April 27, 2023

Troy Charpentier
Partner
Kean Miller LLP
400 Convention Street, Suite 700
Baton Rouge, Louisiana 70802

Chemical Fingerprint of Oily Net – No. 20
Westlake Sulphur Dome Study

Dear Mr. Charpentier,

NewFields is pleased to provide you with this report of chemical fingerprinting results for an oily net sample (No. 20 sheen) collected in the course of the investigation of the Westlake US 2 LLC (Westlake) salt dome caverns in the Sulphur Mines oil field, Calcasieu Parish, Louisiana (the Site).

This study follows an earlier chemical fingerprinting study concerning five samples from the Site, which included a 7B cavern oil, a stock tank oil, a Yellow Rock well (110159) oil, a brine well bubble site 22 BS, and a central pond sheen.[1] That earlier study showed;

(1) the 7B cavern oil and stock tank oil were probable matches to one another,
(2) the Yellow Rock well (110159) oil and Brine well bubble site oil were distinct from the 7B cavern oil and stock tank oils, but were probable matched to one another, and
(3) the central pond sheen was naturally-occurring biogenic material, not oil.

I understand that the No. 20 sheen sample was collected after it was found floating on the surface of a body of water west of Cavern 7. The sheen's origin was unknown but warranted investigation.

Sample
The No. 20 sheen sample was collected on March 9, 2023 by personnel from ERM using a pre-cleaned Teflon net provided by NewFields. The sample was sent to NewFields' alliance laboratory, Alpha Analytical (Mansfield, Massachusetts, USA), on March 13, 2023 where it arrived safely on March 15, 2023. A copy of the chain-of-custody received with the sample is found in **Attachment 1**.

Objective
The objective of the study was to determine if the No. 20 sheen sample was consistent with any of the four previously studied oils from the Site. Of specific relevance was whether or not the No. 20 sheen sample was chemically matched to the 7B cavern/stock tank oils or to the Yellow Rock/Brine well bubble site oils.

This objective was pursued using specific chemical fingerprinting analyses and interpretation protocols employed in oil spill identification studies, as were described in the original study's report and its attachments.[2]

[1] Stout, S.A. (2023) Chemical fingerprinting of Oils, Westlake Sulphur Dome Study. NewFields Report dated March 10, 2023.
[2] Ibid: (Stout, 2023) dated March 10, 2023.

Results & Discussion

The complete Alpha Environmental Testing Report (ETR) including all sample preparation data, instrument calibrations, QC data and chromatograms is maintained on file by NewFields (ETR L2313362). The tabulated results for the targeted compounds in each analysis performed are contained in **Attachment 2**. The full-size GC/FID chromatograms obtained in the Tier 1 (modified EPA Method 8015D) analysis are provided in **Attachment 3** and selected extraction ion profiles (EIPs) obtained in the Tier 2 (modified EPA Method 8270D) are provided in **Attachment 4**.

Specific results most relevant to the study's objectives are presented in **Table 1** and **Figures 2 and 3**. Discussion of these results is provided in the following sections.

Tier 1 – General Character/Comparison of the No. 20 Sheen

Figure 1 shows the GC/FID (C8+) chromatogram for the No. 20 sheen sample studied, which is described in the following paragraphs.

No. 20 Sheen: The chromatogram for the No. 20 sheen contains compounds ranging from ~C12 to C40. There are very few resolved compounds present and most of these appear to be petroleum biomarkers in the C25+ range, including prominent norhopane and hopane. No n-alkanes or isoprenoids appear present. The oil is overwhelmingly comprised of a broad UCM hump that reaches a maximum around C30. Collectively, these Tier 1 results/features indicate that:

- The oil comprising the No. 20 sheen is a severely weathered, including biodegraded, evaporated, and likely water-washed, crude oil.

The severity of weathering exhibited by the No. 20 sheen oil renders it to appear most similar to the Brine Well 22 BS oil previously studied. However, degree(s) of weathering is an insufficient basis upon which to draw any conclusion regarding these two oils' potential relationship. More detailed comparison of the No. 20 sheen oil to the Brine Well 22 BS oil – and to the previously studied 7B cavern, stock tank, or Yellow Rock well oils – requires the more detailed (quantitative and statistical) comparisons of the many source-specific and weathering resistant diagnostic features afforded by the Tier 2 (GCMS) results discussed in the next section.

Tier 2 – Detailed Character/Comparison of the No. 20 Sheen

As noted above, diagnostic features/ratios based upon PAHs, sulfur-containing aromatics, and petroleum biomarkers based on Tier 2's GC/MS results are generally more useful given because, under most environmental conditions and timescales, they are highly resistant to weathering. Petroleum biomarkers are particularly useful in oil spill fingerprinting because they are highly source-specific "chemical fossils" that vary from oil-to-oil, even between individual oil reservoirs.

Figure 2 shows the EIPs of the three groups of petroleum biomarkers measured in the No. 20 sheen oil sample, i.e., triterpanes, steranes, and triaromatic steroids (panels 2A, 2B, and 2C, respectively). These distributions look quite typical and consistent with crude oil. The concentrations of the labeled peaks/compounds in these EIPs were used to calculate 27 diagnostic ratios used to compare the No. 20 sheen oil to the previously studied oils. (The same diagnostic ratios were used in the earlier study; Footnote 1).

