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REMOVAL ACTION SUMMARY REPORT
NATIONAL ZINC SITE – CHERRYVALE, KANSAS

Superfund Technical Assessment and Response Team (START) 2 Contract

Contract No. 68-S7-01-41, Task Order No. 0063

Prepared For:

U.S. Environmental Protection Agency
Region 7
901 North 5th Street
Kansas City, Kansas 66101

December 17, 2002

Prepared By:

Tetra Tech EM Inc.
8030 Flint Street
Lenexa, Kansas 66214
(913) 894-2600

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1.0 INTRODUCTION

The Tetra Tech EM Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START) was tasked by the U.S. Environmental Protection Agency (EPA) Region 7 Superfund Division to provide technical support during a removal action at the National Zinc site in Cherryvale, Kansas. The removal action was required to address lead-contaminated soils that resulted from former zinc and lead smelting activities that had been conducted nearby. Removal support activities conducted by Tetra Tech START included, but were not limited to, the following:

- Obtaining access to properties for field screening, sampling, and cleanup activities
- Determining lead concentrations in soils to identify where excavation was required
- Documenting all site activities

Ingrid Davis was the Tetra Tech START Project Manager for the removal activities. The EPA On-Scene Coordinator for the project was Don Lininger.

1.1 SITE DESCRIPTION

The National Zinc site is located along U.S. Highway 169 at the northwestern edge of Cherryvale, Montgomery County, Kansas, near the location of the former National Zinc smelter (see Appendix A, Figure 1) (USGS 1979). The former smelter property is approximately 360 acres in size and is located in a mixed residential and light industrial area. In the western portion of the former smelter area, large settling ponds (i.e., lagoons) encompassing approximately 23 acres contained liquid and sludge wastes originating as runoff from an estimated 2,000 tons of stockpiled slag and roasted ore. Consequently, these wastes were contaminated with heavy metals. Currently, the lagoon area is located in the 100-year flood plain of the adjacent Drum Creek and is encapsulated with soil and covered with grass. An unnamed intermittent creek at the western edge of the lagoon area forms the west boundary of the property (see Appendix A, Figure 1). Impacted residential properties immediately to the south (i.e., properties with elevated concentrations of lead in surface soils) are located within a 7-block area bounded by Martin Street to the north, North Catherine Street to the west, an alley south of 1st Street to the south, and North Liberty Street to the east (see Appendix A, Figures 1 and 2). A 35-acre field known as the Rodeo Grounds is located just west of the residential properties. Elevated concentrations of lead in surface soils

were also found on the Rodeo Grounds property, also assumed to be the result of the nearby smelting activities (see Appendix A, Figure 1). For this project, cleanup activities focused on the aforementioned residential area and adjacent Rodeo Grounds property.

2.0 BACKGROUND

The Edgar Zinc Company began construction of a primary zinc and lead smelter at the site in 1898. Initially, the facility had 1,800 retorts and three furnace buildings. In 1908, the facility had been modified to include 4,800 retorts and 24 furnaces. By 1928, the facility also had four ore roasters in operation. Approximately one half of the zinc production was for galvanizing purposes. The facility was recognized as the Edgar Zinc Company until sometime after 1928, when the facility was reorganized as the National Zinc Company. Production operations declined through the 1930s; however, the National Zinc smelter facility continued to operate in some capacity until December 24, 1976.

Several investigations have been conducted at the site, including a Brownfields Targeted Assessment (BTA) by the Kansas Department of Health and Environment (KDHE) in 1999, a Cherryvale Residential Yards Removal Site Evaluation (RSE) by KDHE in 2001 (KDHE 2001a), an Expanded Site Inspection (ESI) by KDHE in 2001 (KDHE 2001b), a National Zinc Lagoon Closure Document/Report by Wichita Testing Laboratories in 1978, and a BTA specifically for the Cherryvale Rodeo Grounds Property by KDHE in 2001.

Based on previous documents pertaining to the site, several incidents of potential surface water contamination were noted by local residents and farmers in the past. The farmers had reported a declining "appearance" of Drum Creek and were concerned over the possibility of a fish kill and of potential health affects on their cattle that drank from the stream. In response to these concerns, KDHE collected surface water and collocated sediment samples from Drum Creek, which were found to contain significant concentrations of lead, cadmium, mercury, and zinc. In addition, cadmium, chromium, and lead were detected in groundwater samples collected from the site vicinity in 1982 and 1984, all of which exceeded their respective maximum contaminant levels (MCL).

According to the Cherryvale Residential Yards RSE, surface soils in 11 residential yards near the former smelter contained lead concentrations that exceeded the Risk-Based Standard for Kansas (RSK) of

400 milligrams per kilogram (mg/kg). The addresses of those 11 residences, which were targeted for soil excavation during the follow-up removal action described in this report, are as follows: 511 and 619 Martin; and 509, 513, 520, 524, 610, 617, 618, 620, and 621 Front Street. The highest concentration of lead was found at 618 Front Street, where 3,680 mg/kg was detected. In addition, cadmium was detected above the residential RSK of 39 mg/kg at 618 Front Street (41 mg/kg), 619 Martin Street (180 mg/kg), 618 Front Street (121 mg/kg), and in an alley south of Martin Street (40.8 mg/kg). Levels of arsenic were also identified above the residential RSK in some of those samples, which generally coincided with lead concentrations above 1,000 mg/kg.

3.0 SITE ACTIVITIES

Removal activities began November 5, 2001, and continued through the second week of May 2002. The removal contractor was International Technology Corporation (IT), under the EPA Region 7 Emergency Response and Removal Services (ERRS) contract. The Response Managers for IT were Bill Cathey and Dale Kriete. The IT work crew averaged nine employees during the removal process. The Tetra Tech START crew typically consisted of one person. Throughout the removal action, Tetra Tech START Project Manager Ingrid Davis assisted with gaining access to the Cherryvale residential properties, performed field screening for lead using a Niton[®] X-ray fluorescence (XRF) spectrometer, documented pre-removal site conditions, performed soil sampling for laboratory confirmation analysis, and managed/evaluated the resulting analytical data. Tetra Tech START ensured that all activities were conducted in accordance with the site-specific Quality Assurance Project Plan (see Appendix B) and also maintained a photographic record of the removal activities (see Appendix C).

Prior to performing the field screening on each residential property and the Rodeo Grounds, written access was obtained from individual property owners and the City of Cherryvale. The access agreements were obtained through numerous telephone calls, mailings, and personal meetings. After access was granted for each property, a sketch of the property was drawn, the lot was screened for lead contamination with the XRF, and the corresponding XRF readings were recorded on the sketch (see Appendix D) and in a site logbook. In addition, Tetra Tech START documented any concerns or special issues expressed by the property owner(s) before excavation began (see Appendix D).

Residential Properties:

At most residential properties, four quadrants were established around the home (if present) that radiated out 50 feet from each side of the residence. For small lots, this was sometimes not feasible, and fewer areas were defined. For larger lots, areas beyond 50 feet from the residence were designated separately, as necessary. In each area or quadrant, a nine-aliquot sample was collected in a disposable aluminum pan. The material was homogenized with a disposable stainless steel spoon, and the sample was screened with a Niton® XRF by taking three readings of the soil in the pan. If the average of these three readings was less than 400 mg/kg, no removal action was taken in that area/quadrant.

Tetra Tech START flagged the contaminated quadrants/areas that needed excavation (i.e., above 400 mg/kg of lead), based on the Niton® XRF readings. The ERRS contractor initially excavated approximately 12 inches of soil from those areas, then additional XRF readings were taken to determine if lead levels were still greater than the action level of 400 mg/kg. If at 12 inches, lead levels were still greater than 400 mg/kg, an orange plastic barrier guard was laid at the interface between the underlying contaminated soil and clean backfill material. The table in Appendix E indicates the beginning and final lead levels at the residential properties, whether excavation was needed, and whether a barrier guard was required. During the removal action, 35 residential properties were excavated.

Rodeo Grounds:

At the Rodeo Grounds property, a grid consisting of 158 cells (most being 100 feet by 100 feet in size) was established over the entire area. Composite samples consisting of 9 to 12 aliquots (depending on the presence of obstructions, underground utilities, etc.) were collected from each cell and screened with the XRF as previously described for the residential area. Cells where XRF readings exceeded 400 mg/kg for lead were excavated to a minimum depth of 12 inches. Because no post-excavation XRF readings exceeded 400 mg/kg in those cells, no barrier guard or backfill materials were used at the Rodeo Grounds property, with the exception of isolated areas where cisterns, trenches, and a large abandoned cast iron pipe were located, which required additional excavation to several feet below ground surface. These areas were backfilled with clean soil from the borrow pit area (see Appendix A, Figure 1). The table in Appendix F indicates the beginning and final lead levels for the cells on the Rodeo Grounds property and where excavation was conducted. During the removal action, 135 of the 158 cells were excavated.

Laboratory Confirmation Sampling:

Soil samples for laboratory confirmation analysis were collected from approximately 10 percent of the locations where XRF readings were taken (27 samples from the residential area and 32 samples from the Rodeo Grounds property). Those samples were sent to Stat Analysis Corporation in Chicago, Illinois, for analysis of lead. In addition, 28 of those 59 samples were also analyzed for arsenic, cadmium, and zinc, and nine of those 28 samples were also analyzed for mercury. Field sheets for those samples are included with Appendix D, and the laboratory data are attached as Appendix G. A correlation coefficient (r) of 0.93 was calculated for a comparison between laboratory data and XRF results for samples collected from the residential properties, and an r value of 0.97 was calculated for a comparison between the laboratory and XRF data for samples collected from the Rodeo Grounds property (see Appendix H). These r values were within EPA's top range of comparability criteria for characterizing data quality (EPA 1993), qualifying the XRF results as "definitive level" data.

In addition to the samples collected from the residential area and Rodeo Grounds property for laboratory analysis, four soil samples were collected from outside the site perimeter (one from each side) to represent background concentrations of arsenic, cadmium, lead, and zinc. Also, four samples were collected of potential backfill soils to assess the levels of arsenic, cadmium, lead, mercury, and zinc in those materials. Laboratory data for those background and backfill samples are included with Appendix G. Maximum concentrations of those analytes in the background and backfill samples are summarized in the following table.

TABLE 1

LS IN BACKGROUND AND BACKFILL SOIL SAMPLES
 NATIONAL ZINC SITE
 CHERRYVALE, KANSAS

Sample Type	Maximum Concentration (mg/kg)				
	Arsenic	Cadmium	Lead	Zinc	Mercury
Background	13	1.3	54	380	NA
Backfill	4.1	ND	22	90	ND

Notes:

mg/kg Milligrams per kilogram

NA Not analyzed

ND Not detected

Miscellaneous Activities:

In addition to addressing lead-contaminated soils in the residential yards and the Rodeo Grounds property as previously described, other activities that were completed as part of this removal action included the following:

- XRF screening and excavation were conducted where a trailer had burned during the course of the removal action. The trailer was located at 524 Front Street (see Appendix A, Figure 2). XRF readings were above 400 mg/kg prior to excavation in this area.
- Gravel roads and drainage ditches were screened with the Niton® XRF (in residential areas and on the Rodeo Grounds property). All gravel roads were below the action level of 400 mg/kg. Soil excavation was conducted along a drainage ditch located west of Coyle Street, just south of Martin Street, where the action level was exceeded. Excavation was conducted to a depth of approximately 3 to 6 inches in this area.
- Periodic air monitoring with a Mini-RAM aerosol monitor was conducted by Tetra Tech START during excavation activities to assess airborne particulate concentrations near the removal activities. Time-weighted average concentrations collected over 8-hour air monitoring sessions ranged from 0.07 milligrams per cubic meter (mg/m³) to 0.14 mg/m³, all well below the site-specific action level of 3.4 mg/m³ (calculated based on the maximum concentration of lead in the site soils and the Threshold Limit Value [TLV] of 0.05 mg/m³ for lead).

Restoration and Disposal Activities:

After each residential lot was excavated, options of backfill material (soil or rock) were presented to the property owner(s). After the residential lots were backfilled and groomed, those areas were hydroseeded. The hydroseeding mixture contained grass seed, fertilizer, a glue-like substance, and shredded wood fibers to hold the seed in place. Toward the end of the removal action, there was some delay in backfilling the excavated lots due to bad weather, and, for a short period, topsoil could not be obtained due to the wet conditions. Restoration of all lots was completed the second week in March 2002. It should be noted that no backfill materials were used at the Rodeo Grounds property, other than at the aforementioned cisterns and trenches located on the northern portion of the property.

The contaminated soil removed from the yards of the Cherryvale residences and the Rodeo Grounds was transported to the southeast portion of the former National Zinc smelter property, where it was consolidated into a repository and capped with clean soil (see Appendix A, Figure 4). Remnants of old buildings used by the former smelter in the lead extraction process were demolished and consolidated with the excavated soil in the repository, along with old steel pipes and other debris that were also located in the repository area. Some of the debris was used to line drainage ditches near the repository to prevent erosion during soil consolidation activities; the debris was subsequently re-excavated and placed in the repository.

A summary of the quantity of soils excavated during this removal action and the capping materials used in the repository area is included in the following table.

TABLE 2
SUMMARY OF EXCAVATED SOIL AND REPOSITORY CAPPING MATERIALS
NATIONAL ZINC SITE
CHERRYVALE, KANSAS

DESCRIPTION	VOLUME (cubic yards)
Contaminated soil excavated from residential properties (transported to the repository)	20,000
Contaminated soil excavated from Rodeo Grounds (transported to the repository)	56,000
Clean soil used to cover excavated contaminated soils in the repository	13,000

4.0 SUMMARY

Tetra Tech START was tasked to assist EPA Region 7 with removal-related activities at the National Zinc site in Cherryvale, Kansas. Removal activities began November 5, 2001, and continued through the second week of May 2002. The removal consisted of six general phases, with most phases running concurrently. Phase 1 consisted of gaining access to the lots around the former National Zinc smelter property. Phase 2 consisted of assessing the lead levels on each lot to determine where excavation was required. Phase 3 consisted of the excavation of lead-contaminated soil and disposal of the soil at a repository located on the former National Zinc smelter property. During this phase, soil was excavated from 35 residential properties and an adjacent 35-acre lot known as the Rodeo Grounds. Phase 4 consisted of grooming the repository area in order to provide better drainage and reduce erosion. Phase 5 consisted of documenting removal activities, including photographs and video. Phase 6 consisted of restoration (i.e., backfilling and reseeding) of the excavated areas.

It should be noted that follow-up restoration activities at the site are scheduled to be completed in the spring of 2003. Those activities will include reseeding the Rodeo Grounds property and repairing asphalt surfaces in the residential area that were damaged during the removal activities. Completion of these activities was delayed due to expiration of the ERRS contract in November 2002.

4.1 PRE-REMEDIAL CONSIDERATIONS

KDHE is currently negotiating with potentially responsible parties to address lead contamination at the former National Zinc smelter property. In addition, a Hazard Ranking System (HRS) scoring package is being prepared by Tetra Tech START to evaluate pre-remedial issues.

4.2 REMOVAL CONSIDERATIONS

No further removal activities appear to be warranted in the residential areas; however, follow-up removal action may be necessary to address lead-contaminated soils on the former National Zinc smelter property.

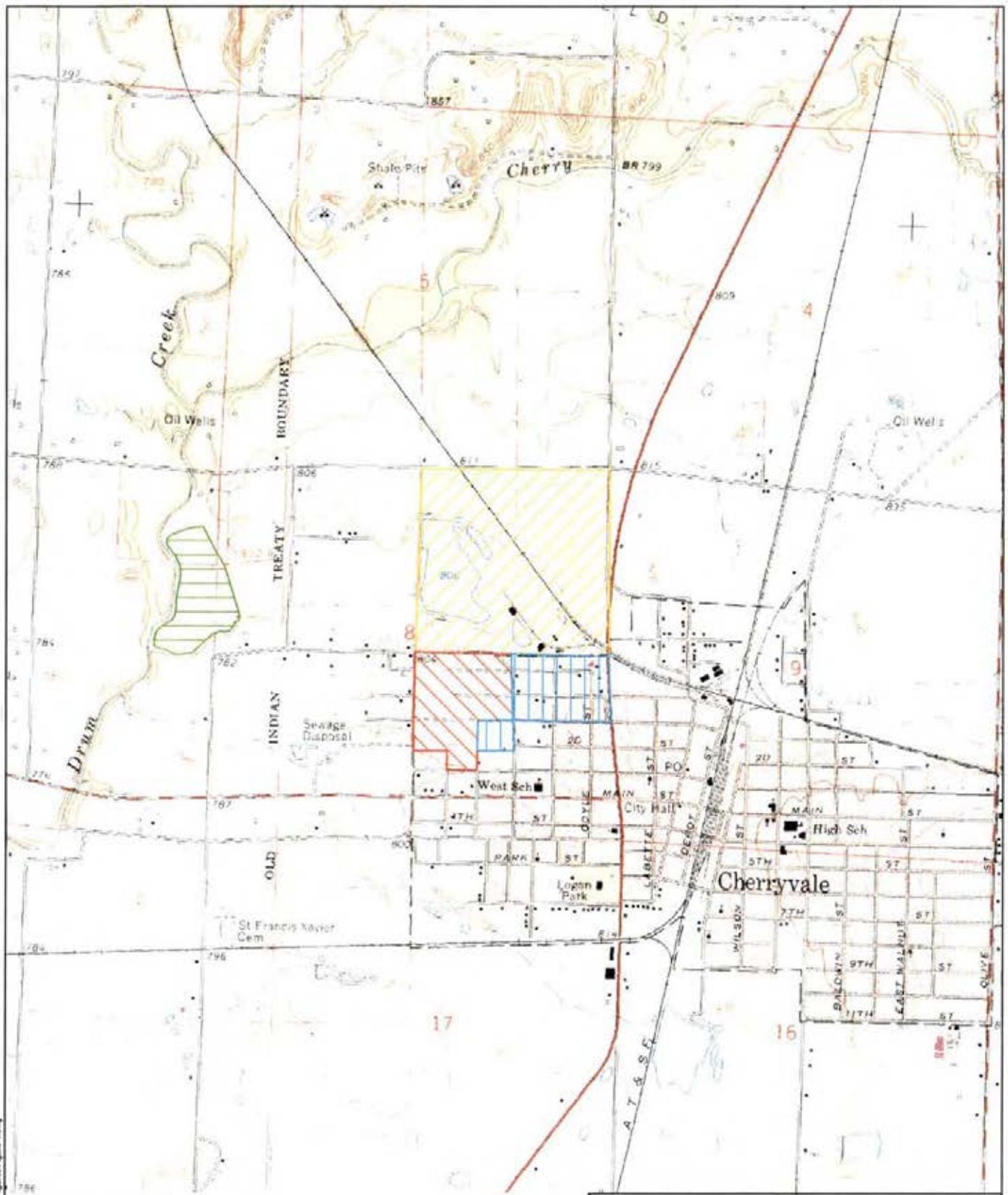
5.0 REFERENCES

- Kansas Department of Health & Environment (KDHE). 2001a. "Removal Site Evaluation (RSE) for the Cherryvale Residential Yards Site." Randolph L. Brown, Peter Haxton, & Travis Kogel. March.
- KDHE. 2001b. "Expanded Site Inspection (ESI) Report for the Former National Zinc Site." Bureau of Environmental Remediation.
- U.S. Environmental Protection Agency (EPA). 1993. "Data Quality Objectives Process for Superfund-Interim Final Guidance." Office of Solid Waste and Emergency Response. Washington D.C. EPA/540/R-93/071.
- U.S. Geological Survey (USGS). 1979. 7.5-minute Topographic Map, Cherryvale Quadrangle, Kansas.

APPENDIX A

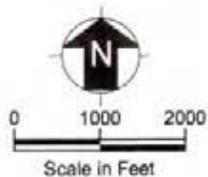
FIGURES

(Four Pages)



Legend

-  Former National Zinc Smelter site
-  Cherryvale residential site
-  Rodeo grounds site
-  Borrow pit area

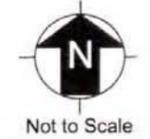


National Zinc Site
Cherryvale, Kansas

Figure 1
Site Location Map



Tetra Tech EM Inc.



- Legend
- Property Boundary (Not Excavated)
 - Property Boundary (Excavated)
 - 606 Property Address
- Note: Property boundaries are approximate

National Zinc Site Cherryvale, Kansas
Figure 2 Cherryvale Residential Property Map
Tetra Tech EM Inc.
Date: 11/27/02 Drawn By: Cain Wilts Project No: G9011.L.02.0063.00

V:\START 2 (G9011)\National Zinc Site\Figures\Figure 2.dwg

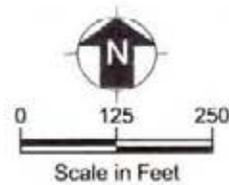
SOURCE: Cherryvale, KS Aerial Photo, 2002



Legend

- Sample/remediation cell
- Excavated sample/remediation cell
- Cistern
- Fence
- Manhole
- Utility pole

Note: Remediation cells are 100' x 100' squares.



National Zinc Site
Cherryvale, Kansas

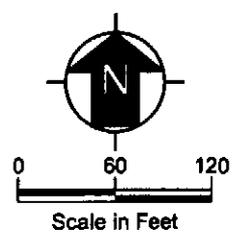
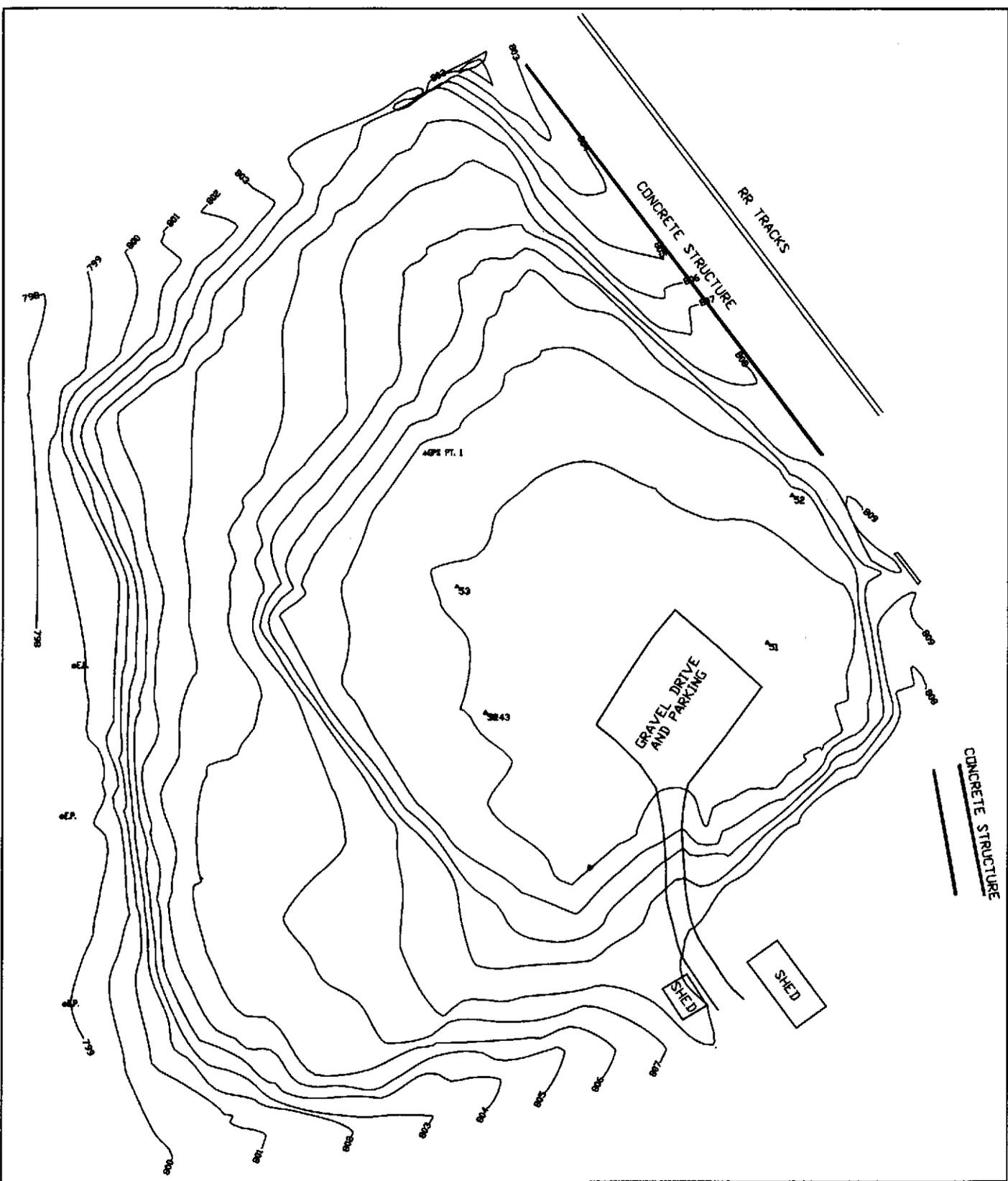
Figure 3
Rodeo Grounds Map



Tetra Tech EM Inc.

V:\START 2 (G9011)\Tms... National Zinc Site\Figures\Figure 1.dwg

Source: Reproduced from U.S. Environmental Protection Agency, 2002



National Zinc Site Cherryvale, Kansas	
Figure 4 Repository Map	
	Tetra Tech EM Inc.
Date: 01/10/03	Project No: G9011.L.02.0083.00

National Zinc Site
Cherryvale, Kansas

Figure 4
Repository Map



Tetra Tech EM Inc.

Date: 01/10/03

Drawn By: Roger Stull

Project No: G9011.L.02.0083.00

APPENDIX B
QUALITY ASSURANCE PROJECT PLAN
(21 Pages)

QUALITY ASSURANCE PROJECT PLAN FOR REMOVAL ACTION SUPPORT

NATIONAL ZINC SITE - CHERRYVALE, KANSAS

CERCLIS ID NO.: KSD980406698

**Superfund Technical Assessment and Response Team (START) Contract
Contract No. 68-S7-01-41, Task Order 0063**

Prepared For:

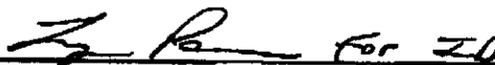
U.S. Environmental Protection Agency
Region 7
901 North 5th Street
Kansas City, Kansas 66101

October 4, 2001

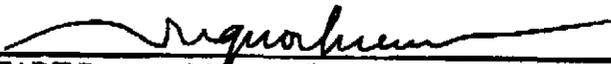
Prepared By:

Tetra Tech EM, Inc.
8030 Flint Street
Lenexa, Kansas 66214
(913) 894-2600

APPROVED BY:


START Project Manager, Ingrid Davis

10/4/01
Date


START Program Manager, Hieu Q. Vu, PE, CHMM

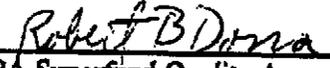
10/4/01
Date


START Quality Assurance Manager, Ted Faile, PG, CHMM

10/4/01
Date


EPA Project Manager, Superfund Division, Don Lininger

10/9/01
Date


EPA Superfund Quality Assurance Coordinator, Bob Dona

10/16/01
Date

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- A FIGURE 1: SITE LOCATION MAP
- B FIGURE 2: AERIAL SITE MAP
- C FIGURE 3: RESIDENTIAL REMOVAL MAP

1.0 PROJECT MANAGEMENT

1.1 DISTRIBUTION LIST

Region 7 EPA	Don Lininger, Project Manager Bob Dona, Superfund Quality Assurance Coordinator
Region 7 START	Ingrid Davis, Project Manager Hieu Q. Vu, Program Manager Ted Faile, Quality Assurance Manager

1.2 PROJECT/TASK ORGANIZATION/SCOPE OF WORK

Ingrid Davis, of the Tetra Tech EM, Inc. (Tetra Tech) Superfund Technical Assessment and Response Team (START), under contract to the U.S. Environmental Protection Agency (EPA) will serve as the START Project Manager for EPA-funded removal activities described in this Quality Assurance Project Plan (QAPP) to be conducted at the National Zinc site in Cherryvale, Kansas. She will be responsible for overall coordination of site activities, ensuring implementation of the QAPP, and providing periodic updates to the client concerning the status of the project, as needed. Don Lininger will be the EPA Project Manager for this activity.

One Tetra Tech START member will comprise the field/sampling team. The team will be responsible for assisting EPA with obtaining access for sampling properties, acquisition and calibration of sampling equipment, sample collection, field screening, documentation of residential property conditions and field activities, and coordination of laboratory analyses. The Tetra Tech START Quality Assurance (QA) Manager will provide technical assistance, as needed, to ensure that necessary QA issues are adequately addressed.

Although an attempt will be made to adhere to this QAPP as much as possible, the proposed activities may be altered in the field if warranted by site-specific conditions and/or unforeseen hindrances that prevent any aspect of this QAPP from being implemented in a feasible manner. Such deviations will be recorded in the site logbook as necessary. This QAPP will be available to the field team(s) at all times during sampling activities to serve as a key reference for the proposed activities described herein.

1.3 PROBLEM DEFINITION/BACKGROUND/SITE DESCRIPTION

This QAPP was prepared by the Tetra Tech START to address imminent concerns that could impact human health and/or the environment at the National Zinc site (site), where metals-contaminated soils (predominantly lead, cadmium, arsenic, and mercury) have been identified during previous sampling activities.

The National Zinc site is located along U.S. Highway 169 at the northwestern city limits of Cherryvale, Montgomery County, Kansas (see Attachment A - Figure 1: Site Location Map). The site property is approximately 360 acres in size and is located in a mixed residential and light industrial area. The former National Zinc smelter was located at the northern edge of Cherryvale, Kansas. In the western portion of the former smelter area, large settling ponds encompassing approximately 23 acres contain liquid and sludge wastes contaminated with heavy metals. Runoff from an estimated 2,000 tons of slag and roasted ore were contained in the lagoons. An unnamed intermittent creek at the western edge of the site forms a boundary of the lagoon area (see Attachment B - Figure 2: Aerial Site Map). Currently, the lagoon area is encapsulated and is located in the 100-year flood plain of Drum Creek. The site has several abandoned buildings and building foundations, along with the remains of the smelter operations. The National Zinc smelter facility and the adjacent impacted residential areas are located in Section 8, T. 32 S., R.17 E. The geographic coordinates of the site are 39° 42' 30" north latitude and 96° 25' 00" west longitude.

The Edgar Zinc Company began construction of a primary zinc and lead smelter at the site in 1898. Initially, the facility had 1,800 retorts and three furnace buildings. In 1908, the facility had 4,800 retorts and 24 furnaces. By 1928 the facility also had four ore roasters and 24 furnaces in operation. Approximately one half of the demand for primary zinc production was for galvanizing purposes. In 1910, the U.S. Steel Corporation may have had some ownership interest in the Edgar Zinc Company. The facility was recognized as the Edgar Zinc Company until sometime after 1928, when the facility was reorganized as the National Zinc Company. Production operations declined through the 1930s, when most active operations ceased. The National Zinc smelter facility permanently ceased operations on December 24, 1976.

Several investigations have been conducted at the site, including a Brownfields Targeted Assessment (BTA) by the Kansas Department of Health and Environment (KDHE) in 1999, a Cherryvale Residential

Yards Removal Site Evaluation (RSE) by KDHE in 2001, an Expanded Site Inspection (ESI) by KDHE in 2001, and a National Zinc Lagoon Closure Document/Report by Wichita Testing Laboratories in 1978.

Based on previous investigations, several incidents of surface water contamination near the site have been reported to KDHE by local residents and farmers. Farmers were concerned over the possibility of cattle illness from surface water consumption and potential fish kills in Drum Creek. KDHE has identified significant concentrations of lead, cadmium, mercury, and zinc through analytical results of surface water and collocated sediment samples collected from Drum Creek. In addition, cadmium, chromium, and lead were detected in groundwater samples collected from the site between 1982 and 1984, all of which exceeded their respective maximum contaminant levels (MCLs).

According to the Cherryvale Residential Yards RSE, all 11 residential yards to be addressed during this removal action exceeded the KDHE Risk-Based Level for Kansas (RSK) of 400 milligrams per kilogram (mg/kg) for lead. The addresses of the impacted residences are as follows: 511 and 619 Martin; and 509, 513, 520, 524, 610, 617, 618, 620, and 621 Front Street. The highest concentration of lead was found at 618 Front Street, where 3,680 mg/kg was detected in a soil sample. Cadmium was detected above the residential RSK of 39 mg/kg at 618 Front Street (41 mg/kg), 619 Martin Street (180 mg/kg), 618 Front Street (121 mg/kg), and in the alley south of Martin Street at Martin Street (40.8 mg/kg). Levels of arsenic were also identified above the residential RSK, although those elevated concentrations were generally coincident with lead levels above 1,000 mg/kg. Mercury was not detected at or above the residential RSK level of 2 mg/kg.

In addition to these investigations, KDHE is planning an additional RSE in the area south of the residential area evaluated in the Cherryvale Residential Yards RSE. The proposed Cherryvale Residential Yards Phase II RSE will further delineate the extent of contamination in residential yards for future removal response considerations.

This QAPP specifically addresses the aforementioned 11 residences located at the southern edge of the site, located within a 2 ½-block area bounded by Martin Street to the north, North Catherine Street to the east, West 1st Street to the south, and North Coyle Street to the west.

1.4 PROJECT/TASK DESCRIPTION

The activities described in this QAPP will address the following:

1. The extent of lead-contaminated soil in residential yards, play areas, gardens, sand piles, driveways, and all other high-use areas affected by the National Zinc site in a 2½-block radius within North Coyle, North Catherine, Martin, and West 1st Streets.
2. The determination of post-excavation concentrations of metals in site soils to determine whether removal goals have been achieved.
3. An evaluation of potential releases of airborne contaminants due to excavation activities, trucking/transportation, and stockpiling of contaminated soils during removal activities.

Relevant aspects of the project are described in the following sections of this QAPP.

1.5 QUALITY OBJECTIVES AND CRITERIA FOR MEASUREMENT DATA

The QA objective for this project is to provide valid data of known and documented quality. Specific Data Quality Objectives (DQO) are discussed in terms of accuracy, precision, completeness, representativeness, and comparability.

For this project, accuracy is defined as the ratio, expressed as a percentage, of a measured value to a true or reference value. The analytical component of accuracy will be expressed as percent recovery, based on the analysis of lab-prepared spike samples and performance evaluation (PE) audit samples. The accuracy of field screening measurements will be measured by a comparison of the screening data with laboratory results for split samples, as described in Section 2.5 of this QAPP.

Precision for this project is defined as a measure of agreement among individual measurements of laboratory-prepared duplicate samples. Because total method precision will not be determined for this project, no collocated samples will be collected.

Data completeness will be expressed as the percentage of data generated that is considered valid. A completeness goal of 100% will be applied to this project; however, if that goal is not met, site decisions may still be made based on the remaining data. No specific critical samples have been identified for the project.

Representativeness of collected samples is facilitated by establishing and following criteria and procedures identified in this QAPP.

Data comparability is achieved by requiring all data generated for the project be reported in common units. The following table lists the various types of data that will be generated and the specific reporting units.

Metals in Soil by XRF	milligrams per kilogram (mg/kg)
Metals in Soil by Laboratory Analysis	mg/kg
Metals in Air	micrograms per cubic meter ($\mu\text{g}/\text{m}^3$)
Sampled Air Volume at Standard Temperature and Pressure (STP)	cubic meters at STP (m^3 STP)
Sampling Flowrate at STP	cubic meters per minute at STP (m^3/min STP)
Wind Speed	miles per hour (mph)
Wind Direction (Field Report)	degrees on an azimuth compass
Temperature	degrees Fahrenheit ($^{\circ}\text{F}$)
Barometric Pressure (not corrected to sea level)	millimeters of mercury (mm Hg)
Time	military time (00:00 - 24:00)
Date	month/day/year

1.6 SPECIAL TRAINING REQUIREMENTS/CERTIFICATION

All site personnel will be required to have completed a basic 40-hour health and safety (Hazardous Waste Operations and Emergency Response [HAZWOPER]) training course and annual refreshers.

Familiarization with a Niton[®] X-ray fluorescence (XRF) spectrometer and its operating procedures will also be necessary for the Tetra Tech START team.

1.7 DOCUMENTATION AND RECORDS

Tetra Tech START personnel will maintain a field logbook to record all pertinent activities associated with the sampling events. Appropriate documentation pertaining to photographs taken by Tetra Tech START will also be recorded in the field logbook. Information pertaining to all samples (i.e., sampling dates/times, locations, etc.) collected during this event will be recorded on sample field sheets generated

by Tetra Tech START. Labels generated by Tetra Tech START will be affixed to sample containers, identifying sample numbers, dates collected, and requested analyses. Chain of custody records will be completed/maintained for all samples from the time of their collection until they are submitted to the laboratory for analysis.

A health and safety plan will be prepared by Tetra Tech START prior to the field activities that will address site-specific hazards. The health and safety plan will be reviewed and signed by all field personnel prior to field work, indicating that they understand the plan and its requirements. Copies of the plan will be available to all personnel throughout the sampling activities.

2.0 MEASUREMENT/DATA ACQUISITION

2.1 SAMPLING PROCESS DESIGN

The proposed sampling scheme for this project will be judgmental (based on the best professional judgement of the sampling team), in accordance with the Removal Program Representative Sampling Guidance, Volume 1: Soil, OSWER Directive 9360.4-10, November 1991. The sampling design proposed in the following paragraphs has been selected to fully identify the extent of soil contamination at the site, determine whether removal action goals have been achieved, and evaluate whether any harmful concentrations of airborne contaminants are being released as a result of removal activities. The proposed number of samples is a balance between cost and coverage and represents a reasonable attempt to meet the study objectives while staying within the budget constraints of a typical site investigation.

For residential properties located within the 2 ½-block area bounded by Martin Street to the north, North Catherine Street to the east, West 1st Street to the south, and North Coyle Street to the west, four quadrants will be established around each residential property, which will radiate out 50 feet from each side of the home. In each quadrant, a nine-aliquot composite sample will be collected from the upper 1 inch of soil and screened for lead with a Niton[®] XRF. Multi-aliquot surface soil samples will also be collected from any play areas and gardens, sand piles, unpaved driveways, and other areas appearing to have been used by children. The number of aliquots for these areas will be dependent upon size, but, in general, will follow the aliquot density used for the quadrants. Soil samples will also be collected from within 3 feet of the residential dwellings to evaluate the impact of lead-based paint on soil concentrations near the structures. For locations where there are no residences, a center point, will be established and flagged. From the center point, four quadrants will be established, which will radiate out 100 feet in each

compass direction, and the aforementioned sampling protocols will be completed (e.g. collecting a nine-
aliquot composite from each quadrant).

Approximately 10 percent of all samples that are screened with the XRF will be submitted to a laboratory
(contracted by Tetra Tech START) for confirmation analysis of lead, along with arsenic, cadmium,
mercury, and zinc.

If the results of the screening characterization indicate that surface soil contamination exists (i.e., lead
concentrations greater than 400 mg/kg) beyond the specified limits of the site area, further sampling will
be conducted on properties within a ¼-mile radius of the 11 residences located within the aforementioned
2 ½-block area. If the results of that screening characterization still indicate that surface soil
contamination exists beyond the ¼-mile radius, further sampling on residential properties located beyond
that area may be required, using the same sampling design.

The results of the sampling and analysis will be used to direct excavation activities for the removal of
lead-contaminated soil above the RSK level of 400 mg/kg. Lead-contaminated soil will be removed from
residential areas that exceed the RSK level of 400 mg/kg. Excavation in those areas will be conducted up
to a maximum depth of 12 inches below ground surface (bgs), except in high-use areas or areas
frequented by children, where excavation will be conducted up to a maximum depth of 24 inches bgs.
Where remaining soils exceed the removal action level after excavation has been completed to those
maximum depths, a permanent barrier will be placed at the interface between clean backfill and the
underlying contaminated soil.

In addition to soil sampling, high-volume ambient air sampling apparatuses will be established at three
locations near the removal site to determine the potential release of airborne contaminants due to
excavation activities, trucking/transportation, and stockpiling of contaminated soils during the removal
activities. Specific monitoring locations will be determined in the field, based on judgment of the Tetra
Tech START/EPA personnel.

A summary of anticipated samples to be collected for this project is provided in the following table. The
exact number will depend on field screening results, as previously described.

Soil	100	10	lead, mercury, cadmium, arsenic, zinc
Air	NA	50	lead, mercury, cadmium, arsenic, zinc

Notes:

¹ See Section 2.4 for details pertaining to analyses.

NA Not applicable

2.2 SAMPLING METHODS REQUIREMENTS

Soil samples will be collected following EPA Region 7 SOP #4231.12A. Soil samples will be collected with a clean, dedicated stainless steel spoon and homogenized in a clean, dedicated aluminum pie pan. Three consecutive XRF readings will be collected after homogenizing the soil. The three XRF readings will be recorded on a field sheet. XRF screening methods will follow EPA Region 7 SOP #4231.707A. The locations of the XRF readings (as well as laboratory confirmation sample locations, if applicable) will also be recorded on each field sheet. Confirmation samples will be transferred directly into the appropriate containers for laboratory analysis.

All ambient air sampling will be accomplished using Hi-Vol Air Samplers (manufactured by General Metals Work, Inc., or equivalent). The samplers will be operated in accordance with EPA Region 7 SOP #2314.1A. Each sampler will be positioned on the ground level. Suitable supporting structures meeting all local and Federal safety codes will be used. Samplers will be operated continuously for 24-hour ($\pm 10\%$) sampling durations. Sampler start and completion times will be referenced to 2400 hours.

Air samples may be voided by the EPA Project Manager or Tetra Tech START Project Manager under the following conditions: (1) If the sampling duration is outside the 21.6 to 26.4 hour limits; (2) evidence of sample tampering is observed; or (3) if any sample is known to be unrepresentative (due to contamination, sampler failure, etc.).

Meteorological data (wind direction, wind speed, barometric pressure, and temperature) will be obtained daily from either a nearby airport/recording station or from portable instruments at the site to assist in the evaluation of air sampling data.

Disposal of investigation-derived wastes (IDW) and procedures for equipment/personal decontamination will be addressed in a site-specific health and safety plan prepared by the Tetra Tech START. In general, it is anticipated that most IDW will consist of disposable sampling supplies (gloves, paper towels, etc.) that will be disposed of off-site as uncontaminated debris.

2.3 SAMPLE HANDLING AND CUSTODY REQUIREMENTS

Samples will be collected in accordance with procedures defined in Region 7 EPA SOP #2420.6C. Chain of custody procedures will be maintained as directed by Region 7 EPA SOP #2420.4B. Samples will be accepted by the contracted laboratory according to their specific procedures and SOPs.

