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**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**

**WEF**



8002 Stanton Road  
Little Rock, Arkansas 72209

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CHEMISTS  
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April 18, 1994

A. D. P. C. & E.  
P. O. Box 8913  
Little Rock, AR 72219-8913

Attn.: Mrs. Laura Mack

Ref: Sunray Monitoring Wells Reports  
Tontitown & Durham

Dear Mrs. Mack,

I am submitting for your files the Ground water Monitoring Well Laboratory Analysis Report for Sunray Services (Durham & Tontitown). If you have any questions or comments please contact me at Sorrells Research Associates, Inc.

Thank you for this opportunity to serve you.

Yours truly,

Debra K. Sorrells,  
Office Manager

Sorrells Research Associates, Inc.

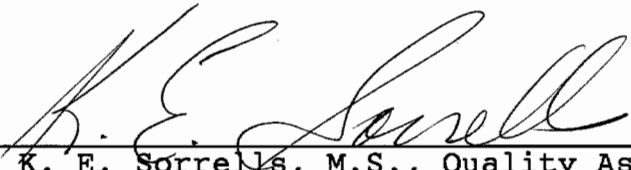
cc: David Brown  
cc: Kevin Hodges

SUNRAY SERVICES  
LANDFILL MONITORING

SITE: DURHAM

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Report Prepared by:  
Sorrells Research Associates, Inc.  
8002 Stanton Road  
Little Rock, AR 72103

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

April 15 1994

TABLE OF CONTENTS

	PAGE
1. SAMPLING PROCEDURES/SAMPLE CUSTODY/DATA MANAGEMENT	3
2. MONITORING WELLS REPORT DATA/Q.A.	8
3. FIELD BLANK, RINSE WATER, WASH WATER, DISTILLED WATER DATA	9
4. CHAIN OF CUSTODY RECORDS	10

SAMPLING PROCEDURES  
FOR  
MONITORING WELLS

The following procedures are to be used in collecting samples:  
All and/or part of these procedures may vary depending on Well site/permit.

A.) BAILERS:

1. Provide one bailer for each well to be sampled. A designated bailer shall be 1 inch in diameter and fabricated from PVC with a glass ball type foot valve.

1. a. Alternatively use disposable polyethylene bailers.

2. Each bailer is marked and dedicated to individual wells and stored at Sorrells Research Laboratory.

3. Bailers are cleaned with phosphate free detergent and rinsed thoroughly with tap water followed by a distilled water rinse.

B.) SURFACE PREPARATION:

1. Use disposable polyethylene gloves for the collection process, to minimize personal contact with the samples.

2. Use paper towels and tissues where necessary for any container surface clean up. Use disposable polyethylene sheets, approximately 8' x 10' to drape the sample collection and preparation area in order minimize contact of samples with area surface.

3. Finally, use white Glad bags, 13 gallon capacity to collect waste disposable material generated by the sample collection and preparation process.

C. DEPTH

1. Where applicable use an oil/water interface probe to test for the presence of immiscible layers.

2. Groundwater depth below top of riser pipe will be measured with an electronic tape or equivalent device capable of measuring to the nearest 0.01 ft. Total well depth also will be measured to the nearest 0.01 ft.

#### D. CONTAINERS

Proper containers shall be used according to the parameters needed at each site. The list of containers below are used by SRA where applicable are:

1. 1 liter amber glass with teflon-liner cap.
2. 40 ml vials with teflon-liner cap.
3. 500 ml brown plastic
4. 500 ml white plastic
5. 125 ml amber glass
6. 250 ml amber glass with teflon-liner cap
7. 1000 ml glass with teflon-liner cap
8. 1/2 gal plastic

All containers are to be certified clean by supplier. For marking containers use a waterproof tag or label and use a waterproof marker.

#### E. Q.A./Q.C.

1. A trip blank will be included for each sampling event as a part of the field Q.A./Q.C.

2. Duplicate samples shall be selected in each sample sequence 1-10, 11-20, and 21-29, etc. sequence as appropriate.

3. Duplicate samples shall be selected also for analyte spike recovery in sample sequence 1-20, and 21-39. ect. sequence as appropriate.

This will ensure documentation of sampling and analytical variability as part of Total Quality Assurance.

#### F. SAMPLING PROCEDURES

1. Where applicable measure for the presence of immiscible layers. The testing for immiscible layers is to be performed prior to purging the wells. The oil/water interface probe is to be lowered into the well slowly. Listen for accompanying tones to discern between the appropriate layers. The distances between the layers are measured to the nearest 0.01 ft. and levels are recorded in the field book. After the well has been tested, retrieve the probe and rinse with phosphate free detergent solution followed by a distilled water rinse and wipe dry. A set of samples will be taken from each non-aqueous phase level, if any, found.

2. Measure depth to groundwater to the nearest 0.01 ft. Dry wells shall be so noted in log.

3. Measure height of monitoring well riser pipe above ground to the nearest 0.01 ft.

4. Measure total well depth to the nearest 0.01 ft. Compare to as-built drawings to determine whether sediment has accumulated in the well.

If 10% of the screened interval is blocked by sediment, the well will be redeveloped prior to the next sampling event.

5. Purge the well by bailing at least 3 well volumes or to dryness from each well. Well volume in gallons is  $H \times (D/2)^2 \times \pi \times (12/231)$ . H is height of column in feet of water in well above bottom of well. D is diameter of well riser in inches.  $\pi$  is 3.141+ 12 converts feet to inches. 231 Converts cubic inches to gallons. Where applicable purged water will be stored on site, with proper storage containers supplied by the client until after analyses are completed. If the analyses are below acceptable levels the water will then be disposed of on site by the client. If the water is contaminated, the contaminated water will be disposed of at an appropriate hazardous waste site by the client. Also, any and all contaminated samples remaining at laboratory will be returned to client.

6. Collect 1 field blank by contacting certified HPLC organic free water with clean unused bailer. The sample collector shall transfer this water to the bailer for a contact time comparable to the collection time specific for that well. After suitable contact time, the blank water shall be transferred to collection and storage containers for preservation. This sample will be analyzed with well samples to avoid potential holding time problems.

7. Lower bailer into well and listen for filling.

8. Carefully withdraw bailer and pour contents into the sample containers.

9. Perform field measurements of temperature, pH and conductivity of each sample.

10. Handle samples as little as possible. Attach sample tag securely to the sample container at the time the sample is collected. Record the following information on the sample tag or label.

- a.) Serial number of the tag
- b.) Well number
- c.) Date
- d.) Time
- e.) Name of collector/collectors
- f.) Preservative
- g.) Analysis required
- h.) Complete chain of custody records tabulating the above information for the sampling event.

11. Use bound field books to record measurements and other information necessary to document the sample collection processes. The standard format is to include the serial number of the field sheet, date, time, survey, type of sample taken, volume of each sample, code for sample analysis, unique sample number, sampling location, field measurements. See well purging data form and figures 9-2, 9-3, for an example of some field entries. The entries are to be signed by the sample collector and the responsibility of preparing and retaining field books are to be that of the sampling coordinator, or his designated representative.

12. These samples are to be preserved (short-term) by chilling the closed (tightly-sealed) collection containers in a durable ice chest with crushed iced, immediately following collection. The laboratory supervisor will advise on any special requirements in particular circumstances, in general, it will be advisable to adhere to chilling with crushed ice alone for immediate field preservation, and allow the laboratory to coordinate needs for long-term preservation.

13. The sample collector is physically responsible for the sample until its custody is relinquished to the receiving laboratory or assigned custodian, that is, it must be in his view at all times, or lock-stored where it cannot be tampered with.

14. Transport samples immediately to laboratory for testing.

#### G. SAMPLE ORDER

1. Monitoring Wells least likely to be affected by site will be sampled first. Wells will be sampled in order from up-gradient to down-gradient if applicable.

2. The analytes will be collected in order of volatility after determining physical measurements (well depth, temperature, conductivity, pH). First the volatiles, semi-volatiles, metals, etc.

#### H. DUPLICATE SAMPLES/SPECIAL HANDLING

1. Complete sets of duplicates will be collected during each sampling period, according to Section E, preceding. The specific well to be chosen will be selected by the Field Supervisor.

2. If well samples yield any visible sediment or turbidity, proceed as follows, except for volatile and semi-volatile portions: Collect sufficient sample to fill a 5 gallon container. Mix sample well before filling all other containers. This will promote split sample homogeneity in the presence of sediment and/or turbidity.

#### SAMPLE CUSTODY

This study will document and implement a chain of possession and custody of any sample collected, to insure that all are collected, transferred, stored, analyzed, and destroyed by authorized personnel. Samples will be accompanied by a Chain-of-Custody record that includes the name of the study, collector's signatures, station number, station location, date, time, type of sample, sequence number, number of containers, and analyses required.

The purpose of the Chain-of-Custody procedure is to establish an unbroken chain of connection for documentation by maintaining an accurate written record of source and possession of the samples through their

analysis and ultimate report. This procedure is also intended to ensure that samples are collected, transferred, stored, analyzed and destroyed only by authorized, competent personnel.

A sample is in CUSTODY if it is in any one of the following states:

- a. In actual physical possession.
- b. In view, after being in physical possession.
- c. In physical possession and locked up.
- d. In a secure area, restricted to authorized personnel.

Laboratory personnel are responsible for the care and custody of a sample once it is handed to them and should retain the sample in their possession and view or secured in the laboratory at all times.

The laboratory area shall be maintained as a secured area and shall be restricted to authorized personnel.

Once sample analyses are completed, the unused portion of the sample, with identifying labels and other documentation must be returned to the Laboratory Supervisor for secure storage.

Samples should be destroyed only upon the order of the Laboratory Supervisor, in consultation with the Project Officer. Sample tag information must be recorded on Chain-of-Custody record, which, like all laboratory records must be retained for three years.



## DATA MANAGEMENT

### 1. Data Tracking

All information pertaining to sample identification, analyses required, and final results is entered into the computer network and maintained for approximately 6 months. After this time information is archived and stored in a secure area for retrieval.

Sample status is monitored through the computer network. The computer generates a flagging system for samples incomplete after the time allocated.

A log book is maintained by sample custody where information including date received, date subcontracted, date of confirmation, and date of report is entered for samples subcontracted to an outside laboratory.

### 2. Data Review

The initial review is done by the analyst when the data has been acquired for a sample. This review covers sample identification, check of analyses requested against the Computer Network record, review of procedures and notebook data, checking of calculation, investigation for all related quality control data, and correct transcription of all data.

The final review will be the ultimate responsibility of the Laboratory Manager. Any out-of-control conditions will be noted and reviewed by the Quality Assurance Manager. Decisions concerning these conditions are made jointly by the Laboratory Manager and the Quality Assurance Manager.

After data has been entered into the reporting system, a draft report is reviewed by the Supervisor. This review includes a check of holding times met, correct analysis and report dates, and correct reporting units, as well as a review of results, quality control data, and transcription. At any point in the review process, if an error is found, the analyst has the responsibility for investigating the problem and initiating correction.

EPA HW No.	CONTAMINANT	CAS NO.	REGULATORY LEVEL	EPA METHODS
D004	Arsenic	7440-38-2	5.0	7060
D005	Barium	7440-39-3	100.0	7080
D018	Benzene	71-43-2	0.5	5030/8020
D006	Cadmium	7440-43-9	1.0	7130/7131
D019	Carbon tetrachloride	56-23-5	0.5	5030/8010
D020	Chlordane	57-74-9	0.03	3510/8080
D021	Chlorobenzene	108-90-7	100.0	5030/8010
D022	Chloroform	67-66-3	6.0	5030/8010
D007	Chromium	7440-47-3	5.0	7190/7191
D023	o-Cresol	95-48-7	200.0	3510/8270
D024	m-Cresol	108-39-4	200.0	3510/8270
D025	p-Cresol	106-44-5	200.0	3510/8270
D026	Cresol	.....	200.0	3510/8270
D016	2,4-D	94-75-7	10.0	3510/8270
D027	1,4-Dichlorobenzene	106-46-7	7.5	3510/8270
D028	1,2-Dichloroethane	107-06-2	0.5	5030/8270
D029	1,1-Dichloroethylene	75-35-4	0.7	5030/8010
D030	2,4-Dinitrotoluene	121-14-2	0.13	3510/8270
D012	Endrin	72-20-8	0.02	3510/8270
D031	Heptachlor (and Heptachlor epoxide	76-44-8	0.008	3510/8270
D032	Hexachlorobenzene	118-74-1	0.13	3510/8270
D033	Hexachlorobutadiene	87-68-3	0.5	3510/8270
D034	Hexachloroethane	67-72-1	3.0	3510/8270
D008	Lead	7439-92-1	5.0	7420/7421
D013	Lindane	58-89-9	0.4	3510/8080
D009	Mercury	7439-97-6	0.2	7470
D014	Methoxychlor	72-43-5	10.0	3510/8080
D035	Methyl ethyl ketone	78-93-3	200.0	5030/8015
D036	Nitrobenzene	98-95-3	2.0	3510/8270
D037	Pentachlorophenol	87-86-5	100.0	3510/8270
D038	Pyridine	110-86-1	5.0	3510/8270
D010	Selenium	7782-49-2	1.0	7740
D011	Silver	7440-22-4	5.0	7760/7761
D039	Tetrachloroethylene	127-18-4	0.7	5030/8010
D015	Toxaphene	8001-35-2	0.5	3510/8080
D040	Trichloroethylene	79-01-6	0.5	5030/8010
D041	2,4,5-Trichlorophenol	95-95-4	400.0	3510/8270
D042	2,4,6-Trichlorophenol	88-06-2	2.0	3510/8270
D017	2,4,5-TP (Silvex)	93-72-1	1.0	8510
D043	Vinyl chloride	75-01-4	0.2	5030/8010
	IGNITABILITY	FP .F	> 140 .F	1010
	CORROSIVITY	.....	< 2 OR > 12.5	9040
	REACTIVITY	.....	SEE BELOW	EXAM &
	Total releasable cyanide		250 mg/kg as HCN	9010
	Total releasable sulfide		500 mg/kg as H <sub>2</sub> S	9030
	Solids	Percent	NA	1311/ZHE
	Laboratory Analysis Conducted According to EPA 40 CFR PART 261.			

1994 METHODOLOGY  
PAGE 1 OF 2  
FOR MONITORING WELLS

\*Please Note - Reported in Milligrams per Liter or Standard units.

