QUARTERLY REPORT

ST. CHARLES COUNTY WELL FIELD

MONITORING PROJECT

GRANT NO. DE-FG05-89OR21864

Prepared by: Stanley Remington
April, May and June, 1996

MONTHLY REPORT

APRIL 1996

BY

Stanley M. Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

The results of the yearly analyses of all the pumping wells and observation wells taken by the Department of Energy have been received. I took only two samples, one from RMW-2 and one from PW-9. These latter results are appended. These samples were taken on March 21, 1996. A slightly elevated reading of 36 +/- was noted for PW-9. However a total uranium count of less than 0.005 was obtained. This would indicate that an error or outside contamination occurred. This is not uncommon for gross beta readings. All of the readings or results were reported in picocuries per liter. No other abnormal results were noted. The yearly samples measure several chemical parameters normally not measured. So the conclusion would be, that **NO DANGER EXISTS FOR IMMEDIATE CONTAMINATION** of the St. Charles County well fields and none is anticipated. RMW-2 is located halfway between the quarry and well number PW-9 and no contamination has yet reached this observation well for the past 50 years since hazardous waste products were dumped into the quarry. In fact no hazardous substances have ever been detected south of the Femme Osage Slough.

The results of the sampling of the treated water from the raffinate pits were received and are appended. All of the results showed that the treatment procedures are

working, since all of the chemicals analyzed for were well below the NPDES limits.

Well number PW-3 was sampled by me on April 26, 1996. I sampled this well because of an abnormally high reading of 130 pCi/l was obtained on September 28, 1995. (See explanation below)

Appended is the Quarterly Site and Quarry Water Treatment Plant Effluent Data Summary - First Quarter 1996. This was received from the Department of Energy.

II. CHEMICAL ANALYSIS OF HIGH GROSS BETA READINGS FOR PW-3

Some high gross beta readings were noted in the Fourth Quarterly Environmental Data Summary of 1995 by the DOE. A letter of explanation was sent to Mr. Joe Nichols who in turn sent it to me for an analysis. The letter is appended. A reading of 130 pCi/l for well number PW-3 (PW03 in the DOE letter) was noted from a sample taken on September 28, 1995. A subsequent sample was taken during December 1995 which showed a reading of only 5.4 pCi/l, the normal range for this well. In analyzing the treatment for the raw water coming in from all of the wells at the treatment plant on the same day, that is September 28,

1995, no abnormal reading of the gross beta was noted. The conclusion is that the sample itself was contaminated for some reason. Since the combination of all the well waters was normal and a subsequent reading of 5.4 pCi/l was noted three months later, and examining the history of the gross beta readings for PW-3, it can be concluded that no contamination of the well itself has occurred. This is also true of the two GW wells mentioned in the letter. As mentioned above, no real contamination has ever been detected south of the Femme Osage Slough. There are some good geological and chemical reasons for this occurrence. I have discussed this in past reports, and the DOE has made the same conclusions. Therefore I am not concerned with the occasional high readings detected by the DOE and me. They have invariably been errors or contaminated sample bottles causing the abnormal readings.

IV. HYDROGRAPHS

Appended are hydrographs of the pumping wells of the St. Charles County well field. As noted a sharp rise in ground water levels occurred last spring and early summer when the well field was flooded. Since then the water table has resumed its normal range.

V. FUTURE PLANS

I will sample well number PW-2 during May 1996 and then well number PW-4 the following month to check on any possible high gross beta readings.

VI. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales Report for the month of March 1996.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

April 16, 1996

Stanley M. Remington
956 Broadmoor Lane
St. Charles, MO 63301

RE: ATAS #15356.01
Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on April 9, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr
Project Manager

Enclosures

JAC/dms

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1535601RA(247)

DATE : 04-16-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #15356
DATE SUBMITTED: 04-09-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-ES24-040996-C	15356.01	GROSS ALPHA	5 +/- 5*
NP-ES24-040996-C	15356.01	GROSS BETA	16 +/- 12*
NP-ES24-040996-C	15356.01	TOTAL URANIUM (mg/L)	<0.005

* VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.96σ.
pCi/L= PICOCURIES PER LITER
mg/L = PARTS PER MILLION(PPM)

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1535601X(247)
DATE : 04-16-96

SAMPLE MATRIX : WATER
ATAS # : 15356.01
DATE SUBMITTED: 04-09-96
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES24-040996-C

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
NITRATE-SPEC.	1.05	mg/L	10.3	04-10-96	SM 418B
			METALS		
ARSENIC	5.0	ug/L	ND	04-12-96	SW 6010
CHROMIUM	1.0	ug/L	ND	04-12-96	SW 6010
LEAD	3.0	ug/L	ND	04-12-96	SW 6010
MANGANESE	1.0	ug/L	2.1	04-12-96	SW 6010
MERCURY	0.1	ug/L	ND	04-12-96	SW 7470
SELENIUM	5.0	ug/L	ND	04-12-96	SW 6010

ug/L = PARTS PER BILLION(PPB)
ND = NOT DETECTED ABOVE REPORTING LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1535601X(247)

DATE : 04-16-96

QA/QC

DESCRIPTION		PARAMETER	RESULTS	
METHOD BLANK	04-12-96	ARSENIC	<5.0	ug/L
METHOD BLANK	04-12-96	CHROMIUM	<1.0	ug/L
METHOD BLANK	04-12-96	LEAD	<3.0	ug/L
METHOD BLANK	04-12-96	MANGANESE	<1.0	ug/L
METHOD BLANK	04-12-96	MERCURY	<0.1	ug/L
METHOD BLANK	04-12-96	SELENIUM	<5.0	ug/L
METHOD BLANK	04-10-96	NITRATE	<1.0	mg/L
CONTROL SPIKE	04-12-96	ARSENIC	107 %	RECOVERY
CONTROL SPIKE	04-12-96	CHROMIUM	98 %	RECOVERY
CONTROL SPIKE	04-12-96	LEAD	100 %	RECOVERY
CONTROL SPIKE	04-12-96	MANGANESE	99 %	RECOVERY
CONTROL SPIKE	04-12-96	MERCURY	93 %	RECOVERY
CONTROL SPIKE	04-12-96	SELENIUM	104 %	RECOVERY
CONTROL SPIKE	04-10-96	NITRATE	102 %	RECOVERY

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1535601EX(247)

DATE : 04-16-96

SAMPLE MATRIX : WATER
ATAS # : 15356.01
DATE SUBMITTED: 04-09-96
DATE EXTRACTED: 04-10-96
DATE ANALYZED : 04-10-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES24-040996-C

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	REPORTING LIMIT	RESULTS
2,6 DNT	0.0105	ND
2,4 DNT	0.0211	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	62 %
TETRACHLORO-M-XYLENE(30-150)	79 %

ND= NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1535601EX(247)
DATE : 04-16-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 04-09-96
DATE EXTRACTED: 04-10-96
DATE ANALYZED : 04-10-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	REPORTING LIMIT	RESULTS
2,6 DNT	0.010	ND
2,4 DNT	0.020	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	65 %
TETRACHLORO-M-XYLENE(30-150)	75 %

ND= NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: QC0416EX(247)

DATE : 04-16-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 04-09-96
DATE EXTRACTED: 04-10-96
DATE ANALYZED : 04-10-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD
2,6 DNT	82 %	80 %	2.5 %
2,4 DNT	104 %	108 %	3.8 %

ENVIRONMENTAL SAMPLE CHAIN-OF-CUSTODY / AUTHORIZATION FORM

WELDON SPRING SITE REMEDIAL ACTION PROJECT (WSSRAP)
7295 HIGHWAY 94 SOUTH, ST. CHARLES, MO 63304
TELEPHONE (314) 441-8086 TELEX (314) 447-0803

Validation Documentation ☐

ES&H 4.1.2.1, Rev.6, Effective 11/92

WSSRAP Contact:
Phone Number:
Request Number:

Lab/P.O. #:
Dept/Cost Code:
Requisitioner: St. Charles
Turnaround Time: ☐ Standard ☐ Accelerated ☐ Priority ☐ Urgent ☐ Emergency

#	Sample ID	QC	Date Sampled	Matrix	Cont.	Preserv.	Parameters	4-9-96 AL-BA-IK2	Arch. (Y/N)
	NP-E524-040996-C		4/9/96	Water	1-1 liter	HNO3	As,Cr,Hg,Mn,Se,Pb	15356.01	N
					1-1 liter glass	Ice	2,4-DNT		
					1-1 liter	H2SO4	NO3		
					1-4 liter	HNO3	U, Gross alpha, Gross beta		

Tom Welton
Sampler's Signature

Checked By

Technical Reviewer

Relinquished By	Received By	Date	Time	Reason for Transfer	Seal Intact? (Y/N)	Cooler Temp
Tom Welton		4/9/96	1300			
		4/9/96	1400			

AUTHORIZATION

K-F Procurement Date

ES&H Date

Site Shipping Officer Date

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

April 9, 1996

Stanley M. Remington
956 Broadmoor Lane
St. Charles, MO 63301

RE: ATAS #15187.01-#15187.02
Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on March 21, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr
Project Manager

Enclosures

JAC/dms

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 15187015(247)
DATE : 04-09-96

SAMPLE MATRIX: WATER
ATAS # : 15187.01
PROJECT : WELDON SPRING
SAMPLE ID : RMW-2

DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8270

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

SEMIVOLATILES	RL	RESULTS (ug/L)	SEMIVOLATILE	RL	RESULTS (ug/L)
PHENOL	10	ND	3-NITROANILINE	50	ND
BIS(2-CHLOROETHYL)ETHER	10	ND	ACENAPHTHENE	10	ND
2-CHLOROPHENOL	10	ND	2,4-DINITROPHENOL	50	ND
1,3-DICHLOROBENZENE	10	ND	4-NITROPHENOL	50	ND
1,4-DICHLOROBENZENE	10	ND	2,4-DINITROTOLUENE	10	ND
BENZYL ALCOHOL	10	ND	DIBENZOFURAN	10	ND
1,2-DICHLOROBENZENE	10	ND	DIETHYLPHTHALATE	10	ND
2-METHYLPHENOL	10	ND	4-CHLOROPHENYL-PHENYLETHER	10	ND
BIS(2-CHLOROISOPROPYL)ETHER	10	ND	FLUORENE	10	ND
4-METHYLPHENOL	10	ND	4-NITROANILINE	50	ND
N-NITROSO-DI-n-PROPYLAMINE	10	ND	4,6-DINITRO-2-METHYLPHENOL	50	ND
HEXACHLOROETHANE	10	ND	N-NITROSODIPHENYLAMINE	10	ND
NITROBENZENE	10	ND	4-BROMOPHENYL-PHENYLETHER	10	ND
OPHORONE	10	ND	HEXACHLOROBENZENE	10	ND
4-DIMETHYLPHENOL	10	ND	PENTACHLOROPHENOL	50	ND
2-NITROPHENOL	10	ND	PHENANTHRENE	10	ND
BENZOIC ACID	50	ND	ANTHRACENE	10	ND
BIS(2-CHLOROETHOXY)METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
2,4-DICHLOROPHENOL	10	ND	FLUORANTHENE	10	ND
1,2,4-TRICHLOROBENZENE	10	ND	PYRENE	10	ND
NAPHTHALENE	10	ND	BUTYLBENZYLPHTHALATE	10	ND
4-CHLOROANILINE	10	ND	BIS(2-ETHYLHEXYL)PHTHALATE	10	ND
HEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
4-CHLORO-3-METHYLPHENOL	10	ND	BENZO(A)ANTHRACENE	10	ND
2-METHYLNAPHTHALENE	10	ND	CHRYSENE	10	ND
HEXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	ND
2,4,6-TRICHLOROPHENOL	10	ND	BENZO(b)FLUORANTHENE	10	ND
2,4,5-TRICHLOROPHENOL	50	ND	BENZO(k)FLUORANTHENE	10	ND
2-CHLORONAPHTHALENE	10	ND	BENZO(a)PYRENE	10	ND
2-NITROANILINE	50	ND	DIBENZO(A,H)ANTHRACENE	10	ND
DIMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CD)PYRENE	10	ND
2,6-DINITROTOLUENE	10	ND	BENZO(G,H,I)PERYLENE	10	ND
ACENAPHTHYLENE	10	ND			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5(35-114)	58 %	2-FLUOROBIPHENYL(43-116)	62 %
TERPHENYL-d14(33-141)	93 %	PHENOL-d5(10-94)	18 %
2-FLUOROPHENOL(21-100)	29 %	2,4,6-TRIBROMOPHENOL(10-123)	70 %

ND = NOT DETECTED ABOVE REPORTING LIMIT
RL = REPORTING LIMIT
B = ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 · FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 15187015(247)

DATE : 04-09-96

SAMPLE MATRIX: WATER
ATAS # : 15187.02
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8270