Oil spill fingerprinting capitalizes on the similarity and differences among diagnostic ratios to assess whether on oil "matches" another oil. Tier 2 of the CEN protocol[3] (employed herein – and described in the earlier study's report; Footnote 1) relies upon statistical comparisons between diagnostic ratios.[4]

Table 1 provides an inventory of the 27 diagnostic ratios values in the No. 20 sheen oil and the previously studied oils. The top three ratios were determined from the Tier 1 (GC/FID) results (discussed above) while all remaining 24 ratios were determined from the Tier 2 (GC/MS) results. The former are of little use given the severe degree of weathering experienced by the No. 20 sheen oil. Statistical comparisons between the 24 ratios based upon more weathering resistant PAH- and biomarker-based ratios are made between the No. 20 sheen oil and the previously studied oils from the Site. The color-coding in Table 1 reveals those diagnostic ratios that statistically match (green) and statistically differ (red) from the No. 20 sheen oil's ratios. Inspection of Table 1 shows that the No. 20 sheen oil;

- is most closely matched to the Yellow Rock well (110159) oil;
- is also similar to the Brine well 22 BS oil; and
- is quite dissimilar to the 7B cavern oil and stock tank oil.

Specifically, 19 of the 24 PAH- and biomarker-based diagnostic ratios for the Yellow Rock well (110159) oil are statistically matched to the No. 20 sheen oil (Table 1). About half as many PAH- and biomarker-based diagnostic ratios for the Brine well 22 BS oil are statistically matched (10), whereas only a few ratios for the 7B cavern oil (5) and stock tank oil (7) are statistically matched (Table 1).

Not surprisingly a qualitative visual comparison among these samples' EIPs reveals a comparable assessment, in particular that the No. 20 sheen oil (Fig. 2) is most comparable oil to the Yellow Rock well oil. This fact can be visualized when the biomarker-based EIPs for No. 20 sheen oil (Figure 2) are compared to those of the Yellow Rock well oil (**Figure 3**). These two oils exhibit highly comparable distributions of these biomarkers, which of course is consistent with their 19 statistically matched diagnostic ratios (Table 1).

There is a notable anomaly exhibited in the triterpane distributions of both the No. 20 sheen oil that is also seen in the Yellow Rock well oil. Specifically, both these oils show an excess abundance of 22R-bishomohopane (T27; Fig. 2A and 3A) that is atypical for most crude oils (worldwide; in my experience) and indicates both oils likely contain the same co-eluting and anomalous compound. This anomaly was previously noted in the Yellow Rock oil and in the Brine well 22 excavation oil (Footnote 1), and thereby was proposed to be a possible "marker" for locally-produced crude oils. This proposal now appears additionally supported by the No. 20 sheen oil results (and will be monitored in future investigations).

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[3] Kienhaus, P.G.M. et al. 2016. CEN methodology for oil spill identification. In: *Standard Handbook of Oil Spill Environmental Forensics: Fingerprinting and Source Identification*, 2nd Ed., S.A. Stout and Z. Wang, Eds., Elsevier Publishing Co., Boston, MA, p. 685-728.

[4] The quantitative (statistical) comparisons relied upon the 95% confidence level ($r_{95\%}$) for each diagnostic ratio wherein:

$$r_{95\%} = 2.8 * RSD_R \text{ where } RSD_R = 5\% \text{ standard error, thus}$$

$$r_{95\%} = 14\%$$

If the $r_{95\%}$ between the measured diagnostic between two samples <14% the ratios were considered to statistically **match**, and *vice versa*.

The No. 20 sheen oil is much more severely weathered (biodegraded, evaporated, and likely water-washed and perhaps photo-oxidized) compared to the Yellow Rock well (110159) oil previously studied. This degree of weathering is unsurprising given the sheen was recovered floating on open water and may explain, at least in part, those five PAH- and biomarker-based diagnostic ratios that are not statistically matched (Table 1). Collectively then, and considering the severity of weathering experienced by the No. 20 sheen oil, synthesis of the Tier 2 results allows for the conclusion that;

- The No. 20 sheen oil is a "positive match" to the Yellow Rock well (110159) oil (Table 1).

This conclusion does not (at this stage) necessarily indicate that oil from this very well was the source of the No. 20 sheen. In order to conclude such, a better understanding of the heterogeneity/homogeneity among the locally-produced crude oils from different wells/reservoir zones in the area would be necessary. Toward this point is the fact that the Yellow Rock well (110159) oil and the Brine well 22 BS oil are both locally-produced crude oils but they are not identical, i.e., they were previously concluded to be only "probable matches" (Footnote 1). Therefore, at this time it should only be concluded that;

- The No. 20 sheen oil was derived from a locally-produced crude oil that, despite being much more severely weathered, is more similar to the Yellow Rock well (110159) oil than it is to the locally-produced oil that gave rise to the Brine well 22 BS oil.

It is obvious from the Tier 2 results (Table 1) but it should be definitively stated that;

- The No. 20 sheen oil is a "non-match" to the 7B cavern oil and stock tank oil previously studied. That is to say, the No. 20 sheen is not possibly derived from either of these oils.

Please let me know if you have any questions.

Sincerely,

Scott A. Stout, Ph.D., P.G.
Sr. Geochemist

Attachments:
1: Chain-of-custody
2: tabulated PIANO, TPH/SHC, PAH, and biomarker concentrations
3: full size GC/FID chromatograms
4: selected GC/MS extraction ion profiles

Table 1: CEN diagnostic ratios for the No. 20 sheen oil sample versus the four previously studied oils from the Site (per Footnote 1).

Top three ratios are derived from Tier 1 GC/FID data; all others from Tier 2 GC/MS data.

