Appendix A

Bioassay Supporting Data Tables for Kings Bay Sediments, July 2001

Appendix A-1

Sample Handling Logs for Kings Bay, July 2001

Harding ESE
Toxicology Laboratory
Gainesville, Florida

QA Form Number: 063
Revised: March 2001

SAMPLE CHAIN OF CUSTODY

Facility: Harding ESE Tox Lab

Location: Gainesville, FL

Permit Number: Outfall Number:

SAMPLE IDENTIFICATION

Sample Identification	Sample Type Grab	Sample Type Comp	Date	Time	Observations
Control Sediment	X		7-23-01	1500	
Total Number of Samples:	1				

SAMPLE INFORMATION

Sampler(s): HLT

Sampling Point (Description): Marineland, FL

Water Quality Measurements (optional):

Temp: pH: Diss. Oxygen: Salinity/Cond.: Chlorine (TRC):

Water Quality Measured by: Date: Time:

Observations/Remarks:

CHAIN OF CUSTODY

Relinquished By:	Received By:	Date	Time
[illegible]		7-25-01	0950
	B. F. [illegible]	7/25/01	0950

1/25/01

ppb
ENVIRONMENTAL LABORATORIES, INC.
6821 SW Archer Road, Gainesville, FL 32608
(352) 377-2349 · FAX (352) 395-6639

CHAIN-OF-CUSTODY RECORD

LABTROL CLIENT No.	BATCH NO.	FOR LAB USE ONLY
		Subcontractor: E-SE
		Shipping Method: Air Fed Ex

CLIENT NAME: PPB/COE - Kings Bay

CLIENT PROJECT:

SITE NAME & ADDRESS:

SAMPLERS: *(Signature)*

LAB REPORT GOES TO (Client contact person): Tom Park

IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: extra sediment for bioassays (ppb's archive)

PRESERVATION

CF	Chilled-Filtered
SF	Sulfuric-Filtered
NF	Nitric-Filtered
C	Chilled
S	Sulfuric
N	Nitric
B	Basic/NaOH
Z	Zinc
T	Thiosulfate
H	HCL
Ot	Other (see Remarks)

NUMBER	DATE	TIME	COMP.	GRAB	STATION LOCATION / NUMBER	SAMPLE MATRIX	NUMBER OF CONTAINERS								Lab I.D. Number
208250					E-KB01-1			1-1gallon jar							

Precleaned Containers Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)* B.J.O.	Date / Time 7/25/01	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time
Relinquished by: *(Signature)*	Date / Time	Received by: *(Signature)*	Date / Time

Remarks and Observations

Matrix Types S Soil or Sediment WW Wastewater T Animal Tissue SW Surface Water SL Sludge or Solid Waste MW Marine Water GW Ground Water DW Drinking Water P Plant Tissue F Filter A Air Ot Other (See Remarks)

ENVIRONMENTAL LABORATORIES, INC.
6821 SW Archer Road, Gainesville, FL 32608
(352) 377-2349 · FAX (352) 395-6639

CHAIN-OF-CUSTODY RECORD

LABTROL CLIENT No.	BATCH NO.	FOR LAB USE ONLY
		Subcontractor ESE
		Shipping Method Hugh Thomas

CLIENT NAME: PPB – COE King's Bay

CLIENT PROJECT:

SITE NAME & ADDRESS: King's Bay Georgia

SAMPLERS: (Signature) CSA

LAB REPORT GOES TO (Client contact person): Tom Park

PRESERVATION: CF Chilled-Filtered; SF Sulfuric-Filtered; NF Nitric-Filtered; C Chilled; S Sulfuric; N Nitric; B Basic/NaOH; Z Zinc; T Thiosulfate; H HCL; Ot Other (see Remarks)

NUMBER	DATE Sampled	TIME	COMP.	GRAB	STATION LOCATION / NUMBER	SAMPLE MATRIX	NUMBER OF CONTAINERS (Coolers Re 7/25)	IDENTIFY PARAMETERS DESIRED AND NO. OF CONTAINERS: As per King's Bay Bioassay Protocol	Lab I.D. Number
208249	7/18/01	NA	✓		RS-KB01	S	1	✓	
250	7/18/01		✓		E-KB01-1		1	✓	
251	7/19/01		✓		-2		1	✓	
252	7/19/01		✓		-2 dup		1	✓	
253	7/20/01		✓		-3		1	✓	
254	7/18/01		✓		-4		1	✓	
255	7/18/01		✓		-5		1	✓	

Relinquished by: (Signature)	Date / Time	Received by: (Signature)	Date / Time
Precleaned Containers Relinquished by: (Signature)			
[signature]	7/25/01 0950	[signature]	7/25/01 0950

Remarks and Observations

Matrix Types: S Soil or Sediment; WW Wastewater; T Animal Tissue; SW Surface Water; SL Sludge or Solid Waste; MW Marine Water; GW Ground Water; DW Drinking Water; P Plant Tissue; F Filter; A Air; Ot Other (See Remarks)

Appendix A-2

Survivorship and Water Quality Monitoring Results for *Mysidopsis bahia* Elutriate Bioassays for Kings Bay, July 2001

Harding ESE
Toxicology Laboratory
Gainesville, Florida

Page: _____
QA Form No. 018
Revised: March 2001

Project No: 311224.0200 Client: PPB KINGS BAY Test: Elutriate

DAILY LOG

8-1-01 - PAS - ELUTRIATES MADE;
DO. LOW AIRATION BEGAIN
Mysid fed B.S.
8-2-01 - PAS - TEST MONITORED; AIR LINES CHECKED; mysid fed BS.
8/3/01 ADE - Test monitored. Airlines checked. Myaid fed Brineshrimp.
8/4/01 ADE - Test monitored Airlines checked. Myaid fed Brine Shrimp.
8/5/01 ADE - Test monitered and then terminated

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

TEST MATERIAL

Test Material: ELUTRITATE/ SEDIMENT

See Page 581 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:

Test Concentrations Based on: (X) Active Ingredient
( ) Whole Material

TEST ORGANISM HISTORY

Test Species: MYSIDOPSIS BAHIA

Lot Number: 2001-26

Age/ Life Stage: 4 days

Date Acclimation/ Maintenance Began: 8/1/01

See Page 384 of Invert Holding Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: < 10 %

TEST CONDITIONS

( ) Range Finder
( ) Screening
(X) Definitive

(X) Static
( ) Flow-Through

Lighting: (X) Fluorescent ( ) Incandescent

Photoperiod: 16 Hours Light
8 Hours Dark

Test Duration: 96 HOURS

Test Area Used: WATERBATH

Test Temperature (°C): 20 ± 1

Test Salinity (ppt): 25 ± 2

Replicates Per Concentration: 5

Organisms Per Replicate: 10

Dilution Water: NATURAL FILTERED SEAWATER

TEST VESSELS

Dimensions (mm): 100 Length x- Width x 50 Height

Test Solution Height (cm) : 4

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 0.34 Liters

Test Solution Volume: 0.20 Liters

TEST SOLUTION PREPARATION

Test Concentration % mg/L	Control	10	50	100			
Volume of Dilution Water Added ( )	1000	900	500	-------			
Volume of Effluent/ Stock Added ( )	--------	100	500	1000			

ADDITIONAL OBSERVATIONS:

DATA BY: ADE DATE: 8/1/01

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPb- Kings Bay | PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Ellutriates | TEST SPECIES: *Mysidopsis bahia*

DATE		8-01-01				8-02-01				8-03-01				8-04-01				8-05-01			
TIME		1420				1030				1430				1130				0845			
INIT.		PAS				PAS				ADE				PAS				ADE			
NOMIN CONCN % mg/L µg/L	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KB01-1 10%	A/B/C	20.4	8.1	7.7	23	21.0	8.2	7.3	26	21.0	7.9	7.2	27	20.6	7.9	7.1	27	20.4	8.0	6.3	27
1 50%	A/B/C	20.2	8.1	7.7	24	21.5	8.2	7.3	26	20.8	8.0	7.2	27	20.6	8.1	7.3	26	20.3	8.1	6.4	27
1 100%	A/B/C	19.8	8.1	7.7	25	21.2	8.1	7.3	26	20.8	7.9	7.3	27	21.0	8.1	7.4	27	20.4	8.0	6.2	27
E-KB01-2 10%	A/B/C	20.3	8.1	7.4	23	21.4	8.4	7.3	25	21.0	8.0	7.4	26	21.0	8.1	7.5	27	20.3	8.1	6.6	27
2 50%	A/B/C	20.3	8.1	6.1	23	21.3	8.3	7.3	26	20.9	8.2	7.0	26	20.9	8.2	7.5	27	20.2	8.2	6.6	27
2 100%	A/B/C	19.8	8.0	3.8	24	21.4	8.2	7.2	27	21.0	8.3	6.9	27	20.9	8.2	7.5	27	20.3	8.2	6.5	27
E-KB01-3 10%	A/B/C	20.1	8.1	7.5	23	21.3	8.4	7.2	26	20.9	8.0	7.0	27	20.7	8.2	7.4	27	20.1	8.1	6.9	27
3 50%	A/B/C	20.1	8.1	6.0	24	21.4	8.3	7.2	27	21.0	8.0	6.8	27	20.4	8.1	7.4	27	20.1	8.1	6.1	27
INST/METH		FS-6	SA 29A	DO3	REF8	FS-6	SA 29A	DO3	REF8	FS-6	SA 29A	DO3	REF8	FS-6	SA 29A	DO3	REF8	FS-6	SA 29A	DO3	REF8

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPb- Kings Bay | PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Ellutriates | TEST SPECIES: *Mysidopsis bahia*

DATE		8-01-01				8-02-01				8-03-01				8-04-01				8-05-01			
TIME		1420				1030				1430				1130				0845			
INIT.		PAS				PAS				ADE				PAS				ADE			
NOMIN CONCN % mg/L µg/L	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
EKB01-3 100%	A/B/C	19.7	8.1	4.0	25	21.4	8.2	7.2	27	21.1	8.1	6.7	27	20.2	8.0	7.0	27	19.9	8.1	5.8	27
EKB01-4 10%	A/B/C	20.0	8.1	7.7	23	21.5	8.1	7.2	26	21.2	8.0	7.1	27	19.6	8.0	7.5	27	20.1	8.1	6.4	27
4 50%	A/B/C	20.1	8.1	7.3	23	21.5	8.1	7.7	26	21.3	8.0	7.2	27	19.7	8.0	7.5	27	20.1	8.1	6.5	27
4 100%	A/B/C	19.7	8.1	6.6	25	21.5	8.1	7.3	27	21.3	8.0	6.9	27	19.9	8.1	7.3	27	20.1	8.1	6.2	27
EKB01-5 10%	A/B/C	19.8	8.1	7.7	23	21.5	8.1	7.3	26	21.4	7.9	7.1	26	20.6	7.9	7.4	27	20.5	8.0	6.5	27
5 50%		19.8	8.0	7.3	23	21.5	8.1	7.2	25	21.4	7.9	7.1	26	20.6	8.1	7.4	26	20.8	8.0	6.4	27
5 100%		19.9	8.0	6.5	23	21.5	8.1	7.3	27	21.4	8.1	7.2	27	21.1	8.1	7.3	26	21.0	8.2	6.4	27
SEA-GIRL 100%		20.6	8.1	7.8	23	20.9	8.1	7.2	27	20.8	7.9	7.3	26	20.6	8.0	7.3	27	20.4	8.0	6.5	27
INST/METH		FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPb- Kings Bay

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Ellutriates

TEST SPECIES: *Mysidopsis bahia*

DATE	8-01-01				8-02-01				8-03-01				8-04-01				8-5-01			
TIME	1420				1030				1430				1130				0845			
INIT.	RDS				PAS				ADE				PAS				ADE			
NOMIN CONCN % mg/L µg/L / REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KBOI-DUP	20.1	8.1	7.4	23	20.3	8.2	7.3	26	20.3	8.0	7.1	26	20.2	8.1	7.5	27	20.0	8.0	7.0	27
10%																				
DUP	20.2	8.1	6.0	23	20.7	8.3	7.3	25	20.4	8.1	6.9	27	20.1	8.2	7.5	27	20.1	8.0	6.8	27
50%																				
DUP	20.0	8.1	6.0	24	20.9	8.5	7.4	26	20.4	8.3	6.8	27	20.2	8.4	7.4	27	20.0	8.0	6.7	27
100%																				
CTRL SED	20.3	8.1	7.7	24	20.6	8.1	7.5	27	19.8	8.1	7.0	27	19.5	8.1	7.5	27	19.9	8.0	6.4	27
10%																				
SED	20.2	8.1	7.7	23	19.9	8.2	7.5	27	19.7	8.0	7.3	27	19.4	8.0	7.5	27	19.9	8.0	6.4	27
50%																				
SED	20.1	7.9	7.6	25	20.0	8.2	7.6	26	19.9	8.1	7.3	26	19.7	8.1	7.5	27	20.0	8.0	6.4	27
100%																				
INST/METH	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8	FS6	SA90A	DO3	REF8

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		+	
TIME		1420		1030		1130		0900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Control	A	10 LOADED		N	10	INF	9	N	9	N	10
	B			N	10	N	10	N	10	10	9
	C			N	10	N	10	N	10	10	9
	D			N	10	N	10	N	10	10	9
	E			N	10	N	10	INF	9	N	10
Control 10%	A			N	10	INF	9	N	9	N	9
	B			N	10	N	10	2NF	8	N	10
	C			N	10	N	10	N	10	N	10
	D			N	10	INF	9	N	9	N	10
	E			N	10	N	10	N	10	N	10
Control 50%	A			INF	9	N	10	N	10	INF	9
	B			N	10	INF	9	N	9	N	9
	C			N	10	INF	9	N	9	N	9
	D			N	10	N	10	N	10	INF	9
	E			INF	9	N	9	N	9	N	9

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1730		900		1130	
TECHNICIAN		PB		PB		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Control 100%	A	10 LOADED		INF	9	N	9	N	9	N	9
	B			N	10	INF	9	N	9	N	9
	C			N	10	N	10	INF	9	N	9
	D			N	10	INF	9	N	8	N	9
	E			INF	9	N	9	N	9	N	9
Dup 10%	A			N	10	N	10	N	10	N	10
	B			N	10	N	10	N	10	N	10
	C			N	10	INF	9	N	9	N	9
	D			INF	9	N	9	INF	8	N	8
	E			N	10	INF	9	N	9	N	9
Dup 50%	A			N	10	N	10	N	10	INF	9
	B			N	10	INF	9	N	9	N	10
	C			INF	9	INF	8	N	8	N	8
	D			N	10	N	10	N	10	INF	8
	E			INF	9	INF	8	N	8	N	8

OBSERVATION KEY

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N (NONE) = Normal Conditions
BS = Brine Shrimp
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FOS = Film on Surface of Water
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LETH = Lethargic
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GY = Gyrating
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RAR = Rapid Respiration
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Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Dup 100%	A	10 LOADED		INF	9	N	9	N	9	N	9
	B			INF	9	INF	8	N	9	Id	8
	C			4NF	6	INF	9	N	9	Id	8
	D			3NF	7	2 NF	8	N	9	N	9
	E			3NF	7	2NF	8	N	8	N	8
E-KBO1-1 10%	A			N	10	N	10	N	10	Id	9
	B			INF	9	INF	8	N	8	N	8
	C			N	10	N	10	N	10	N	10
	D			INF	9	N	10	N	10	INF	9
	E			N	10	N	10	N	10	N	10
E-KBO1-1 50%	A			N	10	INF	9	N	9	N	9
	B			N	10	2NF	8	N	9	N	9
	C			N	10	N	10	N	10	N	10
	D			INF	9	N	9	N	9	Id	8
	E			INF	9	N	9	N	9	Id	8

