ENVIRONMENTAL LABORATORY
ARCHIVED FINAL REPORT

LAB REQUEST NO. 8442
REQUESTOR NAME: EAR
DEPARTMENT: 0535
PROJECT NO: 9970012600
DATE RECEIVED: 09/07/1982
DESC: ENVIRONMENTAL SCREEN ON L-6778

CONTRACT LAB(S):
EXP COMP DATE: 11/12/1982
DATE COMPLETED: 11/09/1982
PROJECT LEAD:
PHONE NO:
3M FAX NO: 651-778-6176

EVAPORATE TO DRYNESS UNDER AIR OR N2. PRODUCT CONTAINS 40% WATER SO HEAT TO ABOUT 40 DEGREES C IN WATER BATH OR BY OTHER METHOD TO INCREASE EVAPORATION RATE- MO HAS SAMPLES

SAMPLE	DATE	CODE	DESCRIPTION	RESULT	MDL or (95% C.I.)
1			TOTAL PROD.		
		96-HR-LC50	FISH ACUTE TEST - 96 HOUR	>1000 MG/L	
		BOD-05	BOD-05	220000 MG/KG	
		BOD-10	BOD-10	270000 MG/KG	
		BOD-20	BOD-20	330000 MG/KG	
		COD	COD	530000 MG/KG	
		SLUDGE-TOX	SLUDGE TOXICITY	SEE ATTACHED REPORT	
2			SOLIDS		
		96-HR-LC50	FISH ACUTE TEST - 96 HOUR	>1000 MG/L	
		BOD-05	BOD-05	<8800 MG/KG	
		BOD-15	BOD-15	<8800 MG/KG	
		BOD-28	BOD-28	SEE ATTACHED REPORT	
		COD	COD	280000 MG/KG	
		SLUDGE-TOX	SLUDGE TOXICITY	NOT ANALYZED	

Environmental Laboratory
BOD Work Sheet - Samples

(5,10,20)
20 DAY ULT. BOD

3M

Lab Req. No. ▶ 8442		BOD Run No. ▶ 82-32	
Analyst: JP Carr	Date Started: 9-10-82	5 - Day BOD Readings	
		Analyst: JP Carr	Date: 9-15-82

Sample Description: 8442-1 ENV SCREEN ON L-6778

Initial Dilution	2.00 g of Sample diluted to 1000 ml with DI water	
Initial Dilution Factor	100/5.0	(Dilution factor = 1 if undiluted)

Bottle No.	Conc. of Sample[1]	Sample Size[2]	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Sample	5 - Day BOD	5 Average - Day BOD
63		0.5	8.90	7.45	1.45	0.85	255,000	
60		1.0	8.85	6.80	2.05	1.45	218,000	
57		2.0	8.90	5.40	3.50	2.90	218,000	→ 220,000 mg/kg
85		4.0	8.80	2.15	6.65	6.06	227,000	
3		8.0	8.80	<0.50	-	-	-	
9		16	8.85	<0.50	-	-	-	

Note: 1. Conc. = Concentration of sample (ml/l or mg/l) in BOD bottles.

2. Sample Size = ml or g of sample or diluted sample added to BOD Bottle.

Comments
COD 530,000

Form 19756 PWO

Environmental Laboratory
Work Sheet - Samples

(5,10,20)
20 DAY ULT. BOD

3M

Lab Req. No. ▸ 8442		BOD Run No. ▸ 82-32	
Analyst JP Cox	Date Started 9-10-82	10 Day BOD Readings	
		Analyst JP Cox	Date 9-20-82

Sample Description: 8442-1 ENV. SCREEN ON L-6778

Initial Dilution	2.00 g of Sample diluted to 1000 ml with DI water
Initial Dilution Factor	100/5.0 (Dilution factor = 1 if undiluted)

Bottle No.	Conc. of Sample[1]	Sample Size[2]	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Sample	10 / BOD - Day	10 Average / BOD - Day
63		0.5	8.90	6.85	2.05	1.14	342,000	270,000 mg/kg
60		1.0	8.85	6.10	2.75	1.84	276,000	
57		2.0	8.90	4.45	4.45	3.54	266,000	
85		4.0	8.80	<0.05	-	-	-	
3		8.0	8.80					
9		16	8.85					

Note: 1. Conc. = Concentration of sample (ml/l or mg/l) in BOD bottles.

