REM IV

Remedial Planning Ac
at Selected Uncontro
Hazardous Waste Site

Environmental Protection Agency
Hazardous Site Control Division
Contract No. 68-01-7251

Cherokee Cty. Deanna,
KSD 980741862 Please type
3.4 Tx.
CD #5 M. Bogain

Comments on the Preliminary Draft – Supplemental Groundwater and Mine Water Investigation North of the Galena Subsite

1 Table 1 - well owners names should be listed for cross reference purposes, esp those owners who presently use water treatment systems, or are hooked up to municipal water services.

2 Page 6, #1 - Those samples which exceed present MCL level (i.e. [illegible]) should be segregated from those samples which exceed proposed MCLs. add another section for Proposed MCL exceedances.

3 Page 6, # 3 - Samples 14937002, and [illegible] for total [illegible] [illegible] not exceed [illegible] [illegible].

4 Page 10, #1 - Text should include some [illegible] [illegible] found (i.e. shaft vs bull rock) [illegible] [illegible] [illegible] [illegible] type.

5 Page 9 - #4 — Include a brief discussion of the size and [illegible] of test shafts found in SW portion of study area [illegible] [illegible] waste associated with these test shafts? Are there shafts [illegible] Area 1 & 2?

6. ~~Appendix A~~ Need an index of well owners for in-house use only with sample location numbers for cross reference to location map.

7. ~~Appendix B - well owner names need to listed in all [illegible] data sheets~~

PRELIMINARY DRAFT
SUPPLEMENTAL GROUNDWATER AND MINE WASTES INVESTIGATION NORTH OF THE GALENA SUBSITE

CHEROKEE COUNTY SITE
102-7L37/DEN68540
APRIL 1989

DEN/CC15/017.1

Engineers
Planners
Economists
Scientists

May 1, 1989

DEN65545.T1

Ms. Alice Fuerst
U.S. Environmental Protection Agency
Region VII
726 Minnesota Avenue
Kansas City, Kansas 66101

Dear Alice:

Enclosed for your review are four copies of the preliminary draft technical memorandum presenting the results of the field investigations conducted last fall in the study area north of the Galena Subsite. Both the September well inventory/sampling and the November well sampling and mine waste sampling activities are included.

Concurrent with your review, the technical memorandum will be reviewed by appropriate members of the CH2M HILL senior technical review team. The document will be finalized following receipt of review comments. We look forward to receiving your comments.

Sincerely,

Neil M. Geitner
Site Manager
Cherokee County Site

DEN/CC15/030/rj
Enclosures
cc: Dave Nickelson/CH2M HILL/Denver
Bill Bluck/CH2M HILL/Denver
Mike Smith/CH2M HILL/Redding
Jeff Randall/CH2M HILL/Seattle

CH2M HILL Rocky Mountain Office 6060 S Willow Drive, Greenwood Village, Colorado 80111-5112 303 771 0900
Mailing address P O Box 22508, Denver, Colorado 80222

CONTENTS

	Page
Introduction	1
Purpose	1
Objectives	2
Results	3
Water Supply Inventory and Groundwater Sampling	3
Private Well Inventories	4
Groundwater Sample Results	5
Secondary Drinking Water Standard Exceedances	8
Mine Waste Inventory and Sampling	9
Mine Wastes Inventory	9
Total Metals Analysis	10
Shake Extractions and EP Toxicity	11
References	
Appendix A. Well Inventories	
Appendix B. Laboratory Data, Groundwater Quality Samples	
Appendix C. Laboratory Data, Mine Waste Samples	

TABLES

1 Well Inventory Summary
2 Groundwater Quality Parameters
3 Standards and Criteria Used for Comparison to Groundwater Sampling Results
4 September 1988 Samples Exceeding Selected Standards and Criteria
5 November 1988 Samples Exceeding Selected Standards and Criteria
6 September 1988 Samples Exceeding Primary Drinking Water Standards or Goals
7 November 1988 Samples Exceeding Primary Drinking Water Standards or Goals
8 Summary of Surface Mine Waste Characteristics
9 Summary of Screen Analysis of Chat Samples
10 Comparison of Mine Wastes Total Metals Analysis

FIGURES

1 Study area North of the Galena Subsite
2 Household/Well Inventory and Mine Shaft Locations
3 Well and Mineshaft Sampling Locations
4 Mine Waste Areas

TECHNICAL MEMORANDUM
SUPPLEMENTAL GROUNDWATER AND MINE WASTES INVESTIGATION
NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

INTRODUCTION

This technical memorandum presents the results of field investigations conducted in a study area north of the Galena Subsite. The Galena Subsite is one of six subsites within the Cherokee County Superfund Site, located in southeastern Kansas. These investigations were performed by CH2M HILL under EPA Work Assignment No. 102-7L37 and authorized via the work plan revision request dated September 1988 (EPA, 1988a).

PURPOSE

EPA Region VII requested that CH2M HILL conduct certain remedial investigation (RI) activities on land sections north of the Galena Subsite. The north study area (see Figure 1) encompasses those portions of Sections 1, 2, and 3 of Township T34S, T25E, and Sections 25, 34, 35, and 36 of Township T33S, R25E that are south and east of the Spring River. Earlier remedial investigations (EPA, 1986) associated with the Galena Subsite did not include this area because it is not part of the extensively mined and disturbed area adjacent to Galena, Kansas, except for a small portion of Section 3 where three shallow wells were sampled. The north study area contains a limited number of mine waste piles, including both waste rock (development rock), and chat. The proximity of these surface mine wastes and mine workings to shallow groundwater wells and the potential contamination migration

pathway were the reasons for gathering the additional data presented in this technical memorandum.

Field activities conducted in the study area north of the Galena Subsite included a water supply inventory and select sampling and analysis of groundwater from private wells and mine shafts as well as sampling and analysis of waste rock and chat mine waste piles located in the area. The purpose of this technical memorandum is to summarize the water supply inventory survey results, the well and mine shaft groundwater sampling results, and the results of the mine waste samples collected in the study areas.

OBJECTIVES

The specific objectives of this memorandum with respect to the water supply inventory and groundwater sampling are as follows:

- Characterize the shallow groundwater usage within the study area;
- Document the shallow well distribution and the well depths in the study area, where known;
- Tabulate and analyze the laboratory analysis results of groundwater samples collected in the study area
- Compare the water quality results of the samples to primary and secondary drinking water standards, maximum contaminant levels (MCLs), MCL Goals (MCLGs), and human health criteria based on the Clean Water Act.

The specific objectives of this memorandum with respect to the sampling and analysis of mine wastes and chat are as follows:

- Classify mine wastes within the study area as to geographic extent and location, material type, and approximate volume;
- Tabulate and analyze the laboratory analysis results of mine waste samples collected in the study area.

RESULTS

WATER SUPPLY INVENTORY AND GROUNDWATER SAMPLING

The initial well inventory and sampling fieldwork in the study area was conducted between September 15 and 18, 1988 (EPA Region VII Laboratory Activity No. T2937). Of 54 households identified in the study area a total of 46 wells serve 49 households. Three wells were determined to serve two households each. A cluster of five households (mobile homes) within the area are served solely by Carl Junction municipal water. A single household is also served by Carl Junction municipal water. A well located at this household was used for other than drinking water.

During the initial September fieldwork, samples were taken from 15 of the 46 wells and from two mine shafts located within the study area. Resampling of selected wells to confirm previous analytical results from samples collected from these same wells in September and the sampling of a previously inventoried but unsampled well, was conducted in

November 1988 (EPA Region VII Laboratory Activity No. T4937). The previously inventoried but unsampled well was chosen for sampling because of its proximity to old mine workings. The well inventories and sample collections were performed in accordance with the September and November 1988 Field Sampling Plans (EPA, 1988b and EPA, 1988c).

Private Well Inventories

Figure 2 shows the locations of the 54 households in the study area that were inventoried. The location of the five mobile homes served solely by municipal water is at Location 16. The single household served by municipal water is at Location 17. The three pairs of households each served by a single well are at Locations 6 and 7, 11 and 34, and 12 and 13.

Table 1 presents a summary of the inventories for the locations shown in Figure 2. The summary includes EPA sample numbers for the wells sampled, well depths, and estimated number of users per well based on interviews with the well users. Inventories were completed for 42 of the 46 wells identified. Four well owners/users could not be contacted; therefore, inventories were not completed for these four wells (see comments in Table 1). As indicated by Table 1, a total population of 120 is served by the 42 wells for which inventories were completed.

The wells inventoried ranged in depth from 12 to 450 feet and are, therefore, considered to be completed in the shallow aquifer. From the results of the survey, it was determined that six of the households contacted have owner-installed water treatment systems, and three households with wells do not use the well for drinking water (see comments in Table 1). Of the three households that do not use the well

for drinking water, is served by Carl Junction municipal water, one purchases drinking water from a commercial supplier, and the drinking water of the third household is obtained from an undetermined source. The complete well inventories are given in Appendix A.

Groundwater Sample Results

As shown on Table 1, water samples were collected from 15 inventoried wells for analysis during the initial fieldwork in September 1988 (EPA Region VII Laboratory Activity No. T2937). Water samples were also collected from two mine shafts in the area. The locations of these two mine shafts (MS1 and MS2) and the sampled wells given are in Figure 3. The sample numbers for the mine shafts are T2937016 and T2937017, respectively. During the fieldwork in November 1988 (EPA Region VII Laboratory Activity No. T4937), four of the wells sampled in September were resampled and one previously inventoried but unsampled well was sampled (see Table 1). The list of analytical parameters is presented in Table 2. The complete laboratory results are presented in Appendix B.

The laboratory results for the well and mine shaft samples were compared to the primary drinking water maximum contaminant levels (MCLs), the maximum contaminant level goals (MCLGs), the secondary drinking water standards, and the Clean Water Act criteria for human health. Additionally, the results were compared with the proposed lower primary drinking water MCL and MCLG for lead. Federal Register. Vol. 53 (No. 160): 31516-31578 (EPA, 1988d). These standards and criteria are presented in Table 3. The results of these comparisons are summarized in Tables 4 through 7 and on Figure 3 and are discussed below.

Primary Drinking Water Standard MCL Exceedances. Of the 15 wells sampled during September 1988, only one well sample exceeded the present primary drinking water MCL for lead, Sample T2937015. When compared with the proposed lower MCL for lead (5 ug/l), samples from this well and samples from two additional wells and one mine shaft exceeded the standard. The additional samples were T2937009, T2937013 (and its duplicate Sample T2937013D), and T2937016 (mine shaft).

Of the four wells resampled in November 1988, samples from one well exceeded the present primary drinking water MCL for lead (Sample T4937002 and its duplicate Sample T4937003D). This well was the same and only well sampled in September 1988 to exceed the present standard. When compared with the proposed MCL for lead, the samples from this well and Sample T4937001 from one additional well exceeded the standard. The additional well was previously inventoried but not sampled in September 1988.

In addition to lead exceedances, samples from three of the wells resampled in November 1988 exceeded the primary drinking water MCL for cadmium (Samples T4937002, T4937005, and T4937006). Exceedances of cadmium in samples taken in September cannot be verified because the analytical detection limit used for the analyses of cadmium in the September samples exceeded the primary MCL for cadmium.

Primary Drinking Water Standard MCLG Exceedances. One well sample in September (Sample T2937015) exceeded the present MCLG for lead. Samples taken from this same well in November (Sample T4937002 and its duplicate Sample T4937003D) also exceeded the present MCLG for lead. When compared to the proposed lower MCLG for lead (0 ug/l), samples from this well and samples taken from four additional wells and both mine shafts exceeded the standard. The additional samples

were T2937004, T2937006 (and its duplicate Sample T2937006D), T2937009, T2937013 (and its duplicate Sample T2937013D), and Samples T2937016 and T2937017 (mine shafts).

The analytical detection limit used for the analyses of lead in the September samples was 1.0 ug/l. This detection limit is above the proposed MCLG for lead of 0 ug/l. Given the analytical detection limit used, no determination can be made of whether or not other September well samples exceeded the proposed standard. Only those samples with reported lead concentrations above the analytical detection limit are reported as exceeding the proposed new lower standard.

Samples from three of the four wells resampled in November 1988, and the previously unsampled well, also exceeded the proposed MCLG for lead. These were Samples T493701 (previously unsampled well), T4937002 (and its duplicate Sample T4937003D), T4937004, and T4937005. Two of the three resampled wells which exceeded the proposed standard in November also exceeded the standard when sampled in September 1988. The remaining resampled well which exceeded the proposed standard in November (Sample T4937004) did not exceed the standard when sampled in September. The analytical detection limit used for the analysis of lead in the November samples was also 1.0 ug/l.

In addition to lead exceedances, all four resampled wells and the previously unsampled well exceeded the MCLG of cadmium. Exceedances of cadmium in samples taken in September cannot be verified because the analytical detection limit used for the analyses of cadmium in the September samples exceeded the MCLG for cadmium.

Secondary Drinking Water Standard Exceedances

Secondary drinking water standards were exceeded in samples from five wells and both mine shafts sampled in September 1988, and in one resampled well and the previously unsampled well sampled in November 1988. Samples exceeded secondary drinking water MCLs for total iron, manganese, and zinc as follows:

- Samples exceeding iron MCL: T2937004, T2937015, T2937018, T2937016 (mine shaft), T2937017 (mine shaft), T4937001 (previously unsampled well), and T4937002 (and its duplicate Sample T4937003D)

- Samples exceeding manganese MCL: T2937001, T2937018, T2937016 (mine shaft), and T4937003D

- Samples exceeding zinc MCL: T2937016 (mine shaft)

Human Health Criteria Exceedances. The human health criteria for nickel was exceeded in samples taken from two wells and one mine shaft in September 1988 (Samples T2937001, T2937008, and T2937016--mine shaft). The well corresponding to Sample T2937001 was resampled in November 1988. The concentration of nickel in the November sample also exceeded the criteria for nickel.

The criteria for lead, cadmium, and zinc were also exceeded in some samples. The human health criteria for lead and cadmium are identical to the primary drinking water standard MCLs for these metals. The samples which exceeded the MCLs for these metals would, therefore, also exceed the criteria for human health for these metals. Similarly, the criteria for zinc is identical to the secondary drinking water standard MCL for zinc, so the samples which exceeded the MCLs for zinc would also exceed the criteria for human health for zinc.

MINE WASTE INVENTORY AND SAMPLING

The mine waste inventory and sampling fieldwork was conducted in November 1988. A mine waste characterization program was conducted to define the types of mine waste deposited on the surface and to assist in evaluating the effects mine wastes may have on the shallow groundwater quality.

The mine waste piles in the study area were initially inventoried and classified as to geographic extent and location, material type, and approximate volume. Following the classification, samples were collected from waste rock and chat piles in the study area. The mine waste inventory and sampling fieldwork were performed in accordance with the November 1988 field sampling plan (EPA, 1988c).

The mine waste rinseate samples (chat and waste rock) were all analyzed for total metal concentration by the CLP. Water leach, acid leach, and EP toxicity tests were also performed on a waste rock sample by the CLP. Additionally, an analysis for total lead and zinc within different size fractions of the chat samples was performed by a subcontract laboratory.

Mine Wastes Inventory

Two distinct areas of mine wastes, areas 1 and 2, shown in Figure 4, were identified in the northeast and south central parts of the study area, respectively. A third area containing development test shafts was also identified in the southwest part of the study area. However, no evidence of any significant mining or processing activity was found in this area.

Table 8 presents a summary of the surface mine wastes located in the study area including sample numbers for the piles sampled.

Total Metals Analysis

As shown in Table 8, two chat samples were collected from mine waste area 1. A chat sample and a waste rock sample were collected from mine waste area 2. All the samples were analyzed by the CLP for those metals listed in Table 2 except molybdenum and titanium. The samples were also analyzed for silver. A screen analysis for total lead and zinc was also performed by a subcontract laboratory on the two chat samples collected from mine waste area 1 and the chat sample taken from mine waste area 2. These chat samples were screened and analyzed for lead and zinc in the plus 80 mesh, minus 80 mesh to plus 400 mesh, and minus 400 mesh fractions. The complete CLP and subcontract laboratory results are presented in Appendix C. These results are summarized in Tables 9 and 10.

Table 9 presents the results of the screen analysis of the chat samples. As shown in Table 9, the concentration of lead in the samples tended to be higher in the finer fractions (-400 mesh) of all the samples. For samples taken from mine waste area 1 (subcontract lab samples 09-01-01 and 09-01-02), the concentration of zinc also tended to increase with the finer fractions. However, the reported results show a decrease in the concentration of zinc in the finer fractions of the sample collected from mine waste area 2 (sample 09-02-01). The mass distribution of the different screened fractions are also presented in Table 9. As shown, the chat samples were composed mainly of +80 mesh fractions.

Table 10 presents a comparison between the total concentrations of lead and zinc in the chat samples as determined by the CLP laboratory and the subcontract laboratory. The concentrations shown for the subcontract laboratory are for the total (head) samples of the chat as opposed to the concentrations within the individual fractions of a sample as reported in Table 9. As shown in Table 10, the total concentrations of lead and zinc as reported by the two laboratories are fairly comparable. Table 10 also presents the total cadmium concentrations in the samples as determined by the CLP lab (cadmium concentration was not determined by the subcontract lab), and the analysis results of the waste rock sample from mine waste area 2 (this sample was not analyzed by the subcontract lab).

SHAKE EXTRACTIONS AND EP TOXICITY

Water shake extraction, acid shake extraction, and EP toxicity analyses were performed on the waste rock sample (Sample T5937001) collected from mine waste area 2. The CLP laboratory results for these analyses are presented in Appendix C.

Water Shake Extraction. The water shake extraction of the waste rock sample could potentially simulate metals leached by rainfall and snowmelt infiltration. The extracted water was analyzed for the same metals as were the mine waste samples as previously discussed. Results of the water shake extraction were compared to the drinking water standards and the Clean Water Act criteria for human health presented in Table 3. The concentration of lead in the extracted water (15 ug/l) was within the present primary drinking standard MCL and MCLG for lead. However, this lead concentration does exceed the new proposed MCL (5 ug/l) and MCLG (0 ug/l)for lead. The concentration of iron in the extracted

water matched the secondary drinking water standard for iron of 300 ug/l. The concentration of nickel in the extracted water was less than the analytical detection limit used in the analysis of nickel (40 ug/l). This analytical detection limit exceeds the CWA criteria for human health. Therefore, no determinations regarding nickel criteria exceedances can be made. The extracted water did not exceed any of the other metal standards or criteria listed in Table 3.

Acid Shake Extraction. The acid shake extraction is designed to give a measure of extractable metals under conditions simulating potential oxidation of iron sulfides that creates sulfuric acid in the mine waste piles. The reported concentrations of barium and calcium were greater under this method when compared with the water shake extraction method. However, the reported concentrations of aluminum, iron, lead, and zinc in the extracted acid were less under this method when compared with the results of the water shake extraction method.

EP Toxicity. The results of the EP toxicity test showed that the maximum concentration of contaminants characteristic of EP toxicity were not exceeded in the sample.

REFERENCES

EPA (1986). Final Draft, Phase I Remedial Investigation Report, Cherokee County, Galena Subsite. April 23, 1986.

EPA (1988a). Work Plan Sitewide and Supplementary Activities, Galena, Cherokee County Site. September 1988.

EPA (1988b). Field Sampling Plan, Supplemental Groundwater Investigation, Cherokee County Site. September 1988.

EPA (1988c). Field Sampling Plan, Supplemental Mine Waste and Groundwater Investigations at the Galena Subsite, Cherokee County Site. November 1988.

EPA (1988d). Drinking Water Regulations; Maximum Contaminant Level Goals and National Primary Drinking Water Regulations for Lead and Copper; Proposed Rule. Federal Register. Vol. 53 (No. 160): 31516-31578.

TABLES

Table 1
WELL INVENTORY SUMMARY
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Well Inventory Number	Approximate Well Depth (ft)	Number of Users	September 1988 Sample Number	November 1988 Sample Number	Comments
1	185	2			
2	--	--			Inventory not completed
3	--	2			Owner-installed water treatment system
4	55	2	T2937001	T4937006	
5	--	1			Owner-installed water treatment system
6&7[a]	111	5	T2937002		
8	--	--			Inventory not completed
9	450	3			
10	28	3	T2937003		
11&34[a]	--	10			
12&13[a]	175	2	T2937004		Owner-installed water treatment system in one house Well not used for drinking water in one household
14	441	2	T2937006 & 006D		
15	200	2			
16[b]	--	--			Served solely by municipal water
17	--	2			Served by municipal water; Existing well used for watering and livestock only
18	180	3	T2937015	T4937002 & 003D	
19	210	3	T2937018		Owner-installed water treatment system
20	200	4			
21	270	2			Owner-installed water treatment system
22	30	4			
23	215	1			
24	--	--			Inventory not completed
25	175	4	T2937013 & 013D	T4937005	
26	362	2			
27	165	5			
28	183	4			
29	380	2			
30	360	1	T2937007		
31	225	2			
32	180	2	T2937008		Owner-installed water treatment system
33	125	2			
35	136	2	T2937009		
36	27	2			
37	250	2		T4937001	
38	230	4	T2937010		
39	385	4			
40	24	2			

[a]Two households served by one well.

[b]Inventory for cluster of five mobile homes served by municipal water supply. No well exists to serve the homes.

Table 1
(continued)

Well Inventory Number	Approximate Well Depth (ft)	Number of Users	September 1988 Sample Number	November 1988 Sample Number	Comments
41	12	3			
42	205	1			
43	--	1			
44	230	5	T2937011		
45	30	2			Well not used for drinking water
46	310	3	T2937012		
47	380	4			
48	--	--			Inventory not completed
49	--	3			
50	150	5	T2937014	T4937004	
	TOTAL	120			

[a]Two households served by one well.

[b]Inventory for cluster of five mobile homes served by municipal water supply. No well exists to serve the homes.

