Sanitary Sewer Overflow Monthly Report

Facility Name: Wynne Water **Permit Number:** AR0021903 **Reporting Period(Month/Year):** 6/13

☐ No Sanitary Sewer Overflows This Monitoring Period

Summary Report Code Descriptions				
Cause(s) of SSO		**SSO Impact**	**Action(s) Taken**	**Ultimate Discharge Location**
CO-Construction	D-Debris	NEAH-No Evidence of Adverse Health or Environmental Impact	WO-Work Order	CR-Creek/Stream/River (please specify)
E-Equipment Failure	G-Grease	OEHC-Observed or Evidence of Human Contact	EC-Environmental Cleanup	DI-Ditch
HC-Hydro Clean	LF-Line Failure/Break	EFK-Evidence of Fish Kill	HC-Hydro Cleaned	DR-Drop Inlet
R-Rainfall	RG-Roots & Grease		HR-Hand Rodded	GR-Ground Surface
RO-Roots	V-Vandalism		EN-Referred to Engineering	PA-Paved Area
			PN-Public Notification	CB-Contained in Building

Location	Manhole #	Start Date of SSO	End Date of SSO	Estimated Volume (in gallons)	Cause of SSO	Environmental Impact	Action (s) Taken to Address SSO	Ultimate Discharge Location
Lombardy Ln.	N/A	6-23-13	6-23-13	100	G	NEAH	Jet-VAC/Line	GR

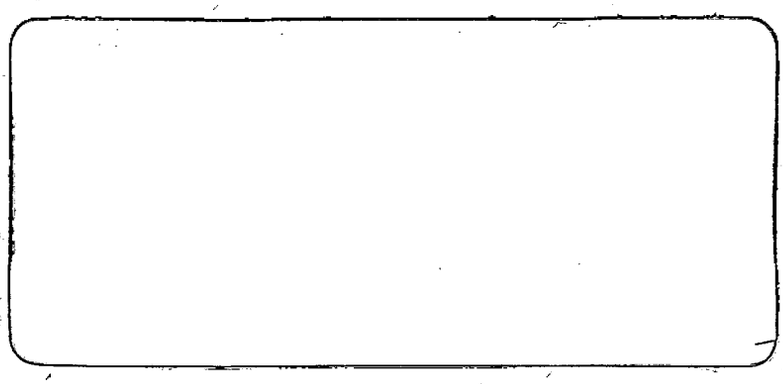
Don M. O'Neal — 7/16/13

Signature of Cognizant or Ranking Official — Date

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Environmental Analysis

Biomonitoring
Acute Toxicity
Chronic-Toxicity
Storm Water 24 hr. Toxicity



Sorrells Research

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SORRELLS RESEARCH
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LABORATORY ANALYSIS

Date of Report: July 11, 2013
Date Received : June 10, 2013

For: WYNNE WATER UTILITIES
121 EAST MERRIMAN
WYNNE, AR 72396-
Job: NPDES MONITORING PERMIT NO: AR0021903 1/QTR
Sample From: POST AERATION BASIN-COMP 06/09-10/13 0700-0700 / BIO-MONITORING

ANALYTE		RESULT	UNITS	METHOD
Bioassay, Ceriodaphnia dubia, chronic	=	100.000	Rp_NOEC, %	1002.0
Bioassay, Fathead minnow, chronic	=	100.000	Gr_NOEC, %	1000.0
Bioassay, Ceriodaphnia dubia- chronic	=	100.000	Sv-NOEC, %	1002.0
Bioassay, Fathead minnow, chronic	=	100.000	Sv_NOEC, %	1000.0

STANDARD METHODS, 20TH ED.; EPA METHODS, 3RD ED.
Collected by:
MAHDI HADDADI on 06/10/13 at 7:00
Analysis by :
SEE ATTACHED QUALITY ASSURANCE PAGE.
Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 136. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Instruments maintained and calibrated and records kept.
See Attached.

Copies to:
MR. HARRELL WILLIAMS
OPERATOR
121 EAST MERRIMAN
WYNNE, AR 72396-

Laboratory Number: 16076.0001B TKR Reviewed By: K. E. Sorrells, M.S. [ ]

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QUALITY ASSURANCE

June 10, 2013
The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Bioassay, Ceriodaphnia du	CS/TM	06/11/13	1430	06/19/13	1430	0.00	96.3	2
Bioassay, Fathead minnow,	CS/TM	06/11/13	1430	06/18/13	1430	0.00	114.9	2

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up
Sample preservation and laboratory analysis conducted according to EPA
40 CFR Part 136 TEST/ANALYST/TIME/COEF. VAR.* QA PLAN filed with
ADPC&E. Include replication.

KES = K. E. Sorrells
JBS = James B. Sorrells
CAS = Cecil A. Sorrells
MKM = Mark Kyle McKenzie

KESII = K. E. Sorrells, II
TJS = Todd J. Sanders
JHD = J. Henry Dodson

Laboratory Number: 16076.0001B TKR

CITY OF WYNNE
PERMIT NO: AR0021903
CHRONIC BIOMONITORING

METHOD 1000.0 - PIMEPHALES PROMELAS
METHOD 1002.0 - CERIODAPHNIA DUBIA

Report Prepared by:
Sorrells Research Associates, Inc.
8100 National Dr.
Little Rock, AR 72209

Cecil A. Sorrells, Biomonitoring Laboratory Supervisor

K. E. Sorrells, M.S., Quality Assurance Officer

July 10, 2013

Laboratory Number: 16076.0001, 0002, 0003

TABLE OF CONTENTS

INTRODUCTION AND SUMMARY

Chronic biomonitoring tests:

7 day fathead minnow larval survival and growth (method 1000.0) and 7 day ceriodaphnia dubia survival and reproduction (method 1002.0) were performed by Sorrells Research Associates for Wynne 24 hour composite samples of plant effluent for dates 06/09-10/13,06/11-12/13,06/13-14/13.

The samples were delivered to Sorrells lab in ice chest, cooled to 4 degrees c.

These samples were logged in as #16076.0001, 0002 and 0003. Chain of custody included in report.

Moderately hard 20% deionized mineral water was used as dilution water.

Testing was initiated 06/11/13 at 1430 hours and continued through 06/19/13 at 1430 hours.

The results of these tests are as follows:

TEST 1000.0 FATHEAD MINNOW

SURVIVAL - NOEL 100% Effluent

GROWTH - NOEL 100% Effluent

TEST 1002.0 CERIODAPHNIA DUBIA

SURVIVAL - NOEL 100% Effluent

REPRODUCTION - NOEL 100% Effluent

Fishers Exact Test statistics are included in this report for these observations. No other adjustments were made.

TEST ACCEPTANCE CRITERIA
FOR CONTROL

TEST METHOD	ORGANISM	CRITERIA	RESULTS	PASS/FAIL
1000	Pimephales promelas	Control surv. >or= 80 %	100%	PASS
1002	Ceriodaphnia dubia	Control surv. >or= 80 %	100%	PASS
1000	Pimephales promelas	Control wt. .25 mg or> per larvae.	.319	PASS
1002	Ceriodaphnia dubia	Control repro. 15 or> neonates per surviving female.	18.0	PASS
1000	Pimephales promelas	Control CV 40 % or <	**4.0**	PASS
1002	Ceriodaphnia Dubia	Control CV 40 % or <	**10.14**	PASS

NOTE: The test acceptance criteria is based upon the synthetic laboratory control. Laboratory control is moderately hard 20% deionized mineral water, as directed by EPA/600/4-91/002.