\*\*Please Note - < = less than = not detected @ detection value

ANALYTE	Max Cont. DW Stds.	Levels TCLP
Antimony	NA	NA
Arsenic	0.05	5.0
Barium	1.0	100.0
Beryllium	NA	NA
Cadmium	0.01	1.0
Chromium	0.05	5.0
Cobalt	NA	NA
Copper	1.0	100.0
Lead	0.025	2.5
Nickel	NA	NA
Selenium	0.01	1.0
Silver	0.05	5.0
Thallium	NA	NA
Vanadium	NA	NA
Zinc	5.0	500.0
Acetone	NA	NA
Acrylonitrile	NA	NA
Benzene	0.005	0.5
Bromochloromethane	NA	NA
Bromodichloromethane	NA	NA
Bromoform	0.1	NA
Carbon disulfide	NA	NA
Carbon tetrachloride	0.005	0.5
Chlorobenzene	NA	100.0
Chloroethane	NA	NA
Chloroform	0.1	6
Dibromochloromethane	0.1	NA
Dibromo-3-chloropropane, 1,2-	NA	NA
Dibromoethane, 1,2-	NA	NA
Dichlorobenzene, o-	NA	NA
Dichlorobenzene, p-	0.075	NA
Dichloro-2-butene, trans-1,4-	NA	NA
Dichloroethane, 1,1-	NA	NA
Dichloroethane, 1,2-	0.005	0.5
Dichloroethylene, 1,1-	0.007	0.7
Dichloroethylene, cis-1,2-	NA	NA
Dichloroethylene, trans,1-,2-	NA	NA
Dichloropropane, 1,2-	NA	NA
Dichloropropene, cis-1,3-	NA	NA
Dichloropropene, trans, 1,3-	NA	NA
Ethylbenzene	NA	NA
Hexanone, 2-	NA	NA

1994 METHODOLOGY  
PAGE 2 OF 2  
FOR  
MONITORING WELLS

\*Please Note - Reported in Milligrams per Liter or  
Standard units.

ANALYTE	Max Cont. DW Stds.	Levels TCLP
Methyl bromide	NA	NA
Methyl chloride	NA	NA
Methylene bromide	NA	NA
Methylene chloride	NA	NA
Methyl ethyl ketone	NA	NA
Methyl Iodide	NA	NA
Methyl-2-pentanone, 4-	NA	NA
Styrene	NA	NA
Tetrachloroethane, 1, 1, 1, 2-	NA	NA
Tetrachloroethane, 1, 1, 2, 2-	NA	NA
Tetrachloroethylene	NA	0.7
Toluene	NA	NA
Trichloroethane, 1, 1, 1-	0.2	NA
Trichloroethane, 1, 1, 2-	NA	NA
Trichloroethylene	0.005	0.5
Trichlorofluoromethane	NA	NA
Trichloropropane, 1, 2, 3-	NA	NA
Vinyl acetate	NA	NA
Vinyl chloride	0.02	0.2
Xylene, o-	NA	NA
Xylene, m-	NA	NA
Xylene, p-	NA	NA
Xylenes	NA	NA
Ammonia nitrogen	NA	NA
Bicarbonate	NA	NA
Calcium	NA	NA
Chloride	250	NA
Iron	0.3	NA
Magnesium	NA	NA
Manganese, dissolved	0.05	NA
Nitrate	10.0	NA
Potassium	NA	NA
Sodium	NA	NA
Sulfate	250	NA
Chemical oxygen demand	NA	NA
Total dissolved solids	500	NA
Cyanide	NA	NA
Mercury	0.002	0.2
Total Organic Carbon	NA	NA
pH, units	6.5-8.5	<2 OR>12.5
Specific conductance, us/cm	NA	NA
Temperature, .c	NA	NA

MONITORING WELLS  
REPORT DATA



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Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium		0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.213	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.003



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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N189.003



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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		209.840	mg/Liter	4500 D
Calcium		45.200	mg/Liter	7140
Chloride		8.500	mg/Liter	4500 C
Iron		3.270	mg/Liter	7380
Magnesium		9.830	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate		0.943	mg/Liter	4500 E
Potassium		0.520	mg/Liter	7610
Sodium		3.210	mg/Liter	7770
Sulfate		8.390	mg/Liter	4500 E
Chemical oxygen demand		7.500	mg/Liter	5220 B
Total dissolved solids		193.000	mg/Liter	2540 C
Total organic carbon		1.005	mg/Liter	5310 C
pH		7.575	units	4500 B
pH (Q1)		7.300	units	4500 B
pH (Q2)		7.600	units	4500 B
pH (Q3)		7.700	units	4500 B
pH (Q4)		7.700	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		445.000	uS/cm	9050
Specific conductance (Q1)		430.000	uS/cm	9050
Specific conductance (Q2)		450.000	uS/cm	9050
Specific conductance (Q3)		450.000	uS/cm	9050
Specific conductance (Q4)		450.000	uS/cm	9050
Temperature	N	0.000	.C	2550 B
Temperature (Q1)	N	0.000	.c	2550 B

Laboratory Number: N189.003





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PLANNERS

8002 Stanton Road  
Little Rock, Arkansas 72209

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Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Temperature (Q2)	N	0.000	.c	2550 B
Temperature (Q3)	N	0.000	.c	2550 B
Temperature (Q4)	N	0.000	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J. B. on 03/03/94 at 11:35  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N189.003

DKS Reviewed By: K. E. Sorrells, M.S. [ 4 ] E



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1135	03/03/94	1135	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1135	03/03/94	1135	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1135	03/03/94	1135	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N189.003      DKS



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES

# WEF



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LABORATORY ANALYSIS

Phone 501-562-8139  
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Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.014	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.007



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N189.007



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		378.200	mg/Liter	4500 D
Calcium		50.100	mg/Liter	7140
Chloride		46.500	mg/Liter	4500 C
Iron		0.029	mg/Liter	7380
Magnesium		49.500	mg/Liter	7450
Manganese, dissolved		0.217	mg/Liter	7460
Nitrate		0.213	mg/Liter	4500 E
Potassium		1.180	mg/Liter	7610
Sodium		44.700	mg/Liter	7770
Sulfate		158.000	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		654.000	mg/Liter	2540 C
Total organic carbon		0.651	mg/Liter	5310 C
pH		7.050	units	4500 B
pH (Q1)		6.900	units	4500 B
pH (Q2)		7.100	units	4500 B
pH (Q3)		7.100	units	4500 B
pH (Q4)		7.100	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		1070.000	uS/cm	9050
Specific conductance (Q1)		1030.000	uS/cm	9050
Specific conductance (Q2)		1080.000	uS/cm	9050
Specific conductance (Q3)		1080.000	uS/cm	9050
Specific conductance (Q4)		1090.000	uS/cm	9050
Temperature	N	0.000	.C	2550 B
Temperature (Q1)	N	0.000	.c	2550 B

Laboratory Number: N189.007



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Temperature (Q2)	N	0.000	.c	2550 B
Temperature (Q3)	N	0.000	.c	2550 B
Temperature (Q4)	N	0.000	.C	2550 B

Collected by:

V. MAHAFFEY/K.H./J.B. on 03/03/94 at 9:45

Analysis by :

K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:

MR. KEVIN HODGES

P.O. BOX 1310

SPRINGDALE, AR 72765-

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MR. RANDY HOLCOMB

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MR. BOB BAXTER

P.O. BOX 1310

SPRINGDALE, AR 72765-

Laboratory Number: N189.007

DKS Reviewed By: K. E. Sorrells, M.S. [C]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	945	03/03/94	945	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	945	03/03/94	945	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	945	03/03/94	945	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38





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**QUALITY ASSURANCE**

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N189.007      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #8

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.029	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.008



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Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #8

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N189.008



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES



CHEMISTS  
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CONSULTANTS  
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8002 Stanton Road  
Little Rock, Arkansas 72209

LABORATORY ANALYSIS

Phone 501-562-8139  
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Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #8

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		317.200	mg/Liter	4500 D
Calcium		46.800	mg/Liter	7140
Chloride		33.000	mg/Liter	4500 C
Iron		0.026	mg/Liter	7380
Magnesium		52.400	mg/Liter	7450
Manganese, dissolved		0.048	mg/Liter	7460
Nitrate		0.869	mg/Liter	4500 E
Potassium		1.150	mg/Liter	7610
Sodium		29.500	mg/Liter	7770
Sulfate		130.500	mg/Liter	4500 E
Chemical oxygen demand		7.500	mg/Liter	5220 B
Total dissolved solids		560.900	mg/Liter	2540 C
Total organic carbon		0.863	mg/Liter	5310 C
pH		7.250	units	4500 B
pH (Q1)		7.000	units	4500 B
pH (Q2)		7.300	units	4500 B
pH (Q3)		7.300	units	4500 B
pH (Q4)		7.400	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		947.500	uS/cm	9050
Specific conductance (Q1)		950.000	uS/cm	9050
Specific conductance (Q2)		970.000	uS/cm	9050
Specific conductance (Q3)		930.000	uS/cm	9050
Specific conductance (Q4)		940.000	uS/cm	9050
Temperature	N	0.000	.C	2550 B
Temperature (Q1)	N	0.000	.c	2550 B

Laboratory Number: N189.008



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SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #8

ANALYTE		RESULT	UNITS	METHOD
Temperature (Q2)	N	0.000	.c	2550 B
Temperature (Q3)	N	0.000	.c	2550 B
Temperature (Q4)	N	0.000	.C	2550 B

Collected by:

V. MAHAFFEY/K.H./J.B. on 03/03/94 at 10:00

Analysis by :

K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:

MR. KEVIN HODGES

MR. RANDY HOLCOMB

P.O. BOX 1310

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SPRINGDALE, AR 72765-

SPRINGDALE, AR 72765-

MR. KIRK ELLIS  
SCS ENGINEERS

MR. BOB BAXTER

P.O. BOX 1310

10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

SPRINGDALE, AR 72765-

Laboratory Number: N189.008

DKS Reviewed By: K. E. Sorrells, M.S. [95]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1000	03/03/94	1000	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1000	03/03/94	1000	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1000	03/03/94	1000	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N189.008      DKS



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.008	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.029	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.010





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SPRINGDALE, AR 72765-

Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.000	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N189.010



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ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		13.420	mg/Liter	4500 D
Calcium		0.660	mg/Liter	7140
Chloride		14.500	mg/Liter	4500 C
Iron		0.073	mg/Liter	7380
Magnesium		2.180	mg/Liter	7450
Manganese, dissolved		0.304	mg/Liter	7460
Nitrate		0.006	mg/Liter	4500 E
Potassium		0.320	mg/Liter	7610
Sodium		2.000	mg/Liter	7770
Sulfate		2.530	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		32.850	mg/Liter	2540 C
Total organic carbon		0.336	mg/Liter	5310 C
pH		6.125	units	4500 B
pH (Q1)		6.200	units	4500 B
pH (Q2)		6.200	units	4500 B
pH (Q3)		6.100	units	4500 B
pH (Q4)		6.000	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		55.000	uS/cm	9050
Specific conductance (Q1)		60.000	uS/cm	9050
Specific conductance (Q2)		60.000	uS/cm	9050
Specific conductance (Q3)		50.000	uS/cm	9050
Specific conductance (Q4)		50.000	uS/cm	9050
Temperature	N	0.000	.C	2550 B
Temperature (Q1)	N	0.000	.c	2550 B

Laboratory Number: N189.010



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Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Temperature (Q2)	N	0.000	.c	2550 B
Temperature (Q3)	N	0.000	.c	2550 B
Temperature (Q4)	N	0.000	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 10:30  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
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SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
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Laboratory Number: N189.010

DKS Reviewed By: K. E. Sorrells, M.S. [45]



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March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Ammonia nitrogen	MKM	10/13/93	1230	10/13/93	1430	0.80	102.0	10
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1030	03/03/94	1030	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1030	03/03/94	1030	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1030	03/03/94	1030	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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Fax 501-562-7025  
Toll Free 1-800-331-8139

QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N189.010      DKS



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES



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LABORATORY ANALYSIS

Phone 501-562-8139  
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Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #11

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.046	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.011



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #11

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N189.011



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #11

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		473.360	mg/Liter	4500 D
Calcium		40.300	mg/Liter	7140
Chloride		13.500	mg/Liter	4500 C
Iron		0.019	mg/Liter	7380
Magnesium		37.500	mg/Liter	7450
Manganese, dissolved		0.034	mg/Liter	7460
Nitrate		0.198	mg/Liter	4500 E
Potassium		1.110	mg/Liter	7610
Sodium		97.300	mg/Liter	7770
Sulfate		9.040	mg/Liter	4500 E
Chemical oxygen demand		2.500	mg/Liter	5220 B
Total dissolved solids		524.280	mg/Liter	2540 C
Total organic carbon		0.580	mg/Liter	5310 C
pH		7.050	units	4500 B
pH (Q1)		6.900	units	4500 B
pH (Q2)		7.100	units	4500 B
pH (Q3)		7.100	units	4500 B
pH (Q4)		7.100	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		1050.000	uS/cm	9050
Specific conductance (Q1)		1000.000	uS/cm	9050
Specific conductance (Q2)		1030.000	uS/cm	9050
Specific conductance (Q3)		1090.000	uS/cm	9050
Specific conductance (Q4)		1080.000	uS/cm	9050
Temperature		15.625	.C	2550 B
Temperature (Q1)		15.500	.c	2550 B

Laboratory Number: N189.011





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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #11

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	16.000	.c	2550 B
Temperature (Q3)	15.000	.c	2550 B
Temperature (Q4)	16.000	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 9:18  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N189.011

DKS Reviewed By: K. E. Sorrells, M.S. [C]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	910	03/03/94	910	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	910	03/03/94	910	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	910	03/03/94	910	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
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Laboratory Number: N189.011      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #12

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.006	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N189.012



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SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #12

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.