Note: -- Well owner not contacted or information not available from well owner.

Table 2
GROUNDWATER QUALITY PARAMETERS
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Investigation Analytical Parameters	September 1988 T2937 Samples Dissolved	September 1988 T2937 Samples Total	November 1988 T4937 Samples Dissolved	November 1988 T4937 Samples Total
Aluminum	X	X	X	X
Antimony	X	X	X	X
Arsenic	X	X	X	X
Barium	X	X	X	X
Beryllium	X	X	X	X
Cadium	X	X	X	X
Calcium	X	X	X	X
Chromium	X	X	X	X
Cobalt	X	X	X	X
Conductivity (Specific) (F) (wq)		X		
Copper	X	X	X	X
Iron	X	X	X	X
Lead	X	X	X	X
Magnesium	X	X	X	X
Manganese	X	X	X	X
Molybdenum			X	X
Nickel	X	X	X	X
pH (F) (wq)		X		
Potassium	X	X	X	X
Selenium	X	X	X	X
Sodium	X	X	X	X
Temperature (F) (wq)		X		
Thallium	X	X	X	X
Titanium				
Vanadium	X	X	X	X
Zinc	X	X	X	X

Notes: (wq) = Water quality parameter.
F = Field measurement.
X = Parameter analyzed for sample.

Table 3
STANDARDS AND CRITERIA USED FOR COMPARISON TO GROUNDWATER SAMPLING RESULTS
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Parameter	Maximum Contaminant Levels[a] Primary Drinking Water Standards (ug/l)	Maximum Contaminant Levels[a] Secondary Drinking Water Standards (ug/l)	Maximum Contaminant Level Goal[b] Proposed Drinking Water Standards (ug/l)	CWA[c] Criteria for Human Health (ug/l)
Arsenic	50	--	50	--
Barium	1,000	--	1,500	--
Cadmium	10	--	5	10
Chromium (Total)	--	--	120[d]	--
Copper	--	1,000	1,300	1,000
Iron	--	300	--	--
Lead	50	--	20	50
Lead[e]	5	--	0	--
Manganese	--	50	--	--
Nickel	--	--	--	15.4
Selenium	10	--	45	10
Zinc	--	5,000	--	5,000

[a]Drinking Water Standards, Safe Drinking Water Act; 40 CFR 141.

[b]1986 Amendments to the 1974 Safe Drinking Water Act.

[c]Water Quality Criteria for Human Health, Clean Water Act; 40 CFR 131.

[d]MCLG for chromium includes both trivalent (III) and hexavalent (VI) forms together.

[e]Proposed standards. Federal Register. Vol. 53 (No. 160): 31516-31578.

Table 4
SEPTEMBER 1988 SAMPLES EXCEEDING SELECTED
STANDARDS AND CRITERIA[a]
AREA NORTH OF GALENA SUBSITE
CHEROKEE COUNTY SITE

Parameter	Number of Samples Exceeding/Mean Exceedance Value[b,c]			
	Maximum Contaminant Level (MCL)			
	Primary Drinking Water Standards (ug/l)	Secondary Drinking Water Standards (ug/l)	MCL Goals Primary Drinking Water Standards (ug/l)	CWA Criteria for Human Health (ug/l)
Total Metals				
Arsenic	--	--	--	--
Barium	--	--	--	--
Cadmium	--	--	--	--
Chromium	--	--	--	--
Copper	--	--	--	--
Iron	--	5/14.1x	--	--
Lead	1/2.2x	--	1/5.5x	1/2.2x
Lead[d] (Proposed)	5/5.6x	--	10/16.6x	--
Manganese	--	3/3.4x	--	--
Nickel	--	--	--	3/20.8x
Selenium	--	--	--	--
Silver	--	--	--	--
Zinc	--	1/3.2x	--	1/3.2x
Dissolved Metals				
Arsenic	--	--	--	--
Barium	--	--	--	--
Cadmium	--	--	--	--
Chromium	--	--	--	--
Copper	--	--	--	--
Iron	--	5/15.9x	--	--
Lead	1/1.3x	--	1/3.3x	1/1.3x
Lead[d] (Proposed)	4/4.2x	--	10/9.9x	--
Manganese	--	3/3.9x	--	--
Nickel	--	--	--	3/7.4x
Selenium	--	--	--	--
Silver	--	--	--	--
Zinc	--	1/3.4x	--	1/3.4x

[a]Refer to the Standards and Criteria on Table 3.

[b]Exceedance Value = sample concentration divided by the standard or criteria concentration. Example: 3/9.2x indicates that three samples exceeded the metal parameter by an average of 9.2 times the criteria concentration.

[c]Because duplicate samples were taken from some individual wells, the number of samples reported does not necessarily reflect number of wells exceeding value.

[d]Proposed Standards. Federal Register. Vo. 53 (No. 160): 31516-31578.

Note: -- = No samples exceeded the standard of criteria.

Table 5
NOVEMBER 1988 SAMPLES EXCEEDING SELECTED
STANDARDS AND CRITERIA[a]
AREA NORTH OF GALENA SUBSITE
CHEROKEE COUNTY SITE

	Number of Samples Exceeding/Mean Exceedance Value[b,c]			
	Maximum Contaminant Level (MCL)			
Parameter	Primary Drinking Water Standards (ug/l)	Secondary Drinking Water Standards (ug/l)	MCL Goals Proposed Drinking Water Standards (ug/l)	CWA Criteria for Human Health (ug/l)
Total Metals				
Arsenic	--	--	--	--
Barium	--	--	--	--
Cadmium	3/1.2x	--	6/1.9x	3/1.2x
Chromium	--	--	--	--
Copper	--	--	--	--
Iron	--	43/1.5x	--	--
Lead	2/1.3x	--	2/3.3x	2/1.3x
Lead[d] (Proposed)	3/9.2x	--	5/28.7x	--
Manganese	--	1/1.0x	--	--
Nickel	--	--	--	1/4.3x
Selenium	--	--	--	--
Silver	--	--	--	--
Zinc	--	--	--	--
Dissolved Metals				
Arsenic	--	--	--	--
Barium	--	--	--	--
Cadmium	1/1.4x	--	5/1.7x	1/1.4x
Chromium	--	--	--	--
Copper	--	--	--	--
Iron	--	3/1.5x	--	--
Lead	2/1.35x	--	2/3.4x	2/1.35x
Lead[d] (Proposed)	3/9.3x	--	4/35.4x	--
Manganese	--	--	--	--
Nickel	--	--	--	1/4.0x
Selenium	--	--	--	--
Silver	--	--	--	--
Zinc	--	--	--	--

[a]Refer to the Standards and Criteria on Table 3.

[b]Exceedance Value = sample concentration divided by the standard or criteria concentration. Example: 3/9.2x indicates that three samples exceeded the metal parameter by an average of 9.2 times the criteria concentration.

[c]Because duplicate samples were taken from some individual wells, the number of samples reported does not necessarily reflect the number of wells exceeding values.

[d]Proposed standards. Federal Register. Vol. 53 (No. 160): 31516-31578.

Note: -- = No samples exceeded the standard of criteria.

Table 6
SEPTEMBER 1988 SAMPLES EXCEEDING PRIMARY DRINKING WATER STANDARDS OR GOALS[a]
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Well[b] Inventory Number	Sample Number	Lead (ug/l)	Type of Exceedance			
			MCL		MCLG	
			Existing	Proposed[c]	Existing	Proposed[c]
	Total Metals					
12 and 13	T2937004	2.6				X
14	T2937006	3.0				X
14	T2937006D	3.2				X
35	T2937009	7.6		X		X
25	T2937013	7.4		X		X
25	T2937013D	7.6		X		X
18	T2937015	110.0	X	X	X	X
Mine Shaft	T2937016	6.6		X		X
Mine Shaft	T2937017	1.2				X
	Dissolved Metals					
12 and 13	T2937004	2.4				X
14	T2937006	2.7				X
14	T2937006D	3.0				X
30	T2937007	1.2				X
35	T2937009	7.0		X		X
44	T2937011	2.7				X
25	T2937013	5.0		X		X
25	T2937013D	6.0		X		X
18	T2937015	66.0	X	X	X	X
Mine Shaft	T2937016	3.1				X

[a]Refer to the Standards and Criteria on Table 3.

[b]Refer to Figure 3 for locations.

[c]Proposed standards. Federal Register. Vol. 53 (No. 160): 31516-31578.

Notes: D = Duplicate sample.
X = Exceedance.

Table 7
NOVEMBER 1988 SAMPLES EXCEEDING PRIMARY DRINKING WATER STANDARDS OR GOALS[a]
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Well[b] Inventory Number	Sample Number	Cadmium (ug/l)	Type of Exceedance MCL	Type of Exceedance MCLG	Lead (ug/l)	Type of Exceedance MCL Existing	Type of Exceedance MCL Proposed[c]	Type of Exceedance MCLG Existing	Type of Exceedance MCLG Proposed[c]
Total Metals									
37	T4937001	5.7		X	5.7		X		X
18	T4937002	11.0	X	X	64.0	X	X	X	X
18	T4937003D[d]	6.8		X	68.0	X	X	X	X
50	T4937004	8.5		X	3.9				X
25	T4937005	11.0	X	X	1.8				X
4	T4937006	15.0	X	X	--				
Dissolved Metals									
37	T4937001	--			5.0				X
18	T4937002	8.8		X	68.0	X	X	X	X
18	T4937003D[d]	5.6		X	67.0	X	X	X	X
50	T4937004	5.5		X	1.7				X
25	T4937005	7.5		X	--				
4	T4937006	14.0	X	X	--				

[a]Refer to the Standards and Criteria on Table 3.

[b]Refer to Figure 3 for locations.

[c]Proposed standards. Federal Register. Vol. 53 (No. 160): 31516-31578.

[d]Duplicate sample for sample T4937002.

Notes: -- = Samples did not exceed the standard.
D = Duplicate sample.
X = Exceedance.

Table 8
SUMMARY OF SURFACE MINE WASTE CHARACTERISTICS
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Mine Waste Area	Type of Mine Waste	Estimated Volume (yd^3)	Sample Number
1	Chat	10,000[a]	T5937002[b] T5937003[c]
1	Bull Rock	500	--
2	Chat	--[d]	T5937004[c]
2	Bull Rock	300	T5937001[e]

[a]Chat pile was being removed. The estimated volume of the original pile based on remnants of the original pile and the general configuration of the existing pile is around 100,000 yd^3.

[b]Composite depth sample.

[c]Composite surface sample.

[d]Only remnants of original chat pile remained.

[e]Grab surface sample.

Table 9
SUMMARY OF SCREEN ANALYSIS OF CHAT SAMPLES
AREA NORTH OF THE GALENA SUBSITE
CHEROKEE COUNTY SITE

Screened Product	Assay (ppm) Sample 09-01-01[a] T5937002[b] Pb	Zn	Sample 09-01-02 T5937003 Pb	Zn	Sample 09-02-01 T5937004 Pb	Zn	Mass Distribution Sample 09-01-01 T5937002 (%)	Sample 09-01-02 T5937003 (%)	Sample 09-02-01 T5937004 (%)
+80 Mesh	40	6,200	40	5,400	20	2,200	89.96	89.9	75.51
-80 + 40 Mesh	195	42,800	160	22,800	40	1,980	5.2	7.27	12.54
-400 Mesh	900	38,000	470	24,800	60	1,920	4.84	2.83	11.95
Head[c]	100	9,050	60	8,250	40	1,950	100	100	100

[a]Subcontract laboratory sample number.

[b]CLP laboratory sample number corresponding to the same chat sample.

[c]Total sample (unscreened).

Table 10
COMPARISON OF TOTAL METALS ANALYSIS

	Chat 09-01-01[a] T5937002[b]			Chat 09-01-02 T5937003			Chat 09-02-01 T5937004			Bullrock[c] 5937001		
Subcontract Lab	Pb	Zn	Cd[d]	Pb	Zn	Cd	Pb	Zn	Cd	Pb	Zn	Cd
Subcontract Lab	100	9,050	--	60	8,250	--	40	1,950	--	--	--	--
CLP	95	8,500	38	75	7,900	26	18	1,700	14	72	240	1.6

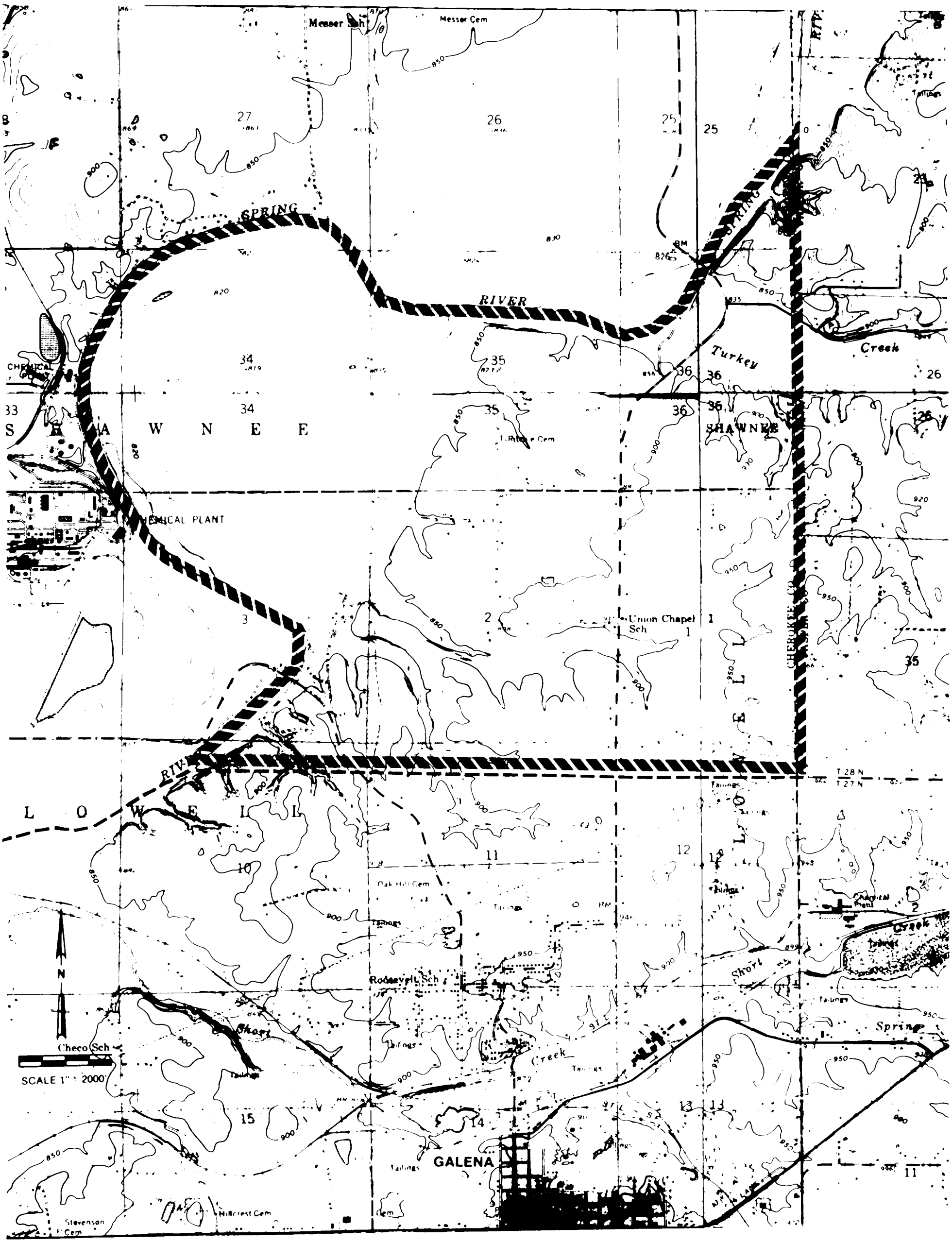
[a]Subcontract laboratory sample number.

[b]CLP laboratory sample number corresponding to the same chat sample.

[c]Sample not analyzed by subcontract laboratory.

[d]Subcontract laboratory did not analyze for cadmium.

FIGURES

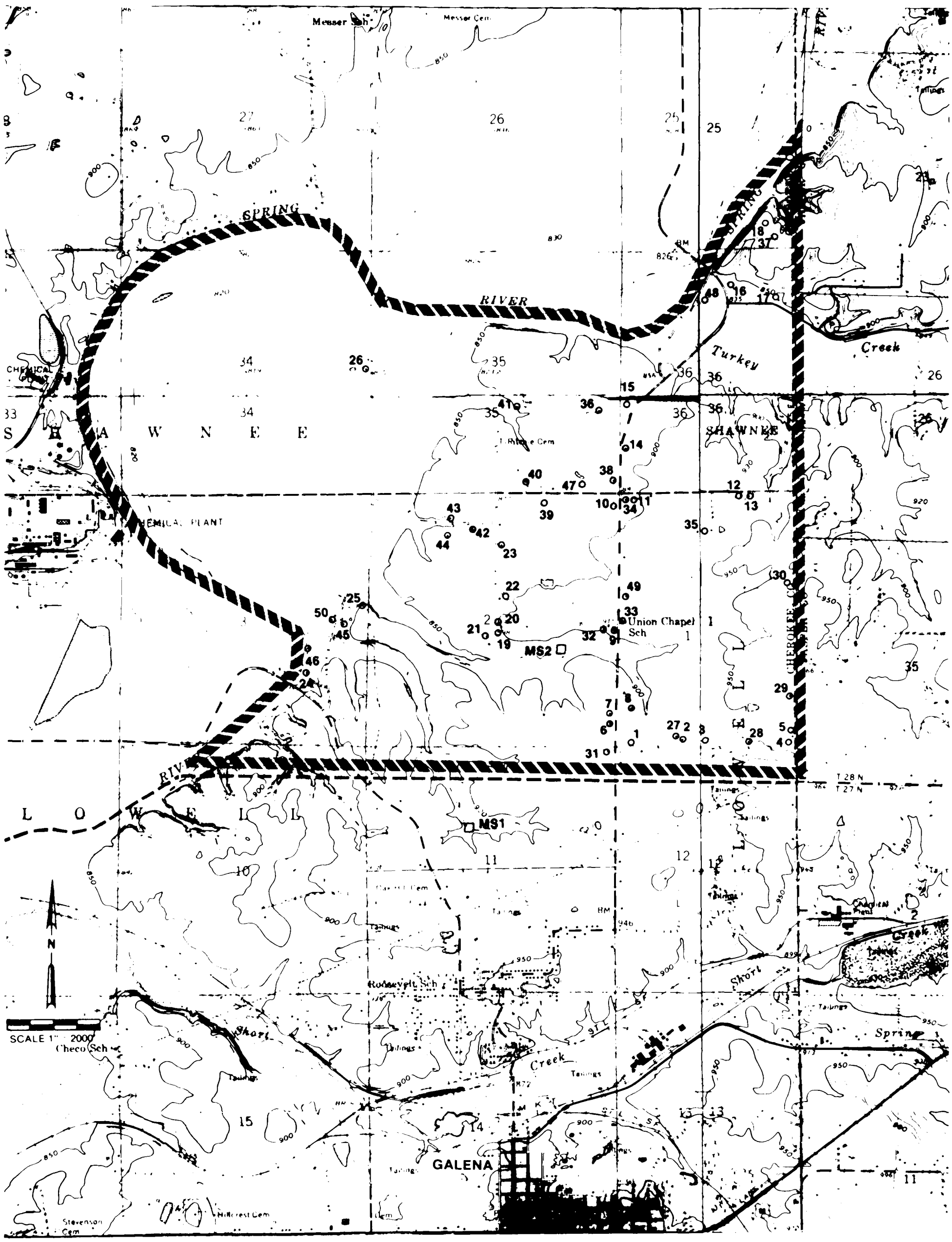


LEGEND

STUDY AREA BOUNDARY

GALENA SUBSITE BOUNDARY

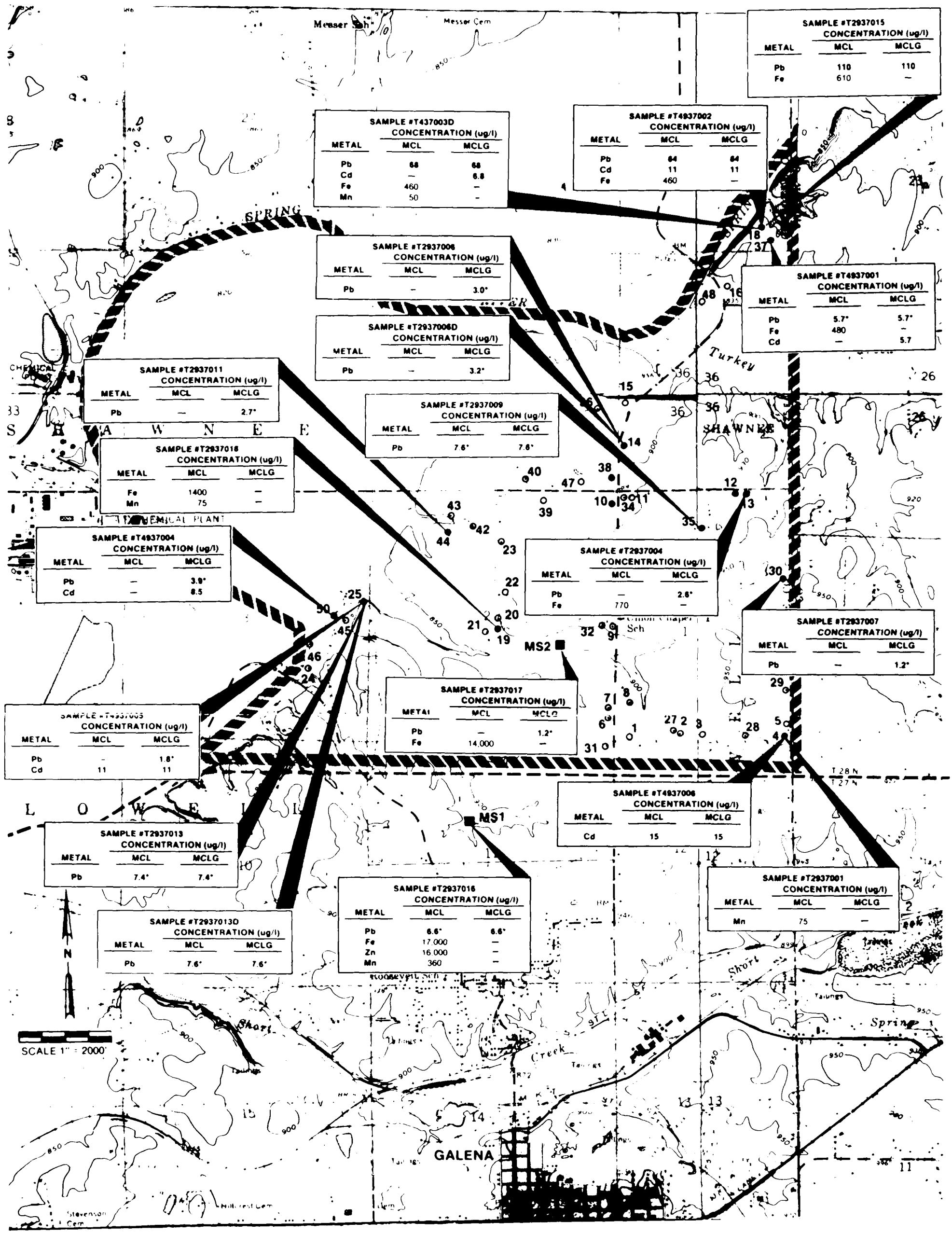
FIGURE 1
STUDY AREA NORTH OF THE GALENA SUBSITE
SUPPLEMENTAL GROUNDWATER AND MINE WASTE SAMPLING
CHEROKEE COUNTY SITE