OUTLINED REPORT

PERMIT NO: AR0021903
PERMIT REQUIREMENTS:
PLANT LOCATION:
RECEIVING WATER BODY:

CLIENT: Wynne, City of
ADDRESS: P.O. Box 121 E. Merriman
Wynne, AR 72396

PLANT OPERATIONS

PRODUCT (S): n/a
RAW MATERIALS: n/a
OPERATING SCHEDULE:
SCHEMATIC OF WASTE TREATMENT:

RETENTION TIME:

VOLUME OF WASTE FLOW (MGD, CFS, GPM)

BIOMONITORING CHRONIC TOXICITY REPORT
CHEMICAL PARAMETER CHART

SOURCE OF EFFLUENT (AMBIENT) AND DILUTION WATER

EFFLUENT SAMPLES-

SAMPLING POINT: PLANT EFFLUENT

COLLECTION DATES/TIMES: 06/09-10/13 0700-0700 | 06/11-12/13 0700-0700 | 06/13-14/13 0700-0700

SAMPLING COLLECTION METHOD: COMPOSITE

PHYSICAL AND CHEMICAL DATA:

CONTROL	DATE **06/11/13**	DATE **06/13/13**	DATE **06/15/13**
DO (mg/l)	7.93	8.32	8.31
pH (S.U.)	7.04	7.14	7.16
Conductivity (umhos)	312	308	277
Alkalinity (mg/l)	68	75	66
Hardness (mg/l)	106	110	108
Res. Chlorine (mg/l)	0	0	0

56%	DATE **06/11/13**	DATE **06/13/13**	DATE **06/15/13**
DO (mg/l)	8.04	8.40	8.26
pH (S.U.)	6.75	7.02	7.13
Conductivity (umhos)	448	489	460
Alkalinity (mg/l)	45	44	48
Hardness (mg/l)	140	126	120

(Cont.)

PHYSICAL AND CHEMICAL DATA: **100% EFFLUENT**	DATE **06/11/13**	DATE **06/13/13**	DATE **06/15/13**
DO (mg/l)	8.12	8.46	8.20
pH (S.U.)	6.33	6.96	7.15
Conductivity (umhos)	549	634	610
Alkalinity (mg/l)	23	24	22
Hardness (mg/l)	178	144	140
Res. Chlorine (mg/l)	0	0	0
Temperature .c	25	25	25

DILUTION WATER SAMPLES -

SOURCE: 20% DMW

COLLECTION DATE: N/A TIME: N/A

PRETREATMENT: AERATED

Hardness is to be reported as mg/1 CaCO3
D.O. Dissolved Oxygen mg/1
Temperature degrees centigrade
pH standard units
Conductivity = us/cm
Chlorine Residual = mg/1

Chemical Data For Daily Biomonitoring

Permitee Wynne Date 6-11-13 1430

Analyst _____ Lab no. 160716

Dilution Cont

Day	1 (Dry)	2	3	4	5	6	7	notes
Temp	25	25.0	25.0	25.0	25.0	25.0		
pH	7.04	7.11	7.14	7.05	7.16	7.17		
D.O.	7.93	7.88	8.32	8.30	8.31	8.25		
Alk	68	~~75~~	~~66~~ 75		66			
Hard.	106		110		108			
Cond.	312		308		277			~~312~~ 292

Dilution 56

Day	1	2	3	4	5	6	7	notes
Temp	25.0	25.0	25.0	25.0	25.0	25.0		
pH	6.75	6.83	7.02	7.15	7.13	7.10		
D.O.	8.04	8.65	8.40	8.32	8.26	8.22		
Alk	45	~~44~~	~~48~~ 44		48			
Hard.	140		126		120			
Cond.	448		489		460			

Dilution 100

Day	1	2	3	4	5	6	7	notes
Temp	25.0	25.0	25.0	25.0	25.0	25.0		
pH	6.33	6.55	6.96	7.19	7.15	7.04		
D.O.	8.12	8.04	8.46	8.30	8.20	8.16		
Alk	23		24			22		
Hard.	178		144		140			
Cond.	549		634		610			

0 < .05 0

DATA ANALYSIS

ACCORDING TO EPA/600/4-91/002.

STATISTICAL ANALYSES

TOXSTAT VERSION 3.3

TITLE: WYNNE 16076 CERIO REPS
FILE: 16076WCR
TRANSFORM: NO TRANSFORM NUMBER OF GROUPS: 6

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	CONTROL	1	18.0000	18.0000
1	CONTROL	2	20.0000	20.0000
1	CONTROL	3	20.0000	20.0000
1	CONTROL	4	18.0000	18.0000
1	CONTROL	5	21.0000	21.0000
1	CONTROL	6	17.0000	17.0000
1	CONTROL	7	17.0000	17.0000
1	CONTROL	8	17.0000	17.0000
1	CONTROL	9	15.0000	15.0000
1	CONTROL	10	17.0000	17.0000
2	32.00	1	18.0000	18.0000
2	32.00	2	19.0000	19.0000
2	32.00	3	19.0000	19.0000
2	32.00	4	20.0000	20.0000
2	32.00	5	20.0000	20.0000
2	32.00	6	19.0000	19.0000
2	32.00	7	17.0000	17.0000
2	32.00	8	18.0000	18.0000
2	32.00	9	17.0000	17.0000
2	32.00	10	17.0000	17.0000
3	42.00	1	16.0000	16.0000
3	42.00	2	17.0000	17.0000
3	42.00	3	17.0000	17.0000
3	42.00	4	18.0000	18.0000
3	42.00	5	17.0000	17.0000
3	42.00	6	17.0000	17.0000
3	42.00	7	17.0000	17.0000
3	42.00	8	19.0000	19.0000
3	42.00	9	17.0000	17.0000
3	42.00	10	17.0000	17.0000
4	56.00	1	19.0000	19.0000
4	56.00	2	16.0000	16.0000
4	56.00	3	16.0000	16.0000
4	56.00	4	18.0000	18.0000
4	56.00	5	18.0000	18.0000
4	56.00	6	22.0000	22.0000
4	56.00	7	17.0000	17.0000
4	56.00	8	16.0000	16.0000
4	56.00	9	18.0000	18.0000
4	56.00	10	18.0000	18.0000
5	75.00	1	19.0000	19.0000
5	75.00	2	19.0000	19.0000
5	75.00	3	22.0000	22.0000
5	75.00	4	17.0000	17.0000
5	75.00	5	17.0000	17.0000
5	75.00	6	20.0000	20.0000
5	75.00	7	18.0000	18.0000
5	75.00	8	19.0000	19.0000
5	75.00	9	22.0000	22.0000
5	75.00	10	16.0000	16.0000

