	6/29/2011	
Reviewed By:		Date Reviewed:		

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105867	Convent	K1105867-001	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-002	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-MB1	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-MB2	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-MB3	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-MB4	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-LCS1	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-LCS2	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-LCS3	Water	SM2540D		6/29/2011		
CAS_K	K1105867	Convent	K1105867-001DUP	Water	SM2540D		6/29/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	251837	BALANCE	K-Balance-31	6/29/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105867	Convent	6/29/2011	6/29/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	251837		

lab	labqc_samp	qc_type	comments
CAS_K	K1105867-MB1	MethodBlank	
CAS_K	K1105867-MB2	MethodBlank	
CAS_K	K1105867-MB3	MethodBlank	
CAS_K	K1105867-MB4	MethodBlank	
CAS_K	K1105867-LCS1	LCS	
CAS_K	K1105867-LCS2	LCS	
CAS_K	K1105867-LCS3	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105867	Convent	K1105867-001	Water	SM2540D	TSS	Unfilt	1	15	mg/L		Y	5	5	5				251837	251837
CAS_K	K1105867	Convent	K1105867-002	Water	SM2540D	TSS	Unfilt	1	26	mg/L		Y	5	5	5				251837	251837
CAS_K	K1105867	Convent	K1105867-001DUP	Water	SM2540D	TSS	Unfilt	2	15	mg/L		Y	5	5	5				251837	251837

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105867-001	090557-01.02	SJUSL001-AS025-N	NA	6/29/2011	1
CAS_K	K1105867-002	090557-01.02	SJUSL001-AS026-N	NA	6/29/2011	1
CAS_K	K1105867-MB1			K1105867-MB1	NA	NA
CAS_K	K1105867-MB2			K1105867-MB2	NA	NA
CAS_K	K1105867-MB3			K1105867-MB3	NA	NA
CAS_K	K1105867-MB4			K1105867-MB4	NA	NA
CAS_K	K1105867-LCS1			K1105867-LCS1	NA	NA
CAS_K	K1105867-LCS2			K1105867-LCS2	NA	NA
CAS_K	K1105867-LCS3			K1105867-LCS3	NA	NA
CAS_K	K1105867-001DUP	090557-01.02	SJUSL001-AS025-N	NA	6/29/2011	1

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	251837	K1105867-LCS1	TSS	Unfilt	L	240	236	80	115	mg/L	
CAS_K	251837	K1105867-LCS2	TSS	Unfilt	L	240	232	80	115	mg/L	
CAS_K	251837	K1105867-LCS3	TSS	Unfilt	L	240	234	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	251837	K1105867-MB1	SM2540D	TSS	1	5		mg/L	U
CAS_K	251837	K1105867-MB2	SM2540D	TSS	1	5		mg/L	U
CAS_K	251837	K1105867-MB3	SM2540D	TSS	1	5		mg/L	U
CAS_K	251837	K1105867-MB4	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag

Columbia Analytical Services™ 1317 S. 13th Avenue, Kelso, WA 98626 360.577.7222 360.636.1068 (fax) www.caslab.com

July 6, 2011 Analytical Report for Service Request No: K1105981

Craig Hutchings
Integral Consulting, Incorporated
1205 West Bay Drive NW
Olympia, WA 98502-4670

RE: San Jacinto River Upstream Sediment Load Study/090557-01.02

Dear Craig:

Enclosed are the results of the sample submitted to our laboratory on July 01, 2011. For your reference, these analyses have been assigned our service request number K1105981.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3376. You may also contact me via Email at GSalata@caslab.com.

Respectfully submitted,

Columbia Analytical Services, Inc.

Gregory Salata, Ph.D.
Project Chemist

GS/jw

100% Recycled Paper

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.1 definition*: Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

Columbia Analytical Services, Inc.
Kelso, WA
State Certifications, Accreditations, and Licenses

Agency	Number
Alaska DEC UST	UST-040
Arizona DHS	AZ0339
Arkansas - DEQ	88-0637
California DHS	2286
Florida DOH	E87412
Hawaii DOH	-
Idaho DHW	-
Indiana DOH	C-WA-01
Louisiana DEQ	3016
Louisiana DHH	LA050010
Maine DHS	WA0035
Michigan DEQ	9949
Minnesota DOH	053-999-368
Montana DPHHS	CERT0047
Nevada DEP	WA35
New Jersey DEP	WA005
New Mexico ED	-
North Carolina DWQ	605
Oklahoma DEQ	9801
Oregon - DEQ	WA100010
South Carolina DHEC	61002
Washington DOE	C1203
Wisconsin DNR	998386840
Wyoming (EPA Region 8)	-

Case Narrative

COLUMBIA ANALYTICAL SERVICES, INC.

