

			DATE		PROJECT MANA		RECORDER
RVL S	BUL Senage 490			1	Dave	lerty cus	F.
TION NAME	<u>, </u>		MUTAG VAN		LATITUDE	lertrew 665	LONGITUDE
107	1		***		133,17	665	-117.34460
MPLE IDENTIFICAT	TON	·	TIME STARTED (A	r sire)	TIME FINISHED (AT SITE)	GRAS SAMPLE TIME
			150%		1508		
LD TEAM							
50	JS						
TEOPOLOGIC	AL CHARA	OTEDIOTION (DE	SOUDE DANIELL			2	
- r Lono Louio r	AC ONARA			np=70°F		and Join	the rest.
		☐ HYDROGEN					
	ODOR	SULFIDE	MUSTY	☐ SEWAGE	П АІИОММА	☐ GASOLINE	□ отнея
Ю	<u> </u>	□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	BLACK	OTHER
ď.		☐ GRAY	□ WHITE	☐ COLORLESS			
ĕ	NG	TRASH OR	☐ OIL AND	☐ ORGANIC			<u> </u>
ĀĽÏ	MATERI		GREASE	MATERIAL	□ ѕсим	□ subs	DOTHER OLGAR CL
20		OBJECTS (DESCRIBE)					J
'ATER	TURRINI	. Cherry of one	WESS SPACE	X CLOUDY	□ SOME		
≩		HEAVY CLOUD	RANCE COMMEN		CLOUDINESS	NONE	
OSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE EF	OSION AND/OR CH	HANGE IN VEGETATI	ON CONDITION)
LD ASUREMENTS:	: surface	9.28	TEMPERATURE (2636	CONDUCTIVIT	Y 47777	<u>25</u> 26.00
***		NTINUED (IF DEP		4 <u>7-0130</u>	(µs/er	n) / / DO_	
ile	Нą		·	01			
om	pii,			0) 0	-		DO
	, per 1			<u>-</u>	DIAPOCHALL (Resen-)	DO
WPLING ACTIVIT	TIES (DES	CRIBE ALL ACTIO	ONS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS A	S NECESSARY)
D	epth:	5%	m	wherea a	and con	ed to s	ik. Id measured
ر د خو	i V ST	-556		ar Y	11 paca	moter as	CO(VIII O
	1000	or we seem		110	and and	. 	
***************************************		11-111		1 191.1	<u> </u>		
AM LEADER'S S	IGNATURE	: UZTA	S Z	to ldst			



ODO	☐ SOAP DR ☐ YELLOW ☐ GRAY	4	SITE)	LATITUDE SS. 17 TIME FINISHED (A		CONGITUDE LONGITUDE TITISYSZ9 GRAB SAMPLE TIME
TEAM T C COROLOGICAL CHA	HACTERISTICS (DES	SCRIBE RAINFALL CHURINE	WIND, TEMPERATION TO THE PERCENT TO	URE, ETC.) W	lind from	GRAB SAMPLE TIME
TEAM T C COROLOGICAL CHA	HACTERISTICS (DES	SCRIBE RAINFALL CHURINE	WIND, TEMPERATION TO THE PERCENT TO	URE, ETC.) W	lind from	nthe west.
EOROLOGICAL CHA	HACTERISTICS (DES	SCRIBE RAINFALL COMMUNITY CHLORINE	~p ≈ 70	URE, ETC.)		
ODO	HACTERISTICS (DES	H TEN □ MUSTY □ CHLORINE	~p ≈ 70	0° F		
оло	HYDROGEN SULFIDE SOAP DR SUFFLOW GRAY	H TEN □ MUSTY □ CHLORINE	~p ≈ 70	0° F		
	R SULFIDE SOAP DR SET YELLOW GRAY	☐ CHLORINE	_	☐ AMMONIA	☐ GASOLINE	□ отнея
	R SULFIDE SOAP DR SET YELLOW GRAY	☐ CHLORINE	_	□ AMMONIA	☐ GASOLINE	□ отнея
/ APPEARANCE	OR GRAY		NONE			
/ APPEARANCE	☐ GRAY .	☐ GREEN	•			
(APPEAI			□ BLUE	j) BROWN	□ BLACK	☐ OTHER
A NG		© white	COLORLESS	/ '		***************************************
_	☐ TRASH OR	☐ OIL AND	ORGANIC			
E MATI	ERI DEBRIS ☐ OBJECTS	GREASE 3	MATERIAL	□ ѕсим	□ subs	ACOTHER ALGORO (1)
E	(DESCRIBE)			·····		
TURE	BIDI. 🗆 HEAVA CTOND	INESS, OPAQUE	KICLOUDY	☐ SOME CLOUDINESS	□ NONE	
ION AND VEGETAT	ION (DECODIDE ANY	Wight Sight of				
NON AND VEGETAT	Odici v	VISUAL SIGNS OF	F SLIDE SLOPE ERC	OSION AND/OR CH	IANGE IN VEGETATIOI	N CONDITION)
OUREMENTS: surface	е рн <u>9.16</u>	TEMPERATURE (°	, 23,25	CONDUCTIVITY (µs/cm	3662 00	23.98 mg/L
MEASUREMENTS	CONTINUED (IF DEP	TH >2 F.T.)				
	рН	TEMP (°C	co	NDUCTIVITY (µS/cm)	DO
	рН		s)co	NDUCTIVITY (µS/cm))	DO
LING ACTIVITIES (D	ESCRIBE ALL ACTIO				ONAL COMMENTS AS	
De	ph = 91	1	mot	arcal to	s siter do	upped
ا دانید	ph = 9;	526	ar	ichor (-t	tok fie	الما
•	Ł			·wl	ascrenen	its
LEADER'S SIGNAT	URE OUT	Q Yal	Sit-			

NS1556



WATER QUALITY FIELD DATA LOG

		DATE		PHOJECT MANA	GED	RECORDER, /
PROJECT/SURVEY	YNAME	11.	900	THOUSE I MAIN		NECOHOEH /
STATION NAME	Tron que	IAA NAV DATUM	10/	LATITUDE	ENTREW	10/11/C 1
	1 /a /	MY DATUM		33	16820	LONGITUDE
SAMPLE IDENTIFIC	CATION	TIME STARTED (A	T SITE)	TIME FINISHED (AT SITE)	GHAB SAMPLE TIME
	0	06	30		1638	0
FIELD TEAM			70	<u> </u>	<i>V 20</i>	
	LC /1	G)				
METEOROLOG	ICAL CHARACTERISTICS (DESCRIBE BAINEAL	WIND TEMPEDA	TUBE ETC.)	(
		OUNGST	L, MIKO, IEMPENA	IUNE, E10.)	Myt	405 A 8257
	61,45	72172	7/10		-3/17	Adar
	70/742	7,777 6			· · · · · · · · · · · · · · · · · · ·	
	☐ HYDROGE	N				
	ODOR SULFIDE	MUSTY	☐ SEWAGE	□ ammonia	☐ GASOLINE	□ OTHER
	□SOAP	CHLORINE	□ NONE			
NCE	2016	-				
ARA	COLOR TYELLOW	GREEN	☐ BFNE	BROWN	☐ BLACK	□ отнея
PPE	☐ GRAY	□ wнпє	☐ COLORLESS			
WATER QUALITY APPEARANCE	NG ☐ TRASH OR MATERI DEBRIS		ORGANIC			
JALI	D OBJECTS	GREASE	MATERIAL	□ scum	C) sups	☐ OTHER
R Q	(DESCRIBE)				Now	
'ATE	TURBIDI" [] HEAVY CLO	DIDINECE ADAQUE	TS CFONDA	☐ SOME CLOUDINESS		
3		EARANCE COMMEN		OLUUURESS	☐ NONE	***************************************
EROSION AND	VEGETATION (DESCRIBE A	ANY VISUAL SIGNS C	_	ROSION AND/OR CI	HANGE IN VEGETATIO	IN CONDITION)
·		ANY VISUAL SIGNS C	-	MARCS		- 0(
EROSION AND T	VEGETATION (DESCRIBE	ANY VISUAL SIGNS C	for Ch		v 3718	n condition)
FIELD MEASUREMENT	VEGETATION (DESCRIBE A	ANY VISUAL SIGNS OF TEMPERATURE (9.5° 19.5°	G (A/C) G CONDUCTIVIT	y <u>3718</u> do_	<u>3.96</u>
FIELD MEASUREMENT FIELD MEASUR	VEGETATION (DESCRIBE A	ANY VISUAL SIGNS OF TEMPERATURE (9.5° 19.5°	4 CONDUCTIVITY (JUSTIC	73718 DO_	3.96 3.99
FIELD MEASUREMENT	VEGETATION (DESCRIBE A	ANY VISUAL SIGNS OF TEMPERATURE (or 0, 1955 o	CONDUCTIVITY (µS/cn	*1 <u>3718</u> 00_	3.96 00 3.99
FIELD MEASUREMENT FIELD MEASUR	VEGETATION (DESCRIBE A	ANY VISUAL SIGNS OF TEMPERATURE (or 0, 1955 o	CONDUCTIVITY (µS/cn	*1 <u>3718</u> 00_	3.96 3.99
FIELD MEASUREMENT FIELD MEASUR niddle	VEGETATION (DESCRIBE A TS: surface pH 2 EMENTS CONTINUED (IF E PH 79 PH 79	TEMP (*	604 Ch co 1955 co 1955 c	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR niddle	TS: surface pH 2 EMENTS CONTINUED (IF E pH 7.9 pH 7.9 pH 7.9	TEMPERATURE (TEMP (* TEMP (*)	FOR $\frac{19.5}{\text{c}}$ $\frac{19.55}{\text{c}}$ $\frac{19.55}{\text{c}}$ $\frac{19.52}{\text{c}}$ $\frac{19.52}{\text{c}}$ $\frac{19.52}{\text{c}}$	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR niddle	VEGETATION (DESCRIBE A TS: surface pH 2 EMENTS CONTINUED (IF E PH 79 PH 79	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle ottors	TS: surface pH 2. EMENTS CONTINUED (IF E PH 7.9) PH 7.9 IVITIES (DESCRIBE ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle ottors	TS: surface pH 2 EMENTS CONTINUED (IF E pH 7.9 pH 7.9 pH 7.9	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle ottors	TS: surface pH 2. EMENTS CONTINUED (IF E PH 7.9) PH 7.9 IVITIES (DESCRIBE ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle ottors	TS: surface pH 2. EMENTS CONTINUED (IF E PH 7.9) PH 7.9 IVITIES (DESCRIBE ALL ALL ALL ALL ALL ALL ALL ALL ALL AL	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle ottors	VEGETATION (DESCRIBE AT A STATE OF THE ACT O	TEMPERATURE (TEMP (* TEMP (*)	CO 1955 CC 1955 CC 1955 CC 1950 CC ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3718 00_ 13712 13195	3.96 00 3.99 00 3.95
FIELD MEASUREMENT FIELD MEASUR middle cottors SAMPLING ACT	VEGETATION (DESCRIBE AT SECTION (DESCRIBE AT SECTION (DESCRIBE ALL AT SECTION AT A	TEMPERATURE (TEMP (* TEMP (*)	Co. 19.5 c c) 19.5 c c) 19.52 c ACH SITE VISIT ANI	CONDUCTIVITY (µS/cm	3218 do	3.96 DO 3.99 DO 3.95
FIELD MEASUREMENT FIELD MEASUR middle cottors EAMPLING ACT	VEGETATION (DESCRIBE AT SECTION (DESCRIBE AT SECTION (DESCRIBE ALL AT SECTION AT A	TEMP (*) CTIONS TAKEN AT E.	(c) 19.5 c (c) 19.5 c (d) 19.5 c (d) 19.5 c (e) 19.5 c (e) 19.5 c (e) 19.5 c (f) 19.5 c	CONDUCTIVITY (µS/cm	3218 do	3.96 DO 3.99 DO 3.95
FIELD MEASUREMENT FIELD MEASUR middle cottors EAMPLING ACT	VEGETATION (DESCRIBE AT SECTION (DESCRIBE AT SECTION (DESCRIBE ALL AT SECTION AT A	TEMP (° TEMP ((c) 19.5 c (c) 19.5 c (c) 19.52 c (d) 19.52 c (d) 19.52 c (e) 19.52 c (e) 19.52 c	CONDUCTIVITY (µS/cm	3218 do	3.96 DO 3.99 DO 3.95
FIELD MEASUREMENT FIELD MEASUR middle cottors SAMPLING ACT	VEGETATION (DESCRIBE AT SECTION (DESCRIBE AT SECTION (DESCRIBE ALL AT SECTION AT A	TEMP (° TEMP ((c) 19.5 c (c) 19.5 c (c) 19.52 c (d) 19.52 c (d) 19.52 c (e) 19.52 c (e) 19.52 c	CONDUCTIVITY (µS/cm	3218 DO_ 1) 3212 1) 3195 ONAL COMMENTS AS 3194	3.96 DO 3.99 DO 3.95
FIELD MEASUREMENT FIELD MEASUR middle cottors EAMPLING ACT	VEGETATION (DESCRIBE AT A STATE OF THE ACT O	TEMP (*) CTIONS TAKEN AT E.	C) 19.55 c C) 19.55 c ACH SITE VISIT ANI (4) (4)	CONDUCTIVITY (µS/cm	3218 do	3.96 00 3.99 00 3.85

SERVICE ASS



PROJECT/SURVEY NA	ME		DATE /		PROJECT MANAG	SER	RECORDER
BUL:	/ :	YIII	1 4	907). Pentrew	MikiA.
ID B			NAV DATUM		LATITUDE	16779	1/2 35435
SAMPLE IDENTIFICATI	ION		TIME STARTED (A	T SITE)	TIME FINISHED (A	NT SITE)	GRAB SAMPLE TIME
FIELD TEAM /	2	M. A	1 04	e je	1 0	<i>v</i> / /	1 .5
L	<u></u>	MIKE H					
METEOROLOGICA	IL CHARA	CTERISTICS (DESC	CRIBE RAINFALI	L, WIND, TEMPERAT		2 1/	
		/00	0 6 M	W.	WWW	05 X Nu)
	ODOR	☐ HYDROGEN SULFIDE	_ □ M/USTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	□ отнея
щ		□ SOAP	CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	DEROWN	BLACK	□ отне <u>н</u>
e d		☐ GRAY	C) WHITE	☐ COLORLESS			
LITY A	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	ORGANIC MATERIAL	□ ѕсим	□ subs /	□ OTHER
A QUA		OBJECTS (DESCRIBE)				- Nove	,
WATER	TURBIDI'	THEAVY CLOUDINGUALITY APPEARA	NESS, OPAQUE ANCE COMMEN	□ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
EROSION AND VE	SETATION	(DESCRIBE ANY)	VISUAL SIGNS C	F SLIDE SLOPE ERC		HANGE IN VEGETATION O	CONDITION)
		-1111					
FIELD MEASUREMENTS:	surface	pH 8,08	TEMPERATURE (<u>., 19.34</u>	CONDUCTIVITY (µs/cm		5-20
FIELD MEASUREM	ENTS COM	NTINUED (IF DEPTI	H >2 FT)				
middle	РЩ	8:08	TEMP (°	01 <u>/9.33 </u>	<u>ND</u> UCTIVITY (μS/cm	304	5.15
battom	рН	<u>8.07</u>	TEMP (°	01 <u>/933 </u>	NDUCTIVITY (µS/cm	3/03	DO 5.11
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTION	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITIO	ONAL COMMENTS AS NE	CESSABA)
	•	Del	14-	21	No 14	otthe comments he had	oussairi,
المغر	•	•					
			1/ /	,			
TEAM LEADER'S S	IGNATUR	E ψ	4.5	, 5			

100 Jan



PROJECT/SURVEY	NAME: /		DATE /		(DDO ISOT MANAGE		
STATION NAME	FB2	LIC .	4	<i>907</i>		lewnew	MIKE A
STATION NAME	$\langle o \rangle$		NAV DATUM		LATTIUDE 33	16892	1/7 350/a/
SAMPLE IDENTIFICA	TION		TIME STARTED (AT	SITE) YG	TIME FINISHED (A	T SITE)	GRAB SAMPLE TIME
FIELD TEAM		/ // .	1 100	ι /	<i>U</i>	<i>ę</i>	
	<u> </u>	1 MIKE	<u>t</u>				
METEOROLOGIC	CAL CHARA		1 1/1	WIND, TEMPERAT	URE, ETC.)	wins:	0-5 KTS NW
	ODOR	☐ HYDROGEN SULFIDE	DIMUSTY	□ SEWAGE	□ ammonia	☐ GASOLINE	□ отнея
		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	₽ BROWN	□ BLACK	□ отнев
ldd	L	☐ GRAY	☐ WHITE	☐ COLORLESS			
	NG	TRASH OR	☐ OIL AND	ORGANIC			
QUALI	MATERI	□ OBJECTS	GREASE	MATERIAL	□ ѕсим	□ subs	ONC
E	ļ	(DESCRIBE)			SOME		VIVC
WA	TURBIDI	□ HEAVY CLOUDIN	NESS, OPAQUE	CLOUDY	CLOUDINESS	□ NONE	
	WATER	QUALITY APPEAR.	ANCE COMMENTS	3:	/ 2		
			MAICS	40'	Fran	SIAlow	
EROSION AND V	EGETATION	(DESCRIBE ANY	VISUAL SIGNS OF	SLIDE SLOPE ERG	OSION AND/OR CH	ANGE IN VEGETATION (CONDITION)
		···					
FIELD MEASUREMENTS	3: surface	pH 8.18	TEMPERATURE (°c	. 1954	CONDUCTIVITY (µs/cm		<u>5.54</u>
FIELD MEASURE	MENTS CO	NTINUED (IF DEPTI	H >2 FT)				***************************************
middle	рН	8.18	TEMP (°C)	19.54 00	NDUCTIVITY (µS/cm)	3152	DO 5.50
bottom	pH	8.17	TEMP (°C)	19.55 00	NDUCTIVITY (µS/cm)	3/52	00 5-9d
SAMPLING ACTIV	ITIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EAC	CH SITE VISIT AND	PROVIDE ADDITIO	DNAL COMMENTS AS NE	CEGGADV)
		eP14-	3	011	THOUSE ADDITION	THAE GOMMENTO AS THE	oessant)
•	· •						
TEAM LEADER'S	SIGNATUR		7. Kg	v ·			_

5 900 Fe



PROJECT/SURVEY NA	ME 🧷 .	,	DATE		DDO JECT MANA	OFB	
STATION NAME	FISA	KILL	NAV DATUM	907	PROJECT MANA	ICNF111	
JANON NAME	18		NAV DATOM		LATITUDE 33	17059	LONGITUDE 3 1/9</td
SAMPLE IDENTIFICATI	ION		TIME STARTED (AT	T SITE)	TIME FINISHED (AT SITE)	GRAÐ SAMPLE TIME
FIELD TEAM ,	0			654	6	1659	<i>D</i>
L	7	MIR	К.Д.				
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALL	., WIND, TEMPERA	TURE, ETC.)		
			100	To le	wa .		
		***************************************	W	(N)	0-5105	NW	
	ODOR	☐ HYDROGEN SULFIDE	_ Æ MUSTY	□ sewage	☐ AMMONIA	☐ GASOLINE	П отнея
ш		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	O 8LUE	D BROWN	C) BLACK	☐ OTHER
1PP		☐ GRAY	☐ WHITE	☐ COLORLESS			
È	NG MATERI	TRASH OR	OIL AND GREASE	☐ ORGANIC MATERIAL			
QUAL		☐ OBJECTS (DESCRIBE)	an ichoe	WATERIAC,	SCUM	□ suds	D отне <u>к</u>
E E		(SOME	<u>K</u>	
W	TURBIDI	HEAVY CLOUD	NESS, OPAQUE	ZZ CLOUDY	CLOUDINESS	□ NONE	
			THOSE SOMMEN				
EROSION AND VE	SETATION	(DESCRIBE ANY	VISUAL SIGNS O	PISLIDE SLOPE EI	OSION AND/OR CH	IANGE IN VEGETATI	ON CONDITION)
			4	ASLAUS	60	from .	5141-au
						··········	
FIELD MEASUREMENTS:	surface	рн Я Д 5	TEMPERATURE (°	0 1957	CONDUCTIVIT		6.90
FIELD MEASUREM	ENTS CO	NTINYED (IF DEPT	'H >2 FT)	· · · · · · · · · · · · · · · · · · ·			
middle	рН	8.25	_ TEMP (°C	1959	:ONDUCTIVITY (µS/cm	3158	00 4.79
bottom	pН	8.25	TEMP (°C	19.59	:ONDUCTIVITY (µS/cm	3158	00 6-64
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ICH SITE VISIT AN	D DDOWNE ADDITIO	ONAL COMMENTS A	P NECESSARIA
	5	PH-	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	_ (3 //	ONAL COMMENTS A	5 NECESSARY)
اد ت و	* ` _ '						
			//	1			
TEAM LEADER'S SI	GNATURE		1. A	145			

100/4/DC 2



PROJECT/SURVEY NA	ME _		DATE	7. A	PROJECT MANA	3EP	(BECORDED
BUL	FH	KILC	4	1-907))	Henrica	MIKE A
STATION NAME	2 X/*	A 1.C	NAV DATUM		LATITUDE 2	17/9h	LONGITUDE
SAMPLE IDENTIFICATI	ON	///1	TIME STARTED (A	T SITE)	TIME FINISHED (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	<u> </u>		0/	05	1	1707	-0
PACO TEAM	//	Mw	ie L				
METEOROL OCICA	L CHARA	CTEDICTION (DEC	7				
WETEONOLOGICA	IL UNARA	CTEMISTICS (DES	O IO	L, WIND, TEMPERATUI OUU AS (RE, ETC.)		
		78	e iv		D 1-9	TKB N	w
	T T	Пиморови					
	ODOR	□ HYDROGEN SULFIDE	DMUSTY	☐ SEWAGE	□ AMMONIA	☐ GASOLINE	Панто П
Ж		□ SOAP	☐ CHLORINE	□ NONE			
EARANC	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	12 BROWN	☐ BLACK	□ отнев
1 84		☐ GRAY	☐ WHITE	☐ COLORLESS			
λŁ	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ sups	
QUAL		☐ OBJECTS (DESCRIBE)		- Nove	LJ SCOM	C1 2002	☐ OTHER
WATER QUALITY APPEARANCE	TURBIDI	□ HEAVY CLOUD	NESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
_	WATER	QUALITY APPEAR	ANCE COMMEN	TS:	····	BITOIT	
	<u> </u>						
EROSION AND VEC	BETATION	CASIAICS	VISUAL SIGNS C	F SLIDE SLOPE EROS	ON AND/OR CH	IANGE IN VEGETATION	CONDITION)
		C4 (1/4)11.	(8	1 1 1 1 (62 (<i>>\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\</i>	<i>"</i> O	

FIELD MEASUREMENTS:	surface	рН. <u>(ў./(</u> 0	TEMPERATURE (:0 <u>/936</u>	CONDUCTIVIT (µs/cn		6.56
FIELD MEASUREM	ENTS CO	VTINUED (IF DEPT	H >2 FT)				6.48 M
middle	На	8.11	TEMP /	cs/93/1 com	OLICTIVITY (sectors	3288	6.48
h	•	809		10 19	OUCTIVITY (µS/cm	27/11	
bottom	рН	0.01	TEMP (°		QUCTIVITY (µS/cm		_DO
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND P	ROVIDE ADDITI	ONAL COMMENTS AS N	ECESSARY)
		Delly.	- 2	' 07"			
ار نو	* "		**				
		, //	/ , .				
		- 1/1,	// /				
TEAM LEADER'S SI	GNATURE	<u> </u>	14 11	····	····		_

9 4 3/4



PROJECT/SURVEY N	AUF 2	· · · · · · · · · · · · · · · · · · ·	DATE		(220 124 (12		
BUL.	4134	KILL	4907	Xa.		Ten Frew	MIAA
STATION NAME	le .		NAV DATUM	A-	LATITUDE 33.	17331	LONGITUDE (
SAMPLE IDENTIFICAT	TION		TIME STARTED (A	T SITE)	TIME FINISHED (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	-0		0	//(10/	114	-0
1	C	MIKEL	7				
METEOROLOGICA	AL CHARA	/ /		L, WIND, TEMPERA	TURE, ETC.)		
		100 C	o OUIA		11110-	12 0-115	41.
					WIW>	0-5 R15	NW
	ODOR	☐ HYDROGEN SULFIDE	DMUSTY	□ SEWAGE	□ АММОНІА	☐ GASOLINE	П отнев
ı.		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	₽ BROWN	□ BLACK	□ ОТНЕЯ
APPI	ļ	GRAY	□ WHITE	COLORLESS			
L T	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	□ subs	☐ OTHER
a ou A		OBJECTS (DESCRIBE)			-A	PONK	
WATEF	TURBIDI	· □ HEAVY CLOUD	INESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	WATER	QUALITY APPEA	RANCE COMMEN	TS:			
	<u> </u>						
EROSION AND VE	GETAZION	LOESCRIBE ANY	VISUAL SIGNS (HANGE IN VEGETATION	(CONDITION)
-			2->	1100	519(1av)		
FIELD		O d	<i>'</i>	10 1	CONDUCTIVIT	v 2012	r 24
MEASUREMENTS:	surface	рН Д ЛЦ	TEMPERATURE (°c) 17-00	(µs/cr	× <i>376</i> 3 00_	<u> </u>
FIELD MEASUREM	ENTS CO	NTINUED (IF DEP	ľΗ >2 FT)		***		
middle	рН	1.05	TEMP (*	01 <i>9124</i> 0	ONDUCTIVITY (µS/cm	3763	5.19
bottom	рН	8.03	TEMP (*	10 10	ONDUCTIVITY (µS/cm	2201	DO 5.04
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTION	ONS TAKEN AT E	ACH SITE VISIT AN	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
	<	Os.		11	14		,
	()	119-			0		
ارنو زانو	3						
			1				
TEAM LEADER'S S	IGNATURE	. <i>l</i>	11 th .				
							



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3	<u> </u>	wage	[4]	9/07	PROJECT MANA	GER (RECORDER W
STATION NAME	A	1	NAV DATUM		LATITUDE 23	6871	LONGITUDE 7.351008
SAMPLE IDENTIFICAT	TION		TIME STARTED (A	TSITE	TIME FINISHED (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM							
	<u> </u>	0 dw a	Nd,	<u>J Scho</u>	1160		
METEOROLOGIC	AL CHARA			L, WIND, TEMPERAT		4	
		Su	my	, 3-	5143	west	
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	□ отнея
병		□ SOAP	CHLORINE	NONE			
ARANC	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	K BROWN	☐ BLACK	□ отне <u>к</u>
APPE		☐ GRAY	D WHITE	☐ COLORLESS			
UALITY	NG MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS	□ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ sups	□ ∕б∕ НЕ Р
WATER QUALITY APPEARANCE	TURBIDI	(DESCRIBE) HEAVY CLOUDS QUALITY APPEAR	NESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
		GONETT AT LEAST	INNUE COMMEN	13,			
EROSION AND VE	GETATION	L/DESCRIBE ANY	VISUAL SIGNE C	NE CLIDE CLODE ED	OCION ANDIOD O	HANGE IN VEGETATIO	
		(www.mpr xiti	VIGGAL GIGING C	- SLIDE SLOPE EN	OSION AND/OR CI	HANGE IN VEGETATION	ON CONDITION)
FIELD MEASUREMENTS	: surface	_{рн} <u>е.</u> 14	TEMPERATURE (·o) 21·10	CONDUCTIVIT (µs/en	× 33 17 00_	7.78 mg/C
FIELD MEASUREN	IENTS CO	TINUED (IF DEPT	TH >2 FT)				
middle	рH	8.07	TEMP (°	0,20.810	ONDUCTIVITY (µS/cm	,3288	00 6.83 mg/L
bottom	рН	8.04				<u>, 33°32-</u>	7000 6-41 mg/L
SAMPLING ACTIVE	TIES (DES	CRIBE ALL ACTIC	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITION	ONAL COMMENTS AS	NECESSARY)
dept	ent of	N	JQ M	Uaswa	nexts	YSI S	·56
1),	ΛΛ					
TEAM LEADER'S S	SIGNATUR)		



BVU	BV L Sewage			U/q/J		GER W	RECORDER
10 B)	J			35 · [[0779	117.35435
			TIME STARTED (A	,	TIME FINISHED (A	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	Woo	gward	115	mollée			
METEOROLOGICA	L CHARA	CTERISTICS (DES		L, WIND, TEMPERATUR			
			Part	thy cloud	y, 3	5 KB W	
	ODOR	D HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	□ gasoline	☐ OTHER
W.	<u> </u>	□ SOAP	CHLORINE	NONE	······		
ABANC	COLOR	☐ YELLOW	☐ GREEN	D BLUE	DEROWN	D BLACK	□ отнея
WATER QUALITY APPEARANCE	NG MATERI	☐ GRAY ☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	□ WHITE □ OIL AND GREASE	COLORLESS EYORGANIC MATERIAL M 1 1	SCUM	□suds	□ отнея
WATE		· LYHEAVY CLOUDI		□ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
		M	Λ.	lumps pa	no time	Its. Si	utalo.
EROSION AND VEG	SETATION	(DESCRIBE ANY	VISUAL SIGNS (OF SLIDE SLOPE EROS	ION AND/OR CH	IANGE IN VEGETATION (CONDITION)
		<					
FIELD MEASUREMENTS:	surface	рн <u>8.2</u> С	ZTEMPERATURE (ra 21.02	CONDUCTIVIT	(3 <u>113 m.8</u>	<u>70</u> ngll
FIELD MEASUREMI	ENTS COI	NTINUED (IF DEPT	H >2 FT)				. 3
middie	рН	6.70	TEMP (C) 20,98 CONE	DUCTIVITY (µS/cm	, 3115	00 8.71 myle
bottom	Hq	8.30	TEMP (20.88 cone	UCTIVITY (µS/cm)	3115	00 8.77 mg/c
SAMPLING ACTIVIT	1ES (DES					ONAL COMMENTS AS NE	CESSARY)
	(NQ v	reasiv	rement	M /	4 55%	
ception	2)	7" - M					
TEAM LEADER'S SI	GNATUR		\vee \vee				



BVLS	bul Sewage			419107		trew	RECORDER W
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	D	3	NAV DATUM		B3.1	e877	-117.35032
SAMPLE IDENTIFICAT	TION		TIME STARTED (AT	sire)	TIME FINISHED (/	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	V	Moody	vard,	Jsun	ollée		<u> </u>
METEOROLOGIC	AL CHARA	CTERISTICS (DES		, WIND, TEMPERATUI			
		:	party	1 Cloudy	5-1	olots was	st
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	☐ AMMONIA	□ GASOLINE	Оотнея
l w		☐ SOAP	☐ CHLORINE	RINONE			
ABANG	COLOR	☐ YELLOW	C GREEN	□ BLUE	BROWN	□ BLACK	☐ OTHER
APPE		☐ GRAY	D white	☐ COLORLESS			
UALITY	NG MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS	☐ OIL AND GREASE	O ORGANIC MATERIAL	□ ѕсим	□ subs	ОТНЕЯ
WATER QUALITY APPEARANCE		(DESCRIBE)		□ GLOUDY	☐ SOME CLOUDINESS	□NONE	
	WAIEN	GOALITY APPEAR	SUML		s un.	suface	
EROSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS OF	F SLIDE SLOPE EROS	ION AND/OR CH	HANGE IN VEGETATION C	ONDITION)
		<u> </u>					
FIELD MEASUREMENTS:	surface	_{pH} &.3{	ŽTEMPERATURE (*)	0 <u>21.62°C</u>	CONDUCTIVIT (µsen	73146 <u>100 9</u>	·28 mg/L
FIELD MEASUREN	TENTS CO			2.4		~.\\~	0 10 11
middle	pН	8.38	TEMP (°C	21.63°(coni	QUÇTIVITY (µS/cm	3141	00 9. 02 ng/L
bottom	рН	8.38	_ TEMP (°C	21.59 con	QUCTIVITY (µS/cm	, 3144	00 9.32 mg/C
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	CH SITE VISIT AND P	ROVIDE ADDITI	ONAL COMMENTS AS NEC	CESSARY)
de	1 0 11 640	W	ú m	asure n	ents	W1 751	55.6
Lis	*. , 0 /	/1					
			Δ	~			
TEAM LEADER'S S	IGNATUR	7 {					



BUL	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	wage	4/9/01		PROJECT MANAGER		RECORDER /
STATION NAME		1	NAV DATUM		LATITUDE 17	0114	LONGITUDE
SAMPLE IDENTIFICATI	ION	·····	TIME STARTED (AT	,	TIME FINISHED (AT S	эпте)	GRAB SAMPLE TIME
FIELD TEAM		·····	132	5			
\(\)	<u></u>	Mongh	WG }	J. Si	nollée	<u> </u>	
METEOROLOGICA	L CHARA	CTERISTICS (DESC		WIND, TEMPERATUR	-		
		Par	Hy u	may 1	3-5 K	ts west	
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	☐ AINOMMA ☐	I GASOLINE	□ OTHER
ų.		□ SOAP	☐ CHLORINE	SUNONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	ABROWN [□ BLACK	O OTHER
APPE		□ GRAY	O WHITE	COLORLESS			
ALITY	NG MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□scum [⊒ suos	□ ОТНЕВ
H OU		OBJECTS (DESCRIBE)					
WATE	TURBIDI	CUALITY APPEARA	ESS, OPAQUE	CLOUDY	CLOUDINESS [] NONE	
					su fac	e due h) whd
EROSION AND VEC	ETATION	(DESCRIBE ANY V	ISUAL SIGNS OF	SLIDE SLOPE EROS	ON AND/OR CHAN	NGE IN VEGETATION CO	ONDITION)
FIELD MEASUREMENTS:	surface	рн 8 5	TEMPERATURE (°c	,21.62	CONDUCTIVITY 2	3209 <u>1010</u> .	<u>36</u>
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTH	i >2 FT)				
middie	рΗ	8.5	TEMP (°C	21.56 cond	UCTIVITY (µS/cm)	3211	00.25
bottom	рН	9.50		21.52 _{cond}	UCTIVITY (µS/cm)	32_11	00 10.28
SAMPLING ACTIVIT	TES (DES	CRIBE ALL ACTION	IS TAKEN AT EA	CH SITE VISIT AND P	OVIDE ADDITION	AL COMMENTS AS NEC	ESSARY)
3	Tr.	deptr	391	inch		uasuvem	
		\triangle	\triangle			, , ,	~
TEAM LEADER'S SI	GNATUR				V		



STATION AMADE OP SAMPLE DENTIFICATION TIME STATIED (AT STRE) TIME STATIED	BVI	Ç _{ru} .	u s P	49	101	Van L	AEM)	RECORDER	
ERGSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND VEGETATION CONDITION) FIELD MEASUREMENTS: 244529 OF BLY TEMPERATURE OF SLIPE SLOPE EROSION AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING THE PROVIDE OF DEPTH > 2 FT) THEND MEASUREMENTS CONTINUED OF DEPTH > 2 FT) THEND MEASUREMENTS CONTINUED OF DEPTH > 2 FT) THEND TEMPERATURE OF SLIPE SLIPE SLOPE EROSION AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY) CAPPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS INCRESSARY)	STATION NAME		mate	NAV DATUM		LATITUDE	7.01	LONGITUDE	-
METEOROLOGICAL CHARACTERISTICS (DESCRIBE RANFALL, WIND, TEMPERATURE, ETC.) PONTY UMMY, 3-SLYS WEST, 68. DOOR SULFIDE DAWSTY SENAGE AMMONIA GASCURE OTHER BOND GRAP GALORINE TOWNS GOLOR WILLOW GREEN GILLE SENGON GREEN GRAPH GOLOGY GOLOR GUELOW GREEN GOLOGY GOLOR GUELOW GREEN GOLOGY GOLOR GUELOW GREEN GOLOGY GOLOR GUELOW GREEN GOLOGY GOLORINE TOWNS GOLORINE TOWNS GOLOGY TURBIDIT ALTERNATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD BROSHON AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDI	SAMPLE IDENTIFICA	ATION		TIME STARTED (A	r site)				
METEOROLOGICAL CHARACTERISTICS (DESCRIBE RANFALL, WIND, TEMPERATURE, ETC.) PONTY UMMY, 3-SLATS WEST, 68° DOAD DIMORDOGRIN DUSTY SEVAGE AMMONIA GASOLINE OTHER DODOR SULFRE DAMSTY GREEN BELLE SERORIN GASOLINE OTHER DODOR SULFRE DOLLARS NONE COLOR VELLOW GREEN BELLE SERORIN GASOLINE OTHER DORANT WHITE COLORIESS NO DIMAREN DORANTO GREEN MATERIAL SULIA SUL							• • •	3773 Osaff to 11912	
POWTY UNDOWN 3 SICTS WEST. 68" POWTY UNDOWN 3 SICTS WEST. 68" PROPRIOSEN MUSTY SEWAGE AMMONIA GASCUNE OTHER SOAP CHLORINE MINONE COLOR SEWAGE AMMONIA GASCUNE OTHER SOAP CHLORINE MINONE GRACK OTHER GRAY WHITE GOLORESS MATERIAL SCUM SUOS MOTHER GRAY MATERIA GERASE MATERIAL SCUM SUOS MOTHER TURBIDI XI-RANY CLOUDINESS, OPACUE CLOUDY CLOUDY CLOUDY WATER QUALITY APPEARANCE COMMENTS: NONE TURBIDI XI-RANY CLOUDINESS, OPACUE CLOUDY CLOUDY CLOUDINESS NONE TURBIDI XI-RANY CLOUDINESS, OPACUE CLOUDY CLOUDY CLOUDINESS NONE TURBIDI XI-RANY CLOUDINESS, OPACUE CLOUDINESS CLOUDINESS NONE TURBIDI XI-RANY CLOUDINESS, OPACUE CLOUDINESS		W O	odvar	d , J	. Schol V	ĺ			
DOOR SUFFICE MUSTY SEWAGE AMMONA GASOLINE OTHER ODOR SUFFICE MUSTY SEWAGE AMMONA GASOLINE OTHER	METEOROLOGIC	CAL CHARA	CTERISTICS (DES	CRIBE RAINFALI	., WIND, TEMPERAT	JRE, ETC.)			1
ODOR SULFIDE MUSTY SEWAGE AMMONIA GASOLINE OTHER		*	Par	try u	undy,	3-510	ts wes	t, 68°	
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: Surface PH		ODOR		□ MUSTY	D sewage	☐ AMMONIA	☐ GASOLINE	□ отнея	
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: SUrface ph 8.28 TEMPERATURE (*c) 21.98 CONDUCTIVITY (LISCHM) 3282 DO 10.47 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 DOUTON ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) C. C	, w		☐ SOAP	☐ CHLORINE	NONE		······		
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: SUrface ph 8.28 TEMPERATURE (*c) 21.98 CONDUCTIVITY (LISCHM) 3282 DO 10.47 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 DOUTON ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) C. C	EARANC	COLOR	☐ YELLOW	GREEN	☐ BLUE	EBHOWN	□ BLACK	¯ □ отне <u>я</u>	_
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: SUrface ph 8.28 TEMPERATURE (*c) 21.98 CONDUCTIVITY (LISCHM) 3282 DO 10.47 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 DOUTON ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) C. C	(APP	NG							-
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: SUrface ph 8.28 TEMPERATURE (*c) 21.98 CONDUCTIVITY (LISCHM) 3282 DO 10.47 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 DOUTON ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) C. C	TITA		DEBRIS			□ ѕсим	□ subs	XD OTHER Sel	1
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD MEASUREMENTS: SUrface ph 8.28 TEMPERATURE (*c) 21.98 CONDUCTIVITY (LISCHM) 3282 DO 10.47 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 DOUTON ph 8.27 TEMP (*c) 21.93 CONDUCTIVITY (LISCHM) 3281 DO 11.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) C. C	H QU		(DESCRIBE)					Connexts]
FIELD MEASUREMENTS: SUrface pH 8-28 TEMPERATURE (*c) 21.98 CONDUCTIVITY 3282 DO 1047 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 8-27 TEMP (*c) 21.93 CONDUCTIVITY (µS(cm) 3284 DO 10.45 DO	WATE	TURBIDI	HEAVY CLOUDI	NESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE		
FIELD MEASUREMENTS: SUrface pH 8-28 TEMPERATURE (*c) 21.98 CONDUCTIVITY 3282 DO 1047 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 8-27 TEMP (*c) 21.93 CONDUCTIVITY (µS(cm) 3284 DO 10.45 DO		WAILA	t diameter	ince comment	ortial a	tes Zomos			:
FIELD MEASUREMENTS: SUrface pH 8-28 TEMPERATURE (*c) 21.98 CONDUCTIVITY 3282 DO 1047 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 8-27 TEMP (*c) 21.93 CONDUCTIVITY (µS(cm) 3284 DO 10.45 DO	EROSION AND V	EGETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE FRO	SION AND/OR CE	IANGE IN VEGETAT	FION CONDITIONIA	=
MEASUREMENTS: SURface pH 8.28 TEMPERATURE (°C) 21.98 CONDUCTIVITY (µS/cm) 37.87 DO 10.45 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 8.27 TEMP (°C) 21.93 CONDUCTIVITY (µS/cm) 32.84 DO 10.45 DOUBLE PH 8.27 TEMP (°C) 21.93 CONDUCTIVITY (µS/cm) 32.81 DO 10.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) WARRY WAS VERMENTS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) WARRY WAS VERMENTS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)			`		·		INTO IN TEGETA	TON CONDITIONS	
MEASUREMENTS: SURface pH 8.28 TEMPERATURE (°C) 21.98 CONDUCTIVITY (µS/cm) 37.87 DO 10.45 FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 8.27 TEMP (°C) 21.93 CONDUCTIVITY (µS/cm) 32.84 DO 10.45 DOUBLE PH 8.27 TEMP (°C) 21.93 CONDUCTIVITY (µS/cm) 32.81 DO 10.45 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) WARRY WAS VERMENTS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) WARRY WAS VERMENTS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)									
TEMP (°C) 21.93 CONDUCTIVITY (µS/cm) 3284 DO 10.45 DORTON PH 8.27 TEMP (°C) 21.90 CONDUCTIVITY (µS/cm) 3281 DO 11.12.10.49 Mg/(SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) W. W. W. W. W. W. S.	FIELD MEASUREMENTS	S: surface	рн <u>8.28</u>	TEMPERATURE (0/21.98	CONDUCTIVIT	, 3282 oc	01047	
TEMP (°C) 21.80 CONDUCTIVITY (US/cm) 3281 DO 1+1210.60 Mg/l SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) WE MUSSUVE MALLS 7. 1811	FIELD MEASURE	MENTS CO	NTINUED (IF DEPT	H >2 FT)					1
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) OF THE STATE OF THE S	middle	рН	8.27	TEMP (°	0121.93 con	<u>ND</u> UCTIVITY (μS/cm	, 3284	10.45	
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) OF THE STATE OF THE S	bottom	pН	8.27	TEMP (°	01 <u>21.60 co</u> 1	NDUCTIVITY (µS/cm	3281	00_ H. +2 10.64	pmg/1
deptr Wa measurements YSI 556 21.48"	SAMPLING ACTIV	/ITIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS		(_, ‡
TEAM LEADER'S SIGNATURE	dep	D~		_				:	
EAM LEADER'S SIGNATURE	21.	e)II							
TEAM LEADER'S SIGNATURE									
	TEAM LEADER'S	SIGNATUR	VY	V	<u> </u>				



PROJECT/SURVEY NA	ME		DATE ,	i	PROJECT MANAG	SER .	RECORDER					
BVL	Sec	Nage	419	67	Ren	Frau	NW					
STATION NAME	(1		NAV DATUM		LATITUDE		LONGITUDE - 17. 3506					
SAMPLE IDENTIFICATION	on 4	·····	TIME STARTED (AT	SITE)	TIME FINISHED (A		GRAB SAMPLE TIME					
FIELD YEAM			1345	>	(3	80						
<u></u>	<i>J</i> . (Noodwa	wd,	1 Schol	lée							
METEOROLOGICA	L CHARA	CTERISTICS (DESC	CRIBE RAINFALL,	WIND, TEMPERATUR	RE, ETC.)							
	· · · · · · · · · · · · · · · · · · ·	P	artly	cloud	1, 3	5 Ms we	st,68°C					
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ SEWAGE	□ AMMONIA	□ GASOLINE	□ отнея					
뽔	ļ	□ SOAP	CHLORINE	BLNONE								
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	C GREEN	☐ BLUE	Æ BROWN	□ BLACK	□ отне <u>в</u>					
APP	NG	☐ GRAY	□ WHITE	□ COLORLESS								
4LITY	MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ subs	MOTHER SCC					
R QU,		OBJECTS (DESCRIBE)					Comments					
WATE	TURBIDI: E HEAVY CLOUDINESS, OPAQUE											
-	WATER	QUALITY APPEAR	ANCE COMMENTS			fine na	- h. h. 2-0					
		arg	M Mur	rps, bub	bles,	agalo	rpulates.					
EROSION AND VEG	ETATION	(DESCRIBE ANY V	VISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR CH	IANGE IN VEGETATION (CONDITION)					
FIELD MEASUREMENTS:	surface	рн С 22	TEMPERATURE (°c)	21.550	CONDUCTIVITY (µs/om	324900	3.34 ng/L					
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPTI	1 >2 FT)	·····			,					
middle	рH	8.21	TEMP (°C)	21.55on	OUCTIVITY (µS/cm)	, 3248	00 8.09 ng/C					
bottom	рН	821	TEMP (°C)	21.53 _{cone}	OUCTIVITY (µS/cm)	<u>3248</u>	00 8.17 mg/C					
SAMPLING ACTIVITY	IES (DES	CRIBE ALL ACTION				DNAL COMMENTS AS NE						
F 1			W Q	MERSUH	2 Mln	to the						
<i>ي</i>	٠,				w\	451 551	0					
				·······								
TEAM LEADER'S SI	GNATURE											



PROJECT/SURVEY	NAME		DATE	1	PROJECT MANAG	GER	RECORDER	
SVI S	Seviens	·-	1 419	107	Dave &	Zentrav	76	
STATION NAME			NAV DATUM		LATITUDE		LONGITUDE	
10					33.14	820	-117.3418	<u> </u>
SAMPLE IDENTIFIC	ATION		TIME STARTED (AT	•	TIME FINISHED (АТ ЯПЕ)	GRAB SAMPLE TIME	
FIELD TEAM			1310					
, aco (EAII)	T (c	(DM						
	1-	1 V						
METEOROLOGIO	CAL CHARA	nd from	SCRIBE RAINFALL THE FILE LUSUA	ot. temperation	URE, ETC.)	i sunny	with very	
		16	V CUS.J0	<u></u>				
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	SEWAGE	□ AMMONIA	☐ GASOLINE	Оотнея	
		□ SOAP	CHLORINE	MONE				
NCE		_		/	\(\(\)		······	
ARA	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	☐ BLACK	□ отнея	
PPE		☐ GRAY	□ WHITE	☐ COLORLESS	1			
WATER QUALITY APPEARANCE	NG	☐ TRASH OR	☐ OIL AND	☐ ORGANIC	******		1	
Ā	MATERI		GREASE	MATERIAL	□ ѕсим	SUDS	BOTHER - DE LOTES	TC-
о. О		DOBJECTS (DESCRIBE)				(\	•	
\TEF			·····		SOME			\dashv
×		HEAVY CLOUD	DINESS, OPAQUE	⊠ CLOUDY	CLOUDINESS	☐ NONE		
	1,4,4,1	QUALITY AFFEA	HANCE COMMENT	5: (*) 5 U Z	23 6000	the a	o coto c	
				1000	J. O. C.	c (best of		
	l							
EROSION AND V	EGETATION	(DESCRIBE AN	Y VISUAL SIGNS O	F SLIDE SLOPE ERO	SION AND/OR CH	IANGE IN VEGETAT	ION CONDITIONS	
						MINUL IN FLULTAIN	ion condition,	
		***************************************					Cla locale for	
HELD	S	1/1	TEMPERATURE (%	1115	CONDUCTIVIT	14345 00	se pur (0)	
IEASUREMENTS	5: SUFIACE	PH-1	I TEMPERATURE (%	0 21.00	(µs/cn	1212 DO	duta (M	2
IELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)					
niddie	На		TEMP (°C	coi	<u>ND</u> UCTIVITY (μS/cm)	DO	_
ottom	рH		TEMP (°C	co	NDUCTIVITY (µS/cm	1	20	ļ
							DO	
AMPLING ACTIV	VITIES (DES	CRIBE ALL ACTI	ONS TAKEN AT EA	CH SITE VISIT AND	PROVIDE ADDITIO	ONAL COMMENTS A	S NECESSARY)	
d	leph:	= 2.4 €	-	motorcal	to site	e, droxp	red on ther,	
	V			recend	d dom	, and the	I'd neosurener	d3
ė	` نول	ال ي	() e	PH D	abe.	coma n	o kan	-
YSI 1	600x	L portal	fontend	Site	es dire	ty rent	ied cochor, ild neosixentes okan.	SI
EAM LEADER'S		11.11		The fat		*******		=
	-iona ioni			10 CW	····	····	***************************************	

Partherman from Carlobad got simile. To reading out this

I've stupped taking measurements to (20)

recalibrate probe because Do mas

reading 219 mg/L done with 45556

ce otherside



PROJECT/SURVEY	NAME		DATE	I	PROJECT MANAG	JER .	RECORDER	
Sur C	Seven	_	1 419	107	Ource &	Zentras	<u> </u>	
STATION NAME	- 		NAV DATUM		LATITUDE		ГОИВШОЕ	
10	6				33,19	120	GRAB SAMPLE TIME	4181
SAMPLE IDENTIFIC	ATION		TIME STARTED (A	•	TIME FINISHED (GRAB SAMPLE TIME	
	·····		1310	>				
FIELD TEAM	EG	(DM						
METEOROLOGI	CAL CHARA إسار	nd from	SCRIBE RAINFALI THE ME	L, WIND, TEMPERAT	TURE, ETC.) O A TUPE	Survey	with very	
		`				····		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ SEWAGE	☐ AMMONIA	GASOLINE	□ отнен	
tet		□ SOAP	☐ CHLORINE	XNONE				
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	/ BLUE	BROWN	□ BLACK	□ отне <u>в</u>	
g.		GRAY	□ WHITE	☐ COLORLESS				
Y	NG MATERI	☐ TRASH OR	☐ OIL AND GREASE	ORGANIC			. 11	Lla CF
QUALL	MATERI	DEBRIS D OBJECTS (DESCRIBE)	GHEASE	MATERIAL.	□ ѕсим	sups	BOTHER - DE-	B.627.7
WATER		- ☐ HEAVY CLOUD	DINESS, OPAQUE	Ж.сьовых	☐ SOME CLOUDINESS	□ NONE		
EROSION AND \	/EGETATION	I (DESCRIBE AN	Y VISUAL SIGNS C	DF SLIDE SLOPE ER		HANGE IN VEGETAT		
FIELD		/ !	1				sce back	AU
MEASUREMENT	S: surface	.pH.(-)-1	TEMPERATURE (·021.65	CONDUCTIVII (µs/cr	<u> 4345 00</u>	odra	M
FIELD MEASURI	MENTS CO	NTINUED (IF DEP	TH >2 FT)					
middle	рН		TEMP (°	c) <u> </u>	ONDUCTIVITY (µS/cm	n)	DO	
boltom	Hq		TEMP (*	C)	ONDUCTIVITY (µS/cm	3)	DO	
SAMPLING ACTI	VITIES (DES	CRIBE ALL ACTI	ONS TAKEN AT E	ACH SITE VISIT ANI	PROVIDE ADDITI	ONAL COMMENTS	AS NECESSARY)	
C	legh	= 246	+	motorco recend	et site	e idios	cld neosine	nerts
YSI	600x	L portol	tshkad	PH (P Sile	oabe is dire	seems of ty near	ced on he cld newscore in kon. I to on own	atura Ji
TEAM LEADER'S	SIGNATUR	e CAR	X,	Tollet				
						······································		

Paltherman from (acts bad got simil. To reading of this we stopped taking measurements to (20) recalibrate probe because Do mass vater quality also reading 219 mg/L done with 451556 cc otherside

106 GPS 33.17823,-117.34182 YSISSE

Time HS2 Depth = 2ft lin

Top Temp = 22.89°C

(and = 3958 M)

ph = 8.91 ph

DO = 19.42 mg/L

Middle Temp = 22.48°C (o.d = 3930 u.S pH = \$1.8 8.17 00 = 16.83 mg/c

Botton Temp = 22.36°C (ond = 3911 M) PH = 8.71 DO = 16.61 mg/L

.