Sample From: WELL #12

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		9.760	mg/Liter	4500 D
Calcium		0.460	mg/Liter	7140
Chloride		9.500	mg/Liter	4500 C
Iron		0.259	mg/Liter	7380
Magnesium		0.370	mg/Liter	7450
Manganese, dissolved		0.006	mg/Liter	7460
Nitrate		0.583	mg/Liter	4500 E
Potassium		0.310	mg/Liter	7610
Sodium		6.160	mg/Liter	7770
Sulfate		13.270	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		57.610	mg/Liter	2540 C
Total organic carbon		0.339	mg/Liter	5310 C
pH		5.625	units	4500 B
pH (Q1)		5.700	units	4500 B
pH (Q2)		5.600	units	4500 B
pH (Q3)		5.600	units	4500 B
pH (Q4)		5.600	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		32.500	uS/cm	9050
Specific conductance (Q1)		40.000	uS/cm	9050
Specific conductance (Q2)		30.000	uS/cm	9050
Specific conductance (Q3)		30.000	uS/cm	9050
Specific conductance (Q4)		30.000	uS/cm	9050
Temperature		12.875	.C	2550 B
Temperature (Q1)		13.000	.c	2550 B

Laboratory Number: N189.012



**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**



CHEMISTS  
ECOLOGISTS  
CONSULTANTS  
PLANNERS

8002 Stanton Road  
Little Rock, Arkansas 72209

LABORATORY ANALYSIS

Phone 501-562-8139  
Fax 501-562-7025  
Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: DURHAM LANDFILL MONITORING.  
Sample From: WELL #12

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	13.500	.c	2550 B
Temperature (Q3)	12.500	.c	2550 B
Temperature (Q4)	12.500	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 8:45  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
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SPRINGDALE, AR 72765-

Laboratory Number: N189.012

DKS Reviewed By: K. E. Sorrells, M.S. [4] 9



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/09/94	1400	03/14/94	1645	0.67	98.3	10
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	845	03/03/94	845	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	845	03/03/94	845	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	845	03/03/94	845	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38





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**WEF**



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CONSULTANTS  
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Little Rock, Arkansas 72209

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Fax 501-562-7025  
Toll Free 1-800-331-8139

QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N189.012      DKS

FIELD BLANK, RINSED WATER,  
WASH WATER, DISTILLED WATER  
DATA



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone		0.007	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.009



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.009



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LABORATORY ANALYSIS

Phone 501-562-8139  
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Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		2.440	mg/Liter	4500 D
Calcium	<	0.050	mg/Liter	7140
Chloride		1.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium	<	0.050	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate	<	0.006	mg/Liter	4500 E
Potassium	<	0.050	mg/Liter	7610
Sodium	<	0.100	mg/Liter	7770
Sulfate	<	0.100	mg/Liter	4500 E
Chemical oxygen demand		7.000	mg/Liter	5220 B
Total dissolved solids		1.900	mg/Liter	2540 C
Total organic carbon		0.381	mg/Liter	5310 C
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		7.410	uS/cm	9050

Laboratory Number: N188.009



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE	RESULT	UNITS	METHOD
---------	--------	-------	--------

Collected by:  
V. MAHAFFEY on 03/03/94 at 14:30  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
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MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.009

DKS Reviewed By: K. E. Sorrells, M.S. [4]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Ammonia nitrogen	MKM	10/13/93	1230	10/13/93	1430	0.80	102.0	10
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1415	03/03/94	1415	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



**SORRELLS RESEARCH  
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**WEF**



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.009      DKS





PAGE \_\_\_\_\_ OF \_\_\_\_\_  
**FOR LAB/OFFICE USE ONLY**

SORRELLS RESEARCH ASSOCIATES, INC.  
 8002 STANTON ROAD, LITTLE ROCK, AR 72209  
 (501) 562-8139 (800) 331-8139  
 FAX # (501) 562-7025

LAB # N189  
 CLIENT # \_\_\_\_\_  
 P. O. # \_\_\_\_\_

STANDARD METHODS PRESERVATION  
 PER EPA 40 CFR PART 136  
 C 4 = COOL TO 4.C  
 S<2 = SULFURIC ACID TO PH < 2  
 N<2 = NITRIC ACID TO PH < 2  
 T = THIOSULFATE

NAME OF COMPANY, CITY, OR PROJECT: PROJECT NO: SAMPLER(S) SIGNATURE

*Sun Ray Durham*

*Kevin Hedgas  
 TRAVEL BACKLOG  
 VERA MABUSKEY*

LAB NO.	SAMPLE COLLECTION LOCATION	START	END	COMP/	FIELD ANALYSIS		FLOW	CL2	WINK.	CONTAINER TYPE	ANALYSIS
		DATE/TIME	DATE/TIME	GRAB	PH	TEMP			D.O.	PRESERVATIVE	REQUIRED
012	well 12	3-3-94 8:45A		X							
011	well 11	3-3-94 9:15A		X							
007	well 7	3-3-94 9:45A		X							
008	well 8	3-3-94 10:00A		X							
010	well 10	3-3-94 10:30A		X							
003	well 3	3-3-94 11:35A		X							

METHOD OF SHIPMENT (CIRCLE)		FIELD CALIBRATION RECORD			Temp	NOTES/COMMENTS/OBSERVATIONS
T.A.T.	BUS WALK-IN SRA UPS OTHER	PH	4.1	4.0	20.0	
REG.	TYPE OF SAMPL(S): (CIRCLE)	PH	10.9	7.0		
24	WATER SOIL W/W SLUDGE OTHER	PH	10.1	10.2		
48		D.O.				
72		COND	1410			FIELD ANALYSIS CONDUCTED BY: SRA CLIENT
1/WEEK	PH CONTROL 0224C		6.0			

RELINQUISHED BY: *Kevin E. Maloff* DATE/TIME: *5:14 PM 3-3-94*  
 RECEIVED BY: *Kevin E. Maloff* DATE/TIME: *12:20 PM 3-3-94*  
 RECEIVED BY: (LAB) DATE/TIME:

Well Purging Data Form

TODAY'S DATE 3-3-94

JOB SUN RAY Durham

Samplers Signature(s) [Signature]

	Well # <u>10</u>	Well # <u>3</u>	Well # _____	Well # _____
Pre-Depth level	<u>23.46</u>	<u>67.90</u>	_____	_____
Post-Depth level	<u>23.12</u>	<u>82.41</u>	_____	_____
Time	<u>10:30</u>	<u>11:35</u>	_____	_____

pH:	<u>6.2</u>	<u>7.3</u>	_____	_____
	<u>6.2</u>	<u>7.6</u>	_____	_____
	<u>6.1</u>	<u>7.7</u>	_____	_____
	<u>6.0</u>	<u>7.7</u>	_____	_____

Conductivity:	<u>60</u>	<u>430</u>	_____	_____
	<u>60</u>	<u>450</u>	_____	_____
	<u>50</u>	<u>450</u>	_____	_____
	<u>50</u>	<u>450</u>	_____	_____

Temperature:	<u>BROKEN</u>	<u>BROKEN</u>	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Well Purging Data Form

TODAY'S DATE 3-3-94

JOB SURWAY DURHAM

Samplers Signature(s) John E. Buckley Dennis E. McKeffer

	Well # <u>12</u>	Well # <u>11</u>	Well # <u>7</u>	Well # <u>8</u>
Pre-Depth level	<u>12.24</u>	<u>101.16</u>	<u>73.84</u>	<u>50.19</u>
Post-Depth level	<u>12.34</u>	<u>101.42</u>	<u>73.95</u>	<u>51.61</u>
Time	<u>8:45</u>	<u>9:10</u>	<u>9:45</u>	<u>10:00</u>

pH:	<u>5.7</u>	<u>6.9</u>	<u>6.9</u>	<u>7.0</u>
	<u>5.6</u>	<u>7.1</u>	<u>7.1</u>	<u>7.3</u>
	<u>5.6</u>	<u>7.1</u>	<u>7.1</u>	<u>7.3</u>
	<u>5.6</u>	<u>7.1</u>	<u>7.1</u>	<u>7.4</u>

Conductivity:	<u>40</u>	<u>1000</u>	<u>1030</u>	<u>950</u>
	<u>30</u>	<u>1030</u>	<u>1080</u>	<u>970</u>
	<u>30</u>	<u>1090</u>	<u>1080</u>	<u>930</u>
	<u>30</u>	<u>1080</u>	<u>1090</u>	<u>940</u>

Temperature:	<u>13</u>	<u>15.5</u>	<u>Broken</u>	<u>Broken</u>
	<u>13.5</u>	<u>16.0</u>	-----	-----
	<u>12.5</u>	<u>15.0</u>	-----	-----
	<u>12.5</u>	<u>16.0</u>	-----	-----

Other: -----  
 -----  
 -----  
 -----

Wchh	Date	UR	Hour	Pre-Depth	Post-Depth	Time	Temp	Alt	Cond	
12	3-3-94	17.24	17.34			8:45	13.0	5.7	40	Weather was a
							13.5	5.6	30	COOK 28° AT 8:00 AM
							12.5	5.6	30	clear
							12.5	5.6	30	AT 12:00 AM IT WAS 6.0
										The sites were muddy
11		101.16	101.42			9:10	15.4	6.9	1000	
							14.8	7.1	1030	
							15.0	7.1	1080	8:00 AM 3-3-74
							16.0	7.1	1080	Stand COND PHT 10.0
7		73.8	73.55			9:45		6.9	1030	1810 1/1-4/0
								7.1	1080	6.9-7.0
								7.5	1090	10.1-10.0
								7.1	1090	Temp 20.0
										P.H. CONTROL 0.225K
										6.0
8		30.19	30.61			10:00		7.0	9.50	
								7.3	9.70	
								7.3	9.30	
								7.4	9.40	
10		23.46	23.12			10:30		6.2	60	
								6.2	60	
								6.1	50	
								6.0	50	





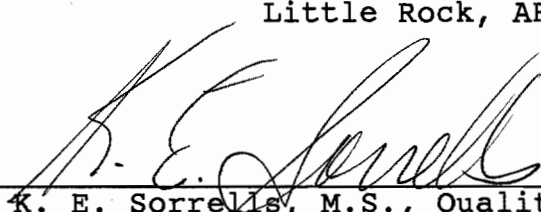
Scanned and Entered

SUNRAY SERVICES  
LANDFILL MONITORING

SITE: TONTITOWN

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Report Prepared by:  
Sorrells Research Associates, Inc.  
8002 Stanton Road  
Little Rock, AR 72103

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

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April 15, 1994



TABLE OF CONTENTS

	PAGE
1. SAMPLING PROCEDURES/SAMPLE CUSTODY/DATA MANAGEMENT	3
2. MONITORING WELLS 1 - 11 REPORT DATA/Q.A.	8
3. LEACHATE SITE 3 AND SITE 4 REPORT DATA/Q.A.	9
4. FIELD BLANK, RINSE WATER, WASH WATER, DISTILLED WATER DATA	10
5. CHAIN OF CUSTODY RECORDS	11

SAMPLING PROCEDURES  
FOR  
MONITORING WELLS

The following procedures are to be used in collecting samples:  
All and/or part of these procedures may vary depending on Well site/permit.

A.) BAILERS:

1. Provide one bailer for each well to be sampled. A designated bailer shall be 1 inch in diameter and fabricated from PVC with a glass ball type foot valve.

1. a. Alternatively use disposable polyethylene bailers.

2. Each bailer is marked and dedicated to individual wells and stored at Sorrells Research Laboratory.

3. Bailers are cleaned with phosphate free detergent and rinsed thoroughly with tap water followed by a distilled water rinse.

B.) SURFACE PREPARATION:

1. Use disposable polyethylene gloves for the collection process, to minimize personal contact with the samples.

2. Use paper towels and tissues where necessary for any container surface clean up. Use disposable polyethylene sheets, approximately 8' x 10' to drape the sample collection and preparation area in order minimize contact of samples with area surface.

3. Finally, use white Glad bags, 13 gallon capacity to collect waste disposable material generated by the sample collection and preparation process.

C. DEPTH

1. Where applicable use an oil/water interface probe to test for the presence of immiscible layers.

2. Groundwater depth below top of riser pipe will be measured with an electronic tape or equivalent device capable of measuring to the nearest 0.01 ft. Total well depth also will be measured to the nearest 0.01 ft.

#### D. CONTAINERS

Proper containers shall be used according to the parameters needed at each site. The list of containers below are used by SRA where applicable are:

1. 1 liter amber glass with teflon-liner cap.
2. 40 ml vials with teflon-liner cap.
3. 500 ml brown plastic
4. 500 ml white plastic
5. 125 ml amber glass
6. 250 ml amber glass with teflon-liner cap
7. 1000 ml glass with teflon-liner cap
8. 1/2 gal plastic

All containers are to be certified clean by supplier. For marking containers use a waterproof tag or label and use a waterproof marker.

#### E. Q.A./Q.C.

1. A trip blank will be included for each sampling event as a part of the field Q.A./Q.C.

2. Duplicate samples shall be selected in each sample sequence 1-10, 11-20, and 21-29, etc. sequence as appropriate.

3. Duplicate samples shall be selected also for analyte spike recovery in sample sequence 1-20, and 21-39. ect. sequence as appropriate.

This will ensure documentation of sampling and analytical variability as part of Total Quality Assurance.

#### F. SAMPLING PROCEDURES

1. Where applicable measure for the presence of immiscible layers. The testing for immiscible layers is to be performed prior to purging the wells. The oil/water interface probe is to be lowered into the well slowly. Listen for accompanying tones to discern between the appropriate layers. The distances between the layers are measured to the nearest 0.01 ft. and levels are recorded in the field book. After the well has been tested, retrieve the probe and rinse with phosphate free detergent solution followed by a distilled water rinse and wipe dry. A set of samples will be taken from each non-aqueous phase level, if any, found.

2. Measure depth to groundwater to the nearest 0.01 ft. Dry wells shall be so noted in log.

3. Measure height of monitoring well riser pipe above ground to the nearest 0.01 ft.

4. Measure total well depth to the nearest 0.01 ft. Compare to as-built drawings to determine whether sediment has accumulated in the well.

If 10% of the screened interval is blocked by sediment, the well will be redeveloped prior to the next sampling event.

5. Purge the well by bailing at least 3 well volumes or to dryness from each well. Well volume in gallons is  $H \times (D/2)^2 \times \pi \times (12/231)$ . H is height of column in feet of water in well above bottom of well. D is diameter of well riser in inches.  $\pi$  is 3.141+ 12 converts feet to inches. 231 Converts cubic inches to gallons. Where applicable purged water will be stored on site, with proper storage containers supplied by the client until after analyses are completed. If the analyses are below acceptable levels the water will then be disposed of on site by the client. If the water is contaminated, the contaminated water will be disposed of at an appropriate hazardous waste site by the client. Also, any and all contaminated samples remaining at laboratory will be returned to client.

