EXHIBIT

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Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of June, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
2														
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26														
27														
28														
29														
30	9:25	<2	8.56	<0.1	26.1	8.27	13	9:35	<2	8.37	<0.1	26.0	8.43	13
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Smuggler's Point*

Name of Sampler: Ted Schultz

CB Refrig Smugglers Pt. June 2009.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of June, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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24														
25														
26														
27														
28														
29														
30	11:30	<2	8.62	<0.1	26.3	8.22	13	11:40	<2	8.4	<0.1	26.1	8.39	13
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Kimberly*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of July, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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24														
25														
26														
27														
28														
29														
30	15:15	2.7	7.52	<0.1	27.4	7.28	16	15:20	5.5	7.22	0.17	27.2	7.62	15
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Smuggler's Pt.*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of July, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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24														
25														
26														
27														
28														
29														
30	14:45	2.8	7.44	<0.1	27.7	7.10	16	14:50	6.9	7.25	0.28	27.9	8.23	15
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Tangier Is.*

Name of Sampler: Ted Schultz

CB Refrig Water #1 Tangier Is .xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of August, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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29														
30														
31	15:30	<2.87	6.28	<0.1	27	8.15	16	15:35	<2.87	6.13	<0.1	27.1	8.38	16
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Dempster*

Name of Sampler: Ted Schultz

CB Refrig #2 Dempster Aug 2009.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of August, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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28														
29														
30														
31	14:05	<2.87	6.22	<0.1	27.1	8.05	16	14:10	<2.87	6.21	<0.1	27.5	8.31	16
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Earl Conrad*

Name of Sampler: Ted Schultz

CB Refrig #1 Conrad Aug 2009.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of September, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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29														
30	17:00	<2	9.54	<0.1	21.7	8.09	18	17:10	<2	9.60	<0.1	21.9	8.17	18
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Dempster*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of September, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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29														
30	16:20	<2	9.69	<0.1	21.8	8.10	18	16:30	<2	10.00	<0.1	21.6	8.16	18
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Conrad*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of October, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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24														
25														
26														
27														
28														
29	13:05	<2	9.42	<0.1	16.3	7.87	19	13:15	<2	9.25	<0.1	16.2	7.93	19
30														
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Landcaster*

Name of Sampler: Ted Schultz

C B Refrig Water Sample 2 Lancaster Oct09.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of October, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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21														
22														
23														
24														
25														
26														
27														
28														
29	12:40	<2	9.50	<0.1	16.5	7.98	19	12:50	2.2	9.30	<0.1	16.5	8.21	19
30														
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Tideland*

Name of Sampler: Ted Schultz

C B Refrig Water Sample 1 Tideland Oct09.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of Nov (in Dec), 2009

Chesapeake Bay Water Quality Monitoring Data

Date	Predischarge							After Discharge						
	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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6														
7														
8	8:05	<2	10.48	<0.1	9.6	7.55	18	8:20	<2	10.37	<0.25	9.3	7.90	17
9														
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31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Tangier Is.*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of Nov (in Dec), 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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7														
8	7:15	<2	10.45	<0.1	9.6	7.60	17	7:25	<2	10.43	<0.1	9.3	7.85	<2
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31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Conrad*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of Dec, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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7														
8	8:55	<2	10.51	<0.1	9.9	7.74	18	9:05	<2	10.55	<0.1	16.1	7.80	18
9														
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31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Kimberly*

Name of Sampler: Ted Schultz

CB Refrig Dec Sample Kimberly #2.xls

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of Dec, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
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7														
8	8:40	<2	10:55	<0.1	9.9	7.78	18	8:50	<2	10.53	<0.1	10.0	7.86	18
9														
10														
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31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Dempster*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of May, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
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25														
26														
27														
28	16:55	7.3	9.92	0.19	21.9	8.32	15	17:05	2.4	9.93	<0.1	21.8	8.83	14
29														
30														
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: Shearwater

Name of Sampler: Ted Schultz

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 5/1/09 To 5/10/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William R. Russell 6/5/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 5/11/09 To 5/17/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

[signature] 6/5/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 5/18/09 To 5/24/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

Wilm E Russell 6/5/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 5/18/09 To 5/24/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

Wilbur E Russell 6/5/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 5/25/09 To 5/31/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Scholtz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

6/5/2009
Signature of Principal Officer or Authorized Agent / Date

OMEGA PROTEIN

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	26-May-09	9:50	24.3	8.47	0.19	14.0
002	26-May-09	9:40	24.3	8.58	3.42	14.0
995	26-May-09	9:55	25.1	8.36	0.180	14.0

OMEGA PROTEIN™

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	9-Jun-09	10:48	27.5	7.79	0.59	14
002	9-Jun-09	10:40	27.8	7.66	0.63	13
995	9-Jun-09	10:54	29.3	7.77	0.580	14

OMEGA PROTEIN™

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	16-Jul-09	7:40	26.8	8.13	0.64	14
002	16-Jul-09	7:28	25.5	8.31	0.28	14
995	16-Jul-09	7:50	25.6	8.20	0.60	14

OMEGA PROTEIN

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	4-Aug-09	13:15	32.8	7.79	1.02	15.0
002	4-Aug-09	13:10	33.9	7.77	0.19	15.0
995	4-Aug-09	13.:20	32.7	7.84	0.620	15.0

OMEGA PROTEIN

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	9-Sep-09	8:28	26.3	7.28	0.26	16
002	9-Sep-09	8:20	26.0	7.34	0.20	16
995	9-Sep-09	8:35	27.4	7.28	1.050	16

OMEGA PROTEIN

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	6-Oct-09	11:58	23.7	7.73	0.12	19.0
002	6-Oct-09	11:50	23.5	7.88	<0.1	18.0
995	6-Oct-09	12:05	23.7	7.75	0.140	18.0

OMEGA PROTEIN™

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	9-Nov-09	13:05	16.5	8.38	<0.1	18.0
002	9-Nov-09	12:55	17.6	8.85	<0.1	18.0
995	9-Nov-09	13:15	16.1	8.29	<0.1	18.0

OMEGA PROTEIN™

DMR REPORTING
Cockrell Creek

REEDVILLE, VA

Outfall (20' from)	Date	Time	Temp (°C)	pH (SU)	Ammonia (mg/l)	Salinity (ppt)
001	1-Dec-09	10:45	11.2	7.84	<0.1	16
002	1-Dec-09	10:55	10.5	8.19	<0.1	16
995	1-Dec-09	11:05	11.2	8.25	<0.1	16

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of June, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
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18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30	11:30	<2	8.62	<0.1	26.3	8.22	13	11:40	<2	8.4	<0.1	26.1	8.39	13
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Kimberly*

Name of Sampler: Ted Schultz

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of June, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														
26														
27														
28														
29														
30	9:25	<2	8.56	<0.1	26.1	8.27	13	9:35	<2	8.37	<0.1	26.0	8.43	13
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Smuggler's Point*

Name of Sampler: Ted Schultz

AttachmentHandler.ashx

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23071 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results*

Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

Chronic Test Results*

Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	$T.U._C$	IC25	48-h LC50	LC50 95% C.L.	$T.U._{Ac}$
M. bahia EPA 1007.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	22	1.00	>100	N/A	N/A	N/A
	Fecundity	100	>100	>100	41	1.00	>100	N/A	N/A	N/A
C. variegatus EPA 1004.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	12	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data

Species-Method	Endpoint	Sample Concentration (%)					
		Control	3.5	7	14	28	100
M. bahia EPA 2007.0	Survival (%):	100	100	100	100	100	100
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Chronic Test Biological Summary Data

Species-Method	Endpoint	Sample Concentration (%)					
		Control	0.5	0.9	1.8	3.6	100
M. bahia EPA 1007.0	Survival (%):	93	100	90	98	100	90
	Biomass (mg)	0.265	0.309	0.268	0.271	0.297	0.248
	Fecundity (%):	65	67	85	81	86	90
C. variegatus EPA 1004.0	Survival (%):	100	100	100	100	100	100
	Biomass (mg):	1.269	1.246	1.280	1.230	1.317	1.403

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Test Information Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	6/24/09 1520 6/26/09 1535	CBI Stock	6/18/09 1000 6/19/09 1000	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 2004.0	6/24/09 1525 6/26/09 1540	CBI Stock	6/10/09 1630 6/11/09 1630	25° C	HWM ASW 20 g/kg sal.	No
M. bahia EPA 1007.0	6/23/09 1340 6/30/09 1400	CBI Stock	6/15/09 1000 6/16/09 1000	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 1004.0	6/23/09 1355 6/30/09 1345	CBI Stock	6/22/09 1500 6/23/09 1130	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data	Acute Test		Chronic Test			
			Sample		Dilution Water*	
Water Quality Parameter (Units)	Sample	Dilution* Water	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	3	N/A	3	0.6	N/A	N/A
Use Temperature (°C)	25	25	25	0.5	26	0.5
Arrival Salinity (g/kg)	14	N/A	14	0.4	N/A	N/A
Use Salinity (g/kg)	20	20	20	0	20	0.5
pH (S.U.)	7.99	7.91	7.98	0.16	7.88	0.07
Dissolved Oxygen (mg/l)	7.2	7.3	7.1	0.1	7.3	0
Total Hardness (mg/l as $CaCO_3$)	2460	N/A	2547	103	N/A	N/A
Alkalinity (mg/l as $CaCO_3$)	84	N/A	82	1.5	N/A	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH_3-N)	<1.0	N/A	<1.0	0	N/A	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0901-A	6/23/09 0900	6/23/09 1340, 1355	N/A	Salt Added
OMEG0901-B	6/24/09 0910	6/24/09 1330, 1345 6/24/09 1520, 1525*	6/25/09 1200, 1215	Salt Added
OMEG0901-C	6/26/09 0910	6/26/09 1140, 1200	6/27/09 1215, 1235 6/28/09 1140, 1155 6/29/09 1110, 1130	Salt Added, Aerated 0-0.5 min

*Acute tests

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	3.5	7	14	28	100	Cont.	3.5	7	14	28	100
Temp. (°C)	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	26 0.6	26 0.6	26 0.6
D.O. (mg/l)	6.2 0.9	6.2 1.0	6.2 1.0	6.1 1.1	5.9 1.2	5.8 1.2	6.3 0.9	6.3 0.9	6.2 0.9	6.3 0.9	6.3 0.9	6.3 0.9
pH (S.U.)	7.78 0.09	7.82 0.07	7.77 0.11	7.78 0.11	7.83 0.10	7.87 0.16	7.76 0.14	7.79 0.12	7.76 0.14	7.81 0.13	7.83 0.12	7.94 0.11

Total No. Printouts/Bench Sheets Attached: 20

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 1007.0						*C. variegatus* 1004.0					
% Conc:	Cont.	0.5	0.9	1.8	3.6	100	Cont.	0.5	0.9	1.8	3.6	100
Temp. (°C)	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5	25 0.5
D.O. (mg/l)	6.7 0.5	6.6 0.5	6.6 0.5	6.5 0.6	6.6 0.5	6.4 0.6	6.2 0.7	6.2 0.7	6.2 0.8	6.2 0.8	6.1 0.8	6.0 0.8
pH (S.U.)	7.76 0.12	7.76 0.12	7.78 0.12	7.79 0.10	7.81 0.11	7.86 0.13	7.77 0.16	7.78 0.15	7.79 0.14	7.80 0.13	7.80 0.15	7.87 0.18
Salinity (g/kg)	20 0.5	20 0.5	20 0.5	20 0.5	20 0.5	20 0.4	20 0.5	20 0.5	20 0.5	20 0.5	20 0.5	20 0.4

Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0 (6/18/09-6/20/09)	RTT	100	545	512-581	Yes
	CC	99	605	528-683	
C. variegatus 2004.0 (6/19/09-6/21/09)	RTT	100	1084	976-1203	Yes
	CC	99	1090	914-1267	

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures										
Species-Method (Ref. Test Date)	Data Source	% Survival		Biomass (mg)						RTT in Control?
		Cont	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.		
M. bahia 1007.0 (6/17/09-6/24/09)	RTT	95	250	0.38	250	16	389	N/A		Yes
	CC	94	250	0.32	250	21	498	347-649		
C. variegatus 1004.0 (6/17/09-6/24/09)	RTT	100	1000	1.11	500	11	992	N/A		Yes
	CC	99	1000	1.26	500	14	911	583-1240		

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group. Based on control chart data (n>62) fecundity (Method 1007.0) is not a sensitive endpoint for KCl toxicity and hence not reported; fecundity data available upon request.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

7/6/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

Coastal Bioanalysts, Inc.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean $\pm$ 2 standard deviations).

IC25: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 25% reduction in test organism growth, reproduction, etc. The lower the IC25, the more toxic the chemical or sample. Units are same as test concentration units.

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

LOEC: Lowest-observable-effect-concentration. The lowest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit a statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Units are same as test concentration units.

PMSD: Percent Minimum Significant Difference: The minimum difference which can exist between a test treatment and the controls in a particular test and be statistically significant; a measure of test sensitivity. The lower the PMSD the more sensitive the test.

N/A: Not applicable.

N/D: Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

NOEC: No-observable-effect-concentration. The highest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit no statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Some regulatory definitions also require that the NOEC be less than the LOEC. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac} = 100/LC50$. $T.U._{Chr} = 100/NOEC$. A dimensionless unit.

MYSIDOPSIS BAHIA STATIC A' 'TE WET TEST
48-H TEST (AMB) .RM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.5	1-A	10	10	10	100
	1-B	10	10	10	
7	2-A	10	10	10	100
	2-B	10	10	10	
14	3-A	10	10	10	100
	3-B	10	10	10	
28	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		GB	PB	GB	
Count Time:		1520	0925	1535	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	26	25
	1	25	26	25
	2	25	26	25
	3	25	26	25
	4	25	26	25
	5	25	26	25
pH (S.U.)	C	7.87	7.70	7.76
	1	7.89	7.75	7.82
	2	7.89	7.75	7.87
	3	7.91	7.72	7.71
	4	7.94	7.75	7.80
	5	8.06	7.78	7.78
D.O. (mg/l)	C	7.3	5.5	5.9
	1	7.3	5.5	5.8
	2	7.3	5.4	5.8
	3	7.3	5.3	5.6
	4	7.3	5.1	5.3
	5	7.2	5.1	5.1
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	B	B
Initials:		GB	PB	GB
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 6/18/09 1000

Date /time end: 6/19/09 1000

Acclimation: Water: ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: *Artemia* nauplii
ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ____ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 6/24/09

Time water added: 1505

Time mysids added: 1520

Set up by (initials): GB

NOTES:

Peer Rev. by: GB / PB Date: 6/24/09

TEST I.D. DMEG0901 -AMB

CYPRINODON VARIEGATUS
48-H TEST (ACV)

TIC ACUTE WET TEST
FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.5	1-A	10	10	10	100
	1-B	10	10	10	
7	2-A	10	10	10	100
	2-B	10	10	10	
14	3-A	10	10	10	100
	3-B	10	10	10	
28	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		CB	PB	CB	
Count Time:		1525	0915	1540	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	26	25
	1	25	26	25
	2	25	26	25
	3	26	26	25
	4	26	26	25
	5	26	26	25
pH (S.U.)	C	7.87	7.61	7.81
	1	7.89	7.66	7.81
	2	7.89	7.62	7.76
	3	7.91	7.66	7.86
	4	7.94	7.70	7.86
	5	8.06	7.89	7.86
D.O. (mg/l)	C	7.3	5.7	5.9
	1	7.3	5.7	5.8
	2	7.3	5.8	5.6
	3	7.3	5.9	5.6
	4	7.3	5.9	5.6
	5	7.2	5.9	5.6
Salinity (g/kg)	C	26		24
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	B	B
Initials:		CA	PB	CB
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other: _____

Hatch: Date/time start: 6/11/09 1630

Date /time end: 6/11/09 1630

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml _____ ml

Solution volume: ✓ 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 6/24/09

Time water added: 1505

Time fish added: 1525

Set up by (initials): CB

NOTES:

Peer Rev. by: CB / PB Date: 6/24/09

TEST I.D. OMEG09 01 -ACV

BASELINE TEST INFO – SID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0011D
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI Stock Cultures: ✓

Other: _____

Harvest Date/Time: From 6/15/09 1000

To 6/16/09 1000

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* ca. 75/mysid, 2X/day

Arrival Date: (non-CBI) NA

TEST DESIGN

Test Chamber: 1000 ml Tri-pour Beaker ✓

Other _____

Solution Vol: 200 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 8

Initial Number of Mysids/Replicate: 5

TEST SET UP (Day 0)

Set Up Date: 6/23/09

Set Up By: CA

Time Water Added: 1320

Time Animals Added: 1340

NOTES

Peer Review by PB/CB Date 7/6/09

Test I.D. OMEG0901 -CMB

ATA – *Mysidopsis bahia* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0012B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	1	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	2	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	3	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	4	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	5	25	25	26	26	26	25	26	25	26	25	25	25	25	25
pH (S.U.)	C	7.80	7.84	7.92	7.87	7.81	7.76	7.89	7.70	7.74	7.63	7.71	7.52	7.77	7.40
	1	7.80	7.82	7.92	7.85	7.82	7.75	7.91	7.70	7.81	7.46	7.76	7.48	7.78	7.61
	2	7.80	7.77	7.92	7.88	7.84	7.77	7.91	7.77	7.87	7.76	7.74	7.48	7.82	7.59
	3	7.80	7.85	7.93	7.86	7.84	7.74	7.93	7.70	7.87	7.72	7.76	7.63	7.83	7.62
	4	7.80	7.93	7.94	7.86	7.86	7.83	7.93	7.80	7.85	7.72	7.81	7.55	7.85	7.65
	5	7.72	7.82	8.04	7.92	8.02	7.85	8.10	7.72	7.81	7.81	7.89	7.74	7.86	7.70
D.O. (mg/l)	C	7.3	6.4	7.0	5.9	7.0	7.0	7.2	6.0	7.0	6.8	7.0	5.9	6.9	6.5
	1	7.3	6.3	7.0	5.9	6.8	6.9	7.2	5.8	6.9	6.7	6.9	5.9	6.9	6.4
	2	7.3	6.0	7.0	5.9	6.7	6.9	7.2	6.1	7.0	6.7	6.9	5.9	6.8	6.3
	3	7.3	5.7	7.0	5.9	6.6	6.8	7.2	5.6	6.9	6.5	6.8	5.8	6.8	6.3
	4	7.2	5.5	6.8	5.8	6.6	6.8	7.2	6.1	7.0	6.5	6.8	5.8	6.7	6.2
	5	6.9	5.4	6.8	5.8	6.6	6.7	7.2	5.2	6.8	6.6	6.8	5.7	6.6	6.1
SALIN (g/kg)	C		20		21		20		20		21		20		21
	1		20		21		20		20		21		20		21
	2		20		21		20		20		21		20		21
	3		20		21		20		20		21		20		21
	4		20		21		20		20		21		20		21
	5		21		20		20		20		21		20		21
Replicate:		B	D	C	G	A	C	E	A	H	C	G	F	E	D
Initials:		CA	CA	YB	RB	RB	CA	bja	AG	bja	CB	CB	CB	PD	CA

TEST I.D. OMEGA901 -CMB

' SURVIVAL DATA – MYSID 7 D/ EST

Co: .ı Bioanalysts, Inc
Form ETF0013C
Effective Date: 11/27/07

Treatment	Rep Ltr	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Final % Live
C	A	5	5	5	5	5	5	4	93
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	4	
	D	5	5	5	5	5	5	5	
	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
	G	5	5	5	4	4	4	4	
	H	5	5	5	5	5	5	5	
1	A	5	5	5	5	5	5	5	100
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.5%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
40	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
2	A	5	5	5	5	5	5	4	90
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.9%	D	5	5	4	4	3	3	3	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
11	G	5	5	5	5	5	4	4	
Vol. Spl.	H	5	5	5	5	5	5	5	
3	A	5	5	5	5	5	5	5	95
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
1.8%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	4	4	4	4	
22	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
4	A	5	5	5	5	5	5	5	100
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
3.6%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
43	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
5	A	5	5	5	5	5	5	5	90
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	4	
10.0%	D	5	5	5	4	4	4	4	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	4	4	3	
120	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
Renewal/Count Time:		1345	1215	1140	1215	1140	1110	PD #	
Initials:		PD	PB	bjg	kyo	CB	PD	1400	

lume sample added to total volume of 1200 ml for preparation of dilutions. # Time of final count = test time.

Test I.D. 0ME6090 1 -CMB

FECUNDITY/GROWTH DATA – SID 7 DAY TEST

Co. ; Bioanalysts, Inc
Form ETF0014G
Effective Date: 10/31/08

Treatment	Rep Ltr	Females w/eggs	Females No eggs	Males	Imma-ture	Pan No.	Total[1] Wt (mg)	Tare Wt (mg)
C	A	II		II		1	9.32	8.23
	B	I		IIII		2	7.82	6.51
	C	I	I	II		3	6.78	5.60
	D		II	III		4	7.40	6.24
	E	I	II	II		5	7.77	6.50
	F	II	I	II		6	8.77	7.12
	G	II	I	I		7	6.25	5.15
	H	II		III		8	8.21	6.39
1	A	II	I	II		9	8.41	6.81
	B	I		IIII		10	9.63	8.38
	C	II	II	1xPD		11	9.32	7.82
0.5	D	I	II	II		12	8.70	7.11
% Conc.	E	IIII		I		13	9.16	7.54
	F	II	I	II		14	8.60	6.45
	G	II	I	II		15	9.27	7.76
	H	I	I	III		16	9.00	7.86
2	A	III		I		17	10.38	9.05
	B	II	I	II		18	8.79	7.41
	C	I		IIII		19	8.30	7.30
0.9	D	I	I	I		20	8.01	7.04
% Conc.	E	II		III		21	9.52	7.85
	F	III		II		22	11.46	10.12
	G	II	I	I		23	11.34	9.51
	H	III		II		24	10.55	9.14
3	A	III		II		25	10.61	9.04
	B	III		II		26	11.56	9.96
	C	I	I	III		27	8.43	7.03
1.8	D	I		IIII		28	9.51	8.37
% Conc.	E	II		III		29	10.72	9.13
	F	I	I	II		30	8.30	6.91
	G	I	I	III		31	10.50	9.39
	H	III		II		32	10.87	9.89
4	A	III	I	I		33	11.05	9.35
	B	III		II		34	11.81	10.32
	C	I		IIII		35	10.82	9.28
3.6	D	I		IIII		36	9.54	8.18
% Conc.	E	I	I	III		37	10.29	8.69
	F	II	I	II		38	9.76	8.32
	G	II		I	II	39	9.45	8.31
	H	III		II		40	9.52	7.93
5	A	II		II	I	41	9.15	7.82
	B	III		II		42	9.43	8.05
	C	II	I	I		43	8.87	7.82
10.0	D	III		I		44	10.27	9.10
% Conc.	E	II		III		45	9.79	8.39
	F	I	I	I		46	8.52	7.74
	G	I		III		47	9.19	7.73
	H	II		III		48	7.99	6.64

[1]See printout of statistical analyses for biomass weights by replicate.
[2] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 10.00 ± 0.05 mg

TARE WT: DATE: 6/24 INITIALS: CD CALIB. CHECK (10.00 mg[2]): 10.01
TOTAL WT: DATE: 7/1 INITIALS: PB CALIB. CHECK (10.00 mg[2]): 10.02
SEXED BY: PD

Test I.D. DMEC0901

-CMB

id Survival, Growth and Fecundity Test-7 . Survival

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

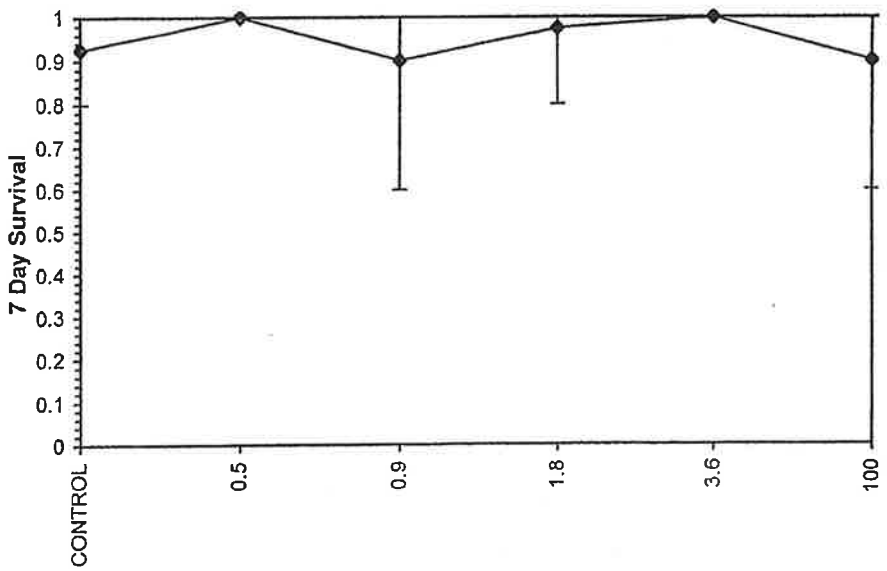
Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.8000	1.0000	0.8000	1.0000	1.0000	1.0000	0.8000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9	0.8000	1.0000	1.0000	0.6000	1.0000	1.0000	0.8000	1.0000
1.8	1.0000	1.0000	1.0000	1.0000	1.0000	0.8000	1.0000	1.0000
3.6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	0.8000	0.8000	1.0000	0.6000	1.0000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
CONTROL	0.9250	1.0000	1.2560	1.1071	1.3453	9.813	8		
0.5	1.0000	1.0811	1.3453	1.3453	1.3453	0.000	8	80.00	46.00
0.9	0.9000	0.9730	1.2283	0.8861	1.3453	14.264	8	66.50	46.00
1.8	0.9750	1.0541	1.3155	1.1071	1.3453	6.400	8	76.00	46.00
3.6	1.0000	1.0811	1.3453	1.3453	1.3453	0.000	8	80.00	46.00
100	0.9000	0.9730	1.2283	0.8861	1.3453	14.264	8	66.50	46.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.82717	0.929	-1.3806	2.06916
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: Ro

Mysid Survival, Growth and Fecundity Test - Biomass

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.2180	0.2620	0.2360	0.2320	0.2540	0.3300	0.2200	0.3640
0.5	0.3200	0.2500	0.3000	0.3180	0.3240	0.4300	0.3020	0.2280
0.9	0.2660	0.2760	0.2000	0.1940	0.3340	0.2680	0.3660	0.2420
1.8	0.3140	0.3320	0.2800	0.2280	0.3180	0.2780	0.2220	0.1960
3.6	0.3400	0.2980	0.3080	0.2720	0.3200	0.2880	0.2280	0.3180
100	0.2660	0.2760	0.2100	0.2340	0.2800	0.1560	0.2920	0.2700

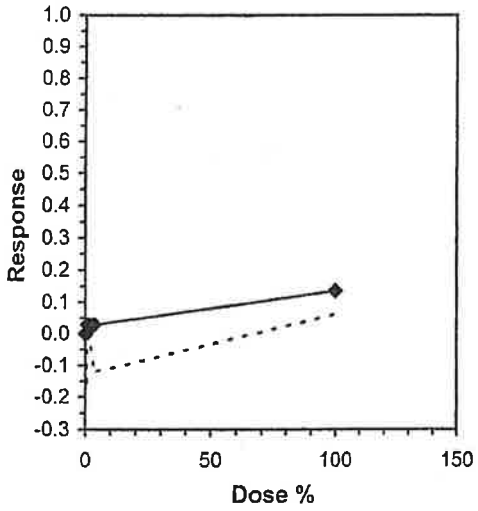
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	0.2645	1.0000	0.2645	0.2180	0.3640	20.369	8				0.2868	1.0000
0.5	0.3090	1.1682	0.3090	0.2280	0.4300	19.433	8	-1.730	2.306	0.0593	0.2868	1.0000
0.9	0.2683	1.0142	0.2683	0.1940	0.3660	22.191	8	-0.146	2.306	0.0593	0.2786	0.9715
1.8	0.2710	1.0246	0.2710	0.1960	0.3320	18.599	8	-0.253	2.306	0.0593	0.2786	0.9715
3.6	0.2965	1.1210	0.2965	0.2280	0.3400	11.687	8	-1.244	2.306	0.0593	0.2786	0.9715
100	0.2480	0.9376	0.2480	0.1560	0.2920	18.450	8	0.641	2.306	0.0593	0.2480	0.8649

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97611	0.929	0.2727	-0.058
Bartlett's Test indicates equal variances (p = 0.78)	2.4856	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.05932	0.22428	0.00402	0.00265	0.20516	5, 42

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	23.051			
IC10	68.243			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			

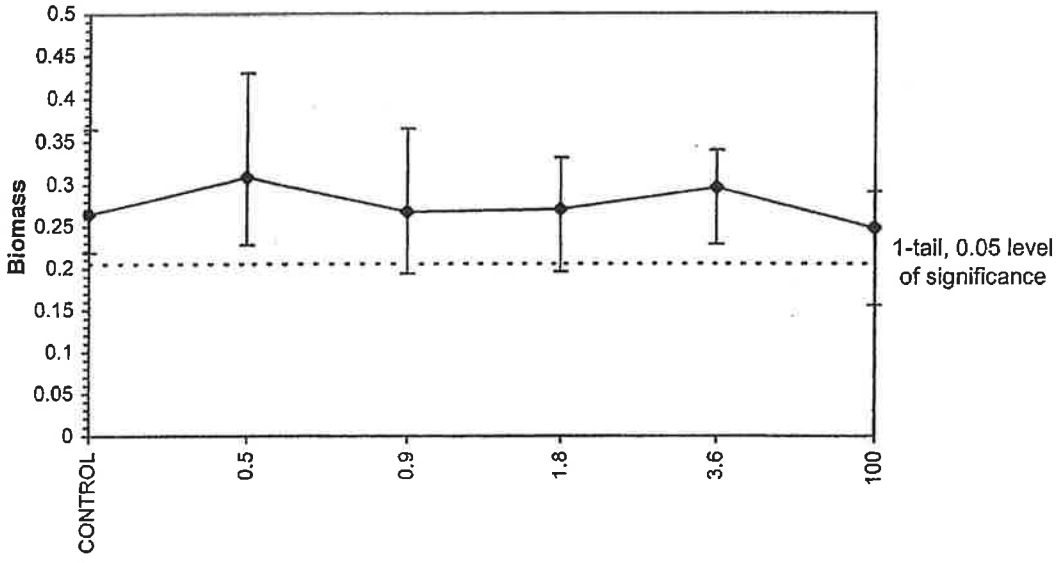


ToxCalc v5.0.23

Reviewed by: RO

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: Pp

Mysid Survival, Growth and Fecundity Test-. ecundity

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	1.0000	1.0000	0.5000	0.0000	0.3333	0.6667	0.6667	1.0000
0.5	0.6667	1.0000	0.5000	0.3333	1.0000	0.6667	0.6667	0.5000
0.9	1.0000	0.6667	1.0000	0.5000	1.0000	1.0000	0.6667	1.0000
1.8	1.0000	1.0000	0.5000	1.0000	1.0000	0.5000	0.5000	1.0000
3.6	0.7500	1.0000	1.0000	1.0000	0.5000	0.6667	1.0000	1.0000
100	1.0000	1.0000	0.6667	1.0000	1.0000	0.5000	1.0000	1.0000

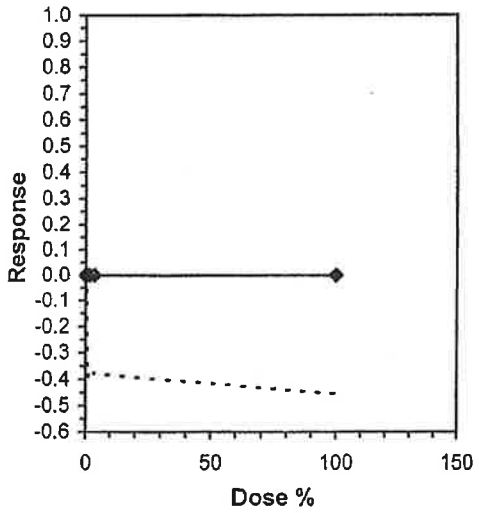
			Transform: Arcsin Square Root						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	0.6458	1.0000	0.8924	0.3614	1.2094	32.891	8				0.7796	1.0000
0.5	0.6667	1.0323	0.9272	0.6155	1.3181	22.586	8	-0.322	2.306	0.2497	0.7796	1.0000
0.9	0.8542	1.3226	1.0983	0.7854	1.2780	17.227	8	-1.902	2.306	0.2497	0.7796	1.0000
1.8	0.8125	1.2581	1.0558	0.7854	1.2780	22.387	8	-1.509	2.306	0.2497	0.7796	1.0000
3.6	0.8646	1.3387	1.0810	0.7854	1.2780	15.664	8	-1.741	2.306	0.2497	0.7796	1.0000
100	0.8958	1.3871	1.1215	0.7854	1.2780	15.744	8	-2.116	2.306	0.2497	0.7796	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96224	0.929	-0.4219	-0.398
Bartlett's Test indicates equal variances (p = 0.70)	3.03196	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.24697	0.40744	0.0733	0.04692	0.19167	5, 42

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



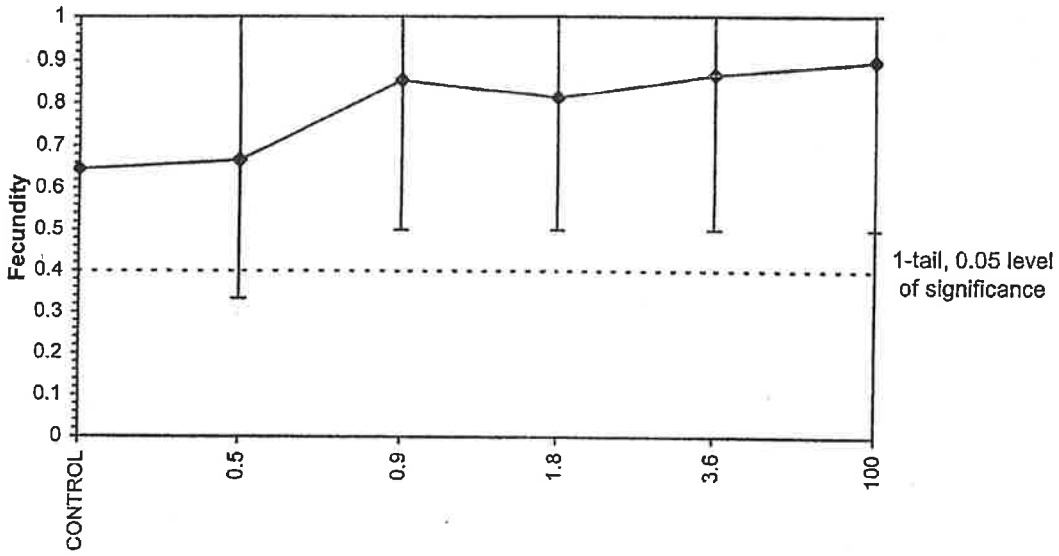
ToxCalc v5.0.23

Reviewed by: PD

Mysid Survival, Growth and Fecundity Te Fecundity

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM-94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: PP