2. Sample Size = ml or g of sample or diluted sample added to BOD Bottle.

Comments: COD - 530,000

Form 19756 PWO

...mental Laboratory
...Work Sheet - Samples

(5,10,20)

20 DAY WET BOD

3M

Lab Req. No. ▶ 8442

Analyst: JP Conn

Date Started: 9-10-82

BOD Run No. ▶ 82-32

20 Day BOD Readings

Analyst: JP Conn

Date: 9-30-82

Sample Description: 8442-1 ENV. SCREEN ON L-6778

Initial Dilution: 2.00 g of Sample diluted to 1000 ml with DI water

Initial Dilution Factor: 100% (Dilution factor = 1 if undiluted)

Bottle No.	Conc. of Sample[1]	Sample Size[2]	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Sample	20 / BOD Day	Average 20 / BOD Day
63		0.5	8.90	5.75	3.15	1.93	580,000	
60		1.0	8.85	5.30	3.55	2.33	350,000	330,000 mg/kg
57		2.0	8.90	3.60	5.30	4.09	307,000	
85		4.0	8.80					
3		8.0	8.80					
9		16	8.85					

Note:
1. Conc. = Concentration of sample (ml/l or mg/l) in BOD bottles.
2. Sample Size = ml or g of sample or diluted sample added to BOD Bottle.

Comments: COD - 530,000

Form 19756 PWO

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rk Sheet - Samples

(20,20)
20 DAY ULT. BOD

3M

Lab Req. No. ▶ 8442		BOD Run No. ▶ 82-32	
Analyst: JP Gann	Date Started: 9-10-82	28 - Day BOD Readings	
		Analyst: JP Gann	Date: 10-8-82

Sample Description: 8442-1 ENV. SCREEN ON L-6778		
Initial Dilution	2.00 g of Sample diluted to 1000	ml with DI water
Initial Dilution Factor	~~10~~ 500	(Dilution factor = 1 if undiluted)

Bottle No.	Conc. of Sample[1]	Sample Size[2]	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Sample	28 - Day BOD	28 - Day Average BOD
63		0.5	8.90	4.80	4.10	2.67	802,000	~~570,000 mg/kg~~ SG 10-8-82
60		1.0	8.85	4.05	4.80	3.37	506,000	
57		2.0	8.90	2.30	6.60	5.18	388,000	*
85		4.0	8.80					
3		8.0	8.80					
9		16	8.85					

Note: 1. Conc. = Concentration of sample (ml/l or mg/l) in BOD bottles.

2. Sample Size = ml or g of sample or diluted sample added to BOD Bottle.

Comments

COD - 530,000

* note sliding BOD results

Form 19756 PWO

Environmental Laboratory BOD Work Sheet - Blanks, Controls, and Standards

5.10.15.20.25

ULT. 20 DAY BOD

3M

Lab Request No. ▶		BOD Run No. ▶ 82-32	Stalled H2O aged 10 days (no nutrients during storage).
Analyst: JMcCune	Date Started: 9-10-82	5 - Day BOD Readings	
Seed Type & Source: Activated sewage/domestic	Seed Concentration: 6.0 ml/l	Analyst: JMcCune	Date: 9-15-82

Nonseeded Dilution - Water Blank

Bottle No.	Initial D.O. (A_1)	Present D.O. (A_2)	D.O. Depletion ($A_1 - A_2$)	Average D.O. Depletion ($\bar{A}_1 - \bar{A}_2$)
110	8.80	8.20	0.60	
9	8.85	8.25	0.60	0.60
83	8.75	8.15	0.60	

Seeded Dilution - Water Blank (optional)

Bottle No.	Initial D.O. (C_1)	Present D.O. (C_2)	D.O. Depletion ($C_1 - C_2$)	Average D.O. Depletion ($\bar{C}_1 - \bar{C}_2$)
68	8.90	8.30	0.60	
11	8.80	8.20	0.60	0.60
17	8.85	8.25	0.60	

Seed Controls

Bottle No.	Sample Size	Initial D.O. (B_1)	Present D.O. (B_2)	D.O. Depletion ($B_1 - B_2$)
25	30	8.80	8.10	0.70
44	40	8.75	8.00	0.75
65	80	8.40	7.60	0.80
6	160	7.70	6.65	1.05

