United States Environmental Protection Agency, Region 4
Waste Management Division (WMD)
61 Forsyth Street, SW
Atlanta, GA 30303-8909

Science and Ecosystem Support Division (SESD)
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Athens, GA 30605

QUALITY ASSURANCE PROJECT PLAN FOR THE PAYNE ROAD SOLVENTS SITE, BESSEMER CITY, NORTH CAROLINA

On-Scene Coordinator: Matthew Huyser
Waste Management Division

SESD Project Leader: Jonathan Vail
Science and Ecosystems Support Division

United States Environmental Protection Agency, Region 4
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1.0 INTRODUCTION

During the week of January 29, 2007, the United States Environmental Protection Agency (EPA) Region 4, Science and Ecosystem Support Division (SESD) will conduct an Integrated Site Inspection and Removal Assessment at the Payne Road Solvents Site. This site consists of a several parcels of property centered around the address of 107 Payne Road, Bessemer City, North Carolina 28016. This investigation was requested by the EPA, Region 4, Emergency Remedial and Response Branch, Removal Operations Section through a letter (Appendix A) to the EPA from the North Carolina Department of Environment and Natural Resources (NCDENR).

This Quality Assurance Project Plan (QAPP) for conducting the investigation at the Payne Road Solvents Site was developed by the EPA, Region 4, in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended by the Superfund Amendments and Reauthorization Act (SARA), of 1986 (EPA 1986). The EPA Guidance for Quality Assurance Project Plans (EPA QA/G-5, 1998) was followed during the development of this QAPP.

Soil and groundwater will be collected at sampling stations for Volatile Organic Compounds (VOCs), Semi-volatile Organic Compounds (SVOCs), metals and cyanide. Approximately 28 soils samples and 8 groundwater samples will be collected and sent to an analytical laboratory for the analyses. The purpose of the investigation is to determine source areas of chlorinated solvents and possible chrome plating wastes for potential removal action.

1.1 Background/Site Location

The site is located in Bessemer City, North Carolina centered around the address: 107 Payne Road and is geographically located at 35.2667 north latitude and 81.3209 west longitude.

1.2 Previous Sampling Activities

High levels (above drinking water standards) of chlorinated solvents were detected in the community well at 112 Payne Road in February 2001. This well served 35, including a business, a restaurant, and two churches having a transient population that is not included in the number of people served. The well at 107 Payne road was subsequently sampled and showed higher levels. The wells had filtering systems installed and the NC Aquifer Protection Section began regulating the community well.

The property at 105 Payne Road has been used as a chrome plating shop and is currently used to store building materials. Soil samples collected by the NC Aquifer Protection found chlorinated solvents at depths of 3 and 6 feet. The businesses surrounding this facility have included three machine shops, an auto body shop, an antique restoration shop a gas station a motorcycle repair shop, the restaurant, the two churches and a plastics manufacturer.

In May 2006, the EPA collected water samples for VOCs from the nearby residential wells and the business wells mentioned above. The residential wells did not show any contamination however, the wells at 105, 107, and 112 continue to show chlorinated solvents.

2.0 SAMPLING/DATA QUALITY OBJECTIVES

2.1 Data Quality Objectives

The Data Quality Objectives (DQO) process for Superfund has been used in developing this QAPP, in accordance with the Guidance for the DQO Process (EPA QA/G-4, 2000). DQOs are useful in identifying the study objectives and decisions to be made and the criteria by which the data will be assessed. These data are then used for decision making.

DQOs need to be established prior to data collection and integrated with the project planning process so that sufficient data of known quality are collected to support sound decision making. DQOs are developed using an interactive approach to decision-making based on seven steps detailed in EPA guidance. The seven steps are:

- Problem statement
- Identify the decisions
- Identify the inputs into the decision
- Define the boundaries of the study
- Develop decision rules
- Specify tolerable limits on decision errors
- Optimize the design for obtaining data

2.1.1 Problem Statement

The initial step in the DQO process is to clearly define the problem so that the focus of the investigation will be clear. The primary contaminant of concern at the Payne Road Site is 1,1-dichloroethane. Elevated concentrations of this solvent were previously detected in soil and groundwater samples collected at the site.

2.1.2 Identify the Decision

The purpose of this DQO step is to identify the decisions that must be supported with the collected data. They will help define the objectives of the field investigation. The decision needed is simply to determine the extent of contamination and what areas (if any) of the Payne Road Site require remediation. To provide the supporting data for this decision, SESD will write a report detailing the results of the investigation. The EPA Superfund Removal Program, in consultation with the Office of Technical Services, will review the report and make a recommendation to the Removal Operations Section.

2.1.3 Decision Inputs

This step is used to identify the information needed to support the decisions. The primary inputs needed to support the decision are soil samples collected for VOC, SVOC, metals and cyanide analysis.

Soil samplings will be collected as follows: Grab samples will be collected from each station at 0-3" using a hand auger or spoon, and placed in a glass pan, homogenized and placed in the appropriate containers, except those for VOCs. The VOC samples will be collected directly in Encore sample containers. A second sample will be collected from 36-39" and an additional soil sample will be collected at 72-75". This will be conducted at approximately 8 locations.

The soil sampling stations are shown on a figure in Appendix A and will be selected in the field. It is anticipated that these stations will result in approximately 28 soil samples analyzed off-site for VOCs, SVOCs, metals and cyanide. Groundwater samples will also be collected from approximately 8 locations for VOC analysis only.

2.1.4 Study Boundaries

The purpose of this step is to identify the boundaries of the study. The media of interest is soil and groundwater. Sampling locations will be selected in a way which will best identify areas of VOC waste within the investigation area. The study boundaries are defined below.

Study Area - The study boundaries and the soil and groundwater areas to be investigated are approximately 3-5 acres in size and located near the businesses at 105, 107 and 112 Payne Road (Appendix A).

Sample Depth - Sampling in 3 foot intervals will continue until 6 feet is encountered.

Temporal Boundaries - The field investigation will be conducted the week of January 29, 2007 with 35 day turnaround on VOC and SVOC samples analyzed by the SESD laboratory and 21 day turnaround on metals and cyanide analyzed by a Contract Laboratory Program (CLP) laboratory.

