

Algal bloom wildlife post-mortem report



Government
of South Australia

Department for
Environment and Water

Species – Shearwater

Date collected – 4 March 2026

Location – Middleton Beach

History relating to the animal

Six adult male shearwaters were found dead and collected at Middleton Beach on 4 March 2026.

Clinical examination

The birds were already dead and so could not be examined prior to death.

Necropsy

The necropsy (looking at the whole body) revealed that the birds were in poor body condition, with bilateral (both sides), atrophy (wasting) of the pectoral muscles (chest muscles used for flight). There were moderate post-mortem decomposition changes. The birds had no food material in their proventriculus (bird's upper gut) and gizzard (muscular part of gut that grinds food, often containing stones), scant ingesta (food material) in their intestines and no faeces in their vents (bird's single rear opening). There was abundant foamy fluid in the lungs (pulmonary oedema). The moderate post-mortem decomposition limited any assessment of their gonads (sex organs).

Tissues were collected for histopathology (looking at tissues under the microscope for more detailed information), and testing for brevetoxins and other algal biotoxins (a possibility due to the algal bloom).

Histopathology

Samples from every major body system of birds 1-3 were examined under the microscope. Examination of the kidney in birds 1 and 3 revealed a tapeworm (parasite) infection. Examination of the kidney in bird 2 revealed a coccidial (parasite) infection. All lung samples from the birds showed a mild, diffuse (throughout the tissue), pulmonary oedema (fluid in the lungs).

Brevetoxins

No samples were above the limits of reporting.

Other algal biotoxins

No samples were above the limits of reporting.

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Summary

Six adult male shearwaters were found dead. Laboratory examination revealed the birds had long-term weight loss and pulmonary oedema (fluid in the lungs). They also had parasite infections in their kidneys, which were considered mild and unlikely to have contributed to illness. The cause of weight loss, pulmonary oedema and death could not be determined. It is suspected that poor nutrition contributed to the animals' weakened condition, possibly due to reduced food availability in the environment, although this could not be confirmed. Brevetoxins and other algal biotoxins were not detected.

PATH RESULTS: SHEARWATER MORTALITY, (Wi) [REDACTED]

From [REDACTED]

Date Sat 07/03/2026 7:30 PM

To [REDACTED]

[REDACTED]

Tested on 04/03/26
Reported on 07/03/26 20:00
Referred on 04/03/26 **by:** [REDACTED]

[REDACTED]

Owner:

SHEARWATER MORTALITY
MIDDLETON BEACH
MIDDLETON 5213

Animal/s:

Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

NECROPSY REPORT

CLINICAL HISTORY

This is a summary of the clinical history from the request form. Please refer to the request form for the full history.

6 dead shearwaters were found at Middleton beach on 4/3/26.

SAMPLES SUBMITTED

6 x dead male adult shearwaters

NECROPSY FINDINGS

All birds are in poor body condition, with bilateral atrophy of pectoral muscles. There are moderate post-mortem autolytic changes. The birds have no feed in their proventriculus and gizzard, scant ingesta in their intestines and no faeces in their vents. There is abundant foamy fluid in the lungs (pulmonary oedema). The moderate post mortem changes have limited any assessment of their gonads.

The birds are allocated numbers 1-6 at the laboratory.

1
The bird weighs 175 g.

2
The bird weighs 180 g.

3
The bird weighs 180g

4
The bird weighs 230 g

5
The bird weighs 210 g

6
The bird weighs 170 g

GROSS SUMMARY
Shearwaters 1-6
Chronic weight loss
Pulmonary oedema

[REDACTED]

Tested on 04/03/26
Reported on 07/03/26 20:00
Referred on 04/03/26 **by:** [REDACTED]

[REDACTED]

Owner:
SHEARWATER MORTALITY
MIDDLETON BEACH
MIDDLETON 5213

Animal/s:
Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

SAMPLES COLLECTED & TESTING

Formalin fixed tissues from birds 1-3 will be processed for histopathology. Formalin fixed tissues from birds 4-6 will be stored.

We will contact Analytical Services Tasmania to see if they will test samples pooled by organs, i.e. 6 birds per organ. If they can, we will forward the quote to you for testing biotoxin and brevetoxin on liver, heart, lung, brain, kidney.