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
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LETH = Lethargic
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HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
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RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-1 100%	A	10 LOADED		1d	9	N	9	N	9	N	9
	B			N	10	INF	9	INF	8	1d	7
	C			N	10	2NF	8	N	8	1d	7
	D			N	10	N	10	N	10	3d	7
	E			N	10	INF	9	N	9	1d	8
E-KBO1-2 10%	A			N	10	INF	9	N	9	N	9
	B			N	10	INF	9	N	9	N	10
	C			N	10	N	10	N	10	N	10
	D			N	10	INF	9	N	9	N	9
	E			N	10	INF	9	N	9	N	9
E-KBO1-2 50%	A			INF	9	N	9	N	9	2d	7
	B			INF	9	INF	8	N	9	1d	8
	C			N	10	INF	9	N	9	N	9
	D			INF	9	N	9	N	9	N	9
	E			N	10	1NF	8	N	8	N	8

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-2 100%	A	10 LOADED		2NF	8	N	8	N	8	N	8
	B			N	10	1d 2NF	7	N	8	N	8
	C			1NF	9	1NF	8	N	8	N	8
	D			1NF	9	1NF	8	N	9	N	9
	E			2NF	8	N	9	N	9	2d	7
E-KBO1-3 10%	A			N ~~1NF~~	10	1NF	9	N	9	1d	8
	B			N	10	N	10	2NF	8	N	9
	C			1NF	9	N	9	N	9	1NF	8
	D			1NF	9	1NF	8	N	8	N	8
	E			N	10	N	10	1NF	9	N	9
E-KBO1-3 50%	A			N	10	N	10	1NF	9	N	9
	B			1NF	9	1NF	8	N	8	N	8
	C			N	10	1NF	9	N	9	N	9
	D			2NF	8	1d	7	N	8	N	8
	E			N	10	1NF	9	N	9	N	9

OBSERVATION KEY

REP = Replicate
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NO. ALIVE = Number of Organisms Alive (survival)
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Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		0900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-3 100%	A	10 LOADED		INF	9	N	9	N	9	N	9
	B			INF	9	N	9	N	9	INF	8
	C			N	10	2NF	8	N	8	INF	7
	D			N	10	2NF	8	N	8	INF	7
	E			INF	9	N	9	N	9	N	10
E-KBO1-4 10%	A			Id	9	N	9	N	9	N	~~9~~ ade
	B			N	10	N	10	INF	9	N	~~10~~ ade
	C			N	10	3NF	7	N	8	N	~~8~~ adf
	D			N	10	2NF	8	N	~~8~~	N	~~9~~ aeu
	E			N	10	N	10	2NF	8	N	~~9~~ aeu
E-KBO1-4 50%	A			INF	9	N	9	N	9	N	10
	B			INF	9	N	9	N	9	INF	8
	C			INF	9	N	9	N	9	2d	7
	D			N	10	2NF	8	N	8	N	8
	E			N	10	INF	9	N	9	N	9

OBSERVATION KEY

REP = Replicate
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NO. ALIVE = Number of Organisms Alive (survival)
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Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		900		1130	
TECHNICIAN		PAT		PAT		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-4 100%	A	10 LOADED		INF	9	N	10	2NF	8	N	9
	B			NF	9	1NF	8	N	8	N	9
	C			INF	9	N	9	N	9	N	9
	D			INF	9	1NF	8	N	8	N	9
	E			N	10	1NF	9	N	9	N	9
E-KBO1-5 10%	A			N	10	N	10	N	10	N	10
	B			N	10	2NF	8	N	8	N	9
	C			1NF	9	N	9	N	9	N	10
	D			N	10	N	10	N	10	1NF	9
	E			N	10	1NF	9	N	9	N	10
E-KBO1-5 50%	A			1NF	9	2NF	7	N	7	N	8
	B			N	10	N	10	N	10	1NF	9
	C			N	10	2NF	8	N	8	N	9
	D			N	10	2NF	8	N	8	N	9
	E			N	10	N	10	N	10	1NF	9

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
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PRE = Precipitate
FOS = Film on Surface of Water
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LETH = Lethargic
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Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. bahia

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		BS		BS		BS		BS		—	
TIME		1420		1030		1130		0900		1130	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-5 100%	A	10 LOADED		10	9	N	9	N	9	N	10
	B			INF	9	N	9	N	9	N	9
	C			N	10	N	10	N	10	N	10
	D			INF	9	N	10	N	10	INT	9
	E			INT	9	N	10	N	10	2NF	8
	A										
	B										
	C										
	D										
	E										
	A										
	B										
	C										
	D										
	E										

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
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LE = Loss of Equilibrium
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AS = Organisms At Surface of Water
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Appendix A-3

Survivorship and Water Quality Monitoring Results for *Menidia beryllina* Elutriate Bioassays for Kings Bay, July 2001

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

TEST MATERIAL

Test Material: ELUTRITATE/ SEDIMENT

See Page 581 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:

Test Concentrations Based on: (X) Active Ingredient
( ) Whole Material

TEST ORGANISM HISTORY

Test Species: MENIDIA BERYLLINA

Lot Number: 2001-25

Age/ Life Stage: 10 days

Date Acclimation/ Maintenance Began: 8/1/01

See Page 63 of Fish Holding Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: < 10%

TEST CONDITIONS

( ) Range Finder
( ) Screening
(X) Definitive

(X) Static
( ) Flow-Through

Lighting: (X) Fluorescent ( ) Incandescent

Photoperiod: 16 Hours Light
8 Hours Dark

Test Duration: 96 HOURS

Test Area Used: WATERBATH

Test Temperature (°C): 20 ± 1

Test Salinity (ppt): 25 ± 2

Replicates Per Concentration: 5

Organisms Per Replicate: 10

Dilution Water: NATURAL FILTERED SEAWATER

TEST VESSELS

Dimensions (mm): 100 Length x- Width x 50 Height

Test Solution Height (cm) : 4

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 0.60 Liters

Test Solution Volume: 0.30 Liters

TEST SOLUTION PREPARATION

Test Concentration % mg/L	Control	10	50	100			
Volume of Dilution Water Added ( )	1500	1350	750	-------			
Volume of Effluent/ Stock Added ( )	--------	150	750	1500			

ADDITIONAL OBSERVATIONS:

DATA BY: ADE

DATE: 8/1/01

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB/ KINGS BAY

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Elutriate

TEST SPECIES: M. beryllina

DATE		8-1-01				8-02-01				8-03-01				8-04-01				8-05-01			
TIME		1420				1030				1300				1000				11.00			
INIT.		PAS				PAS				ADE				ADE/RAS				ADE/PAS			
NOMIN CONCN %	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
Control	A	20.6	8.1	7.8	23	20.7	8.1	7.1	25	20.8	8.1	7.3	25	20.8	8.1	7.5	25	21.0	8.2	7.3	27
Control 10%	A	20.3	8.1	7.1 7.4	24	20.9	8.1	7.6	25	20.9	8.1	7.2	25	20.9	8.0	7.5	24	20.9	8.1	7.2	27
Control 50%	A	20.2	8.1	7.1 6.8	23	20.8	8.1	7.6	25	21.0	8.1	7.2	25	20.9	8.1	7.5	25	20.9	8.2	7.2	27
Control 100%	A	20.1	7.9	7.6 6.8	25	20.8	8.1	7.4	25	21.0	8.1	7.2	26	20.9	8.1	7.5	25	20.9	8.2	7.2	27
Dup 10%	A	20.1	8.1	7.4	23	20.7	8.1	7.4	25	20.9	8.2	7.3	25	20.8	8.2	7.6	24	20.9	8.2	7.3	26
Dup 50%	A	20.2	8.1	6.0	23	20.8	8.2	7.6	25	20.8	8.4	7.3	26	20.8	8.3	7.6	25	21.0	8.4	7.4	27
Dup 100%	A	20.0	8.1	6.0	24	20.7	8.4	7.6	25	20.8	8.5	7.3	26	20.8	8.4	7.6	25	21.0	8.6	7.4	27
E-KBO1-1 10%	A	20.4	8.1	7.7	23	20.7	8.1	7.3	25	20.9	7.9	5.9	26	20.7	8.1	7.8	24	20.9	8.0	7.3	27
INST/METH		FS-6	SAP90 A	DO-3	REF-5	FS-6	SAP90 A	DO-3	REF-5	FS-6	SAP90 A	DO-3	REF-5	FS-6	SAP90 A	DO-3	REF-5	FS-6	SAP90 A	DO-3	REF-5

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB/ KINGS BAY

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Elutriate

TEST SPECIES: M. beryllina

DATE		8-1-01				8-02-01				8-03-01				8-04-01				8-05-01			
TIME		1420				1030				1300				1000				1100			
INIT.		PAS				PAS				ADE				ADE/PAS				ADE/PAS			
NOMIN CONCN %	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KBO1-1 50%	A	20.2	8.1	7.1	24	20.7	8.1	7.3	25	20.7	8.1	7.1	25	20.7	8.1	7.4	25	20.7	8.2	7.1	27
E-KBO1-1 100%	A	19.8	8.1	7.1	25	20.7	8.1	7.3	25	20.7	8.1	7.1	26	20.6	8.1	7.5	25	20.9	8.2	6.0	27
E-KBO1-2 10%	A	20.3	8.1	7.4	23	20.6	8.0	7.6	25	20.8	8.1	7.0	25	20.6	8.1	7.4	25	20.8	8.2	7.0	27
E-KBO1-2 50%	A	20.3	8.1	6.1	23	20.6	8.1	7.6	25	20.8	8.3	7.3	24	20.7	8.2	7.5	25	20.9	8.3	7.2	27
E-KBO1-2 100%	A	19.8	8.0	3.8	24	20.7	8.1	7.6	25	20.9	8.3	7.1	24	20.7	8.3	7.3	26	20.9	8.4	7.3	27
E-KBO1-3 10%	A	20.1	8.1	7.5	23	20.6	8.3	7.3	25	20.8	8.2	7.2	25	20.7	8.0	7.5	25	20.9	8.1	7.4	27
E-KBO1-3 50%	A	20.1	8.1	6.0	24	20.5	8.4	7.5	25	20.8	8.2	7.0	26	20.7	8.2	7.4	25	20.9	8.3	7.2	27
E-KBO1-3 100%	A	19.7	8.1	4.0	25	20.5	8.2	7.6	25	20.7	8.4	7.2	27	20.7	8.3	7.5	26	20.8	8.4	7.3	28
		FS6	SAPPO A	DO3	REF8	FS6	SAPPO A	DO3	REF8	FS6	SAPPO A	DO3	REF8	FS6	SAPPO A	DO3	REF8				
INST/METH		↓																FS6	SAPPO A	DO3	REF8

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB/ KINGS BAY

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: Elutriate

TEST SPECIES: M. beryllina

DATE		8-1-01				8-02-01				8-03-01				8-04-01				8-05-01			
TIME		1420				1030				1300				1000				1100			
INIT.		PAS				PAS				ADE				ADE/PAS				ADE/PAS			
NOMIN CONCN %	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KBO1-4 10%		20.0	8.1	7.1	23	20.5	8.0	7.6	25	20.7	8.1	7.2	25	20.6	8.2	7.5	24	20.7	8.2	7.3	26
E-KBO1-4 50%		20.1	8.1	7.3	23	20.4	8.1	7.6	25	20.6	8.1	7.2	24	20.6	8.1	7.5	25	20.5	8.1	7.3	27
E-KBO1-4 100%		19.7	8.1	6.6	25	20.4	8.2	7.6	25	20.6	8.2	7.1	24	20.5	8.1	7.4	26	20.7	8.2	7.2	28
E-KBO1-5 10%		19.8	8.1	7.1	23	20.4	8.1	7.6	25	20.7	8.1	7.2	25	20.5	8.1	7.6	24	20.7	8.0	7.3	26
E-KBO1-5 50%		19.8	8.0	7.3	23	20.5	8.1	7.6	25	20.6	8.1	7.2	26	20.5	7.9	7.5	25	20.7	8.2	7.3	27
E-KBO1-5 100%		19.9	8.0	6.5	23	20.4	8.2	7.6	25	20.6	7.9	5.8	27	20.5	8.1	7.6	26	20.7	8.1	7.4	27
INST/METH		FS6	SA900A	DO3	REF5	FS6	SA900A	DO3	REF5	FS6	SA900A	DO3	REF5	FS6	SA900A	DO3	REF5	FS6	SA900A	DO3	REF5

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
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Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		~~BS~~		~~BS~~		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		~~BAS~~		~~BAS~~		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Control	A	10 LOADED		10	10	N	10	N	10	N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10
Control 10%	A			10	10					N	10
	B									N	10
	C									N	10
	D									N	10
	E									1d	9
Control 50%	A			10	10					N	10
	B									N	10
	C									N	10
	D									N	10
	E									1d	9

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
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PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
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ERR = Erractic
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Harding ESE
Gainesville, Florida

QA Form: 015B
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SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		RBS		RBS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Control 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10
Dup 10%	A			10	10			N	10	N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10
Dup 50%	A			10	10			N	10	N	10
	B							N	10	1d	9
	C							N	10	N	10
	D							1d	9	N	10
	E							N	10	1d	9

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
Dup 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B							N	10	N	10
	C							N	10	1d	9
	D							1d	9	1d	8
	E							1d	9	1d	8
E-KBO1-1 10%	A			10	10			N	10	N	10
	B									2d	8
	C									N	10
	D									3d	7
	E									N	10
E-KBO1-1 50%	A			10	10					N	10
	B									N	10
	C									N	10
	D									3d	7
	E									N	10

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		~~1350~~ 0800		1230	
TECHNICIAN		PKS		PKS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-1 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10
E-KBO1-2 10%	A			10	10					N	10
	B									1d	9
	C									N	10
	D									N	10
	E									N	10
E-KBO1-2 50%	A			10	10					N	10
	B									N	10
	C									N	10
	D									1d	9
	E									N	10

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET -- SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-2 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B									N	10
	C									N	10
	D									1d	9
	E									N	10
E-KBO1-3 10%	A			10	10					N	10
	B									N	10
	C									1d	9
	D									1d	9
	E									N	10
E-KBO1-3 50%	A			10	10					N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		PKS		PKS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-3 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B									1d	9
	C									1d	9
	D									2d	8
	E									3d	7
E-KBO1-4 10%	A			10	10					~~2d~~ 99 N	10
	B									N	10
	C									N	10
	D									N	10
	E									1d	9
E-KBO1-4 50%	A			10	10					N	10
	B									1d	9
	C									N	10
	D									1d	9
	E									N	10

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-4 100%	A	10 LOADED		10	10	N	10	N	10	N	10
	B									1d	9
	C									N	10
	D									N	10
	E									1d	9
E-KBO1-5 10%	A			10	10					N	10
	B									1d	9
	C									N	10
	D									N	10
	E									N	10
E-KBO1-5 50%	A			10	10					N	10
	B									N	10
	C									N	10
	D									N	10
	E									N	10

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Harding ESE
Gainesville, Florida

QA Form: 015B
Revised: March 2001

SUBJECT: ACUTE TOXICITY DATA SHEET – SURVIVAL

Sponsor: PPB KINGS BAY

Project No.: 311224.0200

Test Substance: ELUTRIATE

Test Species: M. beryllina

TEST HOUR		0-HOUR		24-HOURS		48-HOURS		72-HOURS		96-HOURS	
DATE		8-01-01		8-02-01		8-03-01		8-04-01		8-05-01	
FEEDING		—		—		—		—		—	
TIME		1420		1030		1300		0800		1230	
TECHNICIAN		PAS		PAS		ADE		ADE		ADE	
NOMINAL CONCENTRATION mg/L %	REP	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive	OBSERV.	No. Alive
E-KBO1-5 100%	A	10 LOADED		10	10	N	10	N	10	1d	9
	B									N	10
	C									N	10
	D									N	10
	E									N	10
	A										
	B										
	C										
	D										
	E										
	A										
	B										
	C										
	D										
	E										

OBSERVATION KEY

REP = Replicate
OBS = Observations
NO. ALIVE = Number of Organisms Alive (survival)
N (NONE) = Normal Conditions
BS = Brine Shrimp
YTC/ALG = YTC and green algae (daphnids)
NF = Not Found

PRE = Precipitate
FOS = Film on Surface of Water
UC = Undissolved Chemical
LETH = Lethargic
LE = Loss of Equilibrium
HYP = Hyperactive

AS = Organisms At Surface of Water
ERR = Erractic
GY = Gyrating
G = Gulping
RAR = Rapid Respiration
LT = Light Pigmentation

Appendix A-4

Fertilization Data for *Lytechinus variegatus* Elutriate Bioassays for Kings Bay, July 2001

Harding ESE
Toxicology Laboratory
Gainesville, Florida

QA Form No.: 114
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Client: PPB KINGS BAY

Project No.: 311224

Test Substance: Elutriate/ Sediment

Test Species: L. variegatus

Source of Sea Urchins: Date Received: 8-14-01 - Gulf Specimen.

