INSTALLATION RESTORATION PROGRAM

②

REMEDIAL INVESTIGATION REPORT

MINNESOTA AIR NATIONAL GUARD BASE
DULUTH INTERNATIONAL AIRPORT
DULUTH, MINNESOTA

VOLUME 2

AIR NATIONAL GUARD

HAZWRAP SUPPORT CONTRACTOR OFFICE
Oak Ridge, Tennessee 37831
Operated by MARTIN MARIETTA ENERGY SYSTEMS, INC.
For the U.S. DEPARTMENT OF ENERGY under contract DE-AC05-840R21400

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The report describes the remedial actions performed on sites confirmed to contain hazardous waste contamination which endangers the human health. The actions performed are described and the potential for future problems. The study was conducted under the Air National Guard's Installation Restoration Program.

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REMEDIAL INVESTIGATION REPORT

MINNESOTA AIR NATIONAL GUARD BASE
DULUTH INTERATIONAL AIRPORT
Duluth, Minnesota

VOLUME 2

JANUARY 1990

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Prepared For
HAZARDOUS WASTE
REMEDIAL ACTIONS PROGRAM
Oak Ridge, Tennessee

Submitted To
MINNESOTA AIR NATIONAL GUARD
Duluth International Airport
Duluth, Minnesota

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PREFACE

Engineering-Science (ES) entered into an agreement with the HAZWRAP Support Contractor office operated by Martin Marietta Energy Systems, Inc. for the U.S. Department of Energy (DOE) to perform a Remedial Investigation at the Minnesota Air National Guard Base, Duluth International Airport, Duluth, Minnesota, to be submitted to the National Guard Bureau, Andrews Air Force Base, Maryland. This investigation was initiated in July, 1988 under Task Order Y02, General Order 18B-97387C, which is under DOE contract DE-AC05-84OR21400, with Martin Marietta Energy Systems under Interagency Agreement 1489-1489-A1. The overall objectives of this effort were to define the magnitude, extent, direction, and rate of movement of identified contaminants and to summarize the need for remedial actions based on an assessment of risks to human health and the environment.

This investigation was performed by Engineering-Science personnel from the Oak Ridge, Tennessee office with oversight provided by Martin Marietta Energy Systems. Mr. Larry Janssen, of Martin Marietta Energy Systems was the Technical Monitor for Lt. Col. Michael Washeleski of the National Guard Bureau. Major Joel D. Manns, Minnesota Air National Guard Base, Duluth, Minnesota, provided field support. Engineering-Science personnel included Mr. Robert S. McLeod, P.E., P.G., who served as Project Manager and Mr. John D. Hardeman, P.G., who served as the Field Team Leader. Mr. Robert L. Thoem, P.E. was the ES Technical Director for the project.

Engineering-Science wishes to acknowledge North Star Drilling, Little Falls, Minnesota as the drilling and well installation subcontractor. Salo Engineering, Duluth, Minnesota, provided professional surveying services. ES Berkeley Laboratory, Berkeley, California; ES Atlanta Laboratory, Atlanta, Georgia; MetaTrace, Inc., St. Louis, Missouri; NUS Corporation, Pittsburgh, Pennsylvania; and IT Radiological Sciences Laboratory, Oak Ridge, TN provided analytical laboratory services for sample analyses.

This work was accomplished between July 1988 and March 1989.

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TABLE OF CONTENTS
VOLUME I

TABLE OF CONTENTS (continued)

VOLUME 1 (continued)

TABLE OF CONTENTS (continued)

VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)

VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

TABLE OF CONTENTS (continued)
VOLUME 1 (continued)

VOLUME 2

TABLE OF CONTENTS (continued)

Page Revised 1/11/90

LIST OF FIGURES

LIST OF FIGURES (continued)

LIST OF FIGURES (continued)

LIST OF FIGURES (continued)

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF TABLES (continued)

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APPENDIX A

DEFINITIONS, NOMENCLATURE AND UNITS OF MEASUREMENT

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APPENDIX A
TABLE OF CONTENTS

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SECTION A.1
INTRODUCTION

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SECTION A.1
INTRODUCTION

Numerous terms and abbreviations are used in the report that may be unfamiliar to some readers. The pages that follow provide a reference list of selected terms and abbreviations to aid the reader.

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SECTION A.2

DEFINITIONS, NOMENCLATURE AND UNITS OF MEASURE

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SECTION A.2

DEFINITIONS, NOMENCLATURE AND UNITS OF MEASURE

A: Area.

AA: Atomic Absorption, an instrumental analytical method for quantitation of metal elements.

ACIDS: Chemical compounds that yield hydrogen ions in aqueous solutions.

ACIDIC: Refers to water having a ph value of less than 7, aqueous solutions containing dissolved acids.

ADSORPTION: The attachment of dissolved matter to the surface of solids through weak chemical interactions which are usually reversible.

AF: Air Force (U.S. Air Force).

AFFF: Aqueous Film Forming Foam.

AIC: Acceptable intake for chronic exposure to a toxic chemical.

AIS: Acceptable intake for subchronic exposure.

ALIPHATICS: Organic chemical compounds having an open-chain structure, as distinguished from aromatic compounds.

ALKALINE: Refers to water having a ph value of more than 7, aqueous solutions containing dissolved bases.

ALLUVIAL: Pertaining to or composed of alluvium or deposited by a stream or running water.

ALLUVIUM: Materials eroded, transported and deposited by streams.

ALLUVIAL FAN: A fan-shaped deposit formed by a stream either where it issues from a narrow mountain valley into a plain or broad valley, or where a tributary stream joins a main stream.

AWQC: Ambient Water Quality Criteria.

ANG: Air National Guard.

ANGB: Air National Guard Base.

ANION: A negatively charged ion in solution.

AQUIFER: A geologic formation, group of formations, or part of a formation that is capable of yielding useable quantities of water to a well or spring.

ARAR: Applicable or Relevant and Appropriate Requirement.

AROMATICS: Organic chemical compounds having a stable six- carbon ring as their basic structure, such as benzene, toluene, and xylenes.

ARTESIAN: A condition of confined aquifers in which water levels in wells rise above the top of the aquifer.

As: Chemical symbol for arsenic.

atm-m^3/mol: Atmosphere cubic meters per gram mol, Henry's Law Constant.

Ba: Chemical symbol for barium.

BASE: Chemical compounds that yield hydroxide ions in aqueous solution.

BEDROCK: Any solid rock in place; may be exposed at the surface of the earth or overlaid by unconsolidated materials.

BG: Background.

BH: Borehole.

BIOACCUMULATION: Refers to the tendency of some chemical elements or compounds to become concentrated in the tissues of living organisms as a result of chronic exposures, mainly ingestion and inhalation.

BIODEGRADABLE: Refers to chemical organic compounds that are broken down into simpler chemical compounds or elements by natural microorganisms in the environment.

C: Long term exposure point concentration.

^{o}C: Degrees Celsius..

Ca: Chemical symbol for calcium.

$CaCO_3$: Chemical symbol for calcium carbonate.

CAG: Carcinogen Assessment Group. It indicates whether or not there is sufficient evidence to classify a compound as carcinogenic.

CAMBRIAN: That period of time from 600 to 500 million years ago.

CARBONATE ROCKS: A rock consisting chiefly of carbonate minerals, such as limestone and dolomite.

CAS: Chemical Abstracts Service, American Chemical Society.

CATION: A positively charged ion in solution.

CB: Chlorobromomethane.

Cd: Chemical symbol for cadmium.

CDI: Chronic daily intake.

CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund Act).

CFR: Code of Federal Regulations.

CN: Chemical symbol for cyanide.

CONFINED AQUIFER: An aquifer bounded above and below by impermeable strata or geologic units of distinctly lower permeability than that of the aquifer itself.

CONFINING UNIT: A low-permeability layer which restricts the movement of ground water.

