

PHASE I ENVIRONMENTAL SITE ASSESSMENT
SITE D PRODUCTION PUMP TEST WELL
LEWIS AND CLARK RURAL WATER SYSTEM
SD HIGHWAY 19
RURAL VERMILLION, SD

GEOTEK #03-299





**GEOTEK ENGINEERING
& TESTING SERVICES, INC.**
909 East 50th Street North
Sioux Falls, South Dakota 57104
605-335-5512 • FAX 605-335-0773



May 1, 2003

Banner Associates, Inc.
P.O. Box 298
409 22nd Avenue South
Brookings, SD 57006-0298

Attn: Mr. Tim Conner

Subj: Phase I Environmental Site Assessment
Site D Production Pump Test Well
Lewis and Clark Rural Water System
SD Highway 19
Rural Vermillion, SD
GeoTek #03-299

Dear Mr. Conner:

We have completed a Phase I Environmental Site Assessment for the referenced project and are transmitting three copies of our report. This work was performed in accordance with our April 22, 2003 contract.

Please refer to our conclusions and recommendations for the major findings and recommendations we have made.

If you have any questions or concerns regarding the information presented in this report, or if we can be of additional service, please contact our office.

GeoTek Engineering & Testing Services, Inc.

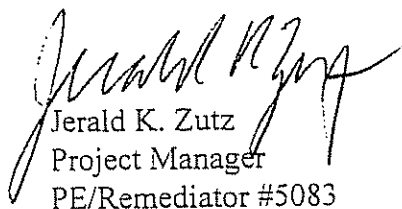

Jerald K. Zutz
Project Manager
PE/Remediator #5083

TABLE OF CONTENTS

SUMMARY	1
INTRODUCTION	1
SITE DESCRIPTION	3
USER PROVIDED INFORMATION	4
RECORDS REVIEW	4
HISTORICAL SOURCES REVIEW	6
SITE RECONNAISSANCE	9
INTERVIEWS	11
FINDINGS	11
OPINION	12
CONCLUSIONS	12
DEVIATIONS	12
ADDITIONAL SERVICES	12
REFERENCES	13
SIGNATURE OF ENVIRONMENTAL PROFESSIONAL	14
QUALIFICATIONS OF ENVIRONMENTAL PROFESSIONAL	15
FIGURE 1 - Topographic Map	
APPENDIX A – Site Photographs	
APPENDIX B – Historical Research Documentation	
APPENDIX C – Regulatory Records Documentation	
APPENDIX D – Interview Documentation	
APPENDIX E – Special Contractual Conditions	



PHASE I ENVIRONMENTAL SITE ASSESSMENT
SITE D PRODUCTION PUMP TEST WELL
LEWIS AND CLARK RURAL WATER SYSTEM
SD HIGHWAY 19
RURAL VERMILLION, SOUTH DAKOTA
GEOTEK #03-299

SUMMARY

Our Phase I Environmental Site Assessment has not identified recognized environmental conditions in association with the referenced site.

INTRODUCTION

Purpose

This Phase I Environmental Site Assessment was conducted during the period of April 10 to May 1, 2003. The purpose of this Phase I Environmental Site Assessment was to evaluate the potential presence of hazardous substances and soil and/or groundwater contamination due to past and/or current land use practices at the site, or from nearby off-site operations.

Scope of Services

The scope of services for this assessment was performed in accordance with the American Society for Testing and Materials (ASTM) Standard E 1527-00 (plus site observations for asbestos materials, and review of a published wetlands map) included the following tasks:

1. Review of information on the geology and hydrogeology of the site vicinity. Review of available information, if any, regarding previous sampling and analysis of soil, groundwater, or surface water conducted at the site.
2. Review of the subject property, records, and interviews of individuals associated with the property regarding the present or past existence of suspect asbestos containing materials, environmental permits or licenses, hazardous or potentially hazardous substances, distressed vegetation, stained soil, unusual grade changes, random dumping or on-site disposal, suspect polychlorinated biphenyls (PCBs), and underground/above ground storage tanks.