See Page 100 of the Invertebrate Holding Log

Condition of organisms: Normal

Dilution Water: Natural Filtered Seawater

Salinity: 28%

Test Temperature (°C): 20 ± 1

Type of Lighting: Flourescent

Test Guidelines: SOP-A-004 ASTM

TEST CONCENTRATIONS*

Concentration (%)	Control	10	50	100		
Dilution Water (mL)	50	45	25	-------		
Effluent (mL)	------	5	25	50		

Stock Preparation / Comments: *Samples Tested: Control. E-KB01-01 through E-KB01-05; E-KB01-Duplicate.

Type of Test Chamber: Glass Scintillation Vials

Test Chamber Volume (mL): 24

Number of Replicates per Concentration: 3
Volume of Test Solution per Replicate (mL): 5

Test Location: Prep Room

Test Duration: 80 minutes

Harding ESE
Toxicology Laboratory
Gainesville, Florida

QA Form Number: 115
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Client: PPB Project No.: 31224

Test Substance: KB Sediments Test Species: L. variegatus

SPERM DILUTIONS:

Hemacytometer Count, Solution E: (avg count) 1357 x 10^4 = SPM (Sperm/mL) Solution E

Sperm Concentrations: Solution E x 40 = Solution A = 6.23×10^8 SPM

Solution E x 20 = Solution B = 3.11×10^8 SPM

Solution E x 5 = Solution D = 3.78×10^7 SPM

Vial (sperm suspension with SPM >5 x 10^7)) selected for Test: B
Dilution of sperm suspension: Vial SPM / (5x10^7) = dilution factor (DF)
[(DF) x 10] - 10 = 52.2 mL (volume dilution water to add to vial)

Final Sperm Count of Prepared Sperm Suspension: _____

EGG DILUTIONS:

Initial Egg Count = 2167 (of 1:10 dilution vial of egg suspension)

Original Egg Stock Concentration = 10 x (initial egg count) = 21667 eggs per mL

Volume of Dilution Water to add to Egg Stock (to adjust to 2000/mL):
If egg count >200: (Egg Count) - 200 = 1967 mL (volume to add to egg stock)
If egg count <200: Concentrate to >200, then use above line (need >25 mL volume for test)

Final Egg Count (2000 egg/ mL ± 200): _____

TEST TIMES:

Sperm Collected: 1400 Eggs Collected: 1415 Sperm Added: 1405

Eggs Added: 1505 Fixative Added: 1525 Samples Read: 1600

Investigator: [illegible] Date: 3-16-01

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB KINGS BAY

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: ELUTRIATE

TEST SPECIES: L. variegatus

DATE		8-16-01																			
TIME		1530																			
INIT.		PAS																			
NOMIN CONCN % mg/L µg/L	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
Seawater Control		21.0	8.2	7.4	32																
Control 10%		21.3	8.2	7.2	31																
Control 50%		21.3	8.2	7.3	31																
Control 100%		21.3	8.0	6.6	31																
DUP 10%		21.2	8.3	7.4	30																
DUP 50%		20.8	8.4	7.4	30																
DUP 100%		19.6	8.5	7.9	30																
E-KB01-1 10%		21.2	8.2	7.5	32																
INST/METH		[illegible]	[illegible]	DO-3	[illegible]																

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB KINGS BAY

PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: ELUTRIATE

TEST SPECIES: L. variegatus

DATE		8-16-01																			
TIME		1530																			
INIT.		PAS																			
NOMIN CONCN % mg/L µg/L	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KB01-1 50%		20.7	8.2	7.5	32																
E-KB01-1 100%		19.6	8.1	7.4	32																
E-KB01-2 10%		21.1	8.3	7.4	32																
E-KB01-2 50%		20.7	8.5	7.4	32																
E-KB01-2 100%		19.8	8.0	7.3	31																
E-KB01-3 10%		21.2	8.3	7.3	32																
E-KB01-3 50%		20.7	8.4	7.3	32																
E-KB01-3 100%		19.5	8.5	7.3	32																
INST/METH																					

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form Number: 016
Revised: March 2001

ACUTE TOXICITY DATA SHEET - WATER QUALITY DATA

SPONSOR: PPB KINGS BAY | PROJECT NUMBER: 311224.0200

TEST SUBSTANCE: ELUTRIATE | TEST SPECIES: L. variegatus

DATE		8 16 01																			
TIME		1530																			
INIT.		PAS																			
NOMIN CONCN % mg/L µg/L	REP	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN	TEMP	pH	DO	SL or CN
E-KB01-4 10%		21.7	8.2	7.5	32																
E-KB01-4 50%		20.5	8.3	7.5	32																
E-KB01-4 100%		20.1	8.1	7.6	30																
E-KB01-5 10%		21.3	8.2	7.3	32																
E-KB01-5 50%		21.1	8.3	7.3	32																
E-KB01-5 100%		20.8	8.1	7.4	32																
INST/METH																					

KEY

TEMP - Temperature
SL - Salinity (ppt)
pH - standard units

DO - Dissolved oxygen (mg/L)
CN - Conductivity (µmhos/cm)
INST - Instrument
NOMIN CONCN - Nominal concentration

INIT. - Initials
REP - Replicate
METH - Method

Harding ESE
Gainesville, Florida

QA Form No.: 116
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Sponsor: PPB-King's Bay

Project No.: 311224

Test Substance: Ellutriate

Test Species: *L. variegatus*

Investigator: [illegible]

Date: 8·16·01

FINAL EGG FERTILIZATION COUNTS

Concentration (%, mg/L)	REPLICATE VIAL A F	A U	B F	B U	C F	C U	D		TOTAL F	TOTAL
Control Seawater	80	20	62	38	64	36			206	94
Control Sediment 10%	75	25	61	39	80	20			216	84
Control Sediment 50%	63	37	76	24	70	30			209	91
Control Sediment 100%	58	42	72	28	82	18			212	88
E-KB01-1 10%	63	37	60	40	70	30			193	107
E-KB01-1 50%	66	34	59	41	68	32			193	107
E-KB01-1 100%	70	30	58	42	63	37			191	109

Harding ESE
Gainesville, Florida

QA Form No.: 116
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Sponsor: PPB-King's Bay

Project No.: 311224

Test Substance: Ellutriate

Test Species: *L. variegatus*

Investigator: [signature]

Date: 8·16·01

FINAL EGG FERTILIZATION COUNTS

Concentration (%, mg/L)	REPLICATE VIAL A		B		C		D		TOTAL	
	F	U	F	U	F	U				
E-KB01-2 10%	75	25	66	34	61	39			202	98
E-KB01-2 50%	64	36	80	20	60	40			204	96
E-KB01-2 100%	69	31	72	28	60	40			201	99
E-KB01-3 10%	60	40	54	46	69	31			183	117
E-KB01-3 50%	61	39	60	40	52	48			173	127
E-KB01-3 100%	58	42	63	37	54	46			175	125
E-KB01-4 10%	60	40	73	27	80	20			213	87
E-KB01-4 50%	76	24	70	30	69	31			215	85
E-KB01-4 100%	82	18	63	37	71	29			216	84

Harding ESE
Gainesville, Florida

QA Form No.: 116
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Sponsor: PPB-King's Bay

Project No.: 311224

Test Substance: Ellutriate

Test Species: *L. variegatus*

Investigator: [illegible]

Date: 8-16-01

FINAL EGG FERTILIZATION COUNTS

Concentration (%, mg/L)	REPLICATE VIAL A		B		C		D		TOTAL	
	F	U	F	U	F	U			F	U
E-KB01-5 10%	65	35	69	31	71	29			205	95
E-KB01-5 50%	60	40	73	27	59	41			192	108
E-KB01-5 100%	73	27	58	42	62	38			193	107
E-KB01-DUP 10%	75	25	70	30	63	37			208	92
E-KB01-DUP 50%	68	32	82	18	70	30			220	80
E-KB01-DUP 100%	78	22	71	29	63	37			212	88

Harding ESE
Toxicology Laboratory
Gainesville, Florida

QA Form Number: 115
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Client: PPB-King's Bay

Project No.: 311224

Test Substance: Elutriate

Test Species: L. variegatus

SPERM DILUTIONS:

Hemacytometer Count, Solution E: (avg count) _____ x 10^4 = SPM (Sperm/mL) Solution E

Sperm Concentrations: Solution E x 40 = Solution A = _____ SPM

Solution E x 20 = Solution B = _____ SPM

Solution E x 5 = Solution D = _____ SPM

Vial (sperm suspension with SPM >5 x 10^7)) selected for Test: _____
Dilution of sperm suspension: Vial SPM / (5x10^7) = dilution factor (DF)
[(DF) x 10] - 10 = _____ mL (volume dilution water to add to vial)

Final Sperm Count of Prepared Sperm Suspension: _____

EGG DILUTIONS:

Initial Egg Count = _____ (of 1:10 dilution vial of egg suspension)

Original Egg Stock Concentration = 10 x (initial egg count) = _____ eggs per mL

Volume of Dilution Water to add to Egg Stock (to adjust to 2000/mL):
If egg count >200: (Egg Count) - 200 = _____ mL (volume to add to egg stock)
If egg count <200: Concentrate to >200, then use above line (need >25 mL volume for test)

Final Egg Count (2000 egg/ mL ± 200): _____

TEST TIMES:

Sperm Collected:_____ Eggs Collected: _____ Sperm Added: _____

Eggs Added: _____ Fixative Added: _____ Samples Read: _____

Investigator: _____ Date: _____

Harding ESE
Toxicology Laboratory
Gainesville, Florida

QA Form No.: 114
Revised: March 2001

SEA URCHIN FERTILIZATION TEST

Client: King's Bay

Project No.: 311224

Test Substance: Elutriate

Test Species: *L. variegatus*

Source of Sea Urchins: Gulf Specimen

Date Received:_____

See Page ____ of the Invertebrate Holding Log

Condition of organisms: _____

Dilution Water: Natural Filtered Seawater

Salinity: 28%

Test Temperature (°C): 20+/- 1

Type of Lighting: Flourescent

Test Guidelines: SOP-A-004

TEST CONCENTRATIONS

Concentration ( ) Control	Control	10%	50%	100%	
Dilution Water (mL)	50	45	25	-----	
Stock/Effluent (mL)	-----	5	25	50	

Stock Preparation / Comments: Elutriates prepared by stirring (0.5 hr.) 4 parts seawater with 1 part sediment and allowed to settle. Samples were E-KB01-1, E-KB01-2, E-KB01-3, E-KB01-4, E-KB01-5, E-KB01-DUP, and Control.

Type of Test Chamber: Glass Scintillation vials

Test Chamber Volume (mL): 24

Number of Replicates per Concentration: 3
Volume of Test Solution per Replicate (mL): 5

Test Location: Prep Room

Test Duration: 80 minutes

Appendix A-5

Elutriate Reference Toxicant Raw Data for Kings Bay, July 2001

HARDING ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
FORM NO: 097A REFTOX
REVISED: MARCH 2001

REFERENCE TOXICANT TEST DATA SHEET

Sponsor: MISC.	Project Number: REF TOX
Test Material	**Test Conditions**
Amount of SDS : 0.100 (g) Volume of Milli-Q Water: 100 (mL) Date Prepared: 8/2/01	[X] Definitive [ ] Static [ ] Screening Duration: 48 Hours
Test Organism History	Dilution Water: Natural Filtered Seawater
Species: M. beryllina Batch Number: 2001-25 Age/Life Stage: 11 days Date of Acclimation/Maintenance: 8/2/01 See Page 100 of organism Receipt Log Mortality 48 hours prior to test: 21 (%) Replicates/Concentration: 1 No. Of Organisms/Replicate: 10	Lighting: [X] Fluorescent [ ] Incandescent Photoperiod: 16 Hr Light 8 Hr Dark Test Vessel Dimensions 100 L X ___ W 50 H Test Solution Height: 4 (cm) Test Vessel Volume: 0.34 (L) Test Solution Volume: 0.20 (L) Test Temperature: 20 ± 1 °C Test Salinity: 20 ± 2 ppt
Test Area Used: Waterbath	Test Vessel Composition: [X] Glass [ ] Plastic
Test Concentrations Based on: [X] Whole Material [ ] Active Ingredient	Test Protocol/Guideline Followed: SOP- A-004

Test Concentrations: (Units:)	Control	1.25	2.5	5	10	20	
Amount Dilution Water Added (mL)	200	199.75	199.5	199	198	196	
Amount of Stock Added (mL)	—	0.25	0.5	1	2	4	

Additional Observations:_____

Data By: PAS Date: 8/2/01

Harding ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
QA FORM NO: 097 REFTOX
Revised: March 2001

REFERENCE TOXICANT TEST DATA: DAY 0 – 2

Client: MESC | Project Number: REF TOX | Species: M. beryllina

DAY 0 | REF TOXICANT: SDS

Nominal Concentration (mg/L)	Date: 8/2/01		Time: 1200		Analyst: ADE	
	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	Loaded	10	20.3	20	7.1	8.1
1.25	↓	↓	20.3	20	7.2	8.1
2.5			20.2	20	7.2	8.1
5.0			20.2	20	7.1	8.1
10			20.3	20	7.2	8.1
20			20.3	20	7.2	8.1

DAY 1 | Date: 8/3/01 | Time: 1330 | Analyst: ADE

Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	~~10~~ N	20.6	21	6.1	7.8
1.25	10	~~10~~ N	20.6	22	6.0	7.7
2.5	4	6d	20.6	22	5.6	7.7
5.0	0	10d	20.7	22	4.6	7.5
10	0	10d	20.7	22	4.1	7.3
20	0	10d	20.7	21	<4	7.3

DAY 2 | Date: 8/4/01 | Time: 1000 | Analyst: ADE/~~PMS~~

Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	9	1D	20.5	21	6.7	7.8
1.25	10	N	20.4	21	6.6	7.7
2.5	3	1D	20.5	21	6.9	7.8
5.0	0	N				
10	0	N				
20	0	N				

PAGE:_____

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 8/4/01 TEST NUMBER: 2 DURATION: 48 h
TOXICANT : SDS
SPECIES: M. beryllina

RAW DATA:

Concentration (mg/L)	Number Exposed	Mortalities
.00	10	1
1.25	10	0
2.50	10	7
5.00	10	10
10.00	10	10
20.00	10	10

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 2.20
95% LOWER CONFIDENCE: 1.79
95% UPPER CONFIDENCE: 2.70

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

HARDING ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
FORM NO: 097A REFTOX
REVISED: MARCH 2001

REFERENCE TOXICANT TEST DATA SHEET

Sponsor: MISC.	Project Number: REF TOX
Test Material	**Test Conditions**
Amount of $CdCl_2$: 0.0328 (g) Volume of Milli-Q Water: 1000 (mL) Date Prepared: 8-16-01	[X] Definitive [ ] Static [ ] Screening Duration: 96 Hours
Test Organism History	Dilution Water: NAT Sea Water
Species: L. plumulosus Batch Number: 2001-24 Age/Life Stage: 2-4 mm Date of Acclimation/Maintenance: 7/27/01 See Page 100 of Org Health Log Mortality 48 hours prior to test: <10 (%) Replicates/Concentration: 1 No. Of Organisms/Replicate: 10	Lighting: [X] Fluorescent [ ] Incandescent Photoperiod: 16 Hr Light 8 Hr Dark Test Vessel Dimensions: 10.5 L X 8.5 W 23 H Test Solution Height: ~13 (cm) Test Vessel Volume: 0.2 (L) Test Solution Volume: 0.8 (L) Test Temperature: 20 ± 2 °C Test Salinity: 28 ± 2 ppt
Test Area Used:	Test Vessel Composition: [X] Glass [ ] Plastic
Test Concentrations Based on: [ ] Whole Material [X] Active Ingredient	Test Protocol/Guideline Followed:

