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QUARTERLY REPORT

ST. CHARLES COUNTY WELL FIELD

MONITORING PROJECT

GRANT NO. DE-FG05-89OR21864

SUPERSEDED

Prepared by: Stanley Remington
July, August and September, 1996

MONTHLY REPORT

JULY 1996

BY

Stanley Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

The sampling of wells PW-9 and RMW-2 was completed on June 24, 1996. The results have been received and are appended. These were done in conjunction with the Department of Energy's quarterly sampling schedule. Some chemical parameters are sampled each quarter which I do not normally sample each month. The results were below the NPDES limits and within historical ranges.

The treated water from the quarry, batch NP-EPQ2-062796-C, was sampled on June 27, 1996 and the results have been received and are appended. Again no excessive quantities of any type of hazardous chemicals were noted. This again confirms the successful treatment of the quarry water before it is discharged into the Missouri River.

A report from the St. Louis County Environmental Health Laboratories for St. Charles County well water was received and is appended. This was for the County's raw water taken during the month of June 1996. The parameters measured were gross alpha and beta. Both readings show that the parameters were all within historical ranges, and both well below the NPDES limits.

The Quarterly Site and Quarry Water Treatment Plant Effluent Data Summary - Second Quarter 1996 was received from the Department of Energy and is appended for your information.

II. REPORT

A 270 page report was received from the Department of Energy entitled "Weldon Spring Site Environmental Report for Calendar Year 1995." I have not yet had time to review the report , but will do so in the August 1996 report.

III. CONFERENCE

I attended the 24th Annual Missouri Waste Management Conference in Columbia, Missouri on July 21 - 23, 1996. The main purpose of the Coalition is to provide a forum where industry, government and citizens can share information and opinions on current waste management issues. This conference provides a broad spectrum of meetings on different environmental issues. A participant can select which meetings to attend and receive information on the issues selected. I find the conference very useful for keeping up-to-date on many vital issues.

IV. FUTURE PLANS

I will sample wells PW-3 and PW-4 at the end of July and wells PW-5 and PW-6 at the end of August. My monthly report for July 1996 is being submitted early because I will be gone from August 2 through August 20 to the state of New York.

V. MISCELLANEOUS

The monthly St. Charles County Water Sales Report is appended for you information.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.
875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

July 9, 1996

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

RE: ATAS #16089.01
Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on June 27, 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: 1608901EX(252)

DATE : 07-09-96

SAMPLE MATRIX : WATER
ATAS # : 16089.01
DATE SUBMITTED: 06-27-96
DATE EXTRACTED: 07-01-96
DATE ANALYZED : 07-03-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : NP-EPQ2-062796-C

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

EXPLOSIVE	REPORTING LIMIT	RESULTS
2,6 DNT	0.0108	ND
2,4 DNT	0.0215	ND

QA/QC SURROGATE RECOVERY

DECACHLOROBIPHENYL(30-150)	84 %
TETRACHLORO-M-XYLENE(30-150)	98 %

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: 1608901EX(252)

DATE : 07-09-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 06-27-96
DATE EXTRACTED: 07-01-96
DATE ANALYZED : 07-03-96
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)	58 %
TETRACHLORO-M-XYLENE(30-150)	85 %

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: 1608901EX(252)

DATE : 07-09-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 06-27-96
DATE EXTRACTED: 07-01-96
DATE ANALYZED : 07-03-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD
2,6 DNT	92	84	9
2,4 DNT	90	82	9

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: 1608901EX(252)
DATE : 07-09-96

SAMPLE MATRIX : WATER
ATAS # : 16089.01
DATE SUBMITTED: 06-27-96
PROJECT : WELDON SPRING
SAMPLE ID : NP-EPQ2-062796-C

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
NITRATE	1.05	mg/L	ND	07-01-96	SM 418B
			METALS		
ARSENIC	0.010	mg/L	ND	07-03-96	SW 6010
CHROMIUM	0.010	mg/L	ND	07-03-96	SW 6010
COPPER	0.010	mg/L	ND	07-03-96	SW 6010
LEAD	0.005	mg/L	ND	07-03-96	SW 6010
MANGANESE	0.005	mg/L	0.015	07-03-96	SW 6010
MERCURY	0.0002	mg/L	ND	07-05-96	SW 7470
SELENIUM	0.005	mg/L	ND	07-03-96	SW 6010

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: 1608901EX(252)

DATE : 07-09-96

QA/QC

DESCRIPTION		PARAMETER	RESULTS	
METHOD BLANK	07-03-96	ARSENIC	<0.010	mg/L
METHOD BLANK	07-03-96	CHROMIUM	<0.010	mg/L
METHOD BLANK	07-03-96	COPPER	<0.010	mg/L
METHOD BLANK	07-03-96	LEAD	<0.005	mg/L
METHOD BLANK	07-03-96	MANGANESE	<0.005	mg/L
METHOD BLANK	07-05-96	MERCURY	<0.0002	mg/L
METHOD BLANK	07-03-96	SELENIUM	<0.005	mg/L
METHOD BLANK	07-01-96	NITRATE	<1.0	mg/L
CONTROL SPIKE	07-03-96	ARSENIC	91 %	RECOVERY
CONTROL SPIKE	07-03-96	CHROMIUM	88 %	RECOVERY
CONTROL SPIKE	07-03-96	COPPER	85 %	RECOVERY
CONTROL SPIKE	07-03-96	LEAD	90 %	RECOVERY
CONTROL SPIKE	07-03-96	MANGANESE	88 %	RECOVERY
CONTROL SPIKE	07-05-96	MERCURY	107 %	RECOVERY
CONTROL SPIKE	07-03-96	SELENIUM	89 %	RECOVERY
CONTROL SPIKE	07-01-96	NITRATE	101 %	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: 1608901EX(252)

DATE : 07-09-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #16089
DATE SUBMITTED: 06-27-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-EPQ2-062796-C	16089.01	GROSS ALPHA	0 +/- 4
NP-EPQ2-062796-C	16089.01	GROSS BETA	2 +/- 7
NP-EPQ2-062796-C	16089.01	TOTAL URANIUM(mg/L)	<0.005
NP-EPQ2-062796-C	16089.01	RADIUM-226, TOTAL	0.4 +/- 0.2
NP-EPQ2-062796-C	16089.01	RADIUM-228, TOTAL	0.1 +/- 1.0
NP-EPQ2-062796-C	16089.01	THORIUM-228, TOTAL	0.0 +/- 0.1
NP-EPQ2-062796-C	16089.01	THORIUM-230, TOTAL	0.4 +/- 0.2
NP-EPQ2-062796-C	16089.01	THORIUM-232, TOTAL	0.0 +/- 0.1