3. Conduct a site vicinity reconnaissance to identify nearby off-site facilities that could potentially impact the subject property.
4. Review of available historical resources such as aerial photographs, fire insurance maps, tax assessor records, recorded land title records, USGS topographic maps, street directories, county atlases, and building department records, to identify, as nearly as possible, past uses of the property.
5. Review of reasonably available regulatory agency information and records. Verbal and/or written communication with federal, state and local environmental regulatory agencies concerning the usage, storage, treatment, and disposal of hazardous substances.
6. If available, review a published wetlands map from USDA or US Fish & Wildlife Service.
7. Preparing a report presenting our observations, pertinent documents, opinions, and recommendations.

Significant Assumptions

This report presents the results of our work performed at the referenced site. This work was performed in accordance with our contract dated April 22, 2003 (Copy in Appendix E).

Limitations and Exceptions

Information contained herein was obtained through a limited work scope by means of interviews, document research, and on-site observations. Conclusions are based on available information. However, this is not to imply that this is all of the information that exists which may be pertinent to the environmental liabilities of the site. The intent of this study was to identify environmental problems that would be evident to an environmental professional and was not intended to represent an exhaustive research of all potential hazards which may exist.

Furthermore, certain potential environmental hazards reported in this study may require more comprehensive analysis to fully assess their magnitude and financial impact.

This report is representative of present conditions only. Situations or activities which occur subsequent to this report and which result in adverse environmental impacts are not relevant to this study.

Special Terms and Conditions

The scope of our services did not include collecting or analyzing physical evidence for the presence or lack of contaminants such as asbestos, urea formaldehyde, PCBs, petroleum, mold, radon gas, herbicides, pesticides, fertilizers or other substances unless stated above.

With respect to our review of recorded land title records, we have not provided an opinion as to marketability of title and have not otherwise warranted as to condition of title.

Similarly, an assessment of wetlands, mineral rights investigation, drinking water testing, indoor air quality testing, or environmental audits of operations, environmental practices or management was also not included in the scope of work.

User Reliance

No individual, corporation, or interest other than Banner Associates, Inc. or Lewis and Clark Rural Water System may rely on this report without prior authorization from GeoTek Engineering & Testing Services, Inc.

SITE DESCRIPTION

Location and Legal Description

The site consists of vacant land southwest of Vermillion, South Dakota. The property owner of record is the SD Department of Game, Fish & Parks. The approximate legal description of the site is: part of Blickle Lot 1 and Brewer Lot 1, SW1/4, SW1/4, Section 22, T32N, R4E, Clay County, South Dakota.

Site and Vicinity General Characteristics

The site and vicinity consists of vacant public land used by the SD Department of Game Fish and Parks as a game production area for public hunting. The site is adjacent to the Missouri River, and there is vacant land with timber, and cropland in the vicinity. SD Highway 19 is nearly adjacent to the east of the site, and is the only road in the area.

Current Use of the Property

The site is vacant public land used by the SD Department of Game, Fish and Parks as a game production area for public hunting. Recently, four monitoring wells have been installed on-site for water testing purposes.

Descriptions of Improvements

There are four monitoring wells currently located on-site. Records (in Appendix C) indicate the wells are 2-4" diameter by 85-93' deep.

Current Uses of Adjoining Properties

Adjacent to the west is the Missouri River and vacant land. Adjacent to the north, east, and south is additional vacant land of the SD Department of Game, Fish and Parks.

A drive-by survey of the immediate site vicinity did not indicate items of apparent potential environmental significance such as suspect UST locations, potential hazardous waste generators, industrial properties, etc.

USER PROVIDED INFORMATION

We have not been informed of environmental liens, activity or land use limitations, or a value reduction of the subject property due to environmental reasons. No previous environmental assessments are known to exist for the site.

An abstract of title or other title records for the subject property were not available for review.

The reason the Phase I Environmental Site Assessment was performed was to attempt to identify significant environmental risks, if present, in the proposed production well development site.

RECORDS REVIEW

Copies of regulatory lists reviewed are attached in Appendix C.

National Priority List

The U.S. Environmental Protection Agency (EPA) National Priority List (NPL) was reviewed for facilities within an approximate one-mile radius of the subject property. The NPL is a list of federal superfund sites of known releases or threatened releases of hazardous substances, pollutants or contaminants throughout the United States. The NPL serves to identify sites which appear to warrant remedial actions or investigations.

There were no listed sites within the radius reviewed.