All soil sample containers will be placed in plastic bags to control spillage in case the containers break during shipment. Soil samples will be placed in coolers containing packing material and enough ice to ensure that the temperature of the samples does not exceed 4°C. Necessary paperwork for all samples, including chain of custody records, will be completed by the Tetra Tech START and maintained with the coolers until delivery to the laboratory. If shipment of the samples is required via commercial service, each cooler lid will be securely taped shut, and two custody seals will be signed/dated and placed across the lid opening. The samples will be submitted to the receiving laboratory by Tetra Tech START personnel in a time-efficient manner to ensure that the applicable holding times are not exceeded.

2.4 ANALYTICAL METHODS REQUIREMENTS

The samples will be analyzed at a pre-qualified laboratory contracted by Tetra Tech START, according to the EPA methods listed in the following table. Detection limits that are typically reported by those methods are expected to be adequate for this activity. The requested analyses have been selected based on past sampling data and historical information collected for the site:

SOIL	
lead, mercury, cadmium, arsenic, zinc	SW846 Method 6010B and 7470
AIR	
lead, mercury, cadmium, arsenic, zinc	SW846 Method 6010 B and/or 7000 Series

Notes:

¹ EPA may cease the analysis for mercury, cadmium, and arsenic if concentrations of those analytes in the initial confirmation samples are consistently below KDHE's Risk-Based Levels.

2.5 QUALITY CONTROL REQUIREMENTS

Because dedicated supplies will be used for all soil samples (i.e., stainless steel spoons, pie pans, etc.), no QC samples will be required to assess the potential for cross-contamination. For high-volume air samples, one field blank will be included with each sample set that is submitted for laboratory analysis. Analytical error (precision and accuracy) will be determined by the analysis of laboratory-prepared duplicates and spike samples. These criteria, along with other laboratory QC elements, will be performed in accordance with the contract laboratory's QA plan.

To satisfy the quality control elements for the XRF, data will be collected to enable a comparison of the screening data with laboratory confirmation results. The mean of the three XRF readings taken for each confirmation sample will be compared statistically to the laboratory results for each confirmation sample to assess comparability. The correlation coefficient (r) between the XRF data and laboratory confirmation results should be above 0.7 for the XRF data to be considered acceptable.

For every measurement, the Niton® XRF gives an uncertainty range that represents a 95 percent confidence interval. In general, precision/accuracy increases with increasing sample run time. For very high (greater than 1,000 mg/kg) or very low (less than 300 mg/kg) concentrations, the sample run time will only be long enough to obtain readings within 30% of the actual concentrations. Otherwise, samples will be screened long enough to obtain precision measurements within 20% of the actual concentrations.

2.6 INSTRUMENT/EQUIPMENT TESTING, INSPECTION, AND MAINTENANCE REQUIREMENTS

Testing, inspection, and maintenance of all sampling equipment and supplies, along with field screening instrumentation, will be performed by Tetra Tech START personnel prior to deployment for field activities. Testing, inspection, and maintenance of analytical instrumentation will be performed in accordance with the contracted laboratory's analytical SOPs and manufacturers' recommendations.

2.7 INSTRUMENT CALIBRATION AND FREQUENCY

Calibration of the field screening and laboratory analytical instrumentation will be in accordance with the referenced SOPs and manufacturers' recommendations.

2.8 INSPECTION/ACCEPTANCE REQUIREMENTS FOR SUPPLIES AND CONSUMABLES

All sample containers will meet EPA criteria for cleaning procedures required for low-level chemical analysis. Sample containers will have Level II certifications provided by the manufacturer in accordance with pre-cleaning criteria established by EPA in *Specifications and Guidelines for Obtaining Contaminant-Free Sample Containers*. The certificates of cleanliness will be maintained in the project file.

2.9 DATA ACQUISITION REQUIREMENTS

Previous data/information pertaining to the site (including other analytical data, reports, photos, maps, etc., which are referenced in this QAPP) have been compiled by Tetra Tech START from various sources. Some of that data has not been verified; however, that information will not be used for decision-making purposes without verification of its authenticity.

2.10 DATA MANAGEMENT

All laboratory data will be managed as specified in the contract laboratory's QA manuals. Preliminary data will be received by the Tetra Tech START Project Manager on site. The final data package will be forwarded to a Tetra Tech START chemist trained in data validation to complete the validation process. The results will be summarized and included in the report submitted to EPA.

3.0 ASSESSMENT/OVERSIGHT

3.1 ASSESSMENTS AND RESPONSE ACTIONS

Assessment and response actions pertaining to analytical phases of the project are addressed in the contracted laboratory's QA manuals. Because of the short duration of this sampling event, no field audits of sampling procedures will be performed. Corrective actions will be taken at the discretion of the EPA Project Manager, whenever there appears to be problems that could adversely affect data quality and/or resulting decisions affecting future response actions pertaining to the site.

3.2 REPORTS TO MANAGEMENT

A letter report describing the sampling techniques, locations, problems encountered (with resolutions to those problems), and interpretation of analytical results will be prepared by Tetra Tech START, following completion of the field activities described herein and validation of laboratory data. The laboratory data for soil and air samples will be compared to all applicable or relevant and appropriate requirements (ARARs), including removal action levels that have been established for the site, to determine whether further response is warranted.

4.0 DATA VALIDATION AND USABILITY

4.1 DATA REVIEW, VALIDATION, AND VERIFICATION REQUIREMENTS

Data review and verification will be performed by a qualified laboratory analyst and the laboratory's section manager in accordance with the contracted lab's QA program. Follow-up validation of the data will be performed by a Tetra Tech START chemist. The Tetra Tech START Project Manager will be responsible for overall validation and final approval of the data, in accordance with the projected use of the results.

4.2 VALIDATION AND VERIFICATION METHODS

A qualified Tetra Tech START chemist will review the data for laboratory spikes/duplicates and laboratory blanks to ensure that they are acceptable. The Tetra Tech START Project Manager will inspect the data to provide a final review. The Tetra Tech START Project Manager will also compare the sample descriptions with the field sheets for consistency and will ensure that any anomalies in the data are appropriately documented.

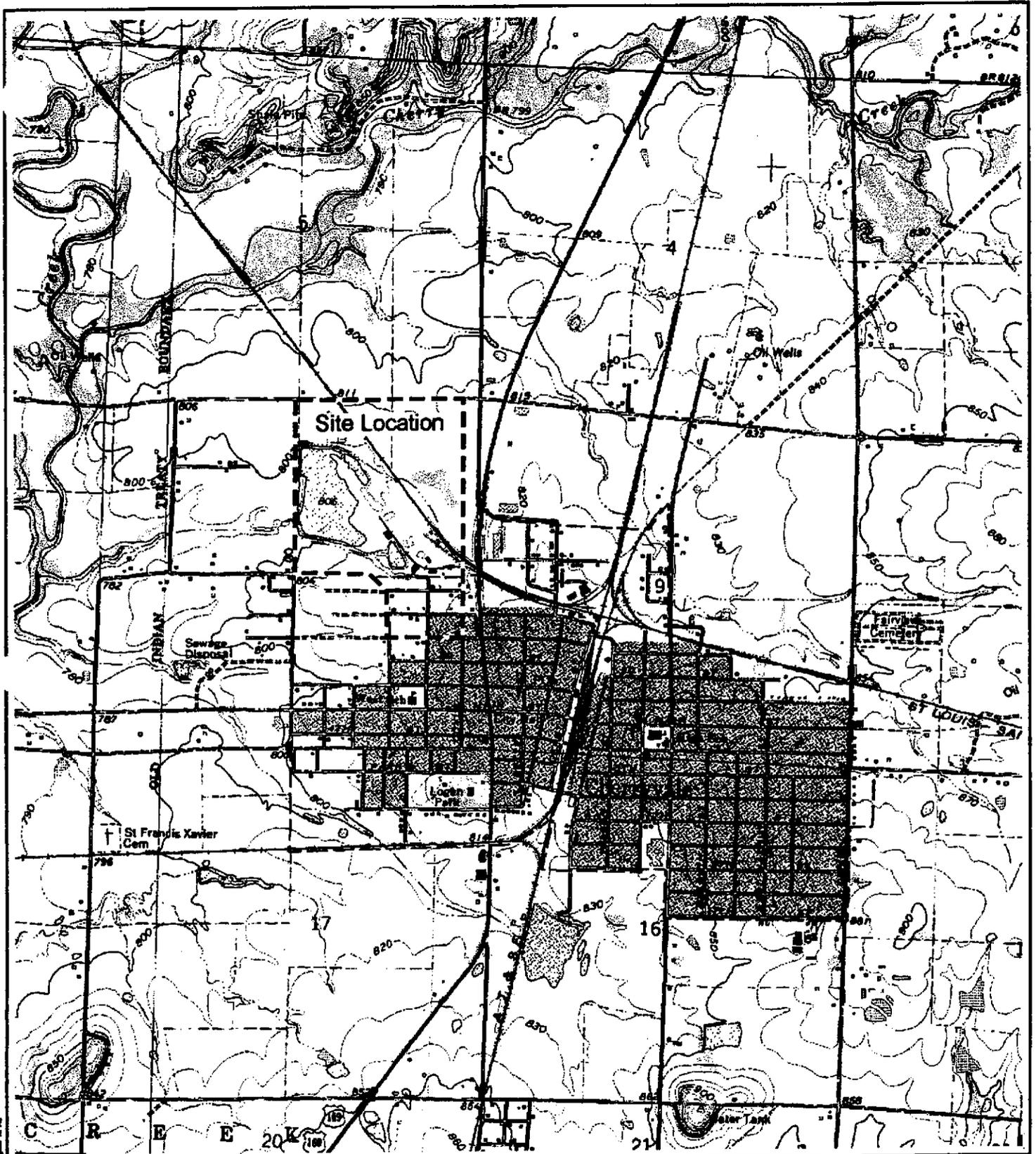
4.3 RECONCILIATION WITH USER REQUIREMENTS

If data quality indicators do not meet the project's requirements as outlined in this QAPP, the data may be discarded, and re-sampling and/or re-analysis may be required.

ATTACHMENT A

FIGURE 1: SITE LOCATION MAP

(One Page)



National Zinc Site
Cherryvale, Kansas

Figure 1
Site Location Map

 Tetra Tech EM Inc.

Date: 10/02/01 Drawn By: Roger Sulf Project No: 040111.01.0088.00

Sources: USGS Cherryvale, KS 7.5 minute Topo Quad PR 1979

ATTACHMENT B

FIGURE 2: AERIAL SITE MAP

(One Page)

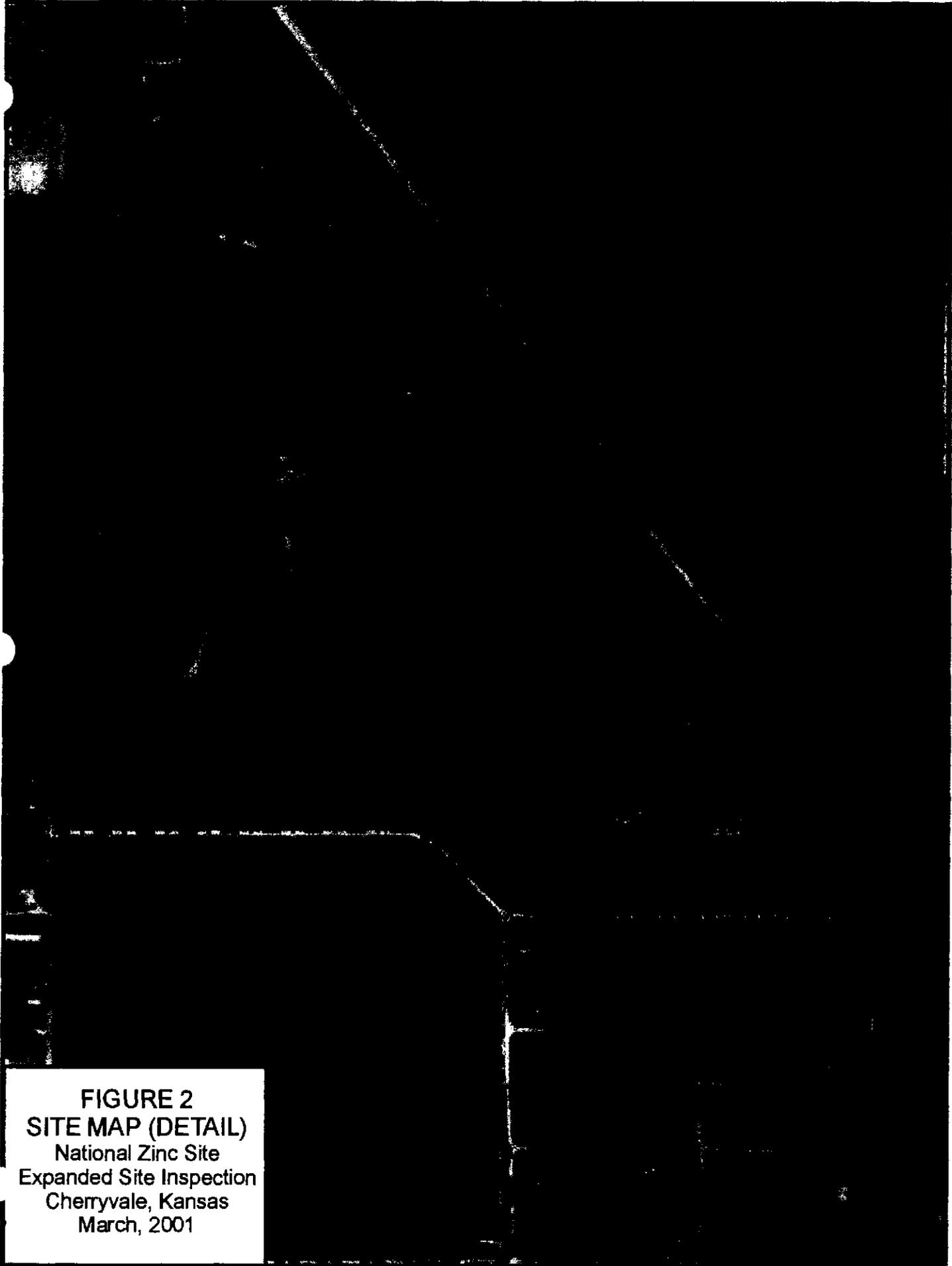
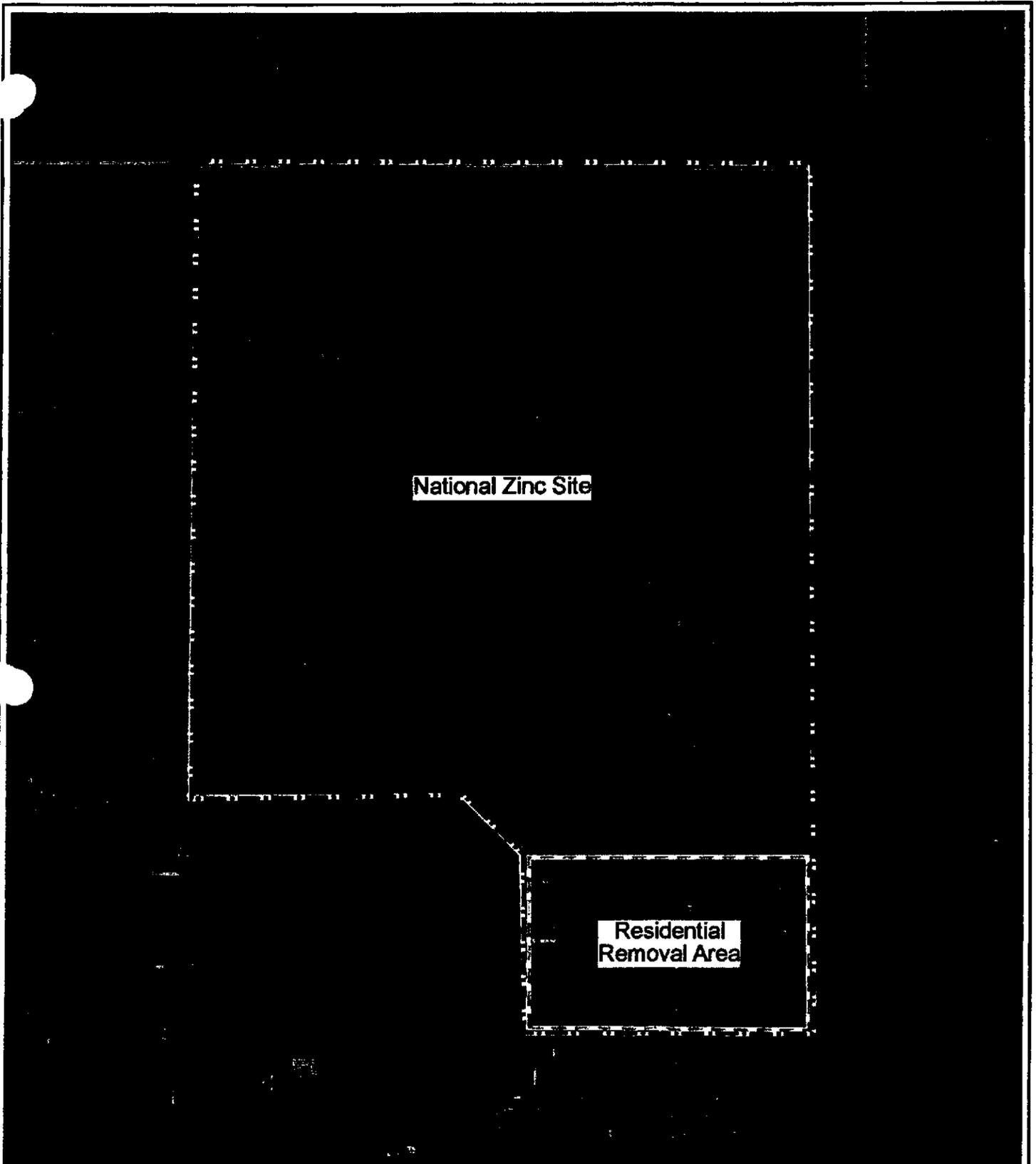


FIGURE 2
SITE MAP (DETAIL)
National Zinc Site
Expanded Site Inspection
Cherryvale, Kansas
March, 2001

ATTACHMENT C

FIGURE 3: RESIDENTIAL REMOVAL AREA

(One Page)



National Zinc Site

Residential
Removal Area

National Zinc Site
Cherryvale, Kansas

Figure 2
Aerial Site Map



Tetra Tech EM Inc.



Not to Scale

APPENDIX C
PHOTOGRAPH LOG
(Nine Pages)

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southwest	DESCRIPTION	This photograph shows an excavated yard at 527 West First Street.	1
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	12/07/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northeast	DESCRIPTION	This photograph shows an excavated yard at 524 and 530 Front Street.	2
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/12/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southwest	DESCRIPTION	This photograph shows the residences at 501 Martin and 508 Coyle Streets.	3
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northeast	DESCRIPTION	This photograph shows an excavated yard at 520 Front Street.	4
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/12/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northeast	DESCRIPTION	This photograph shows an excavated yard at 514 West First Street.	5
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	12/07/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southeast	DESCRIPTION	This photograph shows an excavated lot west of 513 Front Street.	6
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	12/05/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southeast	DESCRIPTION	This photograph shows a yard during excavation at 513 Front Street.	7
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	12/05/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northwest	DESCRIPTION	This photograph shows a pre-excavation at 512 Front Street.	8
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northwest	DESCRIPTION	This photograph shows an excavated lot west of a residence at 511 Martin Street.	9
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: West	DESCRIPTION	This photograph shows a stockpile at 511 Martin Street.	10
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: North	DESCRIPTION	This photograph shows a residence at post-excavation located at 536 Front Street.	11
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/12/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northeast	DESCRIPTION	This photograph shows a borrow pit at Cherryvale, Kansas.	12
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	01/03/02

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northwest	DESCRIPTION	This photograph shows a borrow pit at Cherryvale, Kansas.	13
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	01/03/02

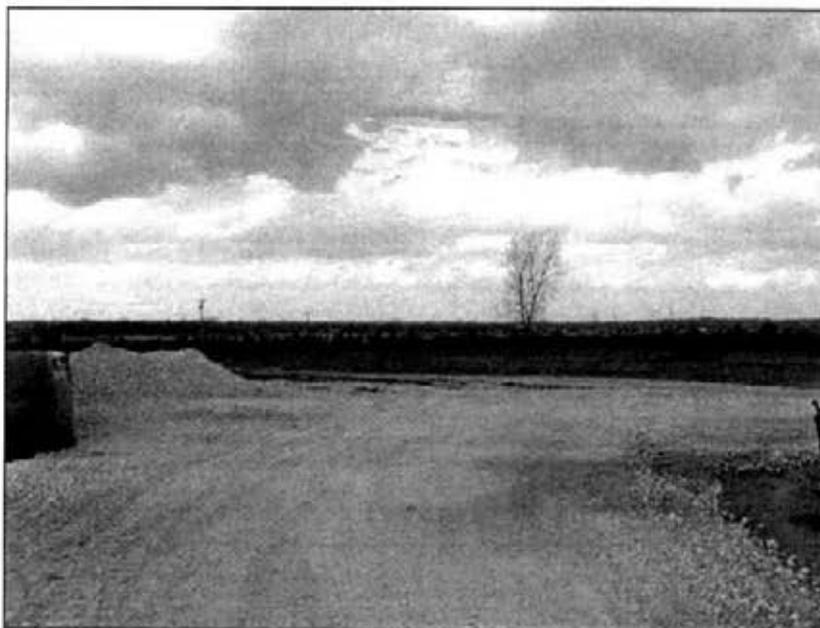


TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southeast	DESCRIPTION	This photograph shows a borrow pit at Cherryvale, Kansas.	14
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	01/03/02

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northwest	DESCRIPTION	This photograph shows a horse pen and stockpile at 610 Front Street.	15
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/12/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Northwest	DESCRIPTION	This photograph shows the repository at Cherryvale, Kansas.	16
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	12/05/01

**National Zinc Site
Cherryvale, Kansas**



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: South	DESCRIPTION	This photograph shows the eastern part of the yard and stockpile at 511 Martin Street.	17
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01



TETRA TECH PROJECT NO. G9011.E.01.0063.00 Direction: Southwest	DESCRIPTION	This photograph shows the front yard at 511 Martin Street during excavation.	18
	CLIENT	U.S. Environmental Protection Agency Region 7	DATE
	PHOTOGRAPHER	Ingrid Davis	11/08/01

APPENDIX D
SITE SKETCHES, PROPERTY CHECKLISTS, AND SAMPLE FIELD SHEETS
(97 Pages)

National Zinc Site Sketch

Name: Harold Riehlly (PONDEROSA)

Date(s): 3/3/02

Address: 610 E. 5th ST
Cherryvale, KS
67335

SITE ADDRESS:

XRF I.D.

Operator

Pre-Removal: START-see below
 Post-Removal: _____

0-12"
 12-24"

XRF Values
 XXX Pre-excavation
 (XXX) Post Excavation

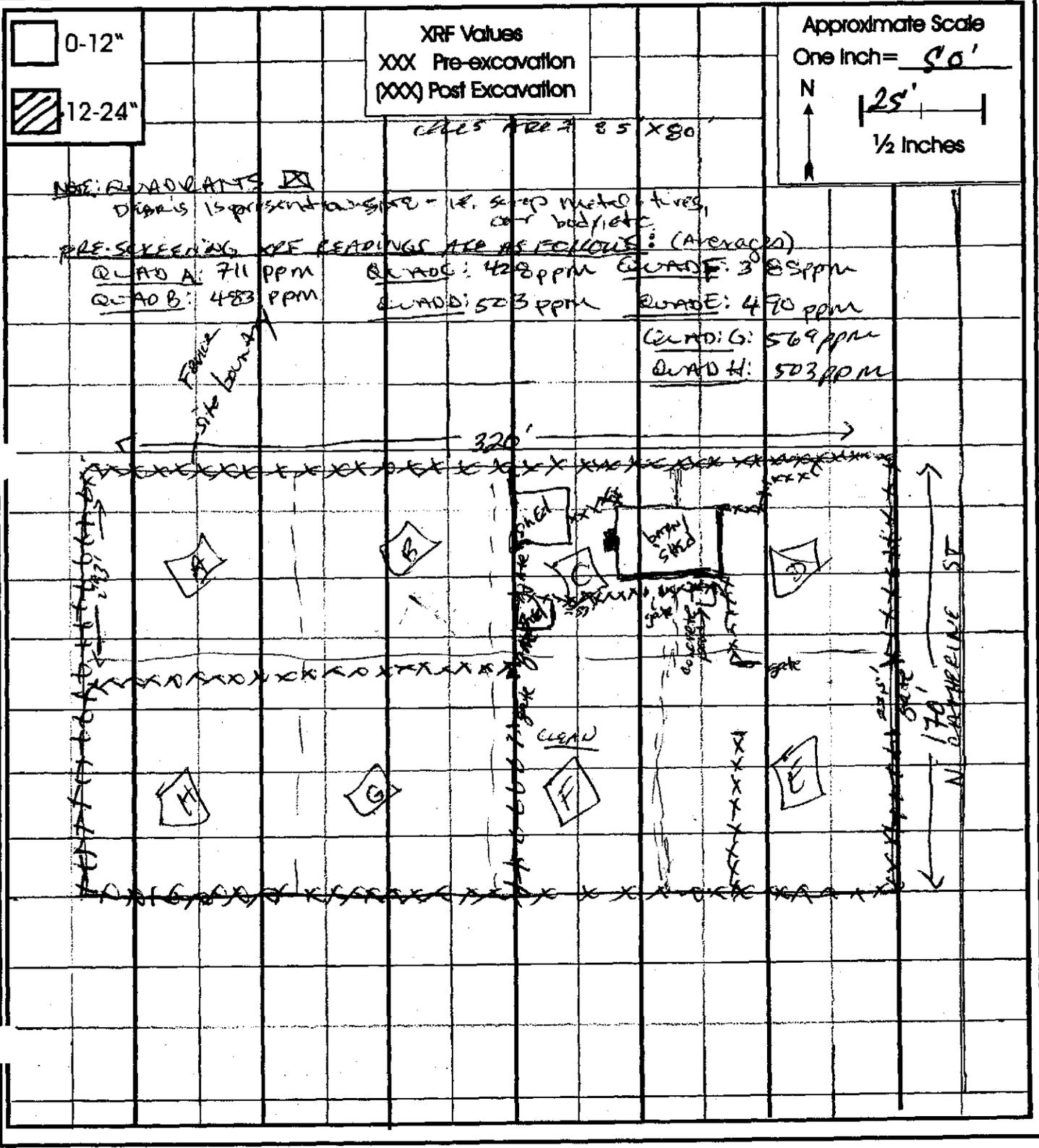
Approximate Scale
 One Inch = 50'
 N
 ↑
25'
 |
 1/2 Inches

NOTE: ROADWAYS

Dumps 15 present at site - i.e. scrap metal, tires, car bodies etc.

PRE-EXCAVATION XRF READINGS ARE AS FOLLOWS: (Averaged)

QUAD A: 711 ppm	QUAD C: 428 ppm	QUAD F: 385 ppm
QUAD B: 483 ppm	QUAD D: 523 ppm	QUAD E: 470 ppm
	QUAD G: 569 ppm	QUAD H: 503 ppm



National Zinc Property Checklist

Resident: HAROLD KELLY (PONDEROSA)

Date: 3/5/02

Address: 610 E. 5th ST
Cherryvale, KS
67335

Field Tech: JD
SITE ADDRESS:

Comments/Observations

- NO SPECIAL ISSUES OF CONCERN WERE STATED BY OWNER.
- CATTLE ARE PRESENT IN AREA, NOT TO BE LET OUT

Video/Photographic Documentation

Pre-Excavation: Date: 3/27/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 2:57-6:13

Post-Excavation: Date: _____ Taken By: _____ Roll#(s)/Tape(s)#: _____ Frame#(s)/Tape Counter _____

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L0063.00

Sample #: NZ - Ponderosa (B)

Project Leader: Don Lininger

Sample Date: 3/5/02

Sample Time: 1445

Sampler: JD

Expected Concentration: Low ~~Medium~~ High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020 JD
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A JD

SAMPLE DESCRIPTION

Matrix: Soil

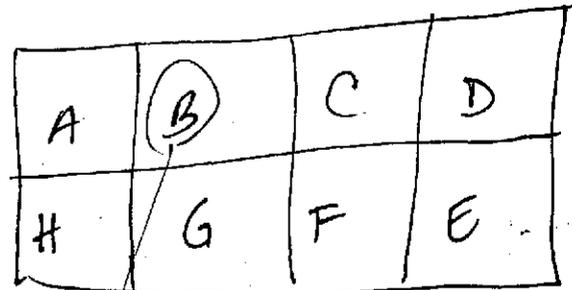
Sample Depth: 0" - 1"

Aliquots: composite (9-12)

Sample Location:

Ponderosa
 cell B

SAMPLE LOCATION MAP



N. Catherine

Property Owner/Contact:

Harold Rielly
 610 E 5th ST
 Cherryvale, KS 67335
 #620-336-2600

Comments:

Prescreening REF #15
 417 ± 73; 494 ± 79; 539 ± 78

AVG 483

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - Ponderosa (F)

Project Leader: Don Lininger

Sample Date: 3/5/02

Sample Time: 1545

Sampler: DL

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A DL

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: 0" - 1"

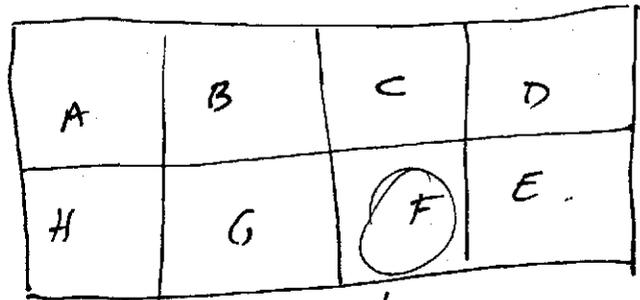
Aliquots: composite (9-12)

Sample Location:

Ponderosa
 cell F

SAMPLE LOCATION MAP

N
 ↑



N Catherine

↓
 sample location

Property Owner/Contact:

Harold Rielly
 610 E. 5th ST
 Cherryvale KS 67335
 # 336-2600 (620)

Comments:

XRF Reading PRESUMING

345 ± 63; 399 ± 64; 410 ± 68

AVG. 385 ppm

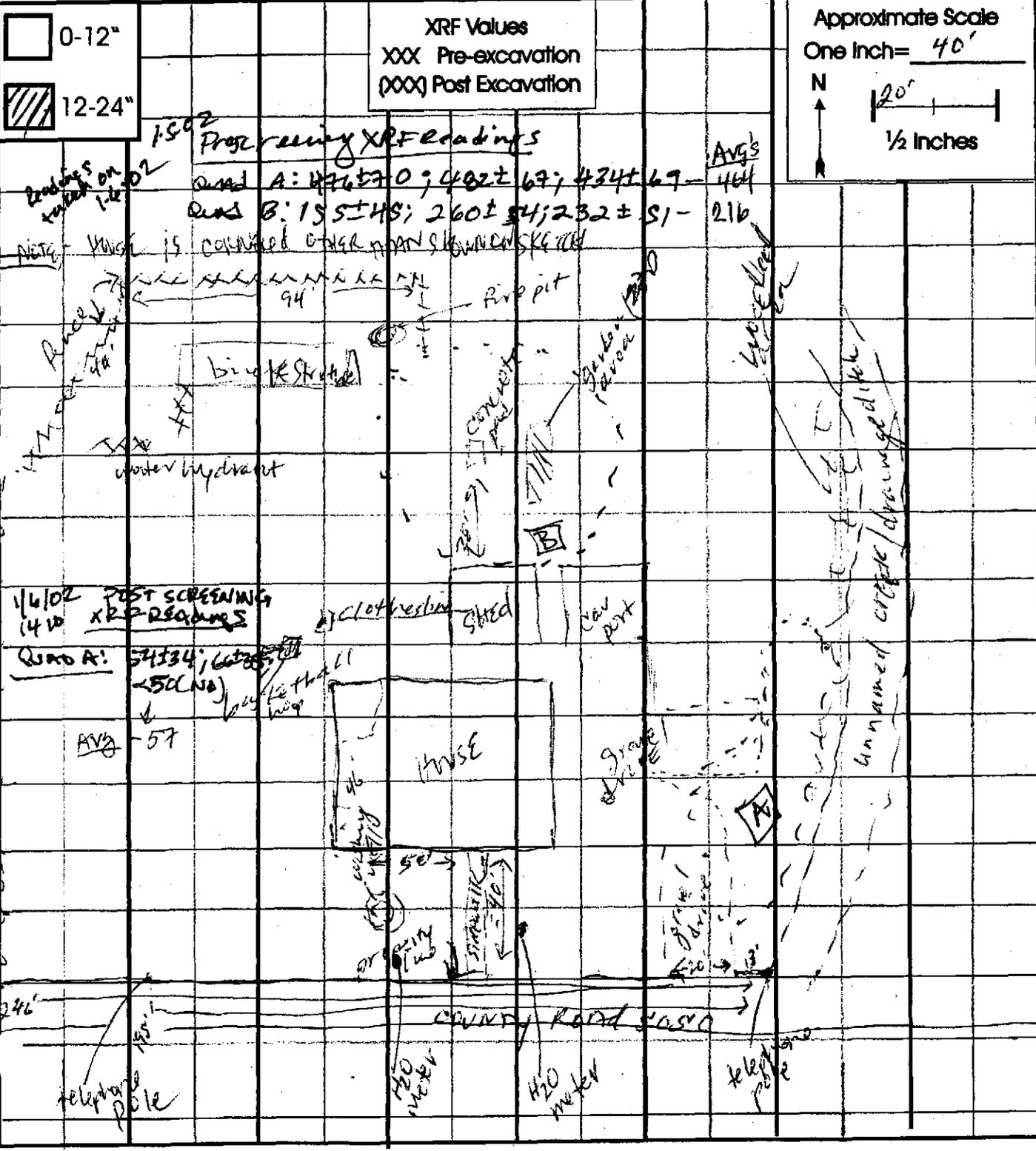
National Zinc Site Sketch

Name: James Cann

Date(s): 1/4/02

Address: 5399 County Road 5050
Cherryvale, KS
67335

XRF I.D. _____ Operator _____
 Pre-Removal: KOHET 50000
Feathertails - 30
the low
 Post-Removal: _____



National Zinc Property Checklist

Resident: James Gann

Date: 1/4/02

Address: 5399 CR 5050
Cherry Vale, KS
67335

Field Tech: JD

Comments/Observations

- * MR Gann stated to OSC Linger that the A-framed structure in this yard will be moved by him rather than IT crew moving it.
- * MR Gann stated that gravel is OK to use instead of backfilling with soil. Will spread out his driveway

Video/Photographic Documentation

Pre-Excavation: Date: 1/5/02 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:00:00-0:53:57

Post-Excavation: Date: 1/28/02 Taken By: JD Roll#(s)/Tape(s)#: 2 #P Frame#(s)/Tape Counter 0:24-22:17

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 024

Project Leader: Don Lininger

Sample Date: 1/05/02

Sample Time: 1230

Sampler: JD

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NONE Ice JD	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846-7470A/7471A JD

SAMPLE DESCRIPTION

Matrix: Soil

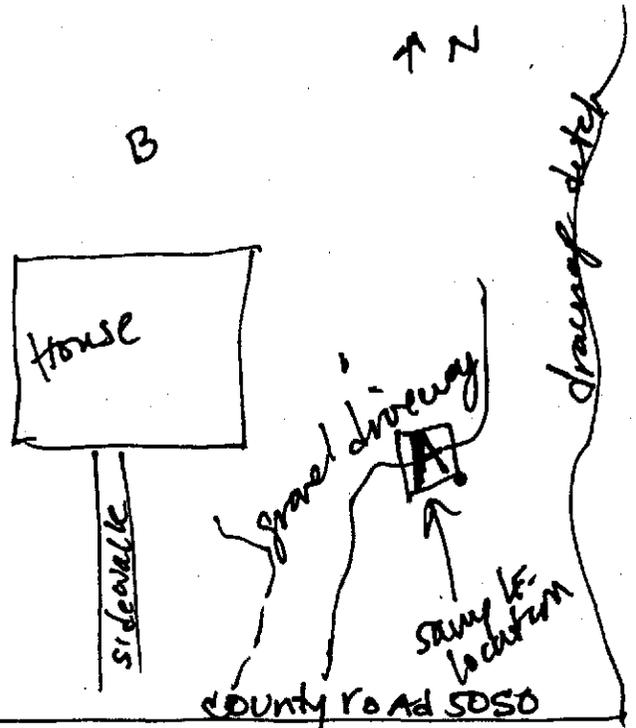
Sample Depth: 0"-1"

Aliquots: 9 (aliquots) composite

Sample Location:

5399 County Road 5050
 Quad A
 see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Mr. James GATTN
 5399 County Road 5050
 Cherryvale, KS 67385

Comments:

prescreening XRF readings
 476±70; 402±67; 434±69

AVG 2464

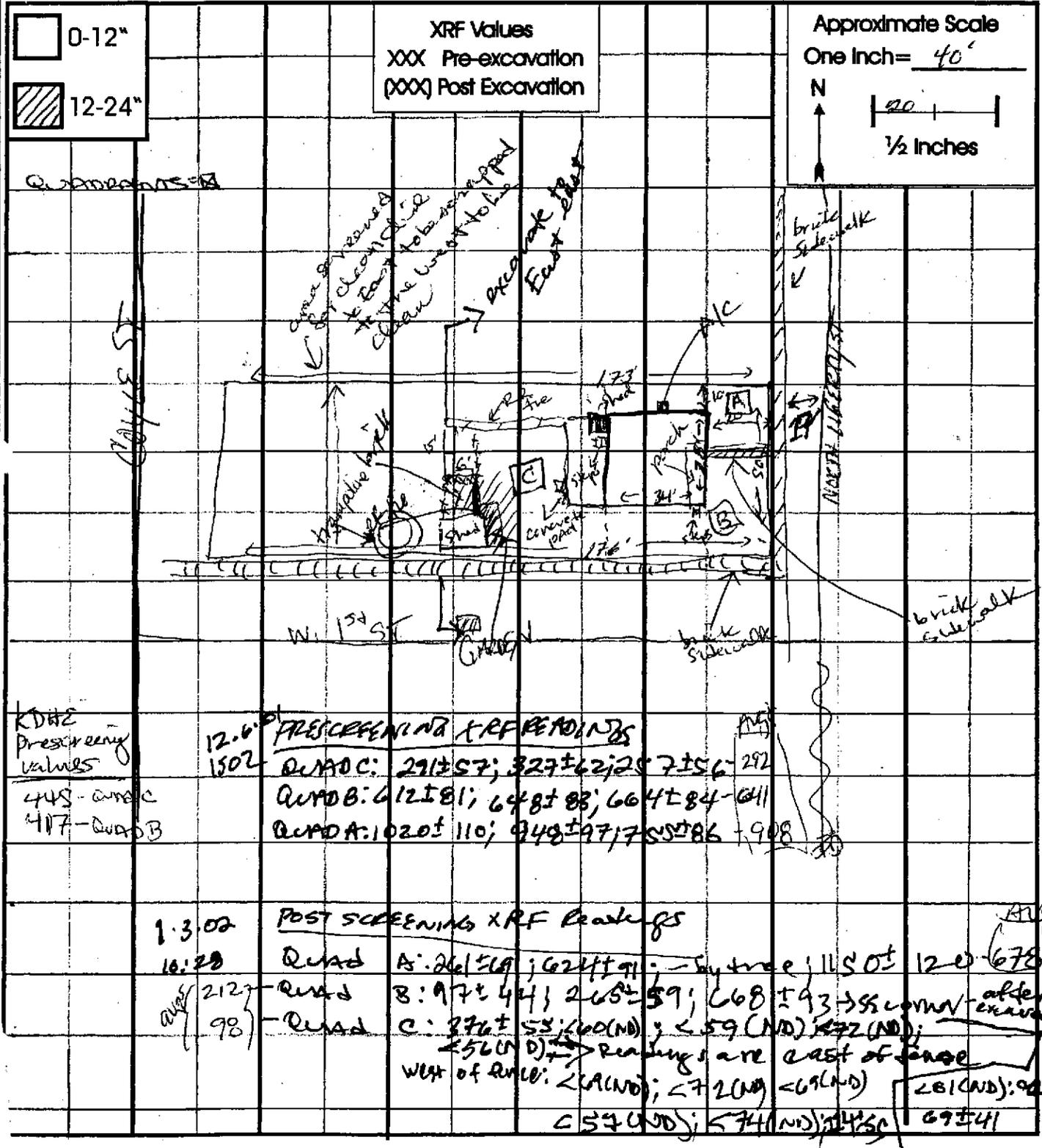
National Zinc Site Sketch

Name: M'Bride, Jackie

Date(s): 12/6/01

Address: 400 NORTH LIBERTY ST
CHERRYVILLE, KS
67335

XRF I.D. _____ Operator _____
 Pre-Removal: START + KDH# - see below spreadsheet - IV
 Post-Removal: see below - IV



N=173'

S=176'

National Zinc Property Checklist

Resident: McBride, Jackie

Date: 12/6/01

Address: 400 North Liberty St
Cherryvale, KS
67325

Field Tech: JD

Comments/Observations

NO ISSUES OF CONCERN OR COMMENTS

Video/Photographic Documentation

includes 400, 404, 416 + 420 w/ liberty

Pre-Excavation: Date: 12/6/01 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:10:29 - 0:12:07

Post-Excavation: Date: 3/28/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 0:24 - 0:22:17

National Zinc Site Sketch

Name: Bill OTV

Date(s): 12/4/01

Address: 404 North Liberty
Cherryvale, KS
67333

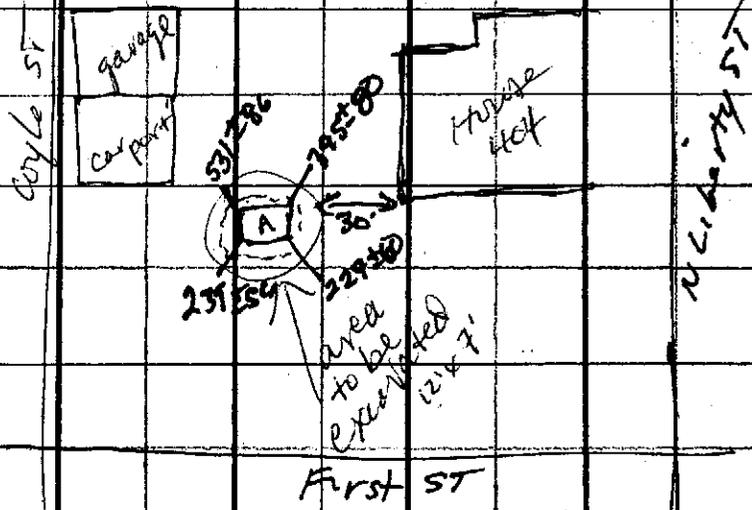
XRF I.D. _____ Operator _____
Pre-Removal: KDHE + START Section - ID
Post-Removal: _____