BASELINE TEST INFO – . .EEPSHEAD 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0021C
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Cyprinodon variegatus*

Source: CBI Stock Cultures: ✓

Other: _____

Hatch Date/Time: 6/22/09 1500
(start)

Hatch Date/Time: 6/23/09 1130
(end)

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* 0.1 g/rep days 0-2 (2X/day) 0.15 g/rep days 3-6

Arrival Date: (non-CBI) NA

TEST DESIGN

Test Chamber: 1000 ml Tri-pour beaker ✓

Other _____

Solution Vol: 750 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 4

Initial Number of Fish/Replicate: 10

TEST SET UP (Day 0)

Set Up Date: 6/23/09

Set Up By: CB

Time Water Added: 1320

Time Animals Added: 1355

NOTES

Peer Review by PB/CB Date 7/6/09

Test I.D. OMEG0901 -CCV

WATER QUALITY DATA – *Cyprinodon variegatus* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0022B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	25	25	26	26	26	25	26	26	26	25	25	24	25	25
	1	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	2	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	3	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	4	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	5	25	25	26	26	26	25	26	26	26	25	25	25	25	25
pH (S.U.)	C	7.80	7.94	7.99	7.78	7.79	7.78	7.96	7.60	7.89	7.44	7.82	7.52	7.76	7.49
	1	7.80	7.94	7.99	7.80	7.79	7.78	7.98	7.64	7.89	7.64	7.82	7.58	7.78	7.47
	2	7.80	7.94	7.99	7.77	7.79	7.81	7.95	7.66	7.89	7.63	7.85	7.62	7.83	7.51
	3	7.80	7.94	7.99	7.79	7.79	7.81	7.97	7.68	7.89	7.61	7.83	7.64	7.85	7.58
	4	7.80	7.96	7.99	7.83	7.82	7.81	7.97	7.63	7.89	7.66	7.85	7.60	7.88	7.51
	5	7.72	7.96	8.13	7.94	8.05	7.87	8.15	7.73	7.82	7.63	7.44	7.45	7.91	7.62
D.O. (mg/l)	C	7.3	6.2	7.0	5.4	7.0	5.8	6.8	5.7	6.8	5.3	6.8	5.3	6.7	5.4
	1	7.3	6.1	7.0	5.4	6.9	5.7	6.7	5.6	6.7	5.1	4.2	5.3	6.7	5.4
	2	7.3	6.1	7.0	5.4	6.8	5.6	6.7	5.7	7.0	5.0	4.6	5.3	6.8	5.4
	3	7.3	6.1	7.0	5.5	6.7	5.6	6.7	5.7	6.8	4.9	4.5	5.2	6.7	5.4
	4	7.2	6.0	7.0	5.5	6.6	5.4	6.7	5.4	6.7	4.9	4.5	5.1	6.6	5.3
	5	6.9	5.9	6.9	5.5	6.6	5.2	6.7	5.2	6.7	4.7	4.4	5.0	6.6	5.3
SALIN (g/kg)	C		20		21		20		20		21		20		21
	1		20		21		20		20		21		20		21
	2		20		21		20		20		21		20		21
	3		20		21		20		20		21		20		21
	4		20		21		20		20		21		20		21
	5		20		20		20		20		20		20		21
Replicate:		B	D	C	B	A	C	A	D	D	C	B	A	C	D
Initials:		CA	CA	PB	PB	PB	CB	bja	AG	bja	CB	CB	CB	PB	CA

TEST I.D. OMEG0901 -CCV

SURVIVAL DATA – SHEEPSHEAD MINNOW 7 DAY TEST Coastal Bioanalysts, Inc Form ETF0023G Effective Date: 10/31/08

Treatment[1]	Rep Ltr	Number of Live Fish							Fish Dry Weight Data (mg)[2]			Notes
		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Pan #	Tot. Wt.	Tare Wt.	
C CONTROL	A	10	10	10	10	10	10	10	49	19.27	7.07	
	B	10	10	10	10	10	10	10	50	19.95	8.24	
	C	10	10	10	10	10	10	10	51	21.88	8.34	
	D	10	10	10	10	10	10	10	52	21.96	8.65	
1 C: 0.590	A	10	10	10	10	10	10	10	53	20.17	8.12	
	B	10	10	10	10	10	10	10	54	20.22	9.20	
V: 12	C	10	10	10	10	10	10	10	55	21.07	8.26	
	D	10	10	10	10	10	10	10	56	20.53	7.06	
2 C: 0.94	A	10	10	10	10	10	10	10	57	20.55	8.61	
	B	10	10	10	10	10	10	10	58	19.01	7.35	
V: 22	C	10	10	10	10	10	10	10	59	22.22	7.90	
	D	10	10	10	10	10	10	10	60	22.40	9.14	
3 C: 1.89	A	10	10	10	10	10	10	10	61	21.38	8.28	
	B	10	10	10	10	10	10	10	62	21.84	9.29	
V: 43	C	10	10	10	10	10	10	10	63	20.53	8.22	
	D	10	10	10	10	10	10	10	64	20.91	9.68	
4 C: 3.60	A	10	10	10	10	10	10	10	65	21.51	9.33	
	B	10	10	10	10	10	10	10	66	23.00	9.54	
V: 8.6	C	10	10	10	10	10	10	10	67	~~19.95~~ 21.95 PB	9.08	
	D	10	10	10	10	10	10	10	68	22.93	8.45	
5 C: 10.09	A	10	10	10	10	10	10	10	69	22.09	7.71	
	B	10	10	10	10	10	10	10	70	21.95	8.17	
V: 240	C	10	10	10	10	10	10	10	71	21.84	7.41	
	D	10	10	10	10	10	10	10	72	22.44	8.93	
Renewal/Count Time:		1330	1200	1200	1235	1155	1130	1345[3]	Tare Wt: Date: 4/26 Calib. Chk (10.00 mg[4]): 10.01 Init: CB			
Initials:		PB	PB	bya	bya	CB	PB	PB	Tot. Wt: Date: 7/1 Calib. Chk (10.00 mg[4]): 10.02 Init: PB			

[1] C = Concentration; V = Volume (ml) sample added to total volume of 240 ml for preparation of solutions. [2] See printout of statistical analyses for biomass weights by replicate.
[3] Time of final count = test end time. [4] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 10.00 ± 0.05 mg

Test ID DMEG0901 -CCV

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	6/23/2009 13:55	Test ID:	OMEG0901CV	Sample ID:	OUTFALL 001
End Date:	6/30/2009 13:45	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon varlegatus
Comments:					

Conc-%	1	2	3	4
CONTROL	1.2200	1.1710	1.3540	1.3310
0.5	1.2050	1.1520	1.2810	1.3470
0.9	1.1940	1.1660	1.4320	1.3260
1.8	1.3100	1.2550	1.2310	1.1230
3.6	1.2180	1.3460	1.2570	1.4480
100	1.4380	1.3780	1.4430	1.3510

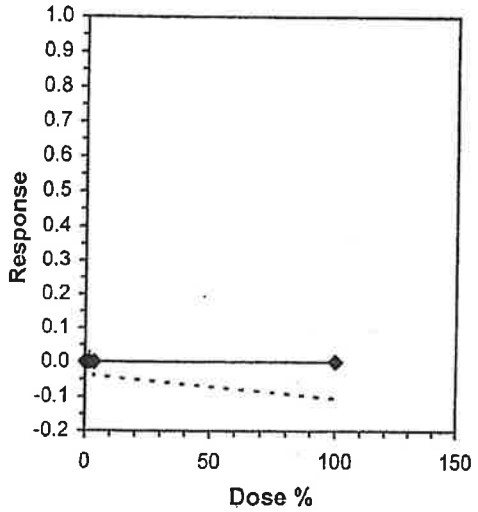
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	1.2690	1.0000	1.2690	1.1710	1.3540	6.911	4				1.2907	1.0000
0.5	1.2463	0.9821	1.2463	1.1520	1.3470	6.862	4	0.356	2.410	0.1538	1.2907	1.0000
0.9	1.2795	1.0083	1.2795	1.1660	1.4320	9.637	4	-0.165	2.410	0.1538	1.2907	1.0000
1.8	1.2298	0.9691	1.2298	1.1230	1.3100	6.381	4	0.615	2.410	0.1538	1.2907	1.0000
3.6	1.3173	1.0380	1.3173	1.2180	1.4480	7.767	4	-0.756	2.410	0.1538	1.2907	1.0000
100	1.4025	1.1052	1.4025	1.3510	1.4430	3.229	4	-2.092	2.410	0.1538	1.2907	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.9448	0.884	0.17231	-1.0704
Bartlett's Test indicates equal variances (p = 0.77)	2.52439	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.15382	0.12122	0.01559	0.00815	0.1419	5, 18

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



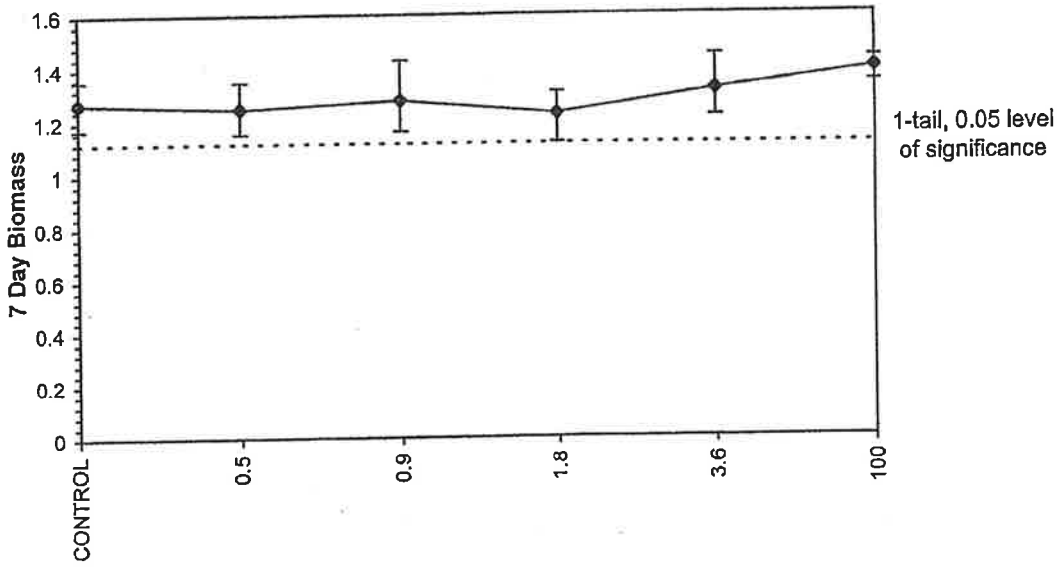
ToxCalc v5.0.23

Reviewed by: PP

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	6/23/2009 13:55	Test ID:	OMEG0901CV	Sample ID:	OUTFALL 001
End Date:	6/30/2009 13:45	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: PD

T SAMPLE & DILUTIC ATER TESTS

ATER CHARACTERISTICS
FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

NOTES:

INITIAL SAMPLE CHARACTERIZATION[1]				
nple Bottle[2]	A-1	B-1	C-1	
s. Chlorine (mg/l)	<QL	<QL	<QL	
ss (mg/l $CaCO_3$)	2520	2460	2400	
ity (mg/l $CaCO_3$)	81	84	82	
NH_3-N (mg/l)	<1.0	<1.0	<1.0	
or/Appearance[3]	C	C	C	
bvious Odor?	ND	ND	ND	
Date/Time	6/23 1100	6/24 1120	6/26 1040	
Initials	CB	CB	CB	

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1	B-1	B-3	C-1	C-2	C-3	C-4	B-2
p Temperature (°C)	25	25	26	26	26	25	25	25
tial Salinity (g/kg)[4]	15	14	14	14	14	14	14	14
usted Salinity (g/kg)	20	20	20	20	20	20	20	20
(mg/l) After Warm/Sal	7.0	7.2	6.9	7.0	7.1	7.8	7.2	7.2
Aeration Time (min)	—	—	—	—	—	0.5	—	—
Adjusted D.O.	—	—	—	—	—	7.3	7.2	—
Final pH (S.U.)	7.64	7.99	8.10	8.14	7.98	7.95	8.04	7.99
t. Res. Chlorine (mg/l)[5]	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D
mple Filtered (60 um)?	ND	ND	ND	ND	ND	ND	ND	ND
Date/Time	6/23 1310	6/24 1310	6/25 1130	6/26 1100	6/27 1200	6/28 1140	6/29 1100	6/24 1500
Initials	CB	PB	PB	bja	bja	CB	PB	PB

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	F	F	F	F	F	F	F	A
Temperature (°C)	25	25	26	25	26	26	26	25
Salinity (g/kg)	20	21	20	20	21	20	21	20
D.O. (mg/l)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
pH (S.U.)	7.80	7.83	7.91	7.89	7.85	7.85	8.02	7.91
Date/Time	6/23 1230	6/24 1100	6/25 0930	6/26 0915	6/27 1000	6/28 0945	6/29 1030	6/24 1130
Initials	CB	CB	PB	CB	AG	CB	CB	CB

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Initial salinity measured on first use of sample only
[5]Total residual chlorine measured after sample prep only if present in initial sample characterization

PROJECT I.D. AMEG0901
(First 8 characters of Laboratory Sample ID)

Peer Rev by CB / PB Date 7/3 / 09

ld time
lidays.

9 09:10 DATE

VOL (ml) SUBSAMPLES

TOTAL VOLUME

NUMBER SUBSAMPLES 96

SET VOLUME FLOW

SET VOLUME SUBSAMPLE 200 ml

BSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

ENTS DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
8.07	4.3		6/24/09 9:20	VAB

ST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

CHULTZ / TECHNICAL Supervisor Ted Schultz (SIGNATURE) 6/24/09 (DATE)

NAME/AFFILIATION SAMPLER/ANALYST)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
	6/24/09	1115	
	6/24/09		

FEDEX ___ HAND DELIVERY ___ X OTHER ___

OTHER ___

ON ICE? YES ✓ NO ___

dy collected, preserved (>0-6° C) and shipped. Sample hold time
oint of samples after 3 p.m. or on weekends and holidays.

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only): O m E G 0 9 0 1 - A
A A A A Y Y N N A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804.453.4211	
NPDES PERMIT NO: VAØØ03867			OUTFALL # OR LOCATION: 001
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	

TESTS REQUESTED:
- SPECIES OR EPA METH #: M. bahia / C variegatus — ACUTE ☑ CHRONIC ☐
- SPECIES OR EPA METH #: M. bahia / C variegatus — ACUTE ☐ CHRONIC ☑

OTHER TESTS:

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 6/22/09 09:00		COMPOSITE END DATE & TIME: 6/23/09 09:00	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION*	NUMBER SUBSAMPLES: 96	VOL (ml) SUBSAMPLES:	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 200ml	SET VOLUME FLOW:	TOTAL VOLUME:

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

pH. Per note from Ted PSD.

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
25.1	8.01	4.3	7.92	6/23/09 09:05	VAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Ted Schultz / Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Ted Schultz (SIGNATURE) — 6/23/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
JR Hall 11:10	6/23/09	1110	B. Bring

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 4 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011E Rev. 4/15/09)

Lab Sample ID (Lab Use Only): O m E G A 9 0 1 - A

A A A A Y Y N N — Project ID; A — Spl

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804.453.4211	
NPDES PERMIT NO: VA0003867		OUTFALL # OR LOCATION: 001	
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS REQUESTED:	SPECIES OR EPA METH #: 2007.0 / 2004.0	ACUTE ☑	CHRONIC ☐
	SPECIES OR EPA METH #: 1007.0 / 1004.0	ACUTE ☐	CHRONIC ☑
OTHER TESTS:			

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME: 6/23/09 09:10		SAMPLE END DATE & TIME: 6/24/09 09:10	AUTOSAMPLER TEMP. (°C): 4
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION*	NUMBER SUBSAMPLES: 96	VOL (ml) SUBSAMPLES:	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 200 ml	SET VOLUME FLOW:	TOTAL VOLUME:

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
24.7	8.07	4.3		6/24/09 9:20	VAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

TED SCHULTZ / TECHNICAL SUPERVISOR (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Ted Schultz (SIGNATURE) — 6/24/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[signature]	6/24/09	1115	[signature]
	4/24/09		

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 3 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

002 1st Q 2009

Client: Omega Protein
Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results

Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data

Species-Method	Endpoint	Sample Concentration (%)					
		Control	6.25	12.5	25	50	100
M. bahia EPA 2007.0	Survival (%):	100	100	85	85	75	65
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Test Information

Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	7/8/09 1500 7/10/09 1505	CBI Stock	7/2/09 1130 7/3/09 1100	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 2004.0	7/8/09 1450 7/10/09 1500	CBI Stock	7/4/09 1200 7/5/09 1200	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data

Water Quality Parameter (Units)	Acute Test	
	Sample	Dilution* Water
Arrival Temperature (°C)	6	N/A
Use Temperature (°C)	26	25
Arrival Salinity (g/kg)	2	N/A
Use Salinity (g/kg)	20	20
pH (S.U.)	7.27	7.89
Dissolved Oxygen (mg/l)	7.2	7.3
Total Hardness (mg/l as $CaCO_3$)	22	N/A
Alkalinity (mg/l as $CaCO_3$)	194	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A
Ammonia (mg/l NH_3-N)	<1.0	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment

CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0902-A	7/8/09 0830	7/8/09 1450, 1500	N/A	Salt added

Total No. Printouts/Bench Sheets Attached: 4

EPA Labortatory ID: VA01116

Client: Omega Protein
Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

Coastal Bioanalysts, Inc.

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	6.25	12.5	25	50	100	Cont.	6.25	12.5	25	50	100
Temp. (°C)	25 0	25 0	25 0	25 0	25 0.6	25 0.6	25 0	25 0	25 0	25 0	25 0.6	25 0.6
D.O. (mg/l)	6.8 0.6	6.9 0.5	6.9 0.5	7.0 0.4	7.1 0.4	7.2 0.4	6.9 0.5	6.9 0.5	7.0 0.4	7.0 0.4	7.1 0.4	7.1 0.5
pH (S.U.)	7.94 0.05	7.96 0.11	7.97 0.17	7.99 0.25	8.01 0.36	8.05 0.51	7.85 0.04	7.88 0.05	7.89 0.10	7.91 0.18	7.92 0.29	7.94 0.41

Acute Test QA/QC - Reference Toxicant: KCl Units: mg/L Test Organism Source: CBI Stock Cultures

Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0 (7/7/09-7/9/09)	RTT	100	575	556-596	Yes
	CC	99	603	521-685	
C. variegatus 2004.0 (7/6/09-7/8/09)	RTT	100	1140	1020-1275	Yes
	CC	99	1093	919-1267	

Note: RTT = Reference Toxicant Test, CC = Control Chart

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

7/22/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean ± 2 standard deviations).

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

N/A: Not applicable. **N/D:** Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac}$ = 100/LC50. $T.U._{Chr}$ = 100/NOEC. A dimensionless unit.

EPA Labortatory ID: VA01116

Total No. Printouts/Bench Sheets Attached: 4

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB)

FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	9	85
	2-B	10	10	8	
25	3-A	10	10	8	85
	3-B	10	10	9	
50	4-A	10	10	7	75
	4-B	10	10	8	
100	5-A	10	10	6	65
	5-B	10	10	7	
Initials:		PB	PB	bja	
Count Time:		1500	0935	1505 bja	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.87	7.98	8.04
	1	7.83	8.01	8.03
	2	7.78	8.03	8.10
	3	7.71	8.07	8.18
	4	7.61	8.10	8.32
	5	7.49	8.18	8.48
D.O. (mg/l)	C	7.3	7.1	4.1
	1	7.3	7.1	4.3
	2	7.3	7.1	4.3
	3	7.3	7.1	4.5
	4	7.3	7.4	4.2
	5	7.2	7.6	4.4
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		B	A	B
Initials:		PB	PB	CA
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 7/2/09 1130

Date /time end: 7/3/09 1100

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: **Prior to test:** *Artemia ad libitum*
During test: *Artemia* nauplii ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ____ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1440

Time mysids added: 1500

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/CB Date: 7/20/09

TEST I.D. OMEG0902 -AMB

CYPRINODON VARIEGATUS STATIC ACUTE WET TEST
48-H TEST (ACV)

FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	10	100
	2-B	10	10	10	
25	3-A	10	10	10	100
	3-B	10	10	10	
50	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	[illegible]	
Count Time:		1450	0940	1500	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	26	25	25
	5	26	25	25
pH (S.U.)	C	7.89	7.84	7.81
	1	7.83	7.87	7.93
	2	7.78	7.91	7.92
	3	7.71	7.95	8.07
	4	7.61	7.97	8.19
	5	7.49	8.01	8.37
D.O. (mg/l)	C	7.3	7.1	6.4
	1	7.3	7.1	6.4
	2	7.3	7.1	6.5
	3	7.3	7.1	6.5
	4	7.3	7.4	6.6
	5	7.2	7.5	6.8
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	A	B
Initials:		PB	PB	LL
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other:

Hatch: Date/time start: 7/4/09 1200

Date /time end: 7/5/09 1200

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml _____ ml

Solution volume: ✓ 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1440

Time fish added: 1450

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/GB Date: 7/20/09 TEST I.D. OMEG0902 -ACV

EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
SALTWATER TESTS

FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

INITIAL SAMPLE CHARACTERIZATION[1]					
Sample Bottle[2]	A-1				NOTES:
Tot. Res. Chlorine (mg/l)	<QL				
Hardness (mg/l $CaCO_3$)	22				
Alkalinity (mg/l $CaCO_3$)	194				
NH_3-N (mg/l)	<1.0				
Color/Appearance[3]	CG				
Obvious Odor?	NO				
Date/Time	7/8 1120				
Initials	bjd				

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1							
Prep Temperature (°C)	26							
Initial Salinity (g/kg)	2							
Adjusted Salinity (g/kg)	20							
DO (mg/l) After Warm/Sal	7.2							
Aeration Time (min)	—							
Adjusted D.O.	—							
Final pH (S.U.)	7.27							
Tot. Res. Chlorine (mg/l)[4]	N.D.							
Sample Filtered (60 um)?	NO							
Date/Time	7/8 PB							
Initials	1430							

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	F							
Temperature (°C)	25							
Salinity (g/kg)	20							
D.O. (mg/l)	7.3							
pH (S.U.)	7.89							
Date/Time	7/8 1425							
Initials	RB							

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by LB Date 7/11/09

PROJECT I.D. OMEG0902
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysis
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only): O M E G A 9 N 2 - A
A A A A Y Y N N A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804-453-4211	
NPDES PERMIT NO: VAØØØ3867		OUTFALL # OR LOCATION: 002	
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	

TESTS REQUESTED:
- SPECIES OR EPA METH #: Mysidopsis bahia — ACUTE ☒ CHRONIC ☐
- SPECIES OR EPA METH # — ACUTE ☐ CHRONIC ☐

OTHER TESTS:

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 9/7/09 08:30		COMPOSITE END DATE & TIME: 9/8/09 08:30	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION*	NUMBER SUBSAMPLES: ~200	VOL (ml) SUBSAMPLES: 100	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 100ml	SET VOLUME FLOW: 1 sample per 1000 gal Flow	TOTAL VOLUME:

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
27.3	6.83	4°		9/8/09 08:30	TAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Theodore Schultz/Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Theodore Schultz (SIGNATURE) — 9/8/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[illegible]	9-8-09	10:45	[illegible]

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY ✓ OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 4 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

3rd 2007

Client: Omega Protein
Project ID: OMEG0905
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 11/10/09

CBI
Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results*				
Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	6.25	12.5	25.0	50.0	100
M. bahia EPA 2007.0	Survival (%):	100	100	100	100	100	75

Test Information Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	11/10/09 1615 11/12/09 1600	CBI Stock	11/4/09 1030 11/5/09 1030	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data	Acute Test	
Water Quality Parameter (Units)	Sample	Dilution* Water
Arrival Temperature (°C)	1	N/A
Use Temperature (°C)	25	25
Arrival Salinity (g/kg)	<1	N/A
Use Salinity (g/kg)	20	20
pH (S.U.)	7.01	7.78
Dissolved Oxygen (mg/l)	7.0	7.3
Total Hardness (mg/l as $CaCO_3$)	50	N/A
Alkalinity (mg/l as $CaCO_3$)	276	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A
Ammonia (mg/l NH_3-N)	34.2	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0905-A	11/10/09 0800	11/10/09 1615	N/A	Salt added

EPA Labortatory ID: VA01116

Client: Omega Protein
Project ID: OMEG0905
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 11/10/09

Coastal Bioanalysts, Inc.

Acute Test Water Quality (Mean/Std. Dev.)						
Test:	*M. bahia* 2007.0					
% Conc:	Cont.	6.25	12.5	25.0	50.0	100
Temp. (°C)	25 0	25 0	25 0	25 0	25 0	25 0
D.O. (mg/l)	6.0 1.2	6.0 1.2	5.9 1.3	5.8 1.4	5.7 1.5	5.6 1.6
pH (S.U.)	7.62 0.23	7.66 0.19	7.62 0.15	7.64 0.05	7.74 0.21	7.65 0.56

Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0 (10/26/09-10/28/09)	RTT	100	544	490-700	Yes
	CC	100	595	511-679	

Note: RTT = Reference Toxicant Test, CC = Control Chart

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

11/23/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean ± 2 standard deviations).

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

N/A: Not applicable. **N/D:** Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac}$ = 100/LC50. $T.U._{Chr}$ = 100/NOEC. A dimensionless unit.

EPA Labortatory ID: VA01116

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB)

FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	10	100
	2-B	10	10	10	
25.0	3-A	10	10	10	100
	3-B	10	10	10	
50.0	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	7	75
	5-B	10	10	8	
Initials:		PD	PB	PB	
Count Time:		1615	0855	1600	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.86	7.61	7.40
	1	7.83	7.68	7.46
	2	7.78	7.61	7.48
	3	7.69	7.64	7.59
	4	7.51	7.80	7.91
	5	7.01	7.90	8.03
D.O. (mg/l)	C	7.3	5.6	5.0
	1	7.3	5.6	5.0
	2	7.3	5.5	4.8
	3	7.3	5.5	4.6
	4	7.3	5.5	4.4
	5	7.3	5.4	4.2
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	B	A
Initials:		PD	PB	PD
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 11/4/09 1030

Date /time end: 11/5/09 1030

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: **Prior to test:** *Artemia ad libitum*
During test: *Artemia* nauplii ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ____ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 11/10/09

Time water added: 1550

Time mysids added: 1615

Set up by (initials): PD

NOTES:

Peer Rev. by: CG Date: 11/20/09

TEST I.D. OMEG 0905 -AMB

EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
SALTWATER TESTS

FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

INITIAL SAMPLE CHARACTERIZATION[1]					
Sample Bottle[2]	A-1				NOTES:
Tot. Res. Chlorine (mg/l)	<QL				
Hardness (mg/l $CaCO_3$)	50				
Alkalinity (mg/l $CaCO_3$)	224				
NH_3-N (mg/l)	34.2				
Color/Appearance[3]	C				
Obvious Odor?	NO				
Date/Time	11/10 1120				
Initials	bya				

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1							
Prep Temperature (°C)	25							
Initial Salinity (g/kg)	<1							
Adjusted Salinity (g/kg)	20							
DO (mg/l) After Warm/Sal	7.0							
Aeration Time (min)	—							
Adjusted D.O.	—							
Final pH (S.U.)	7.81							
Tot. Res. Chlorine (mg/l)[4]	N.D.							
Sample Filtered (60 um)?	No							
Date/Time	11/10 1530							
Initials	PD							

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	C							
Temperature (°C)	25							
Salinity (g/kg)	20							
D.O. (mg/l)	7.3							
pH (S.U.)	7.78							
Date/Time	11/10 1530							
Initials	PP							

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by GB Date 11/24/09

PROJECT I.D. OMEG0905
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only)

O	M	E	G	0	9	0	5	-	A
A	A	A	A	Y	Y	N	N		A

FACILITY INFORMATION

CLIENT/FACILITY NAME	Omega Protein	CONTACT & PHONE #	Ted Schultz 804-453-4211
NPDES PERMIT NO	VA000 3867	OUTFALL # OR LOCATION	002
SAMPLE CHLORINATED?	No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?

TESTS REQUESTED:	SPECIES OR EPA METH #	M. bahia 2007.0	ACUTE ☑	CHRONIC ☐
	SPECIES OR EPA METH #		ACUTE ☐	CHRONIC ☐
OTHER TESTS:				

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME	11/9/09 0800	COMPOSITE END DATE & TIME	11/10/09 0800
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION*	NUMBER SUBSAMPLES ____	VOL (ml) SUBSAMPLES ____	TIME INCREMENT ____
	SET VOLUME SUBSAMPLE 50 ml	SET VOLUME FLOW 1/1000 gal	TOTAL VOLUME ~6 gal

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
15.2	6.49	2°C		11/10/09	DMS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Theodore Schultz / Tech Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Theodore Schultz (SIGNATURE) — 11/10/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[signature]	11/10/09	10:45	Beverly Jones Anderson

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE X OTHER____

SAMPLE ARRIVAL TEMP: (°C) 1 ARRIVED ON ICE? YES X NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

2nd 2007

Client: Omega Protein
Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

CBI
Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results*				
Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	6.25	12.5	25	50	100
M. bahia EPA 2007.0	Survival (%):	100	100	85	85	75	65
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Test Information Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	7/8/09 1500 7/10/09 1505	CBI Stock	7/2/09 1130 7/3/09 1100	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 2004.0	7/8/09 1450 7/10/09 1500	CBI Stock	7/4/09 1200 7/5/09 1200	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data	Acute Test	
Water Quality Parameter (Units)	Sample	Dilution* Water
Arrival Temperature (°C)	6	N/A
Use Temperature (°C)	26	25
Arrival Salinity (g/kg)	2	N/A
Use Salinity (g/kg)	20	20
pH (S.U.)	7.27	7.89
Dissolved Oxygen (mg/l)	7.2	7.3
Total Hardness (mg/l as $CaCO_3$)	22	N/A
Alkalinity (mg/l as $CaCO_3$)	194	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A
Ammonia (mg/l NH_3-N)	<1.0	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0902-A	7/8/09 0830	7/8/09 1450, 1500	N/A	Salt added

Total No. Printouts/Bench Sheets Attached: 4

EPA Labortatory ID: VA01116

Client: Omega Protein
Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

Coastal Bioanalysts, Inc.

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	6.25	12.5	25	50	100	Cont.	6.25	12.5	25	50	100
Temp. (°C)	25 0	25 0	25 0	25 0	25 0.6	25 0.6	25 0	25 0	25 0	25 0	25 0.6	25 0.6
D.O. (mg/l)	6.8 0.6	6.9 0.5	6.9 0.5	7.0 0.4	7.1 0.4	7.2 0.4	6.9 0.5	6.9 0.5	7.0 0.4	7.0 0.4	7.1 0.4	7.1 0.5
pH (S.U.)	7.94 0.05	7.96 0.11	7.97 0.17	7.99 0.25	8.01 0.36	8.05 0.51	7.85 0.04	7.88 0.05	7.89 0.10	7.91 0.18	7.92 0.29	7.94 0.41

Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0 (7/7/09-7/9/09)	RTT	100	575	556-596	Yes
	CC	99	603	521-685	
C. variegatus 2004.0 (7/6/09-7/8/09)	RTT	100	1140	1020-1275	Yes
	CC	99	1093	919-1267	

Note: RTT = Reference Toxicant Test, CC = Control Chart

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

7/22/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean ± 2 standard deviations).

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

N/A: Not applicable. **N/D:** Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac} = 100/LC50$. $T.U._{Ch} = 100/NOEC$. A dimensionless unit.