Fresh liver, heart, lung, brain, kidney and spleen from pooled birds 1-2, 3-4 and 5-6 and pooled 1-4 cloaca and trachea and pooled 5-6 trachea and cloaca swabs in VTM are stored.

COMMENTS

Cause for the chronic weight loss and death is not found on gross findings. Could decreased feed abundance associated with the variable *Karenia* sp. algal bloom, be a contributing factor to their weight loss ?

The pulmonary oedema in all birds may be an agonal process. However exposure to algal toxins has been reported to cause pulmonary oedema in sea birds (Armstrong et al 1978). Biotoxin and brevetoxin testing will help clarify if the birds were exposed to these toxins.

Armstrong, I.H., J.C. Coulson, P. Hawkey, and M.J. Hudson.
1978. Further mass seabird deaths from paralytic shellfish poisoning. *British Birds* 71:58-68.

[REDACTED]

Specialist Veterinary Anatomic Pathologist

[REDACTED]

Validated by [REDACTED]

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PATH RESULTS: SHEARWATER MORTALITY, (Wi) [REDACTED]

From [REDACTED]

Date Fri 13/03/2026 9:00 PM

To [REDACTED]

[REDACTED]

Tested on 04/03/26
Reported on 13/03/26 21:30
Referred on 04/03/26 **by:** [REDACTED]

[REDACTED]

Owner:

SHEARWATER MORTALITY
MIDDLETON BEACH
MIDDLETON 5213

Animal/s:

Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

HISTOPATHOLOGY

REF: [REDACTED]

CLINICAL HISTORY

This is a summary of the clinical history from the request form. Please refer to the request form for the full history.

6 dead shearwaters were found at Middleton beach on 4/3/26.

MACROSCOPY

Three pots received labelled [REDACTED] and organs listed below

1A = lung + heart + liver

1B = skeletal muscle, kidney, air sac

1C = duodenum, pancreas, uterus, , trachea, oesophagus, proventriculus, jejunum, 1D - E = brain

2A = heart + liver + kidney
2B = trachea, crop, oesophagus, skeletal muscle, air sac, lung
2C = duodenum, pancreas, uterus, , trachea, oesophagus, proventriculus,
jejunum, 2D - E = brain

3A = heart + liver + lung
3B = skeletal muscle, kidney
3C = duodenum, pancreas, uterus, trachea, oesophagus, proventriculus,
air sacs, jejunum, 3D - E = brain

Ed

MICROSCOPY

Bird 1

Kidney: Multifocally 10% of the cortical medullary architecture are effaced and replaced by multiple cross sections of cyst nodes (approximately 50-80 micron diameter, smooth cuticle, spongy parenchyma, gravid uteri and calcareous corpuscles)

Lung: There is mild diffuse pulmonary oedema.

Bird 2

Kidney: There is mild autolysis. Aside from this artefact the following



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Reported on 13/03/26 21:30
Referred on 04/03/26 by:



Owner:
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MIDDLETON BEACH
MIDDLETON 5213

Animal/s:
Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No:



Lab No.:



Samples tested as received

findings are described. Multifocally the collecting ducts are effaced by moderate numbers of coccidial gamonts, 15 micron diameter. (Renal coccidiosis)

Lung: There is mild diffuse pulmonary oedema

Bird 3

Kidney: Multifocally the 10% of the cortical medullary architecture are effaced and replaced by multiple cross sections of cyst nodes (approximately 50-80 micron diameter, smooth cuticle, spongy parenchyma, gravid uteri and calcareous corpuscles)

Lung: There is mild diffuse pulmonary oedema.

Those organs not described appear normal.

DIAGNOSIS

Bird 1

Kidney: Renal cestodiasis

Lung: Pulmonary oedema

Bird 2

Kidney: Renal coccidiosis

Lung: Pulmonary oedema

Bird 3

Kidney: Renal cestodiasis

Lung: Pulmonary oedema

COMMENTS

The renal cestodes have effaced only 10% of the renal parenchyma in birds 1 and 3. For this reason they probably did not contribute to morbidity for these birds.