PROJECT/SURVEY NA	ME	****	DATE		PROJECT MANA	GER	RECORDER	7			
18VL C0	MACL		491	01	Dave	Dertrein	F				
STATION NAME			NAV DATUM		LATITUDE	1000	LONGITUDE	1			
101					33.1	1816	-117, 34148				
SAMPLE IDENTIFICATI	ON	•	TIME STARTED (AT	r SITE)	TIME FINISHED (•	GRAB SAMPLE TIME	1			
CIEL O YEAR			<u> (30</u> 0		130						
FIELD TEAM	-1.11	DM									
	0										
METEOROLOGICA	il Chara	CTERISTICS (DESI WING f tra	CRIBE RAINFALI	wind, temperation	URE, ETC.) SUNWY	ich very	few claredo				
	T	Diagraph		(-a^ L	***************************************						
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	SEWAGE	☐ AMMONIA	GASOLINE	□ отнев				
L L		□ SOAP	CHLORINE	☐ NONE	****						
WATER QUALITY APPEABANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	□ BLACK	□ ОТНЕВ				
BPP.		☐ GRAY	□ WHITE	☐ COLORLESS				t I			
TY A	NG MATERI	☐ TRASH OR	☐ OIL AND	ORGANIC			Le le lalla				
JALI	MAICH	□ OBJECTS	GREASE	MATERIAL	☐ scum	□ suos	Acother (1 w bubble and alge	2 / .			
8 8		(DESCRIBE)					and of se	a Claubi			
ATE		• •		\checkmark	□ some		············				
≽		* HEAVY CLOUD! QUALITY APPEAR OUTPING OUT		K CLOUDY	CLOUDINESS	□ NONE					
EROSION AND VE	GETATION	I (DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGETAT	TION CONDITION)				
FIELD MEASUREMENTS:	surface	_{эн} 9,80	TEMPERATURE (· <u>120-84</u>	CONDUCTIVII (µs/c	T, 4091 00	<u>, 9.38</u> mg/L	see buil			
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)					8062			
middle	рН	9.64	TEMP (°	<u>, 20,33 </u>	ONÐUCTIVITY (µS/cr	,4037		nereta			
bottom pH 9.61 TEMP (°C) 20.14 CONDUCTIVITY (μS/cm) 40.21 DO 4.37											
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDIT	ONAL COMMENTS	AS NECESSARY)				
total depth = 5.2 feet more alto site adagged											
. PH seems to be anchor at boug tore de pth and field measurements											
. PH seems to be anchor at body. Take anchor at body. Take to rest high do pth and field measurements YSI-650 reste from Ashtead 600xL											
TEAM LEADER'S S		111	DA	ekej				Andreas de la constanta de la			

waterquality also done with 455555 see other side

```
GPS 33.17899,-117.34148 YSI556
107
       Time 1444 Depth = 5ft 3in
Top 21.55°C = Temp
            3775 ms = cond
          12.56 mg/L=D0
8.48 = pH
BottomMiddle 21.95 °C = temp
              3776 us = cond
              8.28 = PH
              8:37 mg/L=DO
             21.34 °C = Temp
  Middle
             3776 W= cond
              8.41 = pH
               11.25 = DO
```

*



PROJECT/SURVEY			DATE		PROJECT MANAG	ER	RECORDER
I BUL Y	ملاسهن	~ Sewege	141910	1	Dave	Rentrew	LONGITUDE
STATION NAME			NAV DATUM		LATITUDE	. 1	
I IC)8 -				32174	37	-117.34105
SAMPLE IDENTIFICA	MOIT		TIME STARTED (AT	SITE)	TIME FINISHED (AT	r site)	GRAB SAMPLE TIME
			1435		1429		
FIELD TEAM	- -			~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	1 1 5 6		
	FG J	\$					
METEOROLOGIC	CAL CHARA	CTERISTICS (DESC	RIBE RAINFALL,	WIND, TEMPERATUR	E, ETC.) {/	en slight by Vactation	xelle.
	000	rested 1	you v	100 m	1 by	Variation	
	Ü	Jemo ~	1006	SUMAN W	ith We	in flux clo	do
	T	A	<u> </u>			-/``	
		HYDROGEN	_	Slight Asewage	_		
	ODOR	SULFIDE	☐ MUSTY	SEWAGE	☐ AMMONIA	☐ GASOLINE	□ OTHER
		□ SOAP	☐ CHLORINE	□ NONE			
병			LS Griegatine				
A A	COLOR	☐ YELLOW	☐ GREEN	C) BLUE	BROWN	□ BLACK	□ OTHER
ËĀ		_					
AP		☐ GRAY	□ WHITE	COLORLESS		···	
<u> </u>	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	X. FUW X. Seum	□ subs	☐ OTHER
PAL		□ OBJECTS			Lacow.	L 3003	EJ OTHER
j õ		(DESCRIBE)					
WATER QUALITY APPEARANCE				À.	□ SOME		
- ≩	TURBIDI	HEAVY CLOUDIN	IESS, OPAQUE	CLOUDY	CLOUDINESS	NONE	
	I A L	GOALITI AFFERIN	ANGE COMMENT	3.			
EDODION AND W		(DECORPORT ALLE)					
ENOSION AND V	EGETATION	(DESCRIBE ANY	VISUAL SIGNS OF	SLIDE SLOPE EROSI	ON AND/OR CH	ANGE IN VEGETATION C	ONDITION)
				~~~			
				****			
FIELD MEASUREMENTS	S: eurtann	~4 SS	TEMPERATURE (°c	. 21.78	CONDUCTIVITY	13792 <u>13</u>	.8(
	01 301/60E	pri <u>07.2.2</u>	TEM ENTONE (	'	(µs/cm	1 2112 00 10	
FIELD MEASURE	MENTS CO	NTINUED (IF DEPT	H >2 FT)				
		155		21 10		2800	1295
middle		8.55	TEMP (°C	, 21.70 cond	UCTIVITY (µS/cm)	5000	15, 13
		8.41					no 11.84
bottom	pH	<i>D · 11</i>	. TEMP (°C	21.35 cond	UCTIVITY (µS/cm)	3820	DO 11.0 1
SAMPI ING ACTI	VITIES /DES	CDIDE ALL ACTION	NC TAVEN AT EA	CH CITE VICIT AND DE	OWNE ADDITIO	DNAL COMMENTS AS NEC	OECOADIO.
l			NO TAKEN AT EA	CH SHE VISH AND PH	Calar ADDITIC	DIVAL COMMENTS AS NEC	COLL NO
yexm.	=39	t Dia		40311	الروب ي	The state of	on morato
v				-100h- C	repin a	is your ma	ene JOVOIV of an
	2 ° (1)	556		3	de 11 =	17 2+ ph	anchor ensurements m aeratur
	4-	الماسية الماسية		J			
				7 - , - , - , - , - , - , - , - , - , -			
TEAM LEADER'S	SIGNATUR	E ESTA	(V) 1/1	le Rost			
		<u>&lt;                                 </u>		···················			•



PROJECT/SURVEY NA	ME	13-140-01	DATE	0.1	PROJECT MANA		RECORDER	7
1 1/1/	enda	NO.	41	9107	Parel	Denfrew	FG	
STATION NAME	<del>-</del>	<i></i>	MUTAG VAN		LATITUDE		LONGITUDE	
100	1				132 1	7419	-117 24001	
SAMPLE IDENTIFICATION	ON .		TIME STARTE	D (AT SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME	
			125	<b>\</b>	11200		***************************************	
FIELD TEAM			1 2 ,	1	1.631	······································		ļ
E6()	DM							
METEOROLOGICA	L CHARA	CTERISTICS (DESC	RIBE RAINE	FALL, WIND, TEMPERATU	IRE, ETC.)	Fi.		İ
	N	in Our	the	e west. 1	$\ell \sim 0$	x 2 10° C		
	*	Class	, ,	e west. I	1			
		76,4119	5-1 m	1 ACEN DER	1 5	3000		
·	ODOR	☐ HYÐROGEN SULFIDE	☐ MUSTY	tant Sewage	☐ AMMONIA	GASOLINE	О отнен	
ш		□ SOAP	CHLORIN	IE 🗆 NONE				
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	☐ BLACK	□ отне <u>в</u>	
344		☐ GRAY	□ wните	☐ COLORLESS				
LITY A	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	□ suds	FOOTHER ( O. L. Q.	
3 QUA		☐ OBJECTS (DESCRIBE)					1	
WATER		□ HEAVY CLOUDIN			☐ SOME CLOUDINESS	□ NONE	-	
	WATER	QUALITY APPEARA	NCE COM	MENTS: MO 614	bles, d	lehinikla	less oder than	
		Pres	(in)	week.	, ,	9	1000 000 11000	
····	<u></u>	:						
EROSION AND VEG	SETATION	(DESCRIBE ANY V	ISUAL SIGN	NS OF SLIDE SLOPE ERC	SION AND/OR C	HANGE IN VEGETA	TION CONDITION)	
							- · · · · · · · · · · · · · · · · · · ·	
		9.86					a a	
FIELD MEASUREMENTS:	surface	DH 7 5	TEMPERATU	IRE (°c) 20.86	CONDUCTIVIT	~4092 ~	9.38 mg/L	top
		<u> </u>			(µэле	- 1 C D		'
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	1 >2 FT)					
		0101				11.300	9 00 mil	
middle	pН	486	TEM	1P (°C) <u>20-87</u> co	NDUCTIVITY (µS/cn	"4 <i>090</i>	009.28 mg/L	
		9,92					· · · · · · · · · · · · · · · · · · ·	
bottom	pH	1:16	TEM	1P (°C) 20,80 col	VDUCTIVITY (µS/cn	m H084	09.19 mg[L	
				***************************************				
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTION	IS TAKEN A	AT EACH SITE VISIT AND	PROVIDE ADDIT	IONAL COMMENTS	AS NECESSARY)	
total.	de pt	n= Zost	=HG	2.9.Ft.	PHY	cened o	rest to an	
1.6	OXL			Site	ハン (ハ)	coly V	Don O	h
ATT	00	entze Bry Ash	fear of	stored to s	ator.	apped a	as NECESSARY) high.  Althor high.  Althor, took olgother, took olgother, took olgother.	`
TEAM LEADER'S SI	GNATUR	* Volh	03	Soldat		\$. <b>J</b>		
				,				1

water quality also done with 151556 see other side over -0

EG | SS Ste 109 GPS 33.17920, -117.34087 YSI 556 Time: 1421 Depth = 1fl 5in Top Temp= 21.53 °C (ord = 3770 W DO= 11.43 mg/L PH = 8,40 Middle Temp - 21.41°C cond - 3772 us DO = 11.15 mg/L pH = 8.39



_ St	mage	1" 41	9/07	PROJECT MANAG	GER (	RECORDER V
<u>- ジェ</u> ル	<del></del>	NAV DATUM		LATITUDE	VICO	LONGITUDE
ION		TIME STARTED (A	TSIZET	55.1	VOL)	711.55600
		175	54	3	65	GRAB SAMPLE TIME
$\sqrt{v}$	odwa	Nd,	Jscho			
L CHARA	CTERISTICS (DES	CRIBE RAINFALI	, WIND, TEMPERAT	URE, ETC.)		
·	Su	my	, 3-3	5143	west	
ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	☐ SEWAGE	□ ammonia	☐ GASOLINE	□ отнея
	□ SOAP	☐ CHLORINE	MONE			
COLOR	☐ YELLOW	GREEN	☐ BLUE	X BROWN	□ BLACK	OTHER
<u></u>	□ GRAY	□ white	COLORLESS	<del></del>		
	DEBRIS  D OBJECTS	L) OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	□ suds	Эбунея
TURBIDI	THEAVY CLOUD!	INESS, OPAQUE	□ CronbA	☐ SOME CLOUDINESS	□ NONE	
			700			
SETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERO	OSION AND/OR CH	HANGE IN VEGETATION	N CONDITION)
surface	_{рн} <u>е.</u> 14	_TEMPERATURE (°	21.10	CONDUCTIVIT	× 33 17 DO_	7.78 mg/c
ENTS CON	NTINUED (IF DEPT	/H >2 FT)				
pH			0120.8100	<u>IND</u> UCTIVITY (μS/cm	3288	00 6.83 mg/L
pH	0.09	TEMP (°C	3) <u>LU V 100</u>	NDUCTIVITY (µS/cm	, 85 52 T	100 64 mg/L
TES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
n H	N	1Q M	lasiwo	norts	YS1 5	560
ş <b>Y</b>	11	_	C			
GNATURE	E					
	ON O	COLOR DESCRIBE ANY  SURFACE PHONO  SULFIDE  SOAP  COLOR DESCRIBE  GRAY  NG TRASH OR  MATERI DEBRIS  (DESCRIBE)  TURBIDIT SHEAVY CLOUDI  WATER QUALITY APPEAR  SURFACE  PHONO  PHONO  TES (DESCRIBE ALL ACTION)	NAV DATUM  NAV DATUM  TIME STARTED (A)  COLOR HYDROGEN  SULFIDE MUSTY  SOAP CHLORINE  COLOR HELOW GREEN  GREASE  GOBJECTS (DESCRIBE)  TURBIDIT SHEAVY CLOUDINESS, OPAQUE  WATER QUALITY APPEARANCE COMMENT  SETATION (DESCRIBE ANY VISUAL SIGNS O  SULFIDE  PH  COLOR HYDROGEN  GREASE  GOBJECTS (DESCRIBE)  TURBIDIT SHEAVY CLOUDINESS, OPAQUE  WATER QUALITY APPEARANCE COMMENT  TEMPERATURE (**  TEMPERATURE (**  TEMP (**  T	NAV DATUM  TIME STATED (AT SIFE).  WWW WAY A J SUMO  L CHARACTERISTICS (DESCRIBE RAINFALL, WIND, TEMPERAT  SUMMY, 3-3  ODOR SULFIDE   MUSTY   SEWAGE    SOAP   CHLORINE   MONE  COLOR   YELLOW   GREEN   BLUE    GRAY   WHITE   COLORLESS  NG   TRASH OR   OIL AND   ORGANIC  MATERI DEBRIS   GREASE   MATERIAL    OBSIGETS     OFESCRIBE)  TURBIDIT SUEAVY CLOUDINESS, OPAQUE   CLOUDY  WATER QUALITY APPEARANCE COMMENTS:  SETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE ERC  SURFACE   PH C. T   TEMPERATURE ("C) 2 1 1 0  PH C. OT   TEMP ("C) 20 6 CO  TESS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND  WAY AND AND OTHER STATES ("C) 2 1 1 0  THE COLOR SETATION ("C) 20 6 CO  TESS (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND AND OTHER SETATION ("C) 20 6 CO  THE COLOR SETATION ("C) 20 6	TIME STARTED (AT SITE)  TIME STARTED (AT SITE)  TIME FRINSIPED (AT SITE)  TO A SULFIDE  THYDROGEN  THYDROGE	THE STANTED LATER AT THE PREATURE (*C) 21.10 CONDUCTIVITY (JISTER)  STANTED LATER AND PROVIDE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS A SACRED LATER AND ASSURED.  TEMP (*C) 20.60 CONDUCTIVITY (JISTER)  TEMP (*C) 20.60 CO



PROJECT/SURVEY NA	ме		DATE \		ODO ICOY INNIE		
BUL	Seu	ige	4/a	101	PROJECT MANA	GER (Lass)	RECORDER
STATION NAME		3	NAV DATUM	<u> </u>	LATITUDE		LONGITUDE
SAMPLE IDENTIFICATI	DN	··	TIME STARTED (A	T CITE)	35.11	07/9	11 1.35 40
			120		TIME FINISHED (	AI SIIE)	GRAB SAMPLE TIME
FIELD TEAM	\$ A ( a		<u> </u>	/			
1/2,	AA00	gword	1 1 50	<u>nollée</u>			
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFAL	L, WIND, TEMPERATU	RE, ETC.)		
			Dart	Ju cla	j	5 V6 15	
	~		_ \	by clau	$\mathcal{A}$ , $\mathcal{D}$	5 KB W	
		☐ HYDROGEN	******		<u> </u>		
	ODOR	SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отне <u>в</u>
		☐ SOAP	CHLORINE	NONE			
ANCI	COLOR	☐ YELLOW	□ GREEN	□ BLUE	∰880MN		T on the
EAR				D DEGE	C BOOM	□ BLACK	OTHER
APi	NG	☐ GRAY ☐ TRASH OR	☐ WHITE ☐ OIL AND	☐ COLORLESS ☐ ORGANIC			
ŽĮ,	MATERI		GREASE	MATERIAL	□ scuм	□ subs	□ OTHER
WATER QUALITY APPEARANCE		☐ OBJECTS (DESCRIBE)		M gillings			· · · · · · · · · · · · · · · · · · ·
ATER	<u> </u>	- <del></del>		0.01.1	□ ѕоме		<u></u> .
Ä	WATER	CUALITY APPEAR	ESS, OPAQUE	CLOUDY	CLOUDINESS	□ NONE	
		No	A	un.ox F	7// Jin	19 on (1	u +a(0.
		,	), t	snel pa	Min		Or MAO.
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISITAL SIGNS O	E SI IDE SI ODE EDOS	NON AND/OD OF	IANGE IN VEGETATION	
	,	(======================================		TOLIDE GLOFE ENOS	SION AND/OH CF	IANGE IN VEGETATION	CONDITION)
		<					
	<del>-</del>			····			
FIELD		۸	_				~
MEASUREMENTS:	surface	рН <u>8,25</u>	TEMPERATURE (	·021.02	CONDUCTIVIT	3113 no 8	<u> 70 mall</u>
FIELD MEASUREME	NTS CO	NTINUED (IF DEPT	H >2 FT)				
		8.28		c) 20,98 coni		2115	00 B. 71 mg/c
middie	pН.	G 2 ~					
bottom	PH	8.30	TEMP (%	c) <u>20.88 _{сон}</u>	QUCTIVITY (µS/cm	, 3115	00 8.77 mg/C
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND P	BOVIDE ADDITION	ONAL COMMENTS AS NE	CESSARY
				enest			occoonii)
	/	NQ r	NUSW	ENO CI	$\infty$	71 220	
A. a.d.	*						
coppe	2)	7" ~ ~				)	
``				/	<i>'</i>		
TEAM LEADER'S SH	GNATURE		$\nabla \nabla$				
							- 1

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PROJECT/SURVEY NA	ME		DATE ;		PROJECT MANAG	GEA	RECORDER
BVLS	cwe	age	1 4/91	07	Pen	Thew	N W
STATION NAME	7	<del></del>	NAV DATUM		LATITUDE 1	p877	LONGITUDE
L U	<u></u>					-	117.35032
SAMPLE IDENTIFICATION			TIME STARTED (AT		TIME FINISHED (A		GRAB SAMPLE TIME
FIELD TEAM	V	Woodr	vard,	Jsun	ollée		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALL	, WIND, TEMPERATUR	RF. ETC.)		
		Ì		g Cloudy,		olots was	st
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ sewage	□ AMMONIA	☐ GASOLINE	□ ОТНЕR
μί		☐ SOAP	☐ CHLORINE	RINONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	□ BLACK	□ ОТНЕВ
тррЕ		☐ GRAY	□ wніте	☐ COLORLESS			
ALITY /	NG MATERI		OIL AND GREASE	☐ ORGANIC MATERIAL	Песим	□ suos	Хотнея
ER QU.		OBJECTS (DESCRIBE)					
WAT	TURBIDI WATER	CHEAVY CLOUDIN	NESS, OPAQUE	CLOUDY	CLOUDINESS	□ момє	
					s on s	suface	
EROSION AND VEG	ETATION	(DESCRIBE ANY )	VISUAL SIGNS OF	F SLIDE SLOPE EROS	ION AND/OR CH	IANGE IN VEGETATION C	ONDITION)
FIELD MEASUREMENTS:	surface	pH <b>V.</b> 36	TEMPERATURE (%	0) 21.62°(	CONDUCTIVITY (µs%n	73146 00 9	1.28 mg/L
FIELD MEASUREME	ENTS COI		***************************************				
middle	pH_	8.38	•	21.63°(cone	OUCTIVITY (µS/cm	3147	00 9. 02 rg/L
bottom	pH_	8.38	TEMP (°C		OUCTIVITY (µS/cm)		00 9.32 mg/C
SAMPLING ACTIVIT	TES (DES	CRIBE ALL ACTION	NS TAKEN AT EA	CH SITE VISIT AND P	ROVIDE ADDITIC	ONAL COMMENTS AS NE	CESSARY)
	btv			asuren			556
Lin	' ,	1					
			$\angle \downarrow_{\wedge}$	~			
TEAM LEADER'S SI	GNATURĘ	<u> </u>	$\overline{}$				

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PROJECT/SURVEY NAI	ME		TDATE 1		7700 1505 4444		
STATION NAME		mage	DATE VI	9/07	PROJECT MANA	GER You	RECORDER
106	,	J	NAV DATOM		DA I	7044	LONGITUDE >5165
SAMPLE IDENTIFICATION	NC		TIME STARTED (	(AT SITE)	TIME FINISHED (A	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM							<u> </u>
1	<u>,                                    </u>	Mongo	Wg,	<u>).</u> Si	moilé	Le	
METEOROLOGICAI	L CHARA	CTERISTICS (DESC	CRIBE RAINFAL	LL, WIND, TEMPERATU		•	
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Par	Hy U	Mundy 1	3-5	Hs west	
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ sewage	□ аммоміа	☐ GASOLINE	□ отнея
<u> </u>	 	□ SOAP	CHLORINE	NONE			
RANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	X BROWN	□ BLACK	☐ OTHER
PEA	1						
AP	NG	☐ GRAY ☐ TRASH OR	OIL AND	☐ COLORLESS ☐ ORGANIC			
Ţ	1		GREASE	MATERIAL	□ scuм	□ subs	☐ OTHER
WATER QUALITY APPEARANCE		☐ OBJECTS (DESCRIBE)				<del></del>	3
ATE	TURBIN				SOME		····
≯	WATER	CUALITY APPEARA	ANCE COMMEN	U CLOUDY	CLOUDINESS	☐ NONE	
			M,X	ing @ ,	sur fa	e due f	o wind
EROSION AND VEG	ETATION	(DESCRIBE ANY )	VISUAL SIGNS	OF SLIDE SLOPE ERO	SION AND/OR CI	HANGE IN VEGETATION C	CONDITION)
				ad.			,
		ei					
FIELD MEASUREMENTS:	surface	рн 8 5	TEMPERATURE	(0) 21.62	CONDUCTIVIT	™ <u>3209 ю10</u>	.36
FIELD MEASUREME	ENTS CON	TINUED (IF DEPT)	1 >2 FT)				
middle	pH _,	8,5	TEMP (	(°C) 21.56 CON	<u>ID</u> UCTIVITY (µS/cm	3211	no 10·25
bottom		9.50		(°C) <u>21, 52</u> con	IDUCTIVITY (µS/cm	3211	DO 10.28
SAMPLING ACTIVITY	IES (DES	CRIBE ALL ACTION	NS TAKEN AT E	FACH SITE VISIT AND I	POVINE ADDITI	ONAL COMMENTS AS NE	CCCC A DV
< (N)	<i>i</i> ) .		_				_
3	411	depm	364	linch.	MO (	Masurem	ent
	ir	) '		(1 -1 4		W1 451	501-
- ji		_	*		~	0-1 1-1	30 W
		$\triangle \triangle$	$\triangle$	\			
TEAM LEADER'S SIG	3NATUR <u>E</u>				V		

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PROJECT/SURVEY NAME DATE PROJECT MANAGER RECORDER											
BVV	Su	rage	410	1107	Rent	new	NN				
\ ()	P	7	NAV DATUM		LATITUDE ろう. j	7196	117.35269	1			
SAMPLE IDENTIFICATI	DN		TIME STARTED (A		TIME FINISHED (	АТ ЯПЕ)	GRAB SAMPLE TIME	-			
FIELD TEAM	·		1 1200			10		_			
1/4.	W O	odvar	9,7	. Schol	le						
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFAL	L, WIND, TEMPERATI	JRE, ETC.)			1			
		Par	thy U	loudy;	3-51	ts wes	+,60°				
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE		GASOLINE	C) OTHER				
<b>8</b>		□ SOAP	☐ CHLORINE	NONE							
ABANC	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	☐ BLACK	¯ □ отне <u>в</u>				
APPE,	<u></u>	☐ GRAY	□ wнiте	☐ COLORLESS							
WATER QUALITY APPEARANCE	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□scuм	□ suds	XI OTHER Sel				
R QUA		☐ OBJECTS (DESCRIBE)					XGOTHER SEL COMMENTS	1			
WATE	TURBID	HEAVY CLOUD	NESS, OPAQUE	□ CLOUDY	☐ SOME CLOUDINESS	□ NONE					
	WATER	QUALITY APPEAR	ANCE COMMEN	TS:	100						
			$\cdots \sim f$	partial a	750 milk						
EROSION AND VE	ETATIO	A /DECCRIBE ANY						<u> </u>			
Enosion And VE	AE I A I I O I	V (DESCRIBE ANT	VISUAL SIGNS (	OF SLIDE SLOPE ERO	SION AND/OR CI	IANGE IN VEGETATI	ION CONDITION)				
			<b></b>								
						***************************************		-			
FIELD MEASUREMENTS:	surface	рН <u>8.26</u>	TEMPERATURE (	°0) 21.98	CONDUCTIVIT (µs/cr	3282 00.	1047				
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	=	_		*****					
middle	рН	8.27	_ TEMP (*	_(c) 21.93 _{cor}	√DUCTIV(TY (µS/cm	, 3284	10.45				
bottom pH 8.27 TEMP (°C) 21.80 CONDUCTIVITY (US/cm) 3281 DO 11.12 10.64 PM											
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)											
deptr WQ measurements YSI 556											
21	<b>)</b> "						-				
TEAM LEADER'S SI	TEAM LEADER'S SIGNATURE										

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PROJECT/SURVEY NA	ME		DATE .		PROJECT MANA	(CED	IDECORAGE
BVL	_	wage	1419	[ 67	Per	Traw	RECORDER WW
STATION NAME	<u></u>	<u> </u>	NAV DATUM		LATITUDE 23 1	ーコマスト	LONGITUDE
SAMPLE IDENTIFICATION	ion 4		TIME STARTED (AT	Т 9ЛТБ)	TEME FINISHED (	17336 (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM			134	5	13	80	
FIELD TEAM	<i>J</i> . (	Woodw.	ard,	Jschi	ollée		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALL	L, WIND, TEMPERA	TURE, ETC.)		
		<u>P</u>	arty	dono	4,3	-5 Ms	west, 68°C
	одоя	☐ HYDROGEN SULFIDE	□ MUSTY	☐ SEWAGE	□ AMMONIA	☐ GASOLINE	D отн <b>є</b> я
ļ Ņ	ļ	□ SOAP	CHLORINE	BLNONE	<del></del>		
WATER QUALITY APPEABANCE	COLOR	☐ YELLOW	C) GREEN	□ BLUE	<b>B</b> BROWN	☐ BLACK	□ OTHER
APPE		☐ GRAY	□ WHITE	COLORLESS		***************************************	
LITY	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scum	□ suds	MOTHER SCC
A au		OBJECTS (DESCRIBE)					DOTHER SCC Companys
WATEI	TURBIDI	LE HEAVY CLOUDING	NESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	<i>Y</i>
	WAIEII			rs: mps, bu	bbles,	afine	portialates.
EROSION AND VEG	SETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGET	ATION CONDITION)
			***************************************		-		
FIELD MEASUREMENTS:				· <u>0</u> 21.55	CONDUCTIVIT	× 3249,	00 8.3 yngle
FIELD MEASUREME	ENTS CON	, i					
middle	,Hq	8.21	TEMP (°C	o, 21 · 5\$	ONDUCTIVITY (µS/cn	3248	8.09 ng/C
bottom	pH	821		a 21.53a			
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	INS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS	S AS NECESSARY)
app	- 2	154	NQ	Measu	remen	to W	(ce_
يرتو	• .					4515	th
`#P						101 -	,O V
			<del></del>				
TEAM LEADER'S SI	GNATURE	=		~			

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PROJECT/SURVEY NA	ME		DATE /		PROJECT MANAG	EB.	RECORDER
BUL			10 April	07	Rent	rew	BIShain
STATION NAME	A		33. 16	874	LATITUDE	35596	LONGITUDE
SAMPLE IDENTIFICATION	ÖN		TIME STARTED (AT S		TIME FINISHED (AT	r SITE)	GRAB SAMPLE TIME
4.3 dee	P		0600		0635	)	0630
BIT		40 /c /	Campa	ana			
PtlyCl	Zy,	Calm u	JINA ~	WIND, TEMPERATUR	E, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	<b>Æ</b> KMUSTY	□ SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отне <u>в</u>
, ii	<u> </u>	□ SOAP	CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	<b>∭</b> GREEN	□ BLUE	(ZI BROWN	□ BLACK	□ ОТНЕЯ
l ida		☐ GRAY	☐ WHITE	☐ COLORLESS			
ILITY /	NG MATERI	☐ TRASH OR DEBRIS	OIL AND GREASE	ORGANIC MATERIAL	□ scum ·	□ subs	□ отнея
R QU/		OBJECTS (DESCRIBE)					
WATE		MHEAVY CLOUDIN		□ CLOUÐY	☐ SOME CLOUDINESS	□ NONE	
EHOSION AND VEG	SETATION	(DESCRIBE ANY V	/ISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION C	ONDITION)
FIELD MEASUREMENTS:	surface	рн <u>82(0</u>	TEMPERATURE (°c)	20.19	CONDUCTIVITY (µs/cm)	3278 00 <u></u>	<u>5,00</u> mg/l
FIELD MEASUREME	ENTS COI	NTINUED (IF DEPTI	t >2 FT)				
middle	pН	8.08	TEMP (°C)	20.19 CONE	UCTIVITY (µS/cm)	3275	00 4.95 mg/e
boltom	рH	8:08	TEMP (°C)	20.19 cond	UCTIVITY (µS/cm)	3277	00 4.99 mg/l
SAMPLING ACTIVIT	TES (DES	CRIBE ALL ACTION	IS TAKEN AT EAC	H SITE VISIT AND PI	ROVIDE ADDITIO	NAL COMMENTS AS NE	CESSARY)
***	*,						
TEAM LEADER'S SI	GNATUR	BA	Sho-	****			

DA/CODAS



PROJECT/SURVEY NAM	ME		DATE		PROJECT MANAG	FΩ	RECORDER			
SVL STATION NAME			10 Apr	07	Rent	rew	BIsham			
103			NAV DÄTUM		33.16	4776	117, 35443			
SAMPLE IDENTIFICATIO	ON		TIME STARTED (AT S	iTE)	TIME FINISHED (AT	T SITE)	GRAB SAMPLE TIME			
217"d	QP.		0645	···	065	50	0645			
B. Icham L. Campagna										
METEOROLOGICAI PHY C/a	L CHARA		RIBE RAINFALL,	WIND, TEMPERATUR	RE, ETC.)					
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	□ отнея			
m		□ SOAP	CHLORINE	NONE						
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	D BLUE	<b>X</b> BROWN	□ BLACK	□ отнея			
МРР		☐ GRAY	□ WHITE	☐ COLORLESS						
, YTU	NG MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□scuм	□ sups	□ OTHER			
a au		OBJECTS (DESCRIBE)				None	, , , , , , , , , , , , , , , , , , ,			
ATE!		٠			□ SOME					
W N	WATER (	MEAVY CLOUDING SUALITY APPEARA A	ESS, OPAQUE INCE COMMENTS	☐ cLOUDY	CLOUDINESS	□ NONE				
EROSION AND VEG	ETATION	(DESCRIBE ANY V	ISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION CO	ONDITION)			
····										
FIELD MEASUREMENTS:	surface	рн <u> 8.21</u>	TEMPERATURE (°c)	19.95	CONDUCTIVITY (µs/cm)	3/22 10 <u>5</u> .	82 mg/l			
FIELD MEASUREME	NTS CON	ITINUED (IF DEPTH	>2 FT)							
middle	pH _.	8.12	TEMP (°C)	19,95 cone	)UCTIVITY (μS/cm)	3/23	00 5,83 mg/e			
pottom	Hq	8,19	TEMP (°C)	19.99 CONE	QUCTIVITY (µS/cm)	3115	00 5.65 ing/l			
SAMPLING ACTIVITI	ies (desc	ing S	S TAKEN AT EAC	H SITE VISIT AND P	OITIDDA BDIVOF	NAL COMMENTS AS NEC	ESSARY)			
*نونو	. 1									
FEAM LEADER'S SIC	GNATURE	BJ\$	a							

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PROJECT/SURVEY NAME		DATE		PROJECT MANAGER		RECORDER				
BUL			10 Apro7		Round	Frens	B. Ishan			
STATION NAME			NAV DATUM		Renfrew		LONGITUDE			
Z 9 //		P	TIME STARTED (A)	· AWA	33. /	6878	117.35067			
10			065		O 70		GRAÐ SAMPLE TIME			
FIELD TEAM B. J	Sha	em L.	Campo	igna	I					
			CRIBE RAINFALL	, WIND, TEMPERATE	JRE, ETC.)					
	<u>'</u>									
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ AMMONIA	☐ GASOLINE	□ OTHER			
ш		□ SOAP	☐ CHLORINE	<b>D</b> ENONE						
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ 8LUE	EBROWN	□ BLACK	□ ОТНЕR			
iddi	L	☐ GRAY	□ WHITE	☐ COLORLESS						
ALITY /	NG MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ sups	☐ OTHER			
n on		D OBJECTS (DESCRIBE)				None				
WATE	TURBIDI	TURBIDI: A HEAVY CLOUDINESS, OPAQUE CLOUDY CLOUDINESS NONE WATER QUALITY APPEARANCE COMMENTS:								
	USU	,	IANCE COMMENT	rs:						
EROSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERC	SION AND/OR CH	IANGE IN VEGETATION	CONDITION)			
None										
FIELD MEASUREMENTS:	surface	рн <u>8. / О</u>	TEMPERATURE (°	o <u>20.50</u>	CONDUCTIVIT	3154 ₀₀	3.95 mg/l			
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)							
middle	-11	8.08	,	2050		, 3 <i>154</i>	00 3.84 mg/2			
	pn	8.07					no 3.75 mg/d			
boltom	Hq					<u>,-3/52</u>				
SAMPLING ACTIVIT	SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  Was recomments as necessary)									
نو <b>تو</b>	,									
TEAM LEADER'S SI	IGNATUR	BIS	sha							

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PROJECT/SURVEY NAI	ME		DATE		PROJECT MANAG	IER	RECORDER
BUL			10 Apr 07		Renfreu		
STATION NAME	N NAME		NAV DATUM		LATITUDE		B. IShan
102					33.19		117, 35/75 GRAÐ SAMPLE TIME
SAMPLE IDENTIFICATION			TIME STARTED (AT	SITE)	TIME FINISHED (A	•	
2' /0"	ale	<u>10</u>	0705		0710		0705
2' 10" FIELD TEAM B. I.S	ha	n L.	Campa	gua			
METEOROLOGICA	L CHARA	CTERISTICS (DESC	CRIBE RAINFALL,	WIND, TEMPERATUR	E. ETC.)		
	ODOR	☐ HYDROGEN SÚLFIDE	☐ MUSTY	□ SEWAGE	□ аммоміа	☐ GASOLINE	O отнея
		☐ SOAP	CHLORINE	MONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	(XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	□ BLACK	□ отнєв
APP		☐ GRAY	□ WHITE	COLORLESS			
LITY.	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	□suds	☐ OTHER
3 QUA		☐ OBJECTS (DESCRIBE)				None	
WATEF	TURBIDI'	HEAVY CLOUDIN	ESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	USU						
EROSION AND VEG	ETATION	(DESCRIBE ANY V	/ISUAL SIGNS OF	SLIDE SLOPE EROSI	ON AND/OR CH	ANGE IN VEGETATION CO	ONDITION)
FIELD MEASUREMENTS:	surface	рн_8.28	ТЕМРЕПАТИЯЕ (°с	20.46	CONDUCTIVITY (µs/cm)	316Z DO 6.	<u>25</u> mg/L
FIELD MEASUREME	ENTS CON	ITINUED (IF DEPTI	1 >2 FT)				
niddie	pH __	8.28	TEMP (°C	20.46 cond	UCTIVITY (µS/cm)	3162	00 6.20 mg/l
pottom	pH __	8.27	TEMP (°C	20.49 COND	UCTIVITY (µS/cm)	3161	00 6.11 mg/l
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  Wardings							
***							
EAM LEADER'S SI	GNATURE	BASI	ha-				

84/BC 25



PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	FR .	RECORDER
BUL			10 Apr (	07	Ronfr		B. Ishan
10 F			NAV DATUM		LATITUDE	7193	LONGITUDE 117. 352-71
SAMPLE IDENTIFICATION	DN.		TIME STARTED (AT S	ITE\	TIME FINISHED (A	•	
2'5"		P	0710	n. Cj	0715	· · · · · · ·	O710
FIELD TEAM			·	·			1 0 1 1 0
B. J.	>l\ar	n L. Co	mpagna	(			
		CTERISTICS (DESC No Wind		WIND, TEMPERATUR	E, ETC.)	,	
	ороя	☐ HYDROGEN SULFIDE	□ MUSTY	□ sewage	□ AMMONIA	☐ GASOLINE	□ OTHER
ñ		□ SOAP	CHLORINE	<b>I</b> ⊉∕NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	C) GREEN	☐ BLUE	<b>B</b> ROWN	BLACK	□ OTHER
l eq.		☐ GRAY	☐ WHITE	☐ COLORLESS			
<u>}</u>	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC	_	_	
JAL.		□ OBJECTS	GREAGE	MATERIAL	□ SCUM	□ suds	☐ OTHER
10 10		(DESCRIBE)			$N_{o}$	ml	
ATE		. ←v.			□ ѕоме		
A	WATER	TATHEAVY CLOUDIN	ESS, OPAQUE	: CLOUDY	CLOUDINESS	□ NONE	
	USI	ra l					
EROSION AND VEG	ETATION	I (DESCRIBE ANY V	ISUAL SIGNS OF	SLIDE SLOPE EROSI	ON AND/OR CH	ANGE IN VEGETATION CO	(NOITION)
					<del></del>		
FIELD MEASUREMENTS:	surface	_{рн.} <u>8,16</u>	TEMPERATURE (°c)	19.94	CONDUCTIVITY (µs/cm)	3174 no 5	:.58 mg/l
FIELD MEASUREME	NTS CON	NTINUED (IF DEPTH	l >2 FT)				
middle	pH ₂	8.15	TEMP (°C)	19.93 COND	UCTIVITY (µS/cm)	3194	00 5.65 mg/l
bottom	Hq	8.14	TEMP (°C)	19.95 COND	UCTIVITY (µS/cm)	3198	00 5,55 mg/l
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTION	S TAKEN AT FAC	H SITE VISIT AND DE	OVIDE ADDITIO	PNAL COMMENTS AS NEC	SECCADA)
WQre			e many Eno	TOTAL TION AND PE	OVIDE AUDITIO	MARE COMMENTS AS NEC	.coant)
نو <b>ن</b> و	• •	·					
	····						
TEAM LEADER'S SI	GNATURE	131sV	a.				

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PROJECT/SURVEY NAI	ME	***	DATE	****	PROJECT MANAG	FR	RECORDER
BVL STATION NAME			10 Apro7		Ron Frey		
20 G			NAV DATUM		33.17	<i>4335</i>	F Ishan LONGITUDE 117,35078
SAMPLE IDENTIFICATION	N		TIME STARTED (AT S	iTE)	TIME FINISHED (A		GRAB SAMPLE TIME
2/8"			0718		072	2	0718
B. IS	Shai	n L.C	ampagi	(9			
		OTERISTICS (DESC No Wind		WIND, TEMPERATUI	RE, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	П аммома	☐ GASOLINE	П ЭНТО
ш	 	□ SOAP	☐ CHLORINE	MONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	BROWN- Green	□ BLACK	□ отнея
АРР		GRAY	WHITE	☐ COLORLESS			
<u>Ł</u>	NG MATERI	☐ TRASH OR DESRIS	COIL AND GREASE	CI ORGANIC MATERIAL	□ scuм	□ subs	☐ OTHER
3 QUA		OBJECTS (DESCRIBE)			$\mathcal{N}_{\sigma}$	nl	
VTEF			·····		□ SOME		
/M		DHEAVY CLOUDIN		☐ CLOUDY	CLOUDINESS	□ NONE	
		ual			***************************************		
EROSION AND VEG		(DESCRIBE ANY \	/ISUAL SIGNS OF	SLIDE SLOPE EROS	HON AND/OR CH	ANGE IN VEGETATION C	(NOITIDNC
FIELD MEASUREMENTS:	surface	рн 8,03	TEMPERATURE (°c)	19.90	CONDUCTIVITY (µsæm)	3307 _{DO} 5	.20 mg/l
FIELD MEASUREME	NTS CO	NTINUED (IF DEPT	1>2 FT)				
niddle	рН	8.03	TEMP (°C)	19.91 con	QUCTIVITY (µS/cm)	3309	100 <u>5-24 mg/l</u>
pottom	Ηą	8.02	TEMP (°C)	19,97 con	DUCTIVITY (μS/cm)	3286	00 5.17 mg/l
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTION	IS TAKEN AT EAC	H SITE VISIT AND P	ROVIDE ADDITIO	NAL COMMENTS AS NEC	CESSARY
WQne	adi	ngs					
آغو <b>نو</b>	.,						
TEAM LEADER'S SIG	GNATUR	BIS	shan				

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PROJECT/SURVEY NA	ME		DATE	3	PROJECT MANA	IGER	RECORDER
BVL	Stu	wage	1 4 h	0107	Ren	Frau	NW
STATION NAME	$\overline{\lambda}$	*	NAV DATUM	and the second s	LATITUDE SOL	7617	LONGITUDE
SAMPLE IDENTIFICATION	.ON		TIME STARTED (A		TIME FINISHED (	(AT SITE)	GRAB SAMPLE TIME
TOTAL		·	<u> </u>	020	04	P15	or a second second
FIELD TEAM	N 000	dward	1, p	on Mc	Coy		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFAL	L, WIND, TEMPERATI	JRE, ETC.)		<del>*************************************</del>
		Partly	) Mou	dy, lig	nd bh	eeze 0-3k	tow
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	SEWAGE	□ AMMONIA	☐ GASOLINE	□ ОТНЕВ
ļ "		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	BROWN	□ BLACK	□ отнев
АРР	NG	☐ GRAY	☐ WHITE	☐ COLORLESS			
ALITY	MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	О ѕсим	≭suos	□ отнея
R QU/		☐ OBJECTS (DESCRIBE)				•	
WATE	TURBIDI WATER	□ HEAVY CLOUDIN	VESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
		V İsibili					
		V WINIT	175 - 0	1.64			
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISUAL SIGNS (	OF SLIDE SLOPE ERC	SION AND/OR C	HANGE IN VEGETATION (	CONDITION)
			- may make the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the sta	Charles del Francisco de Carles			
		Planter and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the	And the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of t				
FIELD MEASUREMENTS:	surface	рн 8.34	TEMPERATURE (	(°0) <u>20 . 62: (</u>	CONDUCTIVIT	14164 00 S	-23mg/L
FIELD MEASUREME	ENTS CON	NTINUED (IF DEPTI	H >2 FT)	<del></del>		****	
middle	pH_	848	TEMP (*	.c, <u>20.684</u> con	NDUCTIVITY (µS/cn	m) 4187	00 4.901 Mg/L
bottom	PHQ	8.50		-c1 <u>20-W8 co</u> n			00 496mg/C
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTION	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITI	IONAL COMMENTS AS NE	CESSARY)
deptr 219	シュ	WQ	MUN	in remen	45	w/ 457 60	00 XL
2.9		M	v	6	7		
TEAM LEADER'S SIG	GNATURE	E					

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PROJECT/SURVEY NA	ME		DATE ,		PROJECT MAN	AGER	RECORDER	
BVL	<b>/</b> **:	rage	1 2 1 1	o [v]	1		N W	
STATION NAME	<del>1</del>		NAV DATUM		Der 1	(, 00+	LONGITUDE	
10	) \		Charleston		33.1	769 V (AT SITE)	1-117-24 153	
SAMPLE IDENTIFICATI	ON		TIME STARTED (AT				GRAB SAMPLE TIME	
FIELD TEAM			063	<u> </u>	1 01	<u>038</u>		
	V·V	voodwa	Nd, J	Scholl	ll_			
METEOROLOGICA	L CHARA	CTERISTICS (DESC	RIBE RAINFALL,	WIND, TEMPERATU	RE, ETC.)			
	<u>P</u>	arty	Clow	dy 11	19W	breeze b	-3145 WEST	
	ODOR	D HYDROGEN SULFIDE	□ MUSTY	**SEWAGE	□ аммоніа	☐ GASOLINE	Оотнея	
111		□ SOAP	CHLORINE	NONE				
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	D BLUE	ВВРОМИ	□ BŁACK	□ ОТНЕВ	
APPI		GRAY	□ white	☐ COLORLESS				
ΥLITY	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	Sups	Оотнев	
ir QUA		OBJECTS (DESCRIBE)			·	<b></b>	<u> </u>	
WATE	TURBIDI WATER	DHEAVY CLOUDIN	ESS, OPAQUE	☐ CLOUDY S:	☐ SOME CLOUDINESS	□ NONE		
	V	sibility	=0.7	2 Pt		fire partio	untes	
EROSION AND VEC	ETATION	(DESCRIBE ANY V	ISUAL SIGNS OF	SLIDE SLOPE EROS	SION AND/OR C	CHANGE IN VEGETATION C	ONDITION)	
		Fish		sed.	i			
		(10.0	June	ped nea	1 104	( .		
					<u> </u>	}		
FIELD MEASUREMENTS:	surlace	рН <u>8.51</u>	TEMPERATURE (°c	20.63	CONDUCTIV	TY 4179 DO 8	55.09 mg/L	
FIELD MEASUREME	ENTS CO	TINUED (IF DEPTH	I >2 FT)		· · · · · · · · · · · · · · · · · · ·			
middle	pΗ	8.50	TEMP (°C)	20.65 con	<u>D</u> UCTIVITY (µS/ci	m) <u>418î</u>	00 5,05 mg/L	
pottom	pН	<u>8.57                                    </u>	TEMP (°C)	20.64 con	DUCTIVITY (µS/c	m) 4180	00 4.37 mgr	
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTION	IS TAKEN AT EAG	CH SITE VISIT AND P	ROVIDE ADDIT	TONAL COMMENTS AS NE	CESSARY)	
dep	AMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  Significantly Significant States (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)							
		ΔΛ,	4					
TEAM LEADER'S SI	GNATURE	. / [ V						

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PROJĘCT/SURVEY NA	ME		DATE		PROJECT MANAG	GED	DECORDER
STATION NAME	/-	vage	1 41	10/07	Pen	how	RECORDER W
10	B	<i>\oldsymbol{J}</i>	NAV DATUM	was any market	33 1	7934	LONGITUDE -117-34199
SAMPLE IDENTIFICATI	ON		TIME STARTED (A		TIME FINISHED (A	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	٠,	. 1	<u> </u>		l		
N.	<u> W</u> 0	odward	· PM	1 McCar	1		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE HAINFAL	.L, WIND, TEMPERAT	rune, etc.)		
	*******	Port	ny clo	mdy, 0	31/3 W	rest	
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	SEWAGE	□ AMMONIA	☐ GASOLINE	О отнея
й		□SOAP	CHLORINE	□ NONE	***		
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	Впоми	☐ BLACK	□ отне <u>в</u>
APPE		□ GRAY	□ wніте	☐ COLORLESS			
LITY	NG MATERI	☐ TRASH OR DEBRIS	C) OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ suos	XOTHER SCL
R QUA		☐ OBJECTS (DESCRIBE)				<del>-</del>	COMMONTS
WATE	TURBIDI'	HEAVY CLOUDING	NESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	, , , , , , , , , , , , , , , , , , ,	_			Rne p	portuent	<i>d</i>
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISUAL SIGNS (	OF SLIDE SLOPE ER	OSION AND/OR CI	HANGE IN VEGETATION	N CONDITION)
		bility			/ )	\	iped nearby
FIELD MEASUREMENTS:	surface	рн 8.60	TEMPERATURE (	(°0) 20 = 50°	CONDUCTIVITY (µs/cn	× 41660	5.23 mg/L
FIELD MEASUREME	ENTS CON	VTINUED (IF DEPT	H >2 FT)	*****		***************************************	
middle	_Hq	8.54	_ TEMP (*	·0) 20 48 Coo	<u> </u>	<u>,4189</u>	00 5. 13 mg/L
boltom	На	8,51	ТЕМР (°	·c) <u>20.36Ccc</u>	NDUCTIVITY (µS/cm	, 4212	_00 4 87 mgle
sampling activited depth	IES (DESC	CRIBE ALL ACTION	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITION	ONAL COMMENTS AS	NECESSARY) COO YL
*;	' 3					t aum	
TEAM LEADER'S SK	GNATURE						

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BVL	Sem	sage	41	10/07	PROJECT MANA	GER	RECORDER A
STATION NAME	1/0	7,00%	NAV DATUM		LATITUDE 2	100 1	LONGITUDE - 117.34186
SAMPLE IDENTIFICA	ATION		TIME STARTED (A		TIME FINISHED (	AT SITE)	GRAÐ SAMPLE TIME
FIELD TEAM	a			2		<u> </u>	
	N	· W00 d	ward	<u>, van</u>	McCoc		
METEOROLOGIC	~	S. do		L, WIND, TEMPERA	TURE, ETC.)	,	
	\	) on the	Cload	4			
		☐ HYDROGEN		-			***************************************
	ПОДОЯ	SULFIDE	MUSTY	SEWAGE	AINOMMA	☐ GASOLINE	□ OTHER
ы		□ SOAP	☐ CHLORINE	□ NONE		·····	
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	D BLUE	BROWN	□ BLACK	☐ OTHER
APPE	110	GRAY	□ WHITE	☐ COLORLESS			
ALITY	NG MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	SUDS	☐ OTHER
H QU		(DESCRIBE)					
WATE	TURBIDI	HEAVY CLOUD	INESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	WATER		RANCE COMMEN		dete	C. Lau	de to aerapio
		(0)		v & ~0	JUS UN	on per	- or to derayla
EROSION AND VI	EGETATION	(DESCRIBE ANY	/ VISUAL SIGNS (	OF SLIDE SLOPE EF	ROSION AND/OR CI	HANGE IN VEGETAT	ION CONDITION)
FIELD	·	ns t	2	3	CONDUCTOR	V ( )	
MEASUREMENTS	3: surface	рн <u> (7 : У</u>	LTEMPERATURE (	(°0)20 26°	CONDUCTIVIT (µs/c/	") <u>41   1   20</u>	. <u>5.51</u> mg/L
FIELD MEASURE		NTINUED (IF DEP		<b>a</b> .			
niddie	рH	9.59	TEMP (	·0,20.27%	ONDUCTIVITY (µS/cm	<u>,4176</u>	526mg/L
pottom	На	8.58	TEMP (	·c, <u>20.29                                   </u>	ONDUCTIVITY (µS/cm	<u>, 476</u>	00 5.00 mgll
SAMPLING ACTIV	ITIES (DES	CRIBE ALL ACTIO	ONS TAKEN AT E	ACH SITE VISIT ANI	D PROVIDE ADDITI	ONAL COMMENTS A	AS NECESSARY)
depth	. 2 ت	3 -	wan	neasure	unts	w YSI	WOOKL
ڊ <b>ء</b>			aera	tion n	3 ft au	un	
		A		-O-		<u> </u>	
EAM LEADER'S	SIGNATUR						
		1/					