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

SEMIVOLATILES	RL	RESULTS (ug/L)	SEMIVOLATILE	RL	RESULTS (ug/L)
PHENOL	10	ND	3-NITROANILINE	50	ND
BIS(2-CHLOROETHYL)ETHER	10	ND	ACENAPHTHENE	10	ND
2-CHLOROPHENOL	10	ND	2,4-DINITROPHENOL	50	ND
1,3-DICHLOROBENZENE	10	ND	4-NITROPHENOL	50	ND
1,4-DICHLOROBENZENE	10	ND	2,4-DINITROTOLUENE	10	ND
BENZYL ALCOHOL	10	ND	DIBENZOFURAN	10	ND
1,2-DICHLOROBENZENE	10	ND	DIETHYLPHTHALATE	10	ND
2-METHYLPHENOL	10	ND	4-CHLOROPHENYL-PHENYLETHER	10	ND
BIS(2-CHLOROISOPROPYL)ETHER	10	ND	FLUORENE	10	ND
4-METHYLPHENOL	10	ND	4-NITROANILINE	50	ND
N-NITROSO-DI-n-PROPYLAMINE	10	ND	4,6-DINITRO-2-METHYLPHENOL	50	ND
HEXACHLOROETHANE	10	ND	N-NITROSODIPHENYLAMINE	10	ND
NITROBENZENE	10	ND	4-BROMOPHENYL-PHENYLETHER	10	ND
ISOPHORONE	10	ND	HEXACHLOROBENZENE	10	ND
2,4-DIMETHYLPHENOL	10	ND	PENTACHLOROPHENOL	50	ND
2-NITROPHENOL	10	ND	PHENANTHRENE	10	ND
BENZOIC ACID	50	ND	ANTHRACENE	10	ND
BIS(2-CHLOROETHOXY)METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
2,4-DICHLOROPHENOL	10	ND	FLUORANTHENE	10	ND
1,2,4-TRICHLOROBENZENE	10	ND	PYRENE	10	ND
NAPHTHALENE	10	ND	BUTYLBENZYLPHTHALATE	10	ND
4-CHLOROANILINE	10	ND	BIS(2-ETHYLHEXYL)PHTHALATE	10	ND
HEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
4-CHLORO-3-METHYLPHENOL	10	ND	BENZO(A)ANTHRACENE	10	ND
2-METHYLNAPHTHALENE	10	ND	CHRYSENE	10	ND
HEXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	ND
2,4,6-TRICHLOROPHENOL	10	ND	BENZO(b)FLUORANTHENE	10	ND
2,4,5-TRICHLOROPHENOL	50	ND	BENZO(k)FLUORANTHENE	10	ND
2-CHLORONAPHTHALENE	10	ND	BENZO(a)PYRENE	10	ND
2-NITROANILINE	50	ND	DIBENZO(A,H)ANTHRACENE	10	ND
DIMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CD)PYRENE	10	ND
2,6-DINITROTOLUENE	10	ND	BENZO(G,H,I)PERYLENE	10	ND
ACENAPHTHYLENE	10	ND			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5(35-114)	63 %	2-FLUOROBIPHENYL(43-116)	67 %
TERPHENYL-d14(33-141)	78 %	PHENOL-d5(10-94)	22 %
2-FLUOROPHENOL(21-100)	33 %	2,4,6-TRIBROMOPHENOL(10-123)	66 %

ND = NOT DETECTED ABOVE REPORTING LIMIT
L = REPORTING LIMIT
= ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 · FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1518701S(247)

DATE : 04-09-96

SAMPLE MATRIX: WATER
ATAS # : METHOD BLANK
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8270

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

SEMIVOLATILES	RL	RESULTS (ug/L)	SEMIVOLATILE	RL	RESULTS (ug/L)
PHENOL	10	ND	3-NITROANILINE	50	ND
BIS(2-CHLOROETHYL)ETHER	10	ND	ACENAPHTHENE	10	ND
2-CHLOROPHENOL	10	ND	2,4-DINITROPHENOL	50	ND
1,3-DICHLOROBENZENE	10	ND	4-NITROPHENOL	50	ND
1,4-DICHLOROBENZENE	10	ND	2,4-DINITROTOLUENE	10	ND
BENZYL ALCOHOL	10	ND	DIBENZOFURAN	10	ND
1,2-DICHLOROBENZENE	10	ND	DIETHYLPHTHALATE	10	ND
2-METHYLPHENOL	10	ND	4-CHLOROPHENYL-PHENYLETHER	10	ND
BIS(2-CHLOROISOPROPYL)ETHER	10	ND	FLUORENE	10	ND
4-METHYLPHENOL	10	ND	4-NITROANILINE	50	ND
N-NITROSO-DI-n-PROPYLAMINE	10	ND	4,6-DINITRO-2-METHYLPHENOL	50	ND
HEXACHLOROETHANE	10	ND	N-NITROSODIPHENYLAMINE	10	ND
NITROBENZENE	10	ND	4-BROMOPHENYL-PHENYLETHER	10	ND
ISOPHORONE	10	ND	HEXACHLOROBENZENE	10	ND
2,4-DIMETHYLPHENOL	10	ND	PENTACHLOROPHENOL	50	ND
2-NITROPHENOL	10	ND	PHENANTHRENE	10	ND
BENZOIC ACID	50	ND	ANTHRACENE	10	ND
BIS(2-CHLOROETHOXY)METHANE	10	ND	DI-N-BUTYLPHTHALATE	10	ND
2,4-DICHLOROPHENOL	10	ND	FLUORANTHENE	10	ND
1,2,4-TRICHLOROBENZENE	10	ND	PYRENE	10	ND
NAPHTHALENE	10	ND	BUTYLBENZYLPHTHALATE	10	ND
4-CHLOROANILINE	10	ND	BIS(2-ETHYLHEXYL)PHTHALATE	10	ND
HEXACHLOROBUTADIENE	10	ND	3,3-'DICHLOROBENZIDINE	20	ND
4-CHLORO-3-METHYLPHENOL	10	ND	BENZO(A)ANTHRACENE	10	ND
2-METHYLNAPHTHALENE	10	ND	CHRYSENE	10	ND
HEXACHLOROCYCLOPENTADIENE	10	ND	DI-N-OCTYLPHTHALATE	10	ND
2,4,6-TRICHLOROPHENOL	10	ND	BENZO(b)FLUORANTHENE	10	ND
2,4,5-TRICHLOROPHENOL	50	ND	BENZO(k)FLUORANTHENE	10	ND
2-CHLORONAPHTHALENE	10	ND	BENZO(a)PYRENE	10	ND
2-NITROANILINE	50	ND	DIBENZO(A,H)ANTHRACENE	10	ND
DIMETHYLPHTHALATE	10	ND	INDENO(1,2,3-CD)PYRENE	10	ND
2,6-DINITROTOLUENE	10	ND	BENZO(G,H,I)PERYLENE	10	ND
ACENAPHTHYLENE	10	ND			

QA/QC SURROGATE RECOVERIES

NITROBENZENE-d5(35-114)	62 %	2-FLUOROBIPHENYL(43-116)	61 %
TERPHENYL-d14(33-141)	106 %	PHENOL-d5(10-94)	21 %
2-FLUOROPHENOL(21-100)	28 %	2,4,6-TRIBROMOPHENOL(10-123)	69 %

ND = NOT DETECTED ABOVE REPORTING LIMIT
RL = REPORTING LIMIT
= ANALYTE DETECTED IN METHOD BLANK, POSSIBLY BELOW THE REPORTING LIMIT.
* = SURROGATE RECOVERY OUTSIDE OF QC LIMITS

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

LABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : WATER
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8270, EPA METHODOLOGY

REPORT DATE: 04-09-96

LABORATORY CONTROL SAMPLE/LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

COMPOUND	LCS % REC.	LCSD % REC.	RPD	QC RPD	ADVISORY LIMITS
PHENOL	22	26	17	42	12-89
2-CHLOROPHENOL	41	56	31	40	27-123
1,4-DICHLOROBENZENE	44	48	9	28	36-97
N-NITROSO-DI-n-PROPYLAMINE	46	76	49*	38	41-116
1,2,4-TRICHLOROBENZENE	48	48	0	28	39-98
4-CHLORO-3-METHYLPHENOL	36	61	52*	42	23-97
ACENAPHTHENE	64	62	3	31	46-118
4-NITROPHENOL	14	27	63*	50	10-80
2,4-DINITROTOLUENE	50	76	41*	38	24-96
PENTACHLOROPHENOL	21	38	58*	50	9-103
PYRENE	86	80	7	31	26-127

* = VALUES OUTSIDE OF ADVISORY LIMITS

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #15187
DATE SUBMITTED: 03-21-96
PROJECT : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	UNITS	RADIONUCLIDE	RESULT
RMW-2	15187.01	pCi/L	GROSS ALPHA	11 +/- 8*
RMW-2	15187.01	pCi/L	GROSS BETA	13 +/-10*
RMW-2	15187.01	mg/L	TOTAL URANIUM	0.009
PW-9	15187.02	pCi/L	GROSS ALPHA	3 +/- 3*
PW-9	15187.02	pCi/L	GROSS BETA	36 +/-20*
PW-9	15187.02	mg/L	TOTAL URANIUM	<0.005

* VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.96σ.
pCi/L= PICOCURIES PER LITER
mg/L = PARTS PER MILLION(PPM)

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1518701P(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.01
DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-26-96
METHOD REF. : SW846-8080, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : RMW-2

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'S	REPORTING LIMIT	RESULTS
ALPHA-BHC	0.003	ND
GAMMA-BHC(LINDANE)	0.004	ND
BETA-BHC	0.006	ND
DELTA-BHC	0.009	ND
HEPTACHLOR	0.003	ND
ALDRIN	0.004	ND
HEPTACHLOR EPOXIDE	0.083	ND
ENDOSULFAN I	0.014	ND
4,4-DDE	0.004	ND
DIELDRIN	0.002	ND
ENDRIN	0.006	ND
4,4-DDD	0.011	ND
ENDOSULFAN II	0.004	ND
4,4-DDT	0.012	ND
ENDRIN ALDEHYDE	0.023	ND
ENDOSULFAN SULFATE	0.066	ND
METHOXYCHLOR	0.180	ND
CHLORDANE (TECHNICAL)	0.014	ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ND
AROCLOR-1221	1.00	ND
AROCLOR-1232	1.00	ND
AROCLOR-1242	1.00	ND
AROCLOR-1248	1.00	ND
AROCLOR-1254	1.00	ND
AROCLOR-1260	1.00	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	32 %
TETRACHLORO-M-XYLENE(30-150)	70 %

= NOT DETECTED ABOVE REPORTING LIMIT
= ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1518701P(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.02
DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-26-96
METHOD REF. : SW846-8080, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'S	REPORTING LIMIT	RESULTS
ALPHA-BHC	0.003	ND
GAMMA-BHC(LINDANE)	0.004	ND
BETA-BHC	0.006	ND
DELTA-BHC	0.009	ND
HEPTACHLOR	0.003	ND
ALDRIN	0.004	ND
HEPTACHLOR EPOXIDE	0.083	ND
ENDOSULFAN I	0.014	ND
4,4-DDE	0.004	ND
DIELDRIN	0.002	ND
ENDRIN	0.006	ND
4,4-DDD	0.011	ND
ENDOSULFAN II	0.004	ND
4,4-DDT	0.012	ND
ENDRIN ALDEHYDE	0.023	ND
ENDOSULFAN SULFATE	0.066	ND
METHOXYCHLOR	0.180	ND
CHLORDANE (TECHNICAL)	0.014	ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ND
AROCLOR-1221	1.00	ND
AROCLOR-1232	1.00	ND
AROCLOR-1242	1.00	ND
AROCLOR-1248	1.00	ND
AROCLOR-1254	1.00	ND
AROCLOR-1260	1.00	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	47 %
TETRACHLORO-M-XYLENE(30-150)	73 %

= NOT DETECTED ABOVE REPORTING LIMIT
= ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1518701P(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 03-21-96
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-26-96
METHOD REF. : SW846-8080, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR Parts Per Billion (PPB)

PESTICIDES/PCB'S	REPORTING LIMIT	RESULTS
ALPHA-BHC	0.003	ND
GAMMA-BHC(LINDANE)	0.004	ND
BETA-BHC	0.006	ND
DELTA-BHC	0.009	ND
HEPTACHLOR	0.003	ND
ALDRIN	0.004	ND
HEPTACHLOR EPOXIDE	0.083	ND
ENDOSULFAN I	0.014	ND
4,4-DDE	0.004	ND
DIELDRIN	0.002	ND
ENDRIN	0.006	ND
4,4-DDD	0.011	ND
ENDOSULFAN II	0.004	ND
4,4-DDT	0.012	ND
ENDRIN ALDEHYDE	0.023	ND
ENDOSULFAN SULFATE	0.066	ND
METHOXYCHLOR	0.180	ND
CHLORDANE (TECHNICAL)	0.014	ND
TOXAPHENE	0.240	ND
AROCLOR-1016	1.00	ND
AROCLOR-1221	1.00	ND
AROCLOR-1232	1.00	ND
AROCLOR-1242	1.00	ND
AROCLOR-1248	1.00	ND
AROCLOR-1254	1.00	ND
AROCLOR-1260	1.00	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	53 %
TETRACHLORO-M-XYLENE(30-150)	70 %

= NOT DETECTED ABOVE REPORTING LIMIT
= ANALYTE DETECTED IN METHOD BLANK POSSIBLY BELOW THE REPORTING LIMIT.