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

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 WD 6-27-96 IFH-BR-ACL	Arch. (Y/N)
	NP-EP02-062796-C		6/27/96	Water	1-1 liter	HNO3	As, Cr, Hg, Mn, Se, Pb, Cu 16089.01	N
					1-1 liter glass	Ice	2,4-DNT	
					1-1 liter	H2SO4	NO3	
					1-4 liter	HNO3	U, Gross alpha, Gross beta Ra 226/228 Th 228/230/232	

Sampler's Signature

Checked By

Technical Reviewer

Relinquished By	Received By	Date	Time	Reason for Transfer	Seal Intact? (Y/N)	Cooler Temp.
Tom Welton	[illegible]	6/27/96	1255			
[illegible]	[illegible]	6/27/96	1:50	23°C		

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

July 15, 1996

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

RE: ATAS #16038.01-#16038.02
Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on June 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
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1603801EX(253)
DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : 16038.01
DATE SUBMITTED: 06-24-96
PROJECT : WELDON SPRING
SAMPLE ID : RMW-2

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
NITRATE	1.05	mg/L	ND	06-24-96	SM 418 B
			TCLP TOXICITY METALS		
ARSENIC	0.010	mg/L	0.066	07-01-96	SW 6010
BERYLLIUM	0.003	mg/L	ND	06-28-96	SW 6010
COPPER	0.010	mg/L	ND	06-28-96	SW 6010
IRON	0.050	mg/L	8.32	06-28-96	SW 6010
LEAD	0.005	mg/L	ND	07-01-96	SW 6010
MAGANESE	0.005	mg/L	1.00	06-28-96	SW 6010
ZINC	0.020	mg/L	0.035	06-28-96	SW 6010
MERCURY	0.0002	mg/L	ND	06-26-96	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: 1603801EX(253)
DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : 16038.02
DATE SUBMITTED: 06-24-96
PROJECT : WELDON SPRING
SAMPLE ID : PW-9

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
INORGANICS					
NITRATE	1.0	mg/L	ND	06-24-96	SM 418B
TCLP TOXICITY METALS					
ARSENIC	0.010	mg/L	ND	07-01-96	SW 6010
BERYLLIUM	0.003	mg/L	ND	06-28-96	SW 6010
COPPER	0.010	mg/L	ND	06-28-96	SW 6010
IRON	0.050	mg/L	5.74	06-28-96	SW 6010
LEAD	0.005	mg/L	0.006	07-01-96	SW 6010
MAGANESE	0.005	mg/L	0.366	06-28-96	SW 6010
ZINC	0.020	mg/L	ND	06-28-96	SW 6010
MERCURY	0.0002	mg/L	ND	06-26-96	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: 1603801EX(253)

DATE : 07-15-96

QA/QC

DESCRIPTION		PARAMETER	RESULTS
METHOD BLANK	07-01-96	ARSENIC	<0.010 mg/L
METHOD BLANK	06-28-96	BERYLLIUM	<0.002 mg/L
METHOD BLANK	06-28-96	COPPER	<0.010 mg/L
METHOD BLANK	06-28-96	IRON	<0.050 mg/L
METHOD BLANK	07-01-96	LEAD	<0.005 mg/L
METHOD BLANK	06-28-96	MAGANESE	<0.005 mg/L
METHOD BLANK	06-28-96	ZINC	<0.020 mg/L
METHOD BLANK	06-26-96	MERCURY	<0.0002 mg/L
METHOD BLANK	06-24-96	NITRATE	<1.00 mg/L
CONTROL SPIKE	07-01-96	ARSENIC	102 % RECOVERY
CONTROL SPIKE	06-28-96	BERYLLIUM	87 % RECOVERY
CONTROL SPIKE	06-28-96	COPPER	89 % RECOVERY
CONTROL SPIKE	06-28-96	IRON	89 % RECOVERY
CONTROL SPIKE	07-01-96	LEAD	100 % RECOVERY
CONTROL SPIKE	06-28-96	MAGANESE	88 % RECOVERY
CONTROL SPIKE	06-28-96	ZINC	88 % RECOVERY
CONTROL SPIKE	06-26-96	MERCURY	93 % RECOVERY
CONTROL SPIKE	06-24-96	NITRATE	101 % RECOVERY

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: 1603801EX(253)

DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #16038
DATE SUBMITTED: 06-24-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
RMW-2	16038.01	GROSS ALPHA	4 +/- 7*
RMW-2	16038.01	GROSS BETA	7 +/- 9*
RMW-2	16038.01	TOTAL URANIUM (mg/L)	0.008
PW-9	16038.02	GROSS ALPHA	1 +/- 5*
PW-9	16038.02	GROSS BETA	7 +/- 8*
PW-9	16038.02	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
956 BROADMOOR LANE
ST. CHARLES, MO 63301
ATTN: STANLEY M. REMINGTON

REPORT: 1603801EX(253)

DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : 16038.01
DATE SUBMITTED: 06-24-96
DATE EXTRACTED: 06-27-96
DATE ANALYZED : 06-28-96
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: 1603801EX(253)

DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : 16038.02
DATE SUBMITTED: 06-24-96
DATE EXTRACTED: 06-27-96
DATE ANALYZED : 06-28-96
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

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

REPORT: 1603801EX(253)

DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 06-24-96
DATE EXTRACTED: 06-27-96
DATE ANALYZED : 06-27-96
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

= 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: 1603801EX(253)

DATE : 07-15-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 06-24-96
DATE EXTRACTED: 06-27-96
DATE ANALYZED : 06-27-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY
HMX	95 %
RDX	102 %
1,3,5-TNB	117 %
TETRYL	76 %
1,3-DNB	107 %
TNT	97 %
NITROBENZENE	117 %
2,6 DNT	110 %
2,4 DNT	101 %
o-NITROTOLUENE	107 %
p-NITROTOLUENE	112 %
m-NITROTOLUENE	115 %

ATAS

AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc.