Physical Boundaries - No sampling will be conducted beneath buildings.

2.1.5 Decision Rule

No decision rule has been established or is required for this investigation. When the data is received, SESD will conduct a data quality assessment, and write the report. The Superfund Removal Program, in consultation with the Office of Technical Services, will review the report and make a recommendation to the Removal Operations Section.

2.1.6 Error Limits

Because of inherent variability introduced through sample collection, mixing, storage, transportation, and analysis, it is important to specify the acceptable decision error rates. Because the area to be investigated is relatively small (approximately 3-5 acres in size), the sampling stations (Shown in Appendix A.) may be sufficient for a 95% probability of finding the extent of contamination of that given size Some samples may be collected on an authoritative basis. This would be needed to examine the depth of contamination in soil samples, linear features (ditches, driveways) and discrete areas (soil around the building).

2.1.7 Optimize Sampling Design

The final step in the DQO process is the development of a sampling design that takes into account data needs, key decisions, and environmental variables, such as physical and site constraints, and how the spatial and temporal boundaries of the contamination and population at risk will be identified. Different sampling strategies (authoritative, systematic grid sampling, etc.) may be chosen for this investigation in the field or in future sampling. The work plan, as included in this QAPP, has been developed based on the results of past field investigations, site visits, and the study objectives. Restrictions on sampling locations are based on experience with similar sites and site visits.

3.0 INVESTIGATION MANAGEMENT PLAN

3.1 Field Project Responsibilities

The overall field investigation/sampling phase of the project and any field decisions will be the responsibility of the Field Project Leader, Jonathan Vail. The site safety officer will be responsible for monitoring health and safety of the sampling/investigative personnel. The Field Project Leader will be responsible for the following field activities:

- Ensure that all field activities are communicated and coordinated with the On-Scene Coordinator, Matthew Huyser.
- Monitoring overall field project quality control.
- Coordinating field scheduling of work with other Section and Division activities.
- Overseeing and managing field technical resources including non-sampling field activities.
- Coordinating sample analyses with the laboratory.

The following is a partial list of the personnel that will be involved in the field operations for the Payne Road Site FI and their responsibilities:

• Matthew Huyser	OSC (EPA)
• Jaeanette Stanley	Environmental Chemist NC DENR)
• Jonathan Vail	Field Project Leader (EPA)
• Marty Allen	Safety and Support (EPA)
• Mike Crowe	FORMS II Lite Support (EPA Contractor, ILS)

This list may be supplemented by other resources, including contract personnel, to be provided on an as-needed basis. All field investigators are required to have 40 hours of hazardous waste site safety training, and specific knowledge and expertise of sample collection and safety techniques in accordance with the EPA, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM).

3.2 Site Control and Access

Since investigation activities will be conducted near a residential area it is anticipated that the residents may be present during some investigation activities and site control and access will be unrestricted. However, investigation personnel will be required to conduct activities so as not to pose any threat or endangerment to residents and others in the area. Residents and area visitors will be asked to remain clear of sampling activities for their own safety. If investigation activities cannot, in the opinion of the field project leader, safety officer, or sample team leaders, be conducted due to the proximity of area residents, then operations will cease until such time as they can be safely resumed.

The property owner will be contacted for access approval prior to the commencement of sampling. Access arrangements will be made by the On-Scene Coordinator, Matthew Huyser. If SESD is refused access to the site, this will be recorded in the field log book and sampling personnel will immediately leave the property until such time as permission or authority to sample can be obtained.

During the investigation, field vehicles will be located such that they do not interrupt the day to day activities that are conducted at the businesses or residences. Each field vehicle will maintain a copy of this QAPP and the Field Health and Safety Plan during all investigation activities.

3.3 Sample Collection and Handling Procedures

All samples will be collected, containerized, preserved, handled, and documented in accordance with the EISOPQAM. A copy of the manual, in addition to the Field Health and Safety Plan, will be maintained by the field project leader for reference during all phases of the field sampling activities. If any deviations in sampling procedures are used, these deviations will be recorded in the field log books.

3.4 Sample Analysis and Validation

Completeness will be achieved for 99 percent of all the samples collected (1 percent may be lost as a result of sample breakage in the laboratory or during transport). It is also anticipated that 99 percent of the samples analyzed will result in valid data. Using sampling and analytical procedures as outlined in the Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM, EPA 2001), the Analytical Support Branch Operations and Quality Control Manual (ASBOQCM, EPA 2001), and the CLP Statement of Work (SOW), errors introduced in the decision making process will be minimized.

3.5 Chain of Custody

All chain-of-custody and record keeping procedures will be in accordance with the EISOPQAM. Chain-of-custody procedures are comprised of the following elements; 1) maintaining sample custody and 2) documentation of samples for evidence.

As defined in the EISOPQAM, a sample or other physical evidence is in custody if:

- it is in the actual possession of an investigator;
- it is in the view of an investigator, after being in their physical possession;
- it was in the physical possession of an investigator and then it was secured to prevent tampering; and/or
- it is placed in a designated secure area.

3.5.1 Sample Labels

A sample label will be completed for each of the samples sent to the laboratory using waterproof, non-erasable ink as specified in Section 3 of the EISOPQAM. The completed labels will be attached by either the sampler, designated sample team leader, or the project leader to the appropriate sample containers.

3.5.2 Sample Custody Seals

The samples will be sealed as soon as possible following collection as specified in the EISOPQAM. The sample custodian or project leader will write the date and their signature or initials on the seal.

3.5.3 Chain-of-Custody Record

The field Chain-Of-Custody Record is used to record the custody of all samples sent to the laboratory. All of these samples shall be accompanied by a Chain-Of-Custody Record. The Chain-Of-Custody Record documents transfer of custody of samples from the sample custodian to another person, the laboratory, or other organizational elements. To simplify the Chain-of-Custody Record and eliminate potential litigation problems, as few people as possible should have custody of the samples or physical evidence during the investigation.

The Chain-Of-Custody Record also serves as a sample logging mechanism for the laboratory sample custodian. A Chain-of-Custody Record will be completed for all samples or physical evidence collected. A separate Chain-of-Custody Record should be used for each final destination or laboratory utilized during the investigation.