0-12"
 12-24"

XRF Values
XXX Pre-excavation
(XXX) Post Excavation

Approximate Scale
One Inch = 40'
N ↑
| 20' |
1/2 Inches

KDHE prescreening 1119ppm
12.6.01 prescreening XRF Readings:
Q. no. 9: 227 ± 60; 229 ± 60; 531 ± 86; 1239 ± 56 avg 307
1.3.02 post screening XRF Readings:
Q. no. 4: 201 ± 77; 267 (ND); 118 ± 70; 267 (ND) avg 113



National Zinc Property Checklist

Resident: Bill Ott

Date: 12/6/01

Address: 404 North Liberty
Cherryvale, KS
67338

Field Tech: JD

Comments/Observations

* OSC Don Luenger speaks with owner and said that he only wants a small area excavated, where KDHE has sanded. There is a banner spot just west of his house that he has stated is okay to excavate (area is approx. 50' feet east of car port and 30' feet south of fence) 30' west of southwest corner of house

Video/Photographic Documentation

Pre-Excavation: Date: 12/6/01 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:01:29 - 0:12:07

Post-Excavation: Date: 3/28/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:21 - 12:17

*included
400, 401, 416, 420
2/1/02*

National Zinc Site Sketch

Name: Roberts, Brent

Date(s): 12/6/01

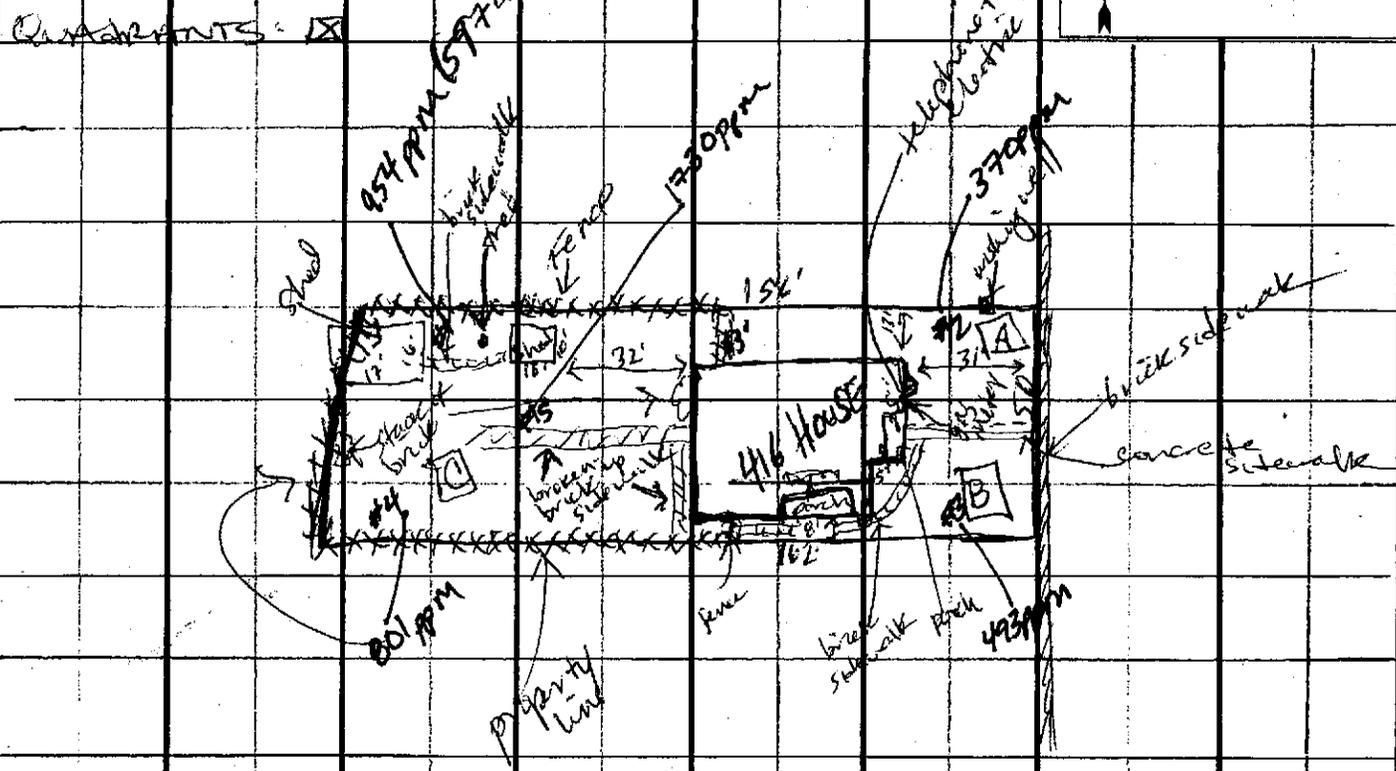
Address: 416 North Liberty
Cherryvale, KS
67335

XRF I.D. Operator
Pre-Removal: KDHE + START - 500
Post-Removal: below + spreadsheets ID

0-12"
 12-24"

XRF Values
XXX Pre-excitation
XXX Post Excavation

Approximate Scale
One Inch = 40'
N
20' | 1/2 Inches



KDHE Prescreening XRF Readings
954.4 ± 100; 594 ± 100; 370.6 ± 58.9; 493 ± 66.6; 801.2 ± 81.9; 1730 ± 120
(see KDHE map) Avg = 824

1st-02 post screening XRF Readings
Quad C: 410 ± 83; 470 ± 76; 708 ± 93; 958 ± 100; 519 ± 85; 240 ± 61; ⇒ East of shed
middle yard ⇒ 823 ± 110; 299 ± 62; 978 ± 160; West of shed ⇒ 273 ± 70; 371 ± 73; 393 ± 80;
very wet yard ⇒ 1390 ± 140 → Avg = 595

5-02 QUADA: <61 (ND); 400 ± 23; 272 ± 55; <56 (ND); 69 ± 39; 245 ± 64
QUAD B: 293 ± 67; 228 ± 63; 240 ± 41; 233 ± 56; 14 ± 55; 23 ± 56; 219 ± 59
by fence around from pre

N2156 S=162'

National Zinc Property Checklist

Resident: Roberts, Brent

Date: 12/6/01

Address: 416 North Liberty ST
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

* brick in backyard, buried + in piles, can be excavated/removed with contaminated soils

Video/Photographic Documentation

includes 416 + 420
4001 404
N. Liberty

Pre-Excavation: Date: 12/6/01 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:01:29 - 0:12:07

Post-Excavation: Date: 3/28/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 9:24-217

National Zinc Site Sketch

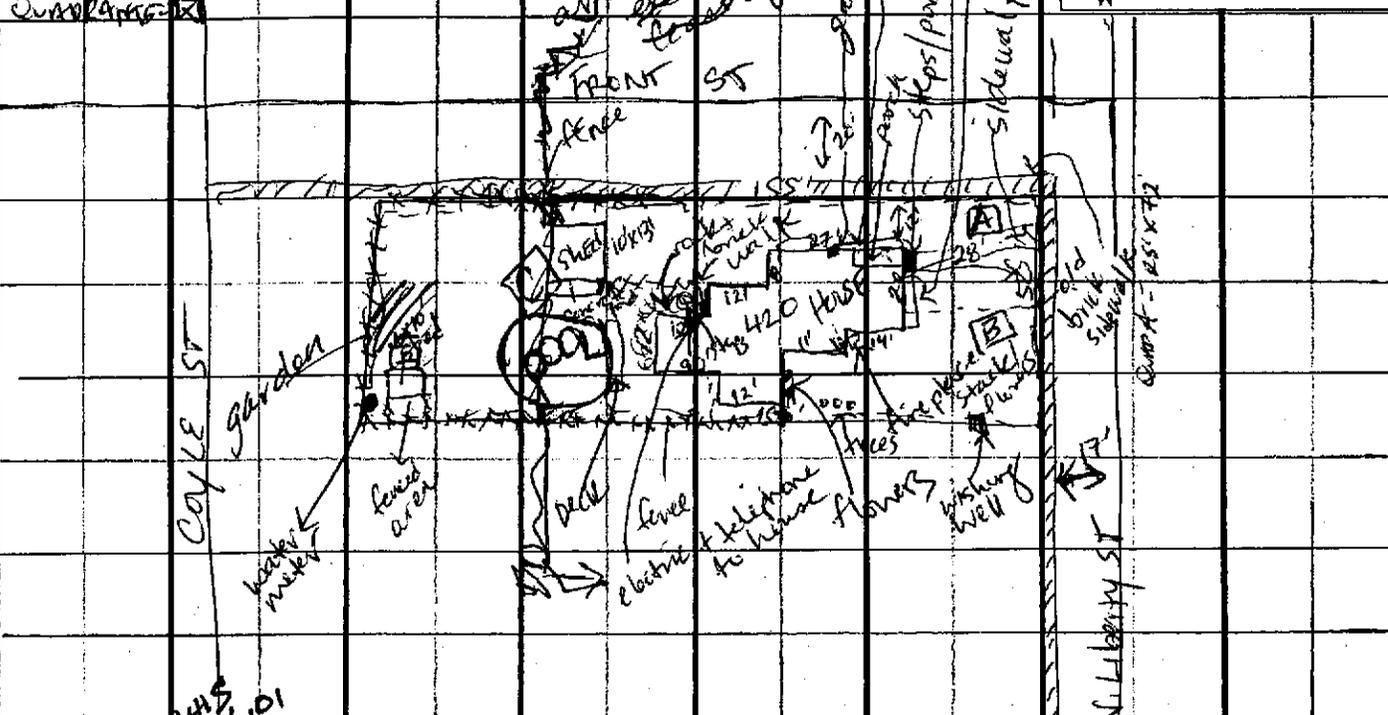
Name: Roberts, Brent

Date(s): 12/6/01

Address: 420 N Liberty
Cherryvale, KS
67335

XRF I.D. Operator
Pre-Removal: START + KDIIF
Post-Removal: see below + spreadsheet EN

 0-12"	KDHE Prescreening	XRF Values XXX Pre-excitation (XXX) Post Excavation	Approximate Scale One Inch = <u>40'</u> N 20' 1/2 Inches
 12-24"	QUAD A - 487ppm QUAD C - 321ppm		



1445
12/6/01

PRESCREENING XRF READINGS (9 aliquots)

QUAD C: 496±70; 540±71; 521±71 - Avg 519

QUAD B: 550±69; 518±70; 498±67 - Avg 512

QUAD A: 375±59; 242±50; 380±59 - Avg 332

1222
POST SCREENING XRF READINGS Avg

QUAD A: 94±41; 74±38; 107±41 - Avg 92

QUAD B: 90±41; 81±40; 53ND - Avg 75

QUAD C: 331±63; 382±62; 462±67 - Avg 392

National Zinc Property Checklist

Resident: Roberts, Brent

Date: 12/16/01

Address: 420 North Liberty St
Cherryvale, KS
67335

Field Tech: FO

Comments/Observations

* no issues of concern or comments

1.5'

* brick sidewalk was uncovered to N of house, wants to leave it covered

Video/Photographic Documentation

Pre-Excavation: Date: 12/16/01 Taken By: FO Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:01:29 - 0:02:07
Post-Excavation: Date: 3/28/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:24 - 2:17

includes 401, 404, 416 + 420
N Liberty

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 025

Project Leader: Don Lininger

Sample Date: 1/6/02

Sample Time: 1220

Sampler: DD

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice ^{none}	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A DO

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~0" to 6"~~ 6" - 12" Aliquots: Composite (9 aliquots)

Sample Location:

420 N. Liberty
 Quad A

*see sample location map

Property Owner/Contact:

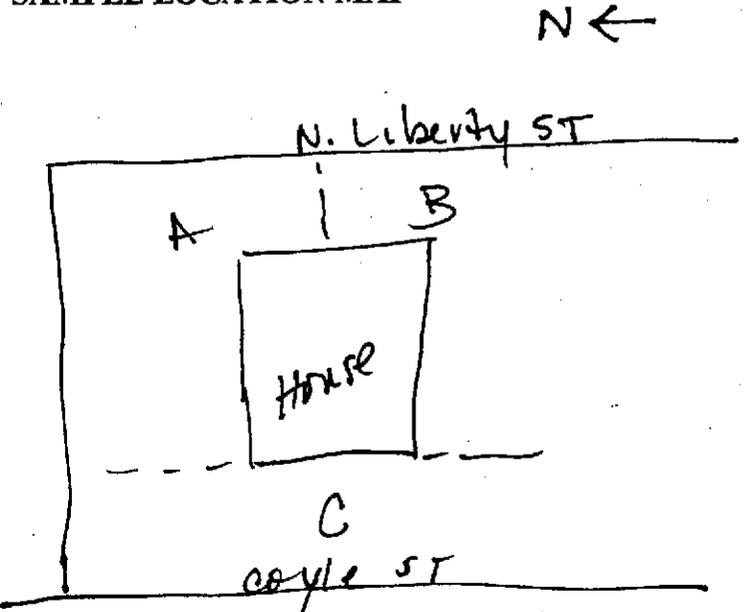
MR. Brent Roberts
 420 N. Liberty ST
 Cherryvale, KS
 67335

Comments:

post screening XRF readings:
 94 ± 41; 74 ± 38; 107 ± 41

Arg = 92

SAMPLE LOCATION MAP



National Zinc Site Sketch

Name: KNOLZ, REX

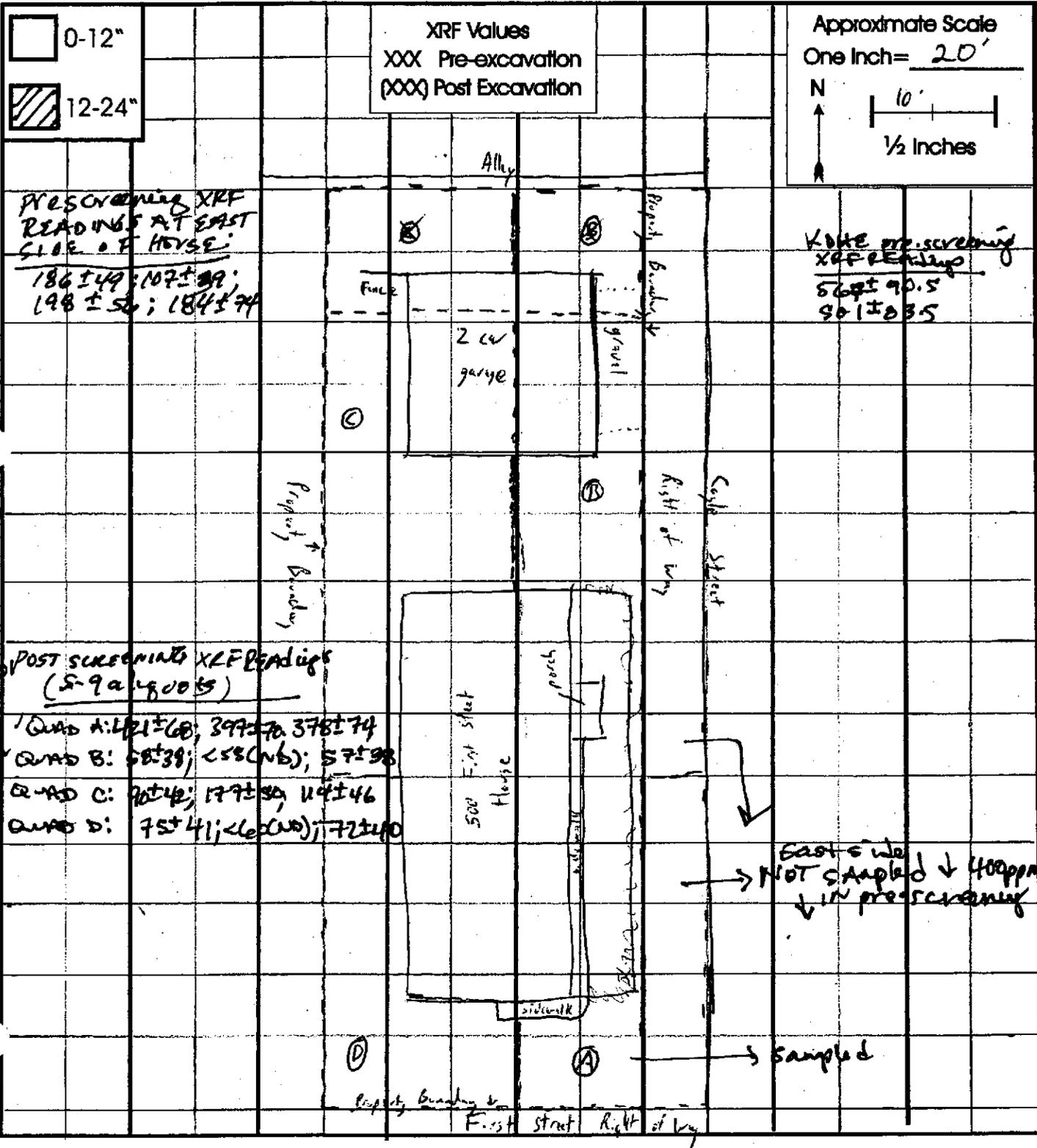
Sketch = JK

Date(s): 11/15/01

Address: 500 First St
Cherryvale, KS
67335

XRF I.D. START 5/26/01 Operator N/A JD
 Pre-Removal: KDHE
 Post-Removal: START - see below JD

START 5/26/01 - see below
Operator back to JD



National Zinc Property Checklist

Resident: KNOLES, REX

Date: 11/16/01 + 12/3/01

Address: 500 First St
Cherryvale, KS
67335

Field Tech: JK + JB

Comments/Observations

* OSC DON manages space with property owner regarding any items of concern in yard. Owner stated that there are some bulbs planted in front of porch that she does not want disturbed (bulbs are ^{outside} of 3' from house and will not be disturbed).

* no other issues of concern

Video/Photographic Documentation

Pre-Excavation: Date: 11/16/01 Taken By: JK Roll#(s)Tape(s)#: 2 Frame#(s)/Tape Counter: 28:23

Post-Excavation: Date: 1/22/02 Taken By: JD Roll#(s)Tape(s)#: 4 Frame#(s)/Tape Counter: 42:24
49:15

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 014

Project Leader: Don Lininger

Sample Date: 12/4/01

Sample Time: 1645

Sampler: ID

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NDMS	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A-ID

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~0-6"~~ 6" - 12"

Aliquots: Composite (5-9 aliquots)

Sample Location:

500 W. First ST
 QUAD: A
 * southeast corner + front
 of house
 * see site sketch

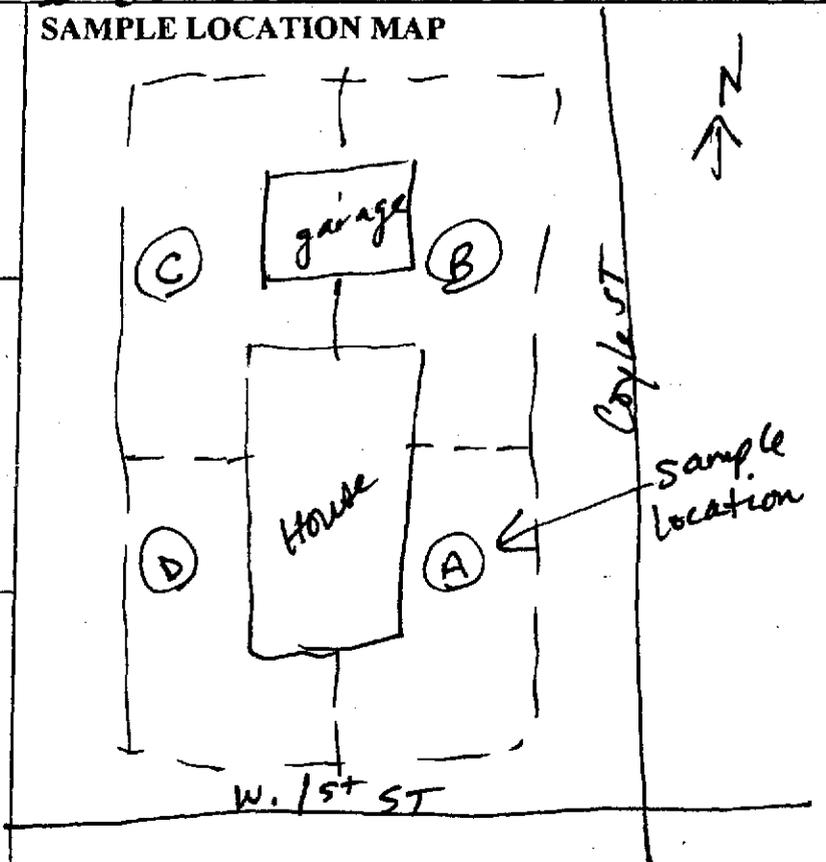
Property Owner/Contact:

REX KNOLES
 500 W. First ST
 Cherryvale, KS
 67335

Comments:

Post screening XRF Readings
 421 ± 68; 397 ± 70; 378 ± 74
 Avg = 399

SAMPLE LOCATION MAP



FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-015

Project Leader: Don Lininger

Sample Date: 12/4/01

Sample Time: 1655

Sampler: ID

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	see notes	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	lee	6 months	Mercury by Method SW-846 7470A/7471A ID

SAMPLE DESCRIPTION

Matrix: Soil

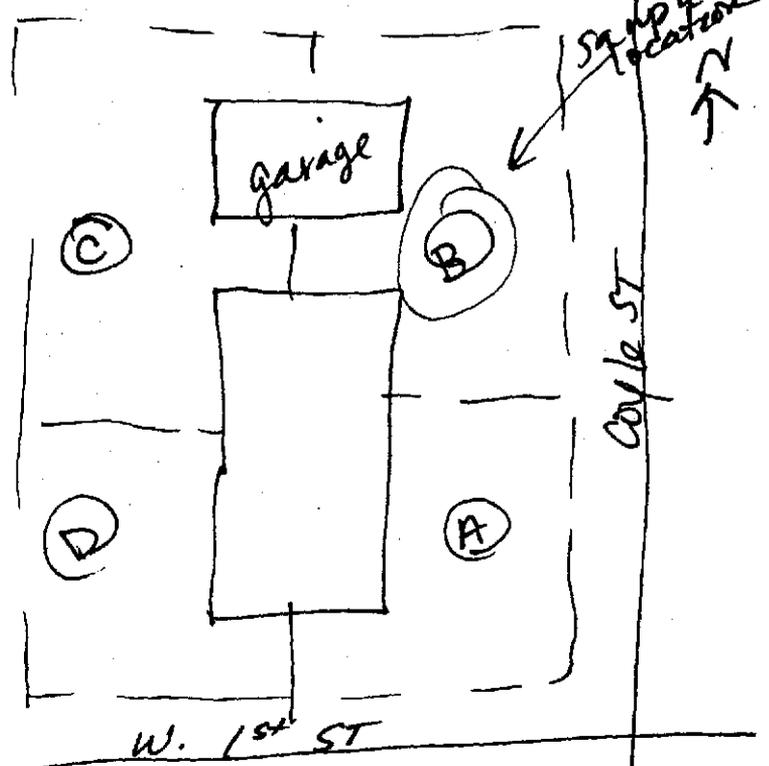
Sample Depth: 6" - 12"

Aliquots: composite CS-9algal

Sample Location:

500 W. 1st ST
 QUAD B
 * north east corner
 * see site sketch

SAMPLE LOCATION MAP



Property Owner/Contact: (not mailing address)

REX KNOLES
 500 First ST
 Cherryvale, KS 67335

Comments: Post-screening XRF readings

Quad B: 58 ± 38; <SS(MD); 57 ± 38

AVG = 57

National Zinc Site Sketch

Name: HALZ, MAX

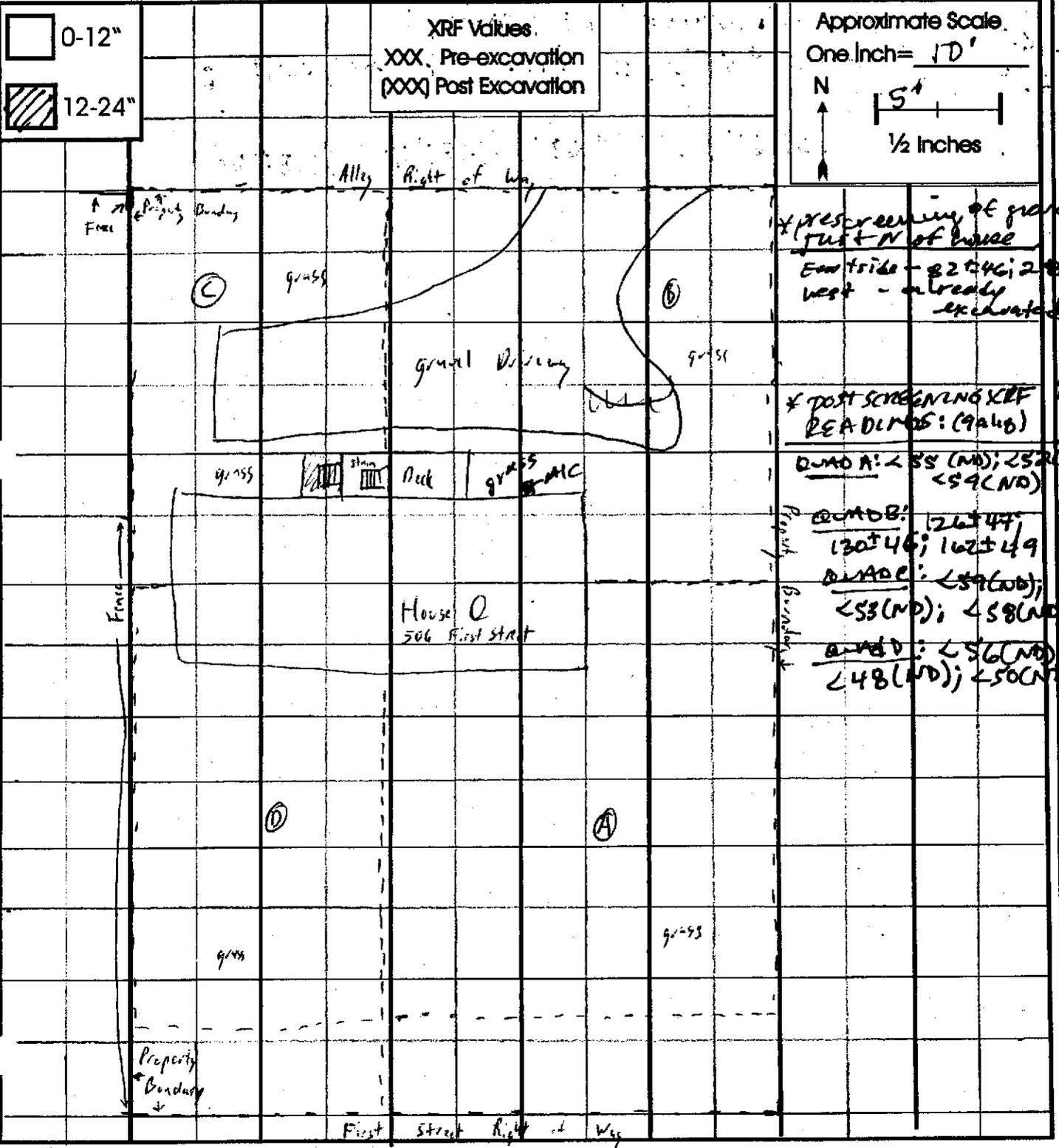
Date(s): 11/16/01

Address: 506 First St
Cherryvale, KS
67335

Sketch by TK

XRF I.D. None; XRF results Operator
 south of 506 1st, beyond 50' from house on back of lot
 Pre-Removal: KDHC
 Post-Removal: START - see sheet below DD

see below



National Zinc Property Checklist

Resident: HALE, MACK

Date: 11/16/01 + 12/3/01

Address: 506 First St
Cherryvale, KS
67335

Field Tech: JK TD

Comments/Observations

* osc Don Liminger spoke with property owner regarding any special items or issues of concern at property. No items were declared to osc.

Video/Photographic Documentation

Pre-Excavation: Date: 11/16/01 Taken By: JK Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:28:23

Post-Excavation: Date: 1/22/02 Taken By: JK Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 42:24-

44:15

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-016

Project Leader: Don Lininger

Sample Date: 12/5/01

Sample Time: 1200

Sampler: DD

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NONE	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A DD

SAMPLE DESCRIPTION

Matrix: Soil

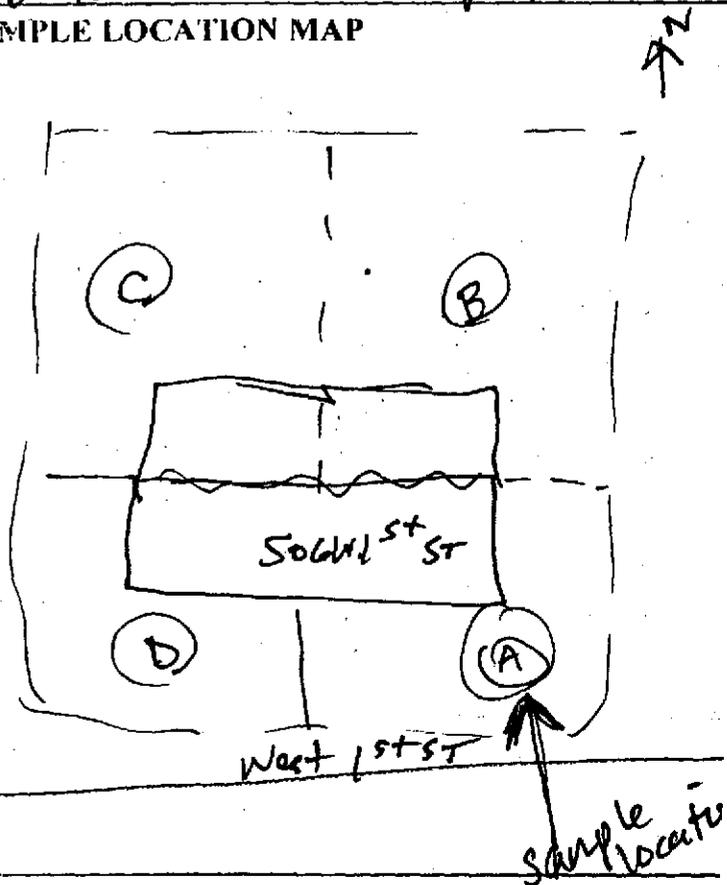
Sample Depth: ~~6"~~ 12"

Aliquots: composite

Sample Location:

506 W. 1st ST
 QUAD A
 * southeast corner of property
 * see site sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

MACK Hale
 506 W. 1st ST
 Cherryvale, KS
 67335

Comments:

POST-screening XRF Readings

QUAD A : <S5(N0) ; <S2(N0) <S9(N0)

Avg = S5

National Zinc Property Checklist

Resident: Cheryl Blackburn

Date: 11/27/01

Address: 509 First ST
Cherryvale, KS
67335

Field Tech: TD

Comments/Observations

No concerns or comments

Video/Photographic Documentation

(Includes 529 1st ST)

Pre-Excavation: Date: 11/27/01 Taken By: TD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:00:00-0:09:01

Post-Excavation: Date: 1/22/02 Taken By: TD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 4:23:15-4:49:15

National Zinc Site Sketch

Name: Arvid Lindquist

Date(s): 11/16/01

Address: 511 First Street
Cherryvale, KS 67335

Sketch = JK

XRF I.D. _____ Operator _____

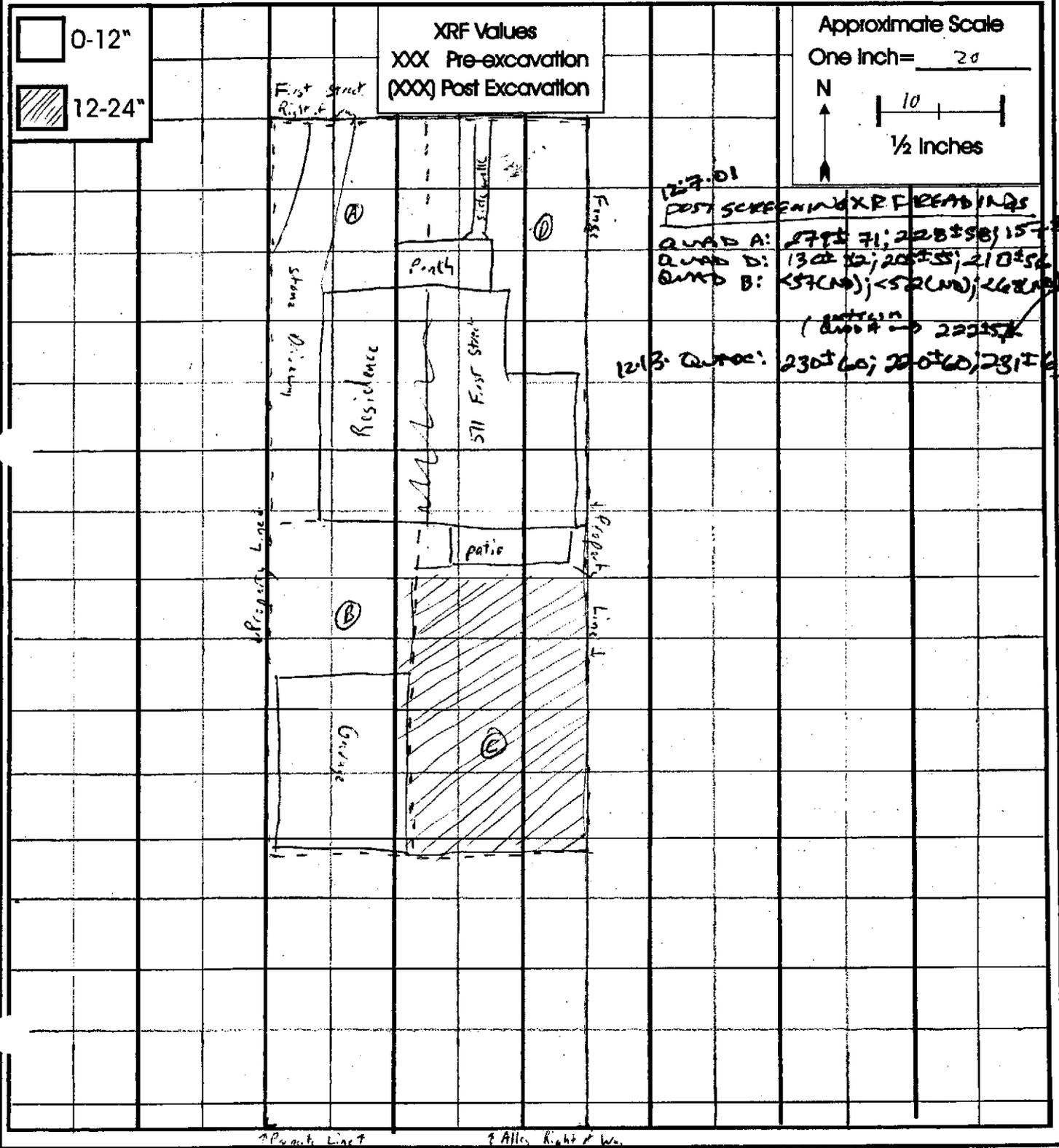
Pre-Removal: KDHS NOTE: also see back of field sheet - JP
Post-Removal: see below JP

0-12"
 12-24"

XRF Values
 XXX Pre-excavation
 (XXX) Post Excavation

Approximate Scale
 One Inch = 20
 N
 10
 1/2 Inches

127.01
 POST SCREENING XRF READINGS
 QUAD A: 27±71; 22±58; 15±52;
 QUAD D: 13±12; 20±55; 21±54
 QUAD B: 57(LN); 52(LN); 46(LN)
 (DUST) → 22±54
 1213. QUAD: 230±60; 220±60; 231±63



Property Line Alley Right of Way

National Zinc Property Checklist

Resident: Arvid Lindquist

Date: 11/16/01 + 12/6/01

Address: 511 First Street
Cherryvale, KS 67325

Field Tech: R... + ID

Comments/Observations

- * START member Ingrid Davis ^{+ OSC} speaks with property owner regarding any items or issues of concern that need to be addressed at property. Mr. Lindquist stated that there is nothing that he is aware of at property that is of concern
- * Lindquist stopped by where DAVIS is working and stated that it is okay to take out rose bush in NE corner of house, east of sidewalk

Video/Photographic Documentation

Pre-Excavation: Date: 11-16-01 Taken By: R... Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:25:44 → 26:35
Post-Excavation: Date: 3/28/02 Taken By: SD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:24 - 22:17

National Zinc Property Checklist

Resident: Wilma Adams

Date: 11/16/01 + 12/5/01

Address: 514 First Street
Cherryvale, KS 67335

Field Tech: J... + J... +
DON Leminger

Comments/Observations

* OSC DON Leminger spoke with property owner regarding
an items of concern or special interest not to
be disturbed, etc. Ms Adams mentioned a rose
bush located on the west side of the house that
should be avoided by excavation crews. she also
stated that she would be moving and is not
concerned with any other things in the yard
* She stated that the front fence south of house,
can be torn down and not replaced, as well,
as the fence to the west of the house (that
runs east to west) can be torn down and
not replaced as well

Video/Photographic Documentation

Pre-Excavation: Date: 11-16-01 Taken By: J... Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 24:53 - 25:43

Post-Excavation: Date: 11/21/01 Taken By: SD Roll#(s)/Tape(s)#: 24 Frame#(s)/Tape Counter 42:24 - 47:15

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 017

Project Leader: Don Lininger

Sample Date: 12/7/01

Sample Time: 0816

Sampler: ID

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice None	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A ID

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~6"~~ 6" - 12"

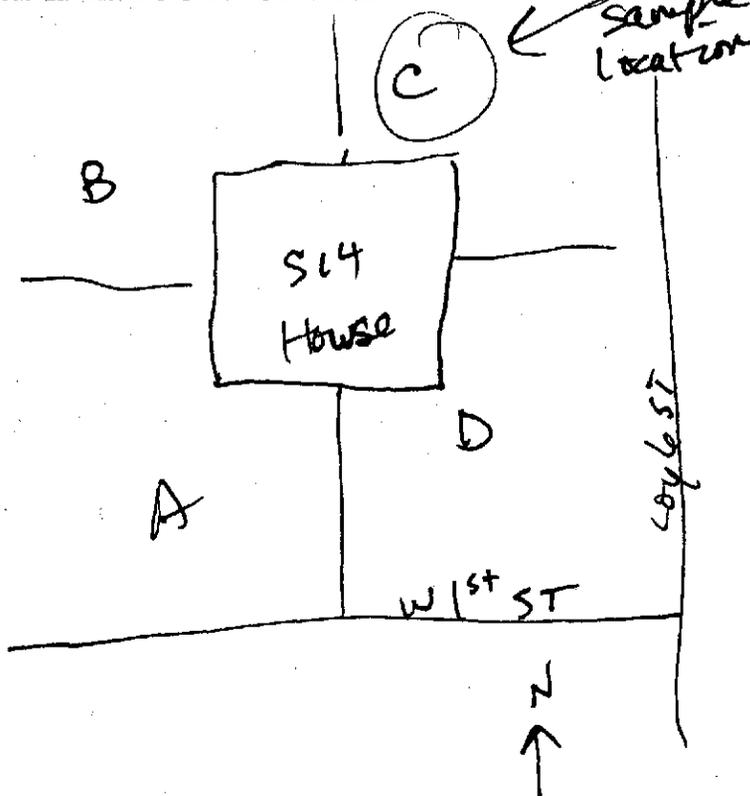
Aliquots: Composite (9 aliquots)

Sample Location:

S14 W1st ST
 Quad C

See site sketches and
 Sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Ms. Wilma Adams
 S14 W1st ST
 Cherryvale, KS
 67335

Comments:

Post Screening XRF Readings
 428 ± 68; 382 ± 66; 388 ± 66
 Avg = 399

National Zinc Site Sketch

Name: JOHN KOEHN

Date(s): 11/16/01

Address: SIS W 1st ST
Cherryvale, KS
67335

Sketch = JK

XRF I.D. _____ Operator _____

Pre-Removal: see below + back of sheet
Post-Removal: see below

XRF Values

0-12"
12-24"

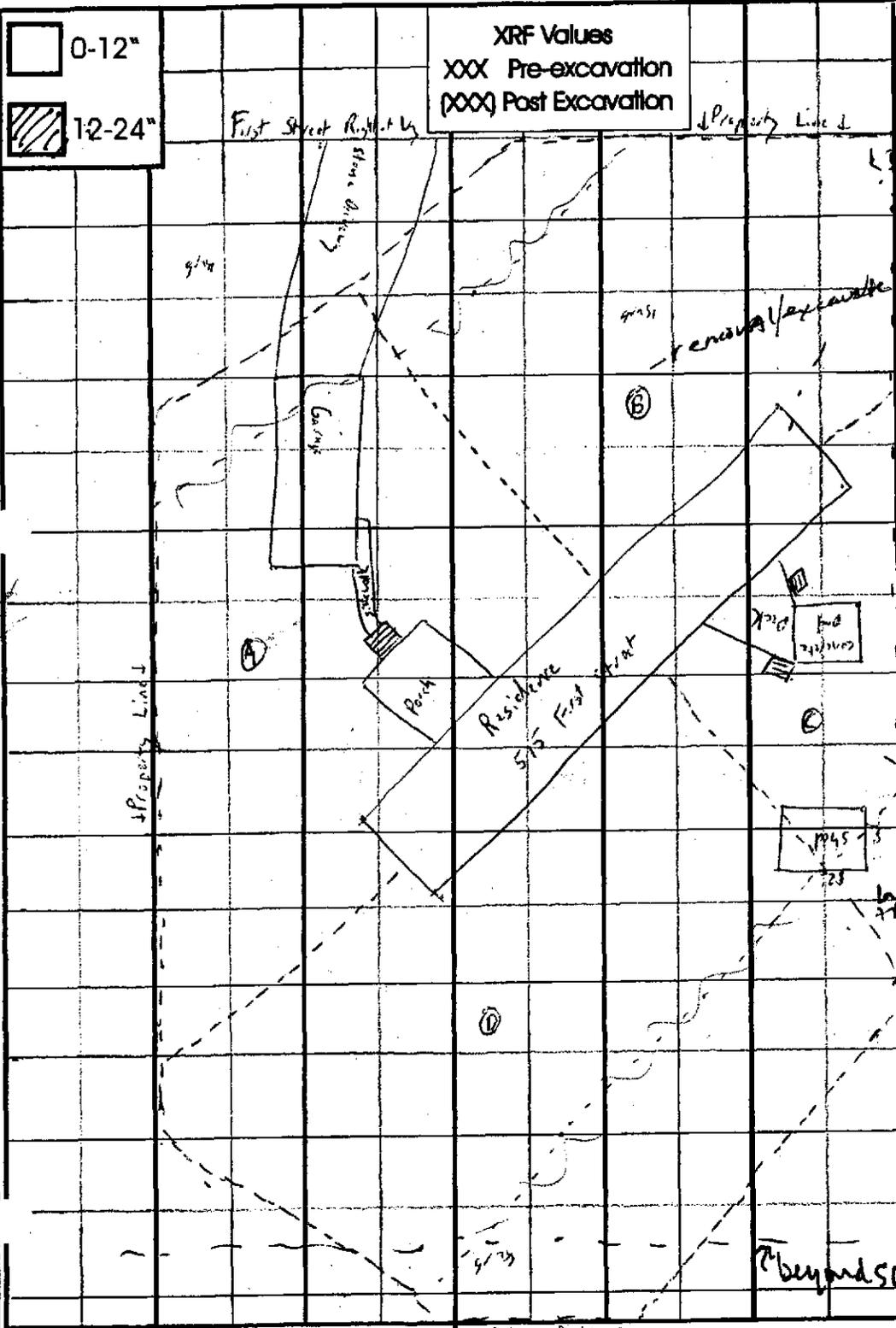
XXX Pre-excitation
XXXX Post Excavation

Approximate Scale

One inch = 20'

N ↑

10' | 1/2 inches



Pre screening XRF readings:

QUAD A: < 71 (ND); 168±56; 279±78; 370±75; 180±65; 63±37
QUAD B: 609±100; 256 (ND); < 63 (ND); 171±53; 204±62
QUAD C: 323±77; 74±38; 355±67; 297±62
QUAD D: 313±67; 314±65; 129±41; 147±64; 395±78; 204±75

12-6-01 POST SCREENING XRF READINGS

QUAD B: 167±53; 823±84; 701±65; 74±36

only excavated cell (+400ppm)

12-7-01 POST SCREENING XRF beyond 50' south of house

930±120; 485±88

beyond 50' from house

911 Right of Way

National Zinc Property Checklist

Resident: JOHN KOEHN

Date: 11/16/01

Address: SIS W 1st ST
Cherryvale, KS
67335

Field Tech: Ingrid Davis
Jeremy Keutman

Comments/Observations

* OSC Don henger spoke with OWNER regarding any items of concern or special interest in yard. Owner stated that there are no items of concern in yard
* owner left access agreement in mailbox for OSC to pickup.