EPA Labortatory ID: VA01116

Total No. Printouts/Bench Sheets Attached: 4

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB) FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	9	85
	2-B	10	10	8	
25	3-A	10	10	8	85
	3-B	10	10	9	
50	4-A	10	10	7	75
	4-B	10	10	8	
100	5-A	10	10	6	65
	5-B	10	10	7	
Initials:		PB	PB	bja	
Count Time:		1500	0935	1505 bja	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.81	7.98	8.14
	1	7.83	8.01	8.03
	2	7.78	8.03	8.10
	3	7.71	8.07	8.18
	4	7.61	8.10	8.32
	5	7.49	8.18	8.48
D.O. (mg/l)	C	7.3	7.1	4.1
	1	7.3	7.1	4.3
	2	7.3	7.1	4.3
	3	7.3	7.1	4.5
	4	7.3	7.4	4.7
	5	7.2	7.6	4.9
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		B	A	B
Initials:		PB	PB	CM
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 7/2/09 1130

Date /time end: 7/3/09 1100

Acclimation: Water: ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: *Artemia* nauplii ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ___ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1450

Time mysids added: 1500

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/CB Date: 7/20/09

TEST I.D. OMEG0902 -AMB

CYPRINODON VARIEGATUS STATIC ACUTE WET TEST
48-H TEST (ACV)

FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	10	100
	2-B	10	10	10	
25	3-A	10	10	10	100
	3-B	10	10	10	
50	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	bja	
Count Time:		1450	0940	1500	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	26	25	25
	5	26	25	25
pH (S.U.)	C	7.89	7.84	7.81
	1	7.83	7.87	7.93
	2	7.78	7.91	7.92
	3	7.71	7.95	8.07
	4	7.61	7.97	8.19
	5	7.49	8.01	8.31
D.O. (mg/l)	C	7.3	7.1	6.4
	1	7.3	7.1	6.4
	2	7.3	7.1	6.5
	3	7.3	7.1	6.5
	4	7.3	7.4	6.6
	5	7.2	7.5	6.8
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	A	B
Initials:		PB	PB	LL
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other: _____

Hatch: Date/time start: 7/4/09 1200

Date /time end: 7/5/09 1200

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml _____ ml

Solution volume: ✓ 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1440

Time fish added: 1450

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/ GB _____ Date: 7/20/09

TEST I.D. OMEG0902 -ACV

EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
SALTWATER TESTS

FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

INITIAL SAMPLE CHARACTERIZATION[1]					NOTES:
Sample Bottle[2]	A-1				
Tot. Res. Chlorine (mg/l)	<QL				
Hardness (mg/l $CaCO_3$)	22				
Alkalinity (mg/l $CaCO_3$)	194				
NH_3-N (mg/l)	<1.0				
Color/Appearance[3]	CG				
Obvious Odor?	NO				
Date/Time	7/8 1120				
Initials	bjc				

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1							
Prep Temperature (°C)	24							
Initial Salinity (g/kg)	2							
Adjusted Salinity (g/kg)	20							
DO (mg/l) After Warm/Sal	7.2							
Aeration Time (min)	—							
Adjusted D.O.	—							
Final pH (S.U.)	7.27							
Tot. Res. Chlorine (mg/l)[4]	N.D.							
Sample Filtered (60 um)?	NO							
Date/Time	7/8 PB							
Initials	1430							

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	F							
Temperature (°C)	25							
Salinity (g/kg)	20							
D.O. (mg/l)	7.3							
pH (S.U.)	7.89							
Date/Time	7/8 1425							
Initials	RB							

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by LB Date 7/11/09

PROJECT I.D. OMEG0902
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only) O M E G O 9 N 2 - A
A A A A Y Y N N A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804.453-4211	
NPDES PERMIT NO: VA0003867			OUTFALL # OR LOCATION: 002
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS REQUESTED:	SPECIES OR EPA METH #: Mysidopsis bahia	ACUTE ☒	CHRONIC ☐
	SPECIES OR EPA METH #:	ACUTE ☐	CHRONIC ☐
OTHER TESTS:			

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 9/7/09 08:30		COMPOSITE END DATE & TIME: 9/8/09 08:30	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION	NUMBER SUBSAMPLES: ~200	VOL (ml) SUBSAMPLES: 100	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 100ml	SET VOLUME FLOW: 1 Sample per 1000 gal Flow	TOTAL VOLUME:

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
27.3	6.83	4°		9/8/09 08:30	VAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Theodore Schultz / Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Theodore Schultz (SIGNATURE) — 9/8/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[signature]	9-8-09	10:45	[signature]

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY ✓ OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 4 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

1 3 2009

Re: Preliminary toxicity test results outfall 002, 7/8/09 sample

ACUTE WHOLE EFFLUENT TOXICITY TESTS:				
Test Method	**Endpoint**	**LC50 (%)**	**NOAEC (%)**	**TU_A**
Mysidopsis bahia 48-h Acute Test (EPA Method # 2007.0)	Survival	>100	N/A	<1.00
Cyprinodon variegatus 48-h Acute Test (EPA Method # 2004.0)	Survival	>100	N/A	<1.00

Full final report to follow soon. These results are preliminary.

Coastal Biologicals
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only)

								-	
A	A	A	A	Y	Y	N	N		A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804-453-4211	
NPDES PERMIT NO: VA0003867		OUTFALL # OR LOCATION: 002	
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS REQUESTED:	SPECIES OR EPA METH #: Mysidopsis bahia	ACUTE ☒	CHRONIC ☐
	SPECIES OR EPA METH #	ACUTE ☐	CHRONIC ☐
OTHER TESTS:			

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. **IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.**

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 9/7/09 08:30		COMPOSITE END DATE & TIME: 9/8/09 08:30	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION*	NUMBER SUBSAMPLES: ~200	VOL (ml) SUBSAMPLES: 100	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 100ml	SET VOLUME FLOW: 1 sample per 1000 gal Flow	TOTAL VOLUME:

*FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
27.3	6.83	4°		9/8/09 08:30	VAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Theodore Schultz/Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) Theodore Schultz (SIGNATURE) 9/8/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY____ OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE___ OTHER____

SAMPLE ARRIVAL TEMP: (°C)____ ARRIVED ON ICE? YES____ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

DEPT. OF ENVIRONMENTAL QUALITY
(REGIONAL OFFICE)

Piedmont Regional Office
4949-A Cox Road

Glen Allen, VA 23060

PERMITTEE NAME/ADDRESS (INCLUDE FACILTY NAME/LOCATION IF DIFFERENT)

NAME: Omega Protein - Reedville
ADDRESS: PO Box 175
Reedville, VA 22539

FACILITY LOCATION: 610 Menhaden Rd

VA0003867	002
PERMIT NUMBER	DISCHARGE NUMBER

MONITORING PERIOD

	YEAR	MO	DAY		YEAR	MO	DAY
FROM	2009	05	01	TO	2009	07	31

NOTE: READ PERMIT AND GENERAL INSTRUCTIONS BEFORE COMPLETING THIS FORM.

Parameter		QUANTITY OR LOADING			QUALITY OR CONCENTRATION				NO. EX.	FREQUENCY OF ANALYSIS	SAMPLE TYPE	LAB CODE
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM	UNITS				
TOXICITY, FINAL, ACUTE	REPORTD	*****	*****		*****	*****	<1.00	TU-A	0	1/3M	24HC	
PARAM CODE: 379	REQRMNT	*****	*****		*****	*****	14			1/3M	24HC	

GENERAL PERMIT REQUIREMENTS OR COMMENTS:
PARAMETER-SPECIFIC COMMENTS:

BYPASSES AND OVERFLOWS	TOTAL OCCURENCES	TOTAL FLOW(M.G.)	TOTAL BOD5(K.G.)
	0	0	0

I CERTIFY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCE WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED ON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS TO THE BEST OF MY KNOWLEDGE AND BELIEF TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years.)

OPERATOR IN RESPONSIBLE CHARGE					
Theodore Schultz		1911004868			
TYPED OR PRINTED NAME		CERTIFICATE NUMBER			
PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT		TELEPHONE	6044534211		
TYPED OR PRINTED NAME	SIGNATURE		YEAR	MO.	DAY

3rd 2008

TOXICITY TEST
FOR
OMEGA PROTEIN
Outfall 002
~~Q4~~ 2008
Q3

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

December 19, 2008

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tina Paugh (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Prepared by: Tina Paugh

Client: Omega Protein

NPDES Permit #: VA0003867

Experiment ID#: OMP120308-1

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 4 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 12/01/08 @ 1300 to 12/02/08 @ 1300

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 120108

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artemia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 12/03/08

Time: 1600

End of Test: Date: 12/05/08

Time: 1620

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter: YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

		NPDES PERMIT #: VA0003867		
Client	Omega Protein		**Date**	**Time**
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)	**Start Test**	12/03/08	1600
Experiment ID	OMP120308-1	**End Test**	12/05/08	1620
Sample Tested	Outfall 002			

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	25	24	25	6.82	5.19	4.45	8.43	7.85	7.67	25	25	100
6.25	25	24	25	6.85	4.73	4.64	8.28	7.92	7.78	25	25	100
12.5	25	24	25	6.89	4.75	4.85	8.30	7.98	7.87	25	25	100
25	25	24	25	6.96	5.51	5.44	8.31	8.13	8.08	25	25	95
50	25	24	25	7.17	6.23	5.78	8.23	8.22	8.24	25	25	100
100	25	24	25	8.21	6.89	5.82	8.12	8.30	8.43	25	25	100

STATISTICAL ANALYSES

Test Method	LC50 (%)	TUa	95% Fiducial (Confidence) Limits
N/A	> 100%	1.0	N/A

COMMENTS: Raw sample OMP120308 was salinated to 25ppt with Crystal Sea Bioassay Mix.

BIOLOGICAL MONITORING, INC.
TOXICITY TEST DATA SHEET

Experiment I.D. #: ~~OMP111708-1 CRP~~ OMP120308-1
Effluent/Sample: OMP120308
NPDES#: VA0003867
Sample Container: PE
Client: Omega Protein
Project Scientist: C. Pough, J. Berenzweig
Outfall/Station No. 002
QC Officer: WR

Sample Type:
Grab: ____
Collection Date: ____ Time: ____
Composite: X
Collected From: Date: 12/1/08 Time: 1300
Collected To: Date: 12/2/08 Time: 1300

Test Organism:
Species: M. bahia
Source: MBL
Batch#: MBL-120208-3
Age: 4 days
No. of organisms/con. 20

Test Mode: Static Acute
Test Start Date: ~~11/19/08~~ 12/3/08 Time: 1600
Test End Date: 12/5/08 Time: 1620
Test Temperature: 25 ±1°C
Dilution Water Used: SS
Test Duration: 48 hr
Waterbath/Shelf#: 2/3
Temp. of Org. Stock Solution: 25°C

Con. (%) or mg/L	Test Cont. #	Number of Live Organisms					Dissolved Oxygen (mg/L)					pH					Salinity 0/00					Temperature (°C)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0	A	10	10	10			6.82	5.19	4.46			8.43	7.85	7.67			25	25	25			25	24	25		
	B	10	10	10																						
6.25	A	10	10	10			6.85	4.73	4.64			8.28	7.92	7.78			25	25	25			25	24	25		
	B	10	10	10																						
12.5	A	10	10	10			6.89	4.75	4.85			8.30	7.98	7.87			25	25	25			25	24	25		
	B	10	10	10								~~8.51~~ CRP														
25	A	10	*	9			6.96	5.51	5.44			8.31	8.13	8.08			25	25	25			25	24	25		
	B	10	*	10								~~8.5~~														
50	A	10	*	10			7.17	6.23	5.78			8.23	8.22	8.24			25	25	25			25	24	25		
	B	10	*	10																						
100	A	10	*	10			8.21	6.89	5.82			8.12	8.30	8.43			25	25	25			25	24	25		
	B	10	*	10																						
Recorded By:		CRP	CRP	CRP			CRP	CRP	CRP			CRP	CRP	CRP			CRP	CRP	CRP			CRP	CRP	CRP		

BIOLOGICAL MONITORING , INC.
Toxicity Test Procedure Check Sheet

Test I.D. #: ~~OMP111908-1~~ CSP OMP120308-1

Test containers used: PP

Specify below no. milliliters (mLs) of diluent and effluent measured out per concentration in this test:

No. of replicates per concentration: 2

Are all test chambers properly labeled? ✓

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 2L, 500mL, 100mL pipet (s):

volumetric flask (s): other

Concentration (%) mg/L Other	Diluent mL	Effluent mL	Total
0	1000	0	1000mL
6.25	937.50	62.5	↓
12.5	875	125	↓
25	750	250	↓
50	500	500	↓
100	0	1000	↓

Specify material (s) used to place test organisms into test chambers: wide bore pipet

Total Chlorine of sample upon arrival (mg/L): <0.1 mg/L

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: Normal

Exposure Chamber
Total vessel capacity: 800 mL
Test solution volume: 450 mL
Water Depth Constant: ✓
Cyclic:

Feeding schedule
Pretest feeding:
Not fed:
Fed daily: 2X
Fed irregularly (describe)
Type of food: live rinsed Artemia

Aeration
Pretest:
None: ✓
Slow: (bubbles/min)
Moderate:
Vigorous:
Beginning: (hour)

Screened Animal Enclosures
Not used: ✓
Used:
Photoperiod:
8h/16h: ✓
Other:

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: Raw Sample OMP120308 was salinated to 25ppt with crystal sea salt
* too turbid to count
LC50 >100%

Sample A

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

11414

To be completed by the person collecting the sample. See reverse side for instructions.

1. Client name Omega Protein
2. Sampler's name Ted Schultz
3. Sample source Lagoon
4. Outfall/station ØØ2
5. Purchase order no. _____
6. Affiliation Employee
7. NPDES permit no./County VAØØØ3867
8. Test period for which data is being submitted: 3rd Q
9. *Sample relinquished by:* Ted Schultz / 12/2/08 *Date; Received by:* _____ / _____ *Date;*

Sample relinquished by: _____ / _____ *Date; Received by:* _____ / _____ *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
    - Grab _____
    - Date collected _____
    - Time collected _____
    - Volume _____
    - Composite X
    - Composite type 24HC
    - Collection period: from 12/1/08 (date) 13:00 (time) to 12/2/08 (date) 13:00 (time)
11. Flow during sampling _____
12. Type of container _____
13. Number of containers shipped _____
14. No. of subsamples _____
15. Frequency _____
16. Volume 1 gal

Condition of Effluent at Time of Collection

17. pH 6.8
18. Chlorine _____
19. Temperature:
    - At collection point _____
    - In collection device (comp. sample must be @ or below 4°C) 4°C
20. Is the sample:
    - Chlorinated _____
    - Dechlorinated _____
    - Unknown _____
    - Dechlorination method _____

Shipping Information

21. Method of shipment UPS
22. Date shipped 12/2/08
23. Time 15:30
24. Was the sample packed with ice for shipment? Yes
25. *Custody seal in place by* Ted Schultz *Date* 12/2/08 *Time* 14:15

Instructions to Lab

26. Type of test(s) to be performed 48 hr Tox (Static Acute)
27. Should BMI dechlorinate the sample (Yes or No) NO
28. Should ammonia be measured? (Yes or No) NO
29. Comments _____

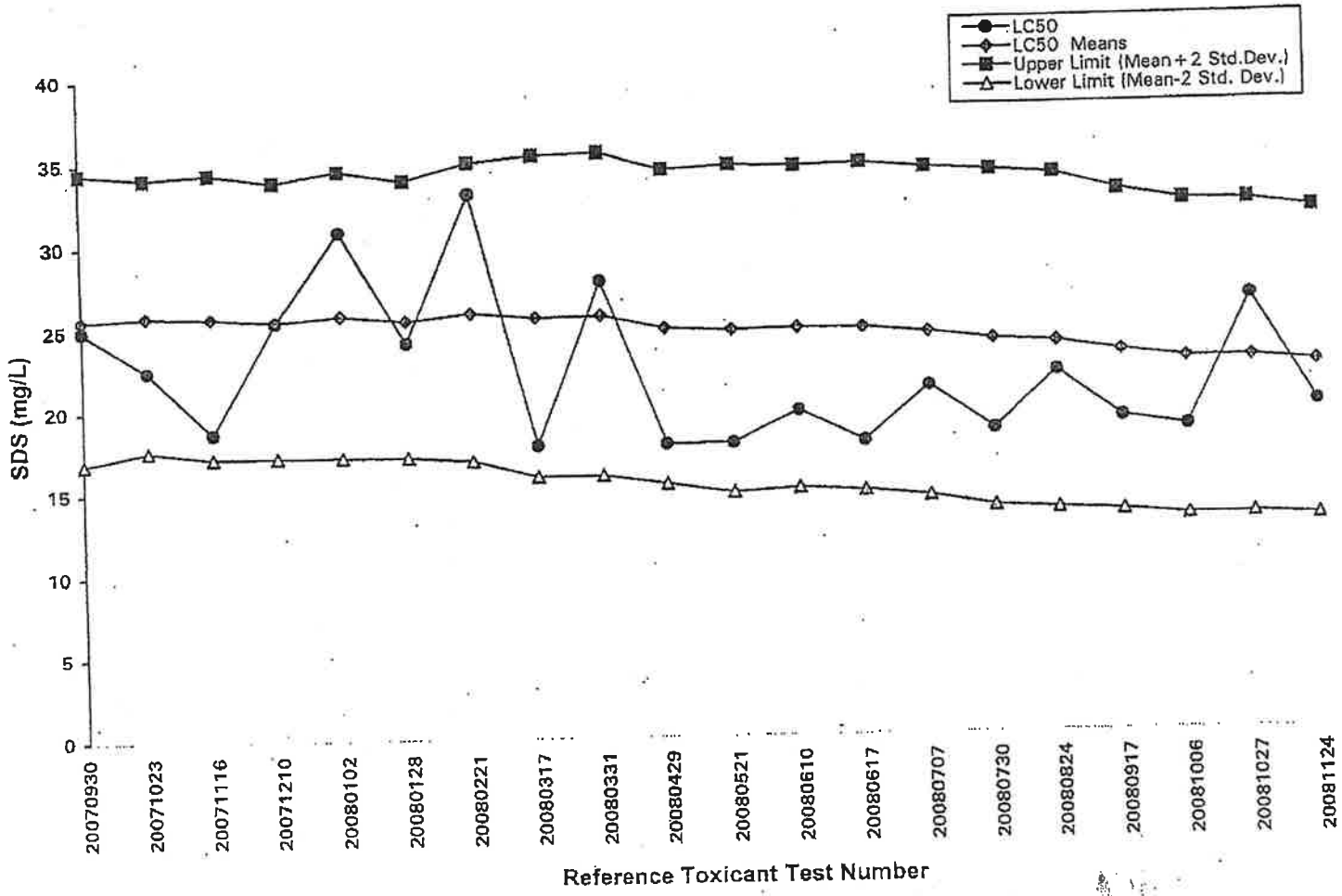
30. I certify that the above information is correct Ted Schultz (Signature) 12/2/08 (Date)

For BMI Use Only

Alk 162
Hard 1600
BMI Sample ID# OMP120308-1 *Received by* CRP *Date* 12/3/08 *Time* 1040
Upon arrival at BMI: Custody seal ✓ Temperature 1°C pH 8.04 Chlorine <0.1 DO 7.16
On ice? ✓ Salinity 5 ppt Conductivity _____
Visual description green in color, slight fish odor Sample refrigerated ✓
Test ID number(s) OMP120308-1

C:\wpdocs\Webforms\splcol2.frm (V.1194)

STANDARD REFERENCE TOXICANT (SODIUM DODECYL SULFATE) CONTROL CHART FOR *Mysidopsis bahia* ACUTE TOXICITY TESTS CONDUCTED AT MARINCO BIOASSAY LABORATORY, INC.



2nd 2008

TOXICITY TEST
FOR
OMEGA PROTEIN
Outfall 002
Q3 2008

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

September 12, 2008

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tina Paugh (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Prepared by: Tina Paugh

Client: Omega Protein

NPDES Permit #: VA0003867

Experiment ID#: OP090308-2

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 3 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 09/1/08 @ 1300 to 09/2/08 @ 1300

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 090208

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artemia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 09/3/08

Time: 1530

End of Test: Date: 09/5/08

Time: 1600

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter:YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

		NPDES PERMIT #: VA0003867		
Client	Omega Protein		**Date**	**Time**
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)	**Start Test**	09/3/08	1530
Experiment ID	OP090308-2	**End Test**	09/5/08	1600
Sample Tested	Outfall 002			

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	25	25	25	6.61	5.06	4.94	7.80	7.64	7.83	25	25	95
6.25	25	25	25	6.55	4.95	4.60	7.81	7.77	7.93	25	25	100
12.5	25	25	25	6.57	5.45	5.09	7.83	7.89	8.16	25	25	90
25	25	25	25	6.54	5.91	5.29	7.86	8.02	8.29	25	25	95
50	25	25	25	6.48	6.30	5.80	7.85	8.18	8.50	25	25	100
100	25	25	25	6.29	6.95	6.79	7.83	8.27	8.69	23	23	100

STATISTICAL ANALYSES

Test Method	LC50 (%)	TUa	95% Fiducial (Confidence) Limits
N/A	> 100	1.0	N/A

COMMENTS: Raw sample OP090308 was filtered to remove indigenous organisms and salinated to 25ppt with Crystal Sea Bioassay Mix.

BIOLOGICAL MONITORING, INC.
WHOLE EFFLUENT TOXICITY TEST DATA SHEET

Experiment I.D.: OP090308-2	Permit #: VA0003867	Client: Omega Protein	Outfall/Station No. 002
Effluent/Sample: 24 Hr. Composite OP090308	Sample Container: 1 gal cub.	Project Scientist: J. Berenzweig & Tina Paugh	QC Officer: WPK

Sample Type:
Grab: _____
Collection Date: _____ Time: _____
Composite: ✓
Collected From: Date: 9/1/08 Time: 1300
Collected To: Date: 9/2/08 Time: 1300

Test Organism:
Species: A. bahia
Source: ABI
Batch#: ABS090308
Age: 3 days
No. of organisms/ conc.: 20

Test Conditions:
Test Mode: Static Acute
Test Start Date: 9 / 3 / 08
Test End Date: 9 / 5 / 08
Test Temperature: 25 ± 1°C
Dilution Water Used: Synthetic Seawater SS090208
Test Duration (hrs): 48 Hrs.
Time: 1530
Time: 1600
Waterbath/Shelf#: 3/3
Temp of Stock Solution: 25°C

Conc: % mg/L	Test Cont. #	Number of Live Organisms 0	24	48	72	96	Dissolved Oxygen (mg/L) 0	24	48	72	96	pH 0	24	48	72	96	Alkalinity mg/L as $CaCO_3$ 0	48	Hardness mg/L as $CaCO_3$ 0	48	Salinity ~~Conductivity (umhos)~~ CRP 0	~~24~~	~~48~~	72	96	Temperature (°C) 0	24	48	72	96
0	A	10	10	9			6.61	5.66	4.94			7.80	7.64	7.83							25	25	25			25	25	25		
	B	10	10	10																										
6.25	A	10	10	10			6.55	4.95	4.60			7.81	7.77	7.93							25	25	25			25	25	25		
	B	10	~~9~~ 10 CRP	10																										
12.5	A	10	10	10			6.57	5.45	5.09			7.83	7.89	8.16							25	25	25			25	25	25		
	B	10	9	8																										
25	A	10	10	9			6.54	5.91	5.29			7.86	8.02	8.29							25	25	25			25	25	25		
	B	10	10	10																										
50	A	10	*	10			6.49	6.30	5.80			7.85	8.18	8.50							25	25	25			25	25	25		
	B	10	*	10																										
100	A	10	*	10			6.29	6.95	6.74			7.83	8.27	8.69			278		164		25	25	25			25	25	25		
	B	10	*	10																										
Recorded By:		CRP	CRP	CRP			CRP	CRP	CRP			CRP	CRP	CRP			CRP		CRP		CRP	CRP	CRP			CRP	CRP	CRP		

BIOLOGICAL MONITORING, INC.
Whole Effluent Toxicity Test Procedure Check Sheet

Test I.D. #: OP090308-2 Test containers used: 800 mL pp

No. of replicates per concentration: (2) 4

Test chambers labeled with Test ID, Conc., & Rep.? Y

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 1L, 500mL pipet _____

volumetric flask (s): _____ other _____

Specify device(s) used to place test organisms into test chambers: plastic pipettes

Specify below volumes used to prepare treatments:

Concentration (%) mg/L Other____	Diluent (mL)	Effluent (mL) Stock conc.:	Total (mL)
0	1,000	0	1,000
6.25	937.5	62.5	1,000
12.5	875	125	1,000
25	750	250	1,000
50	500	500	1,000
100	0	1,000	1,000

Total Chlorine of sample upon arrival (mg/L): <.01

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: (Normal) Other _____

Exposure Chamber

Total vessel capacity: 800 mL

Test solution volume: 450 mL

Water Depth Constant: Yes

Cyclic: _____

Feeding schedule

Pretest feeding: None

Not fed: _____

Fed daily: 2X Daily

Fed irregularly (describe) _____

Type of food: Artemia ~~2drops~~ live rinsed CRS
1ml live rinsed

Aeration

Pretest: 2 hours pretest

None: _____

Slow: _____ (bubbles/min)

Moderate: _____

Vigorous: _____

Beginning: _____ (hour)

Screened Animal Enclosures

Not used: ✓

Used: _____

Photoperiod:

8h/16h: ✓

Other: _____

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: Sample OP090308 was filtered to remove indigenous organisms & salinated to 25 ppt.
*too lethal to count for 24hrs in 50 & 100

CT-TOX: BINOMIAL, MOVING AVERAGE, PROBIT, AND SPEARMAN METHODS

MINIMUM REQUIRED TRIM IS TOO LARGE: 96.3,SO SK IS NOT CALCULABLE.

SPEARMAN-KARBER

TRIM: .00%
LC50: .000
95% CONFIDENCE LIMITS
ARE UNRELIABLE.

CONC. percent	NUMBER EXPOSED	NUMBER DEAD	PERCENT DEAD	BINOMIAL PROB.(%)
6.25	20.	0.	.00	.9537D-04
12.50	20.	2.	10.00	.2012D-01
25.00	20.	1.	5.00	.2003D-02
50.00	20.	0.	.00	.9537D-04
100.00	20.	0.	.00	.9537D-04

THE BINOMIAL TEST SHOWS THAT 100.00 AND +INFINITY CAN BE USED AS STATISTICALLY SOUND CONSERVATIVE 95 PERCENT CONFIDENCE LIMITS SINCE THE ACTUAL CONFIDENCE LEVEL ASSOCIATED WITH THESE LIMITS IS 99.9999 PERCENT.
THE LC50 FOR THIS DATA SET IS GREATER THAN 100.00

THE MOVING AVERAGE METHOD CANNOT BE USED WITH THIS DATA SET BECAUSE NO SPAN WHICH PRODUCES AVERAGE ANGLES BRACKETING 45 DEGREES ALSO USES TWO PERCENT DEAD BETWEEN 0 AND 100 PERCENT.

NO CONVERGENCE IN 25 ITERATIONS. PROBIT METHOD PROBABLY CAN NOT BE USE WITH THIS SET OF DATA.

DATE: 090308 TEST NUMBER: 2 DURATION: 48 hours
SAMPLE: Outfall 002 SPECIES: A. bahia

METHOD	LC50	CONFIDENCE LIMITS LOWER	UPPER	SPAN
BINOMIAL	*******	1		

11347

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

To be completed by the person collecting the sample. See reverse side for instructions.

1. Client name: Omega Protein
2. Sampler's name: Ted Schultz
3. Sample source: Lagoon
4. Outfall/station: ØØ2
5. Purchase order no.:
6. Affiliation: Employee
7. NPDES permit no./County: VAØØØ3867
8. Test period for which data is being submitted:
9. *Sample relinquished by:* Ted Schultz / 9/2/08 *Date; Received by:* / *Date;*
Sample relinquished by: / *Date; Received by:* / *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
Grab
Date collected
Time collected
Volume

Composite X
Composite type: 24 HC
Collection period: from 9/1/08 (date) 13:00 (time) to 9/2/08 (date) 13:00 (time)

11. Flow during sampling
12. Type of container
13. Number of containers shipped

14. No. of subsamples
15. Frequency
16. Volume: 1 gal

Condition of Effluent at Time of Collection

17. pH 7.50
18. Chlorine
19. Temperature:
At collection point
In collection device (comp. sample must be @ or below 4°C) 4°C

20. Is the sample:
Chlorinated: No
Dechlorinated: No
Unknown
Dechlorination method

Shipping Information

21. Method of shipment: UPS
22. Date shipped: 9/2/08
23. Time: 15:30
24. Was the sample packed with ~~ice for shipment~~? Yes
25. *Custody seal in place by* Ted Schultz *Date* 9/2/08 *Time* 14:20

Instructions to Lab

26. Type of test(s) to be performed: 48hr Static Acute Tox
27. Should BMI dechlorinate the sample (Yes or No) No
28. Should ammonia be measured? (Yes or No) No
29. Comments

30. I certify that the above information is correct: Ted Schultz (Signature) 9/2/08 (Date)

For BMI Use Only

Alk 278
Hard 164
BMI Sample ID# OP090308 *Received by* URQ *Date* 9/3/08 *Time* 1200
Upon arrival at BMI: Custody seal ✓ Temperature 4°C pH 7.73 Chlorine <.01 DO 7.06
On ice? ✓ Salinity 6 ppt Conductivity —
Sample refrigerated ✓
Visual description green in color
Test ID number(s) OP090308-2

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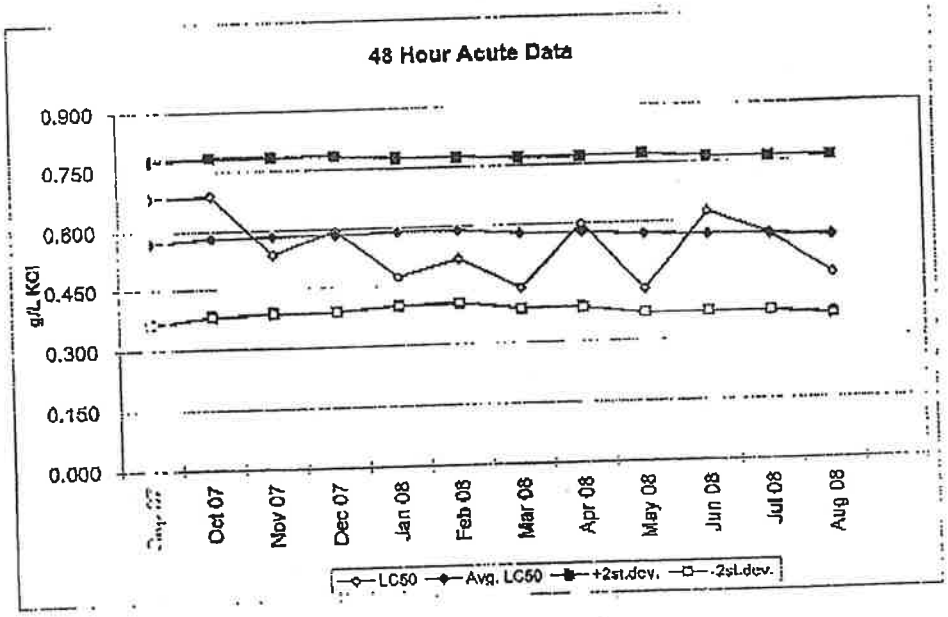
1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Americamysis bahia



48 HOUR ACUTE TOXICITY DATA FOR

Americamysis bahia

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2std	-2std
Mar 08	0.439	0.494	0.390	0.579	SPKR	0.771	0.388
Apr 08	0.601	0.660	0.547	0.580	SPKR	0.771	0.388
May 08	0.431	0.479	0.386	0.572	PRBT	0.774	0.370
Jun 08	0.626	0.682	0.576	0.569	SPKR	0.766	0.372
Jul 08	0.569	1.596	0.257	0.568	PRBT	0.765	0.371
Aug 08	0.463	0.523	0.409	0.562	SPKR	0.763	0.361

Post-it® Fax Note 7671

To TINA	Date 9/10/08 # of pages ▸ 2
Co./Dept. BIOL. MONIT TOX	From SCOTT
Phone #	Co. ABS
Fax # 540-951-1481	Phone #
	Fax #

1 >. 2000

TOXICITY TEST
FOR
OMEGA PROTEIN
Outfall 002
Q2 2008

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

July 21, 2008

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tony Timpano (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Prepared by: Tony Timpano

Client: Omega Protein

NPDES Permit #: VA0003867

Experiment ID#: OMP071608-1

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 3 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 07/14/08 @ 1300 to 07/15/08 @ 1300

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 070708

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artemia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 07/16/08

Time: 1905

End of Test: Date: 07/18/08

Time: 1800

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter:YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

		NPDES PERMIT #: VA0003867		
Client	Omega Protein		**Date**	**Time**
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)	**Start Test**	07/16/08	1905
Experiment ID	OMP071608-1	**End Test**	07/18/08	1800
Sample Tested	Outfall 002			

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	26	26	26	6.6	4.9	3.1	8.1	7.8	7.5	25	25	95
6.25	26	26	26	6.6	4.6	3.7	8.1	7.9	7.7	25	25	100
12.5	26	26	26	6.6	5.0	4.5	8.1	8.0	7.9	25	25	90
25	26	26	26	6.7	5.5	4.6	8.1	8.1	8.1	25	25	80
50	26	26	26	6.8	6.3	5.2	8.1	8.3	8.4	25	25	85
100	26	26	26	7.1	6.8	6.1	8.1	8.3	8.5	23	23	80

STATISTICAL ANALYSES

Test Method	LC50 (%)	TUa	95% Fiducial (Confidence) Limits
N/A	> 100	1.0	N/A

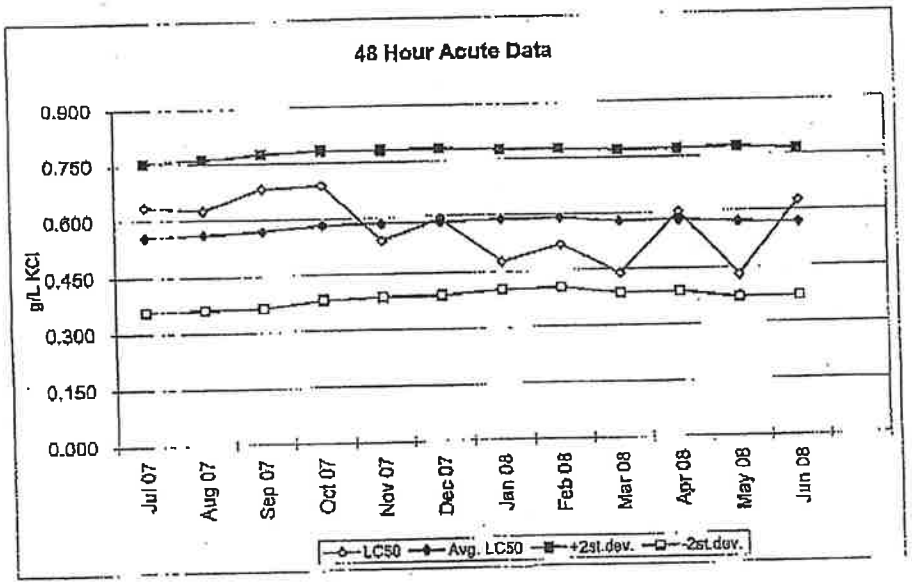
COMMENTS: Raw samples were salinated to 25ppt with Crystal Sea Bioassay Mix

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Americamysis bahia



48 HOUR ACUTE TOXICITY DATA FOR

Americamysis bahia

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2std	-2std
Jan 08	0.475	0.533	0.423	0.589	SPKR	0.776	0.402
Feb 08	0.519	0.579	0.465	0.590	SPKR	0.775	0.406
Mar 08	0.439	0.494	0.390	0.579	SPKR	0.771	0.388
Apr 08	0.601	0.660	0.547	0.580	SPKR	0.771	0.388
May 08	0.431	0.479	0.386	0.572	PRBT	0.774	0.370
Jun 08	0.626	0.682	0.576	0.569	SPKR	0.766	0.372

BIOLOGICAL MONITORING , INC.