3.6 Station and Sample Identification

Sample identification numbers will be assigned using the following format (See Appendix A):

YY##XZZ, where:

YY A letter code to indicate the site name Payne Road (PR) or Quality Assurance (QA) sample.

X A letter designating the station location the sample was collected at (1 through 12).

A one or two digit number (assigned sequentially) to identify the sample.

ZZ A two letter code assigned to the media if it is a soil (SL), groundwater (GW) or Trip Blank (TB).

3.7 Site Mapping

The geographic location (WGS84) of all sampling stations will be horizontally located in the field (1 meter accuracy) using Global Positioning System (GPS) techniques and placed on the base maps. In areas of the site where a GPS signal cannot be received, sampling stations will be located using a tape and compass from a known point.

3.8 Field Sampling Equipment and Cleaning Procedures

No field decontamination of sampling equipment will be required. Enough decontaminated sampling equipment will be available for the investigation.

The following identifies the types of IDW that could be generated during the investigation and their disposition:

- Gloves, paper towels, and other miscellaneous trash generated during the investigation will be bagged and placed in a commercial dumpster. It is not anticipated that this material will constitute a significant threat to human health and the environment.

- Excess sample material (soil and/or groundwater) will be returned to the ground.

3.9 Sample Containers

Sample containers for the samples will be obtained from the SESD Field Equipment Center (FEC) in Athens, Georgia. The containers comply with the requirements specified in Appendix A of the EISOPQAM.

3.10 Investigation Schedule

The field investigation is scheduled to begin in the week of January 29, 2007. During the investigation SESD will:

- Collect soil and groundwater samples at the Payne Road Site.

- Collect geographic location data for sampling points using GPS techniques (Section 3.7). This data will be used to produce site map with sampling locations.

- Collect and dispose of any IDW generated.

4.0 SAMPLING DESIGN AND RATIONALE

Surface/subsurface soil and groundwater samples will be collected during this field investigation. The collection of these samples will help determine if site remediation is necessary.

4.1 Sampling Design

The approximately sampling locations are shown in Appendix A and will be selected in the field for sampling. The exact number of sampling stations is unknown, as all of the suspected source areas have not yet been identified.

4.2 Data Validation/Usability

The data generated from the samples will be validated in accordance with the ASBOCQM.

A case narrative and data qualifier report will be generated for each set of lab data. The case narrative provides a summary of any deficiencies associated with each lab data set. The data qualifier report alerts the project leader of quality control problems identified during the data validation process. The field project leader will review the data qualifier report to determine any data limitations and may consult with the Office of Quality Assurance (OQA) staff to determine the impact of any qualified data on overall data usability for the project. Detailed guidance for data assessment may be found in the Guidance for Data Quality Assessment (EPA QA/G-9 1996). The OSC, in consultation with the field project leader, will make a determination if the data are acceptable for decision making at the site.

Review and validation of all data from samples collected the week of January 29, 2007 should be completed within 10 working days upon receipt of the samples. The data review and validation is scheduled for completion in March, 2007. SESDs procedures for data validation may be found in the ASBOCQM.

4.3 Data Management/Document Control

A final report will be written at the conclusion of the investigation in accordance with the EISOPQAM. All environmental and QA/QC data will be evaluated and data sheets will be attached to the report. Significant QA/QC issues regarding sample collection, handling, and analysis will be identified in the report. Results of any audits will also be included in the report. Project files will be maintained in accordance to the EISOPQAM. The field project leader will review the file at the conclusion of the project to ensure completeness. The final report is expected to be completed in March, 2007. Laboratory and screening data will be released to the On-Scene Coordinator as it becomes available, if desired.

5.0 QUALITY ASSURANCE

Quality assurance (QA) procedures must begin in the planning stage and continue through sample collection, analyses, reporting and final review. The methods that will be used to ensure data quality are discussed below.

5.1 Organization and Responsibilities

The field project leader has overall responsibility for field QA. Laboratory analyses for inorganic samples collected during the week of January 29, 2007 will be conducted by the CLP laboratory and the organic samples will be conducted by SESD. The precision, comparability and accuracy of sample analyses will be addressed in accordance with the ASBOCQM and/or CLP SOW.

5.2 Field QA/QC Samples

5.2.1 Matrix Spike/Matrix Spike Duplicate

Samples for laboratory quality control analyses (matrix spike/matrix spike duplicate, ms/msd) will be designated as specified in the EISOPQAM. Typically, one ms/msd sample will be designated for every 20 samples split to the CLP laboratory.

5.2.2 Population Variability - Duplicate Samples

At one station location, a duplicate sample will be collected to provide the data for an assessment of the variability in concentrations within the property lots.

5.2.3 Sample Handling - On-Site Splits

At one station location, a split sample will be collected to assess sample handling variability.

5.3 Audits

Routine audits of laboratory activities may be conducted by the Inorganic and Organic Chemistry Section Chiefs. Independent laboratory audits may be conducted by the Region 4, QA Officer or his representative(s). Field audits may be conducted by the Chief of the Superfund and Air Section. Any problems identified during these audits will be addressed in a memo to the Field Project Leader who will take immediate steps to correct the identified discrepancies.

6.0 REFERENCES

1. Letter from Jeanette Stanley to Jennifer Wendel outlining sample collection plan with corresponding tables and map of sample locations. October 24, 2006.

2. Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA).

3. U.S. EPA, EPAQA/G-4, Guidance for the Data Quality Objectives Process, EPA/600/R-96/055, August 2000.

4. U.S. EPA, EPAQA/G-5, EPA Guidance for Quality Assurance Project Plans, EPA/600/R-98/018, February 1998.

5. U.S. EPA, Region 4, Analytical Support Branch Operations and Quality Control Manual Revision 1, (ASBOQCM). July 2001.

6. U.S. EPA, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual (EISOPQAM). November 2001.

APPENDIX A

Letter from Jeanette Stanley to Jennifer Wendel October 24, 2006

NORTH CAROLINA
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
DIVISION OF WASTE MANAGEMENT

MICHAEL F. EASLEY, GOVERNOR
WILLIAM G. ROSS, JR., SECRETARY
DEXTER R. MATTHEWS, DIRECTOR

October 24, 2006

Ms. Jennifer Wendel
NC Site Management Section
US EPA Region IV Waste Division
Atlanta Federal Building
61 Forsyth St., 11th Floor
Atlanta, GA 30303-3104

Subject: Integrated Site Inspection / Removal Assessment Sampling Plan
Payne Road Solvents
(NCN000409881)
107 Payne Road
Bessemer City, NC 28016-6712

Dear Ms. Wendel:

This letter contains the proposed Sampling and Analysis / Quality Assurance Project Plan SAP/QAPP for the integrated Site Inspection / Removal Assessment for the Payne Road Solvents sites. The proposed samples include surface and subsurface soils and groundwater.