6. Collect 1 field blank by contacting certified HPLC organic free water with clean unused bailer. The sample collector shall transfer this water to the bailer for a contact time comparable to the collection time specific for that well. After suitable contact time, the blank water shall be transferred to collection and storage containers for preservation. This sample will be analyzed with well samples to avoid potential holding time problems.

7. Lower bailer into well and listen for filling.

8. Carefully withdraw bailer and pour contents into the sample containers.

9. Perform field measurements of temperature, pH and conductivity of each sample.

10. Handle samples as little as possible. Attach sample tag securely to the sample container at the time the sample is collected. Record the following information on the sample tag or label.

- a.) Serial number of the tag
- b.) Well number
- c.) Date
- d.) Time
- e.) Name of collector/collectors
- f.) Preservative
- g.) Analysis required
- h.) Complete chain of custody records tabulating the above information for the sampling event.

11. Use bound field books to record measurements and other information necessary to document the sample collection processes. The standard format is to include the serial number of the field sheet, date, time, survey, type of sample taken, volume of each sample, code for sample analysis, unique sample number, sampling location, field measurements. See well purging data form and figures 9-2, 9-3, for an example of some field entries. The entries are to be signed by the sample collector and the responsibility of preparing and retaining field books are to be that of the sampling coordinator, or his designated representative.

12. These samples are to be preserved (short-term) by chilling the closed (tightly-sealed) collection containers in a durable ice chest with crushed ice, immediately following collection. The laboratory supervisor will advise on any special requirements in particular circumstances, in general, it will be advisable to adhere to chilling with crushed ice alone for immediate field preservation, and allow the laboratory to coordinate needs for long-term preservation.

13. The sample collector is physically responsible for the sample until its custody is relinquished to the receiving laboratory or assigned custodian, that is, it must be in his view at all times, or lock-stored where it cannot be tampered with.

14. Transport samples immediately to laboratory for testing.

#### G. SAMPLE ORDER

1. Monitoring Wells least likely to be affected by site will be sampled first. Wells will be sampled in order from up-gradient to down-gradient if applicable.

2. The analytes will be collected in order of volatility after determining physical measurements (well depth, temperature, conductivity, pH). First the volatiles, semi-volatiles, metals, etc.

#### H. DUPLICATE SAMPLES/SPECIAL HANDLING

1. Complete sets of duplicates will be collected during each sampling period, according to Section E, preceding. The specific well to be chosen will be selected by the Field Supervisor.

2. If well samples yield any visible sediment or turbidity, proceed as follows, except for volatile and semi-volatile portions: Collect sufficient sample to fill a 5 gallon container. Mix sample well before filling all other containers. This will promote split sample homogeneity in the presence of sediment and/or turbidity.

## SAMPLE CUSTODY

This study will document and implement a chain of possession and custody of any sample collected, to insure that all are collected, transferred, stored, analyzed, and destroyed by authorized personnel. Samples will be accompanied by a Chain-of-Custody record that includes the name of the study, collector's signatures, station number, station location, date, time, type of sample, sequence number, number of containers, and analyses required.

The purpose of the Chain-of-Custody procedure is to establish an unbroken chain of connection for documentation by maintaining an accurate written record of source and possession of the samples through their analysis and ultimate report. This procedure is also intended to ensure that samples are collected, transferred, stored, analyzed and destroyed only by authorized, competent personnel.

A sample is in CUSTODY if it is in any one of the following states:

- a. In actual physical possession.
- b. In view, after being in physical possession.
- c. In physical possession and locked up.
- d. In a secure area, restricted to authorized personnel.

Laboratory personnel are responsible for the care and custody of a sample once it is handed to them and should retain the sample in their possession and view or secured in the laboratory at all times.

The laboratory area shall be maintained as a secured area and shall be restricted to authorized personnel.

Once sample analyses are completed, the unused portion of the sample, with identifying labels and other documentation must be returned to the Laboratory Supervisor for secure storage.

Samples should be destroyed only upon the order of the Laboratory Supervisor, in consultation with the Project Officer. Sample tag information must be recorded on Chain-of-Custody record, which, like all laboratory records must be retained for three years.

## DATA MANAGEMENT

### 1. Data Tracking

All information pertaining to sample identification, analyses required, and final results is entered into the computer network and maintained for approximately 6 months. After this time information is archived and stored in a secure area for retrieval.

Sample status is monitored through the computer network. The computer generates a flagging system for samples incomplete after the time allocated.

A log book is maintained by sample custody where information including date received, date subcontracted, date of confirmation, and date of report is entered for samples subcontracted to an outside laboratory.

### 2. Data Review

The initial review is done by the analyst when the data has been acquired for a sample. This review covers sample identification, check of analyses requested against the Computer Network record, review of procedures and notebook data, checking of calculation, investigation for all related quality control data, and correct transcription of all data.

The final review will be the ultimate responsibility of the Laboratory Manager. Any out-of-control conditions will be noted and reviewed by the Quality Assurance Manager. Decisions concerning these conditions are made jointly by the Laboratory Manager and the Quality Assurance Manager.

After data has been entered into the reporting system, a draft report is reviewed by the Supervisor. This review includes a check of holding times met, correct analysis and report dates, and correct reporting units, as well as a review of results, quality control data, and transcription. At any point in the review process, if an error is found, the analyst has the responsibility for investigating the problem and initiating correction.

EPA HW No.	CONTAMINANT	CAS NO.	REGULATORY LEVEL	EPA METHODS
D004	Arsenic	7440-38-2	5.0	7060
D005	Barium	7440-39-3	100.0	7080
D018	Benzene	71-43-2	0.5	5030/8020
D006	Cadmium	7440-43-9	1.0	7130/7131
D019	Carbon tetrachloride	56-23-5	0.5	5030/8010
D020	Chlordane	57-74-9	0.03	3510/8080
D021	Chlorobenzene	108-90-7	100.0	5030/8010
D022	Chloroform	67-66-3	6.0	5030/8010
D007	Chromium	7440-47-3	5.0	7190/7191
D023	o-Cresol	95-48-7	200.0	3510/8270
D024	m-Cresol	108-39-4	200.0	3510/8270
D025	p-Cresol	106-44-5	200.0	3510/8270
D026	Cresol	.....	200.0	3510/8270
D016	2,4-D	94-75-7	10.0	3510/8270
D027	1,4-Dichlorobenzene	106-46-7	7.5	3510/8270
D028	1,2-Dichloroethane	107-06-2	0.5	5030/8270
D029	1,1-Dichloroethylene	75-35-4	0.7	5030/8010
D030	2,4-Dinitrotoluene	121-14-2	0.13	3510/8270
D012	Endrin	72-20-8	0.02	3510/8270
D031	Heptachlor (and Heptachlor epoxide	76-44-8	0.008	3510/8270
D032	Hexachlorobenzene	118-74-1	0.13	3510/8270
D033	Hexachlorobutadiene	87-68-3	0.5	3510/8270
D034	Hexachloroethane	67-72-1	3.0	3510/8270
D008	Lead	7439-92-1	5.0	7420/7421
D013	Lindane	58-89-9	0.4	3510/8080
D009	Mercury	7439-97-6	0.2	7470
D014	Methoxychlor	72-43-5	10.0	3510/8080
D035	Methyl ethyl ketone	78-93-3	200.0	5030/8015
D036	Nitrobenzene	98-95-3	2.0	3510/8270
D037	Pentachlorophenol	87-86-5	100.0	3510/8270
D038	Pyridine	110-86-1	5.0	3510/8270
D010	Selenium	7782-49-2	1.0	7740
D011	Silver	7440-22-4	5.0	7760/7761
D039	Tetrachloroethylene	127-18-4	0.7	5030/8010
D015	Toxaphene	8001-35-2	0.5	3510/8080
D040	Trichloroethylene	79-01-6	0.5	5030/8010
D041	2,4,5-Trichlorophenol	95-95-4	400.0	3510/8270
D042	2,4,6-Trichlorophenol	88-06-2	2.0	3510/8270
D017	2,4,5-TP (Silvex)	93-72-1	1.0	8510
D043	Vinyl chloride	75-01-4	0.2	5030/8010
	IGNITABILITY	FP .F	> 140 .F	1010
	CORROSIVITY	.....	< 2 OR > 12.5	9040
	REACTIVITY	.....	SEE BELOW	EXAM &
	Total releasable cyanide		250 mg/kg as HCN	9010
	Total releasable sulfide		500 mg/kg as H <sub>2</sub> S	9030
	Solids	Percent	NA	1311/ZHE
	Laboratory Analysis Conducted According to EPA 40 CFR PART 261.			



1994 METHODOLOGY  
PAGE 1 OF 2  
FOR MONITORING WELLS

\*Please Note - Reported in Milligrams per Liter or Standard units.

\*\*Please Note - < = less than = not detected @ detection value

ANALYTE	Max Cont.	Levels
	DW Stds.	TCLP
Antimony	NA	NA
Arsenic	0.05	5.0
Barium	1.0	100.0
Beryllium	NA	NA
Cadmium	0.01	1.0
Chromium	0.05	5.0
Cobalt	NA	NA
Copper	1.0	100.0
Lead	0.025	2.5
Nickel	NA	NA
Selenium	0.01	1.0
Silver	0.05	5.0
Thallium	NA	NA
Vanadium	NA	NA
Zinc	5.0	500.0
Acetone	NA	NA
Acrylonitrile	NA	NA
Benzene	0.005	0.5
Bromochloromethane	NA	NA
Bromodichloromethane	NA	NA
Bromoform	0.1	NA
Carbon disulfide	NA	NA
Carbon tetrachloride	0.005	0.5
Chlorobenzene	NA	100.0
Chloroethane	NA	NA
Chloroform	0.1	6
Dibromochloromethane	0.1	NA
Dibromo-3-chloropropane, 1,2-	NA	NA
Dibromoethane, 1,2-	NA	NA
Dichlorobenzene, o-	NA	NA
Dichlorobenzene, p-	0.075	NA
Dichloro-2-butene, trans-1,4-	NA	NA
Dichloroethane, 1,1-	NA	NA
Dichloroethane, 1,2-	0.005	0.5
Dichloroethylene, 1,1-	0.007	0.7
Dichloroethylene, cis-1,2-	NA	NA
Dichloroethylene, trans, 1-,2-	NA	NA
Dichloropropane, 1,2-	NA	NA
Dichloropropene, cis-1,3-	NA	NA
Dichloropropene, trans, 1,3-	NA	NA
Ethylbenzene	NA	NA
Hexanone, 2-	NA	NA

## 1994 METHODOLOGY

PAGE 2 OF 2

FOR

## MONITORING WELLS

\*Please Note - Reported in Milligrams per Liter or  
Standard units.

ANALYTE	Max Cont.	Levels
	DW Stds.	TCLP
Methyl bromide	NA	NA
Methyl chloride	NA	NA
Methylene bromide	NA	NA
Methylene chloride	NA	NA
Methyl ethyl ketone	NA	NA
Methyl Iodide	NA	NA
Methyl-2-pentanone, 4-	NA	NA
Styrene	NA	NA
Tetrachloroethane, 1, 1, 1, 2-	NA	NA
Tetrachloroethane, 1, 1, 2, 2-	NA	NA
Tetrachloroethylene	NA	0.7
Toluene	NA	NA
Trichloroethane, 1, 1, 1-	0.2	NA
Trichloroethane, 1, 1, 2-	NA	NA
Trichloroethylene	0.005	0.5
Trichlorofluoromethane	NA	NA
Trichloropropane, 1, 2, 3-	NA	NA
Vinyl acetate	NA	NA
Vinyl chloride	0.02	0.2
Xylene, o-	NA	NA
Xylene, m-	NA	NA
Xylene, p-	NA	NA
Xylenes	NA	NA
Ammonia nitrogen	NA	NA
Bicarbonate	NA	NA
Calcium	NA	NA
Chloride	250	NA
Iron	0.3	NA
Magnesium	NA	NA
Manganese, dissolved	0.05	NA
Nitrate	10.0	NA
Potassium	NA	NA
Sodium	NA	NA
Sulfate	250	NA
Chemical oxygen demand	NA	NA
Total dissolved solids	500	NA
Cyanide	NA	NA
Mercury	0.002	0.2
Total Organic Carbon	NA	NA
pH, units	6.5-8.5	<2 OR>12.5
Specific conductance, us/cm	NA	NA
Temperature, .c	NA	NA

MONITORING WELLS  
REPORT DATA



**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**

**WEF**



CHEMISTS  
ECOLOGISTS  
CONSULTANTS  
PLANNERS

8002 Stanton Road  
Little Rock, Arkansas 72209

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Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL # 1

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium		0.191	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium		0.002	mg/Liter	7191
Cobalt	<	0.000	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.056	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.219	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene		0.004	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane		0.010	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-		0.007	mg/Liter	8260

Laboratory Number: N188.001



**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**

**WEF**



CHEMISTS  
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Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL # 1

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.024	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-		0.014	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene		0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride		0.022	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.001



**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**

**WEF**



CHEMISTS  
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CONSULTANTS  
PLANNERS

8002 Stanton Road  
Little Rock, Arkansas 72209

Phone 501-562-8139  
Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL # 1

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen		0.044	mg/Liter	350.3
Bicarbonate		291.220	mg/Liter	4500 D
Calcium		140.000	mg/Liter	7140
Chloride		36.000	mg/Liter	4500 C
Iron		0.024	mg/Liter	7380
Magnesium		5.010	mg/Liter	7450
Manganese, dissolved		2.200	mg/Liter	7460
Nitrate		1.341	mg/Liter	4500 E
Potassium		24.800	mg/Liter	7610
Sodium		24.100	mg/Liter	7770
Sulfate		3.260	mg/Liter	4500 E
Chemical oxygen demand		8.000	mg/Liter	5220 B
Total dissolved solids		632.400	mg/Liter	2540 C
Total organic carbon		2.129	mg/Liter	5310 C
pH		6.625	units	4500 B
pH (Q1)		6.700	units	4500 B
pH (Q2)		6.600	units	4500 B
pH (Q3)		6.500	units	4500 B
pH (Q4)		6.700	units	4500 B
Cyanide		0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		1095.000	uS/cm	9050
Specific conductance (Q1)		1100.000	uS/cm	9050
Specific conductance (Q2)		1090.000	uS/cm	9050
Specific conductance (Q3)		1060.000	uS/cm	9050
Specific conductance (Q4)		1130.000	uS/cm	9050
Temperature		9.125	.C	2550 B
Temperature (Q1)		7.500	.c	2550 B