6	100.00	1	16.0000	16.0000
6	100.00	2	17.0000	17.0000
6	100.00	3	17.0000	17.0000
6	100.00	4	21.0000	21.0000
6	100.00	5	18.0000	18.0000
6	100.00	6	21.0000	21.0000
6	100.00	7	21.0000	21.0000
6	100.00	8	20.0000	20.0000
6	100.00	9	18.0000	18.0000
6	100.00	10	18.0000	18.0000

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	10	15.000	21.000	18.000
2	32.00	10	17.000	20.000	18.400
3	42.00	10	16.000	19.000	17.200
4	56.00	10	16.000	22.000	17.800
5	75.00	10	16.000	22.000	18.900
6	100.00	10	16.000	21.000	18.700

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	CONTROL	3.333	1.826	0.577
2	32.00	1.378	1.174	0.371
3	42.00	0.622	0.789	0.249
4	56.00	3.289	1.814	0.573
5	75.00	4.100	2.025	0.640
6	100.00	3.567	1.889	0.597

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	19.733	3.947	1.454
Within (Error)	54	146.600	2.715	

Total	59	166.333

Critical F value = 2.45 (0.05,5,40)
Since F < Critical F FAIL TO REJECT Ho:All groups equal

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	18.000	18.000		
2	32.00	18.400	18.400	-0.543	
3	42.00	17.200	17.200	1.086	
4	56.00	17.800	17.800	0.271	
5	75.00	18.900	18.900	-1.221	
6	100.00	18.700	18.700	-0.950	

Dunnett table value = 2.31 (1 Tailed Value, P=0.05, df=40,5)

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL
1	CONTROL	10			
2	32.00	10	1.702	9.5	-0.400
3	42.00	10	1.702	9.5	0.800
4	56.00	10	1.702	9.5	0.200
5	75.00	10	1.702	9.5	-0.900
6	100.00	10	1.702	9.5	-0.700

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	CONTROL	10	18.000	18.000	17.850
2	32.00	10	18.400	18.400	17.850
3	42.00	10	17.200	17.200	17.850
4	56.00	10	17.800	17.800	17.850
5	75.00	10	18.900	18.900	18.800
6	100.00	10	18.700	18.700	18.800

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
CONTROL	17.850				
32.00	17.850	0.204		1.68	k= 1, v=54
42.00	17.850	0.204		1.76	k= 2, v=54
56.00	17.850	0.204		1.79	k= 3, v=54
75.00	18.800	1.086		1.80	k= 4, v=54
100.00	18.800	1.086		1.80	k= 5, v=54

s = 1.648
Note: df used for table values are approximate when v > 20.

WYNNE 16076 CERIO REPS
File: 16076WCR Transform: NO TRANSFORM

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	CONTROL	18.000				
2	32.00	18.400	113.00	75.00	10.00	
3	42.00	17.200	90.00	75.00	10.00	
4	56.00	17.800	102.00	75.00	10.00	
5	75.00	18.900	117.00	75.00	10.00	
6	100.00	18.700	116.50	75.00	10.00	

Critical values use k = 5, are 1 tailed, and alpha = 0.05

TITLE: WYNNE 16076 MINNOW WEIGHTS
FILE: 16076WMW
TRANSFORM: NO TRANSFORM NUMBER OF GROUPS: 6

GRP	IDENTIFICATION	REP	VALUE	TRANS VALUE
1	CONTROL	1	0.3220	0.3220
1	CONTROL	2	0.3090	0.3090
1	CONTROL	3	0.3360	0.3360
1	CONTROL	4	0.3100	0.3100
2	32.00	1	0.3190	0.3190
2	32.00	2	0.3380	0.3380
2	32.00	3	0.3150	0.3150
2	32.00	4	0.3420	0.3420
3	42.00	1	0.2960	0.2960
3	42.00	2	0.3210	0.3210
3	42.00	3	0.3240	0.3240
3	42.00	4	0.3310	0.3310
4	56.00	1	0.3050	0.3050
4	56.00	2	0.3260	0.3260
4	56.00	3	0.3270	0.3270
4	56.00	4	0.3100	0.3100
5	75.00	1	0.3320	0.3320
5	75.00	2	0.3090	0.3090
5	75.00	3	0.3230	0.3230
5	75.00	4	0.3380	0.3380
6	100.00	1	0.3250	0.3250
6	100.00	2	0.3270	0.3270
6	100.00	3	0.3060	0.3060
6	100.00	4	0.3340	0.3340

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 1 of 2

GRP	IDENTIFICATION	N	MIN	MAX	MEAN
1	CONTROL	4	0.309	0.336	0.319
2	32.00	4	0.315	0.342	0.329
3	42.00	4	0.296	0.331	0.318
4	56.00	4	0.305	0.327	0.317
5	75.00	4	0.309	0.338	0.326
6	100.00	4	0.306	0.334	0.323

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

SUMMARY STATISTICS ON TRANSFORMED DATA TABLE 2 of 2

GRP	IDENTIFICATION	VARIANCE	SD	SEM
1	CONTROL	0.000	0.013	0.006
2	32.00	0.000	0.013	0.007
3	42.00	0.000	0.015	0.008
4	56.00	0.000	0.011	0.006
5	75.00	0.000	0.013	0.006
6	100.00	0.000	0.012	0.006

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

ANOVA TABLE

SOURCE	DF	SS	MS	F
Between	5	0.000	0.000	0.499
Within (Error)	18	0.003	0.000	
Total	23	0.003		

Critical F value = 2.77 (0.05,5,18)
Since F < Critical F FAIL TO REJECT Ho:All groups equal

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 1 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	MEAN CALCULATED IN ORIGINAL UNITS	T STAT	SIG
1	CONTROL	0.319	0.319		
2	32.00	0.329	0.329	-1.013	
3	42.00	0.318	0.318	0.137	
4	56.00	0.317	0.317	0.246	
5	75.00	0.326	0.326	-0.684	
6	100.00	0.323	0.323	-0.411	

Dunnett table value = 2.41 (1 Tailed Value, P=0.05, df=18,5)

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

DUNNETTS TEST - TABLE 2 OF 2 Ho:Control<Treatment

GROUP	IDENTIFICATION	NUM OF REPS	Minimum Sig Diff (IN ORIG. UNITS)	% of CONTROL	DIFFERENCE FROM CONTROL

1	CONTROL	4			
2	32.00	4	0.022	6.9	-0.009
3	42.00	4	0.022	6.9	0.001
4	56.00	4	0.022	6.9	0.002
5	75.00	4	0.022	6.9	-0.006
6	100.00	4	0.022	6.9	-0.004

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 1 OF 2

GROUP	IDENTIFICATION	N	ORIGINAL MEAN	TRANSFORMED MEAN	ISOTONIZED MEAN
1	CONTROL	4	0.319	0.319	0.319
2	32.00	4	0.329	0.329	0.321
3	42.00	4	0.318	0.318	0.321
4	56.00	4	0.317	0.317	0.321
5	75.00	4	0.326	0.326	0.324
6	100.00	4	0.323	0.323	0.324

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

WILLIAMS TEST (Isotonic regression model) TABLE 2 OF 2

IDENTIFICATION	ISOTONIZED MEAN	CALC. WILLIAMS	SIG P=.05	TABLE WILLIAMS	DEGREES OF FREEDOM
CONTROL	0.319				
32.00	0.321	0.208		1.73	k= 1, v=18
42.00	0.321	0.208		1.82	k= 2, v=18
56.00	0.321	0.208		1.85	k= 3, v=18
75.00	0.324	0.542		1.86	k= 4, v=18
100.00	0.324	0.542		1.87	k= 5, v=18

s = 0.013
Note: df used for table values are approximate when v > 20.