Cr: Chemical symbol for chromium.

CT: Concentration x Toxicity. Calculated for a particular compound by summing the concentration x media (CT) values for all media.

Dames & Moore: Dames & Moore, Inc.

DANGB: Duluth Air National Guard Base - as an initial identifier used to identify all sampling locations established during this Remedial Investigation.

DARCY'S LAW: An equation describing the flow of fluids in porous media based on the assumption that the flow is laminar and that inertia can be neglected.

DENSITY: Physical property of materials equal to mas per unit volume.

DDD: 1,1-(2,2-Dichloroethylidene) bis (4-chlorobenzene).

DDE: 1,1-(Dichloroethylenylindene) bis (4-chlorobenzene).

DDT: Dichlorodiphenyl dichloroethane.

DOD: U.S. Department of Defense.

DOE: U.S. Department of Energy.

DOWNGRADIENT: In the direction of decreasing hydraulic head; the direction in which ground water flows.

DPDO: Defense Property Disposal Office, now called the Defense Rentilization and Marketing Office or DRMO.

DRAINAGE BASIN: The land area from which all surface runoff drains into one stream channel or system of channels, or to a lake reservoir, or other body of water.

DRIFT: Any rock material, such as boulders, till, gravel, sand or clay transported by a glacier and deposited by or from the ice or by or in water derived from the melting of the ice.

DRMO: Defense Reutilization and Marketing Office, formerly DPDO.

DRAWDOWN: The difference between the static water level and the water level in a well that is pumped.

DULUTH COMPLEX: Intrusive igneous rocks of Middle Proterozoic Age, formed by multiple intrusions.

EFFECTIVE POROSITY: The amount of interconnected pore space in an aquifer that is available for water transmission.

ENERGY SYSTEMS: Martin Marietta Energy Systems, Inc.

EP: Extraction Procedure, a US EPA standard laboratory procedure for simulating leachate generation.

EPA: U.S. Environmental Protection Agency.

EROSION: The wearing away of land surface by wind, water, or chemical processes.

ES: Engineering-Science, Inc.

EVAPOTRANSPIRATION: Loss of water from a land area through transpiration of plants and evaporation from the soil.

^{o}F: Degrees Fahrenheit.

FAA: Federal Aviation Administration.

FAULT: A fracture in rock along which the adjacent rock surfaces have been displaced.

Fe: Chemical symbol for iron.

FDG: Fugitive dust generation.

FLOW LINES (PATHS): Lines indicating the direction of ground-water movement.

FS: Feasibility Study.

ft: Feet.

FTA: Fire Training Area

GABBRO: A coarse-grained dark igneous rock composed mainly of magnesium, iron and calcium containing silicate minerals.

gal/min: Gallons per minute.

gpd/ft: Gallons per day per foot. Units used to define transmissivity.

gpd/ft^2: Gallons per day per square foot. Units used to define hydraulic conductivity.

GC: Gas chromatograph, an analytical laboratory instrument used for the quantitation and identification of organic compounds.

GC/MS: Gas chromatograph/mass spectrophotometer, and analytical laboratory instrument used for the quantitation and identification of organic compounds.

GAINING STREAM: A stream or reach of stream whose flow is being increased by the inflow of ground water.

GROUND WATER: Water beneath the land surface in the saturated zone.

GW: Monitoring well for ground water.

HALIDES: Refers to the salts of halogen elements, or the anions formed by halogens in aqueous solution.

HALOGEN: Refers to any one of a group of chemical elements including fluorine, chlorine, bromine, and iodine.

HALOGENATED ORGANIC: Refers to any organic compound that contains one or more halogens as a substituent group.

HARDNESS: A property of water causing formation of an insoluble residue when the water is used with soap.

HARM: Hazard Rating Methodology.

HAZARD INDEX VALUE: A ratio between projected and acceptable intake of a toxic chemical.

HAZWRAP: Hazardous Waste Remedial Action Program.

HEAVY METALS: Metal elements, including the transition elements, with atomic weight greater than 50. Many of these elements are required for plant and animal nutrition in trace concentrations, but are toxic at higher concentrations.

HIF: Human intake factor.

HNu Meter: An instrument that uses a photoionization detector to measure organic vapors.

HOMOGENEITY: In reference to an aquifer, the aquifer is homogeneous if its hydrologic properties are identical everywhere.

Hg: Chemical symbol for mercury.

HYDRAULIC CONDUCTIVITY: The rate of flow of water through a unit cross section of porous media under a unit hydraulic gradient, at the prevailing temperature.

HYDRAULIC GRADIENT: The change is static head per unit of direction in a given direction.

HYDROCARBONS: Organic chemical compounds composed of hydrogen and carbon atoms. Hydrocarbons may be straight chain, cyclic, branched chain, aromatic, or polycyclic, depending upon arrangement of carbon atoms. Halogenated hydrocarbons are hydrocarbons in which one or more hydrogen atoms has been replaced by a halogen atom.

I: Average Hydraulic Gradient, feet per foot.

IAP: International Airport.

ICP: Induction-Coupled Plasma, an instrumental analytical method for quantitation of metal elements.

IF: Infiltration rate, inches per year.

IGNEOUS ROCKS: Rocks formed by solicification from a molten or partially molten mass of material.

in: inches.

INFILTRATION: The movement of water through land surface into the ground.

IRP: Installation Restoration Program.

IS: In risk assessment, the indicator score, obtained for a particular compound by summing the concentration x media (CT) values for all media.

ISOTROPY: In reference to an aquifer, the aquifer is isotropic if all significant properties of the aquifer are independent of direction.

JP-4: Jet propulsion fuel number four (contains kerosene and gasoline fractions, used in most military jet aircraft).

K: Horizontal hydraulic conductivity, gallons per day per square foot.

K_{oc}: Partitition coefficient.

L: Distance.

LEACHING: The process by which soluble materials in soils or a landfill dissolve in water. The resulting leachate may percolate down into lower layers or, in a secure landfill, is collected for treatment.

LITHOLOGY: The description of the physical character of rocks and soil.

LOAEL: Lowest observed adverse effect level.

LOAM: A permeable soil composed of a friable mixture of relatively equal proportions of clay, silt, and sand particles, and usually containing organic matter (humus) with a minor amount of gravel.

LOSING STREAM: A stream or reach of a stream that is losing water to the ground.

MANG: Minnesota Air National Guard.

MCL: Maximum Concentration Limits.

MCLG: Maximum Contaminant Level Goals.

MDL: Method Detection Limit.

METAMORPHIC ROCKS: Any rock derived from pre-existing rocks due to marked changes in temperature, pressure, shearing stress, and chemical environment, that occur at depth in the Earth's crust.

METHOD DETECTION LIMIT: The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the value is greater than zero.

MHD: Minnesota Health Department.

ug/g: Micrograms per gram, equals one part per million.

ug/kg: Micrograms per kilogram.

ug/L: Micrograms per liter.

mg/L: Milligrams per liter.

mg/kg: Milligrams per kilogram.

mg/m^3: Milligrams per cubic meter.

MPCA: Minnesota Pollution Control Authority.

mS/cm @ 25°C: Mhos per centimeter at 25°C.

MW: Monitoring well.

n: Effective porosity.

NA: Not applicable.

NAAQS: National Ambient Air Quality Standards.

NC: Noncarcinogen.

NCP: National Contingency Plan.

ND: None detected.

NFADD: No Further Action Decision Document.

NGB: National Guard Bureau.

NGVD: National Geodetic Vertical Datum of 1929.

NL: Not legible.

NOAA: National Oceanic and Atmospheric Administration.

NOAEL: No observed adverse effect level.

NOEL: No observed effect level.

NPDES: National Pollutant Discharge Elimination System.

NT: Not analysed for.

NTP: Notice to Proceed.

OLIVINE: An important rock forming mineral composed of a solid solution of magnesium and iron silicates.