CERCLIS List

The U.S. E.P.A. CERCLIS (Comprehensive Environmental Cleanup Liability Information System) list was reviewed for facilities within an approximate one-half mile radius of the subject property. The CERCLIS list is an automated inventory system used by the EPA to keep record of hazardous sites or potential uncontrolled hazardous sites which may require cleanup based upon state investigation efforts and upon notifications received as provided by the Comprehensive Environmental Response Compensation and Liability Act of 1980 (CERCLA or "Superfund"). An entry does not necessarily imply that an environmental problem exists.

There were no listed sites within the radius reviewed.

Archive CERCLIS List

The U.S. E.P.A. CERCLIS (Comprehensive Environmental Cleanup Liability Information System) list of NFRAP (no further remedial action planned) sites was reviewed for facilities within an approximate one-half mile radius of the subject property.

There were no listed sites within the radius reviewed.

RCRIS List

The U.S. E.P.A. Resource Conservation and Recovery Information System (RCRIS) list was reviewed for facilities within an approximate one-fourth mile radius of the subject property (one mile radius for treatment, storage, and disposal facilities or facilities subject to corrective action). The RCRIS site list is a printout of permitted generators and transporters of hazardous waste, and hazardous waste treatment, storage or disposal facilities regulated by the RCRA Act of 1976.

LQG = large quantity generator, generation of over 1000 kilograms (about 2200 lbs)/month of hazardous waste.

SQG = small quantity generator, 100-1000 kg (about 220-2200 lbs)/month of hazardous waste.

CESQG = conditionally exempt small quantity generator, less than 100 kg (about 220 lbs)/month of hazardous waste.

There were no listed sites within the radius reviewed.

Emergency Response Notification System

This federal list of reported spills was reviewed for facilities within an approximate one-fourth mile radius of the subject property.

There were no listed sites within the radius reviewed.

South Dakota Department of Environment and Natural Resources (DENR).

- A. There was one apparent investigation involving a spill, leakage, or contamination of soil and/or water within an approximate ½ mile radius of the subject property:
1. 2001.507 Jenson Construction Co. at Vermillion Bridge Site, north end of new bridge site, waste oil release. According to DENR project manager Mr. Bob McDonald, some drums of waste oil were apparently buried as a method of improper disposal. The drums were later dug up and properly disposed of. There was some waste oil released to soil. About 488 tons of soil was excavated from around the drums and taken to a permitted facility. Reportedly, DENR intends to close the investigation and project file.
- B. There were no apparent registered USTs or ASTs within an approximate ¼ mile radius.
- C. A list of DENR permitted solid waste facilities such as active and closed landfills, rubble sites, ash monofill, sludge monofill, transfer stations, petroleum contaminated soil landfarms, etc., was reviewed for facilities within an approximate one-half mile radius of the subject property. There were no listed sites within the radius reviewed.
- D. Mr. Ron Duvall of the Water Rights Department stated there was a future use permit filed in 1994 for 27,000 acre feet of water for the Lewis and Clark Rural Water System for the site vicinity. There were four well logs on file (in Appendix C) that were thought to be for the subject property.

HISTORICAL SOURCES REVIEW

Aerial Photograph Review

A review was conducted of available historical aerial photographs from various sources. Photographs from the years 1941, 1962, 1993, 1999, 2001, and 2002 were reviewed. The following pertinent information about the site and vicinity was obtained from the review. The photo source and scale are also listed. Copies of the photos are attached in Appendix B.

* 1941 – USDA Soil Conservation Service (Scale: 1" = 1320')

The site is vacant land. There appears to be some trees, and east-west lines of river deposits are apparent. The Missouri River is nearby to the south. There are no nearby roads, cropland or buildings.

* 1962 - USDA Soil Conservation Service (Scale: 1" = 1650')

The site and vicinity appears mostly as previously seen. The south edge of the site is part of the channel of the Missouri River.

* 1993 - EROS Data Center (Scale: 1" = 1466')

The site and vicinity appears to be vacant land with some trees. The Missouri River is farther south.

* 1999 - EROS Data Center (Scale: 1" = 920')

The site is vacant land. The majority of the site appears to be grass. The north and south edges of the site have trees. The Missouri River is adjacent to the west of the site.