LEGEND

- HOUSEHOLD
- MS1 MINE SHAFTS
- STUDY AREA BOUNDARY
- GALENA SUBSITE BOUNDARY

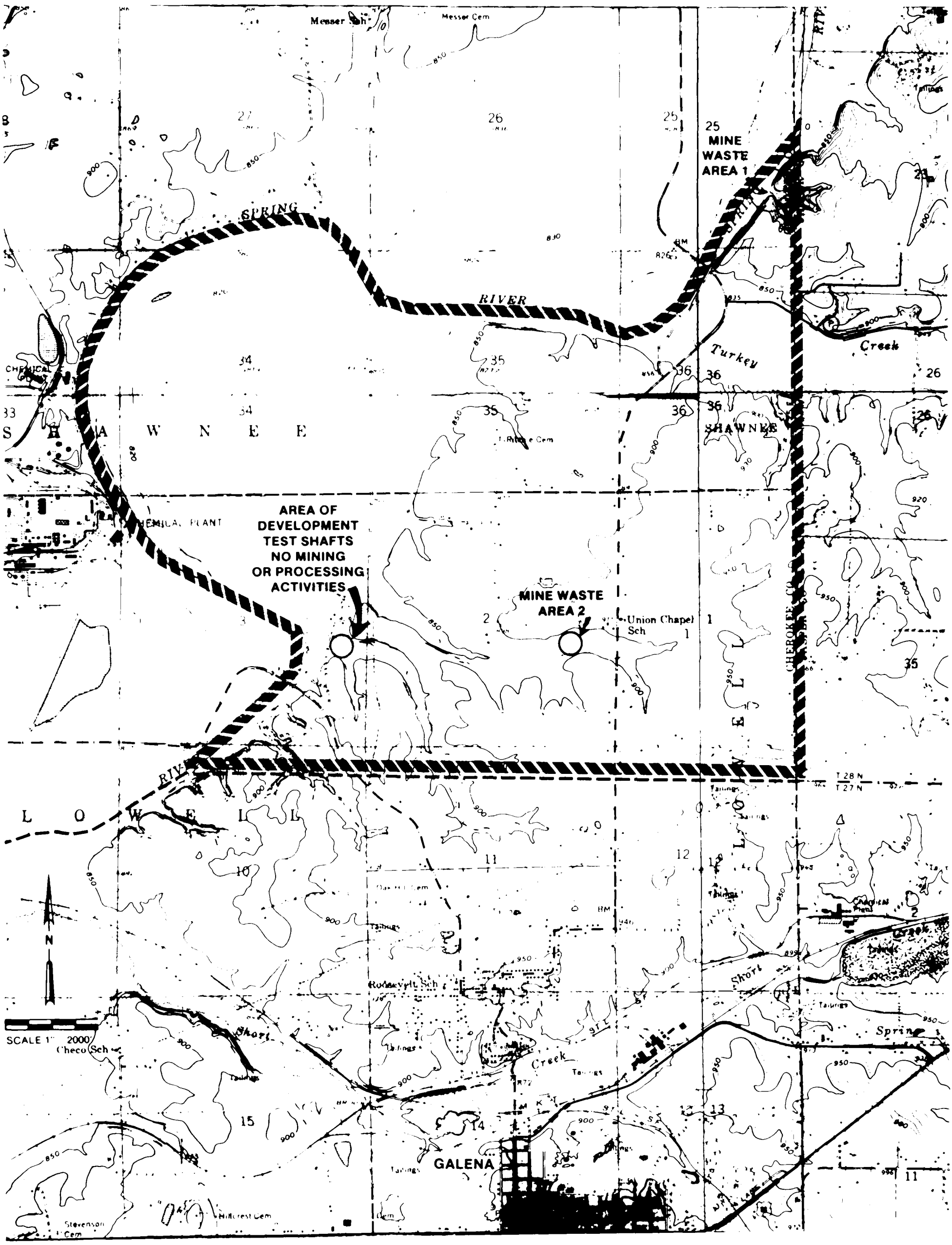
FIGURE 2
HOUSEHOLD AND MINE SHAFT LOCATIONS
SUPPLEMENTAL GROUNDWATER AND
MINE WASTE SAMPLING
CHEROKEE COUNTY SITE



LEGEND

- ● SAMPLE LOCATIONS
- 1 ○ HOUSEHOLD
- MS1 □ MINE SHAFTS
- STUDY AREA BOUNDARY
- GALENA SUBSITE BOUNDARY
- * INDICATES SAMPLE CONCENTRATION EXCEEDS PROPOSED MCL AND/OR MCLG FOR LEAD BUT IS LESS THAN EXISTING MCL OR MCLG FOR LEAD
- 11 CONCENTRATION OF SAMPLE WHICH EXCEEDS PRIMARY MCL AND/OR MCLG FOR METAL
- 75 CONCENTRATION OF SAMPLE WHICH EXCEEDS SECONDARY MCL FOR METAL

FIGURE 3
WELL AND MINE SHAFT SAMPLING LOCATIONS AND EXCEEDENCES
SUPPLEMENTAL GROUNDWATER AND MINE WASTE SAMPLING
CHEROKEE COUNTY SITE



LEGEND

STUDY AREA BOUNDARY

GALENA SUBSITE BOUNDARY

FIGURE 4
MINE WASTE AREAS
SUPPLEMENTAL GROUNDWATER AND MINE WASTE SAMPLING
CHEROKEE COUNTY SITE

Appendix A
WELL INVENTORIES

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #1

Subsite or Survey Area: Martin Galena

Date: 9-15-88 Time: 0900 Surveyor: Courtney Hemenway

Owner/User Information

Name: Leafie M. Shoup Township/Range: T34S R25E

Address: Galena Route 1 Section/Quarter: NW NW Sec 12

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Corner of Section 12 (NW corner)

Directions from Landmark: 500 feet East of NW corner of Section 12; South side of Route 1

Water Source

X Well N Cistern N Surface Water N Spring

N Municipal Water Line (Specify District)

N Other (Specify)

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

— Children (1 to 18 years) 1 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DRN/CC13/000.1

House #1

Table 1
(continued)

Drilling Information

Year Well Drilled: older than 10 yrs Well Depth: 195

Property Owner at Time of Drilling: –

Drilling Method: – Rotary – Auger – Cable Tool

– Hand Dug – Other –

Depth Where Water was Encountered During Drilling: –

Distance from Well to Septic Tank/Leach Field: 105 ft

Drilling Company: –

Well Water System Construction

Well Screen Depth: – Grouting Depth: –

Could Surface Runoff Enter the Well?: –

Pump Capacity: – Pump Depth: – Holding Tank Size:

Household Piping Material: X Copper – Lead – PVC

– Other

Well Casing Material: –

Treatment System

Point of Use – Whole House X no treatment

Treatment Includes – Filter (Type) –

– Softener

– Other Chemical –

– Other Physical –

Brand Names of Treatment System or Components:

–

–

Water Quality Complaints: No

Water Level or Quantity Problems: Well has not dried up

Willingness to Allow Sampling: Very Willing

Comments: –

–

Surveyor's Signature [signature] Date 9-17-95

DBN/0013/010.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #2

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: _____ Surveyor: Courtney Hemenway

Owner/User Information

Name: Roger Graves Township/Range: T34S R25E

Address: Box 108 A Section/Quarter: Section 1 SW¼

Phone No. (Area/Number): —

Property Directions

Nearest Landmark: SW corner of section 1

Directions from Landmark: 1300 feet East of SW corner Section 1

Water Source

X Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

— Other (Specify) _____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: — Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

— Watering Lawn — Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH _____ Conductivity _____ Temperature _____

Sample Location _____

House #7

Table 1
(continued)

Drilling Information

Year Well Drilled: — Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: ____

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: —

Treatment System

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: —

Water Level or Quantity Problems: —

Willingness to Allow Sampling: —

Comments: ____

Surveyor's Signature [signature] Date 9-15-88

DRN/0013/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #3

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1000 Surveyor: Courtney Hennessy

* Arthur Schneiders not present; Answers given by Bernard Schneiders (House #4)

Owner/User Information

Name: A. S. Schneiders Township/Range: T34S R25E

Address: Route 1 Box 107A Section/Quarter: Section 1/SE

Phone No. (Area/Number): _____

(uncle to Bernard Schneiders)

Property Directions

Nearest Landmark: Intersection of South Section Line (Section 1) and State Line

Directions from Landmark: 1000 ft west on Route 1 (South Section Line) from intersection

Water Source

X Well _____ Cistern _____ Surface Water _____ Spring

_____ Municipal Water Line (Specify District) _____

_____ Other (Specify) _____

Is the well used to supplement the municipal water: NO

How often? _____

Water Use

Number of Persons Using the Water Source: 2 Total Persons

_____ Infants (less than 1 year) _____ Adults (19 to 65 years)

_____ Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden NO Livestock

NO Industrial _____ Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH _____ Conductivity _____ Temperature _____

Sample Location _____

DEN/CC13/020.1

House #3

Table 1
(continued)

Drilling Information

Year Well Drilled: 1975 Well Depth: —

Property Owner at Time of Drilling: Arthur Schnieder

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: ≈100 ft

Drilling Company: —

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: Steel

Treatment System

Point of Use — Whole House Yes

Treatment Includes — Filter (Type) —

Yes Softener

— Other Chemical

— Other Physical

Brand Names of Treatment System or Components:

—

Water Quality Complaints: NO

Water Level or Quantity Problems: NO; never been dry

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-15-86

DEN/CC13/000.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #4

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 0945 Surveyor: Courtney Hemenway

Owner/User Information

Name: Bernard Schneeders Township/Range: T34S R25E

Address: Route 1 ~~[illegible]~~ Box 107 Section/Quarter: 1/SE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of South Section line of Sect 1 and State Line

Directions from Landmark: 500 ft north of intersection 1st House

Water Source

X Well — Cistern — Surface Water — Spring

NO Municipal Water Line (Specify District) —

— Other (Specify)

Is the well used to supplement the municipal water: NO

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden NO Livestock

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6.4 Conductivity 1400 ~~[illegible]~~ umhos Temperature ~~[illegible]~~ 16

Sample Location # T2937001 / Garden Hose @ Well Head After Pressure Tank

DAN/CC13/020.1

House #4

Table 1
(continued)

Drilling Information

Year Well Drilled: 1895 Well Depth: ≈ 55 ft

Property Owner at Time of Drilling: Schneider Family

Drilling Method: — Rotary — Auger — Cable Tool

X Hand Dug — Other —

Depth Where Water was Encountered During Drilling: ≈ 30 ft

Distance from Well to Septic Tank/Leach Field: ≈ 100 ft

Drilling Company: Hand Dug by family

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No - Well House

Pump Capacity: — Pump Depth: ≈ 30 ft Holding Tank Size: ≈ 30 gall

Household Piping Material: — Copper — Lead X PVC

— Other

Well Casing Material: UNCASED - Rock line

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Hard water

Water Level or Quantity Problems: Windmill dried the well up 60 years ago; No wind present since 1920's

Willingness to Allow Sampling: Very Willing

Comments: —

Surveyor's Signature [signature] Date 9-15-85

DEN/C013/020.2

House #5

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1000 Surveyor: Courtney Hemmingway

*Answers provided by Bernard Schneiders, House #4

Owner/User Information

Name: Marjorie Schneiders Township/Range: T34S R25E

Address: Route 1 Box 106 Section/Quarter: 1/SE

Phone No. (Area/Number): —

Property Directions

Nearest Landmark: Intersection of south line (section 1) and state line

Directions from Landmark: 600 feet North of intersection point on state line (Route 1)

Water Source

X Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

— Other (Specify) _____

Is the well used to supplement the municipal water: NO

How often? —

Water Use

Number of Persons Using the Water Source: 1 Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) 1 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden NO Livestock

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DBN/0013 020.1

Table 1
(continued)

House #5

Drilling Information

Year Well Drilled: ≈ 1930's Well Depth: ?

Property Owner at Time of Drilling: Marjorie Schnieders

Drilling Method: — Rotary — Auger X Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other Galvanized Steel

Well Casing Material: Steel Cased

Treatment System

Point of Use — Whole House Yes

Treatment Includes — Filter (Type) —

X Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Hard Water; Has Minor's Oil

Water Level or Quantity Problems: NO, never dry

Willingness to Allow Sampling: Yes

Comments: —

—

Surveyor's Signature [signature] Date 9-15-88

DEN/CC13/020.2

House #6

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1035 Surveyor: Courtney Hemenway

Owner/User Information

Name: William & Julia Haase Township/Range: T34S/R25E

Address: Route 1 Box 111 Section/Quarter: 2 / SE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: ~~[illegible]~~ SE corner of Section 2

Directions from Landmark: 500' North on section line

Serves two houses - House #6 & #7 — Graves — Haase

Water Source

X Well NO Cistern NO Surface Water NO Spring

NO Municipal Water Line (Specify District) -

- Other (Specify) -

Is the well used to supplement the municipal water: NO

How often? —

Water Use

Number of Persons Using the Water Source: 5 Total Persons

NO Infants (less than 1 year) 2 Adults (19 to 65 years)

3 Children (1 to 18 years) - Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn NO Watering Garden NO Livestock

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity - Temperature —

Sample Location -

DEN/CC13/020.1

House #6

Table 1
(continued)

Drilling Information

Year Well Drilled: 1961 Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 120 ft

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead Y PVC

✓ Other Galvanized Steel

Well Casing Material: —

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: NO

Water Level or Quantity Problems: NO, never run dry

Willingness to Allow Sampling: Yes

Comments: —

Surveyor's Signature [signature] Date 4-15-88

DEN/0013/000.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #7

Subsite or Survey Area: North Galena

Date: 9-15-88 / 9-17-88 Time: 1045 / 1430 Surveyor: Courtney Hemenway

Owner/User Information

Name: Jim Graves Township/Range: T34S / R25E

Address: Route 1 Box 112 Section/Quarter: 2 / SE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: SE corner of Section 2

Directions from Landmark: 750 ft north on section line above SE corner Section 2

Water Source

Well serves two houses - House # 6 - House / House # 7 - Graves

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) ____

— Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

No Watering Lawn No Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6 Conductivity 510 µmhos Temperature 18°C

Sample Location T2931002 / Garden Hose from faucet East side of house after Pressure tank.

DEN/CC13/020.1

House #7

Table 1
(continued)

Drilling Information

Year Well Drilled: 1961 Well Depth: 111 ft

Property Owner at Time of Drilling: Jim Graves

Drilling Method: — Rotary — Auger X Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: [illegible] feet

Distance from Well to Septic Tank/Leach Field: ≈ 75 ft

Drilling Company: Sill Drilling

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: 105 ft Holding Tank Size: 30 [illegible]

Household Piping Material: — Copper — Lead — PVC

— Other Galvanized Steel

Well Casing Material: Steel

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No

Water Level or Quantity Problems: No - never been dry

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-17-88

DEN/CC13/020.2

House #8

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1050 Surveyor: Courtney Hemenway

Owner/User Information

Name: Seurlock Township/Range: T34S / R25E

Address: Route 1 Box 113 Section/Quarter: 21 / SW

Phone No. (Area/Number): _____

Not Home 16 SEP 88, 17-SEP-88

Property Directions

Nearest Landmark: SE corner of Section 2

Directions from Landmark: 1000 north of SE corner of Section on East side of road in Section 1

Water Source

— Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) _____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: — Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

— Watering Lawn — Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH _____ Conductivity _____ Temperature _____

Sample Location _____

House #8

Table 1
(continued)

Drilling Information

Year Well Drilled: — Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other

Well Casing Material: —

Treatment System

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: —

Water Level or Quantity Problems: —

Willingness to Allow Sampling: —

Comments: —

Surveyor's Signature [signature] Date 9-15-83

DEN/CC13/02 .1

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #9

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1103 Surveyor: Courtney Hemenway

Owner/User Information

Name: John H. Kitch Township/Range: T34S/R25E

Address: Route 1 Box 116 Section/Quarter: 21

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Union Chapel School

Directions from Landmark: on SW corner of intersection at Union Chapel School

Water Source

Serves two residents → Son John R. lives in trailer

X Well NO Cistern NO Surface Water NO Spring

NO Municipal Water Line (Specify District) —

NO Other (Specify)

Is the well used to supplement the municipal water: NO

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

— Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X Livestock 2 head

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

House #9

Table 1
(continued)

Drilling Information

Year Well Drilled: 1985 Well Depth: 450

Property Owner at Time of Drilling: John H Kitch

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 90 feet

Distance from Well to Septic Tank/Leach Field: 40 feet

Drilling Company: possible Rapid Drill in Neosho KS

Well Water System Construction

Well Screen Depth: No Grouting Depth: —

Could Surface Runoff Enter the Well?: Yes, Flushmount 8'x8'

Pump Capacity: 22 gpm Pump Depth: 300 Holding Tank Size: —

Household Piping Material: X Copper — Lead — PVC

— Other —

Well Casing Material: 20 ft casing from surface

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: NO

Water Level or Quantity Problems: NO; never dried up

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-15-88

House #10

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1305 Surveyor: Courtney Hemenway

Owner/User Information

Name: Paul LaTurner Township/Range: T34S / R25E

Address: Route 1 Box 130 Section/Quarter: 2 / NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NE corner Section 2

Directions from Landmark: 250 ft south of the NE corner of Section 2

Water Source → see note on back Serves 2 houses → Sister Louise Eperson Route 1 Box 130A see note on back of sheet

X Well NO Cistern NO Surface Water NO Spring

NO Municipal Water Line (Specify District) ____

NO Other (Specify) ____

Is the well used to supplement the municipal water: NO

How often? —

Water Use

* With Sister Louise Epperson, 3 total users above 65.

Number of Persons Using the Water Source: 2* Total Persons

— Infants (less than 1 year) ____ Adults (19 to 65 years)

— Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

NO Watering Lawn NO Watering Garden NO Livestock

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6 Conductivity 450 µmhos Temperature 17

Sample Location # T2931003 / Garden Hose from faucet at well head after pressure tank

DEN/CC13/020.1

Louise [redacted]
Epperson → above 65
→ [redacted] water used for drinking & washing dishes only
→ [redacted] no softner
→ no septic tank

House # 10

Table 1
(continued)

Drilling Information

Year Well Drilled: 80+ years Well Depth: 28 ft

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

✓ Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 50 feet

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: Rock lined

Treatment System

Point of Use No Treater Whole House —

Treatment Includes — Filter (Type) in pump house

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No

Water Level or Quantity Problems: Dried up 25 years ago w/ livestock

Willingness to Allow Sampling: Yes; ok if they are not home

Comments: —

—

Surveyor's Signature [signature] Date 9-15-88

House # 11

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1330 not home Surveyor: Courtney Hemenway

Owner/User Information Trailer

Name: _____ Township/Range: T34S/R25E

Address: _____ Section/Quarter: 1/NW

Phone No. (Area/Number): _____

Property Directions

Nearest Landmark: NE corner of Section 2

Directions from Landmark: ~~[illegible]~~ 1000 ft East of NE corner of Section 2 on South side of the road

Water Source * Served by Well inventoried by Jewel & Blair House # ~~14~~ 34 **

_____ Well _____ Cistern _____ Surface Water _____ Spring

_____ Municipal Water Line (Specify District) _____

_____ Other (Specify) _____

Is the well used to supplement the municipal water: _____

How often? _____

Water Use

Number of Persons Using the Water Source: _____ Total Persons

_____ Infants (less than 1 year) _____ Adults (19 to 65 years)

_____ Children (1 to 18 years) _____ Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

_____ Drinking _____ Bathing _____ Washing

_____ Watering Lawn _____ Watering Garden _____ Livestock

_____ Industrial _____ Other _____ Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH _____ Conductivity _____ Temperature _____

Sample Location _____

House # 11

Table 1
(continued)

Drilling Information

Year Well Drilled: — Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: —

Treatment System

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: —

Water Level or Quantity Problems: —

Willingness to Allow Sampling: —

Comments: —

Surveyor's Signature [signature] Date 9-15-82

DEN/CC13/020.2

House #12

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1350 Surveyor: Courtney Hermenway

Owner/User Information

Name: David R. Scott Township/Range: T34S / R25E

Address: Route 1 Box 132 Section/Quarter: 1 / NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NE corner of Section 2

Directions from Landmark: 2nd house from the end of the road that forms the North line of Section 1; South side of road ≈ 3300 ft East of NE corner of Section 2.