ORGANIC: Refers to chemical compounds having carbon atoms as their main skeletal structure. Most organic chemicals are created by living organisms or from their remains (such as fossil fuels) and occur naturally in the environment; other organic chemicals are man-made.

OUTCROP: Zone or area where a geologic unit or formation occurs at or near land surface. "Outcrop area" is an important factor in studies of aquifers as this zone usually corresponds to the point where significant recharge occurs. Occasionally, this term is used as a intransitive verb: "Where the unit crops out...."

Pb: Chemical symbol for lead.

PC: Potential carcinogen.

PCBs: Polychlorinated biphenyls, liquid halogenated polycyclic organic compounds commonly used as insulating and cooling fluids in electrical equipment. Commercial mixtures of PCBs are referred to as Arochlors.

pCi/L: Picocuries per liter.

PERCHED WATER TABLE: Unconfined ground water separated from an underlying water table by an unsaturated zone.

PERCOLATION: Movement of moisture by gravity or hydrostatic pressure through interstices of unsaturated rock or soil.

PESTICIDE: A chemical agent used to destroy pests, includes specialty groups known as herbicides, fungicides, insecticides, rodenticides, etc.

PF: Carcinogenic potency factor.

pH: negative logarithm of the hydrogen ion concentration used as measure of the acidic or alkaline nature of aqueous solutions.

PLEISTOCENE: The time period from about two million years ago to about 10,000 years ago during which major continental glacial occurred.

POL: Petroleum, Oils and Lubricants

POLYCYCLIC COMPOUND: An organic compound in which the carbon atoms are arranged into two or more six-carbon rings, usually aromatic in nature.

POTENTIOMETRIC SURFACE: A surface defined by the levels to which water will rise in tightly cased wells. The water table is a particular potentiometric surface.

ppb: Parts per billion by weight.

ppm: Parts per million by weight.

PRECAMBRIAN: All rocks formed before the Cambrian. That is rocks older than 600 million years and up to 2700 million years in age.

PRECIPITATION: Rainfall and snowfall.

PROTEROZOIC: The younger of two Precambrian eras.

Q: Quantity of discharge, gallons per day.

QUATERNARY: The second period of the Cenozoic geologic era, following the tertiary, and including the last 2-3 million years.

QA/QC: Quality assurance and quality control.

RAL: Minnesota recommended allowable limit.

RCRA: Resource Conservation and Recovery Act.

RECEPTORS: Individuals or groups of organisms or resources that are potentially affected by a contamination source.

RECHARGE AREA: The part of an aquifer that receives water by infiltration from surface water, precipitation, or an overlying aquifer. Recharge areas may be natural or manmade.

RECHARGE: The addition of water to the zone of saturation by natural or artifical processes.

RfD: Reference dose.

RI: Remedial Investigation.

RVe: Effective rating value is a pseudo-quantitative indication of the noncarcinogenic health effects associated with a particular conmpound.

SARA: Superfund Amendments and Reauthorization Act.

SATURATED ZONE: That part of the earth's crust in which all voids are filled with water.

SEDIMENTARY ROCKS: Rocks formed by the accumulation of sediment in water or from air. A characteristic feature of sedimentary deposits is a layered structure known as bedding or stratification. Each layer is a bed or stratum. Sedimentary beds as deposited lie flat or nearly flat.

SCS: Soil Conservation Service (USDA).

SDWA: Safe Drinking Water Act of 1974 as amended in 1986.

SEDIMENTARY ROCKS: Rocks formed by the consolidation of loose sediments that have accumulated in layers.

SG: Soil Gas.

SL: Surface water and sediment sampling location, stream location.

SPECIFIC CAPACITY: The discharge of water from a well per unit of drawdown, commonly expressed in gpm/ft.

SPECIFIC YIELD: The change that occurs in the amount of water in storage per unit area of an unconfined aquifer as a result of a unit change in static head.

SS: Soil sample.

STATIC HEAD: In an aquifer the height above a standard datum that water will rise in a tightly cased well.

STATIC WATER LEVEL: The level of water in a well that is not being affected by withdrawal of ground water.

STORAGE COEFFICIENT: The volume of water an aquifer releases from or takes into storage per unit surface area of an aquifer per unit change in head. The storage coefficient is essentially equal to specific yield for an unconfined aquifer.

SW: Solid Waste

SYNCLINE: A fold in rocks in which the strata dip inward from both sides toward the axis.

T: Transmissivity, gallons per day per foot.

TAC: Tactical Air Command.

TCA: Trichloroethane, a solvent and suspected carcinogen.

TCE: Trichloroethene, a solvent and suspected carcinogen.

TD: Total Depth.

TDS: Total Dissolved Solids.

TILL: Nonsorted, nonstratified sediment carried or deposited by a glacier.

TLV: Threshold Limit Value.

TOC: Total Organic Carbons.

TOX: Total Organic Halocarbons.

TOXICITY: The ability of a material to produce injury or disease upon exposure, ingestion, inhalation, or assimilation by a living organism.

TRACE METALS: Metal elements that occur in low abundances in natural materials.

TRANSMISSIVITY: A measure of an aquifer's capability to yield water; the rate at which water is transmitted through a unit width of aquifer under a unit hydraulic gradient.

TRANSPIRATION: The process by which water absorbed by plants, usually through the roots, is evaporated into the atmosphere from the plant surface.

U: Analysed for but not detected above method detection limits.

UNCONFINED AQUIFER: An aquifer that has a water table. The aquifer is not overlain by a confining unit.

UPGRADIENT: In the direction of increasing hydraulic head; the direction opposite to the prevailing flow of ground water.

USAF: United States Air Force.

USDA: United States Department of Agriculture.

USDC: United States Department of Commerce.

USEPA: United States Environmental Protection Agency.

USGS: United States Geological Survey.

V: Velocity.

VOA: Volatile Organic Compounds.

WATER TABLE: Surface of a body of unconfined ground water at which the pressure is equal to that of the atmosphere.

WESTON: Roy F. Weston, Inc.

WISCONSIN: The last of four classical glacial stages in North America. Also the state just east of the state of Minnesota.

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APPENDIX B
DESCRIPTION OF WORK

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APPENDIX B
TABLE OF CONTENTS

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SECTION B.1
INTRODUCTION

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SECTION B.1
INTRODUCTION

The Remedial Investigation at the Minnesota Air National Guard Base, Duluth, Minnesota is based upon Task Order Y-02, General Order 18B-97387C, which is under DOE contract DE-AC05-840R21400 with the Martin Marietta Energy Systems, under Interagency Agreement 1489-1489-A1. The description of Task 2 - Remedial Investigation under Task Order Y-02 is given in the pages that follow.

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SECTION B.2

STATEMENT OF WORK

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STATEMENT OF WORK
FOR
REMEDIAL INVESTIGATION, FEASIBILITY STUDY, AND REMEDIAL DESIGN
AT
MINNESOTA AIR NATIONAL GUARD BASE, DULUTH INTERNATIONAL AIRPORT, MINNESOTA

February 10, 1988

Prepared by
HAZWRAP SUPPORT CONTRACTOR OFFICE
Oak Ridge, Tennessee 37831
operated by
MARTIN MARIETTA ENERGY SYSTEMS, INC.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-84OR21400

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ANDREWS AIR FORCE BASE, MARYLAND
under Interagency Agreement 1489-1489-A1

CONTENTS

CONTENTS (continued)