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

ABORATORY QUALITY CONTROL SEQUENCE

SAMPLE MATRIX : WATER
DATE EXTRACTED: 03-22-96
DATE ANALYZED : 03-26-96
METHOD REF. : SW846-8080, EPA METHODOLOGY

REPORT DATE: 04-09-96

LABORATORY CONTROL SAMPLE / LABORATORY CONTROL SAMPLE DUPLICATE RECOVERY

COMPOUND	LCS PERCENT RECOVERY	LCS DUP. PERCENT RECOVERY	RELATIVE PERCENT DIFFERENCE
GAMMA-BHC	54 %	62 %	14 %
HEPTACLOR	53 %	64 %	19 %
ALDRIN	52 %	65 %	22 %
DIELDRIN	51 %	60 %	16 %
DRIN	59 %	70 %	17 %
4,4-DDT	52 %	65 %	22 %

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.01
DATE SUBMITTED: 03-21-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : RMW-2

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.02
DATE SUBMITTED: 03-21-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 03-21-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

ND - NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 03-21-96
DATE ANALYZED : 03-27-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY
HMX	114 %
RDX	115 %
1,3,5-TNB	113 %
TETRYL	73 %
1,3-DNB	131 %
TNT	101 %
NITROBENZENE	105 %
2,6 DNT	107 %
2,4 DNT	105 %
o-NITROTOLUENE	111 %
p-NITROTOLUENE	106 %
m-NITROTOLUENE	107 %

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.01
DATE SUBMITTED: 03-21-96
PROJECT : WELDON SPRING
SAMPLE ID : RMW-2

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
INORGANICS					
INORGANIC CHLORIDE	0.2	mg/L	6.1	03-22-96	EPA 300.0
FLUORIDE	0.2	mg/L	ND	03-22-96	EPA 300.0
NITRATE	0.2	mg/L	ND	03-22-96	EPA 300.0
SULFATE	0.2	mg/L	8.7	03-22-96	EPA 300.0
METALS					
ARSENIC	0.005	mg/L	0.120	04-01-96	SW 6010
BARIUM	0.001	mg/L	0.373	04-01-96	SW 6010
CADMIUM	0.001	mg/L	ND	04-01-96	SW 6010
LEAD	0.003	mg/L	0.005	04-01-96	SW 6010
MERCURY	0.0001	mg/L	0.0001	03-27-96	SW 7470

mg/L = PARTS PER MILLION(PPM)
ND = NOT DETECTED ABOVE REPORTING LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)
DATE : 04-09-96

SAMPLE MATRIX : WATER
ATAS # : 15187.02
DATE SUBMITTED: 03-21-96
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
INORGANIC CHLORIDE	0.2	mg/L	3.2	03-22-96	EPA 300.0
FLUORIDE	0.2	mg/L	0.2	03-22-96	EPA 300.0
NITRATE	0.2	mg/L	ND	03-22-96	EPA 300.0
SULFATE	0.2	mg/L	39.8	03-22-96	EPA 300.0
			METALS		
ARSENIC	0.005	mg/L	ND	04-01-96	SW 6010
BARIUM	0.001	mg/L	0.420	04-01-96	SW 6010
CADMIUM	0.001	mg/L	ND	04-01-96	SW 6010
LEAD	0.003	mg/L	ND	04-01-96	SW 6010
MERCURY	0.0001	mg/L	0.0001	03-27-96	SW 7470

mg/L = PARTS PER MILLION(PPM)
ND = NOT DETECTED ABOVE REPORTING LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 151871EX(247)

DATE : 04-09-96

QA/QC

DESCRIPTION		PARAMETER	RESULTS
METHOD BLANK	04-01-96	ARSENIC	<0.005 mg/L
METHOD BLANK	04-01-96	BARIUM	<0.001 mg/L
METHOD BLANK	04-01-96	CADMIUM	<0.001 mg/L
METHOD BLANK	04-01-96	LEAD	<0.003 mg/L
METHOD BLANK	03-25-96	MERCURY	<0.0001 mg/L
METHOD BLANK	03-26-96	FLUORIDE	<0.2 mg/L
METHOD BLANK	03-26-96	CHLORIDE	<0.2 mg/L
METHOD BLANK	03-26-96	NITRATE	<0.2 mg/L
METHOD BLANK	03-26-96	SULFATE	<0.2 mg/L
CONTROL SPIKE	04-01-96	ARSENIC	98 % RECOVERY
CONTROL SPIKE	04-01-96	BARIUM	94 % RECOVERY
CONTROL SPIKE	04-01-96	CADMIUM	95 % RECOVERY
CONTROL SPIKE	04-01-96	LEAD	94 % RECOVERY
CONTROL SPIKE	03-25-96	MERCURY	98 % RECOVERY
CONTROL SPIKE	03-26-96	FLUORIDE	105 % RECOVERY
CONTROL SPIKE	03-26-96	CHLORIDE	105 % RECOVERY
CONTROL SPIKE	03-26-96	NITRATE	102 % RECOVERY
CONTROL SPIKE	03-26-96	SULFATE	104 % RECOVERY

ATAS

AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc.

875 Fee Fee Road • Maryland Heights, MO 63043-3211 • Office (314) 434-4570 • FAX (314) 434-0060

PAGE ___ OF ___

CHAIN OF CUSTODY RECORD

ATAS Client Name: STAN REMINGTON

Project Name: WELDON SPRING

Project #:

Form Completed By: [signature]

PO #:

Type of Analysis / Preservative (Ice, Chemical (see below))

Sample ID	Sample Date	Sample Time	Sample Matrix	Grab	Comp	No. of Containers	GROSS α/β	TOTAL U	NITROS	PEST/PCB'S	F, CLD, NO4, SO4	SVOC'S	METALS	TSS	Remarks	Lab Use Only (Initials: LM; Date: 3-21-96; Location/Temp: AL-BA-[illegible])
RMW-2	3/21/96	0900		X			X	X	X	X	X	X	X			15187.01
PW-9	3/21/96	0930		X			X	X	X	X	X	X	X			[illegible]
TREAT. PLANT	3/7/96	–			X									X		

Relinquished by:	Received by:	Relinquished by:	Received by:
[signature]	[signature]		
Signature	Signature	Signature	Signature
STAN REMINGTON	L. MASSENGERG		
Printed Name	Printed Name	Printed Name	Printed Name
S.C. COUNTY	ATAS		
Firm	Firm	Firm	Firm
3/21/96 1050	3-21-96 1050		
Date/Time	Date/Time	Date/Time	Date/Time

Turnaround Requirements

___ 1 to 2 working days

___ 3 working days

___ 5 working days

___ 10 working days

___ 15 working days

Preservative codes

A - none

B - HNO_3

C - H_2SO_4

D - NaOH

E - HCl

F - ___

SEND RESULTS TO (Name & Company) : _____

Original to ATAS/Copy to Client

Joe R. Nichols
County Engineer - Water Dept.
St. Charles County

April 3, 1996

Mr. Stanley Remington
956 Broadmoor Lane
St. Charles, Mo. 63301-6201

RE: St. Charles County Well Field

Dear Stan:

Enclosed please find a letter dated April 1, 1996 with regard to an exceedence for PW03. Please review this letter and offer your opinion regarding this exceedence. Since we were pumping from a number of wells at that time please review the incoming raw water to see if there was an elevated gross beta level which would indicate there was an actual exceedence and not just a false lab test.

I would also like for you to pay particular attention to this well in your future testing procedures just to make sure that an exceedence is not a recurring phenomena.

Please advise me on this matter.

Sincerely,

Joe R. Nichols
County Engineer

JRN/cia
Enclosure
cc: Mr. Tom Engle, Director of Administration
Mr. Tom Aaron

o:\hiway\water\pw03

201 North Second Street • Suite 429 • Saint Charles, Missouri 63301-2874
314-949-7305 • Fax 314-949-7307

Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

April 1, 1996

Mr. Joe Nichols
St. Charles County Engineer
201 N. Second Street
Suite 249
St. Charles, Missouri 63301

Dear Mr. Nichols:

VERBAL INQUIRY REGARDING DATA PRESENTED IN THE QUARTERLY ENVIRONMENTAL DATA SUMMARY (QEDS) FOR FOURTH QUARTER 1995

In response to your recent inquiry regarding GW-PW03-Q395 and GW-RAWW-Q495 data presented in the QEDS, I have presented below the facts surrounding the data anomalies.

In November, 1995 an elevated value of gross beta was recognized in a groundwater sample from the St. Charles County Public Water Supply pumping well PW03, collected on September 28, 1995. The gross beta value for this sample was 130 pCi/l. Normal range for this location gross beta is between 4 and 10 pCi/l. The analysis was validated by the ES&H VVG and re-analysis of the sample was requested. Re-analysis also indicated that the sample exceeded normal range.

A thorough review of historical data for the PW03 location, data for St. Charles County Water Treatment Plant influent (09/28/95 raw water from the pumping wells), and historical and recent data from pumping wells and monitoring wells hydraulically upgradient and crossgradient of the PW03 location was conducted. The following conclusions were drawn from the data review :

1. No radiological parameters or isotopes associated with WSSRAP (uranium, radium, thorium) were elevated above normal range for the 09/28/95 pumping well PW03 sample. If the elevated beta value is valid, it is possible that other naturally occurring beta-emitting isotopes (such as Potassium-40) are contributors.

2. No elevated gross beta or other radiological parameter was elevated above normal range in upgradient or crossgradient pumping wells or monitoring wells. Any WSSRAP-source radiological contaminants of concern would have been detected hydraulically downgradient from the Quarry in the monitoring wells in the vicinity of the Femme Osage Slough, the RMW wells in the well field, and other pumping wells upgradient from PW03.

3. Analytical results of the County Water Treatment Plant influent originating from the pumping wells indicated the gross beta activity and other radiological parameters were within the normal range for 09/28/95.

It was concluded that the elevated gross beta value was most likely artificial. It is possible that contamination of the sample occurred during sample collection or at the analytical laboratory. However, samples collected on the same day before and after the PW03 location did not show any elevated gross beta values. The location was resampled in December, 1995 and the gross beta value was 5.4 pCi/l, within normal range.

Regarding the elevated gross beta for GW-RAWW-Q395, this value is suspected to be a laboratory error because all pumping wells that contribute to the influent were within their normal ranges of between 5 pCi/l to 10 pCi/l. Reanalysis of this sample yielded a gross beta concentration of 5.8 pCi/l.

If there are questions, please call me or Tom Pauling at (314)441-8978.

Sincerely,

Jerry S. Van Fossen
Deputy Project Manager
Weldon Spring Site
Remedial Action Project

cc: James R. Powers, PMC

Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

April 11, 1996

Distribution:

QUARTERLY SITE AND QUARRY WATER TREATMENT PLANT EFFLUENT DATA SUMMARY - FIRST QUARTER 1996

Enclosed please find the subject effluent data summary sheets for the batches of water treated and discharged during the first quarter of 1996. Six batches (S#072 through S#077) and two batches (Q#042 through Q#043) have been treated and discharged from the site and quarry water treatment plants, respectively.

If you have any questions, please call me or Bruce Ballew at (314)441-8978.

Sincerely,

Jerry S. Van Fossen

Jerry S. Van Fossen
Deputy Project Manager
Weldon Spring Site
Remedial Action Project

Enclosure:
As stated

cc w/o enclosure:
Martha Windsor/Geri Kountzman, MDNR

Distribution List

Larry Erickson
Division of Environmental Quality
Missouri Department of Natural Resources
Post Office Box 176
Jefferson City, Missouri 65102

Dan Wall
Remedial Project Manager
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Stanley Remington
Consulting Hydrologist
919 Broadmoor Lane
St. Charles, Missouri 63301

Wayne Black
St. Louis County Health Department
111 South Meremac
2nd Floor
Clayton, Missouri 63105

Conn Roden
St. Louis County Health Department
111 South Meremac
2nd Floor
Clayton, Missouri 63105

Terry Gloriod
Vice President for Production
St. Louis County Water Department
535 North New Ballas
St. Louis, Missouri 63141

Dave Visintainer
City of St. Louis Water Division
Chain of Rocks Plant
10450 Riverview Drive
St. Louis, Missouri 63137

SUMMARY OF SWTP (BATCH 072) ANALYTICAL RESULTS

01/05/96 1600

From all parties receiving samples on 1/2/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	5.00 mg/l		NA	NA	NA
TSS	50 / 30	4.00 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.006 mg/l		NA	NA	
LEAD	0.1	<0.001 mg/l		NA	NA	
MANGANESE	0.1	<0.006 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	0.0122 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.01 ug/l		NA	NA	
FLUORIDE	4.0	2.92 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	3.24 mg/l		NA	NA	
SULFATE	500	205 mg/l		NA	NA	
CHLORIDE	*	207 mg/l		NA	NA	
GROSS ALPHA	*	2.17 ±9.02 pCi/l		NA	NA	
GROSS BETA	*	29.2 ±3.66 pCi/l		NA	NA	
URANIUM, TOTAL	**	0.249 ±0.003 pCi/l		NA	NA	
RADIUM-226 ***	*	Due 1-10-96		NA	NA	
RADIUM-228 ***	*	Due 1-10-96		NA	NA	
THORIUM-230 ***	*	Due 1-10-96		NA	NA	NA
THORIUM-232 ***	*	Due 1-10-96		NA	NA	NA
pH (Std. Units)	6 - 9	8.66		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1 ug/l		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month. Sampled in batch S072.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 073) ANALYTICAL RESULTS

01/16/96 1450

From all parties receiving samples on 1/9/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	15.00 mg/l		NA	NA	NA
TSS	50 / 30	2.00 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0046 mg/l		NA	NA	
CHROMIUM	0.1	<0.0044 mg/l		NA	NA	
LEAD	0.1	<0.0017 mg/l		NA	NA	
MANGANESE	0.1	0.0039 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.0043 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.01 ug/l		NA	NA	
FLUORIDE	4.0	2.12 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	3.79 mg/l		NA	NA	
SULFATE	500	279 mg/l		NA	NA	
CHLORIDE	*	204 mg/l		NA	NA	
GROSS ALPHA	*	5.08 ± 2.57 pCi/l		NA	NA	1.1 ±0.9 pCi/l
GROSS BETA	*	12.8 ± 3.83 pCi/l		NA	NA	8.7 ±1.1 pCi/l
URANIUM, TOTAL	**	0.447 ± 0.005 pCi/l		NA	NA	
RADIUM-226 ***	*	N.A.		NA	NA	
RADIUM-228 ***	*	N.A.		NA	NA	
THORIUM-230 ***	*	N.A.		NA	NA	NA
THORIUM-232 ***	*	N.A.		NA	NA	NA
pH (Std. Units)	6 - 9	7.47		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1 ug/l/N.A.		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month. Sampled ON 1/2/96 in batch S072.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 074) ANALYTICAL RESULTS