Water Source → serves 2 residents → House 12, House 13

X Well No Cistern No Surface Water No Spring

— Municipal Water Line (Specify District) ____

— Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

Also serves House #13 with 4 users

Number of Persons Using the Water Source: 2* Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

No Drinking X Bathing No Washing

No Watering Lawn No Watering Garden X Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6 Conductivity 550 µmhos Temperature 17 °C

Sample Location # T2937004 / Garden Hose from faucet at the well head after the pressure tank but before the filter and softeners.

DEN/0013/030.1

Table 1
(continued)

House #12

Drilling Information

Year Well Drilled: 1976 Well Depth: 175 ft

Property Owner at Time of Drilling: David R. Scott

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 30 ft

Distance from Well to Septic Tank/Leach Field: ≈ 80 ft

Drilling Company: Rapid Drill

Well Water System Construction

Well Screen Depth: No Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: 150 ft Holding Tank Size: 40 ft

Household Piping Material: X Copper — Lead — PVC

— Other —

Well Casing Material: Steel to limestone

Treatment System

Point of Use - Whole House Yes

Treatment Includes — Filter (Type) —

1 Softener

— Other Chemical

1 Other Physical Purification System Reverse Osmosis

Brand Names of Treatment System or Components:

Water Refining Co St Paul MN - Water Softner

Water Quality Complaints: Bad taste; only use for bathing

Water Level or Quantity Problems: No, well has not dried up

Willingness to Allow Sampling: Yes

Comments: - Before 3PM on Saturday or after church on Saturday

Surveyor's Signature [signature] Date 9-15-91

DEN/0013,000.2

House #13

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1340 Surveyor: Courtney Hemenway

Owner/User Information

Name: David S. Scott Township/Range: T34S/R25E

Address: Route 1 Box 131A Section/Quarter: 1/NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NE corner of Section 2

Directions from Landmark: At the end of the road that forms the North line of Section 1; 2 3500 East of NE corner Section 2

Water Source — 1 well serves two dwelling - House #12 House #13

X Well No Cistern NO Surface Water NO Spring

— Municipal Water Line (Specify District) ____

— Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

* Serves 2 additional @ House #12

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn NO Watering Garden X Livestock

No Industrial NO Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DBN/CC13/C20.1

Table 1
(continued)

House #13

Drilling Information — See House #12

Year Well Drilled: 1971 Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 500 ft

Drilling Company: —

Well Water System Construction — See House #12

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: — Holding Tank Size:

Household Piping Material: — Copper — Lead ✓ PVC

— Other

Well Casing Material:

Treatment System — See House #12

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Tea one time turned purple; Water tasts bad.

Water Level or Quantity Problems: No; well never dried up

Willingness to Allow Sampling: Yes

Comments: → Sample on Saturday before 3 PM or on Sunday after Church.

Surveyor's Signature [signature] Date

PBN 0013/100.2

House # 14

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1408 Surveyor: Courtney Hemenway

Owner/User Information

Name: Marvin G Thompson Township/Range: T33S/R25E

Address: Route 1 Box 134 Section/Quarter: 36/SW

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: SW Corner of Section 36

Directions from Landmark: ≈1000 ft North on West Section Line (Section 36) from the SW corner of Section 36; East side of road

Water Source

X Well NO Cistern NO Surface Water No Spring

No Municipal Water Line (Specify District) ____

No Other (Specify) ____

Is the well used to supplement the municipal water: NO

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6 Conductivity 398 µmhos Temperature 17.5 °C

Sample Location # T23700G + # T23700GD / From Garden Hose from faucet at well head after pressure tank

DEN/CC13/020.1

House #14

Table 1
(continued)

Drilling Information

Year Well Drilled: 1967 Well Depth: 441 ft

Property Owner at Time of Drilling: Marvin G Thompson

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 100 ft from Ground

Distance from Well to Septic Tank/Leach Field: 120 feet

Drilling Company: Rapid Drill Nashua

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No; Well House

Pump Capacity: — Pump Depth: 368 ft Holding Tank Size: 40 gallon

Household Piping Material: X Copper — Lead X PVC

— Other Galvanized Steel

Well Casing Material: 37 ft casing - Steel
Limestone @ 27 ft

Treatment System

Point of Use No Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Slight mineral deposits

Water Level or Quantity Problems: No; never dried up

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-15-88

DEN/0013/020.2

House #15

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1440 Surveyor: Courtney Hemenway

Owner/User Information

Name: Darren Collins Township/Range: T33S / R25E

Address: Route 1 Box 105A Section/Quarter: 36 / SW

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: SW Corner of Section 36, T33S / R25E

Directions from Landmark: Approx. 2000 ft north of the SW Corner of Section 36, T33S, R25E on the west side of the county road. Newer house

Water Source

X Well No Cistern No Surface Water No Spring

— Municipal Water Line (Specify District) No

— Other (Specify)

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn No Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/0013/020.1

House #15

Table 1
(continued)

Drilling Information

Year Well Drilled: 1987 Well Depth: 200 ft

Property Owner at Time of Drilling: Darren Collins

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: 65 feet

Distance from Well to Septic Tank/Leach Field: 50 ft

Drilling Company: [redacted] Neosho Drilling

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: Possibly; Below grade on embankment; However has sanitary seal.

Pump Capacity: — Pump Depth: 100 ft Holding Tank Size: 20 gallon

Household Piping Material: — Copper — Lead X PVC

— Other

Well Casing Material: 60 ft casing steel

Treatment System

Point of Use No Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No

Water Level or Quantity Problems: No; never dried up

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-15-8[illegible]

DRN/CC13/[illegible]

House #16

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1500 Surveyor: Courtney Hemenway

Owner/User Information 5 Mobile Homes - Owner of land Wayne Johnson; House #17

Name: Wayne Johnson Township/Range: 33S / R25E

Address: — Section/Quarter: 36 / NW

Phone No. (Area/Number): —

Property Directions

Nearest Landmark: Intersection of Turkey Creek and County Road

Directions from Landmark: Approx. 1000 ft North of the intersection of Turkey Creek and County Road that runs N-S out of the study area; @ intersection of road that runs E-W to Missouri.

Water Source

— Well — Cistern — Surface Water — Spring

X Municipal Water Line (Specify District) Carl Junction

— Other (Specify)

Is the well used to supplement the municipal water: —

How often? —

Water Use 5 mobile homes; owners @ mobile homes not polled due to municipal water supply

Number of Persons Using the Water Source: — Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

— Watering Lawn — Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location

DMN/CC13/020.1

House # 16

Table 1
(continued)

Drilling Information Municipal Water

Year Well Drilled: — Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction Municipal Water

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other

Well Casing Material: —

Treatment System Municipal Water

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: None

Water Level or Quantity Problems: None

Willingness to Allow Sampling: —

Comments: —

—

Surveyor's Signature [signature] Date 9-15-88

DEN/CC13/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House #17

Subsite or Survey Area: North Galena

Date: 9-15-84 Time: 1505 Surveyor: Courtney Hemenway

Owner/User Information → owns mobile home park - House #16

Name: Wayne Johnson Township/Range: T33S / R25E

Address: Route 1 Box 136 Section/Quarter: 36 / NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of N-S rural road & E-W rural road T33S/R25E/Sect. 36

Directions from Landmark: 2800 Ft east of intersection on the north side of the road approximately 500 ft west of state line

Water Source

X Well No Cistern No Surface Water No Spring

X Municipal Water Line (Specify District) Carl Junction

— Other (Specify)

Is the well used to supplement the municipal water: Yes

How often? For Watering Lawn/Garden and Livestock

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use) Well use only

No Drinking No Bathing No Washing

X Watering Lawn X Watering Garden Yes Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

House #17

Table 1
(continued)

Drilling Information

Year Well Drilled: 1930's Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger X Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: ≈30-40 ft

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No Inside Garage

Pump Capacity: — Pump Depth: 60 Holding Tank Size: 40 gallon

Household Piping Material: — Copper — Lead X PVC

— Other —

Well Casing Material: ~~[illegible]~~ —

Treatment System (well only)

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Hard water

Water Level or Quantity Problems: No; never been dry

Willingness to Allow Sampling: Yes; Even when he is gone

Comments: He may be gone on Saturday or Sunday but we may come back and sample when he is gone

Surveyor's Signature [signature] Date [illegible]-15-92

DEN/C013/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House # 18

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1515 Surveyor: Courtney Hemenway

Owner/User Information

Name: Jack Hamilton Township/Range: T33S/R25E

Address: Route 1 Box 136A Section/Quarter: 25/[illegible] SE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of County Road (E-W) and Missouri/Kansas Line

Directions from Landmark: ≈ ½ mile North of the intersect of E-W county Road and Missouri/Kansas state line; 1st left then ≈ 1/4 mi NW.

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

1 Children (1 to 18 years) 1 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6+ Conductivity 370 Temperature 15°

Sample Location hydrant side of 8'x 10' Building Red Sidin

DEN/CC13/020.1

Table 1
(continued)

House #18

Drilling Information

Year Well Drilled: 1981 Well Depth: 150 ft

Property Owner at Time of Drilling: Jack Hamilton

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: ≈ 50 ft

Distance from Well to Septic Tank/Leach Field: 60 ft

Drilling Company: Neosho Drilling

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No; Inside Well house

Pump Capacity: — Pump Depth: 150 ft Holding Tank Size: Hydrolion

Household Piping Material: X Copper — Lead X PVC

— Other

Well Casing Material: ≈ 75 ft steel casing

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No; sometimes yellows laundry & sometimes rusty

Water Level or Quantity Problems: No - never dry

Willingness to Allow Sampling: Yes - Saturday Only - Can Sunday

Comments:

Surveyor's Signature [signature] Date 9-15-86

DEW/0013/000.2

House #19

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1610 Surveyor: Courtney Hammaway

Owner/User Information

Name: Vernon Jordan Township/Range: T34S/R25E

Address: Route 1 Box 116B Section/Quarter: 2/SEE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection at Union Chapel School

Directions from Landmark: 2200 Ft west of intersection @ Union Chapel School on South side of road

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) ____

No Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

1 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn No Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6 Conductivity 450 Temperature [illegible]

Sample Location [illegible] / From Garden Hose from faucet on the North side of house after pressure tank

DEN/CC13/020.1

House #19

Table 1
(continued)

Drilling Information

Year Well Drilled: 1981 Well Depth: 210 ft

Property Owner at Time of Drilling: Vernon Jordan

Drilling Method: X Rotary ___ Auger ___ Cable Tool

___ Hand Dug ___ Other —

Depth Where Water was Encountered During Drilling: 40 ft

Distance from Well to Septic Tank/Leach Field: 130 feet

Drilling Company: Cantrel Neosho Goodman

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: Flushmount; Sanitary Seal

Pump Capacity: — Pump Depth: 120 ft Holding Tank Size: 30 gallon

Household Piping Material: — Copper ___ Lead X PVC

— Other ___

Well Casing Material: 20 ft steel - Limestone @ 16 ft

Treatment System

Point of Use — Whole House Outside not treated Inside is treated

Treatment Includes Yes Filter (Type) —

Yes Softener

— Other Chemical ___

— Other Physical ___

Brand Names of Treatment System or Components:

Braswell

—

Water Quality Complaints: No → Treatment for Iron / Hardness

Water Level or Quantity Problems: No - never dry

Willingness to Allow Sampling: Yes

Comments: —

Surveyor's Signature [signature] Date 9-15-88

DEN/0013/001.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House ~~21~~ 20

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1700 Surveyor: Courtney Hammonds

Owner/User Information

Name: Ron Parker Township/Range: T29S / R25E

Address: Route 1 Box 117 Section/Quarter: 2 / NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection @ Union Chapel School

Directions from Landmark: 1/2 mile west of intersection

at the center of Section 2; NE corner of center section; N side of road.

Water Source

X Well NO Cistern NO Surface Water No Spring

NO Municipal Water Line (Specify District) ____

— Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X pigs Livestock

NO Industrial NO Other NO Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DRN/CC13/020.1

House ~~21~~ 20

Table 1
(continued)

Drilling Information

Year Well Drilled: 1975 (redrilled) Well Depth: 200 ft

Property Owner at Time of Drilling: Ron Parker @ time of redrill

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 180 → water level rose to 35 ft

Distance from Well to Septic Tank/Leach Field: 100 ft

Drilling Company: Rapid Drill of Neosho

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: — Pump Depth: 140 ft Holding Tank Size: 30 gallon

Household Piping Material: — Copper — Lead X PVC

— Other

Well Casing Material: ?

Treatment System

Point of Use — Whole House —

Treatment Includes @ Pump Filter (Type) Element (single) 10 micron

No Softener

No Other Chemical

No Other Physical

Brand Names of Treatment System or Components:

Ametek Filter

Water Quality Complaints: Tastes Bad; Turn, Hard → turn came in last few years

Water Level or Quantity Problems: NO - never been dry

Willingness to Allow Sampling: Yes → Works highlight

Comments: Closet faucet at rear of house

Surveyor's Signature [signature] Date 9-15-88

DEN/0013/020.2

House II ~~22~~ 21

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1720 Surveyor: Country Hemingway

Owner/User Information

Name: Curtis & Joan Lee Township/Range: T34S/R25E

Address: Route 1 Box ~~[illegible]~~ 118 Section/Quarter: 2/SE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Center of Section 2

Directions from Landmark: At bend in road at center of section. On south side of road.

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) —

— Other (Specify)

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DBN/CC13/020.1

House # ~~22~~ 21

Table 1
(continued)

Drilling Information

Year Well Drilled: 1969 Well Depth: 270' (?)

Property Owner at Time of Drilling: ~~[illegible]~~ Harold McClean

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: ≈ 50 ft

Distance from Well to Septic Tank/Leach Field: ≈ 100 ft

Drilling Company: (?)

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No; Inside Garage

Pump Capacity: — Pump Depth: (?) Holding Tank Size: [illegible] gallon

Household Piping Material: X Copper — Lead — PVC

— Other Galvanized

Well Casing Material: Steel to Limestone

Treatment System

Point of Use — Whole House Treatment

Treatment Includes X Filter (Type) —

X Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

Filter - Aqua Pure

Q Matic - Water Softner

Water Quality Complaints: No - w/softner - w/o softner taste w/yellow film

Water Level or Quantity Problems: No - never been dry

Willingness to Allow Sampling: Yes → On Sunday between 1 & 5 PM

Comments: —

Surveyor's Signature [signature] Date 9-16-[illegible]

DEN/CC13/[illegible]

House # 22

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-86 Time: 1730 Surveyor: Courtney Hemmaway

Owner/User Information

Name: Ed & Rayna Young Township/Range: T34S/R25E

Address: Route 1 Box 119 Section/Quarter: 2/NE

Phone No. (Area/Number): —

Property Directions

Nearest Landmark: Center of Section 2

Directions from Landmark: 400 ft North of center of Section 2 on the east side of the road.

Water Source

X Well NU Cistern NU Surface Water NU Spring

NU Municipal Water Line (Specify District) ____

NU Other (Specify) ____

Is the well used to supplement the municipal water: NU

How often? —

Water Use

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden X Livestock

NU Industrial — Other NU Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

House # ~~23~~ 22

Table 1
(continued)

Drilling Information

Year Well Drilled: ? Well Depth: 30 ft / 5 ft dia

Property Owner at Time of Drilling: John Turley

Drilling Method: — Rotary — Auger — Cable Tool

X Hand Dug — Other

Depth Where Water was Encountered During Drilling: ?

Distance from Well to Septic Tank/Leach Field: 200 ft

Drilling Company: —

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: — Holding Tank Size: 30 gallo

Household Piping Material: — Copper — Lead X PVC

— Other

Well Casing Material: Rock lined

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: NO - some particles

Water Level or Quantity Problems: NO - never dry; use for up to 30 people for gathering

Willingness to Allow Sampling: Yes

Comments:

Surveyor's Signature [signature] Date 9-15-88

DEN/CC13 020.1

House # ~~24~~ 23

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-15-88 Time: 1745 Surveyor: Courtney Hemmaway

Owner/User Information — House looks abandoned

Name: Chester Rindt Township/Range: T34S/R25E

Address: Route 1 Box 120 Section/Quarter: 2/NE

Phone No. (Area Number): no phone

Property Directions

Nearest Landmark: N-S centerline for Section 2

Directions from Landmark: 1400 South of North line of Section 2 Between NE & NW sections

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) ____

No Other (Specify) ____

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 1 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

No Watering Lawn No Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

House ~~24~~ 23

Table 1
(continued)

Drilling Information

Year Well Drilled: 1968 Well Depth: 215 ft

Property Owner at Time of Drilling: Chester Rindlt

Drilling Method: — Rotary — Auger ✓ Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: 30 ft (highest)

Distance from Well to Septic Tank/Leach Field: ≈ 80 ft

Drilling Company: Frank Webster

Well/Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: Inside well house; Broken Pipes however.

Pump Capacity: — Pump Depth: 200 Holding Tank Size: 30 gallon

Household Piping Material: — Copper — Lead — PVC

— Other Galvanized

Well Casing Material: —

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No -

Water Level or Quantity Problems: No - never dried up

Willingness to Allow Sampling: Yes -

Comments:

Surveyor's Signature [signature] Date 9-16-84

DEN/0013/000.2

House #~~25~~ 24

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-16-88 Time: 0855 Surveyor: Courtney Hemenway
Not Home 9-17-88, 9-18-88

Owner/User Information Not Home.

Name: _____ Township/Range: T34S/R25E

Address: _____ Section/Quarter: 3/SE

Phone No. (Area/Number): _____

Property Directions

Nearest Landmark: Paved Road & Dirt Road Intersection @ SE Corner of Section 3

Directions from Landmark: 1st House on West side of dirt road; 1300 ft north of intersection of Paved Road & Dirt Road @ SE Corner of Section 3

Water Source

— Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: — Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

— Watering Lawn — Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

House #~~25~~ 24

Table 1
(continued)

Drilling Information

Year Well Drilled: — Well Depth: —

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: —

Treatment System

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: —

Water Level or Quantity Problems: —

Willingness to Allow Sampling: —

Comments: —

Surveyor's Signature [signature] Date 9-16-95

DRM/CC13/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

House # ~~26~~ 25

Subsite or Survey Area: North Galena

Date: 9-16-88 Time: 0900 Surveyor: Quintre, Homeway

Owner/User Information

Name: Mitch Wade Township/Range: T34S/R25E

Address: Route 1 Box 371 Section/Quarter: 3/NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of Paved Road & Dirt Road @ SE corner section 3

Directions from Landmark: 3000 ft north on dirt road on East side of road (off road 500 ft) past intersection of Paved & Dirt road @ SE corner of section 3

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) —

No Other (Specify) —

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

___ Drinking X Bathing X Washing

X Watering Lawn No Watering Garden ~~[illegible]~~ Yes Livestock

No Industrial No Other Yes Back-up Water Supply

↳ water from House #27 - Lunderman

Water Quality (Only required for those wells sampled)

pH 6+ Conductivity 500 Temperature 17°

Sample Location hydrant W side of trailer

~~[illegible]~~ #13

#13D

DEN/CC13/020.1

House #~~26~~ 25

Table 1
(continued)

Drilling Information

Year Well Drilled: 1960 Well Depth: ≈ 175 ft

Property Owner at Time of Drilling: Melvin Cox (deceased)

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water Was Encountered During Drilling: (?)

Distance from Well to Septic Tank/Leach Field: (?) ≈ 50 ft

Drilling Company: Rapid Drill

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: (?) Holding Tank Size: —

Household Piping Material: — Copper — Lead X PVC

— Other —

Well Casing Material: Steel to Limestone

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Bad - Leaves mineral film on dishes; some taste

Water Level or Quantity Problems: No - Never dried up

Willingness to Allow Sampling: Yes - Saturday & Sunday after 1 PM

Comments:

Surveyor's Signature [signature] Date 4-16-95

DEM/CC13/010.2

House #~~27~~ 26

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-16-88 Time: 0925 Surveyor: Courtney Hemenway

Owner/User Information

Name: Paul D. Lunderman Sr. Township/Range: ~~T3~~ T30S /R25E

Address: Route 1 Box 373 Section/Quarter: 34 / NE

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: SE corner of Section 34

Directions from Landmark: 2700 ft North of the SE corner of Section 34 on the west side of the road

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) —

No Other (Specify) —

Is the well used to supplement the municipal water: No

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn X Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DHN/0010/020.1

House # ~~27~~ 26

Table 1
(continued)

Drilling Information

Year Well Drilled: 1965 Well Depth: 362 ft

Property Owner at Time of Drilling: Paul Lundermann

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: ≈ 53 ft

Distance from Well to Septic Tank/Leach Field: ≈ 70 ft

Drilling Company: Rapid Drilling

Well Water System Construction

Well Screen Depth: No Grouting Depth: No

Could Surface Runoff Enter the Well?: No; Inside Well House

Pump Capacity: — Pump Depth: 350 ft Holding Tank Size: 40 gallon

Household Piping Material: X Copper — Lead — PVC

— Other ~~[illegible]~~

Well Casing Material: Steel Casing

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

Water Quality Complaints: No - Hard water

Water Level or Quantity Problems: No - never dried up

Willingness to Allow Sampling: Yes - Saturday - Sunday after 1 PM.