ACRONYM LIST

AE Report	Alternatives Evaluation Report
AFIRM	Air Force Installation Restoration Management Committee
ANGB	Air National Guard Base
ANSI	American National Standards Institute
ARARs	Applicable, Relevant, and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOD	U.S. Department of Defense
DOE	U.S. Department of Energy
Energy Systems	Martin Marietta Energy Systems, Inc.
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
FS Report	Feasibility Study Report
IRP	Installation Restoration Program
NIOSH	National Institute of Occupational Safety and Health
NTP	Notice to Proceed
NGB	National Guard Bureau
O&M	Operating and Maintenance
OSHA	Occupational Safety and Health Administration
PA	Preliminary Assessment
QA/QC	Quality Assurance/Quality Control
RD	Remedial Design
RI	Remedial Investigation
RI Report	Remedial Investigation Report
RI Sampling Plan	Remedial Investigation Sampling Plan
SOV	Soil Organic Vapor
SOW	Statement of Work
WP	Work Plan

STATEMENT OF WORK
FOR
REMEDIAL INVESTIGATION, FEASIBILITY STUDIES, AND REMEDIAL DESIGN
AT
DULUTH INTERNATIONAL AIRPORT, MINNESOTA

1. BACKGROUND

The Department of Defense (DOD) has initiated a remediation program for evaluating suspected problems associated with past hazardous waste disposal and spill sites at DOD facilities. As part of this program, the National Guard Bureau (NGB), through the Air Force Engineering and Services Center, has entered into an interagency agreement (IAG No. 1489-1489-A1) with the U.S. Department of Energy (DOE) under which DOE will provide technical assistance for the implementation of the NGB's Installation Restoration Program (IRP) and related activities. Martin Marietta Energy Systems, Inc., (Energy Systems) has been assigned responsibility for managing this effort under the interagency agreement.

The NGB has specifically requested the support of DOE in assessing the extent of contamination at five sites at Duluth International Airport, Minnesota. The field investigation study will be conducted by the Energy Systems Subcontractor through an existing general order agreement.

The purpose of this Statement of Work (SOW) is to define the Subcontractor's responsibilities in conducting Remedial Investigations (RIs), and Feasibility Studies (FSs) and in preparing Remedial Designs (RDs) for the sites that have been identified as having substantial potential for causing environmental contamination at the Minnesota Air National Guard Base at Duluth International Airport (herein referred to as the Duluth ANGB).

The following documents generated in the course of the ongoing IRP investigations at Duluth ANGB contain significant information on the known sites at the Base and are available to the Subcontractor for review:

- the IRP Preliminary Assessment (PA) report, <u>Installation Restoration Program Records Search for Duluth International Airport, Minnesota</u>, Engineering-Science, October 1982;
- the IRP report, <u>Final Report Phase II Stage 1 Problem Confirmation Study, Duluth International Airport, Minnesota</u>, Roy F. Weston Inc.,October, 1984);
- the IRP Draft report, <u>Phase II Confirmation/Quantification Stage 2, Duluth International Airport, Minnesota</u>, Dames and Moore, (ANG Source Areas, 10 September, 1987); and
- the IRP report, <u>Phase II Confirmation/Quantification Stage 2 Appendices A-M Duluth International Airport, Minnesota,</u> Dames and Moore, (ANG Source Areas, 10 September, 1987).

- the IRP report, Phase II Confirmation/Quantification Stage 2 Appendices A-M Duluth International Airport, Minnesota, Dames and Moore, (ANG Source Areas, 24 September, 1987).
- MPCA ltr, 24 Dec. 1987- Duluth AFB, TAC Source Areas, Draft Work Plan, Comments.
- USEPA ltr, 12 Nov. 1987- Comments on ANG Site 10.
- ANGSC/SGB Ltr, 13 Nov. 1987 - Consolidated Review Comments Duluth IAP Phase II·Stage 2, IRP "Draft" Report.
- MPCA Ltr, 29 Oct. 1987- Duluth Air Force Base, ANG Source Areas, IRP Phase II, Stage 2, comments.
- MPCA Ltr, 14 Oct. 1987- Quarterly Monitoring Requirements and listing of MDH RALs (ARARS).

Because of the impact of the 1986 Superfund Amendments and Reauthorization Act to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), all work for this project shall follow the U.S. Environmental Protection Agency (EPA) guidance documents Guidance on Remedial Investigations Under CERCLA (EPA-540/G-85-002, 1985) and Guidance on Feasibility Studies Under CERCLA (EPA-540/G-85-003, 1985).

2. OBJECTIVE

The overall objective of the NGB IRP is to identify and remedy environmental contamination problems at its installations. It is recognized that a series of staged investigations based on the information already collected at Duluth ANGB may be required to meet this objective.

2.1 PROJECT WORK PLAN

A comprehensive Project Work Plan (WP) shall be prepared as the first task assigned under this task order. The objective of the Project WP is to provide a general technological framework for addressing the sites identified at the Base. The Project WP shall include preparation of a Baseline Technical Methodology for Project Completion and project plans (reference/guidance manuals) for quality assurance/quality control (QA/QC), health and safety, and community relations. The Project WP shall also include a comprehensive schedule and cost estimate for project completion, with provision for semiannual updates and distribution.

2.2 REMEDIAL INVESTIGATION

The objectives of the RI are to acquire the necessary data to define the extent of confirmed environmental contamination and to continue to assess the associated potential risks to human health, welfare, and the environment. The data collected must be sufficient to support a definitive FS (including a risk assessment) and/or decision document(s) that address the applicable, relevant, and appropriate requirements

(ARARs) for mitigating confirmed environmental contamination at each site.

Meeting this objective will require quantification of the magnitude and extent of contamination at the sites. The investigation shall include the identification of specific chemical contaminants present, their concentrations within the soil and groundwater and determination of the potential for contaminant migration by assessing site-specific hydrogeologic and contaminant characteristics.

In addition, the Subcontractor shall prepare and submit a Remedial Investigation Report (RI Report), which shall include a summary and interpretation of task activities and data. This effort shall include preparation of risk assessments necessary to determine the appropriateness, or necessity, of proceeding with planned studies of individual sites, or groups of sites, in accordance with the provisions of this SOW. The objective of this requirement shall be to provide documentation of procedures, results, and recommendations necessary to support a decision document and acquire regulatory concurrence.

2.3 FEASIBILITY STUDY

The objective of the FS is to select and describe a remedial action that addresses the ARARs for mitigating confirmed environmental contamination at each site. Meeting this objective will require preparation of a Feasibility Study Report(s) (FS Report), including risk assessments and cost benefit analyses, which will provide necessary data, direction, and documented supportive rationale to acquire regulatory concurrence (at federal, state, and local levels) with the recommended remedial alternative(s). Included as part of the FS Report will be an Environmental Assessment, which shall be prepared as a stand-alone document. Successful completion of the FS shall result in unimpeded subsequent development of remedial designs for implementation of the selected remedial action(s).

2.4 REMEDIAL DESIGN AND TECHNICAL SUPPORT

The objective of this effort is to provide engineering design drawings and construction specifications required to implement the recommended remedial actions contained in the FSs and/or technical decision documents resulting from site studies. Satisfaction of this objective shall include regulatory acceptance of the package as an appropriate plan for remediating the site.

The Subcontractor shall also provide technical support to the Base Project Officer during the remediation process to ensure that the remedial actions are implemented in accordance with the design drawings and technical specifications.

3. SCOPE

The Subcontractor shall provide the personnel, facilities, and materials required to plan and conduct RIs, prepare FSs, prepare RD documents, and provide other general technical support required through completion of the remediation process for the sites addressed in this project.

This project shall address the following sites at Duluth ANGB:

- Fire Training Area Site No. 2,
- DRMO Storage Area C Site No. 3,
- Tank Farm Site No. 4,
- Old DRMO Site No. 8, and
- Low Level Radioactive Site No. 10.

All technical consultants and key personnel supplied by the Subcontractor shall be qualified to provide expert witness testimony, if required.

4. INSTALLATION DESCRIPTION

A description of the installation is provided in the PA report, Installation Restoration Program Records Search for Duluth International Airport, Minnesota (Engineering-Science, March, 1982).) (see Fig. 1 for the Installation location).