TOXICITY TEST DATA SHEET

Experiment I.D. #: OMP071608-1 NPDES#: VA0003867 Client: Omega Protein Outfall/Station No. ~~001~~ CRP 002
Effluent/Sample: OMP071608 Sample Container: PE Project Scientist: C. Paugh, A. Timpano QC Officer: WDR

Sample Type:
Grab: _____
Collection Date: _____ Time: _____
Composite: X
Collected From: Date: 7/14/08 Time: 1300
Collected To: Date: 7/15/08 Time: 1300

Test Organism:
Species: M. bahia
Source: ABS
Batch#: ABS071608-1
Age: 3d
No. of organisms/ con. 20

Test Mode: Static Acute Test Duration: 48h
Test Start Date: 7-16-08 Time: 1905
Test End Date: 7-18-08 Time: 1800
Test Temperature: 25 ± 1°C Waterbath/Shelf#: B3
Dilution Water Used: 35070708 Temp. of Org. Stock Solution: 25°C

Con. % or mg/L	Test Cont. #	Number of Live Organisms					Dissolved Oxygen (mg/L)					pH					Salinity 0/00					Temperature (°C)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0	A	10	10	9			6.6	4.9	3.1			8.1	7.8	7.5			25		25			26	26	26		
	B	10	10	10			6.6					8.1					25					26				
6.25	A	10	10	10			6.6	4.6	3.7			8.1	7.9	7.7			25		25			26	26	26		
	B	10	10	10			6.6					8.1					25					26				
12.5	A	10	10	10			6.6	5.0	4.5			8.1	8.0	7.9			25		25			26	26	26		
	B	10	8	8			6.6					8.1					25					26				
25	A	10	9	8			6.7	5.5	4.6			8.1	8.1	8.1			25		25			26	26	26		
	B	10	9	8			6.7					8.1					25					26				
50	A	10	*	8			6.8	6.3	5.2			8.1	8.3	8.4			25		25			26	26	26		
	B	10	*	9			6.8					8.1					25					26				
100	A	10	*	9			7.1	6.8	6.1			8.1	8.3	8.5			25		25			26	26	26		
	B	10	*	9			7.1					8.1					25					26				
Recorded By:		CRP	AJT	CRP			CRP	AJT	CRP			CRP	AJT	CRP			CRP		CRP			CRP	AJT	CRP		

* too turbid to count

BIOLOGICAL MONITORING , INC.
Toxicity Test Procedure Check Sheet

Test I.D. #: OMP071608-1 Test containers used: PP

Specify below no. milliliters (mLs) of diluent and effluent measured out per concentration in this test:

No. of replicates per concentration: 2

Are all test chambers properly labeled? ✓

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 2L, 500mL, 100ml pipet (s):

volumetric flask (s): other

Concentration (%) mg/L Other	Diluent	Effluent	Total
0	1000	0	1000
6.25	937.5	62.5	
12.5	875	125	
25	750	250	
50	500	500	
100	0	1000	✓

Specify material (s) used to place test organisms into test chambers: wide bore pipet

Total Chlorine of sample upon arrival (mg/L): <0.02

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: Normal

Exposure Chamber
Total vessel capacity: 800mL
Test solution volume: 450mL
Water Depth Constant: ✓
Cyclic:

Feeding schedule
Pretest feeding:
Not fed:
Fed daily: 2x
Fed irregularly (describe)
Type of food: live rinsed Artemia

Aeration
Pretest:
None: ✓
Slow: (bubbles/min)
Moderate:
Vigorous:
Beginning: (hour)

Screened Animal Enclosures
Not used: ✓
Used:
Photoperiod:
8h/16h: ✓
Other:

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: OMP 071608 was salinated to 25 ppt w/ Crystal Sea Bioassay mix

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

To be completed by the person collecting the sample. See reverse side for instructions. 11374

1. Client name Omega Protein
2. Sampler's name Ted Schultz
3. Sample source Lagoon
4. Outfall/station ØØ2
5. Purchase order no.
6. Affiliation Employee.
7. NPDES permit no./County VAØØØ3867.
8. Test period for which data is being submitted:

9. *Sample relinquished by:* Ted Schultz / 7/15/08 *Date; Received by:* Christo R. Perry / 7/16/08 *Date;*

Sample relinquished by: / *Date; Received by:* / *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
Grab
Date collected
Time collected
Volume

Composite X
Composite type 24 HC
Collection period: from 7/14/08 (date) 13:00 (time) to 7/15/08 (date) 13:00 (time)

11. Flow during sampling
12. Type of container Plastic (LDPE) cube
13. Number of containers shipped 1

14. No. of subsamples
15. Frequency
16. Volume 1 gal

Condition of Effluent at Time of Collection

17. pH 7.9 18. Chlorine
19. Temperature:
At collection point
In collection device (comp. sample must be @ or below 4°C) 4°C

20. Is the sample:
Chlorinated No
Dechlorinated No
Unknown
Dechlorination method

Shipping Information

21. Method of shipment UPS 22. Date shipped 7/15/08 23. Time 15:00
24. Was the sample packed with ice for shipment? yes
25. *Custody seal in place by* Ted Schultz *Date* 7/15/08 *Time* 14:00

Instructions to Lab

26. Type of test(s) to be performed Tox
27. Should BMI dechlorinate the sample (Yes or No) No 28. Should ammonia be measured? (Yes or No) No
29. Comments

30. I certify that the above information is correct Ted Schultz (Signature) 7/15/08 (Date)

****

For BMI Use Only

Alk 146
Hard 316
BMI Sample ID# OMPO71608 *Received by* CRP *Date* 7/16/08 *Time* 1205
Upon arrival at BMI: Custody seal ✓ Temperature 4°C pH 8.1 Chlorine <0.02 DO 5.5 mg/L
On ice? ✓ Salinity — ppt Conductivity —
Visual description light yellow in color, slightly turbid, fish odor Sample refrigerated ✓
Test ID number(s)

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TOXICITY TEST
FOR
OMEGA PROTEIN
November 7, 2007

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

November 14, 2007

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tony Timpano (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Client: Omega Protein

Prepared by: Tony Timpano

NPDES Permit #: VA0003867

Experiment ID#: OMP110707-1

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 4 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 11/05/07 @ 1300 to 11/06/07 @ 1300

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 110607

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artemia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 11/07/07

Time: 1630

End of Test: Date: 11/09/07

Time: 1730

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter:YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

Client	Omega Protein	**NPDES PERMIT #:** VA0003867		
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)		**Date**	**Time**
Experiment ID	OMP110707-1	**Start Test**	11/07/07	1630
Sample Tested	Outfall 002	**End Test**	11/07/07	1730

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	25	25	25	6.3	6.0	5.6	8.2	8.3	8.4	25	25	100
6.25	25	25	25	6.3	6.0	5.7	8.2	8.3	8.4	25	25	100
12.5	25	25	25	6.3	6.1	5.7	8.3	8.4	8.4	25	25	100
25	25	25	25	6.4	6.2	5.6	8.3	8.4	8.5	25	25	100
50	25	25	25	6.4	6.2	5.5	8.3	8.4	8.5	25	25	100
100	25	25	25	6.5	6.3	5.6	8.3	8.4	8.5	25	25	100

STATISTICAL ANALYSES

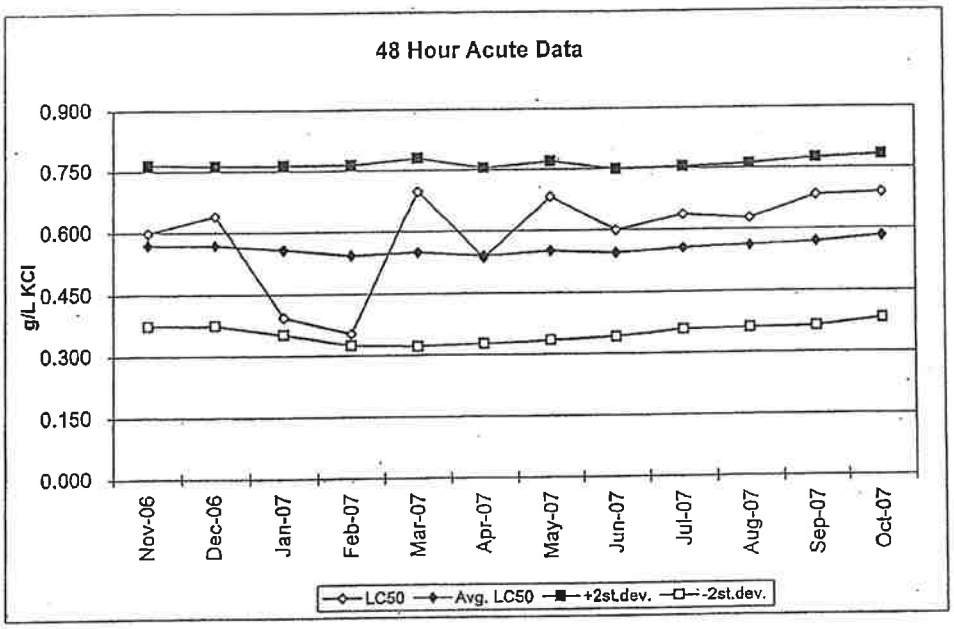
Test Method	LC50 (%)	TUa	95% Confidence Limits
N/A	> 100	1.0	N/A
COMMENTS: Sample salinated to 25ppt w/Crystal Sea Bioassay Mix			

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Americamysis bahia



48 HOUR ACUTE TOXICITY DATA FOR

Americamysis bahia

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2std	-2std
May 07	0.683	0.717	0.651	0.552	SPKR	0.770	0.335
Jun 07	0.600	0.663	0.543	0.546	SPKR	0.750	0.342
Jul 07	0.637	0.690	0.589	0.557	SPKR	0.755	0.359
Aug 07	0.626	0.685	0.572	0.562	SPKR	0.761	0.362
Sep 07	0.683	0.717	0.651	0.570	SPKR	0.775	0.364
Oct 07	0.689	0.719	0.660	0.582	SPKR	0.782	0.383

BIOLOGICAL MONITORING , INC.

TOXICITY TEST DATA SHEET

Experiment I.D. #: OMP 110707 -1 NPDES#: VA0003867 Client: Omega Protein Outfall/Station No. 002
Effluent/Sample: OMP110707 Sample Container: PE Project Scientist: A. Tamparo QC Officer:

Sample Type:
Grab:
Collection Date: Time:
Composite: ✓
Collected From: Date: 11-05-07 Time: 1300
Collected To: Date: 11-06-07 Time: 1300

Test Organism:
Species: M. bahia
Source: ABS
Batch#: ABS 120707
Age: 42
No. of organisms/ con. 20

Test Mode: Static Acute Test Duration: 48h
Test Start Date: 11-07-07 Time: 1630
Test End Date: 11-09-07 Time: 1730
Test Temperature: 25 ± 1°C Waterbath/Shelf#:
Dilution Water Used: SS110607 Temp. of Org. Stock Solution:

Con. % or mg/L	Test Cont. #	Number of Live Organisms					Dissolved Oxygen (mg/L)					pH					Salinity 0/00					Temperature (°C)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0	A	10	10	10			6.3	6.0	5.6			8.2	8.3	8.4			25		25			25	25	25		
	B	10	10	10																						
6.25	A	10	10	10			6.3	6.0	5.7			8.2	8.3	8.4			25		25			25	25	25		
	B	10	10	10																						
12.5	A	10	10	10			6.3	6.1	5.7			8.3	8.4	8.4			25		25			25	25	25		
	B	10	10	10																						
25	A	10	10	10			6.4	6.2	5.6			8.3	8.4	8.5			25		25			25	25	25		
	B	10	10	10																						
50	A	10	*	10			6.4	6.2	5.5			8.3	8.4	8.5			25		25			25	25	25		
	B	10	*	10																						
100	A	10	*	10			6.5	6.3	5.6			8.3	8.4	8.5			25		25			25	25	25		
	B	10	*	10																						
Recorded By:		AT	AT	AT			AT	AT	AT			AT	AT	AT			AT		AT			AT	AT	AT		

BIOLOGICAL MONITORING , INC.
Toxicity Test Procedure Check Sheet

Page _____ of _____

Test I.D. #: OMP 110707-1 Test containers used: PP

Specify below no. milliliters (mLs) of diluent and effluent measured out per concentration in this test:

No. of replicates per concentration: 2

Are all test chambers properly labeled? ✓

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 1L, 250, 100mL pipet (s): _____

volumetric flask (s): _____ other _____

Concentration (%) mg/L Other	Diluent	Effluent	Total
0	1000	0	1000
6.25	Dilute to 1000	6.25	
12.5		125	
25		250	
50		500	
100	0	1000	

Specify material (s) used to place test organisms into test chambers: wide bore pipets

Total Chlorine of sample upon arrival (mg/L): <0.01

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: Normal

Exposure Chamber
Total vessel capacity: 800mL
Test solution volume: 450mL
Water Depth Constant: ✓
Cyclic: _____

Feeding schedule
Pretest feeding: _____
Not fed: _____
Fed daily: ✓ 2x
Fed irregularly (describe) _____
Type of food: Live Rotif. Artemia

Aeration
Pretest: _____
None: _____
Slow: _____ (bubbles/min)
Moderate: _____
Vigorous: _____
Beginning: _____ (hour)

Screened Animal Enclosures
Not used: ✓
Used: _____
Photoperiod:
8h/16h: ✓
Other: _____

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: Sample salinated to 25 ppt w/ Crystal Sea Bioassay Mix

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

To be completed by the person collecting the sample. See reverse side for instructions.

11338

1. Client name OMEGA PROTEIN
2. Sampler's name TED SCHULTZ
3. Sample source LAGOON
4. Outfall/station 002
5. Purchase order no.
6. Affiliation EMPLOYEE
7. NPDES permit no./County VA0003867
8. Test period for which data is being submitted: 3RD Q '07
9. *Sample relinquished by:* Ted Schultz / 11/6/07 *Date; Received by:* [illegible] 11/7/07 *Date;*

Sample relinquished by: / *Date; Received by:* / *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
Grab
Date collected
Time collected
Volume
Composite X
Composite type 24HC
Collection period: from 11/6/07 (date) 13:00 (time) to 11/6/07 (date) 13:00 (time)

11. Flow during sampling
12. Type of container Plastic Cube
13. Number of containers shipped 1
14. No. of subsamples
15. Frequency
16. Volume 1 gal

Condition of Effluent at Time of Collection

17. pH 8.2
18. Chlorine
19. Temperature:
At collection point
In collection device (comp. sample must be @ or below 4°C) 4°C
20. Is the sample:
Chlorinated No
Dechlorinated No
Unknown
Dechlorination method

Shipping Information

21. Method of shipment UPS
22. Date shipped 11/6/07
23. Time 15:30
24. Was the sample packed with ice for shipment? Yes
25. *Custody seal in place by* Ted Schultz *Date* 11/6/07 *Time* 14:30

Instructions to Lab

26. Type of test(s) to be performed Static Acute.
27. Should BMI dechlorinate the sample (Yes or No)
28. Should ammonia be measured? (Yes or No)
29. Comments

30. I certify that the above information is correct Ted Schultz
Signature Date

For BMI Use Only

Alk 300
Hard 136
BMI Sample ID# OMP110707 *Received by* A. Timpano *Date* 11-7-07 *Time* 1200
Upon arrival at BMI: Custody seal ✓ Temperature 3°C pH 8.2 Chlorine <0.01 DO 8.9
On ice? ✓ Salinity 6 ‰ Conductivity 1600
Visual description green, cloudy slightly turbid Sample refrigerated ✓
Test ID number(s) OMP110707-1

C:\wpdocs\labforms\epicol2.frm (V.1194)

2ND 2007

TOXICITY TEST
FOR
OMEGA PROTEIN
August 2, 2007

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

August 7, 2007

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tony Pimpano (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Client: Omega Protein

Prepared by: Tony Timpano

NPDES Permit #: VA0003867

Experiment ID#: OMP080307-1

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 4 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 08/01/07 @ 1300 to 08/02/07 @ 1300

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 080207

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artemia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 08/03/07

Time: 1700

End of Test: Date: 08/05/07

Time: 1800

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter:YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

		NPDES PERMIT #: VA0003867		
Client	Omega Protein		**Date**	**Time**
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)	**Start Test**	08/02/07	1700
Experiment ID	OMP080207-1	**End Test**	08/05/07	1800
Sample Tested	Outfall 002			

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	25	25	25	6.3	5.9	5.1	8.0	8.2	8.3	25	25	95
6.25	25	25	25	6.3	5.9	5.0	8.0	8.2	8.3	25	25	95
12.5	25	25	25	6.3	5.8	5.0	8.0	8.2	8.3	25	25	95
25	25	25	25	6.2	5.7	4.9	8.0	8.1	8.2	25	25	90
50	25	25	25	6.2	5.5	4.9	7.9	8.1	8.2	25	25	90
100	25	25	25	6.1	5.4	4.8	7.8	8.0	8.1	25	25	75

STATISTICAL ANALYSES

Test Method	NOAEC	LC50 (%)	TUa	95% Fiducial (Confidence) Limits
N/A	100%	> 100	1.0	N/A

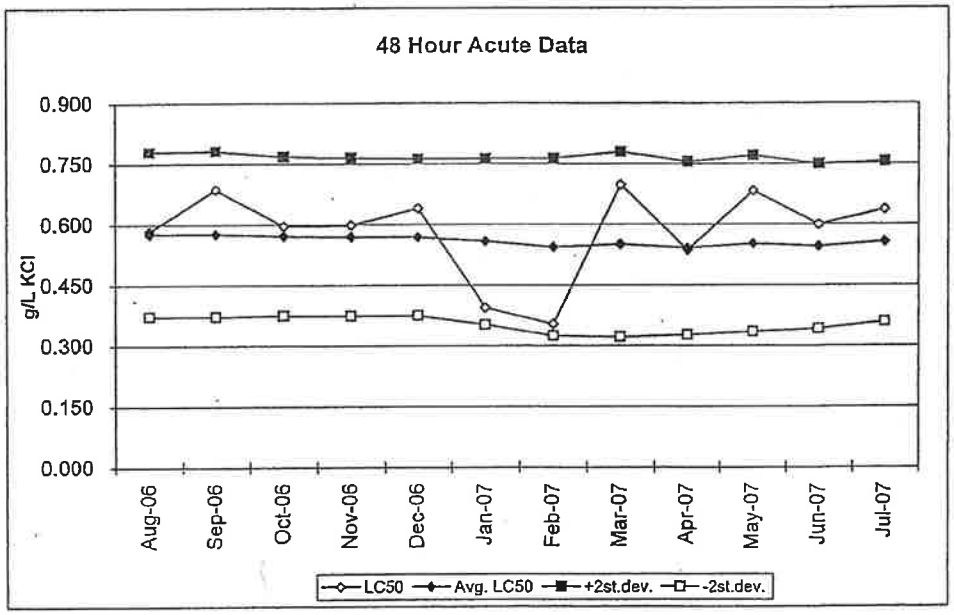
COMMENTS: Sample salinated to 25ppt w/Crystal Sea Bioassay Mix; sample aerated prior to use due to low D.O. upon receipt

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Americamysis bahia



48 HOUR ACUTE TOXICITY DATA FOR

Americamysis bahia

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2std	-2std
Feb 07	0.354	0.354	0.354	0.544	SPKR	0.764	0.324
Mar 07	0.697	0.719	0.676	0.550	SPKR	0.779	0.321
Apr 07	0.536	0.600	0.479	0.541	SPKR	0.755	0.327
May 07	0.683	0.717	0.651	0.552	SPKR	0.770	0.335
Jun 07	0.600	0.663	0.543	0.546	SPKR	0.750	0.342
Jul 07	0.637	0.690	0.589	0.557	SPKR	0.755	0.359

BIOLOGICAL MONITORING , INC.

TOXICITY TEST DATA SHEET

Experiment I.D. #: OMP080307 NPDES#: VA 0003867 Client: Omega Protein, Inc. Outfall/Station No. 002
Effluent/Sample: OMP080307 Sample Container: PE Project Scientist: A. Timpano QC Officer:

Sample Type:
Grab:
Collection Date: Time:
Composite: X
Collected From: Date: 08-01-07 Time: 1300
Collected To: Date: 08-02-07 Time: 1300

Test Organism:
Species: A. bahia
Source: Aquatic Biology Lab
Batch#: ABS 080307
Age: 4d
No. of organisms/ con. 20

Test Mode: Static Acute Test Duration: 48h
Test Start Date: 08-03-07 Time: 1700
Test End Date: 08-05-07 Time: 1800
Test Temperature: 25±1°C Waterbath/Shelf#:
Dilution Water Used: SS080207 Temp. of Org. Stock Solution:

Con. (%) or mg/L	Test Cont. #	Number of Live Organisms					Dissolved Oxygen (mg/L)					pH					Salinity 0/00					Temperature (°C)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0	A	10	10	10			6.3	5.9	5.1			8.0	8.2	8.3			25		25			25	25	25		
	B	10	10	9																						
6.25	A	10	10	9			6.3	5.9	5.0			8.0	8.2	8.3			25		25			25	25	25		
	B	10	10	10																						
12.5	A	10	10	10			6.3	5.8	5.0			8.0	8.2	8.3			25		25			25	25	25		
	B	10	10	9																						
25	A	10	10	9			6.2	5.7	4.9			8.0	8.1	8.2			25		25			25	25	25		
	B	10	10	9																						
50	A	10	10	9			6.2	5.5	4.9			7.9	8.1	8.2			25		25			25	25	25		
	B	10	10	9																						
100	A	10	10	7			6.1	5.4	4.8			7.8	8.0	8.1			25		25			25	25	25		
	B	10	10	8																						
Recorded By:		AJT	AJT	AJT			AJT	AJT	AJT			AJT	AJT	AJT			AJT		AJT			AJT	AJT	AJT		

BIOLOGICAL MONITORING , INC.
Toxicity Test Procedure Check Sheet

Test I.D. #: CMP080307-1 Test containers used: PP

Specify below no. milliliters (mLs) of diluent and effluent measured out per concentration in this test:

No. of replicates per concentration: 2

Are all test chambers properly labeled? ✓

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 1L, 250, 100 mL pipet (s):

volumetric flask (s): other

Concentration (%) mg/L Other	Diluent	Effluent	Total
0	1000	0	1000
6.25	Dilute to 1000	62.5	↓
12.5	↓	125	↓
25	↓	250	↓
50	↓	500	↓
100	0	1000	↓

Specify material (s) used to place test organisms into test chambers: wide bore pipet

Total Chlorine of sample upon arrival (mg/L): <0.1

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: Normal

Exposure Chamber
Total vessel capacity: 800 mL
Test solution volume: 450 mL
Water Depth Constant: ✓
Cyclic:

Feeding schedule
Pretest feeding:
Not fed:
Fed daily: ✓ 2x
Fed irregularly (describe)
Type of food: live yeast artemia

Aeration
Pretest:
None: ✓
Slow: (bubbles/min)
Moderate:
Vigorous:
Beginning: (hour)

Screened Animal Enclosures
Not used: ✓
Used:
Photoperiod:
8h/16h: ✓
Other:

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: Sample aerated prior to use due to low D.O.; sample salinated to 25 ppt w/ Crystal Sea Bioassay Mix

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

To be completed by the person collecting the sample. See reverse side for instructions. 11318

1. Client name Omega Protein
2. Sampler's name Ted Schultz
3. Sample source Lagoon
4. Outfall/station 002
5. Purchase order no.
6. Affiliation Employee
7. NPDES permit no./County VA0003867
8. Test period for which data is being submitted: 2nd Q
9. *Sample relinquished by:* Ted Schultz 8/2/07 *Date; Received by:* [illegible] 8-3-07 *Date;*

Sample relinquished by: / *Date; Received by:* / *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
    - Grab
    - Date collected
    - Time collected
    - Volume
    - Composite X
    - Composite type 24HC
    - Collection period: from 8/1/07 (date) 13:00 (time) to 8/2/07 (date) 13:00 (time)
11. Flow during sampling
12. Type of container Plas Cube
13. Number of containers shipped 1
14. No. of subsamples
15. Frequency
16. Volume 1 gal

Condition of Effluent at Time of Collection

17. pH 8.7
18. Chlorine
19. Temperature:
    - At collection point
    - In collection device (comp. sample must be @ or below 4°C) 4°C
20. Is the sample:
    - Chlorinated No
    - Dechlorinated No
    - Unknown
    - Dechlorination method

Shipping Information

21. Method of shipment UPS
22. Date shipped 8/2/07
23. Time 15:30
24. Was the sample packed with ice for shipment? Yes
25. *Custody seal in place by* Ted Schultz *Date* 8/2/07 *Time* 14:30

Instructions to Lab

26. Type of test(s) to be performed Static Acute
27. Should BMI dechlorinate the sample (Yes or No)
28. Should ammonia be measured? (Yes or No)
29. Comments

30. I certify that the above information is correct Ted Schultz (Signature) 8/2/07 (Date)

For BMI Use Only

Alk
Hard
BMI Sample ID# OMP080307 *Received by* [illegible] *Date* 8-3-07 *Time* 1200
Upon arrival at BMI: Custody seal ✓ Temperature 1°C pH 7.9 Chlorine Cont DO 6.0
On ice? ✓ Salinity 4 ppt Conductivity 900
Visual description Green Sample refrigerated ✓
Test ID number(s) OMP080307-1

TOXICITY TEST
FOR
OMEGA PROTEIN
June 20, 2007

Submitted to:

Mr. Ted Schultz
Omega Protein
P.O. Box 175
Reedville, VA 22539

Prepared by:

Biological Monitoring, Inc.
1800 Kraft Drive, Suite 101
Blacksburg, VA 24060

Phone: 540-953-2821
Fax: 540-951-1481
www.biomon.com

June 25, 2007

The following data have been internally reviewed and the personnel meticulously followed the methods. The procedures are deemed to be compliant with the methods and acceptable for reporting.

Tony Pimpano (Laboratory Manager)

BIOLOGICAL MONITORING, INC.
Toxicity Test Condition Summary

Client: Omega Protein

Prepared by: Tony Timpano

NPDES Permit #: VA0003867

Experiment ID#: OMP062007-1

Test Organism: *Americamysis bahia* (formerly *Mysidopsis*)

Test Type: Static Acute

Organism Age at Start of Test: 2 d

Sample Tested: Outfall 002

Sample Type: Composite

Sample Collection Date and Time: From 06/18/06 @ 1400 to 06/19/06 @ 1400

Sample Collector: Ted Schultz

Delivered by: UPS

Test Solution Renewal Frequency: N/A

Dilution Water Used: Synthetic Seawater 062007

Test Temperature: 25 ± 1°C

No. of Replicates per conc.: 2

No. of Organisms per Replicate: 10

Feeding prior to test: Normal

Feeding Regime: 2x daily live rinsed Artermia

Chamber Size: 800 mL PP

Test Volume: 450 mL

Photo Period: 16h light/8h dark

Test Duration: 48 h

Start of Test: Date: 06/20/07

Time: 1630

End of Test: Date: 06/22/07

Time: 1645

Equipment:

pH Meter: SA 720 (A)
DO Meter: YSI 58 (b)
SCT Meter:YSI 33 (A)
°C Measurement: Calibrated Thermometer
Salinity: SCT Meter
Chlorine: Fisher/Porter Amperometric Titrator

Test Method Reference: U.S. EPA. 2002. Methods for measuring the Acute toxicity of effluents and receiving waters to freshwater and marine organisms. EPA-821-R-02-012.

BIOLOGICAL MONITORING, INC.
Acute Toxicity Test Data Summary

		NPDES PERMIT #: VA0003867		
Client	Omega Protein		**Date**	**Time**
Test Organism	*Americamysis bahia* (formerly *Mysidopsis*)	**Start Test**	06/20/07	1630
Experiment ID	OMP062007-1	**End Test**	06/22/07	1645
Sample Tested	Outfall 002			

RESULTS

Water Chemistry Analyses

Conc. %	Temp. (°C)			D.O. (mg/L)			pH (SU)			Salinity (0/00)		Survival (%) 48 h
	0h	24h	48h	0h	24h	48h	0h	24h	48h	0h	48h	
0	25	25	25	6.5	6.0	5.3	8.0	7.9	7.7	25	25	100
6.25	25	25	25	6.6	6.0	5.1	8.0	7.9	7.9	25	25	100
12.5	25	25	25	6.6	5.9	5.1	8.0	7.9	7.8	25	25	100
25	25	25	25	6.6	5.7	5.0	8.0	7.9	7.8	25	25	100
50	25	25	25	6.6	5.3	4.8	8.0	7.9	7.9	25	25	100
100	25	25	25	6.7	5.4	4.3	7.9	8.0	8.0	25	25	100

STATISTICAL ANALYSES

Test Method	NOAEC	LC50 (%)	TUa	95% Fiducial (Confidence) Limits
N/A	100%	> 100	1.0	N/A

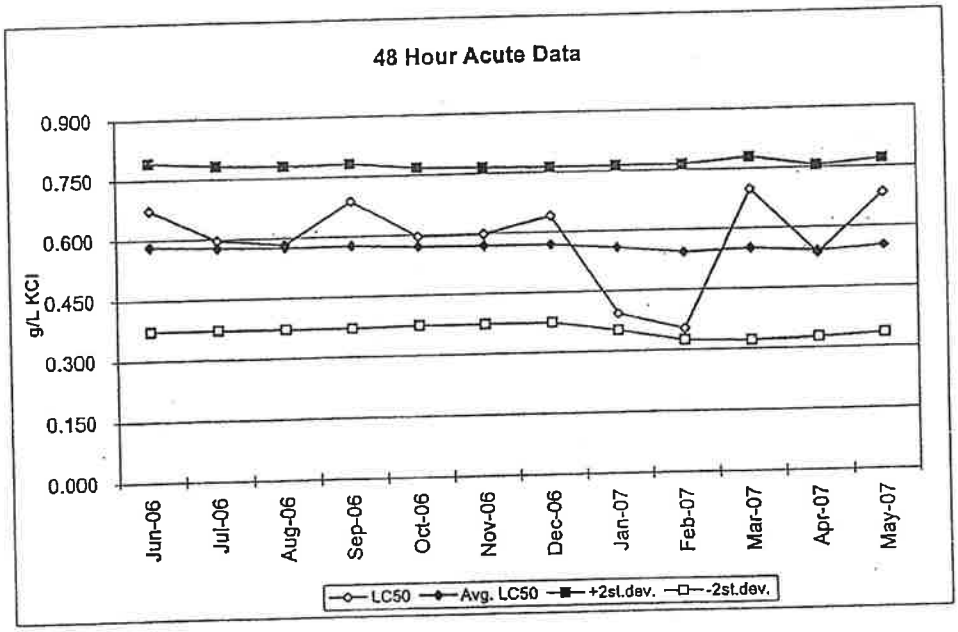
COMMENTS:

1300 Blue Spruce Drive, Suite C
Fort Collins, Colorado 80524

Toll Free: 800/331-5916
Tel: 970/484-5091 Fax: 970/484-2514

REFERENCE TOXICANT LC50

Americamysis bahia



48 HOUR ACUTE TOXICITY DATA FOR

Americamysis bahia

DATE	LC50 (g/L KCl)	95% CONFIDENCE (upper)	(lower)	AVG.LC50 (g/L KCl)	METHOD	+2std	-2std
Dec 06	0.640	0.692	0.592	0.569	SPKR	0.763	0.375
Jan 07	0.393	0.433	0.352	0.558	PRBT	0.764	0.352
Feb 07	0.354	0.354	0.354	0.544	SPKR	0.764	0.324
Mar 07	0.697	0.719	0.676	0.550	SPKR	0.779	0.321
Apr 07	0.536	0.600	0.479	0.541	SPKR	0.755	0.327
May 07	0.683	0.717	0.651	0.552	SPKR	0.770	0.335

BIOLOGICAL MONITORING , INC.
TOXICITY TEST DATA SHEET

Experiment I.D. #: OMP 062007 - 1 NPDES#: VA0003867 Client: Omega Protein Outfall/Station No. 002
Effluent/Sample: OMP062007 Sample Container: PE Project Scientist: A Timpano QC Officer:

Sample Type:
Grab:
Collection Date: Time:
Composite: X
Collected From: Date: 6-18-07 Time: 1400
Collected To: Date: 6-19-07 Time: 1400

Test Organism:
Species: M. bahia
Source: Aquatic Bio Systems
Batch#: ABS 062007
Age: 2d
No. of organisms/ con. 20

Test Mode: Static Acute Test Duration: 48h
Test Start Date: 6-20-07 Time: 1630
Test End Date: 6-22-07 Time: 1645
Test Temperature: 25±1°C Waterbath/Shelf#:
Dilution Water Used: SSW 2007 Temp. of Org. Stock Solution:

Con. % or mg/L	Test Cont. #	Number of Live Organisms					Dissolved Oxygen (mg/L)					pH					Salinity 0/00					Temperature (°C)				
		0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96	0	24	48	72	96
0	A	10	10	10			6.5	6.0	5.3			8.0	7.9	7.7			25		25			25	25	25		
	B	10	10	10																						
6.25	A	10	10	10			6.6	6.0	5.1			8.0	7.9	7.9			25		25			25	25	25		
	B	10	10	10																						
12.5	A	10	10	10			6.6	5.9	5.1			8.0	7.9	7.8			25		25			25	25	25		
	B	10	10	10																						
25	A	10	10	10			6.6	5.7	5.0			8.0	7.9	7.8			25		25			25	25	25		
	B	10	10	10																						
50	A	10	10	10			6.6	5.3	4.8			8.0	7.9	7.9			25		25			25	25	25		
	B	10	10	10																						
100	A	10	10	10			6.7	5.4	4.3			7.9	8.0	8.0			25		25			25	25	25		
	B	10	10	10																						
Recorded By:		AJT	AJT	AJT			AJT	AJT	AJT			AJT	AJT	AJT			AJT		AJT			AJT	AJT	AJT		

BIOLOGICAL MONITORING , INC.
Toxicity Test Procedure Check Sheet

Page _____ of _____

Test I.D. #: OMP 062007-1 Test containers used: PP

Specify below no. milliliters (mLs) of diluent and effluent measured out per concentration in this test:

No. of replicates per concentration: 2

Are all test chambers properly labeled? ✓

Specify vessel type and volume used to measure and deliver effluent and diluent to test chambers:

graduated cylinder (s): 1L, 250, 100mL pipet (s): _____

volumetric flask (s): _____ other _____

Concentration (%) mg/L Other	Diluent	Effluent	Total
0	1000	0	1000
6.25	Dilute to 1000mL	62.5	↓
12.5	↓	125	↓
25	↓	250	↓
50	↓	500	↓
100	0	1000	

Specify material (s) used to place test organisms into test chambers: wide bore pipet