WYNNE 16076 MINNOW WEIGHTS
File: 16076WMW Transform: NO TRANSFORM

STEELS MANY-ONE RANK TEST - Ho:Control<Treatment

GROUP	IDENTIFICATION	TRANSFORMED MEAN	RANK SUM	CRIT. VALUE	df	SIG
1	CONTROL	0.319				
2	32.00	0.329	22.00	10.00	4.00	
3	42.00	0.318	18.00	10.00	4.00	

4	56.00	0.317	17.50	10.00	4.00
5	75.00	0.326	20.50	10.00	4.00
6	100.00	0.323	19.00	10.00	4.00

Critical values use k = 5, are 1 tailed, and alpha = 0.05

TEST METHOD
1000.0

TEST METHOD USED: 1000.0
END POINT(S) OF TEST: NOEL 100%
DEVIATIONS FROM REFERENCE METHOD: None

DATE AND TIME TEST STARTED: 06/11/13 1430
DATE AND TIME TEST TERMINATED: 06/18/13 1430
TYPE OF TEST CHAMBERS: 600 ml
VOLUME OF SOLUTIONS USED/CHAMBER: 400 ml
NUMBER OF ORGANISMS/TEST CHAMBER: 10
NUMBER OF REPLICATE TEST CHAMBERS/TREATMENT: 4

TEST TEMPERATURE (MEAN): mean = 25

TEST ORGANISMS

SCIENTIFIC NAME: Pimephales promelas
AGE: Less than 24 hours
LIFE STAGE: Larvae
SOURCE: Aquatic BioSystems, Inc.
DISEASES AND TREATMENT: None
FEEDING REGIME: 2/day Brine Shrimp
ORGANISM HISTORY SHEETS ARE ATTACHED

RESULTS SUMMARY

FATHEAD MINNOW, PIMEPHALES PROMELAS, LARVAL SURVIVAL AND GROWTH TEST METHOD 1000.0

Larvae are exposed in a static renewal system for seven days to different concentrations of effluent or to receiving water. Test results are based on the survival and growth (increase in weight) of the larvae. Effluent dilution's chosen for this test were 32%, 42%, 56%, 75% and 100% in accordance with the NPDES permit. The low flow or "critical" dilution is specified in the NPDES Permit as 100% effluent.

NOEL(S) ARE AS FOLLOWS:

100%	Survival	100%	effluent
NOEL	Growth	100%	effluent

BIOMONITORING REPORT
FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

DATA TABLE FOR FATHEAD MINNOW SURVIVAL

Effluent Conc. %	Percent Survival In				Mean Percent			CV%*
	A	B	C	D	24h	48h	7d	
Dilution Water	100	100	100	100	100	100	100	0.0
32%	100	100	100	100	100	100	100	0.0
42%	100	100	100	100	100	100	100	0.0
56%	100	100	100	100	100	100	100	0.0
75%	100	100	100	100	100	100	100	0.0
100%	100	100	100	100	100	100	100	0.0

*coefficient of variation = standard deviation x 100/mean
**ph unadjusted 100% effluent

1. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate: Is the mean survival at 7 days significantly different (p=0.5) than the control survival for the % effluent corresponding to:

a.) LOW FLOW OR CRITICAL DILUTION (100%): YES [ ] NO [**X**]
b.) 1/2 LOW FLOW OR 2 X CRITICAL DILUTION (56 %): YES [ ] NO [**X**]

2. Dunnett's Procedure:
Is the mean dry weight (growth) at 7 days effluent significantly different (p=0.05) than the control's dry weight (growth) for the % effluent corresponding to (significant non-lethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (100%): YES [ ] NO [**X**]
b.) 1/2 LOW FLOW OR 2 X CRITICAL DILUTION (56 %): YES [ ] NO [**X**]

3. If you answered NO to 1.a) and 2.a) enter [0] otherwise enter [1]: **[0]**
4. If you answered NO to 1.b) and 2.b) enter [0] otherwise enter [1]: **[0]**
5. Enter response to item 3 on DMR Form, parameter # TEP6C.
6. Enter response to item 4 on DMR Form, parameter # TFP6C.
7. Enter percent effluent corresponding to each NOEL below and circle lowest number:

a.) NOEL survival =100% effluent
b.) NOEL growth = 100% effluent

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

(Pimephales promelas)

Permittee: Wynne, City of NPDES NO. AR0021903

Dilution water used: Receiving [ ] Reconstituted [X]

DATA TABLE FOR GROWTH

EFFLUENT CONC. %	AVERAGE DRY WEIGHT IN MILLIGRAMS IN REPLICATE CHAMBERS				MEAN DRY WEIGHT (MG)	CV%*
	A	B	C	D	7 days	
CONTROL	.322	.309	.336	.310	.319	**4.0**
32	.319	.338	.315	.342	.329	4.1
42	.296	.321	.324	.331	.318	4.8
56	.305	.326	.327	.310	.317	3.5
75	.332	.309	.323	.338	.326	3.9
100	.325	.327	.306	.334	.323	3.7

*Coefficient of variation = standard deviation X 100/mean

(Coef Of Var Statre 7Day Chronic Pimephales TQP6C = **4.0**)

TEST METHOD
1002.0

TEST METHOD USED: 1002.0
END POINT(S) OF TEST: NOEL 100 %
DEVIATIONS FROM REFERENCE METHOD: None

DATE AND TIME TEST STARTED: 06/11/13 1430
DATE AND TIME TEST TERMINATED: 06/19/13 1430
TYPE OF TEST CHAMBERS: 30 ml
VOLUME OF SOLUTIONS USED/CHAMBER: 15 ml
NUMBER OF ORGANISMS/TEST CHAMBER: 1
NUMBER OF REPLICATE TEST CHAMBERS/TREATMENT: 10

TEST TEMPERATURE (MEAN AND RANGE): 25

TEST ORGANISMS

SCIENTIFIC NAME: Ceriodaphnia dubia
AGE: Less than 24 hours
LIFE STAGE: Neonates
SOURCE: Aquatic BioSystems, Inc.
DISEASES AND TREATMENT: None
FEEDING REGIME: Daily
ORGANISM HISTORY SHEETS ARE ATTACHED

RESULTS SUMMARY
CLADOCERAN, CERIODAPHNIA DUBIA, SURVIVAL AND REPRODUCTION TEST
METHOD 1002.0

Ceriodaphnia are exposed in a static renewal system to different concentrations of effluent, and to receiving water until 60% of surviving control organisms have three broods of offspring (15 neonates per surviving female). Effluent dilutions for this test were 32%, 42%, 56%, 75%, and 100% in accordance with the NPDES Permit. The "critical" dilution is specified as 100% effluent. Test results are based on survival and reproduction. If the test is conducted as described, the control organism should produce three broods of young during a seven-day period.