5. SITE DESCRIPTIONS

A description of the individual sites is provided in the PA report, Installation Restoration Program Records Search for Duluth International Airport, Minnesota (Engineering-Science, March 1982), and the IRP Draft report, Phase II- Confirmation/Quantification Stage 2 for Duluth International Airport, Minnesota (Dames and Moore, September, 1987) (see Fig. 2).

6. DESCRIPTION OF TASKS

6.1 TASK 1 - PROJECT WORK PLAN

A comprehensive Project WP for completing all of the major tasks in this SOW shall be prepared and submitted by the Subcontractor for internal review by Energy Systems and the NGB within 6 weeks of receipt of contractual notice to proceed. The Project WP shall undergo at least three revisions (internal draft, draft, and final) and shall address the Subcontractor's proposed technical approach, timing for implementation, project coordination meetings, project schedules, and project

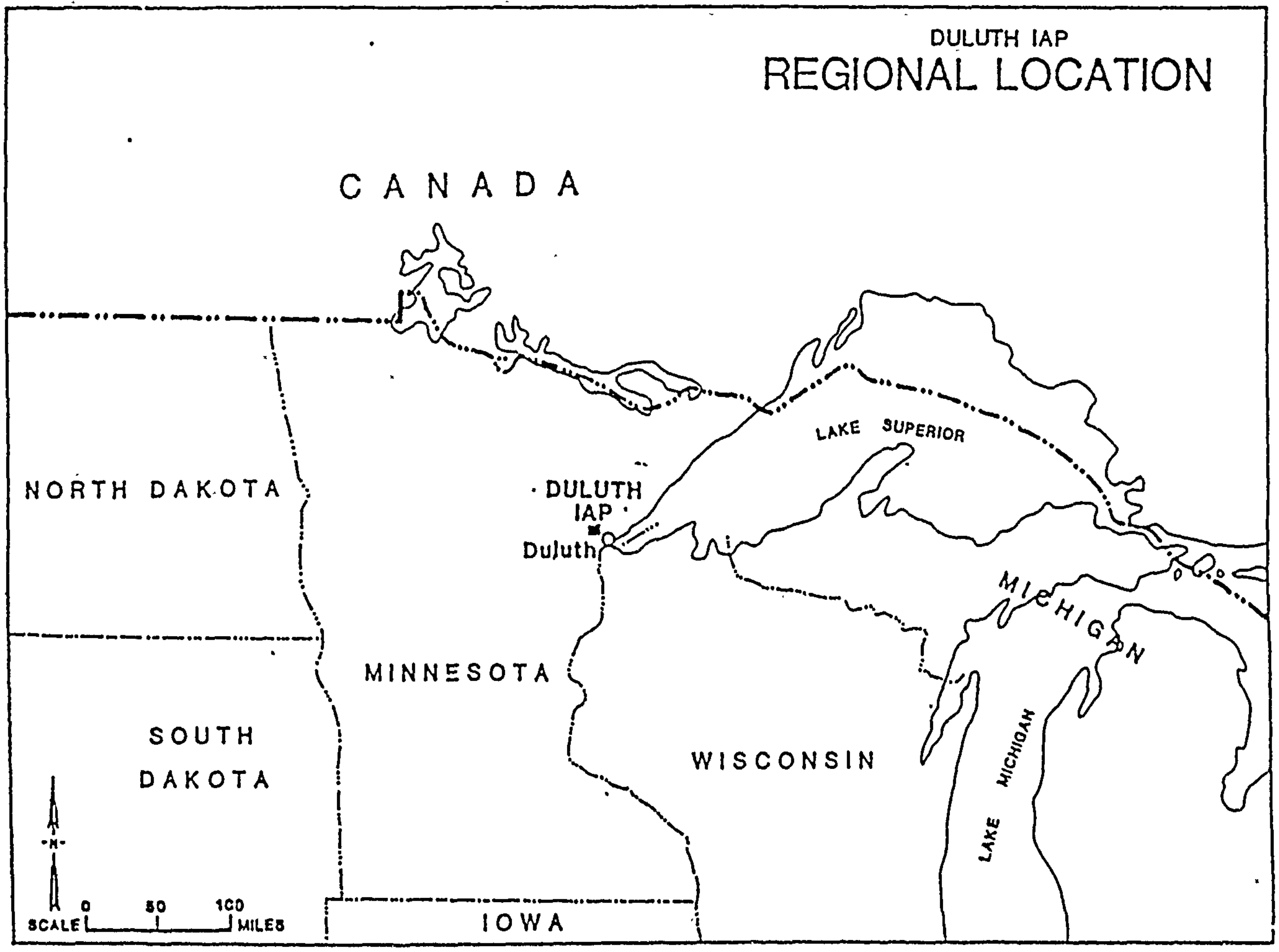
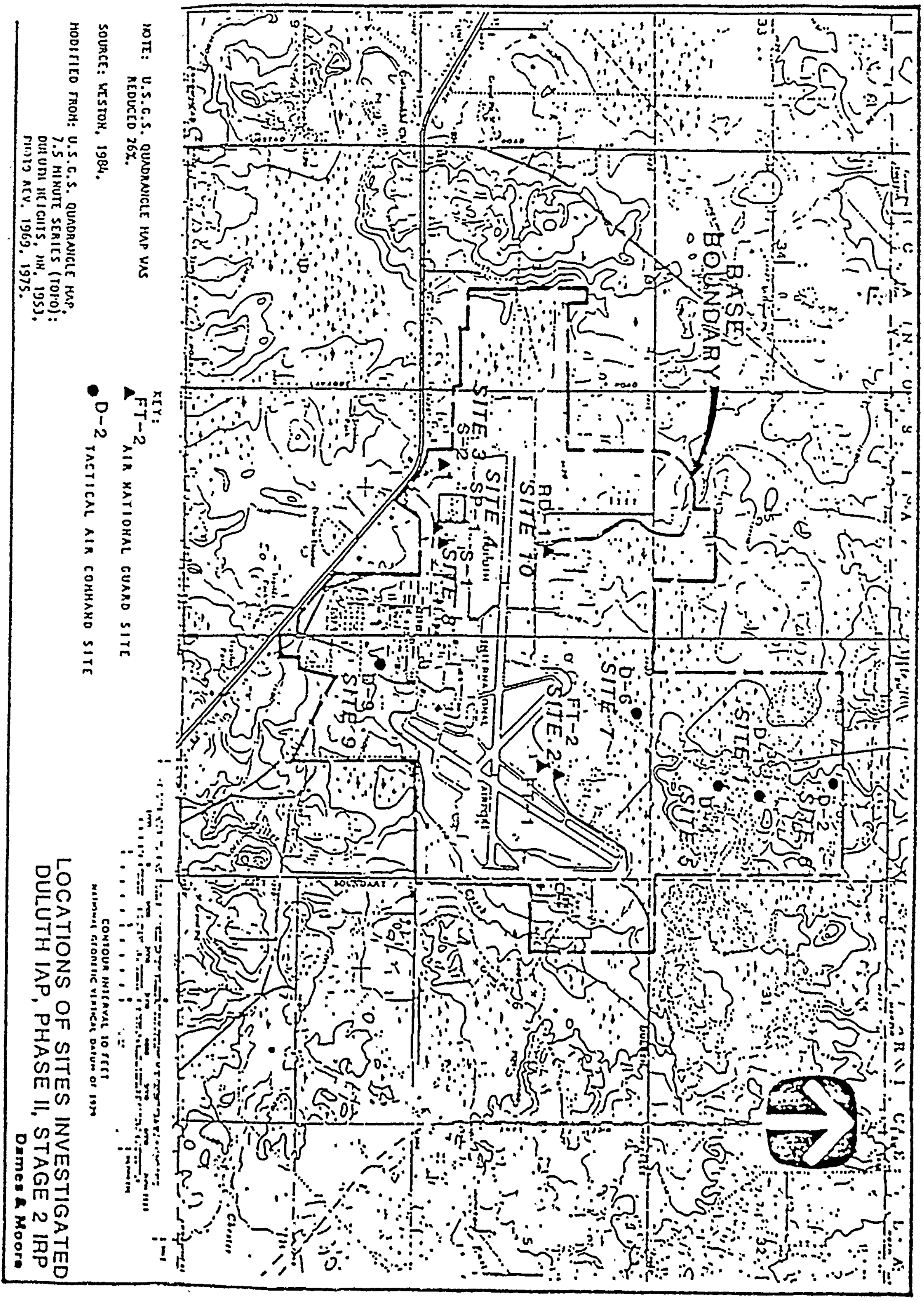


Fig. 1 Location of Duluth International Airport



NOTE: U.S.G.S. QUADRANGLE MAP WAS REDUCED 26%.