* 2001 - Unknown (No Scale)

The date of the photo is estimated at 2001. The site appears as previously seen. Nearby SD Highway 19 and the bridge to Nebraska is under construction.

* 2002 - EROS Data Center (Scale: 1" = 1300')

The site and vicinity appears mostly as previously seen. A trail road or vehicle tracks are seen in the grass part of the site.

City Directories

Polk's City Directories of Vermillion were available for 1999 and 2002, and were reviewed. There were no listings along SD Highway 19 in the site vicinity.

County Atlases

1. 1884 Clay County, South Dakota Map (from 1990 Centennial Atlas Co.)

The site is within the SW1/4, SW1/4, Section 22, Vermillion Township. The owner of the site is not listed. The Missouri River is adjacent to the west.

2. 1901 Illustrated Historical Atlas of Clay County, SD by E. Frank Peterson.

The site owner is not certain. There are sand bar deposits on-site. The nearest building sites are over 1/2 mile north and east.

3. 1912 Atlas of Clay County, SD by Anderson Publishing Company.

The east part of the site is owned by Julia Erickson. The west part of the site is part of the Missouri River.

4. 1924 Atlas of Clay & Union Counties, SD by Anderson Publishing Company.

The owner of the site is not listed. The site is on the south side of the Missouri River.

5. 1937 Clay County Farm Ownership Atlas by Clay County Planning Board.

The owner of the site is not listed. The site is on the south side of the Missouri River.

6. 1959-60 Atlas of Clay and Union Counties, SD by Title Atlas Company.

The north part of the site is owned by Bernell Charrlin. The south part of the site is within the Missouri River.

7. 1968 Atlas of Clay County, SD by Title Atlas Company.

The site appears as seen in the 1959-60 atlas.

8. 1980 Atlas of Clay and Union Counties, SD by United States Atlas, Inc.

The north part of the site is owned by Francis Heine et al. The south part of the site is within the Missouri River.

9. 1990 Atlas of Clay County, SD by Centennial Atlas Company.

The site is owned by Daniel Heine et al. The Missouri River is nearly adjacent to the south.

10. 1992 Atlas of Clay County, SD by Title Atlas Company.

The site appears as seen in the 1990 atlas.

Note: copies of the atlases are attached in Appendix B.

Fire Insurance Maps

A review was conducted of available fire insurance maps. Sanborn Map Company maps were available for the nearby City of Vermillion for the years 1912, 1923, 1931, and 1946. The site was not shown, indicating no significant commercial development existed in the site area during those years.

County Director of Equalization

The site is assessed as part of a larger parcel.

Legal Description: Brewer Lot 1 & Lot 2 SW1/4 & NW1/4, Sec 27, Brewer Lot 1 SW1/4, Sec 22, Blickle Lot 1 NW1/4 Sec 22, Blickle Lot 1 SW1.4, & NW1/4 Sec 22 & Lot X Portion of Lot H1 in Lot D Trost Tract 1 NW1/4 Sec 22, Vermillion Township, Clay County, SD.
Owner: SD Department of Game, Fish & Parks
Improvements: None listed
Land Area: 195.77 acres
Assessed Value: Land only - \$83,070

Topographic Maps

A review was conducted of available historical topographic maps from various sources. Topographic maps from 1969 (photorevised in 1980), and 1994 were available. The following pertinent information regarding the subject property and vicinity was observed during the topographic map review. Figure 1 is the 1994 map. The 1969/80 map is in Appendix B.

*1969/80 - U.S.G.S. Vermillion, South Dakota 7.5-Minute Quadrangle

This map was originally made in 1969, and photorevised in 1980. The site is a mostly wooded area. There are no improvements shown. The Missouri River is adjacent to the south. The vicinity is vacant, wooded, or river land. There are no nearby roads. There are no additions to the original 1969 map for the area. Contour lines indicate the site is nearly flat, at an elevation of approximately 1140' above mean sea level. The site and vicinity appears to drain to the south to the Missouri River.

*1994 - U.S.G.S Vermillion, South Dakota 7.5-Minute Quadrangle

This map was made from 1991 aerial photos, field checked in 1993, and edited in 1994. The site appears essentially as previously seen. The Missouri River is no longer adjacent to the south, but now about 2000' south.

