

Table 1  
Roy Kizer Pond "B-1A" Water Balance

Date	2014	Barrel Elevation (ft)	Relative Barrel Elevation (ft)	Pond Elevation (ft)	Relative Pond Elevation (ft)	Calculated Barrel Losses (inches)	Calculated Pond Losses (inches)	Calculated Leachage Losses (inches)	Calculated Leachage Losses (cm)	Calculated Hydraulic Conductivity (cm/sec)	Pan Evaporation Rate (inches)	Gross Lake Evaporation Rate (inches)	Precipitation (inches)	Theoretical Losses due to Evaporation - Precipitation (inches)	Calculated Losses in Excess of Theoretical Losses (inches)	Average of Historical Pan Evaporation Data	Standard Deviation Historical Pan Evaporation	Standard Deviation Pan Evaporation	Standard Deviation Lake Evaporation	Days > 2" Standard Deviation Pond Losses
07/11/97	15.40	3.080	0.000	3.220	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.27	0.18	0.00	0.19	-0.19	0.34	0.10	0.202	0.141	NA
07/12/97	15.20	3.040	-0.040	3.120	-0.100	0.480	1.200	0.720	1.828	2.12E-05	0.25	0.19	0.00	0.18	1.03	0.29	0.13	0.254	0.178	1
07/13/97	15.20	3.040	0.000	3.000	-0.120	0.000	1.440	1.440	3.658	4.23E-05	0.26	0.18	0.00	0.18	1.27	0.32	0.10	0.194	0.135	1
07/14/97	15.20	3.040	0.000	2.900	-0.100	0.000	1.200	1.200	3.048	3.53E-05	0.27	0.18	0.00	0.18	1.02	0.30	0.09	0.181	0.127	1
07/15/97	15.10	3.020	-0.020	2.840	-0.080	0.240	0.720	0.480	1.219	1.41E-05	0.25	0.18	0.00	0.18	0.54	0.34	0.11	0.221	0.155	1
07/16/97	14.90	2.980	-0.040	2.720	-0.120	0.480	1.440	0.960	2.438	2.82E-05	0.25	0.18	0.01	0.17	1.27	0.30	0.11	0.220	0.154	1
07/17/97	14.80	2.980	0.000	2.640	-0.080	0.000	0.960	0.960	2.438	2.82E-05	0.26	0.18	0.00	0.17	0.79	0.31	0.12	0.247	0.173	1
07/18/97	14.80	2.960	-0.020	2.520	-0.120	0.240	1.440	1.200	3.048	3.53E-05	0.26	0.17	0.00	0.19	1.25	0.33	0.11	0.214	0.150	1
07/19/97	14.70	2.940	-0.020	2.440	-0.080	0.240	0.960	0.720	1.829	2.12E-05	0.26	0.19	0.00	0.17	0.79	0.31	0.14	0.274	0.191	1
07/20/97	14.60	2.920	-0.020	2.400	-0.040	0.240	0.480	0.240	0.810	7.08E-06	0.24	0.17	0.00	0.20	0.28	0.31	0.08	0.158	0.110	1
07/21/97	14.50	2.900	-0.020	2.320	-0.080	0.240	0.960	0.720	1.829	2.12E-05	0.27	0.20	0.00	0.19	0.77	0.32	0.09	0.182	0.127	1
07/22/97	14.40	2.880	-0.020	2.200	-0.120	0.240	1.440	1.200	3.048	3.53E-05	0.24	0.19	0.00	0.19	1.25	0.30	0.10	0.201	0.141	1
07/23/97	14.30	2.860	-0.020	2.160	-0.040	0.240	0.480	0.240	0.610	7.08E-06	0.28	0.19	0.00	0.19	0.29	0.30	0.08	0.164	0.115	1
07/24/97	14.20	2.840	-0.020	2.120	-0.040	0.240	0.480	0.240	0.610	7.08E-06	0.27	0.19	0.00	0.19	0.29	0.31	0.07	0.136	0.095	1
07/25/97	14.00	2.800	-0.040	2.100	-0.020	0.480	0.240	-0.240	-0.610	-7.08E-06	0.27	0.19	0.00	0.18	0.06	0.30	0.10	0.206	0.144	1
07/26/97	13.90	2.760	-0.020	2.020	-0.080	0.240	0.960	0.720	1.829	2.12E-05	0.27	0.18	0.00	0.18	0.79	0.32	0.14	0.286	0.200	1
07/27/97	13.80	2.760	-0.020	2.000	-0.020	0.240	0.000	0.000	0.000	0.00E+00	0.27	0.19	0.00	0.19	0.05	0.28	0.09	0.186	0.130	1
Average =										1.87E-05	0.26	0.18	0.00	0.18	0.68	0.31	0.10	0.21	0.15	16
Percent Days Greater than 2" STD =										100%										

Laboratory Services Division  
Parameter Results for ECSD MISC  
Samples Collected Between 05-DEC-96 and 18-DEC-96

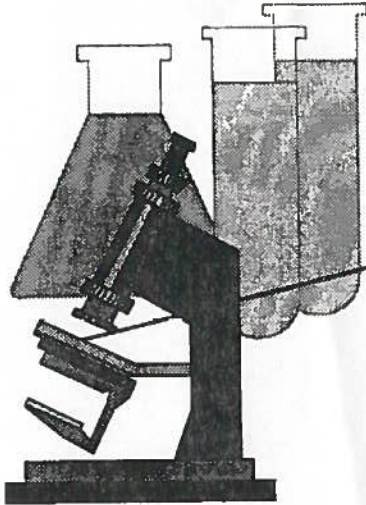
This data has been proofed by a Laboratory Official: YES

3536  
t Date: 20-DEC-96

Sample Name	SM 5310 B TOC MG/L	Count
EC-96 KIZER-5DEC6-1B-	1.27	7
EC-96 KIZER-5DEC6-1	5.68	6.85
EC-96 KIZER-5DEC6-1S	5.71	1.27
EC-96 KIZER-11DEC6-1	6.37	5.59
EC-96 KIZER-11DEC6-1S	6.44	
EC-96 KIZER-18DEC6-1	6.78	
EC-96 KIZER-18DEC6-1S	6.85	
		Maximum
		Minimum
		Average

*Handwritten:* 6/11/97  
6/11/97

*Handwritten:* 1B - blank  
S - split



Please analyze your fax.

**WATER & WASTEWATER UTILITY  
LABORATORY SERVICES DIVISION  
Walnut Creek Laboratories  
Fax# (512) 927-4038**

DATE: 12/20/96

TIME: 4:40 AM (PM)

TO: Scott Hiers

ERM  
Company

FAX #: (      ) 499-2846

FROM: Kevin Borgendale

Walnut Creek Laboratories  
7113 E. Martin Luther King Blvd.  
Austin, Texas 78724

Number of Pages to Follow 1

You may contact me at (512) 927-4012

Kizer TOC results  
(Dec 5 - Dec 18, 96)



TO: Ed Peacock, Engineer III  
Environmental Conservation Services

FROM: Kevin Borgendale, Chemist II  
Water and Wastewater Utility

DATE: December 18, 1995.

SUBJECT: Final Report for ECSD MISC. samples collected on  
March 8, 1995, including metals.

Needs to  
be entered  
into DuDB  
- see marks

Attached are the following reports for the ECSD MISC. samples  
collected on March 8, 1995: at Roy Kizer Golf Course

- o Parameter Results Report
- o Comments Report
- o Quality Control Report

If you have any questions about wet chemistry results,  
please contact me at 927-4012. For any questions regarding  
metals data please refer to Steve Goehring at 927-4025.

*Kevin Borgendale*

Kevin Borgendale, Chemist II  
Water and Wastewater Utility

This data has been proofed by a Laboratory Official: YES

Sample Name	TOC MG/KG	NH3-N MG/KG	NO3-N MG/KG	TKN MG/KG	AG MG/KG	AS-GFAA MG/KG	B MG/KG	BA MG/KG
3-95 ROY KIZER-11a10-12"	2000	2.51	<10.7	<11	<1	<5	2.6	27
3-95 ROY KIZER-1a17"	6900	5.74	<11.1	689	<1	<5	1.7	33
3-95 ROY KIZER-6a24"	18000	22.6	<11	1736	5	<5	3.0	54
3-95 ROY KIZER-9a18"	6600	32.6	<11.9	1083	<1	<5	1.5	55
3-95 ROY KIZER-1a24"	4300	10.90	<12.4	821	<2	<5	2.1	63
3-95 ROY KIZER-11a14"	2100	2.32	<10.9	176	<1	<5	2.1	25
3-95 ROY KIZER-16a18"	4300	6.21	<10.3	611	<1	<5	2.2	53
3-95 ROY KIZER-18a14"-16"	5400	2.33	<11.9	773	<1	<5	1.7	68
3-95 ROY KIZER-18a21-24"	16000	2.41	<11.7	1102	<1	<5	2.5	53
3-95 ROY KIZER-1a20"	5800	12.0	<12.1	712	<1	<5	1.6	50
Count	10	10	10	10	10	10	10	10
Maximum	18000.00	32.60		1736.00	5.00		3.00	68.00
Minimum	2000.00	2.32		176.00	5.00		1.50	25.00
Average	7140.00	9.96		855.89	5.00		2.10	48.10

This data has been proofed by a Laboratory Official: YES

Sample Name	BE MG/KG	CD MG/KG	CR MG/KG	CU MG/KG	HG MG/KG	MN MG/KG	NI MG/KG	PB MG/KG
ROY KIZER-11a10-12"	<1	<1	12	5	<.02	226	6	<4
ROY KIZER-1a17"	1	<1	25	12	<.02	460	13	69
ROY KIZER-6a24"	<1	<1	33	31	0.24	368	24	15
ROY KIZER-9a18"	1	<1	22	14	<.02	424	12	9
ROY KIZER-1a24"	1	<1	26	12	<0.03	713	18	12
ROY KIZER-11a14"	<1	<1	12	5	<.02	223	4	<4
ROY KIZER-16a18"	1	<1	13	10	<.02	356	11	35
ROY KIZER-18a14"-16"	1	<1	22	11	<.02	608	13	8
ROY KIZER-18a21-24"	1	<1	16	10	<.02	598	12	13
ROY KIZER-1a20"	1	<1	24	10	0.05	452	11	8
Count	10	10	10	10	10	10	10	10
Maximum	1.00		33.00	31.00	0.24	713.00	24.00	69.00
Minimum	1.00		12.00	5.00	0.05	223.00	4.00	8.00
Average	1.00		20.50	12.00	0.15	442.80	12.40	21.13

This data has been proofed by a Laboratory Official: YES

Sample Name	SB-GFAA MG/KG	SE-GFAA MG/KG	TL-GFAA MG/KG	ZN MG/KG
1-95 ROY KIZER-11a10-12"	<4	<5	<6	19
1-95 ROY KIZER-1a17"	<4	<5	<6	43
1-95 ROY KIZER-6a24"	<4	<5	<6	88
1-95 ROY KIZER-9a18"	<4	<5	<6	41
1-95 ROY KIZER-1a24"	<4	<5	<6	46
1-95 ROY KIZER-11a14"	<4	<5	<6	17
1-95 ROY KIZER-16a18"	<4	<5	<6	60
1-95 ROY KIZER-18a14"-16"	<4	<5	<6	49
1-95 ROY KIZER-18a21-24"	<4	<5	<6	34
1-95 ROY KIZER-1a20"	<4	<5	<6	39
	10	10	10	10
Count				
Maximum				88.00
Minimum				17.00
Average				43.60

System for Laboratory Information Management

Lab: instrument

Program: ECSD MISC

Date Requested: 08-MAR-95 to 08-MAR-95

Station	Date	Sample Name	Comment Line
3-95		ROY KIZER-11a10-12"	MSD OUTSIDE CONTROL LIMITS FOR CD.
3-95		ROY KIZER-11a10-12"	MS/MSD OUTSIDE CONTROL LIMITS FOR MN.
3-95		ROY KIZER-11a10-12"	MS/MSD USED FOR QC VALIDATION FOR AG.
3-95		ROY KIZER-6a24"	DUPLICATES LESS THAN MDL FOR ANTIMONY.
3-95		ROY KIZER-6a24"	DUPLICATES LESS THAN MDL FOR ARSENIC.
3-95		ROY KIZER-1a24"	MS/MSD USED FOR QC VALIDATION FOR AG.
3-95		ROY KIZER-1a24"	MS/MSD USED FOR QC VALIDATION FOR CD.
3-95		ROY KIZER-1a24"	STD OUTSIDE CONTROL LIMITS FOR MN.
3-95		ROY KIZER-18a21-24"	DUPLICATES LESS THAN MDL FOR SB-GFAA.
3-95		ROY KIZER-18a21-24"	DUPLICATES LESS THAN MDL FOR AS-GFAA.
3-95		ROY KIZER-18a21-24"	MS/MSD USED FOR QC VALIDATION FOR CD.
3-95		ROY KIZER-18a21-24"	MS/MSD OUTSIDE CONTROL LIMITS FOR MN.
3-95		ROY KIZER-18a21-24"	MS/MSD USED FOR QC VALIDATION FOR AG.