BIOMONITORING REPORT
CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

PERCENT SURVIVAL

Time of Reading	0%	32%	42%	56%	75%	100%
24h	100	100	100	100	100	100
48h	100	100	100	100	100	100
7 day	100	100	100	100	100	100

1. Fisher's Exact Test:

Is the mean survival at 7 days significantly different (p=0.05) than the control survival for the % effluent corresponding to (lethality):

a.) LOW FLOW OR CRITICAL DILUTION (100 %): YES [ ] NO [**X**]
b.) 1/2 LOW FLOW OR 2 X
CRITICAL DILUTION (56%): YES [ ] NO [**X**]

2. Dunnett's Procedure or Steel's Many-One Rank Test as appropriate:

Is the mean number of young produced per female significantly different (p=0.05) than the control's number of young per female for the % effluent corresponding to (significant non-lethal effects):

a.) LOW FLOW OR CRITICAL DILUTION (100%): YES [ ] NO [**X**]
b.) 1/2 LOW FLOW OR 2 X
CRITICAL DILUTION (56%): YES [ ] NO [**X**]

3. If you answered NO to 1.a) and 2.a) enter [0] otherwise enter [1]: **[0]**

4. If you answered NO to 1.b) and 2.b) enter [0] otherwise enter [1]: **[0]**

5. Enter response to item 3 on DMR Form, parameter #TEP3B.
6. Enter response to item 4 on DMR Form, parameter #TFP3B.
7. Enter percent effluent corresponding to each NOEL below and circle lowest number:

a.) NOEL survival = 100% effluent
b.) NOEL reproduction = 100% effluent

BIOMONITORING REPORT
CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Permittee: Wynne, City of NPDES NO. AR0021903
Dilution water used: Receiving ( ) Reconstituted (X)

NUMBER OF YOUNG PRODUCED PER FEMALE @ 7 DAYS

PERCENT EFFLUENT (%)

REP	0 %	32%	42%	56%	75%	100%
A	18	18	16	19	19	16
B	20	19	17	16	19	17
C	20	19	17	16	22	17
D	18	20	18	18	17	21
E	21	20	17	18	17	18
F	17	19	17	22	20	21
G	17	17	17	17	18	21
H	17	18	19	16	19	20
I	15	17	17	18	22	18
J	17	17	17	18	16	18
*CV%	10.14	6.38	4.59	**10.2**	10.7	10.1
MEAN	18.0	18.4	17.2	17.8	18.9	18.7

*coefficient of variation = standard deviation x 100/mean

(Coef Of Var Statre 7Day Chronic Ceriodaphnia TQP3B = **10.2**)

STANDARD REFERENCE TOXICANTS

STANDARD TOXICANT USED AND SOURCE: SODIUM CHLORIDE
DATE AND TIME OF MOST RECENT TEST: 06/11/13 1430
DILUTION WATER USED IN TEST: 20% DMW
RESULTS(LC50 OR, NOEC AND/OR ECL): LC50 = 1872 FATHEAD MINNOW
RESULTS(LC50 OR, NOEC AND/OR ECL): LC50 = 707 CERIODAPHNIA
ACCEPTABLE PERFORMANCE, STUDY 29 = 100%
PHYSICAL AND CHEMICAL METHODS USED:

SPECIFIC CONDUCTANCE METHOD 2510 B
OXYGEN, DISSOLVED METHOD 4500- O G
CHLORINE, TOTAL RESIDUAL METHOD 4500- C I F
ALKALINITY, CACO3 METHOD 2320 B

SUMMARY OF REFERENCE TOXICANT (S) ARE AS FOLLOWS:

FATHEAD MINNOW

Standard Recovery FATHEAD MINNOW **114.9%**

CERIODAPHNIA

Standard Recovery CERODAPHNIA **96.3%**

APPENDIX 1A
TEST 1000.0

Permittee	Wynne 16076							
Effluent	Percent Survival In Rep. Chambers				Mean Percent Survival			CV%*
Conc.	A	B	C	D	24h	48h	7 days	*
CONTROL	100	100	100	100	100	100	100	0.0
32.00%	100	100	100	100	100	100	100	0.0
42.00%	100	100	100	100	100	100	100	0.0
56.00%	100	100	100	100	100	100	100	0.0
75.00%	100	100	100	100	100	100	100	0.0
100.00%	100	100	100	100	100	100	100	0.0

Permittee	Wynne 16076					
Effluent	Average Dry Weight (mg)				Mean Dry Weight (mg)	
Conc.	A	B	C	D	7 days	CV%*
CONTROL	0.322	0.309	0.336	0.310	0.319	4.0
32	0.319	0.338	0.315	0.342	0.329	4.1
42	0.296	0.321	0.324	0.331	0.318	4.8
56	0.305	0.326	0.327	0.310	0.317	3.5
75	0.332	0.309	0.323	0.338	0.326	3.9
100	0.325	0.327	0.306	0.334	0.323	3.7

Figure 2. Survival data for fathead minnow larval survival and growth te

Discharger: Wynne 16048 Test Dates: 6-11-13 143.0
Location: 160076 Analyst:

Conc:	Rep. No.	No. Survivors Day 1	2	3	4	5	6	7	Remarks
Control	1	10	10	10	10	10	10	10	
	2	10	10	10	10	10	10	10	
	3	10	10	10	10	10	10	10	
	4	10	10	10	10	10	10	10	
Conc:	5	10	10	10	10	10	10	10	
	6	10	10	10	10	10	10	10	
	7	10	10	10	10	10	10	10	
	8	10	10	10	10	10	10	10	
Conc:	9	10	10	10	10	10	10	10	
	10	10	10	10	10	10	10	10	
	11	10	10	10	10	10	10	10	
	12	10	10	10	10	10	10	10	
Conc:	13	10	10	10	10	10	10	10	
	14	10	10	10	10	10	10	10	
	15	10	10	10	10	10	10	10	
	16	10	10	10	10	10	10	10	
Conc:	17	10	10	10	10	10	10	10	
	18	10	10	10	10	10	10	10	
	19	10	10	10	10	10	10	10	
	20	10	10	10	10	10	10	10	
Conc:	21	10	10	10	10	10	10	10	
	22	10	10	10	10	10	10	10	
	23	10	10	10	10	10	10	10	
	24	10	10	10	10	10	10	10	

Comments:

Discharge: WYNNE 16076 Test Date(s): 6-11-13 Drying Temperature (°C): 104
Location: _____ Weighing Date: 7-5-13 Drying Time (h): 2
Analyst: _____

Conc:	Rep. No.	A Wgt. of boat (mg)	B Dry wgt: foil and larvae (mg)	B-A Total dry wgt of larvae (mg)	C No. of larvae	(B-A)/C Mean dry wgt of larvae (mg)	Remarks
Control	1	125456	125778	322	10	.322	
	2	124776	125085	309	10	.309	
	3	124305	124641	336	10	.336	
	4	129966	130276	310	10	.310	
Conc:	5	123905	124224	319	10	.319	
	6	123432	123770	338	10	.338	
	7	126477	126792	315	10	.315	
	8	125670	126012	342	10	.342	
Conc:	9	124705	125001	296	10	.296	
	10	122380	122701	321	10	.321	
	11	124599	124923	324	10	.324	
	12	128860	129191	331	10	.331	
Conc:	13	125440	125745	305	10	.305	
	14	125203	125529	326	10	.326	
	15	129992	130319	327	10	.327	
	16	123314	123624	310	10	.310	
Conc:	17	126496	126828	332	10	.332	
	18	124350	124659	309	10	.309	
	19	124693	125016	323	10	.323	
	20	129605	129943	338	10	.338	
Conc:	21	123708	124033	325	10	.325	
	22	124050	124377	327	10	.327	
	23	123305	123611	306	10	.306	
	24	126002	126336	334	10	.334	

[1]Adapted from Hughes, et al., 1987.

