Aqua Survey, Inc.

BIOMONITORING REPORT

KIN-BUC LANDFILL
383 MEADOW ROAD
EDISON, NJ 08817

August 3, 1999

JOB #99-379

499 Point Breeze Road
Flemington, NJ 08822

Phone: 908/788-8700
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E-mail: aquasurvey@aol.com
Web Site: www.aquasurvey.com

562229

NJDEP BIOMONITORING REPORT FORM - ACUTE BIOASSAY

NJPDES PERMIT #: **NJPermit Equivalent** **DSN 001**

FACILITY NAME: **Kin-Buc Landfill**
FACILITY ADDRESS: **383 Meadow Road, Edison, NJ 08818**

FACILITY CONTACT PERSON: **Glen Garieb** **PHONE #:** **908 561-7600**

ACUTE TOXICITY LABORATORY: AQUA SURVEY INC.
499 Point Breeze Road
Flemington, NJ 08822

ACUTE LABORATORY CERTIFICATION NO.: 10309

TEST SPECIFICATIONS

Effluent Type (e.g., final, predisinfection): Final

Test Type: Static Daily Renewal

TEST RESULTS

Test Starting Date: 7/26/99 Completion Date: 7/30/99

Test Endpoint: LC_{50} x
NMAT ____
EC_{50} ____

LC_{50}/EC_{50} (% effluent): >100% 95% Confidence Interval: N/C

Highest percent mortality in any test concentration (if applicable): 5%
Test concentration: 50 and 100%

Test Organism: Mysid shrimp (common name) *Mysidopsis bahia* (scientific name)

QUALITY CONTROL SUMMARY

Control mortality:	zero
Temperature maintained within 20° +/- 2°C?:	Yes
Dissolved Oxygen Levels always greater than 40% saturation?	Yes
Two or more concentrations exhibit a trend deviation?	No

CERTIFICATION

Accuracy of report certified by:

Thomas J. Dolce 8/9/99

Thomas J. Dolce
Laboratory Manager

Date

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TEST ORGANISM DATA

Test Organism Source: Culture x Commercial hatchery ___ (Specify) ___

Test Organism Acclimation

Is the culture water and test dilution water the same and are the culture water temperature and dilution water temperature identical? Yes _ No x

If yes, proceed to Test Design section.

Fish and Grass Shrimp

Initial number of organisms: _____

Total acclimation period: _____

Acclimation period to 100 percent dilution water at _____

the specified test temperature and test salinity: _____

Number of mortalities: _____

Test organism age at start of test (days): _____

Mysid and Cladoceran

Initial number of organisms: 150

Test organism age at start of test (days): 3 days

Culture water source: Forty Fathoms

Culture water salinity: 25.6 ppt ;Culture water temperature: 24.4°C

Dilution water source: Manasquan

Dilution water salinity upon collection: 29.1ppt

Number of mortalities: zero

TEST DESIGN

Number of effluent test concentrations: 5

Number of replicates/test concentration: 2

Number of test organisms/replicate: 10

Volume of liquid test chamber (liters): 0.5

Flowthrough bioassay exchange rate (replacements/day): N/A

EFFLUENT SAMPLING

Plant sampling location: Final effluent just before weir

Effluent type: Final

Discharge (check one) Continuous x Intermittent _____

Effluent sample type: 24 composite

SAMPLE COLLECTION		SAMPLE DATA TAKEN UPON ARRIVAL AT LABORATORY			USE IN TOXICITY TEST	
Beginning Date/Time	Ending Date/Time	Temp.	D.O.	pH	Date(s)	Time(s)
7/25/99; 1300	7/26/99; 1300	13.2	8.8	8.6	7/26/99	1520
7/26/99; 1300	7/27/99; 1300	10.6	8.6	8.5	7/27/99	1630
7/27/99; 1300	7/28/99; 1300	16.0	9.3	8.8	7/28/99	1545
7/28/99; 1300	7/29/99; 1130	9.4	11.0	8.4	7/29/99	1410

Maximum sample holding time (hours): <24

Testing location: Aqua Survey, Inc., Flemington, NJ

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EFFLUENT SAMPLE ADJUSTMENTS

Were any salinity adjustments made? Yes _x_ No ___

If yes, specify the source of sea salts, brine or water used: Forty Fathoms, Marine Enterprises, MD

Were any pH adjustments made? Yes ___ No _x_

If yes, specify the reagent used _____, the amount used _____.

The pH level upon sample collection (initial pH) ____.

The pH level after the addition of the sea salts (drifted pH) ___.

The adjusted pH level ___.