Video/Photographic Documentation

Pre-Excavation: Date: 11-16-01 Taken By: JL Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:26:36-27:29

Post-Excavation: Date: 3/28/02 Taken By: JL Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 0:24-21/27

National Zinc Site Sketch

Name: SMITH, JON

Date(s): 1/20/01

Address: 635 W. 1st ST
Cherryvale, KS
67335

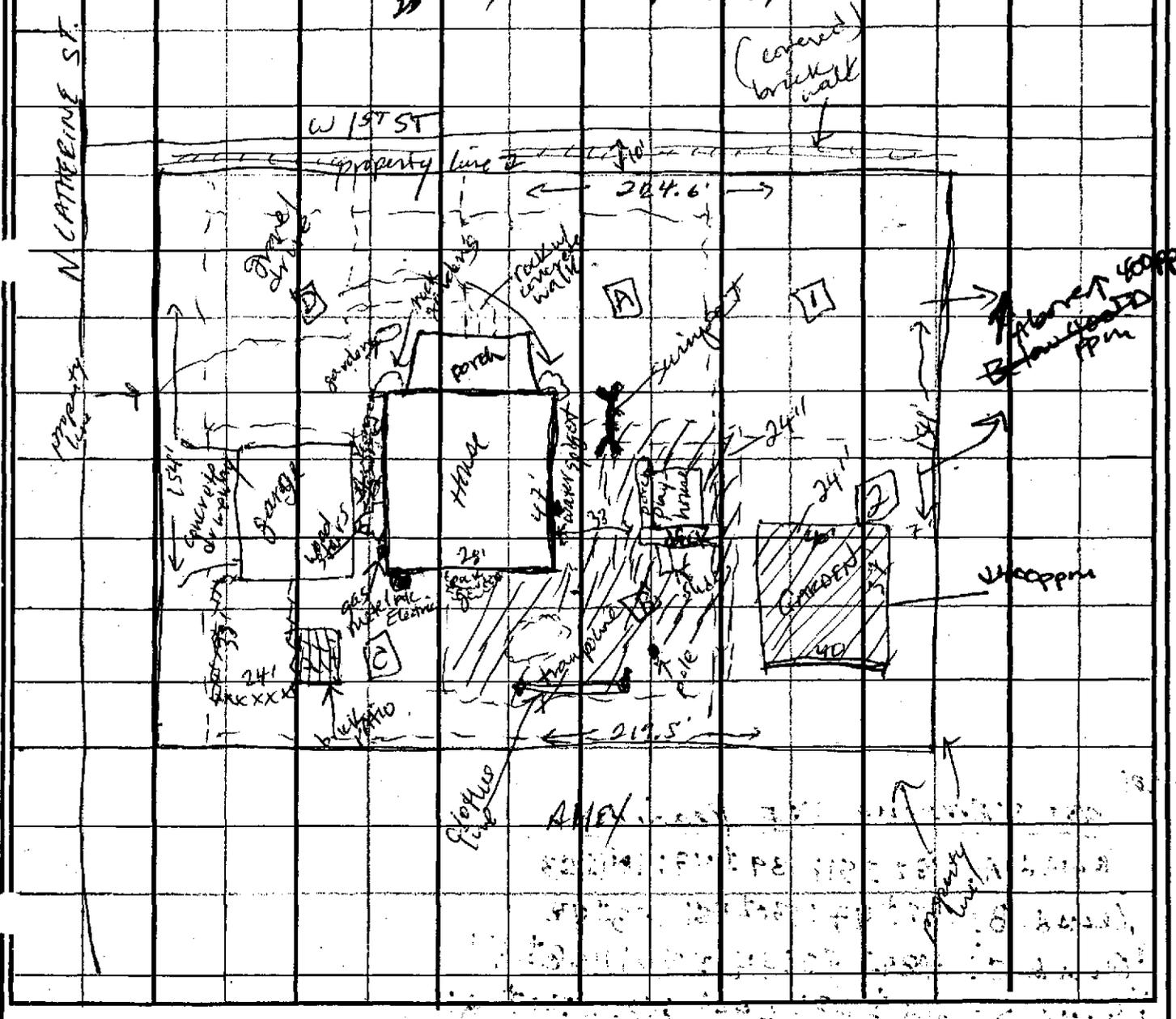
XRF I.D. see below Operator ID
 Pre-Removal: KME + START
 Post-Removal: START - see back ID

0-12"
 12-24"

XRF Values
 XXX Pre-excavation
 (XXX) Post Excavation

Approximate Scale
 One Inch = 40'
 N
 20'
 1/2 Inches

prescreening XRF Readings:
 Quad #1: 358±55; 427±59; 513±64
 Quad #2: 206±43; 224±45; 284±49
 ID



N = 224.6' x 154'; S = 219.5' x 154'

National Zinc Property Checklist

Resident: SMITH, JAY

Date: 11/30/01 + 12/02/01

Address: 635 W. 15th ST
Cherryvale, KS
69335

Field Tech: JD

Comments/Observations

- Resident moves trampoline out of way
- will place gravel in dog pen area
- will place gravel under slide @ playhouse
- The knights residence to the east, there fence is located on the Smiths property by a least 5' - which is outside our 50' boundary

Video/Photographic Documentation

Pre-Excavation: Date: 12/3/01 Taken By: JD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:01:52 - 0:06:55

Post-Excavation: Date: 3/28/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 0:24 - 2:17

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 019

Project Leader: Don Lininger

Sample Date: 12-12-01

Sample Time: 1650

Sampler: JD

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice, NONE	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A JD

SAMPLE DESCRIPTION

Matrix: Soil

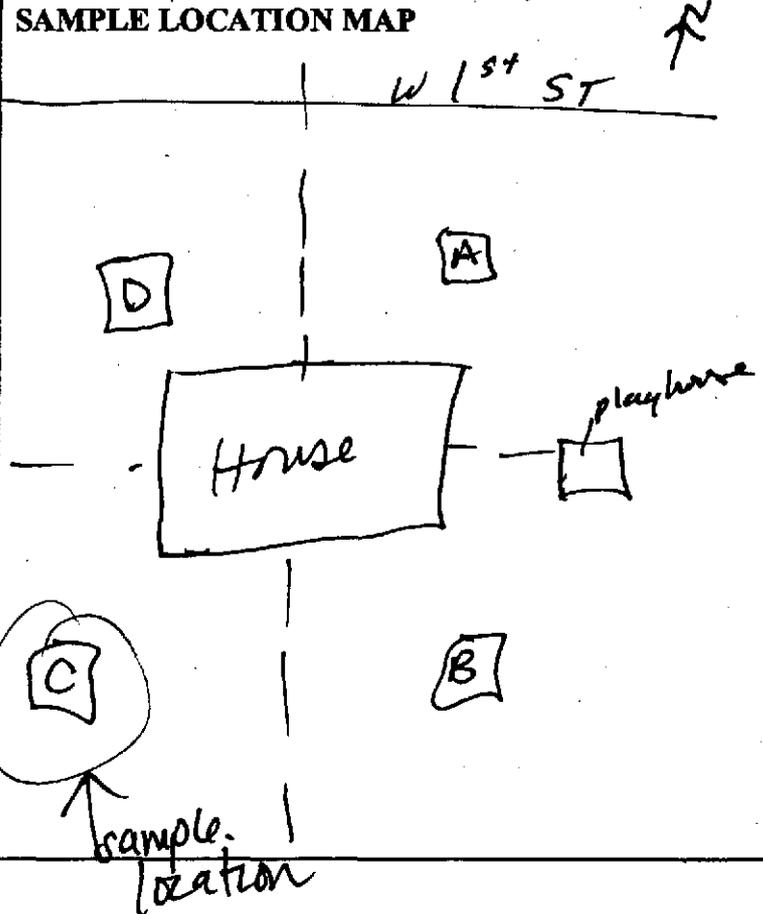
Sample Depth: ~~6"~~ 6" - 12"

Aliquots: composite (9 aliquots)

Sample Location:

635 W 1st ST
 * QLA d C
 * see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

JAY SMITH
 635 W 1st ST
 Cherryvale, KS
 67335

Comments:

post screening XRF Readings

484 ± 72; 441 ± 70; 468 ± 71

Avg = 464 (464)

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-020

Project Leader: Don Lininger

Sample Date: 12.12.01

Sample Time: 1620

Sampler: ID

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

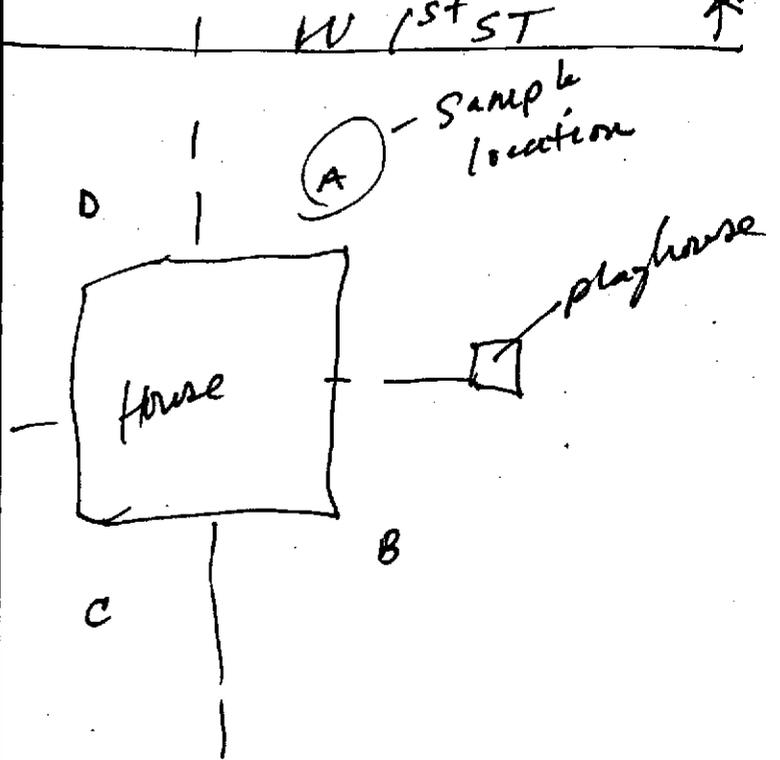
Matrix: Soil

Sample Depth: ~~6"~~ 6"-12"

Aliquots: composite (9 aliquots)

Sample Location: 635 W 1st ST
 Quad A
 * see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

JAY SMITH
 635 W 1st ST
 Cherryvale, KS
 67335

Comments:

post screening XRF Readings
182 ± 51; 139 ± 47; 104 ± 53
 AVG = 168

National Zinc Site Sketch

resident - Virgil Page

Name: CANNON, Stanley

Date(s): 11/29/01

Address: 638 W. FIRST
Cherryvale, KS
67338

XRF I.D.

Operator

Pre-Removal: V.D.H.E. + NORTH VALLEY LOT - ID

Post-Removal: see back see back back of plot see back

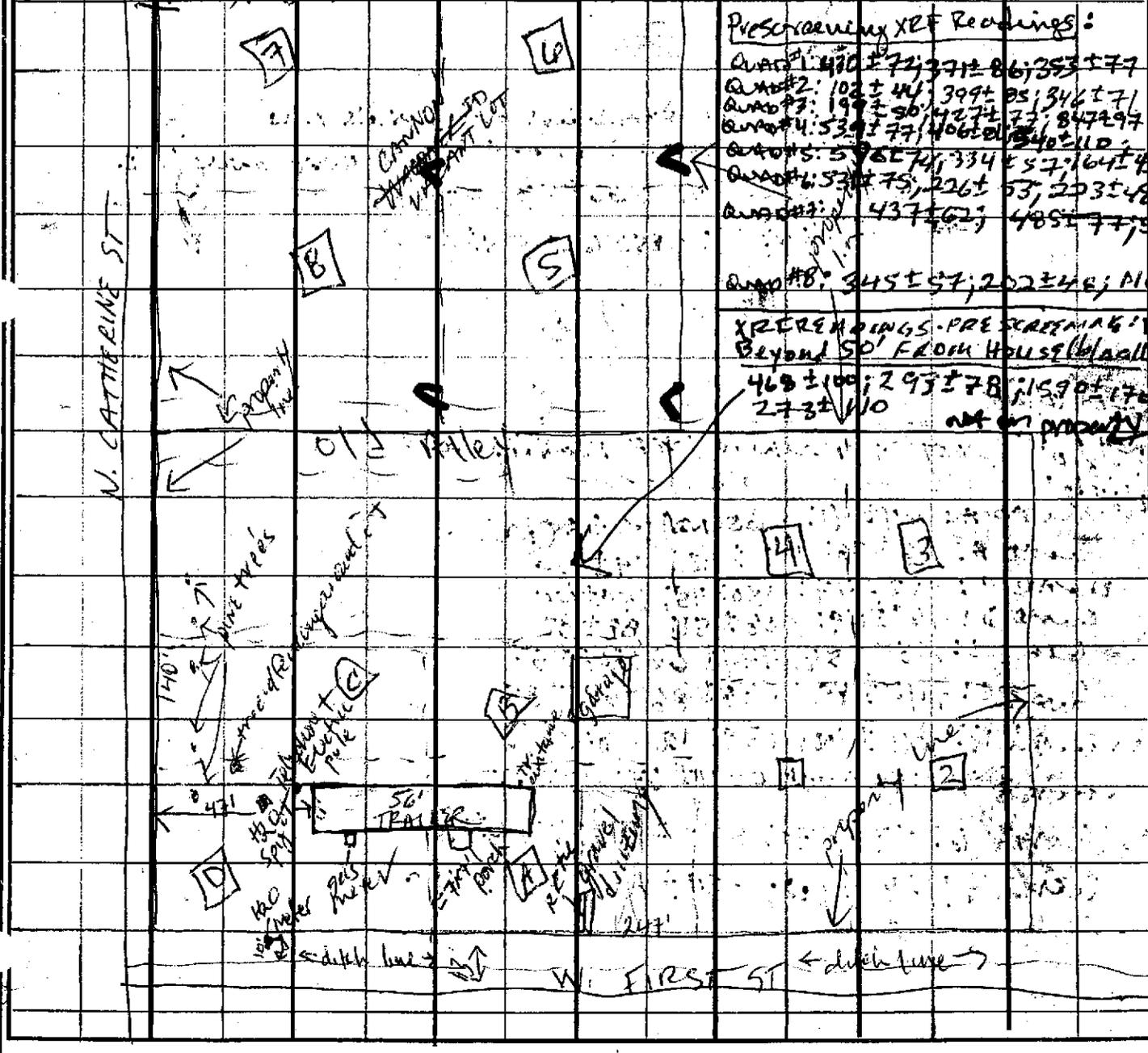
0-12"	FRONT ST	XRF Values XXX Pre-excitation (XXX) Post Excavation	Approximate Scale One Inch = <u>10'</u> N: 1/2 Inches
12-24"			

Pre-screening XRF Readings:

Quadrant 1: 480 ± 72, 371 ± 86, 353 ± 77
 Quadrant 2: 102 ± 44, 399 ± 85, 346 ± 71
 Quadrant 3: 199 ± 56, 427 ± 73, 847 ± 97
 Quadrant 4: 539 ± 77, 406 ± 110, 402 ± 110
 Quadrant 5: 595 ± 74, 334 ± 57, 164 ± 48
 Quadrant 6: 531 ± 75, 226 ± 53, 223 ± 48
 Quadrant 7: 437 ± 62, 485 ± 77, 501 ± 77
 Quadrant 8: 345 ± 57, 202 ± 46, 116 ± 44

XRF READINGS - PRE SCREENING BEYOND 50' FROM HOUSE (W. VALLEY)

469 ± 100, 293 ± 78, 1159 ± 170
 273 ± 110



243 x 140'

156 x 110'

National Zinc Property Checklist

Resident: ^{resident =} (CANNON, Stanley) Vergil Page Date: 11/29/01 + 11/30/01

Address: 639 W First
Cherryvale, KS
67335
Field Tech: ID

Comments/Observations

- Dog pen was moved out of the way by residents
- Will leave walkway from driveway to front porch
- Will work around pile of railroad ties located east of driveway

Video/Photographic Documentation

Pre-Excavation: Date: 11/30/01 Taken By: ID Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:09:01 - 043:07

Post-Excavation: Date: 3/28/02 Taken By: SD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:24 - 22:17

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 022

Project Leader: Don Lininger

Sample Date: 12/13/01

Sample Time: 1140

Sampler: DL

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NOTE DL	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A - DL

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~6"-12"~~ 6"-12"

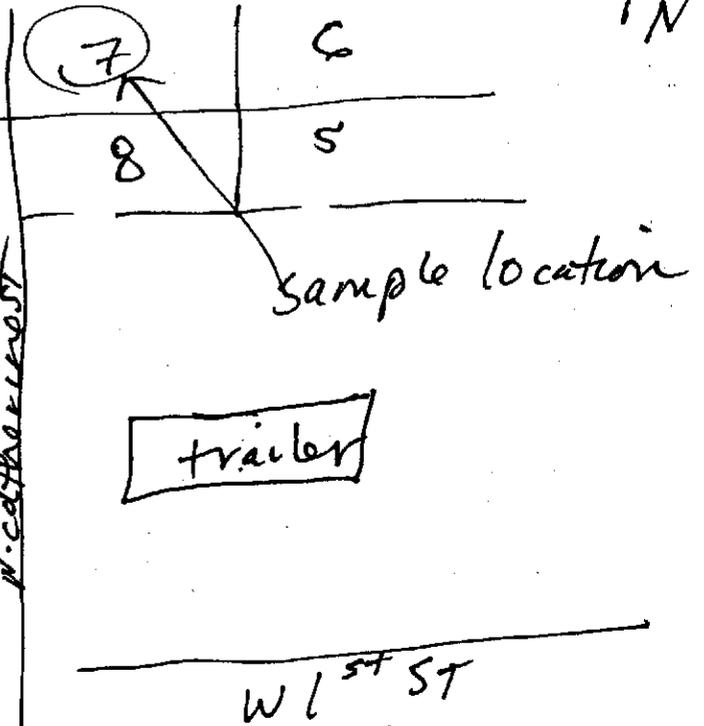
Aliquots: composite (9 aliquots)

Sample Location:

638 W 1st ST
 Quad 7

+ See sample location map

SAMPLE LOCATION MAP



Property Owner/Contact: resident Vergil Page

Cannon, Stanley
 638 W 1st ST
 Cherryvale, KS
 67335

Comments:

Post screening XRF readings
 381 ± 64; 334 ± 62; 321 ± 59
 Avg = 345

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 021

Project Leader: Don Lininger

Sample Date: 12/12/01

Sample Time: 1450

Sampler: DD

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice None ^{None}	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A ID

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~0-6"~~ 6" - 12"

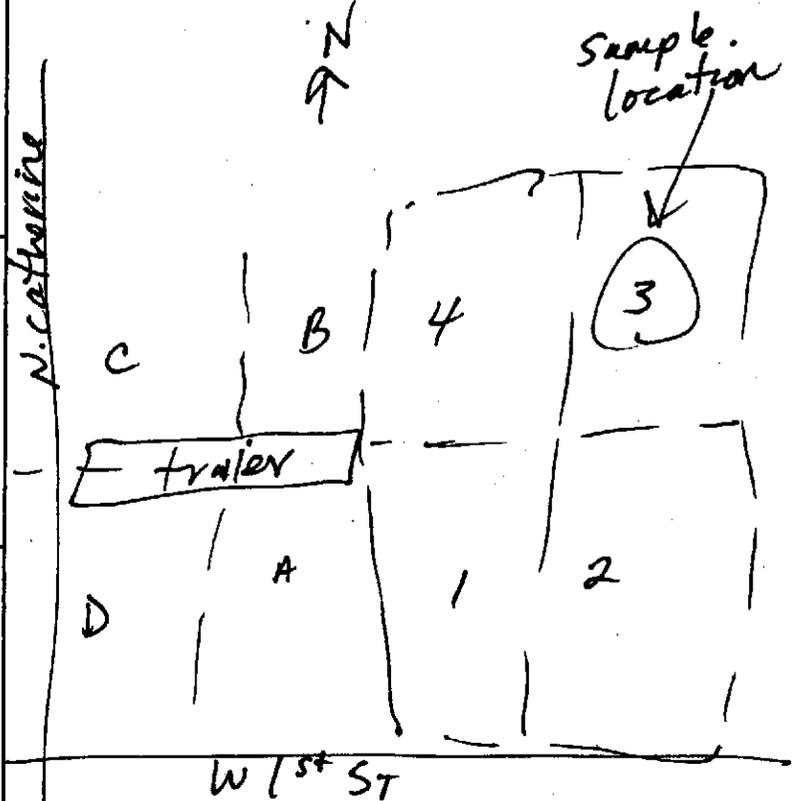
Aliquots: composite (9 aliquots)

Sample Location:

638 W 1st ST
 Quad 3

* see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

resident: Vergil Page
 Cannon, Stanley
 638 W 1st ST
 Cherryvale, KS
 67335

Comments:

Postern XRF Readings:

744 ± 89; 678 ± 86; 691 ± 85

Arg = 704

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 023

Project Leader: Don Lininger

Sample Date: 12/13/01

Sample Time: 1150

Sampler: ID

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NO ^{DO}	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A ^{ID}

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: ~~0-6"~~ 6" - 12"

Aliquots: composite (9 aliquots)

Sample Location:

638 W 1st ST
 DEAD B

See sample location map

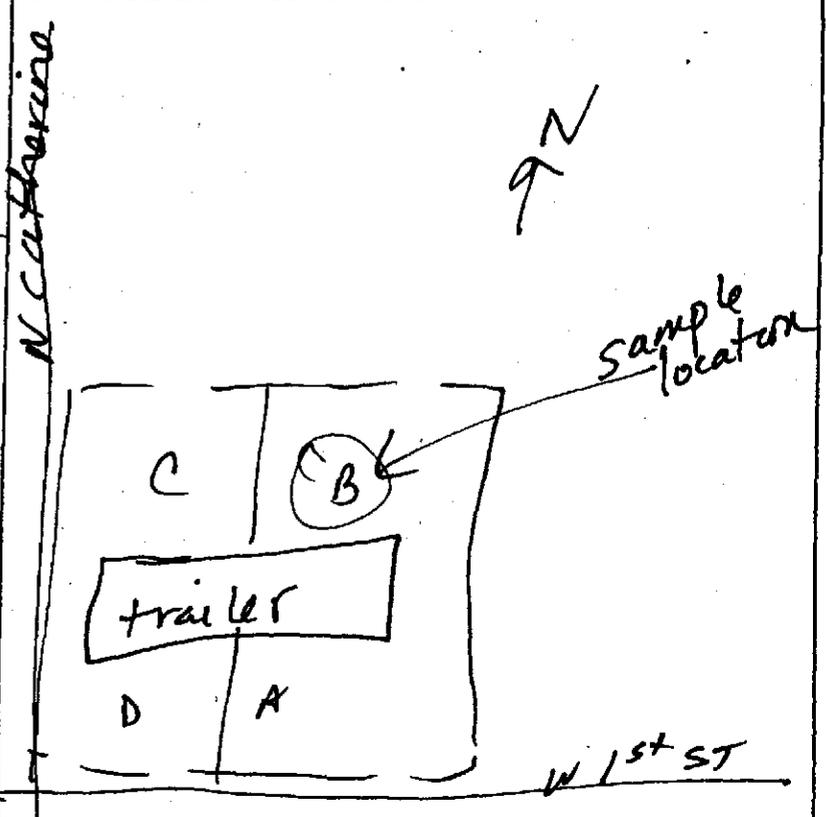
Property Owner/Contact: resident Virgil Page

Cannon, Stanley
 638 W 1st ST
 Cherryvale, KS 67335

Comments:

Post Screening ~~RF~~ Readings
 76 ± 38; 111 ± 42; 79 ± 39
 Avg = 89

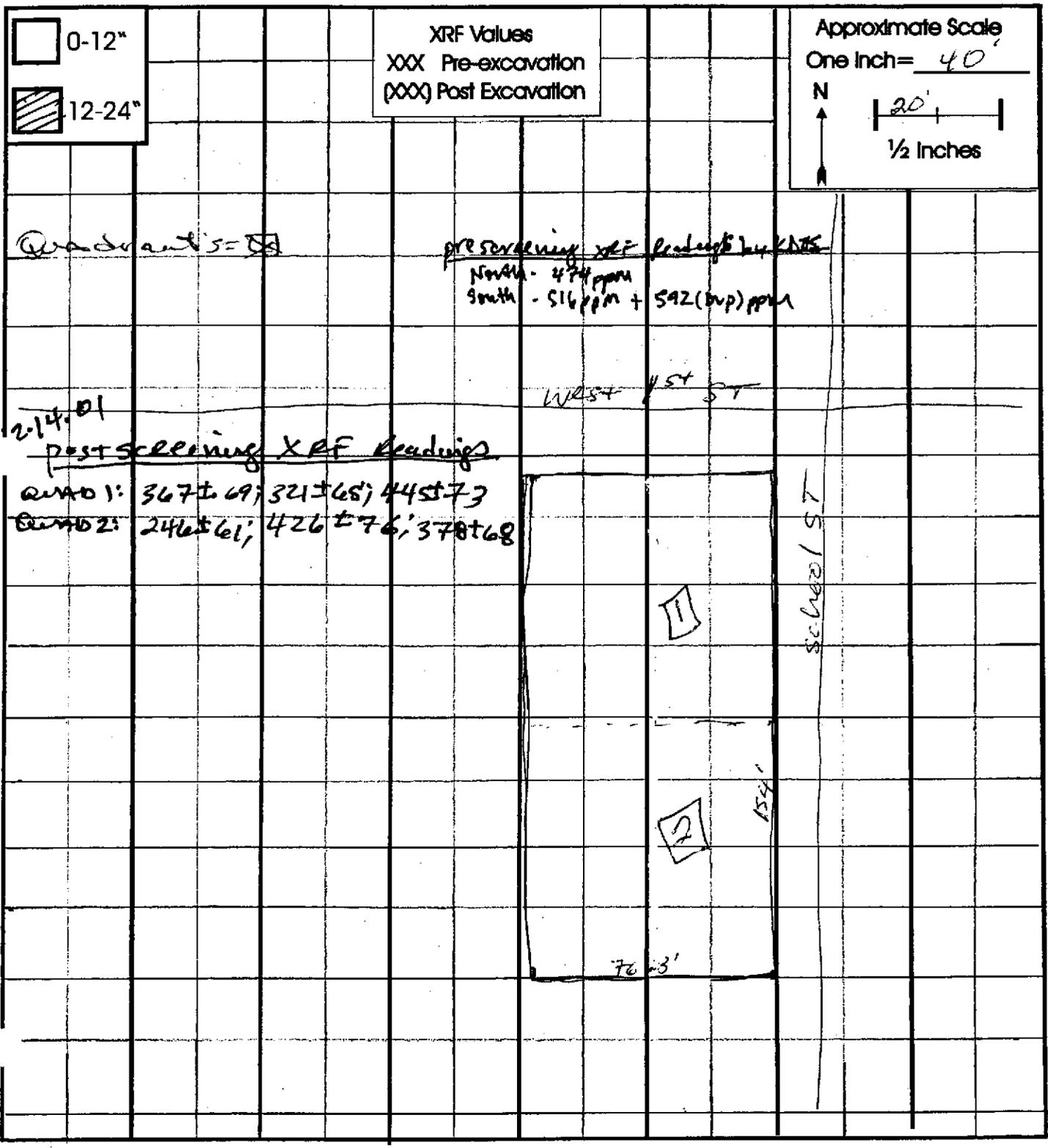
SAMPLE LOCATION MAP



National Zinc Site Sketch

Name: ARIAS, Engracia (Silvia Shaffer) Date(s): 12/5/01

Address: SW corner of school st and W. 1st st, vacant lot XRF I.D. Operator see
Cherryvale, KS 67335 Pre-Removal: KOHE - ~~see~~ 1103 below
 Post-Removal: START - 5' below 20



76' x 154'

National Zinc Property Checklist

Resident: Alina, Engracia (Silvia Shaffer) Date: 12/5/01

Address: Vacant lot at SW corner of W 1st St and School St Field Tech: JD

Comments/Observations

NO CONCERNS OR COMMENTS

Video/Photographic Documentation

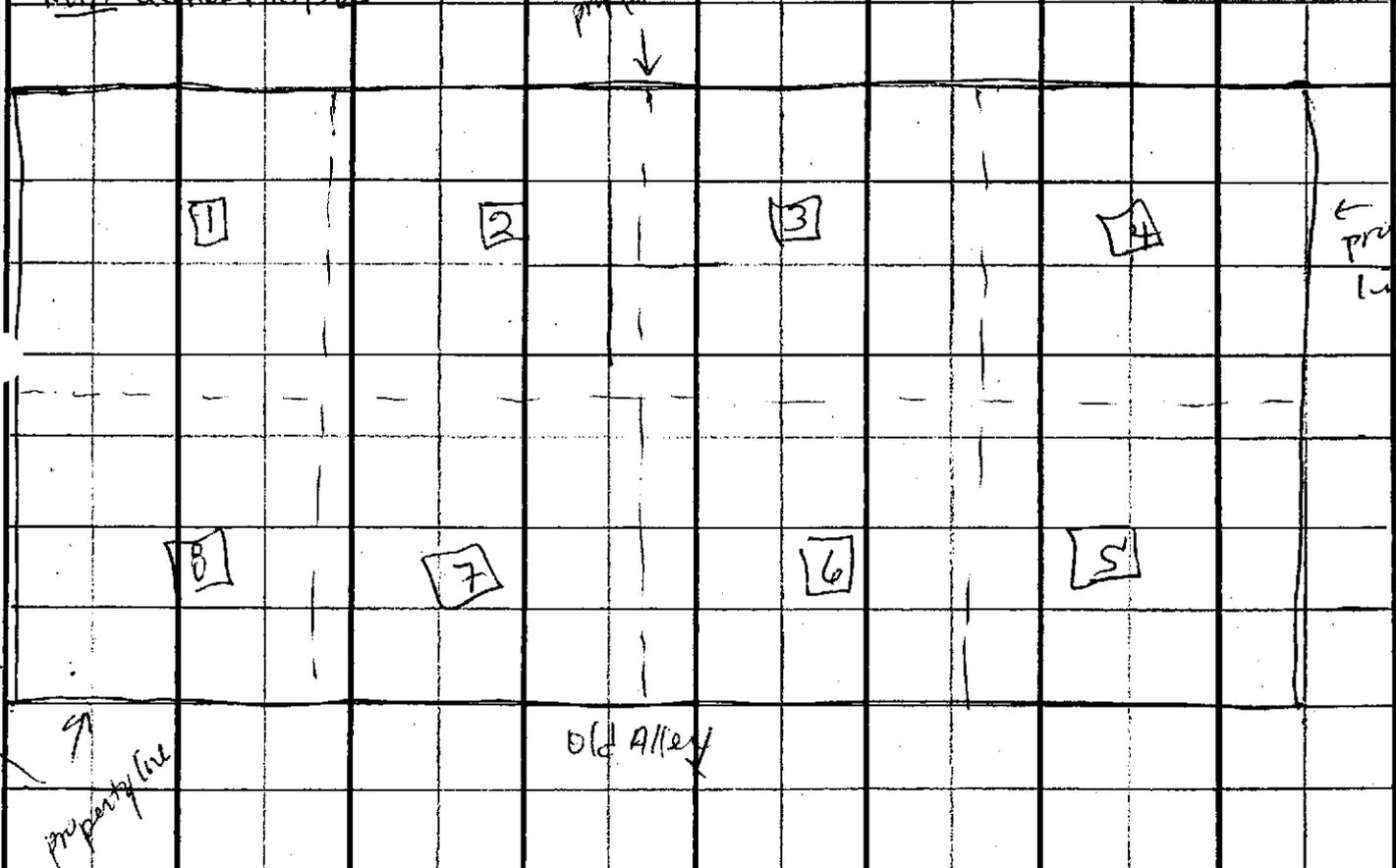
Pre-Excavation: Date: 12-5-01 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 0:00:00 - 0:01:29

Post-Excavation: Date: 3/29/02 Taken By: JN Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 0:24-12:17

National Zinc Site Sketch

Name: MAGNUM, EJ + Jennie Date(s): 11/30/01
 Address: 0 MARTIN ST XRF I.D.: 50000 Operator: ED
Cherryvale, KS Pre-Removal: START - see below
67335 Post-Removal:

<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div> 0-12"	XRF Values XXX Pre-excitation (XXX) Post Excavation	Approximate Scale One Inch = <u>40'</u> N ↑ ----- 20' 1/2 Inches
---	--	--



11.30.01
 1400
 9 samples
 NOTE: THERE IS A LOT OF DEBRIS IN YARD OF GLASS, BRICK, METAL
 PRESCREENING XRF READINGS ARE: QUAD 1: 970±86; 739±92; 867±88
 QUAD 2: 1750±130; 1800±130; 1700±130; 1600±130
 QUAD 3: 1610±120; 1480±120; 1600±130
 QUAD 4: 876±93; 846±91; 982±99
 QUAD 5: 906±87; 1120±100; 1040±96
 QUAD 6: 1960±140; 1550±130; 1820±130
 QUAD 7: 2040±140; 2420±160; 2200±150
 QUAD 8: 1330±110; 1370±110; 1230±100

20' x 140'

National Zinc Property Checklist

Resident: MAGNUM, EJ + Jennie

Date: 1/30/01

Address: 0 MARTIN ST
Cherryvale, KS
67335

Field Tech: FD

Comments/Observations

NO CONCERNS OR COMMENTS

Video/Photographic Documentation

Pre-Excavation: Date: 1/30/01 Taken By: FD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:01:52
Post-Excavation: Date: 1/22/02 Taken By: FD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 0:38:14

National Zinc Property Checklist

Resident: Steve Page

Date: 11/6/01

Address: 511 W Martin Street
Cherryvale, KS
67335

Field Tech: Engel & Davies

Comments/Observations

- Two trees in front of house (approximately 10' in front) do not damage - planted with his grand daughter
- Electric line running from south of house off of pole to shed
- telephone on west side of house goes to edge of line
- gas in front to left (W) of stairs at front entrance
- shed in rear (S) of house
- shed to west of house
- take XRF readings every 25' from 50' line from house on/at east of driveway
- Niton VRF readings taken every 50' from/outside of 50' excavation line from house on west side of driveway + garage

Video/Photographic Documentation

Pre-Excavation: Date: 11/6/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 0100100-0:08:41

Post-Excavation: Date: 1/22/02 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 000100-0:15:36
**includes other property*

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 001

Project Leader: Don Lininger

Sample Date: 11/7/01

Sample Time: 1047

Sampler: Ingrid DAVIS

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar 50	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

Matrix: Soil

Sample Depth: 0"-2"

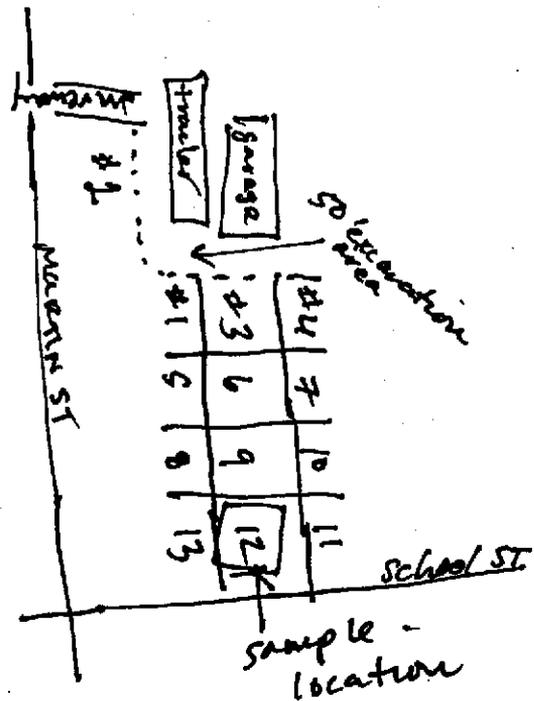
Aliquots: composite

Sample Location:

511 W Martin ST
 West pasture: see sample location map
 sample location is cell #12

SAMPLE LOCATION MAP

N ← → S



Property Owner/Contact:

Mr. Steve Page
 511 W Martin ST
 Cherryvale, KS
 67335

Comments:

pre-screening
XRF readings:
 1560 ± 140
 1860 ± 130
 1550 ± 130
 average = 1557
 average 1550

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 008

Project Leader: Don Lininger

Sample Date: 11/13/01

Sample Time: 1450

Sampler: Ingrubman

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar <u>DO</u>	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

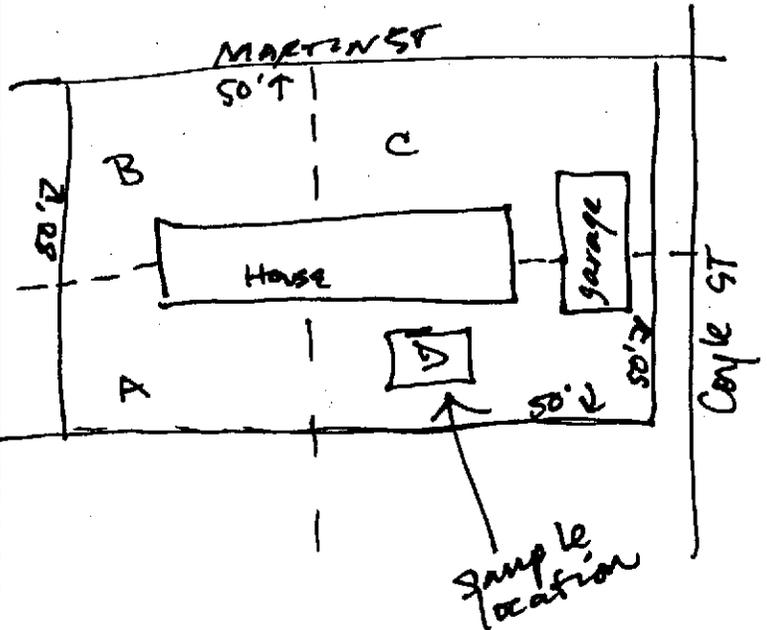
Matrix: Soil

Sample Depth: 6"-12"

Aliquots: 9 (4 aliquots) composite

Sample Location: S11 Martin St
 - QUADD (see site sketch & log bk)
 - NW corner of house (within 50' from house)

SAMPLE LOCATION MAP



Property Owner/Contact:

Mr. Steve Page
 S11 W. MARTIN ST
 Cherryvale, KS
 67335

Comments:

- post excavation
 - XRF Readings
 132 ± 48
 146 ± 49
 66 ± 40
 average = 115 (115)

National Zinc Property Checklist

Resident: Mr. + Mrs Floyd Thompson

Date: 11/06/01

Address: 629 W. Martin Street
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

Davis performs site walk through with owner, OSC, and IT crew
* trees to be removed are marked with paint and owner is present to decide (Ash + maple trees stay) cottonwood to stay
* leave tree at gate on N Catherine st. (tree is immediately at gate)
* garden to be removed in SE corner to 24"
* XEF areas in front of gate on N Catherine st, by house entrance + utility lines (gas meter, sewer, tel, phone) on N side
* All areas within fenced yard are to be excavated to 12", except garden to be excavated to 24"

Video/Photographic Documentation

Pre-Excavation: Date: 11/6/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter

Post-Excavation: Date: 1/24/02 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter

last reading 0:08:10 on tape from 511 Martin St
JD
0:08:11
0:08:06
0:11:43
0:15:36
0:28:14
Includes other properties

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-009

Project Leader: Don Lininger

Sample Date: 11/13/01

Sample Time: 1635

Sampler: ID

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar ID	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