The coordinates of the site are 35.2667° north latitude and 81.3209° west longitude. The primary contaminants of concern are chlorinated solvents in groundwater; however, chrome plating wastes are also likely source contaminants. The integrated Site Inspection / Removal Assessment will serve to identify source areas for potential Removal Action, and to more fully characterize the site for the Site Inspection report.

A non-transient community well at 112 Payne Road was tested in February 2001 and found to contain chlorinated solvents above drinking water standards. This well served 35, including a business, a restaurant, and two churches having a transient population that is not included in the number of people served. A nearby well (at 107 Payne Road) serving several businesses was subsequently sampled. NC Aquifer Protection Section oversaw installation of filter systems, and began regulating the community well. Property owners are pursuing installation of a waterline.

The well at 107 Payne Road was more highly contaminated than the well at 112 Payne Rd. This well has served and continues to serve several small businesses with varying histories. The property at 105 Payne Road has been used as a chrome plating shop, and is currently used to store building materials. NC Aquifer Protection collected one soil sample on the 105 Payne Road property and found chlorinated solvents at 3' and 6' depths. Businesses immediately surrounding this facility include (have included) three machine shops, an auto body shop, an antique restoration shop, a gas station, a motorcycle repair shop, a restaurant, two churches and a plastics manufacturer.

NC Superfund personnel visited the area and observed new homes with private drinking water wells under construction within 1/4 mile of the site. NC requested a Removal Action in May 2006, and US EPA responded by collecting samples from approximately 30 nearby private drinking water and business wells and analyzing these for VOCs. A well serving 15 residents in a trailer park, about 1000' northeast of the site showed chlorinated solvent contamination at a level greater than 2L but less than drinking water standards. No other residential wells showed contamination.

NC Superfund personnel returned and collected water samples from the on-site well, the non-transient community well, and two other nearby businesses. These samples were analyzed for SVOCs and inorganics, including metals and cyanide. None of these contaminants were noted in the water samples; however, pH of the well at 107 Payne Road was significantly lower than the other wells.

This integrated sample plan includes collection of soil and groundwater samples. Attached are a table of proposed samples and a figure showing proposed sampling locations. Based on the history of operation of the facilities, soil samples on the former chrome plating facility will be analyzed for VOCs, SVOCs, and all inorganics including mercury and cyanide. Subsurface soil and temporary monitoring wells samples not on the chrome plating facility will be analyzed for VOCs only.

This SAP/QAPP has been developed and sampling will be conducted in accordance with the NC Superfund Section Quality Assurance Program Plan (QAPP) and Quality Assurance Standard Operating Procedures (QASOP). The QASOP adopts by reference the Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, November 2001, U. S. Environmental Protection Agency, Region 4. The Program Plan is derived directly from the EPA-Approved NC Department of Environmental and Natural Resources QA Plan for Data, 2005.

Please indicate your approval or recommended amendments in this sampling plan. Please feel free to contact either Jeanette at (919) 508-8449 or Jim at 508-8447, or <jeanette.stanley@ncmail.net> if you have any questions.

Sincerely,

Jeanette Stanley,
Environmental Chemist II
NC Superfund Section

Jim Bateson, Head,
Site Evaluation and Removal Branch
NC Superfund Section

Approved by: _____ Date: Oct. 26, 2006
Jack Butler, Quality Assurance Manager, NC Superfund Section

cc: Scott Ross, file
Attachments:
Proposed samples (4 pages)
Sample Location map (one page)

Approved by: _____ Date: _____
Jennifer Wendel, NC Site Management Section

Loc. # (triangles)	Sample ID	Location description	Depth	Rationale/QA/ notes*	Analytes	Bottle count
1	PR-101-SL	Northeast corner of 105 building; temp well will be installed in this location	See notes	Define extent of contamination; Minirae screen SL 1'- 6' depth, pick highest reading for analysis	VOA	2 oz. VOA SL – 1 Encore – 3
2	PR-002-SL	East of 105 building, near wall vents, if any	0-1'	Define extent of contamination; on Duke Property	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
2	PR-102-SL	Same as PR-002-SL	3'	Define extent of contamination; on Duke Property	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
2	PR-202-SL	Same as PR-002-SL	6'	Define extent of contamination on Duke Property	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-003-SL	West of 105 building, near UST and door where Cl solvents detected	0-1'	Define extent of contamination	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-103-SL	Same as PR-003-SL	3'	Define extent of contamination	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-203-SL	Same as PR-003-SL	6'	Define extent of contamination	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-903-SL	Same as PR-003-SL	0-1'	Duplicate of PR-013-SL	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-913-SL	Same as PR-003-SL	3'	Duplicate of PR-013-SL	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
3	PR-923-SL	Same as PR-003-SL	6'	Duplicate of PR-033-SL	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
4	PR-004-SL	Southeast of 105 building, near sunken area	0-1'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
4	PR-104-SL	Same as PR-004-SL	3'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2