675 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: [signature]

PO #:

Type of Analysis / Preservative Ice Chemical (see below)

Sample ID	Sample Date	Sample Time	Sample Matrix	Grab	Comp	No. of Containers	EXPLOSIVES	NITRATE	METALS	GROSS α & β	TOTAL U	TSS				Remarks	Lab Use Only (Initials: [initials]; Date: 6-24-96; Location/Temp: IF3-ACL-BA & KPC)
RMW-2	6/24/96	0845		X			X	X	X	X	X	X					16038.01
PW-9	"	0915		X			X	X	X	X	X	X					↓ 02
TREAT. PLANT	"	0930			X								X				

Relinquished by:	Received by:	Relinquished by:	Received by:
[signature]	[signature]		
Signature	Signature	Signature	Signature
STAN REMINGTON	WALTER DOTSON		
Printed Name	Printed Name	Printed Name	Printed Name
WELDON SPRING	ATAS		
Firm	Firm	Firm	Firm
11:00 AM JUNE 24, 1996	6/24/96 1101		
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

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

July 11, 1996

Distribution:

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

Enclosed please find the subject effluent data summary sheets for the batches of water treated and discharged during the second quarter of 1996. Five batches (S#078 through S#082) and two batches (Q#044 through Q#45) 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, 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 QWTP (BATCH 044) ANALYTICAL RESULTS

4/24/96 1030

FROM ALL AGENCIES RECEIVING SAMPLES ON 4/15/96

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	<10.0 mg/l		NA	NA	NA
TSS	50 / 30	1.50 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0355 mg/l		NA	NA	
CHROMIUM	0.1	<0.0063 mg/l		NA	NA	
COPPER ***	1	<0.0042 mg/l		NA	NA	
LEAD	0.1	<0.0437 mg/l		NA	NA	
MANGANESE	0.1	0.0123 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.005 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.00147 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.0166 µg/l		NA	NA	
FLUORIDE	4.0	<0.500 mg/l		NA	NA	
NITRATE+NITRITE AS N	*	<0.007 mg/l		NA	NA	
SULFATE	500	214 mg/l		NA	NA	
CHLORIDE	*	232 mg/l		NA	NA	
GROSS ALPHA	*	2.05 ±0.904 pCi/l		NA	NA	2.7 ±1.1 pCi/l
GROSS BETA	*	5.39 ±0.966 pCi/l		NA	NA	6.3 ±1.1 pCi/l
URANIUM, TOTAL	**	1.44 ±0.0438 pCi/l		NA	NA	NA
RADIUM-226 ***	*	Due 5/1/96		NA	NA	NA
RADIUM-228 ***	*	Due 5/1/96		NA	NA	NA
THORIUM-230 ***	*	Due 5/1/96		NA	NA	NA
THORIUM-232 ***	*	Due 5/1/96		NA	NA	NA
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA	NA	NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs	*	<0.1 µg/l		NA	NA	NA
4. PESTICIDES	*	NA			NA	
5. METALS / OTHERS	*	NA			NA	
pH	6.0 - 9.0 S.U.	6.26	NA	NA	NA	NA

* =MONITORING ONLY, NO PERMIT DISCHARGE LIMITS

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

*** = Parameter required once/month. Sampled this batch. Ac-227 was also sampled--results due 5/1/96.

NA = Not analyzed.

= Data received after batch was discharged

SUMMARY OF QWTP (BATCH 045) ANALYTICAL RESULTS

5/10/96 1030

FROM ALL AGENCIES RECEIVING SAMPLES ON 5/6/96

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	<5.00 mg/l		NA	NA	NA
TSS	50 / 30	2.0 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.0041 mg/l		NA	NA	
COPPER ***	1	0.0076 mg/l		NA	NA	
LEAD	0.1	0.00064 mg/l		NA	NA	
MANGANESE	0.1	0.0197 mg/l		NA	NA	
MERCURY	0.004	<0.0001 mg/l		NA	NA	
SELENIUM	0.02	<0.0015 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	0.005 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.01 µg/l		NA	NA	
FLUORIDE	4.0	0.20 mg/l		NA	NA	
NITRATE+NITRITE AS N	*	<0.050 mg/l		NA	NA	
SULFATE	500	161 mg/l		NA	NA	
CHLORIDE	*	192 mg/l		NA	NA	
GROSS ALPHA	*	2.50 ± 1.29 pCi/l		NA	NA	Due ± pCi/l
GROSS BETA	*	2.89 ± 1.40 pCi/l		NA	NA	Due ± pCi/l
URANIUM, TOTAL	**	0.717 ± 0.016 pCi/l		NA	NA	NA
RADIUM-226 ***	*	Due 5/14		NA	NA	NA
RADIUM-228 ***	*	Due 5/14		NA	NA	NA
THORIUM-230 ***	*	Due 5/14		NA	NA	NA
THORIUM-232 ***	*	Due 5/14		NA	NA	NA
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.	6.51	NA	NA	NA	NA

* =MONITORING ONLY, NO PERMIT DISCHARGE LIMITS

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

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

NA = Not analyzed.

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 078) ANALYTICAL RESULTS

04/19/96 1410

From all parties receiving samples on 4/9/96

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	<10.0 mg/l		NA	NA	NA
TSS	50 / 30	5.00 mg/l		NA	NA	NA
ARSENIC	0.1	<0.0355mg/l		NA	NA	
CHROMIUM	0.1	<0.0063 mg/l		NA	NA	
LEAD	0.1	<0.0437 mg/l		NA	NA	
MANGANESE	0.1	0.0091 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.005 mg/l		NA	NA	
CYANIDE, AMENABLE	0.0075	<0.00147 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.0166 ug/l		NA	NA	
FLUORIDE	4.0	3.93 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	0.720 mg/l		NA	NA	
SULFATE	500	220 mg/l		NA	NA	
CHLORIDE	*	248 mg/l		NA	NA	
GROSS ALPHA	*	1.50 ± 1.23 pCi/l		NA	NA	2.9 ± 1.3 pCi/l
GROSS BETA	*	4.90 ± 1.51 pCi/l		NA	NA	10.4 ± 1.1 pCi/l
URANIUM, TOTAL	**	0.589 ± 0.0168 pCi/l		NA	NA	NA
RADIUM-226 ***	*	NA pCi/l		NA	NA	
RADIUM-228 ***	*	NA pCi/l		NA	NA	
THORIUM-230 ***	*	NA pCi/l		NA	NA	NA
THORIUM-232 ***	*	NA pCi/l		NA	NA	NA
pH (Std. Units)	6 - 9	7.37		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<0.10 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. Sampled in batch S077.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 079) ANALYTICAL RESULTS