Matrix: Soil

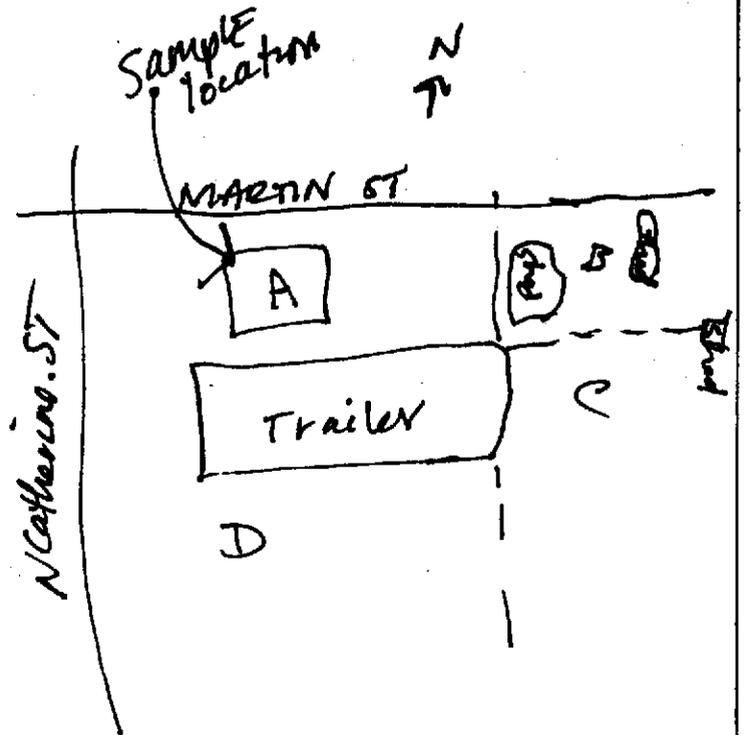
Sample Depth: ~~0-6"~~ 6"-12"

Aliquots: 9 (composite)

Sample Location:

629 Martin ST
 - QUAD A, NW CORNER in
 fenced area? see site sketch
 field sheet + sample location
 map →

SAMPLE LOCATION MAP



Property Owner/Contact:

Mr. Floyd Thompson
 629 MARTIN
 Cherryvale, KS
 67335

Comments:

POST-EXCAVATION SAMPLE

XRF Readings (ppm)

~~684 ± 83~~ 455 ± 68
~~431 ± 68~~ 556 ± 84
~~503 ± 73~~ 686 ± 87
 Average = 566 ppm

Average = 566 ppm

National Zinc Site Sketch

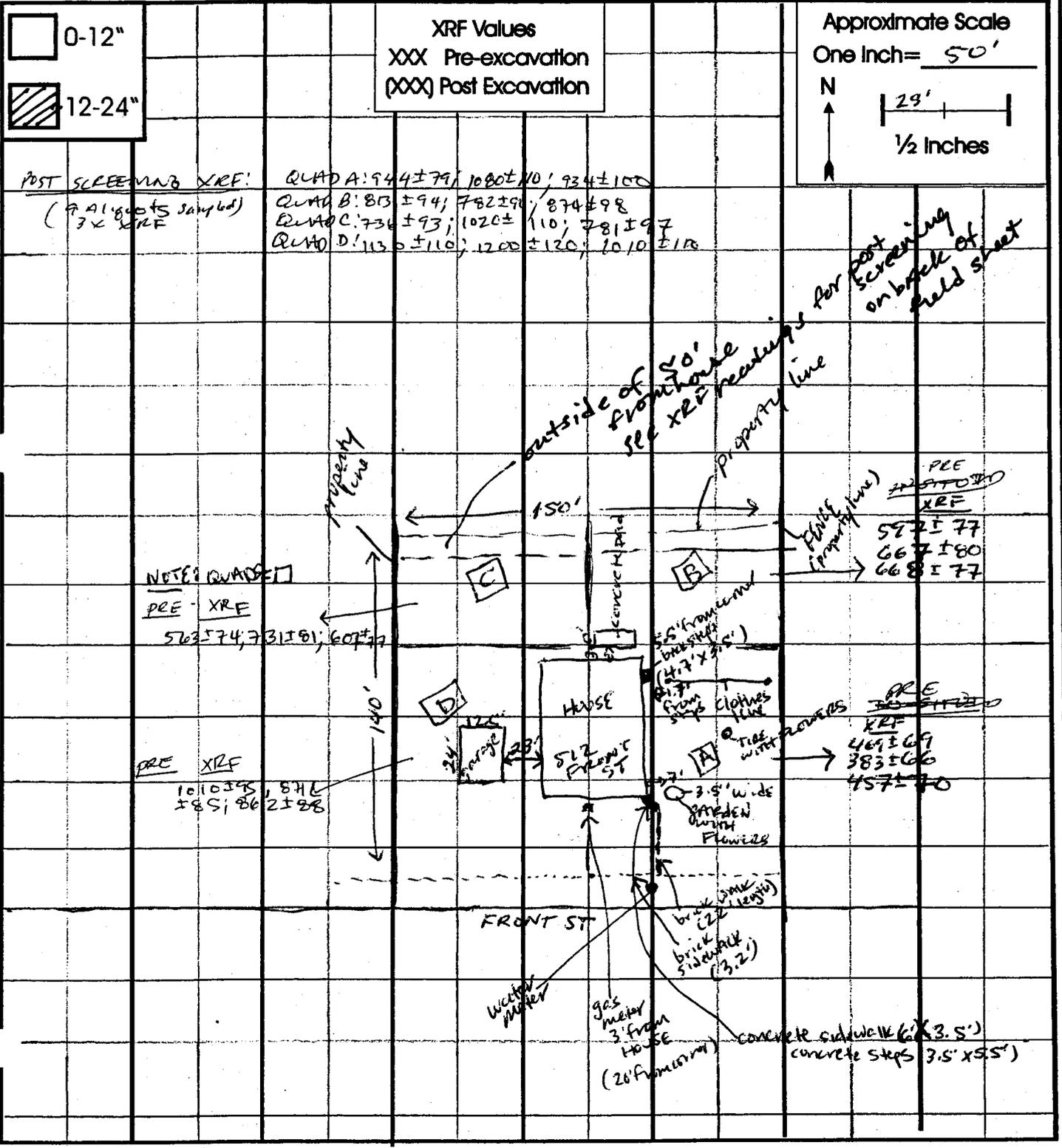
Name: Cynthia Hodgden

Date(s): 11/8/01

Address: 512 Front St
Cherryvale, KS
67335

IN-5170 ↓

Pre-Removal: <u>383 ± 66</u> Post-Removal: _____	QUADA XRF I.D. QUAD B 467 ± 69 667 ± 80 383 ± 66 667 ± 77 457 ± 70 577 ± 77	Operator <u>FD</u>
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National Zinc Property Checklist

11/8/01 - 10

Resident: CYNTHIA HODGEN - OWNER

Date: 11/9/01

Address: 512 FRONT ST.
CHERRYVALE, KS 67335

Field Tech: DON LININGER

Comments/Observations

- HOME IS RENTED OUT - RENTERS ARE AWARE OF REMOVAL ACTIVITIES.
- OBTAINED ACCESS AGREEMENT
- NO KNOWN GAS WELL
- CISTERN BEHIND HOUSE IS COVERED W/ CONCRETE SLAB
- OK TO REMOVE STUMPS TO THE NORTH & EAST OF HOUSE
- OK TO REMOVE STRAWBERRY BEDS IN FRONT CORNER OF HOUSE - WILL NOT BE REPLACED BY EPA
- OK TO REMOVE FLOWER BED IN FIRE IN FRONT YARD - WILL NOT REPLACE FLOWER BED
- SEWER CLEANOUT ON N SIDE OF HOUSE - EXPOSED & CRACKED

Video/Photographic Documentation

Pre-Excavation: Date: 11/8/01 Taken By: DO Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 0:00:00 - 0:00:20

Post-Excavation: Date: 1/22/02 Taken By: DO Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 0:00:00 - 01:15:36

Includes other property

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ- 002

Project Leader: Don Lininger

Sample Date: 11/8/01

Sample Time: 1450

Sampler: Ingrid Davis

Expected Concentration: Low ~~Medium~~ High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
10 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

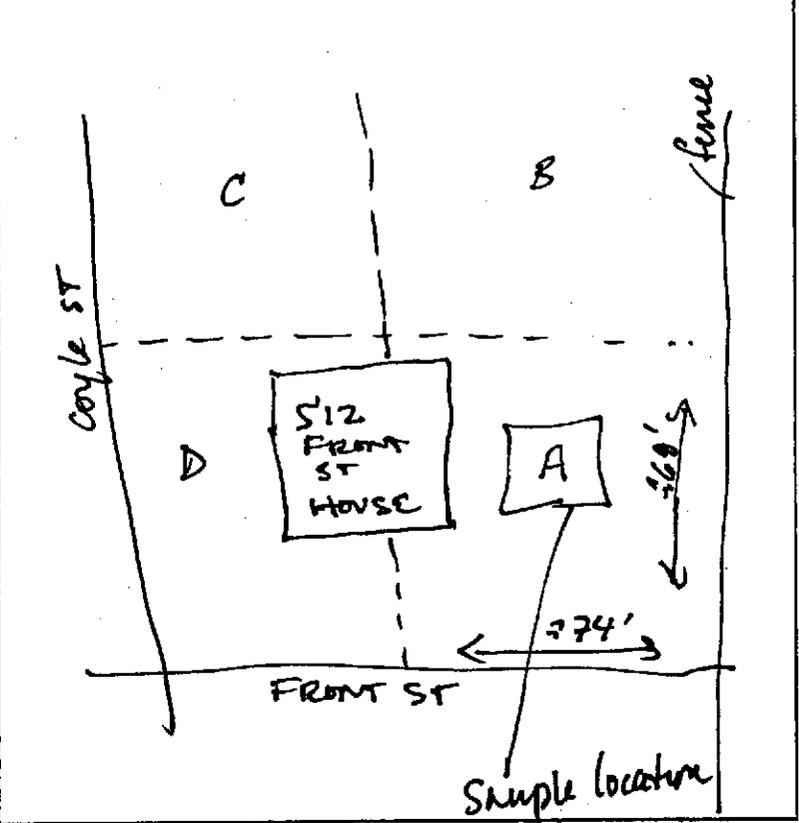
Matrix: Soil

Sample Depth: 0' - 1"

Aliquots: composite (9)

Sample Location: 512 FRONT ST
 Quad A
 - SE of house at 512 Front St; approximately 70' x 70' quadrant
 see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:
 Miss Cynthia Hodgden
 512 Front ST
 Cherryvale, KS
 67335

Comments: ~~Pre~~ excavation
 In
 Niton XRF Readings: 469 ± 69
 383 ± 66
 457 ± 70

average = 435

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 003

Project Leader: Don Lininger

Sample Date: 11/8/01

Sample Time: 1500

Sampler: Ingrid DAVIS

Expected Concentration: Low ~~Medium~~ High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar 10	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

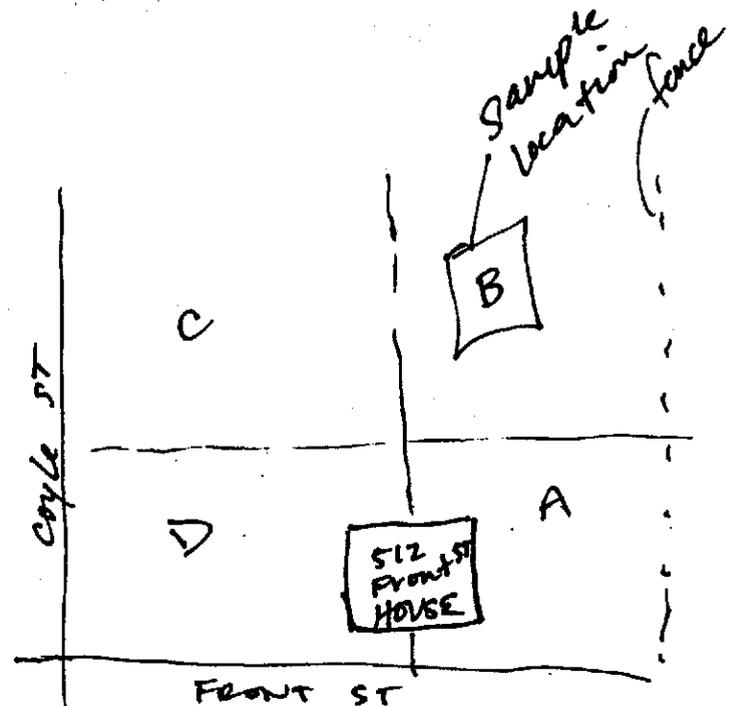
Matrix: Soil

Sample Depth: 0" - 1"

Aliquots: composite (9)

Sample Location: 512 FRONT ST
 Quad B
 - NE of house at 512 Front St.
 ± 68' x 74' quadrant
 - see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Miss Cynthia Hodgden
 512 Front St
 Cherryvale, KS
 67335

Comments:

Pre-screening
 Niton XRF READINGS = (ppm)
 667 ± 80
 668 ± 77
 597 ± 77
 average = 644

National Zinc Property Checklist

Resident: Rick Valverde

Date: 11/9/01

Address: S20 W Front ST
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

- * DAVIS spoke with residents mother (her son lives in trailer) and asked her if there were any special (trees) or critical items in the yard that need to be moved or left undisturbed during excavation. She stated that the tree to the west of the trailer should remain and no other known items were stated.
- * DAVIS asked about any underground tanks/pipes. Mrs Valverde stated that there is a tank at the NE of trailer, visible from ground surface. DAVIS flag with yellow paint (tank is visible from ground surface).

Video/Photographic Documentation

includes
of S24 Front

Pre-Excavation: Date: 11/9/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 14:52

Post-Excavation: Date: 11/22/01 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36

National Zinc Site Sketch

Name: Billie Tabben-Bruce

Date(s): 11/9/01

Address: 524 W Front St
Cherryvale, KS
67325

XRF I.D. Operator
 Pre-Removal: KDHE 1450 ID/N/A
 Post-Removal: see below ID

- 0-12"
- 12-24"

XRF Values
 XXX Pre-excitation
 (XXX) Post Excavation

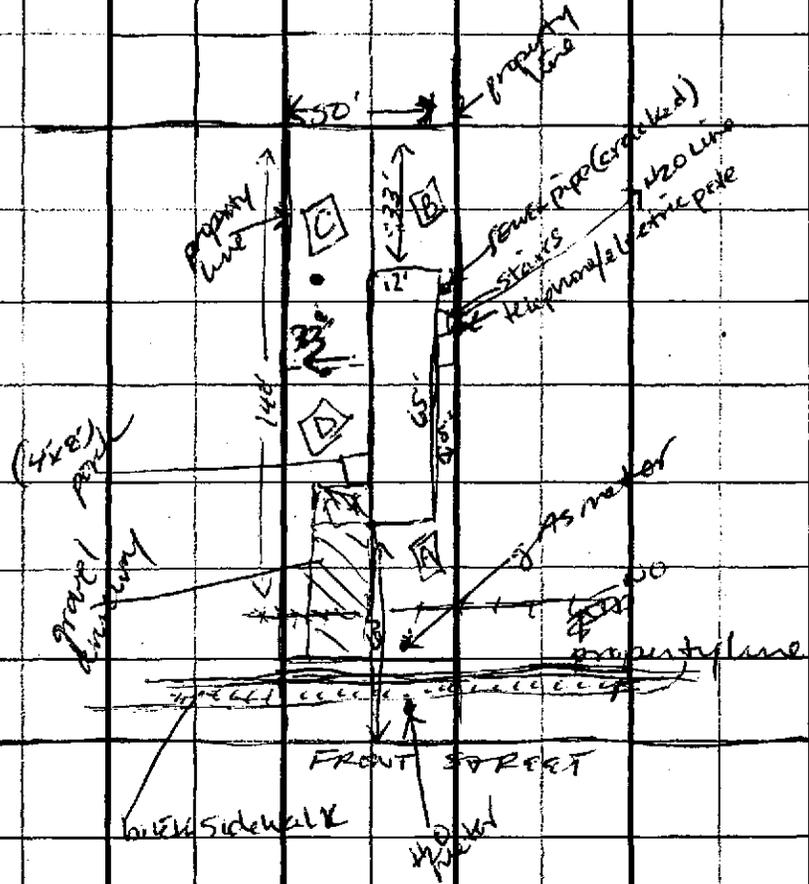
Approximate Scale
 One Inch = 50'
 N
 25'
 1/2 Inches

NOTE: PRESCREENING PERFORMED BY KDHE:
 XRF READINGS FOR POST EXCAVATION ARE:

QUAD A: 1690±150; 1150±120; 800±98
 QUAD B: 590±87; 728±99; 579 (ND)
 QUAD C: 320±87; 1170±140; 1860±170
 QUAD D: 514±79; 1730±140

XRF readings under former trailer: 806±65;
 <67 (ND); 187 ± 61; 660 (ND)

NOTE: QUADRANTS



NOTE: TRAILER BURNED DOWN IN NOV.

National Zinc Property Checklist

Resident: Billie Jabben - Bruce

Date: 11/15/01

Address: S24 Front
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

+ no items of concern
* trailer burned down in Nov.

Video/Photographic Documentation

Includes print
S20 print

Pre-Excavation: Date: 11/9/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 14:52

Post-Excavation: Date: 11/02 Taken By: JD Roll#(s)/Tape(s)#: 3 Frame#(s)/Tape Counter 14:59 - 15:25

general counter w/
other properties

0:00:00 - 0:15:36

National Zinc Site Sketch

Name: Arvid Lundquist

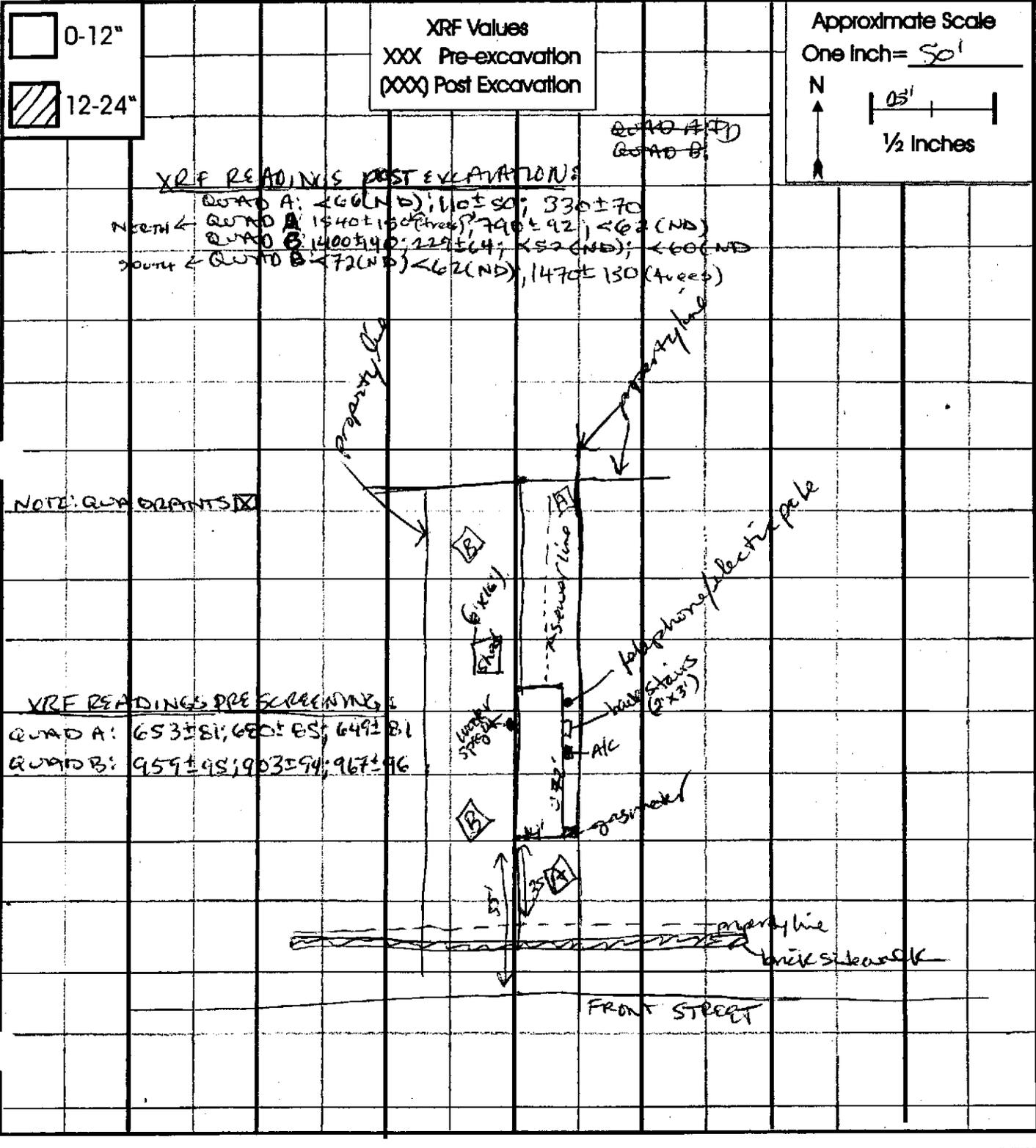
Date(s): 11/9/81

Address: 530 Front ST
Cherryvale, KS
67335

XRF I.D. _____ Operator _____

Pre-Removal: see values below ID

Post-Removal: _____



National Zinc Site Sketch

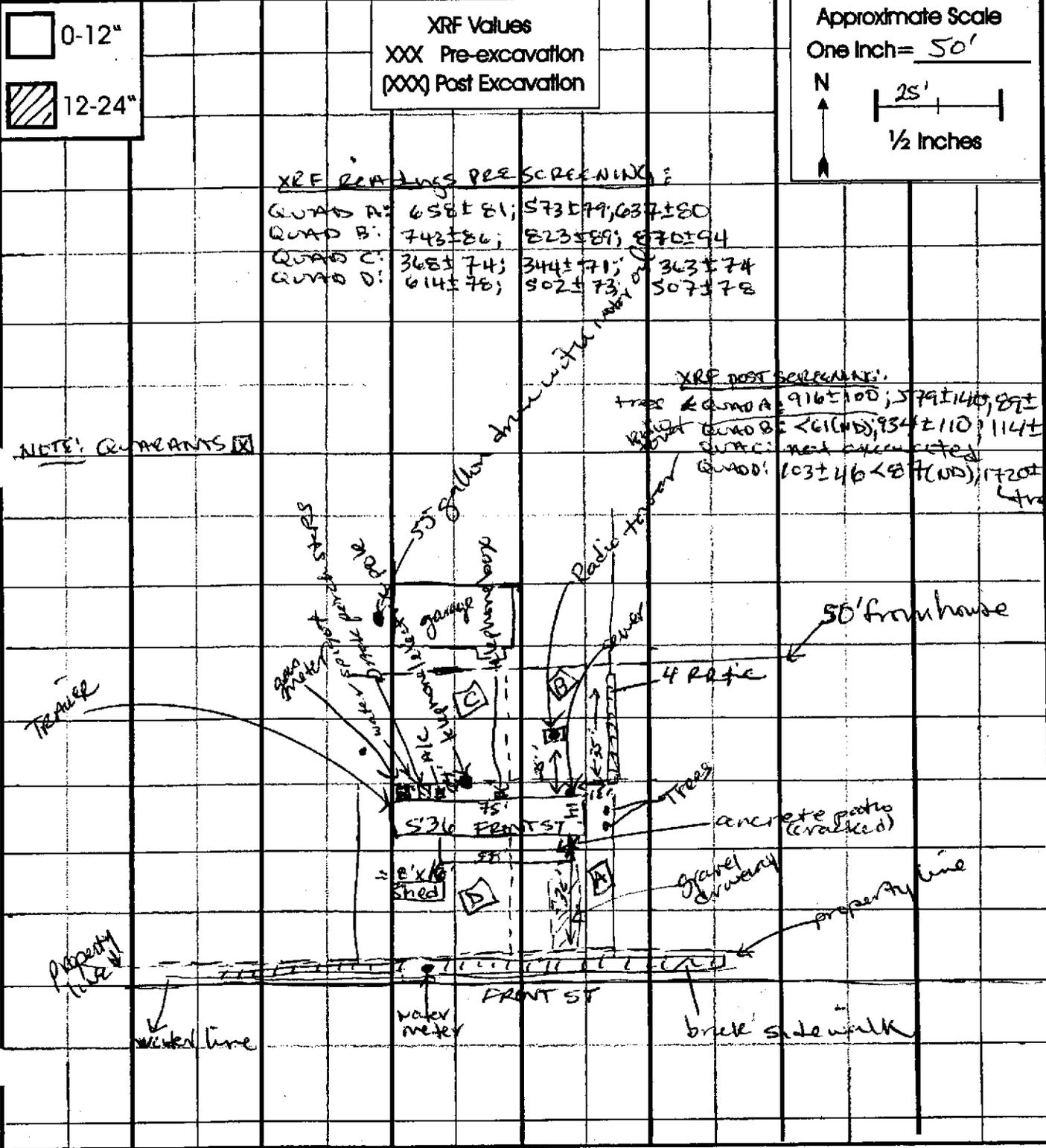
Name: Arvid Lindquist

Date(s): 11/9/07

Address: S36 Front St
Cherryvale, KS
67335

XRF I.D. _____ Operator ED

Pre-Removal: SEE VALUES BELOW
Post-Removal: _____



National Zinc Property Checklist

Resident: Arvid Lundquist, JR

Date: 11/9/01

Address: 530 Front St
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

- * Sewer line from trailer runs north of trailer (DARRIS put flags on area)
- * RL types to be placed back where they are if moved.
- * Replace rock b/n garage + house

Video/Photographic Documentation

Pre-Excavation: Date: 11/9/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 11:12
Post-Excavation: Date: 1/22/02 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 0:00:00 - 0:00:36

includes 530 Front

includes other properties

National Zinc Property Checklist

Resident: Arvid Lundquist, JR

Date: 11/9/01

Address: S 34 Front St +
Cherryvale, KS
67335

Field Tech: JP

Comments/Observations

* can take 55 gallon drum to west of garage, was present when owner bought the property
* can move re tags if replaced back where they are presently located

Video/Photographic Documentation

Includes 530 Permit

Pre-Excavation: Date: 11/9/01 Taken By: SD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter 11:12
Post-Excavation: Date: 1/22/02 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 0:00:00-0:15:36

includes other permits

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 004

Project Leader: Don Lininger

Sample Date: 11/9/01

Sample Time: 1500

Sampler: JD

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

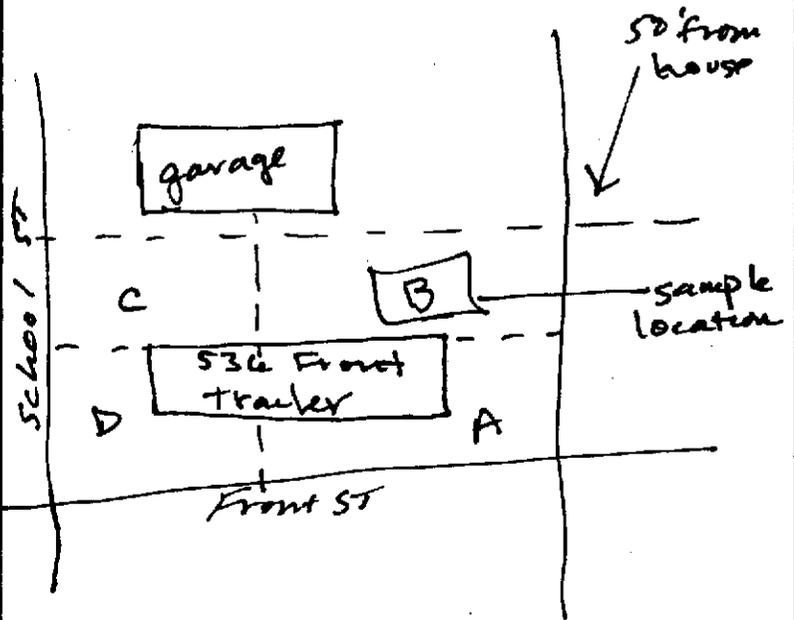
Matrix: Soil

Sample Depth: 0'-1"

Aliquots: composite (9 aliquots)

Sample Location: S36 Front ST
 QAD B
 - NE out front of house
 - to the NE bln garage + house
 - see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Mr. Arrid Lindquist
 536 Front ST
 Cherryvale, KS
 67335

Comments:

XRF Reading S (ppm)
 743 ± 86
 823 ± 89
 870 ± 94
 pre-screening
 average (8/2)

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 005

Project Leader: Don Lininger

Sample Date: 11/9/01

Sample Time: 1535

Sampler: JLD

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar <i>AD</i>	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

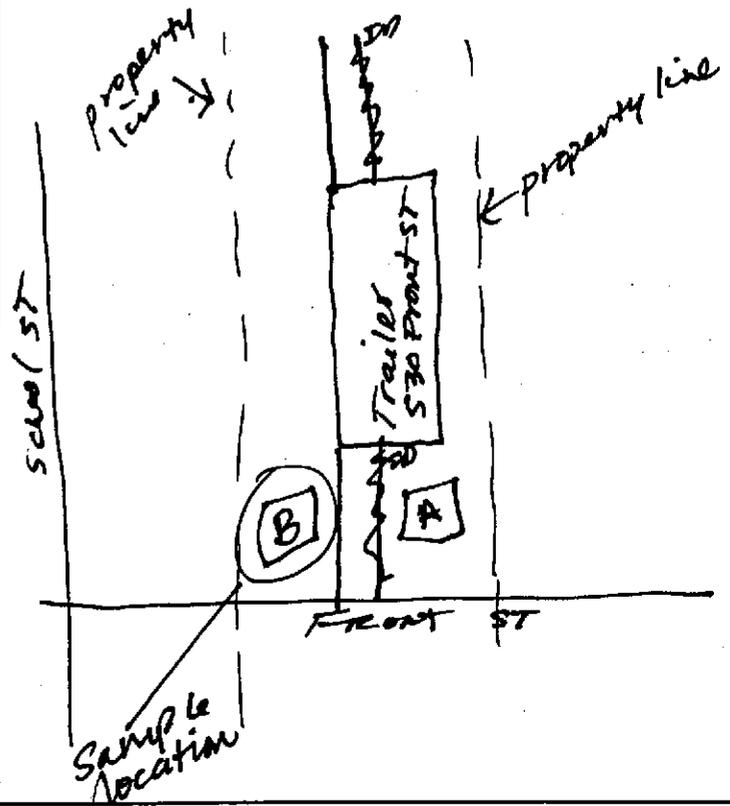
Matrix: Soil

Sample Depth: 0"-1"

Aliquots: composite (9 aliquots)

Sample Location: 530 Front ST
QUAD B
 - TO THE WEST OF TRAILER
 (FROM SW CORNER WEST; TO
 PROPERTY LINE)
 - SEE SAMPLE LOCATION MAP

SAMPLE LOCATION MAP



Property Owner/Contact:
 Mr. Arvid Lindquist
 530 Front St.
 Cherryvale, KS
 67335

Comments: pre-screening
 XRF Readings (ppm)
 959 ± 95
 903 ± 94
 967 ± 96 average = 943

National Zinc Site Sketch

Name: Carl HALE

Date(s): 11/14/01

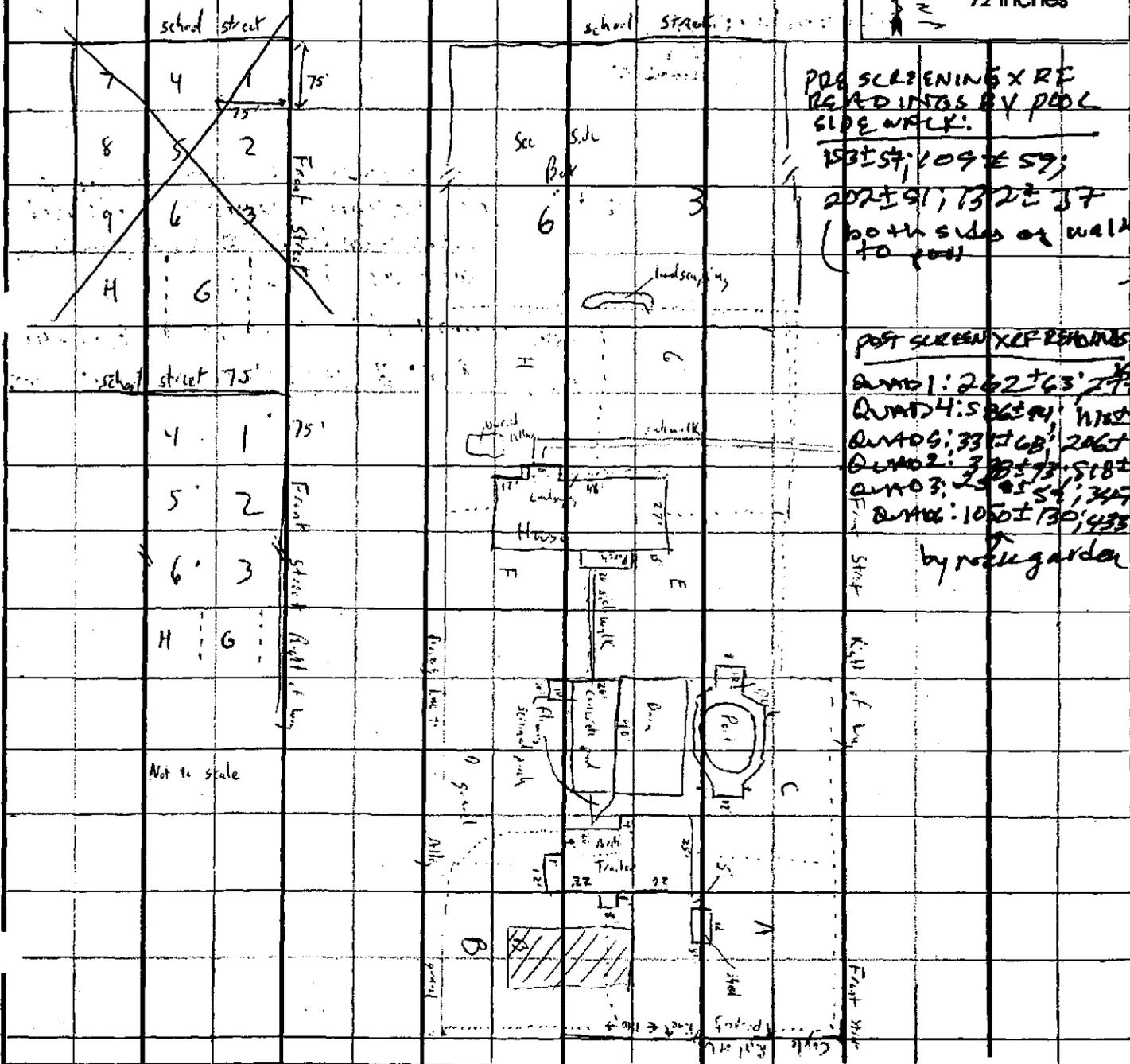
Address: S05 + 513 Front St
Cherryvale, KS
67330

XRF I.D. _____ Operator _____
 Pre-Removal: see attached back
 Post-Removal: see back of folder

0-12"
 12-24"

XRF Values
 XXX Pre-excitation
 (XXX) Post Excavation

Approximate Scale
 One Inch = 50'



PRE SCREENING XRF READINGS BY POOL SIDE WALK:
 153 ± 57; 109 ± 57;
 207 ± 91; 132 ± 57
 (both sides of walk to pool)

POST SCREEN XRF READINGS by rear garden
 QUAD 1: 262 ± 63; 277 ± 201
 QUAD 4: 586 ± 71; 110 ± 107
 QUAD 6: 331 ± 68; 266 ± 62
 QUAD 2: 337 ± 73; 518 ± 87
 QUAD 3: 255 ± 54; 347 ± 73
 QUAD 5: 1050 ± 130; 433 ± 76

Not to scale

National Zinc Property Checklist

Resident: Carl Hale

Date: 11/27/01

Address: 505 & 513 Front St.
Cherryvale, KS

Field Tech: LININGER
+ JK

Comments/Observations

Site walk through w/ Carl & Bill Cathy - response mgr.

- Carl will move swingset, trampoline & trailer out of the way
- will excavate to 24" depth on east side of 505 - due to children playing exclusively in area - location of trampoline/swingset.
- A NATURAL GAS well is located on the SE corner of 505 - has a wood cover - buried shallow
- Satellite Dish w/ buried cable in SE corner of 505 - in same location as NATURAL GAS line
- Agrees that along the east side of 505 - will just bring in clean fill along the house - no excavation to occur - due to already low area & utilities that are shallow in the area.
- Carl identifies areas of buried electrical cable between pool, garage & 513 - he marks w/ red paint - he believes buried 6"-12".
- Agrees that along west side of 513 & sidewalk - will not excavate any soil from that area - due to shallow & narrow - will just bring in clean fill
- The storm cellar located on SW corner of 513 was constructed w/ clean fill that was brought therefore will not excavate area of storm cellar.

Video/Photographic Documentation

Pre-Excavation: Date: 11/30/01 Taken By: JK Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 028123-72:40

Post-Excavation: Date: 1/22/02 Taken By: JK Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 38:14-42:24

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 012

Project Leader: Don Lininger

Sample Date: 12/3/01

Sample Time: 09:48

Sampler: JO

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	None Ice DD	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar DD	Ice DD	6 months DD	Mercury by Method SW-846 7470A/7471A DD

SAMPLE DESCRIPTION

Matrix: Soil

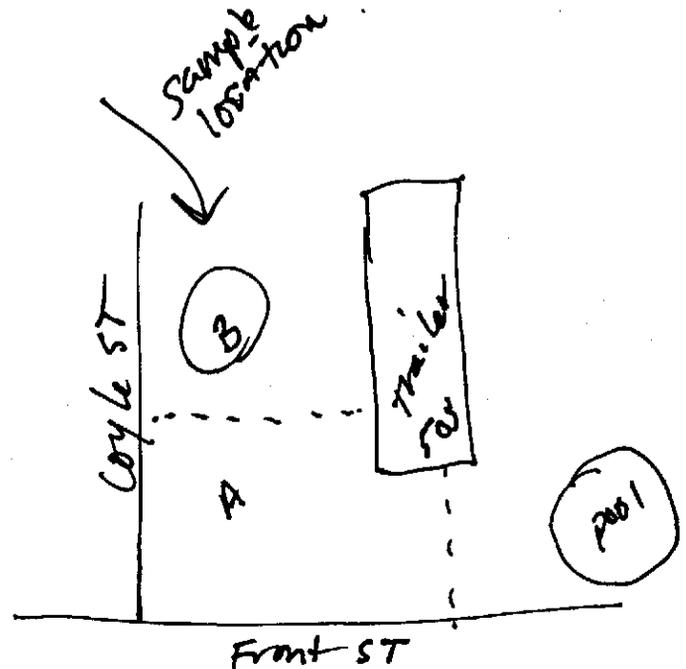
Sample Depth: ~~16"~~ 12"

Aliquots: composite

Sample Location:

Post
 505 Front ST
 Quad B
 See site sketch + site
 sketch field sheet

SAMPLE LOCATION MAP



Property Owner/Contact:

CARL Hale (daughter)
 505 Front ST
 Cherryvale, KS
 67335

Comments:

POST XRF Readings ARE:

135 ± 48; 157 ± 51; 113 ± 46

AVG = 135

National Zinc Site Sketch

Name: ARLA OULGLEY

Date(s): 11/10/01

Address: 610 FRONT ST + (614 Front St) XRF I.D.
Cherryvale, KS
67335

Operator
 Pre-Removal: LONG 1540 N/A 500
 Post-Removal: see below 500

<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div> <p>0-12"</p>	<p>XRF Values</p> <p>XXX Pre-excitation</p> <p>(XXX) Post Excavation</p>	<p>Approximate Scale</p> <p>One Inch = <u>50'</u></p> <p>N ↑</p> <p style="text-align: center;"> 25' </p> <p style="text-align: center;"> 1/2 Inches </p>
--	---	--

XRF POST EXCAVATION READINGS!

QUAD A: 491 ± 81 ppm; 711 ± 85; 233 ± 61

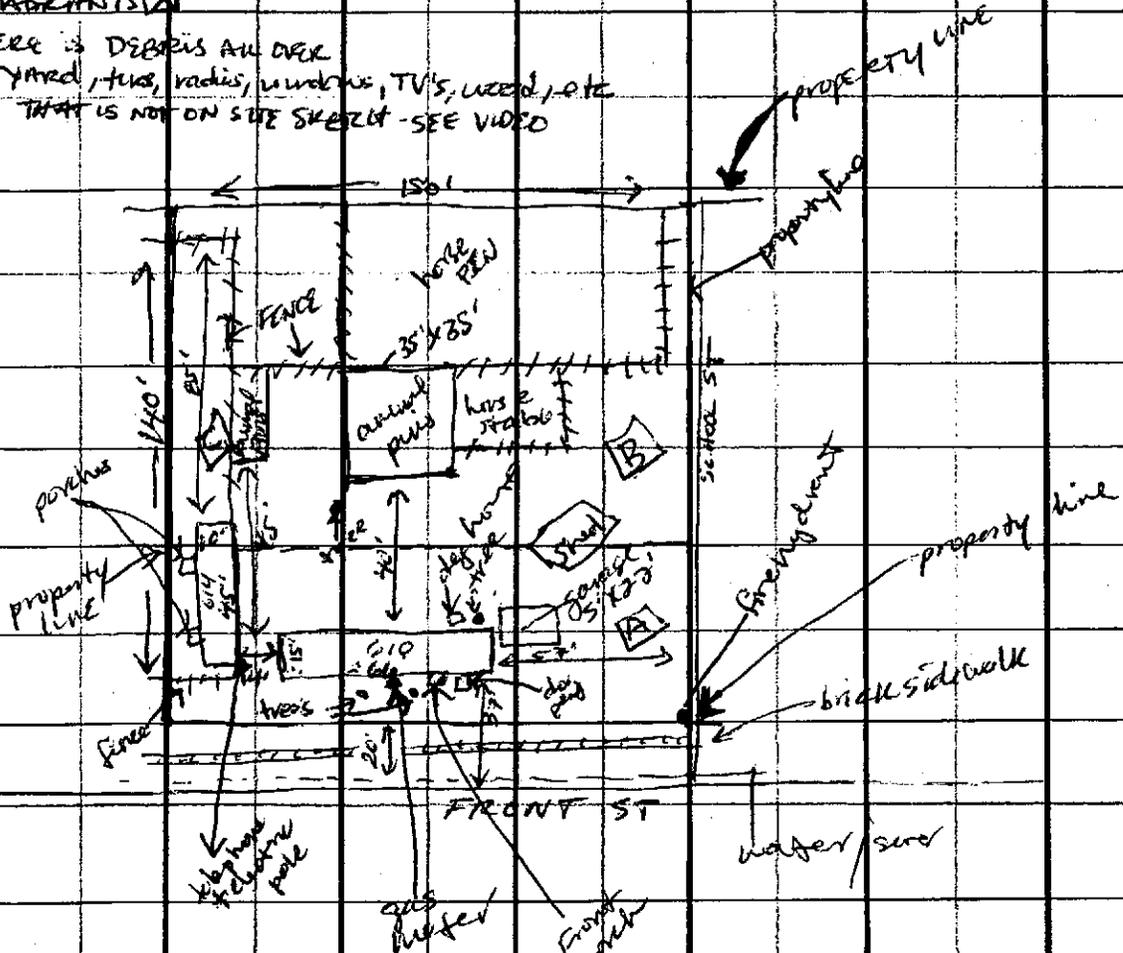
QUAD B: 571 (± 50); 3250 ± 280; 2590 ± 230

QUAD C: 1480 ± 150; 1943 ± 40; 114 ± 47

→ 2460 ± 190

NOTE QUADRANTS!