CEN Diagnostic Ratios	CEN Diagnostic Ratios per Alpha Abbreviations	No. 20 Sheen	Well 110159 Oil	Brine Well 22 BS Oil	7B Cavern Oil	Stock Tank Oil
NR-C17/pris	C17/Pr	0.05	0.24	ndp	2.35	1.96
NR-C18/phy	C18/Ph	0.00	0.57	ndp	2.18	2.17
NR- pris/phy	Pr/Ph	1.37	3.16	ndp	1.02	**1.20**
NR-4-MD/1-MD	4-MDBT/1-MDBT	2.60	3.80	1.85	2.15	2.16
NR-2-MP/1-MP	2-MP/1-MP	1.28	**1.14**	0.66	0.99	1.10
NR-27Ts/30ab	T11/T19	0.15	**0.14**	0.19	0.23	0.21
NR-27Tm/30ab	T12/T19	0.20	**0.21**	0.25	0.28	0.26
NR-28ab/30ab	T14a/T19	0.04	0.05	0.06	0.20	0.10
NR-29ab/30ab	T15/T19	0.61	**0.62**	**0.69**	0.81	0.74
NR-30O/30ab	T18/T19	0.09	**0.10**	0.18	0.04	**0.09**
NR-31abS/30ab	T21/T19	0.25	**0.26**	**0.26**	0.59	0.41
NR-27dbR/27dbS	S4/S5	0.62	**0.59**	**0.60**	0.52	0.48
NR-27bb/29bb	(S14+S15)/(S26+S27)	0.71	**0.69**	0.58	0.86	**0.77**
NR-SC26/ RC26+SC27	TAS09/TAS01	0.30	**0.33**	**0.28**	0.13	0.18
NR-SC28/RC26 + SC27	TAS02/TAS01	0.75	**0.80**	**0.82**	**0.70**	**0.78**
NR-RC27/RC26+ SC27	TAS03/TAS01	0.63	**0.61**	**0.57**	0.76	0.74
NR-RC28/RC26+SC27	TAS04/TAS01	0.61	**0.63**	**0.64**	**0.59**	**0.66**
DR-Ts/Tm	T11/T12	0.74	**0.69**	**0.78**	**0.84**	**0.79**
DR-29Ts30ab	T16/T19	0.22	**0.24**	0.32	**0.20**	**0.20**
DR-29bb/29aa	(S26+S27)/(S25+S28)	1.13	0.85	0.90	**1.16**	**1.22**
DR-C2-dbt/C2-phe	DBT2/PA2	0.45	0.30	0.27	2.29	1.97
DR-C3-dbt/C3-phe	DBT3/PA3	0.72	0.42	0.43	2.63	2.35
DR-C28C29/30ab	T7 to T10/T19	0.07	**0.07**	0.09	0.18	0.13
DR-29aaS/29aaR	S25/S28	0.99	**1.12**	**1.06**	1.41	1.34
DR-C20TA/C21TA	TAS05/TAS06	1.29	**1.36**	1.12	0.97	0.99
DR-TA21/ RC26+SC27	TAS06/TAS01	0.17	**0.18**	0.14	0.49	0.42
DR-30ba/30ab	T20/T19	0.20	**0.20**	**0.20**	0.07	0.15
Conclusion:			**Positive Match**	**Probable Match**	**Non-Match**	**Non-Match**

red: indicates statistical non-match to the No. 20 Sheen oil

green: indicates statistical match to the No. 20 Sheen oil

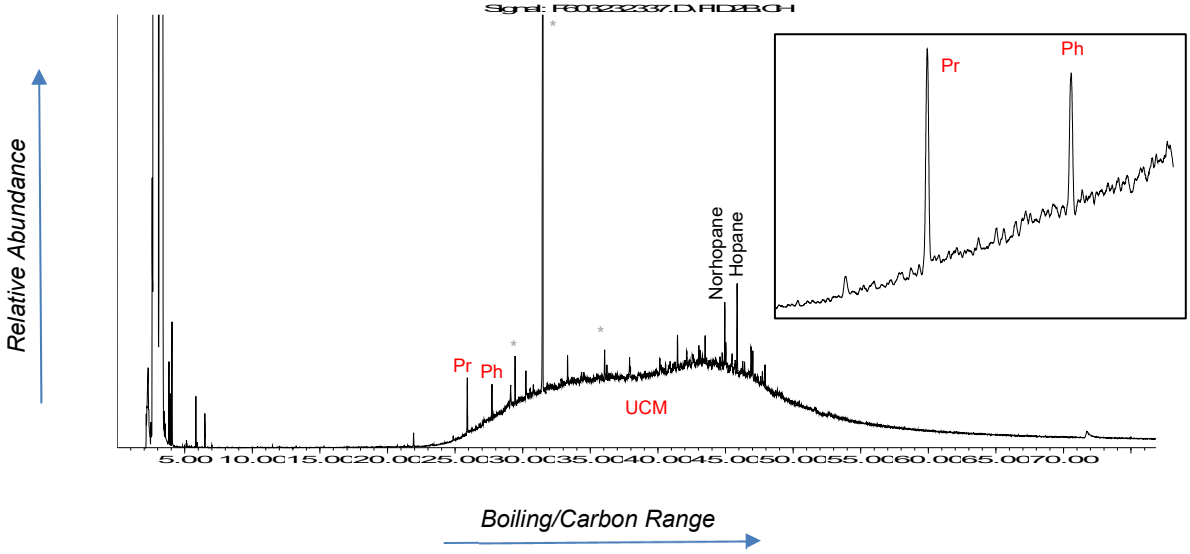


Figure 1: GC/FID (C8+) chromatogram for the No. 20 net sample oil. Insets show further expanded view of C17-C18 range. #: n-alkane carbon number; Pr: pristane; Ph: phytane; UCM: unresolved complex mixture; *: internal standard.