Test Concentrations: (Units:)	Control	0.256	0.512	1.02	2.05	4.1	
Amount Dilution Water Added (mL)	250	246.8	243.6	237.2	224.4	197.8	
Amount of Stock Added (mL)	—	3.2	6.4	12.8	25.6	51.2	

Additional Observations:_____

Data By: MT Date: 8-16-01

Harding ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
QA FORM NO: 097 REFTOX
Revised: March 2001

REFERENCE TOXICANT TEST DATA: DAY 0 – 2

Client: MISC. | Project Number: REF TOX | Species: L. plumulosus

DAY 0 | REF TOXICANT: $CdCl_2$

Nominal Concentration (mg/L)	Date: 8-16-01		Time: 1430		Analyst: PAS	
	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	LOADED	10	20.3	28	7.5	8.2
0.256	↓	↓	20.3	28	7.6	8.2
0.512			20.3	27	7.7	8.1
1.02			20.4	27	7.6	8.2
2.05			20.4	26	7.3	8.2
4.1			20.5	26	7.1	8.3

DAY 1	Date: 8-17-01		Time: 1330		Analyst: PAS	
Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	N	21.6	28	6.6	8.1
0.256	10	N	21.6	28	6.9	8.2
0.512	10	N	21.6	28	7.0	8.2
1.02	10	N	21.6	28	7.0	8.2
2.05	10	N	21.6	27	7.4	8.2
4.1	10	N	21.6	29	7.4	8.2

DAY 2	Date: 8-18-01		Time: 1530		Analyst: PAS	
Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	N	21.5	28	7.1	8.1
0.256	10	N	21.5	28	7.2	8.2
0.512	10	N	21.4	28	7.2	8.2
1.02	10	N	21.6	28	7.2	8.2
2.05	10	N	21.5	27	7.2	8.2
4.1	10	N	21.5	29	7.3	8.1

PAGE:_____

Harding ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

QA FORM NO: 097 REFTOX
Revised: March 2001

REFERENCE TOXICANT TEST DATA: DAY 3 AND 4

Client: MTSC	Project Number: REF TOX	Species: L. plumulosus

DAY 3

Nominal Concentration	Date: 8-19-01		Time: 1100		Analyst: PKR	
	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	N	19.9	30	7.1	8.1
0.256	10	N	19.8	30	7.2	8.2
0.512	10	N	19.8	30	7.3	8.2
1.02	10	N	19.7	30	7.1	8.2
2.05	10	N	19.7	30	7.2	8.2
4.1	10	N	19.8	28	7.2	8.1

DAY 4	Date:		Time:		Analyst:	
Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	N	20.4	30	6.9	8.1
0.256	10	N	20.2	30	6.9	8.2
0.512	10	N	20.1	30	6.7	8.1
1.02	7	3NF	20.0	30	7.0	8.2
2.05	6	1D 3NF	20.0	30	7.0	8.1
4.1	0	10NF	20.0	30	7.0	8.1

SUMMARY

Nominal Concentration	Number Dead
Control	0
	0
	0
	3
	4
	10

COMMENTS:

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 8/20/01 TEST NUMBER: 1 DURATION: 96 h
TOXICANT : CdCl2
SPECIES: L. plumulosus

RAW DATA: ---	Concentration (ug/L)	Number Exposed	Mortalities
	.00	10	0
	.26	10	0
	.51	10	0
	1.02	10	3
	2.05	10	4
	4.10	10	10

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 1.78
95% LOWER CONFIDENCE: 1.33
95% UPPER CONFIDENCE: 2.39

Appendix A-6

Survivorship and Water Quality Monitoring Results for *Mysidopsis bahia* Sediment Bioassays for Kings Bay, July 2001

Harding ESE
Toxicology Laboratory
Gainesville, Florida

Page: _____
QA Form No. 018
Revised: March 2001

Project No: 311224.0300 Client: PPb – Kings Bay Test: Whole Sediment

DAILY LOG

7-26-01 HT - Loaded sediments into test vessels after hand processing samples to remove debris and indigenous organisms

7-27-01 HT - Renewed overlying water; collected samples for ammonia analysis. Organisms loaded in random order to test vessels; Aeration set-up and adjusted. Mysid organisms fed brine shrimp

7-28-01 - PJS - TEST MONITORED; ORG. FED; AIR LINES CHECKED

7/29/01 - ADE - Renewed overlying water and collected samples for NH_3 analysis. Mysid fed Brine shrimp. Test monitored and airlines checked.

7/30/01 ADE - Test monitored. Mysid fed Brine shrimp; airlines checked

7/31/01 - ADE - Renewed overlying water and collected samples for NH_3 analyses. Mysid fed Brine shrimp. Test monitored + airlines checked.

8/1/01 - Test monitored. Mysid fed Brine shrimp; airlines checked.

8-2-01 - PJS - RENEWED OVERLYING WATER; COLLECTED SAMPLES FOR NH_3 ANALYSIS; MYSID FED BRINE SHRIMP; TEST MONITORED AIR LINES CHECKED

8/3/01 - Test monitored Mysid fed Brine shrimp. Airlines Checked

8-4-01 - PJS - RENEWED OVERLYING WATER; COLLECTED SAMPLES for NH_3 ANALYSIS; MYSID FED BRINE SHRIMP; TEST MONITORED AIR LINES CHECKED

Harding ESE
Toxicology Laboratory
Gainesville, Florida

Page: _____
QA Form No. 018
Revised: March 2001

Project No: 311224.0300 Client: PPb – Kings Bay Test: Whole Sediment

DAILY LOG

8/5/01 - PAB Test monitored; org. fed; airlines checked

8/6/01 - ADE - Test terminated. Final ammonia samples collected and test monitored.

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: PPb – Kings Bay

Project No.: 311224.0300

TEST MATERIAL

Test Material: whole Sediment

See Page 581 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:

EPA-50318-91/001

Test Concentrations Based on: ( ) Active Ingredient
(x) Whole Material

TEST ORGANISM HISTORY

Test Species: *Mysidopsis bahia*

Lot Number: 2001-23

Age/ Life Stage: ~~1-5 Days~~ 4 days

Date Acclimation/ Maintenance Began: 7/27/01

See Page 382 of Invert Holding Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: < 10%

TEST CONDITIONS

( ) Range Finder
( ) Screening
( ) Definitive

(x) Static
( ) Flow-Through

Lighting: (x) Fluorescent ( ) Incandescent

Photoperiod: 16 Hours Light
8 Hours Dark

Test Duration: 10 Days

Test Area Used: Water Baths

Test Temperature (°C): 20±2

Test Salinity (ppt): 25±2

Replicates Per Concentration: 5

Organisms Per Replicate: 20

Dilution Water: Natural Filtered Seawater

TEST VESSELS

Dimensions (cm): 95 Length x_Width x6.6 Height

Test Solution Height (cm) : 5

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 1.6 Liters

Test Solution Volume: 0.6 Liters

TEST SOLUTION PREPARATION

Test Concentration (%) mg/L	100% Sample						
Volume of Dilution Water Added (ml)	800						
Volume of Effluent/ Stock Added (ml)	200						

ADDITIONAL OBSERVATIONS:
Samples Tested: Control; E-KB01-1 through E-KB01-5; E-KB01-Duplicate; RS-E-KB01-1

DATA BY: ADE

DATE: 7/27/01

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- control

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.1		0.27	8.1	7.9	25		MT 1115
7/28/01 1	B	20.1		—	8.1	7.7	25		PAS 1230
7/29/01 2	C	19.1		0.67	8.1	7.6	25		ADE 1545
7/30/01 3	D	18.4		—	8.0	7.2	27		ADE 915
7/31/01 4	E	18.4		0.79	8.2	7.4	27		ADE 1200
8/01/01 5	A	19.0		—	8.1	7.1	27		ADE 1130
8/02/01 6	B	19.1		0.65	8.2	7.3	27		PAS 1130
8/03/01 7	C	19.0		—	8.2	7.1	27		ADE 1430
8/04/01 8	D	18.9		0.53	8.2	7.4	26		PAS 1030
8/05/01 9	E	18.5		—	8.2	7.1	27		PAS 1030
8/06/01 10	A	18.5		0.57	8.1	7.1	27		PAS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18 2NF	19 1NF	17 3NF	18 2NF	18 2NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- 01

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.0		0.08	8.2	8.1	25		AVT 1115
7/28/01 1	B	20.0		—	8.2	7.6	25		PAS 1230
7/29/01 2	C	19.1		0.07	8.2	7.6	25		ADE 1545
7/30/01 3	D	18.6		—	8.1	7.6	26		ADE 915
7/31/01 4	E	18.4		0.10	8.1	7.0	26		ADE 1200
8/01/01 5	A	18.6		—	8.1	7.3	27		ADE 1130
8/02/01 6	B	19.0		0.11	8.2	7.3	27		PAS 1130
8/03/01 7	C	19.1		—	8.1	6.8	27		ADE 1330
8/04/01 8	D	18.7		0.13	8.1	7.3	25		PAS 1030
8/05/01 9	E	18.4		—	8.1	7.1	27		PAS 1030
8/06/01 10	A	18.7		0.12	~~7.2~~ 8.1	7.2	27		PAS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	19 1NF	17 3NF	19 1NF	15 5NF	16 4NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- 02

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.0		0.86	8.2	6.8	25		HTT 1115
7/28/01 1	B	19.7		—	8.3	7.6	25		PAS 1030
7/29/01 2	C	19.1		2.21	8.1	7.4	25		ADE 1545
7/30/01 3	D	18.7		—	8.2	7.1	27		ADE 915
7/31/01 4	E	18.5		1.90	8.1	6.9	27		ADE 1200
8/01/01 5	A	18.6		—	8.1	6.6	27		ADE 1130
8/02/01 6	B	18.6		1.58	8.4	7.0	27		PAS 1130
8/03/01 7	C	19.0		—	8.3	5.7	27		ADE 1330
8/04/01 8	D	18.6		1.82	8.4	6.6	26		PAS 1030
8/05/01 9	E	18.4		—	8.3	7.0	27		PAS 1030
8/06/01 10	A	18.3		1.73	8.1	7.2	27		PAS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	15 5NF	19 1NF	16 4NF	17 3NF	18 2NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- 03

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.1		0.30	8.2	6.8	25		[illegible] 1115
7/28/01 1	B	20.2		—	8.2	7.5	25		PB 1230
7/29/01 2	C	19.3		1.86	8.3	7.5	25		ADE 1545
7/30/01 3	D	18.8		—	8.1	7.0	27		ADE 915
7/31/01 4	E	18.5		1.64	8.1	6.8	27		ADE 1200
8/01/01 5	A	18.5		—	8.1	7.1	27		ADE 1130
8/02/01 6	B	18.6		1.34	8.2	6.8	27		PB 1130
8/03/01 7	C	19.1		—	8.4	7.1	27		ADE 1330
8/04/01 8	D	18.5		1.44	8.3	7.4	26		PB 1030
8/05/01 9	E	18.3		—	8.5	7.0	27		PB 1030
8/06/01 10	A	16.5		1.38	8.5	7.7	27		PB 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18 2NF	19 1NF	17 3NF	17 3NF	19 1NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- 04

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.1		0.26	8.2	7.7	25		ILNT 1115
7/28/01 1	B	20.1		—	8.1	7.6	25		PAS 1203
7/29/01 2	C	19.5		0.81	8.2	7.6	25		ADE 1545
7/30/01 3	D	18.8		—	8.1	7.4	27		ADE 915
7/31/01 4	E	18.7		0.86	8.1	7.1	27		ADE 1200
8/01/01 5	A	18.7		—	8.0	6.8	27		ADE 1130
8/02/01 6	B	18.6		0.80	8.1	7.2	27		PAS 1130
8/03/01 7	C	19.1		—	8.2	7.1	27		ADE 1330
8/04/01 8	D	18.5		0.77	8.1	7.5	27		PAS 1030
8/05/01 9	E	18.4		—	8.2	6.6	27		PAS 1030
8/06/01 10	A	18.3		0.83	8.4	6.6	27		PAS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	20A	18A 2NF	17A 3NF	16A 4NF	15A 5NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- 05

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.2		0.08	8.1	7.3	25		KT 1115
7/28/01 1	B	20.2		—	8.1	7.6	25		PJS 1230
7/29/01 2	C	19.5		0.53	8.2	7.5	25		ADE 1545
7/30/01 3	D	18.9		—	8.1	7.5	24		ADE 915
7/31/01 4	E	18.7		0.50	8.1	7.2	26		ADE 1200
8/01/01 5	A	18.6		—	8.0	7.1	27		ADE 1130
8/02/01 6	B	18.5		0.49	8.2	7.3	27		PJS 1130
8/03/01 7	C	19.0		—	8.2	7.0	27		ADE 1330
8/04/01 8	D	18.5		0.52	8.2	7.4	27		PJS 1030
8/05/01 9	E	18.4		—	8.2	6.7	27		PJS 1030
8/06/01 10	A	18.3		0.55	8.3	6.9	27		PJS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18A 2NF	20A	19 INF	19A INF	18A 2NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- DUP

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.0		1.04	8.3	6.7	25		HVT 1115
7/28/01 1	B	20.0		—	8.3	7.6	25		PAS 1230
7/29/01 2	C	19.0		2.31	8.3	7.5	25		ADE 1545
7/30/01 3	D	18.4		—	8.1	7.2	27		ADE 915
7/31/01 4	E	18.4		1.79	8.2	7.1	26		ADE 1200
8/01/01 5	A	18.7		—	8.1	6.8	27		ADE 1130
8/02/01 6	B	19.1		1.31	8.3	7.2	27		PAS 1130
8/03/01 7	C	19.1		—	8.4	7.0	27		ADE 1330
8/04/01 8	D	18.9		1.53	8.3	7.1	26		PAS 1030
8/05/01 9	E	18.6		—	8.4	6.7	27		PAS 1030
8/06/01 10	A	18.6		1.86	~~6.6~~ 8.1	6.6	27		PAS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	16 4NF	14 6NF	17 3NF	16 4NF	16 4NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: E-KB01- RS

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Mysidopsis bahia*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	20.2		0.4	8.2	7.9	24		NT 1115
7/28/01 1	B	20.1		—	8.1	7.6	26		PTS 1230
7/29/01 2	C	19.5		0.45	8.2	7.7	25		ADE 1545
7/30/01 3	D	18.9		—	8.0	7.0	26		ADE 915
7/31/01 4	E	18.7		0.49	8.2	7.1	26		ADE 1200
8/01/01 5	A	18.7		—	~~8.1~~ 7.9	6.4	27		ADE 1130
8/02/01 6	B	18.4		0.53	8.2	7.3	27		PTS 1130
8/03/01 7	C	19.1		—	8.2	7.2	27		ADE 1330
8/04/01 8	D	18.5		0.48	8.2	7.7	26		PTS 1030
8/05/01 9	E	18.4		—	8.2	6.6	27		PTS 1030
8/06/01 10	A	17.8		0.62	8.1	6.6	27		PTS 1030

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18A 2NF	18A 1NF	19 1NF	18A 2NF	20

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Appendix A-7

Survivorship and Water Quality Monitoring Results for *Leptocheirus plumulosus* Sediment Bioassays for Kings Bay, July 2001

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: _PPb – Kings Bay _____ Project No.: _311224.0300_____

TEST MATERIAL

Test Material: _whole Sediment_____

See Page 581 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:

EPA-50318-91/001

Test Concentrations Based on: ( ) Active Ingredient
(x) Whole Material

TEST ORGANISM HISTORY

Test Species: ___*Leptocheirus plumulosis*_____

Lot Number: 2001-24

Age/ Life Stage: ___2-4 mm_____

Date Acclimation/ Maintenance Began: 7/27/01

See Page 100 of Org. Receipt Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: <10%