Control 122570 122570

FIGURE 3 - FATHEAD MINNOW
page 14

APPENDIX 2A
TEST 1002.0

	Wynne 16076	CERIO	REPLICATE CONTAINERS					s.d.=	1.82574		CV% =	10.14301		
control	DAY	1	2	3	4	5	6	7	8	9	10 #young	#adult		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3		1		1							2	10	0.20
temp:	4	3	2	4	2	3	3	4	2	4	2	29	10	2.90
temp:	5		3			1						4	10	0.40
temp:	6	6	4	7	7	7	6	5	5	5	6	58	10	5.80
temp:	7		4	2			1		3			10	10	1.00
temp:	8	9	6	7	8	10	7	8	7	6	9	77	10	7.70
	TOTAL	18	20	20	18	21	17	17	17	15	17	180	10	18.00
conc			REPLICATE CONTAINERS					s.d.=	1.17379		CV% =	6.3792815		
	32.00 DAY	1	2	3	4	5	6	7	8	9	10 no. young	no. adults		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3				1							1	10	0.10
temp:	4	4	2	3	3	4	4	2	4	2	3	31	10	3.10
temp:	5		1					1				2	10	0.20
temp:	6	6	3	7	7	7	5	6	6	7	5	59	10	5.90
temp:	7		5	2				1			3	11	10	1.10
temp:	8	8	8	7	9	9	10	7	8	8	6	80	10	8.00
	TOTAL	18	19	19	20	20	19	17	18	17	17	184	10	18.40
CONC.			REPLICATE CONTAINERS					s.d.=	0.78881		CV% =	4.5861084		
	42.00 DAY	1	2	3	4	5	6	7	8	9	10 no. young	no. adults		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3				1							1	10	0.10
temp:	4	4	4	1	3	2	4	2	2	2	4	28	10	2.80
temp:	5					1		1	2		1	5	10	0.50
temp:	6	5	6	7	5	7	7	7	6	7	5	62	10	6.20
temp:	7		2		1				4		1	8	10	0.80
temp:	8	7	5	9	8	7	6	7	5	8	6	68	10	6.80
	TOTAL	16	17	17	18	17	17	17	19	17	17	172	10	17.20
CONC.			REPLICATE CONTAINERS					s.d.=	1.81353		CV% =	10.188367		
	56.00 DAY	1	2	3	4	5	6	7	8	9	10 no. young	no. adults		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3	1	1						2			4	10	0.40
temp:	4	3	1	2		2	4	3	1	1	3	20	10	2.00
temp:	5				3		1			1		5	10	0.50
temp:	6	6	7	7	7	7	6	5		7	7	59	10	5.90
temp:	7								7	2		9	10	0.90
temp:	8	9	7	7	8	9	11	9	6	7	8	81	10	8.10
	TOTAL	19	16	16	18	18	22	17	16	18	18	178	10	17.80
CONC.			REPLICATE CONTAINERS					s.d.=	2.02485		CV% =	10.713469		
	75.00 DAY	1	2	3	4	5	6	7	8	9	10 no. young	no. adults		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3				1			3				4	10	0.40
temp:	4	4	4	4	2	4	3	1	2	4	3	31	10	3.10
temp:	5			2			1		2			5	10	0.50
temp:	6	5	5	6	6	7	7	7	6	6	6	61	10	6.10
temp:	7		3	2					1	2		8	10	0.80
temp:	8	10	7	8	8	6	9	7	8	10	7	80	10	8.00
	TOTAL	19	19	22	17	17	20	18	19	22	16	189	10	18.90
CONC.			REPLICATE CONTAINERS					s.d.=	1.88856		CV% =	10.099262		
	100.00 DAY	1	2	3	4	5	6	7	8	9	10 no. young	no. adults		
temp:	1											0	10	0.00
temp:	2											0	10	0.00
temp:	3	1			1			1				3	10	0.30
temp:	4	1	3	3	3	4	5	1	4	2	2	28	10	2.80
temp:	5				1			3		1		5	10	0.50
temp:	6	6	5	5	7	7	6	6	7	7	6	62	10	6.20
temp:	7		4		3		1	2			4	14	10	1.40
temp:	8	8	5	9	6	7	9	8	9	8	6	75	10	7.50
	TOTAL	16	17	17	21	18	21	21	20	18	18	187	10	18.70

160716

WYNNE 16049 Cerio 6-11-13 1430

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
control	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	10	#DIV/0!
temp:	2											0	10	#DIV/0!
temp:	3											0	10	#DIV/0!
temp:	4	3	2	4	2	3	3	4	2	4	2	0	10	#DIV/0!
temp:	5		3			1						0	10	#DIV/0!
temp:	6	6	4	7	7	7	6	5	5	5	6	0	10	#DIV/0!
temp:	7		4	3			1		3			0	10	#DIV/0!
temp:	8	9	6	7	8	10	7	8	7	6	9	0	10	#DIV/0!
*	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	10	#DIV/0!
temp:	2											0	10	#DIV/0!
temp:	3											0	17	#DIV/0!
temp:	4	4	2	3	3	4	4	2	4	2	3	0	10	#DIV/0!
temp:	5		1					1				0	20	#DIV/0!
temp:	6	6	3	7	7	7	5	6	6	7	5	0	10	#DIV/0!
temp:	7		5	2				1			3	0	10	#DIV/0!
temp:	8	8	8	7	9	9	10	7	8	8	6	0	10	#DIV/0!
*	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	11	#DIV/0!
temp:	2											0	10	#DIV/0!
temp:	3				1							0	10	#DIV/0!
temp:	4	4	4	1	3	2	4	2	2	2	4	0	10	#DIV/0!
temp:	5					1		1	2		1	0	10	#DIV/0!
temp:	6	5	6	7	5	7	7	7	6	7	5	0	10	#DIV/0!
temp:	7		2		1				4		1	0	10	#DIV/0!
temp:	8	7	5	9	8	7	6	7	5	8	6	0	10	#DIV/0!
*	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	11	#DIV/0!
temp:	2											0	10	#DIV/0!
temp:	3	1	1						2			0	10	#DIV/0!
temp:	4	3	1	2		2	4	3	1	1	3	0	10	#DIV/0!
temp:	5				3		1			1		0	10	#DIV/0!
temp:	6	6	7	7	7	7	6	5		7	7	0	10	#DIV/0!
temp:	7								7	2		0	10	#DIV/0!
temp:	8	9	7	7	8	9	11	9	6	7	8	0	10	#DIV/0!
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	11	#DIV/0!
temp:	2											0	11	#DIV/0!
temp:	3				1			3				0	11	#DIV/0!
temp:	4	4	4	4	2	4	3	1	2	4	3	0	10	#DIV/0!
temp:	5			2			1		2			0	10	#DIV/0!
temp:	6	5	5	6	6	7	7	7	6	6	6	0	10	#DIV/0!
temp:	7		3	2					1	2		0	10	#DIV/0!
temp:	8	10	7	8	8	10	9	7	8	10	7	0	10	#DIV/0!
	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