THERE IS DEBRIS ALL OVER YARD, TUBS, RADIOS, MIRRORS, TV'S, WOOD, etc THAT IS NOT ON SITE SKETCH - SEE VIDEO



XRF RESCREENING @ 610 FRONT

QUAD A: Collected by KATE → EAST = 1540 ppm

QUAD B: XRF AT 614 FRONT = 3680 ppm

QUAD C:

National Zinc Property Checklist

Resident: ARLA QUIGLEY

Date: 11/10/01

Address: 610 + 614 FRONT ST
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

* excavation area to be done around debris in yard and
in horse pasture (horse pasture only 73")
* debris pile off of school ST at drive, is to be
hauled to burn pile
* all else remains undisturbed

Video/Photographic Documentation

Pre-Excavation: Date: 11/10/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter end of tape

Post-Excavation: Date: 1/2/02 Taken By: SD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36 -
38:14

National Zinc Site Sketch

Name: KEATON, Clearence

Date(s): 11/2/01

Address: 617 FRONT ST
Cherryvale, KS
67335

XRF I.D.

Operator

Pre-Removal: KOHE 1260ppm

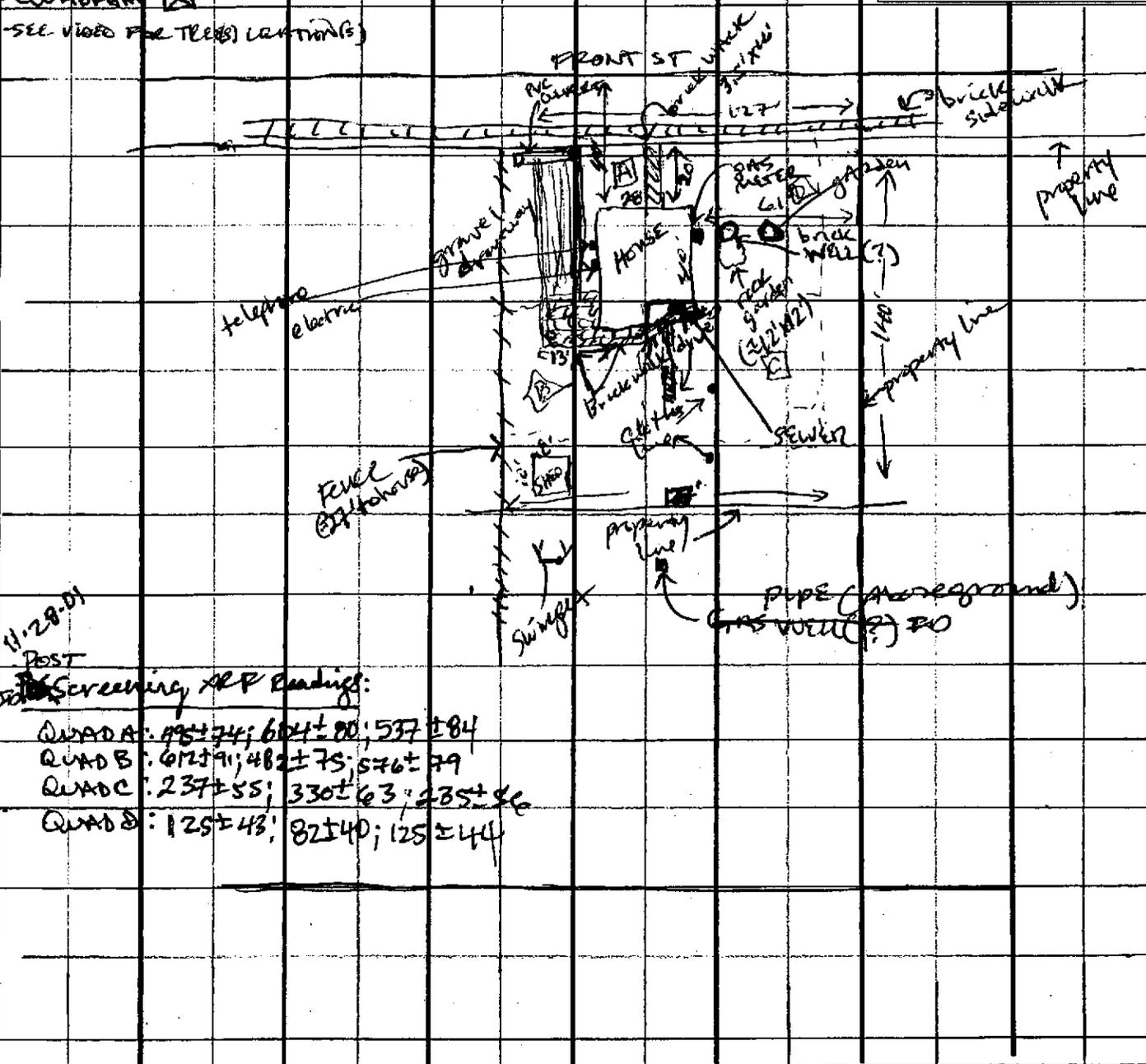
PLA 30

Post-Removal: START

20

<div style="border: 1px solid black; width: 20px; height: 20px; margin: 0 auto;"></div> <p>0-12"</p>	<p>XRF Values</p> <p>XXX Pre-excavation</p> <p>(XXX) Post Excavation</p>	<p>Approximate Scale</p> <p>One Inch = <u>50'</u></p> <div style="display: flex; align-items: center; justify-content: center;"> <div style="margin-right: 5px;">N</div> <div style="border-bottom: 1px solid black; width: 40px; position: relative;"> <div style="position: absolute; left: -5px; top: -5px;">↑</div> <div style="position: absolute; right: -5px; top: -5px;">↓</div> </div> <div style="margin-left: 5px;">25'</div> </div> <p>1/2 Inches</p>
--	---	--

NOTE:
~~QUAD POINT~~
 SEE VIDEO FOR TREE(S) LOCATION(S)



11-28-01
 POST
 Screening XRF Readings:
 QUAD A: 495 ± 74; 604 ± 80; 537 ± 84
 QUAD B: 612 ± 71; 482 ± 75; 576 ± 79
 QUAD C: 237 ± 55; 330 ± 63; 235 ± 56
 QUAD D: 125 ± 43; 82 ± 40; 125 ± 44

100' x 140' (50' x 4.01)

National Zinc Property Checklist

Resident: Keaton, Clarence

Date: 11/12/01 + 11/15/01

Address: 617 Front St
Cherryvale, KS
67335

Field Tech: ID / + Don Wenger

Comments/Observations

* OSC Don Wenger spoke with owners of property regarding any items in yard of special concern. Owners noted nothing. Owners were concerned about liability of excavation. Wenger informed them that there were no additional costs.

Video/Photographic Documentation

AT 9:13

Pre-Excavation: Date: 11/13/01 Taken By: SD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 5:24 Length

Post-Excavation: Date: 1/22/02 Taken By: SD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36 - 89:14

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 01D

Project Leader: Don Lininger

Sample Date: 11/28/01

Sample Time: 1048

Sampler: ID

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

Matrix: Soil

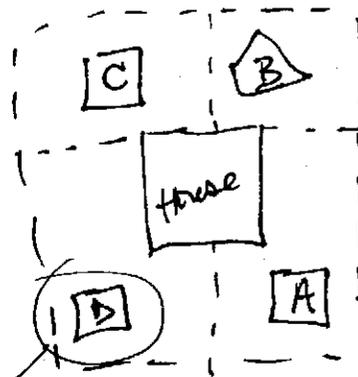
Sample Depth: ~~1-2"~~ 6"-12"

Aliquots: composite

Sample Location:

617 Front St, Cherryvale, KS
 QUAD D
 see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Clarence Keaton
 617 Front St
 Cherryvale, KS 67335

Comments: Post-Screening XRF Readings

QUAD A: 495±74; 604±80; 537±84
 QUAD B: 612±91; 482±75; 576±79
 QUAD C: 237±55; 330±63; 235±56
 QUAD D: 125±43; 82±40; 125±44

Sample Location

↳ Average = 111 ppm

National Zinc Site Sketch

Name: ARCHIE CANNON

Date(s): 11/10/01

Address: 612 TERONT ST
Chemical, KS
67335

XRF I.D.

Operator

Pre-Removal: 4049 3680; 3190

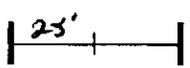
WLA SP

Post-Removal: see below

TO

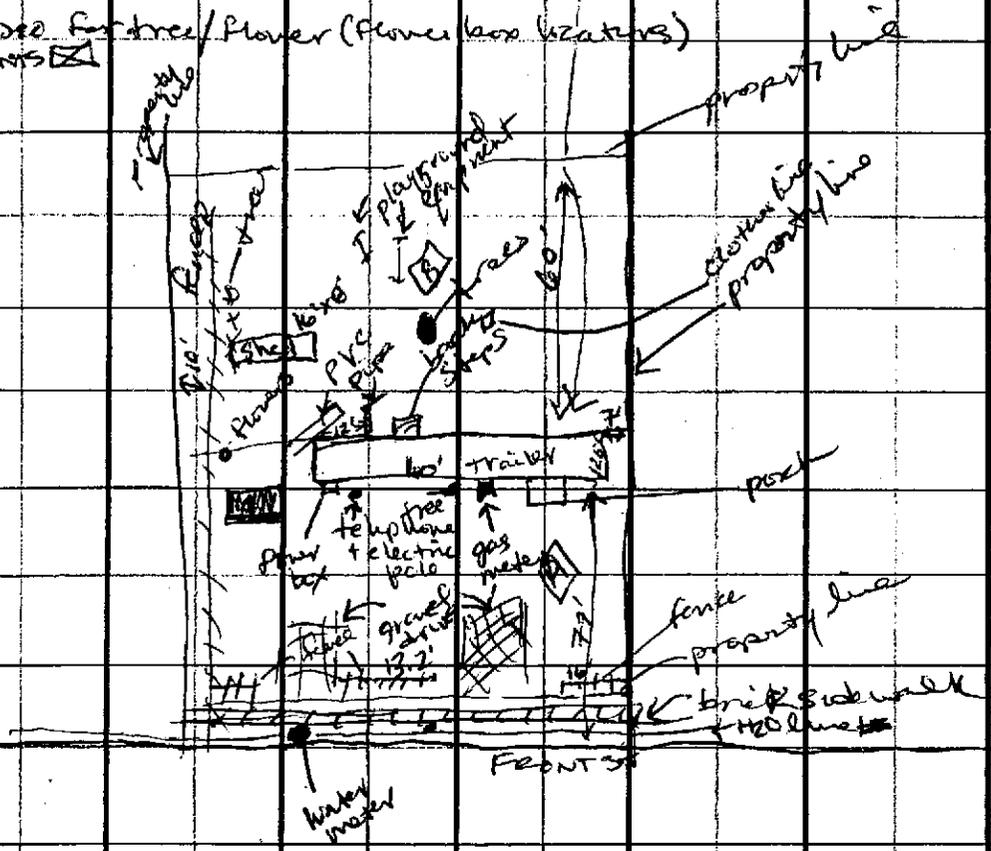
0-12"
 12-24"

XRF Values
 XXX Pre-excitation
 (XXX) Post Excavation

Approximate Scale
 One Inch = 50'
 N

 25'
 1/2 Inches

POST EXCAVATION XRF READINGS:
 QUAD A (East): <54 (ND); 286±62
 QUAD A: 1190±120 (tree); <60 (ND); 223±66
 QUAD B (East): <56 (ND); 102±44
 QUAD B: 207±56; 89±53; 528±76

NOTE: SEE VIDEO for tree/flower (flower box) locations



100' x 140'

National Zinc Property Checklist

Resident: Arettie Cannon

Date: 11/10/01

Address: 618 Front St
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

NO ISSUES OF CONCERN

Video/Photographic Documentation

Pre-Excavation: Date: 11/10/01 Taken By: JD Roll#(s)/Tape(s)#: 1 Frame#(s)/Tape Counter end of tape

Post-Excavation: Date: 11/22/01 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36 - 39:14

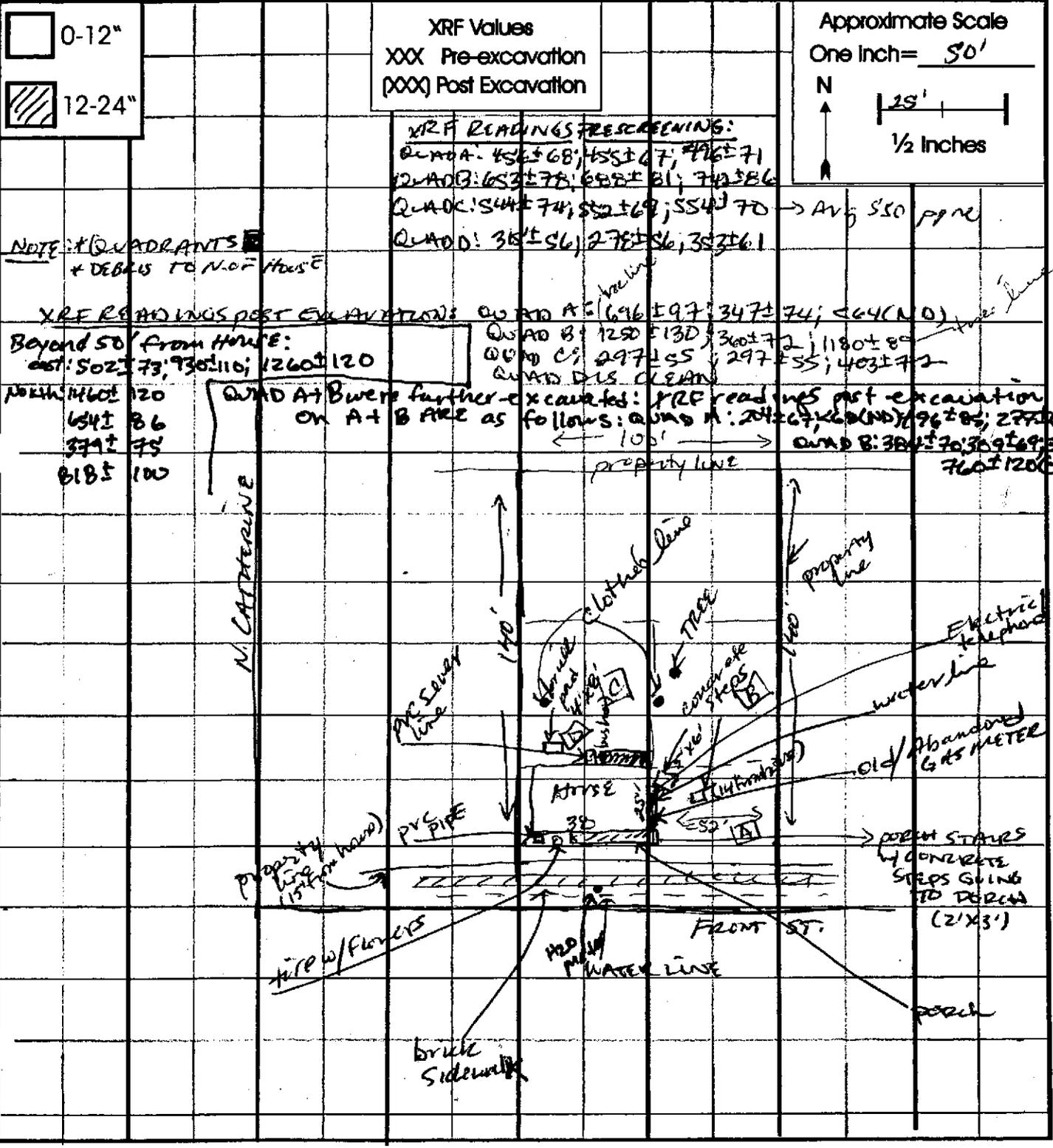
National Zinc Site Sketch

Name: Bertha Waggoner

Date(s): 11/12/01

Address: 620 FRONT ST
Cherryvale, KS
67335

XRF I.D. _____ Operator JD
 Pre-Removal: see below
 Post-Removal: see below JD



National Zinc Property Checklist

Resident: WAGGONER (BRENDA - OWNER)

Date: 11/12/01

Address: 620 Front ST
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

* see 634 Front ST ^{corner} (further)

Video/Photographic Documentation

lot
of tape

Pre-Excavation: Date: 11/13/01 Taken By: JD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:00:06:0472

Post-Excavation: Date: 1/22/02 Taken By: JD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36-38

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-007²⁰

Project Leader: Don Lininger

Sample Date: 11/12/51

Sample Time: 1300

Sampler: ID

Expected Concentration: ~~low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar ID	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

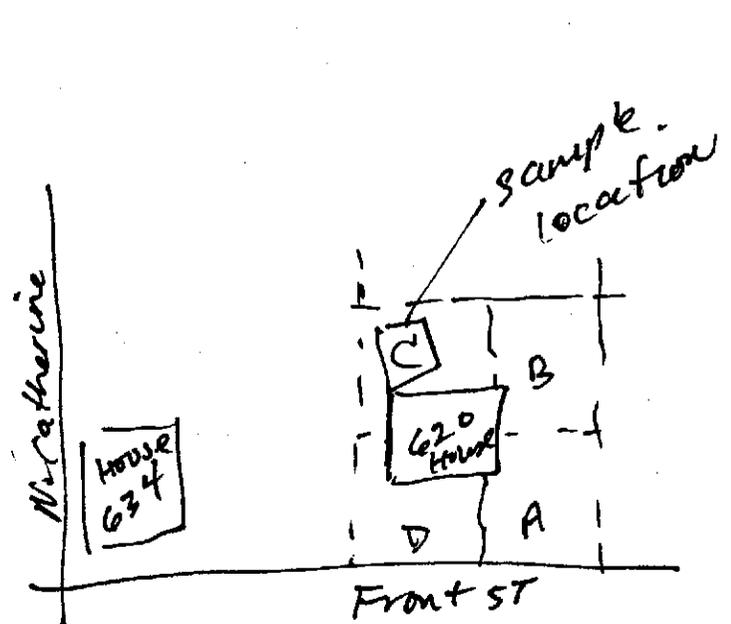
Matrix: Soil

Sample Depth: 0"-1"

Aliquots: composite (9 aliquots)

Sample Location: 620 Front ST
 - Quad C; see sample location map
 - NW corner of house
 (house is currently unoccupied)

SAMPLE LOCATION MAP



Property Owner/Contact:

BRENDA WAGGONER
 420 Front ST
 Cherryvale, KS 67335

mailing → 720 East Hill ST
 Cherryvale, KS 67335

Comments:

XR F Readings (ppm)
 544 ± 74
 552 ± 69 pre-screening
 554 ± 70
 Average = 550

National Zinc Property Checklist

Resident: RUBEN SAMORA

Date: 11/12/01 + 11/15/01

Address: 621 FRONT ST
Cherryvale, KS
67335

Field Tech: DD / DuLinger

Comments/Observations

* Don Linger spoke with owners, no special items of concern were mentioned or of concern to owners. Owners were concerned about not being liable for any cost of excavation.

Video/Photographic Documentation

Pre-Excavation: Date: 11/13/01 Taken By: ED Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter: 0:05:04

Post-Excavation: Date: 1/17/02 Taken By: ED Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter: 15:36:38:14

~~14:37~~
14:37

National Zinc Site Sketch

Name: Brenda Henderson

Date(s): 11/10/01

Address: 634 Front ST
Cherryvale, KS. 67335
(Corner of Front ST & Catherine)

XRF I.D.

Operator

Pre-Removal: see below

JD

Post-Removal:

0-12"

12-24"

XRF Values
 XXX Pre-excavation
 (XXX) Post Excavation

Approximate Scale
 One Inch = 50'

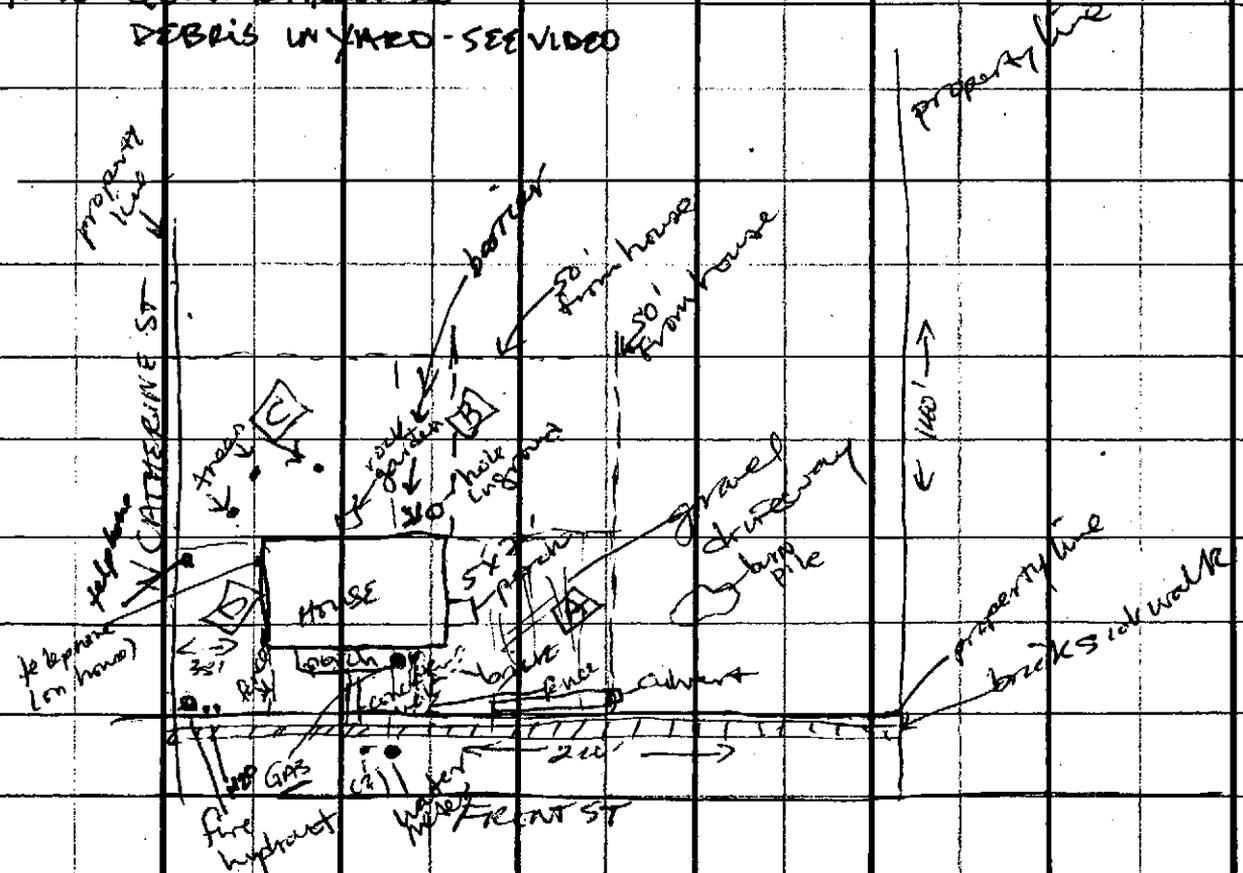
N ↑

25' |
 1/2 Inches

PRE-SCREENING XRF READINGS FOR QUADRANTS:

QUAD A: 1360±120; 1240±110; 1160±110
 QUAD B: 694±77; 711±84; 768±91
 QUAD C: 1250±110; 1570±130; 1250±110
 QUAD D: 1190±100; 1470±120; 1200±110

NOTE: QUADRANGLE
 DEBRIS IN YARD - SEE VIDEO



POST SCREENING XRF READINGS

QUAD A: 1520(ND); 149(ND); 88±39
 QUAD B: 2900±180 (tree); 1600(ND); 659±81 - not tree
 QUAD C: all trees → 930±130; 4540±290; 2600±190
 QUAD D: all trees → 1830±120; 1900±140; 1400±146
 Beyond 50' from house

National Zinc Property Checklist

Resident: Brenda Henderson

Date: 11/13/01

Address: 634 Front St + 620 Front St
Cherry Lake, KS
67335

Field Tech: ID

Comments/Observations

- Justin Smury spoke with Ingrid Draub regarding any special items of concern. He stated that there are no trees or plants, pipes or tanks that he is concerned about or doesn't want removed. There is debris in yard 634 Front. He stated that we could pile the debris or remove it. Draub stated that we may put it in a pile and/or go around it in the yard.
- Note: resident is relative of owner Brenda Henderson

Video/Photographic Documentation

Pre-Excavation: Date: 11/13/01 Taken By: ID Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 5:01 length

Post-Excavation: Date: 1/22/02 Taken By: SD Roll#(s)/Tape(s)#: 4 Frame#(s)/Tape Counter 15:36-38:14

At 412 (not in picture)

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ-006

Project Leader: Don Lininger

Sample Date: 11/10/01

Sample Time: 1433

Sampler: ED

Expected Concentration: Low ~~Med~~ High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar ED	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

Matrix: Soil

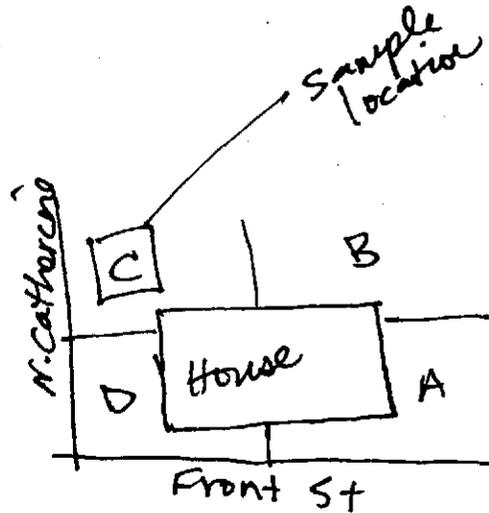
Sample Depth: 0'-1"

Aliquots: composite (1 aliquot)

Sample Location:

634 Front St
 HOUSE at intersection of N Catherine
 + Front St?
 - QUAD C
 - see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

BRENDA HENDERSON
 634 Front St
 Cherryvale, KS
 67335

Comments:

pre-screening
XRF Readings (cpm)

1250 ± 110

1570 ± 130

1250 ± 110

average: 1357

National Zinc Site Sketch

Name: Arvid Lindquist

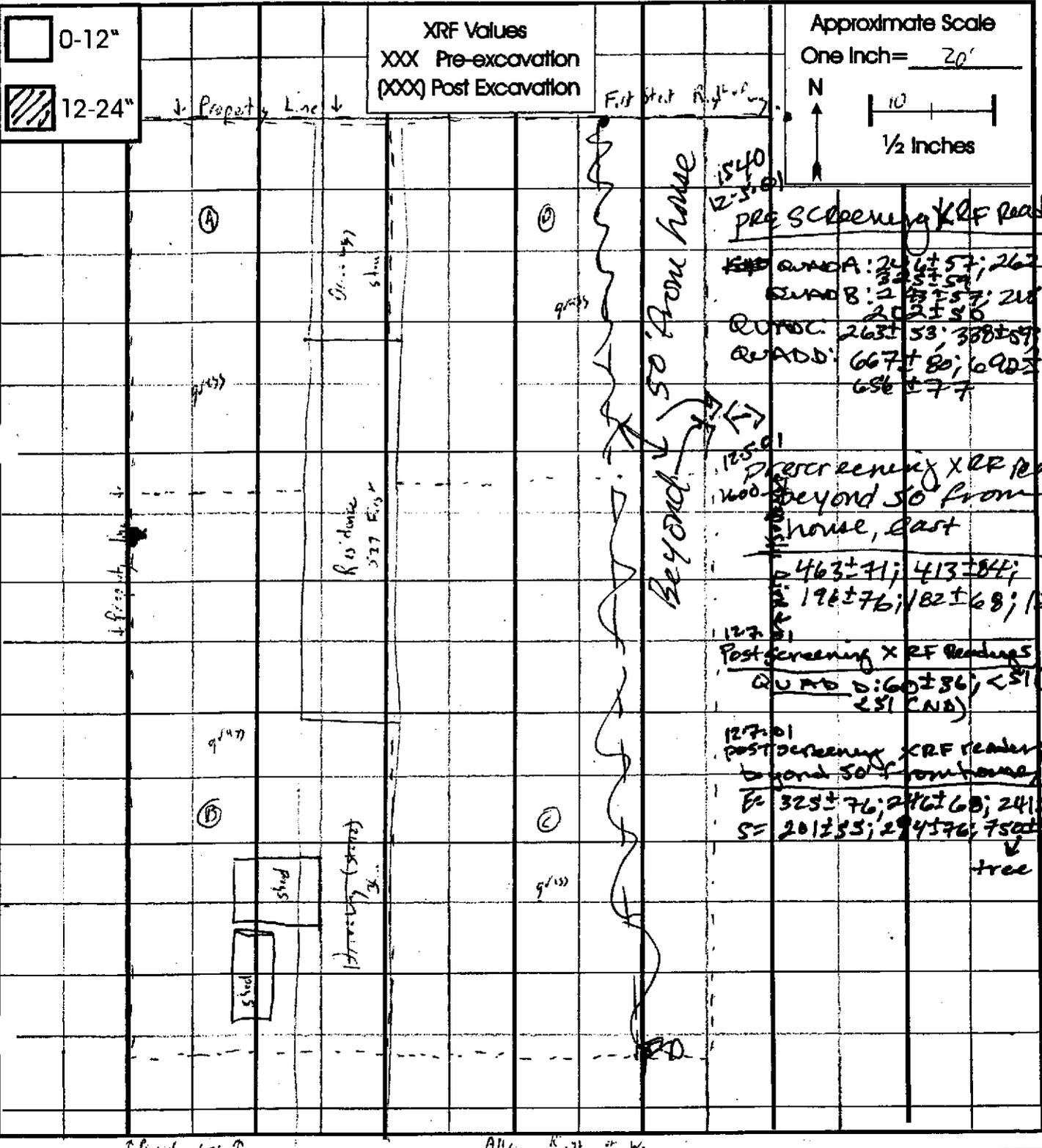
Date(s): 11/16/01

Address: 527 First street
Cherryvale, KS 67335

Sketch: JJK

XRF I.D. START + NOTE: see back of field sheet - ID
Pre-Removal: KDHF
Post-Removal: See below

Operator JL



1540
12-5-01
PRE SCREENING XRF READINGS:
 QUAD A: 244±57; 262±58;
 QUAD B: 243±57; 218±53;
 QUAD C: 263±53; 388±57; 313±52
 QUAD D: 667±80; 690±79;
 656±77

12501
1200
PRE SCREENING XRF READINGS
 beyond 50' from house, east
 463±71; 413±64;
 196±76; 182±68; 172±52

12701
POST SCREENING XRF READINGS
 QUAD D: 60±86; <51 (ND);
 <51 (ND)

12701
POST SCREENING XRF READINGS
 beyond 50' from house, east
 E: 325±76; 246±68; 241±69;
 S: 201±55; 294±76; 750±110

National Zinc Property Checklist

Resident: Arvid Lindquist

Date: 11/16/01 + 12/6/01

Address: 527 First Street
Cherryvale, KS 67335

Field Tech: JL + JD

Comments/Observations

* OSC + START members Davis speak with Mr. Lindquist about any items or issues of concern for above property. Mr Lindquist stated that there are no issues of concern at the property. An old cistern is located between Ditch B + C, where excavation is to occur (Quadrant D). Lindquist states that he assumes it's a cistern - it was there when he bought the property in 1991.

Video/Photographic Documentation

Pre-Excavation: Date: 11.16.01 Taken By: JL Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:27:24-2828

Post-Excavation: Date: 3/20/02 Taken By: JD Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:24-2217

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 018

Project Leader: Don Lininger

Sample Date: 12/7/01

Sample Time: 1300

Sampler: JD

Expected Concentration: ~~Low~~ Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NONE	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A DO

SAMPLE DESCRIPTION

Matrix: Soil

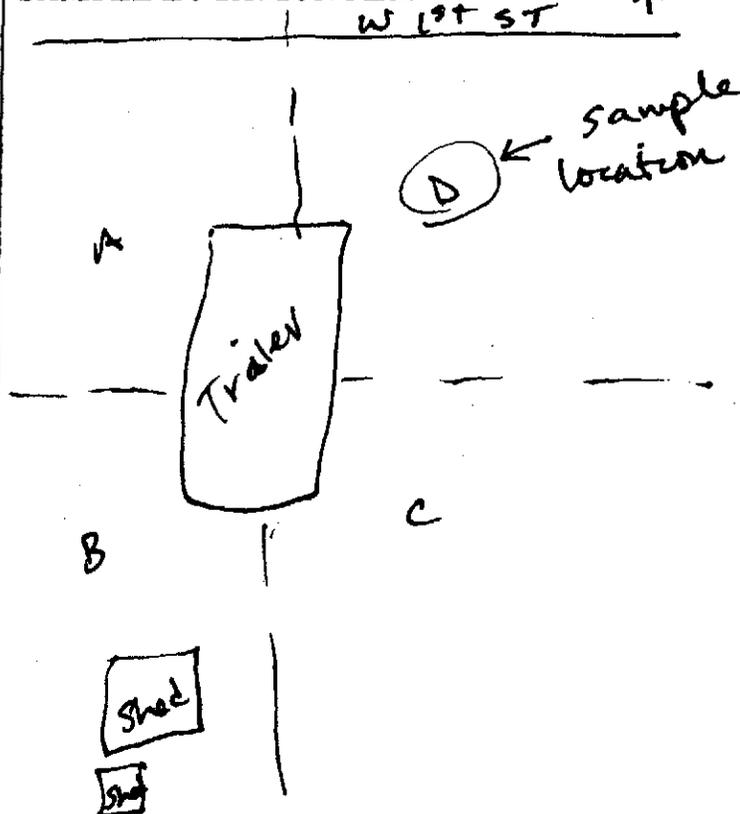
Sample Depth: ~~12"~~ 12"

Aliquots: composite (5 aliquots)

Sample Location:

S27 W 1st ST
 QUAD D
 - see site sketch and sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Mr. Arvid Lundquist
 S27 1st ST
 Cherryvale, KS
 67335

Comments:

Post screening XRF readings
 60 ± 36; <51(NB); <51(NB)
 Avg = 54

National Zinc Property Checklist

Resident: Jerri Blazet + Joe Slawby

Date: 11/27/01

Address: 529 First St
Cherryvale, KS
67335

Field Tech: JD

Comments/Observations

N/A not excavated

Video/Photographic Documentation *(includes soil 1st st)*

Pre-Excavation: Date: 11/27/01 Taken By: JD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:00 : 00-0:09:01

Post-Excavation: Date: _____ Taken By: _____ Roll#(s)/Tape(s)#: _____ Frame#(s)/Tape Counter _____

National Zinc Site Sketch

Name: Mary Beeman Mary Lou Becher

Date(s): 12/4/01 + 12/5/01

Address: 532 West 1st St
Cherry Vale, KS
67335

XRF I.D. START
Pre-Removal: see below
Post-Removal: _____

Operator IS

0-12"
 12-24"

XRF Values
XXX Pre-excitation
(XXX) Post Excavation

Approximate Scale
One Inch = 40'
N
20'
1/2 Inches

12/4/01 PRE-SCREENING XRF READINGS

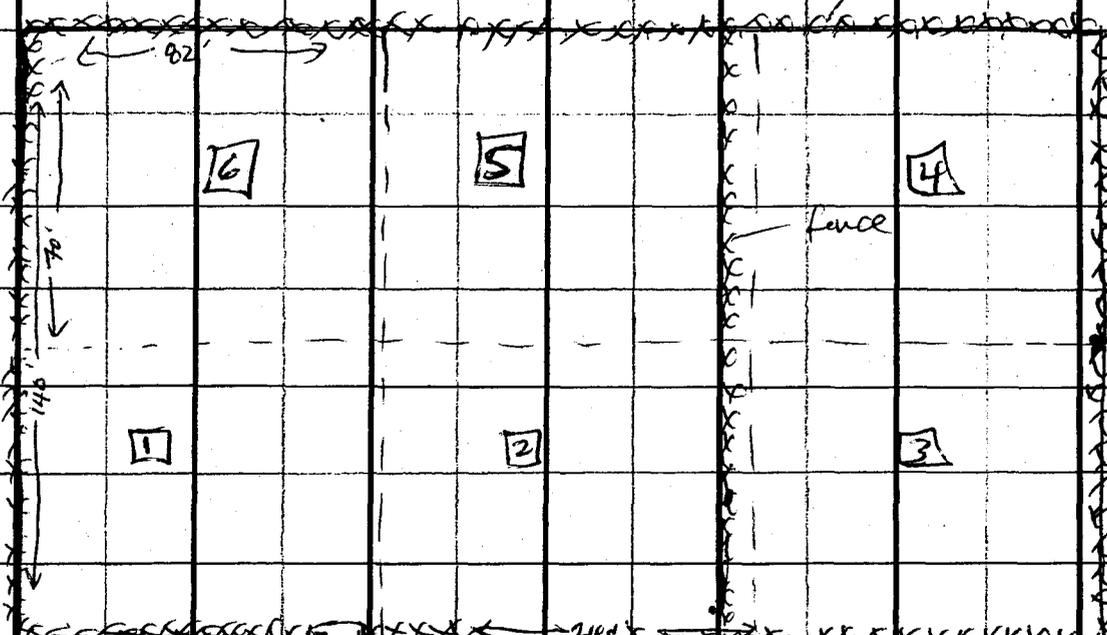
QUAD 1: 741 ± 82; 742 ± 86; 780 ± 84
QUAD 2: 458 ± 66; 490 ± 67; 436 ± 64
QUAD 3: 255 ± 51; 255 ± 51; 320 ± 37; 281 ± 53
QUAD 4: 406 ± 60; 380 ± 59; 424 ± 62
QUAD 5: 545 ± 69; 575 ± 73; 562 ± 73
QUAD 6: 676 ± 74; 668 ± 76; 720 ± 80

POST-SCREENING XRF READINGS:

QUADRANTS

NOTE: DEBRIS located throughout the property, mostly North

SCHOOL ST.



WEST 1st STREET

245' x 140'

National Zinc Property Checklist

Resident: MARY BEEMAN + ^{Mary Lou} Beachner Date: 12/4/01 + 12/5/01

Address: 532 W. 1st ST Field Tech: EO
Cherryvale, KS
67335

Comments/Observations

- * OSC Don Lueger + state member Ingrid Baub met with Mary Lou Beachner at site property to discuss special issues of concern.
- * Ms Beachner would like to leave the fence up that runs north to south on east end of property. The portion that is collapsed can be removed and used as an entrance to excavate NE corner and is ok to have fence down where is still ^{up} ~~up~~ ~~and~~ ~~up~~
- * Ms Beachner agreed to removal and stockpiling misc. items/debris like bath tub by shed At NW corner of site
- * Beachner took access agreement & will show her sister, head of the estate, and give to OSC at a later time
- * Grouping of trees just north of entrance off of W^{1st} St can be removed. All large trees to remain

Video/Photographic Documentation

Pre-Excavation: Date: 12/4/01 Taken By: EO Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter 0:0215 ^{0:00:00-}

Post-Excavation: Date: 3/20/02 Taken By: EO Roll#(s)/Tape(s)#: 5 Frame#(s)/Tape Counter 8:24 - 2217

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
 Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
 Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 013

Project Leader: Don Lininger

Sample Date: 12/4/01

Sample Time: 1224

Sampler: Ingrid Dado

Expected Concentration: Low ~~Medium~~ High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice NONE	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW 846 7470A/7471A -LD

SAMPLE DESCRIPTION

Matrix: Soil

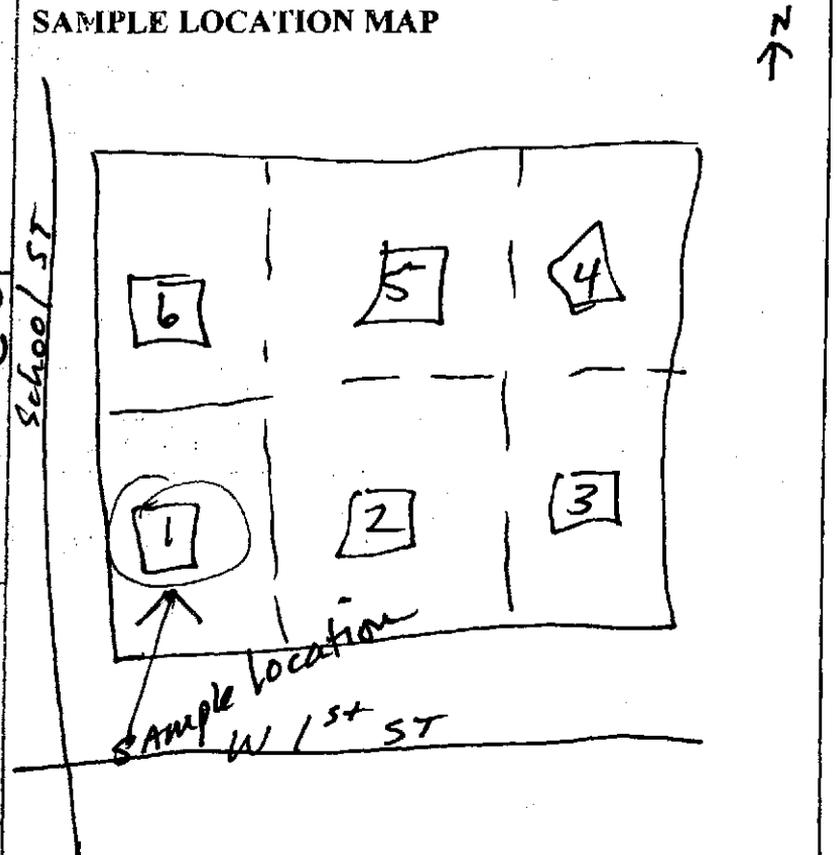
Sample Depth: 0" - 1"

Aliquots: Composite (9 aliquots)

Sample Location:

S32 W 1st ST
 Quad #1
 (pre screening)
 x SW corner
 * see site sketch

SAMPLE LOCATION MAP



Property Owner/Contact: (not mailing address)

Mary Lou Beattner - (PARSONS)
 (+ Mary Beeman)
 S32 W 1st ST
 Cherryvale, KS 67335

Comments:

Pre screening XRF Readings

Quad #1 : 741 ± 82; 752 ± 86; 780 ± 84

avg = 788

National Zinc Site Sketch

Name: KNIGHTS,

Date(s): 12/3/01

Address: 605 + 609 W 1st ST
Cherryvale, KS
67335

XRF I.D.