Laboratory Number: N188.001



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL # 1

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	9.500 .c	2550 B
Temperature (Q3)	9.500 .c	2550 B
Temperature (Q4)	10.000 .C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 9:00  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
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MR. KIRK ELLIS  
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MR. RANDY HOLCOMB  
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MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.001

DKS Reviewed By: K. E. Sorrells, M.S. [u] E



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	900	03/03/94	900	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	900	03/03/94	900	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	900	03/03/94	900	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38





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## WEF



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.001      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #2

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.008	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.002



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Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #2

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.002



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #2

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen		0.013	mg/Liter	350.3
Bicarbonate		119.560	mg/Liter	4500 D
Calcium		41.700	mg/Liter	7140
Chloride		19.000	mg/Liter	4500 C
Iron		0.021	mg/Liter	7380
Magnesium		0.750	mg/Liter	7450
Manganese, dissolved		0.014	mg/Liter	7460
Nitrate		1.064	mg/Liter	4500 E
Potassium		0.910	mg/Liter	7610
Sodium		5.100	mg/Liter	7770
Sulfate		2.750	mg/Liter	4500 E
Chemical oxygen demand		2.500	mg/Liter	5220 B
Total dissolved solids		127.000	mg/Liter	2540 C
Total organic carbon		0.483	mg/Liter	5310 C
pH		7.775	units	4500 B
pH (Q1)		7.500	units	4500 B
pH (Q2)		7.800	units	4500 B
pH (Q3)		7.800	units	4500 B
pH (Q4)		8.000	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		257.500	uS/cm	9050
Specific conductance (Q1)		270.000	uS/cm	9050
Specific conductance (Q2)		240.000	uS/cm	9050
Specific conductance (Q3)		260.000	uS/cm	9050
Specific conductance (Q4)		260.000	uS/cm	9050
Temperature		8.875	.C	2550 B
Temperature (Q1)		8.000	.c	2550 B

Laboratory Number: N188.002



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Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #2

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	9.500 .c	2550 B
Temperature (Q3)	9.000 .c	2550 B
Temperature (Q4)	9.000 .C	2550 B

Collected by:  
V. MAHFFEY/K.H./J.B. on 03/03/94 at 9:30  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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Laboratory Number: N188.002

DKS Reviewed By: K. E. Sorrells, M.S. [ 4 E



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	930	03/03/94	930	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	930	03/03/94	930	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	930	03/03/94	930	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.002      DKS



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Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium		0.092	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.011	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.038	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane		0.002	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.003





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LABORATORY ANALYSIS

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Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-		0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride		0.006	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.003



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen		0.025	mg/Liter	350.3
Bicarbonate		141.520	mg/Liter	4500 D
Calcium		39.900	mg/Liter	7140
Chloride		6.500	mg/Liter	4500 C
Iron		0.139	mg/Liter	7380
Magnesium		2.420	mg/Liter	7450
Manganese, dissolved		0.332	mg/Liter	7460
Nitrate		0.145	mg/Liter	4500 E
Potassium		1.770	mg/Liter	7610
Sodium		1.490	mg/Liter	7770
Sulfate		6.420	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		142.500	mg/Liter	2540 C
Total organic carbon		3.277	mg/Liter	5310 C
pH		6.125	units	4500 B
pH (Q1)		6.100	units	4500 B
pH (Q2)		6.200	units	4500 B
pH (Q3)		6.100	units	4500 B
pH (Q4)		6.100	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		302.500	uS/cm	9050
Specific conductance (Q1)		300.000	uS/cm	9050
Specific conductance (Q2)		300.000	uS/cm	9050
Specific conductance (Q3)		290.000	uS/cm	9050
Specific conductance (Q4)		320.000	uS/cm	9050
Temperature		10.375	.C	2550 B
Temperature (Q1)		10.500	.c	2550 B

Laboratory Number: N188.003



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #3

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	10.000 .c	2550 B
Temperature (Q3)	10.000 .c	2550 B
Temperature (Q4)	11.000 .C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 9:55  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
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SPRINGDALE, AR 72765-  
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SCS ENGINEERS  
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MR. RANDY HOLCOMB  
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SPRINGDALE, AR 72765-  
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P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.003

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES

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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	955	03/03/94	955	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	955	03/03/94	955	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	955	03/03/94	955	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.003      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #4

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium		0.148	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.028	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.013	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene		0.005	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane		0.009	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-		0.002	mg/Liter	8260

Laboratory Number: N188.004



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #4

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.012	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-		0.027	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene		0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene		0.002	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene		0.005	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride		0.021	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.004



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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #4

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes		0.001	mg/Liter	8260
Ammonia nitrogen		0.662	mg/Liter	350.3
Bicarbonate		392.840	mg/Liter	4500 D
Calcium		140.000	mg/Liter	7140
Chloride		26.500	mg/Liter	4500 C
Iron		0.057	mg/Liter	7380
Magnesium		4.630	mg/Liter	7450
Manganese, dissolved		5.450	mg/Liter	7460
Nitrate		0.210	mg/Liter	4500 E
Potassium		5.920	mg/Liter	7610
Sodium		16.900	mg/Liter	7770
Sulfate		4.980	mg/Liter	4500 E
Chemical oxygen demand		9.500	mg/Liter	5220 B
Total dissolved solids		472.000	mg/Liter	2540 C
Total organic carbon		2.417	mg/Liter	5310 C
pH		6.225	units	4500 B
pH (Q1)		6.500	units	4500 B
pH (Q2)		6.100	units	4500 B
pH (Q3)		6.100	units	4500 B
pH (Q4)		6.200	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		903.330	uS/cm	9050
Specific conductance (Q1)		890.000	uS/cm	9050
Specific conductance (Q2)		900.000	uS/cm	9050
Specific conductance (Q3)		920.000	uS/cm	9050
Specific conductance (Q4)	N	0.000	uS/cm	9050
Temperature		14.500	.C	2550 B
Temperature (Q1)		14.000	.c	2550 B

Laboratory Number: N188.004





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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #4

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	14.500	.c	2550 B
Temperature (Q3)	15.000	.c	2550 B
Temperature (Q4)	14.500	.C	2550 B

Collected by:

V. MAHAFFEY/K.H./J.B. on 03/03/94 at 15:15

Analysis by :

K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:

MR. KEVIN HODGES

MR. RANDY HOLCOMB

P.O. BOX 1310

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SPRINGDALE, AR 72765-

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MR. BOB BAXTER

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KANSAS CITY, MO 64131-

SPRINGDALE, AR 72765-

Laboratory Number: N188.004

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



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# WEF



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1515	03/03/94	1515	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1515	03/03/94	1515	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1515	03/03/94	1515	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.004      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #5

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium		0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.010	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.054	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.005



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #5

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.005	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-		0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene		0.003	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-		0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene		0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.005



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #5

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	350.3
Bicarbonate		222.040	mg/Liter	4500 D
Calcium		139.000	mg/Liter	7140
Chloride		38.000	mg/Liter	4500 C
Iron		0.014	mg/Liter	7380
Magnesium		1.970	mg/Liter	7450
Manganese, dissolved		0.018	mg/Liter	7460
Nitrate		2.422	mg/Liter	4500 E
Potassium		4.200	mg/Liter	7610
Sodium		14.100	mg/Liter	7770
Sulfate		3.260	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		417.000	mg/Liter	2540 C
Total organic carbon		0.173	mg/Liter	5310 C
pH		6.900	units	4500 B
pH (Q1)		6.900	units	4500 B
pH (Q2)		6.900	units	4500 B
pH (Q3)		6.900	units	4500 B
pH (Q4)		6.900	units	4500 B
Cyanide		0.002	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		752.500	uS/cm	9050
Specific conductance (Q1)		780.000	uS/cm	9050
Specific conductance (Q2)		790.000	uS/cm	9050
Specific conductance (Q3)		710.000	uS/cm	9050
Specific conductance (Q4)		730.000	uS/cm	9050
Temperature		9.375	.C	2550 B
Temperature (Q1)		8.000	.c	2550 B

Laboratory Number: N188.005



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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #5

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	8.000	.c	2550 B
Temperature (Q3)	10.000	.c	2550 B
Temperature (Q4)	11.500	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 10:25  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.005

DKS Reviewed By: K. E. Sorrells, M.S. [4]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1025	03/03/94	1025	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1025	03/03/94	1025	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1025	03/03/94	1025	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38





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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.005      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #6

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium		0.002	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.007	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.055	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	,	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.006



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #6

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.002	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene		0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane		0.005	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride		0.003	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.006



**SORRELLS RESEARCH  
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8002 Stanton Road  
Little Rock, Arkansas 72209

LABORATORY ANALYSIS

Phone 501-562-8139  
Fax 501-562-7025  
Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #6

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen		0.013	mg/Liter	350.3
Bicarbonate		209.840	mg/Liter	4500 D
Calcium		48.800	mg/Liter	7140
Chloride		20.500	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		2.380	mg/Liter	7450
Manganese, dissolved		0.075	mg/Liter	7460
Nitrate		3.248	mg/Liter	4500 E
Potassium		7.810	mg/Liter	7610
Sodium		10.400	mg/Liter	7770
Sulfate		3.550	mg/Liter	4500 E
Chemical oxygen demand		5.000	mg/Liter	5220 B
Total dissolved solids		235.500	mg/Liter	2540 C
Total organic carbon		0.563	mg/Liter	5310 C
pH		6.525	units	4500 B
pH (Q1)		6.500	units	4500 B
pH (Q2)		6.500	units	4500 B
pH (Q3)		6.500	units	4500 B
pH (Q4)		6.600	units	4500 B
Cyanide		0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		442.500	uS/cm	9050
Specific conductance (Q1)		430.000	uS/cm	9050
Specific conductance (Q2)		440.000	uS/cm	9050
Specific conductance (Q3)		450.000	uS/cm	9050
Specific conductance (Q4)		450.000	uS/cm	9050
Temperature		14.000	.C	2550 B
Temperature (Q1)		16.000	.c	2550 B

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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #6

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	14.000 .c	2550 B
Temperature (Q3)	11.000 .c	2550 B
Temperature (Q4)	15.000 .C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 10:50  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained.  
See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
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MR. KIRK ELLIS  
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10401 HOLMES RD SUITE 400  
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MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.006

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES

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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1050	03/03/94	1050	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1050	03/03/94	1050	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1050	03/03/94	1050	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. # REC.	IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.006      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.029	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.007





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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-		0.004	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-		0.006	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride		0.006	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride		0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.007



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LABORATORY ANALYSIS

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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #7

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	350.3
Bicarbonate		231.800	mg/Liter	4500 D
Calcium		153.000	mg/Liter	7140
Chloride		14.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		1.850	mg/Liter	7450
Manganese, dissolved		0.040	mg/Liter	7460
Nitrate		1.469	mg/Liter	4500 E
Potassium		1.640	mg/Liter	7610
Sodium		4.040	mg/Liter	7770
Sulfate		2.990	mg/Liter	4500 E
Chemical oxygen demand		7.500	mg/Liter	5220 B
Total dissolved solids		359.500	mg/Liter	2540 C
Total organic carbon		0.495	mg/Liter	5310 C
pH		6.700	units	4500 B
pH (Q1)		6.600	units	4500 B
pH (Q2)		6.700	units	4500 B
pH (Q3)		6.700	units	4500 B
pH (Q4)		6.800	units	4500 B
Cyanide		0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		682.500	uS/cm	9050
Specific conductance (Q1)		700.000	uS/cm	9050
Specific conductance (Q2)		700.000	uS/cm	9050
Specific conductance (Q3)		650.000	uS/cm	9050
Specific conductance (Q4)		680.000	uS/cm	9050
Temperature		12.750	.C	2550 B
Temperature (Q1)		13.000	.c	2550 B

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ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	13.000	.c	2550 B
Temperature (Q3)	12.500	.c	2550 B
Temperature (Q4)	12.500	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 12:00  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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MR. BOB BAXTER  
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Laboratory Number: N188.007

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1200	03/03/94	1200	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1200	03/03/94	1200	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1200	03/03/94	1200	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

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ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.007      DKS



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Little Rock, Arkansas 72209

Phone 501-562-8139  
Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #8 DUPLICATE 1

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.008D1



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 1

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.008D1



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 1

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	350.3
Bicarbonate		220.520	mg/Liter	4500 D
Calcium		48.100	mg/Liter	7140
Chloride		12.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		0.780	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate		2.277	mg/Liter	4500 E
Potassium		2.690	mg/Liter	7610
Sodium		4.500	mg/Liter	7770
Sulfate		1.800	mg/Liter	4500 E
Chemical oxygen demand		2.000	mg/Liter	5220 B
Total dissolved solids		207.140	mg/Liter	2540 C
Total organic carbon		0.592	mg/Liter	5310 C
pH		7.250	units	4500 B
pH (Q1)		7.100	units	4500 B
pH (Q2)		7.300	units	4500 B
pH (Q3)		7.300	units	4500 B
pH (Q4)		7.300	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		407.500	uS/cm	9050
Specific conductance (Q1)		400.000	uS/cm	9050
Specific conductance (Q2)		400.000	uS/cm	9050
Specific conductance (Q3)		410.000	uS/cm	9050
Specific conductance (Q4)		420.000	uS/cm	9050
Temperature		13.375	.C	2550 B
Temperature (Q1)		14.000	.c	2550 B

Laboratory Number: N188.008D1





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LABORATORY ANALYSIS

WEF



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Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 1

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	13.000 .c	2550 B
Temperature (Q3)	14.000 .c	2550 B
Temperature (Q4)	12.500 .C	2550 B

Collected by:

V. MAHAFFEY/K.H./J.B. on 03/03/94 at 14:00

Analysis by :

K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:

MR. KEVIN HODGES

P.O. BOX 1310

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MR. KIRK ELLIS  
SCS ENGINEERS

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KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB

P.O. BOX 1310

SPRINGDALE, AR 72765-

MR. BOB BAXTER

P.O. BOX 1310

SPRINGDALE, AR 72765-

Laboratory Number: N188.008D1 DKS Reviewed By: K. E. Sorrells, M.S. [ ]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1400	03/03/94	1400	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1400	03/03/94	1400	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1400	03/03/94	1400	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.008D1 DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 2

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.008D2



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For: SUNRAY SERVICES  
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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 2