02/13/96 1430

From all parties receiving samples on 2/1/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	5.00 mg/l		NA	NA	NA
TSS	50 / 30	<1.00 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0046 mg/l		NA	NA	
CHROMIUM	0.1	<0.0031 mg/l		NA	NA	
LEAD	0.1	<0.0017 mg/l		NA	NA	
MANGANESE	0.1	0.0026 mg/l		NA	NA	
MERCURY	0.004	<0.0001 mg/l		NA	NA	
SELENIUM	0.02	<0.0045 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	0.03 ug/l		NA	NA	
FLUORIDE	4.0	2.69 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	1.32 mg/l		NA	NA	
SULFATE	500	305 mg/l		NA	NA	
CHLORIDE	*	203 mg/l		NA	NA	
GROSS ALPHA	*	3.40 ±0.60 pCi/l		NA	NA	1.2 ±1.0 pCi/l
GROSS BETA	*	9.30 ±1.50 pCi/l		NA	NA	8.0 ±1.1 pCi/l
URANIUM, TOTAL	**	0.600 ±0.0260 pCi/l		NA	NA	
RADIUM-226 ***	*	0.645 ±0.337 pCi/l		NA	NA	
RADIUM-228 ***	*	3.02 ±2.27 pCi/l		NA	NA	
THORIUM-230 ***	*	0.855 ±0.383 pCi/l		NA	NA	NA
THORIUM-232 ***	*	<0.136 pCi/l		NA	NA	NA
pH (Std. Units)	6 - 9	7.94		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1.0 ug/l / NA		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 075) ANALYTICAL RESULTS

04/11/96 0920

From all parties receiving samples on 2/21/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	5.0 mg/l		NA	NA	NA
TSS	50 / 30	3.0 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0046 mg/l		NA	NA	
CHROMIUM	0.1	<0.0031 mg/l		NA	NA	
LEAD	0.1	<0.0017 mg/l		NA	NA	
MANGANESE	0.1	0.0090 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.0045 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.01 ug/l		NA	NA	
FLUORIDE	4.0	2.85 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	1.14 mg/l		NA	NA	
SULFATE	500	299 mg/l		NA	NA	
CHLORIDE	*	216 mg/l		NA	NA	
GROSS ALPHA	*	14.4 ± 4.06 pCi/l		NA	NA	2.3 ± 1.2 pCi/l
GROSS BETA	*	31.6 ± 4.90 pCi/l		NA	NA	9.7 ± 1.1 pCi/l
URANIUM, TOTAL	**	2.22 ± 0.0623 pCi/l		NA	NA	NA
RADIUM-226 ***	*	NA		NA	NA	
RADIUM-228 ***	*	NA		NA	NA	
THORIUM-230 ***	*	NA		NA	NA	NA
THORIUM-232 ***	*	NA		NA	NA	NA
pH (Std. Units)	6 – 9	7.08		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1.0 ug/l / NA		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month. Monitored for February in batch S074.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 076) ANALYTICAL RESULTS

03/20/96 1130

From all parties receiving samples on 3/11/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	<20.0 mg/l		NA	NA	NA
TSS	50 / 30	<12 mg/l		NA	NA	NA
ARSENIC	0.1	<0.003 mg/l		NA	NA	
CHROMIUM	0.1	0.0015 mg/l		NA	NA	
LEAD	0.1	<0.0020 mg/l		NA	NA	
MANGANESE	0.1	0.0015 mg/l		NA	NA	
MERCURY	0.004	<0.00020 mg/l		NA	NA	
SELENIUM	0.02	<0.003 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.20 ug/l		NA	NA	
FLUORIDE	4.0	2.3 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	0.39 mg/l		NA	NA	
SULFATE	500	250 mg/l		NA	NA	
CHLORIDE	*	190 mg/l		NA	NA	
GROSS ALPHA	*	0.6 ± 4.6 pCi/l		NA	NA	2.7 ± 1.9 pCi/l
GROSS BETA	*	13.2 ± 4.1 pCi/l		NA	NA	10.3 ± 1.1 pCi/l
URANIUM, TOTAL	**	0.533 ± 0.028 pCi/l		NA	NA	NA
RADIUM-226 ***	*	0.06 ± 0.25 pCi/l		NA	NA	
RADIUM-228 ***	*	0.96 ± 0.50 pCi/l		NA	NA	
THORIUM-230 ***	*	0.015 ± 0.055 pCi/l		NA	NA	NA
THORIUM-232 ***	*	0.01 ± 0.030 pCi/l		NA	NA	NA
pH (Std. Units)	6 – 9	6.55		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<0.80 ug/l / NA		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 077) ANALYTICAL RESULTS

04/04/96 1130

From all parties receiving samples on 3/26/96

PARAMETER	NPDES LIMITS (mg/l) Unless noted	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	11.2 mg/l		NA	NA	NA
TSS	50 / 30	6.4 mg/l		NA	NA	NA
ARSENIC	0.1	<0.00090mg/l		NA	NA	
CHROMIUM	0.1	0.003 mg/l		NA	NA	
LEAD	0.1	0.0013 mg/l		NA	NA	
MANGANESE	0.1	0.0037 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	0.0019 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.20 ug/l		NA	NA	
FLUORIDE	4.0	3.0 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	1.6 mg/l		NA	NA	
SULFATE	500	234 mg/l		NA	NA	
CHLORIDE	*	208 mg/l		NA	NA	
GROSS ALPHA	*	7.05 ± 7.97 pCi/l		NA	NA	2.7 ± 1.2 pCi/l
GROSS BETA	*	32.1 ± 10.6 pCi/l		NA	NA	8.9 ± 1.1 pCi/l
URANIUM, TOTAL	**	0.672 ± 0.015 pCi/l		NA	NA	NA
RADIUM-226 ***	*	DUE 4/5 pCi/l		NA	NA	
RADIUM-228 ***	*	DUE 4/5 pCi/l		NA	NA	
THORIUM-230 ***	*	DUE 4/5 pCi/l		NA	NA	NA
THORIUM-232 ***	*	DUE 4/5 pCi/l		NA	NA	NA
pH (Std. Units)	6 - 9	7.77		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1.00 ug/l / NA		NA	NA	NA
4. METALS/OTHERS	*	NA				

* = Monitoring Parameter

** = Design Value of 30 pCi / l; Not to Exceed 100 pCi / l

*** = Monitoring parameter once per month.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF QWTP (BATCH 042) ANALYTICAL RESULTS

12/28/95 0900

FROM ALL AGENCIES RECEIVING SAMPLES ON 12/12/95

PARAMETER	NPDES LIMITS (mg/l)	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	17.0 mg/l		NA	NA	NA
TSS	50 / 30	<5.00 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0015 mg/l		NA	NA	
CHROMIUM	0.1	<0.0096 mg/l		NA	NA	
COPPER ***	1	<0.0047 mg/l		NA	NA	
LEAD	0.1	<0.00070 mg/l		NA	NA	
MANGANESE	0.1	0.0125 mg/l		NA	NA	
MERCURY	0.004	<0.0001 mg/l		NA	NA	
SELENIUM	0.02	0.0022 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.195 ug/l		NA	NA	
FLUORIDE	4.0	0.14 mg/l		NA	NA	
NITRATE+NITRITE AS N	*	<0.020 mg/l		NA	NA	
SULFATE	500	439 mg/l		NA	NA	
CHLORIDE	*	369 mg/l		NA	NA	4.9 ± 1.6 pCi/l
GROSS ALPHA	*	0.60 ± 0.40 pCi/l		NA	NA	7.9 ± 1.1 pCi/l
GROSS BETA	*	0.80 ± 0.80 pCi/l		NA	NA	1.9 ± 0.3 pCi/l
URANIUM, TOTAL	**	1.34 ± 0.019 pCi/l		NA	NA	NA
RADIUM-226 ***	*	0.404 ± 0.27 pCi/l		NA	NA	NA
RADIUM-228 ***	*	0.10 ± 1.20 pCi/l		NA	NA	NA
THORIUM-230 ***	*	0.196 ± 0.232 pCi/l		NA	NA	NA
THORIUM-232 ***	*	0.00 ± 0.00 pCi/l				
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA	NA	NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs	*	<1.0 µg/l		NA	NA	NA
4. PESTICIDES	*	NA			NA	
5. METALS / OTHERS	*	NA			NA	
pH	6.0 – 9.0 S.U.	6.02	NA	NA	NA	NA

* = MONITORING ONLY, NO PERMIT DISCHARGE LIMITS

** = Design Value of 90 pCi / l; Not to Exceed 100 pCi / l

*** = Parameter required once/month. Sampled this batch.

NA = Not analyzed.

[redacted] = Data received after batch was discharged

SUMMARY OF QWTP (BATCH 043) ANALYTICAL RESULTS

3/15/96 1030

FROM ALL AGENCIES RECEIVING SAMPLES ON 2/28/96

PARAMETER	NPDES LIMITS (mg/l)	PMC DATA RESULTS	MoDNR DATA RESULTS	EPA DATA RESULTS	ST. CHARLES COUNTY DATA RESULTS	ST. LOUIS COUNTY H & W DATA RESULTS
COD	90 / 60	<20 mg/l		NA	NA	NA
TSS	50 / 30	<12 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.002 mg/l		NA	NA	
COPPER ***	1	0.0018 mg/l		NA	NA	
LEAD	0.1	<0.0010 mg/l		NA	NA	
MANGANESE	0.1	0.0256 mg/l		NA	NA	
MERCURY	0.004	<0.00020 mg/l		NA	NA	
SELENIUM	0.02	<0.0030 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.20 ug/l		NA	NA	
FLUORIDE	4.0	0.18 mg/l		NA	NA	
NITRATE+NITRITE AS N	*	<0.1 mg/l		NA	NA	
SULFATE	500	270 mg/l		NA	NA	
CHLORIDE	*	390 mg/l		NA	NA	
GROSS ALPHA	*	4.7 ± 7.0 pCi/l		NA	NA	1.5 ± 1.1 pCi/l
GROSS BETA	*	6.9 ± 4.0 pCi/l		NA	NA	8.9 ± 1.1 pCi/l
URANIUM, TOTAL	**	1.385 ± 0.072 pCi/l		NA	NA	± pCi/l
RADIUM-226 ***	*	0.36 ± 0.20 pCi/l		NA	NA	NA
RADIUM-228 ***	*	-0.40 ± 0.46 pCi/l		NA	NA	NA
THORIUM-230 ***	*	0.01 ± 0.065 pCi/l		NA	NA	NA
THORIUM-232 ***	*	-0.020 ± 0.039 pCi/l		NA	NA	NA
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA	NA	NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs	*	<0.80 µg/l		NA	NA	NA
4. PESTICIDES	*	NA			NA	
5. METALS / OTHERS	*	NA			NA	
pH	6.0 - 9.0 S.U.	7.31	NA	NA	NA	NA

* =MONITORING ONLY, NO PERMIT DISCHARGE LIMITS

** = Design Value of 90 pCi / l; Not to Exceed 100 pCi / l

*** = Parameter required once/month. Sampled this batch, in addition Po-210 (0.19 ± 0.15 pCi/l) and Rn-222 (2.3 ± 3.0 pCi/l) were sampled and analyzed.

NA = Not analyzed.