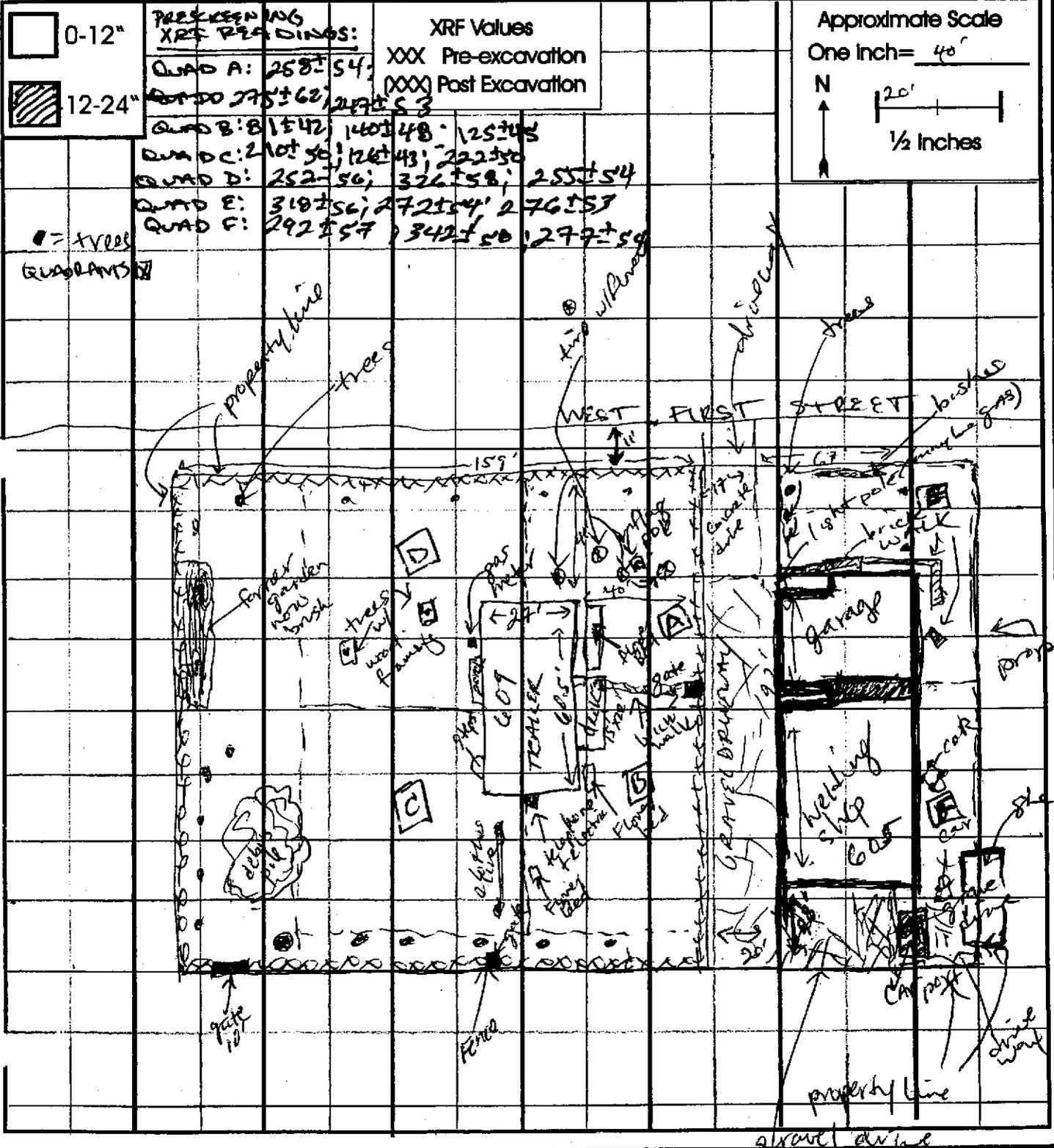
Operator

Pre-Removal: START SEE BELOW

ID

Post-Removal: _____

734 551



772

(150.7') or 200.7' x 154'

67 to line
 15' to house
 or drive
 32' 42'

National Zinc Property Checklist

Resident: KNIGHTS,

Date: 12/3/01

Address: 605 + 609 W. First ST.
CherryVALE KS
67335

Field Tech: FO

Comments/Observations

N/A - not excavated

Video/Photographic Documentation

Pre-Excavation: Date: _____ Taken By: _____ Roll#(s)/Tape(s)#: _____ Frame#(s)/Tape Counter _____

Post-Excavation: Date: _____ Taken By: _____ Roll#(s)/Tape(s)#: _____ Frame#(s)/Tape Counter _____

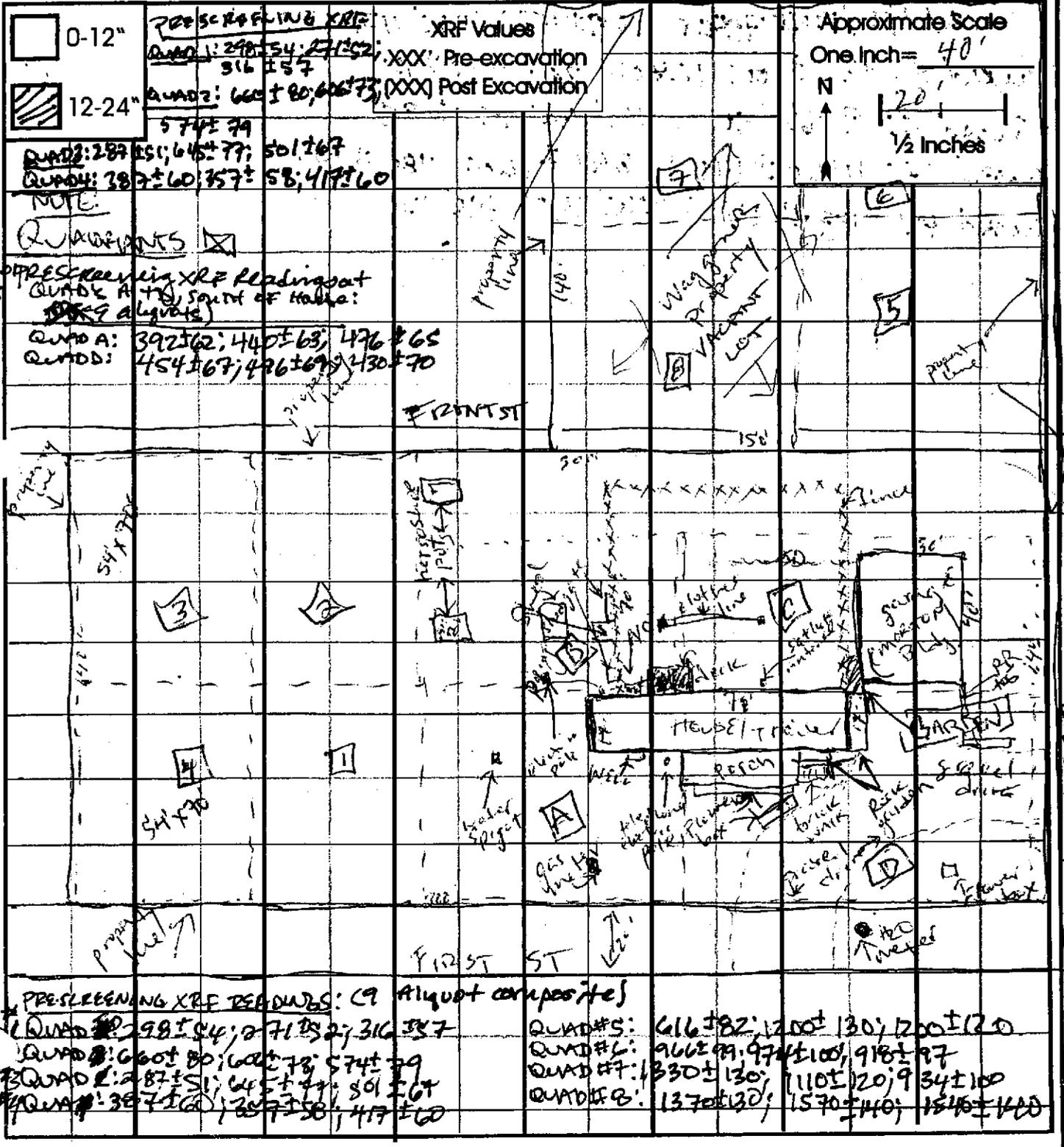
National Zinc Site Sketch

Name: WAGNER, BARRY

Date(s): 11/28/53

Address: 606 First St + 609 front
Cherryvale KS
67335

XRF I.D. Operator
 Pre-Removal: KD 15 E Except west lot, see below - 20
 Post-Removal: STARX - SEE BACK JMO



300' x 140'

National Zinc Property Checklist

Resident: Waggoner, Barry

Date: 11/28/01

Address: 606 First St + 609 Front St
Cherryvale, KS
67935

Field Tech: FD

Comments/Observations

- No CONCERNS / COMMENTS
- Homeowner Allowed us to Disconnect Fencing @ NW CORNER of backyards to Allow equipment into AREA

Video/Photographic Documentation

Pre-Excavation: Date: 11/28/01 Taken By: FD Roll#(s)/Tape(s)#: 2 Frame#(s)/Tape Counter: 0:13:07 - 0:19:31 ~~0:19:31~~ FD

Post-Excavation: Date: 1/22/02 Taken By: FD Roll#(s)/Tape(s)#: 4 + 5 Frame#(s)/Tape Counter: 15:36 - 32:11
3/28/02 8:24 - 22:12

FIELD SHEET
U.S. ENVIRONMENTAL PROTECTION AGENCY-REGION VII
Superfund Division, 901 N. 5th Street, Kansas City, KS 66101

Site: National Zinc Site
Cherryvale, Kansas

Project Number: G9011.L.0063.00

Sample #: NZ - 011

Project Leader: Don Lininger

Sample Date: 11/20/01

Sample Time: 11:48

Sampler: TD

Expected Concentration: Low Medium High

ANALYSIS REQUESTED

Container	Preservative	Holding Time	Analysis
1-8 oz Jar	Ice	6 months	Lead, Arsenic, Cadmium, Zinc by Method SW-846 6020
1-8 oz Jar	Ice	6 months	Mercury by Method SW-846 7470A/7471A

SAMPLE DESCRIPTION

Matrix: Soil

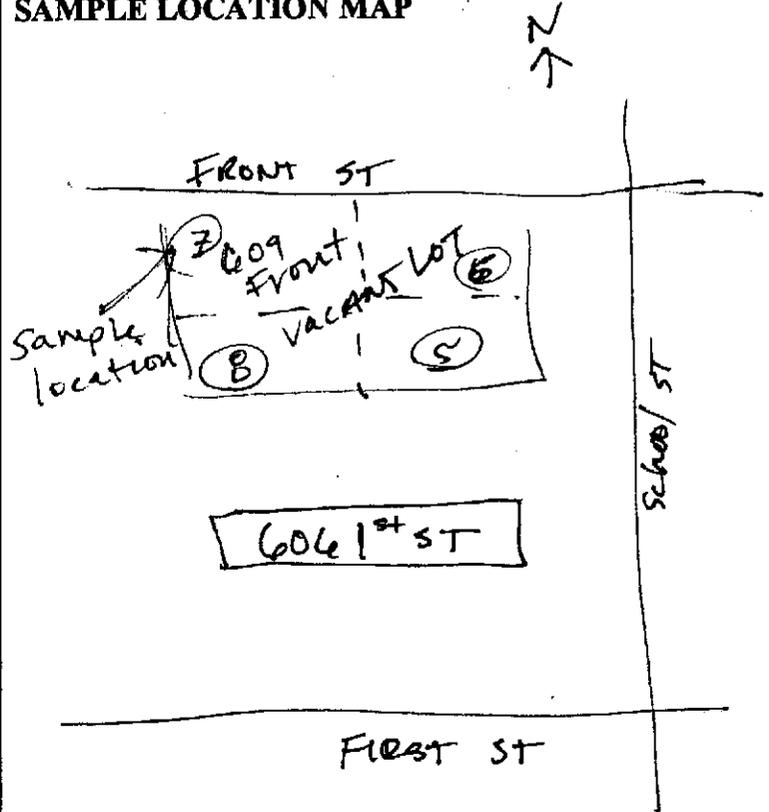
Sample Depth: 0" - 1"

Aliquots: composite

Sample Location:

609 Front ST
 Quad #7
 see sample location map

SAMPLE LOCATION MAP



Property Owner/Contact:

Barry Waggoner
 606 First ST
 Cherryvale, KS

Comments:

Pre-screening XRF Readings:
 Quad #7: 1330 ± 130; 1110 ± 120; 934 ± 100
 Avg = 1125

APPENDIX E

**RESIDENTIAL PROPERTY INFORMATION (BEGINNING & FINAL LEAD
CONCENTRATIONS)**

(Six Pages)

**RESIDENTIAL AREA - FIELD SCREENING TRACKING FORM
NATIONAL ZINC SITE
CHERRYVALE, KANSAS**

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	511 Martin Street	1-east lot	433 ppm	93 ppm	1	No
N/A	511 Martin Street	2-east lot	323 ppm	N/A	1	No
N/A	511 Martin Street	3-east lot	614 ppm	379 ppm	1	No
N/A	511 Martin Street	4-east lot	414 ppm	519 ppm	1	No
N/A	511 Martin Street	5-east lot	718 ppm	1160 ppm	1	No
N/A	511 Martin Street	6-east lot	390 ppm	228 ppm	1	No
N/A	511 Martin Street	7-east lot	524 ppm	694 ppm	1	No
N/A	511 Martin Street	8-east lot	420 ppm	734 ppm	1	No
N/A	511 Martin Street	9-east lot	423 ppm	283 ppm	1	No
N/A	511 Martin Street	10-east lot	330 ppm	410 ppm	1	No
008	511 Martin Street	**North(Quad A+D)	562 ppm	149 ppm	3	No
N/A	511 Martin Street	**South(Quad B + C)	489 ppm	223 ppm	1	No
N/A	511 Martin Street	1-west lot	495 ppm	891 ppm	1	No
N/A	511 Martin Street	2-west lot	474 ppm	466 ppm	1	No
N/A	511 Martin Street	3-west lot	628 ppm	743 ppm	1	No
N/A	511 Martin Street	4-west lot	639 ppm	799 ppm	1	No
N/A	511 Martin Street	5-west lot	336 ppm	1210 ppm	1	No
N/A	511 Martin Street	6-west lot	540 ppm	863 ppm	1	No
N/A	511 Martin Street	7-west lot	701 ppm	1110 ppm	1	No
N/A	511 Martin Street	8-west lot	1220 ppm	1490 ppm	1	No
N/A	511 Martin Street	9-west lot	1240 ppm	839 ppm	1	No
N/A	511 Martin Street	10-west lot	1523 ppm	1420 ppm	1	No
N/A	511 Martin Street	11-west lot	1473 ppm	873 ppm	1	No
001	511 Martin Street	12-west lot	1557 ppm	1280 ppm	1	No
N/A	511 Martin Street	13-west lot	1710 ppm	1990 ppm	1	No
N/A	501 Martin Street	Quad A/west	331 ppm	N/A	0	No
N/A	501 Martin Street	Quad B/east	388 ppm	N/A	0	No
N/A	508 Coyle Street	Quad C/east	275 ppm	N/A	0	No
N/A	500 Coyle Street	Quad A/S,E,W	323 ppm	N/A	0	No
N/A	502 Coyle Street	Quad B/S,E,W	312 ppm	N/A	0	No
N/A	504 Coyle Street	Quad C/S,E,W	268 ppm	N/A	0	No
N/A	506 Coyle Street	Quad D/N,S,E,W	140 ppm	N/A	0	No
002	512 Front Street	Quad A/SE	436 ppm	986 ppm	1	drip line
003	512 Front Street	Quad B/NE	644 ppm	823 ppm	1	drip line
N/A	512 Front Street	Quad C/NW	634 ppm	846 ppm	1	drip line

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	512 Front Street	Quad D/SW	914 ppm	1113 ppm	1	drip line
N/A	520 Front Street	East of Trailer	**805 ppm	N/A	N/A	N/A
N/A	520 Front Street	Quad A/SE	excavation based on above reading	676 ppm	1	drip line
N/A	520 Front Street	Quad B/NE	excavation based on above reading	175 ppm	1	No
N/A	520 Front Street	Quad C/NW	excavation based on above reading	105 ppm	1	No
N/A	520 Front Street	Quad D/SW	excavation based on above reading	800 ppm	3	drip line
N/A	524 Front Street	West of Trailer	**1450 ppm	N/A	N/A	N/A
N/A	524 Front Street	Quad A/SE	excavation based on above reading	1215 ppm	1	drip line
N/A	524 Front Street	Quad B/NE	excavation based on above reading	467 ppm	1	No
N/A	524 Front Street	Quad C/NW	excavation based on above reading	1117 ppm	1	drip line
N/A	524 Front Street	Quad D/SW	excavation based on above reading	1122 ppm	3	drip line
N/A	530 Front Street	Quad A/SE,NE	661 ppm	483 ppm	3	drip line
005	530 Front Street	Quad B/NW,SW	943 ppm	558 ppm	3	drip line
N/A	536 Front Street	Quad A/SE	623 ppm	528 ppm	3	drip line
004	536 Front Street	Quad B/NE	812 ppm	370 ppm	1	No
N/A	536 Front Street	Quad C/NW	358 ppm	N/A	3	No
N/A	536 Front Street	Quad D/SW	541 ppm	637 ppm	3	drip line
N/A	505 Front Street	SE of Trailer	**1710 ppm	N/A	N/A	N/A
N/A	505 Front Street	Quad A/NE	excavation based on above reading	848 ppm	1	drip line
012	505 Front Street	Quad B/SE	excavation based on above reading	135 ppm	3	No
N/A	505 Front Street	Quad C/NW	excavation based on above reading	390 ppm	1	No
N/A	505 Front Street	Quad D/SW	excavation based on above reading	Not excavated/gravel	0	No
N/A	513 Front Street	South of Trailer	**1110 ppm	N/A	N/A	N/A
N/A	513 Front Street	Quad E/NE	excavation based on above reading	289 ppm	1	No
N/A	513 Front Street	Quad F/SE	excavation based on above reading	335 ppm	1	No
N/A	513 Front Street	Quad G/NW	excavation based on above reading	193 ppm	1	No
N/A	513 Front Street	Quad H/SW	excavation based on above reading	165 ppm	1	No
N/A	513 Front Street	Quad 1/NW	610 ppm	1516 ppm	1	drip line
N/A	513 Front Street	Quad2/Center-North	329 ppm	N/A	1	No
N/A	513 Front Street	Quad 3/NE	314 ppm	N/A	0	No
N/A	513 Front Street	Quad 4/SW	679 ppm	715 ppm	1	drip line
N/A	513 Front Street	Quad 5/Center-South	513 ppm	269 ppm	1	No
N/A	513 Front Street	Quad 6/SE	503 ppm	742 ppm	1	drip line
N/A	610 Front Street	East of Trailer	**1540 ppm	N/A	N/A	N/A
N/A	610 Front Street	Quad A/E,W,S,N	excavation based on above reading	478 ppm	3	Yes
N/A	610 Front Street	Quad B/NE,N,NW	excavation based on above reading	2093 ppm	1	Yes
N/A	610 Front Street	Horse Pin/North	3572 ppm	N/A	1	No
N/A	614 Front Street	West of Trailer	**3680 ppm	N/A	N/A	N/A
N/A	614 Front Street	Quad C/W,N,S	excavation based on above reading	596 ppm	3	Yes

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	617 Front Street	North of Trailer	**1660 ppm	N/A	N/A	N/A
N/A	617 Front Street	Quad A/NW	excavation based on above reading	545 ppm	3	drip line
N/A	617 Front Street	Quad B/SW	excavation based on above reading	557 ppm	3	drip line
N/A	617 Front Street	Quad C/SE	excavation based on above reading	267 ppm	1	No
010	617 Front Street	Quad D/NE	excavation based on above reading	111 ppm	1	No
N/A	618 Front Street	South of Trailer	**3680 ppm, 3190 ppm	N/A	N/A	N/A
N/A	618 Front Street	Quad A/S,SE,SW	excavation based on above readings	363 ppm	3	No
N/A	618 Front Street	Quad B/North	excavation based on above readings	196 ppm	1	No
N/A	620 Front Street	Quad A/SE	469 ppm	369 ppm	3	No
N/A	620 Front Street	Quad B/NE	694 ppm	930 ppm	1	drip line
007	620 Front Street	Quad C/NW	550 ppm	332 ppm	1	No
N/A	620 Front Street	Quad D/SW	315 ppm	N/A	0	No
N/A	621 Front Street	Quad A/NE	1127 ppm	96 ppm	3	No
N/A	621 Front Street	Quad B/SE	684 ppm	90 ppm	1	No
N/A	621 Front Street	Quad C/SW	657 ppm	114 ppm	3	No
N/A	621 Front Street	Quad D/NW	943 ppm	79 ppm	3	No
N/A	634 Front Street	Quad A/SE	1253 ppm	63 ppm	3	No
N/A	634 Front Street	Quad B/NE	724 ppm	1206 ppm	1	Yes
006	634 Front Street	Quad C/NW	1357 ppm	2692 ppm	1	Yes
N/A	634 Front Street	Quad D/SW	1287 ppm	1737 ppm	1	Yes
N/A	629 Martin Street	SW and SE of Trailer	**1750 ppm, 843 ppm	N/A	N/A	N/A
009	629 Martin Street	Quad A/NW	excavation based on above readings	566 ppm	3	drip line
N/A	629 Martin Street	SW and SE of Trailer	**1750 ppm, 843 ppm	N/A	N/A	N/A
N/A	629 Martin Street	Quad B/NE	excavation based on above readings	487 ppm	1	No
N/A	629 Martin Street	Quad C/SE	excavation based on above readings	136 ppm	1	No
N/A	629 Martin Street	Quad D/SW	excavation based on above readings	66 ppm	3	No
N/A	0 Martin Street	Quad 1/NW	928 ppm	1050 ppm	1	No
N/A	0 Martin Street	Quad 2/Center-NW	1718 ppm	2546 ppm	1	No
N/A	0 Martin Street	Quad 3/Center-NE	1563 ppm	1887 ppm	1	No
N/A	0 Martin Street	Quad 4/NE	901 ppm	2340 ppm	1	No
N/A	0 Martin Street	Quad 5/SE	1022 ppm	1527 ppm	1	No
N/A	0 Martin Street	Quad 6/Center-SE	1777 ppm	1712 ppm	1	No
N/A	0 Martin Street	Quad 7/Center-SW	2220 ppm	1947 ppm	1	No
N/A	0 Martin Street	Quad 8/SW	1310 ppm	1617 ppm	1	No
N/A	500 First Street	South of House	**566 ppm, 501 ppm	N/A	N/A	N/A
014	500 First Street	Quad A/SE	excavation based on above readings	399 ppm	1	No
015	500 First Street	Quad B/NE	excavation based on above readings	57 ppm	1	No
N/A	500 First Street	Quad C/NW	excavation based on above readings	127 ppm	1	No
N/A	500 First Street	Quad D/SW	excavation based on above readings	69 ppm	1	No

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	506 First Street	SE of Trailer	**1710 ppm	N/A	N/A	N/A
016	506 First Street	Quad A/SE	excavation based on above readings	55 ppm	1	No
N/A	506 First Street	Quad B/NE	excavation based on above readings	139 ppm	3	No
N/A	506 First Street	Quad C/NW	excavation based on above readings	57 ppm	3	No
N/A	506 First Street	Quad D/SW	excavation based on above readings	51 ppm	1	No
N/A	509 First Street	N,S,E,W of House	**718 ppm	N/A	N/A	N/A
N/A	509 First Street	Quad A/NE	excavation based on above readings	58 ppm	1	No
N/A	509 First Street	Quad B/SE	excavation based on above readings	359 ppm	3	No
N/A	509 First Street	Quad C/SW	excavation based on above readings	411 ppm	3	drip line
N/A	509 First Street	Quad D/NW	excavation based on above readings	269 ppm	1	No
N/A	511 First Street	N,S,E,W of House	**649 ppm	N/A	N/A	N/A
N/A	511 First Street	Quad A/NW	excavation based on above readings	222 ppm	3	No
N/A	511 First Street	Quad B/SW	excavation based on above readings	57 ppm	1	No
N/A	511 First Street	Quad C/SE	excavation based on above readings	227 ppm	1	No
N/A	511 First Street	Quad E/NE	excavation based on above readings	182 ppm	1	No
017	514 First Street	N,S,E,W of Trailer	**454 ppm, 500 ppm	N/A	N/A	N/A
N/A	514 First Street	Quad A/SW	excavation based on above readings	410 ppm	3	Yes
N/A	514 First Street	Quad B/NW	excavation based on above readings	210 ppm	1	No
017	514 First Street	Quad C/NE	excavation based on above readings	399 ppm	1	No
N/A	514 First Street	Quad D/SE	349 ppm	N/A	0	No
N/A	515 First Street	Quad A/West	222 ppm	N/A	0	No
N/A	515 First Street	Quad B/North	609 ppm, 144 ppm	342 ppm	3	No
N/A	515 First Street	Quad C/East	262 ppm	N/A	0	No
N/A	515 First Street	Quad D/South	248 ppm	N/A	0	No
N/A	527 First Street	Quad A/NW	278 ppm	N/A	0	No
N/A	527 First Street	Quad B/SW	220 ppm	N/A	0	No
N/A	527 First Street	Quad C/SE	305 ppm	N/A	0	No
018	527 First Street	Quad D/NE	672 ppm	N/A	1	No
013	532 First Street	Quad 1/SW	758 ppm	N/A	1	No
N/A	532 First Street	Quad 2/Center-South	461 ppm	N/A	1	No
N/A	532 First Street	Quad 3/SE	278 ppm	N/A	0	No
N/A	532 First Street	Quad 4/NE	403 ppm	N/A	1	No
N/A	532 First Street	Quad 5/Center-North	561 ppm	N/A	1	No
N/A	532 First Street	Quad 6/NW	688 ppm	N/A	1	No
N/A	Arias Vacant Lot	Quad 1/North	**474 ppm	378 ppm	1	No
N/A	Arias Vacant Lot	Quad 2/South	**516ppm, 592 ppm (duplicate)	350 ppm	1	No
N/A	606 First Street	Quad A/Center-SE	436 ppm	389 ppm	1	No
N/A	606 First Street	Quad B/Center-NE	**544 ppm	641 ppm	1	Yes
N/A	606 First Street	Quad C/NE	**834 ppm	261 ppm	1	No

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	606 First Street	Quad D/SE	460 ppm	61 ppm	2	No
N/A	606 First Street	Quad 1/Center-SW	295 ppm	N/A	0	N/A
N/A	606 First Street	Quad 2/Center-NW	613 ppm	419 ppm	1	Yes
N/A	606 First Street	Quad 3/NW	478 ppm	472 ppm	1	Yes
N/A	606 First Street	Quad 4/SW	387 ppm	166 ppm	1	No
N/A	606 First Street	Quad 5/North-SE	1005 ppm	1051 ppm	1	No
N/A	606 First Street	Quad 6/NE	953 ppm	769 ppm	1	No
011	606 First Street	Quad 7/North-NW	1125 ppm	1760 ppm	1	drip line
N/A	606 First Street	Quad 8/North-SW	1493 ppm	1467 ppm	1	drip line
NZ-020	635 First Street	Quad A/Center-North	**457ppm, 530 ppm, 453 ppm	168 ppm	1	No
N/A	635 First Street	Quad B/Center-South	excavation based on above readings	148 ppm	1	No
NZ-019	635 First Street	Quad C/SW	excavation based on above readings	464 ppm	1	drip line
N/A	635 First Street	Quad D/NW	excavation based on above readings	507 ppm	3	drip line
N/A	635 First Street	Quad 1/NE	433 ppm	412 ppm	1	drip line
N/A	635 First Street	Quad 2/SE	226 ppm	N/A	0	No
N/A	400 North Liberty	Quad A/NE	**445 ppm, 417 ppm	678 ppm	1	drip line
N/A	400 North Liberty	Quad B/SE	641 ppm	212 ppm	3	No
N/A	400 North Liberty	Quad C/W	908 ppm	98 ppm	1	No
N/A	404 North Liberty	Quad A/W	**1110 ppm	113 ppm	1	No
N/A	416 North Liberty	Quad A/NE	**954ppm,493ppm,801ppm,1730ppm	176 ppm	1	No
N/A	416 North Liberty	Quad B/SE	excavation based on above readings	274 ppm	1	No
N/A	416 North Liberty	Quad C/W	excavation based on above readings	595 ppm	1	drip line
NZ-025	420 North Liberty	Quad A/NE	**487 ppm, 821 ppm	92 ppm	3	No
N/A	420 North Liberty	Quad B/SE	512 ppm	75 ppm	1	No
N/A	420 North Liberty	Quad C/W	519 ppm	392 ppm	1	No
NZ-024	5399 CR 5050	Quad A/SE	464 ppm	57 ppm	3	No
N/A	5399 CR 5050	Quad B/N	216 ppm	N/A	0	No
N/A	701 West First Street	Quad A/NW	711 ppm	N/A	1	No
NZ-Ponderosa B	701 West First Street	Quad B/Center - NW	483 ppm	N/A	1	No
N/A	701 West First Street	Quad C/Center - NE	428 ppm	N/A	1	No
N/A	701 West First Street	Quad D/NE	503 ppm	N/A	1	No
N/A	701 West First Street	Quad E/SE	490 ppm	N/A	1	No
NZ-Ponderosa F	701 West First Street	Quad F/Center - SE	385 ppm	N/A	0	No
N/A	701 West First Street	Quad G/Center - SW	569 ppm	N/A	1	No
N/A	701 West First Street	Quad H/SW	503 ppm	N/A	1	No
N/A	638 West First Street	Quad A/SE	**522 ppm, 482 ppm, 614 ppm	60 ppm	3	No
NZ-023	638 West First Street	Quad B/NE	excavation based on above readings	89 ppm	1	No
N/A	638 West First Street	Quad C/NW	excavation based on above readings	157 ppm	1	No
N/A	638 West First Street	Quad D/SW	excavation based on above readings	188 ppm	1	No

EPA Sample ID Number 10% of Screened Samples	Property Address	Quadrant(s)/ Direction from Residence	Pre-Excavation XRF Readings (Averages)	Post-Excavation XRF Readings (averages)	*Type of Backfill	***Barrier Used
N/A	638 West First Street	Quad 1/East-SW	502 ppm	327 ppm	1	No
N/A	638 West First Street	Quad 2/East-SE	282 ppm	N/A	0	No
NZ-021	638 West First Street	Quad 3/East-NE	491 ppm	704 ppm	1	drip line
N/A	638 West First Street	Quad 4East-NW	495 ppm	1010 ppm	1	drip line
N/A	638 West First Street	Quad 5/North-SE	365 ppm	444 ppm	1	drip line
N/A	638 West First Street	Quad 6/North-NE	327 ppm	492 ppm	1	drip line
NZ-022	638 West First Street	Quad 7/North-NW	504 ppm	345 ppm	1	No
N/A	638 West First Street	Quad 8/North-SW	221 ppm	N/A	0	No

Notes:

* Type of Back Fill Used: 0=None; 1=Soil; 2=Rock; 3=Both

** Pre-Excavation XRF values based on Kansas Department of Health & Environment (KDHE) data

*** Barrier was not placed within the drip line of trees due to extensive root system

E East
ID Identification
N North
N/A Not applicable
ppm Parts per million
S South
W West
XRF Niton® X-ray fluorescence spectrometer

APPENDIX F

RODEO GROUNDS INFORMATION (BEGINNING & FINAL LEAD CONCENTRATIONS)

(Four Pages)

RODEO GROUNDS PROPERTY - FIELD SCREENING TRACKING FORM
NATIONAL ZINC SITE
CHERRYVALE, KANSAS

Cell Number	Pre-Excavation XRF		Lab Results	Post-Excavation XRF	
	Averages	Date		Averages	Date
1	198 ppm	01/11/02	N/A	No Excavation Required	N/A
2	213 ppm	01/11/02	N/A	No Excavation Required	N/A
3	263 ppm	01/15/02	N/A	60 ppm	01/16/02
4	300 ppm	01/15/02	N/A	62 ppm	01/16/02
5	436 ppm	01/15/02	N/A	47 ppm	01/17/02
6	395 ppm	01/15/02	N/A	57 ppm	01/18/02
7	434 ppm	01/15/02	N/A	64 ppm	01/23/02
*8	456 ppm	01/16/02	N/A	69 ppm	01/24/02
9	507 ppm	01/16/02	N/A	62 ppm	01/24/02
*10	628 ppm	01/16/02	N/A	181 ppm	01/25/02
11	409 ppm	01/16/02	N/A	196 ppm	01/26/02
12	557 ppm	01/16/02	N/A	223 ppm	01/26/02
13	128 ppm	01/11/02	N/A	No Excavation Required	N/A
14	174 ppm	01/11/02	N/A	No Excavation Required	N/A
15	165 ppm	01/16/02	N/A	No Excavation Required	N/A
16	241 ppm	01/16/02	N/A	No Excavation Required	N/A
17	414 ppm	01/16/02	N/A	55 ppm	01/18/02
18	410 ppm	01/16/02	N/A	48 ppm	01/23/02
19	517 ppm	01/16/02	N/A	63 ppm	01/25/02
20	605 ppm	01/16/02	N/A	67 ppm	01/25/02
21	704 ppm	01/16/02	N/A	53 ppm	01/28/02
22	643 ppm	01/16/02	N/A	81 ppm	01/28/02
23	754 ppm	01/16/02	N/A	99 ppm	01/28/02
24	557 ppm	01/16/02	N/A	47 ppm	03/24/02
25	817 ppm	01/16/02	N/A	44 ppm	03/24/02
26	155 ppm	01/16/02	N/A	No Excavation Required	N/A
*27	84 ppm	01/18/02	140 ppm	No Excavation Required	N/A
28	227 ppm	01/16/02	N/A	No Excavation Required	N/A
29	278 ppm	01/16/02	N/A	57 ppm	01/23/02
30	471 ppm	01/17/02	N/A	68 ppm	01/24/02
31	673 ppm	01/17/02	N/A	82 ppm	01/24/02
*32	594 ppm	01/17/02	1200 ppm	49 ppm	01/25/02
33	763 ppm	01/17/02	N/A	110 ppm	01/26/02
34	842 ppm	01/17/02	N/A	63 ppm	01/28/02
35	1036 ppm	01/17/02	N/A	35 ppm	02/23/02
36	1333 ppm	01/17/02	N/A	28 ppm	02/23/02
*37	1477 ppm	01/17/02	1900 ppm	86 ppm	03/26/02
38	1380 ppm	01/17/02	N/A	45 ppm	03/26/02
39	897 ppm	01/17/02	N/A	43 ppm	03/27/02
40	241 ppm	01/24/02	N/A	No Excavation Required	N/A
41	157 ppm	01/24/02	N/A	No Excavation Required	N/A
*42	314 ppm	01/28/02	460 ppm	24 ppm	02/22/02
43	701 ppm	01/24/02	N/A	71 ppm	01/28/02

Cell Number	Pre-Excavation XRF Averages	Date	Lab Results	Post-Excavation XRF Averages	Date	Lab Results
44	810 ppm	01/24/02	N/A	113 ppm	01/28/02	N/A
45	1533 ppm	01/24/02	N/A	77 ppm	01/28/02	N/A
*46	919 ppm	01/24/02	1600 ppm	54 ppm	01/28/02	N/A
47	1203 ppm	01/24/02	N/A	68 ppm	01/29/02	N/A
48	1767 ppm	01/24/02	N/A	251 ppm	01/29/02	N/A
*49	2640 ppm	01/24/02	4200 ppm	249 ppm	02/23/02	N/A
50	1437 ppm	01/24/02	N/A	240 ppm	02/24/02	N/A
*51	1987 ppm	01/24/02	2900 ppm	90 ppm	03/25/02	N/A
*52	3480 ppm	01/24/02	5900 ppm	50 ppm	03/25/02	N/A
*53	2903 ppm	01/24/02	5300 ppm	40 ppm	03/25/02	N/A
54	243 ppm	01/25/02	N/A	No Excavation Required	N/A	N/A
55	230 ppm	01/25/02	N/A	No Excavation Required	N/A	N/A
*56	338 ppm	01/25/02	440 ppm	33 ppm	02/23/02	N/A
57	533 ppm	01/25/02	N/A	58 ppm	02/23/02	N/A
58	724 ppm	01/25/02	N/A	48 ppm	02/24/02	N/A
59	745 ppm	01/25/02	N/A	57 ppm	02/25/02	N/A
60	1012 ppm	01/25/02	N/A	132 ppm	03/02/02	N/A
*61	792 ppm	01/25/02	N/A	49 ppm	03/03/02	41 ppm
62	1677 ppm	01/25/02	N/A	47 ppm	03/05/02	N/A
63	1893 ppm	01/25/02	N/A	278 ppm	03/06/02	N/A
64	1983 ppm	01/25/02	N/A	105 ppm	03/07/02	N/A
65	1980 ppm	01/25/02	N/A	113 ppm	03/24/02	N/A
66	1697 ppm	01/25/02	N/A	54 ppm	03/24/02	N/A
67	1633 ppm	01/25/02	N/A	55 ppm	03/23/02	N/A
*68	360 ppm	01/26/02	420 ppm	94 ppm	02/24/02	N/A
*69	307 ppm	01/26/02	430 ppm	62 ppm	02/24/02	N/A
*70	374 ppm	01/26/02	510 ppm	131 ppm	02/25/02	N/A
71	490 ppm	01/26/02	N/A	217 ppm	02/26/02	N/A
72	540 ppm	01/26/02	N/A	165 ppm	02/26/02	N/A
73	706 ppm	01/26/02	N/A	126 ppm	02/26/02	N/A
74	834 ppm	01/26/02	N/A	55 ppm	03/04/02	N/A
75	657 ppm	01/25/02	N/A	84 ppm	03/05/02	N/A
76	733 ppm	01/25/02	N/A	45 ppm	03/06/02	N/A
77	885 ppm	01/25/02	N/A	35 ppm	03/07/02	N/A
78	1303 ppm	01/25/02	N/A	123 ppm	03/23/02	N/A
79	864 ppm	01/25/02	N/A	37 ppm	03/24/02	N/A
80	1163 ppm	01/25/02	N/A	40 ppm	03/23/02	N/A
81	1013 ppm	01/25/02	N/A	51 ppm	03/22/02	N/A
82	419 ppm	01/26/02	N/A	218 ppm	02/27/02	N/A
83	440 ppm	01/26/02	N/A	62 ppm	02/27/02	N/A
84	557 ppm	01/26/02	N/A	54 ppm	02/28/02	N/A
85	552 ppm	01/26/02	N/A	75 ppm	03/01/02	N/A
86	681 ppm	01/26/02	N/A	41 ppm	03/04/02	N/A
87	1133 ppm	01/26/02	N/A	84 ppm	03/04/02	N/A
88	1107 ppm	01/26/02	N/A	51 ppm	03/06/02	N/A
89	2227 ppm	01/26/02	N/A	50 ppm	03/07/02	N/A
90	1397 ppm	01/26/02	N/A	49 ppm	03/08/02	N/A

Cell Number	Pre-Excavation XRF		Lab Results	Post-Excavation XRF		Lab Results
	Averages	Date		Averages	Date	
91	1410 ppm	01/26/02	N/A	24 ppm	03/15/02	N/A
92	1597 ppm	01/26/02	N/A	32 ppm	03/22/02	N/A
*93	1767 ppm	01/26/02	1700 ppm	28 ppm	03/24/02	N/A
*94	1267 ppm	01/26/02	1300 ppm	29 ppm	03/22/02	N/A
95	1028 ppm	01/26/02	N/A	229 ppm	03/21/02	N/A
96	434 ppm	01/28/02	N/A	209 ppm	02/27/02	N/A
97	455 ppm	01/28/02	N/A	38 ppm	02/28/02	N/A
98	492 ppm	01/28/02	N/A	41 ppm	02/28/02	N/A
99	630 ppm	01/28/02	N/A	75 ppm	03/01/02	N/A
*100	650 ppm	01/28/02	N/A	74 ppm	03/02/02	71 ppm
101	564 ppm	01/28/02	N/A	48 ppm	03/05/02	N/A
102	773 ppm	01/28/02	N/A	43 ppm	03/08/02	N/A
103	2247 ppm	01/28/02	N/A	30 ppm	03/12/02	N/A
104	1737 ppm	01/28/02	N/A	113 ppm	03/13/02	N/A
105	2817 ppm	01/28/02	N/A	55 ppm	03/15/02	N/A
106	2017 ppm	01/28/02	N/A	101 ppm	03/21/02	N/A
107	1957 ppm	01/28/02	N/A	60 ppm	03/22/02	N/A
108	1207 ppm	01/28/02	N/A	36 ppm	03/21/01	N/A
109	913 ppm	01/28/02	N/A	42 ppm	03/15/02	N/A
110	459 ppm	01/29/02	N/A	45 ppm	02/26/02	N/A
*111	335 ppm	01/29/02	380 ppm	No Excavation Required	N/A	N/A
112	178 ppm	01/29/02	N/A	No Excavation Required	N/A	N/A
*113	366 ppm	01/29/02	450 ppm	246 ppm	03/01/02	N/A
*114	1230 ppm	01/29/02	N/A	50 ppm	03/02/02	24 ppm
115	871 ppm	01/29/02	N/A	46 ppm	03/06/02	N/A
116	941 ppm	02/08/02	N/A	45 ppm	03/09/02	N/A
117	1143 ppm	02/08/02	N/A	48 ppm	03/10/02	N/A
118	919 ppm	02/08/02	N/A	32 ppm	03/14/02	N/A
119	2253 ppm	02/08/02	N/A	42 ppm	03/14/02	N/A
120	1613 ppm	02/08/02	N/A	40 ppm	03/21/02	N/A
121	1850 ppm	02/08/02	N/A	31 ppm	03/14/02	N/A
122	915 ppm	02/08/02	N/A	41 ppm	03/14/02	N/A
123	540 ppm	02/08/02	N/A	47 ppm	03/14/02	N/A
124	489 ppm	02/09/02	N/A	192 ppm	02/26/02	N/A
125	401 ppm	02/09/02	N/A	69 ppm	02/26/02	N/A
126	303 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A
127	568 ppm	02/09/02	N/A	126 ppm	02/27/02	N/A
128	497 ppm	02/09/02	N/A	76 ppm	02/28/02	N/A
129	547 ppm	02/09/02	N/A	110 ppm	02/28/02	N/A
130	1190 ppm	02/09/02	N/A	45 ppm	03/09/02	N/A
131	716 ppm	02/09/02	N/A	43 ppm	03/10/02	N/A
132	623 ppm	02/09/02	N/A	45 ppm	03/11/02	N/A
133	706 ppm	02/09/02	N/A	48 ppm	03/13/02	N/A
134	566 ppm	02/09/02	N/A	42 ppm	03/13/02	N/A
135	367 ppm	02/08/01	N/A	No Excavation Required	N/A	N/A
136	399 ppm	02/08/01	N/A	110 ppm	03/13/02	N/A
137	569 ppm	02/08/01	N/A	144 ppm	03/13/02	N/A

Cell Number	Pre-Excavation XRF Averages	Date	Lab Results	Post-Excavation XRF Averages	Date	Lab Results
*138	421 ppm	02/09/02	480 ppm	170 ppm	02/24/02	N/A
139	296 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A
140	360 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A
141	407 ppm	02/09/02	N/A	89 ppm	02/27/02	N/A
142	867 ppm	02/09/02	N/A	138 ppm	02/27/02	N/A
143	669 ppm	02/09/02	N/A	78 ppm	02/27/02	N/A
*144	1026 ppm	02/09/02	1000 ppm	54 ppm	03/01/02	N/A
*145	1093 ppm	02/09/02	1100 ppm	40 ppm	03/02/02	24 ppm
146	1980 ppm	02/09/02	N/A	45 ppm	03/09/02	N/A
*147	987 ppm	02/09/02	1000 ppm	44 ppm	03/10/02	N/A
148	3257 ppm	02/09/02	N/A	52 ppm	03/10/02	N/A
149	658 ppm	02/09/02	N/A	46 ppm	03/01/02	N/A
150	648 ppm	02/09/02	N/A	64 ppm	03/01/02	N/A
151	611 ppm	02/09/02	N/A	52 ppm	03/08/02	N/A
152	644 ppm	02/09/02	N/A	52 ppm	03/08/02	N/A
153	467 ppm	02/09/02	N/A	42 ppm	03/09/02	N/A
*154	408 ppm	02/09/02	N/A	152 ppm	03/01/02	190 ppm
155	309 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A
156	363 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A
*157	331 ppm	02/09/02	390 ppm	No Excavation Required	N/A	N/A
158	278 ppm	02/09/02	N/A	No Excavation Required	N/A	N/A

Notes:

* Submitted to Lab

N/A Not applicable

ppm Parts per million

XRF Niton® X-ray fluorescence spectrometer

APPENDIX G

DATA VALIDATION REPORT AND LABORATORY RESULTS

(33 Pages)

DATA VALIDATION REPORT

LEVEL II

Site Name: National Zinc Site

Laboratory: STAT Analysis Corporation, Chicago, IL

Data Reviewer: David Hickey, Tetra Tech EM Inc. *DH*

SDGs: 0110101, 0111033, 0111061, 0111150, 0111080, 0112029, 0112091, 0201032, 0201094, 0201132, 0201147, 0201156, 0202071, 0203030, 0203038, 0203039, 0203040, 0203059, 0203094, 0203212

Field Samples: 67 soil samples

Analyses: *Arsenic (As), Cadmium (Cd), Lead (Pb), Mercury (Hg), and Zinc (Zn):* Backfill #1 to Backfill #4, NZ-001 to NZ-009
As, Cd, Pb, and Zn: NZ-010 to NZ-025, NZ-38RG(T), NZ-43RG(T), and NZ-15RG(T), NZ-Background-N, NZ-Background-E, NZ-Background-W, NZ-Background-South
Pb: NZ-008RG, NZ-053RG, NZ-052RG, NZ-051RG, NZ-046RG, NZ-049RG, NZ-10RG, NZ-56RG, NZ-68RG, NZ-69RG, NZ-70RG, NZ-93RG, NZ-94RG, NZ-42RG, NZ-111RG, NZ-113RG, NZ-147RG, NZ-157RG, NZ-144RG, NZ-145RG, NZ-138RG, NZ-100RG, NZ-60RG, NZ-114RG, NZ-145RG, NZ-154RG, NZ-Ponderosa(F), NZ-Ponderosa(B), NZ-86RG, NZ-61RG, and NZ-149RG

Report Date: May 1, 2002

1.0 INTRODUCTION

Data were evaluated in general accordance with the U.S. Environmental Protection Agency (EPA) document entitled "National Functional Guidelines for Evaluating Inorganic Data Review" (EPA540/R-94/012, February 1994) and the EPA Region 7 standard operating procedure entitled "Contract Laboratory Program Data Validation Functional Guidelines for Evaluating Inorganic Analytical Data" (No. 2430.4C, March 1995). The review was intended to identify problems and quality control (QC) deficiencies that were readily apparent from the data package. The following sections discuss any problems or deficiencies that were found, and data qualifications applied because of non-

compliant QC. The data review was limited to the available field and laboratory QC information submitted with the project specific data package.