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.008D2



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SPRINGDALE, AR 72765-  
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Sample From: WELL #8 DUPLICATE 2

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8020
Ammonia nitrogen	<	0.010	mg/Liter	350.3
Bicarbonate		195.200	mg/Liter	4500 D
Calcium		47.000	mg/Liter	7140
Chloride		11.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		0.780	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate		2.212	mg/Liter	4500 E
Potassium		2.720	mg/Liter	7610
Sodium		4.650	mg/Liter	7770
Sulfate		1.800	mg/Liter	4500 E
Chemical oxygen demand		0.500	mg/Liter	5220 B
Total dissolved solids		201.900	mg/Liter	2540 C
Total organic carbon		0.385	mg/Liter	5310 C
pH		7.300	units	4500 B
pH (Q1)		7.300	units	4500 B
pH (Q2)		7.300	units	4500 B
pH (Q3)		7.300	units	4500 B
pH (Q4)		7.300	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		407.500	uS/cm	9050
Specific conductance (Q1)		410.000	uS/cm	9050
Specific conductance (Q2)		410.000	uS/cm	9050
Specific conductance (Q3)		400.000	uS/cm	9050
Specific conductance (Q4)		410.000	uS/cm	9050
Temperature		12.500	.C	2550 B
Temperature (Q1)		12.000	.c	2550 B

Laboratory Number: N188.008D2



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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #8 DUPLICATE 2

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	13.500	.c	2550 B
Temperature (Q3)	11.500	.c	2550 B
Temperature (Q4)	13.000	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 14:00  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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MR. KIRK ELLIS  
SCS ENGINEERS

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

Laboratory Number: N188.008D2 DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES



8002 Stanton Road  
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Fax 501-562-7025  
Toll Free 1-800-331-8139

## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1415	03/03/94	1415	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1415	03/03/94	1415	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1415	03/03/94	1415	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38





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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.008D2 DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic		0.011	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium		0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel		0.016	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	ug/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.010



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.010



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #10

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		170.800	mg/Liter	4500 D
Calcium		28.300	mg/Liter	7140
Chloride		9.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		2.180	mg/Liter	7450
Manganese, dissolved		0.009	mg/Liter	7460
Nitrate		0.221	mg/Liter	4500 E
Potassium		12.200	mg/Liter	7610
Sodium		14.700	mg/Liter	7770
Sulfate		2.320	mg/Liter	4500 E
Chemical oxygen demand		2.500	mg/Liter	5220 B
Total dissolved solids		158.500	mg/Liter	2540 C
Total organic carbon		0.669	mg/Liter	5310 C
pH		8.450	units	4500 B
pH (Q1)		7.900	units	4500 B
pH (Q2)		8.300	units	4500 B
pH (Q3)		8.800	units	4500 B
pH (Q4)		8.800	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		350.000	uS/cm	9050
Specific conductance (Q1)		330.000	uS/cm	9050
Specific conductance (Q2)		350.000	uS/cm	9050
Specific conductance (Q3)		350.000	uS/cm	9050
Specific conductance (Q4)		370.000	uS/cm	9050
Temperature		15.000	.C	2550 B
Temperature (Q1)		17.000	.c	2550 B

Laboratory Number: N188.010



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Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #10

ANALYTE	RESULT	UNITS	METHOD
Temperature (Q2)	15.000	.c	2550 B
Temperature (Q3)	13.500	.c	2550 B
Temperature (Q4)	14.500	.C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 14:50  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
MR. KEVIN HODGES  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.010

DKS Reviewed By: K. E. Sorrells, M.S. [4]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1450	03/03/94	1450	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1450	03/03/94	1450	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1450	03/03/94	1450	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

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ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.010      DKS



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #11

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium		0.002	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc		0.010	mg/Liter	7950
Acetone	<	0.001	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.011





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105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #11

ANALYTE	RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001 mg/Liter	8260
Dichloroethane, 1,1-	<	0.001 mg/Liter	8260
Dichloroethane, 1,2-	<	0.001 mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001 mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001 mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001 mg/Liter	8260
Dichloropropane, 1,2-	<	0.001 mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001 mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001 mg/Liter	8260
Ethylbenzene	<	0.001 mg/Liter	8260
Hexanone, 2-	<	0.001 mg/Liter	8260
Methyl bromide	<	0.001 mg/Liter	8260
Methyl chloride	<	0.001 mg/Liter	8260
Methylene bromide	<	0.001 mg/Liter	8260
Methylene chloride	<	0.001 mg/Liter	8260
Methyl ethyl ketone	<	0.001 mg/Liter	8260
Methyl iodide	<	0.001 mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001 mg/Liter	8260
Styrene	<	0.001 mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001 mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001 mg/Liter	8260
Tetrachloroethylene	<	0.001 mg/Liter	8260
Toluene	<	0.001 mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001 mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001 mg/Liter	8260
Trichloroethylene	<	0.001 mg/Liter	8260
Trichlorofluoromethane	<	0.001 mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001 mg/Liter	8260
Vinyl acetate	<	0.001 mg/Liter	8260
Vinyl chloride	<	0.001 mg/Liter	8260
Xylene, o-	<	0.001 mg/Liter	8260

Laboratory Number: N188.011



**SORRELLS RESEARCH  
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Fax 501-562-7025  
Toll Free 1-800-331-8139

LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: WELL #11

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		151.280	mg/Liter	4500 D
Calcium		49.000	mg/Liter	7140
Chloride		5.500	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium		0.560	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate		3.739	mg/Liter	4500 E
Potassium		1.100	mg/Liter	7610
Sodium		3.920	mg/Liter	7770
Sulfate		2.750	mg/Liter	4500 E
Chemical oxygen demand		2.500	mg/Liter	5220 B
Total dissolved solids		213.500	mg/Liter	2540 C
Total organic carbon		0.339	mg/Liter	5310 C
pH		7.700	units	4500 B
pH (Q1)		7.600	units	4500 B
pH (Q2)		7.700	units	4500 B
pH (Q3)		7.700	units	4500 B
pH (Q4)		7.800	units	4500 B
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		377.500	uS/cm	9050
Specific conductance (Q1)		370.000	uS/cm	9050
Specific conductance (Q2)		380.000	uS/cm	9050
Specific conductance (Q3)		380.000	uS/cm	9050
Specific conductance (Q4)		380.000	uS/cm	9050
Temperature		13.250	.C	2550 B
Temperature (Q1)		11.000	.c	2550 B

Laboratory Number: N188.011



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: WELL #11

ANALYTE	RESULT UNITS	METHOD
Temperature (Q2)	14.500 .c	2550 B
Temperature (Q3)	14.000 .c	2550 B
Temperature (Q4)	13.500 .C	2550 B

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 11:25  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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MR. KIRK ELLIS  
SCS ENGINEERS

MR. RANDY HOLCOMB  
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MR. BOB BAXTER  
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SPRINGDALE, AR 72765-

10401 HOLMES RD SUITE 400  
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Laboratory Number: N188.011

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Nitrate	MKM	03/09/94	1500	03/09/94	1630	0.60	95.8	20
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
pH	VEM	03/03/94	1125	03/03/94	1125	0.00	0.0	4
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1125	03/03/94	1125	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Temperature	VEM	03/03/94	1125	03/03/94	1125	0.00	0.0	4
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



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QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
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Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.011      DKS

LEACHATE SITE 3 AND SITE 4  
REPORT DATA



**SORRELLS RESEARCH  
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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS

Sample From: LEACHATE SITE 3

ANALYTE		RESULT	UNITS	METHOD
Arsenic		0.002	mg/Liter	7061
Barium		0.481	mg/Liter	7080
Benzene		0.003	mg/Liter	8260
Cadmium	<	0.002	mg/Liter	7130
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlordane	<	0.010	mg/Liter	8080
Chlorobenzene		0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Chromium		0.011	mg/Liter	7191
Cresol, o-		0.041	mg/Liter	8270
Cresol, m-	<	0.050	mg/Liter	8270
Cresol, p-		2.004	mg/Liter	8270
Cresol		2.045	mg/Liter	Calc.
2,4 D	<	0.200	mg/Liter	8150
Dichlorobenzene, 1,4-		0.003	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dinitrotoluene, 2,4-	<	0.050	mg/Liter	8270
Endrin	<	0.010	mg/Liter	8080
Heptachlor	<	0.008	mg/Liter	8080
Heptachlor epoxide	<	0.008	mg/Liter	8080
Hexachlorobenzene	<	0.050	mg/Liter	8270
Hexachlorobutadiene	<	0.050	mg/Liter	8270
Hexachloroethane	<	0.050	mg/Liter	8270
Lead		0.005	mg/Liter	7421
Lindane	<	0.100	mg/Liter	8080
Mercury		0.001	mg/Liter	7470
Methoxychlor	<	0.100	mg/Liter	8080
Methyl ethyl ketone		3.193	mg/Liter	8260
Nitrobenzene	<	0.050	mw/Liter	8270
Pentachlorophenol	<	0.250	mg/Liter	8270

Laboratory Number: N188.012A



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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS

Sample From: LEACHATE SITE 3

ANALYTE		RESULT	UNITS	METHOD
Pyridine	<	0.250	mg/Liter	8270
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toxaphene	<	0.100	mg/Liter	8080
Trichloroethylene		0.004	mg/Liter	8260
Trichlorophenol, 2, 4, 5-	<	0.050	mg/Liter	8270
Trichlorophenol, 2, 4, 6-	<	0.100	mg/Liter	8270
2,4,5-TP Silvex	<	0.200	mg/Liter	8150
Vinyl chloride		0.002	mg/Liter	8260
Ignitability	>	140.000	.F	1010
Corrosivity pH >12.5 or <2		6.260	units	9040
Reactivity	=	0.000	neg	Exam.
Total releasable cyanide		0.001	mg/Liter	9010
Total releasable sulfide	<	1.000	mg/Liter	9030
Solids	<	0.500	percent	1311

Laboratory Number: N188.012A





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Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS  
Sample From: LEACHATE SITE 3

ANALYTE	RESULT UNITS	METHOD
---------	--------------	--------

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 15:45  
Analysis by :  
K. E. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 261. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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SCS ENGINEERS

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KANSAS CITY, MO 64131-

MR. RANDY HOLCOMB  
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MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.012A DKS Reviewed By: K. E. Sorrells, M.S. *[Signature]*



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Cadmium	KESII	03/15/94	1045	03/15/94	1114	0.00	94.8	20
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Corrosivity pH >12.5 or	KESII	03/07/94	920	03/07/94	1425	0.00	0.0	7
Ignitability F.P.	CAS	03/24/94	910	03/24/94	930	0.00	0.0	4
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Solids	KESII	03/07/94	1100	03/07/94	1420	0.00	0.0	7
Semi-Volatiles (Surr. Avg)	KES/M	03/17/94	1800	03/18/94	501	16.00	80.8	3
Total releasable sulfide	CAS	03/23/94	1630	03/23/94	1700	0.00	0.0	4
Volatiles (Surrogate Avg.	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 261 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
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KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
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Laboratory Number: N188.012A DKS



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LABORATORY ANALYSIS

**WEF**



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Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: LEACHATE SITE 3

ANALYTE	RESULT	UNITS	METHOD
Volume produced	310489.000	gallons	
Chloride	442.900	mg/Liter	4500 C
Total dissolved solids	5382.000	mg/Liter	2540 C
Chemical oxygen demand	9540.000	mg/Liter	5220 B
Biochemical oxygen demand	3406.400	mg/Liter	5210 B
pH	6.300	units	4500 B
Cadmium	< 0.001	mg/Liter	7131
Chromium	0.015	mg/Liter	7191
Copper	0.005	mg/Liter	7211
Lead	0.005	mg/Liter	7421
Nickel	0.123	mg/Liter	7521
Zinc	2.070	mg/Liter	7950

Laboratory Number: N188.012B



**SORRELLS RESEARCH  
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SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: LEACHATE SITE 3

ANALYTE	RESULT UNITS	METHOD
---------	--------------	--------

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 15:45  
Analysis by :  
JAMES B. SORRELLS, CECIL A. SORRELLS, K. E. SORRELLS II, MARK MCKENZIE

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Laboratory Number: N188.012B DKS Reviewed By: K. E. Sorrells, M.S. [ 4 ]



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## QUALITY ASSURANCE

March 3, 1994

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ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Biochemical oxygen demand	MKM	03/04/94	830	03/09/94	830	0.70	96.2	15
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
pH	VEM	03/03/94	1545	03/03/94	1545	0.00	0.0	2
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Volume produced	CLIEN	01/01/94	0	03/31/94	0	0.00	0.0	2
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38

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BWG = Ben W. Glover  
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Laboratory Number: N188.012B DKS



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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS.

Sample From: LEACHATE SITE 4

ANALYTE		RESULT	UNITS	METHOD
Arsenic	<	0.001	mg/Liter	7061
Barium		0.271	mg/Liter	7080
Benzene	<	0.001	mg/Liter	8260
Cadmium	<	0.002	mg/Liter	7130
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlordane	<	0.010	mg/Liter	8080
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Chromium		0.001	mg/Liter	7191
Cresol, o-	<	0.050	mg/Liter	8270
Cresol, m-	<	0.050	mg/Liter	8270
Cresol, p-	<	0.050	mg/Liter	8270
Cresol	<	0.150	mg/Liter	Calc.
2,4 D	<	0.200	mg/Liter	8150
Dichlorobenzene, 1,4-		0.007	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dinitrotoluene, 2,4-	<	0.050	mg/Liter	8270
Endrin	<	0.010	mg/Liter	8080
Heptachlor	<	0.008	mg/Liter	8080
Heptachlor epoxide	<	0.008	ug/Liter	8080
Hexachlorobenzene	<	0.050	mg/Liter	8270
Hexachlorobutadiene	<	0.050	mg/Liter	8270
Hexachloroethane	<	0.050	ug/Liter	8270
Lead		0.001	mg/Liter	7421
Lindane	<	0.100	mg/Liter	8080
Mercury	<	0.001	mg/Liter	7470
Methoxychlor	<	0.100	mg/Liter	8080
Methyl ethyl ketone		0.012	mg/Liter	8260
Nitrobenzene	<	0.050	mg/Liter	8270
Pentachlorophenol	<	0.250	mg/Liter	8270

Laboratory Number: N188.013A



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LABORATORY AND FIELD SERVICES**

8002 Stanton Road  
Little Rock, Arkansas 72209

LABORATORY ANALYSIS

**WEF**



Phone 501-562-8139

Fax 501-562-7025

Toll Free 1-800-331-8139

Date of Report: April 14, 1994

Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS.