TEST CONDITIONS

( ) Range Finder
( ) Screening
( ) Definitive

(x) Static
( ) Flow-Through

Lighting: (x) Fluorescent ( ) Incandescent

Photoperiod: _16 Hours Light
__8 Hours Dark

Test Duration: __10 Days_____

Test Area Used: _Water Baths_____

Test Temperature (°C): __20±2_____

Test Salinity (ppt): ___28±2_____

Replicates Per Concentration: ___5_____

Organisms Per Replicate: ___20_____

Dilution Water: Natural Filtered Seawater

TEST VESSELS

Dimensions (cm): 10.5 Length x_Width x23 Height

Test Solution Height (cm) : __≈13_____

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 02.0_____ Liters

Test Solution Volume: __0.8_____ Liters

TEST SOLUTION PREPARATION

Test Concentration (%) mg/L	100% Sample						
Volume of Dilution Water Added (ml)	800						
Volume of Effluent/ Stock Added (ml)	200						

ADDITIONAL OBSERVATIONS:
* Samples tested: Control, E-KB01-1, through E-KB01-5, E-KB01-Dup & RS-KB01-1

DATA BY: ADE DATE: 7/27/01

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: ~~RS~~-KB01 - control

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.1		0.27	8.1	7.9	28		AMT 1115
7/28/01 1	B	19.1		—	8.1	7.4	28		PTS 1200
7/29/01 2	C	18.9		0.52	8.2	7.7	29		ADE 1500
7/30/01 3	D	18.2		—	8.1	7.1	28		ADE 845
7/31/01 4	E	19.2		0.65	8.1	7.2	28		ADE 1145
8/01/01 5	A	19.2		—	8.1	7.3	28		ADE 1100
8/02/01 6	B	19.4		0.57	8.2	7.5	30		PTS 1130
8/03/01 7	C	19.6		—	8.2	7.2	29		ADE 1400
8/04/01 8	D	19.4		0.49	8.1	7.4	27		PTS 1100
8/05/01 9	E	19.5		—	8.2	7.6	28		PTS 1000
8/06/01 10	A	18.8		0.62	8.1	7.6	28		PTS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 loaded →				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18A 2NF	20	20	20	18 2NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: ~~RS~~ E-KB01 – 01

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.0		0.08	8.2	8.1	28		AHT 1115
7/28/01 1	B	19.2		—	8.1	7.5	30		PAS 1200
7/29/01 2	C	18.6		0.06	8.2	7.7	30		ADE 1500
7/30/01 3	D	18.2		—	8.2	7.0	30		ADE 845
7/31/01 4	E	19.3		0.04	8.1	7.2	29		ADE 1445
8/01/01 5	A	19.2		—	8.2	7.6	30		ADE 1100
8/02/01 6	B	19.4		0.05	8.2	7.4	30		PAS 1130
8/03/01 7	C	19.5		—	8.2	7.4	30		ADE 1400
8/04/01 8	D	19.4		0.09	8.1	7.3	28		PAS 1100
8/05/01 9	E	19.3		—	8.2	7.5	29		PAS 1000
8/06/01 10	A	19.7		0.10	8.2	7.8	30		PAS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded →				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	14A 6NF	~~8A 7NF~~ 12 8NF	10 10NF	8D 12NF	15 5NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: ~~RS~~-KB01 ~ 02

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.0		0.86	8.2	6.8	28		JWT 1115
7/28/01 1	B	19.1		—	8.2	7.4	30		PAS 1200
7/29/01 2	C	18.6		1.44	8.1	6.7	30		ADE 1500
7/30/01 3	D	18.2		—	8.2	7.2	29		ADE 845
7/31/01 4	E	19.3		1.55	8.1	7.1	28		ADE 1145
8/01/01 5	A	19.2		—	8.2	7.3	29		ADE 1100
8/02/01 6	B	19.4		1.72	8.2	7.4	30		PAS 1130
8/03/01 7	C	19.5		—	8.2	6.4	30		ADE 1400
8/04/01 8	D	19.2		1.77	8.3	7.4	28		PAS 1100
8/05/01 9	E	19.3		—	8.2	7.1	29		PAS 1000
8/06/01 10	A	18.7		1.68	8.7	7.6	29		PAS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded →				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	16A 4NF	18A 2NF	14A 6NF	13A 7NF	15A 5NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: ~~KB~~ KB01-03

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.1		0.30	8.2	6.8	28		IKT 1115
7/28/01 1	B	19.1		—	8.2	7.3	30		PAS 1200
7/29/01 2	C	18.6		1.13	8.3	7.8	30		ADE 1500
7/30/01 3	D	18.1		—	8.2	7.4	30		ADE 845
7/31/01 4	E	19.2		1.21	8.1	7.2	29		ADE 1145
8/01/01 5	A	~~19.3~~ 19.3		—	8.2 ~~8.2~~	7.3	29		ADE 1100
8/02/01 6	B	19.4		1.15	8.2	7.0	30		PAS 1130
8/03/01 7	C	19.5		—	8.4	7.1	30		ADE 1400
8/04/01 8	D	19.3		1.24	8.3	7.5	28		PAS 1100
8/05/01 9	E	19.4		—	8.2	6.6	29		PAS 1000
8/06/01 10	A	18.7		1.20	8.4	7.5	30		PAS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	16A 4NF	14A 6NF	14A 6NF	15A 5NF	15A 5NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPL – Kings Bay
SAMPLE ID: ~~RS~~-KB01-04

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.1		0.26	8.2	7.7	28		HT 1115
7/28/01 1	B	19.2		—	8.2	7.6	30		PB 1200
7/29/01 2	C	18.5		0.41	8.2	7.7	30		ADE 1500
7/30/01 3	D	18.1		—	8.1	7.2	28		ADE 848
7/31/01 4	E	19.3		0.48	8.2	7.4	28		ADE 1148
8/01/01 5	A	19.5		—	8.2	7.5	28		ADE 1100
8/02/01 6	B	19.3		0.43	8.3	7.5	30		PB 1130
8/03/01 7	C	19.4		—	8.3	7.3	30		ADE 1400
8/04/01 8	D	19.3		0.72	8.2	7.6	28		PB 1100
8/05/01 9	E	19.3		—	8.3	7.4	29		PB 1000
8/06/01 10	A	18.7		0.81	8.4	7.8	30		PB 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18A 2NF	19A 1NF	18A 2NF	18A 2NF	19A 1NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb - Kings Bay
SAMPLE ID: ~~RS~~-KB01-05

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.2		0.08	8.1	7.3	28		NT 1115
7/28/01 1	B	19.2		—	8.2	7.4	30		PAS 1200
7/29/01 2	C	18.5		0.38	8.1	7.6	28		ADE 1500
7/30/01 3	D	18.0		—	8.1	7.7	28		ADE 845
7/31/01 4	E	19.3		0.43	8.2	7.3	28		ADE 1145
8/01/01 5	A	19.5		—	8.2	7.5	28		ADE 1100
8/02/01 6	B	19.3		0.35	8.2	7.4	30		PAS 1130
8/03/01 7	C	19.4		—	8.3	7.6	28		ADE 1400
8/04/01 8	D	19.2		0.42	8.2	7.6	27		PAS 1100
8/05/01 9	E	19.2		—	8.2	7.7	28		PAS 1000
8/06/01 10	A	18.6		0.39	8.3	7.8	30		PAS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	20A	20A	20A	19A INF	19A INF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: ~~KB~~-KB01 – DUP

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY		REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01	0	A	19.0		1.04	8.3	6.7	28		AHT 1115
7/28/01	1	B	19.1		—	8.1	7.3	30		PB 1200
7/29/01	2	C	18.7		1.70	8.2	7.6	30		ADE 1500
7/30/01	3	D	18.2		—	8.2	7.3	30		ADE 845
7/31/01	4	E	19.4	–	1.95	8.0	7.4	28		ADE 1145
8/01/01	5	A	19.2		—	8.2	7.5	29		ADE 1100
8/02/01	6	B	19.4		1.92	8.2	7.0	30		PB 1130
8/03/01	7	C	19.6		—	8.3	7.0	30		ADE 1400
8/04/01	8	D	19.4		1.72	8.2	7.3	28		PB 1100
8/05/01	9	E	19.5		—	8.3	7.5	29		PB 1000
8/06/01	10	A	18.7		1.87	8.5	7.6	29		PB 1000

OBSERV		REPLICATE				
DATE-DAY		A	B	C	D	E
7/27/01	0	20 Loaded				
7/28/01	1	N	N	N	N	N
7/29/01	2	N	N	N	N	N
7/30/01	3	N	N	N	N	N
7/31/01	4	N	N	N	N	N
8/01/01	5	N	N	N	N	N
8/02/01	6	N	N	N	N	N
8/03/01	7	N	N	N	N	N
8/04/01	8	N	N	N	N	N
8/05/01	9	N	N	N	N	N
8/06/01	10	19A 1NF	15A 5NF	15A 5NF	16A 4NF	14A 6NF

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Harding ESE
TOXICOLOGY LAB: GAINESVILLE, FL

QA FORM NO: 108C
Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET

SPONSOR: PPb – Kings Bay
SAMPLE ID: RS-KB01-01

PROJECT NUMBER: 311224.0300
TEST SPECIES: *Leptocheirus plumulosus*

DATE-DAY	REP	TEMP (°C)		NH_3 (ppm)	pH (s.u.)	DO (mg/L)	Salinity (ppt)		INITIAL/TIME
7/27/01 0	A	19.2		0.40	8.2	7.9	26		HT 1115
7/28/01 1	B	19.2		—	8.1	7.4	28		PAS 1200
7/29/01 2	C	18.5		0.42	8.2	7.6	28		ADE 1500
7/30/01 3	D	18.0		—	8.1	7.6	28		ADE 845
7/31/01 4	E	19.4		0.35	8.1	7.5	28		ADE 1145
8/01/01 5	A	19.5		—	8.1	7.4	28		ADE 1100
8/02/01 6	B	19.3		0.25	8.2	7.5	30		PAS 1130
8/03/01 7	C	19.3		—	8.2	7.6	28		ADE 1400
8/04/01 8	D	19.2		0.31	8.2	7.6	28		PAS 1100
8/05/01 9	E	19.2		—	8.3	7.6	29		PAS 1000
8/06/01 10	A	18.7		0.44	8.3	7.8	30		PAS 1000

OBSERV	REPLICATE				
DATE-DAY	A	B	C	D	E
7/27/01 0	20 Loaded				
7/28/01 1	N	N	N	N	N
7/29/01 2	N	N	N	N	N
7/30/01 3	N	N	N	N	N
7/31/01 4	N	N	N	N	N
8/01/01 5	N	N	N	N	N
8/02/01 6	N	N	N	N	N
8/03/01 7	N	N	N	N	N
8/04/01 8	N	N	N	N	N
8/05/01 9	N	N	N	N	N
8/06/01 10	18A 2NF	20A	20A	20A	20A

Comments:

KEY: AS = AT SURFACE EMR = EMERGENCE A = ALIVE D = DEAD NF = NOT FOUND N=NONE
REP = REPLICATE COND = CONDUCTIVITY ALK = ALKALINITY AMP = AMPLEXUS

Daily Monitoring of Ammonia and pH Concentrations for the Rerun of 10-day Sediment Bioassay of *Leptocheirus plumulosus*

	Sample							
	KB01-02		KB01-02 Duplicate		KB01-03		RS-KB01	
Test Day	NH_3 (ppm)	pH	NH_3 (ppm)	pH	NH_3 (ppm)	pH	NH_3 (ppm)	pH
Test Sediment								
Initial Measure-ment	61.1	7.6	72.8	7.7	26.1	7.2	56.8	7.9
Pre-Test	33.2	7.9	31.4	8.0	19.7	7.7	49.2	8.3
Overlying Water								
0	0.2	7.4	1.2	8.1	0.5	8.0	0.3	8.0
1	0.7	7.9	1.3	7.7	0.3	8.0	0.2	8.0
2	0.6	7.8	1.1	7.8	0.5	7.8	0.4	7.9
3	0.6	8.0	1.1	8.0	0.7	7.9	0.3	8.0
4	0.8	7.8	0.8	7.9	0.4	7.9	0.3	7.9
5	0.9	8.0	0.9	8.0	0.3	7.6	0.5	7.8
6	0.7	7.9	0.7	7.9	0.2	7.3	0.2	7.9
7	0.3	7.9	0.4	7.9	0.2	8.0	0.3	7.9
8	0.3	8.0	0.5	8.0	0.4	8.0	0.2	8.0
9	0.3	8.1	0.2	8.1	0.4	7.9	0.4	8.0
10	0.4	7.3	0.1	8.2	0.2	8.2	0.1	8.1
Post-Test	3.6	7.8	2.7	7.7	3.2	7.9	2.1	8.0

Appendix A-8

Sediment Reference Toxicant
Data Sheets for Kings Bay,
July 2001

HARDING ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
FORM NO: 097A REFTOX
REVISED: MARCH 2001

REFERENCE TOXICANT TEST DATA SHEET

Sponsor: MTSC.	Project Number: REF TOX
Test Material	**Test Conditions**
Amount of SDS : 0.100 (g) Volume of Milli-Q Water: 100 (mL) Date Prepared: 8/2/01	[X] Definitive [X] Static [ ] Screening Duration: 48 Hours
Test Organism History	Dilution Water: Natural Filtered Seawater
Species: M. bahia Batch Number: 2001-26 Age/Life Stage: 3 days Date of Acclimation/Maintenance: ___ See Page 100 of organism Record Log Mortality 48 hours prior to test: 21 (%) Replicates/Concentration: 1 No. Of Organisms/Replicate: 10	Lighting: [X] Fluorescent [ ] Incandescent Photoperiod: 16 Hr Light 8 Hr Dark Test Vessel Dimensions: 10 L X – W 5 H Test Solution Height: 4 (cm) Test Vessel Volume: 0.34 (L) Test Solution Volume: 0.20 (L) Test Temperature: 20 ± 1 °C Test Salinity: 20 ± 2 ppt
Test Area Used: Waterbath	Test Vessel Composition: [X] Glass [ ] Plastic
Test Concentrations Based on: [X] Whole Material [ ] Active Ingredient	Test Protocol/Guideline Followed: SOP-A-004

Test Concentrations: (Units: mg/L)	Control	2.5	5	10	20	40	
Amount Dilution Water Added (mL)	200	199.5	199	198	196	192	
Amount of Stock Added (mL)	—	0.5	1	2	4	8	

Additional Observations:_____

Data By: PAS Date: 8/2/01

Harding ESE
TOXICOLOGY LABORATORY
GAINESVILLE, FLORIDA

PAGE:_____
QA FORM NO: 097 REFTOX
Revised: March 2001

REFERENCE TOXICANT TEST DATA: DAY 0 – 2

Client: MISC | Project Number: REF TOX | Species M. bahia

DAY 0 | REF TOXICANT: SDS

Nominal Concentration (mg/L)	Date: 8/2/01		Time: 1200		Analyst: ADE	
	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	Loaded	10	20.1	20	7.4	8.2
2.5	↓	↓	20.1	20	7.5	8.2
5			20.1	20	7.5	8.2
10			20.0	20	7.4	8.2
20			20.0	20	7.4	8.2
40			20.1	20	7.3	8.2

DAY 1	Date: 8/3/01		Time: 1330		Analyst: ADE	
Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	10	N	20.1	21	6.8	7.8
2.5	10	N	20.1	21	6.5	7.8
5	10	N	20.0	21	6.2	7.8
10	9	1d	20.0	21	6.4	7.8
20	0	10d	20.1	21	6.4	7.8
40	0	10d	20.2	21	6.3	7.8

DAY 2	Date: 8/4/01		Time: 10:00		Analyst: ADE/RAS	
Nominal Concentration	# Alive	Observ.	Temp. (°C)	Sal (ppt)	DO (mg/L)	pH
Control	~~10~~ 9	~~N~~ 1D	20.1	22	7.3	7.8
2.5	10	N	20.1	21	7.1	7.8
5	~~10~~ 9	~~N~~ 1D	20.1	22	7.0	7.8
10	~~9~~ 6	~~1d~~ 4D	20.2	21	6.9	7.8
20	0	10d				
40	0	10d				

PAGE:_____

TRIMMED SPEARMAN-KARBER METHOD. VERSION 1.5

DATE: 8/4/01 TEST NUMBER: 1 DURATION: 48 h
TOXICANT : SDS
SPECIES: M. bahia

RAW DATA:

Concentration (mg/L)	Number Exposed	Mortalities
.00	10	1
2.50	10	0
5.00	10	1
10.00	10	6
20.00	10	10
40.00	10	10

SPEARMAN-KARBER TRIM: .00%

SPEARMAN-KARBER ESTIMATES: LC50: 9.13
95% LOWER CONFIDENCE: 7.20
95% UPPER CONFIDENCE: 11.58

NOTE: MORTALITY PROPORTIONS WERE NOT MONOTONICALLY INCREASING.
ADJUSTMENTS WERE MADE PRIOR TO SPEARMAN-KARBER ESTIMATION.