Glucose - Glutamic Acid Standard

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	5 / BOD - Day	Average 5 / BOD - Day
79	30	8.80	6.50	2.30	1.71	171	
64	50	8.80	5.40	3.40	2.81	169	→ 170 mg/l
174	70	8.80	4.00	4.80	4.21	181	

Potassium Hydrogen Phthalate Standard (optional)

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	____ / BOD - Day	Average ____ / BOD - Day

Form 19755 PWO

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...Work Sheet - Blanks,
...trols, and Standards

5, 10, 15, 20, 29

LILT. 20 DAY BOD

3M

Lab Request No. ▶		BOD Run No. ▶ 82-32 Distilled H_2O aged 10 Days
Analyst: JPC	Date Started: 9-10-82	10 · Day BOD Readings
Seed Type & Source: Activated sewage / Chamblee	Seed Concentration: 6.0 ml/l	Analyst: JPC — Date: 9-20-82

Nonseeded Dilution - Water Blank

Bottle No.	Initial D.O. (A_1)	Present D.O. (A_2)	D.O. Depletion ($A_1 - A_2$)	Average D.O. Depletion ($\bar{A}_1 - \bar{A}_2$)
110	8.80	7.85	0.95	
9	8.85	7.90	0.95	0.95
83	8.75	7.80	0.95	

Seeded Dilution - Water Blank (optional)

Bottle No.	Initial D.O. (C_1)	Present D.O. (C_2)	D.O. Depletion ($C_1 - C_2$)	Average D.O. Depletion ($\bar{C}_1 - \bar{C}_2$)
68	8.90	7.90	1.00	
11	8.80	7.90	0.90	0.91
17	8.85	8.00	0.85	

Seed Controls

Bottle No.	Sample Size	Initial D.O. (B_1)	Present D.O. (B_2)	D.O. Depletion ($B_1 - B_2$)
75	20	8.80	7.70	1.10
44	40	8.75	7.40	1.35
65	80	8.40	6.95	1.45
6	160	7.70	5.70	2.00

Glucose - Glutamic Acid Standard

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	10 / BOD · Day	Average 10 / BOD · Day
79	30	8.80	5.70	3.10	2.19	220	
94	50	8.80	4.30	4.50	3.61	216	220 mg/l
134	70	8.80	2.80	6.00	5.11	219	

Potassium Hydrogen Phthalate Standard (optional)

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	____ / BOD · Day	Average ____ / BOD · Day

Form 19755 PWO

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...trols, and Standards

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ULT. 20 DAY BOD

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Lab Request No. ▶		BOD Run No. ▶ 832-32 Distilled H_2O aged 10 Days
Analyst [illegible]	Date Started 9-10-82	15 - Day BOD Readings
Seed Type & Source Raw Domestic Sewage	Seed Concentration 6 Cent/l	Analyst [illegible] Date 9-25-82

Nonseeded Dilution - Water Blank

Bottle No.	Initial D.O. (A_1)	Present D.O. (A_2)	D.O. Depletion ($A_1 - A_2$)	Average D.O. Depletion ($\bar{A}_1 - \bar{A}_2$)
1C	8.80	7.60	1.20	
9	8.85	7.75	1.10	1.13
X3	8.75	7.65	1.10	

Seeded Dilution - Water Blank (optional)

Bottle No.	Initial D.O. (C_1)	Present D.O. (C_2)	D.O. Depletion ($C_1 - C_2$)	Average D.O. Depletion ($\bar{C}_1 - \bar{C}_2$)
6X	8.90	7.70	1.20	
11	X.80	7.80	1.00	1.05
17	8.85	7.90	0.95	

Seed Controls

Bottle No.	Sample Size	Initial D.O. (B_1)	Present D.O. (B_2)	D.O. Depletion ($B_1 - B_2$)
75	20	8.80	7.45	1.35
44	40	8.75	7.10	1.65
65	80	8.40	6.50	1.90
6	160	7.70	5.10	2.60

Glucose - Glutamic Acid Standard

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	15 / BOD - Day	Average 15 / BOD - Day
79	30	8.80	5.45	3.35	2.31	231	
94	50	8.80	3.85	4.95	3.92	235	→ 230 mg/l
1X	70	8.80	2.40	6.40	5.37	230	