Was the effluent sample filtered in any manner? Yes ___ No _x_

If yes, please specify the mesh size: _____.

Were any adjustments to the levels of chlorine made? Yes ___ No _x_

If yes, specify the dechlorination agent used _____; and the amount of reagent used _____

Specify the chlorine levels prior to _____; and after addition of the reagent _____

Was an additional control included in the test containing the dechlorination agent? Yes ___ No ___

DILUTION WATER

Effluent Receiving Water: Raritan River

Dilution Water Source: Manasquan Inlet

(If reconstituted water is used specify type)

If a substitute dilution water (i.e. not the receiving water) was used, had its use been approved by NJDEP in the acute methodology questionnaire? Yes _x_ No ___

Collection Location: Manasquan Inlet

Collection Date(s): 7/27/99; 1015

TEST RESULTS

LC_{50}/EC_{50} (% Effluent)	24 hour	48 hour	72 hour	96 hour
	>100%*	>100%*	>100%*	>100%*

Calculation Method:

Probit Method ___

The Trimmed Spearman Karber Method ___

Graphical Interpolation ___

Visual Inspection _*_

NOTE: Attach the statistical printouts used to determine the LC_{50} value and the mortality data sheets.

Is the calculated LC_{50}/EC_{50} valid according to the specifications of the method used? Yes _x_ No ___

MISCELLANEOUS

Were any exposure chambers aerated during the test? Yes ___ No _x_

If yes, specify concentrations and duration, including the lowest percent saturation reached prior to aeration and at what time:_____.

Were test organisms observed for appearance and behavior at least daily? Yes _x_ No ___

NOTE: Attach a copy of the acute toxicity test benchsheets with observation coded for each day.

NOTE: Attach a copy of the raw data sheets for physical-chemical measurements taken during the test to the test report form.

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APPENDIX

AQUA SURVEY, INC.
96 HOUR BIOASSAY

GENERAL INFORMATION

Job #: 99-379 Client: KBL Organism: M. bahia

Dilution Water: Receiving _____ Culture _____ Alternative Manasquan

Test Volume: 500mL Test Type: Flow Through _____ Static Daily Renewal 1 Static Non-Renewal _____ Chamber Volume: 800mL

Test Start Date: 7/26/99 Time: 1520 Technician: M

Test End Date: 7/30/99 Time: 1520 Technician: MH

ACCLIMATION INFORMATION (laboratory or field acclimation only)

Exchange rate: Drip _____ Meter, pump _____ Exchange rate (mL/min) _____

Start date: _____ Time: _____ Chamber volume: _____

End date: _____ Time: _____ Feeding: Day 0 _____ Day 1 _____ Day 2 _____ Day3 _____

Remarks: _____ Mortality: Day 0 _____ Day 1 _____ Day 2 _____ Day 3 _____

Temperature range: (field use only) Temperature: Day 0 _____ Day 1 _____ Day 2 _____ Day 3 _____ (lab use only)

N/A M 7/23/99

DILUTER INFORMATION

Set up date: _____ Water used: _____ Diluter number: _____ Technician : _____

Cycles during pretest: _____ Elapsed pretest time: _____

Total cycles: _____ Elapsed time: _____

DESCRIPTION OF SAMPLES (use only for in-lab samples)

Effluent odor: None Color: Clear Other: _____

Diluent odor: None Color: Clear Salinity: 29.1 ppt Other:

ASI Number	Sample Data taken upon arrival at laboratory			Use in toxicity test	
	Temperature	D.O.	pH	Date(s)	Time(s)
91694	13.2	8.8	8.6/*8.3	7/26/99	1520
91708	10.6	8.6	8.5/*8.4	7/27/99	1630
91746	16.0	9.3	8.8/*8.4	7/28/99	1545
91769	9.4	11.0	8.4	7/29/99	1410

* after salt was added M

AERATION PROCEDURE

Aeration required: _____ Aeration not required ✓

Description of problem: DO levels below 50% saturation _____ DO levels dropping rapidly _____

Cycles increased: Date: _____ Time: _____ Technician: _____

Dilution aeration begun: Date: _____ Time: _____ Technician: _____

Test aeration begun: Date: _____ Time: _____ Technician: _____

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AQUA SURVEY, INC.
LIVE COUNTS AND OBSERVATIONS

Job #: 99-379 Organism: M. bahia

Conc	Observation Interval - hours									
	0		24		48		72		96	
	Live Count	Obser	Live Count	Obser	Live Count	Obser	Live Count	Obser	Live Count	Obser
Con A	10	1	10	1	10	1	10	1	10	1
Con B	10		10		10		10		10	
6.25 A	10		10		10		10		10	
B	10		10		10		10		10	
12.5 A	10		10		10		10		10	
B	10		10		10		10		10	
25 A	10		10		10		10		10	
B	10		10		10		10		10	
50 A	10		10		10		9		9	
B	10		10		10		10		10	
100 A	10		10		9		9		9	
B	10		10		10		10		10	
Date	7/26/99		7/27/99		7/28/99		7/29/99		7/30/99	
Initials	[illegible]		KF		[illegible]		KF		MH	