2.0 DATA VALIDATION

This sampling effort included soil environmental samples analyzed for As, Cd, Pb, Hg, and Zn. There were no field quality control (QC) samples or performance evaluation (PE) samples associated with this sampling effort.

All samples were prepared and analyzed according to Solid Waste (SW)-846 methodology. Case narratives were present for most sample delivery group (SDG), and for those case narratives present, all summarized information was found to accurately reflect the data generation conditions and results. Unless otherwise indicated, the section comments below pertain to all analytical parameters.

2.1 Technical Holding Times

All samples were prepared and analyzed within technical holding times. No data were qualified.

2.2 Blank Results

Several method blanks (MB) and/or calibration blanks contained trace levels of arsenic, cadmium, lead or zinc. As all arsenic, cadmium, lead and zinc results were significantly higher than five times the blank concentrations, no qualifications were required.

2.3 MS/MSD Results

For SDGs 0110101, 0111033, 0111061, 0112091, 0201032, 0203030, 0203038, and 0203212, the samples spiked for MS and MSD were not samples associated with this project. As such, all MS/MSD data for these SDGs are considered irrelevant to this project and were not evaluated.

SDGs 0111150, 0111080, 0112029, 0201094, 02011132, 0201147, 0202071, and 0203094 contained MS/MSD outliers, but since sample concentrations were greater than four times the spike concentration, no qualifications were required.

The percent recoveries of lead and zinc in the MS/MSD associated with SDG 0203039 were outside of the established control limits. As such, results for lead and zinc in sample NZ-Background-W were qualified as estimated (J).

2.6 Field Duplicates

There were no field duplicates associated with this sampling effort.

2.7 Calibrations

All initial and continuing calibration percent recoveries were within the established control limits. No data were qualified.

For samples NZ-049 RG, NZ-051 RG, NZ-052 RG, and NZ-053RG in SDG 0201132, lead exceeded the calibration range of the instrument. As such, lead in these samples was qualified as estimated (J).

2.8 LCS Results

LCS percent recoveries were within established control limits, with one exception. The percent recovery for zinc in the LCS associated with SDG 0203059 was outside of the established control limits. Accordingly, the zinc result for sample NZ-Background-South is qualified as estimated (J).

2.9 Serial Dilution

Though required by SW-846 methodologies, serial dilutions were omitted from the analytical regime. As such, the effect on the data resulting from significant physical or chemical interferences could not be completely evaluated. No data were qualified.

2.10 Interference Check

The ICP interference check sample (ICS) verifies the contract laboratory's interelement and background correction factors. All ICS were analyzed at the proper frequency, and all analyte recoveries were within the established control limits, with the exception of zinc in SDGs 0110101, 0111033, 0111061, 0111150, 0112029, 0112091, 0201032, 0203030, 0203038, 0203039, and 0203059; and cadmium in SDG 0111061. Accordingly, zinc data associated with SDGs 0110101, 0111033, 0111061, 0111150, 0112029, 0112091, 0201032, 0203030, 0203038, 0203039, and 0203059; and cadmium data associated with SDG 0111061 were qualified as estimated (J).

3.0 OVERALL DATA QUALITY

Based on the information presented in the data packages, data quality is determined to be acceptable, with qualifications where applied.

STAT Analysis Corporation

2201 West Campbell Park Drive Chicago, IL 60612-3547

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATanalysis.com

NVLAP



Date Reported: October 19, 2001

Date Printed: April 18, 2002

Client: Tetra Tech
 Project: Cherryvale National Zinc
 Lab Order: 0110101

Lab ID: 0110101-001
 Client Sample ID Backfill #1
 Collection Date: 10/11/01 16:20:00
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 10/17/01	Analyst: DI	
Mercury	ND	0.031	mg/Kg-dry 1		10/17/01 00:00
Metals by ICP/MS	SW6020		Prep Date: 10/17/01	Analyst: MCL	
Arsenic	4.1	0.61	mg/Kg-dry 10		10/18/01 04:40
Cadmium	ND	0.61	mg/Kg-dry 10		10/18/01 04:40
Lead	18	0.61	mg/Kg-dry 10		10/18/01 04:40
Zinc	69 J	6.1	mg/Kg-dry 10		10/18/01 04:40

Lab ID: 0110101-002
 Client Sample ID Backfill #2
 Collection Date: 10/11/01 16:35:00
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 10/17/01	Analyst: DI	
Mercury	ND	0.03	mg/Kg-dry 1		10/17/01 00:00
Metals by ICP/MS	SW6020		Prep Date: 10/17/01	Analyst: MCL	
Arsenic	4	0.59	mg/Kg-dry 10		10/18/01 04:44
Cadmium	ND	0.59	mg/Kg-dry 10		10/18/01 04:44
Lead	22	0.59	mg/Kg-dry 10		10/18/01 04:44
Zinc	71 J	5.9	mg/Kg-dry 10		10/18/01 04:44

Lab ID: 0110101-003
 Client Sample ID Backfill #3
 Collection Date: 10/11/01 16:40:00
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 10/17/01	Analyst: DI	
Mercury	ND	0.029	mg/Kg-dry 1		10/17/01 00:00
Metals by ICP/MS	SW6020		Prep Date: 10/17/01	Analyst: MCL	
Arsenic	3.8	0.61	mg/Kg-dry 10		10/18/01 04:48
Cadmium	ND	0.61	mg/Kg-dry 10		10/18/01 04:48
Lead	20	0.61	mg/Kg-dry 10		10/18/01 04:48
Zinc	90 J	6.1	mg/Kg-dry 10		10/18/01 04:48

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: October 19, 2001

Date Printed: April 18, 2002

Client: Tetra Tech	Lab Order: 0110101
Project: Cherryvale National Zinc	

Lab ID: 0110101-004	Collection Date: 10/11/01 16:45:00
Client Sample ID: Backfill #4	Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
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Mercury	SW7471A				Prep Date: 10/17/01	Analyst: DI
Mercury	ND	0.03	mg/Kg-dry	1	10/17/01 00:00	
Metals by ICP/MS	SW6020				Prep Date: 10/17/01	Analyst: MCL
Arsenic	2.8	0.58	mg/Kg-dry	10	10/18/01 04:52	
Cadmium	ND	0.58	mg/Kg-dry	10	10/18/01 04:52	
Lead	16	0.58	mg/Kg-dry	10	10/18/01 04:52	
Zinc	61 J	5.8	mg/Kg-dry	10	10/18/01 04:52	

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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NVLAP



Date Reported: November 12, 2001

Date Printed: April 17, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0111033

Lab ID: 0111033-001

Collection Date: 11/7/01 10:47:00 AM

Client Sample ID: NZ-001

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury					
Mercury	0.6	0.033	mg/Kg-dry	1	11/11/01 20:40
	SW7471A		Prep Date: 11/11/01		Analyst: BTN
Metals by ICP/MS					
Arsenic	33	0.67	mg/Kg-dry	10	11/10/01 22:15
Cadmium	51	0.67	mg/Kg-dry	10	11/10/01 22:15
Lead	2200	0.67	mg/Kg-dry	10	11/10/01 22:15
Zinc	8900 J	34	mg/Kg-dry	50	11/10/01 23:19
	SW6020		Prep Date: 11/10/01		Analyst: MCL

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

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Date Reported: November 15, 2001

Date Printed: April 17, 2002

Client: Tetra Tech
Project: G9011.E.0063.00, National Zinc

Lab Order: 0111061

Lab ID: 0111061-001
Client Sample ID: NZ-002Collection Date: 11/8/01 2:50:00 PM
Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/15/01		Analyst: DI
Mercury	0.23	0.03	mg/Kg-dry	1	11/15/01 16:34
Metals by ICP/MS	SW6020		Prep Date: 11/14/01		Analyst: MCL
Arsenic	21	0.57	mg/Kg-dry	10	11/14/01 20:19
Cadmium	23 J	0.57	mg/Kg-dry	10	11/14/01 20:19
Lead	630	0.57	mg/Kg-dry	10	11/14/01 20:19
Zinc	3500 J	5.7	mg/Kg-dry	10	11/14/01 20:19

Lab ID: 0111061-002
Client Sample ID: NZ-003Collection Date: 11/8/01 3:00:00 PM
Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/15/01		Analyst: DI
Mercury	0.71	0.032	mg/Kg-dry	1	11/15/01 16:36
Metals by ICP/MS	SW6020		Prep Date: 11/14/01		Analyst: MCL
Arsenic	17	0.65	mg/Kg-dry	10	11/14/01 20:23
Cadmium	25 J	0.65	mg/Kg-dry	10	11/14/01 20:23
Lead	1100	0.65	mg/Kg-dry	10	11/14/01 20:23
Zinc	3200 J	6.5	mg/Kg-dry	10	11/14/01 20:23

Lab ID: 0111061-003
Client Sample ID: NZ-004Collection Date: 11/8/01 3:00:00 PM
Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/15/01		Analyst: DI
Mercury	0.24	0.03	mg/Kg-dry	1	11/15/01 16:37
Metals by ICP/MS	SW6020		Prep Date: 11/14/01		Analyst: MCL
Arsenic	18	0.53	mg/Kg-dry	10	11/14/01 20:27
Cadmium	36 J	0.53	mg/Kg-dry	10	11/14/01 20:27
Lead	1200	0.53	mg/Kg-dry	10	11/14/01 20:27
Zinc	8500 J	26	mg/Kg-dry	50	11/14/01 21:29

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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NVLAP



Date Reported: November 15, 2001

Date Printed: April 17, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0111061

Lab ID: 0111061-004

Collection Date: 11/8/01 3:35:00 PM

Client Sample ID: NZ-005

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury					
	SW7471A		Prep Date: 11/15/01		Analyst: DI
Mercury	0.2	0.03	mg/Kg-dry	1	11/15/01 16:39
Metals by ICP/MS					
	SW6020		Prep Date: 11/14/01		Analyst: MCL
Arsenic	18	0.56	mg/Kg-dry	10	11/14/01 20:34
Cadmium	30 J	0.56	mg/Kg-dry	10	11/14/01 20:34
Lead	1300	0.56	mg/Kg-dry	10	11/14/01 20:34
Zinc	4400 J	5.6	mg/Kg-dry	10	11/14/01 20:34

Lab ID: 0111061-005

Collection Date: 11/10/01 2:33:00 PM

Client Sample ID: NZ-006

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury					
	SW7471A		Prep Date: 11/15/01		Analyst: DI
Mercury	0.36	0.031	mg/Kg-dry	1	11/15/01 16:40
Metals by ICP/MS					
	SW6020		Prep Date: 11/14/01		Analyst: MCL
Arsenic	31	0.83	mg/Kg-dry	10	11/14/01 20:38
Cadmium	49 J	0.83	mg/Kg-dry	10	11/14/01 20:38
Lead	2000	0.83	mg/Kg-dry	10	11/14/01 20:38
Zinc	12000 J	32	mg/Kg-dry	50	11/14/01 21:41

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: November 21, 2001

Date Printed: April 17, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0111080

Lab ID: 0111080-001
 Client Sample ID: NZ-007

Collection Date: 11/12/01 1:00:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/20/01		Analyst: DI
Mercury	0.27	0.031	mg/Kg-dry	1	11/20/01 15:04
Metals by ICP/MS	SW6020		Prep Date: 11/19/01		Analyst: DRJ
Arsenic	15	5.6	mg/Kg-dry	1	11/21/01 10:26
Cadmium	29	2.8	mg/Kg-dry	1	11/21/01 10:26
Lead	960	56	mg/Kg-dry	20	11/21/01 10:10
Zinc	3400	56	mg/Kg-dry	20	11/21/01 10:10

Lab ID: 0111080-002
 Client Sample ID: NZ-008

Collection Date: 11/13/01 2:50:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/20/01		Analyst: DI
Mercury	0.069	0.028	mg/Kg-dry	1	11/20/01 15:05
Metals by ICP/MS	SW6020		Prep Date: 11/19/01		Analyst: DRJ
Arsenic	9.1	5.2	mg/Kg-dry	1	11/21/01 10:33
Cadmium	18	2.6	mg/Kg-dry	1	11/21/01 10:33
Lead	130	2.6	mg/Kg-dry	1	11/21/01 10:33
Zinc	1800	260	mg/Kg-dry	100	11/21/01 10:06

Lab ID: 0111080-003
 Client Sample ID: NZ-009

Collection Date: 11/13/01 4:35:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Mercury	SW7471A		Prep Date: 11/20/01		Analyst: DI
Mercury	0.21	0.029	mg/Kg-dry	1	11/20/01 15:07
Metals by ICP/MS	SW6020		Prep Date: 11/19/01		Analyst: DRJ
Arsenic	15	5.7	mg/Kg-dry	1	11/21/01 10:36
Cadmium	29	2.8	mg/Kg-dry	1	11/21/01 10:36
Lead	640	57	mg/Kg-dry	20	11/21/01 10:24
Zinc	4300	57	mg/Kg-dry	20	11/21/01 10:24

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: December 05, 2001

Date Printed: April 17, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0111150

Lab ID: 0111150-001

Collection Date: 11/28/01 10:48:00 AM

Client Sample ID: NZ-010

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 12/4/01		Analyst: MCL
Arsenic	7.8	0.49	mg/Kg	10	12/05/01 10:54
Cadmium	8.1	0.49	mg/Kg	10	12/05/01 10:54
Lead	110	0.49	mg/Kg	10	12/05/01 10:54
Zinc	1200 J	4.9	mg/Kg	10	12/05/01 10:54

Lab ID: 0111150-002

Collection Date: 11/28/01 11:48:00 AM

Client Sample ID: NZ-011

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 12/4/01		Analyst: MCL
Arsenic	24	0.48	mg/Kg	10	12/05/01 11:05
Cadmium	16	0.48	mg/Kg	10	12/05/01 11:05
Lead	900	0.48	mg/Kg	10	12/05/01 11:05
Zinc	2300 J	4.8	mg/Kg	10	12/05/01 11:05

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: December 10, 2001

Date Printed: April 17, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0112029

Lab ID: 0112029-001
 Client Sample ID: NZ-012

Collection Date: 12/3/01 9:48:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 12/6/01 Analyst: MCL	
Arsenic	7.9	0.56	mg/Kg-dry	10	12/07/01 20:47
Cadmium	8.3	0.56	mg/Kg-dry	10	12/07/01 20:47
Lead	170	0.56	mg/Kg-dry	10	12/07/01 20:47
Zinc	1400 J	5.6	mg/Kg-dry	10	12/07/01 20:47

Lab ID: 0112029-002
 Client Sample ID: NZ-013

Collection Date: 12/4/01 12:24:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 12/6/01 Analyst: MCL	
Arsenic	18	0.61	mg/Kg-dry	10	12/07/01 20:59
Cadmium	18	0.61	mg/Kg-dry	10	12/07/01 20:59
Lead	1500	0.61	mg/Kg-dry	10	12/07/01 20:59
Zinc	3700 J	6.1	mg/Kg-dry	10	12/07/01 20:59

Lab ID: 0112029-003
 Client Sample ID: NZ-014

Collection Date: 12/4/01 4:45:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 12/6/01 Analyst: MCL	
Arsenic	16	0.52	mg/Kg-dry	10	12/07/01 21:03
Cadmium	19	0.52	mg/Kg-dry	10	12/07/01 21:03
Lead	580	0.52	mg/Kg-dry	10	12/07/01 21:03
Zinc	2200 J	5.2	mg/Kg-dry	10	12/07/01 21:03

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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NVLAP



Date Reported: December 10, 2001

Date Printed: April 17, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0112029

Lab ID: 0112029-004
 Client Sample ID: NZ-015

Collection Date: 12/4/01 12:55:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 12/6/01	Analyst: MCL
Arsenic	7.2	0.61	mg/Kg-dry	10	12/07/01 21:07
Cadmium	2.2	0.61	mg/Kg-dry	10	12/07/01 21:07
Lead	40	0.61	mg/Kg-dry	10	12/07/01 21:07
Zinc	550 J	6.1	mg/Kg-dry	10	12/07/01 21:07

Lab ID: 0112029-005
 Client Sample ID: NZ-016

Collection Date: 12/5/01 12:00:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 12/6/01	Analyst: MCL
Arsenic	7.2	0.57	mg/Kg-dry	10	12/07/01 21:11
Cadmium	0.72	0.57	mg/Kg-dry	10	12/07/01 21:11
Lead	46	0.57	mg/Kg-dry	10	12/07/01 21:11
Zinc	270 J	5.7	mg/Kg-dry	10	12/07/01 21:11

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: December 21, 2001

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0112091

Lab ID: 0112091-001
 Client Sample ID: NZ-017

Collection Date: 12/7/01 8:16:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	15	0.52	mg/Kg-dry	10	12/20/01 20:34
Cadmium	24	0.52	mg/Kg-dry	10	12/20/01 20:34
Lead	510	0.52	mg/Kg-dry	10	12/20/01 20:34
Zinc	3900 J	5.2	mg/Kg-dry	10	12/20/01 20:34

Lab ID: 0112091-002
 Client Sample ID: NZ-018

Collection Date: 12/7/01 1:00:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	8.9	0.55	mg/Kg-dry	10	12/20/01 20:38
Cadmium	6.3	0.55	mg/Kg-dry	10	12/20/01 20:38
Lead	39	0.55	mg/Kg-dry	10	12/20/01 20:38
Zinc	680 J	5.5	mg/Kg-dry	10	12/20/01 20:38

Lab ID: 0112091-003
 Client Sample ID: NZ-019

Collection Date: 12/12/01 4:50:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	11	0.52	mg/Kg-dry	10	12/20/01 20:42
Cadmium	17	0.52	mg/Kg-dry	10	12/20/01 20:42
Lead	500	0.52	mg/Kg-dry	10	12/20/01 20:42
Zinc	1600 J	5.2	mg/Kg-dry	10	12/20/01 20:42

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

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Date Reported: December 21, 2001

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0112091

Lab ID: 0112091-004
 Client Sample ID: NZ-020

Collection Date: 12/12/01 4:20:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	6.7	0.53	mg/Kg-dry	10	12/20/01 20:47
Cadmium	23	0.53	mg/Kg-dry	10	12/20/01 20:47
Lead	210	0.53	mg/Kg-dry	10	12/20/01 20:47
Zinc	3100 J	5.3	mg/Kg-dry	10	12/20/01 20:47

Lab ID: 0112091-005
 Client Sample ID: NZ-021

Collection Date: 12/12/01 2:50:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	18	0.53	mg/Kg-dry	10	12/20/01 20:51
Cadmium	28	0.53	mg/Kg-dry	10	12/20/01 20:51
Lead	920	0.53	mg/Kg-dry	10	12/20/01 20:51
Zinc	3600 J	5.3	mg/Kg-dry	10	12/20/01 20:51

Lab ID: 0112091-006
 Client Sample ID: NZ-022

Collection Date: 12/13/01 11:40:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020	Prep Date: 12/20/01		Analyst: MCL
Arsenic	8.6	0.49	mg/Kg-dry	10	12/20/01 20:55
Cadmium	12	0.49	mg/Kg-dry	10	12/20/01 20:55
Lead	380	0.49	mg/Kg-dry	10	12/20/01 20:55
Zinc	1500 J	4.9	mg/Kg-dry	10	12/20/01 20:55

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: December 21, 2001

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0112091

Lab ID: 0112091-007

Collection Date: 12/13/01 11:50:00 AM

Client Sample ID: NZ-023

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 12/20/01		Analyst: MCL
Arsenic	6.1	0.48	mg/Kg-dry	10	12/20/01 21:08
Cadmium	10	0.48	mg/Kg-dry	10	12/20/01 21:08
Lead	99	0.48	mg/Kg-dry	10	12/20/01 21:08
Zinc	1100 J	4.8	mg/Kg-dry	10	12/20/01 21:08

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: January 14, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0201032

Lab ID: 0201032-001
 Client Sample ID: NZ-024

Collection Date: 1/5/02 12:30:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 1/9/02		Analyst: MCL
Arsenic	17	0.45	mg/Kg-dry	10	01/10/02 1:53
Cadmium	16	0.45	mg/Kg-dry	10	01/10/02 1:53
Lead	620	0.45	mg/Kg-dry	10	01/10/02 1:53
Zinc	2800 J	4.5	mg/Kg-dry	10	01/12/02 0:59
Percent Moisture	D2216		Prep Date: 1/9/01		Analyst: MH
Percent Moisture	2.51	0.01	wt%	1	01/10/01 0:00

Lab ID: 0201032-002
 Client Sample ID: NZ-025

Collection Date: 1/6/02 12:20:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 1/9/02		Analyst: MCL
Arsenic	8	0.53	mg/Kg-dry	10	01/10/02 1:57
Cadmium	11	0.53	mg/Kg-dry	10	01/10/02 1:57
Lead	92	0.53	mg/Kg-dry	10	01/10/02 1:57
Zinc	2400 J	5.3	mg/Kg-dry	10	01/12/02 1:03
Percent Moisture	D2216		Prep Date: 1/9/01		Analyst: MH
Percent Moisture	17.01	0.01	wt%	1	01/10/01 0:00

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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NVLAP



Date Reported: January 24, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0201094

Lab ID: 0201094-001
 Client Sample ID: NZ-38 RG(T)

Collection Date: 1/17/02 10:47:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/22/02		Analyst: MCL
Arsenic	20	5.5	mg/Kg-dry	1	01/23/02 0:00
Cadmium	32	1.1	mg/Kg-dry	1	01/23/02 0:00
Lead	1200	140	mg/Kg-dry	50	01/23/02 0:00
Zinc	5600	110	mg/Kg-dry	50	01/23/02 0:00
Percent Moisture	D2216		Prep Date: 1/21/02		Analyst: MA
Percent Moisture	12.67	0.01	wt%	1	01/22/02 0:00

Lab ID: 0201094-002
 Client Sample ID: NZ-43 RG(T)

Collection Date: 1/17/02 11:33:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/22/02		Analyst: MCL
Arsenic	28	4.7	mg/Kg-dry	1	01/23/02 0:00
Cadmium	36	0.93	mg/Kg-dry	1	01/23/02 0:00
Lead	1900	120	mg/Kg-dry	50	01/23/02 0:00
Zinc	5700	93	mg/Kg-dry	50	01/23/02 0:00
Percent Moisture	D2216		Prep Date: 1/21/02		Analyst: MA
Percent Moisture	5.06	0.01	wt%	1	01/22/02 0:00

Lab ID: 0201094-003
 Client Sample ID: NZ-15 RG(T)

Collection Date: 1/18/02 10:10:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/22/02		Analyst: MCL
Arsenic	7.2	5.9	mg/Kg-dry	1	01/23/02 0:00
Cadmium	10	1.2	mg/Kg-dry	1	01/23/02 0:00
Lead	140	3	mg/Kg-dry	1	01/23/02 0:00
Zinc	1600	24	mg/Kg-dry	10	01/23/02 0:00
Percent Moisture	D2216		Prep Date: 1/21/02		Analyst: MA
Percent Moisture	23.87	0.01	wt%	1	01/22/02 0:00

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: January 30, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0201132

Lab ID: 0201132-001
 Client Sample ID: NZ-008RG

Collection Date: 1/24/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/29/02	Analyst: MCL	
Lead	46	2.5	mg/Kg-dry 1	01/30/02 0:00	

Lab ID: 0201132-002
 Client Sample ID: NZ-053RG

Collection Date: 1/24/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/29/02	Analyst: MCL	
Lead	5300 J	25 E	mg/Kg-dry 10	01/30/02 0:00	

Lab ID: 0201132-003
 Client Sample ID: NZ-052RG

Collection Date: 1/24/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/29/02	Analyst: MCL	
Lead	5900 J	24 E	mg/Kg-dry 10	01/30/02 0:00	

Lab ID: 0201132-004
 Client Sample ID: NZ-051RG

Collection Date: 1/24/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP	SW6010B		Prep Date: 1/29/02	Analyst: MCL	
Lead	2900 J	22 E	mg/Kg-dry 10	01/30/02 0:00	

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: January 30, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0201132

Lab ID: 0201132-005

Collection Date: 1/24/02

Client Sample ID: NZ-046RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
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Metals by ICP

SW6010B

Prep Date: 1/29/02

Analyst: MCL

Lead

1600

27

mg/Kg-dry

10

01/30/02 0:00

Lab ID: 0201132-006

Collection Date: 1/24/02

Client Sample ID: NZ-049RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP

SW6010B

Prep Date: 1/29/02

Analyst: MCL

Lead

4200 J

27 E

mg/Kg-dry

10

01/30/02 0:00

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: February 01, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0201147

Lab ID: 0201147-001

Collection Date: 1/25/02

Client Sample ID: NZ-10RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 1/31/02

Analyst: MCL

Lead

260

0.5

mg/Kg-dry

10

01/31/02 16:18

Lab ID: 0201147-002

Collection Date: 1/25/02

Client Sample ID: NZ-56RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 1/31/02

Analyst: MCL

Lead

440

0.5

mg/Kg-dry

10

01/31/02 16:31

Lab ID: 0201147-003

Collection Date: 1/26/02

Client Sample ID: NZ-68RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 1/31/02

Analyst: MCL

Lead

420

0.49

mg/Kg-dry

10

01/31/02 16:35

Lab ID: 0201147-004

Collection Date: 1/26/02

Client Sample ID: NZ-69RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 1/31/02

Analyst: MCL

Lead

430

0.49

mg/Kg-dry

10

01/31/02 16:58

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

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Date Reported: February 01, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0201147

Lab ID: 0201147-005
 Client Sample ID: NZ-70RG

Collection Date: 1/26/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 1/31/02	Analyst: MCL
Lead	510	0.5	mg/Kg-dry	10	01/31/02 17:02

Lab ID: 0201147-006
 Client Sample ID: NZ-93RG

Collection Date: 1/26/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 1/31/02	Analyst: MCL
Lead	1700	0.49	mg/Kg-dry	10	01/31/02 17:07

Lab ID: 0201147-007
 Client Sample ID: NZ-94RG

Collection Date: 1/26/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 1/31/02	Analyst: MCL
Lead	1300	0.5	mg/Kg-dry	10	01/31/02 17:20

Lab ID: 0201147-008
 Client Sample ID: NZ-42RG

Collection Date: 1/28/02
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 1/31/02	Analyst: MCL
Lead	460	0.73	mg/Kg-dry	10	01/31/02 17:34

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: February 05, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0201156

Lab ID: 0201156-001

Collection Date: 1/29/02 4:38:00 PM

Client Sample ID: NZ-111RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 2/4/02

Analyst: MCL

Lead

380

0.55

mg/Kg-dry 10

02/05/02 17:56

Lab ID: 0201156-002

Collection Date: 1/29/02 4:50:00 PM

Client Sample ID: NZ-113RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
----------	--------	------------	-------	----	---------------

Metals by ICP/MS

SW6020

Prep Date: 2/4/02

Analyst: MCL

Lead

450

0.51

mg/Kg-dry 10

02/05/02 18:05

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: February 14, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0202071

Lab ID: 0202071-001
 Client Sample ID: NZ-147RG

Collection Date: 2/9/02 2:30:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 2/13/02	Analyst: MCL	
Lead	1000	0.48	mg/Kg-dry 10		02/14/02 12:22

Lab ID: 0202071-002
 Client Sample ID: NZ-157RG

Collection Date: 2/9/02 5:15:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 2/13/02	Analyst: MCL	
Lead	390	0.52	mg/Kg-dry 10		02/14/02 12:44

Lab ID: 0202071-003
 Client Sample ID: NZ-144RG

Collection Date: 2/9/02 2:58:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 2/13/02	Analyst: MCL	
Lead	1000	0.49	mg/Kg-dry 10		02/14/02 12:49

Lab ID: 0202071-004
 Client Sample ID: NZ-145RG

Collection Date: 2/9/02 2:45:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 2/13/02	Analyst: MCL	
Lead	1100	0.48	mg/Kg-dry 10		02/14/02 12:53

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: February 14, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0202071

Lab ID: 0202071-005

Collection Date: 2/9/02 4:00:00 PM

Client Sample ID: NZ-138RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 2/13/02	Analyst: MCL
Lead	480	0.49	mg/Kg-dry	10	02/14/02 12:58

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

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Date Reported: March 13, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0203030

Lab ID: 0203030-001

Collection Date: 3/3/02

Client Sample ID: NZ-Background-N.

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Arsenic	11	0.49	mg/Kg-dry	10	03/07/02 19:52
Cadmium	1.3	0.49	mg/Kg-dry	10	03/07/02 19:52
Lead	45	0.49	mg/Kg-dry	10	03/07/02 19:52
Zinc	270 J	4.9	mg/Kg-dry	10	03/07/02 19:52

Prep Date: 3/6/02

Analyst: MCL

Qualifiers:
 ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: March 15, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0203038

Lab ID: 0203038-001

Collection Date: 3/3/02 3:45:00 PM

Client Sample ID: NZ-Background-E

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 3/11/02	Analyst: MCL
Arsenic	13	0.47	mg/Kg-dry	10	03/13/02 1:25
Cadmium	ND	0.47	mg/Kg-dry	10	03/13/02 1:25
Lead	41	0.47	mg/Kg-dry	10	03/13/02 1:25
Zinc	130 J	4.7	mg/Kg-dry	10	03/13/02 1:25

Qualifiers: ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

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Date Reported: March 15, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0203039

Lab ID: 0203039-001

Collection Date: 3/3/02 3:00:00 PM

Client Sample ID: NZ-Background-W

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Arsenic	7.9	0.46	mg/Kg-dry	10	03/13/02 1:30
Cadmium	1.3	0.46	mg/Kg-dry	10	03/13/02 1:30
Lead	54	0.46	mg/Kg-dry	10	03/13/02 1:30
Zinc	380	9.1	mg/Kg-dry	20	03/13/02 10:34

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: March 11, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc Lab Order: 0203040

Lab ID: 0203040-001 Collection Date: 3/2/02 3:30:00 PM
 Client Sample ID: NZ-100 RG Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS					
Lead	71	0.43	mg/Kg-dry	10	03/10/02 19:44

Lab ID: 0203040-002 Collection Date: 3/2/02 3:15:00 PM
 Client Sample ID: NZ-60 RG Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS					
Lead	230	0.45	mg/Kg-dry	10	03/10/02 19:57

Lab ID: 0203040-003 Collection Date: 3/2/02 10:30:00 AM
 Client Sample ID: NZ-114 RG Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS					
Lead	24	0.43	mg/Kg-dry	10	03/10/02 20:01

Lab ID: 0203040-004 Collection Date: 3/2/02 11:30:00 AM
 Client Sample ID: NZ-145 RG Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS					
Lead	24	0.45	mg/Kg-dry	10	03/10/02 20:05

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

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Date Reported: March 11, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0203040

Lab ID: 0203040-005

Collection Date: 3/1/02 7:40:00 AM

Client Sample ID: NZ-154 RG

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020		Prep Date: 3/8/02	Analyst: MCL
Lead	190	0.45	mg/Kg-dry	10	03/10/02 20:10

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

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Date Reported: March 15, 2002

Date Printed: April 16, 2002

Client: Tetra Tech

Project: G9011.E.0063.00, National Zinc

Lab Order: 0203059

Lab ID: 0203059-001

Collection Date: 3/8/02 10:30:00 AM

Client Sample ID: NZ-Background-South

Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Arsenic	8.3	0.54	mg/Kg-dry	10	03/13/02 15:51
Cadmium	ND	0.54	mg/Kg-dry	10	03/13/02 15:51
Lead	16	0.54	mg/Kg-dry	10	03/13/02 15:51
Zinc	100 <i>J</i>	5.4	mg/Kg-dry	10	03/13/02 15:51

Prep Date: 3/12/02

Analyst: MCL

Qualifiers: ND - Not Detected at the Reporting Limit

S - Spike Recovery outside accepted recovery limits

J - Analyte detected below quantitation limits

R - RPD outside accepted recovery limits

B - Analyte detected in the associated Method Blank

E - Value above quantitation range

* - Value exceeds Maximum Contaminant Level

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Date Reported: March 20, 2002

Date Printed: April 16, 2002

Client:	Tetra Tech				
Project:	G9011.E.0063.00, National Zinc		Lab Order: 0203094		
Lab ID:	0203094-001		Collection Date: 3/5/02 3:45:00 PM		
Client Sample ID:	NZ-Ponderosa(F)		Matrix: Soil		
Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 3/15/02		Analyst: MCL
Lead	530	0.52	mg/Kg-dry	10	03/16/02 0:08

Lab ID:	0203094-002		Collection Date: 3/5/02 2:45:00 PM		
Client Sample ID:	NZ-Ponderosa(B)		Matrix: Soil		
Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS	SW6020		Prep Date: 3/15/02		Analyst: MCL
Lead	490	0.47	mg/Kg-dry	10	03/16/02 0:24

Qualifiers: ND - Not Detected at the Reporting Limit S - Spike Recovery outside accepted recovery limits
 J - Analyte detected below quantitation limits R - RPD outside accepted recovery limits
 B - Analyte detected in the associated Method Blank E - Value above quantitation range
 * - Value exceeds Maximum Contaminant Level

STAT Analysis Corporation

2201 West Campbell Park Drive Chicago, IL 60612-3547

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATanalysis.com

NVLAP



Date Reported: April 03, 2002

Date Printed: April 16, 2002

Client: Tetra Tech
 Project: G9011.E.0063.00, National Zinc

Lab Order: 0203212

Lab ID: 0203212-001
 Client Sample ID: NZ-86RG

Collection Date: 3/3/02 12:40:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Lead	570	0.41	mg/Kg-dry	10	04/03/02 4:43

Prep Date: 4/1/02
 Analyst: MCL

Lab ID: 0203212-002
 Client Sample ID: NZ-61RG

Collection Date: 3/3/02 12:55:00 PM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Lead	41	0.4	mg/Kg-dry	10	04/03/02 4:55

Prep Date: 4/1/02
 Analyst: MCL

Lab ID: 0203212-003
 Client Sample ID: NZ-149RG

Collection Date: 3/1/02 7:50:00 AM
 Matrix: Soil

Analyses	Result	Limit Qual	Units	DF	Date Analyzed
Metals by ICP/MS		SW6020			
Lead	37	0.5	mg/Kg-dry	10	04/03/02 5:12

Prep Date: 4/1/02
 Analyst: MCL

Qualifiers: ND - Not Detected at the Reporting Limit
 J - Analyte detected below quantitation limits
 B - Analyte detected in the associated Method Blank
 * - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
 R - RPD outside accepted recovery limits
 E - Value above quantitation range

APPENDIX H

CORRELATION BETWEEN LABORATORY & NITON® XRF DATA

(Two Pages)

Residential Properties

Sample #	Address	QUAD	Lab	NITON Avg.
NZ - 001	511 Martin (Pre)	12	2200	1557
002	512 Front (Pre)	A	630	436
003	512 Front (Pre)	B	1100	644
004	536 Front (Pre)	B	1200	812
005	530 Front (Pre)	B	1300	943
006	634 Front (Pre)	C	2000	1357
007	620 Front (Pre)	C	960	550
008	511 Martin (Post)	D	130	115
009	629 Martin (Post)	A	640	566
010	617 Front (Post)	D	110	111
011	609 Front (Pre)	7	900	1125
012	505 Front (Post)	B	170	135
013	532 W. First (Pre)	1	1500	758
014	500 W First (Post)	A	580	399
015	500 W First (Post)	B	40	57
016	506 W First (Post)	A	46	55
017	514 W First(Post)	C	399	510
018	527 W First (Post)	D	54	39
019	635 W First (Post)	C	464	500
020	635 W First (Post)	A	168	210
021	638 W First (Post)	3	704	920
022	638 W First (Post)	7	345	380
023	638 W First (Post)	B	89	99
024	5399 CR 5050(Pre)	A	620	464
025	420 N Liberty(Post)	A	92	92
Ponderosa-F	N. Catherine St	F	530	385
Ponderosa-B	N. Catherine St	B	490	483

0.929158286

* Results in parts per million (ppm)

Rodeo Grounds

Sample #	Address	QUAD	Lab (Pb)	Niton (Pb)	
38RG (T)	Rodeo Gro	38 (T)	1200	594	
43RG(T)	Rodeo Gro	43(T)	1900	1477	
15RG(T)	Rodeo Gro	15(T)	140	84	
42RG	Rodeo Gro	42	460	314	
8RG	Rodeo Gro	8	46	69	
51 RG	Rodeo Gro	51	2900	1987	
52 RG	Rodeo Gro	52	5900	3480	
53 RG	Rodeo Gro	53	5300	2903	
46 RG	Rodeo Gro	46	1600	919	
49 RG	Rodeo Gro	49	4200	2640	
10RG	Rodeo Gro	10	260	181	
56RG	Rodeo Gro	56	440	338	
68RG	Rodeo Gro	68	420	360	
69RG	Rodeo Gro	69	430	307	
70RG	Rodeo Gro	70	510	374	
93RG	Rodeo Gro	93	1700	1767	
94RG	Rodeo Gro	94	1300	1267	
111RG	Rodeo Gro	111	380	335	
113RG	Rodeo Gro	113	450	366	
147RG	Rodo Grou	147	1000	987	
157RG	Rodeo Gro	157	390	331	
144RG	Rodo Grou	144	1000	1026	
145RG	Rodo Grou	145	1100	1093	(pre-scrn)
138RG	Rodo Grou	138	480	421	
100 RG	Rodeo Gro	100	71	74	
60RG	Rodeo Gro	60	230	132	
114RG	Rodeo Gro	114	24	50	(post-scrn)
145RG	Rodeo Gro	145	24	40	
154RG	Rodeo Gro	154	190	152	
86RG	Rodeo Gro	86	570	41	*****
61RG	Rodeo Gro	61	41	49	
149RG	Rodeo Gro	149	37	46	
			0.972154		

* Results in parts per million (ppm)