SOURCE: WESTON, 1984.

MODIFIED FROM: U.S.G.S. QUADRANGLE MAP, 7.5 MINUTE SERIES (TOPO): DULUTH HEIGHTS, MN, 1953, PHOTO REV. 1969, 1975.

KEY:
▲ FT-2 AIR NATIONAL GUARD SITE
● D-2 TACTICAL AIR COMMAND SITE

LOCATIONS OF SITES INVESTIGATED
DULUTH IAP, PHASE II, STAGE 2 IRP
Dames & Moore

Fig. 2 Site 2, 3, 4, 8, and 10 location map.

milestones/decision points. The plan shall include provision for obtaining written authorization from the Energy Systems Project Manager at the conclusion of each task before initiating work on the next. The Project WP shall include at least the following:

- a baseline technical methodology for project completion,
- the project QA/QC Plan,
- the project Health and Safety Plan, and
- the project Community Relations Plan.

The Project WP shall be updated and resubmitted for approval biannually, on or before the 15th of January and the 15th of July, for each fiscal year (October 1-September 30) in which project work is anticipated to continue into the next fiscal year.

6.1.1 Baseline Technical Methodology for Project Completion

The Subcontractor shall prepare a Baseline Technical Methodology for completing its work, in its entirety, at the Base. The methodology shall at least address the following:

- I coordination of Subcontractor activities on the Base and development of site evaluation priorities,
- II procedures for completing an evaluation of the general area and site-specific hydrology and geology,
- O – recommended geophysical investigation methods to be employed,
- RI recommended surface and subsurface investigation techniques,
- RI recommended air sampling and monitoring techniques,
- III development of general and site-specific maps and geological cross sections and/or modeling techniques to be employed,
- P identification of permit requirements,
- VIII recommendations (procedures, timing, and other considerations) for development of decision documents and focused FSs, and
- RI a summary of the applicable regulatory guidelines governing pertinent environmental contaminants and their concentrations in the soil and groundwater at this Base.

The Subcontractor shall include a detailed rationale in the discussion for each of the above. The Subcontractor shall also include a baseline schedule and estimate of expenditures by month through the end of the first full fiscal year, and quarterly thereafter, for the entire project. The schedule shall address each of the major tasks in the SOW, with additional breakdowns to cover each anticipated iteration of work under the RI and FS portions of the program.

6.1.2 Project Quality Assurance/Quality Control Plan

The Project QA/QC Plan shall contain data management and field and laboratory QA/QC procedures, including as a minimum:

- sample chain-of-custody requirements;
- sample handling protocols;
- specifications or regulations for QA/QC duplicate samples, field blanks, and decontamination rinseate samples;
- specifications or regulations for field and laboratory data management;
- specifications or regulations for decontamination procedures; and
- procedures, regulations, and requirements for disposal of investigation-generated wastes.

The Subcontractor may reference previously developed and approved IRP QA/QC planning documents to satisfy this criterion. At least five copies of the documents shall be submitted with the Project WP if this option is used.

6.1.3 Project Health and Safety Plan

The Project Health and Safety Plan shall address general requirements to ensure safe working conditions during the RI. The components of this plan shall include:

- requirements for protective clothing and equipment;
- a detailed description of safety monitoring equipment and the analytical accuracy it provides;
- procedures for controlling site access;
- procedures for communication with various emergency response organizations, such as police and fire departments and hospitals; and
- decontamination procedures for personnel and equipment.

The Project Health and Safety Plan shall provide for the designation of a Site Safety Coordinator to be responsible for enforcement of the program.

References -- such as American National Standards Institute (ANSI) Standard Z88.2-1980, American National Standard Practices for Respiratory Protection; National Institute of Occupational Safety and Health (NIOSH) Publication No. 84114, Personal Protective Equipment for Hazardous Materials Incidents; and 51 FR 45654, December 19, 1986, 29 CFR Pt. 1910.120, Hazardous Waste Operations and Emergency Response: Interim Final Rule, Department of Labor, Occupational Safety and Health Administration (OSHA) -- shall be consulted in the preparation of this plan.

The Subcontractor may reference previously developed and approved IRP Health and Safety planning documents to satisfy this criterion. At least five copies of such documentation shall be provided to the Energy Systems Project Manager with the Project WP if this option is used.

6.1.4 Project Community Relations Plan

The Subcontractor shall prepare a general Project Community Relations Plan that addresses procedures to be employed to provide the Base Public Affairs Office with timely and accurate assessments of the IRP status at Duluth ANGB in support of their community relations effort. The plan shall include a listing of project participants and their telephone numbers and addresses. The plan shall also provide a similarly detailed listing of local media representatives, key political figures, and regulatory officials for reference by the IRP project team.

6.2 TASK 2 - REMEDIAL INVESTIGATION

The Subcontractor shall conduct RIs necessary to characterize the sites to be addressed at Duluth ANGB. Activities to be conducted shall include, but not be limited to, evaluation of existing reports and data, preparation of detailed WPs, implementation of approved WPs, compilation and verification of analytical data, preparation of reports, analysis of data, and preparation of resulting recommendations and conclusions. Relevant reports shall be examined with the purpose of establishing a comprehensive (Base-wide) preliminary understanding of the areal hydrogeology as well as identifying potential downgradient human and environmental receptors.

It is recognized that satisfaction of the objectives of the RI will require a staged, or iterative, approach to completing required fieldwork.

All reports, plans, and technical memoranda prepared in the course of completing this task shall be submitted in at least three revisions (internal draft, draft, and final).

6.2.1 Remedial Investigation Work Plan Development

All WPs developed for conducting necessary field investigations shall be prepared in accordance with the provisions of this section.

Within 4 weeks of notice to proceed (NTP) on WP development from the Energy Systems Project Manager, the Subcontractor shall submit at least 15 copies of the plan for internal Energy Systems and NGB review. This Internal Draft WP shall at least include the following:

- the Remedial Investigation Sampling Plan (RI Sampling Plan) for site characterization,
- site-specific QA/QC Plans,
- site-specific Health and Safety Plans, and
- a stand-alone detailed cost estimate in two parts: an estimate for implementation of the WP and an updated summary of the project baseline estimate for completion of all of the remaining work through the RD.

6.2.1.1 Remedial Investigation Sampling Plan

The RI Sampling Plan shall consist of a detailed description of the Subcontractor's approach to, and the technical rationale for, characterizing the sites described above. As a minimum, the RI Sampling Plan shall include information on

- identification of Subcontractor personnel and lower-tier subcontractors responsible for implementing the RI Sampling Plan;
- identification of all required equipment, materials, and supplies for the RI;
- plans and objectives of all geophysical and/or soil organic vapor (SOV) surveys;
- plans and objectives for all borings, wells, test pits, and other direct physical investigations planned, including any site preparation activities such as clearing and grubbing, demolition of existing site features, or on-site construction activities;
- the number, types, and locations of all samples to be taken;
- the methods of sample acquisition, preparation, and analysis;
- the design, construction, and abandonment procedures for soil borings, monitoring wells, test pits, etc.;
- identification of all required permits; and
- a detailed schedule for implementing the various tasks identified in the WP.