Appendix A-9

Survivorship and Water Quality
Monitoring Results for
Macoma nasuta
Bioaccumulation Tests for
Kings Bay, July 2001

Harding ESE
Toxicology Laboratory
Gainesville, Florida

Page: _____
QA Form No. 018
Revised: March 2001

Project No: 311224.0400 Client: PPb – Kings Bay Test: Bioaccumulation

DAILY LOG

7-25-01 - PAS - SEDIMENT LOADED; OVER L WATER ADDED
AIR LINES ADDED AND SET TO AIRATE
7-26-01 - PAS - DO, PH, T, SAL, MONITORED; 20 ORGANI ADDED
TO EACH REPLICATE; AIR LINES CHECKED
7-27-01 - PAS - RENEWED WATER; MONITORED TEST; CHECKED
AIR LINES
7-28-01 - PAS - TEST MONITORED; AIR LINES CHECKED
7/29/01 - ADE - Test monitored; airlines checked.
7/30/01 - ADE - Overlying water renewed. Test monitored & airlines checked.
7/31/01 - ADE - Test monitored; airlines checked.
8/1/01 - ADE - Overlying water renewed. Test monitored; observations taken and airlines checked.
8-2-01 - PAS - TEST MONITORED; AIR LINES CHECKED
8-3-01 - PAS - RENEWED WATER; TEST MONITORED
8-4-01 PAS - TEST MONITORED; AIR LINES CHECKED
8-5-01 PAS - TEST MONITORED; AIR LINES CHECKED
8-6-01 PAS - RENEWED WATER; TEST MONITORED
8-7-01 - PAS - TEST MONITORED; AIR LINES CHECKED
8-8-01 - PAS - RENEWED WATER, TEST MONITORED
8-9-01 - PAS - TEST MONITORED; AIR LINES CHECKED
8-10-01 - PAS - WATER RENEWED; TEST MONITORED; AIR LINES CHECKED
8-11-01 - PAS - TEST MONITORED; AIR LINES CHECKED
8-12-01 - PAS - TEST MONITORED; AIR LINES CHECKED
8-13-01 - PAS - WATER RENEWED; TEST MONITORED; AIR LINES CHECKED

Harding ESE
Toxicology Laboratory
Gainesville, Florida

Page: _____
QA Form No. 018
Revised: March 2001

Project No: 311224.0400 Client: PPb – Kings Bay Test: Bioaccumulation

DAILY LOG

8-14-01 - RAS - TEST MONITORED; AIR LINES CHECKED
8-15-01 - RAS - WATER RENEWED; TEST MONITORED; AIR LINES CHECKED
8-16-01 - RAS - TEST MONITORED; AIR LINES CHECKED
8-17-01 - RAS - WATER RENEWED; TEST MONITORED; AIR LINES CHECKED
8/18/01 - RAS - TEST MONITORED; AIR LINES CHECKED
8/19/01 - RAS - TEST MONITORED; AIR LINES CHECKED
8/20/01 - RAS - WATER RENEWED; TEST MONITORED; AIR LINES CHECKED
8/21/01 - RAS - TEST MONITORED; AIR LINES CHECKED
8/22/01 - ADE - Test monitored after water renewal. Airlines checked
8/23/01 - ADE - TEST TERMINATED: Test monitored. Organisms rinsed in ~~DI~~ sea water and left in bags overnight to depurate
8/24/01 - ADE - Organisms re-rinsed with DI water and rebagged. Placed bags in freezer

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: PPb-Kings Bay

Project No.: 311224.0400

TEST MATERIAL

Test Material: Whole Sediment

See Page 58 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:

EPA-50318-91/001

Test Concentrations Based on: ( ) Active Ingredient
(x) Whole Material

TEST ORGANISM HISTORY

Test Species: *Macoma nasuta*

Lot Number: 2001-21

Age/ Life Stage: Mixed, 2-4 cm

Date Acclimation/ Maintenance Began: 7-26-01

See Page 100 of Organism Receipt Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: 2%

TEST CONDITIONS

( ) Range Finder
(x) Screening
( ) Definitive

( ) Static
( ) Flow-Through

Lighting: (x) Fluorescent ( ) Incandescent

Photoperiod: 16 Hours Light
8 Hours Dark

Test Duration: 28 Days

Test Area Used: Bioaccumulation Room

Test Temperature (°C): 18± 2

Test Salinity (ppt): 25± 2

Replicates Per Concentration: 5

Organisms Per Replicate: 20

Dilution Water: Natural Filtered Seawater

TEST VESSELS

Dimensions (cm): 50 Length x 26.5 Width x31.5 Height

Test Solution Height (cm) : ≈ 25 cm

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 37.5 Liters

Test Solution Volume: ≈30.0 Liters

TEST SOLUTION PREPARATION

Test Concentration (%) mg/L	100% Sample						
Volume of Dilution Water Added (mL)	30						
Volume of Effluent/ Stock Added (mL)	2						

ADDITIONAL OBSERVATIONS: Samples Tested: Control, E-KB01-1 through E-KB01-5; E-KB01 Duplicate & RS-KB01

DATA BY: [illegible]

DATE: 7-26-01

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: Control

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	16.8			8.3	8.3	25	PAS
7/27/01	1	B	20.6			8.3	7.5	25	PAS
7/28/01	2	C	16.2			8.3	8.4	27	PAS
7/29/01	3	D	16.9			8.3	8.3	27	ADE
7/30/01	4	E	19.5			8.3	7.2	25	ADE
7/31/01	5	A	17.6			8.3	7.3	26	ADE
8/01/01	6	B	19.2			8.2	7.3	25	[illegible]
8/02/01	7	C	17.2			8.2	8.0	27	PAS
8/03/01	8	D	19.6			8.4	7.6	27	ADE
8/04/01	9	E	19.6			8.2	8.0	25	PAS
8/05/01	10	A	17.0			8.3	7.9	26	PAS
8/06/01	11	B	16.8			8.3	7.9	26	[illegible]
8/07/01	12	C	17.8			8.2	7.9	27	PAS
8/08/01	13	D	17.8			8.2	7.9	27	PAS
8/09/01	14	E	17.2			8.2	7.7	25	HEB
8/10/01	15	A	17.1			8.4	8.1	25	HEB
8/11/01	16	B	17.5			8.3	8.2	25	HEB
8/12/01	17	C	17.9			8.1	8.1	27	[illegible]
8/13/01	18	D	18.2			8.3	8.2	27	PAS
8/14/01	19	E	16.8			8.1	7.9	27	PAS
8/15/01	20	A	17.6			8.1	8.0	25	PAS
8/16/01	21	B	17.7			8.3	8.1	26	PAS
8/17/01	22	C	17.6			8.4	8.1	25	PAS
8/18/01	23	D	17.5			8.4	8.2	25	PAS
8/19/01	24	E	16.7			8.0	8.1	26	PAS
8/20/01	25	A	17.8			8.1	7.8	25	PAS
8/21/01	26	B	17.7			8.3	8.1	26	PAS
8/22/01	27	C	17.5			8.1	8.1	25	PAS
8/23/01	28	D	17.6			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: DUP

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	18.0			8.4	8.3	25	PAS
7/27/01	1	B	20.6			8.3	7.7	26	PAS
7/28/01	2	C	16.2			8.3	8.3	27	PAS
7/29/01	3	D	16.9			8.3	8.1	27	ADE
7/30/01	4	E	19.7			8.4	7.3	26	ADE
7/31/01	5	A	17.6			8.2	7.6	26	ADE
8/01/01	6	B	19.3			8.2	7.4	26	[illegible]
8/02/01	7	C	17.7			8.2	7.9	27	PAS
8/03/01	8	D	19.3			8.4	7.5	27	ADE
8/04/01	9	E	17.3			8.3	7.8	25	RES
8/05/01	10	A	17.0			8.3	7.7	27	PAS
8/06/01	11	B	17.5			8.3	7.6	26	RES
8/07/01	12	C	17.6			8.2	7.8	27	PAS
8/08/01	13	D	17.6			8.2	7.9	27	PAS
8/09/01	14	E	17.6			8.2	7.8	26	HEB
8/10/01	15	A	17.5			8.4	7.9	26	HEB
8/11/01	16	B	17.8			8.3	8.2	25	HEB
8/12/01	17	C	16.5			8.1	7.9	27	PAS
8/13/01	18	D	18.2			8.3	8.2	27	PAS
8/14/01	19	E	17.9			8.1	7.8	25	PAS
8/15/01	20	A	16.1			8.2	8.0	26	PAS
8/16/01	21	B	16.2			8.3	8.0	26	PAS
8/17/01	22	C	17.5			8.4	8.2	25	PAS
8/18/01	23	D	17.7			8.4	8.1	26	PAS
8/19/01	24	E	17.2			8.4	7.7	26	PAS
8/20/01	25	A	17.9			8.2	8.1	25	PAS
8/21/01	26	B	17.6			8.3	8.1	26	PAS
8/22/01	27	C	17.5			8.1	8.1	25	PAS
8/23/01	28	D	17.6			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-1

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	18.5			8.3	8.1	27	PAS
7/27/01	1	B	20.8			8.3	7.3	26	PAS
7/28/01	2	C	16.6			8.4	8.4	27	PAS
7/29/01	3	D	16.6			8.3	8.3	27	ADE
7/30/01	4	E	19.6			8.4	7.5	26	ADE
7/31/01	5	A	17.7			8.3	7.4	26	ADE
8/01/01	6	B	19.3			8.2	7.3	25	JHT
8/02/01	7	C	17.8			8.3	7.9	~~[illegible]~~ 27	PAS
8/03/01	8	D	19.4			8.4	7.2	27	ADE
8/04/01	9	E	17.3			8.4	8.1	25	PAS
8/05/01	10	A	16.8			8.4	8.0	27	PAS
8/06/01	11	B	17.7			8.4	7.8	27	PAS
8/07/01	12	C	16.3			8.3	7.6	27	PAS
8/08/01	13	D	17.3			8.2	7.9	27	PAS
8/09/01	14	E	17.6			8.2	8.0	25	HEB
8/10/01	15	A	17.3			8.4	8.1	27	HEB
8/11/01	16	B	18.1			8.3	8.4	25	HEB
8/12/01	17	C	18.7			8.1	7.6	27	[illegible]
8/13/01	18	D	18.1			8.3	8.1	27	PAS
8/14/01	19	E	17.2			8.1	7.7	27	PAS
8/15/01	20	A	17.3			8.4	8.1	25	PAS
8/16/01	21	B	18.2			8.3	8.0	26	PAS
8/17/01	22	C	17.9			8.4	8.3	25	PAS
8/18/01	23	D	18.1			8.3	8.0	25	PAS
8/19/01	24	E	17.7			8.4	7.0	26	PAS
8/20/01	25	A	18.1			8.1	8.0	25	PAS
8/21/01	26	B	17.8			8.3	8.1	26	PAS
8/22/01	27	C	17.9			8.2	8.2	25	PAS
8/23/01	28	D	17.6			8.3	8.3	25	PAS

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: FE-KB01-2

PROJECT NUMBER: 311224.0400
TEST SPECIES: ~~Nereis virens~~ Macoma nasuta

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	17.2			8.3	8.1	26	PAS
7/27/01	1	B	20.3			8.4	7.3	27	PAS
7/28/01	2	C	16.3			8.3	8.4	27	PAS
7/29/01	3	D	16.7			8.3	8.2	27	ADE
7/30/01	4	E	19.6			8.4	7.3	26	ADE
7/31/01	5	A	18.0			8.3	7.4	26	ADE
8/01/01	6	B	19.3			8.2	7.3	26	[illegible]
8/02/01	7	C	17.3			8.2	8.1	27	PAS
8/03/01	8	D	19.2			8.4	7.4	27	ADE
8/04/01	9	E	17.7			8.2	7.6	25	PAS
8/05/01	10	A	16.8			8.3	7.9	27	PAS
8/06/01	11	B	17.6			8.4	7.7	27	PAS
8/07/01	12	C	18.0			8.2	7.8	27	PAS
8/08/01	13	D	18.0			8.2	8.0	27	PAS
8/09/01	14	E	17.9			8.2	7.5	25	HEB
8/10/01	15	A	17.6			8.3	7.9	27	HEB
8/11/01	16	B	17.6			8.2	8.1	25	HEB
8/12/01	17	C	18.2			8.1	8.1	27	PAS
8/13/01	18	D	18.2			8.3	8.0	27	PAS
8/14/01	19	E	17.2			8.2	8.1	27	PAS
8/15/01	20	A	17.6			8.1	7.9	26	PAS
8/16/01	21	B	17.8			8.2	7.8	26	PAS
8/17/01	22	C	18.0			8.4	8.1	25	PAS
8/18/01	23	D	17.8			8.4	8.1	26	PAS
8/19/01	24	E	17.2			8.2	7.6	26	PAS
8/20/01	25	A	18.4			8.1	7.9	25	PAS
8/21/01	26	B	17.7			8.3	8.0	26	PAS
8/22/01	27	C	17.7			8.2	8.1	25	PAS
8/23/01	28	D	17.4			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-3

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	17.8			8.2	7.6	27	PAS
7/27/01	1	B	21.1			8.4	7.3	26	PAS
7/28/01	2	C	16.5			8.2	7.6	27	PAS
7/29/01	3	D	17.1			8.3	8.2	27	ADE
7/30/01	4	E	19.8			8.4	7.2	26	ADE
7/31/01	5	A	18.1			8.2	7.6	27	ADE
8/01/01	6	B	19.3			8.3	7.4	25	[illegible]
8/02/01	7	C	17.4			8.2	8.1	27	PAS
8/03/01	8	D	19.6			8.4	7.3	27	ADE
8/04/01	9	E	18.1			8.3	7.8	25	PAS
8/05/01	10	A	17.2			8.2	7.6	27	PAS
8/06/01	11	B	18.4			8.3	7.5	27	PAS
8/07/01	12	C	18.5			8.2	7.7	27	PAS
8/08/01	13	D	18.5			8.2	7.8	27	PAS
8/09/01	14	E	18.4			8.2	7.8	25	HEB
8/10/01	15	A	17.8			8.3	7.9	27	HEB
8/11/01	16	B	18.1			8.3	8.1	25	HEB
8/12/01	17	C	18.3			8.0	8.2	27	PAS
8/13/01	18	D	18.5			8.3	8.1	27	PAS
8/14/01	19	E	18.0			8.2	7.8	27	PAS
8/15/01	20	A	17.9			8.1	7.9	26	PAS
8/16/01	21	B	17.5			8.2	8.0	26	PAS
8/17/01	22	C	18.5			8.4	8.0	25	PAS
8/18/01	23	D	18.2			8.4	8.0	26	PAS
8/19/01	24	E	17.7			8.4	7.5	26	PAS
8/20/01	25	A	18.3			8.1	8.0	25	PAS
8/21/01	26	B	18.4			8.3	8.1	26	PAS
8/22/01	27	C	18.1			8.1	7.9	25	PAS
8/23/01	28	D	18.2			8.4	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-4