Total Chlorine of sample upon arrival (mg/L): <0.01

Total Chlorine of sample after dechlorination (mg/L): N/A

Pretest treatment for organisms: Normal

Exposure Chamber
Total vessel capacity: 800mL
Test solution volume: 450mL
Water Depth Constant: ✓
Cyclic: _____

Feeding schedule
Pretest feeding: normal
Not fed: _____
Fed daily: ✓ 2x
Fed irregularly (describe) _____
Type of food: live newly hatched artemia

Aeration
Pretest: _____
None: ✓
Slow: _____ (bubbles/min)
Moderate: _____
Vigorous: _____
Beginning: _____ (hour)

Screened Animal Enclosures
Not used: ✓
Used: _____
Photoperiod:
8h/16h: ✓
Other: _____

Conditions of surviving organisms at end of test: Normal

Methods of randomization employed: Random #

Comments: Test organisms @ 25ppt; salinated sample from 4ppt to 25ppt w/ Crystal Sea Bioassay Mix

SAMPLE COLLECTION - CHAIN OF CUSTODY FORM

To be completed by the person collecting the sample. See reverse side for instructions. 11311

1. Client name Omega Protein
2. Sampler's name Ted Schultz
3. Sample source Lagoon
4. Outfall/station 002
5. Purchase order no.
6. Affiliation Employee
7. NPDES permit no./County VA0003867
8. Test period for which data is being submitted: 6/18-6/19
9. *Sample relinquished by:* Ted Schultz 6/19/07 *Date; Received by:* [illegible] 6/20/07 *Date;*

Sample relinquished by: ____ / ____ *Date; Received by:* ____ / ____ *Date.*

Description of Sampling Methods and Equipment

10. Type of sample collected:
    - Grab ____
    - Date collected ____
    - Time collected ____
    - Volume ____
    - Composite X
    - Composite type ____
    - Collection period: from 6-18-07 (date) 1400 (time) to 6-19-07 (date) 1400 (time)
11. Flow during sampling ____
12. Type of container Plastic cube
13. Number of containers shipped 1
14. No. of subsamples ____
15. Frequency ____
16. Volume 1 gal

Condition of Effluent at Time of Collection

17. pH 7.7
18. Chlorine ____
19. Temperature:
    - At collection point ____
    - In collection device (comp. sample must be @ or below 4°C) 4°C
20. Is the sample:
    - Chlorinated No
    - Dechlorinated No
    - Unknown ____
    - Dechlorination method ____

Shipping Information

21. Method of shipment UPS
22. Date shipped 6/19/07
23. Time 15:30
24. Was the sample packed with ice for shipment? Yes
25. *Custody seal in place by* T Schultz *Date* 6/19/07 *Time* 15:00

Instructions to Lab

26. Type of test(s) to be performed Static Acute (WET)
27. Should BMI dechlorinate the sample (Yes or No) ____
28. Should ammonia be measured? (Yes or No) ____
29. Comments ____

30. I certify that the above information is correct Ted Schultz (Signature) 6/19/07 (Date)

****

For BMI Use Only

Alk ____
Hard ____
BMI Sample ID# OMP 062007 *Received by* A. Timpfam *Date* 6-20-07 *Time* 1200
Upon arrival at BMI: Custody seal ✓ Temperature 1°C pH 7.5 Chlorine ____ DO 10.2
On ice? ✓ Salinity 4 ppt Conductivity ____
Visual description lt. green, turbid Sample refrigerated ✓
Test ID number(s) OMP 062007-1

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 6/1/09 To 6/2/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William E. Rowell 7/8/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 6/8/09 To 6/14/09

Paint Area	COMPLIANCE	NONCOMPLIANCE *
	(check as appropriate)	
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William E. Russell 7/8/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 6/15/09 To 6/21/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

7/8/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 6/22/09 To 6/30/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

Wilbur E. Purcell 7/8/2009
Signature of Principal Officer or Authorized Agent / Date

From: Bill Purcell [bpurcell@OmegaProteinInc.com]

Sent: Friday, June 04, 2010 11:05 AM

To: Bauer, Jaime (DEQ)

Subject: Reissuance 2nd email

Attachments: 09080080-Attach D 002.pdf; 09080291 Attach D 995.pdf; Reedville Flow Diagram Rev P1a 12-10-09.pdf; flow.bmp

William E. Purcell
Environmental Manager
Omega Protein, Inc.
P.O. Box 175
610 Menhaden Road
Reedville, Virginia 22539
bpurcell@omegaproteininc.com
Phone (804) 453-4211
Cell (804) 387-2784
Fax (804) 453-4123

AIR WATER & SOIL LABORATORIES, INC.®
2109A North Hamilton Street • Richmond, Virginia 23230 • Tel: (804) 358-8295 Fax: (804) 358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 09080080

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 05, 2009
Date Issued: August 19, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Reedville OPS

Purchase Order 2926

Sample I.D.: 002-A
Laboratory Sample I.D.: 09080080-001
Date/Time Sampled: 08/04/09 07:30

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Thallium, Dissolved	EPA200.7/R4.4	< 0.05 mg/L	0.050	08/13/09 11:57	MWL

Sample I.D.: 002-B
Laboratory Sample I.D.: 09080080-002
Date/Time Sampled: 08/04/09 07:30

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
alpha-BHC	EPA608	< 0.021 ug/L	0.021	08/07/09 14:39	RPF
beta-BHC	EPA608	< 0.052 ug/L	0.052	08/07/09 14:39	RPF
Endosulfan I	EPA608	< 0.104 ug/L	0.104	08/07/09 14:39	RPF
Endosulfan II	EPA608	< 0.042 ug/L	0.042	08/07/09 14:39	RPF
Endosulfan sulfate	EPA608	< 0.01 ug/L	0.010	08/07/09 14:39	RPF
Endrin aldehyde	EPA608	< 0.208 ug/L	0.208	08/07/09 14:39	RPF
Heptachlor epoxide	EPA608	< 0.208 ug/L	0.208	08/07/09 14:39	RPF

Sample I.D.: 002-C
Laboratory Sample I.D.: 09080080-003
Date/Time Sampled: 08/04/09 07:30

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
PCB as Aroclor 1016	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1221	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1232	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1242	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1248	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1254	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF
PCB as Aroclor 1260	EPA608	< 1 ug/L	1.0	08/11/09 12:39	RPF

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Certificate of Analysis

Final Report

Laboratory Order ID 09080080

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 05, 2009
Date Issued: August 19, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Reedville OPS

Purchase Order 2926

Sample I.D.: 002-D

Laboratory Sample I.D.: 09080080-004

Date/Time Sampled: 08/04/09 07:30

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Azobenzene	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
4,6-Dinitro-2-methylphenol	EPA625	< 50 ug/L	50.0	08/11/09 20:22	JHV
2,4-Dinitrophenol	EPA625	< 50 ug/L	50.0	08/11/09 20:22	JHV
bis (2-Chloroethyl) ether	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
bis (2-Chloroisopropyl) ether	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Di-n-butyl phthalate	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Dimethyl phthalate	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Hexachlorobenzene	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Hexachlorobutadiene	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Hexachlorocyclopentadiene	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Hexachloroethane	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
N-Nitrosodimethylamine	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
N-Nitrosodiphenylamine	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
N-Nitrosodi-N-propylamine	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
Benzidine	EPA625	< 50 ug/L	50.0	08/11/09 20:22	JHV
3,3-Dichlorobenzidine	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV
2-Chloronaphthalene	EPA625	< 10 ug/L	10.0	08/11/09 20:22	JHV

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Certificate of Analysis

Final Report

Laboratory Order ID 09080080

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 05, 2009
Date Issued: August 19, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Reedville OPS

Purchase Order 2926

Sample I.D.: 002-E

Laboratory Sample I.D.: 09080080-005

Date/Time Sampled: 08/04/09 07:30

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Acrolein	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
Acrylonitrile	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
Bromomethane	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
trans-1,2-Dichloroethylene	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
1,2-Dichloropropane	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
cis-1,3-Dichloropropene	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
trans-1,3-Dichloropropene	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
1,1,2-Trichloroethane	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
Chlorobenzene	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD
1,1,2,2-Tetrachloroethane	EPA624	< 10 ug/L	10.0	08/11/09 1:09	MKD

Ted Soyars

Laboratory Manager

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a dry weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

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AIR WATER & SOIL LABORATORIES, INC.

2109A NORTH HAMILTON STREET
RICHMOND, VIRGINIA 23230
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

CLIENT NAME: Omega Protein, Inc	PROJECT NAME: Attach. D
CLIENT CONTACT: Ted Schultz	SITE NAME: Reedville Ops
CLIENT ADDRESS: PO Box 175	PROJECT NUMBER:
CLIENT PHONE NUMBER: (804) 453-4211	P.O. NUMBER: 2926
CLIENT FAX NUMBER: 453-4123 EMAIL:	REGULATORY AUTHORITY: DEQ
Is sample for compliance reporting? (YES) NO	Is sample from a chlorinated supply? YES (NO) ~~PWS I.D. #:~~ VA0003867
SAMPLER NAME (PRINT): Ted Schultz	SAMPLER SIGNATURE: Ted Schultz Turn Around Time: Day(s)

Have ammonia and TKN samples been verified to be dechlorinated at the time of sampling?: YES NO

CLIENT SAMPLE I.D.	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Number of Containers	Grab	Composite	Field Filtered (Dissolved Metals)	Ground Water / Surface Water	Waste Water / Storm Water	Drinking Water	Soil	Solids	Other	Thallium	Pesticides	PCB's	BNE	Volatiles	Acid Extract		COMMENTS (Quote I.D.: PLEASE NOTE PRESERVATIVE(S) or PUMP RATE (L/min))
1) 002-A				7:30	1	X				X					✓							
2) 002-B				↓	1	X				X						✓						
3) 002-C					1	X				X							✓					
4) 002-D					1	X				X								✓		✓		
5) 002-E				✓	4	X				X									✓			
6)																						
7)																						
8)																						
9)																						
10)																						

RELINQUISHED:	DATE / TIME	RECEIVED: Jessica Brinkley	DATE / TIME 8/5/09 1500	QC Data Package Level ☐
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME	Level II ☐
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME	Level III ☐ Level IV ☐

LAB USE ONLY

COOLER TEMP _____ °C on ice

OP
Reedville OPS

09080080
DUE: 10 Days
Recd: 08/05/09

xls

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OP **09080080**
Reedville OPS
DUE: 10 Days
Recd: 08/05/09

Sample Conditions Checklist

Opened by: (print) Jessica Comstock **Lab ID No.:**
(sign) Jessica Comstock **Date Cooler Opened:** 8/5/09

		YES	NO	N/A
1.	How were samples received? Fed Ex ☐ UPS ☐ Courier ☐ Walk In ☑			
2.	Were custody seals used?	☐	☑	☐
3.	If yes, are custody seals unbroken and intact at the date and time of arrival?	☐	☐	☑
4.	Are the custody papers filled out completely and correctly?	☑	☐	☐
5.	Do all bottle labels agree with custody papers?	☑	☐	☐
6.	Are the samples received on ice?	☑	☐	☐
7.	Is the temperature blank or representative sample within acceptable limits? (4 degrees Celsius +/-2)	☑	☐	☐
8.	Are all samples within holding time for requested tests?	☑	☐	☐
9	Is a sufficient amount of sample provided to perform the tests indicated?	☑	☐	☐
10	Are all samples in proper containers for the analyses requested?	☑	☐	☐
11	Are all samples appropriately preserved for the analyses requested?	☑	☐	☐
12	Are all volatile organic containers free of headspace?	☑	☐	☑

COMMENTS

VOC'S were free of headspace

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Certificate of Analysis

Final Report

Laboratory Order ID 09080291

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 14, 2009
Date Issued: August 31, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Attachment D

Purchase Order: 2926

Sample I.D.: 995-A
Laboratory Sample I.D.: 09080291-001
Date/Time Sampled: 08/13/09 14:00

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Thallium, Dissolved	EPA200.7/R4.4	< 0.05 mg/L	0.050	08/31/09 14:47	MWL

Sample I.D.: 995-B&C
Laboratory Sample I.D.: 09080291-002
Date/Time Sampled: 08/13/09 14:00

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
PCB as Aroclor 1016	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1221	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1232	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1242	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1248	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1254	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
PCB as Aroclor 1260	EPA608	< 1 ug/L	1.0	08/25/09 12:50	RPF
alpha-BHC	EPA608	< 0.02 ug/L	0.020	08/25/09 12:50	RPF
beta-BHC	EPA608	< 0.05 ug/L	0.050	08/25/09 12:50	RPF
Endosulfan I	EPA608	< 0.1 ug/L	0.100	08/25/09 12:50	RPF
Endosulfan II	EPA608	< 0.04 ug/L	0.040	08/25/09 12:50	RPF
Endosulfan sulfate	EPA608	< 0.01 ug/L	0.010	08/25/09 12:50	RPF
Endrin aldehyde	EPA608	< 0.2 ug/L	0.200	08/25/09 12:50	RPF
Heptachlor epoxide	EPA608	< 0.2 ug/L	0.200	08/25/09 12:50	RPF

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Certificate of Analysis

Final Report

Laboratory Order ID 09080291

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 14, 2009
Date Issued: August 31, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Attachment D

Purchase Order: 2926

Sample I.D.: 995-D

Laboratory Sample I.D.: 09080291-003

Date/Time Sampled: 08/13/09 14:00

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Azobenzene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
4,6-Dinitro-2-methylphenol	EPA625	< 50 ug/L	50.0	08/21/09 22:34	JHV
2,4-Dinitrophenol	EPA625	< 50 ug/L	50.0	08/21/09 22:34	JHV
bis (2-Chloroethyl) ether	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
bis (2-Chloroisopropyl) ether	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Chrysene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Di-n-butyl phthalate	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Diethyl phthalate	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Hexachlorobenzene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Hexachlorobutadiene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Hexachlorocyclopentadiene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Hexachloroethane	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
N-Nitrosodimethylamine	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
N-Nitrosodiphenylamine	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
N-Nitrosodi-N-propylamine	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
Benzidine	EPA625	< 50 ug/L	50.0	08/21/09 22:34	JHV
3,3-Dichlorobenzidine	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV
2-Chloronaphthalene	EPA625	< 10 ug/L	10.0	08/21/09 22:34	JHV

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Certificate of Analysis

Final Report

Laboratory Order ID 09080291

Client Name: Omega Protein
P.O. Box 175
610 Menhaden Road
Reedville,Virginia 22539

Date Received: August 14, 2009
Date Issued: August 31, 2009

Submitted To: Ted Schultz

Project Number: NA

Client Site I.D.: Attachment D

Purchase Order: 2926

Sample I.D.: 995-E

Laboratory Sample I.D.: 09080291-004

Date/Time Sampled: 08/13/09 14:00

Parameter	Method	Sample Results	Rep Limi	Analysis Date/Time	Analyst
Acrolein	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
Acrylonitrile	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
Bromomethane	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
trans-1,2-Dichloroethylene	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
1,2-Dichloropropane	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
trans-1,3-Dichloropropene	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
1,1,2-Trichloroethane	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
Chlorobenzene	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB
1,1,2,2-Tetrachloroethane	EPA624	< 10 ug/L	10.0	08/17/09 23:11	DMB

Ted Soyars

Laboratory Manager

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a dry weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

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RICHMOND, VIRGINIA 23230
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

PAGE _____ OF _____

CLIENT NAME:	Omega Protein, Inc.	PROJECT NAME:	Attachment D
CLIENT CONTACT:	Ted Schultz	SITE NAME:	
CLIENT ADDRESS:	P.O. Box 175, Reedville, VA 22539	PROJECT NUMBER:	
CLIENT PHONE NUMBER:	(804) 453-4211	P.O. NUMBER:	2926
CLIENT FAX NUMBER:	(804) 453-4123	EMAIL: tschultz@omegaproteininc.com	REGULATORY AUTHORITY: DEQ

Is sample for compliance reporting? (YES) NO — Is sample from a chlorinated supply? YES (NO) — PWS I.D. #:

SAMPLER NAME (PRINT): TED Schultz — SAMPLER SIGNATURE: Ted Schultz — Turn Around Time: 10 Day(s)

Have ammonia and TKN samples been verified to be dechlorinated at the time of sampling?: YES NO

CLIENT SAMPLE I.D.	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Number of Containers	Grab	Composite	Field Filtered (Dissolved Metals)	Ground Water / Surface Water	Waste Water / Storm Water	Drinking Water	Soil	Solids	Other ____	Dissolved Thallium (HNO3)	Pesticides-608	PCB's-608	1,2-Diphenylhydrazine 625	SVOC-625	VOC-624 (HCL)		COMMENTS (Permit #: VA0003867; PLEASE NOTE PRESERVATIVE(S) or PUMP RATE (L/min))
1) 995 – A			8/13/09	14:00	1	X		X		X					X							
2) 995 - B			↓	↓	1	X				X						X						
3) 995 - C			↓	↓	1	X				X							X					
4) 995 - D			↓	↓	1	X				X								X	X			
5) 995 - E			↓	↓	4	X				X										X		
6)																						
7)																						
8)																						
9)																						
10)																						

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
[signature]	8-14/09 10:10	[signature]	8/14/09 101
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package: Level I ☐ Level II ☐ Level III ☐ Level IV ☐

LAB USE ONLY — COOLER TEMP _____ °C

09080291

OP
Attachment D

09080291

DUE: 5 Days
Recd: 08/14/09

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Sample Conditions Checklis

OP
Attachment D

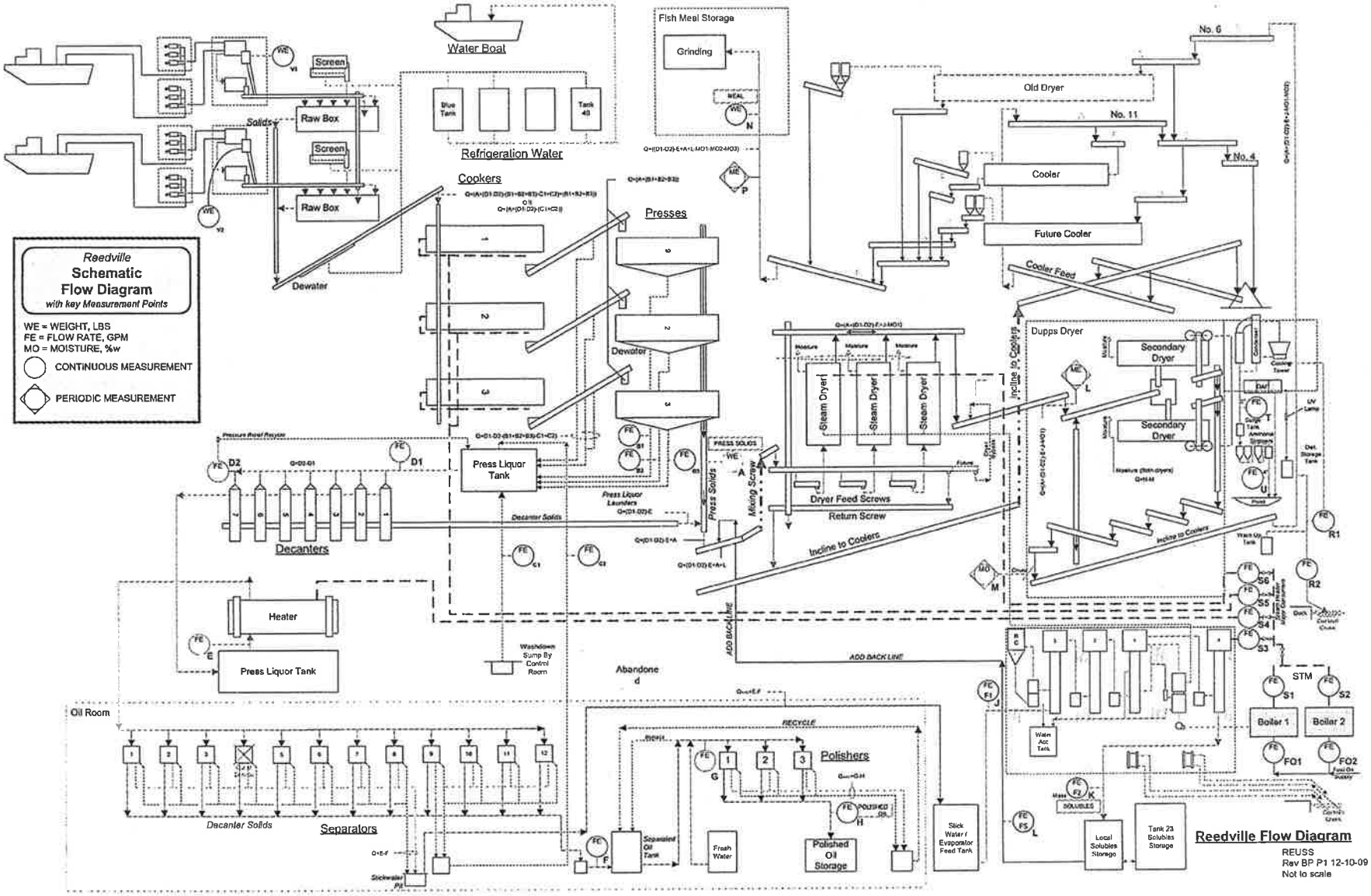
09080291
DUE: 5 Days
Recd: 08/14/09

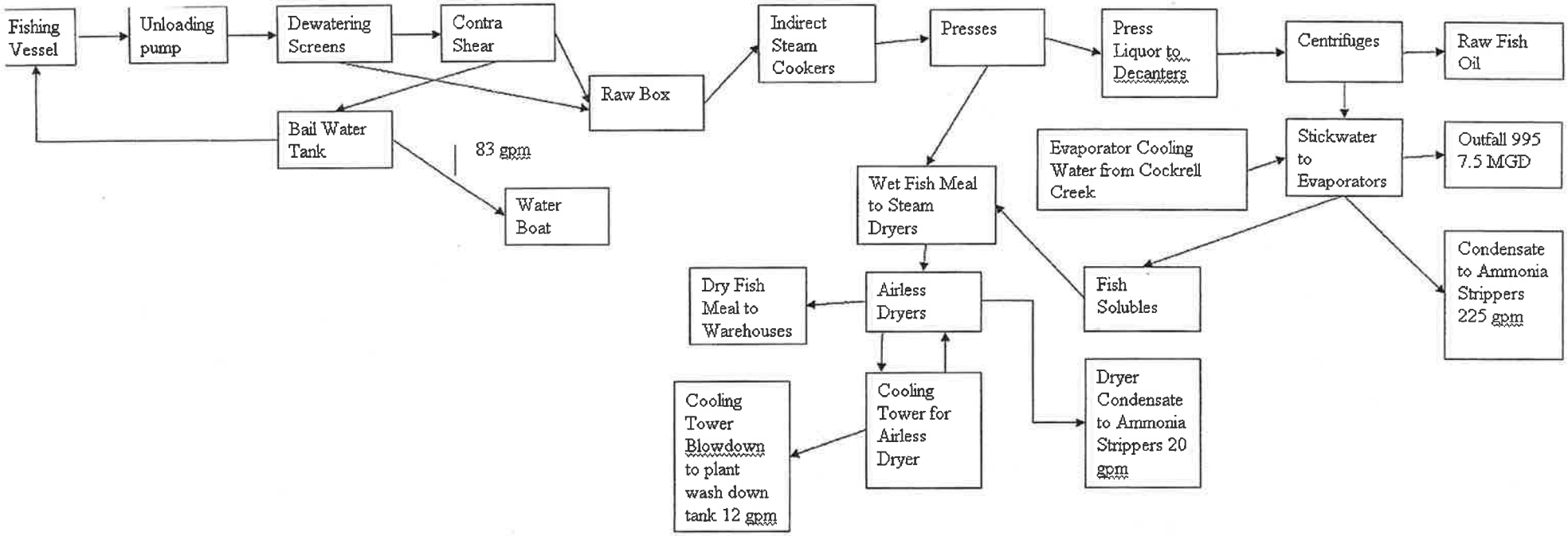
Opened by: (print) A.McGinny **Lab ID No.:**

(sign) A.McGinny **Date Cooler Opened:** 8-14-09

		YES	NO	N/A
1.	How were samples received? Fed Ex ☐ UPS ☐ Courier ☐ Walk In ☑			
2.	Were custody seals used?	☐	☐	☑
3.	If yes, are custody seals unbroken and intact at the date and time of arrival?	☐	☐	☑
4.	Are the custody papers filled out completely and correctly?	☑	☐	☐
5.	Do all bottle labels agree with custody papers?	☑	☐	☐
6.	Are the samples received on ice?	☑	☐	☐
7.	Is the temperature blank or representative sample within acceptable limits? (4 degrees Celsius +/-2)	☑	☐	☐
8.	Are all samples within holding time for requested tests?	☑	☐	☐
9	Is a sufficient amount of sample provided to perform the tests indicated?	☑	☐	☐
10	Are all samples in proper containers for the analyses requested?	☑	☐	☐
11	Are all samples appropriately preserved for the analyses requested?	☑	☐	☐
12	Are all volatile organic containers free of headspace?	☑	☐	☐

COMMENTS


Reedville
Schematic
Flow Diagram
with key Measurement Points
WE = WEIGHT, LBS
FE = FLOW RATE, GPM
MO = MOISTURE, %w
CONTINUOUS MEASUREMENT
PERIODIC MEASUREMENT
Water Boat
Screen
Raw Box
Solids
Dewater
Refrigeration Water
Cookers
Presses
Fish Meal Storage
Grinding
MEAL
No. 6
Old Dryer
No. 11
No. 4
Cooler
Future Cooler
Cooler Feed
Dupps Dryer
Secondary Dryer
Steam Dryer
Incline to Coolers
Dryer Feed Screws
Return Screw
Mixing Screw
Press Solids
Press Liquor Tank
Decanters
Decanter Solids
Heater
Washdown Sump By Control Room
Abandoned
ADD BACK LINE
RECYCLE
Polishers
Separators
Oil Room
Separated Oil Tank
Fresh Water
Polished Oil Storage
Slick Water / Evaporator Feed Tank
Water Acc Tank
Local Solubles Storage
Tank 23 Solubles Storage
STM
Boiler 1
Boiler 2
Reedville Flow Diagram
REUSS
Rev BP P1 12-10-09
Not to scale


Fishing Vessel
Unloading pump
Dewatering Screens
Contra Shear
Raw Box
Indirect Steam Cookers
Presses
Press Liquor to Decanters
Centrifuges
Raw Fish Oil
Bail Water Tank
83 gpm
Water Boat
Wet Fish Meal to Steam Dryers
Evaporator Cooling Water from Cockrell Creek
Stickwater to Evaporators
Outfall 995 7.5 MGD
Condensate to Ammonia Strippers 225 gpm
Fish Solubles
Dry Fish Meal to Warehouses
Airless Dryers
Cooling Tower for Airless Dryer
Cooling Tower Blowdown to plant wash down tank 12 gpm
Dryer Condensate to Ammonia Strippers 20 gpm

Omega Protein, Inc.
VPDES Permit # VA0003867
Part I.B.3

Month of July, 2009

Chesapeake Bay Water Quality Monitoring Data

	Predischarge							After Discharge						
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH SU	Salinity ppt
1														
2														
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24														
25														
26														
27														
28														
29														
30	14:45	2.8	7.44	<0.1	27.7	7.10	16	14:50	6.9	7.25	0.28	27.9	8.23	15
31														
Date	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt	Time of Sample	BOD (mg/L)	DO (mg/L)	Amm (mg/L)	Temp °C	pH (SU)	Salinity ppt

Name of Vessel: *Tangier Is.*

Name of Sampler: Ted Schultz

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 7/1/09 To 7/5/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William E. Purcell 8/6/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 7/6/09 To 7/12/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William E Russell 8/6/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 7/13/09 To 7/19/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

W. Ole Edwards 8/4/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 7/2/09 To 7/2/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

William E. Russell 8/4/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 7/27/09 To 7/31/09

Paint Area	COMPLIANCE	NONCOMPLIANCE *
	(check as appropriate)	
	✓	

*Comments on Noncompliance

Theodore Schultz / Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

Will E Russell 8/8/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 8/1/09 To 8/9/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz – Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

[illegible] 9/10/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 8/10/09 To 8/16/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz - Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

[illegible] 9/10/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 8/17/09 To 8/23/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz - Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

[illegible signature] 8/26/2009
Signature of Principal Officer or Authorized Agent / Date

ATTACHMENT C
DEPARTMENT OF ENVIRONMENTAL QUALITY
BMP Compliance Report

Facility Name: Omega Protein
Address: Reedville, VA.

VPDES Permit No.: VA0003867

Report Period: From 8/24/09 To 8/31/09

Paint Area	COMPLIANCE (check as appropriate)	NONCOMPLIANCE *
	✓	

*Comments on Noncompliance

Theodore Schultz - Technical Supervisor
Name of Principal Exec. Officer or Authorized Agent / Title

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. See 18 U.S.C. paragraph 1001 and 33 U.S.C. paragraph 1319. (Penalties under these statutes may include fines up to $10,000 and or maximum imprisonment of between 6 months and 5 years).

[illegible] 9/12/2009
Signature of Principal Officer or Authorized Agent / Date

Client: Omega Protein
Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23061 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results*				
Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	6.25	12.5	25	50	100
M. bahia EPA 2007.0	Survival (%):	100	100	85	85	75	65
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Test Information Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	7/8/09 1500 7/10/09 1505	CBI Stock	7/2/09 1130 7/3/09 1100	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 2004.0	7/8/09 1450 7/10/09 1500	CBI Stock	7/4/09 1200 7/5/09 1200	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data	Acute Test	
Water Quality Parameter (Units)	Sample	Dilution* Water
Arrival Temperature (°C)	6	N/A
Use Temperature (°C)	26	25
Arrival Salinity (g/kg)	2	N/A
Use Salinity (g/kg)	20	20
pH (S.U.)	7.27	7.89
Dissolved Oxygen (mg/l)	7.2	7.3
Total Hardness (mg/l as $CaCO_3$)	22	N/A
Alkalinity (mg/l as $CaCO_3$)	194	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A
Ammonia (mg/l NH_3-N)	<1.0	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0902-A	7/8/09 0830	7/8/09 1450, 1500	N/A	Salt added

Total No. Printouts/Bench Sheets Attached: 4

EPA Labortatory ID: VA01116

Project ID: OMEG0902
Client Sample ID: Outfall 002
Permit No: VA0003867
Sample Period: 7/8/09

Coastal Bioanalysts, Inc.

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	6.25	12.5	25	50	100	Cont.	6.25	12.5	25	50	100
Temp.	25	25	25	25	25	25	25	25	25	25	25	25
(°C)	0	0	0	0	0.6	0.6	0	0	0	0	0.6	0.6
D.O.	6.8	6.9	6.9	7.0	7.1	7.2	6.9	6.9	7.0	7.0	7.1	7.1
(mg/l)	0.6	0.5	0.5	0.4	0.4	0.4	0.5	0.5	0.4	0.4	0.4	0.5
pH	7.94	7.96	7.97	7.99	8.01	8.05	7.85	7.88	7.89	7.91	7.92	7.94
(S.U.)	0.05	0.11	0.17	0.25	0.36	0.51	0.04	0.05	0.10	0.18	0.29	0.41

Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0	RTT	100	575	556-596	Yes
(7/7/09-7/9/09)	CC	99	603	521-685	
C. variegatus 2004.0	RTT	100	1140	1020-1275	Yes
(7/6/09-7/8/09)	CC	99	1093	919-1267	

Note: RTT = Reference Toxicant Test, CC = Control Chart

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

7/22/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean ± 2 standard deviations).

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

N/A: Not applicable. **N/D:** Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac} = 100/LC50$. $T.U._{Chr} = 100/NOEC$. A dimensionless unit.

EPA Labortatory ID: VA01116

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB) FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	9	85
	2-B	10	10	8	
25	3-A	10	10	8	85
	3-B	10	10	9	
50	4-A	10	10	7	75
	4-B	10	10	8	
100	5-A	10	10	6	65
	5-B	10	10	7	
Initials:		PB	PB	bja	
Count Time:		1500	0935	1305	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.89	7.98	8.46
	1	7.85	8.01	8.03
	2	7.78	8.03	8.10
	3	7.71	8.07	8.18
	4	7.61	8.10	8.32
	5	7.49	8.18	8.48
D.O. (mg/l)	C	7.5	7.1	4.1
	1	7.3	7.1	4.3
	2	7.3	7.1	4.3
	3	7.3	7.1	4.5
	4	7.3	7.4	4.2
	5	7.2	7.6	4.9
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		B	A	B
Initials:		PB	PB	LP
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 7/2/09 1130

Date /time end: 7/3/09 1100

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: **Prior to test:** *Artemia ad libitum*
During test: *Artemia* nauplii ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ **400 ml** ___ **250 ml**

Solution volume: ✓ **200 ml** _____ **ml**

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1440

Time mysids added: 1500

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/CB Date: 7/20/09 TEST I.D. OMEG0902 -AMB

CYPRINODON VARIEGATUS STATIC ACUTE WET TEST
48-H TEST (ACV) FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
6.25	1-A	10	10	10	100
	1-B	10	10	10	
12.5	2-A	10	10	10	100
	2-B	10	10	10	
25	3-A	10	10	10	100
	3-B	10	10	10	
50	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	bja	
Count Time:		1450	0940	1500	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	26	25	25
	5	26	25	25
pH (S.U.)	C	7.89	7.84	7.81
	1	7.83	7.87	7.93
	2	7.78	7.91	7.92
	3	7.71	7.95	8.07
	4	7.61	7.97	8.19
	5	7.49	8.01	8.33
D.O. (mg/l)	C	7.3	7.1	6.4
	1	7.3	7.1	6.4
	2	7.3	7.1	6.5
	3	7.3	7.1	6.5
	4	7.3	7.4	6.6
	5	7.2	7.5	6.6
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	A	B
Initials:		PB	PB	LA
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other: _____

Hatch: Date/time start: 7/4/09 1200

Date /time end: 7/5/09 1200

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml _____ ml

Solution volume: ✓ 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 7/8/09

Time water added: 1440

Time fish added: 1450

Set up by (initials): PB

NOTES:

Peer Rev. by: PB/GB Date: 7/20/09 TEST I.D. OMEG0902 -ACV

INITIAL SAMPLE CHARACTERIZATION[1]					NOTES:
Sample Bottle[2]	A-1				
Tot. Res. Chlorine (mg/l)	<QL				
Hardness (mg/l $CaCO_3$)	22				
Alkalinity (mg/l $CaCO_3$)	194				
NH_3-N (mg/l)	<1.0				
Color/Appearance[3]	CG				
Obvious Odor?	NO				
Date/Time	7/8 1120				
Initials	bjd				

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1							
Prep Temperature (°C)	26							
Initial Salinity (g/kg)	2							
Adjusted Salinity (g/kg)	20							
DO (mg/l) After Warm/Sal	7.2							
Aeration Time (min)	—							
Adjusted D.O.	—							
Final pH (S.U.)	7.27							
Tot. Res. Chlorine (mg/l)[4]	N.D.							
Sample Filtered (60 um)?	NO							
Date/Time	7/8 PB							
Initials	1430							

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	F							
Temperature (°C)	25							
Salinity (g/kg)	20							
D.O. (mg/l)	7.3							
pH (S.U.)	7.89							
Date/Time	7/8 1425							
Initials	RB							

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by LB Date 7/11/09 PROJECT I.D. OMEG0902
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysts
6400 E[illegible] Court, Gloucester, VA 23061
PH: 80[illegible]94-6[illegible], FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only)

O	M	E	G	A	9	N	2	-	A
A	A	A	A	Y	Y	N	N		A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein		CONTACT & PHONE #: Ted Schultz 804-453-4211	
NPDES PERMIT NO: VA0003867		OUTFALL # OR LOCATION: 002	
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	
TESTS REQUESTED:	SPECIES OR EPA METH #: Mysidopsis bahia	ACUTE ☒	CHRONIC ☐
	SPECIES OR EPA METH #:	ACUTE ☐	CHRONIC ☐
OTHER TESTS:			

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 9/7/09 08:30		COMPOSITE END DATE & TIME: 9/8/09 08:30	
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION:	NUMBER SUBSAMPLES: ~200	VOL (ml) SUBSAMPLES: 100	TIME INCREMENT:
	SET VOLUME SUBSAMPLE: 100ml	SET VOLUME FLOW: 1 sample per 1000 gal Flow	TOTAL VOLUME:

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
27.3	6.83	4°		9/8/09 08:30	[illegible]

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Theodore Schultz/Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) Theodore Schultz (SIGNATURE) 9/8/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[illegible]	9-8-09	10:45	[illegible]

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY ✓ OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 4 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

OMEGA PROTEIN®
Healthy Products for a Healthy World®

Theodore Schultz
Regulatory Compliance

RECEIVED
JUL 27 2009
PRO

Patrick L. Bishop
Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060-6296

July 9, 2009

Re: VA0003867 Part I.C.1.a Biological Monitoring (Outfall 001)

Dear Patrick;

Please find enclosed two copies (2) of test report for Outfall 001 for 1st Quarter WET testing.