It is essential that specific rationale be provided in the WP to substantiate the technical approach presented for characterizing each site and that all procedures and methods described in the RI Sampling Plan be in accordance with applicable federal, state, and local regulations.

6.2.1.2 Quality Assurance/Quality Control Plan

The Project QA/QC Plan shall be supplemented with site-specific plans to address the work to be completed in the approved WP. This shall at least include

- site-specific quantities of QA/QC duplicate samples, field blanks, and decontamination rinseate samples;
- case-specific requirements for field and laboratory data management;
- special decontamination requirements, if any; and
- any special or unique procedures, regulations, and requirements for disposal of investigation-generated hazardous wastes.

The Subcontractor's main contract laboratory shall analyze 10% of the samples in duplicate (internal field duplicates). Duplicates requested by the various regulatory agencies or other approved parties shall be made from the same base samples. In the event that duplicate samples are requested by the regulators, additional duplicates shall be made from the same base samples and sent to Energy Systems for analysis. The Subcontractor's analytical laboratory will be required to analyze performance evaluation samples before participating in this program.

Specific requirements regarding analytical laboratory QA/QC are included in the Energy Systems IRP QA/QC Guide, which has been provided under separate cover.

Samples for analysis by Energy Systems should be sent to:

Martin Marietta Energy Systems, Inc.
Oak Ridge Gaseous Diffusion Plant
Hwy 58
Building K1004C, Drop Point A20
Oak Ridge, TN 37831

Attention: Mitzi Miller

All duplicate soil and water samples, other than those for volatile organic analysis, shall be composited upon collection in an appropriately large container with the original sample in the field. The samples shall then be homogenized and subsampled, using the appropriate unit sample containers, in a laboratory or other uncontaminated location. Duplicate samples for volatile organic analysis should be collected in succession in glass bottles with Teflon septa caps. The volatile organic samples should not be subsampled.

All information pertinent to field activities shall be recorded in a daily field log, preferably a bound logbook with consecutively numbered pages. Entries in the log shall be made in water-resistant ink and shall include at least

- the names and affiliations of field personnel;
- a general description of the day's field activities;
- documentation of weather conditions during the previous 48 hours;
- field equipment calibration data; and
- field measurements, such as temperature, pH, conductance, and readings from personnel safety instruments.

The field log shall be included as an appendix to the RI Report (see Sect. 6.2.2.6.

6.2.1.3 Health and Safety Plan

The Project Health and Safety Plan shall be supplemented by site-specific requirements to ensure safe working conditions during the RI. The items to be addressed in the site-specific plans shall at least include

- identification of hazardous materials likely to be encountered at each site and a detailed list of the equipment, clothing, and other supplies necessary for safe access to the site;
- specific plans for controlling site access;
- specific procedures for communication with, and access to, various emergency response organizations, such as police and fire departments and hospitals; and
- specific decontamination procedures for personnel and equipment.

The site-specific supplements to the Project Health and Safety Plan shall include identification of the Site Safety Coordinator to be responsible for program enforcement on-site.

6.2.1.4 Work Plan Review and Revision

The WP shall be revised in accordance with the following as a minimum.

Within 2 weeks of the delivery of the Internal Draft WP, the Subcontractor shall attend a review meeting to present and receive comments on the WP. Within 3 weeks of the conclusion of this meeting, the Subcontractor shall submit at least 15 copies of a Draft WP that addresses NGB and Energy Systems comments. The Draft WP shall be accompanied by a detailed cost estimate for completing the outlined work (see Sect. 6.2.1.5 below).

Within 5 weeks of submission of the Draft WP and/or at the conclusion of a 4-week suspense period for regulatory review of the WP, the Subcontractor shall attend a review meeting at which the Draft WP will be presented to the NGB, Energy Systems, and regulatory agencies, and review comments will be addressed. Within 3 weeks of the conclusion of this meeting and/or receipt of written comments, the Subcontractor shall submit at least 15 copies of a final WP that addresses those comments.

6.2.1.5 Cost Estimates

Along with the Internal Draft WP and under separate cover, the Subcontractor shall provide a working cost estimate for completion of the work. The estimate shall address the specific costs associated with implementation of the WP, preparation of the RI Report, and generation of the next WP and shall include breakdowns by site, task, and unit time (monthly) for direct labor (level of effort and costs), travel, fieldwork, sample analysis, and reporting.

6.2.1.6 Other Requirements

The Subcontractor shall plan to provide support for the Base community relations effort. That support shall include at least providing information for periodic releases to the Base Public Affairs Officer and other community relations support as required by the Base.

6.2.2 Remedial Investigation (Fieldwork)

Upon NGB and the Energy Systems Project Manager's approval of the Final WP, the Subcontractor shall initiate fieldwork and analyses in accordance with written direction from the Energy Systems Project Manager. The data accumulated from the fieldwork shall be verified and compiled into a report (RI Report), which shall include at least three revisions (internal draft, draft, and final). After analyses are completed but before completion of the Internal Draft RI Report, the Subcontractor shall hold an RI progress briefing for the NGB and Energy Systems, which will include a data summary with graphic display and preliminary recommendations.

Upon identification of a need to deviate from the approved WP while conducting field investigations, the Subcontractor shall provide the following to the Energy Systems Project Manager in writing:

- a technical narrative of the proposed change and supportive rationale;
- recommended samples and analyses;
- requirements for materials, supplies, and equipment to support the effort;
- an estimate of the decrease or increase in cost as a result of these recommendations; and
- an estimate of the impact of the change on the program schedule.

The Subcontractor shall obtain approval from the Energy Systems Project Manager before implementing any requested deviation from the approved WP.

6.2.2.1 General Requirements

All well drilling, development, purging, and sampling methods must conform to state and other applicable, relevant and appropriate requirements (ARAR's). All required permits for well drilling must be obtained by the Subcontractor.

The Subcontractor shall comply with all applicable EPA, Air Force Occupational Safety and Health, OSHA, state, and any other applicable regulations and procedures concerning safety during drilling, sampling, and analytical activities.

The Subcontractor shall monitor the ambient air above all exploratory well drilling and borehole operations with a photoionization meter or equivalent organic vapor detection device to identify potential generation of hazardous and/or toxic materials. In addition, the Subcontractor shall monitor drill cuttings for discoloration and odor. During drilling operations, if soil cuttings are suspected of being hazardous, the Subcontractor shall perform tests for toxicity, ignitability, petroleum hydrocarbons, and volatile organics as appropriate. The results of these tests shall be included in the appropriate boring logs. If the samples are found to be contaminated, the Subcontractor shall place them in new, unused drums, prepare the manifest for Base signature, and make arrangements for shipment.

All activities requiring Subcontractor access to the Base (e.g., drilling operations, sample collections, well development and testing, and surveying) or affecting operations or any other activities of the installation shall be coordinated with appropriate Base personnel before implementation.

The Subcontractor shall be responsible for furnishing or arranging for water required for drilling, decontaminating, cleaning, and developing wells and for equipment.

Drilling logs shall be maintained by a qualified geologist or engineer and include a description of geologic units encountered, depths to water-producing zones, depth of each borehole, a pictorial representation of the screened interval for sampling/monitoring wells, the surveyed elevation of the well casing based on existing benchmarks, and results from gas and vapor monitoring. The Unified Soil Classification System shall be used for all boring logs.

The methods selected by the Subcontractor to perform hydraulic conductivity tests must be theoretically valid, given the geological conditions present at the sites. Such procedures may include, for example, instantaneous slug tests, permeameter tests, or stepped or continuous-rate pumping tests.

To minimize the potential for cross-contamination, all drilling equipment shall be decontaminated before the start of drilling, between borings, and before removal from the Base. Sampling equipment shall be decontaminated before sampling and between samples with a steam cleaning, followed by a thorough washing with a laboratory-grade detergent, followed by a contaminant-free isopropyl alcohol rinse and a contaminant-free distilled water rinse. Blank samples shall be taken from each batch of alcohol and distilled water used at the jobsite for laboratory analysis.