System for Laboratory Information Management  
 \*\*\* Q/C Report for Blank's (BLK's) and Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	BLK1 MG/KG	BLK1 MG/L	BLK1 UG/L	BLK2 MG/L	BLK2 UG/L	BLK2 UG/L	STD1 MG/KG	% Rec.
11-95	AG	5358		0.00		0.00				
11-95	AG	12572		0.00		0.00				
11-95	AS-GFAA	4363	0						10	60
11-95	BE	5359		0.00		0.00				
11-95	BE	12785		0.00		0.00				
11-95	CD	5479		0.00		0.00				
11-95	CD	12787		0.00		0.00				
11-95	CR	5360		0.04		0.03				
11-95	CR	12786		0.08		0.10				
11-95	CU	5480		0.00		0.00				
11-95	CU	12783		0.00		0.00				
11-95	MN	5234		0.00		0.00				
11-95	MN	11177		0.004		0.000				
11-95	NI	5235		0.01		0.02				
11-95	NI	12789		0.00		0.00				
11-95	PB	5285		0.00		0.01				
11-95	PB	12784		0.00		0.01				
11-95	SB-GFAA	4586			3					
11-95	SE-GFAA	4585			0					
11-95	TL-GFAA	4584			0					
11-95	ZN	5236			0.00			0.00		
11-95	ZN	12573		0.00		0.02				

System for Laboratory Information Management  
 \*\*\* Q/C Report for Blank's (BLK's) and Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	STD1 MG/L	% Rec.	STD1 UG/L	% Rec.
Y-95	AG	5358	1.00	95		
IN-95	AG	12572	1.00	98		
Y-95	AS-GFAA	4363				
Y-95	BE	5359	0.50	98		
IN-95	BE	12785	0.50	96		
Y-95	CD	5479	1.00	95		
IN-95	CD	12787	1.00	101		
Y-95	CR	5360	2.00	96		
IN-95	CR	12786	2.00	94		
Y-95	CU	5480	1.00	102		
IN-95	CU	12783	1.00	96		
Y-95	MN	5234	1.00	102		
IG-95	MN	11177	1.000	50		
Y-95	NI	5235	1.00	99		
IN-95	NI	12789	1.00	96		
Y-95	PB	5285	1.00	102		
IN-95	PB	12784	1.00	106		
Y-95	SB-GFAA	4586			20	75
Y-95	SE-GFAA	4585			20	85
Y-95	TL-GFAA	4584			20	94
Y-95	ZN	5236			0.50	106
IN-95	ZN	12573	0.50	94		

System for Laboratory Information Management  
 \*\*\* Q/C Report for Duplicate Samples (DUP's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	DUP1 MG/KG	DUP1 UG/L	DUP2 MG/KG	DUP2 UG/L	DUP3 MG/KG	DUP4 MG/KG
Y-95	AG	5358	A	28		26			
Y-95	AG	5358	B	<1		<1		<1	
JN-95	AG	12572	A	<2		<2			
Y-95	AS-GFAA	4363	A	<5		<5			
Y-95	AS-GFAA	4363	B	<5		<5			
Y-95	AS-GFAA	4363	C	<5		<5			
Y-95	AS-GFAA	4363	D	<5		<5			
Y-95	BE	5359	A	<1		<1			
Y-95	BE	5359	B	1		1		<1	
JN-95	BE	12785	A	1		1			
Y-95	CD	5479	A	2		2			
Y-95	CD	5479	B	<1		<1			
Y-95	CD	5479	C	3		3			
Y-95	CD	5479	D	<1		<1		<1	
JN-95	CD	12787	A	<1		<1			
JN-95	CD	12787	B	2		3			
JN-95	CD	12787	C	<1		<1			
Y-95	CR	5360	A	12		10			
Y-95	CR	5360	B	<8		<8			
Y-95	CR	5360	C	48		49			
Y-95	CR	5360	D	16		15		11	13
JN-95	CR	12786	A	28		25			
JN-95	CR	12786	B	29		27			
JN-95	CR	12786	C	<6		<6			
Y-95	CU	5480	A	120		112			
Y-95	CU	5480	B	6		3			
Y-95	CU	5480	C	196		200			
Y-95	CU	5480	D	10		9		4	6
JN-95	CU	12783	A	12		12			
JN-95	CU	12783	C	4		3			
Y-95	MN	5234	A	146		136			
Y-95	MN	5234	D	215		238		616	580
JG-95	MN	11177	A	776		650			
AY-95	NI	5235	A	4		3			
AY-95	NI	5235	B	2		4			

System for Laboratory Information Management  
 \*\*\* Q/C Report for Duplicate Samples (DUP's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	DUP1 MG/KG	DUP1 UG/L	DUP2 MG/KG	DUP2 UG/L	DUP3 MG/KG	DUP4 MG/KG
Y-95	NI	5235	C	16		20			
Y-95	NI	5235	D	13		10		7	6
N-95	NI	12789	A	17		18			
N-95	NI	12789	B	10		10			
N-95	NI	12789	C	<3		<3			
Y-95	PB	5285	A	44		26			
Y-95	PB	5285	B	<4		<4			
Y-95	PB	5285	C	49		50			
Y-95	PB	5285	D	<4		<4		14	12
N-95	PB	12784	A	10		13			
N-95	PB	12784	B	50		45			
N-95	PB	12784	C	<3		<3			
Y-95	SB-GFAA	4586	A	<4		<4			
Y-95	SB-GFAA	4586	D	<4		<4			
Y-95	SE-GFAA	4585	A	<5		<5			
Y-95	SE-GFAA	4585	B		<5		<5		
Y-95	SE-GFAA	4585	C	<5		<5			
Y-95	SE-GFAA	4585	D	<5		<5			
Y-95	TL-GFAA	4584	A	<6		<6			
Y-95	TL-GFAA	4584	D	<6		<6			
Y-95	ZN	5236	A	411		368			
Y-95	ZN	5236	B	5		5			
Y-95	ZN	5236	C	475		602			
Y-95	ZN	5236	D	35		34		18	20
N-95	ZN	12573	A	47		44			
N-95	ZN	12573	C	6		6			

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

sis Date Parameter	Batch	Q/C	MS1 MG/KG	% Rec.	MS1 MG/L	% Rec.	MS1 UG/L	% Rec.	MS2 MG/KG	% Rec.	MS2 MG/L	% Rec.	MS2 UG/L	% Rec.
Y-95 AG	5358 A		1.00	92	1.00	92	1.00	92						
Y-95 AG	5358 B		1.00	84	1.00	84	1.00	84	1.00	89	1.00	89	1.00	89
N-95 AG	12572 A		1.00	93	1.00	93	1.00	93						
Y-95 AS-GFAA	4363 A		10	50	10	50	10	50						
Y-95 AS-GFAA	4363 B		10	90	10	90	10	90						
Y-95 AS-GFAA	4363 C		10	50	10	50	10	50						
Y-95 AS-GFAA	4363 D		10	60	10	60	10	60						
Y-95 BE	5359 A		0.50	76	0.50	76	0.50	76	0.50	88	0.50	88	0.50	88
Y-95 BE	5359 B		0.50	86	0.50	86	0.50	86						
N-95 BE	12785 A		0.50	78	0.50	78	0.50	78						
Y-95 CD	5479 A		1.00	94	1.00	94	1.00	94						
Y-95 CD	5479 B		1.00	98	1.00	98	1.00	98						
Y-95 CD	5479 C		1.00	95	1.00	95	1.00	95						
Y-95 CD	5479 D		1.00	90	1.00	90	1.00	90	1.00	91	1.00	91	1.00	91
N-95 CD	12787 A		1.00	94	1.00	94	1.00	94						
N-95 CD	12787 B		1.00	91	1.00	91	1.00	91						
N-95 CD	12787 C		1.00	96	1.00	96	1.00	96						
Y-95 CR	5360 A		2.00	98	2.00	98	2.00	98						
Y-95 CR	5360 B		2.00	104	2.00	104	2.00	104						
Y-95 CR	5360 C		2.00	94	2.00	94	2.00	94						
Y-95 CR	5360 D		1.00	99	1.00	99	1.00	99	1.00	96	1.00	96	1.00	96
N-95 CR	12786 A		2.00	92	2.00	92	2.00	92						
N-95 CR	12786 B		2.00	91	2.00	91	2.00	91						
N-95 CR	12786 C		2.00	92	2.00	92	2.00	92						
Y-95 CU	5480 A		1.00	98	1.00	98	1.00	98						
Y-95 CU	5480 B		1.00	85	1.00	85	1.00	85						
Y-95 CU	5480 C		1.00	140	1.00	140	1.00	140						
Y-95 CU	5480 D		1.00	94	1.00	94	1.00	94	1.00	99	1.00	99	1.00	99
N-95 CU	12783 A		1.00	83	1.00	83	1.00	83						
N-95 CU	12783 C		1.00	88	1.00	88	1.00	88						
Y-95 MN	5234 A		1.00	108	1.00	108	1.00	108						
Y-95 MN	5234 D		1.00	143	1.00	143	1.00	143	1.00	160	1.00	160	1.00	160
IG-95 MN	11177 A		1000	82	1000	82	1000	82						
Y-95 NI	5235 A		1.00	103	1.00	103	1.00	103						
Y-95 NI	5235 B		1.00	85	1.00	85	1.00	85						

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

sis Date Parameter	Batch Q/C	MSD1 MG/KG	% Rec.	MSD1 MG/L	% Rec.	MSD1 UG/L	% Rec.	MSD2 MG/KG	% Rec.	MSD2 MG/L	% Rec.	MSD2 UG/L	% Rec.
Y-95 AG	5358 A												
Y-95 AG	5358 B	1.00	97	1.00	97	1.00	97	1.00	88	1.00	88	1.00	88
IN-95 AG	12572 A	1.00	97	1.00	97	1.00	97						
Y-95 AS-GFAA	4363 A	10	50	10	50	10	50						
Y-95 AS-GFAA	4363 B	10	80	10	80	10	80						
Y-95 AS-GFAA	4363 C	10	40	10	40	10	40						
Y-95 AS-GFAA	4363 D												
Y-95 BE	5359 A	0.50	74	0.50	74	0.50	74						
Y-95 BE	5359 B	0.50	84	0.50	84	0.50	84	0.50	94	0.50	94	0.50	94
IN-95 BE	12785 A	0.50	78	0.50	78	0.50	78						
Y-95 CD	5479 A	1.00	92	1.00	92	1.00	92						
Y-95 CD	5479 B	1.00	80	1.00	80	1.00	80						
Y-95 CD	5479 C	1.00	76	1.00	76	1.00	76						
Y-95 CD	5479 D	1.00	92	1.00	92	1.00	92	1.00	80	1.00	80	1.00	80
IN-95 CD	12787 A	1.00	97	1.00	97	1.00	97						
IN-95 CD	12787 B	1.00	91	1.00	91	1.00	91						
IN-95 CD	12787 C	1.00	91	1.00	91	1.00	91						
Y-95 CR	5360 A	2.00	94	2.00	94	2.00	94						
Y-95 CR	5360 B	2.00	100	2.00	100	2.00	100						
Y-95 CR	5360 C	2.00	94	2.00	94	2.00	94						
Y-95 CR	5360 D	1.00	98	1.00	98	1.00	98	1.00	99	1.00	99	1.00	99
IN-95 CR	12786 A	2.00	96	2.00	96	2.00	96						
IN-95 CR	12786 B	2.00	90	2.00	90	2.00	90						
IN-95 CR	12786 C	2.00	89	2.00	89	2.00	89						
Y-95 CU	5480 A	1.00	112	1.00	112	1.00	112						
Y-95 CU	5480 B	1.00	104	1.00	104	1.00	104						
Y-95 CU	5480 C	1.00	60	1.00	60	1.00	60						
Y-95 CU	5480 D	1.00	101	1.00	101	1.00	101	1.00	86	1.00	86	1.00	86
IN-95 CU	12783 A	1.00	94	1.00	94	1.00	94						
IN-95 CU	12783 C	1.00	85	1.00	85	1.00	85						
Y-95 MN	5234 A	1.00	92	1.00	92	1.00	92						
Y-95 MN	5234 D	1.00	124	1.00	124	1.00	124	1.00	260	1.00	260	1.00	260
IN-95 MN	11177 A	1000	85	1000	85	1000	85						
Y-95 NI	5235 A	1.00	99	1.00	99	1.00	99						
Y-95 NI	5235 B	1.00	104	1.00	104	1.00	104						

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	MS1 MG/KG	% Rec.	MS1 MG/L	% Rec.	MS1 UG/L	% Rec.	MS2 MG/KG	% Rec.	MS2 MG/L	% Rec.	MS2 UG/L	% Rec.
Y-95	NI	5235	C	1.00	106	1.00	106	1.00	106						
Y-95	NI	5235	D	1.00	95	1.00	95	1.00	95	1.00	98	1.00	98	1.00	98
N-95	NI	12789	A	1.00	85	1.00	85	1.00	85						
N-95	NI	12789	B	1.00	88	1.00	88	1.00	88						
N-95	NI	12789	C	1.00	89	1.00	89	1.00	89						
Y-95	PB	5285	A	1.00	102	1.00	102	1.00	102						
Y-95	PB	5285	B	1.00	86	1.00	86	1.00	86						
Y-95	PB	5285	C	1.00	114	1.00	114	1.00	114						
Y-95	PB	5285	D	1.00	99	1.00	99	1.00	99	1.00	100	1.00	100	1.00	100
N-95	PB	12784	A	1.00	99	1.00	99	1.00	99						
N-95	PB	12784	B	1.00	97	1.00	97	1.00	97						
N-95	PB	12784	C	1.00	96	1.00	96	1.00	96						
Y-95	SB-GFAA	4586	A	20		20		20							
Y-95	SB-GFAA	4586	D	20	85	20	85	20	85						
Y-95	SE-GFAA	4585	A	20	75	20	75	20	75						
Y-95	SE-GFAA	4585	B	20	50	20	50	20	50						
Y-95	SE-GFAA	4585	C	20	65	20	65	20	65						
Y-95	SE-GFAA	4585	D	20	20	20	20	20	20						
Y-95	TL-GFAA	4584	A	20	116	20	116	20	116						
Y-95	TL-GFAA	4584	D	20	92	20	92	20	92						
Y-95	ZN	5236	A	0.50	74	0.50	74	0.50	74						
Y-95	ZN	5236	B	0.50	90	0.50	90	0.50	90						
Y-95	ZN	5236	C	0.50	76	0.50	76	0.50	76						
Y-95	ZN	5236	D	0.50	79	0.50	79	0.50	79	0.50	106	0.50	106	0.50	106
N-95	ZN	12573	A	0.50	84	0.50	84	0.50	84						
N-95	ZN	12573	C	0.50	90	0.50	90	0.50	90						