Loc. # (triangles)	Sample ID	Location description	Depth	Rationale/QA/ notes*	Analytes	Bottle count
4	PR-204-SL	Same as PR-004-SL	6'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
5	PR-005-SL	Near 105 bldg. Location to be determined in field by Removal	0-1'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
5	PR-105-SL	Same as PR-005-SL	3'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
5	PR-205-SL	Same as PR-005-SL	6'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
6	PR-006-SL	Near 105 bldg. Location to be determined in field by Removal	0-1'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
6	PR-106-SL	Same as PR-006-SL	3'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
6	PR-206-SL	Same as PR-006-SL	6'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
7	PR-007-SL	Near 105 bldg. Location to be determined in field by Removal	0-1'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 3 8 oz solid cap SL – 2
7	PR-107-SL	Same as PR-007-SL	3'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
7	PR-207-SL	Same as PR-007-SL	6'	ID source area(s)	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore -- 3 8 oz solid cap SL – 2
8	PR-008-SL	East of 107 building, near back door; temp well will be installed in this location	See notes	Attribution. Minirae screen SL 1'- 6' depth, pick highest reading for analysis	VOA	2 oz. VOA SL – 1 Encore – 3
9	PR-009-SL	North of 109 building, near shed and AST	See notes	Attribution. Minirae screen SL 1'- 6' depth, pick highest reading for analysis	VOA	2 oz. VOA SL – 1 Encore – 3

Loc. # (triangles)	Sample ID	Location description	Depth	Rationale/QA/ notes*	Analytes	Bottle count
10	PR-010-SL	Southeast pf 109 building, old machine shop/garage (?); temp well will be installed in this location	See notes	Attribution. Minirae screen SL 1'- 6' depth, pick highest reading for analysis	VOA	2 oz. VOA SL – 1 Encore – 3
11	PR-011-SL	Southwest of 109 building, old machine shop/garage (?); temp well will be installed in this location	See notes	Attribution. Minirae screen SL 1'- 6' depth, pick highest reading for analysis	VOA	2 oz. VOA SL – 1 Encore – 3
12	PR-012-SL	Background Soil, near road, on Duke Power property	3'	Background. MS/MSD on Duke Property	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 9 8 oz solid cap SL – 3
12	PR-112-SL	Same as PR-009-SL	6'	Background. MS/MSD on Duke Property	VOA, Inorg +Hg+CN; SVOC	2 oz. VOA SL – 1 Encore – 9 8 oz solid cap SL – 3

*If location not on Westmoreland property, owner noted.

Soil container count:

- Encore samplers: 96
- 2 oz. soil VOA jars: 28
- 8 oz. solid cap soil jars: 46

Soil Analyses count:

- Soil VOA: 28
- Soil Metals + Hg + CN: 23 (max)
- Soil SVOC: 23 (max)

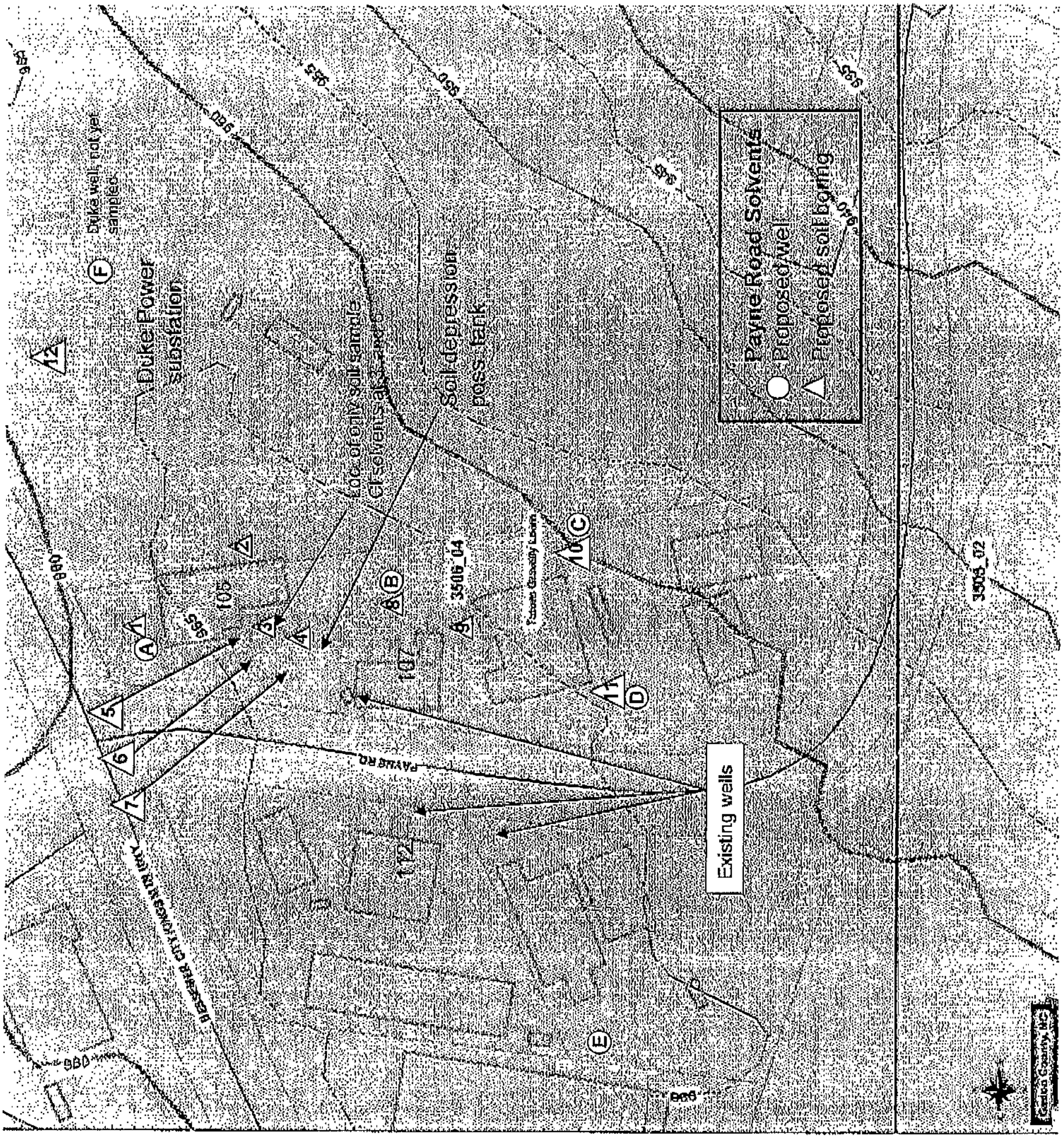
Table 2. Payne Road Solvents – Groundwater Samples for Integrated Removal Assessment / Site Inspection