Should any additional information be needed, please contact me via email or phone.

Sincerely,

Ted Schultz

Ted Schultz
Technical Supervisor
tschultz@omegaproteininc.com

Attachments

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23071 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results

Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

Chronic Test Results*

Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	$T.U._C$	IC25	48-h LC50	LC50 95% C.L.	$T.U._{Ac}$
M. bahia EPA 1007.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	22	1.00	>100	N/A	N/A	N/A
	Fecundity	100	>100	>100	41	1.00	>100	N/A	N/A	N/A
C. variegatus EPA 1004.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	12	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data

Species-Method	Endpoint	Sample Concentration (%)					
		Control	3.5	7	14	28	100
M. bahia EPA 2007.0	Survival (%):	100	100	100	100	100	100
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Chronic Test Biological Summary Data

Species-Method	Endpoint	Sample Concentration (%)					
		Control	0.5	0.9	1.8	3.6	100
M. bahia EPA 1007.0	Survival (%):	93	100	90	98	100	90
	Biomass (mg)	0.265	0.309	0.268	0.271	0.297	0.248
	Fecundity (%):	65	67	85	81	86	90
C. variegatus EPA 1004.0	Survival (%):	100	100	100	100	100	100
	Biomass (mg):	1.269	1.246	1.280	1.230	1.317	1.403

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Test Information: Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	6/24/09 1520 6/26/09 1535	CBI Stock	6/18/09 1000 6/19/09 1000	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 2004.0	6/24/09 1525 6/26/09 1540	CBI Stock	6/10/09 1630 6/11/09 1630	25° C	HWM ASW 20 g/kg sal.	No
M. bahia EPA 1007.0	6/23/09 1340 6/30/09 1400	CBI Stock	6/15/09 1000 6/16/09 1000	25° C	HWM ASW 20 g/kg sal.	No
C. variegatus EPA 1004.0	6/23/09 1355 6/30/09 1345	CBI Stock	6/22/09 1500 6/23/09 1130	25° C	HWM ASW 20 g/kg sal.	No

Sample/Dilution Water Data	Acute Test		Chronic Test			
		Dilution*	Sample		Dilution Water*	
Water Quality Parameter (Units)	Sample	Water	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	3	N/A	3	0.6	N/A	N/A
Use Temperature (°C)	25	25	25	0.5	26	0.5
Arrival Salinity (g/kg)	14	N/A	14	0.4	N/A	N/A
Use Salinity (g/kg)	20	20	20	0	20	0.5
pH (S.U.)	7.99	7.91	7.98	0.16	7.88	0.07
Dissolved Oxygen (mg/l)	7.2	7.3	7.1	0.1	7.3	0
Total Hardness (mg/l as $CaCO_3$)	2460	N/A	2547	103	N/A	N/A
Alkalinity (mg/l as $CaCO_3$)	84	N/A	82	1.5	N/A	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH_3-N)	<1.0	N/A	<1.0	0	N/A	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0901-A	6/23/09 0900	6/23/09 1340, 1355	N/A	Salt Added
OMEG0901-B	6/24/09 0910	6/24/09 1330, 1345 6/24/09 1520, 1525*	6/25/09 1200, 1215	Salt Added
OMEG0901-C	6/26/09 0910	6/26/09 1140, 1200	6/27/09 1215, 1235 6/28/09 1140, 1155 6/29/09 1110, 1130	Salt Added, Aerated 0-0.5 min

*Acute tests

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	3.5	7	14	28	100	Cont.	3.5	7	14	28	100
Temp. (°C)	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	25 0.6	26 0.6	26 0.6	26 0.6
D.O. (mg/l)	6.2 0.9	6.2 1.0	6.2 1.0	6.1 1.1	5.9 1.2	5.8 1.2	6.3 0.9	6.3 0.9	6.2 0.9	6.3 0.9	6.3 0.9	6.3 0.9
pH (S.U.)	7.78 0.09	7.82 0.07	7.77 0.11	7.78 0.11	7.83 0.10	7.87 0.16	7.76 0.14	7.79 0.12	7.76 0.14	7.81 0.13	7.83 0.12	7.94 0.11

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 1007.0						*C. variegatus* 1004.0					
% Conc:	Cont.	0.5	0.9	1.8	3.6	100	Cont.	0.5	0.9	1.8	3.6	100
Temp.	25	25	25	25	25	25	25	25	25	25	25	25
(°C)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
D.O.	6.7	6.6	6.6	6.5	6.6	6.4	6.2	6.2	6.2	6.2	6.1	6.0
(mg/l)	0.5	0.5	0.5	0.6	0.5	0.6	0.7	0.7	0.8	0.8	0.8	0.8
pH	7.76	7.76	7.78	7.79	7.81	7.86	7.77	7.78	7.79	7.80	7.80	7.87
(S.U.)	0.12	0.12	0.12	0.10	0.11	0.13	0.16	0.15	0.14	0.13	0.15	0.18
Salinity	20	20	20	20	20	20	20	20	20	20	20	20
(g/kg)	0.5	0.5	0.5	0.5	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.4

Acute Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0	RTT	100	545	512-581	Yes
(6/18/09-6/20/09)	CC	99	605	528-683	
C. variegatus 2004.0	RTT	100	1084	976-1203	Yes
(6/19/09-6/21/09)	CC	99	1090	914-1267	

Chronic Test QA/QC Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method	Data	% Survival		Biomass (mg)					RTT in
(Ref. Test Date)	Source	Cont	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	Control?
M. bahia 1007.0	RTT	95	250	0.38	250	16	389	N/A	Yes
(6/17/09-6/24/09)	CC	94	250	0.32	250	21	498	347-649	
C. variegatus 1004.0	RTT	100	1000	1.11	500	11	992	N/A	Yes
(6/17/09-6/24/09)	CC	99	1000	1.26	500	14	911	583-1240	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group. Based on control chart data (n>62) fecundity (Method 1007.0) is not a sensitive endpoint for KCl toxicity and hence not reported; fecundity data available upon request.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

7/6/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

Client: Omega Protein
Project ID: OMEG0901
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 6/23/09 to 6/26/09

Coastal Bioanalysts, Inc.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean $\pm$ 2 standard deviations).

IC25: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 25% reduction in test organism growth, reproduction, etc. The lower the IC25, the more toxic the chemical or sample. Units are same as test concentration units.

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

LOEC: Lowest-observable-effect-concentration. The lowest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit a statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Units are same as test concentration units.

PMSD: Percent Minimum Significant Difference: The minimum difference which can exist between a test treatment and the controls in a particular test and be statistically significant; a measure of test sensitivity. The lower the PMSD the more sensitive the test.

N/A: Not applicable.

N/D: Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

NOEC: No-observable-effect-concentration. The highest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit no statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Some regulatory definitions also require that the NOEC be less than the LOEC. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac} = 100/LC50$. $T.U._{Ch} = 100/NOEC$. A dimensionless unit.

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB) FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.5	1-A	10	10	10	100
	1-B	10	10	10	
7	2-A	10	10	10	100
	2-B	10	10	10	
14	3-A	10	10	10	100
	3-B	10	10	10	
28	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		CB	PB	CB	
Count Time:		1520	0925	1535	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	26	25
	1	25	26	25
	2	25	26	25
	3	25	26	25
	4	25	26	25
	5	25	26	25
pH (S.U.)	C	7.87	7.70	7.76
	1	7.89	7.75	7.82
	2	7.89	7.75	7.67
	3	7.91	7.72	7.71
	4	7.94	7.75	7.80
	5	8.06	7.78	7.78
D.O. (mg/l)	C	7.3	5.5	5.9
	1	7.3	5.5	5.8
	2	7.3	5.4	5.8
	3	7.3	5.3	5.6
	4	7.3	5.1	5.3
	5	7.2	5.1	5.1
Salinity (g/kg)	C	20		26
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	B	B
Initials:		CB	PB	CB
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 6/18/09 1000

Date /time end: 6/19/09 1000

Acclimation: Water: ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: *Artemia* nauplii
ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ___ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 6/24/09

Time water added: 1525

Time mysids added: 1520

Set up by (initials): CB

NOTES:

Peer Rev. by: CB / PB Date: 6/26/09 TEST I.D. DMEG-0901 -AMB

CYPRINODON VARIEGATUS STATIC ACUTE WET TEST
48-H TEST (ACV)

FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.5	1-A	10	10	10	100
	1-B	10	10	10	
7	2-A	10	10	10	100
	2-B	10	10	10	
14	3-A	10	10	10	100
	3-B	10	10	10	
28	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		GB	PB	GB	
Count Time:		1525	0915	1540	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	26	25
	1	25	26	25
	2	25	26	25
	3	26	26	25
	4	26	26	25
	5	26	26	25
pH (S.U.)	C	7.87	7.61	7.81
	1	7.89	7.66	7.81
	2	7.89	7.62	7.76
	3	7.91	7.66	7.86
	4	7.94	7.70	7.86
	5	8.06	7.89	7.86
D.O. (mg/l)	C	7.3	5.7	5.9
	1	7.3	5.7	5.8
	2	7.3	5.8	5.6
	3	7.3	5.9	5.6
	4	7.3	5.9	5.6
	5	7.2	5.9	5.6
Salinity (g/kg)	C	20		20
	1			
	2			
	3			
	4			
	5	20		20
Replicate Measured:		A	B	B
Initials:		GB	PB	GB
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other: _____

Hatch: Date/time start: 6/10/09 1630

Date /time end: 6/11/09 1630

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml _____ ml

Solution volume: ✓ 400 ml _____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 6/24/09

Time water added: 1505

Time fish added: 1525

Set up by (initials): GB

NOTES:

Peer Rev. by: GB/PB Date: 6/24/09 TEST I.D. OMEC09 01 -ACV

BASELINE TEST INFO – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0011D
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI Stock Cultures: ✓

Other: _____

Harvest Date/Time: From 4/15/09 1000

To 4/16/09 1000

Acclimation: **Water:** ASW 20 g/kg salinity: ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* ca. 75/mysid, 2X/day

Arrival Date: (non-CBI) NA

TEST DESIGN

Test Chamber: 1000 ml Tri-pour Beaker ✓

Other _____

Solution Vol: 200 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 8

Initial Number of Mysids/Replicate: 5

TEST SET UP (Day 0)

Set Up Date: 4/23/09

Set Up By: CA

Time Water Added: 1320

Time Animals Added: 1340

NOTES

Peer Review by PB/CB Date 7/6/09

Test I.D. OMEG0901 -CMB

[illegible] – *Mysidopsis bahia* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0012B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	25	25	26	26	26	26	26	25	26	25	25	25	25	25
	1	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	2	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	3	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	4	25	25	26	26	26	25	26	25	26	25	25	25	25	25
	5	25	25	26	26	26	25	26	25	26	25	25	25	25	25
pH (S.U.)	C	7.80	7.84	7.92	7.87	7.81	7.76	7.89	7.70	7.74	7.63	7.71	7.52	7.77	7.60
	1	7.80	7.82	7.92	7.85	7.82	7.75	7.91	7.70	7.81	7.46	7.76	7.48	7.78	7.61
	2	7.80	7.77	7.92	7.88	7.84	7.77	7.91	7.77	7.87	7.76	7.74	7.48	7.82	7.59
	3	7.80	7.85	7.93	7.86	7.84	7.74	7.93	7.70	7.87	7.72	7.76	7.63	7.83	7.62
	4	7.80	7.93	7.94	7.86	7.86	7.83	7.93	7.80	7.85	7.72	7.81	7.55	7.85	7.65
	5	7.72	7.82	8.04	7.92	8.02	7.85	8.10	7.72	7.81	7.81	7.89	7.74	7.86	7.70
D.O. (mg/l)	C	7.3	6.4	7.0	5.9	7.0	7.0	7.2	6.0	7.0	6.8	7.0	5.9	6.9	6.5
	1	7.3	6.3	7.0	5.9	6.8	6.9	7.2	5.8	6.9	6.7	6.9	5.9	6.9	6.4
	2	7.3	6.0	7.0	5.9	6.7	6.9	7.2	6.1	7.0	6.7	6.9	5.9	6.8	6.3
	3	7.3	5.7	7.0	5.9	6.6	6.8	7.2	5.6	6.9	6.5	6.8	5.8	6.8	6.3
	4	7.2	5.5	6.8	5.8	6.6	6.8	7.2	6.1	7.0	6.5	6.8	5.8	6.7	6.2
	5	6.9	5.4	6.8	5.8	6.6	6.7	7.2	5.2	6.8	6.4	6.8	5.7	6.6	6.1
SALIN (g/kg)	C		20		21		20		20		21		20		21
	1		20		21		20		20		21		20		21
	2		20		21		20		20		21		20		21
	3		20		21		20		20		21		20		21
	4		20		21		20		20		21		20		21
	5		21		20		20		20		21		20		21
Replicate:		B	D	C	G	A	C	E	A	H	C	G	F	C	D
Initials:		CB	CB	PB	PB	PB	CB	bja	AG	bja	CB	CB	CB	PB	CB

TEST I.D. OMEGA901 -CMB

'SURVIVAL DATA – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0013C
Effective Date: 11/27/07

Treatment	Rep Ltr	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Final % Live
C	A	5	5	5	5	5	5	4	93
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	4	
	D	5	5	5	5	5	5	5	
	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
	G	5	5	5	4	4	4	4	
	H	5	5	5	5	5	5	5	
1	A	5	5	5	5	5	5	5	100
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.5%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
40	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
2	A	5	5	5	5	5	5	4	90
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.9%	D	5	5	4	4	3	3	3	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
11	G	5	5	5	5	5	4	4	
Vol. Spl.	H	5	5	5	5	5	5	5	
3	A	5	5	5	5	5	5	5	95
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
1.8%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	4	4	4	4	
22	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
4	A	5	5	5	5	5	5	5	100
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
3.6%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
43	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
5	A	5	5	5	5	5	5	5	90
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	4	
10.0%	D	5	5	5	4	4	4	4	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	4	4	3	
120	G	5	5	5	5	5	5	5	
Vol. Spl.	H	5	5	5	5	5	5	5	
Renewal/Count Time:		1345	1215	1140	1215	1140	1110	PO #	
Initials:		PO	PB	bjg	bjg	GA	PO	1400	

Volume sample added to total volume of 1200 ml for preparation of dilutions. # Time of final count = test time.

Test I.D. AMEG0901 -CMB

FECUNDITY/GROWTH DATA – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0014G
Effective Date: 10/31/08

Treatment	Rep Ltr	Females w/eggs	Females No eggs	Males	Imma-ture	Pan No.	Total[1] Wt (mg)	Tare Wt (mg)
C	A	II		II		1	9.32	8.23
	B	I		IIII		2	7.82	6.51
	C	I	I	II		3	6.78	5.60
	D		II	III		4	7.40	6.24
	E	I	II	II		5	7.77	6.50
	F	II	I	II		6	8.27	7.12
	G	II	I	I		7	6.23	5.15
	H	II		III		8	8.21	6.39
1	A	II	I	II		9	8.41	6.81
	B	I		IIII		10	9.63	8.38
	C	II	II	1xPo		11	9.32	7.82
0.5	D	I	II	II		12	8.70	7.11
% Conc.	E	IIII		I		13	9.16	7.54
	F	II	I	II		14	8.60	6.45
	G	II	I	II		15	9.27	7.76
	H	I	I	III		16	9.00	7.86
2	A	III		I		17	10.38	9.05
	B	II	I	II		18	8.79	7.41
	C	I		IIII		19	8.30	7.30
0.9	D	I	I	I		20	8.01	7.04
% Conc.	E	II		III		21	9.52	7.85
	F	III		II		22	11.46	10.12
	G	II	I	I		23	11.34	9.51
	H	III		II		24	10.55	9.14
3	A	III		II		25	10.61	9.04
	B	III		II		26	11.56	9.90
	C	I	I	III		27	8.43	7.03
1.8	D	I		IIII		28	9.51	8.37
% Conc.	E	II		III		29	10.72	9.13
	F	I	I	II		30	8.30	6.91
	G	I	I	III		31	10.50	9.34
	H	III		II		32	10.87	9.89
4	A	III	I	I		33	11.05	9.35
	B	III		II		34	11.81	10.32
	C	I		IIII		35	10.82	9.28
3.6	D	I		III		36	9.54	8.18
% Conc.	E	I	I	III		37	10.29	8.69
	F	II	I	II		38	9.76	8.32
	G	II		I	II	39	9.45	8.31
	H	III		II		40	9.52	7.93
5	A	II		II	I	41	9.15	7.82
	B	III		II		42	9.43	8.05
	C	II	I	I		43	8.87	7.82
10.0	D	III		I		44	10.27	9.10
% Conc.	E	II		III		45	9.79	8.39
	F	I	I	I		46	8.52	7.74
	G	I		III		47	9.19	7.73
	H	II		III		48	7.99	6.64

[1]See printout of statistical analyses for biomass weights by replicate.
[2] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 10.00 ± 0.05 mg

TARE WT: DATE: 6/26 INITIALS: CB CALIB. CHECK (10.00 mg[2]): 10.01
TOTAL WT: DATE: 7/1 INITIALS: PB CALIB. CHECK (10.00 mg[2]): 10.02
SEXED BY: PB

Test I.D. DMEG0901 -CMB

Mysid Survival, Growth and Fecundity Test-7 Day Survival

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

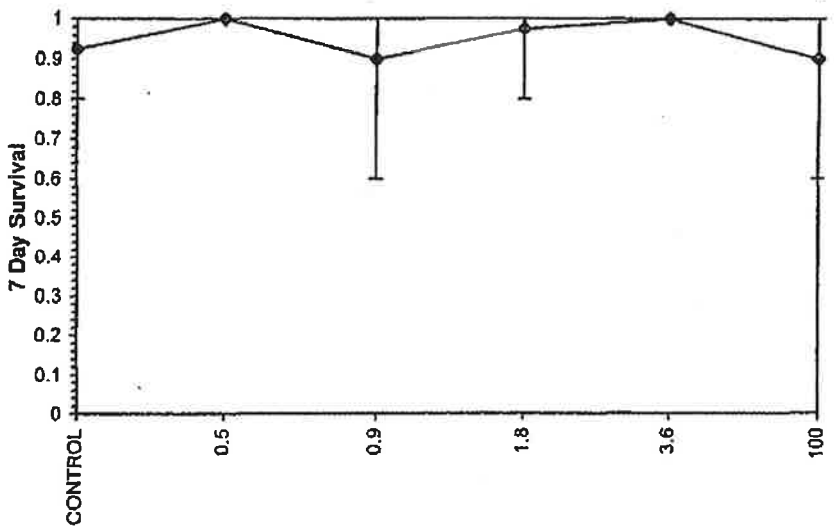
Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.8000	1.0000	0.8000	1.0000	1.0000	1.0000	0.8000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
0.9	0.8000	1.0000	1.0000	0.6000	1.0000	1.0000	0.8000	1.0000
1.8	1.0000	1.0000	1.0000	1.0000	1.0000	0.8000	1.0000	1.0000
3.6	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
100	1.0000	1.0000	0.8000	0.8000	1.0000	0.6000	1.0000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
CONTROL	0.9250	1.0000	1.2560	1.1071	1.3453	9.813	8		
0.5	1.0000	1.0811	1.3453	1.3453	1.3453	0.000	8	80.00	46.00
0.9	0.9000	0.9730	1.2283	0.8861	1.3453	14.264	8	66.50	46.00
1.8	0.9750	1.0541	1.3155	1.1071	1.3453	6.400	8	76.00	46.00
3.6	1.0000	1.0811	1.3453	1.3453	1.3453	0.000	8	80.00	46.00
100	0.9000	0.9730	1.2283	0.8861	1.3453	14.264	8	66.50	46.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.82717	0.929	-1.3806	2.06916
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: _____

Mysid Survival, Growth and Fecundity Test-Biomass

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.2180	0.2620	0.2360	0.2320	0.2540	0.3300	0.2200	0.3640
0.5	0.3200	0.2500	0.3000	0.3180	0.3240	0.4300	0.3020	0.2280
0.9	0.2660	0.2760	0.2000	0.1940	0.3340	0.2680	0.3660	0.2420
1.8	0.3140	0.3320	0.2800	0.2280	0.3180	0.2780	0.2220	0.1960
3.6	0.3400	0.2980	0.3080	0.2720	0.3200	0.2880	0.2280	0.3180
100	0.2660	0.2760	0.2100	0.2340	0.2800	0.1560	0.2920	0.2700

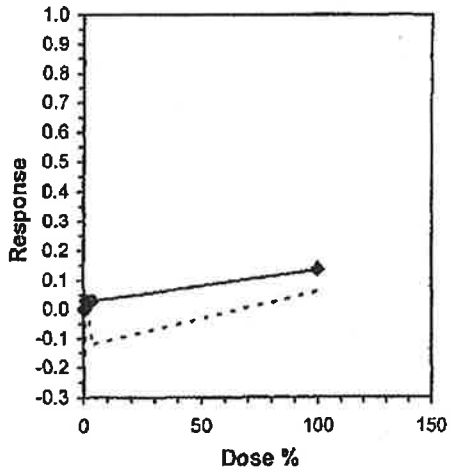
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	0.2645	1.0000	0.2645	0.2180	0.3640	20.369	8				0.2868	1.0000
0.5	0.3090	1.1682	0.3090	0.2280	0.4300	19.433	8	-1.730	2.306	0.0593	0.2868	1.0000
0.9	0.2683	1.0142	0.2683	0.1940	0.3660	22.191	8	-0.146	2.306	0.0593	0.2786	0.9715
1.8	0.2710	1.0246	0.2710	0.1960	0.3320	18.599	8	-0.253	2.306	0.0593	0.2786	0.9715
3.6	0.2965	1.1210	0.2965	0.2280	0.3400	11.687	8	-1.244	2.306	0.0593	0.2786	0.9715
100	0.2480	0.9376	0.2480	0.1560	0.2920	18.450	8	0.641	2.306	0.0593	0.2480	0.8649

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97611	0.929	0.2727	-0.058
Bartlett's Test indicates equal variances (p = 0.78)	2.4856	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.05932	0.22428	0.00402	0.00265	0.20516	5, 42

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	23.051			
IC10	68.243			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



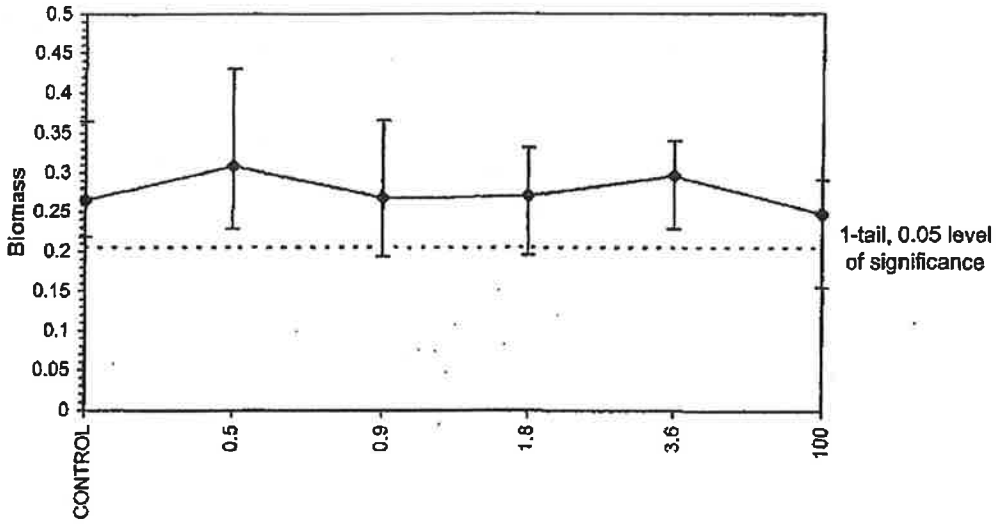
ToxCalc v5.0.23

Reviewed by: PD

Mysid Survival, Growth and Fecundity Test-Biomass

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: PD

Mysid Survival, Growth and Fecundity Test-Fecundity

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	1.0000	1.0000	0.5000	0.0000	0.3333	0.6667	0.6667	1.0000
0.5	0.6667	1.0000	0.5000	0.3333	1.0000	0.6667	0.6667	0.5000
0.9	1.0000	0.6667	1.0000	0.5000	1.0000	1.0000	0.6667	1.0000
1.8	1.0000	1.0000	0.5000	1.0000	1.0000	0.5000	0.5000	1.0000
3.6	0.7500	1.0000	1.0000	1.0000	0.5000	0.6667	1.0000	1.0000
100	1.0000	1.0000	0.6667	1.0000	1.0000	0.5000	1.0000	1.0000

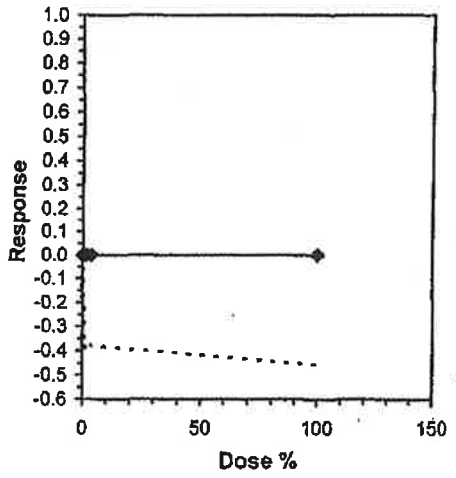
			Transform: Arcsin Square Root						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	0.6458	1.0000	0.8924	0.3614	1.2094	32.891	8				0.7796	1.0000
0.5	0.6667	1.0323	0.9272	0.6155	1.3181	22.586	8	-0.322	2.306	0.2497	0.7796	1.0000
0.9	0.8542	1.3226	1.0983	0.7854	1.2780	17.227	8	-1.902	2.306	0.2497	0.7796	1.0000
1.8	0.8125	1.2581	1.0558	0.7854	1.2780	22.387	8	-1.509	2.306	0.2497	0.7796	1.0000
3.6	0.8646	1.3387	1.0810	0.7854	1.2780	15.664	8	-1.741	2.306	0.2497	0.7796	1.0000
100	0.8958	1.3871	1.1215	0.7854	1.2780	15.744	8	-2.116	2.306	0.2497	0.7796	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96224	0.929	-0.4219	-0.398
Bartlett's Test indicates equal variances (p = 0.70)	3.03196	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.24697	0.40744	0.0733	0.04692	0.19167	5, 42

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



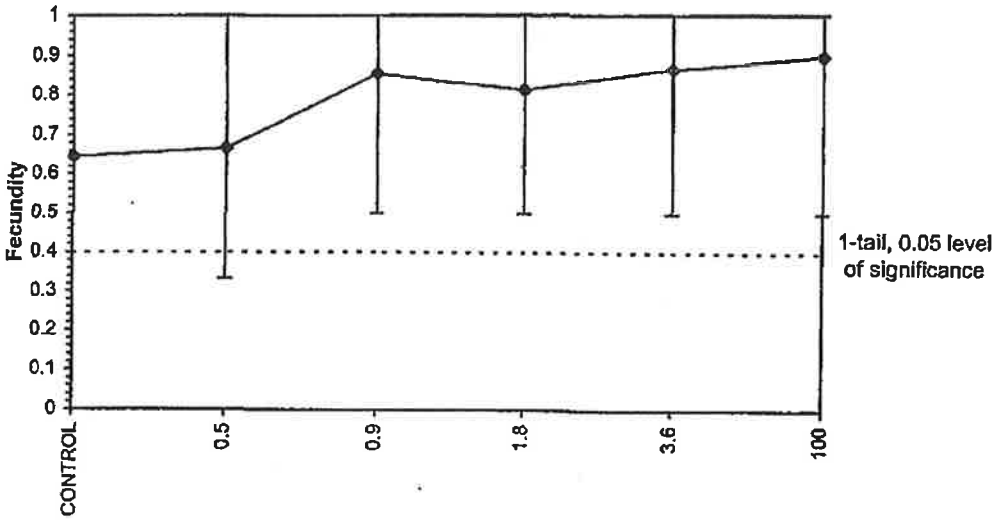
ToxCalc v5.0.23

Reviewed by: PD

Mysid Survival, Growth and Fecundity Test-Fecundity

Start Date:	6/23/2009 13:40	Test ID:	OMEG0901	Sample ID:	OUTFALL 001
End Date:	6/30/2009 14:00	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: PP

BASELINE TEST INFO – SHEEPSHEAD 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0021C
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Cyprinodon variegatus*

Source: CBI Stock Cultures: ✓

Other: _____

Hatch Date/Time: 6/22/09 1500 (start)

Hatch Date/Time: 6/23/09 1130 (end)

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* 0.1 g/rep days 0-2 (2X/day) 0.15 g/rep days 3-6

Arrival Date: (non-CBI) NA

TEST DESIGN

Test Chamber: 1000 ml Tri-pour beaker ✓

Other _____

Solution Vol: 750 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 4

Initial Number of Fish/Replicate: 10

TEST SET UP (Day 0)

Set Up Date: 6/23/09

Set Up By: CB

Time Water Added: 1320

Time Animals Added: 1355

NOTES

Peer Review by PB/GB Date 7/6/09

Test I.D. OMEG-0901 -CCV

WATER QUALITY DATA – *Cyprinodon variegatus* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0022B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	1	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	2	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	3	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	4	25	25	26	26	26	25	26	26	26	25	25	25	25	25
	5	25	25	26	26	26	25	26	26	26	25	25	25	25	25
pH (S.U.)	C	7.80	7.94	7.99	7.78	7.79	7.78	7.96	7.60	7.89	7.64	7.82	7.52	7.76	7.49
	1	7.80	7.94	7.99	7.80	7.79	7.78	7.98	7.64	7.89	7.64	7.82	7.58	7.78	7.47
	2	7.86	7.94	7.99	7.77	7.79	7.81	7.95	7.66	7.89	7.63	7.85	7.62	7.83	7.51
	3	7.80	7.94	7.99	7.79	7.79	7.81	7.97	7.68	7.89	7.61	7.83	7.64	7.85	7.58
	4	7.80	7.96	7.99	7.83	7.82	7.81	7.97	7.63	7.89	7.66	7.85	7.62	7.88	7.51
	5	7.72	7.96	8.13	7.94	8.05	7.87	8.15	7.73	7.82	7.63	7.94	7.65	7.91	7.62
D.O. (mg/l)	C	7.3	6.2	7.0	5.4	7.0	5.8	6.8	5.7	6.8	5.3	6.8	5.7	6.7	5.4
	1	7.3	6.1	7.0	5.4	6.9	5.7	6.7	5.6	6.7	5.1	6.7	5.3	6.7	5.4
	2	7.3	6.1	7.0	5.4	6.8	5.6	6.7	5.7	7.0	5.0	6.6	5.3	6.8	5.4
	3	7.3	6.1	7.0	5.5	6.7	5.6	6.7	5.7	6.8	4.9	6.5	5.2	6.7	5.4
	4	7.2	6.0	7.0	5.5	6.6	5.4	6.7	5.4	6.7	4.9	6.5	5.1	6.6	5.3
	5	6.9	5.9	6.9	5.5	6.6	5.2	6.7	5.2	6.7	4.7	6.4	5.0	6.6	5.3
SALIN (g/kg)	C		20		21		20		20		21		20		21
	1		20		21		20		20		21		20		21
	2		20		21		20		20		21		20		21
	3		20		21		20		20		21		20		21
	4		20		21		20		20		21		20		21
	5		20		20		20		20		20		20		21
Replicate:		B	D	C	B	A	C	A	D	D	C	B	A	C	D
Initials:		CA	CA	PB	PB	PB	CB	bja	AG	bja	CB	CB	CB	PB	CA