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	18.5			8.4	7.7	27	PAS
7/27/01	1	B	21.2			8.4	7.5	26	PAS
7/28/01	2	C	16.2			8.3	8.0	27	PAS
7/29/01	3	D	17.8			8.2	7.6	27	ADE
7/30/01	4	E	19.3			8.4	7.2	26	ADE
7/31/01	5	A	18.7			8.3	7.7	27	ADE
8/01/01	6	B	19.4			8.3	7.4	26	[illegible]
8/02/01	7	C	17.4			8.1	7.7	27	PAS
8/03/01	8	D	19.8			8.3	7.4	27	ADE
8/04/01	9	E	18.3			8.4	7.9	25	PAS
8/05/01	10	A	17.8			8.4	7.8	27	PAS
8/06/01	11	B	18.1			8.4	7.7	27	PAS
8/07/01	12	C	18.2			8.3	7.8	27	PAS
8/08/01	13	D	18.5			8.2	7.6	27	PAS
8/09/01	14	E	18.5			8.3	7.8	25	HEB
8/10/01	15	A	18.6			8.3	7.7	27	HEB
8/11/01	16	B	18.1			8.3	8.3	25	HEB
8/12/01	17	C	17.6			8.3	8.3	27	PAS
8/13/01	18	D	18.9			8.3	8.2	27	PAS
8/14/01	19	E	18.0			8.2	8.0	27	PAS
8/15/01	20	A	18.5			8.1	8.6	26	RAS
8/16/01	21	B	17.4			8.2	8.2	26	PAS
8/17/01	22	C	18.4			8.4	8.1	25	PAS
8/18/01	23	D	17.5			8.4	8.1	26	PAS
8/19/01	24	E	17.8			8.4	7.7	26	PAS
8/20/01	25	A	18.6			8.2	8.1	25	PAS
8/21/01	26	B	18.2			8.4	8.1	26	PAS
8/22/01	27	C	17.6			8.3	8.2	25	PAS
8/23/01	28	D	18.4			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-5

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Macoma nasuta*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	18.2			8.4	8.1	27	PAS
7/27/01	1	B	21.3			8.3	6.8	26	PAS
7/28/01	2	C	17.3			8.1	7.9	27	PAS
7/29/01	3	D	17.1			8.3	8.1	27	ADE
7/30/01	4	E	19.7			8.4	7.3	24	ADE
7/31/01	5	A	18.6			8.3	7.7	24	ADE
8/01/01	6	B	19.2			8.3	7.4	26	[illegible]
8/02/01	7	C	17.1			8.3	8.0	27	PAS
8/03/01	8	D	19.3			8.4	7.4	27	ADE
8/04/01	9	E	18.0			8.4	8.0	25	PAS
8/05/01	10	A	17.7			8.4	7.8	27	PAS
8/06/01	11	B	17.9			8.2	7.3	27	PAS
8/07/01	12	C	18.2			8.2	7.7	27	PAS
8/08/01	13	D	17.9			8.2	7.9	27	PAS
8/09/01	14	E	18.5			8.3	7.7	25	HEB
8/10/01	15	A	18.6			8.4	8.0	27	HEB
8/11/01	16	B	18.5			8.3	8.2	25	HEB
8/12/01	17	C	17.7			8.2	8.2	27	PAS
8/13/01	18	D	18.1			8.3	8.1	27	PAS
8/14/01	19	E	18.5			8.1	7.9	26	PAS
8/15/01	20	A	17.6			8.3	8.2	26	PAS
8/16/01	21	B	17.8			8.2	8.1	26	PAS
8/17/01	22	C	18.0			8.3	8.0	25	PAS
8/18/01	23	D	17.2			8.4	8.2	27	PAS
8/19/01	24	E	17.8			8.3	7.9	27	PAS
8/20/01	25	A	18.7			8.2	8.2	25	PAS
8/21/01	26	B	18.7			8.3	8.2	27	PAS
8/22/01	27	C	18.0			8.2	8.2	25	PAS
8/23/01	28	D	17.7			8.4	8.3	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY

QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: RS-KB01

PROJECT NUMBER: 311224.0400
TEST SPECIES: ~~Nereis virens~~ Macoma nasuta

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	16.5			8.2	7.8	27	PAS
7/27/01	1	B	21.1			8.3	7.6	27	PAS
7/28/01	2	C	16.8			8.3	8.0	26	PAS
7/29/01	3	D	17.5			8.3	8.2	27	ADE
7/30/01	4	E	19.6			8.4	7.4	26	ADE
7/31/01	5	A	18.0			8.3	7.4	26	ADE
8/01/01	6	B	19.3			8.2	7.3	26	KEU
8/02/01	7	C	17.9			8.3	8.0	27	PAS
8/03/01	8	D	19.0			8.4	7.8	27	ADE
8/04/01	9	E	17.4			8.3	8.0	25	RLS
8/05/01	10	A	17.4			8.4	7.9	27	PAS
8/06/01	11	B	16.9			8.5	8.1	27	RLS
8/07/01	12	C	17.9			8.3	8.0	27	PAS
8/08/01	13	D	17.4			8.3	8.2	27	PAS
8/09/01	14	E	18.1			8.2	7.5	25	HEB
8/10/01	15	A	17.3			8.4	8.3	27	HEB
8/11/01	16	B	18.6			8.4	8.5	25	HEB
8/12/01	17	C	19.0			8.4	8.5	27	RLS
8/13/01	18	D	18.1			8.3	8.3	27	PAS
8/14/01	19	E	17.7			8.2	8.0	27	PAS
8/15/01	20	A	17.5			8.2	8.3	26	PAS
8/16/01	21	B	18.2			8.4	8.3	26	PAS
8/17/01	22	C	17.6			8.3	8.2	25	PAS
8/18/01	23	D	18.4			8.4	8.3	27	PAS
8/19/01	24	E	17.7			8.2	8.1	27	PAS
8/20/01	25	A	18.5			8.1	8.2	25	PAS
8/21/01	26	B	17.0			8.2	8.2	27	PAS
8/22/01	27	C	17.6			8.1	8.3	25	PAS
8/23/01	28	D	18.2			8.2	8.3	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: Control

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	1d	N	ADE
8/01/01 6	N	N	N	N	N	HEJ
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	1D	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	HEB
8/09/01 14	N	N	N	N	N	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	[illegible]
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	3D	N	N	1D	4D	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	1D	N	N	N	4D	PAS
8/23/01 28	15A	20A	20A	18	11A	MOT

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: DUP

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	KLT
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	ID	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	ID	ID	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	HBB
8/09/01 14	N	N	N	N	ID	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HBB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	ID	N	ID3D	3D	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	ID	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	3D	N	ID	ID	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	16	19	16A2D	17 1d	15A	HB

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-1

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED	→	→	→	→	PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	ID	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	ACT
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	ID	N	N	ID	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	ID	N	PAS
8/07/01 12	N	ID	N	N	N	PAS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HDB
8/10/01 15	N	N	N	ID	ID	PAS
8/11/01 16	N	N	N	N	N	HDB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	ID	N	N	N	N	PAS
8/14/01 19	N	ID	N	ID	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	2D	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	ID	ID	2D	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	ID	ID	N	ID	~~14D~~ N	PAS
8/23/01 28	16A	15A ID	19A	8A	19	[illegible]

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-2

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	IFU
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	ID	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	ID	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	ID	N	N	N	HEB
8/09/01 14	N	N	ID	N	N	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HDB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	ID	ID	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	2D	ID	N	N	N	PAS
8/18/01 23	2D	ID	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	ID	ID	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	15	16A	19 ID	18A	19	[illegible]

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01 3

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	1d	N	N	N	ADE
7/31/01 5	N	N	1d	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	1D	1D	N	1D	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	1D	N	N	N	N	HDB
8/09/01 14	N	1D	N	N	N	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HDB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	2D	N	2D	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	2D	N	1D	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	1D	N	1D	2D	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	17A	18A 2D	15A	18A 1D	17A	PAS

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-L1

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	~~N~~ 1d	1d	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	JHT
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	1D	1D	1D	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	1D	N	N	1D	N	PAS
8/07/01 12	N	N	N	N	1D	PAS
8/08/01 13	N	N	N	3D	N	HEB
8/09/01 14	N	N	N	N	N	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	1D	2D	HEB
8/12/01 17	N	N	N	N	N	GAS
8/13/01 18	N	1D	N	N	2D	PAS
8/14/01 19	1D	1D	1D	1D	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	1D	2D	1D	2D	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	1D	1D	N	N	1D	PAS
8/23/01 28	16A	14A	15A	12A	12A	[illegible]

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-5

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED	→	→	→	→	PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	HLT
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	1D	1D	3D	1D	N	PAS
8/07/01 12	1D	N	N	N	N	PAS
8/08/01 13	1D	N	N	1D	1D	HEB
8/09/01 14	N	N	N	N	N	PAS
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	1D	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	1D	2D	1D	1D	N	[illegible]
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	1D	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	2D	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	1D	2D	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	1D	N	N	1D	3D	PAS
8/23/01 28	13A 1D	17A	12A 1D	16A	14A	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: RS-KB01

PROJECT NUMBER: 311224.0400
TEST SPECIES: Macoma nasuta

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED	→			→	PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	id	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	1D	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	RV
8/06/01 11	N	N	N	1D	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	1D	1D	N	N	HEB
8/09/01 14	N	N	N	N	N	PAS
8/10/01 15	N	N	N	N	N	RV
8/11/01 16	N	N	N	1D	N	HDS
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	1D	DK
8/14/01 19	N	1D	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	1D	1D	2D	N	2D	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	1D	N	N	3D	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	2D	N	2D	4D	N	PAS
8/23/01 28	16A 1D	16A	14A	13A	11A 3D	PAS

Appendix A-10

Survivorship and Water Quality
Monitoring Results for *Nereis virens*
Bioaccumulation Tests for
Kings Bay, July 2001

Harding ESE
Gainesville, Florida

QA Form No.: 097
Revised: March 2001

SUBJECT: TOXICITY TEST DATA SHEET

Sponsor: PPb-Kings Bay

Project No.: 311224.0400

TEST MATERIAL

Test Material: Whole Sediment

See Page 531 of Effluent Log for Test Material Information.

PROTOCOL/ GUIDELINES FOLLOWED:
EPA-50318-91/001

Test Concentrations Based on: ( ) Active Ingredient
(✓) Whole Material

TEST ORGANISM HISTORY

Test Species: *Neries virens*

Lot Number: 2001-22

Age/ Life Stage: Adult

Date Acclimation/ Maintenance Began: 7-26-01

See Page 100 of Organism Receipt Log for Data.

Mortality (%) During 48 Hours Prior to Test Initiation: 2%

TEST CONDITIONS

( ) Range Finder
(x) Screening
( ) Definitive

( ) Static
( ) Flow-Through

Lighting: (x) Fluorescent ( ) Incandescent

Photoperiod: 16 Hours Light
8 Hours Dark

Test Duration: 28 Days

Test Area Used: Bioaccumulation Room

Test Temperature (°C): 18± 2

Test Salinity (ppt): 25± 2

Replicates Per Concentration: 5

Organisms Per Replicate: 20

Dilution Water: Natural Filtered Seawater

TEST VESSELS

Dimensions (cm): 50 Length x 26.5 Width x31.5 Height

Test Solution Height (cm) : ≈ 25 cm

Test Vessels: (x) Open ( ) Covered

Test Container Volume: 37.5 Liters

Test Solution Volume: ≈30.0 Liters

TEST SOLUTION PREPARATION

Test Concentration (%) mg/L	100% 5 mg/L						
Volume of Dilution Water Added (L)	30						
Volume of Effluent/ Stock Added (L)	0						

ADDITIONAL OBSERVATIONS: Samples tested: Control; S-KB01-1 through S-KB01-5; S-KB01 Duplicate; RS-KB01

DATA BY: [illegible] DATE: 7-26-01

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: Control

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	16.8			8.3	8.3	25	PAS
7/27/01	1	B	20.3			8.3	7.4	26	PAS
7/28/01	2	C	16.6			8.2	8.1	27	PAS
7/29/01	3	D	17.1			8.2	8.0	27	ADE
7/30/01	4	E	19.8			8.4	7.3	25	ADE
7/31/01	5	A	18.2			8.2	7.7	26	ADE
8/01/01	6	B	19.3			8.3	7.4	25	[illegible]
8/02/01	7	C	17.1			8.2	8.3	27	PAS
8/03/01	8	D	19.6			8.3	7.3	27	ADE
8/04/01	9	E	18.9 ~~21.2~~			8.3	8.0	25	RB
8/05/01	10	A	17.5			8.3	7.8	27	RB
8/06/01	11	B	17.3			8.3	8.3	27	RD
8/07/01	12	C	17.9			8.2	7.5	27	RB
8/08/01	13	D	18.2			8.1	7.8	25	ADE
8/09/01	14	E	18.2			8.3	7.8	25	HEB
8/10/01	15	A	18.0			7.9	8.0	27	HEB
8/11/01	16	B	18.0			8.3	8.2	25	HEB
8/12/01	17	C	17.6			8.1	8.3	27	RB
8/13/01	18	D	18.5			8.3	8.3	25	RB
8/14/01	19	E	17.6			8.2	8.1	27	RB
8/15/01	20	A	16.3			8.1	7.9	25	RB
8/16/01	21	B	17.2			8.3	8.2	26	PAS
8/17/01	22	C	17.6			8.4	8.3	25	PR
8/18/01	23	D	17.4			8.4	8.2	25	PAS
8/19/01	24	E	17.6			8.3	8.1	26	PAS
8/20/01	25	A	16.3			8.2	8.1	25	PAS
8/21/01	26	B	17.9			8.3	8.1	26	PAS
8/22/01	27	C	17.8			8.1	8.1	25	RB
8/23/01	28	D	17.6			8.2	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: Dup

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	18.0			8.4	8.3	25	PAS
7/27/01	1	B	21.4			8.3	6.6	26	PAS
7/28/01	2	C	16.8			8.3	7.8	27	PAS
7/29/01	3	D	17.3			8.1	7.8	27	ADE
7/30/01	4	E	19.6			8.4	7.1	26	ADE
7/31/01	5	A	18.3			8.2	7.7	26	ADE
8/01/01	6	B	19.4			8.3	7.2	~~25~~ 26	[illegible]
8/02/01	7	C	16.7			8.1	8.1	27	PAS
8/03/01	8	D	19.5			8.3	7.2	27	ADE
8/04/01	9	E	~~18.8~~ 17.8			8.3	7.9	25	PAS
8/05/01	10	A	17.5			8.4	7.8	27	PAS
8/06/01	11	B	18.5			8.3	8.4	27	PAS
8/07/01	12	C	18.5			8.2	7.6	27	PAS
8/08/01	13	D	18.1			8.1	7.8	26	ADE
8/09/01	14	E	18.1			8.2	7.6	25	HEB
8/10/01	15	A	18.2			8.4	8.1	27	HEB
8/11/01	16	B	18.4			8.2	8.3	25	HEB
8/12/01	17	C	17.2			8.1	8.2	27	PAS
8/13/01	18	D	18.5			8.3	8.2	27	PAS
8/14/01	19	E	17.5			8.2	8.0	27	PAS
8/15/01	20	A	18.6			8.2	7.9	26	PAS
8/16/01	21	B	17.6			8.3	8.1	26	PAS
8/17/01	22	C	18.4			8.4	8.2	25	PAS
8/18/01	23	D	17.5			8.3	8.0	25	PAS
8/19/01	24	E	17.4			8.3	8.2	26	PAS
8/20/01	25	A	18.3			8.2	8.1	25	PAS
8/21/01	26	B	18.5			8.3	8.0	26	PAS
8/22/01	27	C	18.3			8.2	8.2	25	PAS
8/23/01	28	D	17.7			8.2	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-1