Client:	Integral Consulting, Incorporated	**Service Request No.:**	K1105981
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Received:**	07/01/11
Sample Matrix:	Water		

CASE NARRATIVE

All analyses were performed consistent with the quality assurance program of Columbia Analytical Services, Inc. (CAS). This report contains analytical results for samples designated for Tier IV validation deliverables including summary forms and all of the associated raw data for each of the analyses. When appropriate to the method, method blank results have been reported with each analytical test.

Sample Receipt

One water sample was received for analysis at Columbia Analytical Services on 07/01/11. Except as noted on the cooler receipt and preservation form included in this data package the sample was received in good condition and consistent with the accompanying chain of custody form. The sample was stored in a refrigerator at 4°C upon receipt at the laboratory.

General Chemistry Parameters

No anomalies associated with the analysis of these samples were observed.

Approved by _____ **Date** 07/07/11

Chain of Custody

Columbia Analytical Services™

CHAIN OF CUSTODY

SR#: K110 5981

1317 South 13th Ave, Kelso, WA 98626 | 360.577.7222 | 800.695.7222 | 360.636.1068 (fax)

PAGE 1 OF 1 COC # 001

PROJECT NAME: San Jacinto River Upstream Sediment Load Study
PROJECT NUMBER: 090557-01.02
PROJECT MANAGER: Daleel Nangju
COMPANY/ADDRESS: Anchor QEA
10707 Corporate Dr Ste 230
CITY/STATE/ZIP: Stafford, TX 77477
E-MAIL ADDRESS: dnangju@anchorqea.com
PHONE #: 281-565-1133 FAX #:
SAMPLER'S SIGNATURE: Daleel Nangju

SAMPLE I.D.	DATE	TIME	LAB I.D.	MATRIX	NUMBER OF CONTAINERS	Semivolatile Organics by GC/MS 625☐ 8270☐ 8270LL☐	Volatile Organics 624☐ 8260☐ 8021☐ BTEX☐	Hydrocarbons (*see below) Gas☐ Diesel☐ Oil☐ ☐ Fuel Fingerprint (FIQ) ☐ NW HCID Screen	Oil & Grease/TRPH 1664 HEM☐ 1664 SGT☐	PCB's Aroclors☐ Congeners☐	Pesticides/Herbicides 608☐ 8081A☐ 8141A☐ 8151A☐	Chlorophenolics - 8151M Tri☐ Tetra☐ PCP☐	PAHS 8310☐ SIM☐	Metals, Total or Dissolved (See list below)	Cyanide☐ Hex-Chrom☐	pH, Cond., Cl, SO_4, PO_4, F, NO_2, NO_3, BOD, TSS, TDS (circle)	NH_3-N, COD, Total-P, TKN, TOC, DOC (circle) NO_2+NO_3	TOX 9020☐ AOX 1650☐ 506☐	TSS (EPA 160.2)				REMARKS
SJUSL001-AS027-N	6/28/2011	23:12		Water	1															X					

REPORT REQUIREMENTS

___ I. Routine Report: Method Blank, Surrogate, as required
___ II. Report Dup., MS, MSD as required
___ III. Data Validation Report (includes all raw data)
X IV. CLP Deliverable Report
___ V. EDD

INVOICE INFORMATION

P.O. #
Bill To:

TURNAROUND REQUIREMENTS

___ 24 hr. ___ 48 hr.
___ 5 Day
X Standard (10-15 working days)
___ Provide FAX Results

Requested Report Date

Circle which metals are to be analyzed:

Total Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

Dissolved Metals: Al As Sb Ba Be B Ca Cd Co Cr Cu Fe Pb Mg Mn Mo Ni K Ag Na Se Sr Tl Sn V Zn Hg

*INDICATE STATE HYDROCARBON PROCEDURE: AK CA WI NORTHWEST OTHER:_____ (CIRCLE ONE)

SPECIAL INSTRUCTIONS/COMMENTS:

For invoicing:
Craig Hutchings (chutchings@integral-corp.com)
Integral Consulting Inc.
1205 West Bay Drive NW | Olympia, WA 98502
Tel: 360.705.3534, ext. 17 | Cell: 360.485.3679 | Fax: 360.705.3669

☐ Sample Shipment contains USDA regulated soil samples (check box if applicable)

RELINQUISHED BY:		RECEIVED BY:		RELINQUISHED BY:		RECEIVED BY:	
Signature: Daleel Nangju	Date/Time: 6/29/11 16:00	Signature:	Date/Time: 7/1/11 1000	Signature	Date/Time	Signature	Date/Time
Printed Name: Daleel Nangju	Firm: Anchor QEA	Printed Name	Firm: CAS	Printed Name	Firm	Printed Name	Firm

RCOC #1 03/10

Columbia Analytical Services, Inc.
Cooler Receipt and Preservation Form

PC GS

Client / Project: Integral Service Request *K11* 05981

Received: 7/1/11 Opened: 7/1/11 By: AJ Unloaded: 7/1/11 By: AJ

1. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*
2. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*
3. Were custody seals on coolers? NA Y N If yes, how many and where? 2F
   If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Cooler Temp °C	Temp Blank °C	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
19.8	/	276		1Z3E6849014082122 4	

7. Packing material used. *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Sleeves* *Other* _____
8. Were custody papers properly filled out (ink, signed, etc.)? NA Y N
9. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N
10. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N
11. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N
12. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N
13. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N
14. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N
15. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time
All		Y								

Notes, Discrepancies, & Resolutions: _____

Lisa Domenighini

From: Craig Hutchings [chutchings@integral-corp.com]
Sent: Tuesday, July 05, 2011 2:11 PM
To: Lisa Domenighini
Cc: Greg Salata
Subject: RE: San Jacinto River Samples

Lisa,
Please proceed with TSS analyses of these sample.
Thank you for alerting me to the temperature and checking with me before proceeding.

Craig Hutchings
Tel: 360.705.3534, ext. 17

From: Lisa Domenighini [mailto:ldomenighini@caslab.com]
Sent: Tuesday, July 05, 2011 2:00 PM
To: Craig Hutchings
Subject: San Jacinto River Samples

Craig,
Greg Salata is out of the office today and I am helping cover his desk. For the sample received 7/1/11 the temperature upon receipt was 19.8 degree C. If you could verify you would like us to continue with the analysis of TSS I will make sure I add a comment to the work order.

Thank you,
Lisa

Lisa Domenighini
Project Manager

Columbia Analytical Services, Inc.
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General Chemistry Parameters

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105981
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/28/11
Sample Matrix:	Water	**Date Received:**	7/ 1/11
		Units:	mg/L
Analysis Method:	SM 2540 D	**Basis:**	NA

Solids, Total Suspended (TSS)

Sample Name	Lab Code	Result	Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Note
SJUSL001-AS027-N	K1105981-001	**19.5**		5.0	5.0	1	NA	7/5/11 11:30	
Method Blank	K1105981-MB1	ND	U	5.0	5.0	1	NA	7/5/11 11:30	
Method Blank	K1105981-MB2	ND	U	5.0	5.0	1	NA	7/5/11 11:30	

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	Integral Consulting, Incorporated	**Service Request:**	K1105981
Project:	San Jacinto River Upstream Sediment Load Study/090557-01.02	**Date Collected:**	6/28/11
Sample Matrix:	Water	**Date Received:**	7/1/11
		Date Analyzed:	7/ 5/11

Replicate Sample Summary
General Chemistry Parameters

Sample Name:	SJUSL001-AS027-N	**Units:**	mg/L
Lab Code:	K1105981-001	**Basis:**	NA

Analyte Name	Method	MRL	MDL	Sample Result	SJUSL001-AS027-N DUP Duplicate Sample K1105981-001DUP Result	Average	RPD	RPD Limit
Solids, Total Suspended (TSS)	SM 2540 D	5.0	5.0	19.5	19.0	19.3	3	10

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: Integral Consulting, Incorporated
Project: San Jacinto River Upstream Sediment Load Study/090557-01.02
Sample Matrix: Water

Service Request: K1105981
Date Analyzed: 7/ 5/11

Lab Control Sample Summary
General Chemistry Parameters

Units: mg/L
Basis: NA

Analyte Name	Method	Lab Control Sample K1105981-LCS Result	Spike Amount	% Rec	% Rec Limits
Solids, Total Suspended (TSS)	SM 2540 D	234	240	98	80 - 115

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

Original

Work Request # (K1104862), 5965, 5969, 5979, 5981, 5982, 5993, 6010, 6015, 6016

Tier: I, I, II, II, V, I, I, I, I, I

Date Analyzed: 7/5/11

Analyst: JM

Analysis: TSS/SM 2540D

252947

DATA QUALITY REPORT
INORGANICS

Explain any "no" responses to questions below, and any corrective actions in the comments section below.