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Yr's	Date	Parameter	Batch	Q/C	MSD1 MG/KG	% Rec.	MSD1 MG/L	% Rec.	MSD1 UG/L	% Rec.	MSD2 MG/KG	% Rec.	MSD2 MG/L	% Rec.	MSD2 UG/L	% Rec.
Y-95	NI		5235	C	1.00	83	1.00	83	1.00	83	1.00	85	1.00	85	1.00	85
Y-95	NI		5235	D	1.00	97	1.00	97	1.00	97	1.00	85	1.00	85	1.00	85
JN-95	NI		12789	A	1.00	90	1.00	90	1.00	90	1.00	85	1.00	85	1.00	85
JN-95	NI		12789	B	1.00	87	1.00	87	1.00	87	1.00	85	1.00	85	1.00	85
JN-95	NI		12789	C	1.00	85	1.00	85	1.00	85	1.00	85	1.00	85	1.00	85
Y-95	PB		5285	A	1.00	101	1.00	101	1.00	101	1.00	102	1.00	102	1.00	102
Y-95	PB		5285	B	1.00	105	1.00	105	1.00	105	1.00	102	1.00	102	1.00	102
Y-95	PB		5285	C	1.00	81	1.00	81	1.00	81	1.00	102	1.00	102	1.00	102
Y-95	PB		5285	D	1.00	72	1.00	72	1.00	72	1.00	102	1.00	102	1.00	102
JN-95	PB		12784	A	1.00	101	1.00	101	1.00	101	1.00	102	1.00	102	1.00	102
JN-95	PB		12784	B	1.00	96	1.00	96	1.00	96	1.00	102	1.00	102	1.00	102
JN-95	PB		12784	C	1.00	97	1.00	97	1.00	97	1.00	102	1.00	102	1.00	102
Y-95	SB-GFAA		4586	A	20		20		20							
Y-95	SB-GFAA		4586	D	20		20		20							
Y-95	SE-GFAA		4585	A	20	75	20	75	20	75	20	75	20	75	20	75
Y-95	SE-GFAA		4585	B	20	55	20	55	20	55	20	55	20	55	20	55
Y-95	SE-GFAA		4585	C	20	80	20	80	20	80	20	80	20	80	20	80
Y-95	SE-GFAA		4585	D	20		20		20							
Y-95	TL-GFAA		4584	A	20	74	20	74	20	74	20	74	20	74	20	74
Y-95	TL-GFAA		4584	D	20		20		20							
Y-95	ZN		5236	A	0.50	48	0.50	48	0.50	48	0.50	86	0.50	86	0.50	86
Y-95	ZN		5236	B	0.50	114	0.50	114	0.50	114	0.50	86	0.50	86	0.50	86
Y-95	ZN		5236	C	0.50	88	0.50	88	0.50	88	0.50	86	0.50	86	0.50	86
Y-95	ZN		5236	D	0.50	74	0.50	74	0.50	74	0.50	86	0.50	86	0.50	86
JN-95	ZN		12573	A	0.50	114	0.50	114	0.50	114	0.50	86	0.50	86	0.50	86
JN-95	ZN		12573	C	0.50	86	0.50	86	0.50	86	0.50	86	0.50	86	0.50	86

System for Laboratory Information Management  
 \*\*\* Q/C Report for Blank's (BLK's) and Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	BLK1 MG/L	STD1 MG/L	% Rec.
08-MAR-95	NH3-N	1616	0.05	1.00	98
08-MAR-95	NO3-N	1690		5.0	102
08-MAR-95	NO3-N	2223		5.00	100

System for Laboratory Information Management

\*\*\* Q/C Report for Duplicate Samples (DUP's) \*\*\*

Q/C Testing from 08-MAR-95 to 08-MAR-95

sis Date	Parameter	Batch	Q/C	DUP1 MG/KG	DUP1 MG/L	DUP2 MG/KG	DUP2 MG/L
R-95	NH3-N	1616	A	12.3		9.49	
R-95	NO3-N	1690	A	<11.1	<0.2	<11.1	
R-95	NO3-N	2223	A				<0.2

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	SPK1 MG/KG	% Rec.	SPK1 MG/L	% Rec.
08-MAR-95	NH3-N	1616	A	125	90	125	90
08-MAR-95	NO3-N	1690	A	138	91	138	91
08-MAR-95	NO3-N	2223	A	2.5	88	2.5	88

System for Laboratory Information Management  
 \*\*\* Q/C Report for Blank's (BLK's) and Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	BLK1 MG/L	STD1 MG/L	% Rec.
08-MAR-95	TKN	2034	0.10	1.00	113

System for Laboratory Information Management  
 \*\*\* Q/C Report for Duplicate Samples (DUP's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	DUP1 MG/L	DUP2 MG/L
R-95	TKN	2034	A	0.18	0.18
R-95	TKN	2034	B	0.26	0.27
R-95	TKN	2034	C	0.79	0.57

System for Laboratory Information Management  
 \*\*\* Q/C Report for Spiked samples (SPK's) and Check Standards (STD's) \*\*\*  
 Q/C Testing from 08-MAR-95 to 08-MAR-95

Analysis Date	Parameter	Batch	Q/C	SPK1 MG/L	% Rec.	STD1 MG/L	% Rec.
03-MAR-95	TKN	2034 A		2.00	94	1.00	106
03-MAR-95	TKN	2034 B		2.00	96		
03-MAR-95	TKN	2034 C		2.00	91		

# FIELD RECORD

Date: 6/12/95

Project: Roy Kizer

Weather: Sunny, ≈ 78°F

Days since last rainfall: 6/11/95 between 1:30 AM and 5:30 AM.

Field personnel: Scott Hiers, David Johns

Purpose of trip: To sample the high  $\text{NO}_3\text{-N}$  springs around Roy Kizer and Jimmy Clay Golf Courses, and to the water quality analysis information to recommend the next course of action.

Sites visited: DrC, DrM, Williamson 17, Willy's House, Jimmy Clay, Onion Creek off William Canyon.

## Data Collection /Documentation :

(Include notes on samples, photographs, evaluations, related forms)

Site I.D.	NAME	pH	TDS	TDS <sub>temp</sub>	Temp	Temp	Time
	DrC	7.4	50x10 = 500		24°C		2:10 PM
	DrM	7.5	56x10 = 560		23.5°C		2:20 PM
	Wil-17	7.3	43x10 = 430		22°C		2:40 PM
	Willy's House	7.5	42x10 = 420		23°C		3:30 PM
	Jimmy Clay	7.7	37x10 = 370		23.5°C		3:40 PM
	Onion at William	7.5	29x10 = 290		24°C		4:00 PM

Observations: \_\_\_\_\_

DrC = Springs are located approx. at the southwest corner of the Jimmy Clay Driving Range. Springs are seeping flowing out at the contact between the alluvial terrace deposits and underlying limestone formation. Tufa deposits are abundant below the seeps.

DrM = This spring has \_\_\_\_\_

# FIELD RECORD

Date: 6 / 12 / 195

Project: Roy Kiser

**Additional notes:**

Willy's House - Behind maintenance shed. Spring is located at the contact between the Taylor Clay and the overlying alluvial gravel.

Jammy Clay - Spring on west bank of Wallerston Creek at the entrance to Jammy Clay.  
Roy Kiser.

Ormeau at William Canyon - Spring is on eastern bank 150 yards downstream from bridge. The spring is between the Taylor Clay and Tennesse alluvial gravel deposits.

# ECSD LAB ANALYSIS SHEET

Project: Key Kizer

Date: 6/13/95

Time: 1:00 - 4:00

Personnel: D. Johns, S. Hinters

Method	HACH PEN	HACH PEN	HACH Spectrophotometer Meter/8237	HACH Spectrophotometer 8008/8155	HACH Spectrophotometer 8008	HACH Spectrophotometer 8192/8171	Standard Methods 2540 D	Standard Methods 9221 E	Standard Methods 9230 C m-Enteroc	HACH II Spectrophotometer R12R	HACH II Spectrophotometer R141
Location	pH	TDS (mg/L)	Turbidity NTU's/FTU's	NH3-N (mg/L)	Ortho-P (mg/L)	NO3-N (mg/L)	TSS (mg/L)	Fecal Coliform (Col./100ml)	Enterococcus (Col./100ml)	Surfactants (mg/L)	DAHA (mg/L) (Walter)
Standards											
Standards											
Standards											
Standards											
QA/QC Duplicate (Split)											
Wally House 2:30	7.5	420	<1.0	.01	.03	8.5	20	20			1.7 = 8.5
DRM 2:30	7.5	560	<1.0	<.01	.02	15.0	90	180			3.0 = 15
Drion at DM 4:00	7.5	290	3.0	.02	.03	1.0 ✓		40			1.9 = 9
Williamson 2:40	7.3	430	1.0	<.01	.02	9.5	40	235			
Jumping Gray 2:40	7.7	370	3.0	.03	.02	1.6 ✓					
DRC 2:10pm	7.4	500	<1.0	.02	.02	11.5	10				2.3 = 11

12  
11  
10  
9  
8  
7  
6  
5  
4  
3  
2  
1

Duplicate  
 5ml  
 10ml  
 15ml

1.8 = 9  
1.7 = 8.5  
3.0 = 15  
1.9 = 9  
2.3 = 11



M E M O R A N D U M

TO: Joan Beleogh, Environmental Quality Specialist IV  
Environmental Conservation Services Department

FROM: Santos O. Urrea Jr., Chemist II  
Walnut Creek Environmental Laboratory

DATE: April 18, 1995

SUBJECT: Roy Kizer/Jimmy Clay Report for March 8, 1995

Attached are the following reports for Roy Kizer/Jimmy Clay samples collected on March 8, 1995.

- o Parameters results report
- o Analysis date report

Note that this report submits all wet chemistry data and results for only three of the Metals requested. More Metal results are pending analysis. A final report with all the Metals results will be submitted upon completion of all metal analysis.

If you have further questions concerning the data, please feel free to contact me at 926-9585. For questions about Metals data, please call David Houston at 929-9134.

Santos O. Urrea Jr., Chemist II  
Walnut Creek Environmental Laboratory



System for Laboratory Information Management

Lab: Instrument

Program\_cd: ECSD MISC

Date Requested: 08-MAR-95 to 08-MAR-95

Collection Date	Sample Name	B MG/KG	BA MG/KG	HG MG/KG	NH3-N MG/KG	NO3-N MG/KG	TKN MG/KG	TOC MG/KG
08-MAR-95	ROY KIZER-11a10-12*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a17*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-6a24*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-9a18*	19-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a24*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-11a14*	18-APR-95	19-APR-95	19-APR-95	15-MAR-95	17-MAR-95	04-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-16a18*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-18a14*-16*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-18a21-24*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a20*	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95

Customer: ~~WLU + ECSD~~ WLU + ECSD Program: Roy Kizer / Sunny Clay  
 Project: Golf Course  
 Contact: Joan Berkeg / Quarks Synthesis Phone No. 499-2746 FAX No.  
 Collected by: John Morris, Tech Rep  
 Date: 3/8/95  
 Time: 9:45 AM - 2:00 PM

Lab I.D. #	Sample Identification	Collected		Matrix	Container #/Type	Grab(G)/Comp(C)	Preservation / Verified	Analysis Requested	Relinquished by: [Signature]	Date: [Date]	Time: [Time]
		Date	Time								
1	Box Kizer-1 #17"	3/8/95	9:45 AM	S	2-Bags	G	1		Relinquished by: [Signature]	3/8/95	3:30 PM
2	Box Kizer-1 #20"				2-Bags				Relinquished by: [Signature]		
3	Box Kizer-1 #24"				2-Bags				Relinquished by: [Signature]		
4	Box Kizer-6 #44"				2-Bags				Relinquished by: [Signature]		
5	Box Kizer-9 #18"				4-Bags				Relinquished by: [Signature]		
6	Box Kizer-11 #5-B"				2-Bags				Relinquished by: [Signature]		
7	Box Kizer-11 #14"				2-Bags				Relinquished by: [Signature]		
8	Box Kizer-16 #12"				2-Bags				Relinquished by: [Signature]		
9	Box Kizer-16 #18"				2-Bags				Relinquished by: [Signature]		
10	Box Kizer-18A-14#"				2-Bags				Relinquished by: [Signature]		
11	Box Kizer-18A-14#"				2-Bags				Relinquished by: [Signature]		
12	Box Kizer-18A-21-24"				2-Bags				Relinquished by: [Signature]		
13											
14											

Walnut Creek Environmental Lab  
 Instrument Lab  
 Water Lab  
 Special Instructions:  
 Comments: Hornsby Benzene analyzed / bag of each  
 Hornsby NH3-N & NO3-N only

Matrix:  W - Drinking Water  WW - Wastewater  IW - Industrial Waste  E - Environment  
 Place:  A - Aqueous  S - Sludge / Soil  H - Hazardous / Contaminated  
 Container:  L - liter  ml - milliliter  P - Plastic  G - Clear Glass  AG - Amber GI

<input checked="" type="checkbox"/> TSS	<input checked="" type="checkbox"/> NH3-N	<input checked="" type="checkbox"/> BOD	<input checked="" type="checkbox"/> Inorganic:	<input checked="" type="checkbox"/> Ti	<input type="checkbox"/> Chlorophyll-A
<input checked="" type="checkbox"/> VSS	<input checked="" type="checkbox"/> NO3 + NO2 - N	<input checked="" type="checkbox"/> CBOD	<input checked="" type="checkbox"/> Ag	<input checked="" type="checkbox"/> Zn	<input type="checkbox"/> Tot Hardness
<input checked="" type="checkbox"/> TS	<input checked="" type="checkbox"/> TKN	<input checked="" type="checkbox"/> Cl	<input checked="" type="checkbox"/> Al	<input checked="" type="checkbox"/> Fe	<input type="checkbox"/> Cd, Cu, Pb, Zn
<input checked="" type="checkbox"/> VS	<input checked="" type="checkbox"/> F Col	<input checked="" type="checkbox"/> SO4	<input checked="" type="checkbox"/> As	<input checked="" type="checkbox"/> Hg	<input type="checkbox"/> Mo
<input checked="" type="checkbox"/> TDS	<input checked="" type="checkbox"/> F Strep	<input checked="" type="checkbox"/> FOG	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/> Mn	<input type="checkbox"/> Ni
<input type="checkbox"/> pH	<input checked="" type="checkbox"/> Turbidity	<input checked="" type="checkbox"/> Cl2	<input checked="" type="checkbox"/> Be	<input checked="" type="checkbox"/> Mo	<input type="checkbox"/> VC - GCMS 624
<input type="checkbox"/> PO4-P	<input checked="" type="checkbox"/> Alkalinity	<input checked="" type="checkbox"/> DO	<input checked="" type="checkbox"/> Ba	<input checked="" type="checkbox"/> Pb	<input type="checkbox"/> SVC - GCMS 625
<input type="checkbox"/> TP	<input checked="" type="checkbox"/> Ortho Phosphate-P	<input checked="" type="checkbox"/> TP1	<input checked="" type="checkbox"/> Cr	<input checked="" type="checkbox"/> Sb	<input type="checkbox"/> GCMS Unknown Report
<input type="checkbox"/> DP			<input checked="" type="checkbox"/> Cu	<input checked="" type="checkbox"/> So	<input type="checkbox"/> PCB's 608 / 8080
<input checked="" type="checkbox"/> TOC			<input checked="" type="checkbox"/> Total CN	<input checked="" type="checkbox"/> Pesticides 608 / 1656 / 1657	
<input type="checkbox"/> COD			<input checked="" type="checkbox"/> Total Phenal		

Compliance:  SDWA  HHS  HCRNA

Preservation:  F  L - Lab plus: 1 - Cool to 4C 2 - 112504 to pH < 2  
 3 - 1103 to pH < 2 4 - pH to pH < 2 5 - 1125202 6 - 1103 to pH < 2  
 7 - Other, as noted  
 WIP - Wind Park VOA - 2004 and

TOPS NO. 4002

### WHILE YOU WERE AWAY

FOR \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_ A.M.  
P.M.