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BVVS	BV Sewage			4/10/07		Yew	VW	
STATION NAME	f	0	NAV DATUM		33 T	7677	LONGITUDE TO SHIP	55
SAMPLE IDENTIFICATI	ON		TIME STARTED (AT S	*	TIME FINISHED (A	T SITE)	GRAB SAMPLE TIME	
FIELD TEAM		Voodwo	<u>.</u>		t or t		<u> </u>	
<del></del>				WIND, TEMPERATUR	Coy			
			1			3kfs wesl		
	ODOR	☐ HYÐROGEN SULFIDE	☐ MUSTY	SEWAGE	□ AMMONIA	☐ GASOLINE	□ отне <u>я</u>	
빙		□ SOAP	☐ CHLORINE	NONE				
ARAN	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	MBROWN	□ BLACK	□ отнея	
WATER QUALITY APPEARANCE	NG MATERI	☐ GRAY ☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ WHITE ☐ OIL AND GREASE	☐ COLORLESS ☐ ORGANIC MATERIAL	□ SCUM	□suos	XOTHER GIV GWGV	
WATER		HEAVY CLOUDIN		CI CLOUBY	□ SOME CLOUDINESS	[] NONE		
		VISil	oility.	= 0.2ft				
EROSION AND VEC	GETATION	I (DESCRIBE ANY	/ISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION C	ONDITION)	
FIELD MEASUREMENTS:	surface	_{рн} <u>С. 49</u>	TEMPERATURE (°c)	18.97	CONDUCTIVITY (µs/cm	14203 po 11	.38 mg/c	
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	H >2 FT)					
middie	pН		TEMP (°C)	CONE	DUCTIVITY (µS/cm)		DO	
bottom	рH		TEMP (°C)	CONE	)UCTIVITY (µS/cm)		00	
SAMPLING ACTIVIT		CRIBE ALL ACTION	NS TAKEN AT EAC	CH SITE VISIT AND PI	ROVIDE ADDITION	MAL COMMENTS AS NEO	SI VOUYL	
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  WE MUSSICALLY  VEN Sharlow								
TEAM LEADER'S SI	GNATUR							





PROJECT/SURVEY NA	ME		DATE	*	PHOJECT, MANA	GER A	RECORDER
1 bvl	byl Savage		1 41	10/07	Per	trew	NW
STATION NAME	_	,,,,,,	NAV DATUM		LATITUDE		LONGITUDE
10%	2		V	<u>,                                     </u>	33.1	TT 33	-1173453
SAMPLE IDENTIFICATION	ON		TIME STARTED (A	T SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM		<del></del>		<u>.)                                    </u>		100	2
N	· N	100 dw	avd,	Dan	MIC	aj	
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALI	_, WIND, TEMPERAT	URE, ETC.)		
		Pr	vtry.	andy	0-3	ets we	st
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ ammonia	☐ GASOLINE	□ отнен
111		□ SOAP	CHLORINE	KNONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	<b>S</b> BROWN	□ BLACK	□ отне <del>к</del>
Bdd		☐ GRAY	□ wнтє	☐ COLORLESS			
ALITY /	NG MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□sсим	□ suds	SOTHER SUL
] 30 H		(DESCRIBE)					
WATE		HEAVY CLOUD!		☐ CLOUDY	☐ SOME CLOUDINESS	Moone	
				l bubl	ies, f	ire par-	tialites
EROSION AND VEG	SETATION	(DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE ERO	OSION AND/OFI C	HANGE IN VEGETATION	ONDITION)
			The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa				
				*			
FIELD MEASUREMENTS:	surface	рн 2.50	TEMPERATURE (	·o. [6.7]	CONDUCTIVIT	Y 1 23500_	8.86 mg/c
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPT	'H >2 FT)				
middle	рH		TEMP (°	C)CO	<u>ND</u> UCTIVITY (μS/cπ	n)	DO
boltom	рH		TEMP (*)	c) <u> </u>	NDUCTIVITY (µS/cm	n)	00
SAMPLING ACTIVIT	TES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
dep	str	V	Q M	lasur M	ents	12Y IW	600 XL
0	a"				/**		
TEAM LEADER'S SI	GNATUR		<del></del>			the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s	





PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	GER	RECORDER
しかくし	Sei	nuge	1 4/10	0107	Ven	from 1	Nw
STATION NAME	<u></u>	vage	NAV DATUM	210	LATITUDE	rew	LONGITUDE
1 (0)		Ť			1 25.1	175724	1-117.34711
SAMPLE IDENTIFICATION	ON		TIME STARTED (AT	SITE)	TIME FINISHED (A	NT SITE)	GRAS SAMPLE TIME
			074	10	0~	150	
FIELD TEAM	· W	100dw	ard,	Dan 1	Mc Cay		
METEOROL OGICA	LCHARA	CTEDISTICS (DES	ODIDE DANIEALL	, WIND, TEMPERATI			
	e onana	PWH	_	Udy,		to We	125
					***		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	□ AMMONIA	☐ GASOLINE	☐ OTHER
ш		□ SOAP	CHLORINE	XNONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	□ BLACK	□ отнев
l dd		☐ GRAY	☐ WHITE	☐ COLORLESS			
ALITY A	NG MATERI		☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	SUDS	YOTHER MON
R QU		OBJECTS (DESCRIBE)					
WATE	TURBIDI	HEAVY CLOUDIN	VESS, OPAQUE	☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	MAIGN			<b>5</b> :			
		V1516	ilitys	0.2'			
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISUAL SIGNS OF	SUDE SLOPE ERC	ISION AND/OR CH	ANGE IN VEGETATION	( CONDITION)
					OLOR AND ON ON	ANGE IN VEGETATION	CONDITION)
		- <u> </u>					
FIELD MEASUREMENTS:	surface	рН <u>в. 69</u>	TEMPERATURE (%	17.43%	CONDUCTIVITY	( ZZKB 10_	6.0long/
FIELD MEASUREME	ENTS CON	NTINUED (IF DEPTI	H >2 FT)				
middle	pH,		TEMP (°C	)	<u>ND</u> UCTIVITY (µS/cm)	)	DO
bottom	рН		TEMP (°C	)	NDUCTIVITY (µS/cm)	)	00
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	CH SITE VISIT AND	PROVIDE ADDITIO	ONAL COMMENTS AS I	VECESSARY)
	Z().		NQ M	l aswe	ments	751 W	100 ×L
\ !!. <b>!</b>							
					/	$\langle \ \ \ \rangle$	
TEAM LEADER'S SI	GNATURE				+	<del></del>	
						<u> </u>	

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PROJECT/SURVEY NA	ME		DATE		PROJECT MANA	CED	DECORPER
BVL 9	*.	age	4/10	107	Ven	frew	RECORDER
STATION NAME	_	J	NAV DATUM		LATITUDE . \	1575	-17.34804
SAMPLE IDENTIFICATI	ION		TIME STARTED (A	T SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM			1012		C13	>>	
<u> </u>	1. 11	100 gwo	vd, p	m Mcl	6		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALI	, WIND, TEMPERAT	URE, ETC.)		
			port	y Clou	by, 0-3	ous Was	<u> </u>
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	□ отнея
m		□ SOAP	☐ CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BYBROWN	BLACK	O OTHER
\PPE		GRAY	☐ WHITE	☐ COLORLESS			
) FI	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ suds	X OTHER SCL
3 aua		☐ OBJECTS (DESCRIBE)					CCMpents
WATE		. ☐ HEAVA CLORDII		☐ CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	WAJER	QUALITY APPEAR	ANCE COMMENT	$\sim$	bubbl	es, fine	partiultes
EROSION AND VE	SETATION	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGETATIO	N CONDITION)
\	visi!	vility=	0.2				
FIELD MEASUREMENTS:	surface	рН <u> 8-(Ф.)</u>	TEMPERATURE (	<u>17.39</u> C	, CONDUCTIVIE (µs/cn	* 39726 00_	5.28 ng/L
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)				
middle	βH		. TEMP (°0	C)C	NDUCTIVITY (µS/cm	n)	DO
bottom	pН		TEMP (°	C)C	NDUCTIVITY (µS/cm	n)	DO
SAMPLING ACTIVIT				ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
dej	pp	0.36	) V	JQ MI	WWCN	rents Y	SI 600 XL
نه <b>تو</b>	•		<b>4.</b> .	, ,			
	·	$\triangle$	<b></b>	~			
TEAM LEADER'S S	GNATURE	/ V					

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PROJECT/SURVEY NA	ME		DATE	· .	PROJECT MANA	GER	RECORDER
I by L	IVV Swage			111	Vent	ru s	W
STATION NAME	<del>ار</del>	9	NAV DATUM	·····	LATITUDE		LONGITUDE
10.	<u> </u>				127.	11622	1717.54811
SAMPLE IDENTIFICATI	ION		TIME STARTED (A	•	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM			1 000	<u>U</u>	<u> </u>	007	
	M.	M 009m	rove,	Dan M	10/01		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALI	L, WIND, TEMPERAT	JRE, ETC.)	,	
	······································	Partia	y Meu	Az,	030	ts wast	
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отнея
ш		SOAP	☐ CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	PEROWN	BLACK	☐ OTHER
Hope		GRAY	□ white	☐ COLORLESS			
ALITY A	NG MATERI	_	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ suds	У отнен
2 K		OBJECTS (DESCRIBE)					
WATE		HEAVY CLOUDI		CLOUDY	☐ SOME CLOUDINESS	X NONE	
	THE REAL PROPERTY.	GUALIII AFFEAR	MINCE COMMEN	15:		ŗ	
			<u> </u>	e par	ticult	=\$	
EROSION AND VE	SETATION	(DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE ERC	SION AND/OR C	HANGE IN VEGETATION	ON CONDITION)
							·
FIELD MEASUREMENTS:	surface	рН <u>9-(И</u>	_TEMPERATURE (*	·0.17.50	CONDUCTIVIT (µs/ci	4102 ₀₀	5.54mg/L
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	'H >2 FT)				
middle	рН		TEMP (°	c)	<u>VD</u> UCTIVITY (μS/cm	n)	00
bottom	рН		_ TEMP (%	C)CO	NDUCTIVITY (µS/cm	1}	00
SAMPLING ACTIVIT	ries (des	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	C NECECCADV)
des	i	= 0.6					>1 6 00 XL
يزم	<b>.</b>						
•			1/1/2				
			# + / \	=			
TEAM LEADER'S SI	IGNATUR					-	

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PROJECT/SURVEY	NAME		DATE	10-	PROJECT MANA		RECORDER	
BUL	- Sewa	rge	4/10	10-7	Dave	Rentreu	J Ee	
STATION NAME	,	0	NAV DATUM		LATITUDE	1500	LONGITUDE	
SAMPLE IDENTIFIC	ATION		TIME STARTED (A		83.1	1250	-117.347	10
OAMPEE IDENTIFIC	Allow		1312	ir sire)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME	
FIELD TEAM			11312		131	1		
	FG1	Om						
METEOROLOGI	CAL CHAR	ACTEDICTION (DE				1 .		
METEOROLOGI	CAL CHARA	CILA IA	CHIBE RAINFAL	L, WIND, TEMPERAT	TURE, ETC.)	ind from	270°F	
	(2001)	3 20 11 Ald	Curr	on few	Chrop	teng	270 -	1
		☐ HYDROGEN						
	ODOR	SULFIDE	☐ MUSTY	☐ SEWAGE		☐ GASOLINE	□ OTHER	
		SOAP	☐ CHLORINE	NONE				
NCE				/				
ARA	COLOR	☐ YELLOW	GREEN	☐ BLUE	BROWN	BLACK	□ OTHER	
WATER QUALITY APPEARANCE		☐ GRAY	□ WHITE	□ COLORLESS	/			
ΣŁ	NG	☐ TRASH OR DEBRIS	☐ OIL AND	ORGANIC	_		. /	-/
JALI	MATERI	□ OBJECTS	GREASE	MATERIAL	□ scum	□ suds	SOTHER OF GOLD	Clurgi
ng H		(DESCRIBE)						373
ATE	TURRID	I* ☐ HEAVY CLOUD	NESS OBJOUR	CLOUDY	☐ SOME CLOUDINESS			
>		QUALITY APPEAR			CLOODINESS	NONE	<del></del>	
EDOCION AND I								
EHOSION AND V	EGETATION	N (DESCRIBE ANY	VISUAL SIGNS (	F SLIDE SLOPE ER	OSION AND/OR CH	IANGE IN VEGETAT	TON CONDITION)	
FIELD	• .	96	TEMPERATURE (	2754	CONDUCTIVIT	15170	51-19.82	
MEASUREMENT	S: surface	pH_ 1.0.	TEMPERATURE (	°c) / 1.3 1	(μs/cn	00 DC/C	21 1.05	
FIELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)					
222					4			
middle	рН		_ TEMP (°	C)CO	NDUCTIVITY (μS/cm	)	DO	
bottom	рН		TEMP (°	C)CO	NDUCTIVITY (µS/cm	)	DO	
CAMPI INC ACT								
- 4			ONS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITIO	ONAL COMMENTS A	AS NECESSARY)	
DeTh	=0.	5-17	VV	essuren	vents to	ken at e	age of	
				turbidity	Plume	That h	ne storice of	2.
457.	800	XL		rowed to	etiz v	touk 0	de stored of le ponced	
1				~ 00 l	٥٠٠(.	, -OR 0	longitude La	Anothe
		13 10	0 1	rua o	magijara	nen J.	longiture La	offer the
TEAM LEADER'S	SIGNATUR	ECILA C	V. Sto	Calak		The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		destra
								belevil
								of

and turbidity.



PROJECT/SURVEY NAME

#### WATER QUALITY FIELD DATA LOG

PROJECT MANAGER

DATE

PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	ER	RECORDER
	BUL Sewage		4/10	107	Druc	Rentres	EG
STATION NAME	102		NAV DATUM		LATITUDE	.76	LONGITUDE -117.34799
SAMPLE IDENTIFICATI			TIME STARTED (AT	SITE)	TIME FINISHED (A	T SITE)	GRAB SAMPLE TIME
			1320		1325	•	
FIELD TEAM	-IDN	Λ					
METEOROLOGICA	S LO	CTERISTICS (DESC BATH POR	cribe rainfall	, WIND, TEMPERATUR	fer clo	ind from woods. Stemp	=70°F
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	☐ AMMONIA	☐ GASOLINE	□ OTHER
ш		□SOAP	☐ CHLORINE	NONE			
ARANCI	COLOR	X YELLOW YO	GREEN	□ BLUE	RROWN	BLACK	□ ОТНЕ <u>В</u>
APPE		GRAY	□ WHITE	COLORLESS	11	5	
WATER QUALITY APPEARANCE	NG MATERI	☐ OBJECTS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□subs	COTHER NOW
WATER (	TURBIDI	(DESCRIBE)	NESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□NONE	
EROSION AND VEC	GETATION	I (DESCRIBE ANY )	VISUAL SIGNS O	F SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION C	ONDITION)
FIELD MEASUREMENTS:	surface	pH (0, 06	TEMPERATURE (°	0 27.12	CONDUCTIVITY (µs/cm)	4682 no 18	.12
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	H >2 FT)				
middle	рН		TEMP (°C	C) CONE	OUCTIVITY (µS/cm)	)	_DO
bottom	pH		TEMP (°C	C)CONE	UCTIVITY (μS/cm)		DO
SAMPLING ACTIVITY  Dept  4	ITIES (DES	CRIBE ALL ACTION  O.4H  OOXL	NS TAKEN AT EA	in ad to	Site. to	onal comments as new each field Painent f took your	cessary) mla grenets drae Thot
TEAM LEADER'S S	IGNATUR	BUL C	0. Jol				



PROJECT/SURVEY NA	AME		DATE	. 1	PROJECT MANA	GER	RECORDER	
BVL Se	MAGE		4/10	3/07	Dave Renfreu		EG-	
STATION NAME			NAV DATUM		LATITUDE	()	LONGITUDE	
103					33.17	622	-117.34	1802
SAMPLE IDENTIFICAT	ION		TIME STARTED (A	T SITE)	TIME FINISHED (A		GRAB SAMPLE TIME	
	1328 1330							
FIELD TEAM			-20		1 230			
to	1am							
						,		
METEOROLOGICA	t S	CTERISTICS (DESC	th fer	L, WIND, TEMPERATUR S ( ( ) ( ) ( ) ( ) ( ) ( )	emp	Slight by	ceze som	
	ODOR	☐ HYDROGEN SULFIDE	MUSTY	SEWAGE	□ ammonia	GASOLINE	□ отне <u>в</u>	
,,,		SOAP	☐ CHLORINE	NONE				
WATER QUALITY APPEARANCE	COLOR	YELLOW	GREEN	BLUE	BROWN	BLACK	□ отне <u>г</u>	
PPE	1 '	□ GRAY	□ WHITE	□ COLORLESS				
\ \	NG	☐ TRASH OR	☐ OIL AND	ORGANIC				
NALIT	MATERI	DEBRIS  OBJECTS	GREASE	MATERIAL	□ SCUM	SUDS	KOTHER a Copac	2 Clumps
E E		(DESCRIBE)			W			
WAT	TURBID	I □ HEAVY CLOUDIN	NESS, OPAQUE	□ CLOUDY /	SOME	□NONE		
_		QUALITY APPEAR	ANCE COMMEN	TS: Sed	11	1. The Ho	odreces Cillia	leather
			it's	hired of	JOV COX	Id see	The botton	was visible
EDOCION AND VE	OFTATIO	U (DECODIDE ANY		NE OLIDE OL ODE EDGO	/			
EROSION AND VE	GETATIO	N (DESCRIBE ANY	VISUAL SIGNS C	OF SLIDE SLOPE EROS	SION AND/OR C	HANGE IN VEGETATI	ION CONDITION)	
FIELD MEASUREMENTS:	surface	рн 9.47	TEMPERATURE (	25.88	CONDUCTIVIT	4508 DO	10.16	
FIELD MEASUREN	MENTS CO	NTINUED (IF DEPT			-			
middle	pŀ	I	TEMP (	CONI	<u>D</u> UCTIVITY (μS/cn	n)	DO	
bottom	pl	1	TEMP (	°C) CON	DUCTIVITY (μS/cn	n)	DO	
SAMPLING ACTIVI	ITIES (DES	SCRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND P	ROVIDE ADDIT	IONAL COMMENTS A	AS NECESSARY)	
Deg	MEC	0.38+		raved	to sike	. We cov	Idritget	
ė	isi (	SOOKL		tes à	i fiel	The acres	Unitget Sit	
				gastav .	0			
TEAM I EADED'S	SIGNATUE	Poth !	£ 9	Letter				



BUI Sa			4/10	107	Da m I		RECORDER	
BUL SCHEGE STATION NAME			NAV DATUM	10 1		Centrew	LONGITUDE	
104					33.17	671	-117.34458	
SAMPLE IDENTIFICATION	ON		TIME STARTED (AT	THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF THE COUNTY OF TH		IT SITE)	GRAB SAMPLE TIME	
FIELD TEAM			15 18	)	1348			
	761	Dm						
METEOROLOGICA	L CHARA	CTERISTICS (DESC	RIBE RAINFALL	, WIND, TEMPERATUR	RE, ETC.)		. ,	
		SI	ght bi	recre/wind	Fron	west, su	may with few	
		clau	ds ten	IP = 7CPF	(1)		may cily few	
	T			1				
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	☐ AMMONIA	GASOLINE	□ OTHER	
		SOAP	☐ CHLORINE	NONE				
NC E		LI JOAI	LI CITCONINE	/ NONE				
ARAI	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	BLACK	□ OTHER	
PPE		GRAY	□ WHITE	□ COLORLESS				
ΣĬ	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	ORGANIC MATERIAL	□ scuм	SUDS	XOTHERA GOLE CLU	1. 2
WATER QUALITY APPEARANCE		□ OBJECTS			_ 000m	2 0000	Agoment of the City	nji
品		(DESCRIBE)			SOME			
WA		1 ☐ HEAVY CLOUDIN		CLOUDY	CLOUDINESS	□ NONE		
	WATER	QUALITY AFFEANA	INCE COMMENT	si large so	dinent	pluned	rom (arge	
				fish and	d boat			
EROSION AND VE	GETATION	(DESCRIBE ANY V	ISUAL SIGNS O	F SLIDE SLOPE EROS	ION AND/OR CH	HANGE IN VEGETATION C	CONDITION)	
							0	
FIELD MEASUREMENTS:	surface	рн 10.23	TEMPERATURE (°	0,24.86	CONDUCTIVIT (µs/cr	4824 0028	1.30	
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	1 > 2 ET)					
TIEED MICAGONEM	LIVISCO	WINOLD (IF DEFI	12271)					
middle	рН		TEMP (°	C)CONI	QUCTIVITY (μS/cm	)	_DO	
bottom	рН		TEMP (°	C)CONI	QUCTIVITY (μS/cm	)	_DO	
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTION	IS TAKEN AT E	ACH SITE VISIT AND D	POVIDE ADDITI	ONAL COMMENTS AS NE	(CECCARV)	
- 1			NO TAKEN AT EX	(Swed to	a rife -	took dopth	CLESSARY)	
repin	= (	J. 4 ++		ticle	1 mes	were ments.		
J	ST 60	0.4 ft		n	readurce	ments take	n in large	
7	00			see	Limont	plume for	on bout	
		,,,,,		A	and	tack depth wrements. ments take plune fr Jish.		
TEAM LEADER'S S	IGNATUR	E ESTA	1.	Poldst				
		-					- 1	



PROJECT/SURVET NA	AME		DATE .	(	PROJECT MANAG	ER	RECORDER
BULS	BV L Serage		110	107	Dave	Rostrew	FC
STATION NAME			NAV DATUM		LATITUDE	175	LONGITUDE 11 24 500
SAMPLE IDENTIFICATI	ION		TIME STARTED (AT		TIME FINISHED (A		-11.34528 GRAB SAMPLE TIME
			1252		1250		THE TIME
FIELD TEAM	FG	(DM					
METEOROLOGICA	L CHARA	CTERISTICS (DESC MP 2 7001	ERIBE RAINFALL,	wind, TEMPERATUR ht breeze cwinds.	E, ETC.) Si	may with protected	Er Chirds. from
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	SEWAGE	☐ AMMONIA	☐ GASOLINE	□ OTHER
"		SOAP	CHLORINE	DNONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	Впоми	BLACK	□ OTHE <u>R</u>
APPI	NG	GRAY	□ WHITE	COLORLESS		MANAGEMENT AND AND AND AND AND AND AND AND AND AND	
JALITY	MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□subs	MOTHER NORE
H. B.		(DESCRIBE)					
WATE	TURBIDI WATER (	HEAVY CLOUDIN	ESS, OPAQUE	QLOUDY	□ SOME CLOUDINESS	NONE	
				s: visible	a live	fish	
EROSION AND VEG	BETATION					ANGE IN VEGETATION CO	
FIELD MEASUREMENTS:	surface	_{рн} 9.53	TEMPERATURE (°C	£ 22.0 22.56	CONDUCTIVITY (µs/cm)	4509 00 23	3.05
FIELD MEASUREME	ENTS CON	ITINUED (IF DEPTH	l >2 FT)				
middle	pH ₋		TEMP (°C)	COND	UCTIVITY (μS/cm)		00
bottom	pH_		TEMP (°C)	COND	JCTIVITY (µS/cm)		00
SAMPLING ACTIVITI	IES (DES	CRIBE ALL ACTION	S TAKEN AT EAC	CH SITE VISIT AND PR	OVIDE ADDITIO	NAL COMMENTS AS NEC	ESSARY)
) إنون	ysI	n=0.8	F+	motorcel	and	rowed to or and to ield mass	site
TEAM LEADER'S SIG	GNATURE	Beth of	O So	det			



PROJECT/SURVEY NA	ME		DATE	i	PROJECT MANA	GER	RECORDER
BVL Se	Noce		4/10	107	Dave	Rentrov	II.
STATION NAME	/		NAV DATUM		LATITUDE	1	LONGITUDE
100	0				33.1		-117.34184
SAMPLE IDENTIFICATI	ON		TIME STARTED (A	SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM			1.07		229.1	182 2 123	3-41-1-34184
		<()M					
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFAL	, WIND, TEMPERAT	URE, ETC.)	sing from	the west
5 <i>0</i> ⁴	129	with fe	the clu	vds-ter	p=70°	FO	the west
		□ HYDROGEN					
	ODOR	SULFIDE	☐ MUSTY	☐ SEWAGE		☐ GASOLINE	OTHER
ш		□ SOAP	☐ CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	BLACK	□ отне <u>г</u>
APPE		☐ GRAY	□ WHITE	□ COLORLESS			
È	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	XISUDS	
MAL		□ OBJECTS	3003003000000		LI SCOM	Sobs	OTHER
EB		(DESCRIBE)					
WAT	TURBIDI	• □ HEAVY CLOUDII	NESS, OPAQUE	DCLOUDY	☐ SOME CLOUDINESS	□ NONE	
	WATER	QUALITY APPEAR	ANCE COMMEN	rś:			
EROSION AND VEG	SETATION	(DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE ERG	OSION AND/OR CH	ANGE IN VEGETATION	CONDITION)
FIELD		ac	70	12 45	COMPLICATIVIT	V11500 -	1120
MEASUREMENTS:	surface	pH_1.2	TEMPERATURE (	(c) ZZ. 10	(μs/cn	452000 2	21.30
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPT	H >2 FT)				
mai dulla		9.51		22.46 co		4520	DO 21.83
middle	pH						2000 AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE REAL PROPERTY AND ADDRESS OF THE PROPERTY AND ADDRESS OF THE PROPERTY AND A
bottom	pH	9.56	TEMP (°	22.21 co	NDUCTIVITY (μS/cm	, 4108	_00_18,88
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITION	ONAL COMMENTS AS N	FCESSARV)
Da	m	= 23 A	_	site is	5 7 4	from a	large
Ve	y	2.0.11		alra	for ,	international	rood
2.	100	MXL		met	arred to	JUK COLOR	1
9	516	= 2.3 A		anc	mor ito.	ok dept	and
					fieled 1	sik drep ok depte measurem	ent
TEAM LEADER'S SIG	GNATURE	Sth 1	0 9/1	lit			
			1000	1			_



PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	GER	RECORDER		
	evoge	2	4/10	69	Dave	Rentra	te		
STATION NAME	,		NAV DATUM		LATITUDE	17001	LONGITUDE		
SAMPLE IDENTIFICATION	ON		TIME STARTED (A	T CITE	27 6	11816	-111.34148		
SAMPLE IDENTIFICATION	ON .		1217		TIME FINISHED (A	2 O	GRAB SAMPLE TIME		
FIELD TEAM		,	1,01		16	20			
	EG	(Dm							
METEOROLOGICA	AN)	With fe	CRIBE RAINFALL	d) temperatu	2 70°T	trong wine	f from the		
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	Отнея		
		SOAP	☐ CHLORINE	NONE					
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	BLUE	BROWN	□ BLACK	□ OTHER		
APPE		GRAY	□ WHITE	☐ COLORLESS					
ALITY /	NG MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	Subs	□ OTHER		
l g		(DESCRIBE)							
WATE		HEAVY CLOUDI		CLOUDY	☐ SOME CLOUDINESS	□NONE			
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)									
FIELD MEASUREMENTS:	surface	рн 9.00	TEMPERATURE (	· <u>0</u> 21.57	CONDUCTIVIT (μs/cn	4279 DO 11	.00 mg/L		
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)						
middle	рН	9.01	_ TEMP (°	c) 21.52 con	<u>D</u> UCTIVITY (μS/cm		00 11.01 mg/		
bottom	pH	9.03	_ TEMP (°	$c_1 2 (-0.2_{CON})$	DUCTIVITY (μS/cm	,4241	00 8,05 mg/L		
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  MOTORIA to site a appeal anchor  to st deph and field  measurements									
الحقو 	YSI	600XL	•	m	easure.	nexts 0			
TEAM LEADER'S SI	GNATUR	atte	D.	Ala f			-		



PROJECT/SURVEY NA			DATE	1.0	PROJECT MANAG		RECORDER		
BULS	BVL Senage			107	Dave	Ren (rew	EG		
STATION NAME			NAV DATUM		LATITUDE		LONGITUDE		
SAMPLE IDENTIFICATION	- N				33.1		-117.34197		
SAMPLE IDENTIFICATION	SAMPLE IDENTIFICATION TIME STARTED (AT SITE)  [2 2 ]					T SITE)	GRAB SAMPLE TIME		
FIELD TEAM			122	-5	122	- 6			
	£6	-lom		<del></del>	<b>Normalis</b>				
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALL	, WIND, TEMPERATUR	RE, ETC.)	ild 61802 4	base he		
	We	ot, but of	retected	from Wine	d. Sin	ight breeze	en clouds		
	ODOR	☐ HYDROGEN SULFIDE	MUSTY	□ SEWAGE	□ AMMONIA	GASOLINE	□ отнея		
ш		SOAP	☐ CHLORINE	□ NONE					
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	BLACK	□ отнея		
APPE		GRAY	□ WHITE	☐ COLORLESS					
) E	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	subs	Your class class		
3 QUAL		☐ OBJECTS (DESCRIBE)			L SCOM	to sous	MOTHER KYPU ((UM)		
ATEF				Y	SOME				
×		DHEAVY CLOUDII		S:	CLOUDINESS	NONE			
	X								
EROSION AND VEG	ETATION	COESCRIBE ANY	VISUAL SIGNS OF	FSLIDE SLOPE EROS Vis apen. A (vater	ion and/or ch may be	Laguese a	ondition) 2eratur		
		(., > 0)							
FIELD MEASUREMENTS:	surface	рн_9.12	TEMPERATURE (°c	21.62	CONDUCTIVITY (µs/cm	14329 DO 12	2.19		
FIELD MEASUREME	NTS CON	NTINUED (IF DEPT	H >2 FT)			-			
middle	pH.	9.11	TEMP (°C	21.69 cone	OUCTIVITY (µS/cm)	4335	12.55		
bottom	pH	9.08		21.48 CONE			DO_11.37		
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	CH SITE VISIT AND PI	ROVIDE ADDITIO	DNAL COMMENTS AS NEC	CESSARY)		
Depth = 2.0ft Site is a 10 ft from an agrator motorcel to site, anchorsel took depth and field measurements									
44	VSI 600x1 dephand field messurement								
TEAM LEADER'S SI	GNATURE	with (	1. 1/hl	def					



PROJECT/SURVEY NA	AME		DATE	1	PROJECT MANA	GER	RECORDER			
BVL S	Croe	<i>y</i> -	NAV DATUM	0/07	Dave	Rentrev	Fe			
10	9		NAV DATOM		LATITUDE	1015)	LONGITUDE - 117.34084			
SAMPLE IDENTIFICATI	ION		TIME STARTED (A	T SITE)	33.1	AT SITES	-117.34089			
			1209		121		GRAD SAMPLE TIME			
FIELD TEAM		/-	1,70	-	101	<i>C</i>				
		Ee (Om								
METEOROLOGICA Suna	AL CHARA	CTERISTICS (DES	CRIBE RAINFAL	L, WIND, TEMPERAT	URE, ETC.) L Lemp	= 708F	more wot			
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	ОТНЕЯ			
щ		SOAP	☐ CHLORINE	DNONE						
WATER QUALITY APPEARANCE	COLOR	YELLOW	☐ GREEN	☐ BLUE	BROWN	BLACK	☐ OTHER			
APP		GRAY	□ WHITE	☐ COLORLESS						
JALITY	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	X subs	□ OTHER			
9 8		(DESCRIBE)								
WATE	TURBIDI	HEAVY CLOUDIN	NESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE				
EROSION AND VEG	GETATION	I (DESCRIBE ANY	VISUAL SIGNS C	OF SLIDE SLOPE ERG	OSION AND/OR CI	HANGE IN VEGETAT	ION CONDITION)			
FIELD MEASUREMENTS:				· <u>0</u> 21.60	CONDUCTIVIT (µs/cr	Y 4285 DO	14.27			
FIELD MEASUREM	ENTS CO	1000 C 1000 C 1000 C								
middle	pН			0,21.48 00			DO 10.94			
bottom	pH	8.73	. TEMP (°	c) 21,53 co	NDUCTIVITY (μS/cm	,4277	00 10.87			
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VIŞIT AND	PROVIDE ADDITI	ONAL COMMENTS A	AS NECESSARY)			
Dep	1-	2.9 st		motore	hor n	ite dro	reed hand			
4 S I was	Def h = 2.9 ft motorca to site drypled has hand political man rements site is between 2 acrators = 20st									
				fre	n ore	and 3	OST from another			
TEAM LEADER'S SI	IGNATUR	ost	0,4	plan						



PROJECT/SURVEY N	AME		DATE		PROJECT MANA	GEA	RECORDER
BUL	Sewi	LAC	4-10	-07	1 D F	2en frew	172
STATION NAME			NAV DATUM	·····	LATITUDE		LONGITUDE
104	4				33.1	6873°N	-11735598°W
SAMPLE IDENTIFICAT	•	<del></del>	TIME STARTED (A	r sire)	TIME FINISHED (	<b>~</b>	GRAB SAMPLE TIME
			1005		1230		GRAD SAMPLE TIME
FIELD TEAM			1995		1,000		
L.	Camp	agna, J.	Scholler				
METEOROLOGIC	AL CHARA	CTERISTICS (DES	CRIBE RAINFALI	, WIND, TEMPERAT	TURE ETC \		
	Sin	g, no d	ouds in	ind 1-5 6	rom Fr	>	
	T		·····				
	ODOR	☐ HYDROGEN SULFIDE	MUSTY	SEWAGE		☐ GASOLINE	OTHER
<u> </u>	-	□ SOAP	☐ CHLORINE	DNONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	BROWN	☐ BLACK	□ отнев
8		☐ GRAY	□ WHITE	COLORLESS			
LITY A	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	SUDS	□ OTHER
in QUA		OBJECTS (DESCRIBE)	<del>1-let-</del>	٩			
WATE		☐ HEAVY CLOUD	INESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	WAIEH	ODALITY APPEAR	HANCE COMMENT	FS: an — — 2.5: -2/€	Noothe	v debisor	fi ntable
ĺ	)	la Si sal oc	n rollecti	a matullies	, , -	· OCEDINGON	( Coperation Co.)
	`	War ( Cr C	widy on	y prouv	13		
							······································
EROSION AND VE	GETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGETATIO	N CONDITION)
4							
		***********					
FIELD MEASUREMENTS	: surface	ы <u> 원.13</u>	Z TEMPERATURE (	0 21.34	CONDUCTIVIT	3344 <u>DO</u>	<u>6.68</u>
FIELD MEASUREN	MENTS CO	NTINUED (IF DEPI	TH >2 FT)				
middle	-11	8,12		21.34		2353	r 🗷 n
middle	рн	22.10	_ TEMP (*	c) 21-34 cc	ONDUCTIVITY (µS/cn	1)	0
bottom	pH	8.06	TEMP (°	01.03 cc	ONDUCTIVITY (µS/cm	3981	5.80
SAMPLING ACTIVI	ITIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
4.4 64		Moderal	to site.	More in	open b	nter rather	ihan core.
		· Depth	and then	i wa me aci	rements		
<b>.</b>		`	YSI 5	56			
			,	•			
			· · · · · ·				
TEAM LEADER'S S	SIGNATURĮ		doll	~			



BVL Se	wo an	1.0	1 41-10			_	
STATION NAME	SVL Sewage			4-10-07		4~ (~~ i~	JS
			NAV DATUM		LATITUDE	4 Rew	LONGITUDE
IOB					33.16-	785°N	117.35435°W
SAMPLE IDENTIFICATI	ON		TIME STARTED (A	r sire)	TIME FINISHED (/	=	GRAB SAMPLE TIME
			1233		1237	<u></u>	
FIELD TEAM			····				L
	L.C	ampagi	2. L, an	Unallée			
METEOROLOGICA S	L CHARA	CTERISTICS (DES	CCY2.	L, WIND, TEMPERA ンーラップトイ	TURE, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ SEWAGE	□ AMMONIA	[] GASOLINE	Оотнея
131		□ SOAP	☐ CHLORINE	MONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ 8LUE	BROWN	□ BLACK	□ отнея
PEA		☐ GRAY	□ wыте	COLORLESS	•		
AP	NG	☐ TRASH OR	☐ OIL AND	☐ ORGANIC			
ALI.	MATERI	DEBRIS  Debugger	GREASE	MATERIAL	□ scum	□ suos	□ other
90 %		(DESCRIBE)	Nor	e			
WATER	TURBIDI	1 ☐ HEAVY CLOUD	INESS, OPAQUE	XCLOUDY	☐ SOME CLOUDINESS	NONE	
			rance commen Water, C	ait see	the botto	W	
EROSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE EI	ROSION AND/OR C	HANGE IN VEGETATI	ON CONDITION)
						* ***	
FIELD MEASUREMENTS:	surface	pH 8.41	TEMPERATURE (	·) 31.68	CONDUCTIVIT	Y 의식국 po	8.06
FIELD MEASUREM	ENTS CO	NTINUED (IF DEP	TH >2 FT)				
middle	рН	8.40	ТЕМР (*	0 60.160	ONDUCTIVITY (µS/cm	<u>, 3148</u>	00 8-21
bottom	pН	8.40	TEMP (*	0 <u>21.54</u>	ONDUCTIVITY (µS/cn	350 350	8.31
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTION	ONS TAKEN AT E	ACH SITE VISIT AN	D PROVIDE ADDITI	ONAL COMMENTS A	S NECESSARV)
21211	ta	- M. Jord	the site	AGIT GIVE VIGIT AIV	DI NOTICE ADDITI	CIVAL COMMENTS A	5 NECESSART)
27 ag	, ,	75.58	deals & l	Ja measi	2 tramon	(-10p->mic	1 -> botom)
, and a		- 1004	all ic	- 551	- ,	,	,
			47,	7),0			
***************************************		····		7			
TEAM LEADER'S S	IGNATUR	E 15	<u> </u>	_ىئىر_			



PROJECT/SURVEY N			DATE		PROJECT MANAG		RECORDER
BVL S	sewa	ge	4-10	F0~	1 D.K	er he w	20
STATION NAME			NAV DATUM		LATITUDE		LONGITUDE
100						893%	117.35058°W
SAMPLE IDENTIFICAT	TION		TIME STARTED (AT	•	TIME FINISHED (A		GRAB SAMPLE TIME
			1243	>	1246	7	
FIELD TEAM	L. Can	mpagna,	J. Scholl	ée			
METEOROLOGIC	AL CHARA	CTERISTICS (DES	SCRIBE RAINFALL	, WIND, TEMPERAT	URE, ETC.)		
		☐ HYDROGEN		,			
	ODOR	SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
111		□ SOAP	☐ CHLORINE	MONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	Ж вноwn	☐ BLACK	□ отнев
ಪ್ರಕೃತ		☐ GRAY	☐ WHITE	□ COLORLESS			
ILITY A	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	CI ORGANIC MATERIAL	□ ѕсим	□ subs	<b>Д</b> отнев
R QUA		OBJECTS (DESCRIBE)	Carrers	5			
VATE	TURBIDI	TI [] HEAVY CLOUD	INESS. OPAQUE	[] eronba	☐ SOME CLOUDINESS	□ NONE	
5		CHALITY ADDEAD	DANCE COMMENT	ro			
		WATER	rery m	orky, car	~ + 266 1	⊅6 (i GW €,	
EROSION AND VE	EGETATION	N (DESCRIBE ANY	/ VISUAL SIGNS O	F SLIDE SLOPE ER	OSION AND/OR CH	HANGE IN VEGETA	TION CONDITION)
		- make the production of the second section of the second	and the substitute and the property of the substitute of the substitute of the substitute of the substitute of	the facility of placed specify and adjusted to the second specific and a second specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific specific spec	1 Sample Salara Control	and a second second second second second second second second second second second second second second second	
<u> </u>	a principal make of the standard	graphic Philipped State and					
FIELD MEASUREMENTS	S: surface	рн_8,3	5 TEMPERATURE (*	·) 20.25	CONDUCTIVIT	1 3162 D	<u>。 8. 22</u>
FIELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)				
middle		8.24	•	o,22.23 o	ONDUCTIVITY (μS/cπ	n 3163	DO 8. 09
bottom			<del></del>	o) D.23 co			PO · 8 · 0 ·
				ACH SITE VISIT AND			
219"	dept	h -	Motored Took of	to site	d wa m	easemenne	ects
<i>5</i> *				SI556			
		Very fen	swalla	~ S a s ( & l	inpared top	previors of	Lan S
				$\overline{\bigcirc}$			
TEAM LEADER'S	SIGNATUR	E ( 7	$\bigcirc$				



PROJECT/SURVEY			DATE		PROJECT MANA	GER	RECORDER
BVL	Sewo	erc	4-10-07		D. P	enthew	26
STATION NAME		·····	NAV ĐATUM		LATITUDE		LONGITUDE
IOE					35, 1	7065N	117.35763°W
SAMPLE IDENTIFICA	TION		TIME STARTED (A	т ѕпе)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
			1250	>	(255	<del></del> >	
FIELD TEAM		L. Can	-loogna,	J. Scholl	ée		
METEOROLOGIC				L, WIND, TEMPERA	TURE, ETC.) 3-5 ←	om W	
		HYDROGEN					
	ODOR	SULFIDE	☐ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	☐ OTHER
ш		□ SOAP	CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	C) SLUE	Двяоwи	BLACK	☐ OTHER
PE,		☐ GRAY	□ WHITE	☐ COLORLESS			
ITY AF	NG MATERI	☐ TRASH OR	☐ OIL AND GREASE	ORGANIC	SCUM	□sups	Потивя
3 QUAL		☐ OBJECTS (DESCRIBE)		Aigae (	given no	the from	lant condps)
WATER	TURBIDI	T ☐ HEAVY CLOUD	INESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
_		QUALITY APPEAL		TS:			
EROSION AND V	EGETATION	(DESCRIBE ANY	VISUAL SIGNS	OF SLIDE SLOPE E	ROSION AND/OR C	HANGE IN VEGETATIO	N CONDITION)
		. 1877 - 197	and the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second s	A company of the second of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second			
		And the state of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of					
FIELD MEASUREMENT	S: surlace	pH_8,44	TEMPERATURE	(°0) 2(.98	CONDUCTIVIT	300 POSE (m)	<u> </u>
FIELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)	1			
middle	рН	8,47	TEMP (	·031-86	CONDUCTIVITY (µS/cr	3205	8.71
bottom		8.37		_	CONDUCTIVITY (µS/cr	~ -	₀₀ 8.24
			ONS TAKEN AT E	ACH SITE VISIT AN	ID PROVIDE ADDIT	IONAL COMMENTS AS	NECESSARY)
34	" def	the	- Mota	ed to sit	د م		3 <b>~</b> ^
di di			- TOOK (			eastremen	17
		1.10	snalla	STSTS	556		
		170	>V-00000	.>			
TEAM LEADER'S	SIGNATUR	E	1=Scl	sloon	λ		
i					<del></del>		



PROJECT/SURVEY NA			1.		PROJECT MANAG	ER	RECORDER
BV L S	, en a	ove	4-10-	FC	D. Pe	inser.	2L
i		J	NAV DATUM				LONGITUDE
107					33.17193°N		117.35269%
SAMPLE IDENTIFICATI	ION		TIME STARTED (A	•	TIME FINISHED (A		GRAB SAMPLE TIME
			1258	<b>&gt;</b>	1250	ys 1301	
FIELD TEAM	L, C	ampagno	, J.Sd	white			
METEOROLOGICA	AL CHARA	Sinny	CRIBE RAINFALI	., WIND, TEMPERATUR ひら しごんめ	E, ETC.) 3 - 5 m	iby most	
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ ammonia	☐ GASOLINE	□ отнея
ш		□ SOAP	CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	□ GREEN	☐ BEUE	ВВОМИ	□ BLACK	OTHER
APP		☐ GRAY	□ wнπε	☐ COLORLESS			
<u> </u>	NG MATERI	TRASH OR	☐ OIL AND GREASE	S ORGANIC MATERIAL	□ scuм	Deune	Потигр
QUAL		OBJECTS (DESCRIBE)		made bits of	4000101	□subs rt aigae	D отне <u>в</u>
WATER	TURBIDI	1 ☐ HEAVY CLOUDIN	IESS, OPAQUE	CLOUBY	□ SOME CLOUDINESS	[] NONE	
	WATER	QUALITY APPEAR	ANCE COMMEN	rs:			
EROSION AND VE	GETATION	TUDESCRIBE ANY I	VISTENT STONE C	DE SLIDE SLODE EBOS	ION AND/OD OL	IANGE IN VEGETATION C	OMBITION
LINGS ON ALL VE		(DESSTRIBE ANT	HOURE GIGING C	JUNE SEOFE ENGS	ION AND/OR CE	MAGE NA VEGETATION C	ONBITION
-				VIII-VIII-data talifumy o _g - <u>analahan dagan da analahan da ana</u>		A company of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the s	
FIELD MEASUREMENTS:	surface	F.H.8.Hq	TEMPERATURE (	<u>00.5€</u>	CONDUCTIVITY (µs/cm	;3188 <u> (0</u>	<u>. 44</u>
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	H >2 FT)				
middle	рН	8.47	TEMP (*	C) 21.99 CONE	DUCTIVITY (µS/cm	3188	0010.53
bottom	Нq	8.37		c) <u>21.95 _{соне}</u>			001063
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT AND PI	ROVIDE ADDITIO	ONAL COMMENTS AS NEC	CESSARY)
216		4- ~	1 calmage	A In Sile			
s. ^t			TOOK (	depth and	m@ m	easure ment	12
				AST =			
		·		served no s	wallow	ζ.	
TEAM LEADER'S S	SIGNATUR	E 77	Soli	JUM _			



PROJECT/SURVEY NA			DATE		PROJECT MANAG		RECORDER
BVL	Sev	rage	4-10-07		1 D. Re	whe w	20
STATION NAME			NAV DATUM		D. Rentien		LONGITUDE
OJ.	G				33.17	334° N	117.35075°W
SAMPLE IDENTIFICATI	ION		TIME STARTED (AT	SITE)	TIME FINISHED (A	T SITE)	GRAB SAMPLE TIME
			1305	•	1309		
FIELD TEAM		^	1				1
		Campri	ma, J.C	drallee_			
METEOROLOGICA	AL CHARA	CTERISTICS (DESC Surv	CRIBE RAINFALL	, WIND, TEMPERATUR Lads	ne, etc.) Wind 1	-5 mph from	~ jm/
		[] HYDROGEN					
	ODOR	SULFIDE	☐ MUSTY	SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отнея
				w. C			
ш		SOAP	☐ CHLORINE	NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	□ GREEN	C) BLUE	BROWN	□ BLACK	□ отнея
PP		☐ GRAY	□ wнітє	COLORLESS			
LITY A	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	ORGANIC MATERIAL	□scuм	□ suds	☐ OTHER
auA		OBJECTS (DESCRIBE)		fisculant	algare		
TER.	·····	(,	<b></b>		□ SOME		
WA		T☐ HEAVY CLOUDIN		X CLOUDY	CLOUDINESS	□ NONE	
		Ward	ev is v	n-rky, ca	4 500	~ [1310V	
EROSION AND VE	GETATION	(DESCRIBE ANY \	ISUAL SIGNS O	F SLIDE SLOPE EROS	SION AND/OR CH	ANGE IN VEGETATION C	ONDITION)
						the annual contraction of the second	
						The second second second	The latest and the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of the second of t
							The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
FIELD MEASUREMENTS:	surface	рН <u>8,30</u>	TEMPERATURE (	00.6 <u>C</u>	CONDUCTIVIT' (µs/cn	3301 ₀₀ 9	.55
FIELD MEASUREM	IENTS CO	NTINUED (IF DEPTI	1 >2 FT)				
middle	pH	8.29	TEMP (°	00 PP.1GO	DUCTIVITY (µS/cm		00 9.44
bottom	pН	8.14	TEMP (°	O8.150	DUCTIVITY (µS/cm	3300	HF.8 00.
SAMPLING ACTIVI	TIES (DEC	CDIDE ALL ACTION	UC TAUEN AT F	ACH CITE VICIT AND F	DOMES AND TO	ONAL COMMENTS AS NE	2500450
26"	depti	n - Ma	tored to	S146			LESSART)
gi ²		- TO	* depth	and we	× Y	ンエクラし	
		Hra	nd isuil f	roog.		invoin) and 1	
		On	nock to	Site saw	pace (	(million) and t	wh
TEAM LEADER'S S	SIGNATUR	E -	ESA	عاند			
		٠٠					

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IDDO JEOT/SUGUEV NA	iae.		10.75				
PROJECT/SURVEY NA	14/	KILL .	DATE	11-07	PROJECT MANA	UNTROW	MIKA.
STATION NAME	A		NAV DATUM		LATITUDE 37	16819	117. 35603
SAMPLE IDENTIFICATI	101		TIME STARTED (AT	SITE	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
「フ( FIELD TEAM	7		1000	YÚ	$\cup$ $\cup$	16 25	<i>\O</i> -
	<u>C1</u>	<i>^</i> !	MILLA				
METEOROLOGICA		Or a		, WIND, TEMPERATU	IRE, ETC.)	·············	
	100%	To Carr	4	wins	0.5	KS NE	
	ODOR	☐ HYDROGEN SULFIDE	-B MUSTY	□ SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отнея
ш		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	DOREEN	C) BLUE	DEROWN	☐ BŁACK	□ отнея
다 크		☐ GRAY	□ white	☐ COLORLESS			
	NG MATERI	TRASH OR DEBRIS	OIL AND GREASE	CJ ORGANIC MATERIAL		P	,
QUALI	IIIA TENI	OBJECTS (DESCRIBE)	GAEAGE	WATCHIAL	□ SCUM	D SUDS PODE	□ отне <u>я</u>
TER					SOME		
/M		CUALITY APPEAR.		S:	CLOUDINESS	□ NONE	····
EROSION AND VE	GETATION	N (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERO	SION AND/OR C	HANGE IN VEGETATION C	ONDITION)
,	A 23			From 5			
ι	HIL	160>	1/6	111665-7	4.1101		
FIELD MEASUREMENTS:	surface	рн 7.8 7	<b>)</b> TEMPERATURE (°)	· 20.94	CONDUCTIVIT	3369 00_	4.80
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)				
		79		2,98		237/	456
middle	pH	7.15	TEMP (°C	0) 40.73 con	IDUCTIVITY (µS/cn	n) : 027(	_00 7.5 W
bottom	рН	1.43	TEMP (°C	:) <u>40.9( cor</u>	IDUCTIVITY (µS/cn	<u> 3360                                   </u>	00 4,50
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	JS TAKEN AT EA	CH SITE VISIT AND I	PROVIDE ADDITI	ONAL COMMENTS AS NE	CESSARY)
Di	014_	_ 3'	b "			منتخص	
بالمراك							
						#4 P*	
					***		
TEAM LEADER'S S	IGNATUR	E	MX	n			
			<i>W</i>				1

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PROJECT/SURIVEY N		1 411	DATE 4	7/07	PROJECT MANAG	len ( new)	RECORDER
STATION NAME	10	FILL	NAV DATUM	701	LATITUDE	11000	LONGITUDE
SAMPLE IDENTIFICA	<u>/0/)</u>		TIME STARTED (A	TOTEL	SS.	16/10	117. 31431
SAMPLE IDENTIFICA	A		1)63	7	Time Himsheb (#	(1) (2) (3)	GRAB SAMPLE TIME
FIELD TEAM	AA	/	.1	,	_ ~ Y		
	<u> </u>	//	CH				
METEOROLOGIC	AL CHARA	CTERISTICS (DES		L, WIND, JEMPERATUI	RE, ETC.)		
			100%	Cour		_	
				WIN.	) (	7-5 NE	
	ODOR	☐ HYDROGEN SULFIDE	_ DMUSTY	□ sewage	□ AMMONIA	☐ GASOLINE	O отне <u>к</u>
		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ eLUE	BROWN	☐ BLACK	☐ OTHER
Hope		☐ GRAY	□ WHITE	☐ COLORLESS			
7 7.11	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	□ subs	□отнея
QUAL		OBJECTS			Non	VI	
TER	-	(DESCRIBE)			SOME		
WA		UHEAVY CLOUD	INESS, OPAQUE	ECLOUDY TS:	CLOUDINESS	□ NONE	
		<b>40</b> 7.211		10.			
FROSION AND V	FGETATION	/DESCRIBE AN	VISUAL SIGNS (	DE SI IDE SI OPE EBOS	ZION AND/OR CE	HANGE IN VEGETATION O	CONDITIONS
	11411	(DESOFIEDE KIT.		1000			CONDITION
47	719/07	>	1017	111011	14/100	)	
					· <u></u>		
FIELD		80	 つ	2,13	CONDUCTIVIT	× 3143 3	
MEASUREMENTS	3: surface	рн 0.0	TEMPERATURE	(10) <u>XV.1)</u>	(µs/cr		
FIELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)	218			<i></i>
	é	8.07	TCMD #	20.10		3144	3.SO
middle	рН	8.07 DV	TEMP (	2018 AX	DUCTIVITY (µS/cm	3143	-0° XQ - 6 5.36
bottom	рН	- 10//	TEMP (	CON CON	DUCTIVITY (µS/cm	) <u> </u>	_DO/04 9
SAMPLING ACTIV	VITIES (DES	CRIBE ALL ACTI			PROVIDE ADDITI	ONAL COMMENTS AS NE	ECESSARY)
<u>}</u>	Jef i	5.	210	1/			
<b>"</b>							
			111				
TEAM LEADER'S	SIGNATUR	E ,/	14/1/2				

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PROJECT/SURVEY NA	ME	2 /	DATE		PROJECT MANA	GER	RECORDER
Poll	XX4	1 KILL	1 4	41.0		Tarsnew	1 //
STATION NAME			NAV DATUM	1101	1	(all)more	Millet.
//			NAY DATOM		LATITUDE 27	16896	LONGITUDE
10					<i>] ] ].</i>	16014	11/- 55057
SAMPLE IDENTIFICATION	) <u> </u>		TIME STARTED (A'	r site)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
				695		1648	4
FIELD TEAM C.	C.	$\mathcal{A}_{l}$	Ke A.				
METEOROLOGICA	L CHARA	CTERISTICS (DE	SCRIBE RAINFALI	., WIND, TEMPERATU	RE, ETC.)		
1		60%		120	,,		
		-	,	115			
		W	N7- 6	15 NE	····		
		El una cocu					
	ODOR	☐ HYDROGEN SULFIDE	MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	☐ OTHER
	050		JE M0011	C SEWAGE	LI AWWOINIA	LI GASOLINE	LIVIRER
		☐ SOAP	☐ CHLORINE	NONE			
5		***************************************					
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	☐ BLUE	BROWN	☐ BLACK	□ OTHER
PE.		☐ GRAY	□ white	COLORLESS			
A P	NG	D TRASH OR	☐ OIL AND	☐ ORGANIC			
<u>}</u>	MATERI		GREASE	MATERIAL	□ scum	SUDS	☐ OTHER
l la		OBJECTS				/	
g g	L	(DESCRIBE)	***************************************	****			
ATE	TURRIE			1.	SOME		
≯		OUALITY APPEA	RANCE COMMEN	ZI CLOUDY	CLOUDINESS	NONE	
		S(S) (S) (S) (S) (S) (S) (S) (S) (S) (S)	TORROL GOILLING				
	ļ						
EDOCION AND VE	CETATION	L/DECODIDE AND	WICHAL CIONS S				
Enosion AND VEC	SETATION	(DESCRIBE ANY		F SLIDE SLOPE EROS	SION AND/OR CI	HANGE IN VEGETATION C	CONDITION)
	GA	-514/15	g p	1 FROM	>14/10	W	
		, ,	V		· ·		
		·····					
		0		1			,
FIELD		. X 0	/a	71.89	CONDUCTIVIT		400
MEASUREMENTS:	surface	рН <u>() + <b>U</b> (</u>	TEMPERATURE (	(0) 0.01	(µs-o	1) // DO	1.30
FIELD MEASUREM	ENTS COL	NTINHED OF DED	TH <2 ET)		····		
		0 1		200		0 -11	11/11
middle	рН	8.10	TEMP (°	00/0.73 com	DUCTIVITY (µS/cm	. 3174	po 4.71
	<b>,</b>	1 00		-	200 HATT (place)		1/5
bottom	рН	8.09	TEMP (°	c) <u>2.93</u> con	DUCTIVITY (µS/cm	, 317/	DO 4-50
SAMPLING ACTIVIT	FIES (DES	CRIBE ALL ACTION	ONS TAKEN AT E	ACH SITE VISIT AND F	ROVIDE ADDITI	ONAL COMMENTS AS NE	CESSARY)
·	Dal.	4_	21	129			
	1901	7-	$\propto$ $\ell$	9			
	<b>x</b>						
•							
			,	/			
			1//1		·		
TEAM LEADER'S S	IGNATUR	E		et.			

that.