Terms and Codes for Test Organisms ' Appearance and Behaviour

Term	Explanation	Code
Normal	Unaffected	1
Inactive	Abnormally low activity, motionless or nearly so, weak & enfeebled	2
Irritated	Hyperactivity, muscle spasms, erratic swimming	3
Surfacing	Rising and remaining unusually long at the surface	4
Abnormal body orientation	Inverted or turned approximately 90° laterally from normal body position	5
Abnormal skin color	Light discolored, dark discolor, or varidiscolored (mottled)	6
Abnormal skin condition	Mucus shedding or coagulations, hemorrahaging from gills, eyes or anal opening	7
Abnormal respiration	Rapid, slow, gulping or periodic flexure of the operculum of fish as to reverse water flow (coughing)	8

C:\PC6000\READINGS\379B-0.DAT

YSI 6000 Time Series Report

Date mm/dd/yy	Time hh:mm:ss	% Conc	Temp C	SpCond uS/cm	Salinity PPT	DO mg/L	pH
7/26/99	14:59:30	0	20.19	44556.00	28.8	7.25	8.05
7/26/99	14:59:55	6.25	20.11	45028.00	29.2	7.18	8.10
7/26/99	15:00:12	12.5	20.04	45077.00	29.2	7.18	8.14
7/26/99	15:00:29	25	19.89	45162.00	29.3	7.21	8.19
7/26/99	15:00:52	50	19.61	45300.00	29.4	7.29	8.27
7/26/99	15:01:31	100	19.04	45737.00	29.7	7.54	8.34

Project #: 99-379 **Test type:** ☑ ACUTE ☐ CHRONIC ☐ OTHER _____ **Date:** 7/26/99

Species: ☐ *P. promelas* ☐ *C. dubia* ☑ *M. bahia* ☐ Other _____ **Day of Study:** 0 hours

OPERATIONAL RANGE: Check if OK **Meter Used:**

Temperature: 18 to 22 ☑ **Blue** ☐

Salinity: 27 to 31 ☑ **Red** ☑

Dissolved oxygen: >40% ☑

pH: 6.0 to 9.0 ☑

Actions taken: _____

See deviation summary sheet ☐ **Initials:** _____

C:\PC6000\READINGS\379-24.DAT

YSI 6000 Time Series Report

Date mm/dd/yy	Time hh:mm:ss	% Conc	Temp C	SpCond uS/cm	Salinity PPT	DO mg/L	pH
7/27/99	9:14:56	0	19.78	45332.00	29.4	6.47	7.74
7/27/99	9:15:12	6.25	19.75	45715.00	29.7	6.40	7.84
7/27/99	9:15:29	12.5	19.73	45762.00	29.7	6.39	7.97
7/27/99	9:15:54	25	19.71	45818.00	29.8	6.40	8.10
7/27/99	9:16:11	50	19.71	45929.00	29.8	6.40	8.19
7/27/99	9:16:28	100	19.72	46207.00	30.0	6.40	8.29

Project #: 99-379 **Test type:** ☑ACUTE ☐CHRONIC ☐OTHER _____ **Date:** 7/27/99

Species: ☐ *P. promelas* ☐ *C. dubia* ☑ *M. bahia* ☐Other _____ **Day of Study:** 24 hr

OPERATIONAL RANGE: Check if OK **Meter Used:**

Temperature: 18 to 22 ☑ **Blue** ☐

Salinity: 28 to 32 ☑ **Red** ☑

Dissolved oxygen: >40% ☑

pH: 6.0 to 9.0 ☑

Actions taken: _____

See deviation summary sheet ☐ **Initials:** MH

C:\PC6000\READINGS\379-48.DAT

YSI 6000 Time Series Report

Date mm/dd/yy	Time hh:mm:ss	% Conc	Temp C	SpCond uS/cm	Salinity PPT	DO mg/L	pH
7/28/99	9:17:58	0	20.54	44964.00	29.1	6.14	7.71
7/28/99	9:18:11	6.25	20.54	45325.00	29.4	6.07	7.83
7/28/99	9:19:02	12.5	20.54	45414.00	29.5	6.09	8.03
7/28/99	9:19:22	25	20.49	45314.00	29.4	6.11	8.11
7/28/99	9:19:34	50	20.44	45205.00	29.3	6.12	8.17
7/28/99	9:19:48	100	20.41	45080.00	29.2	6.14	8.26