= Data received after batch was discharged

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

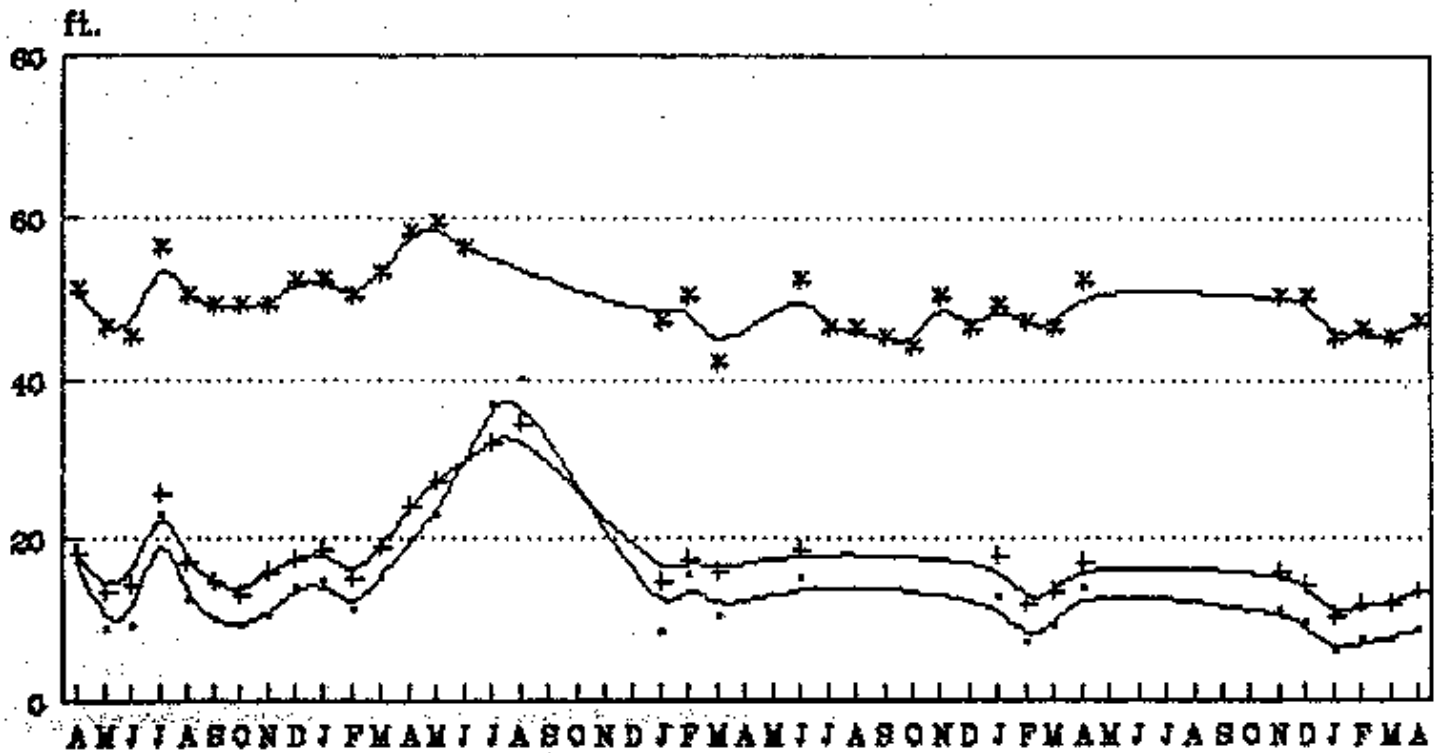
DATE OF REPORT	04/01/96		
MONTH OF REPORT	MAR96		
WATER PRODUCTION			267,647,000
WASHWATER USED			4,291,000
DELIVERED TO SYSTEM			263,356,000
MO. AMERICAN WATER			
	BOOSTER STATION		185,000,000
67004132835-007	FRANCIS HOWELL		49,200
67004132850-007	MO. HWYS & TRANS.		11,800
67004133000-004	M.K. FERGUSEN		190,500
67004133040-015	M.K. FERGUSEN		52,000
67004133010-002	M.K. FERGUSEN		80,000
67004133020-000	M.K. FERGUSEN		5,000
67004132855-002	FRANCIS HOWELL		850,000
67004132890-009	M.K. FERGUSEN		59,000
67095018237-000	M.K. FERGUSEN		17,600
		TOTAL	186,315,100
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		65,855,000
	BYPASS		0
		TOTAL	65,855,000
WATER DISTICT #2			
	NEW MELLE	TOTAL	5,176,000
NATIONAL GUARD AREA			
	BLGD S-61		11,000
	WASH RACK		9,000
		TOTAL	20,000
TOTAL WATER SALES	**********		257,366,100

ST. CHARLES COUNTY WATER DEPARTMENT

INVENTORY OF CHEMICALS

		LIME		CHLORIN
PREVIOUS BALANCE		125743		13550
RECIEVED	INV. # DATE		INV. # DATE	
	188765.3/6	49360	3/14	8000
	189121.3/7	49520		
	189357.3/12	49440		
	190027.3/14	49800		
	190640.3/19	49200		
	191602.3/21	48500		
•	192084.3/28	49780		
	**********	394380	**********	8000
	TOTAL AMOUNT	520123		21550
	USED	374426		15270
	BALANCE	145697		6280
	#/1000 GALLON	1.42		0.058
	PARTS/MILLION	155		6.28
	AVG. #/DAY	12078		493
	# USED Y TO D	1118025.		43666