05/3/96 1550

From all parties receiving samples on 4/30/96

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	1.0 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.0023 mg/l		NA	NA	
LEAD	0.1	<0.00060 mg/l		NA	NA	
MANGANESE	0.1	0.0022 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	0.0021 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	2.73 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	1.04 mg/l		NA	NA	
SULFATE	500	347 mg/l		NA	NA	
CHLORIDE	*	254 mg/l		NA	NA	
GROSS ALPHA	*	7.82 ± 8.04 pCi/l		NA	NA	Due
GROSS BETA	*	29.74 ± 10.22 pCi/l		NA	NA	Due
URANIUM, TOTAL	**	0.622 ± 0.016 pCi/l		NA	NA	Due
RADIUM-226 ***	*	Due 5/8		NA	NA	
RADIUM-228 ***	*	Due 5/8		NA	NA	
THORIUM-230 ***	*	Due 5/8		NA	NA	NA
THORIUM-232 ***	*	Due 5/8		NA	NA	NA
pH (Std. Units)	6 – 9	7.14		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 080) ANALYTICAL RESULTS

05/15/96 1310

From all parties receiving samples on 5/9/96

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	<5.00 mg/l		NA	NA	NA
TSS	50 / 30	2.0 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.0041 mg/l		NA	NA	
LEAD	0.1	<0.00060 mg/l		NA	NA	
MANGANESE	0.1	0.0044 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.0015 mg/l		NA	NA	
BARIUM*****	Monitor	0.0217 mg/l		NA	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	2.20 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	0.81 mg/l		NA	NA	
SULFATE	500	241 mg/l		NA	NA	
CHLORIDE	*	174 mg/l		NA	NA	
GROSS ALPHA	*	<4.12 pCi/l		NA	NA	Due
GROSS BETA	*	8.72 ± 2.37 pCi/l		NA	NA	Due
URANIUM, TOTAL	**	1.76 ± 0.220 pCi/l		NA	NA	Due
RADIUM-226 ***	*	***		NA	NA	
RADIUM-228 ***	*	***		NA	NA	
THORIUM-230 ***	*	***		NA	NA	NA
THORIUM-232 ***	*	***		NA	NA	NA
pH (Std. Units)	6 – 9	7.20		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. Collected during batch S079 on 4/30/96.

**** = Effective limit of 1 µg/l

***** Limit on previous permit was 1.5 mg/l.

NA = NOT ANALYZED

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 081) ANALYTICAL RESULTS

06/06/96 1500

From all parties receiving samples on 5/28/96

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	9.94 mg/l		NA	NA	NA
TSS	50 / 30	2.0 mg/l		NA	NA	NA
ARSENIC	0.1	0.0042 mg/l		NA	NA	
CHROMIUM	0.1	0.0037 mg/l		NA	NA	
LEAD	0.1	0.0018 mg/l		NA	NA	
MANGANESE	0.1	0.0035 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.0025 mg/l		NA	NA	
BARIUM*****	Monitor	0.0710 mg/l		NA	NA	NA
CYANIDE, AMENABLE	0.0075	<0.00147 mg/l		NA	NA	
2,4-DNT	0.22 ug/l	<0.0177 ug/l		NA	NA	
FLUORIDE	4.0	2.01 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	0.640 mg/l		NA	NA	
SULFATE	500	299 mg/l		NA	NA	
CHLORIDE	*	260 mg/l		NA	NA	
GROSS ALPHA	*	5.34 ± 2.04 pCi/l		NA	NA	4.7 ± 1.6 pCi/l
GROSS BETA	*	11.8 ± 1.73 pCi/l		NA	NA	9.1 ± 1.1 pCi/l
URANIUM, TOTAL	**	2.13 ± 0.03 pCi/l		NA	NA	2.6 ± 0.4 pCi/l
RADIUM-226 ***	*	1.62 ± 0.591 pCi/l		NA	NA	
RADIUM-228 ***	*	1.80 ± 0.592 pCi/l		NA	NA	
THORIUM-230 ***	*	0.0902 ± 0.19 pCi/l		NA	NA	NA
THORIUM-232 ***	*	0.0620 ± 0.132 pCi/l		NA	NA	NA
pH (Std. Units)	6 – 9	7.80		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	(a) / 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. Collected for June this batch.

**** = Effective limit of 1 µg/l

***** Limit on previous permit was 1.5 mg/l.

NA = NOT ANALYZED (a) Aroclor-1260 detected at 0.12 µg/l all others <0.1 µg/l.

= Data received after batch was discharged

SUMMARY OF SWTP (BATCH 082) ANALYTICAL RESULTS

06/26/96 0800

From all parties receiving samples on 6/17/96

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	2.0 mg/l		NA	NA	NA
ARSENIC	0.1	<0.002 mg/l		NA	NA	
CHROMIUM	0.1	<0.0041 mg/l		NA	NA	
LEAD	0.1	<0.0006 mg/l		NA	NA	
MANGANESE	0.1	0.013 mg/l		NA	NA	
MERCURY	0.004	<0.00010 mg/l		NA	NA	
SELENIUM	0.02	<0.0015 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	1.63 mg/l		NA	NA	
NITRATE + NITRITE AS N	20	0.39 mg/l		NA	NA	
SULFATE	500	330 mg/l		NA	NA	
CHLORIDE	*	174 mg/l		NA	NA	
GROSS ALPHA	*	3.84 ± 1.06 pCi/l		NA	NA	4.7 ± 1.5 pCi/l
GROSS BETA	*	8.46 ± 1.02 pCi/l		NA	NA	9.7 ± 1.1 pCi/l
URANIUM, TOTAL	**	2.05 ± 0.250 pCi/l		NA	NA	2.2 ± 0.3 pCi/l
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	6.2		NA	NA	
PRIORITY POLLUTANTS	(SEE BELOW)					
1. SEMI-VOA	*	NA		NA	NA	NA
2. VOA	*	NA		NA	NA	NA
3. PCBs/PESTICIDES	****/*	<1.0 µg/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. Collected for June in batch S081.