PROJECT/SURVEY N	AME	,	DATE	7	PROJECT MANA	GED ~~	RECORDER /
BUL	F14	2 KILL		1-11-07	).	Partnew	MIKA.
STATION NAME	É		NAV DATUM		LATITUDE 33.	17063	1/1. 351.68
SAMPLE IDENTIFICAT	ПОИ		TIME STARTED (A	T SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM	(	P.C.	MA.			<u> </u>	
METEOROLOGIC	AL CHARA	CTERISTICS (DES	SCRIBE RAINFALI	L, WIND, TEMPERA	TURE, ETC.) - 0157	******	
	ODOR	☐ HYDROGEN SULFIDE	DMUSTY	□ sewage	☐ AMMONIA	GASOLINE	□ отнея
, w		☐ SOAP	CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	BLACK	□ отнея
APPE		☐ GRAY	☐ WHITE	COLORLESS	,		
, LITY	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scum	□ subs	☐ OTHER
a aua		OBJECTS (DESCRIBE)			$\Lambda_{i}$	bNC	
WATEF		HEAVY CLOUD	NESS, OPAQUE	LT CLOUDY	☐ SOME CLOUDINESS	□ NONE	
EROSION AND VE	GETATION	ODESCRIBE ANY	VISUAL SIGNS O	OF SLIDE SLOPE EF	IOSION AND/OR CH	HANGE IN VEGETATION	
FIELD MEASUREMENTS	: surface	рн В. 2	Z TEMPERATURE (	c) 24-9	M CÖNDUCTIVIT		692
FIELD MEASUREN	MENTS CO	NTINUED (IF DEP	TH >2 FT)	_			· ·
middle	Нq	8.30	TEMP (*)	0) <u>2/,20                                   </u>	ONDUCTIVITY (µS/cm	, <u>3205</u>	00 6.75
bottom	pН	0.27	TEMP (°	o) <u>X (.17 o</u>	ONDUCTIVITY (µS/cm	1) 5009	
	ì	CRIBE ALL ACTION	ONS TAKEN AT EAC	ACH SITE VISIT ANI	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
ř				/			
TEAM LEADER'S S	SIGNATURI	E	MA	22			



	Zo z	1/2	,0X
/.ix	de l'	$N_{\gamma_t}$	
V.	30		

PROJECT/SURVEY NAM	4E -		BATE		IDDO IFOT MANAC	25	10000000
BUL.	714	2 KILL	9	11-07	PROJECT MANAG	RENFREW	AKA -
STATION NAME	F		NAV DATUM		LATITUDE 33.	17194	LONGITUDE /// 35270
SAMPLE IDENTIFICATION	A.		TIME STARTED (AT S	(TE)	TIME FINISHED (A	1 511 00	GRAB SAMPLE TIME
FIELD TEAM	<u>)</u> ~		1/1	w	30	1000	
	<u>. ب .</u>		7H -				
METEOROLOGICAI	. CHARA	CTERISTICS (DESC 70	RIBE RAINFALL,	WIND, TEMPERATUR	E, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	D MUSTY	☐ SEWAGE	П аммоніа	☐ GASOLINE	O OTHER
ш		☐ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	☐ BLUE	☐ BROWN	BLACK	□ отнев <u> </u>
3dd)		☐ GRAY	□ WHITE	COLORLESS			
1 A	NG MATERI	TRASH OR	COIL AND	☐ ORGANIC MATERIAL	□ scuм	SUDS	☐ OTHER
QUAL		OBJECTS (DESCRIBE)		177 T. I. I.	EJ SCOM /	× 5005	LI OTHER
WATER	TURBIDI' WATER (	☐ HEAVY CLOUDIN	ESS, OPAQUE ANCE COMMENTS	: ZCLOUDY	SOME	□ NONE	
EROSION AND VEG	GETATION (A)	(DESCRIBE ANY V	VISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION CO	ONDITION)
FIELD MEASUREMENTS:	surface	рн <u>д.18</u>	TEMPERATURE (°c)	Qa. 43	CONDUCTIVITY (µs:cm		6.36
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPTI	1 >2 FT)				
middle	Hq	8.18	TEMP (°C)	20.43 _{cone}	QUCTIVITY (µS/cm)	3235	DO 6.45
bottom	рН	8.18	TEMP (°C)	20.41 cone	QUCTIVITY (µS/cm)	3236	DO 1.44
SAMPLING ACTIVIT	IES (DES	CRIBE ALL ACTION	IS TAKEN AT EAC	CH SITE VISIT AND P	ROVIDE ADDITIO	ONAL COMMENTS AS NE	CESSARY)
	00	PA-	2	54			,
, i			1/1				
TEAM LEADER'S SI	GNATUR	€	N/4	2			



Embrad 411, St

PROJECT/SURVEY	NAME	.)	DATE	1. 1	PROJECT MANA	GER _	RECORDER, /
BUL	7B5	KILL		411-07	J D. 7	Centrero	MIKEA
STATION NAME	lo be		MUTAG VAN	·d-	ZZ /	17334	LONGITUDE // 7 3 5 0 25
SAMPLE IDENTIFIC	ATION		TIME STARTED (	AT SITE)	TIME FINISHED (	AT SITE)	GRAB SAMPLE JIME
	<del>U</del>		07	10		0715	1
FIELD TEAM	<u> C. C.</u>	A	MIKIA.				
METEOROLOGI	CAL CHARA	CTERISTICS (DE	SCRIBE RAINFAL	L, WIND, TEMPERATU	RE, ETC.)		
			To %	lech			
				No win	<u> </u>		
	ODOR	☐ HYDROGEN SULFIDE	<b>□</b> MUSTY	□ SEWAGE	□ ammonia	☐ GASOLINE	□ отнея
71		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	D BROWN	☐ BLACK	□ ОТНЕЯ
PPE		☐ GRAY	□ wнітє	COLORLESS	,		
Ł	NG MATERI	TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	□subs ,	□ отнея
aual		OBJECTS (DESCRIBE)				Nove	C. C. C. C. C. C. C. C. C. C. C. C. C. C
WATER	TURBIDI	☐ HEAVY CLOU	DINESS, OPAQUE	_D €LOUDY	SOME CLOUDINESS	□ NONE	
	WATER	QUALITY APPEA	RANCE COMMEN	ITS:			
EROSION AND	VEGETATION	(DESCRIBE AN	Y VISUAL SIGNS	OF SLIDE SLOPE ERO	SION AND/OR C	HANGE IN VEGETATION	CONDITION
		(A	TAIL	111		7 SA (101	
		4	mile >	177	1/0/		
				· · · · · · · · · · · · · · · · · · ·			
FIELD MEASUREMENT	'S: surface	pH 7.9	TEMPERATURE	(°c) <u>20.44</u>	CONDUCTIVIT		4.48
FIELD MEASUR	EMENTS CO	NTINUED (IF DEF	PTH >2 FT)				
ma fatatta	-11	791	,	20.45		3298	4.33
middle	Hq	7.96	TEMP (		<u>D</u> UCTIVITY (μS/cn	,	_00
bottom	pH	1.70	TEMP (	(°C) 20,44 CON	<u>D</u> UCTIVITY (μS/cn	n) 5274	_009-55
SAMPLING ACT	IVITIES (DES	CRIBE ALL ACT	IONS TAKEN AT E	EACH SITE VISIT AND I	PROVIDE ADDIT	IONAL COMMENTS AS N	ECESSARY)
			Jeffy	_ 2	(	フケ	
	<i>p</i> . `		,0 . ,				
	· ·	BASS	Action	541			
		-(-/	15 1	H			
TEAM LEADER'S	S SIGNATUR	E		1142	<u> </u>		



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Charles W.	
V 09	

PROJECT/SURVEY NA	(04E		DATE		lopo jest tress	ien .	Inconven
BV/		wase	NAV DATUM	01107	PROJECT MANAG	Pilce	BP. (
104		,	N	33-1	7672	117-34466	
SAMPLE IDENTIFICAT	ion A		TIME STARTED (AT	SITE)	TIME FINISHED (A	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM		a	12	<i>2-</i> /	,		<u></u>
( ) c	Non	Ciscos	10 2	<u>~</u>			
METEOROLOGICA	AL CHARA	CTERISTICS (DES	CRIBE RAINFALL	, WIND, TEMPERATU	JRE, ETC.)		
:	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	SEWAGE	☐ AMMONIA	☐ GASOLINE	□ отнея
ш		□ SOAP	☐ CHLORINE	DILMONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BEROWN	BLACK	□ ОТНЕЯ
APPE		☐ GRAY	□ WHITE	☐ COLORLESS			
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ sups	□ отнев
3 QUAL		OBJECTS (DESCRIBE)		_		_ 0000	
WATEF	TURBIDI	□ HEAVY CLOUDII	NESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
EROSION AND VE	GETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERC	SION AND/OR CH	HANGE IN VEGETATION C	CONDITION)
FIELD MEASUREMENTS	: surface	_{рн} <i>9.21</i>	_TEMPERATURE (*	020.07	CONDUCTIVIT	4,384 DO	14.45-29/L
FIELD MEASURE	MENTS CO	NTINUED (IF DEPT	H >2 FT)				
middle	На		_ TEMP (°	C) <u>CO</u>	NDUCTIVITY (µS/cm	)	DO
bottom	рН		TEMP (°	C) <u>CO</u>	NDUCTIVITY (µS/cm	1)	_ DO
SAMPLING ACTIV Dept Mode Some	Sampling activities (Describe all actions taken at each site visit and provide additional comments as necessary)  Depth - 0-4 ft  Moderate Fish Activity; No Deve Fish  Some Bird Activity						
TEAM LEADER'S							

Do FAIR Cheek 9.67 mg/L Saprafed Water Boffle: 9.30 mg/L

Enormal 1.1.0X



PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	GER.	RECORDER
BVL		Livery	I II A	0-1107		Rentew	B4.4
STATION NAME	15	J	NAV DATUM	NAV DATUM /		7575	117 24715
SAMPLE IDENTIFICATI	ION		TIME STARTED (AT	r site)	33 v j	AT SITE)	GRAB SAMPLE TIME
		-	8	<b>グ</b> ひ	8	e 4	-purpositive
FIELD TEAM	~ E~	nwe-	125	2.			•
<i></i>	J** 0**	<u> </u>	12				
METEOROLOGICA	AL CHARA	CTERISTICS (DES	CRIBE RAINFALL	., WIND, TEMPERATU	RE, ETC.)	<u>-</u>	
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ sewage	П аммоніа	□ GASOLINE	☐ OTHER
		□ SOAP	☐ CHLORINE	<b>ILV</b> ONE	,		<del></del>
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	☐ BLUE	BROWN	□ BLACK	☐ OTHER
H H		☐ GRAY	□ WHITE	☐ COLORLESS			
A YTI.	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	□suos	☐ OTHER
QUAL		OBJECTS (DESCRIBE)		,		E 0000	Contain
WATER		HEAVY CLOUDI		S CLOUDY	☐ SOME CLOUDINESS	□ NONE	
	5	Jour 1	1 700				
EDOCION AND VE	CETATION	(DECODIDE ANY	MICHAL CICALC C	TECLIDE OLOGE COO	NAM ANDIAG A		
EHOSION AND VE	GETATION	I (DESCHIBE ANY	VISUAL SIGNS U	IF SLIDE SLOPE EROS	SION AND/OR CH	HANGE IN VEGETATION	(CONDITION)
***************************************							
FIELD MEASUREMENTS:	surface	рн 8.91	ETEMPERATURE (	·o. 17-75	CONDUCTIVIT (µs/or	4,6320S	6.37 ~1/L
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	īH >2 FT)				· · · · · · · · · · · · · · · · · · ·
middle	рH	×	_ TEMP (*	C) CON	DUCTIVITY (µS/cm	n)	DO
bottom	рН		TEMP (^	C) CON	DUCTIVITY (µS/cm	n)	od
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	ONS TAKEN AT E	ACH SITE VISIT AND F	ROVIDE ADDITI	ONAL COMMENTS AS N	(ECESSARY)
Dept	2 =	6.4 9	List				·
No.	Fisi	Lobse	i ved	Dioc	ic Ala		
Blue	he	on 16	:- s, te	, limb	- 5°	re Action	Ly in general
TEAM LEADER'S S	SIGNATUR	E					



$Q_{i}$	$\chi_{_{\mathrm{O}}}$
Wall N.	1.0
(S)	

PROJECT/SURVEY NA	ме		DATE	***************************************	PROJECT MANAG	ER	RECORDER	7
BUI	- 5	Lunge_	11 /	pril 2007	Dan	Ruhan	Bangil	
STATION NAME	10.0	<i></i>	NAV DATUM	7	LATITUDE		LONGITUDE	1
SAMPLE IDENTIFICATI	/U 3		TIME STARTED (AT	SITE)	33	7733	117.34337	
·-			71	. *	72	(1 SHE)	A A A	
FIELD TEAM			<u>و ر ا</u>		7 1	<u> </u>	$\perp \mathcal{N}_f$	-
12	سائ	OURL	[B:-	· 4. (	7			
METEOROLOGICA	L CHARA	CTERISTICS (DESC	FIBE RAINFALL	, WIND, TEMPERATUR	RE, ETC.)			
Ove.	ce 65	.4 - 5	light	an breeze	Za ~ 1	Kurt		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	C) sewage	☐ AMMONIA	☐ GASOLINE	☐ OTHER	1
		□ SOAP	☐ CHLORINE	ENONE	_			-
NCE		<b></b>						1
EARA	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	GLEROWN	☐ BLACK	OTHER	-
APPE		GRAY	□ WHITE	COLORLESS		***************************************		
LITY	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	SCUM	□ sups	DOTHER	
WATER QUALITY APPEARANCE		OBJECTS (DESCRIBE)		500	a Ala	al mathi		
ATEF	TURRIE	· Churchar or our			□ SOME	•	<del>)</del>	-
}	1	THEAVY CLOUDING THE HEAVY CLOUDI		S:	CLOUDINESS	NONE		_
			٠					
		Drown	, Tu-6,	c l				
EROSION AND VE	GETATION	(DESCRIPE ANY )	VISUAL SIGNS O	F SLIDE SLOPE EROS	ION ANDIOR CE	ANGE IN VEGETATION O	ONDITION	<del>-</del>
		. (02001110211117)	TOURLE CIGITES C	. 02.01. 01.01. 2 21100	NON MINDSON OF	ANGE IN VEGETATION C	ionomon)	
		·····						
EIEI D			***************************************				,	
FIELD MEASUREMENTS:	surface	PH 8-60	) TEMPERATURE (°	a <u> 19.08°</u>	CONDUCTIVIT	4,389 DO_	8.41 ma/L	
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPTI	H >2 FT)	***************************************			***************************************	
middle	рН		TEMP (°C	C) COM	DUCTIVITY (µS/cm		00	
			•				_DO	
boltom	рН		TEMP (°C	CONI	DUCTIVITY (μS/cm	)	DO	_
SAMPLING ACTIVE  Dept1	TIES (DES	CRIBE ALL ACTION  0-8 ft  Eish  Fish	NS TAKEN AT EA			ONAL COMMENTS AS NE	·	
Mode	ic to	Fish	Achi	15	50	Achuit	10W	
No o	leed	Fish		6.	reat 31.	re Heron Fr	low Seeding antish A	cors, te
TEAM LEADER'S S	IGNATUR	E					-	
					·····			ž

Head Charge # 1/4 inch * Buoy Replaced At 0830 to 33-17735, 117-34536



# BUL SANGE

L	1.02
NO.	4.11.
D.0.	

PROJECT/SURVEY	NAME		DATE		PROJECT MANA	GER	RECORDER	7
BUL Sowage		111 Apr	-2007	TO Da	- Commercial	BR		
STATION NAME	<del>- "</del>		NAV DATUM	•	LATITUDE	W2W	LONGITUDE	4
109	•				22 1	7916	113 74089	
SAMPLE IDENTIFICA	TION		TIME STARTED (A	T SITE)	TIME FINISHED (		117 - 34089 GRAB SAMPLE TIME	-
<u> </u>	•		63	3.6	64	<i>)</i>	NA	
FIELD TEAM				7 803	0.12		1017	
Do	RR							
100	<u> </u>							
METEOROLOGIC	CHARA	ACTERISTICS (DES	SCRIBE RAINFALI	NE 3-5	TURE, ETC.)			
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	🗆 отнея	
		□ SOAP	CHLORINE	NONE				
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	C) GREEN	□ BLUE	<b>D</b> BHOWN	☐ BLACK	O отнея	-
) PE		GRAY	☐ WHITE	☐ COLORLESS				
\ A B	NG	☐ TRASH OR	OIL AND	☐ ORGANIC			DOTHER La Decoapesità 13066 Le	11-0 .
1 5	MATERI	DEBRIS	GREASE	MATERIAL	□ scum	□ suds	© ØTHER	VC(~ LOOU)
du/		OBJECTS					1 > 1.	< brokens
E3		(DESCRIBE)			□ some		Lew De composition	<b>.</b>
VAT	TURBID	Γ □ HEAVY CLOUD	INESS, OPAQUE	CLOUDY	CLOUDINESS	□ NONE	13066 Ce	
-	WATER	QUALITY APPEA	RANCE COMMEN					-
	V	1.5 ibility	less the	~ 6 ind	his, wa	co. Brot.	un, terbil.	
PROGRAM								-
EROSION AND V	EGETATIO	N (DESCRIBE ANY	VISUAL SIGNS C	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGET	ATION CONDITION)	
								Tup
4					***************************************			
FIELD MEASUREMENTS		P 7/5	TEMPEDATION	21 19	CONDUCTIVIT	Y 11 275 W	80 <u>5.50 mg/</u> c	10-10-10-10-10-10-10-10-10-10-10-10-10-1
THE ADOTE IN EAT	J. Suriace	μη <u>ο · υ</u>	- CMI CAATORE (	9	(µs·ci	" 7,332 ·	00 <u>3 30 1</u> -11/C	1 cop
FIELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)			· · · · · · · · · · · · · · · · · · ·		MIC
M,d	Ile	71						7000
mode /	pr	1 8.63	TEMP (°	0) <u>21.19                                   </u>	ONDUCTIVITY (µS/cm	<u>, 4 333</u>	4500 5-49 mg/L	1 323
7.4	1, ~~	719	,	7: 70			C = 112 /2	PH 335 W
bottom Du 77	<b>"</b> ``p⊦	0.60	TEMP (°	c) <u> </u>	ONDUCTIVITY (µS/cn	1) 4, 300	w 00 5 42 Myle	do-5.49 mg
CAMPI INC ACTO	OTICO (DEC	COURT ALL ACTU	010 T11661 17 E	4.011.01=5.110.1= 4.44			s as necessary)	5 W
Depth	. <del></del>	5-3 P	L					De / Fac
Swallows Active at site-not feeding. No Live Fish observed - Also-No Dead Eish.								
TEAM LEADER'S	SIGNATUR	BE						
								1



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6 Joust Wit	. · ·
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BUS SLOWER THAT APPEARANCE COMMENTS OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THAT PRODUCT OF THAT PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THAT PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THAT PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THAT PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE EROSION ANDICR CHANGE IN VEGETATION CONDITION)  BRUT THE PRODUCT OF SLIDE SLOPE SLO						
SAMPLE REMPÉRATION    THE STARTED LATERS   THE PERIODE CAT SITS   GRAD SAMPLE TIME						
METEOROLOGICAL CHARACTERISTICS (DESCRIBE RAINFALL, WIND, TEMPERATURE, ETC.)  OUL - C S + WW WI - I K - I K - V +    ON OUT - C S + WW WI - I K - V +						
METEOROLOGICAL CHARACTERISTICS (DESCRIBE RAINFALL, WIND, TEMPERATURE, ETC.)  DUL-CCST DWW., - C - 1 K-v T    DVW-CCST DWW., -						
DUCITIOS & WINDSTY SEWAGE SAMMONIA GASOLINE GOTHER    SOAP   COLORINE BANONE   DEBNO GREEN   BLUE   DEBNOWN   BLACK   OTHER     GRAY   WHITE   COLORLESS   MATERIAL   SOUM   SUDS   GOTHER     GOSCORBE   WATER   DEBNIS   GREASE   MATERIAL   SOUM   SUDS   GOTHER     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS   OPAQUE   DOCUDY						
DUCITIOS & WINDSTY SEWAGE SAMMONIA GASOLINE GOTHER    SOAP   COLORINE BANONE   DEBNO GREEN   BLUE   DEBNOWN   BLACK   OTHER     GRAY   WHITE   COLORLESS   MATERIAL   SOUM   SUDS   GOTHER     GOSCORBE   WATER   DEBNIS   GREASE   MATERIAL   SOUM   SUDS   GOTHER     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   DOCUDY   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS, OPAQUE   HEAVY CLOUDNESS   NONE     TURBIDT   HEAVY CLOUDNESS   OPAQUE   DOCUDY						
BY BY BY BY BY BY BY BY BY BY BY BY BY B						
ODOR SULFICE   MUSTY   SEWAGE   AMMONIA   GASOLINE   OTHER						
COLOR   YELLOW   GREEN   BLUE   PROWN   BLACK   OTHER						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)	ere t					
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUITAGE  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (ISSUER) 4,322 U.S. DO 5-46 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 8.73 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-46 Mg/L  Bottom  pH 8.79 TEMP (°C) 21-11 CONDUCTIVITY (ISSUER) 4,327 U.S. DO 5-47 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITION COMMENTS ON PERSONNEL.)						
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)  FIELD MEASUREMENTS: SUrface  ph 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY (µS/cm) 4,332 \( \sigma \) 5 - 70 \( \text{AS}/L \)  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  ph 3.73 TEMP (°c) 21-11 CONDUCTIVITY (µS/cm) 4,327 \( \text{LS} \) 5 00 5 - 66 \( \text{LS}/L \)  bottom  ph 3.79 TEMP (°c) 21-11 CONDUCTIVITY (µS/cm) 4,327 \( \text{LS} \) 5 00 5 - 47 \( \text{LS}/L \)  Bottom  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS AND PROVIDE ADDITIONAL COMMENTS A						
FIELD MEASUREMENTS: surface  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY 4,332 V.S.D.D. 5-70 A.B./L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 7.73 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 v.S.D.D. 5-66 A.G./L  bottom  pH 7.79 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 v.S.D.D.5-47 m.g./L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MEDISTORY)						
FIELD MEASUREMENTS: surface  pH 8.74 TEMPERATURE (°c) 21-15 CONDUCTIVITY 4,332 V.S.D.D. 5-70 A.B./L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle  pH 7.73 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 v.S.D.D. 5-66 A.G./L  bottom  pH 7.79 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 v.S.D.D.5-47 m.g./L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MEDISTORY)						
MEASUREMENTS: surface pH 8.79 TEMPERATURE (°c) 31-15 SONDOUTIVITY (µS/cm) 4,332 vSDO 5.70 AB/L PELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle pH 7.73 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.45 Ag/L Bafte  bottom pH 7.79 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.47 Ag/L Bafte  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MEDISCORDS						
MEASUREMENTS: surface pH 8.79 TEMPERATURE (°c) 31-15 SONDOUTIVITY (µS/cm) 4,332 vSDO 5.70 AB/L PELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle pH 7.73 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.45 Ag/L Bafte  bottom pH 7.79 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.47 Ag/L Bafte  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MEDISCORDS						
MEASUREMENTS: surface pH 8.79 TEMPERATURE (°c) 31-15 SONDOUTIVITY (µS/cm) 4,332 vSDO 5.70 AB/L PELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle pH 7.73 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.45 Ag/L Bafte  bottom pH 7.79 TEMP (°C) 21.11 CONDUCTIVITY (µS/cm) 4,327 vs. 5 DO 5.47 Ag/L Bafte  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MEDISCORDS						
bottom pH 2.79 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 LL 5 DO 5-47 ang /L Botte						
bottom pH 2.79 TEMP (°C) 21-11 CONDUCTIVITY (µS/cm) 4,327 LL 5 DO 5-47 ang /L Botte						
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS MESSESSARY)						
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)	'm					
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  Deth = 4.7 ff						
Depth = 4.7 ff  Decomposition Bubbles rising markers tely  some live fish observed						
Some live tish observed						
No Dead Fish						
TEAM LEADER'S SIGNATURE						





METEOROLOGICA	S ( w	OWE	<i>A</i>	Z. (	•	20.00 17934	LONGITUDE  117-3420  GRAÐ SAMPLE TIME	<del>}</del>
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	☐ SEWAGE	☐ AMMONIA	GASOLINE	□ отнев	
ARANCE	COLOR	☐ YELLOW	☐ CHLORINE	□ BLUE	(T) SROWN	□ BLACK	□ отне <u>г</u>	
WATER QUALITY APPEARANCE	NG MATERI	☐ GRAY ☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ WHITE ☐ OIL AND GREASE	☐ COLORLESS ☐ ORGANIC MATERIAL	DSCUM Borne	□ subs	□ OTHER	
WATE		HEAVY CLOUD			☐ SOME CLOUDINESS	□ NONE	·	
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)								
FIELD MEASUREMENTS		4P pH 8.9	3 TEMPERATURE	20.99	CONDUCTIVIT (µs:er	4,316 DO	5 6-48 ~9/2	Top
FIELD MEASUREMENTS: SURface PH 8.93 TEMPERATURE (°C) 20.099°C CONDUCTIVITY (JUSTICIA) 4,316 DO 6.48 Mg/L  FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)  middle M. (Luberty PH 8.94 TEMP (°C) 20.99°C CONDUCTIVITY (JUSTICIA) 4,317 Mg/L  bottom 30 ftm PH 7.94 TEMP (°C) 20.99°C CONDUCTIVITY (JUSTICIA) 4,317 Mg/L  SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)						1/2 Middle 12 Botton		
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)  Depth = 2.0 feet  No Fish observed - Decel of Alice  Linited Bird Activity								
TEAM LEADER'S	SIGNATUR	I E						

site near departer (15 flat cost)