M Ken

OF Parsons

PHONE \_\_\_\_\_

MESSAGE Class III non hazardous

TCLP SFDW can be used as ground cover

pass 7-day distilled

307Ac 335 Subch-p R 501

40 CFR 264 Class I Hg .2mg/L

Barium 100mg/L

SIGNED Had Bron

TOPS FORM 4002

<input type="checkbox"/>	PHONED
<input type="checkbox"/>	RETURNED YOUR CALL
<input type="checkbox"/>	PLEASE CALL
<input type="checkbox"/>	WILL CALL AGAIN
<input type="checkbox"/>	CAME TO SEE YOU
<input type="checkbox"/>	WANTS TO SEE YOU

Litho in U.S.A.

### WHILE YOU WERE AWAY

FOR \_\_\_\_\_ DATE \_\_\_\_\_ TIME \_\_\_\_\_ A.M.  
P.M.

M Land application rules

OF domestic sewage sludge

PHONE 40 CFR 503.13

MESSAGE Sewage sludge

Total Hg 57 mg/kg

Pb 75

Cd 85

SIGNED \_\_\_\_\_

TOPS FORM 4002

<input type="checkbox"/>	PHONED
<input type="checkbox"/>	RETURNED YOUR CALL
<input type="checkbox"/>	PLEASE CALL
<input type="checkbox"/>	WILL CALL AGAIN
<input type="checkbox"/>	CAME TO SEE YOU
<input type="checkbox"/>	WANTS TO SEE YOU

#/20  
= if all

7/20/74  
level might have

TOPS NO. 4002

### WHILE YOU WERE AWAY

FOR Cu 3000 DATE \_\_\_\_\_ TIME midnight A.M.  
P.M.

M Cu 4300

OF Pb 840

PHONE Mb 75

MESSAGE N. 420

Selenium 100

Zinc 7500

"ceiling concentrations"

SIGNED \_\_\_\_\_

TOPS FORM 4002

<input type="checkbox"/>	PHONED
<input type="checkbox"/>	RETURNED YOUR CALL
<input type="checkbox"/>	PLEASE CALL
<input type="checkbox"/>	WILL CALL AGAIN
<input type="checkbox"/>	CAME TO SEE YOU
<input type="checkbox"/>	WANTS TO SEE YOU

40pm

### WHILE YOU WERE AWAY

305(b)

## Methodology for Water Quality Concerns

Water quality criteria do not presently exist for nutrients and chlorophyll a in water. EPA is developing procedures to generate criteria for selected toxicants in sediment; however, they have targeted only a few parameters and the criteria have not been adopted. Criteria for toxicants in fish tissue have also not been developed. The TNRCC developed screening levels for these three water quality indicator groups in order to identify areas where elevated levels are causes for concern. The screening levels do not represent adopted State criteria and should not be considered as such. Waters were classified as having no concerns, potential concerns, or concerns based on comparisons of water quality data to the screening levels and application of the rating criteria (Table 24). The geographical extent of concern within each segment followed the same basis for determining use support. Individual values which exceeded screening levels, but were nondetects were not counted as violations. Fifty percent of the value reported for nondetects was used in calculation of summary statistics.

### Nutrients and Chlorophyll a

The values listed for nutrients and chlorophyll a in Table 24 were developed based on best professional judgement and experience of TNRCC personnel involved in evaluating surface water quality in Texas. SWQM data collected during the period January 1989-December 1992 were evaluated in the assessment.

### Sediment Quality

Screening levels for toxicants in sediment were developed by the TNRCC utilizing a 10 year period of record (January 1983-December 1992). The SWQM Database was first screened for specific metals and organic substances with at least 25 observations statewide within four waterbody types; freshwater streams, reservoirs, tidally influenced streams, and estuaries. This screen resulted in the selection of 12 specific metals and 25 specific organic substances parameters (Tables 25 and 26). Individual data values reported in the database as nondetects were also included. There is no generalized way to determine the true value for an individual nondetect in the range between zero and the reported detection limit. For this assessment, 50% of a reported detection limit was computed and used in developing the screening levels. This was done to include as many individual data points in the analysis as possible and to indicate the level of monitoring effort. In many areas of the State much of the sediment quality data for individual parameters are reported as nondetects. These occurrences in themselves are particularly noteworthy because they do not indicate a cause for concern. To exclude nondetects in the analysis would tend to bias the screening levels toward higher levels. As mentioned earlier in the SWQM Monitoring Section, sediment sampling at fixed monitoring stations is primarily located in areas where contamination problems are expected. This practice already tends to populate the database with elevated levels. Once the specific toxic substances parameters in sediment were selected, quantiles of order 0.05 to 0.95 were statistically determined. The 85th percentile (0.85 quantile) values for each specific toxic substance in each of the four waterbody types that were selected in screening the sediment data are shown in Tables 25 and 26.

Table 25

Screening Levels for Metals in Sediment  
(All values in mg/kg dry weight)

Parameter Code	Parameter	Waterbody Type			
		Freshwater Stream	Tidal Stream	Reservoir	Estuary
01003	Arsenic	6.70	6.90	18.97	6.20
01008	Barium	190.00	297.00	280.00	440.00
01028	Cadmium	2.00	1.50	2.00	1.00
01029	Chromium	26.00	44.00	34.00	29.00
01043	Copper	21.00	40.00	34.00	26.00
01052	Lead	50.00	95.00	60.00	30.00
01053	Manganese	481.00	489.50	1285.00	638.00
71921	Mercury	0.09	0.22	0.12	0.29
01068	Nickel	18.00	19.00	27.00	18.00
01148	Selenium	0.96	1.25	1.40	1.30
01078	Silver	1.60	1.60	1.60	1.60
01093	Zinc	93.00	170.00	116.00	120.00

FDA Standards

SCS = 459-1626  
 Gary Valiame = (817) 774-1291  
 Jody Stogel = 929-1010 ← ~~ESD~~ W RWV

Table 26

Screening Levels for Organic Substances in Sediment  
(All values in  $\mu\text{g}/\text{kg}$  dry weight)

Parameter Code	Parameter	Waterbody Type			
		Freshwater Stream	Tidal Stream	Reservoir	Estuary
39333	Aldrin	0.50	0.50	0.50	0.50
39076	Alpha-Hexchlorocyclohexane	0.50	0.50	0.50	0.50
39783	Gamma-Hexchlorocyclohexane	0.50	0.50	0.50	0.50
39102	bis(2-Ethylhexyl)Phthalate	1197.00	894.00	850.00	400.00
39571	Diazinon	2.88	2.89	2.72	2.50
39112	Di-N-Butyl Phthalate	505.12	350.00	921.31	146.00
39351	Chlordane	6.00	17.30	3.00	3.00
39363	DDD	3.00	3.00	3.00	3.00
39368	DDE	5.51	1.50	1.70	1.50
39373	DDT	3.00	3.00	3.00	3.00
39383	Dieldrin	1.00	1.00	1.00	1.00
39393	Endrin	1.50	1.50	1.50	1.50
39413	Heptachlor	0.25	0.25	0.25	0.25
39423	Heptachlor Epoxide	0.50	0.50	0.50	0.50
39701	Hexachlorobenzene	0.50	0.60	0.50	0.50
39531	Malathion	2.50	2.50	2.50	2.50
39481	Methoxychlor	5.00	5.00	5.00	5.00
39541	Parathion	1.50	1.50	1.50	1.50
39519	PCB's	10.00	18.70	10.00	10.00
39507	Aroclor 1254	25.00	25.00	25.00	25.00
39061	Pentachlorophenol	2.50	2.50	2.50	2.50
39761	Silvex	5.00	5.00	5.00	5.00
39403	Toxaphene	25.00	25.00	25.00	25.00
39731	2,4-D	25.00	25.00	25.00	25.00
39741	2,4,5-T	5.00	5.00	5.00	5.00

**NATIONAL ENVIRONMENTAL TESTING, INC.**

Austin Division  
2621 Ridgpoint Drive, Suite 130  
Austin, TX 78754  
(512)928-8905

**RECEIVED**

APR 20 1995

**ANALYTICAL RESULTS REPORT  
and  
QUALITY CONTROL DATA REPORTS**

Laboratory Services-RAQC  
Water & Wastewater Utility

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Page 1

Project Description: 37795  
Job Description: ECSD - Misc.

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to NET, Inc. - Austin Division for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
116956	Roy Kizer - 1 (17")	03/08/1995	09:00	03/13/1995
116957	Roy Kizer - 1 (20")	03/08/1995	09:00	03/13/1995
116958	Roy Kizer - 1 (24")	03/08/1995	09:00	03/13/1995
116959	Roy Kizer - 6 (24")	03/08/1995	09:00	03/13/1995
116960	Roy Kizer - 9 (18")	03/08/1995	09:00	03/13/1995
116961	Roy Kizer - 11 (10-12")	03/08/1995	09:00	03/13/1995
116962	Roy Kizer - 11 (14")	03/08/1995	09:00	03/13/1995
116963	Roy Kizer - 11 (12")	03/08/1995	09:00	03/13/1995
116964	Roy Kizer - 16 (18")	03/08/1995	09:00	03/13/1995
116965	Roy Kizer - 18A (14"-16")	03/08/1995	09:00	03/13/1995
116966	Roy Kizer - 18A (21"-24")	03/08/1995	09:00	03/13/1995

City of Austin



**QC  
Reviewed**

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

REVIEWED BY: *[Signature]*

*[Signature]*  
Project Manager

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116956

Page 2

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (17")

Parameter	Flag	Result	Units	Analytical Method	Date	Date	Analyst	Prep	Run	Reporting Limit
					Prepared	Analyzed		Batch Number	Batch Number	
Total Organic Carbon, dry wt.		6,900	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		81	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		33	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.7	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116957

Page 3

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (20")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		5,800	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		81	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		50	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		0.05	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116958

Page 4

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		4,300	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		76	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		63	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.1	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.3
Mercury, CVAA		<0.03	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.03

# ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116959

Page 5

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 6 (24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		18,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		88	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		54	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		3.0	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		0.24	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116960

Page 6

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 9 (18")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		6,600	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		80	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		55	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.5	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

# ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116961

Page 7

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (10-12")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		2,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		90	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		27	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116962

Page 8

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (14")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		2,100	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		91	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		25	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.1	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

# ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116964

Page 10

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 16 (18")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		4,300	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		86	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		53	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.2	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

# ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116965

Page 11

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 18A (14"-16")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep	Run	Reporting Limit
								Batch Number	Batch Number	
Total Organic Carbon, dry wt.		5,400	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		84	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		68	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.7	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

# ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116966

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Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 18A (21"-24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		16,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		83	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP	BS	53	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP	BS	2.5	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

BS - MS/MSD results unacceptable; bench spike(s) recovery was 85-115%.

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116963

Page 9

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (12")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		2,900	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		86	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		41	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

# QUALITY CONTROL REPORT BLANKS

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Blank Result	Units	Reporting Limit	Date Analyzed	Prep Batch Number	Run Batch Number
Total Organic Carbon, dry wt.		<100	mg/kg	100	03/24/1995		300
Total Solids-for dry wt calc		<1	mg/L	1	03/14/1995		188
Barium, ICP		<0.1	ug/g	0.1	03/23/1995	1428	540
Boron, ICP		<1.0	ug/g	1.0	03/23/1995	1428	235
Mercury, CVAA		<0.02	ug/g	0.02	03/21/1995		2189

All parameters should be less than the reporting limit.

## QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION STANDARD

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	CCVS True Concentration	Units	CCVS Concentration Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
Barium, ICP		0.500	mg/L	0.475	95.0	03/23/1995	540
Boron, ICP		0.500	mg/L	0.484	96.8	03/23/1995	235
Mercury, CVAA		0.0050	mg/L	0.0051	102.0	03/21/1995	2189

## QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Units	Sample Result	Spike Amount Added	Matrix Spike Result	MS Percent Recovery	Duplicate Spike		MSD		Date Analyzed	Prep Batch Number	Run Batch Number
							Amount Added	MSD Result	Percent Recovery	MS/MSD RPD			
Barium, ICP	BS	mg/kg d	53	58	96	74.4	58	96	73.6	1.1	03/23/1995	1428	540
Boron, ICP	BS	mg/kg d	2.5	58	28	43.2	58	26	40.7	6.0	03/23/1995	1428	235
Mercury, CVAA		mg/kg d	<0.02	0.50	0.63	102.0	0.62	0.64	104.0	1.9	03/21/1995		2189
Mercury, CVAA		mg/kg d	<0.02	0.50	0.63	104.0	0.60	0.64	106.0	1.9	03/21/1995		2189

NOTE: The Quality Control data in this report reflects the batch in which your sample was prepped and/or analyzed.  
The sample selected for QA may not necessarily be your sample.

BS - MS/MSD results unacceptable; bench spike(s) recovery was 85-115%.