1.	Is the method name and number correct and appropriate?		yes/no/NA
2.	Holding times met for all analyses and for all samples?		yes/no/NA
3.	Are calculations correct?		yes/no/NA
4.	Is the reporting basis correct? (Dry Weight)		yes/no/NA
5.	All quality control criteria met?		yes/no/NA
	a.	Is the calibration curve correlation coefficient ≥ 0.995?	yes/no/NA
	b.	MBs, CCVs, CCBs, LCSs, Dups, and Spikes, analyzed at proper frequency?	yes/no/NA
	c.	Are ICVs, CCVs, and CCBs all within acceptance limits?	yes/no/NA
	d.	Are results for methods blanks all ND?	yes/no/NA
	e.	Are all QC samples within acceptance criteria? (LCS % rec, MS/DMS % rec, DUP or MS/DMS RPDs, etc.)	yes/no/NA
	f.	Are all exceptions explained?	yes/no/NA
6.	Are all service requests that apply attached?		yes/no/NA
7.	Are all samples labelled correctly?		yes/no/NA
8.	Have all instructions on the service request been followed? (e.g. Special MRLs, QC on a specific sample)		yes/no/NA
9.	Are detection limits and units reported correctly?		yes/no/NA
10.	Are proper Analysis/Extraction stickers included on report?		yes/no/NA
11.	Is the unused space on the benchsheet crossed out?		yes/no/NA
12.	Was analysis turned in by the due date? (n-2) (If not record SR#)		yes/no/NA

COMMENTS:

Final Approved by: BDC Date: 7/6/11

DQREPORT

Analytical Results Summary

Instrument Name: K-Balance-31 **Analyst:** JMASCHMANN **Analysis Lot:** 252447 **Method/Testcode:** SM 2540 D/TSS

Lab Code	Target Analytes	QC	Parent Sample	Matrix	Raw Result	Sample Amt.	Final Result	Dil	MDL	PQL	% Rec	% RSD	Date Analyzed	QC?	Tier
1104862-071	Solids, Total Suspended (TSS)	N/A		Water	21.60 mg/L	125 ml	21.6 mg/L	1	8.0	8.0			7/5/11 11:30	N	I
1104862-073	Solids, Total Suspended (TSS)	N/A		Water	20.00 mg/L	125 ml	20.0 mg/L	1	8.0	8.0			7/5/11 11:30	N	I
1105965-001	Solids, Total Suspended (TSS)	N/A		Water	224.00 mg/L	25 ml	224 mg/L	1	40	40			7/5/11 11:30	N	I
1105969-001	Solids, Total Suspended (TSS)	N/A		Water	37.00 mg/L	200 ml	37.0 mg/L	1	5.0	5.0			7/5/11 11:30	N	II
1105979-001	Solids, Total Suspended (TSS)	N/A		Water	13.00 mg/L	200 ml	13.0 mg/L	1	5.0	5.0			7/5/11 11:30	N	II
1105979-002	Solids, Total Suspended (TSS)	N/A		Water	0.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	II
1105979-003	Solids, Total Suspended (TSS)	N/A		Water	3.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	II
1105979-004	Solids, Total Suspended (TSS)	N/A		Water	37.00 mg/L	200 ml	37.0 mg/L	1	5.0	5.0			7/5/11 11:30	N	II
1105979-006	Solids, Total Suspended (TSS)	N/A		Water	4.50 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	II
1105981-001	Solids, Total Suspended (TSS)	N/A		Water	19.50 mg/L	200 ml	19.5 mg/L	1	5.0	5.0			7/5/11 11:30	N	V
1105982-001	Solids, Total Suspended (TSS)	N/A		Water	2.00 mg/L	200 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	I
1105993-001	Solids, Total Suspended (TSS)	N/A		Water	34.00 mg/L	100 ml	34 mg/L	1	10	10			7/5/11 11:30	N	I
1106010-001	Solids, Total Suspended (TSS)	N/A		Water	400.00 mg/L	25 ml	400 mg/L	1	40	40			7/5/11 11:30	N	I
1106015-002	Solids, Total Suspended (TSS)	N/A		Water	228.00 mg/L	25 ml	228 mg/L	1	40	40			7/5/11 11:30	N	I
1106016-003	Solids, Total Suspended (TSS)	N/A		Water	98.70 mg/L	75 ml	99 mg/L	1	14	14			7/5/11 11:30	N	I
1106016-004	Solids, Total Suspended (TSS)	N/A		Water	17.50 mg/L	200 ml	17.5 mg/L	1	5.0	5.0			7/5/11 11:30	N	I
Q1106555-01	Solids, Total Suspended (TSS)	MB		Water	-0.40 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	I
Q1106555-02	Solids, Total Suspended (TSS)	LCS		Water	234.00 mg/L	50 ml	234 mg/L	1	20	20	98		7/5/11 11:30	N	I
Q1106555-03	Solids, Total Suspended (TSS)	DUP	K1105981-001	Water	19.00 mg/L	200 ml	19.0 mg/L	1	5.0	5.0		3	7/5/11 11:30	N	V
Q1106555-04	Solids, Total Suspended (TSS)	DUP	K1106016-004	Water	17.00 mg/L	200 ml	17.0 mg/L	1	5.0	5.0		3	7/5/11 11:30	N	I
Q1106555-05	Solids, Total Suspended (TSS)	MB		Water	0.00 mg/L	250 ml	5.0 mg/L U	1	5.0	5.0			7/5/11 11:30	N	I