WELL #2
WATER LEVELS

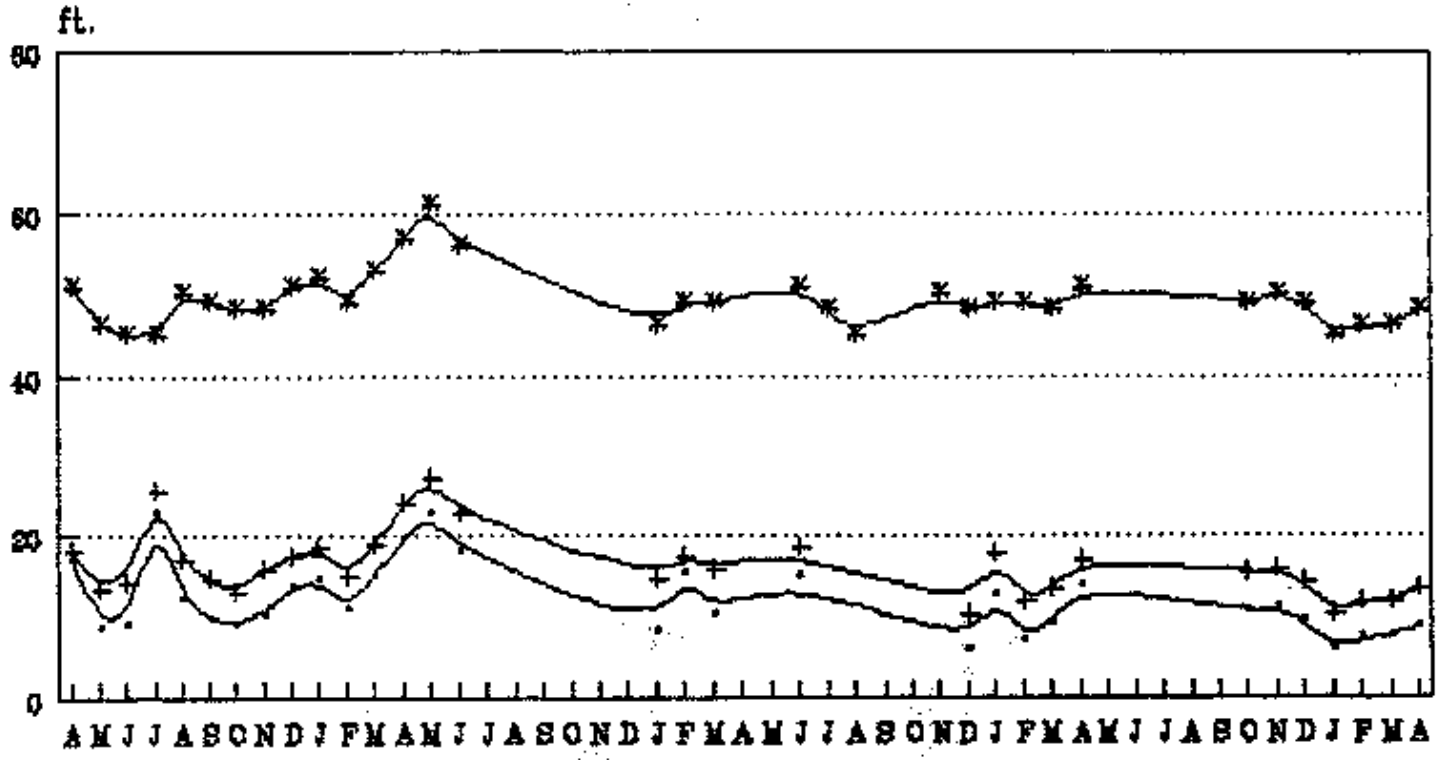


1992,'93,'94,'95 &'96

River Herman — River St. Chas. — Airline static

TREAT WELL, NEW PUMP, 80' AIRLINE:DEC 69

WELL #3
WATER LEVELS

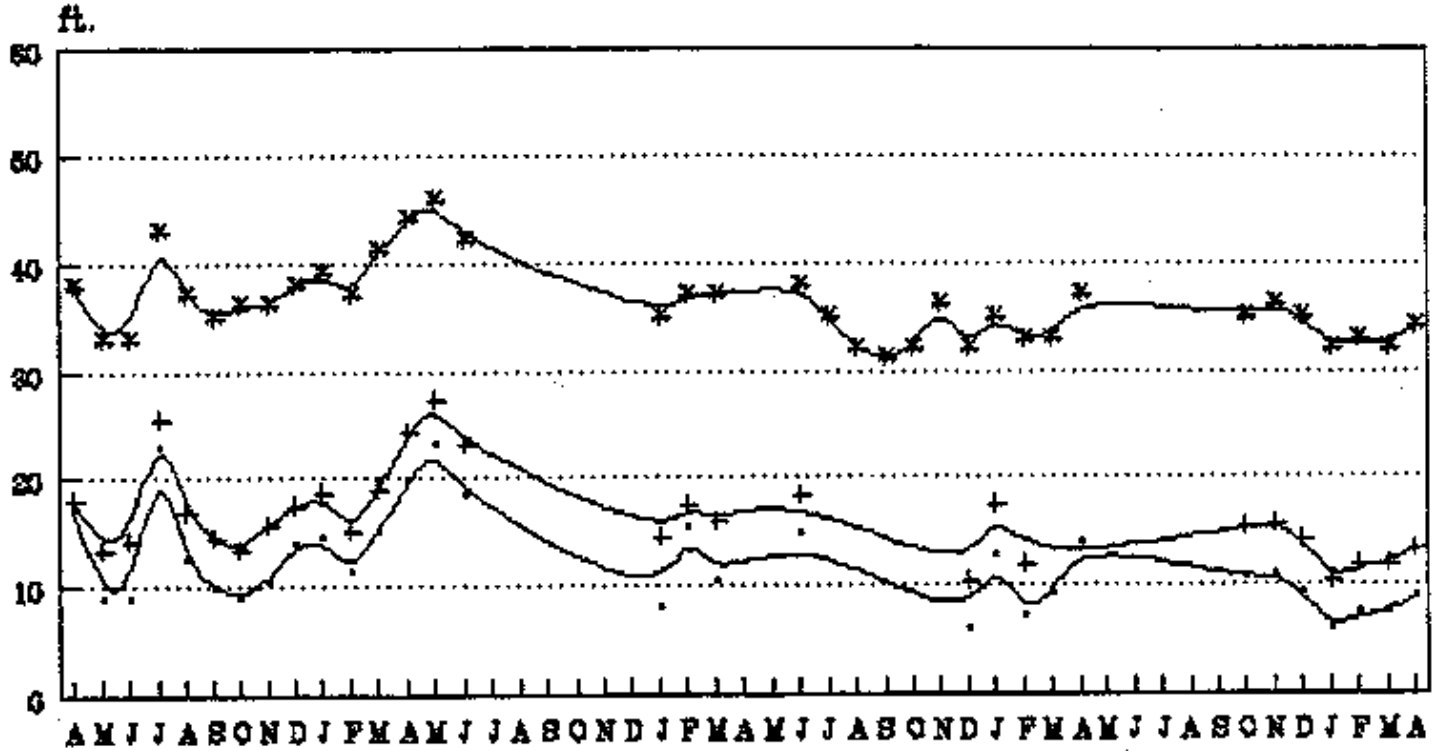


1992,'93,'94,'95 &'96

River Herman — River St.Charles — Airline (70ft.) stat

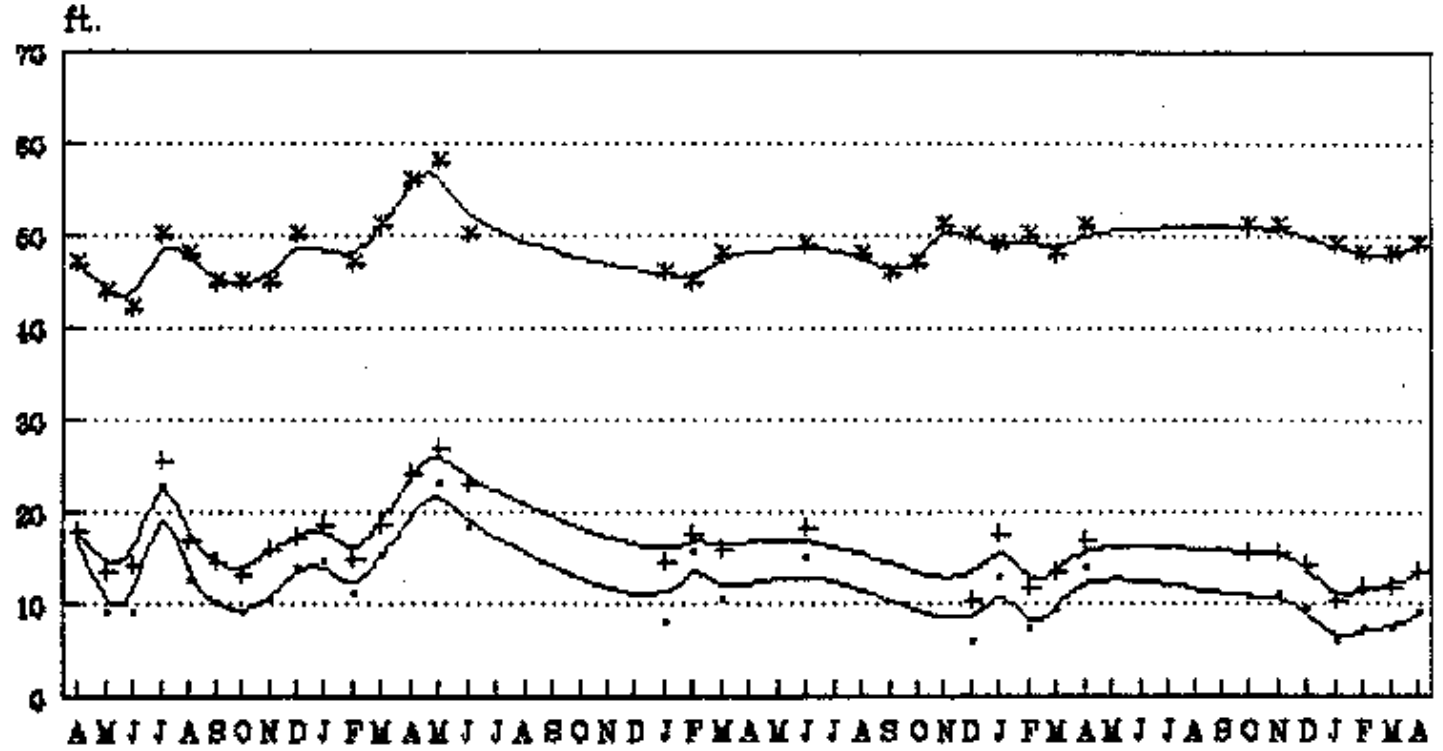
ACIDIZE,NEW PUMP 2/90 ACIDIZE 6/94

WELL #4
WATER LEVELS



TREATED 6/90

WELL #5
WATER LEVELS

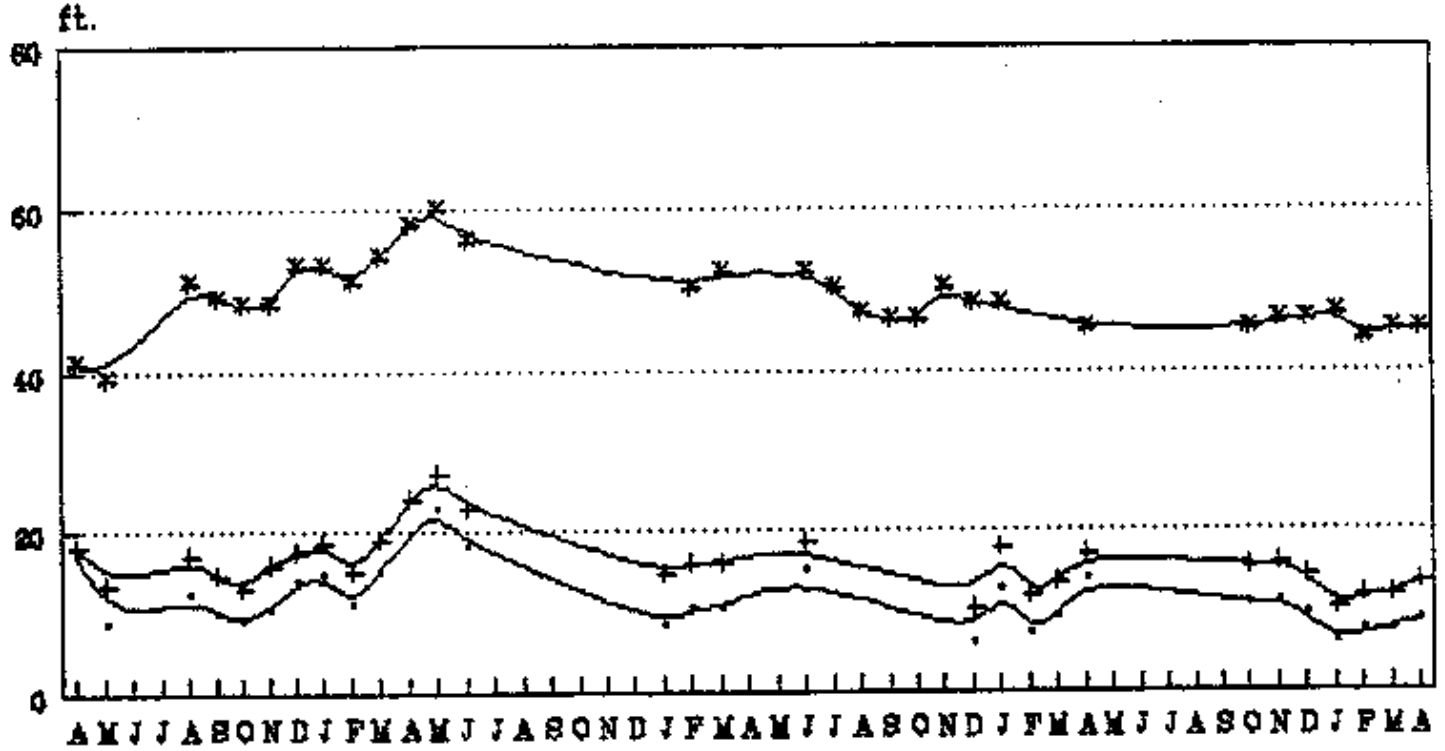


1992,'93,'94,'95 &'96

River Hermen — River St.Charles — Airline (60ft.) stat

NEW PUMP, TREATED:10/93, 7/94

WELL #7
WATER LEVELS

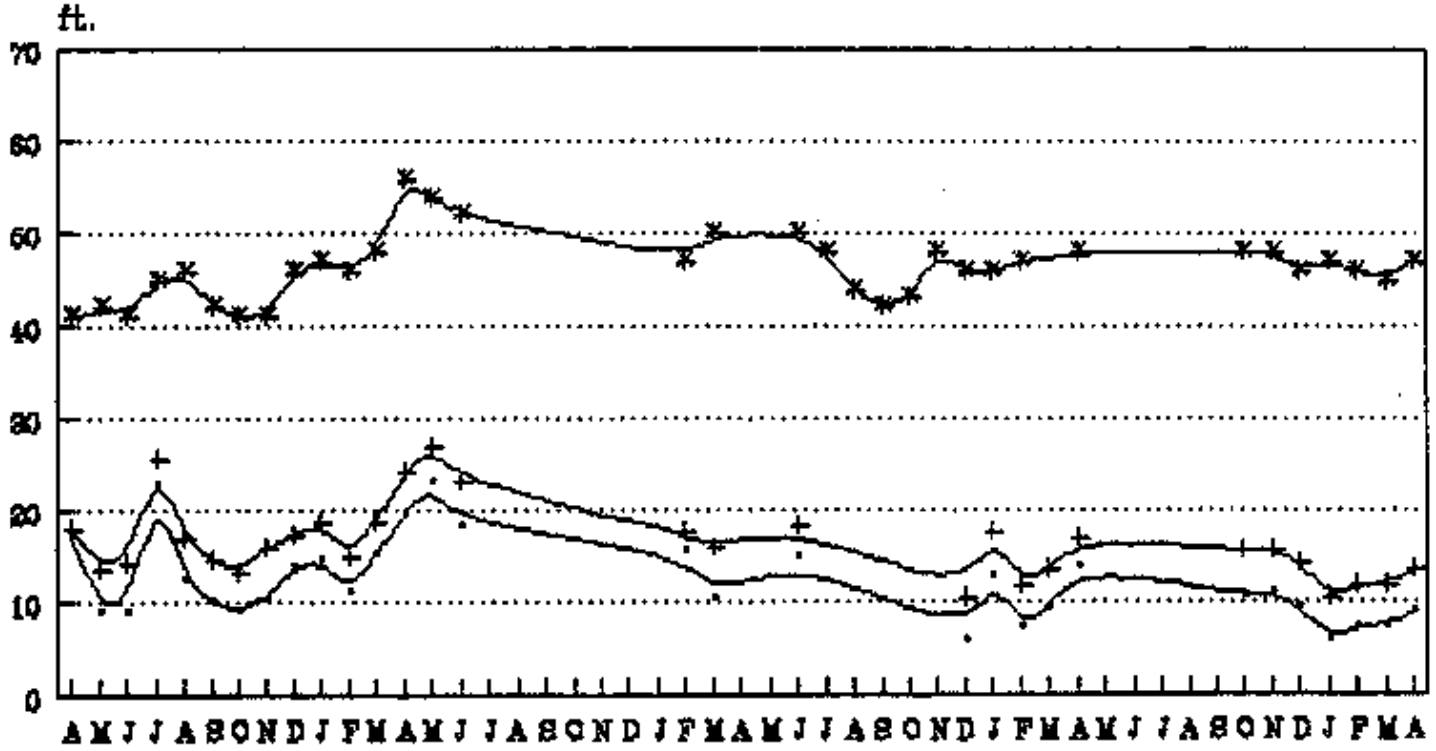


1992,'93,'94,'95 &'96

River Hermen — River St.Charles — Airline (70ft.) stat

CHIC SF CAP:236,CHEM TR:8/89,7/90

WELL #8
WATER LEVELS

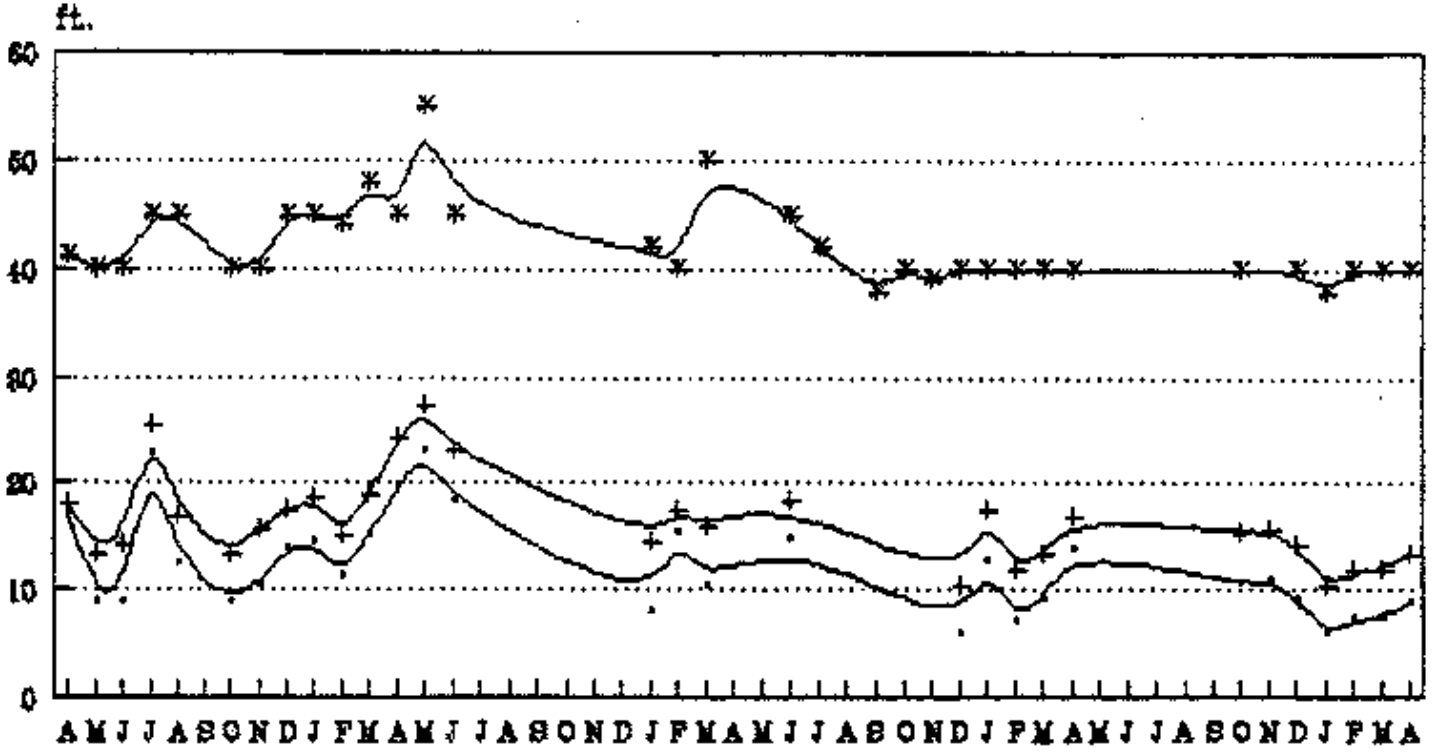


1992,'93,'94,'95 &'96

River Hermen — River St.Charles — Airline (70ft.) stat

ACIDIZED 1988,'89,'94 W/NEW PUMP

WELL #9
WATER LEVELS



1992,'93,'94,'95 &'96

River Herman — River St. Charles — Airline (70 ft.) sta.

ACIDIZED 1/91

MONTHLY REPORT

MAY 1996

BY

Stanley M. Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

An abnormally high reading of 130 Picocuries was obtained by the Department of Energy on September 28, 1995 from well number PW-3. This was for gross beta particles. The DOE subsequently retested the well in December 1995 and obtained only a gross beta reading of 5.4 pCi/l (pico-curies per liter). This shows that the 130 pCi/l was in error since the high reading obtained had never occurred before. Consequently I sampled well number PW-3 on April 26, 1996. A reading of 8 +/- pCi/l of gross beta was obtained showing that the gross beta content from this well is well within the NPDES guidelines. The results are appended. During May I sampled wells PW-2 and PW-9 to determine gross alpha, gross beta and nitroaromatics. The results have not yet been received. I also took a sample from the treated water at the chemical plant site for analyses. These results have also not been received.

II. DOE QUARTERLY REPORT - FIRST QUARTER 1996

Appended are the first six pages of the DOE's quarterly environmental data summary for the first quarterly 1996. Significant data, defined as data values that have exceeded defined "above normal" values, are discussed in the report.

Eighteen samples are discussed as exceeding normal ranges. Most of the samples are from wells and one is from a spring.

Two samples from the St. Charles County well field showed a high reading of arsenic from observation well RMW-2. A data validation has been requested, that is another sample will be taken from the RMW-2 observation well, to recheck for arsenic. One sample showed a significantly high gross beta value from the influent raw water coming into the treatment plant. A subsequent sample from the same source showed a reading of only 5.8 pCi/l which is in the normal range for gross beta at this location. No abnormal readings have been noted from any pumping wells in the St. Charles County Well Field during May 1996.

III. FUTURE PLANS

Because of the recent high readings of gross beta in some of the pumping wells in the St. Charles County Well Fields, I will sample two wells per month for gross alpha and gross beta, total uranium and nitroaromatics. So far all of the high readings have proved to be false, but as an extra precaution this will be done.