Project #: 99-379 **Test type:** ☒ACUTE ☐CHRONIC ☐OTHER _____ **Date:** 7/28/99

Species: ☐ *P. promelas* ☐ *C. dubia* ☒ *M. bahia* ☐Other _____ **Day of Study:** 48 hr

OPERATIONAL RANGE: Check if OK **Meter Used:**

Temperature: 18 to 22 ☒ **Blue** ☐

Salinity: 28 to 32 ☒ **Red** ☒

Dissolved oxygen: >40% ☒

pH: 6.0 to 9.0 ☒

Actions taken: _____

See deviation summary sheet ☐ **Initials:** MH

C:\PC6000\READINGS\379-72.DAT

YSI 6000 Time Series Report

Date mm/dd/yy	Time hh:mm:ss	% Conc	Temp C	SpCond uS/cm	Salinity PPT	DO mg/L	pH
7/29/99	9:06:40	0	20.94	45077.00	29.2	6.61	7.69
7/29/99	9:06:57	6.25	20.98	45390.00	29.4	6.48	7.80
7/29/99	9:07:13	12.5	20.99	45348.00	29.4	6.41	7.91
7/29/99	9:07:28	12.5	20.98	45334.00	29.4	6.33	8.01
7/29/99	9:07:45	50	20.97	45353.00	29.4	6.24	8.13
7/29/99	9:08:08	100	20.94	45421.00	29.5	6.14	8.27

Project #: 99-379 **Test type:** ☑ACUTE ☐CHRONIC ☐OTHER _____ **Date:** 7/29/99

Species: ☐ *P. promelas* ☐ *C. dubia* ☑ *M. bahia* ☐Other _____ **Day of Study:** 72 hr

OPERATIONAL RANGE: Check if OK **Meter Used:**

Temperature: 18 to 22 ☑ **Blue** ☐

Salinity: 28 to 32 ☑ **Red** ☑

Dissolved oxygen: > 40% ☑

pH: 6.0 to 9.0 ☑

Actions taken: _____

See deviation summary sheet ☐ **Initials:** MH

C:\PC6000\READINGS\379-96.DAT

YSI 6000 Time Series Report

Date mm/dd/yy	Time hh:mm:ss	% Conc	Temp C	SpCond uS/cm	Salinity PPT	DO mg/L	pH
7/30/99	8:58:24	0	20.94	45175.00	29.3	6.53	8.00
7/30/99	8:58:51	6.25	20.72	45693.00	29.7	6.16	7.96
7/30/99	8:59:13	12.5	20.67	45628.00	29.6	6.06	8.01
7/30/99	8:59:29	25	20.60	45693.00	29.7	5.99	8.07
7/30/99	8:59:48	50	20.55	46070.00	29.9	5.94	8.19
7/30/99	9:00:05	100	20.48	46729.00	30.4	5.92	8.29

Project #: 99-379 **Test type:** ☑ACUTE ☐CHRONIC ☐OTHER _____ **Date:** 7/30/99

Species: ☐ *P. promelas* ☐ *C. dubia* ☑ *M. bahia* ☐Other _____ **Day of Study:** 96 hr

OPERATIONAL RANGE: Check if OK **Meter Used:**

Temperature: 18 to 22 ☑ **Blue** ☐

Salinity: 28 to 32 ☑ **Red** ☑

Dissolved oxygen: >40% ☑

pH: 6.0 to 9.0 ☑

Actions taken: _____

See deviation summary sheet ☐ **Initials:** MH

AQUA SURVEY, INC.
96 HOUR BIOASSAY

JOB #: 99-379 ORGANISM: M. bahia

CLIENT: KBL

CONC		ALKALINITY mg/L in 25 mL					HARDNESS mg/L in 25 mL				
		0	24	48	72	96	0	24	48	72	96
0	Start	6.0									
	Stop	8.6									
	Diff	2.6									
	x	40	40	40	40	40	40	40	40	40	40
		104									
	Initial/Date	KW 7/20/99									
		1605									
100	Start	12.9	0.0	4.4	3.6		0	0.0	0.1	4.7	
	Stop	23.4	10.1	14.8	13.6		29.5	29.6	29.7	33.7	
	Diff	10.5	10.1	10.4	10		29.5	29.6	29.6	29.0	
	x	40	40	40	40	40	40	40	40	40	40
		420	404	416	400		1180	1184	1184	1160	
	Initial/Date	MH 7/26	M 7/27/99 1640	MH 7/28	MH 7/29		MH 7/26	M 7/27/99 1650	MH 7/28	MH 7/29	
		1500		1520	1570		1500		1520	1570	

Residual Chlorine mg/L					
CONC	0	24	48	72	96
0	ND	—	—	—	
100	ND	ND	ND	ND	
DATE/	7/26/99	7/27/99	7/28/99	7/29/99	
INITIAL	MH	M 1650	MH 1520	MH	
	1500			1570	

AQUA SURVEY, INC.