SITE RECONNAISSANCE

Methodology and Limiting Conditions

Exterior observations were made by traversing the perimeter, central area, and developed features of the property. Tall grass and brush on parts of the site somewhat limited our observation of the site.

Hydrogeology

The subject property is underlain by Quaternary Point Bar deposits. This is silt and fine sand with minor amounts of medium sand, usually bedded. It is approximately 20' thick in the area (Christensen, 1967).

Below the surficial deposits is about 100' of buried outwash, and then the bedrock Cretaceous Greenhorn Limestone Formation. The top of the Greenhorn Limestone is at about 1020-40' in elevation in the area (Christensen, 1967).

Groundwater likely exists within about 10-15' of the land surface. The direction of the shallow groundwater gradient would vary with area precipitation and river stage.

Groundwater within the outwash deposits is known as the Lower Vermillion - Missouri Aquifer. The unit has a gradient to the northeast for the area (Christensen, 1967).

Groundwater is also present within the Cretaceous Dakota Formation, and it is considered an aquifer (Christensen, 1967).

We understand both Clay County and the nearby City of Vermillion are in the process of establishing wellhead protection areas. The current proposed Clay County or City of Vermillion wellhead protection areas reportedly do not include the subject property or vicinity. The proposed southern boundary for the City of Vermillion's wellhead protection area is the Vermillion River, which is over one mile northeast.

General Site Setting

On April 21, 2003, we performed a reconnaissance visit to the site to make visual observations of existing site conditions, land use, and nature of businesses.

The site is vacant grass and timber land adjacent to the Missouri River. There are no buildings or significant improvements. There are no known utilities at the site. The north and south edges of the site have trees and brush. The central part of the site is mostly grass. Small ridges along the edge of the grass area, and rows of grass indicate the area was recently graded and seeded. There were some barely worn vehicle trails on the center and northeast parts of the site. The Missouri River is adjacent to the west. The bank by the river was eroded and undercut. There are four groundwater monitoring wells at the site, three wells in a north-south line, and one to the northeast. The wells appear to have been installed within the last year or so. By the center monitoring well was a few pieces of clay pigeons, plastic from shotgun shells, a small roll of steel cable, and a board. By the north monitoring well was a board, an large animal bone, and a quartzite rock. There was a survey marker on the southwest area of the site. There were some barb wire fences within the wooded areas of the site. There were also a few cans and bottles seen.

The site area is roughly about 1000' north-south by 550' east-west, for a land area of about 12-13 acres. Evidence of distressed vegetation, unusual grade changes, surface stains, or on-site waste disposal was not observed.

Hazardous or Potentially Hazardous Materials

Hazardous or potentially hazardous substances were not observed or reported to exist on-site.

PCB Review

Electrical equipment such as power transformers is usually suspected to contain polychlorinated biphenyls (PCBs). However, electrical equipment was not observed on-site.

Underground/Aboveground Storage Tank Review

Evidence of aboveground storage tanks (ASTs) or underground storage tanks (USTs) was not observed on-site.

INTERVIEWS

Site Owner/Manager - The SD Department of Game, Fish & Parks land manager of the site, Mr. Steve Vanderbeek, was interviewed by telephone (Appendix D). He said that his department acquired the land from the SD Department of Transportation in 2000 or 2001. His department uses the land as a Game Production Area. Mr. Vanderbeek had no knowledge of leaks, spills, releases, environmental liens, activity or land use limitations, or a value reduction of the site. He did not have an abstract of title or other title documents regarding the land.

Local Government Officials - The Clay County Civil Defense Director, Mr. Lane Stewart, was interviewed by telephone (Appendix D). He had no knowledge of leaks, spills, releases, or hazardous material conditions on-site or in the area. He also had no knowledge of prior development of the area.

FINDINGS

The following summarizes our professional opinions regarding the Phase I Environmental Site Assessment performed on the subject property based on the information presented in the previous sections of the report.

- * The site was reviewed for evidence of stained surface areas, unusual grade changes, distressed vegetation, or on-site waste disposal. Unusual items were not noted.
- * Suspect PCB containing materials were not observed on-site.

- * Hazardous or potentially hazardous materials were not observed on -site.
- * Evidence of ASTs or USTs was not observed on-site.
- * Historical resources have not indicated past land use that would be suspected to result in significant environmental impacts to the subject property.
- * The subject property was not listed on SD DENR or US EPA lists. The one off-site listing for the vicinity is not considered significant with respect to the site.