IV. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales Report for April 1996.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0060

May 15, 1996

Stanley M. Remington
956 Broadmoor Lane
St. Charles, MO 63301

RE: ATAS #15550.01
Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on April 26, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr
Project Manager

Enclosures

JAC/dms

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1555001RA(249)

DATE : 05-15-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #15550
DATE SUBMITTED: 04-26-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
PW-3	15550.01	GROSS ALPHA	3 +/- 18*
PW-3	15550.01	GROSS BETA	8 +/- 6*
PW-3	15550.01	TOTAL URANIUM (mg/L)	<0.005

* VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.96σ.
pCi/L= PICOCURIES PER LITER
mg/L = PARTS PER MILLION(PPM)

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1555001X(249)
DATE : 05-15-96

SAMPLE MATRIX : WATER
ATAS # : 15550.01
DATE SUBMITTED: 04-26-96
DATE ANALYZED : 05-02-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-3

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

= NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1555001X(249)
DATE : 05-15-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 04-26-96
DATE ANALYZED : 05-02-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

= NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1555001X(249)

DATE : 05-15-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 04-26-96
DATE ANALYZED : 05-02-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY
HMX	109 %
RDX	111 %
3,5-TNB	108 %
TRYL	67 %
1,3-DNB	125 %
TNT	102 %
NITROBENZENE	103 %
2,6 DNT	103 %
2,4 DNT	106 %
o-NITROTOLUENE	107 %
p-NITROTOLUENE	100 %
m-NITROTOLUENE	107 %

AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc.

875 Fee Fee Road • Maryland Heights, MO 63043-3211 • Office (314) 434-4570 • FAX (314) 434-0060

PAGE ____ OF ____

CHAIN OF CUSTODY RECORD

ATAS Client Name: STANLEY M. REMINGTON

Project Name: WELDON SPRING

Project #:

Form Completed By: S. REMINGTON

PO #:

Type of Analysis / Preservative Ice Chemical (see below)

Sample ID	Sample Date	Sample Time	Sample Matrix	Grab	Comp	No. of Containers	TOTAL U	GROSS α	GROSS β	NITROS	TSS					Remarks	Lab Use Only
PW-3	4/26/96	1015		X			X	X	X	X							15550.01
WATER TREAT. PLANT	4/26	0800			X						X						

Lab Use Only: Initials: WK; Date: 4-26-96; Location/Temp: L3-ACL 1°C

Relinquished by:	Received by:	Relinquished by:	Received by:
Signature: Stanley M. Remington	Signature: L. Massenberg	Signature:	Signature:
Printed Name: STAN REMINGTON	Printed Name: L. MASSENBERG	Printed Name:	Printed Name:
Firm: ST. CHARLES COUNTY	Firm: ATAS	Firm:	Firm:
Date/Time: 4/26/96 1200	Date/Time: 4-26-96 1200	Date/Time:	Date/Time:

Turnaround Requirements
- ____ 1 to 2 working days
- ____ 3 working days
- ____ 5 working days
- ____ 10 working days
- ____ 15 working days

Preservative codes
- A - none
- B - HNO_3
- C - H_2SO_4
- D - NaOH
- E - HCl
- F - ____

SEND RESULTS TO (Name & Company) : _____

Original to ATAS/Copy to Client

Department of Energy
Oak Ridge Operations
Weldon Spring Site
Remedial Action Project Office
7295 Highway 94 South
St. Charles, Missouri 63304

May 21, 1996

DISTRIBUTION:

QUARTERLY ENVIRONMENTAL DATA SUMMARY FOR FIRST QUARTER 1996

In support of the Weldon Spring Site Remedial Action Project (WSSRAP) Federal Facilities Agreement (FFA), enclosed is a copy of the Quarterly Environmental Data Summary (QEDS) for the First Quarter of 1996.

The data presented in this letter and attachments, comprise the QEDS. In addition to data generated by Environmental Monitoring Plan sampling, data generated by groundwater operable unit remedial investigation characterization sampling is included in the groundwater and springs tables. Also included in the surface water section are data results that support the ecological risk assessment for the Groundwater Operable Unit and the Engineering Evaluation/Cost Assessment for the Southeast Drainage. These data were received from the contract laboratories, verified by the Weldon Spring site Verification Group and, with the exception of air monitoring data, merged into the database during the First Quarter of 1996. Air monitoring data presented are the most recent complete sets of quarterly data. Air data are not stored in the database.

Significant data, defined as data values that have exceeded defined "above normal" values, are discussed in this letter for Environmental Monitoring Protection (EMP) generated data only. Data collected under Groundwater Operable Unit sampling were not evaluated in accordance with above normal procedures. In ES&H procedures above normal values are based on historic high values, DOE Derived Concentration Guides (DCGs), NPDES limits and other guidelines. The procedures also establish actions to be taken in the event that "above normal" data occur.

All data received and verified during the first quarter were within a permissible range of variability, with the exception of those detailed below. Above normal occurrences are cited for spring and groundwater data. There were none for air, NPDES, or surface water. The following discussion offers a brief summary of the data that met the above-normal criteria merged during the first quarter, and updates on past reported above normal data. The enclosed tables present all the data merged into the data base during the First Quarter 1996 for groundwater, NPDES, surface water, springs and the most recent air data.

NPDES

There were no above normal values for water discharged through NPDES outfalls; however, original uranium analyses for samples collected at Outfalls NP-0003 and NP-0010 on December 19, 1996, were abnormally high. Based on on-site KPA analytical results PMC personnel suspected that there was a dilution factor error. A re-analysis was conducted and the results were in line with the on-site results. The laboratory also stated that the original results were in error.

There are also several cyanide results for the site water treatment plant that are above the permit limit of 0.0075 mg/l. The water was not discharged until it was treated in the effluent ponds and re-analyzed to show compliance. The sample that showed compliance was NP-ES14-010996.

The analytical results for the NPDES outfalls are reported in the quarterly discharge monitoring report as well as in this report.

GROUNDWATER

Weldon Spring Chemical Plant Site

Site Water Treatment Plant

* Sample Number GW-2038-Q495

This Fourth Quarter 1995 sample was reporte
fluoride (2.11 mg/l), selenium (20.0 ug/l) and
selenium and silver are above baselines (15.6
this location. Subsequent data will be carefu
in these values is detected, an investigation t
initiated.

* Sample Number GW-2039-Q495

The third quarter groundwater sample (GW-2039-Q395) from this location was reported as having, for the first time, detectable nitroaromatic compounds. This Fourth Quarter 1995 sample is reported as having no detectable nitroaromatics. These latest analyses support the previously-reported likelihood of sample container switching with sample GW-2006-Q395, which historically has nitroaromatic detections. New highs for sulfate (61 mg/l) and chloride (52 mg/l) were reported for this fourth quarter sample. The sulfate value is above baseline (38.9 mg/l) but below the drinking water standard (250 mg/l). Subsequent data will be reviewed to determine if the sulfate concentrations continue to rise and if an investigation is warranted.

* Sample Number GW-2040-Q495

This Fourth Quarter 1995 sample had new high concentrations for the metals barium (881 ug/l), chromium (24.6 ug/l) and lead (8.68 ug/l). The values are all above baselines but below drinking water quality standards. If subsequent sample values for these parameters are greater than or equal to those in this sample, they will be reported as above-normal and the values will be compared to equalization basin leachate sample analyses.

Chemical Plant Vicinity

No elevated or new high values of contaminants in groundwater samples from the chemical plant (with exception to those at the water treatment plant, as reported above) were reported for this quarter.

<u>Weldon Spring Quarry Site</u>

Quarry Water Treatment Plant

* Sample Numbers GW-1035-Q395 and GW-1035-Q495

The Q395 sample was reported in the previous QEDS as having levels of chromium, lead, and chloride above baselines (4.81 ug/l, 2.1 ug/l, and 14.9 mg/l, respectively). The Q495 data (Cr = 21.9 ug/l, Pb = 2.1 ug/l, and chloride = 14.9 mg/l) indicate these levels are still above baseline values. This location is hydraulically upgradient from any quarry operational impacts.

The elevated chloride value is likely due to increased use of road salt along Missouri State Route 94 (to which location MW-1035 is immediately adjacent and downgradient), and the metals values may be the result of leaching from the stainless steel well screen, which is being subjected to corrosive conditions during high chloride level events. Subsequent data will be carefully reviewed and any further excursions will be investigated.

* Sample Number GW-1036-Q495

A new high value for lead was reported for this Fourth Quarter 1995 sample. The 3.0 ug/l value was above baseline (2.06 ug/l), but it was below water quality standards and not statistically significant. Subsequent sample data will be carefully reviewed.

* Sample Numbers GW-1037-Q395 and GW-1037-Q495

The Q395 sample from this location was reported as having chromium (27.3 ug/l) above baseline (<3.0 ug/l). The value for Q495 (8.4 ug/l) remains above baseline, but is significantly lower than the previous quarter. The trending of this value will be monitored in subsequent samples from this location.

* Sample Numbers GW-1040-Q495

The chloride concentration was a new high (13.1 mg/l) and above baseline (10.9 mg/l) for this location. The elevated value may be due to de-icing agents used in winter months or HCl used in the quarry decontamination area during remedial action efforts. Subsequent data will be reviewed and compared with equalization basin leachate analyses in order to isolate the source of the high value.

Quarry Vicinity

* Sample Numbers GW-1005-0495

Further evaluation of elevated sulfate values reported in previous summaries has not been possible because this monitoring well is still dry. Subsequent sample values will be evaluated when available.

* Sample Numbers GW-1006-110395 and GW-1008-B695

Lead concentrations for GW-1006-110395 (6.4 ug/l) and GW-1008-B695 (3.5 ug/l) were new high values but not statistically significant (mean + 2 standard deviations). If a consecutive new high value is reported in subsequent samples the lead concentrations will be considered above-normal.

* Sample Number GW-1031-B196

New high values for uranium (140 pCi/l) and sulfate (100 mg/l), though not statistically significant, were reported for this location north of the Femme Osage Slough. If subsequent new highs consecutively occur for these parameters, the situation will be considered for investigation.

St. Charles County Well Field

* Sample Number GW-RMW2-Q495

A new high (90.1 ug/l) was reported for arsenic. This value is above drinking water standards (50 ug/l) and data validation has been requested. Subsequent data will be reviewed and reported as above-normal if two consecutive highs occur.

* Sample Numbers GW-RAWW-Q495 and GW-RAWW-Q495-Re-analysis

The Q495 sample for this sample of influent to the St. Charles County Public Water Supply Treatment facility was reported in the previous QED as having a significantly elevated gross beta value. This value was believed to be an error, because none of the samples from water production wells contributing to the influent were elevated in gross beta. The sample was re-analyzed and the value was reported as 5.8 pCi/l, which is in the normal range for gross beta at this location.

SPRINGS

* Sample Number SP-6301-081495

A new high (0.42 ug/l) for 2,4,6-Trinitrotoluene (TNT) was reported for the Burgermeister Spring in August 1995. The sample was collected under base-flow conditions and the new high value is statistically insignificant.

If you have any questions, please contact the WSSRAP Community Relations Department at (314)441-8086.

Sincerely,

Jerry S. Van Fossen
Deputy Project Manager
Weldon Spring Site
Remedial Action Project

Enclosure:
As stated

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

DATE OF REPORT 5/3/96

MONTH OF REPORT	APRIL		MONTHLY USAGE
WATER PRODUCTION			274,312,000
WASHWATER USED			4,543,000
DELIVERED TO SYSTEM			269,769,000
MO. AMERICAN WATER			
	BOOSTER STATION		186,000,000
67004132835-007	FRANCIS HOWELL		45,000
67004132850-007	MO. HWYS & TRANS.		5,100
67004133000-004	M.K. FERGUSEN		489,000
67004133040-015	M.K. FERGUSEN		839,000
67004133010-002	M.K. FERGUSEN		53,000
67004133020-000	M.K. FERGUSEN		20,000
67004132855-002	FRANCIS HOWELL		413,000
67004132890-009	M.K. FERGUSEN		46,000
67095018237-000	M.K. FERGUSEN		10,000
		TOTAL	187,920,100
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		68,453,000
	BYPASS		0
		TOTAL	68,453,000
WATER DISTICT #2			
	NEW MELLE	TOTAL	5,148,000
NATIONAL GUARD AREA			
	BLGD S-61		2,000
	WASH RACK		86,000
		TOTAL	88,000
TOTAL WATER SALES	**********		261,609,100

	DAILY AVG
WATER PRODUCTION	9,143,733
WASHWATER USED	151,433
DELIVERED TO SYSTEM	8,992,300
MO. AMERICAN WATER	6,264,003
WATER DISTICT #2 24" LINE	2,281,767
WATER DISTICT #2 NEW MELLE	171,600
TOTAL WATER SALES	8,720,303

ST. CHARLES COUNTY WATER DEPARTMENT

APRIL96

INVENTORY OF CHEMICALS

		LIME		CHLORIN
PREVIOUS BALANCE		194477		6740
RECIEVED	INV. # DATE		INV. # DATE	
	192638.4/1	48060	4/4	8000
	193203.4/4	49620	4/18	8000
	193765.4/9	49380		
	194124.4/11	46120		
	194669.4/16	49440		
	195035.4/18	48800		
	195602.4/23	49160		
	195959.4/25	49700		
	196656.4/30	49020		
	**********	443300	**********	16000
	TOTAL AMOUNT	636777		22740
	USED	369215		15800
	BALANCE	267562		6940
	#/1000 GALLON	1.34		0.0575
	PARTS/MILLION	149		6.39
	AVG. #/DAY	12307		527
	# USED Y TO D	1487240.		59466

MONTHLY REPORT

JUNE 1996

BY

Stanley M. Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

Two sets of sample results were received during June 1996 from sampling done during May 1996. These were from pumping wells PW-9 and PW-2 and the other set from the treated water from the Chemical Plant site of the Department of Energy. The results from both PW-9 and PW-2 showed that all of the chemical parameters were well within historical ranges and were all below the NPDES limits. The treated water from the Chemical Plant site also was well below the NPDES limits. The results are all appended.