CONC.				REPLICATE CONTAINERS					s.d.=	0		CV% =	#DIV/0!	
	DAY	1	2	3	4	5	6	7	8	9	10	no. youn	no. adults	young/adult
temp:	1											0	10	#DIV/0!
temp:	2											0	10	#DIV/0!
temp:	3	1			1			1				0	10	#DIV/0!
temp:	4	1	3	3	3	4	5	1	4	2	2	0	10	#DIV/0!
temp:	5				1			3		1		0	10	#DIV/0!
temp:	6	6	5	5	7	7	6	6	7	7	6	0	10	#DIV/0!
temp:	7		4		3		1	2			4	0	10	#DIV/0!
temp:	8	8	5	9	6	7	9	8	9	8	6	0	10	#DIV/0!
*	TOTAL	0	0	0	0	0	0	0	0	0	0	0	10	0.00

tank 3

APPENDIX B
ORGANISM HISTORY

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

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

ORGANISM HISTORY

DATE: 6/10/2013

SPECIES: *Pimephales promelas*

AGE: N/A

LIFE STAGE: Embryo

HATCH DATE: 6/10/2013

BEGAN FEEDING: N/A

FOOD: N/A

Water Chemistry Record:	Current	Range
TEMPERATURE:	24°C	--
SALINITY/CONDUCTIVITY:	--	--
TOTAL HARDNESS (as $CaCO_3$):	130 mg/l	--
TOTAL ALKALINITY (as $CaCO_3$):	95 mg/l	--
pH:	7.67	--

Comments:

Facility Supervisor

Rec'd
1-11-13

APPENDIX C
CHAINS OF CUSTODY

8100 NATIONAL DRIVE, LITTLE ROCK, AR 72209
(501) 562-8139 (800) 331-8139
FAX # (501) 562-7025

16076.0001B

TURNAROUND TIME
RUSH 24HR. 48HR.
5 DAY REG.
OTHER:

FOR LAB/OFFICE USE ONLY
LAB # 16076.0001 B
CLIENT # 45823
P. O. # _____

STANDARD METHODS PRESERVATION PER EPA 40 CFR
C 4 = COOL TO 4.0 C
S<2 = SULFURIC ACID TO PH < 2
N<2 = NITRIC ACID TO PH > 2
T = THIOSULFATE
W = AZIDE MODIFICATION (4500-O C)
P = MEMBRANE ELECTRODE (4500-O G)
NaOH = Ph > 12

NAME OF COMPANY, CITY, OR PROJECT: WYNNE WATER UTILITIES

PROJECT NO:

SAMPLER(S) SIGNATURE/PRINT: Harrell Williams (HARRELL WILLIAMS)

SAMPLE NO.	SAMPLE COLLECTION LOCATION	START DATE/TIME	END DATE/TIME	COMP/GRAB	FIELD ANALYSIS PH	TEMP	FLOW	CL2	D.O. (W) D.O. (P)	CONTAINER TYPE PRESERVATIVE	ANALYSIS REQUIRED
	POST AERATION BASIN OUTFALL	6/9/13 7:00 AM	6/10/13 7:00 AM	COMP/24			0.904			6 - 1/2 GAL	BIO-MONITORING

METHOD OF SHIPMENT (CIRCLE)
FED-EX WALK-IN (SRA) UPS OTHER

TYPE OF SAMPLE(S): (CIRCLE)
WATER SOIL (W/W) SLUDGE OTHER

FIELD CALIBRATION RECORD
PH 7
PH 4
PH 10
D. O.

NOTES/COMMENTS/OBSERVATIONS
Temp 0 7.5

FIELD ANALYSIS CONDUCTED BY: (SRA) CLIENT

RELINQUISHED BY: Harrell Williams DATE/TIME

RECEIVED BY: _____ DATE/TIME 1300 6-10-13

RELINQUISHED _____ DATE/TIME

RECEIVED BY: _____ DATE/TIME 6-10-13

8100 NATIONAL DRIVE, LITTLE ROCK, AR 72209
(501) 562-8139 (800) 331-8139
FAX # (501) 562-7025

TURNAROUND TIME
RUSH 24HR. 48HR.
5 DAY REG.
OTHER:

FOR LAB/OFFICE USE ONLY
LAB # 16076-0085LB
CLIENT # 45023
P. O. # _____

STANDARD METHODS PRESERVATION PER EPA 40 CFR
C 4 = COOL TO 4.0 C
S<2 = SULFURIC ACID TO PH < 2
N<2 = NITRIC ACID TO PH > 2
T = THIOSULFATE
W = AZIDE MODIFICATION (4500-0 C)
P = MEMBRANE ELECTRODE (4500-0 G)
NaOH = Ph > 12

NAME OF COMPANY, CITY, OR PROJECT: WYNNE WATER UTILITIES

PROJECT NO:

SAMPLER(S) SIGNATURE/PRINT (HARRELL WILLIAMS)

SAMPLE NO.	SAMPLE COLLECTION LOCATION	START DATE/TIME	END DATE/TIME	COMP/GRAB	FIELD ANALYSIS PH	TEMP	FLOW	CL2	D.O. (W) D.O. (P)	CONTAINER TYPE PRESERVATIVE	ANALYSIS REQUIRED
	POST AERATION BASIN OUTFALL	6/11/13 7:00 AM	6/12/13 7:00 AM	COMP/24			0.739			6 - 1/2 GAL	BIO-MONITORING

METHOD OF SHIPMENT (CIRCLE)
FED-EX WALK-IN (SRA) UPS OTHER

TYPE OF SAMPLE(S): (CIRCLE)
WATER SOIL (W/W) SLUDGE OTHER

FIELD CALIBRATION RECORD

PH 7			
PH 4			
PH 10			
D. O.			