Crossed Will of



PROJECT/SURVEY N			DAYE		PROJECT MANAG		RECORDER	1
BU.	<u>L S</u>	work	11 Ap	11/2007	Disa	Rentrew	Brin 76	ļ
STATION NAME NAV DATUM LATITUDE LONGITUDE								
SAMPLE IDENTIFICA	MPLE IDENTIFICATION TIME STARTED (AT SITE) TIME FINISHED (AT SITE) GRAB SAMPLE TIME			GRAB SAMPLE TIME				
~~~	655 700 GRAB SAMPLE (ME							
FIELD TEAM			4-	$\overline{\mathcal{O}}$				1
<u> </u>	cros	· Owen	1 B11	- K.C.]
METEOROLOGIC	AL CHARA	CTERISTICS (DESC	RIBE RAINFALL,	WIND, TEMPERATUR	E, ETC.)			
0.	Icrc .	ast	NW	turned -	116	of pubuly d	Coe to proximi	7,51 60
	ODOR	HYDROGEN SULFIDE	□ MUSTY ~	Slight.	☐ AMMONIA	☐ GASOLINE	№ ОТНЕЯ	7 Revotor toton
ψ		□ SOAP	CHLORINE	□ NONE	مر	Slight .	organie	
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	C) GREEN	□ BLUE	D EROWN	BLACK	□ отнев	
APPE		☐ GRAY	□ wнпε	COLORLESS				
Ι	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scum	□subs	CLOTHER	
R QUA		OBJECTS (DESCRIBE)		Limited	Alga	c mats a	t surface	
SOME TURBIDI								
To-bid, Brown								
EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)								
FIELD MEASUREMENTS	cof surface	рн <u> 8:76</u>	TEMPERATURE (°c	<u> 20.95°C</u>	CONDUCTIVIT (µs.er	4,32145 	5.20 20/6	TOP
FIELD MEASURE	MENTS CO	NTINUED (IF DEPTI	1 >2 FT)					1 11 0
middle a	∠, pH	8.76	TEMP (°C	20.94/CONE	QUCTIVITY (µS/cm	4, 321 45	005.17 ng/c	Middle
bollom	pH	8.75	TEMP (°C	20-92°COND	UCTIVITY (μS/cm	, 4,322 LS	00 5-14 mg/2	Botter
FIELD MEASUREMENTS: surface pH 3.76 TEMPERATURE (°C) 26.95 C CONDUCTIVITY (1.15/cm) 4,32145 5.30 -4/L FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle pH 3.76 TEMP (°C) 26.94 C CONDUCTIVITY (1.15/cm) 4,32145 DO 5.17 49/L boilton pH 7.75 TEMP (°C) 20.92 C CONDUCTIVITY (1.15/cm) 4,32245 DO 5.174 -9/2 SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)								
Depth 2.0 ft								
No Fish - Deal or Alive								
Some Swallow Activity								
TEAM LEADER'S SIGNATURE							£ 1	



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Cubrico 1	, ()

PROJECT/SURVEY NAME DATE PROJECT MANAGER RECORDER									
BUL Schare 11 April 2007 D. Richard Recorder									
STATION NAME		NAV DATUM F		LATITUDE	17679	LÓNGITUDE			
10 8					50	17377	117,34800		
SAMPLE IDENTIFICATION			TIME STARTED (AT SITE) 748		TIME FINISHED (A	т SПE) 5 Z	GRAB SAMPLE TIME		
FIELD TEAM	<u> </u>		(n ')	<i>j</i>					
	/ . <u>(</u>) W (~ /	<u> 54.</u>	- C					
METEOROLOGICA	L CHARA	CTERISTICS (DESC	CRIBE RAINFALL,	WIND, ZEMPERATUR	E, ETC.)				
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ ammonia	☐ GASOLINE	□ отнея		
ш		☐ SOAP	CHLORINE	MONE		and the second s			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	BEROWN	□ BLACK	☐ OTHER		
2.	İ	☐ GRAY	O white	COLORLESS					
\ \ \	NG	☐ TRASH OR	☐ OIL AND	OFIGANIC					
5	MATERI	DEBRIS	GREASE	MATERIAL	SCUM	□ suds	☐ OTHER		
R OU		OBJECTS (DESCRIBE)							
ATE					SOME				
≩		HEAVY CLOUDIN		Ø∕CLOUDY	CLOUDINESS	□ NONE			
Drown & Two-6:									
EROSION AND VE	EDOCION AND VEGETATION (DECORDE ANY VIOLE) COMO OF CLIFFO AND AND AND AND AND AND AND AND AND AND								
LINOSION AND VE	EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION)								
FIELD MEASUREMENTS: Surface pH 278 TEMPERATURE (°c) 17-20 CONDUCTIVITY 4,215 6 5-73 mg/L									
FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT)									
middle pH TEMP (°C) <u>COND</u> UCTIVITY (µS/cm) <u>DO</u>									
bottom pH TEMP (°C) <u>COND</u> UCTIVITY (µS/cm) DO.									
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY)									
No Fish observed Deal or Alive									
Depth = 0.4 feet									
TEAM LEADER'S SIGNATURE									



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Experie	N.V	- -

PROJECT/SURVEY NAM	ME		DATE		PROJECT MANAGE	ER	RECORDER			
Bi	16 3	Sewaje	11 A	2.7 2007	Da	e Linkin	B. Filis			
STATION NAME	7		NAV DATUM /		LATHTUDE	-	LONGITUDE			
SAMPLE IDENTIFICATION	ON ON		TIME STARTED (AT	SITE)	33.)	7623	GRAB SAMPLE TIME			
			7	39	7 4	14	NA			
FIELD TEAM						/ 				
<i></i>) e. ~ 0.	- Dwe	·/B.	-9-	>					
METEOROLOGICA	L CHARAC	CTERISTICS (DESC	RIBE RAINFALL	WIND, TEMPERATUR	E, ETC.)					
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ AMMONIA	☐ GASOLINE	Оотнея			
		□ SOAP	☐ CHLORINE	NONE						
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	DEROWN	☐ BLACK	□ отнея			
APPE		☐ GRAY	□ WHITE	☐ COLORLESS			i //			
ΣĹ	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	Ш scuм	Some dec	SOTHER BUBB			
QUAL		OBJECTS (DESCRIBE)					al mets			
WATE		HEAVY CLOUDIN QUALITY APPEAR		_	SOME CLOUDINESS	□ NONE				
EROSION AND VEC	GETATION					ANGE IN VEGETATION O				
MEASUREMENTS:	surface	pH 8 - 68	TEMPERATURE (°	14-50	(JUS-cm)	4,023 BO.	3.14 mg/L			
FIELD MEASUREM	ENTS COI	NTINUED (IF DEPTI	H >2 FT)							
middle	pН		. TEMP (°C	CONI	QUCTIVITY (µS/cm)	I	_DO			
bottom	pН		TEMP (°C	CONE	QUCTIVITY (μS/cm)		_DO			
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) Depth = 0.4 ft No like fish observed Tirns & Girl of Care its foraging therelies No Dead Fish observed										
TEAM LEADER'S S	IGNATUR	E					-			

556 MB YES 0500

W.	37	
	SOI	UTIONS

WATER QUALITY FIELD DATA LOG RECORDER LONGTUDE FIELD TEAM METEOROLOGICAL CHARACTERISTICS (DESCRIBE RAINFALL, WIND, TEMPERATURE, ETC.) 75% WINDS HYDROGEN _EI MUSTY ODOR SULFIDE ☐ SEWAGE □ AMMONIA ☐ GASOLINE OTHER ☐ SOAP ☐ CHLORINE ☐ NONE WATER QUALITY APPEARANCE BROWN COLOR TYELLOW ☐ GREEN C) BLUE ☐ BLACK OTHER ☐ GRAY □ WHITE ☐ COLORLESS ☐ TRASH OR OIL AND ORGANIC MATERI DEBRIS GREASE MATERIAL □ ѕсим SUDS OTHER ☐ OBJECTS (DESCRIBE) Some TURBIOF II HEAVY CLOUDINESS, OPAQUE CLOUDY CLOUDINESS NONE WATER QUALITY APPEARANCE COMMENTS: EROSION AND VEGETATION (DESCRIBE ANY VISUAL SIGNS OF SLIDE SLOPE EROSION AND/OR CHANGE IN VEGETATION CONDITION) FIELD ph 796 TEMPERATURE (°c) CONDUCTIVITY MEASUREMENTS: surface FIELD MEASUREMENTS CONTINUED (IF DEPTH >2 FT) middle SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) TEAM LEADER'S SIGNATURE



PROJECT/SURVEY NA	ME /	,	DATE /		PROJECT MANA	GER	Incorpe d
Pul	44	1 XILL	4	1207		Dew nece	RECORDER
STATION NAME	B		NAV DATUM		LATITUDE 33	16781	LONGITUDE 117 35435
SAMPLE IDENTIFICATI	ON)	·····	TIME STARTED (A	SITE	TIME FINISHED (AT SITE)	GRAB SAMPLE TIME
FIELD TEAM		$\overline{\mathcal{O}}$	1 Ok	001	$\frac{U}{u}$	<u> </u>	
·····	<u> </u>	lenta	iew _	M	IKE A		
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALI	L, WIND, TEMPERATO	JRE, ETC.)		
-		75%	pon (3157			
			NO C	UNOS			
	ODOR	HYDROGEN SULFIDE	MUSTY	SEWAGE	□ AMMONIA	☐ GASOLINE	OTHER
ų.		□ SOAP	☐ CHLORINE	□NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	. Deaown	☐ BLACK	□ отнєя
ф		☐ GRAY	□ WHITE	COLORLESS			
Σ	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scuм	□ subs	□ OTHER
a aual		OBJECTS (DESCRIBE)		-,	1/ove		
VATER	TURBIDI	• 🗆 HEAVY CLOUD	INESS, OPAGUE	ZICLOUŐY	☐ SOME CLOUDINESS	□ NONE	
>		QUALITY APPEAR		TS:		2.110172	
	<u> </u>						
EROSION AND VE	GETATION		VISUAL SIGNS O	OF SLIDE SLOPE ERO	SION AND/OR CH	HANGE IN VEGETATION	
		VIJON	V1121 O	<i>J</i>	710. 7	2119 110K	,
		0					
FIELD MEASUREMENTS:	surface	рн 8.15	_TEMPERATURE (·0) <u> </u>	CONDUCTIVIT (µs/cn	<u> 3183 do</u>	4.73
FIELD MEASUREM	ENTS COI	NTINUED (IF DEP	「H >2 FT)	<i>^ ′</i>		000	1
Bossor	7 рн	8.04	TEMP (°	c) 0.06 cor	NDUCTIVITY (µS/cm	, 2980	DO 4,50
MIDTO	€ рН	775	TEMP (°	01 <i>20.12</i> cor	<u>VD</u> UCTIVITY (μS/cm	, 2857	no <i>4.42</i>
SAMPLING ACTIVIT	NES (DES	CRIBE ALL ACTIO	ONS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS N	ECESSARY)
Z	7	2	3.5	-11			
Min	THE	(2) 8	H-8-1	4 Terl.	-20.06	(00). 30	46 Jo-48
TEAM LEADER'S S	IGNATUR	E	Mif	10650			

Nose

Mose



	422	, ,	DATE		7000100		
PROJECT/SURVEY NAM	FH	1 KILL		4-12-07	PROJECT MANA	Ten Rec	RECORDER
STATION NAME	7		NAV DATUM		LATITUDE 33	11.090	LONGITUDE
SAMPLE IDENTIFICATIO	ΣΝ		TIME STARTED (A	T SITE1	TIME FINISHED (1 (00 / S	117 35060
	4		00	039	06	142	GRAB SAMPLE TIME
FIELD TEAM) /	Zowan	1 \	Mike	; A		
METEOROL OCICAL	CHAGA			<u>-</u>			
METEOROLOGICAL	LONANA	O CO	OUL)		TURE, ETC.)		
		WIN		0-5	VSS 1	UE	
	Γ	00110		<u> </u>	<i></i>	<u> </u>	
	ODOR	☐ HYDROGEN SULFIDE	.⊿Musτγ	□ sewage	□ AMMONIA	☐ GASOLINE	O OTHER
u		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	_Æ BROWN	□ BLACK	□ отнея
PP.		☐ GRAY	□ WHITE	☐ COLORLESS			
1/2	NG MATERI	TRASH OR	OIL AND GREASE	☐ ORGANIC MATERIAL	C	<i></i>	
I QUALI		OBJECTS (DESCRIBE)	GNEAGE		DSCUM VONC	□ suos	□ отнея
ATER					☐ SOME	~~~~~	
Ä		HEAVY CLOUDI		☑ CLOUDY TS:	CLOUDINESS	☐ NONE	
							e e
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISUAL SIGNS (OF SLIDE SLOPE EF	ROSION AND/OR CH	IANGE IN VEGETATION	ON CONDITION)
			SALION	400	4.100g	SALION	
		VES	, G., 7, -	10	7 11/12	>=(
FIELD MEASUREMENTS: :	súrface	рн. <u>В. 14</u>	_ TEMPERATURE (*c) <u>20.3d</u>	CONDUCTIVIT	x 5203 00_	<u>3.8</u> 7
FIELO MEASUREME	NTS CO	VTINUED (IF DEPT	H >2 FT)				
middle	pH _.	8.14	TEMP (°	0021 c	<u>OND</u> UCTIVITY (µS/cm	, <i>3203</i>	DO 3.85
bottom	Hq	8.14	_ TEMP (0.20.20 0	ONDUCTIVITY (µS/cm	<u> 3203</u>	ъо 3.94
SAMPLING ACTIVITI	IES (DES	CRIBE ALL ACTIO	NS TAKEN AT E	ACH SITE VISIT ANI	PROVIDE ADDITION	ONAL COMMENTS AS	NECESSARY)
p ²	2	7 C	2	64			
			11	1			
TEAM LEADER'S SIG	GNATURE		M.,	relec-	<u> </u>		



PROJECT/SURVEY NA	MP /		DATE		PROJECT MANA	CER	(DECORPTION /
BUC :	1,156	· Kuc	9	1-12-07	THOUSE I MANA	Restrew	MIKE A.
STATION NAME	/ 5.		NAV DATUM		LATITUDE 27	17-11	LONGITUDE
SAMPLE IDENTIFICAT	O C		TIME STARTED (AT	r SITE),	33	1/009 AT SITE) =	117 35769 GRAB SAMPLE TIME
	4		00	147	0	650	C)
FIELD TEAM	7	Centre	4.2	1/11	<u> </u>		
	<u> 2</u>	VERXICE	ω	N (110	CHA	·	
METEOROLOGICA	AL CHARA	CTERISTICS (DES	CO TO	., WIND, TEMPERAT	URE, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	Jamusty	□ sewage	□ аммома	[] GASOLINE	□ отнея
ш		□ SOAP	☐ CHLORINE	□ NONE			
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ erne	BROWN	BLACK	🖸 отнея
APPE		☐ GRAY	□ WHITE	☐ COLORLESS			
Ė	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ ѕсим	□ subs	Оотнея
QUAI		OBJECTS (DESCRIBE)		ا بىر	VONR	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
WATER		. 🗆 HEAVA CLORD	INESS, OPAQUE	CLOUDY	☐ SOME CLOUDINESS	□ NONE	
EROSION AND VE	GETATION ((DESCRIBE ANY	(VISUAL SIGNS O	F SLIDE SLOPE ER	OSION AND/OR C	HANGE IN VEGETATION (CONDITION)
FIELD MEASUREMENTS:	surface	рН У , З	ZTEMPERATURE (*	., <u>26.52</u>	CONDUCTIVIT	TY 3210 00_	5.70
FIELD MEASUREM	IENTS ĆOI	NTINUED (IF DEP	TH >2 FT)				
middle	рН	8.30	TEMP (°	0, 20.52 cc	<u>ND</u> UCTIVITY (µS/cn	A1 40	_005.67
bottom	Нg	1.81	TEMP (°	0) <u>40.00 cc</u>	NDUCTIVITY (µS/cn	7913	_00
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	ONS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITE	ONAL COMMENTS AS NE	CESSARY)
		ク	3	/	11		
		6-	<i></i>	/			
gi.							
				1			
TEAM LEADER'S S	IGNATUR	<u> </u>	M.,	4,3	<u> </u>		



PROJECT/SURVEY NA	AME	DATE	,	PROJECT MANA	9ER _	RECORDER //	7
BVL	FIST KILL	9	1-12-07		Rentren		
STATION NAME	F	NAV DAYUM		LATITUDE 27	17/97	LONGITUDE	1
SAMPLE IDENTIFICAT	r ION	TIME STARTED (A'	T SME)	TIME FINISHED (1 / / /	GRAB SAMPLE TIME	_
A	-	Ô	655		757	GIAG SAMPLE TIME	
FIELD TEAM	. 7 (I <u>V</u>	1/	1			1
	D. Henkner	$\mathcal{U}_{\underline{}}$	M1146	- 4-	-		
METEOROLOGICA	AL CHARACTERISTICS (DESC		., WIND, TEMPERATI	JRE, ETC:)	1945		1
	Visel	Alin	80 (KNOC		Idu	
		7010	OULAS!	WINT).05K	IS NW	
	ODOR SULFIDE	ET MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	O OTHER	
	SOAP	☐ CHLORINE	NONE				
WATER QUALITY APPEARANCE	COLOR - YELLOW	☐ GREEN	□ BLUE	DEROWN	☐ BLACK	О отнея	1
id d	GRAY	□ wнітє	☐ COLORLESS				
Ě	NG □ TRASH OR MATERI DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	Scum	□ suos	□ other	
KAL /	☐ OBJECTS				□ 3003	D OTHER	1
	(DESCRIBE)	·····	- Nor			··········	
VAT	TURBIDI" [] HEAVY CLOUDIN	IESS, OPAQUE	CLOUDY	CLOUDINESS	□ NONE		
EROSION AND VE	GETATION (DESCRIBE ANY V	/ISUAL SIGNS C	OF SLIDE SLOPE ERO	SION AND/OR C	1ANGE IN VEGETATI	ON CONDITION)	7
	<u>_</u> ¬ヲ						
						<u></u>	
FIELD MEASUREMENTS:	surface pH 9.18	TEMPERATURE (·o <u> 19,94</u>	CONDUCTIVIT		5/1 5.74	
FIELD MEASUREN	ENTS CONTINUED (IF DEPTI	1 >2 FT)	^./				1
middle	pH	TEMP (°	c) 19,94coi	<u>ν</u> ΩUCTIVITY (μS/cm		005.74	
bottom	pH 01/6	TEMP (°	c) <u>/ </u>	VDUCTIVITY (µ\$/cm	<u>, 3270</u>		1-5-7c
SAMPLING ACTIVI	TIES (DESCRIBE ALL ACTION	NS TAKEN AT E	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS A	S NECESSARY)	1
7	- 21	1 11					
a							
		•	411				
TEAM LEADER'S S	SIGNATURE	$\overline{\mathcal{J}}$	1.45,				
				//			Į



PROJECT/SURVEY	NAME	,	DATE //		PROJECT MANA	GER	RECORDER	7
BUC_	£15	5 KILL	4-1	407	<u> </u>	Tlennen		f.
TATION NAME	12		NAV DATUM		LATITUDE 33	1722	LONGITUDE Z	
AMPLE IDENTIFICA	TIÓN	·····	TIME STARTED (A	r SITE)	TIME FINISHED (/	1/>>	GRAB SAMPLE TIME	018
*:	0		070	3			0	
ELD TEAM	1	Pentre	/ > :	divo	1			
	<u>ン</u>	14/01/11		101172				
METEOROLOGIC	CAL CHARA	CTERISTICS (DES		, WIND, TEMPERA				
		60	6	00U 0457		_		y
w		***************************************		uin>	0-51	15 N	<u>د</u>	
		☐ HYDROGEN		***************************************	····		······································	
	ODOR	SULFIDE	MUSTY	☐ SEWAGE	□ AMMONIA	GASOLINE	☐ OTHER	
111		□ SOAP	CHLORINE	□ NONE				
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	. BROWN	☐ BLACK	O OTHER	
EAR				-	<i>y</i> =0	C 05.0K	W (11)	
APF	NG	☐ GRAY ☐ TRASH OR	☐ WHITE	☐ COLORLESS ☐ ORGANIC	·····			
#LIT		DEBRIS	GREASE	MATERIAL	□ ѕсим	SUDS	□ отне в	
,oo,		☐ OBJECTS (DESCRIBE)		,	Nocle			
ATER					CZ SOME CLOUDINESS	_		
≱		F HEAVY CLOUD QUALITY APPEAR		CLOUDY	*CLOODINESS	□ NONE	,	
			M195	14 51	yeu In	1 AR		
			10	W_{i}	114 /	Ceaner		
ROSION AND V	EGETATIO	N (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE FE	OSION AND/OR C	1ANGE IN VEGETA	TION CONDITION)	
		`		VKSAS	100	/	10/7	
				ne 20.1.	, · · · ·	- Iv ().		
TELD		70		10 1	COMPLICATIVIT	v 2200	27/	
MEASUREMENT:	S: surface	рн <u>/. 7</u>	TEMPERATURE (c) 19.61	CONDUCTIVIT	n 5d 1d 0	0 2-16.	74
IELD MEASURE	MENTS CO	NTINUED (IF DEP	TH >2 FT)					
		797	•	1962	1	3194	~ 272	
middle	p⊦	700	TEMP (°	() / /	ONDUCTIVITY (µS/cm	0 2011	00 02-19	
ottom	рŀ	1290	TEMP (°	c) 17,62 c	ONDUCTIVITY (µS/cm	<u>, 3d 95</u>		
AMPLING ACTI	VITIES (DES	SCRIBE ALL ACTIO	ONS TAKEN AT E	ACH SITE VISIT AN	D PROVIDE ADDITI	ONAL COMMENTS	AS NECESSARY)	
		7	つ /	2 . 1	STATE ABOUT	OTTAL GOTTIMENTO	Ad HECESSAITT)	
	1	-		14				
	<i>a</i> ž `	•	·					
			, /	1				
	****		_///					
TENIS I EADEDIO	CIOVATA	P	MI	2.5				,
EAM LEADER'S	SIGNATUR	E	1/ 3/13	iv.				

900 R



PROJECT/SURVEY NA	IME		DATE U	12/07	PROJECT MANAG	Don Cari	RECORDER	Clark		
STATION NAME			NAV DATUM	•	LATITUDE 33	17,524	LONGITUDE	-714	11734	715
SAMPLE IDENTIFICAT	O (TIME STARTED (AT	SULEY	TIME FINISHED (A	7525	GRAB SAMPI	34-75		. ,
				44	1 .	48	GNAS SAMPI	a line		
FIELD TEAM	N	S. Ou	1 4 4	A 32	lark		I			
	ć									
			C law	, WIND, TEMPERATUR	RE, ETC.)	4				
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ ammonia	☐ GASOLINE	Г ОТНЕВ	Morshy		
빙	ļ	SOAP	CHLORINE	☐ NONE				7.0.7000(
ARAN	COLOR	☐ YELLOW	GREEN	☐ BLUE	IS BROWN	☐ BLACK	□ отнея			
APPE		☐ GRAY	□ white	☐ COLORLESS					i	
WATER QUALITY APPEARANCE	NG MATERI	☐ TRASH OR DEBRIS ☐ OBJECTS (DESCRIBE)	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scum	□ subs	Х отнев	have	l	
WATER	TURBÌDI WATER	THEAVY CLOUDING OUALITY APPEAR	IESS. OPAQUE	CLOUDY S:	☐ SOME CLOUDINESS	□ NONE				
		horn	lun							
EROSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE EROS	SION AND/OR CH	ANGE IN VEGETATION	CONDITION)			
:		hine								
FIELD MEASUREMENTS:	surface	pH_8.86	TEMPERATURE (°	<u> 16.64</u>	CONDUCTIVITY (HS/cm	<u>,4488 00 3</u>	45S			ود
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)							
middle	рН		TEMP (°C	CON	QUCTIVITY (µS/cm		_DO			
bollom	pH		TEMP (°C	CON	QUCTIVITY (µS/cm		DO			
SAMPLING ACTIVI	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	CH SITE VISIT AND P	ROVIDE ADDITION	DNAL COMMENTS AS NI	ECESSARY)			
nu o	reset Lhi	u baren	•							
1 yrea	× 91	- 1014								
TEAM LEADER'S S	IGNATUR	E					_			



PROJECT/SURVEY N	AME		DATE	1 - 1	PROJECT MANA	GEA	RECORDER
8	16		1 41	12/02		Darta	C Clade
STATION NAME	<u> </u>		NAV DATUM	t	LATITUDE	Bentrem	LONGITUDE
in	7					7 (7 /)	
SAMPLE IDENTIFICAT	EL.		TIME STARTED (AT	t out to	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	7579	C. Clark LONGITUDE 117.34808 GRAB SAMPLE TIME
DAM CE IDENTIFICAT	ion.		1		TIME FINISHED (A	*	GRAB SAMPLE TIME
	>		07	د. د.	0	7-40	
FIELD TEAM	<u>D</u>	. Oul	res	C,CL	an		
METEOROL OGIC	AL CHADA	CTEDISTICS (DES	COIDE DAINEALI	, WIND, TEMPERATI	IDE 840 \		
1/201020010	s lat	1.08-3-20	CHIBE HAINFALL	., WIND, TEMPERATE	HE, E1C.)	, eş	
)) ;	$\mathbf{y}_{i,A}$	Par 1	1			**	
50	att	percepit event	· Lovely	>		- 1	
		HYDROGEN					
	ODOR	SULFIDE	☐ MUSTY	☐ SEWAGE	□ AMMONIA	☐ GASOLINE	MOTHER MARCHY
							harman
ш		☐ SOAP	☐ CHLORINE	□ NONE			7-01-0-0-4
WATER QUALITY APPEARANCE		-			.1	_	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	BLACK	□ отнея
PE		☐ GRAY	□ WHITE	D 001 001 000			
4	NG	☐ TRASH OR	☐ OIL AND	COLORLESS			
[<u>}</u>	MATERI		GREASE	☐ ORGANIC MATERIAL	□ scum	□ suos	'SVOTUED
J4		□ OBJECTS			C 300M	C 3003	STOTHER NOVE
<u>ĕ</u>		(DESCRIBE)					
T E		***************************************			□ SOME		
WA	TURBIDI	. 🗆 HEYAA CFONDII	NESS, OPAQUE	☐ CLOUDY	CLOUDINESS	□ NONE	
	WATER	QUALITY APPEAR	ANCE COMMENT	rs:			
<u> </u>		(0.5.5	Α				
		non	~~ /				

FROSION AND VE	GETATION	LOESCRIRE ANY	VISITAL SIGNS O	E SI IDE SI ODE EDO	PION AND/OD CL	HANGE IN VEGETATION	COMPLETIONS
	GETTTO	(DESCRIBE ART	VIGUAL SIGNS C	r Scide Score end	SION AND/OR CI	TANGE IN VEGETATION	CONDITION)
		none					
FIELD		0 10		81 621	CONDUCTIVIT	Y / 1	, LJC/
MEASUREMENTS	surface	D 3) (C Hq	TEMPERATURE (°	16.84	(µs/cr	34173 no 2	_ : " ()
		***************************************			······		
FIELD MEASUREN	MENTS CO	NTINUED (IF DEPT	H >2 FT)				
middle	pH		TEMP (°C	C) CO	NDUCTIVITY (µS/cm)	DO
						3	
bottom	рН		TEMP (°C	0) 001	<u>ID</u> UCTIVITY (µS/cm)	DO
SAMPLING ACTIV	ITIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND I	PROVIDE ADDITI	ONAL COMMENTS AS N	ECESSARY)
Donth	~ 0	4 fa					
1201.		1 4	<u> </u>				
Same	· los	ed dejw	ω)				
/ - Spir	Baret	els Los	eding				
ر ن	S. S.	4ff id acint els fer end	0 1				
, vo	()	ener	trish				
TEAM LEADER'S	SIGNATUR	E					



BV			4/	12/07	PROJECT MANAG	GER (RECORDER
35 V STATION NAME	<u></u>		NAV DATUM	12/01	V).	Kerthers	C. Clark
10	7		NAY SALOM			17 /74	C. Clark LONGITUDE 117-34 \$13
SAMPLE IDENTIFICATI	, years		TIME STARTED (AT	`SITE)	3.3 TIME FINISHED (A	17 674 ATSITE)	GRAB SAMPLE TIME
			07	10	07		-
FIELD TEAM					,	-	
	ع د)wens		. Clark			
METEOROLOGICA	L CHARA	CTERISTICS (DESC	CRIBE RAINFALL	., WIND, TEMPERATU	JRE, ETC.)		
	$\overline{\mathbf{T}}$						
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□ sewage	☐ AMMONIA	☐ GASOLINE	YOTHER MARCH
			La mog	La OLITZIGIA	D WINNOWS	E) GAGOCINE	MOTHER MOUSEY
<u>ا</u> بر		☐ SOAP	☐ CHLORINE	NONE			,
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	BROWN	□ BLACK	□ OTHER
PEAF		7		***	V -		
APi	NG	☐ GRAY	☐ WHITE	☐ COLORLESS ☐ ORGANIC			
¥T[]	MATERI		GREASE	MATERIAL	□ scuм	□ suos	DOTHER VWG
QUA		OBJECTS					/
ËB		(DESCRIBE)			SOME		
WA⊺	TURBIDI'	LEXMENT CLOUDIN	NESS, OPAQUE	☐ CLOUDY	CLOUDINESS	□ NONE	
	WATER	QUALITY APPEARA		S:			
		insur!					
		····					
EROSION AND VE	GETATION	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERC	SION AND/OR CI	HANGE IN VEGETATION	M CONDITION)
					0.0	IMPAGE III 7 HANGE 1711	1 CONDITION)
		10.60	4				
		non					
		Δ.	***************************************				
FIELD MEASUREMENTS:	enrface	, \$.70	TEMPERATURE (°	16.84	CONDUCTIVIT	" 427 bo	7 04
	Suraco	NI C	, Clar Christone L	3 10-0	T (Do-cu	1) - 100	2:
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)				
middle	nU		TELED (M	~. 001			
midale	pH _.	***************************************	. TEMP ("C	C) COM	IDUCTIVITY (µS/cm	1)	DO
bollom	pH.		TEMP (°C) <u>cor</u>	<u>√D</u> UCTIVITY (μS/cm	n)	00
SAMPLING ACTIVIT	TIES (DES	· · · · · · · · · · · · · · · · · · ·					
SAINTEING ACTIVI			NS TAKEN AT EA	CH SITE VISIT AND	PROVIDE ADDITIC	ONAL COMMENTS AS I	NECESSARY)
boh	O -	5.41	ر پ	5 the	, 5 li	nites vi	<u>\$</u>
22	•						
TEAM LEADER'S S	IGNATUR!	E					
	-						—



PROJECT/SURVEY NAM	AF		DATE /		PROJECT MANAG					
~	16		4/1	7/07	PHOJECS MANAC	Zentreni	C. Cerl			
STATION NAME)4		NAV DATUM		LATITUDE	Zentrew 7.677) 17-34 461			
SAMPLE IDENTIFICATION).		TIME STARTED (A)	•	TIME FINISHED (A	Υ 5ΠΕ)	GRAB SAMPLE TIME			
FIELD TEAM			080		08	10				
l'ir	> () wers	- C.X	Clark			•			
METEOROLOGICAL	CHARAC OVC	CTERISTICS (DESC	S Ome	., WIND, TEMPERATU L. CAUNA	RE, ETC.) Closedes					
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	□ SEWAGE	□ AMMONIA	☐ GASOLINE	STOTHER MWSM			
		□ SOAP	CHLORINE	□ none			/			
WATER QUALITY APPEARANCE	COLOR	☐ Y€LLOW	GREEN	□ 8LUE	A BROWN	□ BLACK	□ отнея			
APPE,		☐ GRAY	□ wнітє	☐ COLORLESS						
LITY	NG MATERI	☐ TRASH OR DEBRIS	OIL AND GREASE	ORGANIC MATERIAL	S SCUM	□ suds	☐ OTHER			
3 QUA		☐ OBJECTS (DESCRIBE)			Son	e bubbhs	3			
WATER	TURBIDIT	HEAVY CLOUDIN	ESS, OPAQUE	□ CLOUDY	☐ SOME CLOUDINESS	□ none				
WATER QUALITY APPEARANCE COMMENTS:										
EROSION AND VEG		(DESCRIBE ANY)	/ISUAL SIGNS C	F SLIDE SLOPE ERO	SION AND/OR CH	HANGE IN VEGETATION C	CONDITION)			
FIELD MEASUREMENTS:	surface	pH 9,05	TEMPERATURE (0 17:77	CONDUCTIVIT	4761 00 1	1.83			
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPTI	t >2 FT)							
middle	ρН		TEMP (°	C)COM	I <u>D</u> UCTIVITY (µS/cm)	DO			
bottom	Hq		темр (°	C)CON	IDUCTIVITY (µS/cm)	_DO			
SAMPLING ACTIVITIES (DESCRIBE ALL ACTIONS TAKEN AT EACH SITE VISIT AND PROVIDE ADDITIONAL COMMENTS AS NECESSARY) Some Comp framy Depth O. 6 ft Some bind activity										
TEAM LEADER'S SI	GNATURI	Ē					-			

751 QA 10.09 Air 9.50 sat Hzo B+LE



PROJECT/SURVEY NA	ME		DATE		PROJECT MANAG	GEO	RECORDER
			1/12	107	PROJECT MAIN.	D	C. Clark
STATION NAME	3 V L 05		NAV DATUM		LATITUDE	Kenney	LONGITUDE
					33	17732	117-34 535
SAMPLE IDENTIFICATI	ON		TIME STARTED (AT		TIME FINISHED (A	AT SITE)	GRAB SAMPLE TIME
FIELD TEAM			101	10	07	15	
FIELU 1Cmu		C.Clu	th_	D.00	revs	,	
METEOROLOGICA	L CHARA	CTERISTICS (DES	CRIBE RAINFALI	L, WIND, TEMPERATUF	RE, ETC.)	***************************************	
	T						
	ODOR	☐ HYDROGEN SULFIDE	□ MUSTY	☐ SEWAGE	☐ AMMONIA	☐ GASOLINE	MOTHER MAN TO M
	_				had t manage	Said Of Hardy ages and	DOTHER Warshy
낊		□ SOAP	☐ CHLORINE	NONE			• •
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ BLUE	ROWN	☐ BLACK	□ отнея
PEA		m	panty sampe		1		-
API	NG	☐ GRAY	☐ WHITE ☐ OIL AND	COLORLESS SORGANIC			
Ë	MATERI	DEBRIS	GREASE	TKORGANIC MATÉRIAL	Д есим	□ suds	🗆 отнев
QUA		OBJECTS (DESCRIBE)			-		
TER TER		4			SOME		
WA	TURBIDI*	HEAVY CLOUDI	INESS, OPAQUE	☐ CLOUDY	CLOUDINESS	□ NONE	
	WAIL			is:			
		~0~	mal				
TOOLON AND VE				· · · ·			
EROSION AND VEC	JETA HON	I (DESCHIBE ANT	VISUAL SIGNS O	F SLIDE SLOPE ENUS	JION AND/OR CH	HANGE IN VEGETATION	CONDITION)
		۱۸					
		None					
FIELD MEASUREMENTS:	- vefeca	4.6	XTEMPEDATURE ((°0) 17,19	CONDUCTIVIT	M 4216 00 6	C10
WENOVILL	Sunace	pn	ZIEWIELINI VIII.	0 1 1 1	(µo.c.	n) -/ 1 100,	2,1
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	ΓH >2 FT)				
middle	рH	ı	TEMP (°C	on con	IDUCTIVITY (µS/cm	_1	50
Minute		l					DO
bottom	Нq	1	TEMP (°	C) CON	DUCTIVITY (μS/cm	m)	DO
SAMPLING ACTIVIT	TIES (DES	SCRIBE ALL ACTIC	ONS TAKEN AT E	ACH SITE VISIT AND F	POVIDE ADDITI	IONAL COMMENTS AS NI	JECESSARY)
Sept							
					V 15	less the	" out las
Mali	119 m	· (ap	(Thur) . F.	head	. charge	
No	Cha	was his	n ar	~ 37 °C	LEVE	al UP C),25 Inches
fmil	ee	cool fish	act	~ my	60°. Wear	***	
		V. 11.1.1					
TEAM LEADER'S S	IGNA I Uni	<u>E</u>					



FROSCO //SONYET NA	inc.		111.	m 1	PROJECT MANAG		RECORDER
BU	L		411	2/07	<i>></i>	Berlion	C. Clark
STATION NAME			NAV DATUM		LATITUDE		LONGITUDE
	06				33	Perform 17870	C. Clary LONGITUDE 11734187 GRAD SAMPLE TIME
SAMPLE IDENTIFICATI	ON		TIME STARTED (AT				GRAB SAMPLE TIME
			065	ح	07	ore	
FIELD TEAM							
METEOROLOGICA	L CHARA	à l	CHIBE RAINFALL	, WIND, TEMPERAT	URE, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	Chuon	D. O.T. W. O.T.	- A	C	Vanna Las Adla
	ODON	SOLI IDE	MUSTY	□ SEWAGE	☐ AMMONIA	GASOLINE	PLOTHER WWW W)
 		□ SOAP	CHLORINE	NONE		5 lights	Souther Many M
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	O BLUE	BROWN	☐ BLACK	O OTHER
PPEA		☐ GRAY	□ WHITE	□ COLORLESS			
LITY	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	☐ ORGANIC MATERIAL	□ scum	Suos	C) OTHER
QUA		☐ OBJECTS (DESCRIBE)			Ve	m little	e frem
ATER	TURRIBU				□ SOME		
≯	WATER	DHEAVY CLOUD	NESS, OPAQUE RANCE COMMENT	S:	CLOUDINESS	NONE	
		horma	al				
EROSION AND VE	GETATION	I (DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE ERG	OSION AND/OR C	ANGE IN VEGETATION	CONDITION)
		nue					
FIELD MEASUREMENTS:	surface	рН <u> 8</u> .83	_TEMPERATURE (°	· ZO. 35	CONDUCTIVIT (µs:e	4503 <u>00 (</u>	(.3)
FIELD MEASUREM	ENTS CO	NTINUED (IF DEP	TH >2 FT)				
middle	рН	8.83	TEMP (°C	0 Z 8.51 co	NDUCTIVITY (µS/cm	4308	DO 6.48
bottom							00 6.21
SAMPLING ACTIVITY			ONS TAKEN AT EA	ACH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS N	NECESSARY)
			m all	riuhe			
•						*	
TEAM LEADER'S S	IGNATUR	E					



PROJECT/SURVEY NAM	ME		DATE	1	PROJECT MANAG	3EA	RECORDER
L BV			L 1-	2/07	D. (2 cm Crew	C. Clark
STATION NAME	, onl		NAV DATUM	<u> </u>	LATITUDE		1.
I O	•				33 1	t 395	GRAB SAMPLE TIME
SAMPLE IDENTIFICATION	Ж		TIME STARTED (AT	·	1		GRAB SAMPLE TIME
FIELD TEAM			0633	5	00	47	
3.	· 0 ~	vers (. clar	k			
1 1			CRIBE RAINFALL,	WIND, TEMPERATUR	RE, ETC.)		
	ODOR	☐ HYDROGEN SULFIDE	☐ MUSTY	□sewage	□ AMMONIA	☐ GASOLINE	HOTHER MASS MY
<u></u>		□ SOAP	CHLORINE	NONE			house
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	GREEN	□ BLUE	Вноми	□ BLACK	О отнея
PPE		☐ GRAY	□ wнітє	☐ COLORLESS			
ALITY A	NG MATERI		☐ OIL AND GREASE	DÓRGANIC MATÈRIAL	t √scum	□suos	Оотнея
ER QUA		OBJECTS (DESCRIBE)	s. *			essthen 1	89
WATE		OUALITY APPEAR		S:	CLOUDINESS	□ NONE	
		Nor	nal				
EROSION AND VEG	ETATION	(DESCRIBE ANY	VISUAL SIGNS OF	SLIDE SLOPE EROS	ION AND/OR C	IANGE IN VEGETATION C	ONDITION)
		hon	e				
FIELD MEASUREMENTS:	surface	рН <u> (</u> 9.90	TEMPERATURE (°c	<u>, 20.79</u>	CONDUCTIVIT	4307 po 4.	<u>51</u>
FIELD MEASUREME	ENTS CO	NTINUED (IF DEPT	H >2 FT)			***************************************	
middle		8.47	•	, ZO. 78 CONE	<u>Σ</u> UCTIVITY (μS/cm	4306	₀₀ 5,00
boltom	рН	8.85				, 4307	
1 Dept	n 5-	7 St				ONAL COMMENTS AS NEC	
Tropies of the second	arp	Clecan	ing bout	pp f 2 fue	u Se	with she	re
TEAM LEADER'S SH	GNATUR	E					



C CONTENT	PORIC		DATE . /	/	PHOJECT MANA	GER	RECORDER
13V L			1 411	2/07	10.1	2 a Oce 10)	C. Clash
STATION NAME			NAV DATUM		LATHUDE	<u>47104000</u>	LONGITUDE
10	8				225	To Rosi	117. 74 161
SAMPLE IDENTIFICAT	пон		TIME STARTED (AT	SITE)	TIME FINISHED (7 93L	1)7-34 (46 GRAB SAMPLE TIME
			08	20	087		
FIELD TEAM				·····			
(<u> </u>	larle	<u></u>	. Owe	<u>~</u>	·	
METEQROLOGIC	AL CHARA	CTERISTICS (DES	CRIBE RAINFALL	, WIND, TEMPERAT	URE, ETC.)		
Parl	ma l	clan	, Le				
, , , ,	(° 5				
				· · · · · · · · · · · · · · · · · · ·			
		☐ HYDROGEN		···			
	ODOR	SULFIDE	☐ MUSTY	□ sewage	☐ AMMONIA	☐ GASOLINE	NOTHER PLANE
							MOTHER DIAME
111		☐ SOAP	☐ CHLORINE	□ NONE			
, Ci		F	5	_	· · · · · · · · · · · · · · · · · · ·		
ARA	COLOR	☐ YELLOW	GREEN	□ BLUE	Вноми	☐ BLACK	C) OTHER
WATER QUALITY APPEARANCE		☐ GRAY	□ WHITE	☐ COLORLESS			
Ž	NG	☐ TRASH OR	OIL AND	ORGANIC			
E E	MATERI		GREASE	MATERIAL	□ ѕсим	□ s∪os	JOTHER Some
ă		□ OBJECTS					l. Man
85	<u> </u>	(DESCRIBE)					3080003
ATE.	THOOIN	HEAVY CLOUD	NECE OBJOUR	🛘 сьобру	☐ SOME CLOUDINESS		
\$		QUALITY APPEAR			00000#1203	NONE	
			ì				
		Nov	(CU)				
EROSION AND VE	GETATION	LOESCRIBE ANY	VISUAL SIGNS O	E SI INE SI ODE EDI	SION AND/OR C	HANGE IN VEGETATIO	N CONDITIONS
				. OLIOL OLO: L LIN	JOION AND/ON CI	HANGE IN FEGERATION	A CONDITION)
		verc	-				
					~~~~~~		
FIELD MEASUREMENTS	: surface	9.98	TEMPERATURE (0.70.70	CONDUCTIVIT (µs/or	4201 m	5.79
	- 3411400	pri			(дака	" <u>130 100_</u>	
FIELD MEASUREN	MENTS CO	NTINUED (IF DEPI	 (H >2 FT)				
	•	00 W B		7070		11-	por of prosen
middle	pН	7.78	TEMP (°	<u>,70.76</u>	NDUCTIVITY (µS/cm	<u>, 4303</u>	<u> 5.15</u>
		8.98				. 4	· 5.05
bottom	рH	0.10	TEMP (°C	0170.7200	<u>IND</u> UCTIVITY (μS/cm	» <u>4304 </u>	
CAMBI INC ACTIV	TIEC (STS	COIOE ALL ACTIO	NO TAKE!	ALLOTTE LUCIT ATT	DDA14BC		
SAMPLING ACTIV	illes (DES	CHIBE ALL ACTIC	INS TAKEN AT EA	CH SITE VISIT AND	PROVIDE ADDITI	ONAL COMMENTS AS	NECESSARY)
l Jei	24N	1-6-1	~			`	
/ / \	ا دعر∖	اند اد	-204	Wiec	to t	äkroder	
ر د. ا	v	1.5	•	J 4 3	•		
	-						
TEAM LEADER'S	CICNATIO						-
ILAM LEADERS	SIGNATUN	L	**				<u> </u>



PROJECT/SURVEY NA	ME		DATE /		PROJECT MANAG	SER	RECORDER
RVI			1 4/,	7 67		Rencen	ci
STATION NAME	<u> </u>	······	NAV DATUM /	7 04	LAHIODE		LONGITUDE
10	9				33°, 1	7 916	117.34.046
SAMPLE IDENTIFICATION	NC NC		TIME STARTED (AT	SITE)	TIME FINISHED (A	IT SITE)	GRAB SAMPLE TIME
			067	·	063	くて	
FIELO TEAM			, , ,		Ι Ο Υ -	<i>></i>	
	<u>) . (</u>	Durens	<u> </u>	· Clark		***************************************	
METEOROLOGICA	L CHARA	CTERISTICS (DESC	CRIBE RAINFALL	, WIND, TEMPERATUR	RE, ETC.)		
10	W	wet	clo	vels			
	OĐOR	HYDROGEN SULFIDE	☐ MUSTY	□ sewage	□ ammonia	☐ GASOLINE	DOTHER MARSHY
		□ SOAP	☐ CHLORINE	□ NONE			Merna (
WATER QUALITY APPEARANCE	COLOR	☐ YELLOW	☐ GREEN	□ stne	BROWN	□ BLACK	□ ОТНЕЯ
1 2		GRAY	□ WHITE	☐ COLORLESS			
ALITY A	NG MATERI	☐ TRASH OR DEBRIS	☐ OIL AND GREASE	ORGANIC MATERIAL	scum	SUDS	О отнея
, oor		OBJECTS (DESCRIBE)				e	cs. Hon foam
WATER		LAMEAVY CLOUDIN		□ CLOUDY	☐ SOME CLOUDINESS	□ NONE √	is then foam
	TAIL.			*-			, ·
		Sli	ght a	organic	56UV	~	
EROSION AND VE	OITATE	(DESCRIBE ANY	VISUAL SIGNS O	F SLIDE SLOPE EROS	ION AND/OR CH	ANGE IN VEGETATION	ON CONDITION)
	_						,
	No	ne.					
		 					
FIELD MEASUREMENTS:	surface	_{рн} 8,98	TEMPERATURE (*	0.70.79	CONDUCTIVIT	430\00_	5.35 my/c
FIELD MEASUREM	ENTS CO	NTINUED (IF DEPT	H >2 FT)				
middle	рН	6.97	TEMP (°C	D. 81 CON	<u>D</u> UCTIVITY (µS/cm	, 4302	
bottom	рH	8.45	TEMP (°C	0) ZD.79 CON	DUCTIVITY (μS/cm	1 4 298	00 5.31 my/L
SAMPLING ACTIVIT	TIES (DES	CRIBE ALL ACTIO	NS TAKEN AT EA	ACH SITE VISIT AND P	ROVIDE ADDITIO	ONAL COMMENTS AS	S NECESSARY)
Depth							,
low 6	love	le win	W. Ken	5-0 W	. t	<i>?</i> .	
1.m.	rech	birel	achin	3 11,000	hed !	1-6 415	n actively
100	c	read	tish	at s	110		
TEAM LEADER'S S	IGNATUR	E					

dan da



OJECT/SU	RVEY NAME: C	vena	Vista	Lago	on	,		DATE: 13APRO7				
E START	ED: 06:	30AM		TIME FINISHED	09:6	25AM	!		,			
TITUDE:				LONGITUDE:				DDO IECT MAN	IAGER: KEITH	W MEDVE		
WTODE.	ELE	MC	T					PROJECT MAN	AGER. KEITH	vv. merket		
	1						H>0 &					
ition ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond		NTU	Depth	NOTES		
01	Shore	7:45	1100				15.1			_		
/02	11	8:10	4.0 /				18.0					
<u></u>	11	6:30	5.71				18.8					
04	11	6:30 8:00 8:55 9:35	5.42				18.8	· <u> </u>				
05	11	8.55	5.55				17.8			·		
06	11	9:25	5.92				16.6					
07	1 /	8:38	a.36				18.5					
08	11	8:28	2.45				18.4					
/09	3 1											
		 										
					_							
								<u> </u>				
	 											
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	_											
						_		-				
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		+										



and the second second		UENA 1	V 1,757					<u>.</u>	DATE: 4/13	141		
E STARTED	: 0030			TIME FINISHE	D: 0900	:		1				
ITUDE:	······			LONGITUDE:	,			PROJECT MANAGER: KEITH W. MERKEL.				
NITORS:		· ·	ı						· · 			
tion ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	UTN	Depth	NOTES		
	Lagoon	णळ	5.29									
	Lagoon	ON2	7.21									
	Lagoon	0900	1.72									
	Lagoon	0659	7.25									
	Lagoon	0720	4.82									
Тор	Lagoon	0630	6.65									
Middle	Lagoon		اا ی							,		
5 Bottom	Lagoon		3.29									
			5.35				1	ı				
6 Average	Lagoon	0635		1			_			_		
7 Top	Lagoon	3.5	5.00					-		<u>. ·</u>		
7 Middle	Lagoon		3.92							<u>.</u>		
7 Bottom	Lagoon		5.76									
7 Average	Lagoon	0645		 		_						
В Тор	Lageon	2043			-		 		-			
8 Middle	Lagoon		5.19									
8 Bottom	Lagoon	 					<u></u>					
8 Average	Lagoon	,	5.8						-			
9 Тор	Lagoon	0650	 									
9 Middle	Lagoon		4.00									
9 Bottom	Lagoon		5.72									
9 Average	Lagoon		6.12				-					
							-					
	ļ					1						
	_											



ME STARTED:			IISTA L		: 0845							
TITUDE:				LONGITUDE:				PROJECT MAN	T MANAGER: KEITH W. MERKEL			
NITORS:												
	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES		
	Lagoon	0808	6.32							25 pt deep		
A Middle	Lagoon		6.29									
A Bottom	Lagoon		6.15									
	Lagoon		5,92									
В Тор	Lagoon	0813	6.39									
B Middle	Lagoon		6.35									
B Bottom	Lagoon		5.78									
B Average	Lagoon		6.17									
С Тор	Lagoon	0820	6.63	-								
OC Middle	Lagoon		5.90									
OC Bottom	Lagoon		5.21									
0C Average	Lagoon		5.91									
OD Top	Lagoon	0830	6.40									
0D Middle	Lagoon		6.05			-						
0D Bottom	Lagoon		5.60									
0D Average	Lagoon		4.04									
		0825	6.40									
0ETop 0E Middle	Lagoon	1	Le.15									
	Lagoon		10.31									
IOE Bottom	Lagoon		6.29									
IOE Average	Lagoon	0845	6.47						_			
IOF Top	Lagoon	10,0	5.71					<u> </u>				
IOF Middle	Lagoon		5.37	_								
IOF Bottom	Lagoon		5.85									
IOF Average	Lagoon	v840										
10G Top	Lagoon	0810	5.25									
10G Middle	Lagoon		5.02									
10G Bottom	Lagoon		5.21				+					
10G Average	Lagoon		5121									
							-					
	-											
								_				
						-						



PROJECT/SU	RVEY NAME:	suena	a Vist	ia L	DAPON			_	DATE: 14	APRO7	
TIME STARTE	RVEY NAME:	0042	l	TIME FINISI	HED: 08	:160A	М				
LATITUDE:				LONGITUDI				PROJECT MAN	NAGER: KEITH	W. MERKEL	
MONITORS:	MCT	•								i s'	
Station ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU ·	Depth	NOTES	
BV01	Shore	7:05					15,4				
BV02	h	6:14	544				18.0				
BV03	u	6:26	6,21				19.2				
BV04	٧.	6:05	6.50				19.1	-			
BV05	U	7:51	5.34				17.7	,			
BV06	11	8:16	5.34				16.4				
BV07	ł r	7:35	2.51				1813				,
BV08	6,	7:26	2.85				18.6				
BV09	l _i	8:13						_		took sample, no	Doreadin
											,
	-										
										,	
											•
								_			
						_			-		



ROJECTISUR	VEY NAME: 12	IENIA VI	ISTA LA	YOODU .					DATE: 4/14/07		
ME STARTED	180			TIME FINISHED	: 0845	· ·		-			
ATITUDE:	,,,,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			LONGITUDE:				PROJECT MANAGER: KEITH W. MERKEL			
ONITORS:				-	1						
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES	
0A Top	Lagoon	0817	5.98								
OA Middle	Lagoon		5.86								
0A Bottom	Lagoon		5.40								
0A Average			5.75								
IOB Top	Lagoon Lagoon	0822	7.36					!			
10B Middle			7,35								
. ,	Lagoon	1	485								
10B Bottom	Lagoon		7.19				1				
10B Average	Lagoon	0825	te .125						-		
10C Top	Lagoon	000	6.08								
10C Middle	Lagoon	1	5.91					1			
10C Bottom	Lagoon										
10C Average	Lagoon		6.21				-		-		
10D Top	Lagoon	0830	7.10	ļ		-					
10D Middle	Lagoon		4.80			-					
10D Bottom	Lagoon		le.21e				1-				
10D Average	Lagoon		6.72								
10ETop	Lagoon	0835	4.98								
10E Middle	Lagoon		10.92						1		
10E Bottom	Lagoon		4.87								
10E Average	Lagoon		4.92		:						
10F Top		0840	4.65							7. set 2 65%	
	Lagoon		5.84								
10F Middle	Lagoon		5.5Le	-							
10F Bottom	Lagoon		6.02								
10F Average	Lagoon	0845									
10G Top	Lagoon	-0,10	6.15		-						
10G Middle	Lagoon										
10G Bottom	Lagoon		5.77								
10G Average	Lagoon		le.08							_	
										_	
			-								
					-						



ROJECT/SUR	VEY NAME: BL	IENA V	ISTA L	AGOON				DATE: 4/4/07			
ME STARTED				TIME FINISHE	D: 0736				*		
ATITUDE:				LONGITUDE:				PROJECT.MAN	AGER: KEITH	W. MERKÉL	
ONITORS:											
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth.	NOTES	
1	Lagoon	0705	5.28								
)2	Lagoon	0715	4.59								
03	Lagoon	0718	5.15					_			
14	Lagoon	0645	756								
)5	Lagoon	0655	7.67								
	Lagoon	0635	5.98								
6 Middle	Lagoon		5.90								
06 Bottom	Lagoon		5.86								
	Lagoon	*	5.91								
07 Top	Lagoon	0740	10.27								
07 Middle	Lagoon		4.19								
07 Bottom	Lagoon		6.13								
07 Average	Lagoon		w.2								
08 Top	Lagoon	0730	6.75			ı			-	,	
08 Middle	Lagoon		6.43						-		
08 Bottom	Lagoon		5.90								
08 Average	Lagoon		6.36								
09 Тор	Lagoon	0736									
09 Middle	Lagoon		6.09								
09 Bottom	Lagoon		5.98								
09 Average			4.08								
03 Average	Lagoon						<u> </u>			,	
			1								
							,				
							-				
					_			•			
	-										
				-							



OJECT/SU	RVEY NAME: C	onuve	Vista	a Lac	MOON			DATE: 15APR07				
STARTE	RVEY NAME: C	DOMM		TIME FINISHED	07:	APA	4					
TUDE:				LONGITUDE:			•	PROJECT MANAGER: KEITH W. MERKEL				
ITORS:	MUT							1. 1				
ion ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp oc	NTU	Depth	NOTES		
1	Shore		4,31				16.3					
02	11	613	4.15				19.0					
3) 1		5,06				18.8					
	b #	606	4.21	100 01000			19.60					
	11	7:07	502				18.7					
5	11	7:34										
<u> </u>	11	6:54					17.1					
	11	6:48	2 4/2	'								
8		6:40	2170				18.9					
9	į,					, _						
				,					_			
								_				
								_				
		_										
					,							
	+							_				



	1010									
ONITORS:				ONGITUDE:	0000			PPO JECT MAN	AGER: KEITH W	MEDKEI
			Į.	ONGITODE:				PROJECT MAN	AGEN. KEITH W	, MERKEL
ation ID S	Station_Type	Time	mg/liter	%SAT	PPT	Cond .	Temp	NTU	Depth	NOTES
,		0818	4.66	51.2	1.84	3.38	18.76	7.0	0.03	
	Lagoon	00.0	4.62	50.4	1.89	3.45	18.25	8.9	0.55	
	Lagoon		4.21	46.le	1.88	3.46	18.29	9.1	0.76	
	Lagoon		4.5			,,,,	,			
	Lagoon	0328	5.35	5B.7	1.70	3.10	18.22	13.4	0.04	
	Lagoon	00-0	5.29	57.6	1.71	3.16		12.7	0.36	· · · · · · · · · · · · · · · · · · ·
	Lagoon	,	5.20	53.7	1,71	3.16	18.21	15.2	0,53	
	Lagoon	1	5.28		-					
	Lagoon	0823	5.23	57.1	1.64	3.07	18.64	14.7	0.04	
	Lagoon		5.65	61.8	1.69	3.10	18.60	18.9	0.18	
OC Middle	Lagoon		6.24	47.3	1.67	3.09	18.69	22.9	0.40	
0C Bottom	Lagoon	1	5.71	•			10.07			
0C Average	Lagoon	0836	440	71.2	1.68	3.08	18.52	24.7	0.05	
0D Top	Lagoon	0000	6.28	48.7	1. lele	3.07	18,51	31.5	0.24	
0D Middle	Lagoon		6.30	68.3	1.69	3.05	18.37	71.0	0.47	
0D Bottom	Lagoon			(40.5	1.42	5.05	10.51		0.71	
0D Average	Lagoon	mu.	4.33	a		4 59	10 10		- 0-	
ОЕТор	Lagoon	0843	6.65	73.9	1.65	5.09	19.29	424	0.00	
IOE Middle	Lagoon	-	6.59	73.1	1.67	3.08	19.27	-	0.21	
IOE Bottom	Lagoon		4.47	71.9	1.68	3.10	19.26	56.2	0.75	
I0E Average	Lagoon		6.57						_	
10F Top	Lagoon	0849	4.18	48.5	171	3.13	18,96	21.2	0.01	
10F Middle	Lagoon		6.00	66.B	1.68	3.07	19.28		0.23	
10F Bottom	Lagoon		5.99	66,7	1.70	3.10	19.27	86.8	0.04	
10F Average	Lagoon		te.ole							
10G Top	Lagoon	1855	6.47	70.7	1:70	3.5		9.5		
10G Middle	Lagoon		5. lele	42.3	1.71	3.17		15.0	0.29	
10G Bottom	Lagoon		5,62	61.7	1.70	3.12	18.74	1 20.1	0.57	
10G Average	Lagoon		5.92							



OJECT/SUR	VEY NAME: B	CENTA V	saa i	AGOON					DATE: 4/	5/07
E STARTED	: 0619			TIME FINISHED	:0739					
TITUDE:				LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
NITORS:	· · · · · · · · · · · · · · · · · · ·	· · · · · ·				· · · · · · · · · · · · · · · · · · ·				<u> </u>
ation ID	Station_Type	Time .	mg/liter	%SAT	PPT	Cond	Temp	NŤŮ	Depth	NOTES
<u> </u>	Lagoon	0618	3.91	40.8	2.54	4.71	15.82	31.2	0.04	
2	Lagoon	0640	3.20	31.5	2.70	4.94	14.01	51.0	0.03	
3 .	Lagoon	0645	3.39	35.2	2.51	4.42	16.12	30.1	0.04	
4	Lagoon	0619	4.58	48.5	2,29	4.14	17:71	65.0	0.04	
5	Lagoon	0657	5.73	62.0	2.28	4.13	17.123	92.4	0.03	
Тор	Lagoon	0739	5.75	46.3	2.20	4.02	19.56	41.8	0.00	
6 Middle	Lagoon		5.72	622	2.27	4.10	18.24	48.1	0.28	
Bottom	Lagoon		5.85	63.8	2.29	4.17	18.16	50.3	0.55	
6 Average	Lagoon	1	5.77			-				
7 Top	Lagoon	0150	4.15	62.4	2.24	4:07	18.67	42.9	0.04	
7 Niddle			4.06	45.4	2.22	4.04	19.50	42.7	0.22	
	Lagoon		4.06	45.4	2.19	4.01	19.49	1	0.5	
7 Bottom	Lagoon		4.07							
7 Average	Lagoon	0710	4.21	40.7	2.20	46.3	19.47	44.4	0.04	
В Тор	Lagoon	0 (10	4,17	46.8	2.19	4.07	19.44	—	0.10	<u> </u>
8 Middle	Lagoon		4.10	 	-	4.07	19.49		0.55	
08 Bottom	Lagoon			46,1	2.18	7.01	17,77	45.7	0.00	
08 Average	Lagoon		4.16	z1. 1	20	11 001	10.4.	/12 2		
9 Тор	Lagoon	0719	4.10	44.1	2.19	4.04	<u> </u>	42.2	0.00	,
09 Middle	Lagoon		4.22	44.3	2.11	3.27	18.50	67.7	0.25	
09 Bottom	Lagoon		4.16	46.2	7.16	3.48	19.02	43.3	0,33	
09 Average	Lagoon		4.16			1	ļ		1	
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JECT/SU	RVEY NAME:	veno	Vist	tala	4001				DATE: 16	APRO7
E STARTE	D: 06'	DOAM	١	TIME FINISHED	67:	34A	4			
ITUDE:				LONGITUDE:				PROJECT MAN	AGER: KEITH	
IITORS:	MCT	-								i s'
on ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp (NTU	Depth	NOTES
	Shore	6:33	4.04				16.0			
2	ч	6:15					18.81			
1	u		3.43				18.9			
	11	6:08					1.91			
	11	7:14	4.60				17.8			·
6	**	7:34	5.10				16.7			
,	• •		2.84				18.a			
В	11	6:49	2.61				18.3			
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ROJECT/SURV	EY NAME: BU	ENA VIST	PA LAGO	al			· · · · · · · · · · · · · · · · · · ·		DATE: 4/1	Le 107
ME STARTED:	0800			TIME FINISHED:	5836	<u>.</u>				
ATITUDĖ:				LONGITUDE:				PROJECT MAN	IAGER: KEITH V	N. MERKEL
ONITORS:							•			
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES
A Top	Lagoon	0800	4,78	51,9	2.00	3.68	17.83		0.04	
A Middle	Lagoon	0851	5.00	55.3	2.02	3.71	17.94		0.22	
0A Bottom	Lagoon	0810	5.70	w2.9	2.42	4.49	18,53		0.69	
DA Average	Lagoon		5,19							
ОВ Тор	Lagoon	9817	u 45	70.0	1.69	3.17	18.09		0.07	
OB Middle		0818	4.42	19.8	1.71	3,13	18.17		0,23	
	Lagoon	0819	4.33	48.8	1,73	3.H	18.20		0.45	
0B Bottom	Lagoon		6.4			- •		1-7		
)B Average	Lagoon	0802	3.78	408	1.70	3,14	17.82		0.04	
0C Top	Lagoon	0804	3.55	38.4	1.74	3,16	17.80	1	0,22	
0C Middle	Lagoon	0815	4.09	43.8	1.76	3,22	11.53	-	0.40	
0C Bottom	Lagoon	ODIS	3.87	1110	1, 102	7,22	11.00		3, 10	
0C Average	Lagoon	MOI	5.13	<i>-</i>	1,71	3.15	10.41		0.424	
0D Top	Lagoon	0821		540			18,41		0,06	
0D Middle	Lagoon	0827	5.04	55.2	1.70	3,13	18.47		0,29	
0D Bottom	Lagoon	0823	4.98	54.5	1.129	3.11	18.47		0.65	
IOD Average	Lagoon		5,05		1,				2 00	
ЮЕТор	Lagoon	0836	LAS	76.0	1.68	3.10	18.51		0.05	
IOE Middle	Lagoon	0826	4.95	76.0	1,70	3.14	19,51		0.27	
10E Bottom	Lagoon	0827	690	75.5	1.68	3.13	18.51		0.55	
I0E Average	Lagoon		le 193		1			-		
IOF Top	Lagoon	0829	6.42	72.6	1.67	3,11	18.60		0.09	
10F Middle	Lagoon	0830	4.43	70.4	1.69	3,12	18,58	, /	0.32	
10F Bottom	Lagoon	0831	10.24	48.4	1.67	3.09	18,58	,	0.62	
10F Average	Lagoon		6.43							
10G Top	Lagoon	0834	4.29	68.8	1.67	3.07	18.53	/	0.08	
10G Middle	Lagoon	0835	4.13	47.1	1.69	3.13	18.53	·	0.25	
10G Bottom	Lagoon	0836	5.28	Le4.4	1.69	3.12	18,67		0.50	
10G Average	Lagoon		wil	,						
Areinge	249001									
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ROJECT/SUR	EVEY NAME: BL	ENA VI	STA LA	GON					DATE: 4/	110,107
	D632			TIME FINISHED	0709	,			1	
		·			, , , , ,					
ATITUDE:	1			LONGITUDE:				PROJECT MAN	NAGER: KEITH	W. MERKEL
IONITORS:										
tation ID	Station_Type	Time	mg/liter	34.Le	PPT	Cond	Temp	NTU	Depth	NOTES
01	Lagoon	0632	336		2.56	4,67	15.49	418	0.06	*
102	Lagoon	0638	3,69	33.0	2.60	4.73	15,35	37.8	0.06	
103	Lagoon	0641	3.97	41.1	2.60	4.76	15,50	42.2	0.05	<u> </u>
104	Lagoon	0623	7.58	81.7	2.33	4.32	17.54	47.8	O.05	
105	Lagoon	DUA	7.27	76.8	2.37	4.33	16.68	47.2	0.06	
106 Top	Lagoon	0724	4.09	45.2	2.26	4,17	1890	44.4	0.04	.,
106 Middle	Lagoon	0721	4.19	46.3	2.25	4.16	18.80	48.4	0.26	
106 Bottom	Lagoon	0722	4.00	438	2.26	4,15	1887	45.6	0.40	
106 Average	Lagoon		4.10							
107 Top	Lagoon	0704	4.26	47.3	2.24	4.11	18,99	29.1	D.OLe	
107 Middle	Lagoon .	07.12	4.25	47,3	2.25	4.14	19.10	34.2	0.53	
107 Bottom	Lagoon	0715	4.20	46,7	2.25	412	1981	32,1	0.51	
107 Average			4.24						•	
	Lagoon	0702	4.20	46.2	2,24	4.15	18.87	35,9	0.06	
108 Top	Lagoon	0718	4.07	45.0	2.27	4.16	18.88	30,4	0,26	
108 Middle	Lagoon	0716	402		2.28	4.16	18.82	33.1	0.47	
108 Bottom	Lagoon	- ,,,_	4,10		2.20	1.70	10.02	77.1		
108 Average	Lagoon		6.16	lek.3	2.24	4.09	10 00	20	50.4	
109 Тор	Lágoon	0706	_	 ' 	 	4.09	18.92	83.D 37.5	0.04	
109 Middle	Lagoon	0708	6.09	67.7	2.24	-	19.14		0.14	
109 Bottom	Lagoon	0709	5.25	58.2	2.27	4.11	19.11	37.1	0,37	
109 Average	Lagoon		5.83					<u></u>		
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BUL FOST



ECT/SUF	RVEY NAME:	buena	a Vis	19 1	-4900	<u>n</u>			DATE:	1APRO7	
STARTE	RVEY NAME:	MACO		TIME FINISH	ED: 07	:2BA	M				
UDE:			•	LONGITUDE			- 1	PROJECT MA	NAGER: KEITI	H W. MERKEL	
rors:	MUT	_		,						, ,	
			mg/liter	%SAT	PPT	Cond	Nemp of	NTU	Depth	NOTES	7
n ID	Shore	Time	ng/itter	763A1	FFI	Cond		NIO	Бериг	ama@etation	4140
	11	I I	-				18.8		-	pumper station	
	8.0	6:17					18.9				-
	54	6:24					16.1				\dashv
	,	6:10	-				19,2				-
	4.5	7:13					17.8		<u> </u>		-
	£ \$	7.28		,			16.4				_
	6.5	6:55					18,9		<u> </u>		4
	11	6:49					18.4				_
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ROJECT/SURV	EY NAME: BU	ENA VIZ	STA LAC	aau					DATE: 4/1	רסור
ME STARTED	0735		-,	TIME FINISHED	0829					
ATITUDE:				LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
ONITORS:										
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES
0Å Top	Lagoon	0135	4.69	510	1.88	3,40	18.15	14.4	0.18	-
0A Middle	Lagoon	5137	4.40	48.1	2.00	3.61	18.33	14.0	0.50	_
0A Bottom	Lagoon	0739	4.54	51.2	2.96	5.38	20,00	12.7	0.89	
0A Average	Lagoon		4.54							
0B Top	Lagoon	0751	5.86	64.5	1.71	3.14	18.68	365	0.17	
10B Middle	Lagoon	0152	5.1A	62.3	1.72	3.17	8.59	30.7	0.32	
10B Bottom	Lagoon	0753	5.21	54.8	1.72	8.17	18.33		068	
10B Average			5,59							
	Lagoon	0746	3.95	43.2	1.97	3.62	18.42	37.3	0,19	
10C Top	Lagoon	0747	385	42.3	2.04	3.74	1849		0.29	
19C Middle	Lagoon	0748	3.70	40.6	200	3.78	18.56		0.65	
10C Bottom	Lagoon	0. 7	3.83		7.00					· ·
10C Average	Lagoon	0801	5.16	57.1	1,70	3.13	ADL	26.3	0.14	
10D Top	Lagoon	0802	4.87	53.9	1,70	3.14	1929		0,34	
10D Middle	Lagoon	0803	4.84		1.70	3.14	19.07	24.3	0.71	
10D Bottom	Lagoon	7825	4,96	77.5	1, 10	7.1-1	1-1.01	2-1.5	0.11	
10D Average	Lagoon			mr a	1 100	7 12	10.25	0	47	
10ЕТор	Lagoon	0807	7.69	85.2	1.69	3,13	19.20	15.9		
10E Middle	Lagoon	0811	7.le1	84.5	1.69	3,13	19.23	10.0	0,36	
10E Bottom	Lagoon	0812	7.41	82.2	1.129	3.13	19.19	17.7	0,70	
10Ë Average	Lagoon	-	7.57			- 17			<u> </u>	
10F Top	Lagoon	0817	5.98	66.1	1.70	3.17	18.97	24.8	0.10	
10F Middle	Lagoon	OBB	4.02	66.7	1.68	3,12	_	22.4		
10F Bottom	Lagoon	0820	5,92	65.5	1.69	3.11	19.05	22.7	0.74	
10F Average	Lagoon		5.97							
10G Top	Lagoon	0822	5.98			3.13	18.77	16.7	0.18	
10G Middle	Lagoon	B23	4,70	42.4	1.73	3.13	18,18	13.1	0,38	
10G Bottom	Lagoon	0829	5.44	59.7	1.71	3.16	18.67	17.1	0.50	
10G Average	Lagoon		5.71							
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YEY NAME: BU	ENA VE							DATE: 4/1	110-1