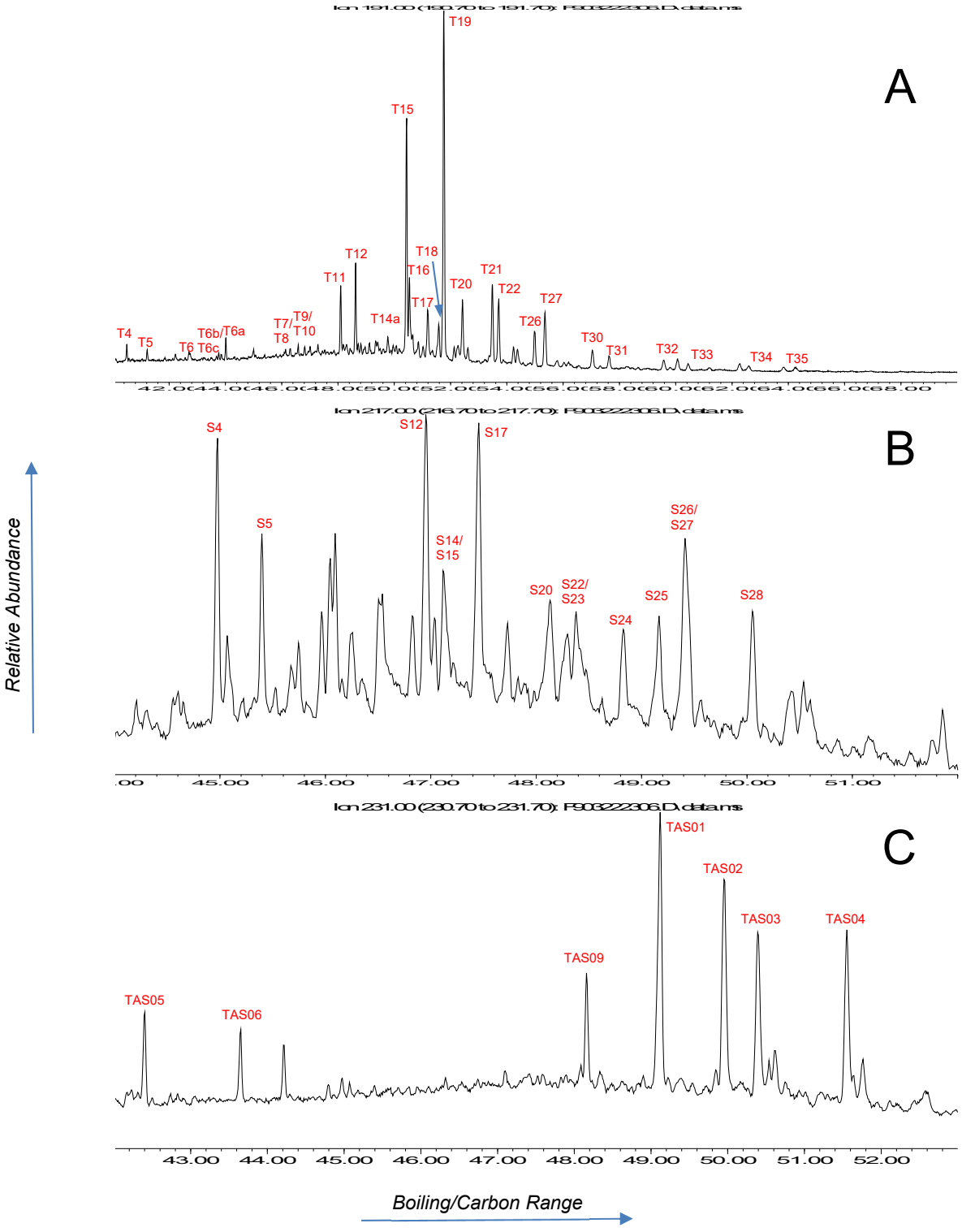


Figure 2: Partial extracted ion chromatograms for the No. 20 Net sample studied. (A) *m/z* 191, (B), *m/z* 217, and (C) *m/z* 231. red labels: various triterpane biomarkers (A), sterane biomarkers (B) and triaromatic steroid biomarkers (C), see Attachment 2, Table 2-2 for compound names. Note x-axes show different retention time intervals.