BDK
7/6/11

indicates Final Result is not yet adjusted for Solids because it has not yet been determined.

Work Order #.: R252447 Method: EPA SM 2540 D

Analysis: Total Suspended Solids

Sample #	Pan Number	Comments	Sample Volume (ml)	Wt. Filter + Dry sample (1) (g)	Wt. Filter + Dry sample (2) (g)	Wt. Filter + Dry sample (3) (g)	Wt. Filter (g)	Wt. Dry Sample (g)	TSS (mg/L)	TSS (mg/L) reported
MB	1		250	0.0738	0.0739		0.0739	-0.0001	-0.40	<4.0
LCS	2		50	0.0845	0.0843		0.0728	0.0117	234	234
K1104862-071	3		125	0.0760	0.0762		0.0733	0.0027	21.6	21.6
K1104862-073	4		125	0.0780	0.0780		0.0755	0.0025	20.0	20.0
K1105981-001	5		200	0.0778	0.0779		0.0739	0.0039	19.5	19.5
K1105969-001	6	[1]	200	0.0822	0.0822		0.0748	0.0074	37.00	37.0
K1105965-001	7		25	0.0792	0.0792		0.0736	0.0056	224.0	224.0
K1105979-001	8		200	0.0758	0.0758		0.0732	0.0026	13.00	13.0
K1105979-002	9		200	0.0744	0.0744		0.0743	0.0001	0.5	<5.0
K1105979-003	10		200	0.0748	0.0748		0.0741	0.0007	4	<5.0
K1105979-004	11	[1]	200	0.0811	0.0809		0.0737	0.0074	37	37
K1105979-006	12		200	0.0751	0.0750		0.0742	0.0009	5	<5.0
K1105982-001	13		200	0.0734	0.0734		0.0730	0.0004	2	<5.0
K1105993-001	14		100	0.0772	0.0772		0.0738	0.0034	34	34.0
K1106010-001	15	[2]	25	0.0837	0.0836		0.0737	0.0100	400.0	400.0
K1106015-002	16		25	0.0801	0.0800		0.0744	0.0057	228.0	228.0
K1106016-003	17	[3]	75	0.0813	0.0812		0.0739	0.0074	98.7	98.7
K1106016-004	18		200	0.0773	0.0771		0.0738	0.0035	17.5	17.5
K1105981-001D	19		200	0.0782	0.0782		0.0744	0.0038	19.0	19.0
K1106016-004D	20		200	0.0762	0.0761		0.0728	0.0034	17.00	17
MB	21		250	0.0747	0.0747		0.0747	0.0000	0.00	<5.0
	22							0.0000	#DIV/0!	#DIV/0!
	23							0.0000	#DIV/0!	#DIV/0!
	24							0.0000	#DIV/0!	#DIV/0!
	25							0.0000	#DIV/0!	#DIV/0!