:0624	,		TIME FINISHED	: 0653					
			LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
	T`				<u> </u>			-	
Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTÚ	Depth	NOTES
Lagoon	0024	2,00	21.0		-			-	•
Lagoon	0628	2.84	30.0	2,70	-	14.14	33.4	0,17	
Lagoon	0630	294	20.7	2.67	4,87	16.14	57.0	0.17	
Lagoon	0616	4.55	49.4		4.30	18,00		0,17	
Lagoon	0639	4.35	47.1	2,37	4.33	17.66	64.5	0.18	
	0703	4.32	48.0	2.20	4,03	P1,03	35.2	0,19	
	0704	4.28	47.4	2.20	4,04	19,05	38.4	0,31	
	0705	4.18	44.3	2.21	4.04	9.05	50.5	0.60	
	,	4,2Le							
	Oleble		51.0	2.21	4.de	19,13	14,3	O.lle	
	4	ļ			+		·		
	-	-	-		-	<u>'.</u>		 i	
Lagoon	7.001	-		2,2		7711	10,2		
Lagoon	ole/le-	T	En 1	2 20	4.63	10 -1	110.5	- 17	
Lagoon				+			-		
Lagoon					_		-		, ,
Lagoon	0644	1	46.1	2.2	4,00	19.01	11,7	0.61	
Lagoon	` '						 		
Lagoon	+	***	+	-	_				
Lagoon				-	<u> </u>		T-	0.74	
Lagoon	0653	4 lele	50.9	1.90	3.45	17.99	4.1	045	
Lagoon		4.71							
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	Station Type Lagoon	Station Type Time Lagoon Db 24 Lagoon Db 23 Lagoon Db 24 Lagoon Db 25 Lagoon Db 27 Lagoon Db 41 Lagoon Db 41 Lagoon Db 41 Lagoon Db 42 Lagoon Db 42 Lagoon Db 42 Lagoon Db 42 Lagoon Db 43 Lagoon Db 44 Lagoon	Station Type Time mg/liter Lagoon Db24 3,000 Lagoon Db24 3,000 Lagoon Db26 2,94 Lagoon Db26 4,55 Lagoon Db29 4,35 Lagoon D703 4,33 Lagoon D704 4,28 Lagoon D705 4,16 Lagoon Db66 4,60 Lagoon Db67 4,60 Lagoon Db67 4,53 Lagoon Db67 4,46 Lagoon Db67 4,39 Lagoon Db62 4,74 Lagoon Db62 4,74 Lagoon Db63 4,64 Lagoon Db63 Lagoon Db64 Lagoon Db65 Lagoon	Station Type Time mg/liter %SAT Lagoon Db24 2,000 24.0 Lagoon Ob30 2.94 20.7 Lagoon Ob30 2.94 20.7 Lagoon Ob30 2.94 20.7 Lagoon Ob30 2.94 20.7 Lagoon Ob30 4.35 47.1 Lagoon O703 4.32 48.0 Lagoon O704 4.28 47.4 Lagoon O705 4.18 44.3 Lagoon O650 4.50 51.0 Lagoon O650 4.53 50.5 Lagoon O657 4.60 51.2 Lagoon O648 4.76 52.7 Lagoon O649 4.39 49.5 Lagoon O662 4.74 51.8 Lagoon O662 4.74 51.8 Lagoon O662 4.72 51.2 Lagoon O663 4.66 50.9 Lagoon O665 4.71 50.9 Lagoon O665 4	Station Type Time mg/litter %SAT PPT Lagoon Db24 2.00 2.0 2.11 Lagoon Db24 2.00 2.0 2.11 Lagoon Db24 2.00 2.0 2.70 Lagoon Db24 2.00 2.0 Lagoon Db24 2.00 2.0 Lagoon Db24 2.00 2.0 Lagoon Db24 2.00 2.0 Lagoon Db24 2.00 2.20 Lagoon Db24 2.20 4.28 47.4 2.20 Lagoon Db24 2.28 47.4 2.20 Lagoon Db26 4.60 51.0 2.21 Lagoon Db27 4.60 51.2 2.21 Lagoon Db27 4.60 51.2 2.21 Lagoon Db27 4.60 52.7 2.20 Lagoon Db27 4.60 4.50 52.7 2.20 Lagoon Db27 4.60 4.50 4.50 Lagoon Db27 4.70 52.7 2.20 Lagoon Db27 4.70 51.8 2.00 Lagoon Db27 4.70 51.8 2.00 Lagoon Db27 4.70 51.2 1.87 Lagoon Db27 4.70 51.2 1.87 Lagoon Db28 4.71 51.2 1.87 Lagoon Db28 4.71 50.9 1.90 Lagoon Db28 4.71 50.9 1.90	COLOUTION Time mg/liter W.SAT PPT Cond Lagoon DD24 2.00 2.0 2.11 4.76 Lagoon DB24 2.00 2.0 2.11 4.76 Lagoon DB26 2.94 30.7 2.67 4.87 Lagoon DB26 4.95 49.4 2.75 4.30 Lagoon DB29 4.36 47.1 2.37 4.33 Lagoon DT03 4.32 48.0 2.20 4.03 Lagoon DT03 4.32 48.0 2.20 4.04 Lagoon DT05 4.18 44.3 2.21 4.04 Lagoon DB27 4.60 51.0 2.21 4.05 Lagoon DB27 4.60 51.2 2.21 4.05 Lagoon DB27 4.60 51.2 2.21 4.05 Lagoon DB46 4.70 52.7 2.20 4.03 Lagoon DB47 4.46 49.5 2.20 4.03 Lagoon DB47 4.39 48.7 2.21 4.06 Lagoon DB2 4.74 51.8 2.04 3.15 Lagoon DB37 4.64 50.9 1.90 3.45 Lagoon DB37 4.65 50.9 1.90 3.45 Lagoon DB37 4.53 50.9 1.90 3.45 Lagoon DB37 4.54 50.9 1.90 3.45 Lagoon DB37 4.65 50.9 1.90 3.45 Lagoon DB37 4.66 50.9 1.90 3.45 Lagoon DB37 4.67 50.9 1.90 3.45 Lagoon Lagoon DB37 4.67 50.9 1.90 3.45 Lagoon	Station Type	Olo 24 Time Ime	



PROJECT/SU	RVEY NAME:	uena	Vist	a Laav	$\sim \infty$			DATE: \	JAPRO7	
TIME STARTE	RVEY NAME: 6	DDAM	1	TIME FINISHED	07:	<u> 188</u>	M.	<u> </u>		
LATITUDE:				LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
MONITORS:	MCT	•								; ;
Station ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	No Temp q	NTU	Depth	NOTES
BV01	Shore	6:33					16.2	_		
BV02	*	6:12					18.4			
BV03	et	6.32				_	188			
BV04	•	6:04					18.2			
BV05	• (7:18					18.7			
BV06	<u> </u>	7:38					17.1			
BV07	.,	7:38 6:57	_				18.4			·
BV08	•4	6:52	•				18.6			
BV09										
			-							
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Merket & Associ	ates. Inc.									
PROJECT/SUR	VEY NAME: BL	IENA VIS	STA LAGO	m				****	DATE: 4/19	3/07
TIME STARTED	01:59			TIME FINISHED	08:5	51				
LATITUDE:				LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
MONITORS:										
Station ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES
10A Top	Lagoon	U n :59	3.00	32.2	2.01	3.70	18.25	0,0	0.23	
10A Middle	Lagoon	00:00	3.16	34.0	2.01	3.76	18.21	0,0	0.34	
10A Bottom	Lagoon	06:00	3.07	33.8	2.63	4.79	19.23	2.4	0.77	
10A Average	Lagoon		3.08							
10B Top	Lagoon	8:10	5.10	55.7	1.74	3.22	19.04	27.2	0.18	
10B Middlé	Lagoon	4:10.	5,10	55.7	1.74	3.21	19.07	205	0.3+	
10B Bottom	Lagoon	8:10	5.13	55.9	1.74	3.22	19.05	28.3	0,55	`
		1	5.11							
10B Average	Lagoon	4:05	3.10	32.4	1.80	3,33	18.59	10.6	0.22	
10C Top	Lagoon	8:05	3,23	35.0	1.80	3.32	18.51		0.32	
10C Middle	Lagoon	8:05	3.52	38.4	1.80	3.52	18.55	13.4	0.4	
10C Bottom	Lagoon	D.	3.28		· · ·					40 ₀ -
10C Average	Lagoon	08:21	3.83	41.8	1.70	3.16	19,13	12.0	0.19	
10D Top	Lagoon	08:21	3.43	31.5	1.71	3.15	19.08	5.9	0.31	
10D Middle	Lagoon	1	3.42	37,4	1.71	3.15	19,10		0.6	
10D Bottom	Lagoon	09:21		91,7	11	9.10	19,10		<i>(</i>	
10D Average	Lagoon	00.50	3.41	nd.	1 7	0 10	\O.44		20	
10ЕТор	Lagoon	08:39	473	74.1	1.70	3.15	19.44	15.0	0,19	
10E Middle	Lagoon	08:37	Le.lelo	73.3	1.71	3.5	19,00		0.29	
10E Bottom	Lagoon	09:39	Le.le3	73,1	1,71	3.15	19.4	15.0	0.19	
10E Average	Lagoon		4.65	ļ <u>.</u>	 	<u> </u>	0.00		1 - 4	
10F Top	Lagoon	0647	5.81	43.7	1.71	3.14	19.27	8.8	D.18	(cylindrical algae
10F Middle	Lagoon	08:47	5.79	63.5	1.01	3.16	18.31		0.32	Covered busy)
10F Bottom_	Lagoon	08:47	5.75	4.3	1.71	3.14	19,30	8.2	0.64	
10F Average	Lagoon		5.78							
10G Top	Lagoon	108:51	5.17	56.4	1.71	3.16	19.00	2 4.8	0.19	(disc-shaped
10G Middle	Lagoon			5u.7		3.17	18,88	2.2	0.31	(disc-shaped buoy)
10G Bottom	Lagoon			55.Le		3.100	14,91		0.46	
10G Average										
2.490										
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_										
		-								



Merkel & Assoc	EVEYNAME: B	VEUA V	ISTA LA	GOON					DATE: 4/1	8/07
	44: ط			TIME FINISHED	7:2	4			-	
ATITUDE:				LONGITUDE:		· · · · · · · · · · · · · · · · · · ·		PROJECT MAN	IAGEŘ: KEITH	W. MERKEL
MONITORS:										
Station ID	Station_Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES
101	Lagoon	06:44	0.82	8.5	2.75	4.97	17.07	36.6	0.14	
102		06 38	1.67	17.1	2.74	5.00	17.63	61.7	0.11	the state of the s
,	Lagoon									
103	Lagoon	06:18	4.88	53.0	2.30	4.2101	18.65	49.1	0.21	
104	Lagoon	1	4.10	43.7	1	4.40			0.14	
105	Lagoon	01:07	4,37	47.3	2.12	3.89	18.56		0,15	·
106 Тор	Lagoon	07:08	4,40	47,5	2.12	3,86	14.57	38.6		
106 Middle	Lagoon	07:08	4,43	48.0	2.12	3.50	18.53		0.63	,
106 Bottom	Lagoon	01.00	4.40	10.0	2., 2	7.00	10.00	10.0	3,00	
106 Average	Lagoon	07111-	4.66	50.7	2.09	3.84	18.70	10 E	0.19	
107 Тор	Lagoon	07:16					-	-		
107 Middle	Lagoon	07:17	4:70	50.9	2.09	3.84	18.74		0.41	
107 Bottom	Lagoon	07:17	7.64	50.4	2.10	3.85	18.74	74	0.65	
107 Average	Lagoon	ļ <u></u>	4.67			1				
108 Top	Lagoon	07:21	4,83	52.2	2.09	5.84	18.67		0.17	
108 Middle	Lagoon	07:21	4.70	51.1	2.09	3.83	18.67		0.35	
108 Bottom	Lagoon	67.21	4.71	51.2	2.08	3.83	18.70	8.4	0.76	
108 Average	Lagoon		4.75							
109 Top	Lagoon	07:23	4.82	52.3	2.07	3.81	1859	6.5	0.17	110,4
109 Middle	Lagoon	07:24	5.06	54.7	2.01	3.31	18.09) 	0,33	
109 Bottom	Lagoon	07:24	5.11	53.2	1.64	3.14	16.77		0.46	
109 Average	Lagoon		5.00							
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OJECT/SU	RVEY NAME:	BV se	wage	spill	,				DATE: 1	9 April 07	
IE STARTI		14		TIME FINISHED	0	150	r. =		; ;		
ITUDE:				LONGITUDE:	4.			PROJECT MA	NAGER: KEIT	H W. MERKEL	
IITORS:	Ed E	Ervin			_					. ; ;	
ion ID	Station Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTU	Depth	NOTES	
1	1	0614	3.78				14.4				
2		0642	_				16.6				
	Shore	0603					17,9		<u> </u>	at 0544 T	
3/	1						17.8			recalibrated YSIS	5.
4	shore.	0688					16.9		 	VICE II DIATED 1329	
5		0736	5.12			1					
6		0.747	1.7				15.1				
7	4.60	0709	2.63				18.1				
8	I. WI	0825	a.78				17.8			• • •	٠,
									<u> </u>		٠.
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		11	1								
	Stanto	a look	of pas	sonen							
	177					-					•
	Hall-	H. L	///								
-/	11/15/	1 (3/3/	THE			-		2			
	JA JAY	of glo		M		•					
	* .										
	4014										
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	VEY NAME: B							·	DATE: 4		
ME STARTED	: 0032	-		TIME FINISHED: 0723							
TITUDE:	····	-		LÖNGITUDE:				PROJECT MANAGER: KEITH W. MERKEL			
NITORS:					<u></u>			11			
ation ID	Station Type	Time	mg/liter	%SAT	PPT	Cond	Temp	NTÙ .	Depth	NOTES	
1	Lagoon	0632	4.13	40,2	2.62	4.77	13.65	432	0.00		
2	Lagoon	0641	3.86	37.3	2.62	4.78	13.40	4260	0.06		
3	Lagoon	0643	3.73	34.5	2.69	489	13.1de	4240	0.06		
4	Lagoon	0625	7.05	73.0	2 3te	4.32	10.51	(412)	0.00		
5	Lagoon	0651	6.36	63.4	2.38	4.35	15.00	4090	000		
6 Тор	Lagoon	0721	4.32	67.5	2.07	3.79	17.79	209	014	Storetal Oiffuspe up	
6 Middle	Lagoon	0722	6.44	68.le	2.07	3.82	רד.רו	37.7	0.33	just before	
6 Bottom	Lagoon	0723	6.38	677	2.08	3.81	17.22	21.2	0.55	Sampling	
06 Average	Lagoon	,	636				+				
07 Top	Lagoon	OTIB	6.62	Thele	2.07	3.81	17.95	431	0.09		
07 Middle		0719	4.59	70.3	2.07	3,80	17.90	431	0.33		
	Lagoon	0720	6.59	69.8	2.00	3.78	17.90	433	0.52		
7 Bottom	Lagoon	0 120	6.6	0 116	7	7710	11170	-100			
07 Average	Lagoon			7.0	2.01	3.81	17.69	398	0.06		
08 Top	Lagoon	0704	6.75	718		7.80					
08 Middle	Lagoon	0705	6.72	71.le	207	 	17.86	1	0.26		
08 Bottom	Lagoon	0705	6.48	689	2.58	383	17,71	402	0.51		
08 Average	Lagoon	1	6.65		1					·	
09 Тор	Lagoon	0713	6.42	67.kg	1.50	2.77	15.36	-	0.08		
09 Middle	Lagoon	0711	5.89	le1.3	1.68	3.20	16.80	417	0.28		
09 Bottom	Lagoon	0710	6.31	67.k	1.97	3:13	17.61	401	050		
09 Average	Lagoon		6.21								
		1									
		-				-					

Lab @ 102 was peoble into mud.



ROJECT/SURV	EY NAME: TU	en/1	lista l	LAGOON					DATE: 4/19 /07			
ME STARTED:	0804			TIME FINISHED	0850	<u> </u>						
ATITUDE:	· ,			LONGITUDE:	E: PROJECT MA			PROJECT MAN	ANAGER: KEITH W. MERKEL			
ONITORS:				· · · · · · · · · · · · · · · · · · ·					ļ			
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Confl	Temp	NTU	Depth	NOTES	3	
0A Top	Lagoon	0804	5.50	57.5	1.81	3.34	17,02	391	0.13			
0A Middle	Lagoon	<i>ං</i> පී05	5.33	55.7	1.84	3.39	16.84	396	0.49			
0A Bottom	Lagoon	0806	5.5A	60.8	3,59	Le.11	18.89	411	0.82	Compacion	bt. BCM-	Ha
0A Average	Lagoon		5.47							,	0.13 < TO	-LAG P>
0B Top	Lagoon	0818	6.37	67.6	1.74	3-21.	17.58	448	0.15			
	Lagoon	0820	6.82	lelo .8	1.75	3.20	17.53	456	0.27			
	Lagoon	0822	6.47	622	1.73	3,20	17.39		0.49			
		4 15	455									
	Lagoon	0812	5.09	53.4	1.94	3,512	17.29	443	0,12	YSI55	4,926	حزحه
ОС Тор	Lagoon	0814	4.95	522	1:98	3.64	17.40	560	0.35	\ <i>J</i> _	1116	101
OC Middle	Lagoon		4.84		1.97	3.64	17.43		0.41			
IOC Bottom	Lagoon	0615	1	7'.1	C) 1 [7.67	11,73	465	U,-T1			
IDC Average	Lagoon		4.96		1 - 1		17.53	.1 = .1	1			
10D Top	Lagoon	0818	5.80	61.3	1.74	3.21		434	0.15		5.44 0	TOP)
10D Middle	Lagoon	0829	5.78	61.2	1.73	3.21	17.55	435	0.30			_
10D Bottom	Lagoon	0830	5.67	60.0	1.74	3,21	17.53	437	0.49			
10D Average	Lagoon		5.75									
10EŤop	Lagoon	0835	7.21	77.0	1.72	3.18	18.83	445	0.10		6.12 6	TOP
10E Middle	Lagoon	OB 360	7.11	74.0	1.72	3,17	18.04	454	0.34			
10E Bottom	Lagoon	0835	6.97	74.4	1.72	3.17	18.02	469	0.57			
			7.10									
10E Average	Lagoon	0844	7.06	75.6	1.72	3,17	18.12	440	0.14		5.314	770
10F Top	Lagoon	0845	1.05	1.	1,72	3.17		443	0.30		2,21-	
10F Middle	Lagoon	0844	635		1.74		1793	440	0.55			1
10F Bottom	Lagoon	SUTA	6.82	67.6	1. 17	3,22	11,73	740	حدر ت			-
10F Average	Lageon			1.5.5	1 77	2	17 /2	4155	5 **			
10G Top	Lagoon	0848		63.8				422			5.06	10+
10G Middle	Lagoon			61.7	1.77		17,48	422	0.31			4
10G Bottom	Lagoon .	<i>0850</i>		545	1.74	3.22	17.28	422	0.47			4
10G Average	Lagoon		5.UB				-	-				_
												_
											, , <u>, , , , , , , , , , , , , , , , , </u>	
1	1	1	1	1	1	1	i i			The second secon		1



PROJECT/SUR	VEY NAME:	buen	ia Vis-	ta	agool	\wedge			DATE: 20	APRO7
TIME STARTED	<u>, 10:00</u>	MAK		TIME FINISHED	<u>. </u>					•
LATITUDE:		<u> </u>		LONGITUDE:				PROJECT MAN	AGER: KEITH	W. MERKEL
MONITORS:	MC	T .:				·				i i
Station ID	Station Type	<u>Time</u>	mg/liter	%SAT	PPT	Cond	HaD o∠ Temp	NTU	Depth	NOTES
	Shove	06:35	2.91				15.3		Top	
BV02	it .	०६:वर्ड	5.7				17.6	M-8	ţı .	
BV03	١,	06:02	5.40				18.3		71	,
BV04	¥ .	06:17	7.602	-			18,4		1,	
BV05	H	07:16	3.19				17.3		34	
B∨06	14	07:37	401				15.5		i,	
BV07	$\mu = \mu$	06:58	2,62		\$.		18 1		¥.	•
BV08	11	06:52	2.47				17,70		Çe .	
BV09									-	
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PROJECT/SURVEY NAME: BUEN IA VISTA LACOOM TIME STARTED: CO24 TIME FINISHED: C735 LATITUDE: LONGITUDE: DATE: 4/20 D7 TIME STARTED: CO24 LONGITUDE: PROJECT MANAGER: KEITH W. MERKEL MONITORS: Station Type Time Mg/liter WSAT PPT Cond Temp NTU Depth NOTES 101 Lagoon C024 C23 C35 240 16.21 33.1 0.11 102 Lagoon C028 B.27 33.8 2.68 16.21 33.1 0.11 103 Lagoon C021 104 Lagoon C021 105 Lagoon C021 106 C021	
Station ID Station Type Time mg/liter %SAT PPT Cond Temp NTU Depth NOTES	
Station 1D Station Type Time mg/liter %SAT PPT Cond Temp NTU Depth NOTES 101 Lagoon CO24 (2.23 6.35 2.40	
101 Lagoon	
102 Lagoon 0628 3.27 33.8 2.68 — 16.21 33.1 0.11 103 Lagoon 0621 2.90 38.2 2.71 4.89 15.95 ~40 0.11 104 ' Lagoon 0711 10.06 105.5 2.30 — 16.96 44.0 0.10 105 Lagoon 0713 9.60 100.6 2.17 — 16.92 31.8 0.10 106 Top Lagoon 0742 9.59 103.0 2.05 3.76 18.14 23.5 0.12 106 Middle Lagoon 0742 9.62 103.3 2.06 3.77 18.16 22.3 0.29	
102 Lagoon 0628 3.27 33.8 2.68 — 16.21 33.1 0.11 103 Lagoon 0621 2.90 38.2 2.71 4.89 15.95 ~40 0.11 104 ' Lagoon 0711 10.06 105.5 2.30 — 16.96 44.0 0.10 105 Lagoon 0713 9.60 100.6 2.17 — 16.92 31.8 0.10 106 Top Lagoon 0742 9.59 103.0 2.05 3.76 18.14 23.5 0.12 106 Middle Lagoon 0742 9.62 103.3 2.06 3.77 18.16 22.3 0.29	èitz.
104 ' Lagoon 0711 10.04 105.5 2.30 / 14.94 44.0 0.10 105 Lagoon 0713 9.60 100.42 2.17 / 14.92 31.8 0.10 106 Top Lagoon 0742 9.59 103.0 2.05 3.76 18.14 23.5 0.12 106 Middle Lagoon 0742 9.62 103.3 2.06 3.77 18.16 22.3 0.29	
105 Lagoon 0713 9.60 100.6 2.17 — 16.92 31.8 0.10 106 Top Lagoon 0742 9.59 103.0 2.05 3.76 18.14 23.5 0.12 106 Middle Lagoon 0742 9.62 103.3 2.06 3.77 18.16 22.3 0.29	
106 Top Lagoon 6742 9.59 103.0 2.05 3.76 18.14 23.5 0.12 108 Middle Lagoon 6742 9.62 103.3 2.06 3.77 18.16 22.3 0.29	
108 Middle Lagoon 07-12 9.62 103.3 2.06 3.77 18.16 22.3 0.29	
	·
106 Bottom Lagoon 0743 9.48 10).3 2.10 3.86 17.94 27.1 0.55	
106 Average Lagoon 950	
107 Top Lagoon 0737 891 95 6 1.97 3 63 18.16 6.4 0.14	
107 Middle Lagoon 0738 9.00 96.6 1.97 3.63 18.20 6.0 0.28	
107 Bottom Lagoon 0739 8.80 94.4 1.98 3.64 18.20 6.7 0.50	
107 Average Lagoon 8.9	
108 Top Lagoon 0720 11.16 120.2 2.02 18.36 0.11	
108 Middle Lagoon 0726 11.20 118.8 2-01 3.71 18.39 22.2 0.32	
108 Bottom Lagoon 0127 10.97 118.3 2.01 3.71 1840 19.7 0.55	
11.05	
0722 724 710 4 1 lab 3 17 14 83 0.12	
mise 7 m 2d 2 163 3.18 16 dD 0 2ct	
1787 5 sel 50 m 150 2 77 1594 / 0.341	
10 S-7	
109 Average Lagoon U.J	

19 APR 07-the mas 5cm below natoeline on mood post 20 APR 07-1 6.5cm



ROJECT/SURV		- VA - 41-	217 - 1 -						DATE: 4/		
ME STARTED	<u>C827</u>	_		TIME FINISHED	0859)		`		····	
ATITUDE:			<u>l</u>	LONGITUDE:			<u> </u>	PROJECT MANAGER: KEITH W. MERKEL			
ONITORS:	T									YSI D.O. ROODIN	
tation ID	Station_Type	Time	mg/liter	%SAT	PPT	Confl .	Temp	NTU	Depth	NOTES	
0Å Top	Lagoon	0827	4.91	51.9	1.92	3.51	1743	1.9	0.16	3.64	
0A Middle	Lagoon	827	4.47	47.1	1.99	3.64	17.29	0.5	0,40		
0A Bottom	Lagoon	æ27	4.55	49.5	2.98	5.37	1850	15.6	0.73		
0A Average	Lagoon		4.64								
0B Top	Lagoon	0834	6.55	70.1	1.75	3.22	18.28	149	0.07	4.99	
0B Middle	Lagoon	0834	4.38	48.5	1.75	3.23	18.32	15.9	0.19		
0B Bottom	Lagoon	0834	6.37	68.5	1.75	3.23	18.31	16.1	0.61		
OB Average		, ,	6.43								
	Lagoon	<i>5</i> 830	5.91	629	1.78	3.29	17.88	10.8	0.19	4.660	
OC Tep	Lageon	0831	5.90	628	1.18	3.29	17.91	12.8	0.31		
OC Middle	Lagoon	0831	5.45	58.0	1.79	3.30	17.87	13.1	0.51		
IOC Bottom	Lagoon		5.75	ب- در		7.50	, ,,,,,,,			· -	
0C Average	Lagoon	0840	4.01	64.7	1.75	3,23	18.39	14.3	0.11	4,57	
OD Top	Lagoon	0840	1	654		3.23	18.39		0.28	7701	
0D Middle	Lagoon	osti	6,12	65.9	1.75		18,38	T	0.58		
10D Bottom	Lagoon	UETI		GP 3.7	1.75	3,23	10,70	F1. /	0.50		
10D Average	Lagoon		6.07	69.4	100	2 01	10.06	12.4	0.13	1100	
10ЕТор	Lagoon	0847	6,46	· · · · · · · · · · · · · · · · · · ·	1.75	3.24	18.25	 		4.95	
10E Middle	Lagoon	0848	4.59	70.7	1.75	3.24	18.24	11.6	0.38		
10E Bottom	Lagoon	0848	4.62	71.7	1.75	3.23	18.14	13.0	0.52		
10E Average	Lagoon		le Ele		1		11.00			0	
10F Top	Lagoon	0865	5.27	56.3	1.79	3.30	17,99	12.5	6.14	3.89	
10F Middle	Lagoon	0835	5.23	55.8	1.79	3.30	18.00	-	0.34		
10F Bottom_	Lagoon	0856	3.16	55.0	1.80	3.32	17.97	11.]	0.59		
10F Average	Lagoon		5.22								
10G Top	Lagoon	0858	4.51	47.7	1.80	3.31	17.61	0,0	0.14	3.20	
10G Middle	Lagoon	0859	4.21	44.le	1.79	3.30	17.58	0.0	0.33		
10G Bottom	Lagoon	0899	4.37	46.3	1.80	3.32	17.61	O. D	0.43		
10G Average	Lagoon		4.36								
								İ			
<u> </u>											
				_							

Buena Vista Lagoon Restoration Feasibility Analysis

Final Report

Volume 1: Main Report



Prepared for:
Buena Vista Lagoon Foundation
California State Coastal Conservancy
U.S. Fish and Wildlife Service

Prepared by: Everest International Consultants, Inc.



June 2004

BUENA VISTA LAGOON RESTORATION FEASIBILITY ANALYSIS

Final Report

Volume 1: Main Report

Prepared For:

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Contact: David Cannon

June 2004

3.5 WATER QUALITY

3.5.1 Buena Vista Lagoon

The water column in the Lagoon was most recently sampled in the period from June 1999 to November 1999 at six locations within the Lagoon for conventional pollutants, nutrients, and other water quality parameters on a monthly or bimonthly basis (Coastal Environments, 2000). The results are summarized in Table 3.7.

Table 3.7 Lagoon Water Quality Sampling Results

CONSTITUENT	Unit	Measured Range	BASIN PLAN OBJECTIVE ⁽¹⁾
Turbidity	NTU	0.6 - 14.6	20
Total Nitrogen (N)	mg/L	1.0 - 4.4	0.25 ⁽²⁾
Total Phosphorus (P)	mg/L	ND ⁽³⁾ - 0.4	0.025 ⁽²⁾
Total Coliform	MPN/100 mL	Exceeded objective at least once in each basin during period	230 - 330 ⁽⁴⁾
Fecal Coliform	MPN/100 mL	Exceeded objective only once in Railroad Basin during period	400 ⁽⁴⁾
Enterococcus	MPN/100 mL	No exceedance	108 ⁽⁴⁾
Dissolved Oxygen (DO), Surface	mg/L	4.5 - 6.2	7.0
Dissolved Oxygen (DO), Bottom	mg/L	2.5 - 5.4	7.0
рН	Unit	8.0 - 9.3	7.0 - 9.0 ⁽⁵⁾ 6.5 - 8.5 ⁽⁶⁾
' Salinity, Surface	ppt	1.6 - 2.7	
Salinity, Bottom	ppt	1.6 - 3.0	

Source: Coastal Environments (2000)

⁽¹⁾ RWQCB (1994). Not to be exceeded more than 10% of the time per year (per month for bacteria), except for turbidity.

⁽²⁾ For lagoons and lakes.

⁽³⁾ Non-detect.

⁽⁴⁾ Single sample.

⁽⁵⁾ For bays and estuaries.

⁽⁶⁾ For inland waters.

The sampling results indicated that nutrients (N, P) tended to significantly exceed objectives, sometimes by an order of magnitude, which supports the 303(d) listing of nutrients as critical pollutants in the Lagoon. Exceedances of the bacteria objectives were occasional overall, which supports the 303(d) analysis by the Regional Water Quality Control Board (RWQCB) that considered bacteria as of uncertain importance in impairing beneficial uses of the Lagoon. Although total coliforms exceeded objectives more frequently, it is generally considered a less important indicator for bacterial contamination due to its ubiquitous, often naturally occurring sources. The results revealed that DO in the Lagoon tended to be appreciably depressed below objectives, which may be correlated with nutrient excess and algae blooms observed in the Lagoon. Therefore, these results suggest that nutrients, specifically nitrogen (N) and phosphorus (P), are the primary pollutants of concern in the Lagoon.

A reanalysis of the nutrient data from the sampling program was performed to evaluate the potential limiting nutrient in the Lagoon, as summarized in Table 3.8. Since the ratio of N/P is greater than 10, the results indicate that the Lagoon tends to be P-limited, which is typical of a waterbody receiving nutrients predominantly from non-point sources (NPS) (e.g. Thomann and Mueller, 1987). This is consistent with lack of any permitted point source (PS) in the Watershed that discharges into the Buena Vista Creek. Nutrient loadings to the Lagoon are, therefore, expected to primarily originate from NPS such as agricultural, open, and urban lands as suggested in the RWQCB 303(d) fact sheets (RWQCB 1998).

ITEM	TOTAL N	TOTAL P	AVERAGE N/P
Minimum	1.0	0.02	
Maximum	4.4	0.40	48
Mean	1.7	0.10	1

Table 3.8 Lagoon Nutrient Levels and N/P Ratios

3.5.2 Buena Vista Creek

The Buena Vista Creek water was most recently sampled three times during the period between May 1998 and June 1998 at Wildwood Park in Vista, South Vista Way in Carlsbad, and a downstream location near the Lagoon. Sampling was conducted for nutrients, total suspended solids, turbidity, and metals, as summarized in Table 3.9. The sampling results indicate that nutrients (N, P) tended to exceed objectives, which supports the 303(d) listing of nutrients as critical pollutants in the Lagoon. Total dissolved solids (TDS), chloride, and

sodium tend to appreciably exceed objectives, suggesting that a source of elevated salt content in Buena Vista Creek water may be discharging into the Lagoon. Although high salt concentrations in Buena Vista Creek may impact certain beneficial uses within the Creek, they are not expected to have discernible effects on the Lagoon water considering the common brackish conditions in the Lagoon (SCC 2002). There was no exceedance of the metals objectives, which suggests that loadings of metals into the Lagoon are not significant. In summary, the results suggest that nutrients (N, P) are the primary pollutants of concern in the Lagoon, consistent with seasonal algal blooms during late spring/early summer and late summer/early fall.

Table 3.9 Creek Water Quality Sampling Results

CONSTITUENT	Unit	MEASURED RANGE	BASIN PLAN OBJECTIVE ⁽¹⁾	
Total Dissolved Solids (TDS)	mg/L	1,133 - 1,378	750	
Turbidity	NTU	0.6 - 1.7	20	
Total Nitrogen (N)	mg/L	1.9 - 4.1	1.0 ⁽²⁾	
Total Phosphorus (P)	mg/L	0.22 - 0.83	0.1 ⁽²⁾	
Chromium, Dissolved	μg/L	10	16 (max) 11 (chronicle)	
Zinc, Dissolved Total	μg/L	20 40	121	
Chloride	mg/L	454	250	
Sodium	mg/L	254	60	
Sulfate	mg/L	281	250	

Source: RWQCB (2002)

3.5.3 Beneficial Use Impairment

The beneficial uses in the Lagoon were determined to be impaired for aquatic life, contact recreation, and noncontact recreation based on a water quality assessment conducted by the RWQCB (1996, 1998). The pollutants determined to be critical for 303(d) listing included

⁽¹⁾ RWQCB (1994). All objectives (except for turbidity) not to be exceeded more than 10% of the time per year.

⁽²⁾ For streams.

nutrients, sediment, and bacteria. The extents of impairment included 150 acres by nutrients, 350 acres by sediment, and potentially 350 acres by bacteria.

The initial basis for listing nutrients as priority pollutants was largely observational and qualitative. Treated sewage was discharged directly into the Lagoon until 1967. Together with urban runoff, nutrients were historically recycled within the Lagoon. The presence of the original hydraulic control structure at the mouth of the Lagoon, which was installed in 1948 with a crest elevation at 5.8 ft NGVD, permanently isolated the Lagoon from tidal flushing (SCC 2002). The water depth in the Lagoon, which is regulated by the higher of the weir crest and barrier beach berm, varies from 1 ft to 3 ft. Periodic algae blooms and presumed nutrient build-up in the bottom sediments may promote eutrophication in the Lagoon and likely were associated with localized fish kills. Direct observation of water quality conditions in Buena Vista Creek indicated potential eutrophication in the stream water that discharges into the Lagoon (SWRCB 2002).

The basis for listing sediment as a priority pollutant was also largely observational and qualitative. The Lagoon was determined to have received sediment discharge through storm water runoff from various sources in the Watershed that included agricultural land erosion, construction, and channel erosion. The weir and barrier beach berm prevent sediment transport from the Lagoon into the Pacific Ocean. Approximately 122,000 cubic meters (m³) to 130,000 m³ of sediment was dredged from the I-5 Basin in 1983, from which two bird nesting islands were created. The islands were graded and capped with sand in 1989. Urbanization of the Watershed that generally increased peak flow discharges during storms and encroachment upon the floodplain that eliminated most of the riparian and marsh land buffer were considered primary factors that contributed to Lagoon sedimentation, particularly during the period of the late 70's and early 80's.

The basis for listing bacteria as a priority pollutant was based on occasional exceedances of bacteria objectives from water quality sampling in the Lagoon. A number of sewage spill incidences occurred during the period of 1991 to 1995 and contributed to elevated bacteria levels in the Lagoon. Storm water runoff that discharges into the Lagoon also contributed to occasional violation of bacteria objectives.

The three priority pollutants were listed on both the 1996 and 2002 303(d) List, with sediment designated higher priority (Medium) compared with nutrients (Low) and bacteria (Low). Since the extent and level of beneficial use impairment by bacteria was determined uncertain by the RWQCB (1998), only sediment and nutrients are considered primary critical pollutants for the present study.

3.6 SEDIMENT QUALITY

Sediments in the Lagoon were most recently sampled during February 24 to March 3, 2003 as part of the present study that is presented in Appendix B. A total of 20 sediment cores were collected throughout the Lagoon with target depths ranging from 9 ft (16 cores) to 20 ft (4 cores). The sample cores were segmented into three strata: top (0-3 ft), mid (3-9 ft), and bottom (9-20 ft), and composited by stratum for each of the four basins. The composite samples were analyzed for physical attributes and chemical constituent levels.

Figure 3.5 presents the grain size distributions within the three sediment strata for each of the four basins (I-5=1-5 Basin, CH=Coastal Highway Basin, RR=Railroad Basin, and W=Weir Basin). Table 3.10 through Table 3.12 provide summaries of the laboratory results of the physical and chemical attributes of the sediments. Various effects levels and benchmark criteria that are commonly used in sediment quality evaluation are also listed for comparison with the constituent concentration levels found in the Lagoon sediments.

Table 3.10 Sediment Physical Characteristics

SAMPLE ID	тос	SPECIFIC CONDUCTIVITY	TOTAL DISSOLVED SOLIDS	SALINITY	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX
	(% dry wt.)	(mS, pore water or extract)	(g/L, pore water or extract)	(‰, pore water or extract)) ,	
I-5 T op	1.86	22.3	11.3	13.5	87	28	59
I-5 Mid	0.64	29.8	15.1	18.6	51	24	27
I-5 Bot	0.12	56.6	28.5	37.3	-	NP 1	-
Coast Hwy-Top	0.91	3.3	1.6	1.7	70	22	48
Coast Hwy-Mid	0.14	9.8	4.9	5.5		NP	-
Coast Hwy-Bot	0.14	9.6	4.8	5.3	-	NP	-
RR-Top	0.50	3.6	1.8	1.9	39	19	20
RR-Mid	0.13	3.3	1.6	1.7	-	NP	-
RR-Bot	0.12	2.7	1.3	1.4	-	NP	-
Weir-Top	0.36	4.0	2.0	2.1	-	NP	
Weir-Mid	0.18	4.5	2.2	2.4	-	NP	_
Weir-Bot	0.04	5.7	2.8	3.0	-	NP	-

^{1.} Non-Plastic

Metal Concentrations (μg • g⁻¹) Table 3.11

CONSTITUENT	MINIMUM	MAXIMUM	ER-L ¹	STLC ²	TTLC ³
Antimony	ND	ND		15	500
Arsenic	1.2	7.1	8.2	5	500
Barium	15.7	130		100	10,000
Beryllium	ND	ND		0.75	75
Cadmium	ND	ND	1.2	1	100
Chromium	4.9	31	81	5	500
Cobalt	2.4	11.6		80	8,000
Copper	3.9	39.9	34	25	2,500
Lead	30.5	30.5	46.7	5	1,000
Mercury	0.05	0.05	0.15	0.2	20
Molybdenum	2.2	2.6		15	3,500
Nickel	4.4	14.4	20.9	20	2,000
Selenium	ND	ND		1	100
Silver	ND	ND	1	5	500
Thallium	ND	ND		7	700
Vanadium	11.8	71.5		24	2,400
Zinc	7.7	95.7	150	250	5,000

Effects Range – Low
 Soluble Threshold Limit Concentration

^{3.} Total Threshold Limit Concentration

Table 3.12 Organic Constituent Concentrations

CONSTITUENT	Max (NG • G ⁻¹)	STLC (NG • ML ⁻¹)	TTLC (NG • G ⁻¹)	ER-L (NG • G ⁻¹)	ER-M ¹ (NG • G ⁻¹)
Aldrin	0.07	140	1,400		
Chlordane	2.60	250	2,500		
DDT, DDE, DDD	5.83	100	1,000	1.58	46.1
2,4-Dichlorophenoxyacetic Acid	ND	10,000	100,000		
Dieldrin	0.11	800	8,000		
Endrin	0.10	20	200		
Heptachlor	0.23	470	4,700		
Methoxychlor	0.09	10,000	100,000		
Mirex	0.13	2,100	21,000		
Pentachlorophenol	ND	1,700	17,000		
Total PCB	3.53	5,000	50,000	22.7	180
2,4,5-Trichlorophenoxypropionic acid	ND	1,000	10,000		
Total PAH	539.41	NA	NA	4,022	44,792

^{1.} Effects Range – Medium

The results of laboratory analysis indicate that the sediments were primarily composed of sand size particles with diameters increasing in the downstream (east to west) direction. Sediments from the top nine feet of the I-5 Basin and the top three feet of the Coast Highway Basin were the only samples with less than 70 percent sand. Total Organic Carbon (TOC) concentrations were low in most samples with only one exceeding 1 percent. Particle size increased and TOC decreased moving downstream to the west, an expected deposition pattern for sediments associated with the inflows from Buena Vista Creek.

There was very minimal evidence of contamination by metals or organic compounds. The sample with the highest levels of constituents above detection limits was the 0-3 ft surface sample from the I-5 Basin. The levels were significantly below the concentrations that are known to cause biological effects. Table 3.13 presents potential sediment management options based on the findings of sediment characterization. However, further sampling and testing may be required to better define the distribution patterns of the physical and chemical characteristics of the sediments across the Lagoon depending on the sediment management options selected.

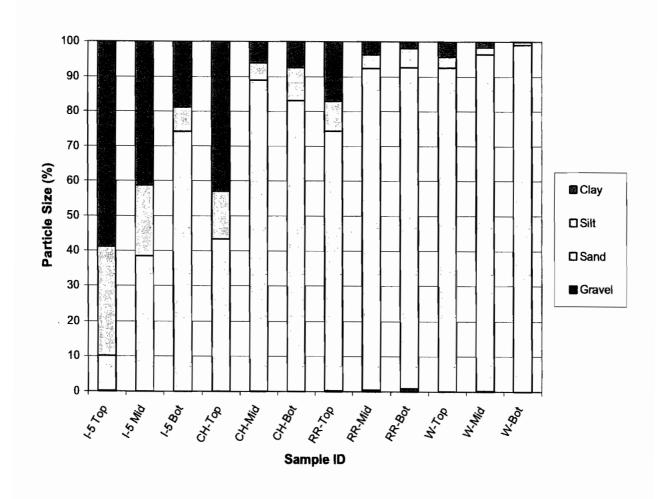


Figure 3.5 Sediment Grain Size Distribution

Table 3.13 Sediment Management Options

Landfill	All sediment samples pass hazardous waste criteria and would be acceptable for disposal at any class of landfill based on chemistry data.				
Construction Fill	Physical attributes of the samples (e.g. plasticity and salinity) may affect the acceptability for site-specific land fills or construction sites.				
Ocean Disposal	All sediment samples would be expected to meet and exceed ocean disposal acceptance criteria.				
Beach Replenishment (based on 80% sand composition)	I-5 Basin Most sediments below nine feet Coast Hwy. Basin Sediments below three feet Railroad Basin Sediments below three feet Weir Basin All Sediment				

3.7 SEDIMENT AND NUTRIENT LOADING AND SOURCES

3.7.1 Sediment

Sediment loading into the Lagoon from the Watershed was evaluated using a regional sediment loading estimator (Chian 2003). Primary sediment source areas were also identified as part of the analysis. The results of the sediment loading analysis are shown in Table 3.14.

Table 3.14 Sediment Loading from Buena Vista Creek

LAND USE	AGRICULTURE	RANGE	BARREN	URBAN/ BUILT-UP	FOREST	OTHER SOURCES/ SINKS	TOTAL
Area (acré)	1,743	1,300	421	6,609	103		10,175
Percent Watershed (%)	15.6	11.6	3.8	59.1	0.9		. 91
Loading Rate (m³/acre/year)	1.76	0.28	6.54	0.04	1.75		
Loading (m³/yr)	3,064	369	2,754	253	180	20,435	27,055

The results indicate that the Watershed discharges an annual total of approximately 27,100 m³ of sediment to the Lagoon. The majority (75%) of the total loading appears to be contributed by sediment sources other than the five primary upland land uses considered. These sources would include channel erosion among other contributors. Applegate (1985) estimated a total of 27,540 m³ eroded annually from the main channel and side channels of Buena Vista Creek, which seems to be qualitatively consistent with the present estimate. Among the remaining sources (i.e., other 25%) of the total loading produced by the five upland land uses considered, Agriculture Lands contribute the greatest amount to the Lagoon, followed closely by Barren Lands. Although relatively small in acreage, Barren Lands contribute a loading comparable to Agriculture lands as a result of the appreciably higher loading rate. Contributions from Range and Urban/Built-Up lands are significantly smaller due to lower loading rates from these land uses, especially in the case of Urban/Built-Up lands. The contribution from Forest lands is relatively negligible due to the small acreage of forest present in the Watershed. On this basis, the primary sources of sediment in the Lagoon are, in the order of importance, stream channels, Agriculture lands, and Barren lands.

Sediment yield from the Buena Vista Creek Watershed and loading into the Lagoon were previously estimated by Applegate (1985) and Chang (1986) using different methods. Applegate (1985) estimated the sediment production rate from the Watershed at approximately 58,140 m³ per year (yr) based on soil conditions, cover, and prior observations. A computer modeling effort performed by Phillip Williams Associates as part of the Applegate (1985) study yielded a loading of approximately 23,000 m³ per yr from Buena Vista Creek. Chang (1986) estimated the loading rate from Buena Vista Creek at approximately 5,000 m³ per yr. These estimates appear to bracket the loading rate of 27,100 m³ per yr estimated as part of the present study.

3.7.2 Nutrients

Nutrient (N and P) loadings into the Lagoon from the Buena Creek Watershed were evaluated using a regional nutrient loading estimator (Chian 2003). Primary nutrient source areas were also identified as part of the analysis. The total annual loadings into the Lagoon are presented in Table 3.15.

LAND USE	AGRICULTURE	RANGE	BARREN	URBAN/ BUILT-UP	FOREST	OTHER SOURCES/ SINKS	TOTAL
Area (acre)	1,743	1,300	421	6,609	103		10,176
%Total Watershed	15.6	11.6	3.8	59.1	0.9		91
Total N Loading (ton/yr)	5.5	2.9	1.1	26.0	0.0	36.1	71.6
Total P Loading	0.44	0.31	*	3.2	0.0	2.7	6.7

Table 3.15 Nutrient Loadings from Buena Vista Creek

The results in Table 3.15 indicate that the Watershed discharges annual totals of approximately 72 tons and 7 tons of total N and total P into the Lagoon, respectively. Significant portions of these loadings appear to be contributed by sources that are unaccounted for by the five land uses considered. These sources are expected to consist primarily of unregulated or unknown discharges among other potential contributors. Among the five land uses analyzed, Urban/Built-Up lands contribute the greatest amounts of nutrients into the Lagoon, followed by Agricultural and Rangeland uses. On this basis, the primary sources of total N and P to the Lagoon are, in the order of importance, Urban/Built-Up lands, unregulated/unknown dischargers, Agriculture lands, and Barren lands.

3.8 NEARSHORE AREA

3.8.1 Bathymetry

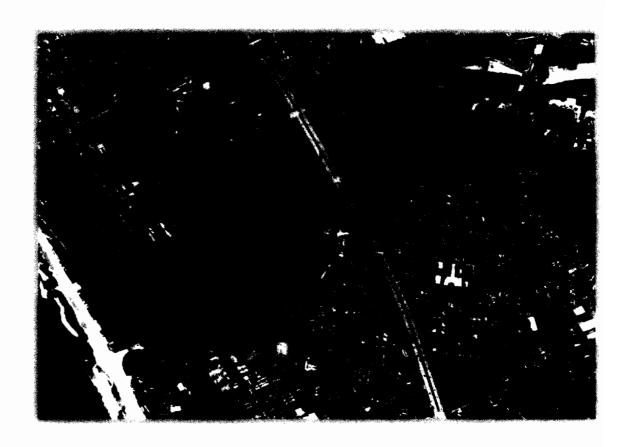
The coastal bathymetry offshore of the Lagoon is characterized by the relatively steep cross-shore seabed profiles as a result of the proximity to the Carlsbad Submarine Canyon off Agua Hedionda Lagoon, located just south of the area. The isobaths remain relatively regular and only slightly convergent toward the southeast approaching the Carlsbad Submarine Canyon. On a regional basis, the nearshore bathymetry is continuous from Dana Point to Point La Jolla. Carlsbad Submarine Canyon is relatively less prominent than La Jolla Submarine Canyon farther to the south and its effect on the bathymetry is not significant inshore of the 120-foot Mean Lower Low Water (ft, MLLW) isobath. The coastal bathymetric setting of the study area is shown in Figure 3.6.

Not estimated (see previous discussion). Contribution incorporated in "Other Sources/Sinks"

Buena Vista Lagoon Restoration Feasibility Analysis

Final Report

Volume 2: Appendices



Prepared for:

Buena Vista Lagoon Foundation California State Coastal Conservancy U.S. Fish and Wildlife Service

Prepared by:

Everest International Consultants, Inc.



June 2004

BUENA VISTA LAGOON RESTORATION FEASIBILITY ANALYSIS

Final Report

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Buena Vista Lagoon Restoration Feasibility Study

Sediment Characterization

Final Report

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Battelle Project Number: N005473



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Project Number: N005473

1.0 INTRODUCTION

1.1 Purpose and Objectives

This report presents sampling, analysis and quality assurance results which characterize chemical and physical properties of sediments and vegetation at Buena Vista Lagoon, California. Information generated from this investigation (Investigation) will be used in the Buena Vista Lagoon Restoration Feasibility Study (Study) to evaluate disposal options and the associated costs of sediment management alternatives. The Investigation portion of the Study was funded by the Buena Vista Lagoon Foundation and the US Fish and Wildlife Service. Everest International Consultants, Inc. (Everest) is responsible for managing the Study; Battelle is responsible for the Investigation. Support was provided by TEG Oceanographic (TEG), Columbia Analytical Services (CAS), and Applied Marine Sciences (AMS). There were two sampling phases. The first survey took place from February 24 to March 2, 2003; the second survey occurred on September 4 and 5, 2003.

1.2 Background

Buena Vista Lagoon is located approximately 35 miles north of San Diego, California, in the cities of Carlsbad and Oceanside (Figure 1-1). The Lagoon is comprised of approximately 225 acres segregated into four basins. The basins are identified (from west to east) as "Weir", "Railroad", "Coast Highway", and "I-5". The Lagoon is shallow in depth, with most areas less than 2 feet deep, ranging from 0 feet in marsh areas to approximately 12 feet in the eastern portion of the I-5 Basin. Flow of water and suspended sediments through each basin is limited by the constrictions defining each basin and the absence of deep channels to direct flow. Construction of a weir at the western terminus in 1940 and 1970 modulates water level and has essentially eliminated tidal flushing. In addition, the beach berm that forms across the Lagoon inlet at the ocean interface controls the maximum water level in the Lagoon.

1.3 Previous Studies

Very little data are available that documents chemical contamination within Buena Vista Lagoon sediments. The most recent sampling and analysis of metals and organic chemicals was performed by the State of California Department of Fish and Game in 1981. The study was conducted to determine the suitability of Lagoon material as fill for a public park. Detailed sampling information was not provided in the Fish and Game memorandum of laboratory results. Interpretation of the data table suggests sediments from five locations were analyzed, with three of the five locations having samples from two depths, for a total of eight samples. Samples were collected from the I-5 Basin only.

Coastal Environments performed the study <u>Buena Vista Lagoon Land Management Plan Elements</u> for the Buena Vista Lagoon Foundation in 1999. This study examined bathymetry, water quality, biology, and soil conditions in the Lagoon. The soil conditions were provided to Coastal Environments in a report titled "Limited Geotechnical Investigation and Input to Buena Vista Lagoon Land Management Plan Elements" prepared by Group Delta Consultants, Inc. (GDC) in November 1999. GDC's report provided

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a geologic and geotechnical history of Buena Vista Lagoon, geotechnical characterization of the upper natural sediments in the lagoon basins, and recommendations relating to foundation design for the proposed boardwalk on the east side of Carlsbad Boulevard. Eight power-auger and 13 hand-auger borings were drilled to depths ranging from 2.5 to 31.5 feet. The general description of material found from 2.5 to 20 feet is loose sands, silts and clays of fluvial and estuarine origin. Below 20 feet, sediments are medium dense to very dense sands with abundant shells and shell fragments. Grain size analyses, moisture content, and Atterberg limits tests were performed on selected soil samples.

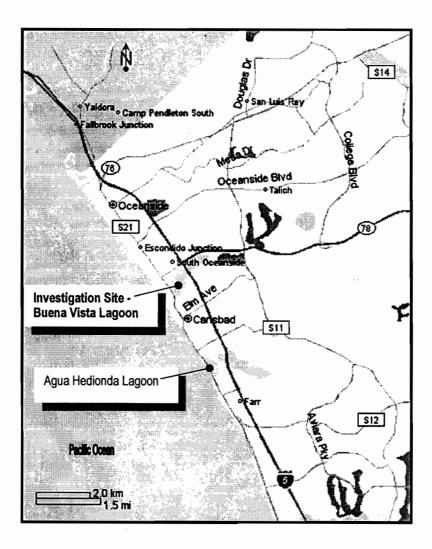


Figure 1-1. Location of Buena Vista Lagoon

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Project Number: N005473

1.4 Team Roles and Contact Information

An overview of the project team for the Investigation is presented in Table 1-1.

Table 1-1. Team Roles and Contact Information.

Team Member	Responsibilities	Contact
Everest	Buena Vista Lagoon Restoration Feasibility Study Prime Consultant	Mr. David Cannon 444 West Ocean Boulevard Suite 1104 Long Beach, CA 90802 Ph: (562) 435-9309 Fax: (562) 435-9310
Battelle	Sediment Characterization Investigation management; PAH, PCB, and pesticide analyses, QA/QC, and reporting	Mr. John Hardin 2382 Faraday Ave., Suite 120 Carlsbad, CA 92008 Ph: 1-760-476-1415 Fax: 1-760-476-1416
TEG	Vessel, core sampling equipment and field staff support	Mr. Mark Mertz 216 Florence Dr. Aptos, CA 95003 Ph: (831) 684-2749
CAS	Trace metal and herbicide analyses, and Title 22 testing	Ms. Lynda Huckestein Columbia Analytical Services 1317 South 13th Ave. Kelso, WA 98626 Ph: 1-360-577-7222 Fax: 1-360-636-1068
AMS	TOC, grain size, Atterberg Limit, and conductivity analyses	Dr. Kenneth Davis Applied Marine Sciences, Inc. 502 N. Highway 3, Suite B League City, TX 77573 Ph: (281)-554-7272 Fax: (281)-554-6356

2.0 STUDY DESIGN AND METHODS

The primary objective of this Investigation is to further characterize the chemical and physical properties of the lagoon sediments and vegetation to assist in the assessment of the cost and feasibility of various restoration design alternatives. In particular, data presented in this report describe the general physical and chemical conditions of sediments and vegetation in the lagoon and will be used, along with the 1999 Coastal Environments study and other available resources, to evaluate sediment management alternatives for moving and dispensing lagoon sediments. A second phase of the study was undertaken to assess if any concentration of contaminants occurred within sediments trapped within aquatic vegetation, or the vegetation itself. Also measured in the second phase was the density of reed material that may be removed as part of the remediation effort.

Since a restoration plan has not been completed, it is not completely certain what data requirements will be needed to satisfy the California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA). Therefore, additional data may be needed to complete the CEQA/NEPA process and obtain permits for the selected restoration alternative in the future.

2.1 Phase 1 Sampling

Phase 1 objectives are summarized as follows:

- Analyze results and characterize the contamination, if any, of sediments within Buena Vista Lagoon.
- Document current chemical and physical conditions of sediments within each basin and at several depth ranges within each basin.
- Archive samples from several depth ranges from each core sample to allow further delineation
 of contamination in the event such contamination restricts disposal or relocation options.

A total of 20 sediment cores were collected from Buena Vista Lagoon using a 4-in. outside diameter (OD) vibracore sampler. The target depth of 16 cores was 9 feet, and the target depth of one core within each of the four basins was 20 feet. Sediment from the 20 cores was sectioned vertically and archived in the following groups:

- 9-ft Core Sections (ft): 0-3; 3-6; 6-9
- 20-ft Core Sections (ft): 0-3; 3-6; 6-9; 9-15; 15-20

Segments were composited into 12 samples by basin as detailed in Section 2.2. Bulk sediment samples were analyzed for 17 elements, polycyclic aromatic hydrocarbons (PAH), pesticides, PCBs, herbicides, Total Organic Carbon (TOC), particle size, and Atterberg Limits. The 12 composite samples also were proposed for analysis of California Title 22 Soluble Threshold Limit Concentration (STLC) levels for 17 metals. However, initial results indicated very low concentrations of metals; therefore, the Title 22 testing was deemed unnecessary and was not performed.

Complete details of the sampling plan and laboratory analytical methods, including detection limits, are provided in the document <u>Buena Vista Lagoon Restoration Feasibility Study Sediment Characterization Sampling and Analysis Plan</u> dated January 2003.

2.2 Phase 2 Sampling

Phase 1 data analysis indicated sediments were at background or relatively low levels of contamination. Contamination levels in sediments were lower than expected, elevating the significance of questions regarding potential sequestering (physical and biological) of contaminants in reed and island areas. If reeds are sequestering contaminants, then their function needs to be maintained if the reeds are removed. If they are not, then the contaminant remediation aspect of the reeds does not need to be considered in restoration alternative development. Phase 2 objectives are summarized as follows:

- Provide physical and chemical data for plant and sediments underlying the plants for use to determine if material from reeds, their underlying sediment, and within surface sediments on the islands is clean enough for uses such as mulch, beach replenishment, and other open contact uses.
- Determine if reeds are sequestering contaminants.

2.3 Field Sample Collection

Field activities including pertinent observations (e.g., wildlife, debris or visible contamination), weather conditions, station and sample information (e.g., sample identification, date and time of collection, station arrival and departure times) were recorded in bound, pre-formatted field notebooks.