There is renal coccidiosis in bird 2. This bird did not have weight loss and the coccidial burden was incidental. However, high renal coccidial burdens have been reported associated with chronic weight loss in short tailed shearwaters (Munday et al 1971 and Vogelnest 2003).

[REDACTED]

Tested on 04/03/26
Reported on 13/03/26 21:30
Referred on 04/03/26 **by:** [REDACTED]

[REDACTED]

Owner:
SHEARWATER MORTALITY
MIDDLETON BEACH
MIDDLETON 5213

Animal/s:
Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

Munday BL, Mason RW, Wells RJH and Arundel JH (1971)
Further studies on 'Limey-disease' of Tasmanian mutton
birds (*Puffinus tenuirostris*). Journal of Wildlife Diseases 7,
126-128.

Vogelnest L (2003) Veterinary management of seabirds. In
Proceedings of the Association of Avian Veterinarians
(Australian Committee) Annual Conference. Manly, NSW.
(Ed. GM Cross) pp. 65-117.

[REDACTED]

Specialist Veterinary Anatomic Pathologist
[REDACTED]

Validated by [REDACTED]

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PATH RESULTS: SHEARWATER MORTALITY, (Wi) [REDACTED]

From [REDACTED]

Date Tue 28/04/2026 9:00 PM

To [REDACTED]

[REDACTED]

Tested on 04/03/26
Reported on 28/04/26 21:30
Referred on 04/03/26 **by:** [REDACTED]

[REDACTED]

Owner:

SHEARWATER MORTALITY
MIDDLETON BEACH
MIDDLETON 5213

Animal/s:

Wild Birds

DOB: N/A

Collected: 04/03/26 00:25

Subm.No: [REDACTED]

Lab No.: [REDACTED]

Samples tested as received

SUMMARY DIAGNOSIS

No diagnosis is concluded

SUMMARY COMMENTS

The cause of chronic weight loss, acute pulmonary oedema and death for the birds is not concluded by laboratory testing. Could decreased feed abundance associated with the Karenia sp. algal bloom be a contributing factor for the weight loss ?

Biotoxin and brevetoxin testing is pending.

[REDACTED]

Specialist Veterinary Anatomic Pathologist

[REDACTED]

Validated by [REDACTED]

CERTIFICATE OF ANALYSIS

Customer:

Address:

Contact:

Submission Description:

Sample Received Date:

Contract Number:

Client Order Number:

Program/Quote Reference:

Avian

30/04/2026

Biotoxin and Brevetoxins

Sample(s) analysed as received. Sampling date and time data supplied by the client. The document shall not be reproduced except in full.

Additional information relating to this submission can be found in the sample receipt notification.

This report supersedes any previous reports with this submission number.

Many tests specify a holding time which gives the recommended timeframe by which a sample should be preserved/extracted and/or analysed after the sample is taken.

Holding time information can be found on the AST website <https://analyticalservices.tas.gov.au/our-services/containers-samples-and-submissions>.

Whilst every effort is made to analyse samples within these timeframes, situations can occur where this is not possible.

Where a test has been conducted outside the recommended sample holding time this should be taken into account when interpreting results.

The results in this report were authorised by:

Name

Position

Section Head - Organic
Chemistry

Test Information:

Method ID

Test Description

Date Commenced:

3411	Lipophilic Toxins in Shellfish by LC-MS/MS
3411A	Brevetoxins in Shellfish by LC-MS/MS
3416	PST in Biota by LC-MS/MS (Boundy Method)

20-05-2026
22-05-2026
20-05-2026

Sample Comments

Sample Number: 468380

IS - Insufficient Sample. Combined to form a pooled brain sample

Sample Number: 468381

IS - Insufficient Sample. Combined to form a pooled brain sample

Sample Number: 468389

IS - Insufficient Sample. Heart 1 and Heart 2 samples combined.