TEST I.D. OMEG0901 -CCV

Treatment[1]		Rep Ltr	Number of Live Fish Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Fish Dry Weight Data (mg)[2] Pan #	Tot. Wt.	Tare Wt.	Notes
C	CONTROL	A	10	10	10	10	10	10	10	49	19.27	7.07	
		B	10	10	10	10	10	10	10	50	19.95	8.24	
		C	10	10	10	10	10	10	10	51	21.88	8.34	
		D	10	10	10	10	10	10	10	52	21.96	8.65	
1	C: 0.590	A	10	10	10	10	10	10	10	53	20.17	8.12	
		B	10	10	10	10	10	10	10	54	20.72	9.20	
		C	10	10	10	10	10	10	10	55	21.07	8.26	
	V: 12	D	10	10	10	10	10	10	10	56	20.53	7.06	
2	C: 0.94	A	10	10	10	10	10	10	10	57	20.55	8.61	
		B	10	10	10	10	10	10	10	58	19.01	7.35	
		C	10	10	10	10	10	10	10	59	22.22	7.90	
	V: 22	D	10	10	10	10	10	10	10	60	22.40	9.14	
3	C: 1.89	A	10	10	10	10	10	10	10	61	21.38	8.28	
		B	10	10	10	10	10	10	10	62	21.84	9.29	
		C	10	10	10	10	10	10	10	63	20.53	8.22	
	V: 43	D	10	10	10	10	10	10	10	64	20.91	9.68	
4	C: 3.60	A	10	10	10	10	10	10	10	65	21.51	9.33	
		B	10	10	10	10	10	10	10	66	23.00	9.54	
		C	10	10	10	10	10	10	10	67	~~19.12~~ 21.65 PB	9.48	
	V: 8.6	D	10	10	10	10	10	10	10	68	22.93	8.45	
5	C: 10.09	A	10	10	10	10	10	10	10	69	22.09	7.71	
		B	10	10	10	10	10	10	10	70	21.95	8.17	
		C	10	10	10	10	10	10	10	71	21.84	7.41	
	V: 24.00	D	10	10	10	10	10	10	10	72	22.44	8.93	
Renewal/Count Time:			1330	1200	1200	1235	1155	1130	1345[3]	Tare Wt: Date: 6/26 Calib. Chk (10.00 mg[4]): 10.01 Init: CB			
Initials:			PB	PB	[illegible]	[illegible]	CB	PB	PB	Tot. Wt: Date: 7/1 Calib. Chk (10.00 mg[4]): 10.02 Init: PB			

[1] C = Concentration; V = Volume (ml) sample added to total volume of 240 ml for preparation of solutions. [2] See printout of statistical analyses for biomass weights by replicate.
[3] Time of final count = test end time. [4] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 10.00 ± 0.05 mg

Test ID DMEG0901 -CCV

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	6/23/2009 13:55	Test ID:	OMEG0901CV	Sample ID:	OUTFALL 001
End Date:	6/30/2009 13:45	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

Conc-%	1	2	3	4
CONTROL	1.2200	1.1710	1.3540	1.3310
0.5	1.2050	1.1520	1.2810	1.3470
0.9	1.1940	1.1660	1.4320	1.3260
1.8	1.3100	1.2550	1.2310	1.1230
3.6	1.2180	1.3460	1.2570	1.4480
100	1.4380	1.3780	1.4430	1.3510

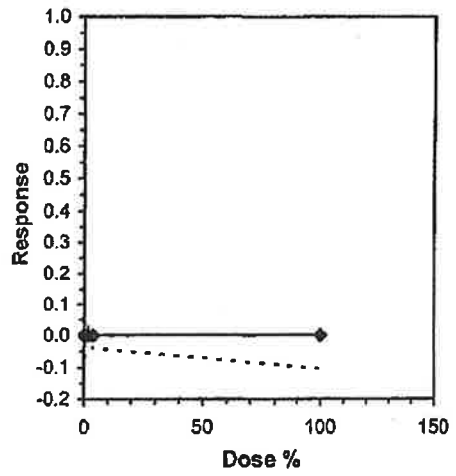
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	1.2690	1.0000	1.2690	1.1710	1.3540	6.911	4				1.2907	1.0000
0.5	1.2463	0.9821	1.2463	1.1520	1.3470	6.862	4	0.356	2.410	0.1538	1.2907	1.0000
0.9	1.2795	1.0083	1.2795	1.1660	1.4320	9.637	4	-0.165	2.410	0.1538	1.2907	1.0000
1.8	1.2298	0.9691	1.2298	1.1230	1.3100	6.381	4	0.615	2.410	0.1538	1.2907	1.0000
3.6	1.3173	1.0380	1.3173	1.2180	1.4480	7.767	4	-0.756	2.410	0.1538	1.2907	1.0000
100	1.4025	1.1052	1.4025	1.3510	1.4430	3.229	4	-2.092	2.410	0.1538	1.2907	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.9448	0.884	0.17231	-1.0704
Bartlett's Test indicates equal variances (p = 0.77)	2.52439	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.15382	0.12122	0.01559	0.00815	0.1419	5, 18

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



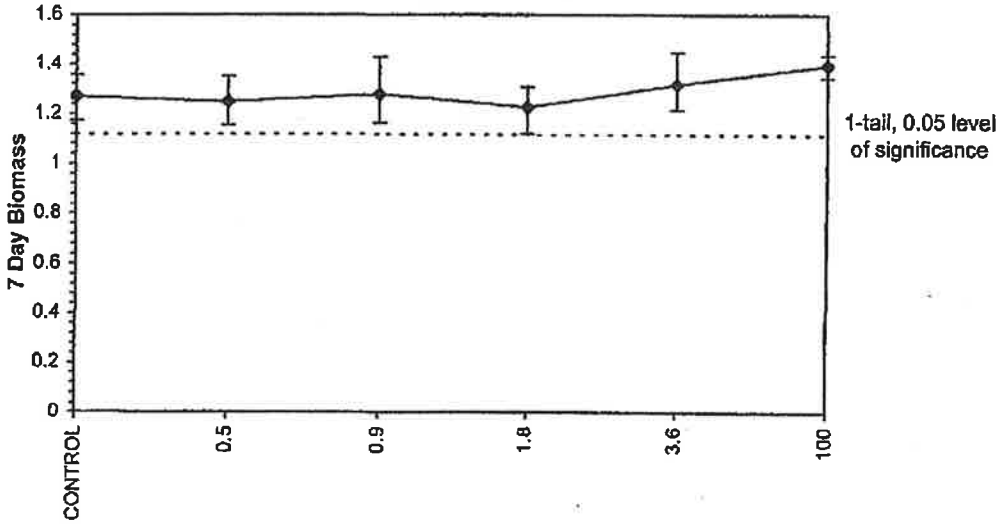
ToxCalc v5.0.23

Reviewed by: PP

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	6/23/2009 13:55	Test ID:	OMEG0901CV	Sample ID:	OUTFALL 001
End Date:	6/30/2009 13:45	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: PD

EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
SALTWATER TESTS FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

INITIAL SAMPLE CHARACTERIZATION[1]					NOTES:
Sample Bottle[2]	A-1	B-1	C-1		
Tot. Res. Chlorine (mg/l)	<QL	<QL	<QL		
Hardness (mg/l $CaCO_3$)	2520	2460	2460		
Alkalinity (mg/l $CaCO_3$)	81	84	82		
NH_3-N (mg/l)	<1.0	<1.0	<1.0		
Color/Appearance[3]	C	C	C		
Obvious Odor?	ND	ND	ND		
Date/Time	6/23 1115	6/24 1120	6/25 1040		
Initials	GB	GB	GB		

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								Acute
Sample Bottle[2]	A-1	B-1	B-3	C-1	C-2	C-3	C-4	B-2
Prep Temperature (°C)	25	25	26	26	26	25	25	25
Initial Salinity (g/kg)[4]	15	14	14	14	14	14	14	14
Adjusted Salinity (g/kg)	20	20	20	20	20	20	20	20
DO (mg/l) After Warm/Sal	7.0	7.2	6.9	7.0	7.1	7.8	7.2	7.2
Aeration Time (min)	—	—	—	—	—	0.5	—	—
Adjusted D.O.	—	—	—	—	—	7.3	7.2	—
Final pH (S.U.)	7.64	7.99	8.10	8.14	7.98	7.95	8.04	7.99
Tot. Res. Chlorine (mg/l)[5]	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sample Filtered (60 um)?	ND	ND	ND	ND	ND	ND	No	ND
Date/Time	6/23 1310	6/24 1310	6/25 1130	6/26 1100	6/27 1200	6/28 1140	6/29 1100	6/24 1500
Initials	GB	PB	PB	bja	bja	GB	PB	PB

DILUTION WATER CHARACTERISTICS								Acute
Vat Number/Letter	F	F	F	F	F	F	F	A
Temperature (°C)	25	25	26	25	26	26	26	25
Salinity (g/kg)	20	21	20	20	21	20	21	20
D.O. (mg/l)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
pH (S.U.)	7.80	7.83	7.91	7.89	7.85	7.88	8.02	7.91
Date/Time	6/23 1230	6/24 1100	6/25 0930	6/26 0945	6/27 1000	6/28 0945	6/29 1030	6/24 1130
Initials	GB	GB	PB	GB	AG	GB	GB	GB

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Initial salinity measured on first use of sample only
[5]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by GB / PB Date 7/3 / 09 PROJECT I.D. Am EG090 1
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011D Rev. 10/10/07)

Lab Sample ID (Lab Use Only): O m E G 0 9 0 1 - A
A A A A Y Y N N A

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein	CONTACT & PHONE #: Ted Schultz 804.453.4211
NPDES PERMIT NO: VA0003867	OUTFALL # OR LOCATION: 001
SAMPLE CHLORINATED? No / SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?

TESTS REQUESTED:
- SPECIES OR EPA METH #: M. bahia / C variegatus — ACUTE ☑ CHRONIC ☐
- SPECIES OR EPA METH #: M. bahia / C variegatus — ACUTE ☐ CHRONIC ☑

OTHER TESTS:

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

COMPOSITE START DATE & TIME: 6/22/09 09:00	COMPOSITE END DATE & TIME: 6/23/09 09:00

TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION:
- NUMBER SUBSAMPLES: 96
- VOL (ml) SUBSAMPLES: ____
- TIME INCREMENT: ____
- SET VOLUME SUBSAMPLE: 200ml
- SET VOLUME FLOW: ____
- TOTAL VOLUME: ____

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

pH. Per note from Ted PSD.

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
25.1	8.01	4.3	7.92	6/23/09 09:05	VAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Ted Schultz / Technical Supervisor — Ted Schultz — 6/23/09
(PRINTED NAME/AFFILIATION SAMPLER/ANALYST) (SIGNATURE) (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
JR Hall 11:10	6/23/09	1110	B. Bring

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 4 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

Coastal Bioanalysts
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PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011E Rev. 4/15/09)

Lab Sample ID (Lab Use Only): O m E G O 9 0 1 - A

A A A A Y Y N N — Project ID; A — Spl

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein	CONTACT & PHONE #: Ted Schultz 804.453.4211
NPDES PERMIT NO: VA0003867	OUTFALL # OR LOCATION: 001
SAMPLE CHLORINATED? No / SAMPLE DECHLORINATED? No	IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?

TESTS REQUESTED:	SPECIES OR EPA METH #	ACUTE	CHRONIC
	2007.0 / 2004.0	☑	☐
	1007.0 / 1004.0	☐	☑

OTHER TESTS:

*A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME: 6/23/09 09:10	SAMPLE END DATE & TIME: 6/24/09 09:10	AUTOSAMPLER TEMP. (°C): 4
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION: NUMBER SUBSAMPLES 96	VOL (ml) SUBSAMPLES ____	TIME INCREMENT ____
SET VOLUME SUBSAMPLE 200 ml	SET VOLUME FLOW ____	TOTAL VOLUME ____

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
24.7	8.07	4.3		6/24/09 9:20	JAS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

TED SCHULTZ / TECHNICAL Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Ted Schultz (SIGNATURE) — 6/24/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[illegible]	6/24/09	1115	[illegible]
	6/24/09		

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 3 ARRIVED ON ICE? YES ✓ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

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PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011E Rev. 4/15/09)

Lab Sample ID (Lab Use Only): O M E G A 4 0 1 - C

A A A A Y Y N N (Project ID) — A (Spl)

FACILITY INFORMATION

CLIENT/FACILITY NAME: Omega Protein	CONTACT & PHONE #: Ted Schultz 804-453-4211
NPDES PERMIT NO: VA0003867	OUTFALL # OR LOCATION: 001
SAMPLE CHLORINATED? No	SAMPLE DECHLORINATED? No — IF CHLORINE PRESENT UPON ARRIVAL AT LAB, DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?

TESTS REQUESTED:

SPECIES OR EPA METH #	2007.0/2004.0	ACUTE ☑	CHRONIC ☐
SPECIES OR EPA METH #	1007.0/1004.0	ACUTE ☐	CHRONIC ☑

OTHER TESTS:

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME: 6/25/09 09:10	SAMPLE END DATE & TIME: 6/26/09 09:10	AUTOSAMPLER TEMP. (°C): 4.3°
TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION: NUMBER SUBSAMPLES: 96	VOL (ml) SUBSAMPLES:	TIME INCREMENT:
SET VOLUME SUBSAMPLE: 200 ml	SET VOLUME FLOW:	TOTAL VOLUME:

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
26.4	8.20	4.2		6/26/09 09:10	JBS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Ted Schultz / Technical Supervisor — Ted Schultz — 6/26/09
(PRINTED NAME/AFFILIATION SAMPLER/ANALYST) (SIGNATURE) (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
[illegible]	6-26-09	10:30	[illegible]

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY X OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE___ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 3 ARRIVED ON ICE? YES____ NO____

NOTE: It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.

OMEGA PROTEIN
Healthy Products for a Healthy World

Theodore Schultz
Regulatory Compliance

RECEIVED
OCT 0 5 2009
PRO

Patrick L. Bishop
Department of Environmental Quality
Piedmont Regional Office
4949-A Cox Road
Glen Allen, VA 23060-6296

October 2, 2009

Re: VA0003867 Part I.C.1.a Biological Monitoring (Outfall 001)

Dear Patrick;

Please find enclosed two copies (2) of test report for Outfall 001 for 2nd Quarter WET testing.

Should any additional information be needed, please contact me via email or phone.

Sincerely,

Ted Schultz
Technical Supervisor
tschultz@omegaproteininc.com

Attachments

P.O. Box 175, Reedville, Virginia 22539, Telephone 804-453-4211, Fax 804-453-4123, [redacted]

Client: Omega Protein
Project ID: OMEG0903
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 9/15/09 to 9/18/09

RECEIVED
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PRO

Coastal Bioanalysts, Inc.

Report of Analysis: Whole Effluent Toxicity (WET)

Submitted To:	Prepared By:
Mr. Ted Schultz Regulatory Compliance Officer Omega Protein P.O. Box 175 Reedville, VA 22539	Coastal Bioanalysts, Inc. 6400 Enterprise Court Gloucester, VA 23071 (804) 694-8285 www.coastalbio.com Contact: Peter F. De Lisle, Technical Director

Acute Test Results				
Species-Test Method	48-h LC50	95% C.L.	$T.U._{Ac}$	NOAEC
M. bahia EPA 2007.0	>100	N/A	<1.00	N/A
C. variegatus EPA 2004.0	>100	N/A	<1.00	N/A

Chronic Test Results										
Species-Test Method	Endpoint	NOEC	LOEC	ChrV	PMSD	$T.U._C$	IC25	48-h LC50	LC50 95% C.L.	$T.U._{Ac}$
M. bahia EPA 1007.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	23	1.00	>100	N/A	N/A	N/A
	Fecundity	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
C. variegatus EPA 1004.0	Survival	100	>100	>100	N/A	1.00	N/A	>100	N/A	<1.00
	Biomass	100	>100	>100	18	1.00	>100	N/A	N/A	N/A

*Note: Details regarding test conduct and data analysis provided in attached bench sheets and printouts as applicable. Although the name of *Mysidopsis bahia* has officially been changed to *Americamysis bahia*, the former name is referenced because of its use in the EPA method manuals and most NPDES permits.

Acute Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	3.50	7.00	14.0	28.0	100
M. bahia EPA 2007.0	Survival (%):	100	100	100	100	100	100
C. variegatus EPA 2004.0	Survival (%):	100	100	100	100	100	100

Chronic Test Biological Summary Data		Sample Concentration (%)					
Species-Method	Endpoint	Control	0.50	0.90	1.80	3.60	100
M. bahia EPA 1007.0	Survival (%):	95	93	100	95	93	98
	Biomass (mg)	0.313	0.305	0.367	0.370	0.337	0.392
	Fecundity (%):	27	45	33	32	25	26
C. variegatus EPA 1004.0	Survival (%):	100	100	100	100	98	100
	Biomass (mg):	1.020	1.146	1.059	0.993	1.014	1.020

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0903
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 9/15/09 to 9/18/09

Coastal Bioanalysts, Inc.

Test Information Species-Method	Start Date/Time End Date/Time	Organism Source	Hatch/Harvest Date/Time	Acclimation Temp.	Acclimation Water	Test Aerated?
M. bahia EPA 2007.0	9/17/09 1500 9/19/09 1450	CBI Stock	9/15/09 1100 9/16/09 1100	25° C	HWM ASW 20 g/kg sal.	Yes
C. variegatus EPA 2004.0	9/17/09 1510 9/19/09 1500	CBI Stock	9/5/09 1200 9/6/09 1200	25° C	HWM ASW 20 g/kg sal.	Yes
M. bahia EPA 1007.0	9/15/09 1215 9/22/09 1255	CBI Stock	9/7/09 1000 9/8/09 1000	25° C	HWM ASW 20 g/kg sal.	Yes
C. variegatus EPA 1004.0	9/15/09 1200 9/22/09 1215	CBI Stock	9/14/09 1630 9/15/09 1030	25° C	HWM ASW 20 g/kg sal.	Yes

Sample/Dilution Water Data	Acute Test		Chronic Test			
			Sample		Dilution Water*	
Water Quality Parameter (Units)	Sample	Dilution* Water	Mean	Std. Dev.	Mean	Std. Dev.
Arrival Temperature (°C)	2	N/A	3	1.5	N/A	N/A
Use Temperature (°C)	25	26	26	0.5	25	0
Arrival Salinity (g/kg)	16	N/A	16	0	N/A	N/A
Use Salinity (g/kg)	20	20	20	0.5	20	0.5
pH (S.U.)	7.26	7.71	7.28	0.14	7.88	0.09
Dissolved Oxygen (mg/l)	6.2	7.3	4.7	2.0	7.3	0
Total Hardness (mg/l as $CaCO_3$)	2980	N/A	2913	70	N/A	N/A
Alkalinity (mg/l as $CaCO_3$)	106	N/A	102	3.8	N/A	N/A
Total Residual Chlorine (mg/l)	<Q.L.	N/A	<Q.L.	0	N/A	N/A
Ammonia (mg/l NH_3-N)	2.7	N/A	3.1	0.3	N/A	N/A

*Dilution water = Hawaiian Marine Mix ASW made with deionized water

Sample Aging/Use/Pretreatment				
CBI Sample I.D.	Collection Date/Time	Date(s)/Time(s) 1st Used in Tests	Date(s)/Time(s) Used in Renewals	Sample Adjustments
OMEG0903-A	9/15/09 0700	9/15/09 1200, 1215	9/16/09 1120, 1140	Salt Added
OMEG0903-B	9/17/09 0715	9/17/09 1315, 1330 9/17/09 1500, 1510*	N/A	Salt Added Aerated 0-3 min
OMEG0903-C	9/18/09 0715	9/18/09 1150, 1200	9/19/09 1355, 1405 9/20/09 1125, 1140 9/21/09 1020, 1030	Salt Added, Aerated 0-4.5 min

*Acute tests

Acute Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 2007.0						*C. variegatus* 2004.0					
% Conc:	Cont.	3.50	7.00	14.0	28.0	100	Cont.	3.50	7.00	14.0	28.0	100
Temp. (°C)	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0	25 0
D.O. (mg/l)	7.2 0.1	7.1 0.1	7.1 0.1	7.1 0.1	7.0 0.1	6.7 0.6	7.1 0.2	7.1 0.1	7.1 0.1	7.0 0.1	7.0 0.1	6.6 0.6
pH (S.U.)	7.91 0.07	7.89 0.09	7.91 0.11	7.93 0.13	7.93 0.16	7.90 0.33	7.92 0.08	7.89 0.10	7.91 0.13	7.80 0.28	7.93 0.18	7.88 0.31

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0903
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 9/15/09 to 9/18/09

Coastal Bioanalysts, Inc.

Chronic Test Water Quality (Mean/Std. Dev.)												
Test:	*M. bahia* 1007.0						*C. variegatus* 1004.0					
% Conc:	Cont.	0.50	0.90	1.80	3.60	100	Cont.	0.50	0.90	1.80	3.60	100
Temp.	25	25	25	25	25	25	25	25	25	25	25	25
(°C)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
D.O.	7.0	6.9	6.9	6.8	6.8	6.1	7.0	7.0	6.9	6.9	6.8	6.0
(mg/l)	0.3	0.4	0.4	0.4	0.5	0.8	0.3	0.3	0.3	0.3	0.4	0.8
pH	7.77	7.75	7.76	7.74	7.78	7.69	7.70	7.72	7.72	7.73	7.71	7.58
(S.U.)	0.13	0.08	0.10	0.18	0.10	0.18	0.08	0.09	0.08	0.09	0.16	0.22
Salinity	20	20	20	20	20	20	20	20	20	20	20	20
(g/kg)	0.4	0.4	0.4	0.4	0.4	0.6	0.4	0.4	0.4	0.4	0.4	0.6

Acute Test QA/QC: Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures					
Species-Method (Ref. Test Date)	Data Source	% Control Survival	48-h LC50	95% C.L./A.L. for LC50	RTT in Control?
M. bahia 2007.0	RTT	100	526	481-576	Yes
(9/8/09-9/10/09)	CC	100	610	504-716	
C. variegatus 2004.0	RTT	100	1112	997-1239	Yes
(9/8/09-9/10/09)	CC	99	1094	925-1263	

Chronic Test QA/QC: Reference Toxicant: KCl Units: mg/l Test Organism Source: CBI Stock Cultures									
Species-Method	Data	% Survival		Biomass (mg)					RTT in
(Ref. Test Date)	Source	Cont	NOEC	Cont.	NOEC	PMSD	IC25	IC25 A.L.	Control?
M. bahia 1007.0	RTT	90	250	0.36	250	29	349	N/A	Yes
(9/8/09-9/15/09)	CC	93	250	0.32	250	22	484	341-628	
C. variegatus 1004.0	RTT	98	1000	1.45	500	12	1069	N/A	Yes
(9/8/09-9/15/09)	CC	99	1000	1.26	500	14	954	611-1298	

Note: RTT = Reference Toxicant Test, CC = Control Chart, Cont. = Control group. Based on control chart data (n>62) fecundity (Method 1007.0) is not a sensitive endpoint for KCl toxicity and hence not reported; fecundity data available upon request.

The results of analysis contained within this report relate only to the sample as received in the laboratory. This report shall not be reproduced except in full without written approval from the laboratory.

APPROVED:

Peter F. De Lisle, Ph.D.
Technical Director

9/29/09
Date

GLOSSARY OF TERMS AND ABBREVIATIONS

A.L. (Acceptance Limits): The results of a given reference toxicant test are compared to the control chart mean value ± 2 standard deviations. These limits approximate the 95% probability limits for the "true" reference toxicant value.

Chronic Value (ChrV): The geometric mean of the NOEC and LOEC. Units are same as test concentration units.

EPA Laboratory ID: VA01116

Client: Omega Protein
Project ID: OMEG0903
Client Sample ID: Outfall 001
Permit No: VA0003867
Sample Period: 9/15/09 to 9/18/09

Coastal Bioanalysts, Inc.

C.L. (Confidence Limits): These are the probability limits, based on the data set and statistical model employed, that the "true value" lies within the limits specified. Typically limits are based on 95% or 99% probabilities.

Control chart: A cumulative summary chart of results from QC tests with reference toxicants. The results of a given reference toxicant test are compared to the control chart mean value and 95% Acceptance Limits (A.L.) (mean $\pm$ 2 standard deviations).

IC25: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 25% reduction in test organism growth, reproduction, etc. The lower the IC25, the more toxic the chemical or sample. Units are same as test concentration units.

LC50: The concentration of sample or chemical, calculated from the data set using statistical models, causing a 50% reduction in test organism survival. The lower the LC50, the more toxic the chemical or sample. Units are same as test concentration units. Note: The LC50 value must always be associated with the duration of exposure. Thus 48-h LC50, 96-h LC50, etc. are calculated.

LOEC: Lowest-observable-effect-concentration. The lowest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit a statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Units are same as test concentration units.

PMSD: Percent Minimum Significant Difference: The minimum difference which can exist between a test treatment and the controls in a particular test and be statistically significant; a measure of test sensitivity. The lower the PMSD the more sensitive the test.

N/A: Not applicable.

N/D: Not determined or measured.

NOAEC: No-observable-acute-effect-concentration. The highest concentration of sample or chemical in an acute test dilution series in which the test organisms exhibit no statistically significant reduction in the test end point (e.g. survival) compared to control organisms. Units are same as test concentration units.

NOEC: No-observable-effect-concentration. The highest concentration of sample or chemical in a chronic test dilution series in which the test organisms exhibit no statistically significant reduction in any of the test end points (e.g. growth, survival, reproduction) compared to control organisms. Some regulatory definitions also require that the NOEC be less than the LOEC. Units are same as test concentration units.

Q.L.: Quantitation Limit. Level, concentration, or quantity of a target variable (analyte) that can be reported at a specified degree of confidence.

T.U.: Toxic units. Expresses the relative toxicity of an effluent in such a manner that the larger the toxic unit value the more toxic the effluent. $T.U._{Ac} = 100/LC50$. $T.U._{Ch} = 100/NOEC$. A dimensionless unit.

MYSIDOPSIS BAHIA STATIC ACUTE WET TEST
48-H TEST (AMB) FORM ETF1011F

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.50	1-A	10	10	10	100
	1-B	10	10	10	
7.00	2-A	10	10	10	100
	2-B	10	10	10	
14.0	3-A	10	10	10	100
	3-B	10	10	10	
28.0	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	PB	
Count Time:		1500	0900	1450	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.83	7.97	7.93
	1	7.80	7.98	7.88
	2	7.78	7.99	7.95
	3	7.78	8.04	7.97
	4	7.74	8.05	7.99
	5	7.52	8.07	8.10
D.O. (mg/l)	C	7.3	7.1	7.1
	1	7.2	7.1	7.0
	2	7.2	7.1	7.1
	3	7.1	7.0	7.1
	4	7.0	7.0	7.1
	5	6.0 ①	7.1	7.1
Salinity (g/kg)	C	20		21
	1			
	2			
	3			
	4			
	5	20		21
Replicate Measured:		A	B	A
Initials:		PB	PB	bja
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI stock cultures ✓

Other: _____

Harvest: Date/time start: 9/15/09 1100

Date /time end: 9/16/09 1100

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other _____

Temperature (°C): 25

Feeding: **Prior to test:** *Artemia ad libitum*
During test: *Artemia* nauplii ca. 100 /mysid/day

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ___ 250 ml

Solution volume: ✓ 200 ml _____ ml

Number of replicates/treatment: 2

Initial number of mysids/replicate: 10

Set up: Date (Day 0): 9/17/09

Time water added: 1445

Time mysids added: 1500

Set up by (initials): PB

NOTES:
① D.O. dropped to 4.1
Test Aerated @ 1600.
PB

Peer Rev. by: PB Date: 9/28/09 TEST I.D. BMEC0903 -AMB

CYPRINODON VARIEGATUS STATIC ACUTE WET TEST
48-H TEST (ACV) FORM ETF1021E

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

% Effluent	I.D.	Day 0 Live	Day 1 Live	Day 2 Live	Final % Survival
Lab Control	C-A	10	10	10	100
	C-B	10	10	10	
3.50	1-A	10	10	10	100
	1-B	10	10	10	
7.00	2-A	10	10	10	100
	2-B	10	10	10	
14.0	3-A	10	10	10	100
	3-B	10	10	10	
28.0	4-A	10	10	10	100
	4-B	10	10	10	
100	5-A	10	10	10	100
	5-B	10	10	10	
Initials:		PB	PB	PB	
Count Time:		1510	0905	1500	*Test End Time

Parameter	Treatment I.D.	Day 0	Day 1	Day 2
Temp. (°C)	C	25	25	25
	1	25	25	25
	2	25	25	25
	3	25	25	25
	4	25	25	25
	5	25	25	25
pH (S.U.)	C	7.83	7.99	7.94
	1	7.80	8.00	7.88
	2	7.78	8.03	7.93
	3	7.78	8.09	7.54
	4	7.74	8.10	7.96
	5	7.52	8.10	8.01
D.O. (mg/l)	C	7.3	7.0	7.0
	1	7.2	7.0	7.1
	2	7.2	7.1	7.1
	3	7.1	6.9	6.9
	4	7.0	6.9	7.1
	5	6.00	6.9	7.0
Salinity (g/kg)	C	20		21
	1			
	2			
	3			
	4			
	5	20		21
Replicate Measured:		A	B	A
Initials:		PB	PB	bjer
TRC (mg/l) in highest conc. at end of test:				NA

Species: *Cyprinodon variegatus*

Source: CBI stock cultures ✓

Other:

Hatch: Date/time start: 9/5/09 1200

Date /time end: 9/6/09 1200

Acclimation: Water: ASW, 20 g/kg salinity ✓

Other

Temperature (°C): 25

Feeding: Prior to test: *Artemia ad libitum*
During test: Not fed

Illumination: 16L:8D 10-20 uE/m²/s

Test chamber size: ✓ 400 ml ____ ml

Solution volume: ✓ 400 ml ____ ml

Number of replicates/treatment: 2

Initial number of fish/replicate: 10

Set up: Date (Day 0): 9/17/09

Time water added: 1445

Time fish added: 1510

Set up by (initials): PB

NOTES:
① D.O. dropped to 4.0
Aeration started at ② 1600 PB

Peer Rev. by: PB Date: 9/28/09 TEST I.D. UMEG0903 -ACV

BASELINE TEST INFO – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0011D
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Mysidopsis (Americamysis) bahia*

Source: CBI Stock Cultures: ✓

Other: _____

Harvest Date/Time: From 9/7/09 1000

To 9/8/09 1000

Acclimation: **Water:** ASW 20 g/kg salinity ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* ca. 75/mysid, 2X/day

Arrival Date: (non-CBI) N/A

TEST DESIGN

Test Chamber: 1000 ml Tri-pour Beaker ✓

Other _____

Solution Vol: 200 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 8

Initial Number of Mysids/Replicate: 5

TEST SET UP (Day 0)

Set Up Date: 9/15/09

Set Up By: PB

Time Water Added: 1140

Time Animals Added: 1215

NOTES

Peer Review by PB/LB Date 9/23/09

Test I.D. OMEG0903 -CMB

WATER QUALITY DATA – *Mysidopsis bahia* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0012B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	1	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	2	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	3	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	4	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	5	26	25	26	25	25	25	26	25	26	25	25	25	25	25
pH (S.U.)	C	7.86	7.67	7.70	7.68	7.72	7.87	7.79	7.80	7.71	7.84	7.77	7.43	7.89	7.94
	1	7.86	7.62	7.70	7.68	7.72	7.87	7.78	7.62	7.71	7.77	7.80	7.76	7.83	7.83
	2	7.86	7.62	7.70	7.69	7.72	7.87	7.79	7.68	7.71	7.80	7.85	7.61	7.88	7.91
	3	7.86	7.60	7.70	7.69	7.72	7.88	7.81	7.68	7.72	7.83	7.81	7.68	7.90	7.94
	4	7.86	7.61	7.70	7.69	7.72	7.90	7.76	7.86	7.72	7.81	7.81	7.68	7.83	7.97
	5	7.49	7.78	7.51	7.73	7.40	7.96	7.76	7.88	7.39	7.78	7.67	7.74	7.67	7.87
D.O. (mg/l)	C	7.3	6.4	7.0	6.3	7.0	7.1	7.3	7.0	7.1	7.1	7.2	7.1	7.1	7.1
	1	7.3	6.4	7.0	6.2	7.0	7.1	7.2	6.0	7.1	7.1	7.2	7.1	7.0	7.1
	2	7.2	6.4	7.0	6.0	7.0	7.0	7.1	6.4	7.1	7.0	7.2	7.1	6.8	7.0
	3	7.2	6.3	7.0	6.0	7.0	6.9	6.6	6.4	7.1	6.9	7.2	7.1	6.6	7.0
	4	7.2	6.3	6.2	5.7	7.0	6.8	6.9	7.2	7.1	6.8	7.1	7.1	6.3	6.9
	5	6.2	6.1	5.3	5.3	4.3 ①	6.7	5.2	6.8	5.6	6.6	7.0	7.1	6.2	6.8
SALIN (g/kg)	C		20		20		21		20		20		20		20
	1		20		20		21		20		20		20		20
	2		20		20		21		20		20		20		20
	3		20		20		21		20		20		20		20
	4		20		20		21		20		20		20		20
	5		20		20		21		20		20		19		20
Replicate:		A	B	C	H	B	G	G	E	B	C	D	A	B	E
Initials:		PB	PB	PB	PB	PB	PB	PB	Bjg	PB	GB	GB	GB	GB	GB

① DO dropped to 2.8
Aeration started at 1600. PB

TEST I.D. OMEG0903 -CMB

SURVIVAL DATA – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0013C
Effective Date: 11/27/07

Treatment	Rep Ltr	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Final % Live
C	A	5	5	5	5	4	4	4	95
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
	D	5	5	5	5	5	5	5	
	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	4	
	G	5	5	5	5	5	5	5	
	H	5	5	5	5	5	5	5	
1	A	5	5	5	5	5	5	4①	93
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.50%	D	5	5	5	5	5	5	4	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
6	G	5	5	5	5	5	5	5	
Vol. Spl.*	H	5	5	5	5	5	5	4	
2	A	5	5	5	5	5	5	5	100
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	5	5	5	
0.90%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
10.8	G	5	5	5	5	5	5	5	
Vol. Spl.*	H	5	5	5	5	5	5	5	
3	A	5	5	5	5	4	4	4	95
	B	5	5	5	5	4	4	4	
	C	5	5	5	5	5	5	5	
1.80%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
21.6	G	5	5	5	5	5	5	5	
Vol. Spl.*	H	5	5	5	5	5	5	5	
4	A	5	5	5	5	5	4①	4	93
	B	5	5	5	5	5	5	5	
	C	5	5	5	5	4	4	4	
3.60%	D	5	5	5	5	4	4	4	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
43.2	G	5	5	5	5	5	5	5	
Vol. Spl.*	H	5	5	5	5	5	5	5	
5	A	5	5	5	5	5	5	5	98
	B	5	5	5	5	5	4	4	
	C	5	5	5	5	5	5	5	
10.0%	D	5	5	5	5	5	5	5	
% Conc.	E	5	5	5	5	5	5	5	
	F	5	5	5	5	5	5	5	
120.0	G	5	5	5	5	5	5	5	
Vol. Spl.*	H	5	5	5	5	5	5	5	
Renewal/Count Time:		1148	1330	1700	1405	1140	1030	1255#	
Initials:		PB	PB	PB	PB	CB	CB	CB	

① Stuck to side of beaker

*Volume sample added to total volume of 1200 ml for preparation of dilutions. # Time of final count = test end time.