Figure 2-1 is a map of the sampling locations and Table 2-1 provides a listing of stations, locations, and core splits.

2.3.1 Phase 1 Field Sampling

Battelle and TEG performed the Phase 1 field survey during the period February 24 to March 3, 2003. Poor weather postponed sampling on February 25 and fieldwork resumed on February 26. Operations were conducted on a 10-h per day basis using a field team of four persons.

Samples were taken from a shallow-draft barge equipped with a hydraulic/electronic winch, gantry, and electric vibracore (Figure 2-2). The vessel was positioned at each station (±5 m) using a Leica MK-20 Wide Area Augmentation System (WAAS) differential global positioning system (DGPS). The field team was comprised of Mr. John Hardin from Battelle and three TEG Staff, Mr. Mark Mertz, Ms. Annick Tardif, and Mr. John Carr.

Sediment samples were collected using an electric vibracore sampler. The core tube is a 4-in. OD aluminum tube. The core tube is outfitted with a stainless steel cutting head/catcher tip. To assure no cross-contamination during sampling, the vibracore sampler was decontaminated prior to each deployment as follows:

- Rinse equipment with site water to remove visible sediment
- Scrub the aluminum tubing with a brush using Alconox in site water
- Rinse aluminum tubing with site water
- Air dry

Immediately upon returning to the deck of the survey vessel, the cutting head of the corer was removed. The quality of each core sample was determined by visual inspection prior to sub-sampling. The core was inspected for acceptable recovery and levels of disturbance. Some compaction or liquefaction occurred as is typical in soft sediments. The following criteria were used to determine an acceptable core sample:

- Recovery core length is ≥ 80 percent of penetration length.
- Sample appears to be contiguous and undisturbed.
- Overlying water is present, unless core is full or near full.
- Sediment has not been lost through top of core tube due to over-penetration.

All cores collected met the above criteria and were accepted. Cores were processed in the field by the following method, which was modified from the original sampling plan. Instead of sectioning the core tube, sediment was extruded onto clean plastic lined trays. The sediment from the center of the core was subsampled into clean food grade plastic bags. Pre-printed plastic labels were affixed to the bag and the bag was sealed with a plastic cable tie. Samples from core segments of 0-3; 3-6; 6-9; 9-15; and 15-20 ft were segregated in the field and will be archived up to one year. Archived samples have sufficient material for a full complementary analytical suite.

Notes on each core were entered into the field notebook and each core section was photographed with a digital camera. Field notes and core photos are provided in Appendix A and B, respectively. As mentioned previously, GDC also obtained soil samples during its investigation. Samples of material from those 21 borings were collected by split-spoon samplers in conjunction with standard penetration testing.

2.3.2 Phase 2 Sampling

Battelle staff performed the Phase 2 field survey on 4 and 5 September 2003. Following is a summary of the Phase 2 sampling effort:

- Collect vegetation consisting of leaves and stems (above water and sediment) and the root area (below water/sediment horizon) from two areas:
 - Near the input of Buena Vista Creek along the shore and on the upstream ends of the islands
 - o Along the shore near the I-5 bridge.
- Collect six foot cores from three areas.
 - Near the input of Buena Vista Creek along the shore and on the upstream ends of the islands.

- o Dry land on the islands near Buena Vista Creek.
- o Within reeds near the I-5 Bridge.
- Prepare six composite soil samples from the borings. Analyze composites from the 0-3 foot sections. Archive composites from the 3-6 foot sections.
- Prepare four composite plant samples. Analyze two samples from vegetation above the water/soil level. Analyze two samples from vegetation underwater/within the soil.
- Retrieve sediment archived from the 0-3 foot section of the core at BV-01 collected in March 2003.
- · Analyze sediments and plant tissues for contaminants of concern.
- Measure volume and density of reeds for use in estimating disposal costs.

Sediment and vegetation samples for chemical and physical analyses were obtained using a small inflatable vessel. Core samples were collected with a hand-driven Geo-probe sampler with a 2-inch outside diameter barrel and a 1.75 inch polycarbonate tube liner. Reed samples were collected by hand with a stainless steel knife. For calculating disposal volume and density:

- 1. The average height of reeds estimated.
- 2. Reeds were removed from a measured area
- 3. The volume consumed in disposal transportation vehicle was measured
- 4. The net weight of reed material was determined.

Sampling locations were recorded at each station (±5 m) with a Garmin GPS V Wide Area Augmentation System (WAAS) differential global positioning system (DGPS). The field team was comprised of Mr. John Hardin and Mr. Frederick Newton from Battelle.

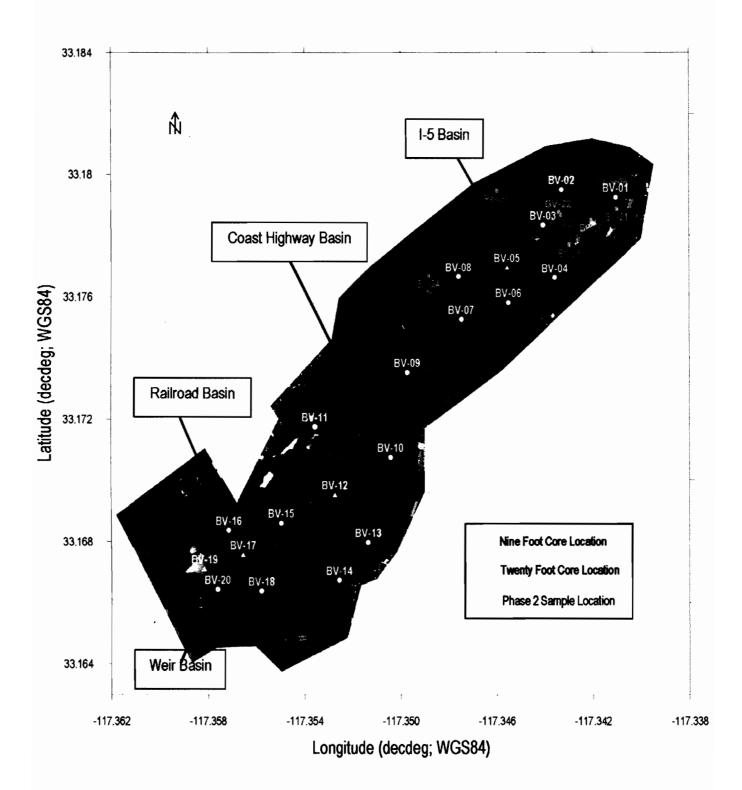


Figure 2-1. Sample Collection Location Map

Table 2-1. Phase 1 Station Locations and Core Splits.

Station ¹				Station C	oordinates1	Depth range split
Name	Basin	Date Sampled	Core Depth (ft)	Latitude	Longitude	(ft)
BV-01	I-5	Feb 24, 2003	9	33.17925	117.34105	0-3; 3-6; 6-9
BV-02	I-5	Feb 24, 2003	9	33.17950	117.34330	0-3; 3-6; 6-9
BV-03	I-5	Feb 26, 2003	9	33.17833	117.34407	$0-3$; $3-6$; $6-7.5^2$
BV-04	I-5	Feb 26, 2003	9	33.17662	117.34358	0-3; 3-6; 6-9
BV-05	I-5	Feb 26, 2003	19	33.17695	117.34557	$0-3$; $3-6$; $6-9$, $9-15$; $15-19^3$
BV-06	I-5	Feb 26, 2003	9	33.17580	117.34552	0-3; 3-6; 6-9
BV-07	I-5	Feb 26, 2003	9	33.17525	117.34747	0-3; 3-6; 6-9
BV-08	I-5	Feb 26, 2003	9	33.17665	117.34758	0-3; 3-6; 6-9
BV-09	Coast Hwy.	Feb 28, 2003	9	33.17352	117.34973	0-3; 3-6; 6-9
BV-10	Coast Hwy.	Feb 28, 2003	9	33.17075	117.35043	$0-3$; $3-6$; $6-8^2$
BV-11	Coast Hwy.	Feb 28, 2003	9	33.17175	117.35358	0-3; 3-6; 6-9
BV-12	Coast Hwy.	Feb 28, 2003	16	33.16952	117.35275	$0-3$; $3-6$; $6-9$, $9-15$; $15-16^3$
	Coast Hwy.	Feb 28, 2003	9	33.16797	117.35137	$0-3; 3-6; 6-8^2$
BV-13						
BV-14	Coast Hwy.	Feb 28, 2003	9	33.16673	117.35257	0-3; 3-6; 6-9
BV-15	Coast Hwy.	Feb 28, 2003	9	33.16860	117.35498	0-3; 3-6; 6-9
BV-16	Railroad	Mar 2, 2003	9	33.16837	117.35717	0-3; 3-6; 6-9
BV-17	Railroad	Mar 2, 2003	17	33.16757	117.35657	0-3; 3-6; 6-9; 9-15; 15-17 ³
BV-18	Railroad	Mar 2, 2003	9	33.16640	117.35567	0-3; 3-6; 6-9
BV-19	Weir	Mar 2, 2003	18	33.16710	117.35817	$0-3$; $3-6$; $6-9$, $9-15$; $15-18^3$
BV-20	Weir	Mar 2, 2003	9	33.16643	117.35762	0-3; 3-6; 6-9
TOTALS	20 Cores					68 Sections

¹Decimal Degrees; WGS84 Datum.

Table 2-2. Phase 2 Station Locations in I-5 Basin and Core Splits.

Station ¹		Core Depth	Station	Coordinates ¹	Depth range split	Reed Sample for Chemistry
Name	Date Sampled	(ft)	Latitude	Longitude	· · · · · · · · · · · · · · · · · · ·	
BV-01	Feb 24, 2003	9	33.17925	117.34105	0-3, 3-6, 6-9	
BV-21	Sep 5, 2003	3	33.17901	117.34103	0-3	X
BV-22	Sep 5, 2003	6	33.17892	117.34341	0-3, 3-6	
BV-23	Sep 5, 2003	6	33.17882	117.34333	0-3, 3-6	X
BV-24	Sep 5, 2003	3	33.17698	117.34878	0-3	X
BV-25	Sep 5, 2003	6	33.17792	117.34297	0-3, 3-6	
BV-26	Sep 5, 2003	3	33.17868	117.34208	0-3	X
Reed	Sep 4, 2003	NA	33.17956	117.34597	NA	
Density	• /					
TOTALS						12 Sections

¹Decimal Degrees; WGS84 Datum.

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² Some compaction observed, incomplete recovery

³ Refusal before 20 ft

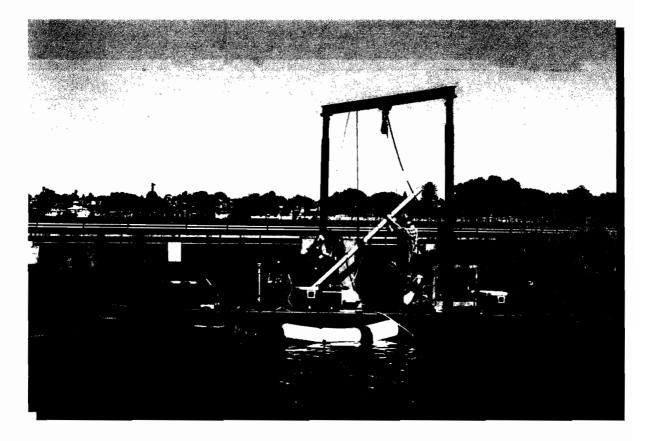


Figure 2-2. Sampling Vessel and Equipment in Weir Basin

2.4 Sample Compositing, Storage, and Shipment

Core sections for both surveys were composited at the Battelle office in Carlsbad prior to shipment. Samples were stored at 4°C. The compositing strategy is detailed in Table 2-3. Sediment was removed from the bag or core tube and placed into a clean stainless steel mixing bowl. Samples were mixed with a clean stainless steel mixing spoon until they were of a uniform color and texture. After thoroughly mixed, samples were placed into the appropriate pre-labeled containers for shipment to the laboratories.

Reed samples were placed into clean zip closure polyethylene bags prior to shipment.

Samples were shipped via overnight service to the three laboratories while being stored at 4°C. For Phase 1 samples, FedEx misdirected the shipments to Battelle and AMS; however, adequate ice was packed and they were received in good condition at both laboratories on the second day after being shipped. All samples for Phase 2 were delivered on time in good condition.

Table 2-3. Sample Composites.

Basin	Depth Strata (ft)	Sample ID	Core Sections in Composite
Phase 1			
I - 5	0 – 3	EV02-101	BV-01, 02, 03, 04, 05, 06, 07, 08
I-5	3 – 9	EV02-102	BV-01, 02, 03, 04, 05, 06, 07, 08
I-5	9 – 19	EV02-103	BV-05
Coast Highway	0 - 3	EV02-104	BV-09, 10, 11, 12, 13, 14, 15
Coast Highway	3 – 9	EV02-105	BV-09, 10, 11, 12, 13, 14, 15
Coast Highway	9 – 16	EV02-106	BV-12
Railroad	0 - 3	EV02-107	BV-16, 17, 18
Railroad	3-9	EV02-108	BV 16, 17, 18
Railroad	9 – 17	EV02-109	BV-17
Weir	0 - 3	EV02-110	BV-19, 20
Weir	3-9	EV02-111	BV-19, 20
Weir	9 – 18	EV02-112	BV-19
Phase 2 (sediment)			
I - 5	0-3	EV02-001	BV-01
[- 5	. 0-3	EV02-080	BV-21, 23, 26
I-5	0-3	EV02-081	BV-24
I-5	0-3	EV02-082	BV-22, 25
Phase 2 (reeds)			Reed Material in Composite
I- 5	Above water	EV02-090	BV-21, 23, 26
I-5	Underwater	EV02-091	BV-21, 23, 26
I-5	Above water	EV02-092	BV-24
I-5	Underwater	EV02-093	BV-24

3.0 LABORATORY METHODS AND RESULTS

Summary results for sediment measurements of physical properties, metals and organic chemicals (PAHs, PCBs, pesticides, herbicides, and semi-volatile compounds) are presented in this section. Complete descriptions of the methods are provided in the <u>Buena Vista Lagoon Restoration Feasibility Study</u> Sediment Characterization Sampling and Analysis Plan.

3.1 Methods

All samples were analyzed using standard, certified laboratory methods. Laboratory quality control samples consisted of calibration standards, duplicate samples, standard reference materials, surrogates, and laboratory blanks where appropriate. Quality control samples were analyzed at the same time as test samples. All samples were archived under proper storage conditions and are available for future reference.

3.1.1 Physical Laboratory Methods

Sediment grain size was analyzed using a sieve and pipette method (Plumb 1981). Results are reported for four grain size classes (i.e., gravel, sand, silt and clay). Sediments were analyzed for total organic carbon using a DC-190 high temperature total organic carbon analyzer with an infra-red detector for purposes of quality control.

3.1.2 Elemental and Organic Laboratory Methods

Hydrocarbon analyses consisting of PAHs were performed using gas chromatography/mass spectrometry (GC/MS), PCBs and pesticides by GC/electron capture detection (ECD). Metals were analyzed using a combination of atomic absorption and inductively coupled plasma techniques. Herbicides and semivolatile organics are analyzed by GC/MS.

3.2 Laboratory Results

Twelve samples were analyzed for physical and chemical parameters. Results for physical attributes are presented in Section 3.2.1. Results for metals are presented in Section 3.2.2 and organic constituents are presented in Section 3.2.3. Complete tabular results for elemental and organic chemistry testing are provided in Appendix C.

3.2.1 Physical Attributes

A graphical presentation of particle size data is presented in Figure 3-1 and grain size distribution curves are presented in Appendix D. It is important to note that these curves represent results for composite

samples, not for specific coring locations or depths. Table 3-1 summarizes TOC, conductivity, and Atterberg Limit data.

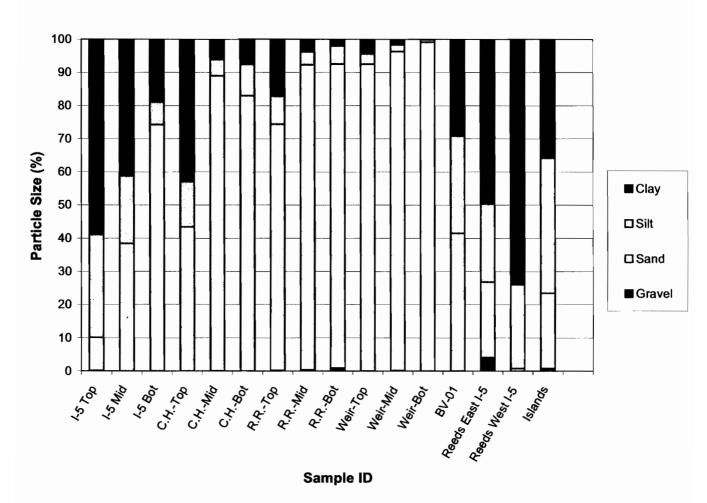


Figure 3-1. Particle Size Distribution

Material from the surface samples contained the highest percentage of fine grained particles (silts and clays). Sand composition increased moving downstream across the basins toward the ocean. Sediment from 7 of the 12 samples exceeded 80% sand composition and 2 other samples exceeded 70% sand. Small percentages of gravel sized particles (shell material) were measured in the Railroad Basin.

Total organic carbon levels were low as is characteristic of high sand content samples. The only sample exceeding 1% TOC was one from the top three feet I-5 Basin. Conductivity and salinity of the sediments varied greatly, highest levels were within I-5 Basin sediments (37.3%) and lowest in the Weir Basin (<2%).

Eight of the 12 samples were found to be non-plastic. For the four samples with measurable amounts of plasticity, the liquid limit ranged from 39 - 87, and the plasticity index ranged from 20 to 59.

Sediment salinity (porewater or extract) ranged from 37.3 ‰ (I-5 Basin, bottom section) to 1.4 ‰ (Railroad Bain, top section). Conductivity and Total Dissolved Solids values were similarly high in the I-5 Basin samples. Samples were re-run to confirm the result. Both sets of data indicate higher than expected ionic concentrations in the I-5 basin. The source of the salts is not certain, neither are the

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concentrations of individual ions. Levels increasing by depth in the eastern most lagoon suggest that the environment may have been intermittently flooded in the past, causing evaporation and concentration of ions. The source of salts is most likely seawater, but could also be from agriculture activities. Lower levels near the surface imply that the depositional environment has changed or they are slowly being diluted. Within the region, there are hard siltstone and sandstone layers that could be trapping salts in subsurface sediments by reducing their diffusion. The individual core section BV02-101, taken from archive and individually analyzed, measured at a similar level of salinity as the composite from the lagoon. This indicates continuity in salinity of I-5 Basin one-three foot deep open water sediments. Sediment collected within reeds were from shoaled areas (shallower) with more recently deposited material and contained lower salinity concentrations.

Table 3-1. TOC, Conductivity, Total Dissolved Solids, Salinity, Atterberg Limits

Sample ID	тос	Specific Conductivity	Total Dissolved Solids	Salinity	Liquid Limit	Plastic Limit	Plasticity Index
	(% dry wt.)	(mS, pore water or extract)	(g/L, pore water or extract)	(‰, pore water or extract)			
I-5 Top	1.86	22.3	11.3	13.5	87	28	59
I-5 Mid	0.64	29.8	15.1	18.6	51	24	27
I-5 Bot	0.12	56.6	28.5	37.3	-	NP	-
Coast Hwy-Top	0.91	3.3	1.6	1.7	70	22	48
Coast Hwy-Mid	0.14	9.8	4.9	5.5	-	NP	-
Coast Hwy-Bot	0.14	9.6	4.8	5.3	-	NP	-
RR-Top	0.50	3.6	1.8	1.9	39	19	20
RR-Mid	0.13	3.3	1.6	1.7	-	NP	-
RR-Bot	0.12	2.7	1.3	1.4	-	NP	-
Weir-Top	0.36	4.0	2.0	2.1	-	NP	-
Weir-Mid	0.18	4.5	2.2	2.4	-	NP	-
Weir-Bot	0.04	5.7	2.8	3.0	-	NP	-
I-5 (BV02-101)	0.43			14.1	57	21	36
Reeds East (I-5)	0.87			5.0	58	21	37
Reeds West (I-5)	0.62			4.8	49	17	32
Islands	1.98			2.0	-	-	-

NP - Non-Plastic

3.2.2 Elemental and Organic Laboratory Results

Concentrations of all elements and organic compounds were well below levels that cause environmental concern.

Figure 3-2 presents the minimum and maximum concentrations of elemental data along with average earth crustal concentrations from Krauskoph (1967); the environmental effects range-low (ER-L; Long et. al.,1995); and, soluble threshold limit concentrations (STLC) for the State of California. ER-L values

⁻ Atterberg Test method is not applicable to high sand content non-plastic samples

represent concentrations where biological impacts are observed $\leq 10\%$ of the time. STLC values are presented instead of total threshold limit concentration (TTLC) to show how bulk sediment results were below the leachate criteria even prior to the weak extraction/dilution which produce much lower concentrations.

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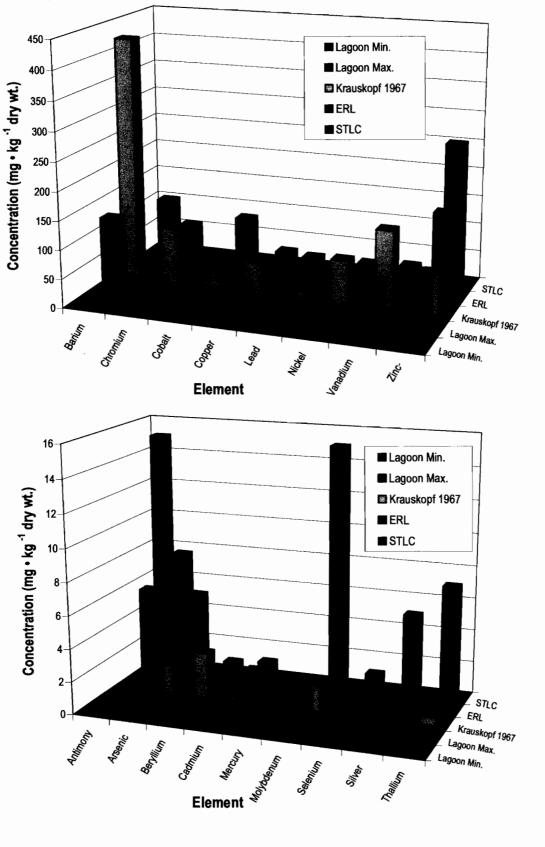


Figure 3-2. Minimum and Maximum Concentrations of Elements with Benchmarks

Table 3-2 presents a summary of the minimum and maximum values of element concentrations compared to average values for the earth's crust, ER-L, STLC and TTLC benchmarks. STLC benchmarks are provided to illustrate that bulk sediments were near or below STLC criteria for elements prior to leaching and dilution from STLC methods. Arsenic and Vanadium were the only elements reported slightly above STLC values, and it is not reasonable to believe they would exceed STLC limits after the method extraction. All elements were well below TTLC values. Copper was the only element measured at a concentration slightly above the ER-L. Sediments with concentrations at or below the ER-L rarely cause environmental effects (Long et. al 1995).

Concentrations of elements in sediments underlying reeds and reed tissue were similar to open water sediment values. Some elements were measured at slightly higher values (primarily in the island sediments). Values remained below levels of environmental concern such as the ER-L. There was no evidence of increased concentrations in underlying sediments or sequestering of elements in plant tissues.

Table 3-2. Elemental Minimum and Maximum Values with Various Benchmarks (μg • g⁻¹)

Element	Minimum	Maximum	Earth Crust1	ER-L	STLC	TTLC
Antimony	ND	ND	0.2		15	500
Arsenic	1.2	7.1	1.8	8.2	5	500
Barium	15.7	147	425		100	10,000
Beryllium	ND	ND	2.8		0.75	75
Cadmium	ND	ND	0.2	1.2	1	100
Chromium	4.9	42.9	100	8 1	5	500
Cobalt	2.4	13.9	25		80	8,000
Copper	3.9	50.4	55	34	25	2,500
Lead	30.5	52.7	12.5	46.7	5	1,000
Mercury	0.05	0.05	0.08	0.15	0.2	20
Molybdenum	2.2	3	1.5		15	3,500
Nickel	4.4	18.5	75	20.9	20	2,000
Selenium	ND	ND	0.05	•	1	100
Silver	ND	ND	0.07	1	5	500
Thallium	ND	ND	0.45		7	700
Vanadium	11.8	101	135		24	2,400
Zinc	7.7	99.3	70	150	250	5,000

Concentrations of organic compounds of concern were below environmental effects guidelines (ER-L and ER-M) and Title 22 STLC/TTLC criteria. Table 3-3 summarizes the various groups and individual compounds. The majority of compounds evaluated for PAH, PCBs and pesticides were not detected, and when detected they were present at low levels. There were no herbicides detected.

Concentrations of organic compounds in sediments underlying reeds and reed tissue were similar to open water sediment values with the exception of phenol and phenol compounds (Appendix C). Phenol

compounds naturally occur in the breakdown of lignins from plant material. Lignin breakdown products are included in waste products from plant eating animals (e.g. waterfowl). Not surprisingly, the highest levels of phenol (658 µg/kg), occurred within island sediments which include decaying plant material and guano from waterfowl. The Washington Department of Ecology's Toxicity Reference Value (TRV) for phenol is 420 µg/kg. The one island sample exceeds this value, but all other samples are well below it. There is no reason to believe that phenol concentrations are anthropogenic. Phenol is a constituent of coal tar, and is formed during the natural decomposition of organic materials. Phenol is also a product or byproduct of phenolic resins and caprolactam (plastics manufacturing), exhaust gases, residential wood burning, and cigarette smoke. Another potential source is the atmospheric degradation of benzene under the influence of light. There are no known coal tar or resin sources in the area. The other main sources are atmospheric, and should create elevated levels in open water sediment samples. Rather, the increased levels are found in areas of high plant and guano concentrations which suggests that the source is natural.

Overall, organic chemical concentrations remained near or below levels of environmental concern (e.g. ER-L, WDOE 1995). With the exception of phenols, there was no evidence of increased concentrations in underlying sediments or sequestering of elements in plant tissues.

Complete tabular results are provided in Appendix C.

Table 3-3. Organic Compound Maximum Values with Various Benchmarks

Substance	Max (ng • g ⁻¹)	STLC (ng • ml-1)	TTLC (ng • g-1)	ER-L (ng • g-1)	ER-M (ng • g ⁻¹)
Aldrin	0.07	140	1400		
Chlordane	2.60	250	2500		
DDT, DDE, DDD	26.69	100	1000	1.58	46.1
2,4-Dichlorophenoxyacetic Acid	ND	10,000	100,000	-	
Dieldrin	0.11	800	8000		
Endrin	0.10	20	200		
Heptachlor	0.23	470	4700		
Methoxychlor	0.09	10,000	100,000		
Mirex	0.13	2100	21,000		
Pentachlorophenol	ND	1700	17,000		
Total PCB	4.29	5000	50,000	22.7	180
2,4,5-Trichlorophenoxypropionic acid	ND	1000	10,000		
Total PAH	298	Na	na	4022	44,792

3.2.3 Reed Disposal Area, Volume and Weight Measurements

Uncompressed volume and density of reeds along the Northwest shore of the I-5 basin (Figure 2-1) was measured to provide a basis for assessing the cost for reed disposal. A small patch of reeds occupying a surface 3.7 square meters was removed by hand. Prior to harvesting, the average reed height was estimated. Approximately half of the plants broke off at the sediment interface during the removal process and the associated root material was not recovered. The balance of the harvested reeds possessed reasonably intact root structures and some lagoon sediment. Removal of all the root material with the above ground reed mass and washing away all the lagoon sediment was not possible using the trial harvesting method. Additionally, it would have been very difficult to remove only the above sediment/below water reed tops, thus the values reported represent a mix of intact and broken reeds. Harvested material was loaded into a small trailer (4' x 6'). No additional compaction of the plant material (e.g., jumping on the plant mass) was attempted. The loaded trailer and tow vehicle were weighed at the El Corazon disposal site in Oceanside and, after disposing of the reeds and sediment, the trailer and tow vehicle were re-weighed. The net weight of the reeds was 500 lbs with a scale resolution of ± 40 lbs.

Using the estimated in-field reed height and areal coverage and the harvested volume in the trailer, the volume of reed material was "naturally compacted" by a factor of 7.2. Harvested reeds measured 61.1 kg/m², with a density of 24 kg/m³. Table 3-4 details the reed harvesting results. The ultimate method of reed removal is presently unknown; however, if non-mechanical "hand harvesting" is chosen these results can be used to provide assist in predicting disposal volume, weight and cost.

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Table 3-4. Reed Disposal Area, Volume and Weight Data

Measurement	Units	Result
Area of reeds harvested	yd^2	3.7 4.4
Volume of reeds harvested (average height =2.5 m)	$\frac{m^3}{yd^3}$	9.3 12.1
Volume of reeds in disposal vehicle	$\frac{m^3}{yd^3}$	1.3 1.7
Weight of harvested reeds	kg lb	227 500
Mass per unit area of harvested reeds	kg/m² lb/yd²	61 112
Density of reeds harvested	kg/m³ lb/yd³	24 41
Density of reeds in disposal vehicle	kg/m³ lb/yd³	173 292

4.0 DATA SUMMARY AND DISCUSSION

Sediments were primarily comprised of sand size particles, with particle diameter increasing in the downstream (east to west) direction. Sediments from the top nine feet of the 1-5 Basin and the top three feet of the Coast Highway Basin were the only samples with <70 percent sand composition. TOC concentrations were low in most samples with only one exceeding 1 percent. Particle size increased and TOC decreased moving downstream to the west, a conventional aquatic sediment relationship.

There was very minimal evidence of contamination of elemental or organic compounds. Samples with the highest level of constituents above detection limits were from 0-3 foot surface samples from the I-5 Basin, followed by surface samples from the other three basins moving east to west. Levels of contamination within the I-5 surface samples were still very low, and do not come close to concentrations that are known to cause biological effects.

Based on particle size and chemistry data, potential sediment management options are presented below.

Landfill All sediment and plant samples pass hazardous waste criteria and would be

acceptable for disposal at any class of landfill based on chemistry data.

Construction Fill Physical attributes of the sediment samples (e.g. plasticity and salinity) may

affect the acceptability for site specific land fills or construction sites.

Ocean Disposal All sediment samples would be expected to meet and exceed ocean disposal

acceptance criteria.

Beach Replenishment • I-5 Basin Most sediments below nine feet

Coast Hwy. Basin Sediments below three feet

(based on 80% sand • Railroad Basin Sediments below three feet

composition)

Weir Basin All Sediment

After the restoration plan has been finalized and approved, further testing may be required to better define patterns of the particle size distribution depending on the sediment management plan that is developed.

5.0 REFERENCES

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BUENA VISTA LAGOON RESTORATION FEASIBILITY ANALYSIS

Pollutant Source and Sedimentation Analyses

December 2002

1. INTRODUCTION

1.1 Purpose and Objectives

This report summarizes Task 1.3(b) Pollutant Source Analysis and Task 1.3(c) Sedimentation Analysis of the data collection program for the Buena Vista Lagoon Restoration Feasibility Study. The objectives of the analyses are to identify critical pollutants in the Buena Vista Lagoon, develop loading estimates for the identified critical pollutants from Buena Vista Creek and local runoff, and determine potential sources of critical pollutants in the Buena Vista Creek Watershed based on existing data.

1.2 Background

Buena Vista Lagoon (Lagoon) receives wet and dry weather input from the Buena Vista Creek Watershed (Watershed). Typical sources of discharges from Buena Vista Creek (Creek) include stormwater runoff and subsurface runoff under wet weather conditions during storms, and runoff from wastewater, nuisance water, and irrigation return water under dry weather conditions. The inflows carry pollutants in aqueous and particulate phases into the Lagoon. The aqueous phase of a constituent tends to remain in the water column within the Lagoon where it is subject to mixing across the Lagoon and over the water column while undergoing physical, chemical, and biological interactions. The particulate phase of the constituent tends to settle to the Lagoon bottom with the solids it is sorbed to and is possibly redistributed by currents within the Lagoon during high flow or inlet breach events. Interactions between constituents in the sediment bed and those in the water column can take place across the sediment-water interface.

The water quality and sediment quality conditions within the Lagoon need be characterized to determine the potential impact to the beneficial uses of the Lagoon as designated in the San Diego Basin Plan (SDWQCB, 1994), which include the following:

- Contact Water Recreation (fishing from boat or shore)
- Non-Contact Water Recreation
- Biological Habitats of Special Significance
- Wildlife Habitat
- Rare, Threatened, or Endangered Species
- Marine Habitat
- Warm Freshwater Habitat

Estuarine Habitat (potential)

Evaluation of a full range of constituents in both water column and bottom sediments is needed to identify critical pollutants that are present within the Lagoon at elevated levels that could potentially impact the beneficial uses of the Lagoon. Upon identification of the critical pollutants, the potential source areas within the watershed can be through correlation with land uses.

The Lagoon historically experienced sedimentation as a result of sediment input from the Creek. The existing conditions of sedimentation in the Lagoon are a common concern such that sediment has been on the 303(d) list since 1996 as a critical pollutant of Medium Priority for TMDL. Prior studies on sediment discharges from the Creek include those by Applegate (1985) and Chang (1986). These studies yielded divergent results as to the level of sediment loading from the Watershed, through the Creek, and into the Lagoon. One major reason for the uncertainty in sediment loading estimates is the nearly total lack of data for calibrating the analyses. The Watershed is essentially ungauged. The Lagoon's bathymetry has not been surveyed in a manner that permits calculation of the amount of historical sediment deposition in the Lagoon that would provide a basis for estimating sediment loading from the Creek. Therefore, reexamination of the existing knowledge on sedimentation into the Lagoon based on an independent loading analysis is necessary to provide adequate characterization of the sedimentation conditions in the Lagoon.

1.3 Approach

The analysis approach described below was designed to achieve the stated objectives of the study.

Existing data on the water quality in the Lagoon and Creek were reviewed to identify pollutants at elevated concentrations. The measured concentrations were compared with water quality objectives as set forth in the San Diego Basin Plan and California Toxics Rule to identify critical pollutants.

The loadings of the identified critical pollutants into the Lagoon were determined for non-point sources (NPS) and point sources (PS) based on existing data. The NPS loadings from the Watershed were analyzed based on a regional analysis of loadings of the critical pollutants. A regional analysis provides pertinent estimates of pollutant loadings for an ungauged watershed based on data from neighboring watersheds with similar hydrological and geological characteristics. Data from the neighboring watersheds were reviewed and correlated with land uses. Land use-specific loading rates of the critical pollutants were then determined on a regional basis. These rates were applied to the Watershed to determine land use-specific loadings and total loadings of the critical pollutants into the Lagoon. The land use-specific loadings were ranked to identify the primary contributing land uses and source areas within the Watershed.

The EPA Permit Compliance System (PCS) and information from the San Diego Regional Water Quality Control Board (RWQCB) were surveyed for major dischargers in the Watershed, which indicated no permitted dischargers in the Watershed. Therefore, PS loadings were eliminated as pollutant sources.

Since sediment was determined to be a critical pollutant identified as a result of water quality data review, a sedimentation analysis was conducted in addition to the Pollutant Source Analysis. The Sedimentation Analysis was focused on discussion of the sediment loading results from the Pollutant Source Analysis by comparing them with those from prior studies in terms of both loading magnitude and basis of calculation to provide a perspective on the updated loading estimate. The effects of BMPs are discussed below based on information provided by the local agencies.

2. CRITICAL POLLUTANT IDENTIFICATION

This section discusses the results of the data review conducted to identify critical pollutants in the Lagoon that might adversely affect the beneficial uses of the Lagoon based on existing water quality information provided by local agencies. The primary basis for critical pollutant identification included information that supported the 303(d) listing by the RWQCB (1996,1998) and short-term water quality sampling programs conducted in the Lagoon by Coastal Environments (Coastal Environments, 2000) and in the Creek by the RWQCB (2002). Earlier studies addressing water quality conditions in the Lagoon include City of Oceanside (1995), MEC (1994), Peters et al. (1985), LaPre (1980), and Carpelan (1969).

2.1 RWQCB 303(d) Listing

The beneficial uses in the Lagoon were determined to be impaired for aquatic life, contact recreation and noncontact recreation based on a water quality assessment conducted by the RWQCB (1996, 1998). The pollutants determined to be critical for 303(d) listing included nutrients, sediment, and bacteria. The extents of impairment included 150 acres by nutrients, 350 acres by sediment, and potentially 350 acres threatened by bacteria.

The basis for listing nutrients as pollutants of priority was largely observational and qualitative. Treated sewage was discharged directly into the Lagoon until 1967. Together with urban runoff, nutrients were historically recycled within the Lagoon. The presence of the original weir at the mouth of the Lagoon, which was installed in 1948 with a crest elevation at 5.8 feet (ft) above NGVD, isolated the Lagoon from tidal flushing (Coastal Conservancy, 2002). The water depth in the Lagoon, which is regulated by the higher of the weir crest and barrier beach seaward of the weir, varies between 1~3 ft. Periodic algae blooms were observed to cause localized fish kills. Nutrient build-up in the bottom sediments may have promoted eutrophication in the Lagoon. Direct

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observation of water quality conditions in the Creek also indicated potential eutrophication in the stream water that discharges into the Lagoon (SWRCB, 2002).

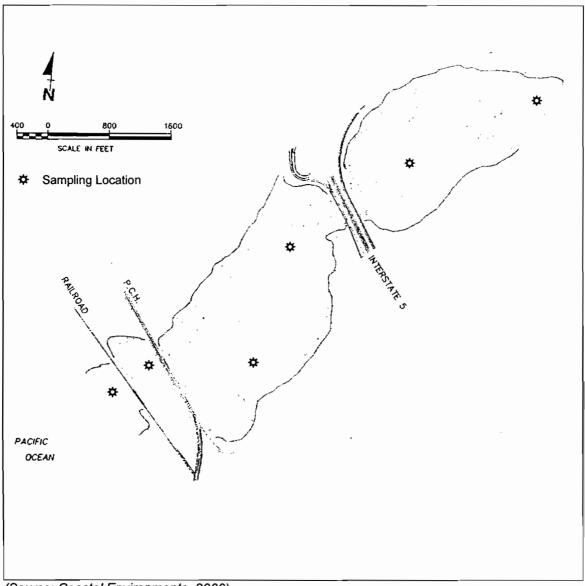
The basis for listing sediment as a priority pollutant was also largely observational and qualitative. The Lagoon was determined to receive sediment discharge through stormwater runoff from various sources in the Watershed that included agricultural land erosion, construction, and channel erosion. The weir and barrier beach at the mouth of the Lagoon reduced sediment transport across the Lagoon and into the Pacific Ocean. Approximately 122,000-130,000 cubic meters of sediment were dredged from the I5 Basin in 1983, from which two least-tern nesting islands were created. The islands were graded and capped with sand in 1989. Urbanization of the watershed that generally increased peak flow discharges during storms and encroachment upon the floodplain that eliminated most of the riparian and marsh land buffer were considered primary factors that contributed to Lagoon sedimentation, particularly during the period of the late 70's and early 80's.

The basis for listing bacteria as a priority pollutant was based on occasional exceedances of bacteria objectives from water quality sampling in the Lagoon. A number of sewage spill incidences occurred during the period of 1991-1995 that contributed to elevated bacteria levels in the Lagoon. Stormwater runoff that discharges into the Lagoon also contributed to the occasional violation of bacteria objectives.

The three priority pollutants were listed on both the 1996 and 2002 303(d) List, with sediment designated higher priority (Medium) compared with nutrients and bacteria (Low). Since the extent and level of beneficial use impairment by bacteria was determined uncertain by the RWQCB (1998), only sediment and nutrients are considered primary critical pollutants for this study based on the 303(d) process.

2.2 Lagoon Sampling

The water column in the Lagoon was most recently sampled in June-November of 1999, at six locations within the Lagoon for conventional pollutants, nutrients, and other water quality parameters on a monthly or bimonthly basis (Coastal Environments, 2000). Figure 1 shows the sampling locations, which included 2 in the I5 Basin, 2 in the PCH Basin, 1 in the Railroad Basin, and 1 in the Weir Basin. Table 1 summarizes the sampling results.



(Source: Coastal Environments, 2000)

Figure 1 Lagoon Sampling Locations

Table 1 Lagoon Water Quality Sampling Results

CONSTITUENT	Unit	MEASURED RANGE ⁷	Basin Plan Objective ¹
Turbidity	NTU	0.6-14.6	20
Total Nitrogen (N)	mg/L	1.0-4.4	0.25 ⁶
Total Phosphorus (P)	mg/L	ND ³ -0.4	0.025 ⁶
Total Coliform	MPN/100 mL	Exceeded objective at least once in each basin during period	230-330 ²
Fecal Coliform	MPN/100 mL	Exceeded objective only once in Railroad Basin during period	400²
Enterococcus	MPN/100 mL	No exceedance	108²
Dissolved Oxygen (DO), Surface	mg/L	4.5-6.2	7.0
Dissolved Oxygen (DO), Bottom	mg/L	2.5-5.4	7.0
рН	unit	8.0-9.3	7.0-9.0⁴ 6.5-8.5 ⁵
Salinity, Surface	ppt	1.6-2.7	
Salinity, Bottom	ppt	1.6-3.0	-

Source: Coastal Environments (2000)

- (1) RWQCB (1994). All objectives (except for turbidity) not to be exceeded more than 10% of the time per year (per month for bacteria)
- (2) Single sample.
- (3) Non-detect.
- (4) For bays and estuaries.
- (5) For inland waters.
- (6) For lagoons and lakes.
- (7) Total data range. Local ranges vary.

The sampling results most notably indicate the following:

- Nutrients (N, P) tended to significantly exceed objectives, sometimes by an order of magnitude, which supports the 303(d) listing of nutrients as critical pollutants in the Lagoon.
- Exceedances of the bacteria objectives were occasional overall, which supports the 303(d) analysis by the RWQCB that considered bacteria as of uncertain importance in impairing beneficial uses of the Lagoon.
 Although total coliforms exceeded objectives more frequently, it is

generally considered a less important indicator for bacterial contamination due to its ubiquitous, often naturally occurring sources.

 Dissolved oxygen (DO) in the Lagoon tended to be appreciably depressed below objectives, which may be correlated with nutrient excess and algae blooms observed in the Lagoon.

The results suggest that nutrients (N, P) are the primary pollutants of concern in the Lagoon.

A reanalysis of the nutrient data from the sampling program was performed to evaluate the potential limiting nutrient in the Lagoon. The nutrient concentrations were tabulated to calculate total N, total P, and N/P ratio by sample, which were then summarized as shown in Table 2.

ÎTEM	TOTAL N	TOTAL P	AVERAGE N/P
Minimum	1.0	0.02	
Maximum	4.4	0.40	48
Mean	1.7	0.10	

Table 2 Lagoon Nutrient Levels and N/P Ratios

Since the ratio of N/P is greater than 10, the results indicate that the Lagoon tends to be P-limited, which is typical of a waterbody receiving nutrients predominantly from non-point sources (e.g. Thomann and Mueller, 1987). This is consistent with the fact that there is no permitted point source in the Watershed that discharges into the Creek. Nutrient loadings to the Lagoon are, therefore, expected to primarily originate from non-point sources such as agricultural, open, and urban lands as suggested in the RWQCB 303(d) fact sheets (RWQCB, 1998).

2.3 Creek Sampling

The Creek water was most recently sampled three times during May-June, 1998 at Wildwood Park in Vista, South Vista way (Carlsbad) and a downstream location near the Lagoon, respectively, for nutrients, total suspended solids, turbidity, and metals. The results are summarized in Table 3.

Table 3 Creek Water Quality Sampling Results

CONSTITUENT	UNIT	MEASURED RANGE	Basin Plan Objective ¹
Total Dissolved Solids (TDS)	mg/L	1,133 - 1,378	750
Turbidity	NTU	0.6 - 1.7	20
Total Nitrogen (N)	mg/L	1.9 - 4.1	1.0 ²
Total Phosphorus (P)	mg/L	0.22 - 0.83	0.1 ²
Chromium, Dissolved	μg/L	10	16 (max) 11 (chronicle)
Zinc, Dissolved Total	μg/L	20 40	121
Other Metal		ND	
Chloride	mg/L	454	250
Sodium	mg/L	254	60
Sulfate	mg/L	281	250

Source: RWQCB (2002)

The sampling results most notably indicate the following:

- Nutrients (N, P) tended to exceed objectives, which supports the 303(d) listing of nutrients as critical pollutants in the Lagoon.
- TDS, chloride, and sodium tend to appreciably exceed objectives, which
 indicates elevated salt content in the Creek water discharging into the
 Lagoon. Although high salt concentrations in the Creek may impact
 certain beneficial uses of the Creek, they are not expected to have
 discernible effects on the Lagoon water considering the often brackish
 conditions in the Lagoon (Coastal Conservancy, 2002).
- There were no exceedances of the metals objectives, which suggest loadings of metals into the Lagoon are not significant.

RWQCB (1994). All objectives (except for turbidity) not to be exceeded more than 10% of the time per year.

⁽²⁾ For streams.

⁽³⁾ Non-detect.

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The results suggest that nutrients (N, P) are the primary pollutants of concern in the Lagoon.

2.4 Summary

Based on the information from the 303(d) process and analysis of sampling data from the Lagoon and Creek presented above, sediment and nutrients (N, P) were identified as critical pollutants in the Lagoon.

3. POLLUTANT SOURCE ANALYSIS

This section discusses the methods, procedures, and results of the pollutant source analysis for the identified critical pollutants (i.e., sediment and nutrients).

3.1 Sediment

Method

Sediment loadings into the Lagoon and potential sources in the Watershed were analyzed based on a regional watershed sedimentation analysis. The regional watershed sedimentation analysis was performed based on data of stream flows, sediment loadings and land uses from a group of watersheds in the general coastal region centering around the study area. The sediment loadings from the selected watersheds were determined based on prior studies and correlated with land uses by a regression analysis. The analysis yielded a regional loading estimator that is capable of providing total and land use-specific loadings from any typical watershed in the region on an average basis. The loading estimator was then applied to the Watershed to determine sediment loading through the Creek and land use-specific loadings in the Watershed.

Analysis

A total of nine coastal streams in the general geological province of the Peninsular Ranges that encompasses the study area and extends approximately from just north of Santa Ana River to the Mexican border were selected to represent sedimentation characteristics of the region. Selection of the component streams for the regional analysis was based on availability of sediment loading data either in the streams or watersheds. Table 4 shows the selected component streams, stations in the streams where the loading analysis was performed, watershed drainage areas above the stations, and levels of upstream regulation (e.g damming). The composition of the levels of upstream regulation of the component streams roughly reflects the characteristics of watershed development in the region.

Table 4 Component Streams for Regional Sediment Loading Analysis

STREAM	STATION	USGS STATION	DRAINAGE (SQ. MILE)	REGULATION ¹
San Dieguito River	Del Mar	11030500	338	Extensive
San Diego River	Santee	11022500	377	Extensive
San Diego Creek	Culver	11048500	42	Extensive
San Diego Creek	Campus	11048555	306	Extensive
San Juan Creek	San Juan Capistrano	11046500	106	Moderate
San Luis Rey River	Oceanside	11042000	557	Moderate
Santa Margarita River	Ysidora	11046000	723	Moderate
Sweetwater River	Descanso	11015000	45	Natural
Santa Ana River	Santa Ana	11078000	1,700	Extensive

⁽¹⁾ Inman and Jenkins (1999)

Sediment loads from the component streams were obtained based on the data from Taylor (1983), Inman and Jenkins (1999), and the USGS stream loading measurement database. Taylor (1983) analyzed 23 coastal basins in Southern California and provided upland sediment yields from the watersheds based on debris basin siltation data. The estimated sediment yields represent the amounts of upland sediment production in the watershed. Inman and Jenkins (1999) analyzed 20 coastal streams in California and calculated in-stream sediment loads based on USGS stream flow and suspended sediment measurements.

The data from Taylor (1983), Inman and Jenkins (1999), and the USGS database (USGS, 2002) were processed to provide in-stream sediment loads for the nine component streams selected for analysis. The in-stream loads for all streams except San Diego River at Culver and San Dieguito River were provided by Inman and Jenkins (1999). The load for San Diego River at Culver was calculated separately based on the USGS measurements at the location. Since only upland yield was available for San Dieguito River, it was necessary to estimate the in-stream load based on the upland yield provided by Taylor (1983).

It has been well established that the actual amount of sediment delivered through the streams to downstream locations (known as coastal delivery) is often appreciably less than the amounts produced upland, primarily due to the presence of various interceptors (e.g., dams and debris basins) as well as the variable carrying capacities of runoff flows overland and in stream along the paths of sediment delivery. A delivery ratio, defined as the ratio of sediment load measured in-stream at a downstream location to the upland sediment yield, needs be developed and applied to the upland sediment yield to obtain the in-stream sediment load at a downstream location.

To develop delivery ratio estimates, the sediment loads provided by Inman and Jenkins (1999) were divided by upland yields by Taylor (1983) for streams that were analyzed by both to provide data points of delivery ratios. These data were then correlated with watershed drainage areas by a regression analysis to provide a regional delivery ratio curve as show in Figure 2. The results indicate that the delivery ratio decreases (smaller fraction delivered to downstream) as watershed size increases, which is consistent with the well-known fact that sediment delivery becomes inefficient as the size of a storm system becomes smaller relative to that of the watershed. For San Dieguito River with a drainage area of 338 square miles (mi²), the delivery ratio was determined to be approximately 0.42. Applying this delivery ratio to the upland yield estimate by Taylor (1983), the corresponding in-stream load was determined. As a verification of the regional delivery ratio curve, the in-stream load of 102,885 cubic meters/year (m³/yr) measured in San Diego Creek at Campus Drive was applied with a predicted delivery ratio of 0.43 to give an upland yield of approximately 239,300 m³/yr. This agrees well with the site-specific estimates of approximately 250,000 m³/yr (County of Orange, 1998).