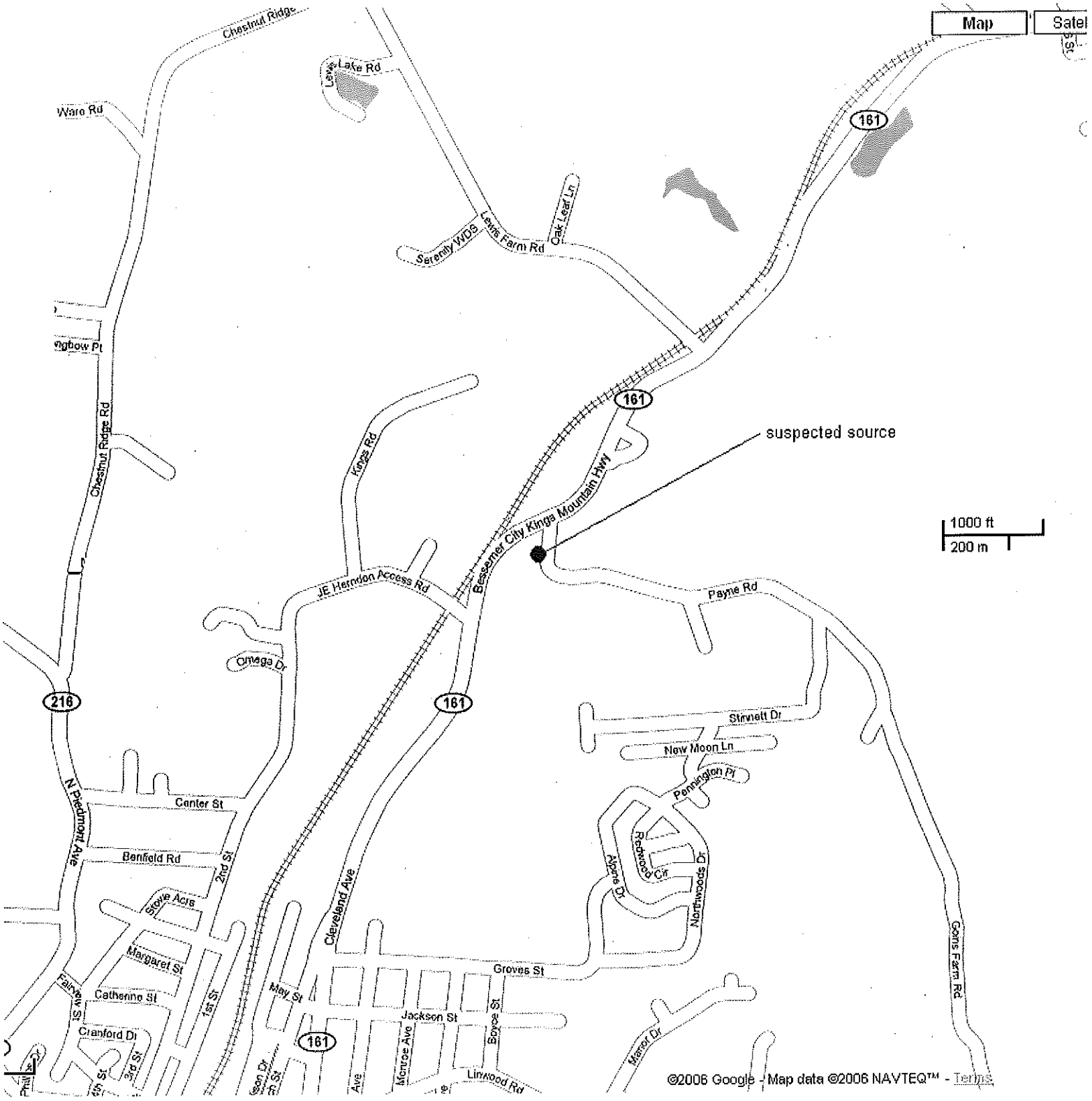
Location	Sample Number	Discussion	QA comments*	Analytes/containers
A	PR-001-GW	Shallow monitoring well, to be installed in soil boring location 1 (PR-001-SL)	Define extent of contamination	40 mL VOA water -- 3
B	PR-008-GW	Shallow monitoring well, to be installed in soil boring location 5 (PR-008-SL)	Define extent of contamination	40 mL VOA water -- 3
B	PR-108-GW	Same well as 008-GW	Duplicate of PR-008-GW	40 mL VOA water -- 3
C	PR-009-GW	Shallow monitor well, to be installed in soil boring location 9 (PR-009-SL)	Define extent of contamination	40 mL VOA water -- 3
D	PR-010-GW	Shallow monitor well, to be installed in soil boring location 10 (PR-010)	Define extent of contamination	40 mL VOA water -- 3
E	PR-003-GW	Shallow monitoring well, to be installed Soil samples not planned in this boring.	Define extent of contamination On Hardin Body Shop property	40 mL VOA water -- 3
F	PR-009-GW	Duke Power's existing well	Define extent of contamination MS/MSD, on Duke Property	40 mL VOA water -- 6
	PR-010-GW	Trip Blank		40 mL VOA water – 3

NOTE: Since approximately 30 local drinking water wells samples have been previously collected and most were non-detect, and because VOAs are not naturally occurring, it was felt that a background groundwater sample is not required for this sampling event.
*If location not on Westmoreland property, owner noted.
Water container count:

40 mL VOA water – 28

Water Analyses Count: VOA: 8


Payne Road Solvents
Proposed well
Proposed soil boring
Duke Power substation
Duke well, not yet sampled
Soil depression poss tank
Existing wells
PAYNE RD
3506_04
3506_02
105
107
112