Calculation: Suspended Solids (mg/L) = Wt. Dry Sample (g) x 1000 x 1000 / Volume (ml) Balance#31

APG #:4033 Lot# 220311 ID# TDS/1-32 T T.V. = 240 % Rec =

Wt (1)	Start	16:00	Wt (2)	S 10:50	Wt (3)	Start	[1]: Nonhomogenous
	Stop	8:50		12:17		Stop	[2]: Filter time @ 50 mL > 10 min.
Wt (1)	Start	105	Wt (2)	Start 105	Wt (3)	Start	[3]: Filter time @100 mL >10 min.
Temp	Stop	105	Temp	Stop 105	Temp	Stop	date time

Analyzed By: JM Date Analyzed: 7/5/2011 11:30

Reviewed By: BDK Date Reviewed: 7/6/11

method_code	description	lab_prep_method	lab_leach_method	lab_extraction_method	lab_anal_method
SM2540D	Total Suspended Solids (TSS) Dried at 103 -105 deg C				SM2540D

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	date_extracted	date_analyzed	mass_gm	vol_ml
CAS_K	K1105981	Convent	K1105981-001	Water	SM2540D		7/5/2011		
CAS_K	K1105981	Convent	K1105981-MB1	Water	SM2540D		7/5/2011		
CAS_K	K1105981	Convent	K1105981-MB2	Water	SM2540D		7/5/2011		
CAS_K	K1105981	Convent	K1105981-LCS	Water	SM2540D		7/5/2011		
CAS_K	K1105981	Convent	K1105981-001DUP	Water	SM2540D		7/5/2011		

lab	lab_cal_batch	instrument_type	instrument_id	initial_cal_date
CAS_K	252447	BALANCE	K-Balance-31	7/5/2011

lab	lab_pkg	anal_type	anal_begun	anal_completed	analyst	comments
CAS_K	K1105981	Convent	7/5/2011	7/5/2011		

lab	lab_qc_batch	prep_date	extraction_date
CAS_K	252447		

lab	labqc_samp	qc_type	comments
CAS_K	K1105981-MB1	MethodBlank	
CAS_K	K1105981-MB2	MethodBlank	
CAS_K	K1105981-LCS	LCS	

lab	lab_pkg	anal_type	labsample	material_analyzed	method_code	analyte	meas_basis	lab_rep	meas_value	units	std_dev	detected	detection_limit	quantification_limit	reporting_limit	maximum_limit	lab_flags	comments	lab_qc_batch	lab_cal_batch
CAS_K	K1105981	Convent	K1105981-001	Water	SM2540D	TSS	Unfilt	1	19.5	mg/L		Y	5	5	5				252447	252447
CAS_K	K1105981	Convent	K1105981-001DUP	Water	SM2540D	TSS	Unfilt	2	19	mg/L		Y	5	5	5				252447	252447

lab	labsample	study_id	sample_no	labqc_samp	receipt_date	coc_id
CAS_K	K1105981-001	090557-01.02	SJUSL001-AS027-N	NA	7/1/2011	
CAS_K	K1105981-MB1			K1105981-MB1	NA	NA
CAS_K	K1105981-MB2			K1105981-MB2	NA	NA
CAS_K	K1105981-LCS			K1105981-LCS	NA	NA
CAS_K	K1105981-001DUP	090557-01.02	SJUSL001-AS027-N	NA	7/1/2011	

lab	lab_qc_batch	lcs_id	analyte	meas_basis	lcs_type	true_lcs_conc	meas_lcs_conc	lcs_lowlimit	lcs_highlimit	units	conc_qual
CAS_K	252447	K1105981-LCS	TSS	Unfilt	L	240	234	80	115	mg/L	

lab	lab_qc_batch	labsample	method_code	analyte	meas_basis	spike_no	samp_conc	initial_qual	spike_added	spiked_conc	final_qual	lab_flags	units

lab	lab_qc_batch	labsample	method_code	analyte	lab_rep	concentration	retention_time	units	lab_flags
CAS_K	252447	K1105981-MB1	SM2540D	TSS	1	5		mg/L	U
CAS_K	252447	K1105981-MB2	SM2540D	TSS	1	5		mg/L	U

lab	lab_qc_batch	labsample	method_code	surrogate	meas_basis	column_no	lab_rep	recovery	out_flag