CULTURE LAB DISTRIBUTION FORM

DATE: 7/26/99

TEST JOB#: 99-379 CLIENT: KBL

TEST LOCATION: IN-LAB [X] FIELD [ ]

TEST SPECIES: M. bahia

TOTAL NUMBER ORGANISMS TRANSFERRED: 150+

AQUA SURVEY, INC. CULTURE LAB INVESTIGATORS: CD

A. ORGANISMS

1. ASI CULTURE/HOLDING UNIT: 76L tank
2. RECEIVING LOG #: N/A
3. CULTURE LOG #: 99-0513
4. AGE/SIZE INFORMATION: 1-5 dys HD 7/23/99

B. HOLDING [ ] CULTURE [X] WATER PARAMETERS

1. TEMPERATURE: 21.8°C
2. SALINITY: 28.7ppt
3. WATER SOURCE: Menusyum

C. TRANSFER CUSTODY & TRANSFER

1. LIVESTOCK RELINQUISHMENT DATE: 7/26/99
   TIME: 1500hrs
   BY: CD

2. LIVESTOCK RECEIVING DATE: 7/26/99
   TIME: 1500hrs
   BY: [illegible]

3. CULTURE SUPERVISOR OR SENIOR TECH. INITIALS: CD

REMARKS:

asi 99-374

Job #		Sample Collection Point Description	Final EFF just before weir
Client	KinBack		
Facility Location	Edison		
		TEST TYPE	Acute X / Diluent Only / Chronic / Other
Discharge #			
Contact		Diluent Collection Location	Manasquan Inlet 3rd Ave + Riverside drive
Phone #			

Sample Type Key: C = composite; G = grab; S = soil; SD = sediment; SL = sludge

Shipping Information
To: ASI
From: KBL
Shipment Method / Special Instructions: AF Auto

Diluent/Effluent Sample Number	Collected By Name(Please Print) / Date / Time	Sample Type	Sample Volume	Relinquished By Signature / Date / Time	Received By Signature / Date / Time	Relinquished By Signature / Date / Time	Received By Signature / Date / Time
~~91695~~	M. Swenson			~~Swenson~~			
91694	7-25-99 13:00	~~4C~~	4C	7-27-99			
	7-26-99 13:00	C		14:30			
91706	R. Ristson 7/27/99 1015	G	10 gals	Robert 7/27/99 1350			
91708	M. Swenson 7-26-99 13:00 7-27-99 13:00	C	4C	~~Swenson~~ 7-27-99 1430			
91746	M. Swenson 7-27-99 13:00 7-28-99 13:00	C	4C	~~Swenson~~ 7-28-99 14:00			
91769	M. Swenson 1300 7-28-99 ~~13:00~~ ~~11:30~~ 7-29-99 ~~13:00~~ 1130	C	4C	~~Swenson~~ 7-29-99 1330			

ASI, INC.
SAMPLE RECEIVING FORM

Page of

Client: KinBack

Shipped Via: Asinutd

# of Shipping Containers:

Type of Shipping Container: Plastic

Custody Seal: Present Absent _ Broken _

Condition of Shipping Containers: Acceptable _ Unacceptable _

	ASI #	Sample ID	Type of Container	Number of Containers	Condition of Samples†	Temp. °C	Ice +	Type of Sample*
1.	99-379	~~91695~~	P	1	A	13.2	I	E
2.	→	91706	P	2	A	36.0	—	W
3.		91746	P	1	A	16.0	I	~~E~~
4.		91708	P	1	A	10.6	I	E
5.		91769	P	1	A	9.4	I	E
6.								
7.								
8.								
9.								
10.								

91694

Pilution used 7/27-7/30

Notes: (Discrepancies Between Sample Label and COC Record)

Opened /Received by:

Date/Time:

* S - Soil
Se - Sediment
Sl - Sludge
W - Water
E - Effluent

† A - Acceptable
U - Unusable or Contaminated

+ I - Ice
D - Dry Ice
B - Blue Ice
N - None

7/96