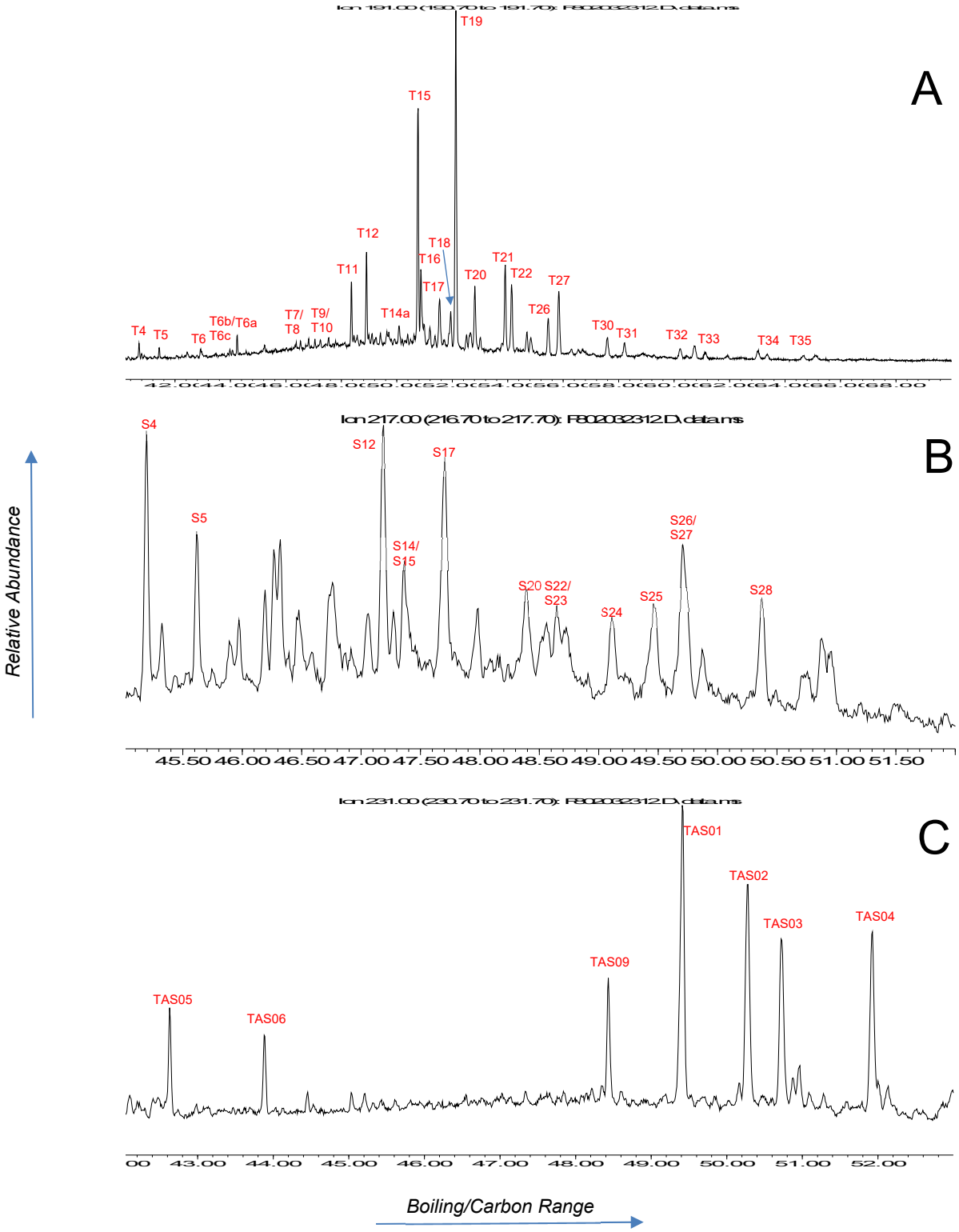


Figure 3: Partial extracted ion chromatograms for the Yellow Rock well (110159) oil sample studied previously. (A) *m/z* 191, (B), *m/z* 217, and (C) *m/z* 231. red labels: various triterpane biomarkers (A), sterane biomarkers (B) and triaromatic steroid biomarkers (C), see Attachment 2, Table 2-2 for compound names. The associated concentration data were previously reported. Note x-axes show different retention time intervals.

ATTACHMENTS

Attachment 1

Chain-of-Custody

NewFields
Perspective. Vision. Solutions.

Chain of Custody

Environmental Forensics Practice LLC

L2313362

Proj. No	Proj. Name
0677804	Sulphur Dome

SAMPLERS: Signature: Guy Guinot IV

DATE	TIME	LAB ID	CLIENT ID	SAMPLE DESCRIPTION	MATRIX (* see below)	GC-FID-TPH (C_6^+)	GCMS-Alkyl PAH	GCMS-Biomarkers	PIANO - VOA	Organic Lead	METALS	PCB	Pesticides	PRESERVED	Total Number of Containers
3/9/23	1340	13362-01	No. 20	Sheen	O	X	X		X						1

ANALYSIS REQUESTED → "NUMBER OF CONTAINERS"

Relinquished by:	Date/Time	Received by:	Date/Time
Guy Guinot IV	3/13/23 1050	Fedex	
Relinquished by: Fedex	Date/Time	Received by:	Date/Time 3/15/23 11:11
Relinquished by:	Date/Time	Received by:	Date/Time

* O=Oil
SO=Soil
SE=Sediment
T=Tissue
W=Water

Samples to be shipped to: Alpha Laboratory
320 Forbes Blvd.
Mansfield, MA 02048
Tel: (508) 844-4117
Attn: Sue O'Neil

Comments: Contact Scott Stout for further details.

Attachment 2

Tabulated Concentrations

Table 2-1: Concentrations (mg/kg) of n-alkanes and isoprenoids in the samples studied.

Client ID	**NO. 20**
Lab ID	313362-01
Analytes	Result
n-Nonane (C9)	2.76
n-Decane (C10)	3.61
n-Undecane (C11)	4.68
n-Dodecane (C12)	3.19
n-Tridecane (C13)	3.82
2,6,10 Trimethyldodecane (1380)	12.1
n-Tetradecane (C14)	5.52
2,6,10 Trimethyltridecane (1470)	16.4
n-Pentadecane (C15)	13.6
n-Hexadecane (C16)	13.6
Norpristane (1650)	89.7
n-Heptadecane (C17)	35.1
Pristane	741
n-Octadecane (C18)	nd
Phytane	542
n-Nonadecane (C19)	nd
n-Eicosane (C20)	nd
n-Heneicosane (C21)	103
n-Docosane (C22)	nd
n-Tricosane (C23)	nd
n-Tetracosane (C24)	nd
n-Pentacosane (C25)	278
n-Hexacosane (C26)	nd
n-Heptacosane (C27)	93.5
n-Octacosane (C28)	nd
n-Nonacosane (C29)	nd
n-Triacontane (C30)	nd
n-Hentriacontane (C31)	nd
n-Dotriacontane (C32)	1040
n-Tritriacontane (C33)	nd
n-Tetratriacontane (C34)	nd
n-Pentatriacontane (C35)	nd
n-Hexatriacontane (C36)	nd
n-Heptatriacontane (C37)	nd
n-Octatriacontane (C38)	nd
n-Nonatriacontane (C39)	nd
n-Tetracontane (C40)	nd
Total Saturated Hydrocarbons	3,000
Total Petroleum Hydrocarbons (C9-C44)	550,000

Table 2-2: Concentrations (mg/kg) of PAHs, related compounds and petroleum biomarkers in the samples studied.