# QUALITY CONTROL REPORT DUPLICATES

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Units	Sample Result	Duplicate Sample Result	RPD	Date Analyzed	Prep Batch Number	Run Batch Number
Total Organic Carbon, dry wt.		mg/kg	6,900	7,000	1.4	03/24/1995		300
Total Solids-for dry wt calc		%	84	84	0.0	03/14/1995		188
Total Solids-for dry wt calc		%	83	83	0.0	03/14/1995		188

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

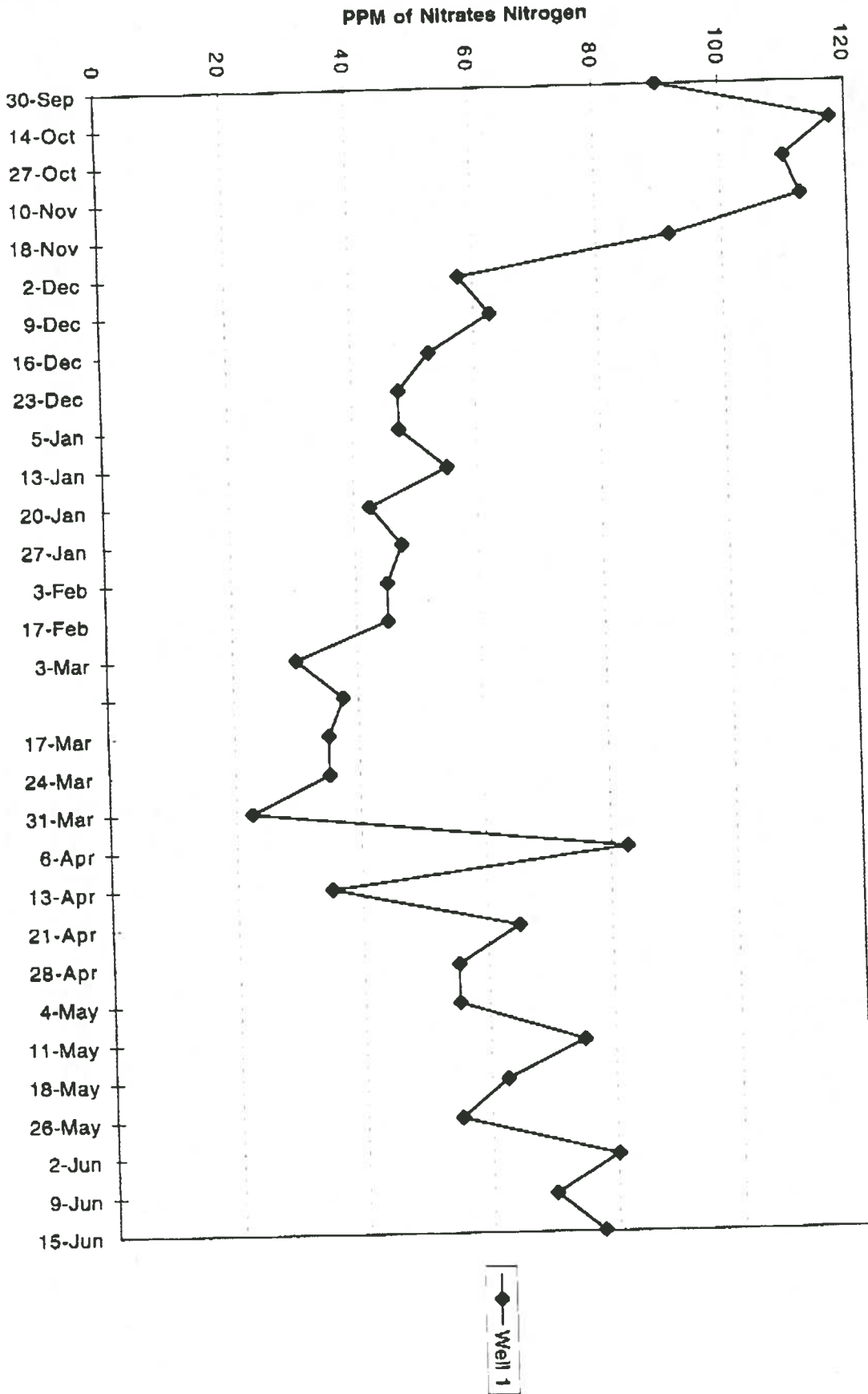
Parameter	Flag	LCS True Concentration	LCS Concentration Found	LCS Percent Recovery	Date Analyzed	Prep Batch Number	Run Batch Number
Total Organic Carbon, dry wt.		2,000	1,950	97.5	03/24/1995		300
Total Organic Carbon, dry wt.		1,000	1,000	100.0	03/24/1995		300
Total Solids-for dry wt calc		100	95	95.0	03/14/1995		188
Barium, ICP		0.500	0.485	97.0	03/23/1995	1428	540
Boron, ICP		0.500	0.439	87.8	03/23/1995	1428	235
Mercury, CVAA		0.50	0.51	102.0	03/21/1995		2189

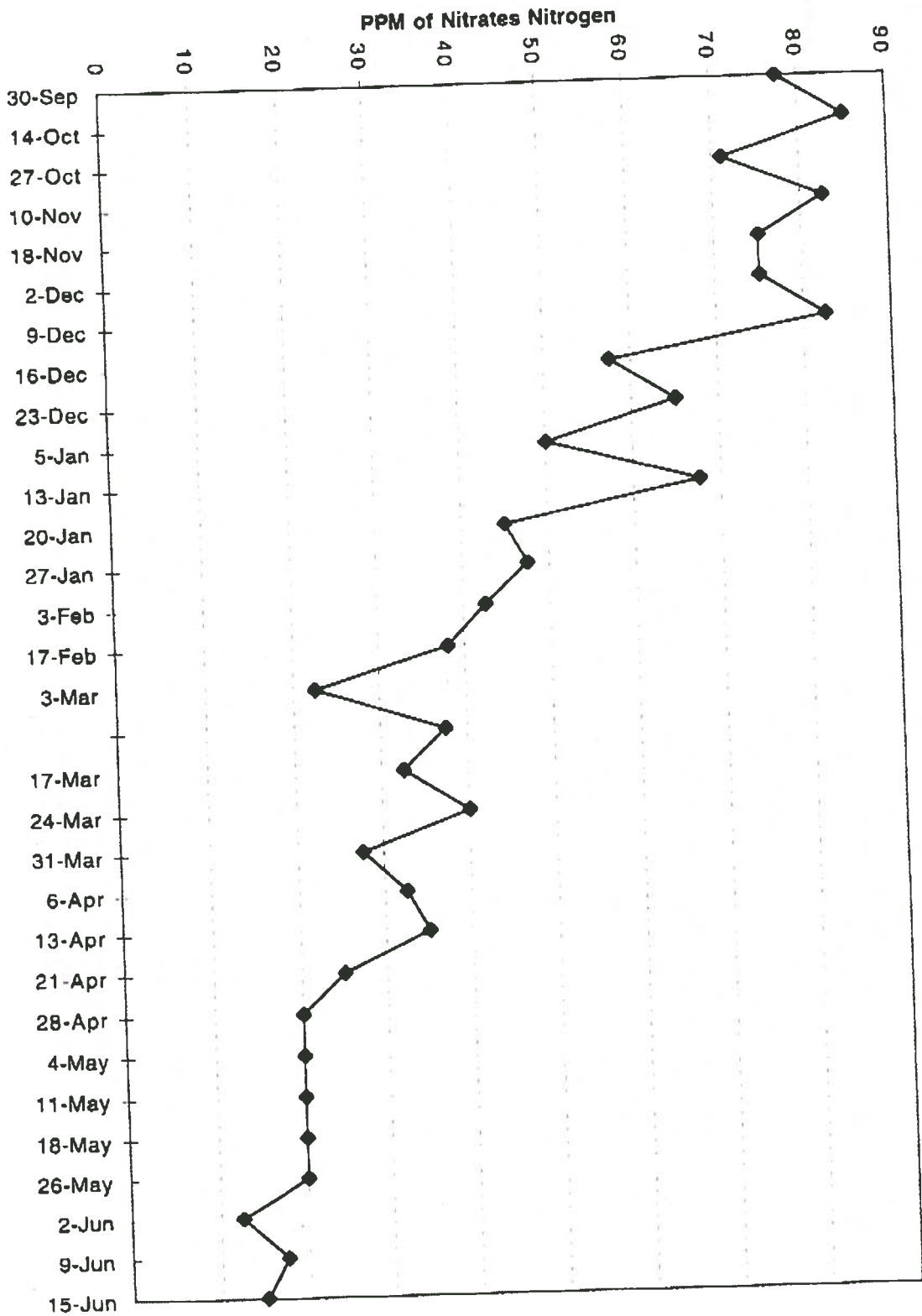
LCS - Laboratory Control Standard

For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.

Nitrate - Nitrogen Data For Roy Kizer Golf Course We

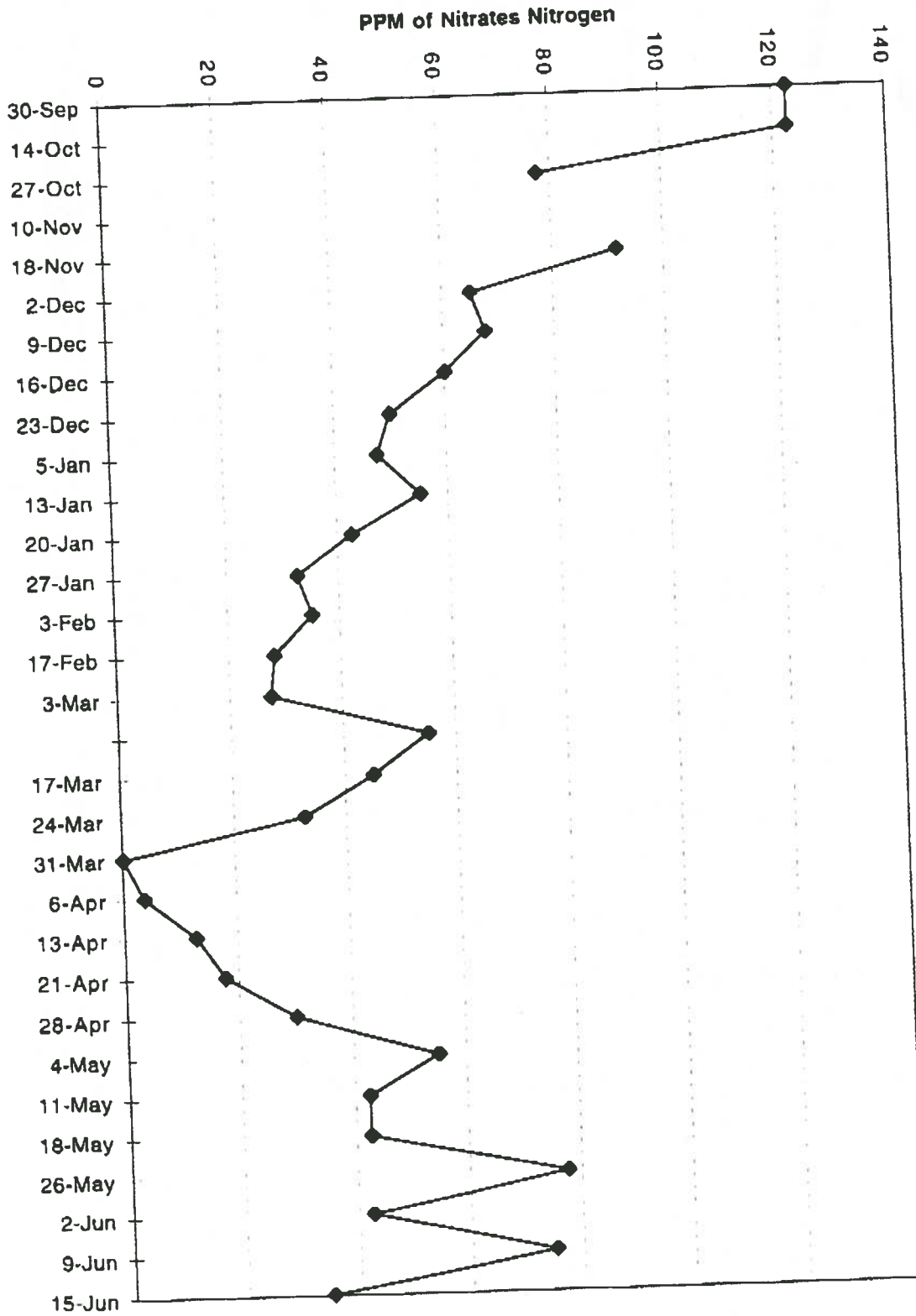
Kizer Well 1





Kizer Well 2

Well 2



Kizer Well 3

Well 3



Scott -  
FYI

**FAX TO: Adriene Bear**

**FROM:** Gene Faulk  
Manager of Golf  
Austin Parks and Recreation Department  
512/480-3020 (ph)  
512/480-3023 (fax)

**DATE:** 6/20/95  
**TIME:** 9:01:46 A M

**SUBJECT:** I checked with Public Works on the status of the Wastewater line project for the Jimmy Clay Golf Course. It is projected to start construction in August or September of 1995. Attached is the well data we collected.

**BARTON CREEK WEST DATA**

	DATE	pH	TDS	TURBIDITY (FTU)	NO <sub>3</sub> -N	NH <sub>3</sub> -N	ORTHO P	TUO	CHLORIDE	SULFATE	CHLOROPHYLL a	PHOSPHATE	FLOW (CFD)	DATA SOURCE
Irrigation Weiler	5/10/04	7.0	720	0	4.2	0.63	1.7							ECSD
Westend Upstream of Scale Bluff	5/10/04	7.0	000	3	1	0.03	0.06							ECSD
Scale Bluff Spring	2/2/03	7			0.33	0.03	<0.01	0.11	121	66	4.2	3.9		TWC
Scale Bluff Spring	5/4/04	7.4	010	2	0.6	0.01	0.02							ECSD
Scale Bluff Spring	5/12/04	7.2	660		0.4	0.01	0.03							ECSD
Scale Bluff Pond	5/12/04	7	670		0.04	0.04	0.03							ECSD
Outflow of Pond	5/12/04	7.2	680		0.3	0.06	0.03							ECSD
Barton Cr West Tributary Mouth	5/4/04	8	470	3	0.1	0.22	0.03							ECSD
Barton Cr West Tributary Mouth	5/12/04	7.2	420		0.1	0.06	0.03							ECSD
Barton Cr West Tributary Mouth	5/10/04	7.7	440	4	0.34	0	0.04						0.16	ECSD
Hobbsogton Hollow Mouth	5/4/04	8	320	2	0.1	0.22	0.04							ECSD
Hobbsogton Hollow Mouth	5/10/04	7.4	300	2	0.08	0	0.04						0.21	ECSD
Barton Pond Spring	2/2/03	7.1			1.11	0.03	0.01	0.14	42	69	<1	<1		TWC
Barton Pond Spring	7/7/02	7.2	340		0.4	0.06	0	<0.3	30	60				ECSD
Barton Creek Underdeveloped Springs (as)			170		0.6	0.01	0.02							ECSD

All units are milligrams per liter except pH, turbidity, and flow.