Sample From: LEACHATE SITE 4

ANALYTE		RESULT	UNITS	METHOD
Pyridine	<	0.250	mg/Liter	8270
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toxaphene	<	0.200	mg/Liter	8080
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorophenol, 2, 4, 5-	<	0.050	mg/Liter	8270
Trichlorophenol, 2, 4, 6-	<	0.050	mg/Liter	8270
2,4,5-TP Silvex	<	0.200	mg/Liter	8150
Vinyl chloride		0.005	mg/Liter	8260
Ignitability	>	140.000	.F	1010
Corrosivity pH >12.5 or <2		6.010	units	9040
Reactivity	=	0.000	neg	Exam.
Total releasable cyanide		0.001	mg/Liter	9010
Total releasable sulfide		0.310	mg/Liter	9030
Solids	<	0.500	percent	1311



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Date of Report: April 14, 1994  
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For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING. TCLP ANALYSIS.  
Sample From: LEACHATE SITE 4

ANALYTE	RESULT	UNITS	METHOD
---------	--------	-------	--------

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 16:00  
Analysis by :  
K. E. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 261. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

Copies to:  
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P.O. BOX 1310  
SPRINGDALE, AR 72765-

MR. RANDY HOLCOMB  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

MR. KIRK ELLIS  
SCS ENGINEERS  
10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.013A DKS Reviewed By: K. E. Sorrells, M.S. *KS*





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**QUALITY ASSURANCE**

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Cadmium	KESII	03/15/94	1045	03/15/94	1114	0.00	94.8	20
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Corrosivity pH >12.5 or	KESII	03/07/94	920	03/07/94	1425	0.00	0.0	7
Ignitability F.P.	CAS	03/24/94	910	03/24/94	930	0.00	0.0	4
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Solids	KESII	03/07/94	1100	03/07/94	1420	0.00	0.0	7
Semi-Volatiles (Surr. Avg)	KES/M	03/17/94	1800	03/18/94	501	16.00	80.8	3
Total releasable sulfide	CAS	03/23/94	1630	03/23/94	1700	0.00	0.0	4
Volatiles (Surrogate Avg.	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 261 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.013A DKS



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LABORATORY ANALYSIS

Phone 501-562-8139  
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Toll Free 1-800-331-8139

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-

Job: TONTITOWN LANDFILL MONITORING.

Sample From: LEACHATE SITE 4

ANALYTE	RESULT	UNITS	METHOD
Volume produced	18027.000	gallons	
Chloride	59.000	mg/Liter	4500 C
Total dissolved solids	323.000	mg/Liter	2540 C
Chemical oxygen demand	124.000	mg/Liter	5220 B
Biochemical oxygen demand	122.800	mg/Liter	5210 B
pH	6.000	units	4500 B
Cadmium	< 0.001	mg/Liter	7131
Chromium	0.002	mg/Liter	7191
Copper	< 0.001	mg/Liter	7211
Lead	0.002	mg/Liter	7421
Nickel	0.010	mg/Liter	7521
Zinc	0.012	mg/Liter	7950

Laboratory Number: N188.013B



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LABORATORY ANALYSIS

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Toll Free 1-800-331-8139

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Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.

Sample From: LEACHATE SITE 4

ANALYTE	RESULT UNITS	METHOD
---------	--------------	--------

Collected by:  
V. MAHAFFEY/K.H./J.B. on 03/03/94 at 16:00  
Analysis by :  
JAMES B. SORRELLS, CECIL A. SORRELLS, K. E. SORRELLS II, MARK MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 136. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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SCS ENGINEERS

MR. RANDY HOLCOMB  
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MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

10401 HOLMES RD SUITE 400  
KANSAS CITY, MO 64131-

Laboratory Number: N188.013B      DKS Reviewed By: K. E. Sorrells, M.S. [u] C



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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	# IN BAT
Biochemical oxygen demand	MKM	03/04/94	830	03/09/94	830	0.70	96.2	15
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
pH	VEM	03/03/94	1545	03/03/94	1545	0.00	0.0	2
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Volume produced	CLIEN	01/01/94	0	03/31/94	0	0.00	0.0	2
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38

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

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.013B DKS

FIELD BLANK, RINSED WATER,  
WASH WATER, DISTILLED WATER  
DATA



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Antimony	<	0.003	mg/Liter	7041
Arsenic	<	0.001	mg/Liter	7061
Barium	<	0.050	mg/Liter	7080
Beryllium	<	0.001	mg/Liter	7091
Cadmium	<	0.001	mg/Liter	7131
Chromium	<	0.001	mg/Liter	7191
Cobalt	<	0.001	mg/Liter	7201
Copper	<	0.001	mg/Liter	7211
Lead	<	0.001	mg/Liter	7421
Nickel	<	0.001	mg/Liter	7521
Selenium	<	0.002	mg/Liter	7740
Silver	<	0.001	mg/Liter	7761
Thallium	<	0.001	mg/Liter	7841
Vanadium	<	0.050	mg/Liter	7910
Zinc	<	0.005	mg/Liter	7950
Acetone		0.007	mg/Liter	8260
Acrylonitrile	<	0.001	mg/Liter	8260
Benzene	<	0.001	mg/Liter	8260
Bromochloromethane	<	0.001	mg/Liter	8260
Bromodichloromethane	<	0.001	mg/Liter	8260
Bromoform	<	0.001	mg/Liter	8260
Carbon disulfide	<	0.001	mg/Liter	8260
Carbon tetrachloride	<	0.001	mg/Liter	8260
Chlorobenzene	<	0.001	mg/Liter	8260
Chloroethane	<	0.001	mg/Liter	8260
Chloroform	<	0.001	mg/Liter	8260
Dibromochloromethane	<	0.001	mg/Liter	8260
Dibromo-3-chloropropane, 1,2-	<	0.001	mg/Liter	8260
Dibromoethane, 1,2-	<	0.001	mg/Liter	8260
Dichlorobenzene, o-	<	0.001	mg/Liter	8260
Dichlorobenzene, p-	<	0.001	mg/Liter	8260

Laboratory Number: N188.009



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LABORATORY ANALYSIS

Date of Report: April 14, 1994  
Date Received : March 3, 1994

For: SUNRAY SERVICES  
P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Dichloro-2-butene, trans-1,4-	<	0.001	mg/Liter	8260
Dichloroethane, 1,1-	<	0.001	mg/Liter	8260
Dichloroethane, 1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, 1,1-	<	0.001	mg/Liter	8260
Dichloroethylene, cis-1,2-	<	0.001	mg/Liter	8260
Dichloroethylene, trans-1,2-	<	0.001	mg/Liter	8260
Dichloropropane, 1,2-	<	0.001	mg/Liter	8260
Dichloropropene, cis-1,3-	<	0.001	mg/Liter	8260
Dichloropropene, trans, 1,3-	<	0.001	mg/Liter	8260
Ethylbenzene	<	0.001	mg/Liter	8260
Hexanone, 2-	<	0.001	mg/Liter	8260
Methyl bromide	<	0.001	mg/Liter	8260
Methyl chloride	<	0.001	mg/Liter	8260
Methylene bromide	<	0.001	mg/Liter	8260
Methylene chloride	<	0.001	mg/Liter	8260
Methyl ethyl ketone	<	0.001	mg/Liter	8260
Methyl iodide	<	0.001	mg/Liter	8260
Methyl-2-pentanone, 4-	<	0.001	mg/Liter	8260
Styrene	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 1, 2-	<	0.001	mg/Liter	8260
Tetrachloroethane, 1, 1, 2, 2	<	0.001	mg/Liter	8260
Tetrachloroethylene	<	0.001	mg/Liter	8260
Toluene	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 1-	<	0.001	mg/Liter	8260
Trichloroethane, 1, 1, 2-	<	0.001	mg/Liter	8260
Trichloroethylene	<	0.001	mg/Liter	8260
Trichlorofluoromethane	<	0.001	mg/Liter	8260
Trichloropropane, 1, 2, 3-	<	0.001	mg/Liter	8260
Vinyl acetate	<	0.001	mg/Liter	8260
Vinyl chloride	<	0.001	mg/Liter	8260
Xylene, o-	<	0.001	mg/Liter	8260

Laboratory Number: N188.009



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Date of Report: April 14, 1994  
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P.O. BOX 1310  
105 OLD MISSOURI ROAD  
SPRINGDALE, AR 72765-  
Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE		RESULT	UNITS	METHOD
Xylene, m-	<	0.001	mg/Liter	8260
Xylene, p-	<	0.001	mg/Liter	8260
Xylenes	<	0.001	mg/Liter	8260
Ammonia nitrogen	<	0.010	mg/Liter	4500 F
Bicarbonate		2.440	mg/Liter	4500 D
Calcium	<	0.050	mg/Liter	7140
Chloride		1.000	mg/Liter	4500 C
Iron	<	0.010	mg/Liter	7380
Magnesium	<	0.050	mg/Liter	7450
Manganese, dissolved	<	0.005	mg/Liter	7460
Nitrate	<	0.006	mg/Liter	4500 E
Potassium	<	0.050	mg/Liter	7610
Sodium	<	0.100	mg/Liter	7770
Sulfate	<	0.100	mg/Liter	4500 E
Chemical oxygen demand		7.000	mg/Liter	5220 B
Total dissolved solids		1.900	mg/Liter	2540 C
Total organic carbon		0.381	mg/Liter	5310 C
Cyanide	<	0.001	mg/Liter	4500 E
Mercury	<	0.001	mg/Liter	7470
Specific conductance		7.410	uS/cm	9050

Laboratory Number: N188.009





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Job: TONTITOWN LANDFILL MONITORING.  
Sample From: FIELD BLANK

ANALYTE	RESULT UNITS	METHOD
---------	--------------	--------

Collected by:  
V. MAHAFFEY on 03/03/94 at 14:30  
Analysis by :  
K. E. SORRELLS, J.B. SORRELLS, C A. SORRELLS, K. E. SORRELLS II, M. MCKENZIE

Sample preservation and Laboratory Analysis conducted according to EPA 40 CFR Part 258. Test/Analyst/Time/Coeff./Var./ QA plan filed with ADPC&E. Includes 10 % replication and 10 % recovery studies by random selection. Calibration records maintained. See Attached.

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P.O. BOX 1310  
SPRINGDALE, AR 72765-  
MR. BOB BAXTER  
P.O. BOX 1310  
SPRINGDALE, AR 72765-

Laboratory Number: N188.009

DKS Reviewed By: K. E. Sorrells, M.S. [Signature]



# SORRELLS RESEARCH LABORATORY AND FIELD SERVICES

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## QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
Antimony	KESII	03/18/94	1302	03/18/94	1542	1.80	97.5	20
Arsenic	KESII	03/17/94	2204	03/18/94	200	3.70	102.0	29
Barium	KESII	04/11/94	955	04/11/94	1130	0.10	97.2	18
Beryllium	KESII	04/08/94	959	04/08/94	1151	0.90	104.0	20
Bicarbonate	JBS	04/13/94	945	04/13/94	1400	0.00	0.0	17
Cadmium	KESII	03/28/94	1027	03/28/94	1717	4.10	95.4	29
Chromium	KESII	03/16/94	904	03/16/94	1438	0.50	97.9	37
Cobalt	KESII	04/08/94	1254	04/08/94	1611	0.90	94.3	18
Copper	KESII	03/22/94	1441	03/22/94	1945	1.00	103.0	32
Cyanide	CAS	03/07/94	1000	03/14/94	1530	0.99	97.4	13
Calcium	KESII	04/12/94	1459	04/12/94	1624	0.06	97.9	18
Chloride	MKM	03/23/94	1600	03/23/94	1730	0.30	98.6	21
Chemical oxygen demand	CAS	03/09/94	1130	03/11/94	1200	0.50	99.5	19
Iron	KESII	03/14/94	1148	03/14/94	1225	0.10	97.4	20
Lead	KESII	04/05/94	938	04/05/94	1432	3.90	94.4	23
Mercury	KESII	03/21/94	930	03/21/94	1230	3.60	96.0	30
Magnesium	KESII	04/12/94	1152	04/12/94	1243	0.30	99.7	18
Manganese	KESII	03/14/94	1557	03/14/94	1626	0.10	96.1	19
Nickel	KESII	04/06/94	850	04/06/94	1124	0.40	98.0	25
Ammonia nitrogen	MKM	10/13/93	1230	10/13/93	1430	0.80	102.0	10
Ammonia nitrogen	MKM	03/07/94	1400	03/07/94	1730	0.40	98.5	32
Potassium	KESII	03/31/94	1120	03/31/94	1210	1.10	94.6	21
Selenium	KESII	03/17/94	2204	03/18/94	200	1.60	105.0	29
Silver	KESII	03/21/94	1016	03/21/94	1744	2.30	101.0	28
Sodium	KESII	03/31/94	1451	03/31/94	1511	0.30	102.0	19
Sulfate	MKM	03/24/94	1000	03/24/94	1345	0.60	98.0	19
Specific conductance	VEM	03/03/94	1415	03/03/94	1415	0.00	0.0	4
Thallium	KESII	04/07/94	1455	04/07/94	1738	0.70	103.0	20
Total dissolved solids	JBS	03/07/94	1500	03/10/94	1400	1.28	102.1	23
Total organic carbon	CAS	03/09/94	1000	03/14/94	1100	0.15	92.7	18
Vanadium	KESII	04/11/94	1135	04/11/94	1245	0.40	97.1	18
Volatiles (Surrogate Avg.)	KES	03/08/94	1723	03/09/94	1503	6.38	99.1	20
Zinc	KESII	03/14/94	1015	03/14/94	1113	0.50	95.8	38



**SORRELLS RESEARCH  
LABORATORY AND FIELD SERVICES**

**WEF**



CHEMISTS  
ECOLOGISTS  
CONSULTANTS  
PLANNERS

8002 Stanton Road  
Little Rock, Arkansas 72209

Phone 501-562-8139  
Fax 501-562-7025  
Toll Free 1-800-331-8139

QUALITY ASSURANCE

March 3, 1994

The following QA represents SRA's Quality Assurance values for this report.