Comments:

Surveyor's Signature [signature] Date 9-16-98

DEN/CC11/000.2

4-7
27

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 0912 Surveyor: BJW

Owner/User Information

Name: Gerald Fields Township/Range: T34S R25E

Address: Rt 1 Box 109 Section/Quarter: SW¼ Sec 1

Phone No. (Area/Number): None

Property Directions

Nearest Landmark: SW corner of Section 1 T34S R25E

Directions from Landmark: Approx. 1300 feet east of the SW Corner Section 1 on the North side of the county road running East

Water Source

✓ Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) _____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 5 Total Persons

— Infants (less than 1 year) 5 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location _____

DEN/CCIS/020.1

4-2
2'

Table 1
(continued)

Drilling Information

Year Well Drilled: (10 yrs) Well Depth: 165' ±

Property Owner at Time of Drilling: Same

Drilling Method: — Rotary — Auger ✓ Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 160'

Distance from Well to Septic Tank/Leach Field: 300' ±

Drilling Company: private driller, Brooks.

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: 35' Holding Tank Size: 50 gal

Household Piping Material: — Copper — Lead ✓ PVC

* Other 3/4" galv

Well Casing Material:

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

NO Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: alot of iron

Water Level or Quantity Problems:

Willingness to Allow Sampling: will allow sampling

Comments: Also has a dug well, 2 dug wells have well sampled and showed contamination

Surveyor's Signature [signature] Date 15 SEP 86

May sample if no one home.

DEN/NC13/000.2

Q-1
28

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 0935 Surveyor: B. M

Owner/User Information

Name: Bill Spain Township/Range: T34SR25E

Address: Rt 1 Box 108 Section/Quarter: SE¼ Sec 1

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of the South line Section 1 & Missouri/Kansas Line

Directions from Landmark: Approx 1000 ft west of Intersection South Line & Missouri/Kansas Line on the North side of the county road which runs E-W.

Water Source

2 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

— Other (Specify) _____

Is the well used to supplement the municipal water: N

How often? —

Water Use

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1984 Well Depth: 183'

Property Owner at Time of Drilling: Same

Drilling Method: ✓ Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 200' ±

Drilling Company: Rapid Drill, Neosho Mo

Well Water System Construction

Well Screen Depth: — Grouting Depth: not grouted

Could Surface Runoff Enter the Well?: —

Pump Capacity: 1/3 to 1/2 hp Pump Depth: bottom Holding Tank Size: no tank

Household Piping Material: ✓ Copper — Lead — PVC

— Other —

Well Casing Material: 40', Steel

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical

— Other Physical

Brand Names of Treatment System or Components:

gould pump, pvc pipe pump to house

Water Quality Complaints: high Iron

Water Level or Quantity Problems:

Willingness to Allow Sampling: good sunday morn [illegible]

Comments: Also 30' hand dug well, please sample will require a bailer. Smpl is not home.

Surveyor's Signature [signature] Date 15 SEP 88

DEN CC13/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 0950 Surveyor: BJM

Owner/User Information

Name: Howard Basinger Township/Range: T34S R25E

Address: Rt 1 Box 105 Section/Quarter: SE 1/4 Sec 1

Phone No. (Area/Number): [redacted]

Gray/white trailer

Property Directions

Nearest Landmark: Intersection of South line Section 1 and Missouri/Kansas Line.

Directions from Landmark: Approx. 1200 ft North of the intersection of the South line and the Missouri/Kansas Line; On West side of state line

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

X Other (Specify) 2 stock ponds

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location Side of stock pond (South side)

Table 1
(continued)

Drilling Information

Year Well Drilled: existing 1962 Well Depth: (380 ft)

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 150'

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: — Pump Depth: — Holding Tank Size: 70 gal

Household Piping Material: ✓ Copper — Lead — PVC

— Other

Well Casing Material: —

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: Little bit of Iron

Water Level or Quantity Problems:

Willingness to Allow Sampling: ok, Close fences!

Comments: May Sample if not home

Surveyor's Signature [signature] Date 15 SEP 89

DEN/CC13/020.2

D-T
30

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 9-16-88 Time: 1025 Surveyor: Courtney Hemenway

Owner/User Information

Name: Ms Rachel Faye Garrison Township/Range: T34SR 25E

Address: Rt 1 Box 126 Section/Quarter: Sec 1 (NE ¼)

Phone No. (Area/Number): _____

Check Back Sat Morn

Property Directions

Nearest Landmark: State Line Section 1; SE Corner

Directions from Landmark: 3900 ft North of the intersection of the south line section 1 and Missouri State line along the dirt road; west side last house

Water Source

X Well No Cistern No Surface Water No Spring

No Municipal Water Line (Specify District) _____

_____ Other (Specify) _____

Is the well used to supplement the municipal water: NO

How often? _____

Water Use

Number of Persons Using the Water Source: 1 Total Persons

_____ Infants (less than 1 year) _____ Adults (18 to 65 years)

_____ Children (1 to 18 years) 1 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

X Drinking X Bathing X Washing

X Watering Lawn No Watering Garden No Livestock

No Industrial No Other No Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 5.2 Conductivity 510 Temperature 16°

Sample Location Tap at holding tank

#7

DEN/CC13/020.1

Dup 30

Table 1
(continued)

Drilling Information

Year Well Drilled: 1966 Well Depth: 360 ft

Property Owner at Time of Drilling: Mrs Rachel Faye Garrison

Drilling Method: X Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: ?

Distance from Well to Septic Tank/Leach Field: 25 ft

Drilling Company: —

Well Water System Construction

Well Screen Depth: No. Grouting Depth: No

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: ? Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other Galvanized Steel

Well Casing Material: —

Treatment System

Point of Use No treatment Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: No -

Water Level or Quantity Problems: No - never been dry

Willingness to Allow Sampling: Yes -

Comments:

Surveyor's Signature [signature] Date 9-16-[illegible]

DEN/0013/020.2

3)

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 Sep 88 Time: 1038 Surveyor: B JM

Owner/User Information

Name: Melvin Bennett Township/Range: T34S R25E

Address: Rt 1 Box 86 Section/Quarter: NE¼ SW¼ Sec 1

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: 4 Dock Barn at intersection sections 1, 2, 11, 12

Directions from Landmark: At the corner of Sections 1, 2, 11, and 12 T34S R25E; on the west side of the N-S county road which is section line between Sections 1 & 2.

Water Source

2 Well — Cistern — Surface Water ✓ Spring by well

— Municipal Water Line (Specify District) —

✓ Other (Specify) pond on property also

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

Table 1
(continued)

Drilling Information 1977 - field

Year Well Drilled: 1965, Jan ~~Front~~ Front yd Well Depth: ( ) 225'

Property Owner at Time of Drilling: Same

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: Sills, private driller in Galena

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: 1/3 (1/2) hp Pump Depth: -175' Holding Tank Size: [illegible]

Household Piping Material: ~~[illegible]~~ Copper — Lead ✓ PVC

— Other

Well Casing Material: Steel

Treatment System ~~[illegible]~~

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

In house Softener

— Other Chemical

in house Other Physical Charcoal filter

Brand Names of Treatment System or Components:

Culligan water Softener

Water Quality Complaints: None

Water Level or Quantity Problems: None

Willingness to Allow Sampling: ok

Comments: Sample from spicket behind house

Surveyor's Signature [signature] Date 15 SEP 98

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1117 Surveyor: [illegible]

Owner/User Information

Name: George Howell Township/Range: T34S R25E

Address: RR 1 Box 115 Section/Quarter: SE¼ NE¼ Sect 2

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Union Chapel School

Directions from Landmark: Due West of Union Chapel School across County road which forms Section line between Sects. 1 & 2.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: U

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden U Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 7.0 Conductivity 500 Temperature 16°

Sample Location Tap at pressure tank

#8

Table 1
(continued)

Drilling Information

Year Well Drilled: existing 1988 Well Depth: 190'

Property Owner at Time of Drilling: Sucemaker or Moffat

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 500

Drilling Company: —

Well Water System Construction

Well Screen Depth: at 190' Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: ½ hp Pump Depth: 190' Holding Tank Size: no

Household Piping Material: ✓ Copper — Lead — PVC

— Other —

Well Casing Material: PVC casing, replaced Aug 88

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: none

Water Level or Quantity Problems: none

Willingness to Allow Sampling: yes

Comments: Sample if not home tap on pump
Pump house white block bldg behind barn

Surveyor's Signature [illegible] Date 15 [illegible]

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 89 Time: 1127 Surveyor: [illegible]

Owner/User Information

Name: Merl Mallett Township/Range: T34S R25E

Address: Rt 1 114 Section/Quarter: SW¼ NW¼ SE¼

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Union Chapel School (Section 1)

Directions from Landmark: North of Union Chapel School on the East side of county road which forms the section line between Section 1 & 2

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

X Other (Specify) Also unused dug well [illegible]

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

N Watering Lawn N Watering Garden N Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/010.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1947 Well Depth: 125'

Property Owner at Time of Drilling: Same

Drilling Method: — Rotary — Auger X Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: 80'

Distance from Well to Septic Tank/Leach Field: 200' ±

Drilling Company: Sills, Joplin Mo

Well Water System Construction

Well Screen Depth: 26' casing Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: ½ hp 1" Pump Depth: 120' Holding Tank Size: 65 gal

Household Piping Material: ✓ Copper — Lead — PVC

— Other 8 Gal

Well Casing Material: Steel to 26'

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

AY McDonald

Water Quality Complaints:

Water Level or Quantity Problems: 650 gallon to pump down

Willingness to Allow Sampling: willing

Comments: tap outside of pump house, white bldg NE Corner of house.

Surveyor's Signature [signature] Date 15 Sep 88

34

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 Sept 99 Time: 1310 Surveyor: BJM

Owner/User Information Marcia Myers

Name: [redacted] Township/Range: T34S R25E

Address: RR Box 131 Section/Quarter: NE¼ NE¼ Sec 1

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NW corner of Section 1.

Directions from Landmark: At the NW corner of Section 1 T34S R25E.

Water Source

✓ Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

— Other (Specify) _____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: ~~10~~ 10 Total Persons *4 served @ House #11

_____ Infants (less than 1 year) 6 Adults (19 to 65 years)

_____ Children (1 to 18 years) _____ Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

Table 1
(continued)

Drilling Information

Year Well Drilled: existing 86 Well Depth: —

Property Owner at Time of Drilling: Norman Fryes

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 400' ±

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size:

Household Piping Material: — Copper Lead — PVC

— Other galv

Well Casing Material: —

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: none

Water Level or Quantity Problems: none

Willingness to Allow Sampling: ok. Sample if not home

Comments: Sample Sat bkt bldg SW of B-Bull court

Surveyor's Signature [signature] Date 15 SEP 88

DPN [illegible]

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1332 Surveyor: BJM

Owner/User Information

Name: Robert Walker Township/Range: T34S R25E

Address: RH #133 Section/Quarter: NE¼ NW¼ Sec. 1

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NW Corner of Section 1, T34S, R25E

Directions from Landmark: Approx 2000 feet E of NW corner Section 1 and 500 ft south of the county road which forms Section 1 north line.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

— Other (Specify) _____

Is the well used to supplement the municipal water: _____

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 7.8 Conductivity 280 Temperature 12°

Sample Location Hydrant behind house, South side #9

DEN/CCLS/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1964 Well Depth: 136'

Property Owner at Time of Drilling: Same

Drilling Method: — Rotary — Auger ✓ Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: > 20'

Distance from Well to Septic Tank/Leach Field: 100'

Drilling Company: Bud Sills

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: ½ hp Pump Depth: 85' Holding Tank Size: 60 gal

Household Piping Material: — Copper — Lead — PVC

✱ Other galvinized

Well Casing Material: 20' steel

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: None

Water Level or Quantity Problems: None

Willingness to Allow Sampling: ok, sample if not home

Comments: —

—

Surveyor's Signature [signature] Date 15 SEP 88

DEN 0013/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 088 Time: 1421 Surveyor: BJM

Owner/User Information

Name: Raymond W Boyers Township/Range: T33S R25E

Address: RR 1 Box 135 Section/Quarter: NE¼ SE¼ Sec 35

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Corner of Sections 35, 36 (T33S R25E) & 1, 2 (T34S R25E)

Directions from Landmark: Approx 1400 feet North of SE corner Section 35 and 700 ft west of East Section Line Sect 35 (T33S R25E)

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) _____

X Other (Specify) 3-Stock ponds

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

N Watering Lawn N Watering Garden — Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CO13/030.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 100+ yrs Well Depth: 27'

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

✓ Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 200'+

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: ½ hp Pump Depth: 25' Holding Tank Size: 15 gal

Household Piping Material: ✓ Copper — Lead — PVC

— Other Rubber hose

Well Casing Material: —

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: taste after heavy rain

Water Level or Quantity Problems: —

Willingness to Allow Sampling: Sample if not home

Comments: top just inside garage

Surveyor's Signature [signature] Date 15 SEP 98

DEN/CC13/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1513 Surveyor: BJM

Owner/User Information

Name: Arlan Ewens Township/Range: T33S R25E

Address: RR1 136B Section/Quarter: ~~[illegible]~~ 1/4 NE 1/4 SEC 36 NW

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of County Road (E-W) and Missouri/Kansas Line

Directions from Landmark: ≈ 1/4 mi North of the intersection of County Road and State Line; 1st left up state line (N) 1st house on left.

Water Source

/ Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) — Adults (19 to 65 years)

— Children (1 to 18 years) 2 Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

/ Drinking / Bathing / Washing

N Watering Lawn / Watering Garden N Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature — —

Sample Location —

DEN/CC13/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1980 Well Depth: 270'

Property Owner at Time of Drilling: owner

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: T.S. City pump, T.S. City, Mo.

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: — Holding Tank Size: ~~Bladder~~ Custom Bladder

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: 6" Steel

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

Water Quality Complaints: lime deposits, sometimes cloudy after heavy rain

Water Level or Quantity Problems:

Willingness to Allow Sampling: Sample if not home, walk in

Comments: Gate is locked

Surveyor's Signature [illegible] Date 15 SEP 88

DRN/0013/000.1

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1609 Surveyor: BJM

Owner/User Information Darrell &
Name: Darlene Boyes Township/Range: T33S R25E
Address: DL 1 #133 A Section/Quarter: SE¼ SE¼ SEC. 35
Phone No. (Area/Number): [redacted]

Property Directions
Nearest Landmark: SE Corner of Section 35 T33S R25E
Directions from Landmark: Approx 300 ft North of the SE Corner Sect 35 On the West side of County Road which forms E line of Sect 35

Water Source
1 Well — Cistern — Surface Water — Spring
— Municipal Water Line (Specify District) —
— Other (Specify) —
Is the well used to supplement the municipal water: —
How often? —

Water Use
Number of Persons Using the Water Source: 4 Total Persons
— Infants (less than 1 year) 2 Adults (19 to 65 years)
2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)
✓ Drinking ✓ Bathing ✓ Washing
N Watering Lawn N Watering Garden N Livestock
N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)
pH 6+ Conductivity 486 Temperature 18.5
Sample Location Applicant SE Side of well house
BJM

#10

DEN/CCI3/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: Existing 1989 Well Depth: 230'

Property Owner at Time of Drilling: Grayer

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 200'

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: — Pump Depth: — Holding Tank Size: ____

Household Piping Material: — Copper — Lead ✓ PVC

— Other —

Well Casing Material: —

Treatment System intermitent

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

X Other Chemical add Clorox intermitent

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: no stains ~~to~~ only occasional for taste

Water Level or Quantity Problems: ____

Willingness to Allow Sampling: Sample if not at home

Comments: ____

Surveyor's Signature [signature] Date 15 SEP 88

DEN/0013/020.1

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1616 Surveyor: BJM

Owner/User Information

Name: Carden Thomasen Township/Range: T34S R25E

Address: R#1 #129 Section/Quarter: ~~[illegible]~~ NE¼ NE¼ Sec 2 NW

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: NE Corner of Section 2, T34S R25E

Directions from Landmark: Approx. 1500 ft west of the NE Corner of Sect 2 Along North line Sect 2; On the South side of County Road.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 4 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden N Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEN/CC13/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: July 887 Well Depth: 385'

Property Owner at Time of Drilling: Same

Drilling Method: ✓ Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 200' ±

Drilling Company: Rapid Drilling

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: ½ hp Pump Depth: — Holding Tank Size: Casing

Household Piping Material: ✓ Copper — Lead — PVC

— Other

Well Casing Material: Steel 6"

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: maybe hard no Fe stains

Water Level or Quantity Problems:

Willingness to Allow Sampling: Spicket on well head.

Comments: Sample if not home

Surveyor's Signature [signature] Date 15 SEP 88

DEN/CC13/[illegible]

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1632 Surveyor: BJM

Owner/User Information

Name: Jack Boyes Township/Range: T33SR25E

Address: RR1 Box 128 Section/Quarter: SW¼ SE¼ SEC 35

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: SE Corner Section 35

Directions from Landmark: Approx 2000 ft West of the SE Corner of Sect 35 Along the ~~SE~~ South Section line (County Road)

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (1[illegible] to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking — Bathing ✓ Washing

N Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEM/[illegible]/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1900 or prior Well Depth: 24'

Property Owner at Time of Drilling: Riche

Drilling Method: — Rotary — Auger — Cable Tool

✓ Hand Dug — Other —

Depth Where Water was Encountered During Drilling: Aquifer @ 22'

Distance from Well to Septic Tank/Leach Field: 100' ±

Drilling Company: owner

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: no

Pump Capacity: 1/3 hp Pump Depth: 22' Holding Tank Size: 30 gal

Household Piping Material: — Copper — Lead — PVC

* Other galv — 1970

Well Casing Material: Lime Stone Crib

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints:

Water Level or Quantity Problems:

Willingness to Allow Sampling: Sample if not home

Comments: fenced on SE side of house

Surveyor's Signature: [signature] Date 15 SEP 88

[illegible]

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 08 Time: 1708 Surveyor: BJM

Owner/User Information

Name: James C. Williams Township/Range: T33S R25E

Address: Rt 1 Box 127 Section/Quarter: ~~SE~~ NW 1/4 SE 1/4 Sec 35

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: North of Union Cemetery (Ritchie Cemetery on USGS topo)

Directions from Landmark: Approx. 750 ft North of Cemetery on County Road which forms the N-S centerline of Section 35

Water Source

— Well — Cistern — Surface Water ✓ Spring

— Municipal Water Line (Specify District) ____

— Other (Specify) ____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 3 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

LBN/0013/001.1

Table 1
(continued)

Drilling Information

Year ~~Well Drilled~~ Developed: 1870 Well Depth: 12'

Property Owner at Time of Drilling: Ritchie, Herman

Drilling Method: — Rotary — Auger — Cable Tool

✓ Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 12' top soil to lime

Distance from Well to Septic Tank/Leach Field: 60'

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: 1/3 hp Pump Depth: NA Holding Tank Size: 30

Household Piping Material: — Copper — Lead — PVC

— Other

Well Casing Material: Cast cement crib

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener —

— Other Chemical

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: None

Water Level or Quantity Problems: lower flow in dry spell

Willingness to Allow Sampling: Sample if not home

Comments: Spring covered in front of home

Surveyor's Signature [signature] Date 15 Sep 88

DEN/CC13.020.2

42

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 Sep 89 Time: 1729 Surveyor: BJM

Owner/User Information

Name: Claude W Mallett Township/Range: T34S R25E

Address: RR1 Box 125 Section/Quarter: NE¼ NW¼ Sec 2

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of E-W County Road and Center Line Section 2 in NW 1/4

Directions from Landmark: Approx 500 feet West of Intersection (landmark) on the south side of County Road; 1st house on the south side.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 1 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEH/0010/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1961 Well Depth: 205'

Property Owner at Time of Drilling: Same

Drilling Method: — Rotary — Auger ✓ Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: ~~50~~ 25', ~~30~~ 70'

Distance from Well to Septic Tank/Leach Field: —

Drilling Company: Brown, Neosho, KS

hit water 25' cased to 30' hit water again @ 70'

Well Water System Construction

Well Screen Depth: — Grouting Depth: 30'

Could Surface Runoff Enter the Well?: NO

Pump Capacity: 1 hp Pump Depth: 180 Holding Tank Size: 45 gal

Household Piping Material: ✓ Copper — Lead — PVC

X Other galv to house

Well Casing Material: 7" steel

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

Water Quality Complaints: none

Water Level or Quantity Problems: none

Willingness to Allow Sampling: Sample if not home

Comments: hydrant behind dog house

Surveyor's Signature [signature] Date 15 SEP 88

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1736 Surveyor: BJM

Owner/User Information

Name: John Mallet

Address: Rt 1 Box 123

Phone No. (Area/Number): [redacted]

Township/Range: T35 R25E

Section/Quarter: NE¼ NW¼ SEC 2

Property Directions

Nearest Landmark: Intersection of E-W County Road and Center line Section in NW¼

Directions from Landmark: Approx 100 feet West of Intersection (Landmark) on the North side of the County Road; 1st house on the north side

Water Source

— Well — Cistern — Surface Water ✓ Spring

— Municipal Water Line (Specify District)

— Other (Specify)

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 1 Total Persons

— Infants (less than 1 year) 1 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DPW/0013/020.1

Table 1
(continued)

Drilling Information

Year ~~Well Drilled~~ Developed: — Well Depth: —

Property Owner at Time of Drilling: Fisher

Drilling Method: — Rotary — Auger — Cable Tool

✓ Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: not Applic

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO

Pump Capacity: ½ hp Pump Depth: 31' Holding Tank Size: —

Household Piping Material: — Copper — Lead — PVC

— Other —

Well Casing Material: —

Treatment System unlocated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

✓ Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: None

Water Level or Quantity Problems: none

Willingness to Allow Sampling: Sample if not home

Comments:

Surveyor's Signature [illegible] Date 15 SEP 88

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 15 SEP 88 Time: 1755 Surveyor: B JM

Owner/User Information

Name: Jon L. Nichols Township/Range: T33S R25E

Address: Rt 1 Box 126 Section/Quarter: NE¼ NW¼ SEC 2

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of E-W County Road and Centerline Section 2 in NW¼

Directions from Landmark: Approx. 1400 feet West of Intersection (landmark) on the south side of County Road; 2nd house on the south side

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 5 Total Persons

3 Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6+ Conductivity 400 Temperature 17°

Sample Location Tap SW Corner of house, back [illegible]

#11

DEN/[illegible]

Table 1
(continued)

Drilling Information

Year Well Drilled: 1976 Well Depth: 230'

Property Owner at Time of Drilling: Clifford Medley, Galena

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: —

Drilling Company:

House Contractor Clarence Sherrick

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: NO Casing Stem

Pump Capacity: 3/4 hp Pump Depth: 180' Holding Tank Size: 10 gal

Household Piping Material: — Copper — Lead ✓ PVC

— Other —

Well Casing Material: Steel

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

Water Quality Complaints: Slightly hard

Water Level or Quantity Problems: None

Willingness to Allow Sampling: Sample if not done

Comments: Request test results

Surveyor's Signature [signature] Date 15 SEP 88

DFN/0013/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 16 Sep 88 Time: 0907 Surveyor: B J M

Owner/User Information

Name: Carl L Whittington Township/Range: T34SR25E

Address: Rt 1 Box 263 Section/Quarter: NE¼ SE¼ SEC 3

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Paved Road & Dirt Road Intersection @ SE Corner of Section 3

Directions from Landmark: Approx. 2700 ft north of the intersection (landmark) on the east side of the street; 1st house on the East side

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

✓ Other (Specify) Culinary brought in

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 2 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing * Washing Household cleaning only

— Watering Lawn — Watering Garden — Livestock

— Industrial — Other — Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

Table 1
(continued)

Drilling Information

Year Well Drilled: 1959 Well Depth: 30'

Property Owner at Time of Drilling: Hoover

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 100' ±

Drilling Company: —

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: —

Pump Capacity: — Pump Depth: 20' Holding Tank Size: 60 gal

Household Piping Material: — Copper — Lead — PVC

* Other Galv some pvc possible

Well Casing Material: —

Treatment System no

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: yes small heavy iron, not usable

Water Level or Quantity Problems: no

Willingness to Allow Sampling: Sample if not home

Comments:

Surveyor's Signature [signature] Date 16 SEP 88

DEN/0511/020.1

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 17 SEP 88 Time: 1716 Surveyor: R.J.M.