Customer: ~~Ww + ECSD~~ Ww + ECSD Program: Roy Kizer / January Clay  
 Project: Golf Course  
 Contact: Joan Belongy/Cheryl S. Noe Phone No. 499-2746 FAX No.  
 Collected by: John Morris, Tech Ref: JKH  
 Date: 3/8/95  
 Time: 9:00 AM - 2:00 PM

Lab I.D. #	Sample Identification	Collected		Matrix	Container #/Type	Grab(GI)/Comp(C)	Preservation / Verified	Analysis Requested	Relinquished by: Scott Kizer / Scott Kizer
		Date	Time						
1	Roy Kizer - 17"	3/8/95	9:00 AM	S	2-BAG	G	1		Date: 3/8/95 Time: 3:30 PM
2	Roy Kizer - 20"			P	2-BAG				Received by: MJK Date: 3/8/95 Time: 3:30
3	Roy Kizer - 24"				2-BAG				Relinquished by: MJK Date: 3/8/95 Time: 3:45
4	Roy Kizer - 18"				4-BAG				Received by: Scott Kizer Date: 3/8/95 Time: 3:45
5	Roy Kizer - 10-12"				2-BAGS				Relinquished by: Scott Kizer Date: 3/8/95 Time: 3:45
6	Roy Kizer - 14"				2-BAGS				Received by: Scott Kizer Date: 3/8/95 Time: 3:45
7	Roy Kizer - 16 12"				2-BAGS				Relinquished by: Scott Kizer Date: 3/8/95 Time: 3:45
8	Roy Kizer - 18A - 14"				2-BAGS				Received by: Scott Kizer Date: 3/8/95 Time: 3:45
9	Roy Kizer - 18A 21-24"				2-BAGS				Relinquished by: Scott Kizer Date: 3/8/95 Time: 3:45

Comments: David Housley → 929-91347  
 Hornsby Bend was Relinquished 1 bag of each.  
 Hornsby NH3-N + NO3-N only

Walnut Creek Environmental Lab		Instrument Lab		Water Lab	
<input checked="" type="checkbox"/> TSS	<input checked="" type="checkbox"/> NH3-N	<input checked="" type="checkbox"/> Inorganic:	<input checked="" type="checkbox"/> Fe	<input checked="" type="checkbox"/> Ti	<input type="checkbox"/> Chlorophyll-A
<input checked="" type="checkbox"/> VSS	<input checked="" type="checkbox"/> NO3 + NO2 - N	<input checked="" type="checkbox"/> Ag	<input checked="" type="checkbox"/> Hg	<input checked="" type="checkbox"/> Zn	<input type="checkbox"/> Tot Hardness
<input checked="" type="checkbox"/> TS	<input checked="" type="checkbox"/> TKN	<input checked="" type="checkbox"/> Al	<input checked="" type="checkbox"/> Mn	<input type="checkbox"/> Cu	<input type="checkbox"/> Metals: Cd, Cu, Pb, Zn
<input checked="" type="checkbox"/> VS	<input checked="" type="checkbox"/> F Coll	<input checked="" type="checkbox"/> As	<input checked="" type="checkbox"/> Mo	<input type="checkbox"/> Mg	<input type="checkbox"/> No acid: TSS, VSS, BOD, TOC, DP, F Coll, F Strep
<input checked="" type="checkbox"/> TDS	<input checked="" type="checkbox"/> F Strep	<input checked="" type="checkbox"/> B	<input checked="" type="checkbox"/> Ni	<input type="checkbox"/> No	<input type="checkbox"/> H2SO4: NH3-N, NO3 + NO2-N, TKN, TP, COD
<input checked="" type="checkbox"/> pH	<input checked="" type="checkbox"/> Turbidity	<input checked="" type="checkbox"/> Ba	<input checked="" type="checkbox"/> Pb		<input type="checkbox"/> Surcharge: TSS, BOD, COD, pl, FOG
<input checked="" type="checkbox"/> PO4-P	<input checked="" type="checkbox"/> Alkalinity	<input checked="" type="checkbox"/> Bi	<input checked="" type="checkbox"/> Sb		Compliance: <input type="checkbox"/> SOWA <input type="checkbox"/> HUPDES <input type="checkbox"/> RCRA
<input checked="" type="checkbox"/> TP	<input checked="" type="checkbox"/> Ortho Phosphate-P	<input checked="" type="checkbox"/> Cd	<input checked="" type="checkbox"/> Se		
<input checked="" type="checkbox"/> DP		<input checked="" type="checkbox"/> Cr	<input checked="" type="checkbox"/> Total CN		
<input checked="" type="checkbox"/> TOC		<input checked="" type="checkbox"/> Cu	<input checked="" type="checkbox"/> Total Phenol		
<input checked="" type="checkbox"/> COD		<input checked="" type="checkbox"/> F-			

Matrix: W - Drinking Water WW - Wastewater IW - Industrial Waste E - Environment  
 Plus: A - Aqueous S - Sludge / Soil II - Hazardous / Contaminated  
 Container: L - liter ml - milliliter P - Plastic G - Clear Glass AG - Amber (G)  
 Preservation: F - 1 L - Lab plus: 1 - Cool to 4C 2 - H2SO4 to pH < 2  
 3 - HNO3 to pH < 2 4 - HCl to pH < 2 5 - MnSO4 6 - Hg required 7 - Other, as noted  
 W - Whirl Pak VOA - 40-ml vial

Roy Kizer Golf Course Sites
















<b>SITE #</b>	<b>SAMPLE SITE NAME</b>	<b>LOCATION</b>
973	Roy Kizer Fairway 1	In the middle of Fairway 1 at Roy Kizer Golf Course, off Jimmy Clay Road
974	Roy Kizer Fairway 6	In the middle of Fairway 6 at Roy Kizer Golf Course, off Jimmy Clay Road
975	Roy Kizer Fairway 9	In the middle of Fairway 9 at Roy Kizer Golf Course, off Jimmy Clay Road
976	Roy Kizer Fairway 11	In the middle of Fairway 11 at Roy Kizer Golf Course, off Jimmy Clay Road
977	Roy Kizer Fairway 16	In the middle of Fairway 16 at Roy Kizer Golf Course, off Jimmy Clay Road
978	Roy Kizer Fairway 18	In the middle of Fairway 18 at Roy Kizer Golf Course, off Jimmy Clay Road
979	Roy Kizer Pond "F"	Pond "F" on the west side of Roy Kizer Golf Course, off Jimmy Clay Road, between the 15th and 17th fairways
980	Onion Creek Above Williamson Creek	In Onion Creek 10 meters above the confluence with Williamson Creek, in McKinney Falls State Park near the intersection of Smith School Road and Burleson Road
981	Onion Creek Below Williamson Creek	In Onion Creek 10 meters below the confluence with Williamson Creek in McKinney Falls State Park, near the intersection of Smith School Road and Burleson Road

**Map 4a. Roy Kizer Municipal Golf Course: Base Map and Surface Water**

Roy Kizer

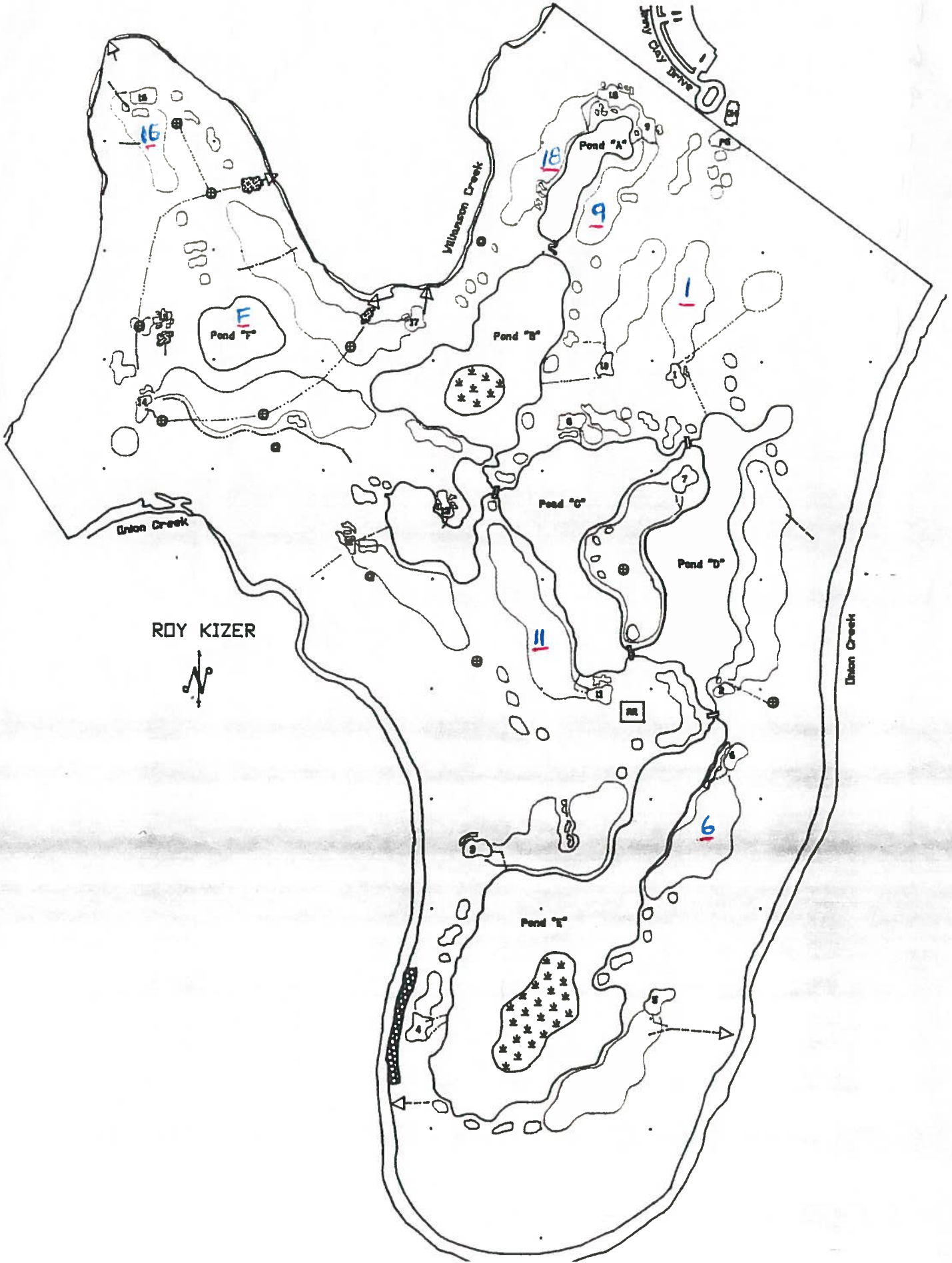
Legend

Scale - 1:7000

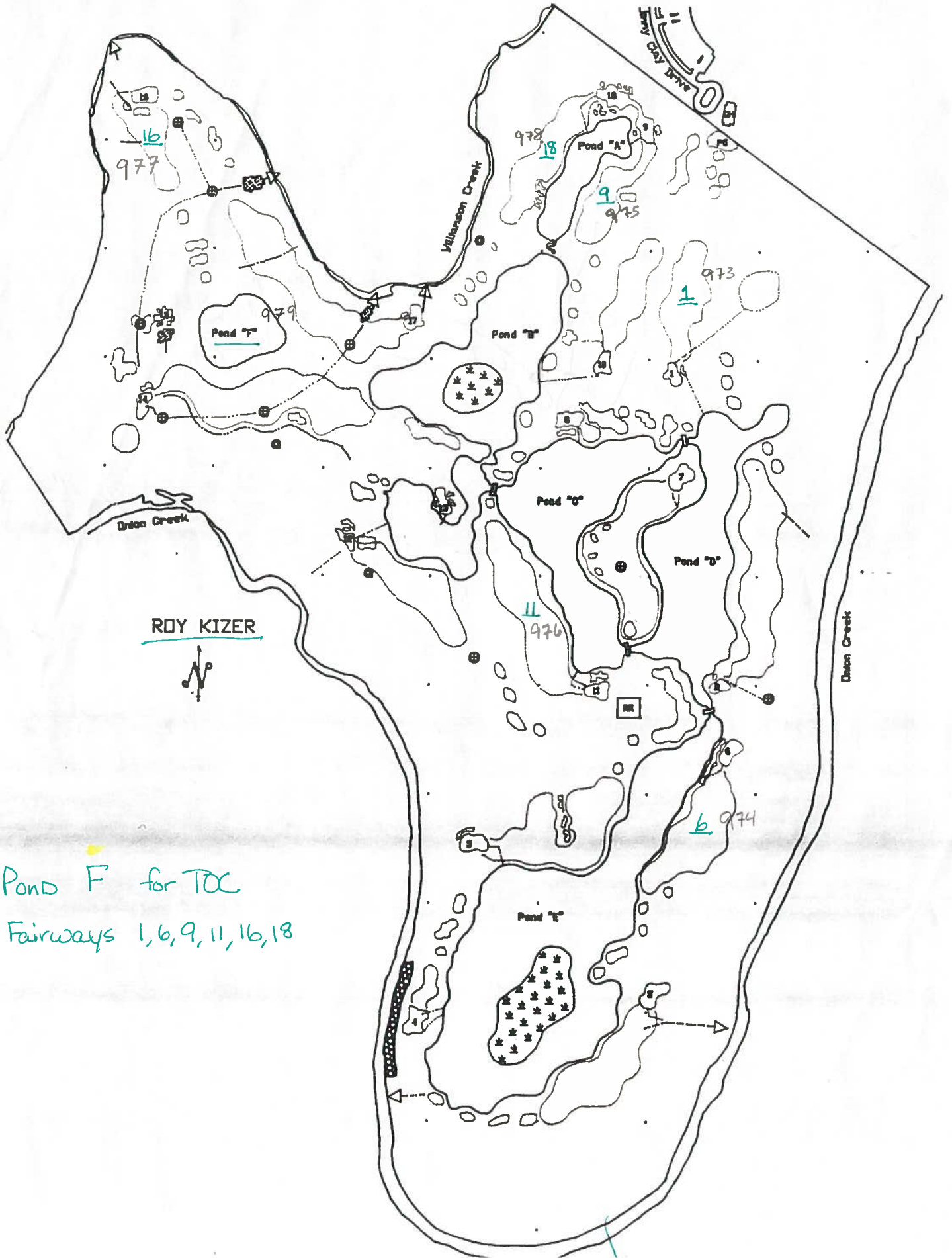
Greens:	
Boundary of Tees and Fairways:	
Sand Bunkers:	
Course Boundary and Roads:	
Surface and Subsurface Water	
Ponds and Water Hazards:	
Temporary detention storage:	
Streams:	
Drainage ways and ephemeral drainage channels:	
Inlet or Outlet for Surface Runoff:	
Wetland:	
Seeps and Springs:	
Subsurface drainage tiles:	
Drain boxes:	
Well:	
Buildings and Structures:	

- CH = Clubhouse
- CB = Cart Building
- H = House for Superintendent
- MB = Maintenance Building and Yard
- PH = Irrigation Pump House
- PL = Parking Lot
- UST = Underground Fuel Storage Tank
- AST = Aboveground Fuel Storage Tank
- PG = Practice Green
- RW = Retaining Wall
- RR = Rest Rooms

\*Base map features also appear on other management maps. The legend on the base map is the reference for turfgrass and surface water features.