ANALYTE	ANALYST	BEG. DATE	BEG. TIME	FIN. DATE	FIN. TIME	S.D. %	SPK. REC.	#IN BAT
---------	---------	--------------	--------------	--------------	--------------	-----------	--------------	------------

Field PH/TEMP/D.O. Sampler or Courier/ at time of sampling or pick up  
Sample preservation and laboratory analysis conducted according to EPA  
40 CFR Part 258 TEST/ANALYST/TIME/COEF. VAR.\* QA PLAN filed with  
ADPC&E. Include replication.

KES = K. E. Sorrells  
JBS = James B. Sorrells  
CAS = Cecil A. Sorrells  
KRL = Karl E. Sorrells

KESII = K. E. Sorrells, II  
BWG = Ben W. Glover  
MKM = Mark McKenzie

Laboratory Number: N188.009      DKS

CHAIN OF CUSTODY  
RECORDS

PAGE \_\_\_\_\_ OF \_\_\_\_\_  
**FOR LAB/OFFICE USE ONLY**

SORRELLS RESEARCH ASSOCIATES, INC.  
 8002 STANTON ROAD, LITTLE ROCK, AR 72209  
 (501) 562-8139 (800) 331-8139  
 FAX # (501) 562-7025

LAB # M88.  
 CLIENT# 37027  
 P. O. # \_\_\_\_\_

STANDARD METHODS PRESERVATION  
 PER EPA 40 CFR PART 136  
 C 4 = COOL TO 4.C  
 S 2 = SULFURIC ACID TO PH < 2  
 N 2 = NITRIC ACID TO PH < 2  
 T = THIOSULFATE

NAME OF COMPANY, CITY, OR PROJECT:

PROJECT NO:

SAMPLER(S) SIGNATURE

Sun Ray Tent Town

Ralph Hodges  
John Backlet  
Vern Mahaffey

LAB NO.	SAMPLE COLLECTION LOCATION	START DATE/TIME	END DATE/TIME	COMP/GRAB	FIELD ANALYSIS				WINK. D.O.	CONTAINER TYPE PRESERVATIVE	ANALYSIS REQUIRED
					PH	TEMP	FLOW	CL2			
001	Well 1	9:00A	9:21	X							
002	Well 2	9:30A		X							
003	Well 3	9:55A		X							
004	Well 4	3:15P		X							
005	Well 5	10:25A		X							
006	Well 6	10:50A		X							
011	Well 11	11:25A									
007	Well 7	12:00									

METHOD OF SHIPMENT (CIRCLE)		FIELD CALIBRATION RECORD 8:00A Trip			NOTES/COMMENTS/OBSERVATIONS
T.A.T.	BUS WALK-IN SRA UPS OTHER	PH	3.9	4.1	
REG.	TYPE OF SAMPL(S): (CIRCLE)	PH	7.1	7.0	
24	WATER SOIL W/W SLUDGE OTHER	PH	9.6	10.1	
48		D.O.			
72		2010	1390	15.4	
1/WEEK					FIELD ANALYSIS CONDUCTED BY: SRA CLIENT

RELINQUISHED BY:

Vern & Mahaffey

DATE/TIME

3-7-97  
5:15 PM

RECEIVED BY:

Vern & Mahaffey

DATE/TIME

RECEIVED BY: (LAB)

DATE/TIME

PAGE \_\_\_\_\_ OF \_\_\_\_\_  
**FOR LAB/OFFICE USE ONLY**

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 8002 STANTON ROAD, LITTLE ROCK, AR 72209  
 (501) 562-8139 (800) 331-8139  
 FAX # (501) 562-7025

LAB # N188

CLIENT # \_\_\_\_\_

P. O. # \_\_\_\_\_

STANDARD METHODS PRESERVATION  
 PER EPA 40 CFR PART 136  
 C 4 = COOL TO 4.C  
 S<2 = SULFURIC ACID TO PH < 2  
 N<2 = NITRIC ACID TO PH < 2  
 T = THIOSULFATE

NAME OF COMPANY, CITY, OR PROJECT:

PROJECT NO:

SAMPLER(S) SIGNATURE

*Sunrise Tour*

*Kevin Hodges  
 John Buckley  
 Vern E. McRaffey*

LAB NO.	SAMPLE COLLECTION LOCATION	START	END	COMP/	FIELD ANALYSIS				VINK. D.O.	CONTAINER TYPE	ANALYSIS REQUIRED
		DATE/TIME	DATE/TIME	GRAB	PH	TEMP	FLOW	CL2		PRESERVATIVE	
008	Well 8 Dip.	2:00P		X							
010	Well 10	2:50P		L							
012	Site 3 Lechate	3:45P		L							
013	Site 4	4:00P		L							
	Equipment Blank	2:40P		X							
009	Field Blank	4:30P		L							

METHOD OF SHIPMENT (CIRCLE)		FIELD CALIBRATION RECORD		NOTES/COMMENTS/OBSERVATIONS	
T.A.T.	BUS WALK-IN <u>SRA</u> UPS OTHER	PH			
REG.	TYPE OF SAMPL(S): (CIRCLE)	PH			
24	WATER SOIL W/W SLUDGE OTHER	PH			
48		D.O.			
72					
1/WEEK					

RELINQUISHED BY: *Vern E. McRaffey* DATE/TIME: *3:30 PM 3-27-88*

RECEIVED BY: *Vern E. McRaffey* DATE/TIME: *4:45 PM 3-27-88*

RELINQUISHED BY: \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

RECEIVED BY: (LAB) \_\_\_\_\_ DATE/TIME: \_\_\_\_\_

Well Purging Data Form

TODAY'S DATE 3/2/94

JOB Sunray Tontitown site

Samplers Signature(s) John E. Buchler  
[Signature]

	Well # <u>1</u>	Well # <u>2</u>	Well # <u>3</u>	Well # <u>5</u>
Pre-Depth level	<u>73.81</u>	<u>36.11</u>	<u>41.14</u>	<u>62</u>
Post-Depth level	<u>73.97</u>	<u>36.11</u>	<u>40.11</u>	<u>62</u>
Time	<u>9:00</u>	<u>9:30</u>	<u>9:55</u>	<u>10</u>

pH:	Well # <u>1</u>	Well # <u>2</u>	Well # <u>3</u>	Well # <u>5</u>
	<u>6.7</u>	<u>7.5</u>	<u>6.1</u>	<u>6</u>
	<u>6.6</u>	<u>7.8</u>	<u>6.2</u>	<u>6</u>
	<u>6.5</u>	<u>7.8</u>	<u>6.1</u>	<u>6</u>
	<u>6.7</u>	<u>8.0</u>	<u>6.1</u>	<u>6</u>

Conductivity:	Well # <u>1</u>	Well # <u>2</u>	Well # <u>3</u>	Well # <u>5</u>
	<u>1100</u>	<u>270</u>	<u>300</u>	<u>780-710</u>
	<u>1090</u>	<u>240</u>	<u>300</u>	<u>790</u>
	<u>1060</u>	<u>260</u>	<u>290</u>	<u>710</u>
	<u>1130</u>	<u>260</u>	<u>320</u>	<u>730</u>

Temperature:	Well # <u>1</u>	Well # <u>2</u>	Well # <u>3</u>	Well # <u>5</u>
	<u>7.5</u>	<u>8.0</u>	<u>10.5</u>	<u>8</u>
	<u>9.5</u>	<u>9.5</u>	<u>10.0</u>	<u>8</u>
	<u>9.5</u>	<u>9.0</u>	<u>10.0</u>	<u>10</u>
	<u>10.0</u>	<u>9.0</u>	<u>11.0</u>	<u>11</u>

Other: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Well Purging Data Form

TODAY'S DATE 3/2/94

JOB Spray Treatment

Samplers Signature(s) John E. Bussler  
[Signature]

	Well # <u>6</u>	Well # <u>11</u>	Well # <u>7</u>	Well # <u>8</u>
Pre-Depth level	<u>27.07</u>	<u>55.16</u>	<u>103.55</u>	<u>33</u>
Post-Depth level	<u>27.11</u>	<u>55.13</u>	<u>104.26</u>	<u>33</u>
Time	<u>10:50</u>	<u>11:25</u>	<u>12:00</u>	<u>2:00</u>

pH:

	<u>6.5</u>	<u>7.6</u>	<u>6.6</u>	<u>7.0</u>
	<u>6.5</u>	<u>7.7</u>	<u>6.7</u>	<u>7.0</u>
	<u>6.5</u>	<u>7.7</u>	<u>6.7</u>	<u>7.0</u>
	<u>6.0</u>	<u>7.8</u>	<u>6.8</u>	<u>7.0</u>

Conductivity:

	<u>430</u>	<u>370</u>	<u>700</u>	<u>400</u>
	<u>440</u>	<u>380</u>	<u>700</u>	<u>400</u>
	<u>450</u>	<u>380</u>	<u>650</u>	<u>400</u>
	<u>450</u>	<u>380</u>	<u>680</u>	<u>400</u>

Temperature:

	<u>16.0</u>	<u>11.0</u>	<u>13.0</u>	<u>12.0</u>
	<u>14.0</u>	<u>14.5</u>	<u>13.0</u>	<u>13.0</u>
	<u>11.0</u>	<u>14.0</u>	<u>12.5</u>	<u>14.0</u>
	<u>15.0</u>	<u>13.5</u>	<u>12.5</u>	<u>10.0</u>

Other: \_\_\_\_\_

Temp 12.0  
 Field cells 4 - 4.0 7.0  
 pH 2 - 7.1-6.9  
 Cond 10 - 9.8 10.0  
 Field 11.0 13.5  
 Field 11.0 11.0 6.0  
 170 P/M



Well Furging Data Form

TODAY'S DATE 3/2/94

JOB Sunray Tontitown

Samplers Signature(s) John E. Buckley  
K. E. ...

	Well # <u>8 DUP</u>	Well # <u>10</u>	Well # <u>4</u>	Well # _____
Pre-Depth level	<u>33.30</u>	<u>38.10</u>	<u>33.0</u>	_____
Post-Depth level	<u>33.47</u>	<u>50.36</u>	<u>31.97</u>	_____
Time	<u>2:15</u>	<u>2:50</u>	<u>3:15</u>	_____

pH:	<u>7.3</u>	<u>7.9</u>	<u>6.5</u>	_____
	<u>7.3</u>	<u>8.3</u>	<u>6.1</u>	_____
	<u>7.3</u>	<u>8.8</u>	<u>6.1</u>	_____
	<u>7.3</u>	<u>8.8</u>	<u>6.2</u>	_____

Conductivity:	<u>410</u>	<u>330</u>	<u>890</u>	_____
	<u>410</u>	<u>350</u>	<u>900</u>	_____
	<u>400</u>	<u>350</u>	<u>920</u>	_____
	<u>410</u>	<u>376</u>	_____	_____

Temperature:	<u>12.0</u>	<u>17.0</u>	<u>14.0</u>	_____
	<u>13.5</u>	<u>15.0</u>	<u>14.5</u>	_____
	<u>11.5</u>	<u>13.5</u>	<u>15.0</u>	_____
	<u>13.0</u>	<u>14.5</u>	<u>14.5</u>	_____

Other: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Well Purging Data Form

TODAY'S DATE 3/2/94

JOB Sunray Tentitown

Samplers Signature(s) John E. Dychling  
[Signature]

Site 3 Well # Leachate Site 4 Well # Leachate Well # \_\_\_\_\_ Well # \_\_\_\_\_

Pre-Depth level N/A N/A

Post-Depth level N/A N/A

Time 3:45 \_\_\_\_\_

pH: 6.3 6.0

Conductivity: N/A out of range 730

Temperature: 11.0 10.0

Other: \_\_\_\_\_

Well #	Date	Pre Depth	Post Depth	Time	Temp
1	3-2-94	73.91	73.97	9:00A	7.5
2	"				9.5
3	"				9.5
4	"				10.0
2		36.11	36.11	9:30A	8.0
"					9.5
"					9.0
"					9.0
3		41.14	40.11	9:55A	10.5
"					10.0
"					10.0
"					11.0
5		67.61	67.61	10:25A	9.0
"					9.0
"					10.0
"					11.5
6		27.87	22.11	10:50A	16.0
					14.0
					11.0
					15.0

3-2-94

PH	COND	Notes
6.7	1100	Trip Blank Prepared
6.6	1090	By Ed Sorrells SR
6.5	1060	
6.7	1130	Equipment Blank
		Prepared By Tony Sorrells
7.5	220	
7.8	240	Field Blank Prepared
7.8	260	By Vern Mahaffey
8.0	260	
		Dist H <sub>2</sub> O
6.1	300	Rose - Arc
6.2	300	Distributed By
6.1	290	Rac-Arc Waterloo
6.1	320	Kittling Rock AR 7220L
		325-1133
6.9	780	Dist H <sub>2</sub> O Purchased
6.9	790	HT W&L - MORT
6.9	710	Hwy 72 + 62 Sayottville
6.9	730	Weather was cold
		32°F wet + cloudy
6.5	430	The AFTERNOON was
6.5	490	Warm & clear 48°F
6.5	450	
6.6	450	

well	date	Pressure	Time	Temp
11	3-2-94	55.10	55.13	11:25H
				11.0
				14.5
				14.8
				13.5
7		103.55	104.26	12:00P
				13.0
				13.0
				12.5
				12.5
8		33.30	33.47	2:00P
				14.0
				13.0
				14.0
				12.5
8 Cape		33.00	33.47	2:15P
				12.0
				13.5
				11.5
				13.0
10		59.10	59.36	2:50P
				12.0
				15.8
				13.5
				14.5

2.6	370		
2.7	380	Cond.	PH
2.7	380	1390	3.8 4.1
2.8	380		7.1 7.2
			7.6 10.0
6.6	700	Temp	15.5
6.7	700		
6.7	650		
6.8	680	1:40 PM	
		3-2-94	
2.1	400	Cond	PH
2.3	400		4.0 - 4.0
2.3	410		7.1 6.9
2.3	420		9.8 10.8
2.3	410	Temp	12.5
2.3	410	PH Control	0.2 4.0
2.3	410	Temp	12.5
2.3	410		6.0
2.9	330		
8.3	350		
8.8	350		
8.8	370		

Depth	Date	Pro Depth	Post Dept	Time	Temp
4	3-2-98	33.0	31.97	3:55P	14.0
					14.5
					15.0
					14.5
Site 3				3:45P	11.0
Lechate					
Site 4				4:00PM	10.0
Lechate					

PH COND

6.5	870
6.6	900
6.6	920
6.2	
6.5	No out of range
6.0	