	Client ID	NO. 20
	Lab ID	313362-01
	Analytes	Result
D0	cis/trans-Decalin	0.886
D1	C1-Decalins	3.75
D2	C2-Decalins	8.08
D3	C3-Decalins	8.19
D4	C4-Decalins	19.2
BT0	Benzothiophene	
BT1	C1-Benzo(b)thiophenes	1.37
BT2	C2-Benzo(b)thiophenes	1.30
BT3	C3-Benzo(b)thiophenes	
BT4	C4-Benzo(b)thiophenes	
N0	Naphthalene	0.371
N1	C1-Naphthalenes	0.987
N2	C2-Naphthalenes	6.80
N3	C3-Naphthalenes	13.3
N4	C4-Naphthalenes	48.3
B	Biphenyl	0.313
DF	Dibenzofuran	0.341
AY	Acenaphthylene	0.304
AE	Acenaphthene	0.365
F0	Fluorene	0.876
F1	C1-Fluorenes	7.70
F2	C2-Fluorenes	51.8
F3	C3-Fluorenes	98.5
A0	Anthracene	1.78
P0	Phenanthrene	6.69
PA1	C1-Phenanthrenes/Anthracenes	36.8
PA2	C2-Phenanthrenes/Anthracenes	95.4
PA3	C3-Phenanthrenes/Anthracenes	105
PA4	C4-Phenanthrenes/Anthracenes	67.4
RET	Retene	32.3
DBT0	Dibenzothiophene	0.900
DBT1	C1-Dibenzothiophenes	16.7
DBT2	C2-Dibenzothiophenes	43.1
DBT3	C3-Dibenzothiophenes	76.1
DBT4	C4-Dibenzothiophenes	56.1
BF	Benzo(b)fluorene	1.42
FL0	Fluoranthene	3.04
PY0	Pyrene	6.28
FP1	C1-Fluoranthenes/Pyrenes	26.3
FP2	C2-Fluoranthenes/Pyrenes	41.7
FP3	C3-Fluoranthenes/Pyrenes	52.3
FP4	C4-Fluoranthenes/Pyrenes	59.9
NBT0	Naphthobenzothiophenes	3.78
NBT1	C1-Naphthobenzothiophenes	19.7
NBT2	C2-Naphthobenzothiophenes	43.7
NBT3	C3-Naphthobenzothiophenes	41.9
NBT4	C4-Naphthobenzothiophenes	46.7
BA0	Benz[a]anthracene	1.54
C0	Chrysene/Triphenylene	11.1

	Client ID	NO. 20
	Lab ID	313362-01
	Analytes	Result
BC1	C1-Chrysenes	27.9
BC2	C2-Chrysenes	46.0
BC3	C3-Chrysenes	64.4
BC4	C4-Chrysenes	43.1
BBF	Benzo[b]fluoranthene	2.27
BJKF	Benzo[j]fluoranthene/Benzo[k]fluoranthene	0.801
BAF	Benzo[a]fluoranthene	
BEP	Benzo[e]pyrene	3.17
BAP	Benzo[a]pyrene	0.858
PER	Perylene	6.65
IND	Indeno[1,2,3-cd]pyrene	0.832
DA	Dibenz[ah]anthracene/Dibenz[ac]anthracene	
GHI	Benzo[g,h,i]perylene	2.09
CAR	Carbazole	
4MDT	4-Methyldibenzothiophene	4.45
2MDT	2/3-Methyldibenzothiophene	7.70
1MDT	1-Methyldibenzothiophene	1.71
3MP	3-Methylphenanthrene	7.32
2MP	2-Methylphenanthrene	7.95
2MA	2-Methylanthracene	1.41
9MP	9/4-Methylphenanthrene	10.4
1MP	1-Methylphenanthrene	6.21
2MN	2-Methylnaphthalene	0.552
1MN	1-Methylnaphthalene	0.694
26DMN	2,6-Dimethylnaphthalene	0.822
235TMN	2,3,5-Trimethylnaphthalene	1.73
PY2	2-METHYLPYRENE	2.26
PY4	4-METHYLPYRENE	3.84
PY1	1-METHYLPYRENE	1.85
T4	C23 Tricyclic Terpane	35.3
T5	C24 Tricyclic Terpane	21.8
T6	C25 Tricyclic Terpane	31.7
T6a	C24 Tetracyclic Terpane	38.6
T6b	C26 Tricyclic Terpane-22S	12.3
T6c	C26 Tricyclic Terpane-22R	12.2
T7	C28 Tricyclic Terpane-22S	11.4
T8	C28 Tricyclic Terpane-22R	19.1
T9	C29 Tricyclic Terpane-22S	17.1
T10	C29 Tricyclic Terpane-22R	18.0
T11	18a-22,29,30-Trisnorneohopane-TS	142
T11a	C30 Tricyclic Terpane-22S	26.2
T11b	C30 Tricyclic Terpane-22R	14.8
T12	17a(H)-22,29,30-Trisnorhopane-TM	192
T14a	17a/b,21b/a 28,30-Bisnorhopane	40.8
T14b	17a(H),21b(H)-25-Norhopane	13.3
T15	30-Norhopane	580
T16	18a(H)-30-Norneohopane-C29Ts	211
X	17a(H)-Diahopane	44.2
T17	30-Normoretane	152
T18	18a(H)&18b(H)-Oleananes	86.2
T19	Hopane	948
T20	Moretane	185
T21	30-Homohopane-22S	234
T22	30-Homohopane-22R	197