**** = Effective limit of 1 µg/l

NA = NOT ANALYZED

= Data received after batch was discharged

St. Louis County Department of Health

SAMPLE ANALYSIS REQUEST

Date Received 7/3/96

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 6/01/96 - 6/30/96

COLLECTED BY: First ~~Ship~~ Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: R A W

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

SC296-7

FOR LABORATORY USE ONLY

	RESULTS (pCi/L)	*MDL (pCi/L)
Gross Alpha	2.0 ± 1.2	1.0
Gross Beta	6.1 ± 0.6	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

7/10/96

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR/2/96

St. Louis County Department of Health

SAMPLE ANALYSIS REQUEST

Date Received 7/3/96

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 6/01/96 - 6/30/96

COLLECTED BY: First ~~Ship~~ Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: F I N I S H E D

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

SCT96-7

FOR LABORATORY USE ONLY

RESULTS (pCi/L)		*MDL (pCi/L)
Gross Alpha	< 1.0	1.0
Gross Beta	4.2 ± 0.6	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

7/10/96 JH

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR/5/96

RECEIVED: 6/11/96 y Results & Invoice - 6/24/96 y

SAMPLE ANALYSIS REQUEST

ATTENTION: Environmental Health Laboratories
St. Louis County Health Department

SAMPLE NUMBER PWSD I.D. #6079507 - St. Charles County Water

DATE COLLECTED: 5-01- 5-31-96

COLLECTED BY: First Shift Operator

ADDRESS 1635 South HWY 94

Defiance, MO (Zip Code) 63341

TELEPHONE # (314) 926-922

RAW

ANALYSIS REQUESTED:

X GROSS ALPHA X GROSS BETA ____ RADIUM 226 ____ RADIUM 228

____ Other (Identify)

FOR LABORATORY USE ONLY SCR96-6

	RESULTS (pCi/L)	*MDL (pCi/L)
Gross Alpha	2.4 ± 1.2	1.0
Gross Beta	5.2 ± 1.0	1.0
Radium 226		0.1
Radium 228		1.0
Other-Identify		

6/24/96 JH

Procedure used: Measurement of Radioactivity in Drinking Water EPA-600/4-80-032

COMMENTS: *MDL is the minimum detectable limit.

Analysis performed by: ST. LOUIS COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th Floor
Clayton, Missouri 63105

CC sent to: T. W. Aaron

RECEIVED: 6/11/96 9

Results & Invoice - 6/24/96 9

SAMPLE ANALYSIS REQUEST

ATTENTION: Environmental Health Laboratories
St. Louis County Health Department

SAMPLE NUMBER PWSD I.D. #6079507 - St. Charles County Water

DATE COLLECTED: 5-01 - 5-31-96

COLLECTED BY: First Shift Operator

ADDRESS 1635 South HWY 94

Defiance, MO (Zip Code) 63341

TELEPHONE # (314) 926-922

Finished

ANALYSIS REQUESTED:

X GROSS ALPHA X GROSS BETA RADIUM 226 RADIUM 228

Other (Identify)

FOR LABORATORY USE ONLY

SCT96-6

RESULTS (pCi/L)		*MDL (pCi/L)
Gross Alpha	<1.0	1.0
Gross Beta	4.2 ± 0.5	1.0
Radium 226		0.1
Radium 228		1.0
Other-Identify		

6/24/96 JH

Procedure used: Measurement of Radioactivity in Drinking Water EPA-600/4-80-032

COMMENTS: *MDL is the minimum detectable limit.

Analysis performed by: ST. LOUIS COUNTY HEALTH DEPARTMENT
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, Missouri 63105

cc sent to: T. W. Aaron

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

DATE OF REPORT 07/01/96

MONTH OF REPORT JUN96

WATER PRODUCTION			377,838,000
WASHWATER USED			6,699,000
DELIVERED TO SYSTEM			371,139,000
MO. AMERICAN WATER			
	BOOSTER STATION		276,021,000
67004132835-007	FRANCIS HOWELL		40,000
67004132850-007	MO. HWYS & TRANS.		3,100
67004133000-004	M.K. FERGUSEN		817,000
67004133040-015	M.K. FERGUSEN		570,000
67004133010-002	M.K. FERGUSEN		117,000
67004133020-000	M.K. FERGUSEN		31,000
67004132855-002	FRANCIS HOWELL		588,000
67004132890-009	M.K. FERGUSEN		68,000
67095018237-000	M.K. FERGUSEN		124,000
		TOTAL	278,379,100
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		80,243,000
	BYPASS		0
		TOTAL	80,243,000
WATER DISTICT #2			
	NEW MELLE	TOTAL	8,575,000
NATIONAL GUARD AREA			
	BLGD S-61		5,000
	WASH RACK		2,000
		TOTAL	7,000
TOTAL WATER SALES	**********		367,204,100

ST. CHARLES COUNTY WATER DEPARTMENT

JUNE 96

INVENTORY OF CHEMICALS

		LIME			CHLORIN
PREVIOUS BALANCE		179523			12085
RECIEVED	INV. # DATE			INV. # DATE	
	201877.6/4	49660		6/14	8000
	202268.6/6	49440		6/28	8000
	202746.6/11	48860			
	6/13	48720			
	203818.6/18	48740			
	204237.6/20	49500			
	204874.6/25	49640			
	204874.6/27	49700			
	**********	394260		**********	16000
	TOTAL AMOUNT	573783			28085
	USED	365729			20100
	BALANCE	208054			7895
	#/1000 GALLON	1.00			0.0595
	PARTS/MILLION	129			5.95
	AVG. #/DAY	12858			670
	# USED Y TO D	2334508.			97961

MONTHLY REPORT

AUGUST 1996

BY

Stanley Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

The results from sampling wells PW-3 and PW-4 have been received and are appended. These wells were sampled on July 26, 1996. No detections were noticed for the nitroaromatics (listed as "Explosives") and normal quantities of total uranium, gross alpha and beta were noted. That is, all of the results are well within NPDES limits and are in line with historical values.

Wells PW-5 and PW-6 were sampled on August 22, 1996. These results have not yet been received.

II. REPORTS

Three reports have been received by me from the Department of Energy. The first was received during July 1996 and was entitled "Weldon Spring Site Environmental Report for the Calendar Year 1995". The objective of the report was to characterize trends and environmental conditions at the site and to confirm compliance with environmental and health protection standards and requirements. The report also presents the status of remedial activities and the results of monitoring these activities to assess their impact on the public and the environment. The Monitoring Summary stated, "Environmental monitoring data showed that dose estimates were below the US Department of Energy guideline of 100 mrem (1 mSv) annual total effective dose equivalent for all exposure pathways. NESHAP's (National Emission Standards for Hazardous Air Pollutants) air monitoring results for radioactive air particulates showed that dose estimates were

all well below the NESHAP standard of 10 mrem (0.1 mSv) per year. In addition several other characterizations were monitored including surface and groundwater. The important thing was that no hazardous materials have yet to reach the St. Charles County Well Field. Based on the past several years it is doubtful if any ever will, but monitoring for these in the future will be necessary.