Map
Satel
Chestnut Ridge
Lewis Lake Rd
Ware Rd
Serenity WDS
Lewis Farm Rd
Oak Leaf Ln
161
Chestnut Ridge Rd
Kings Rd
suspected source
Bessemer City Kings Mountain Hwy
1000 ft
200 m
JE Herndon Access Rd
Payne Rd
Omega Dr
216
161
Stinnett Dr
New Moon Ln
Pennington Pl
N Piedmont Ave
Center St
Benfield Rd
2nd St
Grove Acrs
Margaret St
Fairview St
Catherine St
Cranford Dr
15th St
Cleveland Ave
Groves St
May St
Jackson St
Boyce St
Monroe Ave
Linwood Rd
Redwood Cir
Acorn Dr
Northwoods Dr
Goins Farm Rd
Manor Dr
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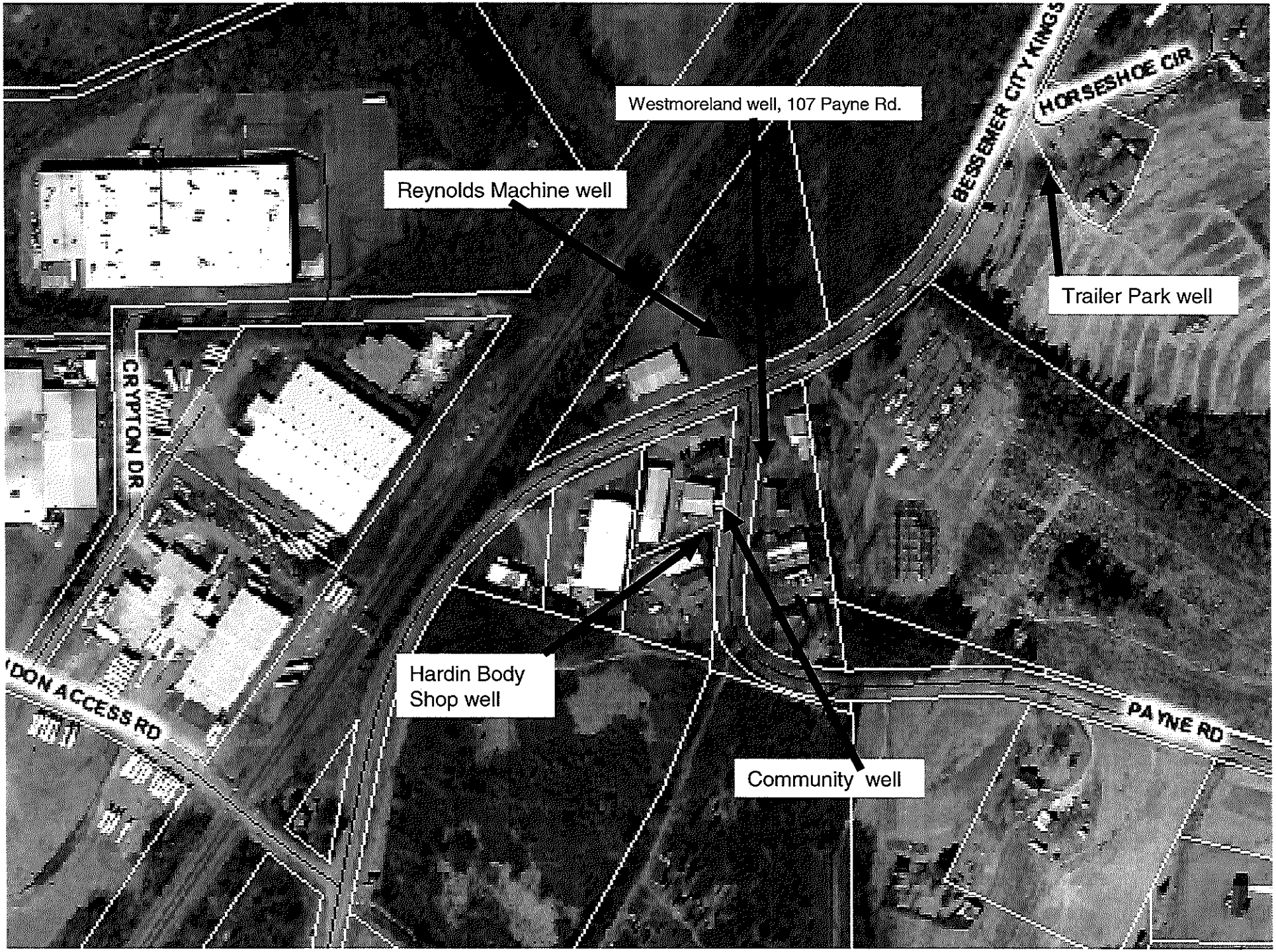