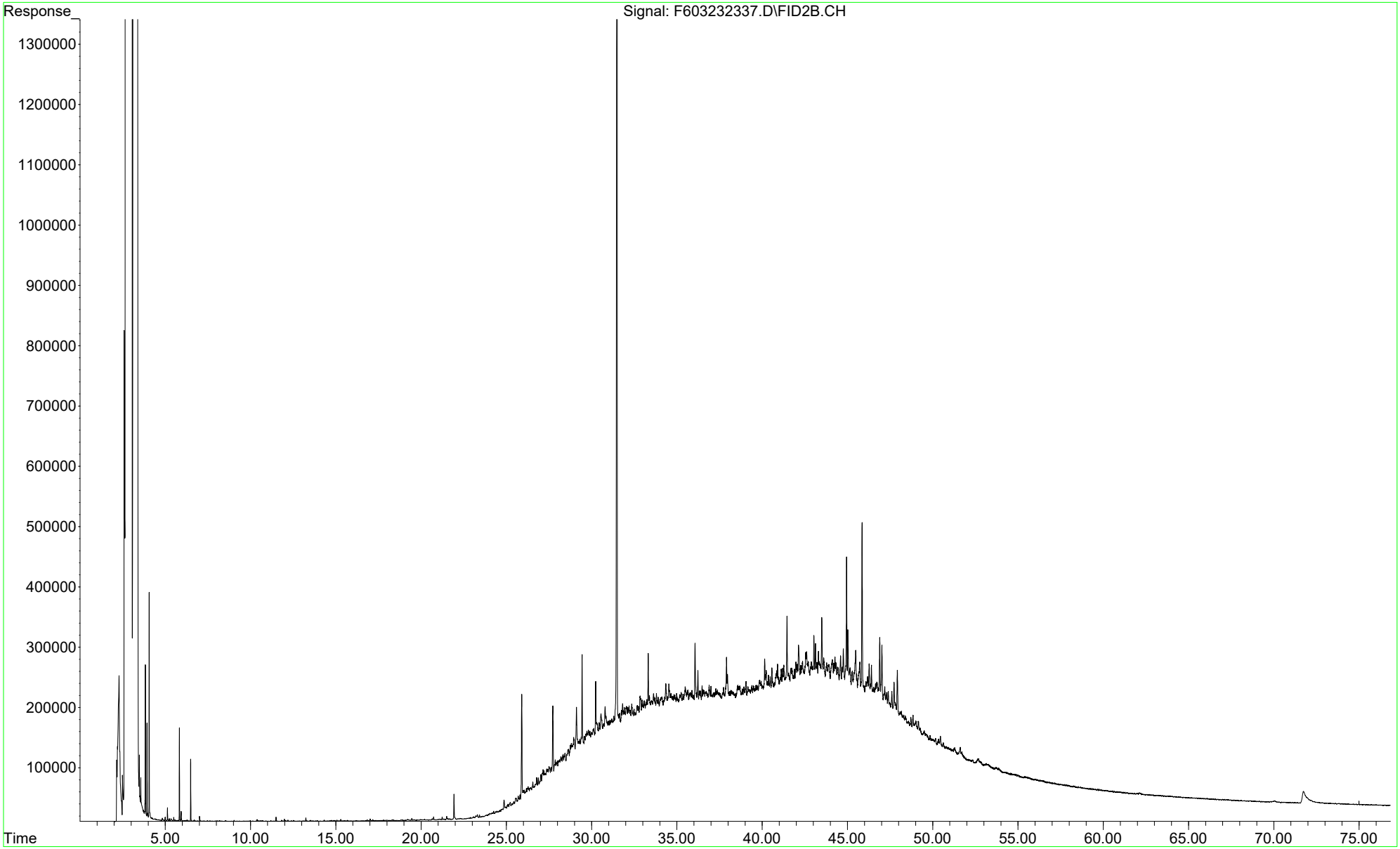
	Client ID	NO. 20
	Lab ID	313362-01
	Analytes	Result
	T22a-Gammacerane/C32-diahopane	54.3
	30,31-Bishomohopane-22S	119
	30,31-Bishomohopane-22R	189
	30,31-Trishomohopane-22S	74.3
	30,31-Trishomohopane-22R	47.1
	Tetrakishomohopane-22S	44.2
	Tetrakishomohopane-22R	29.0
	Pentakishomohopane-22S	28.2
	Pentakishomohopane-22R	25.3
	13b(H),17a(H)-20S-Diacholestane	105
	13b(H),17a(H)-20R-Diacholestane	64.8
	13b,17a-20S-Methyldiacholestane	61.2
	14a(H),17a(H)-20S-Cholestane/13b(H),17a	124
	14a(H),17a(H)-20R-Cholestane/13b(H),17a	135
	Unknown Sterane (S18)	37.4
	13a,17b-20S-Ethyldiacholestane	4.40
	14a,17a-20S-Methylcholestane	64.2
	14a,17a-20R-Methylcholestane	46.0
	14a(H),17a(H)-20S-Ethylcholestane	60.0
	14a(H),17a(H)-20R-Ethylcholestane	60.4
	14b(H),17b(H)-20R-Cholestane	46.5
	14b(H),17b(H)-20S-Cholestane	50.4
	14b,17b-20R-Methylcholestane	52.8
	14b,17b-20S-Methylcholestane	65.6
	14b(H),17b(H)-20R-Ethylcholestane	95.0
	14b(H),17b(H)-20S-Ethylcholestane	41.5
	C20 PREGNANE	65.0
	C21 20-METHYLPREGNANE	50.2
	C22 20-ETHYLPREGNANE (A)	13.5
	C22 20-ETHYLPREGNANE (B)	16.3
	C26,20S TAS	88.0
	C26,20R+C27,20S TAS	297
	C28,20S TAS	223
	C27,20R TAS	186
	C28,20R TAS	180
	C29,20S TAS	71.7
	C29,20R TAS	35.6