A second report entitled "Engineering Evaluation/Cost Analysis for the Proposed Removal Action at the Southeast Drainage Near the Weldon Spring Site, Weldon Spring, Missouri" was prepared to support a proposed removal of contaminated sediment from selected portions of the Southeast Drainage as part of the cleanup activities being conducted by the US Department of Energy at the Weldon Spring Site in St. Charles County, Missouri. Comments were encouraged by any or all of the recipients of the report. The southeast drainage is a natural 2.4 km. (1.5 mi.) channel that carries surface runoff to the Missouri River from the southern portion of the chemical plant area and a small portion of the ordinance works area (part of the Weldon Spring Training Area) south of the groundwater divide. The drainage becomes contaminated as a result of past activities of the US Army and the DOE (and its predecessors). Several different calculation types were performed including risk, sediment, surface water, exposure and something called risk characterization. The entire report is high technical and is available for analysis from St. Charles County, the County Library or me for anyone interested in the technical points analyzed.

A third report entitled "Quarterly Environmental Data Summary for the Second Quarter 1996" was received. There were several above normal readings noted primarily in sources near the quarry and raffinate pit areas and one sample from the Site Water Treatment Plant. This latter site was retested and showed a normal value for the metals detected, that is, fluoride, selenium and silver. They are below baseline. Still no above averages were noted in any of the County's pumping wells. High readings were almost always due to laboratory errors. Whenever subsequent tests were made they have always returned to their historical values.

III. FUTURE PLANS

I will sample the quarterly batches from wells in September with the DOE and maybe the Missouri Department of Natural Resources. This will be done in mid-September.

IV. MISCELLANEOUS

Appended are the test results for raw and treated water taken from the Water Plant between July 1 and 31, 1996. Also appended is the St. Charles County Monthly Water Sales Report.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.
875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

August 15, 1996

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

RE: ATAS #16349.01-#16349.02
Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on July 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,

Jeff Carr/apt

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

REPORT: 1634901EX(256)
DATE : 08-15-96

SAMPLE MATRIX : WATER
ATAS # : 16349.01
DATE SUBMITTED: 07-26-96
DATE EXTRACTED: 07-31-96
DATE ANALYZED : 08-04-96
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

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: 1634901EX(256)

DATE : 08-15-96

SAMPLE MATRIX : WATER
ATAS # : 16349.02
DATE SUBMITTED: 07-26-96
DATE EXTRACTED: 07-31-96
DATE ANALYZED : 08-04-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-4

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

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

REPORT: 1634901EX(256)

DATE : 08-15-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 07-26-96
DATE EXTRACTED: 07-31-96
DATE ANALYZED : 08-04-96
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: 1634901EX(256)

DATE : 08-15-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 07-26-96
DATE EXTRACTED: 07-31-96
DATE ANALYZED : 08-04-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY
HMX	107 %
RDX	114 %
1,3,5-TNB	113 %
TETRYL	102 %
1,3-DNB	118 %
TNT	107 %
NITROBENZENE	125 %
2,6 DNT	111 %
2,4 DNT	103 %
o-NITROTOLUENE	116 %
p-NITROTOLUENE	116 %
m-NITROTOLUENE	116 %

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: 1634901EX(256)

DATE : 08-15-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #16349
DATE SUBMITTED: 07-26-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
PW-3	16349.01	GROSS ALPHA	3 +/- 2*
PW-3	16349.01	GROSS BETA	8 +/- 5*
PW-3	16349.01	TOTAL URANIUM (mg/L)	<0.005
PW-4	16349.02	GROSS ALPHA	2 +/- 2*
PW-4	16349.02	GROSS BETA	6 +/- 4*
PW-4	16349.02	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)

ATA

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: SMR

PO #:

Preservative: Ice Chemical (see below)

Lab Use Only — Initials: LM — Date: 7-26-96 — Location/Temp: 04-AL

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	7/26/96	0840		X			X	X	X	X							16349.01
PW-4	"	0855		X			X	X	X	X							.02
WATER PLANT	7/25/96	1300			X						X						

Relinquished by:	Received by:	Relinquished by:	Received by:
Signature: STAN REMINGTON	Signature: WALTER BOTSO	Signature:	Signature:
Printed Name: ST. CHARLES COUNTY	Printed Name: ATAS	Printed Name:	Printed Name:
Firm: JULY 26, 1996 1007	Firm: 7/26/96 1008	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. Louis County Department of Health

Results 8-19-96

SAMPLE ANALYSIS REQUEST

Date Received 08-06-96

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 07-01 — 07-31-96

COLLECTED BY: First Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: RAW

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

FOR LABORATORY USE ONLY

SCR96-8

	RESULTS (pCi/L)	*MDL (pCi/L)
Gross Alpha	1.5 ± 1.1	1.0
Gross Beta	5.7 ± 1.0	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

8/15/96 VA

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR5/96

St. Louis County Department of Health

Results 8/12/96

SAMPLE ANALYSIS REQUEST

Date Received 08-06-96

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 07-01 - 07-31-96

COLLECTED BY: First Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: Finished

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

FOR LABORATORY USE ONLY

SCT96-8

RESULTS (pCi/L)		*MDL (pCi/L) 8/15/96
Gross Alpha	<1.0	1.0
Gross Beta	2.9 ± 1.0	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

JH

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR/96

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

DATE OF REPORT 08/05/96

MONTH OF REPORT JULY

WATER PRODUCTION			435,677,000
WASHWATER USED			6,795,000
DELIVERED TO SYSTEM			428,882,000
MO. AMERICAN WATER			
	BOOSTER STATION		330,000,000
67004132835-007	FRANCIS HOWELL		33,000
67004132850-007	MO. HWYS & TRANS.		6,600
67004133000-004	M.K. FERGUSEN		829,000
67004133040-015	M.K. FERGUSEN		450,000
67004133010-002	M.K. FERGUSEN		62,500
67004133020-000	M.K. FERGUSEN		9,500
67004132855-002	FRANCIS HOWELL		347,000
67004132890-009	M.K. FERGUSEN		62,000
67095018237-000	M.K. FERGUSEN		165,000
		TOTAL	331,964,600
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		78,289,000
	BYPASS		0
		TOTAL	78,289,000
WATER DISTICT #2			
	NEW MELLE	TOTAL	8,466,000
NATIONAL GUARD AREA			
	BLGD S-61		10,000
	WASH RACK		4,000
		TOTAL	14,000
TOTAL WATER SALES	**********		418,733,600

ST. CHARLES COUNTY WATER DEPARTMENT

INVENTORY OF CHEMICALS

JULY 1996	LIME	CHLORIN
PREVIOUS BALANCE	208054	7985

RECIEVED	INV. # DATE	LIME	INV. # DATE	CHLORIN
	205774.7/1	48280	7/8	8000
	205967.7/2	49300	7/15	8000
	206544.7/5	49720	7/24	8000
	206085.7/8	49160		
	208504.7/10	47660		
	155592.7/11	48300		
	300457.7/15	47940		
	300801.7/17	49980		
	301014.7/18	50180		
	301474.7/22	49080		
	301767.7/24	49600		
	301945.7/25	50120		
	302425.7/29	48940		
	302793.7/31	48540		
	**********	686800	**********	24000
	TOTAL AMOUNT			
	USED	654243		31985
	BALANCE	240611		8373
	#/1000 GALLON	1.50		0.054
	PARTS/MILLION	171		6.78
	AVG. #/DAY	21105		762
	# USED Y TO D	2988751.		121573.