The second quarter sampling was completed by me with the Department of Energy on June 24, 1996. I sampled wells RMW-2 and PW-9. These results have not yet been received. Also the treated water from the Chemical Plant site was sampled on June 28, 1996. These results have not yet been received.

II. FUTURE PLANS

I will sample wells PW-3 and PW-4 during the latter part of July 1996. I also will attend the 24th Annual Missouri Waste Management Conference being held July 21 - 23, 1996 in Columbia, Missouri.

III. MISCELLANEOUS

Appended is the St. Charles County Monthly Water Sales and Inventory of Chemicals - Lime - for the month of May 1996.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

June 4, 1996

Stanley M. Remington
956 Broadmoor Lane
St. Charles, MO 63301

RE: ATAS #15839.01
Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on May 28, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr
Project Manager

Enclosures

JAC/pck

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1583901EX(221)

DATE : 06-04-96

SAMPLE MATRIX : WATER
ATAS # : 15839.01
DATE SUBMITTED: 05-28-96
DATE EXTRACTED: 05-30-96
DATE ANALYZED : 05-31-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES13-052896-C

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	REPORTING LIMIT	RESULTS
2,6 DNT	0.0105	ND
2,4 DNT	0.0211	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	82 %
TETRACHLORO-M-XYLENE(30-150)	91 %

ND NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: BK0530EX(221)
DATE : 06-04-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 05-28-96
DATE EXTRACTED: 05-30-96
DATE ANALYZED : 05-31-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	REPORTING LIMIT	RESULTS
2,6 DNT	0.010	ND
2,4 DNT	0.020	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	80 %
TETRACHLORO-M-XYLENE(30-150)	95 %

ND NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: QC0530EX(221)
DATE : 06-04-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 05-28-96
DATE EXTRACTED: 05-30-96
DATE ANALYZED : 05-31-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD
,6 DNT	81	84	4
,4 DNT	82	84	2

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1583901RA(221)

DATE : 06-04-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #15839
DATE SUBMITTED: 05-28-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-ES13-052896-C	15839.01	GROSS ALPHA	4 +/- 5*
NP-ES13-052896-C	15839.01	GROSS BETA	4 +/- 8*
NP-ES13-052896-C	15839.01	TOTAL URANIUM (mg/L)	<0.005

VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.96σ.
pCi/L= PICOCURIES PER LITER
mg/L = PARTS PER MILLION(PPM)

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1583901MT(221)
DATE : 06-04-96

SAMPLE MATRIX : WATER
ATAS # : 15839.01
DATE SUBMITTED: 05-28-96
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES13-052896-C

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
NITRATE	1.05	mg/L	1.56	06-03-96	SM 418B
			METALS		
ARSENIC	5.0	ug/L	ND	05-31-96	SW 6010
BARIUM	1.0	ug/L	72.6	05-31-96	SW 6010
CHROMIUM	1.0	ug/L	2.4	05-31-96	SW 6010
LEAD	3.0	ug/L	ND	05-31-96	SW 6010
MANGANESE	1.0	ug/L	3.1	05-31-96	SW 6010
SELENIUM	5.0	ug/L	ND	05-31-96	SW 6010
MERCURY	0.20	ug/L	ND	06-03-96	SW 7470

ug/L = PARTS PER BILLION(PPB)
mg/L = PARTS PER MILLION(PPM)
ND = NOT DETECTED ABOVE REPORTING LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: QC0531MT(221)

DATE : 06-04-96

QA/QC

DESCRIPTION		PARAMETER	RESULTS	
METHOD BLANK	05-31-96	ARSENIC	<5.0	ug/L
METHOD BLANK	05-31-96	BARIUM	<1.0	ug/L
METHOD BLANK	05-31-96	CHROMIUM	<1.0	ug/L
METHOD BLANK	05-31-96	LEAD	<3.0	ug/L
METHOD BLANK	05-31-96	MANGANESE	<1.0	ug/L
METHOD BLANK	05-31-96	SELENIUM	<5.0	ug/L
METHOD BLANK	06-03-96	MERCURY	<0.2	ug/L
METHOD BLANK	06-03-96	NITRATE	<1.0	mg/L
CONTROL SPIKE	05-31-96	ARSENIC	105 %	RECOVERY
CONTROL SPIKE	05-31-96	BARIUM	97 %	RECOVERY
CONTROL SPIKE	05-31-96	CHROMIUM	99 %	RECOVERY
CONTROL SPIKE	05-31-96	LEAD	95 %	RECOVERY
CONTROL SPIKE	05-31-96	MANGANESE	98 %	RECOVERY
CONTROL SPIKE	05-31-96	SELENIUM	102 %	RECOVERY
CONTROL SPIKE	06-03-96	MERCURY	103 %	RECOVERY
CONTROL SPIKE	06-03-96	NITRATE	99 %	RECOVERY

ENVIRONMENTAL SAMPLE CHAIN-OF-CUSTODY / AUTHORIZATION FORM

WELDON SPRING SITE REMEDIAL ACTION PROJECT (WSSRAP)
7295 HIGHWAY 94 SOUTH, ST. CHARLES, MO 63304
TELEPHONE (314) 441-8086 TELEX (314) 447-0803

Validation Documentation ☐

ES&H 4.1.2.1, Rev.6, Effective 11/93

WSSRAP Contact:
Phone Number:
Request Number:

Lab/P.O. #:
Requisitioner: St. Charles
Dept./Cost Code:
Turnaround Time: ☐ Standard ☐ Accelerated ☐ Priority ☐ Urgent ☐ Emergency

#	Sample ID	QC	Date Sampled	Matrix	Cont.	Preserv.	Parameters	Arch. (Y/N)
1	NP-ES13-052896-C		5/28/96	Water	1-1 liter	HNO3	As,Cr,Hg,Mn,Se,Pb, Ba 15839.01	N
					1-1 liter glass	Ice	2,4-DNT	
					1-1 liter	H2SO4	NO3	
					1-4 liter	HNO3	U, Gross alpha, Gross beta	

Sampler's Signature

Checked By

Technical Reviewer

Relinquished By	Received By	Date	Time	Reason for Transfer	Seal Intact? (Y/N)	Cooler Temp.
		5/28/96	1250			
		5/29/96	1400			

AUTHORIZATION

MK-F Procurement Date

ES&H Date

Site Shipping Officer Date

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.

875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

June 12, 1996

Stanley M. Remington
956 Broadmoor Lane
St. Charles, MO 63301

RE: ATAS #15815.01-#15815.02
Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on May 24, 1996.

If, in your review, you should have any questions or require additional information, please call.

Thank you for choosing ATAS for your analytical needs.

Sincerely,

Jeffrey A. Carr
Project Manager

Enclosures

JAC/sdp

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)

DATE : 06-12-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #15815
DATE SUBMITTED: 05-24-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
PW-2	15815.01	GROSS ALPHA	3 +/- 3*
PW-9	15815.02	GROSS ALPHA	3 +/- 3*
PW-2	15815.01	GROSS BETA	8 +/- 6*
PW-9	15815.02	GROSS BETA	5 +/- 5*
PW-2	15815.01	TOTAL URANIUM (mg/L)	<0.005
PW-9	15815.02	TOTAL URANIUM (mg/L)	<0.005

* VARIABILITY OF THE RADIOACTIVE DISINTERGRATION PROCESS (COUNTING ERROR) AT THE 95% CONFIDENCE LEVEL, 1.96σ.
pCi/L= PICOCURIES PER LITER
mg/L = PARTS PER MILLION(PPM)

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 · FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)
DATE : 06-12-96

SAMPLE MATRIX : WATER
ATAS # : 15815.01
DATE SUBMITTED: 05-24-96
DATE ANALYZED : 05-25-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-2

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)

DATE : 06-12-96

SAMPLE MATRIX : WATER
ATAS # : 15815.02
DATE SUBMITTED: 05-24-96
DATE ANALYZED : 05-25-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

ND = NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)

DATE : 06-12-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 05-24-96
DATE ANALYZED : 05-25-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : METHOD BLANK

RESULTS REPORTED IN ug/L OR PARTS PER BILLION(PPB)

EXPLOSIVE	QUANTITATION LIMIT	RESULTS
HMX	13.0	ND
RDX	14.0	ND
1,3,5-TNB	7.3	ND
TETRYL	10.0	ND
1,3-DNB	4.0	ND
NITROBENZENE	7.0	ND
2,6 DNT	9.4	ND
2,4 DNT	5.7	ND
2,4,6 TNT	6.4	ND
o-NITROTOLUENE	12.0	ND
p-NITROTOLUENE	8.0	ND
m-NITROTOLUENE	7.9	ND

NOT DETECTED ABOVE QUANTITATION LIMIT

ATAS 875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 - FAX (314) 434-0080

CLIENT: STANLEY M. REMINGTON
919 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 158150RA(246)
DATE : 06-12-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLES
DATE SUBMITTED: 05-24-96
DATE ANALYZED : 05-25-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLES

COMPOUND	LCS PERCENT RECOVERY	LCS DUP PERCENT RECOVERY
HMX	102 %	103 %
RDX	112 %	109 %
1,3,5-TNB	107 %	108 %
TETRYL	105 %	107 %
1,3-DNB	111 %	109 %
TNT	103 %	103 %
NITROBENZENE	107 %	108 %
2,6 DNT	110 %	109 %
2,4 DNT	100 %	99 %
o-NITROTOLUENE	103 %	101 %
p-NITROTOLUENE	96 %	97 %
m-NITROTOLUENE	109 %	109 %

A245

AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc.

875 Fee Fee Road - Maryland Heights, MO 63043-3211 • Office (314) 434-4570 • FAX (314) 434-0060

PAGE ___ OF ___

CHAIN OF CUSTODY RECORD

ATAS Client Name: STANLEY M. REMINGTON

Project Name: LEEDON SPRINGS

Project #:

Form Completed By: SMR

PO #:

Sample ID	Sample Date	Sample Time	Sample Matrix	Grab	Comp	No. of Containers	Type of Analysis: TOTAL U	GROSS α	GROSS β	NITROAROMATICS	TSS	Preservative: Ice / Chemical (see below)	Remarks	Lab Use Only: Initials / Date / Location/Temp
PW-2	5/24/96						X	X	X	X				LM 5-24-96 AL 21° 15815.01
PW-9	"						X	X	X	X				L 02
TREAT. PLANT	"										X			

Relinquished by:	Received by:	Relinquished by:	Received by:
Signature: STANLEY M. REMINGTON	Signature: WALTER DOER	Signature:	Signature:
Printed Name: ST. CHARLES COUNTY	Printed Name: ATAS	Printed Name:	Printed Name:
Firm: 5/24/96 1304	Firm: 5/24/96 1304	Firm:	Firm:
Date/Time	Date/Time	Date/Time	Date/Time

Turnaround Requirements

___ 1 to 2 working days

___ 3 working days

___ 5 working days

___ 10 working days

___ 15 working days

Preservative codes

A - none
B - HNO_3
C - H_2SO_4
D - NaOH
E - HCl
F - _____

SEND RESULTS TO (Name & Company): _____

Original to ATAS/Copy to Client

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT		
DATE OF REPORT	6-3-96	
MONTH OF REPORT	MAY 1996	
WATER PRODUCTION		324,997,000
WASHWATER USED		6,677,000
DELIVERED TO SYSTEM		318,320,000
MISSOURI AMERICAN WATER		
	BOOSTER STATION	225,000,000
67004132835-007	FRANCIS HOWELL	421,000
67004132850-007	MO. HWYS & TRANS.	3,100
67004133000-004	M. K. FERGUSEN	436,000
67004133040-015	M. K. FERGUSEN	(154,000)
67004133010-002	M. K. FERGUSEN	105,000
67004133020-000	M. K. FERGUSEN	33,000
67004132855-002	FRANCIS HOWELL	350,000
67004132890-009	M. K. FERGUSEN	45,000
67095018237-000	M. K. FERGUSEN	11,000
	TOTAL	226,251,000
WATER DISTRICT #2		
	24" EAST LINE	0
	24" WEST LINE	74,360,000
	BYPASS	0
	TOTAL	74,360,000
WATER DISTRICT #2		
	NEW MELLE	
	TOTAL	6,574,000
NATIONAL GUARD AREA		
	BLDG S-61	0
	WASH RACK	4,000
	TOTAL	4,000
TOTAL WATER SALES	**********	307,189,000

^ST. CHARLES COUNTY WATER DEPARTMENT MAY 1996

INVENTORY OF CHEMICALS

		LIME		CHLORINE
PREVIOUS BALANCE		218782		6480
INVOICE #	DATE	LIME	DATE	CHLORINE
196985	5/2	49460	5/6	8000
197855	5/7	49360	5/21	8000
198148	5/9	48760	5/31	8000
198712	5/14	49520		
199034	5/16	49060		
149003	5/21	48940		
200056	5/23	48920		
200594	5/28	49280		
200988	5/30	48980		
	**********	442280	**********	24000
	TOTAL AMOUNT	6610622		30480
	USED	481539		18395
	BALANCE	179523		12085
	1000 GALLON	1.48		
	PARTS MILLION	164.74		6.3
	AVG. PER DAY	15533		5.93
	USED Y-T-D	1,968,779		77861