Attachment 3

GC/FID Chromatograms

File :D:\West Lake Salt Dome_850.000079.023\Alpha Data\L2313362\SH
... C\F603232337.D
Operator : FID6:WR
Instrument : FID6
Acquired : 24 Mar 2023 1:34 pm using AcqMethod FID6A.M
Sample Name: l2313362-01,42,,
Misc Info : WG1758195,WG1755734,ICAL19796

NO. 20
L2313362-01

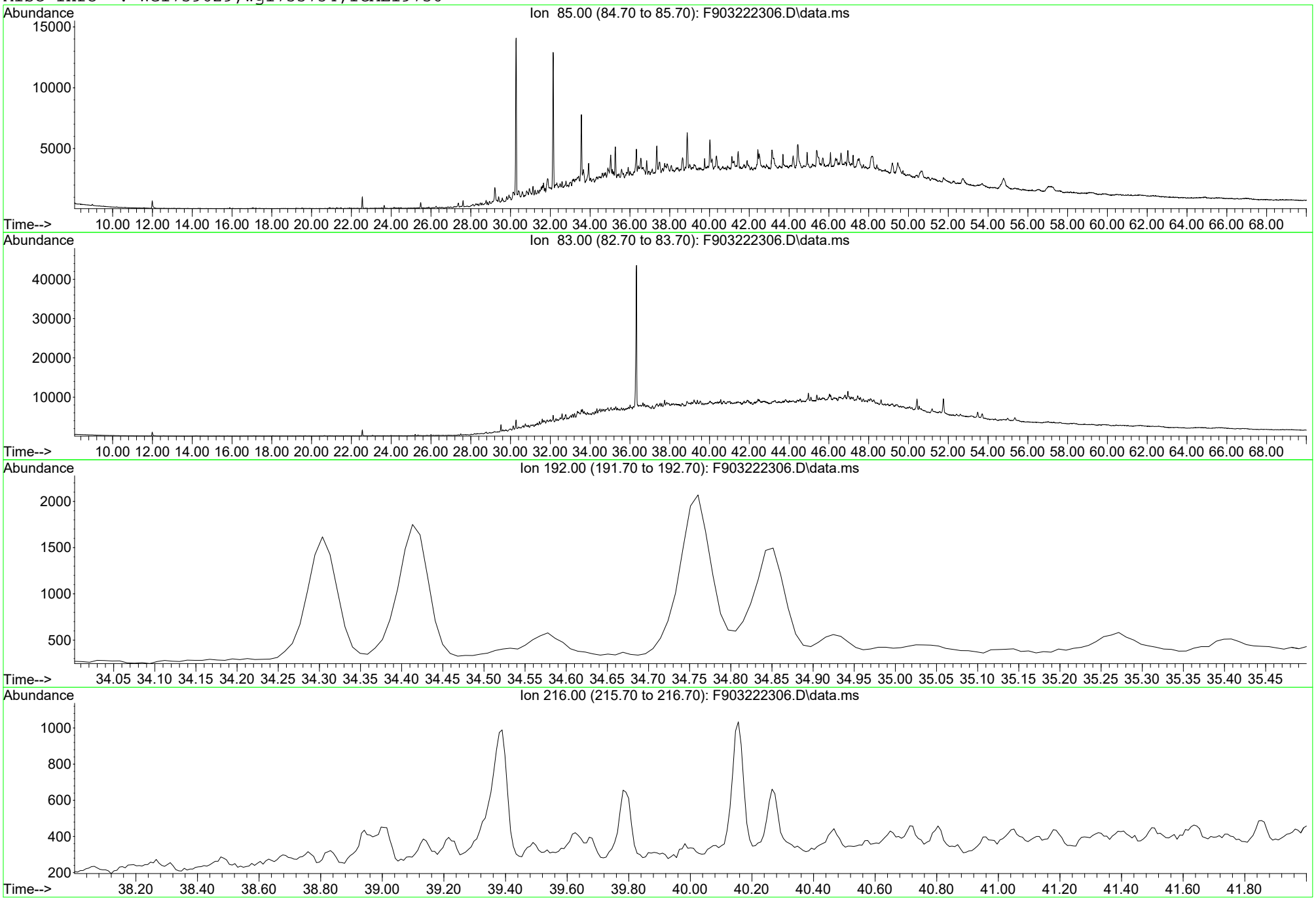


Attachment 4

GC/MS Extracted Ion Profiles

File :D:\West Lake Salt Dome_850.000079.023\Alpha Data\L2313362\AL
... KPAHBIO\F903222306.D
Operator : PAH9:CNC
Instrument : PAH9
Acquired : 22 Mar 2023 3:15 pm using AcqMethod FRNC9ALT.M
Sample Name: l2313362-01
Misc Info : WG1759629,wg1755734,ICAL19756

NO. 20
L2313362-01



File :D:\West Lake Salt Dome_850.000079.023\Alpha Data\L2313362\AL
... KPAHBIO\F903222306.D
Operator : PAH9:CNC
Instrument : PAH9
Acquired : 22 Mar 2023 3:15 pm using AcqMethod FRNC9ALT.M
Sample Name: l2313362-01
Misc Info : WG1759629,wg1755734,ICAL19756

NO. 20
L2313362-01