Owner/User Information

Name: Bud Hunter Township/Range: T34SR25E

Address: Rt 1 Section/Quarter: ~~[illegible]~~ NW¼ SW¼ Sec 3

Phone No. (Area/Number): _____

Mail: 505 Main, Joplin MO 64801

Property Directions

Nearest Landmark: Paved Road & Dirt Road Intersection @ SE Corner of Sect. 3

Directions from Landmark: 2nd House on the west side of dirt road, Approx 2000 ft North of the intersection point (Landmark)

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) _____

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 3 Adults (19 to 65 years)

— Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

N Watering Lawn N Watering Garden N Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6.4 Conductivity 480 Temperature 17°

Sample Location _____

#12 well is under carport pad. Sample from spigot N.W. side of house.

LBW/0013/020.1

46

Table 1
(continued)

Drilling Information

Year Well Drilled: 1967 Well Depth: 310'

Property Owner at Time of Drilling: SAME

Drilling Method: ✓ Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: 100' ±

Drilling Company: Gerald Sills, Springfield

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: no

Pump Capacity: 1/2 hp Pump Depth: 175' Holding Tank Size: ____

Household Piping Material: ✓ Copper — Lead ✓ PVC

* Other Galv

Well Casing Material: —

Treatment System none

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

Gould

Water Quality Complaints: none

Water Level or Quantity Problems: none

Willingness to Allow Sampling: Sample, Call first 626-6303 (Bus.

Comments:

Surveyor's Signature [signature] Date 17 SEP 88

DEN/CC13/020.2

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 16 Sep 88 Time: 1014 Surveyor: RIM

Owner/User Information

Name: Lee Turner

Address: Rt 1 Box 28

Phone No. (Area/Number): [redacted]

Township/Range: T34S R25E

Section/Quarter: NE¼ ~~NE~~ NW¼ SEC 2

Property Directions

Nearest Landmark: SE Corner of Section 2 T34S R25E

Directions from Landmark: Approx. 1000 West of the SE Corner of Section 2 along County Road (South line Section 2); North side of road.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 6 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

— Drinking — Bathing — Washing

— Watering Lawn — Watering Garden — Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

LEN/CC13/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: 1986 Well Depth: 380

Property Owner at Time of Drilling: [illegible]

Drilling Method: ✓ Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: 120'

Distance from Well to Septic Tank/Leach Field: 200'

Drilling Company: David Drilling

Well Water System Construction

Well Screen Depth: — Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: — Pump Depth: — Holding Tank Size: 12 gal

Household Piping Material: — Copper — Lead ✓ PVC

— Other

Well Casing Material: Steel

Treatment System None

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: None

Water Level or Quantity Problems: None

Willingness to Allow Sampling: Sample is not home

Comments: Husband

Surveyor's Signature [illegible] Date 16 SEP 98

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 16 S[illegible] Time: _____ Surveyor: Blair McDonald
Not Home on return visit

Owner/User Information

Name: _____ Township/Range: T33S R25E

Address: _____ Section/Quarter: SW¼ NE¼ NW¼ Sec 36

Phone No. (Area/Number): _____
Has [illegible]

Property Directions

Nearest Landmark: Intersection of Turkey Creek & County Road Sect 36 T33S R25E

Directions from Landmark: Approx. 1000 ft North of the intersection of Turkey Creek & County Road that runs N-S in Section 36; Approx 500 ft west of County Road at intersection of County Road & E-W Road that runs to Missouri.

Water Source

_____ Well _____ Cistern _____ Surface Water _____ Spring

_____ Municipal Water Line (Specify District) _____

_____ Other (Specify) _____

Is the well used to supplement the municipal water: _____

How often? _____

Water Use

Number of Persons Using the Water Source: _____ Total Persons

_____ Infants (less than 1 year) _____ Adults (19 to 65 years)

_____ Children (1 to 18 years) _____ Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

_____ Drinking _____ Bathing _____ Washing

_____ Watering Lawn _____ Watering Garden _____ Livestock

_____ Industrial _____ Other _____ Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH _____ Conductivity _____ Temperature _____

Sample Location _____

LEN/CCIB/[illegible]

Table 1
(continued)

Drilling Information

Year Well Drilled: _____ Well Depth: _____

Property Owner at Time of Drilling: _____

Drilling Method: _____ Rotary _____ Auger _____ Cable Tool

_____ Hand Dug _____ Other _____

Depth Where Water was Encountered During Drilling: _____

Distance from Well to Septic Tank/Leach Field: _____

Drilling Company: _____

Well Water System Construction

Well Screen Depth: _____ Grouting Depth: _____

Could Surface Runoff Enter the Well?: _____

Pump Capacity: _____ Pump Depth: _____ Holding Tank Size: _____

Household Piping Material: _____ Copper _____ Lead _____ PVC

_____ Other _____

Well Casing Material: _____

Treatment System

Point of Use _____ Whole House _____

Treatment Includes _____ Filter (Type) _____

_____ Softener

_____ Other Chemical _____

_____ Other Physical _____

Brand Names of Treatment System or Components:

_____

_____

Water Quality Complaints: _____

Water Level or Quantity Problems: _____

Willingness to Allow Sampling: Sample

Comments: 16 sept 88, was Clu

_____

Surveyor's Signature _____ Date _____

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 16 SEP 88 17 SEP 88 Time: ~~[illegible]~~ 10:30 1805 Surveyor: B J M

Owner/User Information

Name: E Walker Township/Range: T34S R25E

Address: Rt 1 116A Section/Quarter: SW¼ NW¼ Sec 1

Phone No. (Area/Number): [redacted]

[illegible] at door, radio on 16SEP88

Property Directions

Nearest Landmark: NW corner of Section 1 T34S R25E

Directions from Landmark: Approx. 2200 ft South of NW Corner Section 1 along West Section Line of Section 1; Approx. 600 N of Union Chapel School

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 3 Total Persons

— Infants (less than 1 year) 2 Adults (19 to 65 years)

1 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH — Conductivity — Temperature —

Sample Location —

DEM/[illegible]/020.1

Table 1
(continued)

Drilling Information

Year Well Drilled: Existing 1978 Well Depth: – –

Property Owner at Time of Drilling: –

Drilling Method: – Rotary – Auger – Cable Tool

– Hand Dug – Other –

Depth Where Water was Encountered During Drilling: –

Distance from Well to Septic Tank/Leach Field: 200' ±

Drilling Company: –

Well Water System Construction

Well Screen Depth: – Grouting Depth: –

Could Surface Runoff Enter the Well?: No

Pump Capacity: – Pump Depth: – Holding Tank Size: 20 gal

Household Piping Material: – Copper – Lead ✓ PVC

– Other

Well Casing Material: PVC

Treatment System untreated

Point of Use – Whole House –

Treatment Includes – Filter (Ty) –

– Softener

– Other Chemical –

– Other Physical –

Brand Names of Treatment System or Components:

–

–

Water Quality Complaints: none

Water Level or Quantity Problems: none

Willingness to Allow Sampling: Sample

Comments: if you take a hose off put it back on

Surveyor's Signature [signature] Date 12 SEP 88

Table 1
CHEROKEE COUNTY SITE
WATER SUPPLY INVENTORY FORM

Subsite or Survey Area: North Galena

Date: 16 SEP 88 Time: 1710 Surveyor: BJM

Owner/User Information

Name: B. W. Colarcue Township/Range: T34SR25E

Address: RE1 3?2 Section/Quarter: SE1/4 NE1/4 Sec 3

Phone No. (Area/Number): [redacted]

Property Directions

Nearest Landmark: Intersection of Paved Road & Dirt Road @ SE Corner Section 3

Directions from Landmark: 3000 ft North on dirt road on West side of road past intersection of Paved & Dirt Roads @ SE corner Section 3.

Water Source

1 Well — Cistern — Surface Water — Spring

— Municipal Water Line (Specify District) —

— Other (Specify) —

Is the well used to supplement the municipal water: —

How often? —

Water Use

Number of Persons Using the Water Source: 5 Total Persons

1 Infants (less than 1 year) 2 Adults (19 to 65 years)

2 Children (1 to 18 years) — Adults (over 65 years)

Water Uses (Indicate the Water Source for Each Use)

✓ Drinking ✓ Bathing ✓ Washing

✓ Watering Lawn ✓ Watering Garden ✓ Livestock

N Industrial N Other N Back-up Water Supply

Water Quality (Only required for those wells sampled)

pH 6+ Conductivity 400 Temperature 16°

Sample Location Tap off [illegible] house

#14

[illegible]

Table 1
(continued)

Drilling Information

Year Well Drilled: 1960 Well Depth: 150' +

Property Owner at Time of Drilling: —

Drilling Method: — Rotary — Auger — Cable Tool

— Hand Dug — Other —

Depth Where Water was Encountered During Drilling: —

Distance from Well to Septic Tank/Leach Field: ~~[illegible]~~ ± 75' ±

Drilling Company: —

Well Water System Construction

Well Screen Depth: 125' footvalve Grouting Depth: —

Could Surface Runoff Enter the Well?: No

Pump Capacity: ½ hp Pump Depth: 120' Holding Tank Size: 60 gallon

Household Piping Material: — Copper — Lead ✓ PVC

— Other

Well Casing Material: Steel

Treatment System untreated

Point of Use — Whole House —

Treatment Includes — Filter (Type) —

— — Softener

— Other Chemical —

— Other Physical —

Brand Names of Treatment System or Components:

—

—

Water Quality Complaints: rotten water, ~~[illegible]~~ Fe, Hard

Water Level or Quantity Problems: No

Willingness to Allow Sampling: Sample if not home

Comments:

Surveyor's Signature [illegible] Date 16 [illegible]

[illegible]

Appendix B
LABORATORY DATA
GROUNDWATER QUALITY SAMPLES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

Date: 10/6/88

MEMORANDUM

SUBJECT: Data Transmittal for Activity #: T2937
Site Description: Cherokee Co - Tri State Mining

FROM: for Harold G. Brown, Ph.D. GLM
Acting Chief, Laboratory Branch, ENSV

TO: Robert L. Morby
Chief, Superfund Branch, WSTM

ATTN: Alice Fuerst

Attached is the data transmittal for the above referenced site. This should be considered a ___ Partial or X Complete data transmittal (completes transmittal of _____). If you have any questions or comments, please contact Dee Simmons at 236-3881.

Attachments

cc: Data File

EPA Region VII

Data Qualification Codes

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

M - Compound was qualitatively identified; however, quantitative value is less than contract required quantitation limits (CLP data); or value is less than limit of quantitation (EPA data) and is, therefore, an estimated value.

J - The associated numerical value is an estimated quantity.

I - The data are invalid (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.

O - Sample lost or not analyzed.

L - Value known to be higher than value reported.

N - Presumptive evidence of presence of material.

NA - Sample was not analyzed for this compound.

NJ - Presumptive evidence of the presence of the material at an estimated quantity.

UJ - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

Codes for Flash Point Data

L - The sample did not ignite or "flash." This is the highest temperature at which the sample was tested. It is possible that the material may be ignitable at higher temperatures.

K - The sample did ignite or "flash" at the lowest temperature tested. This is usually the ambient temperature at the time of the test. It is possible that the material may be ignitable at even lower temperatures.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION [illegible]
ENVIRONMENTAL SERVICES DIV. [illegible] FUNCTION CO. KANSAS [illegible]

Site Name: CHEROKEE COUNTY Site Number: [illegible]
Location: GALENA, KANSAS Site Code: [illegible]

Collected: YR: 88 MO: 09 Day: 17 Time: 1144 Leader: [illegible]

Sample Number: [illegible] SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]
[signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1 Box 107 - Bernard Schnieder
500 ft north of the intersection of South Section line of Section 1
and Missouri/Kansas State line (T34S, R25E, Section 1, SE)
1st House on west side

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 17
Location: CALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 09 Day: 17 Time: 1442 Leader: C. HEMSMAN

Sample Number: T2937002 — SMO #: _____

Sample Media (circle one):
SOIL, DUST, FINISH, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fan #: _____ Aliquots: _____

Samplers: [signature]

[signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1 Box 112 - Jim Graves
Landmark: SE corner of Section 2
Location: 750 ft north on section line above SE corner of Section 2, west side of road.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: [illegible]
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 09 Day: 17 Time: 1532 Leader: C.HEMENWAY

Sample Number: T2937007 SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fan #: _____ Aliquots: _____

Samplers: [signature]
Jewell A. [signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1 Box 130 - Paul LaTurner;
Landmark: NE corner of Section 2
Location: 250 ft south of the NE corner of section 2; West side of road.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KANSAS 66115

Site Name: CHEROKEE COUNTY — Site Number: 17
Location: GALENA, KANSAS — Site Code: [illegible]

Collected: YR: 88 MO: 09 Day: 17 Time: 1629 Leader: C. HEMENWAY

Sample Number: T2907004 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. FINGER. SEDIMENT. (WATER.) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Sampler: [signature]

[signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1 Box 132 - David R Scott
Landmark: NE corner of section 2 (T34S/R25E/SECT 1)
Location: 2nd house from the end of the dirt road that forms the North Line of Section 1; South side of road; ≈3300 ft East of the NE corner of SECTION 2

[illegible]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 77
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 09 Day: 12 Time: 1635 Leader: C.HEMENWAY

Sample Number: T2977W15F — SMO #: _____

Sample Matrix (circle one):
SOIL. TUBT. FINGATE. SEDIMENT. (WATER.) OTHER: Field Blank

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fan #: _____ Aliquots: _____

Samplers: [signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Field Blank w/ Ultra pure

SM-FD

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII,
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 77
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 89 MO: 09 Day: 17 Time: 1740 Leader: C. KEMENWAY

Sample Number: T2977006 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. (WATER.) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]
[signature]

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1, Box 134 - Marvin G Thompson
Landmark: SW corner of Section 36
Location: ≈1000 ft North on West section line of (Section 36) from the SW corner of Section 36; East side of road.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 77
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 9 Day: 17 Time: 1740 Leader: C. HEMENWAY

Sample Number: T2937006D SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: Duplicate

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]
Jack A. Ford

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1, Box 134 - Marvin G Thompson
Landmark: SW corner of Section 36
Location: ≈ 1000 ft North on West section line of Section 36 from the SW corner of Section 36; East side of road

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII.
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: [illegible]
Location: GALENA, KANSAS — Site Code: N[illegible]

Collected: YR: 88 MO: 9 Day: 17 Time: 1354 Leader: C.HEMENWAY

Sample Number: T0907007 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Seals: _____ Fan #: _____ Aliquots: _____

Samplers: KLOBERDANZ
McDONALD

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 #104, top off pressure tank

[illegible]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 37
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 9 Day: 17 Time: 1445 Leader: C. HEMENWAY

Sample Number: T2907008 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. (WATER). OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Dest: _____ Par #: _____ Aliquots: _____

Samplers: KLOBERDANZ
McDONALD

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 Box 115 top of pressure tank

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 89 MO: 9 Day: 17 Time: 1538 Leader: C.HEMENWA

Sample Number: T2937009 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: Kloberdanz
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 Box 133 hydrant @ back porch

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 07
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 9 Day: 8/7 Time: 1615 Leader: C.HEMENWAY

Sample Number: T0907010 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fam #: _____ Aliquots: _____

Samplers: K LOBERDANZ
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 Box 133A, hydrant N side of well house

IRM-FC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 77
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 9 Day: 17 Time: 1650 Leader: C. HEMENWAY

Sample Number: T293701 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: Klaberdanz
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 Box 124 Hydrant in back of house

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 7
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 07
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 9 Day: 17 Time: 1745 Leader: L.HEMENWAY

Sample Number: T0907012 — SMO #: _____

Sample Media (circle one):
SOIL DUST SINGATE SEDIMENT WATER OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fac #: _____ Aliquots: _____

Samplers: Kloberdanz
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1, Galena, KS
Mail: Bud Hunter, 805 Main, Joplin MO 64801

IBM-PC

FIELD SHEET

ENVIRONMENTAL PROTECTION AGENCY, REGION VII

ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 07

Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 93 MO: 9 Day: 18 Time: 1035 Leader: C.HEMENWAY

Sample Number: T2937017 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. RINSATE. SEDIMENT. (WATER). OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: Klobendanz

McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt1 Box 371

FIELD SHEET

U.S. ENVIRONMENTAL PROTECTION AGENCY REGION VII

ENVIRONMENTAL SERVICES DIV., 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY	Site Number: 07
Location: GALENA, KANSAS	Site Code: N/A

Collected: YR: 90 MO: 9 Day: 18 Time: 1040 Leader: C.HEMENWAY

Sample Number: T0907001D SMO #: _____

Sample Media (circle one): SOIL. DUST. FINGER. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: Klobendanz

McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt1 Box 371

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 9 Day: 18 Time: 1130 Leader: C. HEMENWAY

Sample Number: T2937014 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fan #: _____ Aliquots: _____

Samplers: Klebendanz
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt1 #372

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 27
Location: GALENA, KANSAS — Site Code: N/A

Collected: YR: 88 MO: 9 Day: 18 Time: 1220 Leader: C.HEMENWAY

Sample Number: T2937615 — SMO #: _____

Sample Media (circle one):
SOIL. DUST. FINGATE. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Fan #: _____ Aliquots: _____

Samplers: Kloberdanz
McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Rt 1 Box 136A

[illegible]

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 09 Day: 18 Time: 1000 Leader: C. HEMENWAY

Sample Number: T2937015 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]
Jewell A. Frank

COMMENTS OF FIELD PERSONNEL

Site Description: Flowing steel casing; Labelled Mine #1 sample
Township 34 South, Range 25 East, Section 2, SW quarter

TBM-R1

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 09 Day: 18 Time: 1249 Leader: C. HEMENWAY

Sample Number: TI937017 SMO #: _____

Sample Media (circle one):
SOIL. DUST. KINGATE. SEDIMENT. WATER. OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]
Janelle A. Sand

COMMENTS OF FIELD PERSONNEL

Site Description: Mine Shaft #2; Township 34 South, Range 25 East Section 2; SE quarter; South of the dirt road which divides the East Half of Section 2. Mine Shaft is approximately 500 south of road

IEM-RC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 77
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 88 MO: 09 Day: 18 Time: 1340 Leader: C. HEMENWAY

Sample Number: T2977018 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: [signature]

Jewell A. Sand

COMMENTS OF FIELD PERSONNEL

Site Description: Route 1 Box 116B - Vernon Jordan
Landmark: Intersection at Union Chapel School
Location: 2200 feet west of intersection @ Union Chapel School, South side of road ≈ 500 ft.
Township 34 South; Range 25 East; Section 2; SE 1/4

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KANSAS Site Code: N/A

Collected: YR: 00 MO: 09 Day: 18 Time: 1350 Leader: J.HEMENWAY

Sample Number: T2937019F SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: Field Blank

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY.	WHITE	HNO3	TOTAL METALS
1 L. POLY.	GRAY	HNO3	DISS. METALS

Depth: _____ Rig #: _____ Aliquots: _____

Samplers: [signature]
Jewell A. Sand

COMMENTS OF FIELD PERSONNEL

Site Description: Field Blank taken @ Vernon Jordan
Route 1 Box 116B

IEM-FO

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: _____ ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: _____ GLM
DATA FILE: JM1

UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937001	T2937002	T2937003	T2937004
SILVER	UG/L	2.0U	2.0U	2.0U	2.0U
ALUMINUM	UG/L	200.0	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
BARIUM	UG/L	40.0U	61.0	120.0	40.0U
BERYLLIUM	UG/L	.69	.40U	.40U	.40U
CADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
COBALT	UG/L	12.0	2.2	2.0U	2.0U
CHROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
COPPER	UG/L	8.4	3.1	6.1	7.2
IRON	UG/L	19.0	110.0	78.0	770.0
MANGANESE	UG/L	75.0	11.0	8.7	17.0
MOLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
NICKEL	UG/L	100.0	14.0	4.0U	4.0U
LEAD	UG/L	1.0U	1.0U	1.0U	2.6M
ANTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TITANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
THALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
VANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
ZINC	UG/L	950.0	27.0	41.0	69.0
CALCIUM	MG/L	280.0	90.0	77.0	130.0
MAGNESIUM	MG/L	7.2	4.4	2.6	3.3
SODIUM	MG/L	99.0	24.0	35.0	12.0
POTASSIUM	MG/L	19.0	3.5	.78	.84

1 2 3 4

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP:_____ ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77
REVIEWER: _____
DATA FILE: JM2
UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937005F	T2937006	T2937006D	T2937007
ILVER	UG/L	2.0U	2.0U	2.0U	2.0U
LUMINUM	UG/L	150.0U	150.0U	150.0U	150.0U
RSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
ARIUM	UG/L	40.0U	84.0	80.0	100.0
ERYLLIUM	UG/L	.40U	.40U	.40U	.40U
ADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
OBALT	UG/L	2.0U	2.0U	2.0U	2.0U
HROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
OPPER	UG/L	2.0U	2.6	2.1	2.0U
RON	UG/L	10.0U	20.0	18.0	55.0
ANGANESE	UG/L	.40U	1.5	1.8	.45
OLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
ICKEL	UG/L	4.0U	4.0U	4.0U	4.0U
EAD	UG/L	1.0U	3.0M	3.2M	1.0U
NTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
ELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
ITANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
HALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
ANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
INC	UG/L	4.0U	600.0	580.0	10.0
ALCIUM	MG/L	.40U	72.0	70.0	130.0
AGNESIUM	MG/L	.40U	14.0	14.0	3.3
ODIUM	MG/L	.40U	11.0	10.0	9.5
OTASSIUM	MG/L	.40U	1.7	1.6	.50
		5	6	7	8

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ---- ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77 QA
REVIEWER: ----------
DATA FILE: JM2

UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937008	T2937009	T2937010	T2937011
ILVER	UG/L	2.0U	2.0U	2.0U	2.0U
LUMINUM	UG/L	150.0U	150.0U	150.0U	150.0U
RSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
ARIUM	UG/L	65.0	55.0	48.0	44.0
ERYLLIUM	UG/L	.40U	.40U	.40U	.40U
ADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
OBALT	UG/L	3.4	2.0U	2.0U	2.0U
HROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
OPPER	UG/L	7.5	6.4	2.0U	2.0U
RON	UG/L	12.0	130.0	66.0	48.0
ANGANESE	UG/L	3.0	4.7	4.9	7.9
OLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
ICKEL	UG/L	20.0	4.0U	4.0U	4.0U
EAD	UG/L	1.0U	7.6M	1.0U	1.0U
NTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
ELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
ITANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
HALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
ANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
ZINC	UG/L	54.0	14.0	240.0	4.0U
CALCIUM	MG/L	130.0	58.0	76.0	69.0
MAGNESIUM	MG/L	6.1	1.8	17.0	7.3
SODIUM	MG/L	31.0	7.1	12.0	10.0
POTASSIUM	MG/L	5.6	.40U	1.8	1.4
		9	10	11	2

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ---
ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77
REVIEWER: ---
DATA FILE: JM2
UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937012	T2937013	T2937013D	T2937014
ILVER	UG/L	2.0U	2.0U	2.0U	2.0U
LUMINUM	UG/L	150.0U	170.0	180.0	150.0U
RSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
ARIUM	UG/L	40.0U	72.0	68.0	100.0
ERYLLIUM	UG/L	.40U	.40U	.40U	.40U
ADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
OBALT	UG/L	2.0U	2.0U	2.0U	2.0U
HROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
OPPER	UG/L	13.0	5.2	5.4	5.8
RON	UG/L	99.0	190.0	200.0	120.0
ANGANESE	UG/L	2.5	7.4	7.0	11.0
OLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
ICKEL	UG/L	4.0U	4.0U	4.0U	4.0U
EAD	UG/L	1.0U	7.4M	7.6M	1.0U
NTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
ELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
HALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
ANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
INC	UG/L	11.0	490.0	460.0	6.5
ALCIUM	MG/L	78.0	99.0	86.0	75.0
AGNESIUM	MG/L	9.1	3.5	3.3	9.3
ODIUM	MG/L	11.0	13.0	13.0	10.0
OTASSIUM	MG/L	1.1	2.1	2.1	1.6

13 14 15 16

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ---JM-- ANALYST/ENTRY: JSM GM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: GLM
DATA FILE: JM2

UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937015	T2937016	T2937017
SILVER	UG/L	2.0U	2.0U	2.0U
ALUMINUM	UG/L	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	18.0	5.0U
BARIUM	UG/L	96.0	40.0U	48.0
BERYLLIUM	UG/L	.40U	.40U	.40U
CADMIUM	UG/L	20.0U	20.0U	20.0U
COBALT	UG/L	2.0U	62.0	2.0U
CHROMIUM	UG/L	2.0U	2.0U	2.0U
COPPER	UG/L	29.0	2.0U	14.0
IRON	UG/L	610.0	17000.0	1400.0
MANGANESE	UG/L	33.0	360.0	28.0
MOLYBDENUM	UG/L	2.0U	6.3	2.0U
NICKEL	UG/L	8.3	200.0	5.3
LEAD	UG/L	110.0	6.6M	1.2M
ANTIMONY	UG/L	10.0U	10.0U	10.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U
TITANIUM	UG/L	10.0U	10.0U	10.0U
THALLIUM	UG/L	100.0U	100.0U	100.0U
VANADIUM	UG/L	2.0U	3.4	2.0U
ZINC	UG/L	820.0	16000.0	110.0
CALCIUM	MG/L	76.0	170.0	74.0
MAGNESIUM	MG/L	2.0	4.9	10.0
SODIUM	MG/L	6.6	14.0	7.0
POTASSIUM	MG/L	.51	1.4	1.7
		7	8	19

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ___ ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: GLM
DATA FILE: JM3

UNITS: UG/L
CASE:
DATE: 09/28/88

		T2937018	T2937019F	
SILVER	UG/L	2.0U	2.0U	
ALUMINUM	UG/L	150.0U	150.0U	
ARSENIC	UG/L	5.0U	5.0U	
BARIUM	UG/L	42.0	40.0U	
BERYLLIUM	UG/L	.40U	.40U	
CADMIUM	UG/L	20.0U	20.0U	
COBALT	UG/L	3.0	2.0U	
CHROMIUM	UG/L	2.0U	2.0U	
COPPER	UG/L	3.3	2.0U	
IRON	UG/L	1400.0	10.0U	
MANGANESE	UG/L	75.0	.40U	
MOLYBDENUM	UG/L	2.0U	2.0U	
NICKEL	UG/L	7.3	4.4	
LEAD	UG/L	1.0U	1.0U	
ANTIMONY	UG/L	10.0U	10.0U	
SELENIUM	UG/L	40.0U	40.0U	
TITANIUM	UG/L	10.0U	10.0U	
THALLIUM	UG/L	100.0U	100.0U	
VANADIUM	UG/L	2.0U	2.0U	
ZINC	UG/L	57.0	5.0	
CALCIUM	MG/L	91.0	.40U	
MAGNESIUM	MG/L	3.8	.40U	
SODIUM	MG/L	8.7	.42	
POTASSIUM	MG/L	.79	.40U	Detected
		20	21	22

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ___ ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77
REVIEWER: GLM
DATA FILE: JM4
UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937001	T2937002	T2937003	T2937004
SILVER	UG/L	10.0U	10.0U	10.0U	10.0U
ALUMINUM	UG/L	150.0U	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
BARIUM	UG/L	40.0U	60.0	120.0	40.0U
BERYLLIUM	UG/L	2.0U	2.0U	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
COBALT	UG/L	14.0	10.0U	10.0U	10.0U
CHROMIUM	UG/L	10.0U	10.0U	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U	10.0U	10.0U
IRON	UG/L	50.0U	50.0U	50.0U	310.0
MANGANESE	UG/L	81.0	11.0	8.1	7.1
MOLYBDENUM	UG/L	10.0U	10.0U	10.0U	10.0U
NICKEL	UG/L	100.0	20.0U	20.0U	20.0U
LEAD	UG/L	1.0U	2.4	1.0U	1.0U
ANTIMONY	UG/L	50.0U	50.0U	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U	10.0U	10.0U
ZINC	UG/L	1200.0	27.0	42.0	66.0
CALCIUM	MG/L	280.0	99.0	84.0	130.0
MAGNESIUM	MG/L	8.1	4.9	2.9	3.7
SODIUM	MG/L	100.0	24.0	35.0	15.0
POTASSIUM	MG/L	19.0	3.2	2.0U	2.0U
		23	24	25	26

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREF:_____ ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77 GLM
REVIEWER: _____
DATA FILE: JM4
UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937005F	T2937006	T2937006D	T2937007
SILVER	UG/L	10.0U	10.0U	10.0U	10.0U
ALUMINUM	UG/L	150.0U	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
BARIUM	UG/L	40.0U	87.0	89.0	110.0
BERYLLIUM	UG/L	2.0U	2.0U	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
COBALT	UG/L	10.0U	10.0U	10.0U	10.0U
CHROMIUM	UG/L	10.0U	10.0U	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U	10.0U	10.0U
IRON	UG/L	50.0U	50.0U	50.0U	50.0U
MANGANESE	UG/L	2.0U	2.0U	2.3	2.0U
MOLYBDENUM	UG/L	10.0U	10.0U	10.0U	10.0U
NICKEL	UG/L	20.0U	20.0U	20.0U	20.0U
LEAD	UG/L	1.0U	2.7	3.0	1.2
ANTIMONY	UG/L	50.0U	50.0U	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U	10.0U	10.0U
ZINC	UG/L	20.0U	710.0	1100.0	20.0U
CALCIUM	MG/L	2.0U	77.0	78.0	130.0
MAGNESIUM	MG/L	2.0U	16.0	16.0	3.9
SODIUM	MG/L	2.0U	12.0	13.0	13.0
POTASSIUM	MG/L	2.0U	2.0U	2.0U	2.0U
		27	28	29	30

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: JM ANALYST/ENTRY: JSM JM

MATRIX: WATER
METHOD: 2001W77 GLM
REVIEWER: ----------
DATA FILE: JM4

UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937008	T2937009	T2937010	T2937011
SILVER	UG/L	10.0U	10.0U	10.0U	10.0U
ALUMINUM	UG/L	150.0U	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
BARIUM	UG/L	71.0	61.0	53.0	53.0
BERYLLIUM	UG/L	2.0U	2.0U	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
COBALT	UG/L	10.0U	10.0U	10.0U	10.0U
CHROMIUM	UG/L	10.0U	10.0U	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U	10.0U	10.0U
IRON	UG/L	50.0U	120.0	66.0	75.0
MANGANESE	UG/L	3.8	5.2	5.2	14.0
MOLYBDENUM	UG/L	10.0U	10.0U	10.0U	10.0U
NICKEL	UG/L	22.0	20.0U	20.0U	20.0U
LEAD	UG/L	1.0U	7.0	1.0U	2.7
ANTIMONY	UG/L	50.0U	50.0U	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U	10.0U	10.0U
ZINC	UG/L	61.0	20.0U	260.0	20.0U
CALCIUM	MG/L	140.0	64.0	90.0	88.0
MAGNESIUM	MG/L	7.5	2.1	20.0	10.0
SODIUM	MG/L	36.0	8.7	15.0	13.0
POTASSIUM	MG/L	4.8	2.0U	2.0U	2.0U
		31	32	33	34

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREF: --JM-- ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: ---------- GLM
DATA FILE: JM4

UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937012	T2937013	T2937013D	T2937014
SILVER	UG/L	10.0U	10.0U	10.0U	10.0U
ALUMINUM	UG/L	150.0U	190.0	190.0	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U	5.0U
BARIUM	UG/L	40.0U	78.0	78.0	110.0
BERYLLIUM	UG/L	2.0U	2.0U	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U	20.0U	20.0U
COBALT	UG/L	10.0U	10.0U	10.0U	10.0U
CHROMIUM	UG/L	10.0U	10.0U	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U	10.0U	10.0U
IRON	UG/L	110.0	140.0	140.0	120.0
MANGANESE	UG/L	3.8	9.4	9.3	13.0
MOLYBDENUM	UG/L	10.0U	10.0U	10.0U	10.0U
NICKEL	UG/L	20.0U	20.0U	20.0U	20.0U
LEAD	UG/L	1.0U	5.0	6.0	1.0U
ANTIMONY	UG/L	50.0U	50.0U	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U	10.0U	10.0U
ZINC	UG/L	32.0	530.0	530.0	20.0U
CALCIUM	MG/L	92.0	120.0	120.0	84.0
MAGNESIUM	MG/L	11.0	4.1	4.1	11.0
SODIUM	MG/L	13.0	17.0	17.0	12.0
POTASSIUM	MG/L	2.0U	2.0U	2.0U	2.0U
		35	36	37	38

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ---- ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77 GM
REVIEWER: ----------
DATA FILE: JM4
UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937015	T2937016
SILVER	UG/L	10.0U	10.0U
ALUMINUM	UG/L	150.0U	150.0U
ARSENIC	UG/L	5.0U	19.0
BARIUM	UG/L	120.0	40.0U
BERYLLIUM	UG/L	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U
COBALT	UG/L	10.0U	73.0
CHROMIUM	UG/L	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U
IRON	UG/L	470.0	20000.0
MANGANESE	UG/L	40.0	410.0
MOLYBDENUM	UG/L	10.0U	10.0U
NICKEL	UG/L	20.0U	220.0
LEAD	UG/L	66.0	3.1
ANTIMONY	UG/L	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U
ZINC	UG/L	970.0	17000.0
CALCIUM	MG/L	97.0	190.0
MAGNESIUM	MG/L	2.6	6.1
SODIUM	MG/L	9.5	19.0
POTASSIUM	MG/L	2.0U	2.0U
		39	40

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: CHEROKEE COUNTY
LAB: EPA REGION VII
SAMPLE PREP: ~~JM~~ ANALYST/ENTRY: JSM JM

MATRIX: WATER
METHOD: 2001W77 GLM
REVIEWER: _____
DATA FILE: JM5

UNITS: UG/L
CASE:
DATE: 09/30/88

		T2937017	T2937018	T2937019F
SILVER	UG/L	10.0U	10.0U	10.0U
ALUMINUM	UG/L	150.0U	150.0U	150.0U
ARSENIC	UG/L	5.0U	5.0U	5.0U
BARIUM	UG/L	52.0	48.0	40.0U
BERYLLIUM	UG/L	2.0U	2.0U	2.0U
CADMIUM	UG/L	20.0U	20.0U	20.0U
COBALT	UG/L	10.0U	10.0U	10.0U
CHROMIUM	UG/L	10.0U	10.0U	10.0U
COPPER	UG/L	10.0U	10.0U	10.0U
IRON	UG/L	1400.0	1700.0	50.0U
MANGANESE	UG/L	19.0	90.0	2.0U
MOLYBDENUM	UG/L	10.0U	10.0U	10.0U
NICKEL	UG/L	20.0U	20.0U	20.0U
LEAD	UG/L	1.0U	1.0U	1.0U
ANTIMONY	UG/L	50.0U	50.0U	50.0U
SELENIUM	UG/L	40.0U	40.0U	40.0U
TITANIUM	UG/L	50.0U	50.0U	50.0U
THALLIUM	UG/L	300.0U	300.0U	300.0U
VANADIUM	UG/L	10.0U	10.0U	10.0U
ZINC	UG/L	20.0U	54.0	20.0U
CALCIUM	MG/L	87.0	120.0	2.0U
MAGNESIUM	MG/L	12.0	4.8	2.0U
SODIUM	MG/L	9.3	12.0	2.0U
POTASSIUM	MG/L	2.0U	2.0U	2.0U
		41	42	43

Detects 44

DAVE NICKELSON

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

DATE: 12/2/88

MEMORANDUM

SUBJECT: Data Transmittal for Activity #: T4937,
Site Description: Tri-State Mining

FROM: Harold G. Brown, Ph.D. W. Brown
Acting Chief, Laboratory Branch, ENSV

TO: Robert L. Morby
Chief, Superfund Branch, WSTM

Attached is the data transmittal for the above referenced site. This should be considered a ___ Partial or X Complete data transmittal (completes transmittal of _____). If you have any questions or comments, please contact Dee Simmons at 236-3881.

Attachments

cc: Data Files

EPA Region VII

Data Qualification Codes

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

M - Compound was qualitatively identified; however, quantitative value is less than contract required quantitation limits (CLP data); or value is less than limit of quantitation (EPA data) and is, therefore, an estimated value.

J - The associated numerical value is an estimated quantity.

I - The data are invalid (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.

O - Sample lost or not analyzed.

L - Value known to be higher than value reported.

N - Presumptive evidence of presence of material.

NA - Sample was not analyzed for this compound.

NJ - Presumptive evidence of the presence of the material at an estimated quantity.

UJ - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

Codes for Flash Point Data

L - The sample did not ignite or "flash." This is the highest temperature at which the sample was tested. It is possible that the material may be ignitable at higher temperatures.

K - The sample did ignite or "flash" at the lowest temperature tested. This is usually the ambient temperature at the time of the test. It is possible that the material may be ignitable at even lower temperatures.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 37
Location: GALENA, KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 7 Time: 11:30 Leader: NICKELSON

Sample Number: T4937001 — SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: NA Pan #: NA Aliquots: NA

Samplers: D. Nickelson, J. May, B. MacDonald

COMMENTS OF FIELD PERSONNEL

Site Description:
Arlen EWENS, SAMPLE COLLECTED FROM FAUCET IN BACKYARD. TOTAL & METALS. AND DISSOLVED.

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 37
Location: GALENA, KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 7 Time: 12:15 Leader: NICKELSON

Sample Number: T4937002 — SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: NA Pan #: NA Aliquots: NA

Samplers: D Nickelson, J. May
B. MacDonald

COMMENTS OF FIELD PERSONNEL

Site Description:

Joch Hamilton, Sample collected from faucet near shed s. of trailer. Total & Dissolved metals sample.

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 37
Location: GALENA, KS — Site Code: N/A

Collected: YR: 88 MO: 4 Day: 7 Time: 12:30 Leader: NICKELSON

Sample Number: T4937003 D — SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: NA Pan #: NA Aliquots: NA

Samplers: D. Nickelson, J. May
B. MacDonald

COMMENTS OF FIELD PERSONNEL

Site Description:

Jack Hamilton, sample collected from faucet near shed s. of house. Total & Dissolved metals samples.

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY — Site Number: 37
Location: GALENA, KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 7 Time: 0150 Leader: NICKELSON

Sample Number: T4937004 — SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: NA Pan #: NA Aliquots: NA

Samplers: D. Nickelson, J. May
B. MacDonald

COMMENTS OF FIELD PERSONNEL

Site Description:

Bill Colgroves. Sample collected from tap at rear of house. Total & dissolved metals.

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KS Site Code: N/A

Collected: YR: 88 MO: 11 Day: 7 Time: 1:15 Leader: NICKELSON

Sample Number: T4937005 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, (WATER) OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: _____ Pan #: _____ Aliquots: _____

Samplers: D. Nickelson, J. May
B. Macdonald

COMMENTS OF FIELD PERSONNEL

Site Description:

Wades. Sample collected from faucet outside house
Total & dissolved metals sample collected.

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KS Site Code: N/A

Collected: YR: 88 MO: 4 Day: 7 Time: 1:40 Leader: NICKELSON

Sample Number: T4937006 SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
1 L. POLY	WHITE	HNO3	TOT. METALS
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: — Pan #: — Aliquots: —

Samplers: D Nickelson T. May
B. MacDonald.

COMMENTS OF FIELD PERSONNEL

Site Description:

Bernard Schneider, ~~faucet~~ sample collected from faucet at wellhead. Total and Dissolved collected

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE COUNTY Site Number: 37
Location: GALENA, KS Site Code: N/A

Collected: YR: 88 MO: 11 Day: 7 Time: 1:35 Leader: NICKELSON

Sample Number: T4937007F SMO #: _____

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
~~1 L. POLY~~	~~WHITE~~	~~HNO3~~	~~TOT. METALS~~
1 L. POLY	GRAY	HNO3	DIS. METALS

Depth: NA Pan #: NA Aliquots: NA

Samplers: D. Nickelson, J. May
B. MacDonald

COMMENTS OF FIELD PERSONNEL

Site Description:

~~Bernard Schneider~~ - Decon Rinseate - Dissolved metals only

IBM-PC

ICF Technology Incorporated
NSI Technology Services Corporation

Gateway Center II, Suite 311
Fourth & State Avenue
Kansas City, KS 66101
(913) 281-0307

To: Jerry McKinney
Acting Section Chief, ANLT/LABO/ENSV/EPA VII

Thru: William W. Bunn, Ph.D.
Deputy Project Officer for Region VII ESAT, EPA

From: Janet Muse
Inorganic Analytical Chemist, ESAT

Thru: Tenkasi S. Viswanathan, Ph.D.
Region VII ESAT Manager, NSI-TSC-ES

Date: December 1, 1988

Subject: Case Narrative and Assignment Completion

Report ..... Cherokee County metal analysis
TID #: 07-8809-092
ICF Acct. #: 302-26-092-01
NSI Sales Order : 4632-0921
EPA Activity #: T4937
ESAT Document Control # .. ESAT-VII-092-120188

ESAT was assigned the task of analyzing 6 drinking water samples for dissolved metals and 6 drinking water samples for total metals. Since the analysis required low level detection levels and a 1ppb detection limit for Pb, the samples were concentrated down 5x during the digestion step.