NOTES/COMMENTS/OBSERVATIONS

Temp @ 8.2°

FIELD ANALYSIS CONDUCTED BY: (SRA) CLIENT

RELINQUISHED BY: Harrell Williams DATE/TIME

RECEIVED BY: _____ DATE/TIME 1340 6/12/13

RELINQUISHED BY: _____ DATE/TIME

RECEIVED BY: _____ DATE/TIME 11:45 6/12/13

8100 NATIONAL DRIVE, LITTLE ROCK, AR 72209
(501) 562-8139 (800) 331-8139
FAX # (501) 562-7025

TURNAROUND TIME
RUSH 24HR. 48HR.
5 DAY REG.
OTHER:

FOR LAB/OFFICE USE ONLY
LAB # 1607600003B
CLIENT # 45023
P. O. # _____

STANDARD METHODS PRESERVATION PER EPA 40 CFR
C 4 = COOL TO 4.0 C
S<2 = SULFURIC ACID TO PH < 2
N<2 = NITRIC ACID TO PH > 2
T = THIOSULFATE
W = AZIDE MODIFICATION (4500-0 C)
P = MEMBRANE ELECTRODE (4500-0 G)
NaOH = Ph > 12

NAME OF COMPANY, CITY, OR PROJECT: WYNNE WATER UTILITIES

PROJECT NO:

SAMPLER(S) SIGNATURE/PRINT: Harrell Williams (HARRELL WILLIAMS)

SAMPLE NO.	SAMPLE COLLECTION LOCATION	START DATE/TIME	END DATE/TIME	COMP/GRAB	FIELD ANALYSIS PH	FIELD ANALYSIS TEMP	FLOW	CL2	D.O. (W) D.O. (P)	CONTAINER TYPE PRESERVATIVE	ANALYSIS REQUIRED
	POST AERATION BASIN OUTFALL	6/13/13 7:00 AM	6/14/13 7:00 AM	COMP/24			0.732			6 - 1/2 GAL	BIO-MONITORING

METHOD OF SHIPMENT (CIRCLE)
FED-EX WALK-IN (SRA) UPS OTHER

TYPE OF SAMPLE(S): (CIRCLE)
WATER SOIL (W/W) SLUDGE OTHER

FIELD CALIBRATION RECORD

PH 7			
PH 4			
PH 10			
D. O.			

NOTES/COMMENTS/OBSERVATIONS
Temp 8.0°

FIELD ANALYSIS CONDUCTED BY: (SRA) CLIENT

RELINQUISHED BY: Harrell Williams DATE/TIME
RECEIVED BY: _____ DATE/TIME 1335 6-14-13

RELINQUISHED BY: _____ DATE/TIME
RECEIVED BY: _____ DATE/TIME 1600 6-14-13

APPENDIX D
LABORATORY CONTROL
CERIO CULTURE RECORD

DATE START	6/3/13	WYNNE 16076											
DATE END		*											
ANALYST		*											
WATER TYPE		*		day 8		day 14							
% SURVIVAL		*		100		100							
#YOUNG MEAN				18.45									
stnd DEV from mean		1.8771		14.634									

	REPLICATE NUMBER										No.	No.	Young/
DAY	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult
1											0	10	0
2											0	10	0
3			1						1		2	10	0.2
4	3	4	3	2	4	1	3	3	3	4	30	10	3
5			2			2					4	10	0.4
6	5	6	3	7	7	6	5	5	5	6	55	10	5.5
7		2	4			1		1			8	10	0.8
8	8	9	7	11	9	6	7	8	8	8	81	10	8.1
total8	16	21	20	20	20	16	15	17	17	18	180	10	18
9											0	10	0
10											0	10	0
11											0	10	0
12											0	10	0
13											0	10	0
14											0	10	0
total14											0	10	0

	REPLICATE NUMBER										No.	No.	Young/
DAY	11	12	13	14	15	16	17	18	19	20	Young	Adults	Adult
1											0	10	0
2											0	10	0
3			3		1	1					5	10	0.5
4	4	3		4	2	3	4	1	3	3	27	10	0
5			3		1			2			6	10	0.6
6	4	7	5	3	5	6	7	7	6	6	56	10	5.6
7				3						2	5	10	0.5
8	9	10	8	7	11	9	10	7	9	10	90	10	9
total8	17	20	19	17	20	19	21	17	18	21	189	10	18.9
9											0	10	0
10											0	10	0
11											0	10	0
12											0	10	0
13											0	10	0
14											0	10	0
total14	0	0	0	0	0	0	0	0	0	0	0	10	0

6-3-13

DATE START		*											
DATE END		*											
ANALYST		*											
WATER TYPE		*		day 8		day 14							
% SURVIVAL		*		#VALUE!		#VALUE!							
#YOUNG MEAN				0									
stnd DEV from mean		0		#DIV/0!									

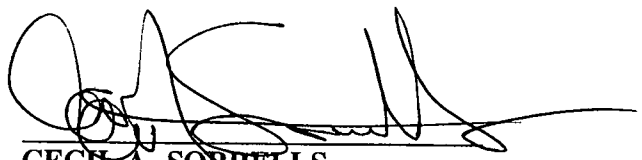
	REPLICATE NUMBER										No.	No.	Young/
DAY	1	2	3	4	5	6	7	8	9	10	Young	Adults	Adult
1											0		#######
2											0		#######
3			1						1		0		#######
4	3	4	3	2	4	1	3	3	3	4	0	10	#######
5			2			2					0	10	#######
6	5	6	3	7	7	6	5	5	5	6	0	10	#######
7		2	4			1		1			0	10	#######
8	8	9	7	11	9	6	7	8	8	8	0	10	#######
total8	0	0	0	0	0	0	0	0	0	0	0		#######
9											0		#######
10											0		#######
11											0		#######
12											0		#######
13											0		#######
14											0		#######
total14											0		#######

	REPLICATE NUMBER										No.	No.	Young/
DAY	11	12	13	14	15	16	17	18	19	20	Young	Adults	Adult
1											0		#######
2											0		#######
3			2		1	1					0		#######
4	4	3		4	2	3	4	1	3	3	0	10	#######
5			3		1			2			0	10	#######
6	4	7	5	3	5	6	7	7	6	6	0	10	#######
7				3						2	0	10	#######
8	9	10	8	7	11	9	10	7	9	10	0	10	#######
total8	0	0	0	0	0	0	0	0	0	0	0	10	0
9											0		#######
10											0		#######
11											0		#######
12											0		#######
13											0		#######
14											0		#######
total14	0	0	0	0	0	0	0	0	0	0	0	10	0

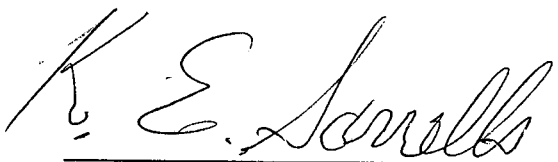
FIGURE 5

BIOMONITORING ANALYSIS
BY
SORRELLS RESEARCH ASSOCIATES, INC

REVIEW



CECIL A. SORRELLS
BIOMONITORING MANAGER/PRESIDENT



K.E. SORRELLS, M.S.
QUALITY ASSURANCE/OFFICER

CERTIFIED MAIL™

7010 1670 0000 1747 3077

UNITED STATES POSTAGE
PITNEY BOWES
02 1P $ 008.57⁰
0003891888 JUL 16 2013
MAILED FROM ZIP CODE 72396

UNITED STATES POSTAL SERVICE
1000
72118
U.S. POSTAGE PAID
WYNNE, AR 72396
JUL 16, '13
AMOUNT
$0.00
00075983-05

WYNNE WATER UTILITIES
121 E. MERRIMAN (870) 238-2751
WYNNE, AR 72396 *"Water is Life"*

TO:

Arkansas Department of Environmental Quality
NPDES Enforcement Section
5301 Northshore Dr.
North Little Rock, Arkansas 72118-5317