Potassium Hydrogen Phthalate Standard (optional)

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	____ / BOD - Day	Average ____ / BOD - Day

Form 19755 PWD

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5, 10, 15 20 25

ULT. 20 DAY BOD

3M

Lab Request No. ▶		BOD Run No. ▶ 82-32	
Analyst	Date Started 9-10-82	20 - Day BOD Readings	
Seed Type & Source	Seed Concentration	Analyst	Date
			9-30-82

Diluted H2O aged 10 days

Nonseeded Dilution - Water Blank

Bottle No.	Initial D.O. (A_1)	Present D.O. (A_2)	D.O. Depletion ($A_1 - A_2$)	Average D.O. Depletion ($\bar{A}_1 - \bar{A}_2$)
11C	8.80	7.50	1.30	
1	8.85	7.55	1.30	
2	8.75	7.50	1.25	1.28

Seeded Dilution - Water Blank (optional)

Bottle No.	Initial D.O. (C_1)	Present D.O. (C_2)	D.O. Depletion ($C_1 - C_2$)	Average D.O. Depletion ($\bar{C}_1 - \bar{C}_2$)
10S	8.90	7.55	1.35	
11	8.80	7.60	1.20	
12	8.85	7.75	1.10	1.22

Seed Controls

Bottle No.	Sample Size	Initial D.O. (B_1)	Present D.O. (B_2)	D.O. Depletion ($B_1 - B_2$)
3S	30	8.50	7.20	
44	40	8.75	6.80	
05	50	8.40	6.10	
6	100	7.70	4.65	

Glucose - Glutamic Acid Standard

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	20 / BOD - Day	Average 20 / BOD - Day
2	30	8.80	5.10	3.70	2.49	249	→ 250 mg/l
4	50	8.80	3.50	5.30	4.10	246	
1S	10	8.80	2.60	6.80	5.61	240	

Potassium Hydrogen Phthalate Standard (optional)

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	____ / BOD - Day	Average ____ / BOD - Day

Form 19755 PWO

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...rols, and Standards

5,10,15 20 28

U&T 20 DAY BOD

3M

Lab Request No. ▶		BOD Run No. ▶ 82-32 Distilled H_2O aged 10 Days	
Analyst	Date Started 9-10-82	28 - Day BOD Readings	
Seed Type & Source	Seed Concentration	Analyst	Date
Municipal/Domestic	6.0 ml/l		10-8-82

Nonseeded Dilution - Water Blank

Bottle No.	Initial D.O. (A_1)	Present D.O. (A_2)	D.O. Depletion ($A_1 - A_2$)	Average D.O. Depletion ($\bar{A}_1 - \bar{A}_2$)
110	8.80	7.20	1.60	
9	8.85	7.35	1.50	1.52
53	8.75	7.30	1.45	

Seeded Dilution - Water Blank (optional)

Bottle No.	Initial D.O. (C_1)	Present D.O. (C_2)	D.O. Depletion ($C_1 - C_2$)	Average D.O. Depletion ($\bar{C}_1 - \bar{C}_2$)
67	8.90	7.30	1.60	
11	8.80	7.40	1.40	1.43
17	8.85	7.55	1.30	

Seed Controls

Bottle No.	Sample Size	Initial D.O. (B_1)	Present D.O. (B_2)	D.O. Depletion ($B_1 - B_2$)
25	20	8.80	5.50	3.30
44	40	8.75	4.25	4.50
65	80	8.40	2.70	5.70
6	160	7.70	3.15	4.55

Glucose - Glutamic Acid Standard

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	28 / BOD - Day	Average 28 / BOD - Day
79	30	8.80	4.80	4.00	2.58	258	
44	30	8.80	3.10	5.70	4.29	258 →	250 mg/l
154	70	8.80	1.70	7.10	5.70	244	

Potassium Hydrogen Phthalate Standard (optional)

Bottle No.	Sample Size	Initial D.O. (D_1)	Present D.O. (D_2)	Total D.O. Depletion ($D_1 - D_2$)	Depletion Due To Standard	___ / BOD - Day	Average ___ / BOD - Day

Form 78785 FWD