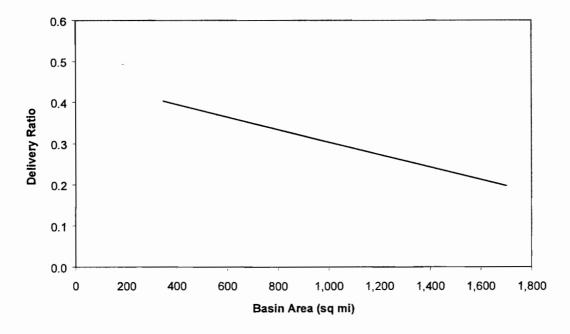


Figure 2 Regional Sediment Delivery Ratio

Table 5 shows the sediment loads for the nine streams together with four types of primary erosional land use acreages in the respective watersheds. Largely paved impervious areas were not included in the analysis due to the limited erosional area associated with this land use. The acreages of the erosional land uses above the measuring stations were obtained from the EPA BASINS land use database (EPA, 2001a).

Table 5 Sediment Loads and Land Use Acreages

STREAM			Load ¹		
OTTEAM	AGRICULTURAL	RANGE	BARREN	Forest	(M³/YR)
San Dieguito River at Del Mar	42,212	108,670	1,677	44,341	100,170
San Diego River at Santee	8,198	174,197	3,939	32,204	9,615
San Diego Creek at Culver	8,016	10,690	1,455	335	124,200
San Diego Creek at Campus	9,826	18,896	3,023	335	102,885
San Juan Creek at San Juan Capistrano	9,737	56,825	1,568	5,724	49,038
San Luis Rey River at Oceanside	72,844	200,890	3,509	67,089	409,615
Santa Margarita River at Ysidora	90,260	346,237	8,340	32,091	91,346
Sweetwater River at Descanso	1,970	18,631	0	7,958	4,135
Santa Ana River at Santa Ana	194,763	431,967	25,481	203,003	475,962

⁽¹⁾ Based on bulk sediment aggregate density of 1.04 tons/m³ (Taylor, 1983).

Table 6 shows the sediment loads per acre of drainage areas for the nine streams together with the four types of erosional land use areas as percentages of total drainage areas in the respective watersheds. These values were obtained by normalizing the values in Table 5 by total drainage areas in the respective watersheds.

Table 6 Sediment Loads and Land Use Acreages

		LOAD			
STREAM	AGRICULTURAL	RANGE	BARREN	FOREST	(M³/ACRE/YR)
San Dieguito River at Del Mar	20.0	51.4	0.8	21.0	0.47
San Diego River at Santee	3.2	69.9	1.6	12.9	0.04
San Diego Creek at Culver	30.4	40.6	5.5	1.3	4.72
San Diego Creek at Campus	13.0	25.0	4.0	0.0	. 1.36
San Juan Creek at San Juan Capistrano	13.0	75.7	2.1	7.6	0.65
San Luis Rey River at Oceanside	20.0	55.3	1.0	18.5	1.13
Santa Margarita River at Ysidora	18.3	70.3	1.7	6.5	0.19
Sweetwater River at Descanso	6.8	64.1	0.0	27.4	0.14
Santa Ana River at Santa Ana	17.9	39.7	2.3	18.7	0.43

The normalized (per-acre) sediment loads in the last column of Table 6 were correlated with the four types of normalized (percent) land uses in Columns 2~5 using multiple linear regression in the following form (Seber, 1977):

$$L = \sum l_i A_i + l_0 + \varepsilon$$

where L is the normalized total in-stream load, l_i the land use-specific load for land use i, A_i the normalized area of land use i, l_0 the intercept, and ε a random regression residual with zero mean and constant variance. The regression provides l_i as estimates of regional loading rates from the four types of primary erosional land uses. Table 7 shows the loading rates.

As a verification of the estimates, site-specific loading rates from prior local studies in the region were extracted and compared with the present rates. Results are shown in Table 8.

Table 7 Sediment Loading Rates by Land Uses

LAND USE	LOADING RATE (M³/ACRE/YR)
Agricultural	6.4
Range	2.3
Barren	106.4
Forest	8.4

Table 8 Sediment Loading Rate Comparison

	LOADING RATE (M³/ACRE/YR)				
LAND USE	PRESENT STUDY	SAN DIEGO CREEK WATERSHED (OCPFRD, 2000)	Buena Vista Creek Watershed (Applegate, 1985)		
Agricultural	6.4	7.5	10.4		
Range	2.3	2.7 ¹	1~2 ³		
Barren	106.4	32.7 ²	19.1 ²		
Forest	8.4				

- (1) "Open" land use; assumed to approximate Range.
- (2) "Construction" land use; assumed to approximate disturbed/transitional Barren.
- (3) "Natural" land use; assumed to approximate Range.

Comparison of the rates indicates that the loading rates by the present study based on a regional regression procedure agree well with site-specific estimates for the San Diego Creek watershed for Agricultural and Range land uses. The rate for Barren land uses was estimated to be considerably higher than those of other land uses, which is consistent with the pattern in the local estimates. Quantitatively, however, the present estimate for Barren land uses exceeds the local estimates by a factor of 3~5. One possible reason for this discrepancy is the sensitivity of Barren land uses, which include disturbed, transitional lands such as construction sites, to sediment control and land management measures implemented. Loading from Barren land uses can vary significantly depending on the extent of disturbed lands within a watershed, the length of time disturbed lands are present, and the level of sediment control measures implemented. On this basis, loading rates from Barren land uses are probably best estimated based on site-specific estimates. For sites where local estimates are not

available, such as in the case of the present study, the rates presented in Table 8 can be used to bracket the range of potential loadings.

Results

Sediment loading rates developed from the analysis presented above were applied to the land uses in the Watershed to provide total sediment loading and identify primary source areas. The existing land use distribution within the Watershed was obtained from the EPA BASINS database (EPA, 2001a) as shown in Figure 3. Table 9 summarizes the results of sediment loadings from the Watershed into the Lagoon by erosional land uses.

LAND USE	AGRICULTURAL	RANGE	BARREN	FOREST	TOTAL
Area (acre)	1,743	1,300	421	103	3,567
%Total Watershed	15.6	11.6	3.8	0.9	32
Loading (m³/yr)	11,155	2,990	13,893 ¹	865	28,903

Table 9 Lagoon Sediment Loading

The results in Table 9 indicate that the Watershed discharges an annual total of approximately 28,900 m³ of sediment into the Lagoon. Barren land uses contribute the greatest amount of sediment into the Lagoon, followed closely by Agricultural land uses. Contributions from Range and Forest land us es appear to be relatively small due, respectively, to the relatively low loading rate from range lands and small acreage of forest present in the Watershed. The primary Source Areas for sediment in the Lagoon are, therefore, areas designated as Barren and Agricultural land uses in Figure 3.

It should be noted that, although urban land uses were not considered as erosional land uses in the present study, the runoff associated with urban land uses can contain small amounts of fine-grained sediment that can add to the total sediment loading that reaches the Lagoon. This potential additional sediment load was considered negligible for the present study.

⁽¹⁾ Based on estimate from San Diego Creek Watershed (OCPFRD, 2000)

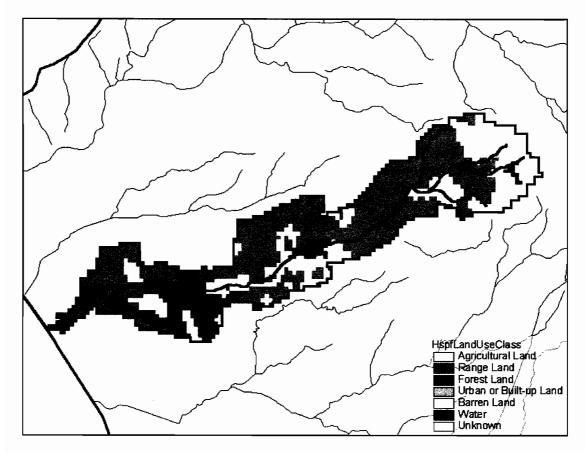


Figure 3 Buena Vista Watershed Land Use Distribution

Comparison with Prior Studies

Sediment loading from the Watershed through the Creek into the Lagoon was previously estimated by Applegate (1985) and Chang (1986) using different methods. The studies provided divergent results of sediment loading into the Lagoon, with approximately 58,140 m³/yr predicted by Applegate (1985) versus approximately 5,000 m³/yr provided by Chang (1986). The order-of-magnitude difference in loading estimates resulted in uncertainty as to the actual sedimentation conditions in the Creek-Lagoon system. One major reason for the uncertainty in sediment loading estimates is the nearly total lack of data for calibrating the analyses. The Watershed is essentially ungauged. The bathymetry of the Lagoon has not been surveyed in a manner that permits calculation of the amount of historical sediment deposition in the Lagoon that would provide a basis for estimating sediment loading from the Creek.

Although there is no reliable basis for determining the actual sediment loading, the Applegate (1985) estimate is probably on the high side based on observation of sediment accumulation indicators (e.g., shoals) in the I5 Basin. On the other hand, the Chang (1986) estimate implies relatively insignificant Lagoon sedimentation compared

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with other streams in the region and this seems inconsistent with the view of the RWQCB. The RWQCB has determined that there is a sedimentation problem in the Lagoon and that the sediment originates from upland sources in the Watershed (RWQCB, 1998). On this basis, the sediment loading of developed under the present study represents an estimate somewhere between the prior sediment loading estimates.

The sediment loading estimates in the present study are based on a relatively limited data set (*i.e.*, component streams/watersheds). Refinement of the regression model through inclusion of more regional data points would assist in providing more accurate estimates for land use-specific loadings. Local land use-based mass loading monitoring analogous to the NPDES stormwater monitoring program conducted under RWQCB for the City of San Diego, San Diego County, San Diego Unified Port District, and 17 other cities as co-permittees would allow further improvement on loading estimates.

Creek Erosion

Creek erosion (channel down-cutting) has been one of the historical concerns in the Watershed. One of the reasons for the concern is that it represents a source of sediment that would be carried downstream and discharged into the Lagoon.

The most significant reported erosion events occurred during the period of late 70's and early 80's. Severe down-cutting along portions of the channel was observed during the period. Since then, stormwater detention facilities were constructed in the Watershed to reduce the peak flows. No significant erosion event was subsequently reported based on available record

Although severe erosion was reported during the earlier period, there was no evidence that the eroded sediment was transported all the way into the Lagoon rather than deposited along the downstream portions of the Creek. The delivery ratio of eroded material is rarely unity as discussed previously. In a stream, the actual amount of material delivered downstream largely depends on the carrying capacity of the stream flow, which varies along the stream.

Chang (1986) analyzed erosion in the Creek using the Fluvial model (Chang, 1984). It was determined that the Creek erodes at 33, 222, and 1,377 m³/yr for 10, 25, and 100 year floods, respectively. Since Fluvial is a bed-load model that predicts transport of the sand fraction of the bed material only, the corresponding total load of erosion is estimated to be approximately 330, 2,220, and 10,377 m³/yr for 10, 25, and 100 year floods based on a 10% sand composition. Given the fact that an average annual discharge approximately corresponds to a 2~3-year event, discharge of sediment due to erosion in the Creek is not expected to be significant based on these estimates. In other words, the sediment loads that discharge into the Lagoon is expected to be predominantly derived from source areas in the Watershed as opposed to creek ersosion.

3.2 Nutrients

Method

Nutrient loadings into the Lagoon and potential sources in the Watershed were analyzed based on a regional watershed nutrient loading analysis. The regional watershed nutrient loading analysis was performed based on data of stream flows, nutrient loadings and land uses from a group of watersheds in the general coastal region centering around the study area. The nutrient loadings from the selected watersheds were determined based on data from stream nutrient and flow monitoring programs conducted by the USGS (USGS, 2002a, b) and correlated with land uses by a regression analysis. The analysis yielded a regional loading estimator that is capable of providing total and land use-specific loadings from any typical watershed in the region on an average basis. The loading estimator was then applied to the Watershed to determine nutrient loading through the Creek and land use-specific loadings in the Watershed.

Analysis

A total of eight coastal streams in the general geological province of the Peninsular Ranges that encompasses the study area and extends approximately from just north of Santa Ana River to the Mexican border were selected to represent nutrient export characteristics of the region. The component streams for the regional analysis were selected based on availability of long-term continuous flow data and consistency with those used in the sediment loading analysis. Table 10 shows the selected component streams, stations in the streams where loading analysis was performed, watershed drainage areas above the stations, and the levels of upstream regulation (e.g., dams).

Table 10 Component Streams for Regional Nutrient Loading Analysis

STREAM	STATION	USGS STATION	DRAINAGE (SQ. MILE)	REGULATION ¹
San Dieguito River	Del Mar	11030500	338	Extensive
San Diego River	Santee	11022500	377	Extensive
San Diego Creek	Culver	11048500	42	Extensive
San Juan Creek	San Juan Capistrano	11046500	106	Moderate
San Luis Rey River	Oceanside	11042000	557	Moderate
Santa Margarita River	Ysidora	11046000	723	Moderate
Sweetwater River	Descanso	11015000	45	Natural
Santa Ana River	Santa Ana	11078000	1,700	Extensive

⁽¹⁾ Inman and Jenkins (1999)

The composition of the levels of upstream regulation of the component streams roughly reflects the characteristics of watershed development in the region. Unlike the sediment analysis presented previously, in-stream nutrient loads are not available from either existing studies or the USGS database for the streams considered for analysis. Therefore, it was necessary to first develop nutrient loads for each of the streams before applying the method of regional regression. Nutrient loads from the component streams were determined by developing the regional nutrient rating curves for total N and total P and applying the rating curves to long-term flow records in each of the component streams.

Nutrient monitoring data for a number of streams in the region are available from the USGS database (USGS, 2002a). The measurements were conducted over different periods in the last few decades with simultaneous flow measurements. Although various agencies have conducted nutrient sampling in the regional streams, no simultaneous flow data were collected. This is also the case with the STORET database maintained by EPA (which no longer stores historical data from the USGS). The lack of simultaneous flow measurements essentially renders the nutrient data useless for loading calculations. On this basis, only the USGS data were used for the determination of regional nutrient rating curves. Table 11 lists the streams and stations where simultaneous nutrient and flow measurements are available.

Table 11 Streams for Regional Rating Curve Development

STREAM	STATION	USGS STATION
Santa Margarita River	Ysidora	11046000
Santa Margarita River	Fallbrook	11044500
San Luis Rey River	Oceanside	11042000
San Luis Rey River	Bonsall	11041000
San Luis Rey River	Monserate Narrows	11040000
San Diego River	Old Mission Dam	11022490
Bubble-Up Creek	Pala	11039600
Sweetwater River	Descanso	11015000
Tecolote Creek	San Diego	11078000

The simultaneous nutrient and flow measurements from these stations were extracted from the USGS database. Total N and P in each of the samples were calculated from component compounds when the totals are not provided. Since not all samples contain the complete suite of component compounds to permit calculation of the totals, samples with the majority of the component compounds measured were included to provide approximate totals so as to increase the number of data points. For example, the sum of dissolved nitrite-N, dissolved nitrate-N, total ammonia-N, and total organic-N was used as total N for the Santa Margarita River at Ysidora.

It has been widely established that an approximately linear relation exists between the logarithm of nutrient concentration and logarithm of flow discharge (e.g. Cohn et al., 1989). This permits the development of a simple rating curve that correlates constituent concentration with flow discharge. Since constituents in streams are generally much less frequently measured than flows, a rating curve can be used to provide continuous estimates of concentrations given continuous flow measurements. The usefulness of a rating curve is especially apparent in the case of ungauged or infrequently gauged streams when estimates of constituent loadings are required.

The logarithms of total N and total P data processed from the USGS data were regressed with the logarithm of daily mean stream flows. The bias inherent in the retransformation of the logarithm regression (Cohn, 1995; Koch and Smillie, 1986) was corrected using the method of Furguson (Furguson, 1986). Figures 4 and 5 present the rating curves for total N and total P for the region.

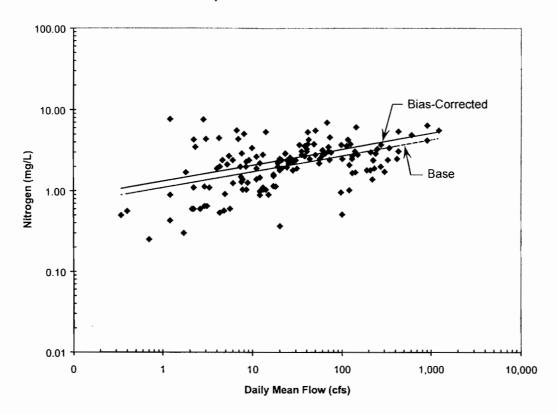


Figure 4 Regional Total Nitrogen Rating Curve

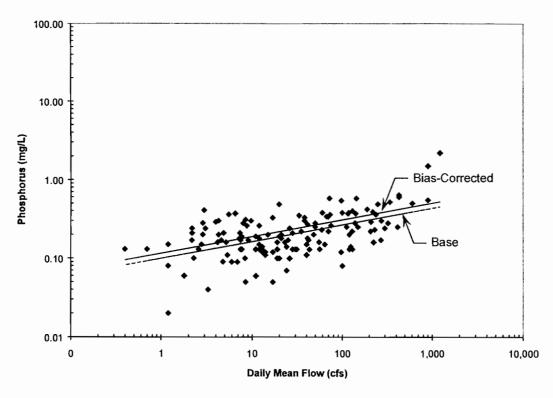


Figure 5 Regional Total Phosphorus Rating Curve

Buena Vista Lagoon Restoration Feasibility Analysis Pollutant Source and Sedimentation Analyses

The rating curves for total N and total P determined were applied to the long-term continuous daily mean flow measurements in the streams listed in Table 10 to provide long-term continuous loading records for these streams. A total of ten years of flow records were used for most of the streams, which produced corresponding loading records of equal length. The continuous loads were then summed to provide total annual loads for the individual streams.

Table 11 shows the nutrients loads for the eight streams together with five types of primary land use acreages in the respective watersheds. The acreages of the land uses above the measuring stations were obtained from the EPA BASINS land use database (EPA, 2000).

Table 12 shows the nutrient loads per acre of drainage areas for the eight streams together with the five types of land use areas as percentages of total drainage areas in the respective watersheds. These values were obtained by normalizing the values in Table 11 by total drainage areas in the respective watersheds.

The normalized (per-acre) nutrient loads in the last two columns of Table 12 were correlated with the five types of normalized (percent) land uses in Columns 2-5 using multiple linear regression in the form of load equal to the sum of products between the land use percentages and corresponding loading rates. The regression coefficients thus determined represent estimates of regional loading rates for the five types of land uses. Table 13 shows the loading rates.

Since there has been a paucity of long-term land use-based loading monitoring data in the region and nationwide in general, direct verification of the loading rate estimates can not be reliably made. As an indirect verification of the estimates, the nutrient loading rates were divided by the sediment loading rates by land use to provide potency factors for the individual land uses. These potency factors were compared with those provided in EPA (1977) as shown in Table 14. Comparison of the data in Table 14 indicates that the potency factors determined based on nutrient and sediment loadings compare well qualitatively with literature ranges.

For urban areas, the present study estimates a total P loading rate of 0.00076 tons/acre/yr compared with approximately 0.00064 tons/acre/yr for residential and commercial lands provided by the EPA Nationwide Urban Runoff Program (NURP) database (EPA, 1983). Assuming a typical N/P ratio of 10, the latter gives a total N loading rate of 0.0064 tons/acre/yr, which compares fairly well with 0.0079 tons/acre/yr estimated by the present study. It is also worth noting that the present study predicts a higher loading rate from agricultural lands than from urban lands, which is consistent with values provided in EPA (2001).

Table 11 Nutrient Loads and Land Use Acreages

STREAM	LAND USE (ACRE)						LOAD (TON/YR)	
SIREAM	AGRICULTURAL	RANGE	BARREN	URBAN/ BUILD-UP	FOREST	TOTAL N	TOTAL P	
San Dieguito River at Del Mar	42,212	108,670	1,677	13,547	44,341	10.6	1.0	
San Diego River at Santee	8,198	174,197	3,939	28,265	32,204	136.1	12.7	
San Diego Creek at Culver	8,016	10,690	1,455	5,734	335	47.6	4.4	
San Juan Creek at San Juan Capistrano	9,737	56,825	1,568	1,179	5,724	74.9	7.1	
San Luis Rey River at Oceanside	72,844	200,890	3,509	12,169	67,089	153.5	14.4	
Santa Margarita River at Ysidora	90,260	346,237	8,340	12,862	32,091	431.9	41.4	
Sweetwater River at Descanso	1,970	18,631	0	506	7,958	48.5	4.5	
Santa Ana River at Santa Ana	194,763	431,967	25,481	218,243	203,003	961.8	92.9	

Table 12 Nutrient Loads and Land Use Acreages

STREAM		LOAD (10 ⁻³ m³/acre/yr)					
SIREAM	AGRICULTURAL	RANGE	BARREN	URBAN/ BUILD-UP	FOREST	TOTAL N	TOTAL P
San Dieguito River at Del Mar	20.0	51.4	0.8	6.4	21.0	0.050	0.005
San Diego River at Santee	3.2	69.9	1.6	11.3	12.9	0.546	0.051
San Diego Creek at Culver	30.4	40.6	5.5	21.8	1.3	1.807	0.169
San Juan Creek at San Juan Capistrano	13.0	75.7	2.1	1.6	7.6	0.998	0.095
San Luis Rey River at Oceanside	20.0	55.3	1.0	3.4	18.5	0.423	0.040
Santa Margarita River at Ysidora	18.3	70.3	1.7	2.6	6.5	0.877	0.084

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Table 12 Cont.

C===	LAND USE (% TOTAL DRAINAGE)					LOAD (10 ⁻³ m³/ACRE/YR)	
STREAM	AGRICULTURAL	RANGE	BARREN	URBAN/ BUILD-UP	FOREST	TOTAL N	TOTAL P
Sweetwater River at Descanso	6.8	64.1	0.0	1.7	27.4	1.669	0.156
Santa Ana River at Santa Ana	17.9	39.7	2.3	20.1	18.7	0.884	0.085

Table 13 Loading Rates by Land Uses

LAND USE	LOADING RATE (TON/ACRE/YR)				
	TOTAL N	TOTAL P			
Agricultural	0.0121	0.0011			
Range	0.0162	0.0015			
Barren	0.1199	0.0111			
Urban/Build-Up	0.0079	0.0008			
Forest	0.0261	0.0024			

Table 14 Potency Factor Comparison

	POTENCY FACTOR (%)					
LAND USE	PRESENT STUDY		EPA	(1977)		
	TOTAL N	TOTAL P	TOTAL N	TOTAL P		
Agricultural	0.19	0.017	0.10~0.25 ¹	0.003~0.140 ¹		
Range	0.70	0.065				
Barren	0.11	0.010	0.05~2.69 ²	0.022~0.450 ²		
Forest	0.31	0.029				

⁽¹⁾ For corn, wheat, and cotton based on continuous sampling.

⁽²⁾ For pasture, alfalfa and brome grass based on continuous sampling.

Results

Nutrient loading rates developed from the analysis presented above were applied to the land uses in the Watershed to provide total nutrient loadings and identify primary source areas. For consistency with the use of local sediment loading estimate for Barren land uses, the regional N and P loading rates for Barren land uses were scaled by the regional potency factor for Barren land uses (Table 14) to provide corresponding local estimates. The existing land use distribution within the Watershed is shown in Figure 3. Table 15 summarizes the results of nutrient loadings from the Watershed into the Lagoon by land uses.

Table 15 Lagoon Nutrient Loading

LAND USE	AGRICULTURAL	RANGE	BARREN	URBAN/ BUILD-UP	FOREST	TOTAL
Area (acre)	1,743	1,300	421	6,609	103	10,176
%Total Watershed	15.6	11.6	3.8	59.1	0.9	91
Total N Loading (ton/yr)	21.1	21.1	15.7	52.2	2.7	112.7
Total P Loading (ton/yr)	1.9	2.0	1.4	5.0	0.2	10.6

The results in Table 15 indicate that the Watershed discharges annual totals of approximately 113 and 11 tons of total N and total P into the Lagoon, respectively. These amounts are relatively high compared with other smaller streams, which is consistent with the eutrophic tendencies historically observed in the Lagoon. Urban and Build-Up land uses contribute the greatest amounts of nutrients into the Lagoon, followed by Agricultural and Range land uses. Contribution from Forest land uses appears to be relatively small due to the relatively small acreage of forest present in the Watershed. The primary Source Areas for nutrients in the Lagoon are, therefore, areas designated as Urban/Build-Up, Agricultural, and Range land uses in Figure 3.

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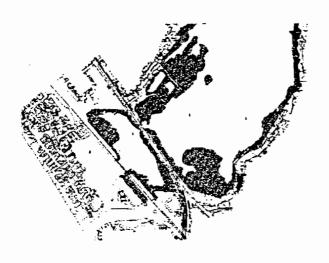
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STA LAGOON LAND MANAGEMENT PLAN ELEMENTS

Lagoon Bathymetry, Water Quality, Biological Analysis, and Soils Analysis



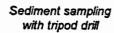
West and central basins of Buena Vista Lagoon

bу

COASTAL ENVIRONMENTS 2166 Avenida de la Playa La Jolla, CA 92037

for

Buena Vista Lagoon Foundation P.O. Box 520 Vista, CA 92085





COASTAL ENVIRONMENTS 2166 Avenida de la Playa La Jolla, CA 92037

> 15 December 2000 CE Reference No. 00-02

BUENA VISTA LAGOON LAND MANAGEMENT PLAN ELEMENTS

LAGOON BATHYMETRY, WATER QUALITY, BIOLOGICAL ANALYSIS, AND SOILS ANALYSIS

; ;

by

COASTAL ENVIRONMENTS 2166 Avenida de la Playa La Jolla, CA 92037

for

Buena Vista Lagoon Foundation P.O. Box 520 Vista, CA 92085

COASTAL ENVIRONMENTS 2166 Avenida de la Playa La Jolía, CA 92037

> 15 December 2000 CE Reference No. 00-02

BUENA VISTA LAGOON LAND MANAGEMENT PLAN ELEMENTS WATER QUALITY

by

Hany Elwany, Ph.D Alan Thum, Ph.D Doug Gibson

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15 December 2000 CE Reference No. 00-02B

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BUENA VISTA LAGOON MANAGEMENT PLAN ELEMENTS

WATER QUALITY

1.0 INTRODUCTION

This study characterizes the current water quality conditions in the lagoon and establishes a sampling design and protocol for future monitoring. Measurements were made at six stations in the lagoon between June 1999 and November 1999. The 1999 water quality program was for a short period of time and did not cover all the seasons. Historical data from previous studies are included in this report to provide more information about the water quality in the lagoon. Historical studies and the current study indicate there are significant differences in water quality conditions between the four lagoon basins (Weir Basin, Railroad Basin, Central Basin, and Eastern Basin). Differences have been attributed to inflow from Buena Vista Creek, historical accumulation of sludge and plant detritus, recycling of nutrients, local urban and stormwater runoff, and sediment deposition.

2.0 SAMPLING DESIGN AND PROTOCOL

A total of six permanent water quality sampling stations were located in the open water area of the lagoon: one in the Weir Basin; one in the Railroad Basin; two in the Central Basin: and two in the East Basin (Figure 1). These stations were selected to represent large segments of the lagoon. Station locations were chosen to correspond to other existing historical water quality testing stations (e.g., Carpelan, 1960).

Each station was sampled monthly (from June 1999 to November 1999) for temperature, salinity, pH, and Dissolved oxygen (DO), and bi-monthly for:

Biological Oxygen Demand

Turbidity

Total Nitrogen (N) (total inorganic nitrogen + organic nitrogen)

Total Inorganic Nitrogen (nitrate + nitrite + ammonia N)

Total Phosphate Phosphorus (P)

Orthophosphate Phosphorous

Ammonia

Total and Fecal Coliform and Enterococcus

Water quality measurements were made in the field from a small two-man kayak. Temperature, salinity, pH, and DO were measured electronically in the field, using a YSI (#85) DO/temperature/salinity/conductivity meter. Prior to each survey, the YSI instrument was calibrated. These parameters were recorded near the surface and near the bottom. Other parameters required samples of water for laboratory analyses. The water analysis was performed by a certified laboratory (Pat-Chem Laboratories, 4805-B Mercury St, San Diego, CA 92111). The results of their analysis is presented in Appendix B. Due to the shallowness of the lagoon, all water samples were collected at the surface in approximately 0.5 ft depth of water. To account for diurnal differences in concentrations of dissolved oxygen due to plant photosynthesis and respiration, the surveys were conducted between 0600 and 0900 hours.

3.0 WATER QUALITY CHARACTERISTICS FROM THE RECENT MEASUREMENTS

Monthly surveys were conducted during September and November. Bi-monthly surveys taken from the lagoon were conducted during June, July (extra), August, and October.

Results of all water quality measurements taken monthly are presented in Table 1. Results of chemical analyses of water samples taken bimonthly are presented in Table 2. These data are summarized as mean values and ranges for each parameter by basin in Table 3.

The data did not cover the wet season (November to April), therefore, it may not be used to describe seasonal changes in the lagoon.

The monitoring period occurred during the dry season, and little to no rainfall occurred in San Diego County. The coastal zone had below normal air temperatures and increased cloud conditions due to a strong 1999 La Nina period. The only inflow to the lagoon was from non-point source urban runoff. No tidal exchange occurred. However, during the study period, the water level in the lagoon twice rose approximately 12 in above the elevation of the weir, due to accumulation of urban runoff (Figure 2) and the presence of a sand berm at the mouth of the lagoon. Accumulation of water ceased briefly when the inlet was opened on about 10 July 1999 and again on about 30 October 1999. Since the water level in the lagoon continued to rise throughout the study period, the evaporation rate did not exceed the accumulation rate. Consequently, no comparisons can be made to the historical data of Purer (1942) where salinities ranged from fresh (2 ppt) to hypersaline (64 ppt) levels. Salinity concentrations within the lagoon did, however, resemble the more current data of Carpelan (1958 - 1959) and Peters *et al.* (1979 - 1983), where salinity values remained below 5 ppt for the majority of the time. Historical data are summarized in Appendix A.

Dissolved oxygen measurements within the lagoon showed large fluctuations in the West and Central Basins, where concentrations dropped below safe levels (i.e., below 2.0 mg/l), especially in the Railroad Basin from July through October and the eastern Central Basin during September and October. The East Basin exhibited some variability in dissolved oxygen concentrations, but concentrations remained above safe levels. This variability may have been partly due to the unique

Table 1. Results of water quality measurements taken in Buena Vista Lagoon, June through October 1999.

Data obtained from a YSI 85 hand held meter

Date	Station	D.O.		Sali	nity	Tempe	Temperature	
		Surface	Bottom	Surface	Bottom	Surface	Bottom	
6/16/1999	1	2.99	0.74	5.9	8.5	22.2	22.2	
7/12/1999	1	5. 7 7	1.67	1.7	1.7	26.2	26.0	
3/16/1999	1	8.49	7.16	3.1	3.1	24.1	24.4	
7/17/1999	1	6.50	6.15	2.9	2.9	22.1	22.2	
0/25/1999	1	8.56	8.45	2.7	2.7	20.0	20.1	
6/16/1999	2	7.47	6.99	2.6	2.6	22.4	22.4	
7/12/1999	2	3.72	0.03	1.7	1.7	24.9	24.1	
3/16/1999	2	0.67	0.11	2.0	2.0	22.6	22.6	
9/17/1999	2	0.24	0.04	2.1	2.2	20.5	2,0.5	
10/25/1999	2	0.45	0.07	2.4	2.4	18.6	18.9	
6/16/1999	3	5.25	5.88	1.8	1.8	22.2	22.2	
7/12/1999	3	10.42	0.83	1.6	1.7	24.5	23.7	
3/16/1999	3	4.61	3.00	2.0	2.0	22.1	22.2	
9/17/1999	3	2.44	1.91	2.2	2.2	20.6	20.6	
10/25/1999	3	4.35	4.04	2.4	2.4	19.4	19.5	
6/16/1999	4	4.13	3.94	1.8	1.8	22.2	22.2	
7/12/1999	4	13.49	0.17	1.8	1.9	25.2	23.2	
8/16/1999	4	8.56	4.35	2.1	2.1	23.5	23.7	
9/17/1999	4	0.23	0.05	2.3	2.3	21.3	21.3	
10/25/1999	4	1.42	0.79	2.3	2.3	18.6	18.6	
6/16/1999	5	7.11	7.23	1.3	1.3	21.9	22.0	
7/12/1999	5	3.99	4.04	1.7	1.7	25.9	25.8	
8/16/1999	5	3.69	3.93	2.1	2.1	22.9	23.0	
9/1 7 /1999	5	4.79	4.71	2.1	2.1	20.4	20.4	
10/25/1999	5	7.82	7.39	1.8	1.8	17.0	17.1	
6/16/1999	6	4.63	4.34	1.3	1.3	21.7	21.8	
7/12/1999	6	9.80	6.37	1.4	1.4	24.5	23.8	
8/16/1999	6	7.46	5.26	1.4	1.5	23.0	22.8	
9/17/1999	6	5.18	3.42	1.4	1.4	20.6	20.5	
10/25/1999	6	7.43	7.37	1.6	1.6	17.1	18.8	
Mean		5.39	3.68	2.1	2.2	21.9	21.8	

Table 2. Results of analytical chemistry measurements of water samples collected in Buena Vista Lagoon, June through October 1999,

Data analyzed at Pat-Chem Laboratories using standard EPA methods **Buena Vista Water Quality Sampling**

8 30 33 8 22 Enteroccus 1600 20 12 50 Turbidity | Total Coliform | Fecal Coliform 9 300 130 33 50 50 601 130 240 900 300 50 382 240 280 1600 900 30 240 23 900 2.5 8.9 3.4 11.0 12.5 0.5 10.2 0.7 0.9 1.3 0.6 7.7 14.6 5.5 10.4 4.9 T.K.N Ammonia Nitrate Nitrite BOD Ortho P. T. Phosphorous 0.05 0.30 0.02 0.02 0.30 0.02 0.08 0.13 0.02 0.02 0.40 0.12 0.02 0.24 0.30 0.02 0.02 0.36 0.04 0.12 0.02 0.10 0.02 0.02 0.08 0.02 0.13 0.12 0.02 0.02 0.02 0.24 0.36 90.0 **~0.5** <0.5 <0.5 <0.5 <0.5 <0.5 5 5 2 5 0.10 0.02 0.02 0.03 0.10 0.02 0.02 0.03 0.10 0.02 0.02 0.02 0.10 0.02 0.02 0.03 0.02 0.05 0.10 0.02 0.02 0.04 0.02 0.10 0.02 0.80 0.02 0.02 0.25 0.60 0.02 0.02 0.51 0.50 0.02 0.02 0.10 09.0 0.02 0.02 0.09 0.25 0.25 0.02 0.02 0.50 0.02 0.02 0.22 0.18 0.07 0.12 0.08 0.06 0.08 0.20 90.0 0.09 0.05 0.20 0.14 0.75 0.12 90.0 0.13 0.09 0.05 0.26 0.11 0.14 0.53 1.48 1.99 1.76 1.65 1.59 0.43 1.35 0.46 4.33 0.51 1.46 1.23 1.63 1.69 1.32 1.37 1.71 1.44 0.62 1.97 1.80 1.74 1.47 8.6 8.9 9.0 8.0 9.0 8.2 9.8 9.0 9.3 9.2 7.8 8.5 8.6 9.7 7.9 8.2 7.9 0. 8.1 금 Sample Date | Station S 7/12/99 8/16/99 9/11/99 6/16/99 7/12/99 8/16/99 9/17/99 6/16/99 7/12/99 8/16/99 9/11/99 10/25/99 6/11/9 7/12/99 8/16/99 10/25/99 0/25/99 9/17/99 7/12/99 8/16/99 10/25/99 9/17/99 7/12/99 10/25/99 6/16/99 0/25/99 8/16/99 9/17/99 6/16/99 Average

no chem analysis

th for Phosphorus measurements. equals test for phosphate as P, where others are Orthophosn te, sample dropped for analysis Note: the sample date 6/16/99. Detection levels were set too high for Nitrit.

The last two dates the limits were dropped from mg/l to micrograms/l

Table 3. Mean values of all water quality parameters measured in Buena Vista Lagoon, June through October 1999 by basin.

MEASUREMENT	BASIN			AVERAGE	
	West	Central	East	(MEAN + RANGE)	
			_		
BOD (mg/l)	5.3	5.0	5.11	5 (<5 – 7)	
PH (units)	8.5	9.3	8.0	8.6 (7.5 –10.1)	
Turbidity (NTU)	4.3	3.3	6.9	4.9 (0.6 – 14.6)	
Temperature surface (°C)	22.4	22.0	21.5	21.94 (17.0 – 26.2)	
Temperature bottom (°C)	22.3	21.7	21.6	21.89 (17.1 – 26)	
Salinity surface (ppt)	2.7	2.0	1.6	2.12 (1.3 – 5.9)	
Salinity bottom (ppt)	3.0	2.0	1.6	2.22 (1.3 – 8.5)	
Dissolved Oxygen surface (mg/l)	4.49	5.49	6.19	5.39 (0.23 – 5.39)	
Dissolved Oxygen bottom (mg/l)	3.14	2.50	5.41	3.68 (0.03 – 8.45)	
Orthophosphate (mg/l)	0.05	0.05	0.13	0.077 (0.02 – 0.36)	
Total Phosphorus (mg/l)	0.12	0.11	0.19	0.138 (0.02 – 0.4)	
Nitrate (mg/l)	0.28	0.17	0.20	0.22 (<0.02 - 0.8)	
Nitrite (mg/l)	0.04	0.04	0.04	0.04 (<0.02 - 0.03)	
TKN (mg/l)	1.36	1.55	1.48	1.47 (0.43 - 4.33)	
Ammonia (mg/l)	0.11	0.12	0.20	0.14 (<0.05 – 0.75)	
Total Coliform (mpn/100mls)	634	251	262	382 (<4 - ≥ 1600)	
Fecal Coliform (mpn/100 mls)	216	51	59	109 (< 2 ≥ 1600)	
Enterococcus (mpn/100 mls)	5	25	11	13.8 (<2 - 80)	

Note: Means were calculated using numbers within the detection limits. Numbers reported below the detection limits are shaded in gray in the above table. For numerical calculations only, those numbers were assumed to equal the detection limit. Detection limits for nitrate, nitrite, and total phosphorus, were lowered after the 6/16/99 sample date from 0.1mg/l, 0.1mg/l, and 0.05mg/l, to 0.02 mg/l for all three. Ammonia detection limits were raised from 0.02 mg/l to 0.05 mg/l after the 6/16/99 sample date. Phosphate as P was dropped and not included in the mean after the first sample date and replaced with orthophosphate with a detection limit of 0.02 mg/l.

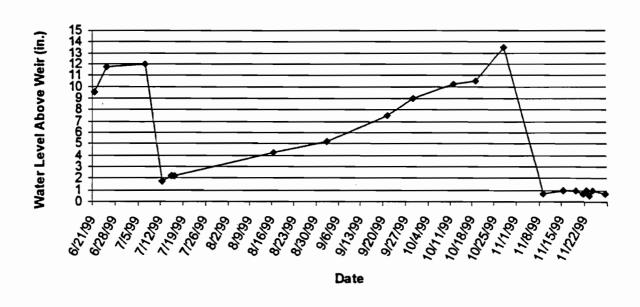


Figure 2. Changes in water level above the weir at Buena Vista lagoon during 1999.

conditions associated with the locations of the water quality stations sampled in the East Basin. Station 5 is located in very shallow water (i.e., 1.5 ft), and Station 6 is located in deep water with little submerged vegetation, near the terminus of Buena Vista Creek. In contrast, dissolved oxygen levels in the bottom water at Stations 1-4, which exhibited large stands of submerged aquatic vegetation, were significantly lower than levels in the surface waters.

Water temperature varied throughout the lagoon. Small differences in temperatures between sampling stations were observed, but this was usually only about 1 to 2 degrees. These differences are probably related to differences in station characteristics, e.g., water depth and amount of submersed vegetation. Temperature differences within stations, i.e., surface and bottom water, were minimal because measurements were made early in the morning before any thermocline would have developed. Differences in temperatures recorded at Stations 5 and 6 are due to extreme shallowness and proximity to the terminus of Buena Vista Creek. It should be noted that even though no measurements were made during the benthic surveys which were conducted throughout the day, a noticeable thermocline was evident at Stations 1 through 4. This thermocline developed during the day and would break down by the next morning. Vertical mixing at these stations was constrained by the presence of submersed aquatic vegetation and a floating alga mat.

Biological Oxygen Demand (BOD) remained low during the entire study period. Only three measurements were above the detection limits, and they were still within 2 mg/l of the 5 mg/l detection limit. Previous studies by Carpelan (1960) and Peters *et al.* (1985) show similar results. High BOD does not appear to occur in the system.

pH measurements were typical of a freshwater system. Concentrations remained slightly basic until the algal bloom die-off occurred. Then the increase in bacterial activity decreased the pH levels due to acidic waste produced by the bacteria bloom. This occurred at many of the stations when bacterial blooms were present and pH levels tended to drop below the neutral point.

Nutrients were measured at all stations and compared to previous studies in the lagoon (Carpelan, 1960; and Peters et al., 1985). Peters et al. reported concentrations of orthophosphate, total phosphorus, total inorganic nitrogen, and total nitrogen. Peters et al. also proposed water quality objectives for these nutrients,. Water quality objectives for orthophosphate and total phosphate were proposed as annual objectives, whereas water quality objectives for the nitrogen nutrients were proposed as seasonal objectives for the periods of October-March and April-September.

The mean concentration of orthophosphate for the entire lagoon was 0.07 mg/l. Respective mean concentrations for the West, Central, and East Basins were 0.05, 0.05, and 0.13 mg/l. respectively. Peters *et al.* (1985) measured means of 0.13 mg/l for October-March and 0.09 MG/l for April-September sampling periods. The proposed annual water quality objective for orthophosphate for the entire lagoon was 0.16 mg/l. For the current sampling period, representing the April-September time period, orthophosphate concentrations exceeded the measured values of Peters *et al.* only in the East Basin. No seasonal objective was given, but measured results show the lagoon to be close to the concentrations observed by Peters *et al.* (1985). If this current concentration trend continues during the year 2000, it is likely that the annual objective would be

met for this constituent. The observed concentrations by basin shows that the East Basin had the highest concentrations, probably due to urban runoff and reduced flows through the cattails near the I-5 Bridge.

Peters et al. (1985) also reported seasonal measured values and proposed an annual water quality objective for total phosphorus. Their measured seasonal means were 0.28 mg/l for October-March and 0.20 mg/l for April-September, and their proposed annual water quality objective was a mean of 0.25 mg/l. The current survey showed a mean concentration of total phosphorus for the entire lagoon of 0.14 mg/l, and means of 0.12 mg/l, 0.11 mg/l, and 0.19 mg/l for the West, Central, and East Basins respectively. All concentrations were below the values measured by Peters et al. (1985), and the overall mean for the lagoon shows that the levels should meet the proposed annual water quality objective. Since little to no rainfall occurred during the sampling period, the first rain, which occurred in December, should have increased those levels significantly. Additional nutrient sampling should be done to complete a full year's survey to document the magnitude of seasonal changes and to enable comparison with the water quality objectives proposed by Peters et al. (1985).

Peters *et al.* (1985) were unable to define an annual water quality objective for nitrogen, but instead proposed seasonal objectives based on his observed concentrations. Peters et al. (1985) evaluated total nitrogen, which is comprised of organic and inorganic forms of nitrogen (which includes ammonia, nitrate, and nitrite forms of nitrogen). They observed levels of total inorganic nitrogen for October-March of 1.1 mg/l and of 0.60 mg/l for April-September. The proposed objective for the lagoon was 1.3 mg/l and 0.75 mg/l for the seasonal means respectively. Current sampling results, assuming that all values lower than the detection limit are set at the detection limit, show a mean level of total inorganic nitrogen of 0.13 mg/l, and means for the West, Central, and East Basin of 0.14 mg/l, 0.11 mg/l, and 0.14 mg/l. Levels for the entire lagoon and for each basin were well below the measured values and the seasonal objectives of Peters *et al.*. Peters' total nitrogen measurements for October-March were 2.5 mg/l, and 1.9 for April-September. The objective for the lagoon was put at 2.6 mg/l and 2.1 mg/l for the seasonal means respectively. Current mean concentrations, which include the above nitrogen samples and T.K.N. samples, are 0.46 mg/l for the entire lagoon, and 0.45, 0.47, and 0.48 mg/l for the West, Central, and East Basins respectively.

Since the nitrogen concentrations were low compared to the values reported by Peters *et al.* (1985), this indicates that the current nitrogen nutrient loading within the lagoon during this time period is low. This may be due to the lack of rainfall and runoff into the lagoon. Although concentrations were low, large alga blooms were evident during several of the surveys.

Concentrations of ammonia also are similar to Carpelan's (1960) data collected during 1958-1959, when concentrations were higher during the late winter/early spring. Carpelan (1960) measured concentrations from below 0.05 mg/l to near 0.45 mg/l. Current data show individual levels (not means) of similar quantities from less than 0.05 mg/l to one spike of 0.75 mg/l. [The similarity in ammonia concentrations between the current data and that of Carpelan (1960) and Peters et al. (1985) suggests that concentrations have stayed relatively similar for a period of over 30 years.] Both Carpelan (1960) and Peters et al. (1985) reported strong seasonality. The water

quality objectives proposed by Peters et al. (1985) account for the effects of season on concentrations.

Measurements of bacteria were also made at each station. Bacteria counts remained at safe levels (according to the County Water Body Contact Standards) throughout the lagoon, with the exception of Station 2 in the West Basin on 10/25/99, where the level measured was >1600 for total coliforms and >1600 for fecal coliforms. The County standard is 10,000 for total coliforms and 400 for fecal coliforms.

4.0 REFERENCES

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APPENDIX A HISTORICAL WATER QUALITY DATA

APPENDIX A

HISTORICAL WATER QUALITY DATA

Purer (1942) monitored salinity in Buena Vista Lagoon from January 1939 to June 1940. Her data are shown in Figure A-1. Her data exhibit a very large variation in salinity, ranging from 64 - 2 ppt. The salinity value of about 34 ppt in February 1939 decreased dramatically to about 13 ppt in March and 10 ppt in April. The salinity then increased to about 49 ppt in September and 64 ppt in December.. The salinity then took another dramatic decrease to about 14 ppt in January 1940 and 2 ppt in February. The salinity remained below 5 ppt through May 1940. During this period the salinity ranged from 64 - 2 ppt and probably only supported euryecious (i.e., tolerant) species.

Carpelan (1960, 1969) monitored monthly changes in water quality conditions (temperature, salinity, pH, and DO). Measurements were made at three stations located throughout Buena Vista Lagoon from June 1958 to September 1959. During this period, treated wastewater was discharged into the Railroad Basin at a rate of approximately 6,000 m³ per day. Carpelan data show:

- 1) Surface water temperature during summer ranged from 25° 28° C, during winter from 13° 14° C, and during spring from 19° 25° C. Between October and November, the average water temperature decreased from 26° to 12° C (Figure A-2).
- 2) The annual change in salinity ranged from 2.0 to 6.4 ppt (Figure A-3). Salinity increased from August through January (probably due to evaporation) and decreased during February through May (probably from accumulation of stormwater runoff). The maximum and minimum salinities were 5.1 and 2.0 ppt in the East Basin (Station E), 6.4 and 2.7 in the Central Basin (Station C), and 6.4 and 2.6 in the Railroad Basin (Station B).
- 3) Differences in pH changes between basins. pH in Railroad Basin (Station B) ranged from 6.9 (in February) to 10.5 (in June), pH in the Central Basin ranged from 7.7 (in March) to 10.2 (in June), and in the East Basin from 7.8 (March) to 9.9 (August).
- 4) Seasonal trends in dissolved oxygen values are shown in Figure A-4 by basin. The lowest concentrations occurred during February April. There were two peaks of high concentrations: one during July September and one during December January.
- 5) B.O.D. results from 3 samples collected during April (1959) showed a biological oxygen demand of 6 7 ppm.

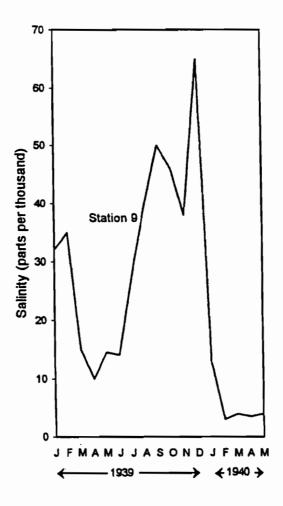
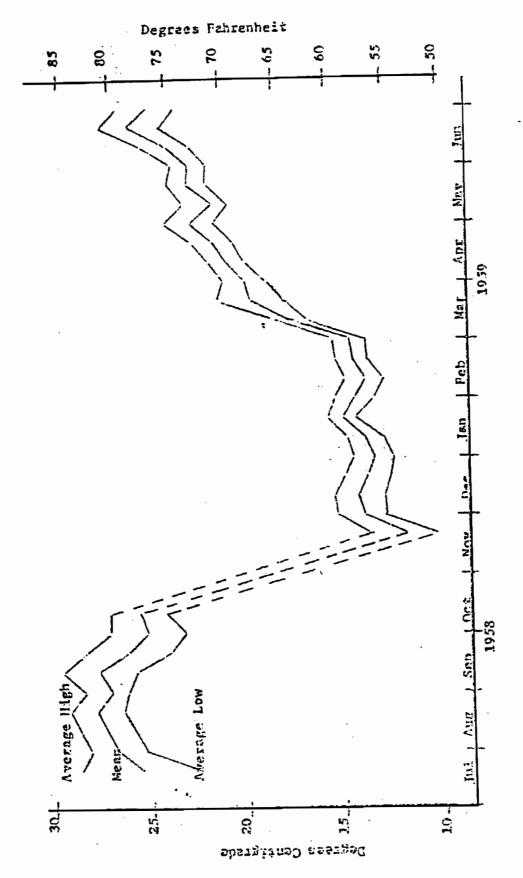


Figure A-1. Salinity of water sampled in Buena Vista Lagoon, January 1939 through May 1940 (from Purer 1942).



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Figure A-2. Surface water temperature measured in Buena Vista Lagoon (from

Carpelan 1960).