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

Sample Description			Brain 1, 2 & 3	Brain 2	Brain 3	Lung 1	Lung 2	Lung 3	Kidney 1	Kidney 2
Sampled Date/ Time			05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00
Method ID	Analyte	Units	468379	468380	468381	468382	468383	468384	468385	468386
3411	AZA1	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	AZA2	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	AZA3	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Domoic Acid	mg/kg WMB	<0.05*	*IS*	*IS*	<0.05*	<0.05*	<0.05*	<0.05*	<0.05*
	DTX1 Free	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX1 Total	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX2 Free	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX2 Total	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	GYM	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Homo-YTX	mg/kg WMB	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	OA Free	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	OA Total	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	PnTx-G	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	PTX2	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	SPX1	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	Total DST	OA eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
	YTX	mg/kg WMB	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*	<0.01*
3411A	Brevetoxin 1	mg/kg WMB	<0.10*	*IS*	*IS*	<0.10*	<0.10*	<0.10*	<0.10*	<0.10*
	Brevetoxin 2	mg/kg WMB	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
	Brevetoxin 3	mg/kg WMB	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*	<0.02*
3416	C1	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	C2	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	C3	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	C4	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	dcGTX3	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)			Sample Description	Brain 1, 2 & 3	Brain 2	Brain 3	Lung 1	Lung 2	Lung 3	Kidney 1	Kidney 2
			Sampled Date/ Time	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00
Method ID	Analyte	Units		468379	468380	468381	468382	468383	468384	468385	468386
3416	dcGTX4	STX.2HCl eq. mg/kg		<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	dcNEO	STX.2HCl eq. mg/kg		<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	dcSTX	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	doSTX	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GTX1	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GTX2	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GTX3	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GTX4	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
	GTX5	STX.2HCl eq. mg/kg		<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	GTX6	STX.2HCl eq. mg/kg		<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	NEO	STX.2HCl eq. mg/kg		<0.02*	*IS*	*IS*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*
	STX	STX.2HCl eq. mg/kg		<0.01*	*IS*	*IS*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*
Total PST			STX.2HCl eq. mg/kg	<0.10*	*IS*	*IS*	<0.10*	*IS*	<0.10*	<0.10*	<0.10*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

Sample Description			Kidney 3	Heart 1 & 2	Heart 2	Heart 3	Liver 1	Liver 2	Liver 3
Sampled Date/ Time			05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00
Method ID	Analyte	Units	468387	468388	468389	468390	468391	468392	468393
3411	AZA1	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	AZA2	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	AZA3	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	Domoic Acid	mg/kg WMB	<0.05*	<0.05*	*IS*	<0.05*	<0.05*	<0.05*	<0.05*
	DTX1 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX1 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX2 Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	DTX2 Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GYM	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	Homo-YTX	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	OA Free	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	OA Total	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	PnTx-G	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	PTX2	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	SPX1	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	Total DST	OA eq. mg/kg	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	YTX	mg/kg WMB	<0.01*	<0.01*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
3411A	Brevetoxin 1	mg/kg WMB	<0.10*	<0.10*	*IS*	<0.10*	<0.10*	<0.10*	<0.10*
	Brevetoxin 2	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	Brevetoxin 3	mg/kg WMB	<0.02*	<0.02*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
3416	C1	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	C2	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	C3	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	C4	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX1	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX2	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcGTX3	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*

IS- Insufficient Sample

* NATA accreditation does not cover this result

Chemistry Test Results (Biota - Food)

Sample Description			Kidney 3	Heart 1 & 2	Heart 2	Heart 3	Liver 1	Liver 2	Liver 3
Sampled Date/ Time			05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00	05/02/26 0:00
Method ID	Analyte	Units	468387	468388	468389	468390	468391	468392	468393
3416	dcGTX4	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcNEO	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	dcSTX	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	doSTX	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX1	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX2	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX3	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX4	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	GTX5	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	GTX6	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	NEO	STX.2HCl eq. mg/kg	<0.02*	*IS*	*IS*	<0.02*	<0.02*	<0.02*	<0.02*
	STX	STX.2HCl eq. mg/kg	<0.01*	*IS*	*IS*	<0.01*	<0.01*	<0.01*	<0.01*
	Total PST	STX.2HCl eq. mg/kg	<0.10*	*IS*	*IS*	<0.10*	<0.10*	<0.10*	<0.10*

IS- Insufficient Sample

* NATA accreditation does not cover this result