# Roy Keizer



Pond F for TOC  
Fairways 1, 6, 9, 11, 16, 18

Customer: C.O.A - DUD Program: ERM - ORE Collected by: Scott Hiers  
 Project: Roy Kizer Date: 7-22-97  
 Contact: Scott Hiers Phone No. 485-1916 Time: 4:45 FAX No. \_\_\_\_\_

Lab I.D. #	Sample Identification	Collected		Matrix	Container (Grab(G)/ #/Type)	Preservation / Verified	Analysis Requested	Relinquished by: Date: Time:
		Date	Time					
1	Roy Kizer - 1	7/22	9:45	E	1-165 ml G	4	T-O-C	
2	Roy Kizer - 15	↓	↓	↓	↓	↓	↓	
3	Roy Kizer - 1B	↓	↓	↓	↓	↓	↓	
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								
14								

Comments: \_\_\_\_\_

Walnut Creek Environmental Lab	Instrument Lab	Water Lab	Special Instructions:
<input type="checkbox"/> NH3-N <input type="checkbox"/> NO3 + NO2 - N <input type="checkbox"/> TKN <input type="checkbox"/> F Coll <input type="checkbox"/> F Strep <input type="checkbox"/> Turbidity <input type="checkbox"/> Alkalinity <input type="checkbox"/> Ortho Phosphate-P <input type="checkbox"/> BOD <input type="checkbox"/> CBOD <input type="checkbox"/> Cl <input type="checkbox"/> SO4 <input type="checkbox"/> FOG <input type="checkbox"/> Cl2 <input type="checkbox"/> DO <input type="checkbox"/> TPH	Inorganic: <input type="checkbox"/> Ag <input type="checkbox"/> Al <input type="checkbox"/> As <input type="checkbox"/> B <input type="checkbox"/> Ba <input type="checkbox"/> Be <input type="checkbox"/> Cd <input type="checkbox"/> Cr <input type="checkbox"/> Cu <input type="checkbox"/> F- <input type="checkbox"/> Ti <input type="checkbox"/> Zn <input type="checkbox"/> Mn <input type="checkbox"/> Mo <input type="checkbox"/> Ni <input type="checkbox"/> Pb <input type="checkbox"/> Sb <input type="checkbox"/> Se <input type="checkbox"/> Total CN <input type="checkbox"/> Total Phenol	Chlorophyll-A <input type="checkbox"/> Tot Hardness <input type="checkbox"/> Ca <input type="checkbox"/> Mg <input type="checkbox"/> Na	<input type="checkbox"/> Metals: Cd, Cu, Pb, Zn <input type="checkbox"/> No acid: TSS, VSS, BOD, TOC, DP, F Coll, F Strep <input type="checkbox"/> H2SO4: NH3-N, NO3+NO2-N, TKN, TP, COD <input type="checkbox"/> Surcharge: TSS, BOD, COD, pH, FOG Compliance: <input type="checkbox"/> NPDES <input type="checkbox"/> RCRA <input type="checkbox"/> SDWA

Matrix: W - Drinking Water WW - Wastewater IW - Industrial Waste E - Environmental  
 Plus: A - Aqueous S - Sludge / Soil H - Hazardous / Contaminated  
 Container: L - liter ml - milliliter P - Plastic G - Clear Glass AG - Amber Glass B - Bacli WP - Whirl-Pak VOA - 40ml vial  
 Preservation: F - Field L - Lab plus: 1 - Cool to 4C 2- H2SO4 to pH <2  
 3- HNO3 to pH <2 4- HCl to pH <2 5- Na2S2O2 6- None required 7- Other, as noted



M E M O R A N D U M

TO: Joan Beleogh, Environmental Quality Specialist IV  
Environmental Conservation Services Department

FROM: Santos O. Urra Jr., Chemist II  
Walnut Creek Environmental Laboratory

DATE: April 18, 1995


SUBJECT: Roy Kizer/Jimmy Clay Report for March 8, 1995

Attached are the following reports for Roy Kizer/Jimmy Clay samples collected on March 8, 1995.

- o Parameters results report
- o Analysis date report

Note that this report submits all wet chemistry data and results for only three of the Metals requested. More Metal results are pending analysis. A final report with all the Metals results will be submitted upon completion of all metal analysis.

If you have further questions concerning the data, please feel free to contact me at 926-9585. For questions about Metals data, please call David Houston at 929-9134.

  
Santos O. Urra Jr., Chemist II  
Walnut Creek Environmental Laboratory

Laboratory Services Division  
 Parameter Results for ECSD MISC  
 Samples Collected Between 08-MAR-95 and 08-MAR-95

This data has been proofed by a Laboratory Official: YES

Date	Sample Name	TOC	NH3-N	NO3-N	TKN	B	BA	HG
08-MAR-95	ROY KIZER-11810-12*	2000	2.51	<10.7	<11	2.6	27	<.02
08-MAR-95	ROY KIZER-1817*	6900	5.74	<11.1	689	1.7	33	<.02
08-MAR-95	ROY KIZER-6824*	18000	22.6	<11	1736	3.0	54	0.24
08-MAR-95	ROY KIZER-9818*	6600	32.6	<11.9	1083	1.5	55	<.02
08-MAR-95	ROY KIZER-1824*	4300	10.90	<12.4	821	2.1	63	<.03
08-MAR-95	ROY KIZER-11814*	2100	2.32	<10.9	176	2.1	25	<.02
08-MAR-95	ROY KIZER-16818*	4300	6.21	<10.3	611	2.2	53	<.02
08-MAR-95	ROY KIZER-18A814*-16*	5400	2.33	<11.9	773	1.7	68	<.02
08-MAR-95	ROY KIZER-18A821-24*	16000	2.41	<11.7	1102	2.5	53	<.02
08-MAR-95	ROY KIZER-1820*	5800	12.0	<12.1	712	1.6	50	0.05
	Count	10	10	10	10	10	10	10
	Maximum	18000.00	32.60		1736.00	3.00	68.00	0.24
	Minimum	2000.00	2.32		176.00	1.50	25.00	0.05
	Average	7140.00	9.96		855.89	2.10	48.10	0.15

System for Laboratory Information Management

Lab: Instrument

Program\_cd: ECSD MISC

Date Requested: 08-MAR-95 to 08-MAR-95

Collection Date	Sample Name	B MG/KG	BA MG/KG	HG MG/KG	NH3-N MG/KG	NO3-N MG/KG	TKN MG/KG	TOC MG/KG
08-MAR-95	ROY KIZER-11a10-12"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a17"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-6a24"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-9a18"	19-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a24"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-11a14"	18-APR-95	19-APR-95	19-APR-95	15-MAR-95	17-MAR-95	04-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-16a18"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-18a14"-16"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-18a21-24"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	05-APR-95	02-APR-95	24-MAR-95
08-MAR-95	ROY KIZER-1a20"	18-APR-95	18-APR-95	19-APR-95	15-MAR-95	17-MAR-95	02-APR-95	24-MAR-95

## NATIONAL ENVIRONMENTAL TESTING, INC.

Austin Division  
2621 Ridgepoint Drive, Suite 130  
Austin, TX 78754  
(512)928-8905

### ANALYTICAL RESULTS REPORT and QUALITY CONTROL DATA REPORTS

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Page 1

Project Description: 37795  
Job Description: ECSD - Misc.

Enclosed are the Analytical Results and Quality Control Data Reports for the following samples submitted to NET, Inc. - Austin Division for analysis:

Sample Number	Sample Description	Date Taken	Time Taken	Date Received
116956	Roy Kizer - 1 (17")	03/08/1995	09:00	03/13/1995
116957	Roy Kizer - 1 (20")	03/08/1995	09:00	03/13/1995
116958	Roy Kizer - 1 (24")	03/08/1995	09:00	03/13/1995
116959	Roy Kizer - 6 (24")	03/08/1995	09:00	03/13/1995
116960	Roy Kizer - 9 (18")	03/08/1995	09:00	03/13/1995
116961	Roy Kizer - 11 (10-12")	03/08/1995	09:00	03/13/1995
116962	Roy Kizer - 11 (14")	03/08/1995	09:00	03/13/1995
116963	Roy Kizer - 11 (12")	03/08/1995	09:00	03/13/1995
116964	Roy Kizer - 16 (18")	03/08/1995	09:00	03/13/1995
116965	Roy Kizer - 18A (14"-16")	03/08/1995	09:00	03/13/1995
116966	Roy Kizer - 18A (21"-24")	03/08/1995	09:00	03/13/1995

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

  
Project Manager

NOTE: Results apply only to the samples analyzed. Reproduction of this report is permitted only in its entirety.

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116956

Page 2

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (17")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		6,900	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		81	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		33	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.7	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116957

Page 3

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (20")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		5,800	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		81	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		50	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		0.05	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116958

Page 4

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 1 (24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		4,300	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		76	%	E-160.3		03/14/1995	amr		188	0.01
Prep. Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		63	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.1	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.3
Mercury, CVAA		<0.03	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.03

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116959

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Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 6 (24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		18,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		88	%	E-160.3		03/14/1995	smr		188	0.01
Prep, Monaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		54	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		3.0	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		0.24	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116960

Page 6

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 9 (18")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		6,600	mg/kg	E-415.1		03/26/1995	kdn		300	
Total Solids-for dry wt calc		80	%	E-160.3		03/14/1995	amr		188	0.01
Prep. Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		55	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.5	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Sample Number: 116961

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Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (10-12")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep	Run	Reporting Limit
								Batch Number	Batch Number	
Total Organic Carbon, dry wt.		2,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		90	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		27	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116962

Page 8

Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (14")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		2,100	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids for dry wt calc		91	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		25	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.1	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.1
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116963

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Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 11 (12") 16 @ 12"

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		2,900	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		86	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		41	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.6	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116964

Page 10

Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 16 (18")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		4,300	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		86	%	E-160.3		03/14/1995	amr		188	0.01
Prp, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		53	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		2.2	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
 CITY OF AUSTIN  
 Walnut Creek WWTP  
 7113 E. MLK  
 Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
 Sample Number: 116965

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Project Description: 37795  
 Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 18A (14"-16")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		5,400	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		84	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Barium, ICP		68	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP		1.7	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

## ANALYTICAL RESULTS REPORT

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622  
Sample Number: 116966

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Project Description: 37795  
Job Description: ECSD - Misc.

Sample Description: Roy Kizer - 18A (21"-24")

Parameter	Flag	Result	Units	Analytical Method	Date Prepared	Date Analyzed	Analyst	Prep Batch Number	Run Batch Number	Reporting Limit
Total Organic Carbon, dry wt.		16,000	mg/kg	E-415.1		03/24/1995	kdn		300	
Total Solids-for dry wt calc		83	%	E-160.3		03/14/1995	amr		188	0.01
Prep, Nonaqueous, Metals, ICP		complete		S-3050		03/20/1995	ddc	1428		
Berium, ICP	BS	53	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	540	0.1
Boron, ICP	BS	2.5	mg/kg dw	S-6010	03/20/1995	03/23/1995	dpp	1428	235	1.2
Mercury, CVAA		<0.02	mg/kg dw	S-7471		03/21/1995	dpp		2189	0.02

BS - MS/MSD results unacceptable; bench spike(s) recovery was 85-115%.

04/17/95

21:40

512 928 3208

NET AUSTIN

014/018

## QUALITY CONTROL REPORT BLANKS

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Blank Result	Units	Reporting Limit	Date Analyzed	Prep Batch Number	Run Batch Number
Total Organic Carbon, dry wt.		<100	mg/kg	100	03/24/1995		300
Total Solids for dry wt calc		<1	mg/L	1	03/14/1995		188
Barium, ICP		<0.1	ug/g	0.1	03/23/1995	1428	540
Boron, ICP		<1.0	ug/g	1.0	03/23/1995	1428	235
Mercury, CVAA		<0.02	ug/g	0.02	03/21/1995		2189

All parameters should be less than the reporting limit.

**QUALITY CONTROL REPORT  
CONTINUING CALIBRATION VERIFICATION STANDARD**

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	CCVS True Concentration	Units	CCVS Concentration Found	CCVS Percent Recovery	Date Analyzed	Run Batch Number
Barium, ICP		0.500	mg/L	0.475	95.0	03/23/1995	540
Boron, ICP		0.500	mg/L	0.484	96.8	03/23/1995	235
Mercury, CVAA		0.0050	mg/L	0.0051	102.0	03/21/1995	2189

## QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Units	Sample Result	Spike Amount Added	Matrix Spike Result	MS Percent Recovery	Duplicate Spike		MSD		Date Analyzed	Prep Batch Number	Run Batch Number
							Amount	MSD	Percent Recovery	MS/MSD RPD			
Barium, ICP	BS	mg/kg d	53	58	96	76.4	58	96	73.6	1.1	03/23/1995	1428	540
Boron, ICP	BS	mg/kg d	2.5	58	28	43.2	58	26	40.7	6.0	03/23/1995	1428	235
Mercury, CVAA		mg/kg d	<0.02	0.50	0.63	102.0	0.62	0.64	104.0	1.9	03/21/1995		2189
Mercury, CVAA		mg/kg d	<0.02	0.50	0.63	104.0	0.60	0.64	106.0	1.9	03/21/1995		2189

NOTE: The Quality Control data in this report reflects the batch in which your sample was prepped and/or analyzed.  
The sample selected for QA may not necessarily be your sample.

BS - MS/MSD results unacceptable; bench spike(s) recovery was 85-115%.

04/17/95

21:40

512 928 3208

NET AUSTIN

017/018

### QUALITY CONTROL REPORT DUPLICATES

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	Units	Sample Result	Duplicate Sample Result	RPD	Date Analyzed	Prep Batch Number	Run Batch Number
Total Organic Carbon, dry wt.		mg/kg	6,900	7,000	1.4	03/24/1995		300
Total Solids-for dry wt calc		%	84	84	0.0	03/14/1995		188
Total Solids-for dry wt calc		%	83	83	0.0	03/14/1995		188

## QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

David Houston  
CITY OF AUSTIN  
Walnut Creek WWTP  
7113 E. MLK  
Austin, TX 78724

04/18/1995

NET Job Number: 95.00622

Project Description: 37795  
Job Description: ECSD - Misc.