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY	REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01 0	A	18.5			8.3	8.1	27	PAS
7/27/01 1	B	22.1			8.3	7.1	26	PAS
7/28/01 2	C	16.6			8.3	8.1	27	PAS
7/29/01 3	D	17.3			8.3	8.1	27	ADE
7/30/01 4	E	19.8			8.4	7.2	26	ADE
7/31/01 5	A	18.3			8.3	7.1	26	ADE
8/01/01 6	B	19.3			8.2	7.2	26	[illegible]
8/02/01 7	C	17.3			8.3	8.3	27	PAS
8/03/01 8	D	~~19.8~~ 19.4			8.4	7.1	27	ADE
8/04/01 9	E	16.7			8.2	8.0	25	PAS
8/05/01 10	A	17.7			8.3	7.6	27	PAS
8/06/01 11	B	18.6			8.3	8.3	27	PAS
8/07/01 12	C	18.6			8.2	7.4	27	PAS
8/08/01 13	D	18.5			8.2	7.8	26	ADE
8/09/01 14	E	18.0			8.3	7.8	25	HEB
8/10/01 15	A	18.7			8.4	8.3	27	HEB
8/11/01 16	B	18.4			8.3	8.3	25	HEB
8/12/01 17	C	18.2			8.2	8.2	27	PAS
8/13/01 18	D	18.5			8.3	8.1	27	PAS
8/14/01 19	E	17.5			8.2	7.9	27	PAS
8/15/01 20	A	18.3			8.1	7.8	26	PAS
8/16/01 21	B	17.8			8.3	8.1	26	PAS
8/17/01 22	C	19.4			8.3	7.8	25	PAS
8/18/01 23	D	17.1			8.3	8.1	26	PAS
8/19/01 24	E	17.3			8.3	8.3	26	PAS
8/20/01 25	A	18.3			8.2	8.0	25	PAS
8/21/01 26	B	18.9			8.3	8.1	26	PAS
8/22/01 27	C	18.6			8.1	8.0	25	PAS
8/23/01 28	D	17.9			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: EKB01-2

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	17.2			8.3	8.1	26	PAS
7/27/01	1	B	21.1			8.3	7.0	26	PAS
7/28/01	2	C	16.2			8.3	8.0	27	PAS
7/29/01	3	D	17.0			8.3	8.2	27	ADE
7/30/01	4	E	19.4			8.4	7.1	26	ADE
7/31/01	5	A	18.9			8.1	7.3	27	ADE
8/01/01	6	B	19.3			8.2	7.3	26	[illegible]
8/02/01	7	C	17.0			8.3	8.2	27	PAS
8/03/01	8	D	19.7			8.4	7.4	27	ADE
8/04/01	9	E	17.3			8.3	7.8	25	PAS
8/05/01	10	A	17.0			8.2	7.6	27	PAS
8/06/01	11	B	16.2			8.3	8.3	27	PAS
8/07/01	12	C	18.3			8.2	7.7	27	PAS
8/08/01	13	D	18.3			8.2	8.0	26	ADE
8/09/01	14	E	17.8			8.3	7.8	25	HEB
8/10/01	15	A	17.5			8.3	8.0	27	HEB
8/11/01	16	B	17.8			8.2	8.1	25	HEB
8/12/01	17	C	17.8			8.2	8.3	27	PAS
8/13/01	18	D	19.1			8.3	8.0	27	PAS
8/14/01	19	E	17.5			8.2	8.0	27	PAS
8/15/01	20	A	17.5			8.1	8.0	26	PAS
8/16/01	21	B	17.4			8.2	8.0	26	PAS
8/17/01	22	C	19.0			8.3	7.7	25	PAS
8/18/01	23	D	17.4			8.4	8.2	26	PAS
8/19/01	24	E	17.2			8.3	8.2	26	PAS
8/20/01	25	A	18.6			8.1	7.8	25	PAS
8/21/01	26	B	18.6			8.2	8.2	26	PAS
8/22/01	27	C	18.1			8.1	8.0	25	PAS
8/23/01	28	D	17.9			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-3

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY		REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01	0	A	17.8			8.2	7.6	27	PAS
7/27/01	1	B	20.0			8.3	7.3	26	PAS
7/28/01	2	C	16.5			8.2	7.6	27	PAS
7/29/01	3	D	17.3			8.3	8.2	27	ADE
7/30/01	4	E	19.1			8.4	7.0	26	ADE
7/31/01	5	A	18.3			8.2	7.1	27	ADE
8/01/01	6	B	19.4			8.3	7.2	26	[illegible]
8/02/01	7	C	17.6			8.2	8.0	27	PAS
8/03/01	8	D	20.0			8.3	7.2	27	ADE
8/04/01	9	E	17.3			8.4	8.1	25	PAS
8/05/01	10	A	17.6			8.7	7.8	27	PAS
8/06/01	11	B	18.0			8.3	8.3	27	PAS
8/07/01	12	C	18.3			8.2	7.7	27	PAS
8/08/01	13	D	18.8			8.1	7.8	26	ADE
8/09/01	14	E	18.5			8.2	7.7	25	HEB
8/10/01	15	A	17.5			8.4	8.1	27	HEB
8/11/01	16	B	17.6			8.2	8.3	25	HEB
8/12/01	17	C	18.5			8.2	8.1	27	[illegible]
8/13/01	18	D	19.7			8.3	7.7	27	PAS
8/14/01	19	E	18.2			8.2	7.8	27	PAS
8/15/01	20	A	17.5			8.1	7.8	26	PAS
8/16/01	21	B	17.9			8.2	7.8	26	PAS
8/17/01	22	C	18.2			8.4	8.1	25	PAS
8/18/01	23	D	17.9			8.4	8.2	26	PAS
8/19/01	24	E	17.8			8.4	7.7	26	PAS
8/20/01	25	A	18.2			8.2	8.1	25	PAS
8/21/01	26	B	18.2			8.3	8.0	26	PAS
8/22/01	27	C	18.0			8.2	8.1	25	PAS
8/23/01	28	D	18.2			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E- KBG1-4

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY	REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01 0	A	18.5			8.4	7.7	27	PAS
7/27/01 1	B	20.6			8.3	7.1	26	PAS
7/28/01 2	C	16.2			8.3	7.9	27	PAS
7/29/01 3	D	17.0			8.4	8.3	27	ADE
7/30/01 4	E	19.6			8.4	7.1	26	ADE
7/31/01 5	A	18.1			8.1	7.6	27	ADE
8/01/01 6	B	19.4			8.3	7.3	26	[illegible]
8/02/01 7	C	17.6			8.2	8.0	27	[illegible]
8/03/01 8	D	19.2			8.4	7.6	27	ADE
8/04/01 9	E	18.0			8.3	8.0	25	PAS
8/05/01 10	A	17.2			8.4	7.9	27	PAS
8/06/01 11	B	17.1			8.4	8.3	27	RLP
8/07/01 12	C	17.8			8.3	8.0	27	PAS
8/08/01 13	D	17.9			8.2	8.0	27	ADE
8/09/01 14	E	18.3			8.3	7.9	25	HEB
8/10/01 15	A	17.8			8.4	8.1	27	HEB
8/11/01 16	B	19.6			8.2	8.4	26	HEB
8/12/01 17	C	18.5			8.2	8.3	27	RLP
8/13/01 18	D	18.2			8.3	8.7	27	RLS
8/14/01 19	E	18.0			8.2	8.0	27	RLP
8/15/01 20	A	18.5			8.2	8.2	26	RLS
8/16/01 21	B	17.9			8.3	8.1	26	PAS
8/17/01 22	C	M.S			8.5	8.2	26	PAS
8/18/01 23	D	18.5			8.4	8.2	26	PAS
8/19/01 24	E	17.6			8.4	7.7	26	PAS
8/20/01 25	A	18.7			8.2	8.1	25	PAS
8/21/01 26	B	17.9			8.4	8.0	26	PAS
8/22/01 27	C	17.1			8.3	8.1	25	PAS
8/23/01 28	D	17.7			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-5

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY	REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01 0	A	18.2			8.4	8.1	27	PAS
7/27/01 1	B	21.0			8.3	8.1	26	PAS
7/28/01 2	C	16.3			8.3	8.0	27	PAS
7/29/01 3	D	16.8			8.1	7.5	27	ADE
7/30/01 4	E	19.6			8.4	7.3	24	ADE
7/31/01 5	A	18.3			8.2	7.2	26	ADE
8/01/01 6	B	19.3			8.3	7.9	26	[illegible]
8/02/01 7	C	17.5			8.3	8.0	27	PAS
8/03/01 8	D	18.8			8.4	7.5	27	ADE
8/04/01 9	E	17.8			8.3	8.0	25	PAS
8/05/01 10	A	17.5			8.3	7.9	27	PAS
8/06/01 11	B	16.6			8.3	8.4	27	PAS
8/07/01 12	C	18.0			8.2	7.7	27	PAS
8/08/01 13	D	17.2			8.2	8.1	27	ADE
8/09/01 14	E	18.0			8.3	7.8	25	HEB
8/10/01 15	A	19.0			8.3	7.9	27	HEB
8/11/01 16	B	17.7			8.3	8.4	25	HEB
8/12/01 17	C	18.5			8.2	8.1	27	PAS
8/13/01 18	D	18.0			8.3	8.1	27	PAS
8/14/01 19	E	18.0			8.3	8.0	27	PAS
8/15/01 20	A	19.1			8.1	8.0	26	PAS
8/16/01 21	B	18.2			8.3	8.1	26	PAS
8/17/01 22	C	17.4			8.4	8.2	25	PAS
8/18/01 23	D	17.7			8.3	8.0	27	PAS
8/19/01 24	E	17.4			8.4	7.6	27	PAS
8/20/01 25	A	19.0			8.3	8.2	25	PAS
8/21/01 26	B	18.0			8.3	8.1	27	PAS
8/22/01 27	C	17.5			8.2	8.1	25	PAS
8/23/01 28	D	17.7			8.3	8.2	25	PAS

SUBJECT: SEDIMENT TOXICITY DATA SHEET - WATER QUALITY QA FORM NO: 108A

SPONSOR: PPb- Kings Bay
SAMPLE ID: RS- KB01

PROJECT NUMBER: 311224.0400
TEST SPECIES: *Nereis virens*

DATE-DAY	REP	Temp (°C)			pH (s.u.)	DO (mg/L)	Salinity (ppt)	INITIAL
7/26/01 0	A	16.5			8.2	7.6	27	PAS
7/27/01 1	B	20.5			8.3	7.2	27	PAS
7/28/01 2	C	16.8			8.2	8.0	26	PAS
7/29/01 3	D	17.9			8.2	7.4	27	ADE
7/30/01 4	E	19.6			8.4	7.2	26	ADE
7/31/01 5	A	18.6			8.3	7.4	27	ADE
8/01/01 6	B	19.5			8.3	7.2	26	[illegible]
8/02/01 7	C	17.2			8.2	8.1	27	PAS
8/03/01 8	D	19.6			8.3	7.4	27	ADE
8/04/01 9	E	17.4			8.3	8.0	25	PAS
8/05/01 10	A	17.7			8.4	7.9	27	PAS
8/06/01 11	B	16.0			8.4	7.8	27	PAS
8/07/01 12	C	16.5			8.3	7.7	25	PAS
8/08/01 13	D	18.2			8.1	7.7	27	ADE
8/09/01 14	E	18.0			8.3	8.0	25	HEB
8/10/01 15	A	18.2			8.3	8.1	27	HEB
8/11/01 16	B	18.1			8.4	8.5	25	HEB
8/12/01 17	C	19.1			8.4	8.5	27	PAS
8/13/01 18	D	18.5			8.3	8.4	27	PAS
8/14/01 19	E	17.4			8.2	8.2	27	PAS
8/15/01 20	A	18.1			8.1	8.1	26	PAS
8/16/01 21	B	17.9			8.3	8.2	26	PAS
8/17/01 22	C	18.5			8.5	8.4	25	PAS
8/18/01 23	D	17.9			8.3	8.2	27	PAS
8/19/01 24	E	17.6			8.4	8.1	27	PAS
8/20/01 25	A	18.7			8.2	8.4	25	PAS
8/21/01 26	B	17.2			8.3	8.3	27	PAS
8/22/01 27	C	18.2			8.3	8.3	25	PAS
8/23/01 28	D	18.3			8.3	8.2	25	PAS

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: control

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	HJ
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	RJP
8/23/01 28	20 A	20A	19A	20A	20 A	RJP

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: DUP

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	PAS
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HBB
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HBB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	RB
8/23/01 28	19A	20A	20A	20A	20A	PAS

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Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-1

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	DTS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HBB
8/10/01 15	N	N	N	N	N	[illegible]
8/11/01 16	N	N	N	N	N	HBB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	16A	20	14A	18	20A	[illegible]

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Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-2

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED →					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	ID	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	20A	19A	19	19A	20A	[illegible]

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Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-3

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED →					RAS
7/27/01 1	N	N	N	N	N	RAS
7/28/01 2	N	N	N	N	N	RAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	RAS
8/03/01 8	N	N	N	N	N	RAS
8/04/01 9	N	N	N	N	N	RAS
8/05/01 10	N	N	N	N	N	RAS
8/06/01 11	N	N	N	N	N	RAS
8/07/01 12	N	N	N	N	N	RAS
8/08/01 13	N	N	N	N	N	RAS
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	RB
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	RAS
8/13/01 18	N	N	N	N	N	RAS
8/14/01 19	N	N	N	N	N	RAS
8/15/01 20	N	N	N	N	N	RAS
8/16/01 21	N	N	N	N	N	RAS
8/17/01 22	N	N	N	N	N	RAS
8/18/01 23	N	N	N	N	N	RAS
8/19/01 24	N	N	N	N	N	RAS
8/20/01 25	N	N	N	N	N	RAS
8/21/01 26	N	N	N	N	N	RAS
8/22/01 27	N	N	N	N	N	RAS
8/23/01 28	20A	20A	20A	19A	20A	[illegible]

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-4

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	HEB
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	MG
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	RB
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	RB
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAT
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	20A	19A	20A	20A	20A	MT

Harding ESE

Revised: March 2001

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: E-KB01-5

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PB
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	HT
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	ID	N	N	PAS
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	20A	20A	19A	20A	20A	HT

SUBJECT: SEDIMENT TOXICITY DATA SHEET - SURVIVAL

QA FORM NO: 108E

SPONSOR: PPb- Kings Bay
SAMPLE ID: RS- K(30)

PROJECT NUMBER: 311224.0400
TEST SPECIES: Neries virens

DATE-DAY	REP A	REP B	REP C	REPD	REP E	INITIAL
7/26/01 0	20 LOADED					PAS
7/27/01 1	N	N	N	N	N	PAS
7/28/01 2	N	N	N	N	N	PAS
7/29/01 3	N	N	N	N	N	ADE
7/30/01 4	N	N	N	N	N	ADE
7/31/01 5	N	N	N	N	N	ADE
8/01/01 6	N	N	N	N	N	[illegible]
8/02/01 7	N	N	N	N	N	PAS
8/03/01 8	N	N	N	N	N	PAS
8/04/01 9	N	N	N	N	N	PAS
8/05/01 10	N	N	N	N	N	PAS
8/06/01 11	N	N	N	N	N	PAS
8/07/01 12	N	N	N	N	N	PAS
8/08/01 13	N	N	N	N	N	PAS
8/09/01 14	N	N	N	N	N	HEB
8/10/01 15	N	N	N	N	N	PAS
8/11/01 16	N	N	N	N	N	HEB
8/12/01 17	N	N	N	N	N	PAS
8/13/01 18	N	N	N	N	N	PAS
8/14/01 19	N	N	N	N	N	PAS
8/15/01 20	N	N	N	N	N	PAS
8/16/01 21	N	N	N	N	N	PAS
8/17/01 22	N	N	N	N	N	PAS
8/18/01 23	N	N	N	N	N	PAS
8/19/01 24	N	N	N	N	N	PAS
8/20/01 25	N	N	N	N	N	PAS
8/21/01 26	N	N	N	N	N	PAS
8/22/01 27	N	N	N	N	N	PAS
8/23/01 28	20A	20A	20A	19	20A	[illegible]