MONTHLY REPORT

SEPTEMBER 1996

BY

Stanley Remington

Consulting Hydrologist

I. CHEMICAL ANALYSES

On August 22, 1996 wells PW-5 and PW-6 were sampled. The results of the sampling show that neither well exceeded the NPDES limits. Both were within historical ranges. The parameters analyzed were gross alpha and beta, total uranium and nitroaromatics (shown as explosives). They are appended.

On August 26, 1996 a sample of the treated water from the raffinate pits at the chemical plant site at Weldon Spring was sent for analysis. The gross beta reading was slightly elevated, but well within historical ranges and NPDES limits. This batch of treated water was discharged into the Missouri River. They are appended.

On September 19, 1996 the quarterly sampling with the Department of Energy was carried out. I sampled wells PW-8 and RMW-2. The results of analyses have not yet been received. The quarterly sampling analyzes for more chemical parameters than do the monthly samples. They include several metals and nitrates.

II. FUTURE PLANS

I will sample PW-7 during October. I will attend a one day meeting in St. Louis called the Tenth Annual St. Louis Regional Environmental Conference. This will be held at the Adam's Mark Hotel. There will be breakout sessions in the afternoon and I will attend the one for water.

III. MISCELLANEOUS

Appended are the results on an analysis of the raw water at the St. Charles County Water Treatment Plant for the period of 8/1/96 through 8/31/96. Gross alpha and beta were checked and very low readings were obtained.

Also appended is the St. Charles County Monthly Water Sales report.

AMERICAN TECHNICAL & ANALYTICAL SERVICES, INC.
875 Fee Fee Road • Maryland Heights, MO 63043 • (314) 434-4570 • FAX (314) 434-0080

September 5, 1996

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

RE: ATAS #16644.01
Weldon Spring

Dear Mr. Remington:

Enclosed is the analytical report for the sample received in our laboratory on August 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: 1664401EX(260)

DATE : 09-05-96

SAMPLE MATRIX : WATER
ATAS # : 16644.01
DATE SUBMITTED: 08-26-96
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES12-082696-C

PARAMETER	REPORTING LIMIT	UNITS	RESULTS	DATE ANALYZED	METHOD REFERENCE
			INORGANICS		
NITRATE	1.05	mg/L	3.92	08-27-96	SM 418B
			METALS		
ARSENIC	5.0	ug/L	ND	09-05-96	SW 6010
CHROMIUM	1.0	ug/L	ND	09-05-96	SW 6010
LEAD	3.0	ug/L	ND	09-05-96	SW 6010
MANGANESE	1.0	ug/L	1.9	09-05-96	SW 6010
SELENIUM	0.1	ug/L	ND	09-05-96	SW 6010
MERCURY	5.0	ug/L	ND	09-04-96	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: 1664401EX(260)

DATE : 09-05-96

SAMPLE MATRIX : WATER
ATAS # : 16644.01
DATE SUBMITTED: 08-26-96
DATE EXTRACTED: 08-29-96
DATE ANALYZED : 08-30-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : NP-ES12-082696-C

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)	90 %
TETRACHLORO-M-XYLENE(30-150)	77 %

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: 1664401EX(260)

DATE : 09-05-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 08-26-96
DATE EXTRACTED: 08-29-96
DATE ANALYZED : 08-30-96
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)	71 %
TETRACHLORO-M-XYLENE(30-150)	73 %

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: 1664401EX(260)

DATE : 09-05-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 08-26-96
DATE EXTRACTED: 08-29-96
DATE ANALYZED : 08-30-96
METHOD REF. : SW846-8090, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

	LCS % REC.	LCSD % REC.	RPD
2,6 DNT	79	36	75
2,4 DNT	75	36	70

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: 1664401EX(260)

DATE : 09-05-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #16644
DATE SUBMITTED: 08-26-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
NP-ES12-082696-C	16644.01	GROSS ALPHA	8 +/- 6*
NP-ES12-082696-C	16644.01	GROSS BETA	22 +/- 11*
NP-ES12-082696-C	16644.01	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)

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

ESA114.1.2.1, Rev.6, Effective 11/93

Validation Documentation ☐

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 18° WD 8-26-96 IL4-BA-ACL	Arch. (Y/N)
1	NP-ES12-082696-C		8/26/96	Water	1-1 liter	HNO3	As,Cr,Hg,Mn,Se,Pb ✓ 16644.01	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: [signature]
Checked By: [signature]
Technical Reviewer:

Relinquished By	Received By	Date	Time	Reason for Transfer	Seal Intact? (Y/N)	Cooler Temp.
[signature]	[signature]	8/26/96	1255			
[signature]	[signature]	8/26/96	1337	18°C		

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

September 19, 1996

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

RE: ATAS #16613.01-#16613.02
Weldon Spring

Dear Mr. Remington:

Enclosed are the analytical reports for the samples received in our laboratory on August 22, 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

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

REPORT: 1661301RA(259)

DATE : 09-19-96

SAMPLE MATRIX : WATER
ATAS # : 16613.01
DATE SUBMITTED: 08-22-96
DATE ANALYZED : 08-29-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-5

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

D= 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: 1661301RA(259)

DATE : 09-19-96

SAMPLE MATRIX : WATER
ATAS # : 16613.02
DATE SUBMITTED: 08-22-96
DATE ANALYZED : 08-29-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : PW-6

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

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

REPORT: 1661301RA(259)

DATE : 09-19-96

SAMPLE MATRIX : WATER
ATAS # : METHOD BLANK
DATE SUBMITTED: 08-22-96
DATE ANALYZED : 08-29-96
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

D= 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: 1661301RA(259)

DATE : 09-19-96

SAMPLE MATRIX : WATER
ATAS # : LABORATORY CONTROL SAMPLE
DATE SUBMITTED: 08-22-96
DATE ANALYZED : 08-29-96
METHOD REF. : SW846-8330, EPA METHODOLOGY
PROJECT : WELDON SPRING
SAMPLE ID : LABORATORY CONTROL SAMPLE