Parameter	Flag	LCS	LCS	LCS	Date Analyzed	Prep	Run
		True Concentration	Concentration Found	Percent Recovery		Batch Number	Batch Number
Total Organic Carbon, dry wt.		2,000	1,950	97.5	03/24/1995		300
Total Organic Carbon, dry wt.		1,000	1,000	100.0	03/24/1995		300
Total Solids-for dry wt calc		100	95	95.0	03/14/1995		188
Barium, ICP		0.500	0.485	97.0	03/23/1995	1428	540
Boron, ICP		0.500	0.439	87.8	03/23/1995	1428	235
Mercury, CVAA		0.50	0.51	102.0	03/21/1995		2189

LCS - Laboratory Control Standard

For samples with insufficient sample volume, an LCS/LCS duplicate is reported instead of an MS/MSD.

## Appendix 1

Table 1.

## Constituents of Concern and Their Maximum Leachable Concentrations.

Values are based on information contained in Federal Registers Vol. 55 / Friday, July 27, 1990; Vol. 56 / June 7, 1991; and Integrated Risk Information Systems, Environmental Protection Agency, and 40 CFR 264 Appendix 9

Compound	CAS No.	Concentration (mg/l)
Acetone	67-64-1	400
Acetonitrile	75-05-	20
Acetophenone	98-86-2	400
Acrylamide	79-06-1	0.08
Acrylonitrile	107-13-1	0.6
Aniline	62-53-3	60
Antimony	7440-36-0	1
Arsenic	7440-38-2	1.8
Barium	7440-39-3	100.0
Benzene	71-43-2	0.50
Benzidine	92-87-5	0.002
Beryllium	7440-41-7	0.08
Bis (2-chloroethyl) ether	111-44-4	0.3
Bis (2-ethylhexyl) phthalate	117-81-7	30
Bromodichloromethane	75-27-4	0.3
Bromomethane	74-83-9	5
Butylbenzyl phthalate	85-68-7	700
Cadmium	7440-43-9	0.5
Carbon disulfide	75-15-0	400
Carbon tetrachloride	56-23-5	0.50
Chlordane	57-74-9	0.03
Chlorobenzene	108-90-7	70
Chloroform	67-66-3	6.0
2-Chlorophenol	95-57-8	20
Chromium	7440-47-3	5.0
m-Cresol	108-39-4	200.0*
o-Cresol	95-48-7	200.0*
p-Cresol	106-44-5	200.0*
Cyanide	57-12-5	70
DDD	72-54-8	1
DDE	72-55-9	1
DDT	50-29-3	1

Compound	CAS No.	Concentration (mg/l)
Dibutyl phthalate	84-74-2	400
1,4-Dichlorobenzene	106-46-7	7.5
3,3-Dichlorobenzidine	91-94-1	0.8
1,2-Dichloroethane	107-06-2	0.50
Dichlorodifluoromethane	75-71-8	700
1,1-Dichloroethylene	75-35-4	0.6
1,3-Dichloropropene	542-75-6	1
2,4-Dichlorophenol	120-83-2	10
2,4-Dichlorophenoxy- acetic acid (2,4-D)	94-75-7	10.0
Dieldrin	60-57-1	--
Diethyl phthalate	84-66-2	0.02
Dimethoate	60-51-5	3000
m-Dinitrobenzene	99-65-0	70
2,4-Dinitrophenol	51-28-5	0.4
2,4-Dinitrotoluene (and 2,6-, mixture)	602-01-7	7
1,4-Dioxane	123-91-1	0.13
Dioxins (Poly chlorinated dibenzo-p-dioxins)	--	--
2,3,7,8-TCDD	1746-01-6	30
1,2,3,7,8-PeCDD	40321-76-4	0.005
1,2,3,4,7,8-HxCDD	57653-85-7	0.010
1,2,3,6,7,8-HxCDD	34465-46-8	0.050
1,2,3,7,8,9-HxCDD		0.050
Diphenylamine	122-39-4	90
1,2-Diphenylhydrazine	122-66-7	0.4
Disulfoton	298-04-4	0.1
Endosulfan	959-98-8	0.2
Endrin	72-20-8	0.02
Epichlorohydrin	106-89-8	40
Ethylbenzene	100-41-4	400
Ethylene dibromide	106-93-4	0.004
Furans (Polychlorinated dibenzo furans)		
2,3,7,8-TCDF	51207-31-9	0.050
1,2,3,7,8-PeCDF		0.100
2,3,4,7,8-PeCDF		0.010
1,2,3,4,7,8-HxCDF		0.050
1,2,3,6,7,8-HxCDF		0.050
1,2,3,7,8,9-HxCDF		0.050
Heptachlor (and its hydroxide)	76-44-8	0.008
Heptachlor epoxide	1024-57-3	0.04
hexachlorobenzene	118-74-1	0.13
Hexachloro-1,3-butadiene	87-68-3	0.4

Compound	CAS No.	Concentration (mg/l)
Hexachlorocyclopentadiene	77-47-4	20
Hexachloroethane	67-72-1	3.0
Hexachlorophene	70-30-4	1
Isobutyl alcohol	78-83-1	1000
Isophorone	78-59-1	90
Lead	7439-92-1	1.5
Lindane	58-89-9	0.3
Mercury	7439-97-6	0.2
Methacrylonitrile	126-98-7	0.4
Methomyl	16752-77-5	90
Methoxychlor	72-43-5	10.0
Methyl ethyl ketone	78-93-3	200.0
Methyl isobutyl ketone	108-10-1	200
Methylene chloride	75-09-2	50
Methyl parathion	298-00-0	0.9
Nickel	7440-02-0	70
Nitrobenzene	98-95-3	2.0
N-Nitroso-di-n-butylamine	924-16-3	0.06
N-Nitrosodiphenylamine	86-30-6	70
N-Nitrosomethylethylamine	10595-95-6	0.02
N-Nitroso-n-propylamine	621-64-7	0.05
N-Nitrosopyrrolidine	930-55-2	0.2
p-Phenylene diamine	106-50-3	20
Parathion	56-38-2	20
Pentachlorobenzene	608-93-5	3
Pentachloronitrobenzene	82-68-8	10
Pentachlorophenol	87-86-5	100.0
Phenol	108-95-2	2000
Pronamide	23950-58-5	300
Pyridine	110-86-1	4
Selenium	7782-49-2	1.0
Silver	7440-22-4	5.0
Styrene	100-42-5	700
1,1,1,2-Tetrachloroethane	630-20-6	10
1,1,2,2,-Tetrachloroethane	79-34-5	2
Tetrachloroethylene	127-18-4	0.7
2,3,4,6-Tetrachlorophenol	58-90-2	100
Thiosemicarbazide	79-19-6	20
Toluene	108-88-3	1000
Toxaphene	8001-35-2	0.3
trans-1,3-Dichloropropene	542-75-6	1
Tribromomethane (Bromoform)	75-25-2	70
1,2,4-Trichlorobenzene	120-82-1	70

§§335.501-335.515

Compound	CAS No.	Concentration (mg/l)
1,1,1-Trichloroethane	71-55-6	300
Trichloroethylene	79-01-6	0.5
1,1,2-Trichloroethane	79-00-5	6
Trichlorofluoromethane	75-69-4	1000
2,4,5-Trichlorophenoxy- propionic acid (2,4,5 TP or Silvex)	93-72-1 --	1.0 --
1,2,3-Trichloropropane	96-18-4	20
2,4,5-Trichlorophenol	95-95-4	400.0
2,4,6-Trichlorophenol	88-06-2	2
Vanadium Pentoxide	1314-62-1	30
Vinyl Chloride	75-01-4	0.2
Xylenes (all isomers)	1330-82-1	7000

\* If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol concentration is used. The Maximum Concentration for total cresol is 200.0 mg/l.



## MEMORANDUM

**TO:** Gene Faulk  
Golf and Tennis Division  
Parks and Recreation Department (PARC)

**FROM:** Edward D. Peacock, P.E.  
Water Resources Evaluation  
ERM-DUD

**DATE:** January 31, 1997


**SUBJECT:** Seepage Monitoring and Evaluation  
Roy Kizer Golf Course Pond "B-1"

The seepage rate from the above referenced pond was calculated from a short term water balance using level recording done in January 1997. The effective hydraulic conductivity of the liner was also calculated using the level data. The conclusions of the short term balance are as follows:

1. The pond liner is estimated to have an effective hydraulic conductivity of  $1.35 \times 10^{-5}$  cm/sec. From my notes on the project, the specification for the liner is two orders of magnitude lower; therefore, the pond liner does not appear to be operating to specification.
2. From the calculation of water losses from the pond, it appears that the pond is leaking at a rate greater than twice the standard deviation of daily evaporative losses for the period of record historical data; therefore, the criteria set up in September 1995 for determining the integrity of the liner have been exceeded.

Attached is the calculations spreadsheet for the water balance. The liner was calculated to have an effective seepage rate of  $2.43 \times 10^{-5}$  cm/sec from the test in September 1996. Therefore, the bentonite remediation of the Pond "B-1" bottom does appear to have improved conditions by about 44%. However, the latest remediation did not appear to have worked sufficiently for the pond to hold water. This can also be verified by level measurements taken by the contractor and Nick Smitham during this period. In addition, the visual evidence that the ponds are leaking is still rather obvious from the barrel we installed in the pond to compare evaporative and leakage losses. At the beginning of the last period, the barrel was sunk in Pond "B-1" with about 4" of the barrel above the waterline. At the end of three weeks, the barrel (still full of water) was about 1.5' above the waterline. The data from the bubbler meters was obviously conservative.

If you have any questions concerning this information, please call me at 499-2224 or Scott Hiers at 499-1916.

  
Edward D. Peacock, P.E.  
Engineer III

cc: Nick Smitham, Superintendent, Roy Kizer Golf Course  
Nancy McClintock, Manager, ERM-DUD  
Scott Hiers, Environmental Specialist, ERM-DUD

Table 1  
Roy Kizer Pond "B-1" Water Balance

Date	Barrel Elevation (ft)	Relative Barrel Elevation (ft)	Pond Elevation (ft)	Relative Pond Elevation (ft)	Calculated Barrel Losses (inches)	Calculated Pond Losses (inches)	Calculated Leakage Losses (inches)	Calculated Leakage Losses (cm)	Calculated Hydraulic Conductivity (cm/sec)	Pan Evaporation Rate (inches)	Gross Lake Evaporation Rate (inches)	Precipitation (inches)	Theoretical Losses due to Evaporation - Precipitation (inches)	Calculated Losses in Excess of Theoretical Losses (inches)	Average of Historical Pan Evaporation	Standard Deviation Pan Evaporation	Standard Deviation Lake Evaporation	Standard Deviation Pond Losses	Days >2" Standard Deviation
01/03/97	2.669	0.000	2.761	0.000	0.000	0.000	0.000	0.000	0.00E+00	0.15	0.13	0.00	0.08	-0.08	0.090	0.074	0.148	0.104	NA
01/04/97	2.663	-0.065	2.703	-0.058	0.065	0.626	1.590	0.626	1.84E-05	0.19	0.08	0.00	0.04	0.65	0.107	0.076	0.152	0.107	1
01/05/97	2.656	-0.007	2.635	-0.068	0.082	0.737	1.871	0.737	2.17E-05	0.19	0.04	0.00	0.04	0.78	0.104	0.090	0.181	0.126	1
01/06/97	2.654	-0.002	2.567	-0.068	0.022	0.819	2.024	0.797	2.34E-05	0.11	0.04	0.08	0.02	0.80	0.106	0.099	0.198	0.138	1
01/07/97	2.653	-0.002	2.498	-0.066	0.022	0.819	2.025	0.797	2.34E-05	0.06	0.10	0.43	-0.31	1.13	0.098	0.081	0.162	0.113	1
01/08/97	2.651	-0.002	2.430	-0.068	0.022	0.819	2.025	0.797	2.34E-05	0.05	0.12	0.31	-0.23	1.05	0.117	0.094	0.188	0.132	1
01/09/97	2.651	0.000	2.363	-0.068	0.004	0.815	2.061	0.811	2.39E-05	0.14	0.08	0.01	0.05	0.77	0.108	0.098	0.196	0.137	1
01/10/97	2.648	-0.003	2.325	-0.038	0.036	0.456	1.068	0.420	1.24E-05	0.17	0.06	0.00	0.04	0.41	0.113	0.110	0.221	0.154	1
01/11/97	2.632	-0.016	2.295	-0.029	0.193	0.351	0.403	0.159	4.68E-06	0.11	0.04	0.00	0.04	0.31	0.100	0.081	0.162	0.113	1
01/12/97	2.619	-0.012	2.258	-0.037	0.146	0.444	0.298	0.758	8.77E-06	0.06	0.04	0.00	0.11	0.33	0.111	0.096	0.193	0.135	1
01/13/97	2.612	-0.008	2.221	-0.037	0.093	0.351	0.892	0.314	1.03E-05	0.06	0.11	0.00	0.13	0.32	0.108	0.108	0.217	0.152	1
01/14/97	2.601	-0.011	2.184	-0.037	0.131	0.444	0.797	0.314	9.22E-06	0.06	0.13	0.01	0.10	0.34	0.109	0.098	0.195	0.137	1
01/15/97	2.593	-0.007	2.147	-0.037	0.090	0.444	0.901	0.355	1.04E-05	0.16	0.11	0.06	0.00	0.45	0.114	0.089	0.177	0.124	1
01/16/97	2.583	0.000	2.121	-0.026	0.003	0.315	0.791	0.312	9.16E-06	0.18	0.06	0.01	0.05	0.26	0.121	0.113	0.225	0.158	1
01/17/97	2.584	-0.009	2.087	-0.034	0.112	0.408	0.750	0.295	8.68E-06	0.16	0.06	0.00	0.08	0.33	0.108	0.078	0.156	0.109	1
01/18/97	2.579	-0.004	2.048	-0.038	0.050	0.463	1.048	0.413	1.21E-05	0.08	0.08	0.00	0.00	0.38	0.096	0.096	0.191	0.134	1
01/19/97	2.574	-0.006	2.009	-0.040	0.069	0.478	1.040	0.410	1.20E-05	0.09	0.00	0.00	0.00	0.48	0.096	0.068	0.137	0.096	1
1/20/96	2.5623167	-0.007	1.969	-0.040	0.088	0.392	0.996	0.392	1.15E-05	0.08	0.00	0.01	-0.01	0.49	0.101	0.077	0.153	0.107	1
							Average =		1.35E-05	0.118	0.06	0.05	0.02	0.51	0.11	0.09	0.18	0.13	17

Percent Days Greater than 2' STD = 100%