These samples were analyzed by ICP except for Pb which was analyzed by Jerry McKinney, EPA on Furnace AA.

This assignment is now complete and data sheets for the analysis are attached. If you have comments or any questions, please contact Dr. Viswanathan or me.

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: TRI-STATE MINING
LAB: EPA REGION VII
SAMPLE PREP: ___ ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77
REVIEWER: ___
DATA FILE: JM2
UNITS: UG/L
CASE:
DATE: 12/01/88

		T4937001	T4937002	T4937003D	T4937004
SILVER	UG/L	2.0U	2.0U	2.0U	2.0U
ALUMINUM	UG/L	10.0U	10.0U	10.0U	10.0U
ARSENIC	UG/L	10.0U	10.0U	10.0U	10.0U
BARIUM	UG/L	95.0	88.0	80.0	76.0
BERYLLIUM	UG/L	.40U	.40U	.40U	.40U
CADMIUM	UG/L	4.5	8.8	5.6	5.5
COBALT	UG/L	2.0U	2.7	2.6	2.0U
CHROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
COPPER	UG/L	9.2	2.7	2.0U	2.0U
IRON	UG/L	440.0	460.0	420.0	140.0
MANGANESE	UG/L	29.0	44.0	40.0	11.0
MOLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
NICKEL	UG/L	4.3	9.2	8.2	4.0U
LEAD	UG/L	5.0	68.0	67.0	1.7M
ANTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
SELENIUM	UG/L	10.0U	10.0U	10.0U	10.0U
TITANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
THALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
VANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
ZINC	UG/L	560.0	730.0	670.0	6.6
CALCIUM	MG/L	78.0	74.0	68.0	59.0
MAGNESIUM	MG/L	2.6	2.0	1.9	7.6
SODIUM	MG/L	6.9	6.6	6.1	8.2
POTASSIUM	MG/L	.46	.40	.40U	1.3

ANALYSIS TYPE: DISSOLVED METALS-LOW LEVEL

TITLE: TRI-STATE MINING
LAB: EPA REGION VII
SAMPLE PREP: ANALYST/ENTRY: JSM
MATRIX: WATER
METHOD: 2001W77
REVIEWER:
DATA FILE: JM2
UNITS: UG/L
CASE:
DATE: 12/01/88

		T4937005	T4937006
SILVER	UG/L	2.0U	2.0U
ALUMINUM	UG/L	10.0U	16.0
ARSENIC	UG/L	10.0U	10.0U
BARIUM	UG/L	52.0	37.0
BERYLLIUM	UG/L	.40U	.40U
CADMIUM	UG/L	7.5	14.0
COBALT	UG/L	2.0U	2.2
CHROMIUM	UG/L	2.0U	2.0U
COPPER	UG/L	2.1	2.8
IRON	UG/L	10.0U	27.0
MANGANESE	UG/L	.69	15.0
MOLYBDENUM	UG/L	2.0U	2.0U
NICKEL	UG/L	4.0U	62.0
LEAD	UG/L	1.0U	5.0U
ANTIMONY	UG/L	10.0U	10.0U
SELENIUM	UG/L	10.0U	10.0U
TITANIUM	UG/L	10.0U	10.0U
THALLIUM	UG/L	100.0U	100.0U
VANADIUM	UG/L	2.0U	2.0U
ZINC	UG/L	280.0	800.0
CALCIUM	MG/L	76.0	210.0
MAGNESIUM	MG/L	2.7	8.6
SODIUM	MG/L	12.0	190.0
POTASSIUM	MG/L	1.3	27.0

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: TRI-STATE MINING
LAB: EPA REGION VII
SAMPLE PREP: ---
ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: ---
DATA FILE: JM3

UNITS: UG/L
CASE:
DATE: 12/01/88

		T4937001	T4937002	T4937003D	T4937004
ILVER	UG/L	2.0U	2.0U	2.0U	2.0U
LUMINUM	UG/L	10.0U	10.0U	10.0U	10.0U
RSENIC	UG/L	10.0U	10.0U	10.0U	10.0U
ARIUM	UG/L	100.0	97.0	96.0	100.0
ERYLLIUM	UG/L	.40U	.40U	.40U	.40U
CADMIUM	UG/L	5.7	11.0	6.8	8.5
COBALT	UG/L	2.0U	2.8	2.8	2.0U
CHROMIUM	UG/L	2.0U	2.0U	2.0U	2.0U
COPPER	UG/L	9.0	2.3	2.4	2.9
IRON	UG/L	480.0	460.0	460.0	210.0
MANGANESE	UG/L	30.0	49.0	50.0	14.0
MOLYBDENUM	UG/L	2.0U	2.0U	2.0U	2.0U
NICKEL	UG/L	4.0U	8.3	9.8	4.0U
LEAD	UG/L	5.7	64.0	68.0	3.9M
ANTIMONY	UG/L	10.0U	10.0U	10.0U	10.0U
SELENIUM	UG/L	10.0U	10.0U	10.0U	10.0U
TITANIUM	UG/L	10.0U	10.0U	10.0U	10.0U
HALLIUM	UG/L	100.0U	100.0U	100.0U	100.0U
VANADIUM	UG/L	2.0U	2.0U	2.0U	2.0U
ZINC	UG/L	580.0	790.0	780.0	40.0
CALCIUM	MG/L	80.0	78.0	78.0	74.0
MAGNESIUM	MG/L	2.8	2.2	2.2	9.8
SODIUM	MG/L	7.2	7.1	6.9	11.0
POTASSIUM	MG/L	.48	.43	.40	1.6

ANALYSIS TYPE: TOTAL METALS-LOW LEVEL

TITLE: TRI-STATE MINING
LAB: EPA REGION VII
SAMPLE PREF: ---JA- ANALYST/ENTRY: JSM

MATRIX: WATER
METHOD: 2001W77
REVIEWER: ---
DATA FILE: JM3

UNITS: UG/L
CASE:
DATE: 12/01/88

		T4937005	T4937006
SILVER	UG/L	2.0U	2.0U
ALUMINUM	UG/L	10.0U	29.0
ARSENIC	UG/L	10.0U	10.0U
BARIUM	UG/L	69.0	38.0
BERYLLIUM	UG/L	.40U	.40U
CADMIUM	UG/L	11.0	15.0
COBALT	UG/L	2.0U	2.0
CHROMIUM	UG/L	2.0U	2.0U
COPPER	UG/L	4.8	3.3
IRON	UG/L	37.0	28.0
MANGANESE	UG/L	1.3	15.0
MOLYBDENUM	UG/L	2.0U	2.0U
NICKEL	UG/L	4.0U	66.0
LEAD	UG/L	1.8M	5.0U
ANTIMONY	UG/L	10.0U	10.0U
SELENIUM	UG/L	10.0U	10.0U
TITANIUM	UG/L	10.0U	10.0U
THALLIUM	UG/L	100.0U	100.0U
VANADIUM	UG/L	2.0U	2.0U
ZINC	UG/L	380.0	840.0
CALCIUM	MG/L	90.0	200.0
MAGNESIUM	MG/L	3.5	9.0
SODIUM	MG/L	15.0	180.0
POTASSIUM	MG/L	1.8	29.0

Appendix C
LABORATORY DATA
MINE WASTE SAMPLES

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 7
25 FUNSTON ROAD
KANSAS CITY, KANSAS 66115

Alice Fuerst

DATE: 2/1/89

MEMORANDUM

SUBJECT: Data Transmittal for Activity #: T5937
Site Description: Tri State Mining - Cherokee Co.

FROM: Andrea Jirka
Chief, Laboratory Branch, ENSV

TO: Robert L. Morby
Chief, Superfund Branch, WSTM

Attached is the data transmittal for the above referenced site. This should be considered a ___ Partial or X Complete data transmittal (completes transmittal of _____). If you have any questions or comments, please contact Dee Simmons at 236-3881.

Attachments

cc: Data Files

EPA Region VII

Data Qualification Codes

U - The material was analyzed for, but was not detected. The associated numerical value is the sample quantitation limit.

M - Compound was qualitatively identified; however, quantitative value is less than contract required quantitation limits (CLP data); or value is less than limit of quantitation (EPA data) and is, therefore, an estimated value.

J - The associated numerical value is an estimated quantity.

I - The data are invalid (compound may or may not be present). Resampling and/or reanalysis is necessary for verification.

O - Sample lost or not analyzed.

L - Value known to be higher than value reported.

N - Presumptive evidence of presence of material.

NA - Sample was not analyzed for this compound.

NJ - Presumptive evidence of the presence of the material at an estimated quantity.

UJ - The material was analyzed for, but was not detected. The sample quantitation limit is an estimated quantity.

Codes for Flash Point Data

L - The sample did not ignite or "flash." This is the highest temperature at which the sample was tested. It is possible that the material may be ignitable at higher temperatures.

K - The sample did ignite or "flash" at the lowest temperature tested. This is usually the ambient temperature at the time of the test. It is possible that the material may be ignitable at even lower temperatures.

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE — Site Number: 37
Location: GALENA.KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 9 Time: 1100 Leader: NICKELSON

Sample Number: T5937001 — SMO #: —

~~Sample~~ Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER:

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
PLASTIC BAG	WHITE	— NONE —	TOTAL METALS
" "	?	— NONE —	EP TOXICITY
" "	?	— NONE —	ACID (H_2SO_4 pH 4) Extract
" "	?	— NONE —	WATER Extraction

Depth: Surface Pan #: — Aliquots: —

Samplers: D. Nickelson, R. McDonald
J. May

COMMENTS OF FIELD PERSONNEL

Site Description:
Sample collected from mine waste ~~by~~ pile near lined shaft in area west of Union Chapel school. Sample has been prepared for analysis by sub-lab [100% - 200 mesh for Total metals and -3/8" for EP Tox and acid/water extractions]. (09-02-02 - field note:)

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE
Location: GALENA.KS

Site Number: 37
Site Code: N/A

Collected: YR: 88 MO: 11 Day: 9 Time: 1000 Leader: NICKELSON

Sample Number: T5937002 SMO #: —

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
PLASTIC BAG	WHITE	NONE	TOTAL METALS

Depth: ~~[illegible]~~ 6 feet Pan #: — Aliquots: 20 pt. composite

Samplers: DJ Nickelson, J. May
B. McDonald

COMMENTS OF FIELD PERSONNEL

Site Description:
Mine waste (chat) collected at depth from face of chat pile located near Spring River and State line intersection. Sample has been prepared for analysis by SUB-LAB.
09-01-01 (field notation)

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE — Site Number: 37
Location: GALENA.KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 9 Time: 1000 Leader: NICKELSON

Sample Number: T5937003 — SMO #: —

Sample Media (circle one):
(SOIL), DUST, RINSATE, SEDIMENT, WATER, OTHER: _____

Sample Split (circle one): YES (NO)

Sample Container	Tag Color	Preservative	Analysis Requested
PLASTIC BAG	WHITE	-NONE-	TOTAL METALS

Depth: Surface — Pan #: — — Aliquots: 20 pt composite

Samplers: DF Nickelson, J. May, B. McDonald

COMMENTS OF FIELD PERSONNEL

Site Description:
Mine waste (chat) collected from surface of chat pile, located near Spring River and State Line intersection. Sample has been prepared for analysis by SUB-LAB.
09-01-02 (field notation)

IBM-PC

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION VII
ENVIRONMENTAL SERVICES DIV. 25 FUNSTON RD. KANSAS CITY, KS 66115

Site Name: CHEROKEE — Site Number: 37
Location: GALENA.KS — Site Code: N/A

Collected: YR: 88 MO: 11 Day: 9 Time: 1100 Leader: NICKELSON

Sample Number: T5937004 SMO #: —

Sample Media (circle one):
SOIL, DUST, RINSATE, SEDIMENT, WATER, OTHER:_____

Sample Split (circle one): YES NO

Sample Container	Tag Color	Preservative	Analysis Requested
PLASTIC BAG	WHITE	-NONE-	TOTAL METALS

Depth: Surface Pan #: — Aliquots: 20 pt. composite

Samplers: D. Nickelson J. May
B. McDonald

COMMENTS OF FIELD PERSONNEL

Site Description: Mine waste (chat) collected from surface of chat pile remnants located west of Union Chapel School. Sample has been prepared by sub-laboratory.

09-02-01 (field notation)

IBM-PC

ANALYSIS TYPE: METALS, TOTAL

ITLE: TRISTATE MINING CHEROKEE CO
AR: SILVER VALLEY
AMPLE PREF: _____ ANALYST/ENTRY: LMM

MATRIX: SEDIMENT
METHOD: 9001W71
REVIEWER: Zn
DATA FILE : ML1

UNITS: MG/KG
CASE: 43623
DATE: 01/30/87

SAMPLES	T59370001	T59370002	T59370003	T59370004
LUMINUM	900	810	1200	2400
NTIMONY	12 U	12 U	12 U	12 U
RSENIC	4.4	7.9	6.0	2.6
ARIUM	6.2 M	18 M	17 M	14 M
ERYLLIUM	1.0 U	1.0 U	1.0 U	1.0 U
ADMIUM	1.6	38	26	14
ALCIUM	83000	14300	2600	130000
HROMIUM	28	110	200	31
OBALT	3.6 M	2.7 M	1.8 M	4.0 M
OPPER	34	15	13	12
IRON	15600	6400	7100	6900
LEAD	72	95	75	18
MAGNESIUM	32000	260 M	210 M	56000
MANGANESE	680 M	30	27	860
MERCURY	0.10 U	0.32	0.32	0.18
NICKEL	24	13	10	18
POTASSIUM	740 M	320 M	460 M	1600
SELENIUM	0.61 M	1.2	1.1	0.42 M
SILVER	2.0 U	0.78 M	0.88 M	2.0 U
SODIUM	120 M	55 M	120 M	210 M
THALLIUM	2.0 U	2.0 U	2.0 U	2.0 U
VANADIUM	5.6 M	7.2 M	7.0 M	9.0 M
ZINC	240	8500	7900	1700
CYANIDE	N/A NA	N/A NA	N/A NA	N/A NA

ANALYSIS TYPE: METALS, ACID SHAKE EXTRACTION

TITLE: TRISTATE MINING CHEROKEE CO
LAB: SILVER VALLEY
SAMPLE PREP: _____ ANALYST/ENTRY: LMM

MATRIX: WATER
METHOD: 1921800
REVIEWER: SM
DATA FILE : ML3

UNITS: UG/L
CASE: 43626
DATE: 01/30/88

SAMPLES	T5937001
ALUMINUM	540
ANTIMONY	60 U
ARSENIC	2.0 M
BARIUM	300
BERYLLIUM	1.0 M
CADMIUM	2.7 M
CALCIUM	12000
CHROMIUM	2.4 M
COBALT	50 U
COPPER	12 M
IRON	140
LEAD	5.3
MAGNESIUM	2700 M
MANGANESE	1.9 M
MERCURY	0.20 U
NICKEL	40 U
POTASSIUM	1000 M
SELENIUM	2.1
SILVER	10 U
SODIUM	1700 M
THALLIUM	10 U
VANADIUM	2.8 M
ZINC	15 M
CYANIDE	N A NA

ANALYSIS TYPE: METALS, WATER SHAKE EXTRACTION

TITLE: TRISTATE MINING CHEROKEE CO
LAB: SILVER VALLEY
SAMPLE PREP: _____

ANALYST/ENTRY: LMM

MATRIX: WATER
METHOD: 19215000
REVIEWER: JM
DATA FILE : ML2

UNITS: UG/L
CASE: 47626
DATE: 01/20/89

SAMPLES	T5937001
	1300
ALUMINUM	60 U
ANTIMONY	2.0
ARSENIC	290
BARIUM	1.0 M
BERYLLIUM	5.0 U
CADMIUM	10000
CALCIUM	10 U
CHROMIUM	50 U
COBALT	12 M
COPPER	300
IRON	15
LEAD	2600 M
MAGNESIUM	15 U
MANGANESE	0.20 U
MERCURY	40 U
NICKEL	1100 M
POTASSIUM	5.0 U
SELENIUM	10 U
SILVER	1700 M
SODIUM	10 U
THALLIUM	4.4 M
VANADIUM	21
ZINC	
CYANIDE	N A NA

ANALYSIS TYPE: METALS, EP TOXICITY

TITLE: TRISTATE MINING CHEROKEE CO
LAB: SILVER VALLEY
SAMPLE PREP: _____

MATRIX: WATER
METHOD: 1901H00
ANALYST/ENTRY: LMM REVIEWER: BM
DATA FILE : ML4

UNITS: UG/L
CASE: 4[illegible]
DATE: 01/[illegible]/[illegible]

SAMPLES	T5937001	
ALUMINUM	N/A	NA
ANTIMONY	N/A	NA
ARSENIC	10	U
BARIUM	150	M
BERYLLIUM	N/A	NA
CADMIUM	.13	
CALCIUM	N/A	NA
CHROMIUM	3.9	M
COBALT	N/A	NA
COPPER	N/A	NA
IRON	N/A	NA
LEAD	.790	
MAGNESIUM	N/A	NA
MANGANESE	N/A	NA
MERCURY	0.20	U
NICKEL	N/A	NA
POTASSIUM	N/A	NA
SELENIUM	5.0	U
SILVER	10	U
SODIUM	N/A	NA
THALLIUM	N/A	NA
VANADIUM	N/A	NA
ZINC	N/A	NA
CYANIDE	N/A	NA

METALLURGICAL RESULTS

TEST NO.: Assay Screen Analysis SURFACE PROJECT NO.: 6905-03

ORE: Chat Sample 909-01-01, HRI No. 40849-13

CONDITIONS: Dry screened the as-received sample on 80-mesh, then wet screened on 80 and 400 mesh, and collected all water used.

	PRODUCT	WEIGHT g	WEIGHT %	ASSAYS, ppm Pb	ASSAYS, ppm Zn	—	—	—
1.	+ 80 mesh	295.52	89.96	40	6,200			
2.	-80 + 400 mesh	17.08	5.20	195	42,800			
3.	-400 mesh	15.89	4.84	900	38,000			
4.	Water	1.050 L	-	0.1	2.30 ppm			
HEAD, CALC'D		328.49	100.00	90	9,641			
HEAD, DIRECT (Skyline)				100	9,050			

CALCULATED PRODUCTS

	Plus 400 mesh	1 and 2	95.16	48	8,200			
	Minus 80 mesh	2 and 3	10.04	535	40,487			

	PRODUCT	DISTRIBUTION, % Pb	DISTRIBUTION, % Zn	—	—	—
1.	+ 80 mesh	40.1	57.9			
2.	-80 + 400 mesh	11.3	23.1			
3.	-400 mesh	48.6	19.1			
4.	Water	0.0	0.0			
		100.0	100.0			

CALCULATED PRODUCTS

	Plus 400 mesh	51.4	80.9					
	Minus 80 mesh	59.9	42.1					

METALLURGICAL RESULTS

TEST NO.: Assay Screen Analysis ? PROJECT NO.: 6905-03

ORE: Chat Sample 809-01-02, HRI No. 40849-14

CONDITIONS: Dry screened the as-received sample on 80-mesh, then wet screened on 80 and 400 mesh, and collected all water used.

	PRODUCT	WEIGHT g	WEIGHT %	ASSAYS, ppm Pb	ASSAYS, ppm Zn			
1.	+ 80 mesh	305.48	89.90	40	5,400			
2.	-80 + 400 mesh	24.71	7.27	160	22,800			
3.	-400 mesh	9.60	2.83	470	24,800			
4.	Water	1.200 L	-	0.1	1.14 ppm			
HEAD, CALC'D		339.79	100.00	61	7,213			
HEAD, DIRECT (Skyline)				60	8,250			

CALCULATED PRODUCTS

Plus 400 mesh	1 and 2	97.17	49	6,702
Minus 80 mesh	2 and 3	10.10	247	23,360

	PRODUCT	DISTRIBUTION, % Pb	DISTRIBUTION, % Zn			
1.	+ 80 mesh	59.1	67.3			
2.	-80 + 400 mesh	19.1	23.0			
3.	-400 mesh	21.8	9.7			
4.	Water	0.0	0.0			
		100.0	100.0			

CALCULATED PRODUCTS

Plus 400 mesh	78.2	90.3
Minus 80 mesh	40.9	32.7

HAZEN RESEARCH, INC.
PRELIMINARY DATA

METALLURGICAL RESULTS

TEST NO.: Assay Screen Analysis PROJECT NO.: 6905-03

ORE: Chat Sample 809-02-01, HRI No. 40649-15

CONDITIONS: Dry screened the as-received sample on 80-mesh, then wet screened on 80 and 400 mesh, and collected all water used.

	PRODUCT	WEIGHT g	WEIGHT %	ASSAYS, ppm Pb	ASSAYS, ppm Zn	—	—	—
1.	+ 80 mesh	205.46	75.51	20	2,200			
2.	-80 + 400 mesh	34.13	12.54	40	1,980			
3.	-400 mesh	32.52	11.95	60	1,920			
4.	Water	1.300 L	-	0.1	0.22 ppm			
HEAD, CALC'D		272.11	100.00	27	2,139			
HEAD, DIRECT (Skyline)				40	1,950			

CALCULATED PRODUCTS

	Plus 400 mesh	1 and 2	88.05	23	2,169			
	Minus 80 mesh	2 and 3	24.49	50	1,951			

	PRODUCT	DISTRIBUTION, % Pb	DISTRIBUTION, % Zn	—	—	—
1.	+ 80 mesh	55.3	77.7			
2.	-80 + 400 mesh	18.4	11.6			
3.	-400 mesh	26.3	10.7			
4.	Water	0.0	0.0			
		100.0	100.0			

CALCULATED PRODUCTS

	Plus 400 mesh	73.7	89.3
	Minus 80 mesh	44.7	22.3

HAZEN RESEARCH, INC.
PRELIMINARY DATA