COMPOUND	PERCENT RECOVERY
HMX	96 %
RDX	124 %
1,3,5-TNB	105 %
TETRYL	70 %
1,3-DNB	105 %
TNT	105 %
NITROBENZENE	113 %
2,6 DNT	111 %
2,4 DNT	105 %
o-NITROTOLUENE	102 %
p-NITROTOLUENE	112 %
m-NITROTOLUENE	108 %

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: 1661301RA(259)

DATE : 09-19-96

SAMPLE MATRIX : WATER
ATAS EPISODE : #16613
DATE SUBMITTED: 08-22-96
PROJECT REF. : WELDON SPRING

RESULTS REPORTED IN pCi/L

CLIENT ID	ATAS ID	RADIONUCLIDE	RESULT
PW-5	16613.01	GROSS ALPHA	5 +/- 4*
PW-6	16613.02	GROSS ALPHA	1 +/- 2*
PW-5	16613.01	GROSS BETA	8 +/- 6*
PW-6	16613.02	GROSS BETA	9 +/- 6*
PW-5	16613.01	TOTAL URANIUM (mg/L)	<0.005
PW-6	16613.02	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

AMERICAN TECHNICAL & ANALYTICAL SERVICES, Inc.

875 Fee Fee Road • Maryland Heights, MO 63043-3211 • Office (314) 434-4570 • FAX (314) 434-0080

PAGE ____ OF ____

CHAIN OF CUSTODY RECORD

ATAS Client Name: STAN REMINGTON

Project Name: WELDON SPRING

Project #:

Form Completed By:

PO #:

Preservative: Ice Chemical (see below)

Lab Use Only — Initials: WD — Date: 8-22-96 — Location/Temp: AL 14°

Sample ID	Sample Date	Sample Time	Sample Matrix	Grab	Comp	No. of Containers	TOTAL U	GROSS α	GROSS β	NITROS	TSS					Remarks	BA
PW-5	8/22/96	0830		X			X	X	X	X							16613.01
PW-6	"	0845		X			X	X	X	X							02
TREAT. PLANT	"	0800			X						X						

Relinquished by:	Received by:	Relinquished by:	Received by:
Signature: STAN REMINGTON	Signature: WALTER DOSS	Signature:	Signature:
Printed Name: S.C. COUNTY	Printed Name: ATAS	Printed Name:	Printed Name:
Firm: 8/22/96 1003	Firm: 8/22/96 1004	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. Louis County Department of Health

SAMPLE ANALYSIS REQUEST

Results 9/20/96 y

Date Received 9/6/96 y

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 08-01 — 08-31-96

COLLECTED BY: First Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: RAW

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

SCR96-9

FOR LABORATORY USE ONLY

	RESULTS (pCi/L)	*MDL (pCi/L)
Gross Alpha	1.5 ± 1.1	1.0
Gross Beta	5.9 ± 1.1	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

9/17/96

JH

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR/5/96

St. Louis County Department of Health

SAMPLE ANALYSIS REQUEST

Results 9/20/96

Date Received 9/6/96

ATTENTION: St. Louis County Department of Health
Environmental Health Laboratories

SAMPLE NUMBER: PWSD I.D. 6079507 - St. Charles County Water

DATE COLLECTED: 08-01- 08-31-96

COLLECTED BY: First Shift Operator

ADDRESS: 1635 South HWY 94

Defiance, MO Zip Code 63341

TELEPHONE NO.: (314) 926-9222 (Plant 447-0510) Thomas Aaron

ANALYSIS REQUESTED: FINISH

X GROSS ALPHA X GROSS BETA ____ RA-226 ____ RA-228

____ OTHER (Identify) ____

SCT96-9

FOR LABORATORY USE ONLY

9/17/96

JH

	RESULTS (pCi/L)	*MDL (pCi/L)
Gross Alpha	< 1.0	1.0
Gross Beta	3.8 ± 0.9	1.0
Radium 226		0.1
Radium 228		1.0
Other (Identify)		

Procedure used: Measurement of Radioactivity in Drinking Water
EPA-600/4-80-032

COMMENTS: * MDL is the minimum detectable limit.

ANALYSIS PERFORMED BY: ST. LOUIS COUNTY DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH LABORATORIES
111 So. Meramec - 5th floor
Clayton, MO 63105
(314) 854-6324

ELAB/RAD-WTR/SW

ST. CHARLES COUNTY MONTHLY WATER SALES REPORT

DATE OF REPORT	09/04/96		
MONTH OF REPORT	AUGUST		
WATER PRODUCTION			483,307,000
WASHWATER USED			7,327,000
DELIVERED TO SYSTEM			475,980,000
MO. AMERICAN WATER			
	BOOSTER STATION		330,531,000
67004132835-007	FRANCIS HOWELL		34,000
67004132850-007	MO. HWYS & TRANS.		3,500
67004133000-004	M.K. FERGUSEN		829,500
67004133040-015	M.K. FERGUSEN		597,000
67004133010-002	M.K. FERGUSEN		90,500
67004133020-000	M.K. FERGUSEN		16,500
67004132855-002	FRANCIS HOWELL		296,000
67004132890-009	M.K. FERGUSEN		74,000
67095018237-000	M.K. FERGUSEN		57,000
		TOTAL	332,529,000
WATER DISTICT #2			
	24" EAST LINE		0
	24" WEST LINE		82,406,000
	BYPASS		0
		TOTAL	82,406,000
WATER DISTICT #2			
	NEW MELLE	TOTAL	9,583,000
NATIONAL GUARD AREA			
	BLGD S-61		58,000
	WASH RACK		0
		TOTAL	58,000
TOTAL WATER SALES	**********		424,576,000

ST. CHARLES COUNTY WATER DEPARTMENT

INVENTORY OF CHEMICALS

AUG 1996		LIME		CHLORIN
PREVIOUS BALANCE		240611		8373
RECIEVED	INV. # DATE	LIME	DATE	CHLORIN
	303039.8/1	49100	8/5	8000
	303799.8/6	49080	8/16	8000
	304140.8/8	49400	8/26	8000
	304939.8/14	49980		
	305209.8/15	48740		
	305945.8/20	49480		
	306318.8/22	49480		
	307085.8/27	48520		
	307514.8/29	48840		
	307743.8/30	49800		
	**********	492420	**********	24000
	TOTAL AMOUNT	733031		32373
	USED	534734		26420
	BALANCE	198297		7564
	#/1000 GALLON	1.03		0.050
	PARTS/MILLION	123		6.15
	AVG. #/DAY	17249		852
	# USED Y TO D	3523485.		147993.