OPINION

In some areas of the midwest, river sediments downstream of historic industrial areas have concentrations of substances (i.e. PCBs, coal gasification wastes, heavy metals, etc). However, we are not aware of significant historical industrial development in the immediate upstream vicinity of the site. And, the Clay County Historical Society director stated a riverboat sank in the Mulberry Point area many years ago. However, even an approximate wreckage location is not known. While these situations, if present on-site or nearby, could be significant to future proposed use of the site, they do not in our opinion appear to warrant further assessment unless unanticipated additional evidence arises.

CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527-00 of the referenced site. This assessment has not revealed evidence of recognized environmental conditions in connection with the property.

DEVIATIONS

Any exceptions to, or deletions from, this practice are described in the "Scope of Services" section of this report.

ADDITIONAL SERVICES

Asbestos Review

The subject property was reviewed for obvious suspected asbestos containing building materials. There are no buildings, structures, or significant building materials on-site. Historical resources did not identify prior structures on-site. Therefore, potential suspect asbestos containing building materials were not observed on-site.

Lead Review

Paint on-site may contain lead. Most definitions of lead-based paint define it as paint containing 0.5% or more lead. Beginning in 1955, voluntary industry standards were 1% or less lead in residential interior paint. In 1971, a federal law prohibited the use of paint with over 1% lead in federal government residences. In 1973, federal law lowered the allowable amount to 0.5%. In 1977, federal law lowered the allowable amount of lead in residential interior paint to 0.06%.

Except for the protective casings of the four monitoring wells, paint was not observed on-site.

Wetlands

A US Fish & Wildlife Service National Wetlands Inventory map from 1989 was secured and reviewed. The map was based on aerial photos from May 1983. There were no wetlands mapped on-site, but a PEMC wetland was adjacent to the south. PEMC is defined as Palustrine Emergent Seasonally Flooded. However, the site and vicinity has significantly changed since 1983 due to river erosion and deposition, as well as man-made changes (land clearing, highway construction, etc). Obviously, the current Missouri River shoreline on the west edge of the site is a wetland. A copy of this map is attached in Appendix B.

REFERENCES

Christensen, Cleo M., and Stephens, Jerry C., Geology and Hydrology of Clay County, South Dakota. Part I. Geology, SD Geologic Survey Bulletin 19, 1967.

Christensen, Cleo M., and Stephens, Jerry C., Geology and Hydrology of Clay County, South Dakota. Part II. Water Resources, SD Geologic Survey Bulletin 19, 1967.

SD Department of Environment and Natural Resources, Release Reports, February 12, 2003.

SD Department of Environment and Natural Resources, Registered ASTs and USTs, February 3, 2002.

SD Department of Environment and Natural Resources, Permitted and Closed Solid Waste Facilities, May 30, 2002.

U.S. Environmental Protection Agency (EPA), Archived Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) sites, April 25, 2003.

US EPA. CERCLIS and National Priorities List (NPL) sites, April 8, 2003.

UP EPA, Emergency Release Notification System (ERNS) list, April 13, 2003.

US EPA Resource Conservation and Recovery Information System (RCRIS) List, December 9, 2002.

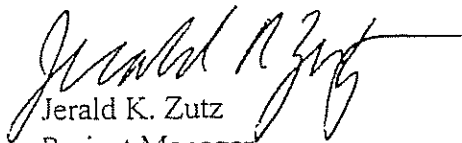
US Geological Survey, 1994, Vermillion, South Dakota Quadrangle, 7.5-minute series map.

SIGNATURE OF ENVIRONMENTAL PROFESSIONAL


The conclusions and recommendations contained in this report present our professional opinions. These opinions were arrived in accordance with currently accepted hydrogeological and engineering practices at this time and location. Other than this, no warranty is implied or intended.

GeoTek Engineering and Testing Services, Inc. appreciates the opportunity to provide our services on this project. Please contact us if we can be of further assistance or if you have questions.

Respectfully submitted,


Jerald K. Zutz
Project Manager
PE/Remediator #5083

This report was reviewed by:


Daniel R. Hanson
Senior Project Manager
PE/Remediator #4829