Test I.D. CMEC0903 -CMB

FECUNDITY/GROWTH DATA – MYSID 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0014G
Effective Date: 10/31/08

Treatment	Rep Ltr	Females w/eggs	Females No eggs	Males	Imma-ture	Pan No.	Total[1] Wt (mg)	Tare Wt (mg)
C	A	I	II	I		1	8.22	6.26
	B		III	II		2	7.92	6.38
	C		II	III		3	7.27	5.90
	D		III	II		4	8.39	6.98
	E	II	I	II		5	8.97	7.20
	F	I	II	I		6	8.68	7.22
	G	III	II			7	9.44	7.21
	H	I	III	I		8	8.41	6.94
1	A		II	II		9	9.65	8.41
	B	I	I	III		10	8.59	7.26
	C	II	I	II		11	8.67	7.12
0.52	D	II	I	I		12	8.66	7.10
% Conc.	E	I	II	II		13	8.73	6.71
	F	II	II	I		14	7.69	5.98
	G	II	I	II		15	8.27	6.43
	H	I	III			16	8.48	7.55
2	A		IIII	I		17	7.26	5.95
	B	I	III	I		18	7.08	5.64
	C	I	III	I		19	7.65	5.93
0.90	D	II	II	I		20	9.20	7.16
% Conc.	E	I	II	II		21	8.69	6.82
	F	I	II	II		22	10.21	8.15
	G	IIII		I		23	10.10	7.61
	H		II	III		24	8.04	6.31
3	A	I	II	I		25	8.53	6.88
	B	II	II			26	8.89	7.28
	C	I	III	I		27	10.22	7.98
1.80	D	I	I	III		28	9.64	8.04
% Conc.	E		I	IIII		29	11.28	9.36
	F		III	II		30	9.05	7.45
	G	II	I	II		31	8.68	6.60
	H	I	II	II		32	10.92	8.82
4	A	I	I	II		33	9.37	7.86
	B	II	II	I		34	10.23	8.32
	C	II	I	I		35	8.78	7.27
3.60	D		IIII			36	9.56	8.01
% Conc.	E		III	II		37	9.64	8.08
	F		IIII	I		38	8.07	6.64
	G		I	IIII		39	10.79	8.64
	H	I	II	II		40	9.03	7.18
5	A	II	II	I		41	10.53	8.28
	B		I	III		42	10.18	8.46
	C		[illegible]			43	10.23	8.55
1.80	D		III	II		44	10.84	8.61
% Conc.	E	I	III	I		45	9.21	7.74
	F		III	II		46	10.43	8.50
	G	III	I	I		47	10.21	7.94
	H	III	II			48	10.50	8.37

[1]See printout of statistical analyses for biomass weights by replicate.
[2] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 1.010 ± 0.05 mg

TARE WT: DATE: 9/20 INITIALS: LA CALIB. CHECK (10.00 mg[2]): 10.01
TOTAL WT: DATE: 9/25 INITIALS: PB CALIB. CHECK (10.00 mg[2]): 10.00
SEXED BY: CB

Test I.D. DMEC0901 -CMB

Mysid Survival, Growth and Fecundity Test-7 Day Survival

Start Date:	9/15/2009 12:15	Test ID:	OMEG0903MB	Sample ID:	OUTFALL 003
End Date:	9/22/2009 12:55	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

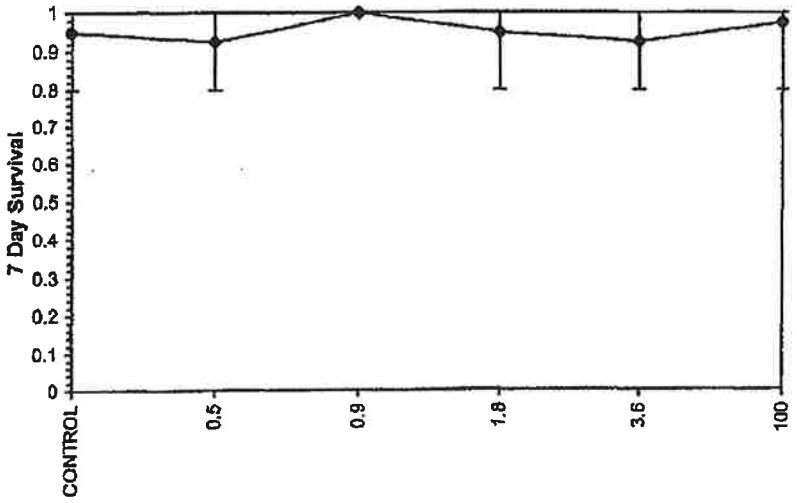
Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.8000	1.0000	1.0000	1.0000	1.0000	0.8000	1.0000	1.0000
0.5	0.8000	1.0000	1.0000	0.8000	1.0000	1.0000	1.0000	0.8000
0.9	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
1.8	0.8000	0.8000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
3.6	0.8000	1.0000	0.8000	0.8000	1.0000	1.0000	1.0000	1.0000
100	1.0000	0.8000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
CONTROL	0.9500	1.0000	1.2857	1.1071	1.3453	8.574	8		
0.5	0.9250	0.9737	1.2560	1.1071	1.3453	9.813	8	64.00	46.00
0.9	1.0000	1.0526	1.3453	1.3453	1.3453	0.000	8	76.00	46.00
1.8	0.9500	1.0000	1.2857	1.1071	1.3453	8.574	8	68.00	46.00
3.6	0.9250	0.9737	1.2560	1.1071	1.3453	9.813	8	64.00	46.00
100	0.9750	1.0263	1.3155	1.1071	1.3453	6.400	8	72.00	46.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.77039	0.929	-1.0511	-0.4334
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	✓>100		1

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: [illegible]

Mysid Survival, Growth and Fecundity Test-Biomass

Start Date:	9/15/2009 12:15	Test ID:	OMEG0903MB	Sample ID:	OUTFALL 003
End Date:	9/22/2009 12:55	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.2920	0.2680	0.2740	0.2820	0.3540	0.2920	0.4460	0.2940
0.5	0.2480	0.2660	0.3100	0.3120	0.4040	0.3420	0.3680	0.1860
0.9	0.2620	0.2880	0.3440	0.4080	0.3740	0.4120	0.4980	0.3460
1.8	0.3300	0.3220	0.4480	0.3200	0.3840	0.3200	0.4160	0.4200
3.6	0.3020	0.3820	0.3020	0.3100	0.3120	0.2860	0.4300	0.3700
100	0.4500	0.3440	0.3360	0.4460	0.2940	0.3860	0.4540	0.4260

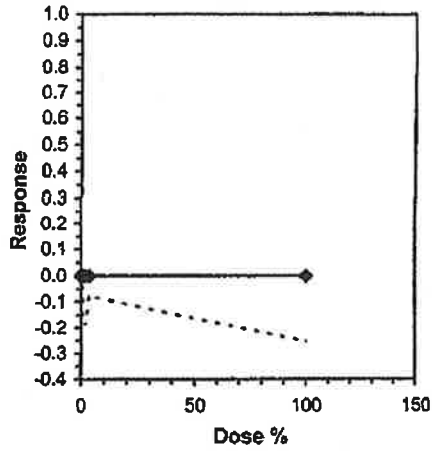
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	0.3128	1.0000	0.3128	0.2680	0.4460	19.154	8				0.3471	1.0000
0.5	0.3045	0.9736	0.3045	0.1860	0.4040	22.935	8	0.265	2.306	0.0718	0.3471	1.0000
0.9	0.3665	1.1719	0.3665	0.2620	0.4980	20.405	8	-1.727	2.306	0.0718	0.3471	1.0000
1.8	0.3700	1.1831	0.3700	0.3200	0.4480	14.374	8	-1.839	2.306	0.0718	0.3471	1.0000
3.6	0.3368	1.0767	0.3368	0.2860	0.4300	15.128	8	-0.771	2.306	0.0718	0.3471	1.0000
100	0.3920	1.2534	0.3920	0.2940	0.4540	15.654	8	-2.546	2.306	0.0718	0.3471	1.0000

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.96204	0.929	0.30422	-0.3412
Bartlett's Test indicates equal variances (p = 0.92)	1.48277	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.07176	0.22946	0.00963	0.00387	0.04645	5, 42

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL	Skew
IC05	>100			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



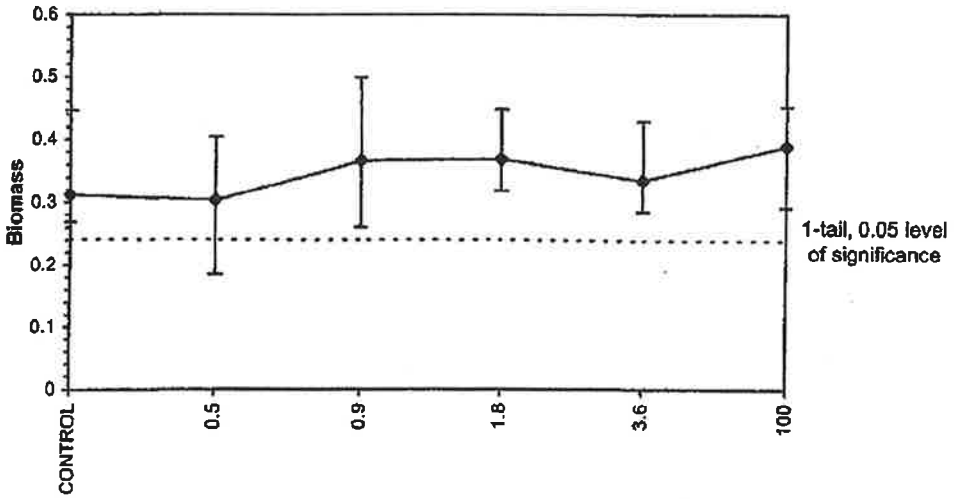
ToxCalc v5.0.23

Reviewed by: Po

Mysid Survival, Growth and Fecundity Test-Biomass

Start Date:	9/15/2009 12:15	Test ID:	OMEG0903MB	Sample ID:	OUTFALL 003
End Date:	9/22/2009 12:55	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: Po

Mysid Survival, Growth and Fecundity Test-Fecundity

Start Date:	9/15/2009 12:15	Test ID:	OMEG0903MB	Sample ID:	OUTFALL 003
End Date:	9/22/2009 12:55	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	MY-Mysidopsis bahia
Comments:					

Conc-%	1	2	3	4	5	6	7	8
CONTROL	0.3333	0.0000	0.0000	0.0000	0.6667	0.3333	0.6000	0.2500
0.5	0.0000	0.5000	0.6667	0.6667	0.3333	0.5000	0.6667	0.2500
0.9	0.0000	0.2500	0.2500	0.5000	0.3333	0.3333	1.0000	0.0000
1.8	0.3333	0.5000	0.2500	0.5000	0.0000	0.0000	0.6667	0.3333
3.6	0.5000	0.5000	0.6667	0.0000	0.0000	0.0000	0.0000	0.3333
100	0.5000	0.0000	0.0000	0.0000	0.2500	0.0000	0.7500	0.6000

			Transform: Arcsin Square Root						1-Tailed	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD
CONTROL	0.2729	1.0000	0.5679	0.2928	0.9553	44.737	8			
0.5	0.4479	1.6412	0.7421	0.3614	0.9553	30.081	8	-1.304	2.306	0.3081
0.9	0.3333	1.2214	0.6245	0.2527	1.3181	51.891	8	-0.424	2.306	0.3081
1.8	0.3229	1.1832	0.6371	0.2928	0.9553	31.971	8	-0.518	2.306	0.3081
3.6	0.2500	0.9160	0.5579	0.2527	0.9553	48.969	8	0.074	2.306	0.3081
100	0.2625	0.9618	0.5721	0.2255	1.0472	53.285	8	-0.032	2.306	0.3081

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.95445	0.929	0.46306	-0.2352
Bartlett's Test indicates equal variances (p = 0.84)	2.05791	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.22328	0.77187	0.03846	0.07141	0.74584	5, 42

N/A

<50% control w/ agg. PD

ToxCalc v5.0.23

Reviewed by: PD

BASELINE TEST INFO – SHEEPSHEAD 7 DAY TEST

Coastal Bioanalysts, Inc
Form ETF0021C
Effective Date: 2/1/09

TEST ORGANISM INFO

Species: *Cyprinodon variegatus*

Source: CBI Stock Cultures: ✓

Other: _____

Hatch Date/Time: 9/14/09 1630
(start)

Hatch Date/Time: 9/15/09 1630
(end)

Acclimation: Water: ASW 20 g/kg salinity ✓

Other: _____

Temp. (°C): 25

Feeding Prior to Test: *Artemia ad libitum* 2X/day

Feeding During Test: *Artemia* 0.1 g/rep days 0-2 (2X/day) 0.15 g/rep days 3-6

Arrival Date: (non-CBI) N/A

TEST DESIGN

Test Chamber: 1000 ml Tri-pour beaker ✓

Other _____

Solution Vol: 750 ml ✓

Other _____

Illumination: 16:8 L:D 10-20 uE/m²/s

Number of Replicates/Concentration: 4

Initial Number of Fish/Replicate: 10

TEST SET UP (Day 0)

Set Up Date: 9/15/09

Set Up By: PB

Time Water Added: 1140

Time Animals Added: 1200

NOTES

Peer Review by PB/[illegible] Date 9/28/09

Test I.D. OMEG0903 -CCV

WATER QUALITY DATA – *Cyprinodon variegatus* 7-DAY TEST COASTAL BIOANALYSTS, INC FORM ETF0022B EFFECTIVE DATE: 6/30/07

Parameter	Treatment	Day 0 Initial	Day 1 Final	Day 1 Initial	Day 2 Final	Day 2 Initial	Day 3 Final	Day 3 Initial	Day 4 Final	Day 4 Initial	Day 5 Final	Day 5 Initial	Day 6 Final	Day 6 Initial	Day 7 Final
TEMP (°C)	C	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	1	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	2	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	3	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	4	26	25	26	25	25	25	26	25	26	25	25	25	25	25
	5	26	25	26	25	25	25	26	25	26	25	25	25	25	25
pH (S.U.)	C	7.82	7.64	7.67	7.66	7.69	7.73	7.76	7.78	7.73	7.61	7.77	7.51	7.78	7.63
	1	7.82	7.65	7.67	7.66	7.70	7.85	7.76	7.50	7.73	7.72	7.77	7.63	7.79	7.79
	2	7.82	7.62	7.67	7.66	7.70	7.86	7.78	7.77	7.73	7.62	7.79	7.64	7.79	7.70
	3	7.82	7.65	7.67	7.67	7.70	7.88	7.75	7.65	7.73	7.62	7.83	7.59	7.85	7.77
	4	7.82	7.66	7.67	7.67	7.70	7.90	7.79	7.82	7.73	7.32	7.83	7.45	7.87	7.46
	5	7.46	7.66	7.39	7.69	7.22	7.91	7.18	7.67	7.37	7.26	7.67	7.86	7.58	7.73
D.O. (mg/l)	C	7.3	6.2	7.0	6.9	7.1	7.1	7.3	6.8	7.1	7.1	7.2	7.1	7.1	7.0
	1	7.3	6.2	7.0	6.9	7.1	7.1	7.2	6.3	7.1	7.1	7.2	7.1	7.0	6.9
	2	7.2	6.1	7.0	6.8	7.1	7.0	7.0	6.8	7.2	7.0	7.2	7.1	6.8	6.9
	3	7.2	6.1	7.0	6.6	7.1	6.9	7.0	6.4	7.1	7.0	7.2	7.1	6.6	6.8
	4	7.2	6.0	6.2	6.0	7.0	6.8	6.9	7.1	7.2	6.8	7.1	7.1	6.4	6.8
	5	6.2	5.9	5.3	5.4	4.4	6.7	5.0	5.7	5.6	6.5	7.0	7.0	6.1	6.7
SALIN (g/kg)	C		20		20		21		20		20		20		20
	1		20		20		21		20		20		20		20
	2		20		20		21		20		20		20		20
	3		20		20		21		20		20		20		20
	4		20		20		21		20		20		20		20
	5		20		20		21		20		20		19		20
Replicate:		A	B	C	D	B	A	C	C	B	C	D	A	B	C
Initials:		PB	PB	PB	PB	PB	PB	PD	[illegible]	PB	CD	CB	CB	CB	CB

D.O. Dropped to 1.8. aeration started 1600 PB

TEST I.D. OMEG0903 -CCV

SURVIVAL DATA – SHEEPSHEAD MINNOW 7 DAY TEST Coastal Bioanalysts, Inc Form ETF0023G Effective Date: 10/31/08

Treatment[1]		Rep Ltr	Number of Live Fish							Fish Dry Weight Data (mg)[2]			Notes
			Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Pan #	Tot. Wt.	Tare Wt.	
C	CONTROL	A	10	10	10	10	10	10	10	49	19.83	9.44	
		B	10	10	10	10	10	10	10	50	16.36	7.50	
		C	10	10	10	10	10	10	10	51	19.85	9.11	
		D	10	10	10	10	10	10	10	52	20.38	9.52	
1	C: 0.50%	A	10	10	10	10	10	10	10	53	17.76	7.52	
		B	10	10	10	10	10	10	10	54	18.88	7.87	
		C	10	10	10	10	10	10	10	55	19.21	7.88	
	V: 12	D	10	10	10	10	10	10	10	56	20.39	7.82	
2	C: 0.90%	A	10	10	10	10	10	10	10	57	17.59	7.12	
		B	10	10	10	10	10	10	10	58	18.80	8.65	
		C	10	10	10	10	10	10	10	59	21.15	9.37	
	V: 21.6	D	10	10	10	10	10	10	10	60	17.97	8.01	
3	C: 1.80%	A	10	10	10	10	10	10	10	61	18.46	8.05	
		B	10	10	10	10	10	10	10	62	17.03	8.12	
		C	10	10	10	10	10	10	10	63	18.66	7.48	
	V: 43.2	D	10	10	10	10	10	10	10	64	19.35	9.64	
4	C: 3.60%	A	10	10	10	10	10	10	10	65	19.10	8.32	
		B	10	10	10	10	10	10	10	66	18.08	8.02	
		C	10	10	10	10	10	10	10	67	19.38	8.23	
	V: 86.4	D	10	10	10	10	10	10	9	68	16.64	8.03	
5	C: 100%	A	10	10	10	10	10	10	10	69	16.93	7.36	
		B	10	10	10	10	10	10	10	70	17.41	7.06	
		C	10	10	10	10	10	10	10	71	19.55	7.21	
	V: 2400	D	10	10	10	10	10	10	10	72	16.45	7.93	
Renewal/Count Time:			1120	1315	1150	1355	1125	1020	1215[3]	Tare Wt: Date: 9/20 Calib. Chk (10.00 mg[4]): 10.01 Init: CA			
Initials:			PB	PB	PB	PB	CA	CB	MB	Tot. Wt: Date: 9/25 Calib. Chk (10.00 mg[4]): 10.00 Init: RB			

[1] C = Concentration; V = Volume (ml) sample added to total volume of 2 L/ab ml for preparation of solutions. [2] See printout of statistical analyses for biomass weights by replicate.
[3] Time of final count = test end time. [4] True value ± estimated uncertainty of calibration weight (NIST traceable annual certification) = 10.00 ± 0.05 mg

Test ID Om EC 0403 -CCV

Larval Fish Growth and Survival Test-7 Day Survival

Start Date:	9/15/2009 12:00	Test ID:	OMEG0903CV	Sample ID:	OUTFALL 001
End Date:	9/22/2009 12:15	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

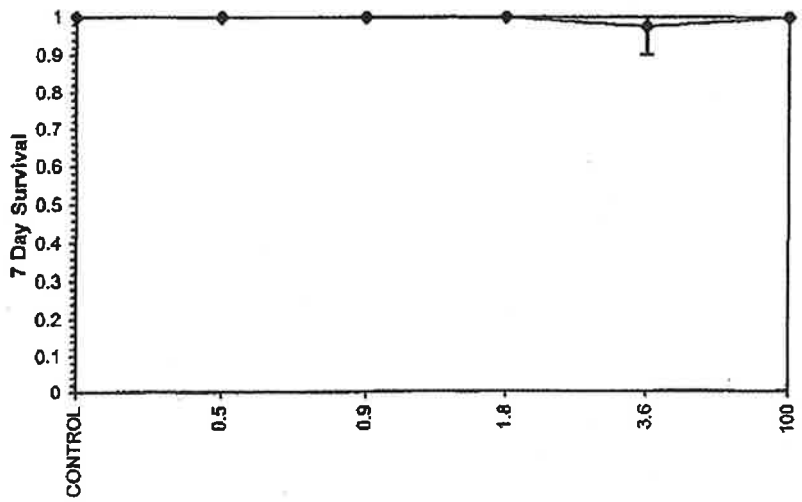
Conc-%	1	2	3	4
CONTROL	1.0000	1.0000	1.0000	1.0000
0.5	1.0000	1.0000	1.0000	1.0000
0.9	1.0000	1.0000	1.0000	1.0000
1.8	1.0000	1.0000	1.0000	1.0000
3.6	1.0000	1.0000	1.0000	0.9000
100	1.0000	1.0000	1.0000	1.0000

			Transform: Arcsin Square Root					Rank	1-Tailed
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	Sum	Critical
CONTROL	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4		
0.5	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
0.9	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
1.8	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00
3.6	0.9750	0.9750	1.3713	1.2490	1.4120	5.942	4	16.00	10.00
100	1.0000	1.0000	1.4120	1.4120	1.4120	0.000	4	18.00	10.00

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates non-normal distribution (p <= 0.01)	0.46508	0.884	-3.0206	13.9892
Equality of variance cannot be confirmed				

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU
Steel's Many-One Rank Test	100	>100		1

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: _____

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	9/15/2009 12:00	Test ID:	OMEG0903CV	Sample ID:	OUTFALL 001
End Date:	9/22/2009 12:15	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

Conc-%	1	2	3	4
CONTROL	1.0390	0.8860	1.0740	1.0810
0.5	1.0190	1.1810	1.1330	1.2520
0.9	1.0470	1.0150	1.1780	0.9960
1.8	1.0410	0.8910	1.0680	0.9710
3.6	1.0730	1.0060	1.1150	0.8610
100	0.9570	1.0350	1.2340	0.8520

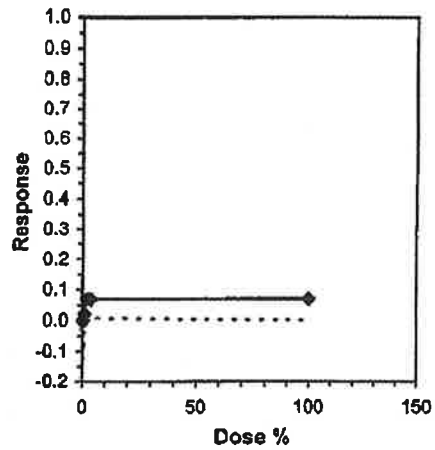
			Transform: Untransformed						1-Tailed		Isotonic	
Conc-%	Mean	N-Mean	Mean	Min	Max	CV%	N	t-Stat	Critical	MSD	Mean	N-Mean
CONTROL	1.0200	1.0000	1.0200	0.8860	1.0810	8.941	4				1.0831	1.0000
0.5	1.1463	1.1238	1.1463	1.0190	1.2520	8.542	4	-1.661	2.410	0.1832	1.0831	1.0000
0.9	1.0590	1.0382	1.0590	0.9960	1.1780	7.750	4	-0.513	2.410	0.1832	1.0590	0.9777
1.8	0.9928	0.9733	0.9928	0.8910	1.0680	7.978	4	0.358	2.410	0.1832	1.0087	0.9313
3.6	1.0138	0.9939	1.0138	0.8610	1.1150	10.978	4	0.082	2.410	0.1832	1.0087	0.9313
100	1.0195	0.9995	1.0195	0.8520	1.2340	15.838	4	0.007	2.410	0.1832	1.0087	0.9313

Auxiliary Tests	Statistic	Critical	Skew	Kurt
Shapiro-Wilk's Test indicates normal distribution (p > 0.01)	0.97698	0.884	0.032	-0.2074
Bartlett's Test indicates equal variances (p = 0.84)	2.0883	15.0863		

Hypothesis Test (1-tail, 0.05)	NOEC	LOEC	ChV	TU	MSDu	MSDp	MSB	MSE	F-Prob	df
Dunnett's Test	100	>100		1	0.18324	0.17964	0.0123	0.01156	0.41252	5, 18

Linear Interpolation (200 Resamples)

Point	%	SD	95% CL(Exp)	Skew
IC05	1.4370			
IC10	>100			
IC15	>100			
IC20	>100			
IC25	>100			
IC40	>100			
IC50	>100			



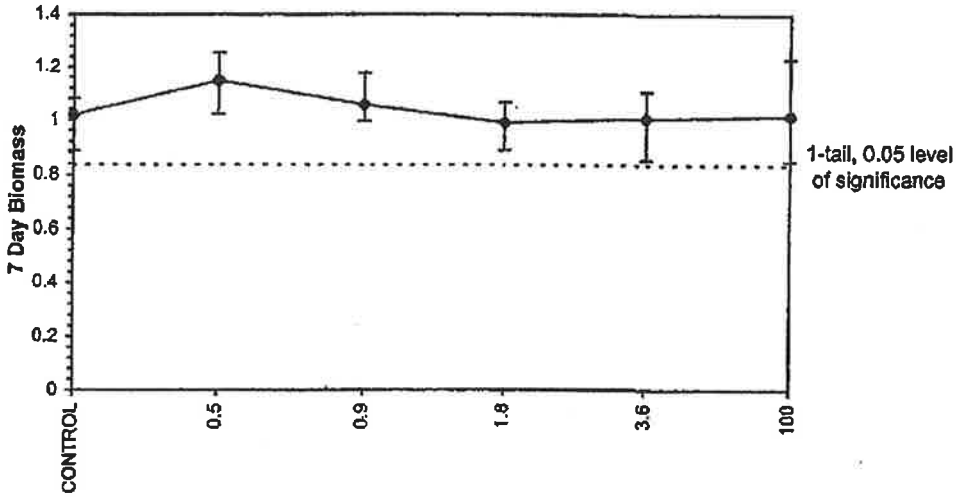
ToxCalc v5.0.23

Reviewed by: [illegible]

Larval Fish Growth and Survival Test-7 Day Biomass

Start Date:	9/15/2009 12:00	Test ID:	OMEG0903CV	Sample ID:	OUTFALL 001
End Date:	9/22/2009 12:15	Lab ID:	CBI	Sample Type:	WW
Sample Date:		Protocol:	EPAM 94-EPA Marine	Test Species:	CV-Cyprinodon variegatus
Comments:					

Dose-Response Plot



ToxCalc v5.0.23

Reviewed by: _____

EFFLUENT SAMPLE & DILUTION WATER CHARACTERISTICS
SALTWATER TESTS
FORM ETF2032D

COASTAL BIOANALYSTS, INC
EFFECTIVE DATE: 2/1/09

INITIAL SAMPLE CHARACTERIZATION[1]					NOTES:
Sample Bottle[2]	A-1	B-1	C-1		
Tot. Res. Chlorine (mg/l)	<Q.L.	<Q.L.	<Q.L.		
Hardness (mg/l $CaCO_3$)	2840	2980	2920		
Alkalinity (mg/l $CaCO_3$)	99	106	140		
NH_3-N (mg/l)	2.7	3.2	3.3		
Color/Appearance[3]	CY	CY	CY		
Obvious Odor?	no	no	NO		
Date/Time	9/15/09 1045	9/17/09 1000	9/18 1015		
Initials	PB	PB	bja		

SAMPLE PREPARATION MEASUREMENTS (100% concentration)								
Sample Bottle[2]	A-1	A-2	B-1	C-1	C-2	C-3	C-4	B-2
Prep Temperature (°C)	26	26	25	25	26	25	26	25
Initial Salinity (g/kg)	16	16	16	16	16	16	16	16
Adjusted Salinity (g/kg)	20	20	20	20	20	19	19	20
DO (mg/l) After Warm/Sal	6.2	4.4	5.5	4.3	4.4	2.3	1.1	3.4
Aeration Time (min)	—	—	—	—	—	—	4.5	3.0
Adjusted D.O.	—	—	—	—	—	—	5.2	6.2
Final pH (S.U.)	7.31	7.23	7.35	7.08	7.13	7.44	7.42	7.26
Tot. Res. Chlorine (mg/l)[4]	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Sample Filtered (60 um)?	no	no	no	No	no	no	no	no
Date/Time	9/15/09 1155	9/16/09 1120	9/17/09 1305	9/18 1130	9/19 1320	9/20 1115	9/21 1045	9/17/09 1420
Initials	PB	PB	PB	PB	PB	CB	CB	PB

DILUTION WATER CHARACTERISTICS								
Vat Number/Letter	D	D	D	D	D	D	D	F
Temperature (°C)	25	25	25	25	25	25	25	26
Salinity (g/kg)	20	20	21	21	20	20	20	20
D.O. (mg/l)	7.3	7.3	7.3	7.3	7.3	7.3	7.3	7.3
pH (S.U.)	7.74	7.83	7.95	7.99	7.83	7.99	7.86	7.71
Date/Time	9/15/09 0845	9/16/09 0830	9/17/09 0715	9/18/09 0315	9/19/09 1310	9/20/09 1030	9/21/09 1001	9/17/09 1300
Initials	PB	PB	PB	PB	PB	CB	CB	PB

[1]Q.L. = Quantification Limit, N.D. = Not Determined/Measured, NA = Not Applicable
[2]Ninth character of Laboratory Sample I.D. (on chain of custody form) and bottle number in collection series (e.g. bottle "A-2" is sample bottle number 2 from "A" collection). Together with project ID below constitutes entire sample bottle ID.
[3]C-Clear, O-Opaque, T-Turbid, S-Solids (Sl-Slight, M-Moderate, H-Heavy), Y-Yellow, B-Brown, Bl-Black, G-Green
[4]Total residual chlorine measured after sample prep only if present in initial sample characterization

Peer Rev by CB / PB Date 9/21/09 PROJECT I.D. OMEG0903
(First 8 characters of Laboratory Sample ID)

Coastal Bioanalysts
6400 Enterprise Court, Gloucester, VA 23061
PH: 804-694-8285, FAX: 804-695-1129
www.coastalbio.com

SAMPLE INFORMATION/CHAIN-OF-CUSTODY (FORM ETF2011E Rev. 4/15/09)

Lab Sample ID (Lab Use Only): O m E G 0 9 0 3 - A

A A A A Y Y N N (Project ID) — A (Spl)

FACILITY INFORMATION

CLIENT/FACILITY NAME	Omega Protein	CONTACT & PHONE #	Ted Schultz 453-4211
NPDES PERMIT NO	VA0003867	OUTFALL # OR LOCATION	
SAMPLE CHLORINATED?	SAMPLE DECHLORINATED?	IF CHLORINE PRESENT UPON ARRIVAL AT LAB; DOES PERMIT SPECIFY DECHLORINATION OF SAMPLES?	

TESTS REQUESTED:	SPECIES OR EPA METH #			
		M. bahia	ACUTE ☐	CHRONIC ☑
	SPECIES OR EPA METH #	C. variegatus	ACUTE ☐	CHRONIC ☑
OTHER TESTS:				

A SPECIFIC DILUTION SERIES MAY BE REQUIRED IN THE PERMIT. A DEFAULT SERIES OF 100, 50, 25, 12.5 AND 6.3%, OR CONCENTRATIONS USED IN PRIOR TESTING, WILL BE USED UNLESS INDICATED OTHERWISE. IF IN DOUBT PLEASE ATTACH A COPY OF APPLICABLE PERMIT PAGES.

GRAB SAMPLE INFORMATION

SAMPLE DATE	SAMPLE TIME	SAMPLE VOLUME

COMPOSITE SAMPLE INFORMATION

SAMPLE START DATE & TIME	9/14/09 07:00	SAMPLE END DATE & TIME	9/15/09 07:00
AUTOSAMPLER TEMP. (°C)	4.1°C		

TIME OR FLOW PROPORTIONAL COMPOSITE INFORMATION	NUMBER SUBSAMPLES 96	VOL (ml) SUBSAMPLES 200	TIME INCREMENT 15 min
	SET VOLUME SUBSAMPLE	SET VOLUME FLOW 175,500 gal/hr	TOTAL VOLUME

FOR VARIABLE VOLUME SUBSAMPLES BASED ON FLOW (COMPOSITING "BY HAND") ATTACH SAMPLE AND FLOW INFORMATION ON SEPARATE SHEET

FIELD MEASUREMENTS

DISCHARGE TEMP (°C)	DISCHARGE pH (S.U.)	SAMPLE TEMP (°C)	SAMPLE TRC (mg/l)	DATE/TIME (e.g. 02/23/00 1835)	INITIALS
31.2	7.4	4.0		7:15 9/15/09	TMS

MEASUREMENTS MUST BE TAKEN WITHIN 15 MINUTES OF SAMPLE OR LAST SUBSAMPLE COLLECTION.

COMMENTS:

Ted Schultz Technical Supervisor (PRINTED NAME/AFFILIATION SAMPLER/ANALYST) — Ted Schultz (SIGNATURE) — 9/15/09 (DATE)

RELINQUISHED BY	DATE	TIME	RECEIVED BY
J R Hall	9/15/09	10:15	P Blasco

SHIPPING METHOD: UPS____ FEDEX____ HAND DELIVERY ✓ OTHER____

CONDITION ON ARRIVAL: ACCEPTABLE ✓ OTHER____

SAMPLE ARRIVAL TEMP: (°C) 3 ARRIVED ON ICE? YES ✓ NO____

NOTE: *It is the responsibility of the sampler to insure that samples are properly collected, preserved (>0-6° C) and shipped. Sample hold time is 36 h. Additional costs may be incurred by improper preservation, shipping or receipt of samples after 3 p.m. or on weekends and holidays.*