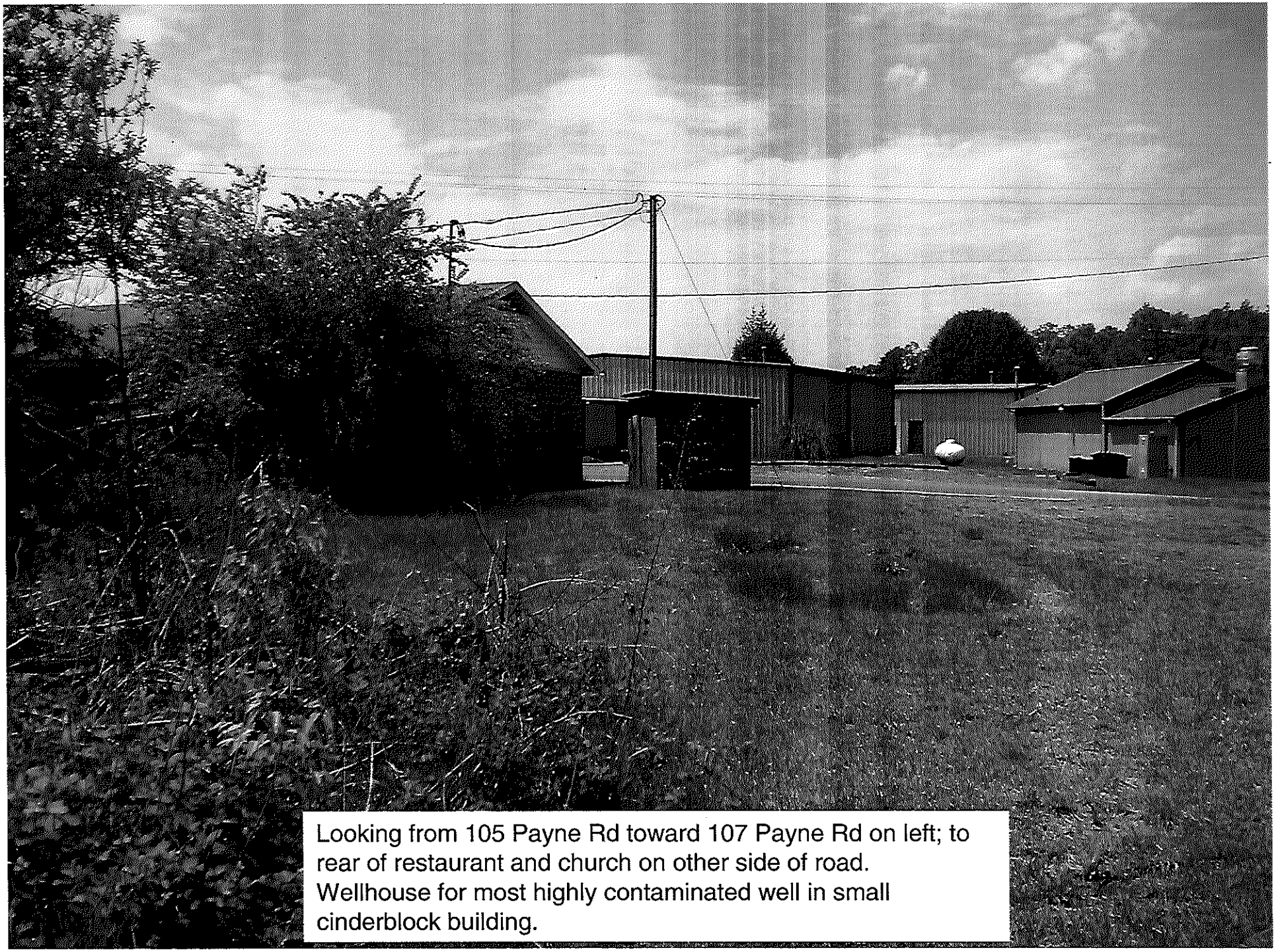
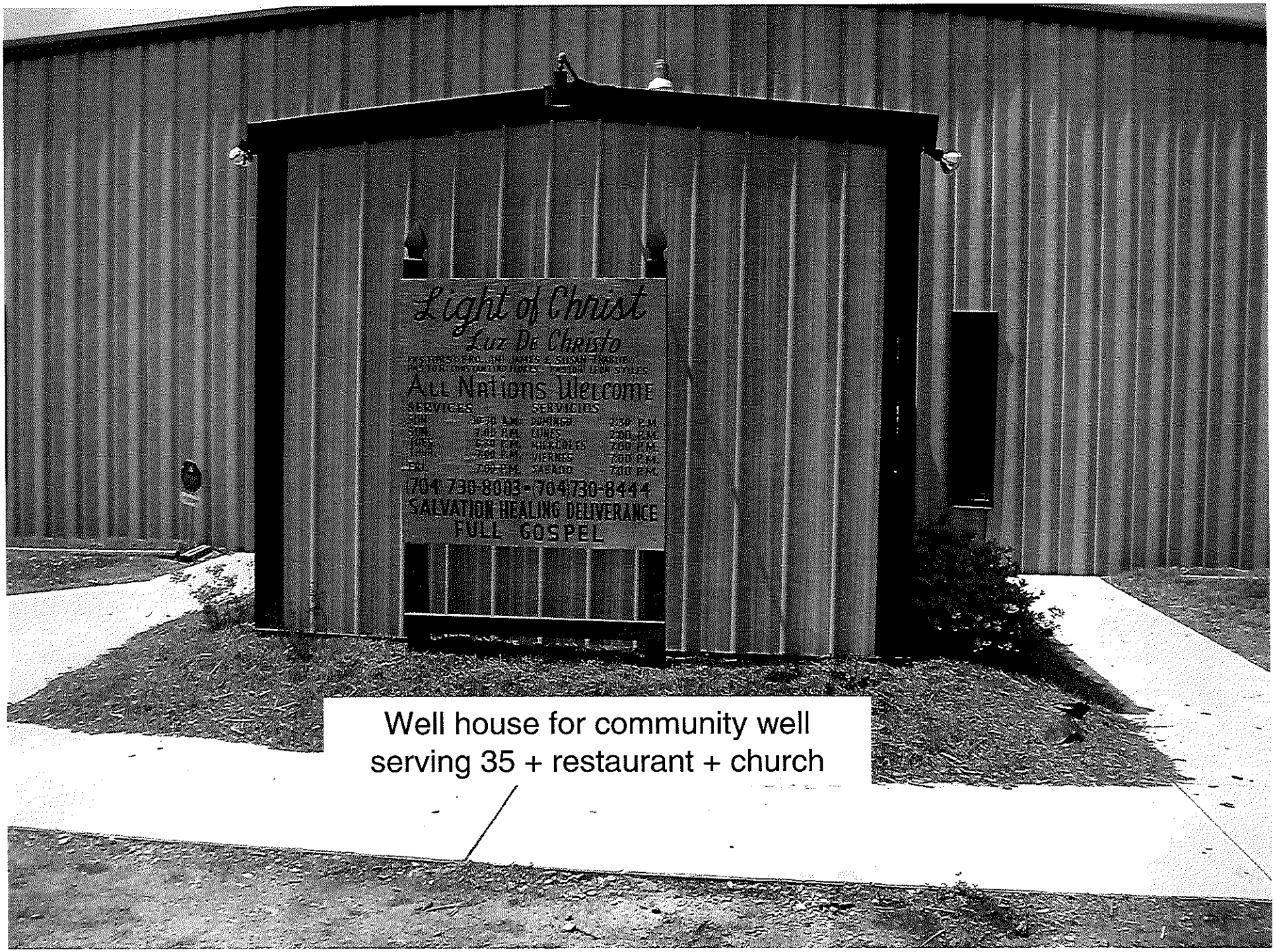

Westmoreland well, 107 Payne Rd.
Reynolds Machine well
Trailer Park well
Hardin Body Shop well
Community well
BESSEMER CITY KINGS
HORSESHOE CIR
CRYPTON DR
DOM ACCESS RD
PAYNE RD



Looking from 105 Payne Rd toward 107 Payne Rd on left; to rear of restaurant and church on other side of road. Wellhouse for most highly contaminated well in small cinderblock building.



Well house for community well
serving 35 + restaurant + church