The Subcontractor shall be responsible for the collection, containment, and disposal of all fluids and waste materials generated by decontamination procedures and field investigations. Handling, transport, and disposal of these materials shall be performed in accordance with requirements mandated by the Resource Conservation and Recovery Act and all other applicable federal, state, and local regulations. The Subcontractor shall prepare a Uniform Manifest for Base signature and make arrangements for shipment.

The Subcontractor shall maintain a photographic record of all RI activities at the Base. Two copies of each print shall be submitted at the completion of each RI iteration.

6.2.2.2 Monitoring Wells/Soil Borings

All groundwater monitoring wells shall be of sufficient depth to collect samples representative of aquifer quality and to intercept contaminants, if present. Both "floaters" and "sinkers" presumed to be present shall be intercepted.

All boreholes shall be drilled using techniques that will minimize the amount of foreign material introduced into the borehole and that will permit the collection of relatively undisturbed soil samples. Drilling fluids should not be used unless they cannot be avoided. If compressed air is used as the drilling fluid, filters must be used to remove oil from the air. If drilling fluids are used, the types of well development must be documented and that documentation must accompany the well completion report.

Well casing and screens shall be fabricated from schedule 40 PVC pipe certified by the National Sanitation Foundation with factory-cut screen slots. Where conditions are severe enough to degrade and/or disintegrate PVC casing, stainless steel or Teflon casing, or combinations of stainless steel, Teflon, and PVC, shall be used. The Subcontractor shall determine slot sizing for the screens. All joints shall be clean, watertight, and flush threaded. No solvents, grease, or glues shall be used to join casings and screens. The bottom of the casing shall be permanently capped.

The well screen, casing, and centering guides shall be thoroughly cleaned before installation and centered in the borehole to ensure that the filter pack and seal can be evenly spaced around the screen and well casing. For wells screened at the water table, the screened interval shall be long enough to allow for fluctuations in the groundwater table elevation and set at a depth to allow any free-floating petroleum, oils, and lubricants on the water table to enter the well during sampling. Screened intervals >10 ft shall not be used unless seasonal variation of the water table exceeds 10 ft and the well is screened at the water table or specific authorization to do so is received from the Energy Systems Project Manager. Care shall be taken when monitoring wells are installed to allow for annual/seasonal variations in the water table. Unless a flush-mount design is used, the top of the casing shall extend at least 12 in. above ground elevation and shall have a threaded cap.

For a distance of 3 to 5 ft above and 2 ft below the screened interval, the annular space between the screened casing and the wall of the boring shall be filled with sand pack by the tremie method. The sand pack shall be a commercial filter pack of clean silica sand, which is washed and sized. The Subcontractor shall determine the appropriate grain size of the sand pack based on the grain size of the geologic material encountered and the slot size of the screen. During the development of the well, care shall be taken to ensure that the filter material remains at least 3 ft above the top of the screen. The annular space between the casing and the wall of the boring shall be sealed with bentonite pellets for a minimum distance of 1 ft above the sand pack. The remaining annular space above the bentonite seal shall be backfilled with a cement/bentonite grout by the tremie method.

The well shall then be developed by cyclic or intermittent pumping or surging, or both, with water and compressed air or by other methods approved in advance by the local regulatory authorities. Development shall continue until the full yield of the well is obtained and the discharge water contains <5 mg of particulates /L of water.

A protective steel casing shall be placed around each well and concreted into the ground to below frost depth. The concrete shall be formed into an apron to divert surface runoff away from the well. The protective casing shall extend approximately 10 in. above the well casing and shall be equipped with a locking cap. Flush-mounted well assemblies shall also be provided with locking caps on the protective casings. Locks on all wells shall have one master key, to be turned over to the Base Civil Engineer upon completion of the fieldwork. The wellheads shall be provided with vented caps to avoid introduction of foreign matter into the well during removal of the protective casing cap. The aboveground portions of both the well casing and the protective casing shall be vented. The protective casing shall also have a weep hole near the ground surface to prevent accumulation of moisture in the wellhead. If an aboveground well completion assembly is used, the Subcontractor shall provide three, 3-in.-diam cement-filled schedule 40 steel bucking posts around the protective steel casing. The posts shall be 5 ft in total length and installed radially at equal intervals around the wellhead. The posts shall be recessed approximately 24 in. into the ground and set into independent concrete footings.

The elevation of all monitoring well casings shall be surveyed to an accuracy of ±0.01 ft. Horizontal locations shall be surveyed to an accuracy of ±1.0 ft. The designation of the well and the point on the casing from which the elevation is determined shall be clearly and permanently marked on the casing (using impact lettering), on the well boring log, and on project maps extracted from Base/Master plan drawings for each specific site or zone.

The horizontal location of all boreholes shall be surveyed to within ±1.0 ft and shall be recorded on boring logs and on a project map for each specific site or zone.

On direction from the Energy Systems Project Manager and with concurrence from the NGB Project Officer, monitoring wells and borings shall be appropriately abandoned to prevent subsequent contamination. The Subcontractor shall document the abandonment of each well. Abandonment procedures shall be in accordance with EPA, state, and local regulatory guidelines.

6.2.2.3 Soil Organic Vapor Survey

If planned, the Subcontractor shall survey SOV by withdrawing samples of soil gas from appropriate depths and analyzing each sample in accordance with the approved WP. The Subcontractor shall determine appropriate methods for collecting soil gas samples and submit them for approval in the RI Sampling Plan. While conducting the field investigation, the Subcontractor shall document all procedures implemented.

6.2.2.4 Sampling

Sample collection, preparation, shipment, and analysis shall be completed in accordance with EPA protocols. All sampling equipment, including components of the sampling interface, shall be decontaminated before use, between samples, and between sampling locations. Soil samples shall be obtained by using a split spoon (or equivalent) sampler. Groundwater samples shall be collected with a Teflon or stainless steel bailer after three to five well volumes have been purged from the well and after temperature, pH, and specific conductivity have stabilized. Surface water samples shall be taken with weighted-bottle samplers. All samples, except those for volatile organics, shall be collected into appropriate large containers, homogenized, and subsampled into smaller containers. Duplicate samples for volatile organics shall be collected in succession into glass bottles with Teflon septa caps. Volatile organic samples shall not be subsampled. The samples shall be preserved in the field, packed in properly chilled coolers, sealed, and shipped via overnight delivery to the analytical laboratories. All EPA chemical analysis holding times shall be observed.

6.2.2.5 Remedial Investigation Risk Assessment

Following each field study and compilation of the resultant field data, the Subcontractor shall conduct a risk assessment to determine the appropriateness of supplemental investigations or the need for development of an FS Report to address remedial alternatives for each site. The results of this study shall be used to provide the basis for the subsequent WP and shall be incorporated into the RI Report.

6.2.2.6 Remedial Investigation Report

An Internal Draft RI Report shall be prepared upon completion of the data analysis for the Final RI iteration. At least 15 copies shall be submitted. The report shall include a summary and interpretation of all data gathered during the complete RI for each site and the results from the RI risk assessment. The interpretation of the data shall conclude with a determination of the degree and extent of contamination, if any, and, for each site, one of four recommendations shall be made and supported: (1) take no further action or initiate long-term monitoring (decision document required), (2) acquire additional data, (3) initiate preparation of engineering plans and specifications for removal of the contamination (immediate removal), or (4) conduct an FS.

Within 2 weeks of delivery of the Internal Draft RI Report, the Subcontractor shall attend a review meeting and receive comments from the NGB and Energy Systems. Three weeks after the conclusion of this meeting, the Subcontractor shall submit at least 15 copies of a Draft RI Report that addresses comments from the NGB and Energy Systems.

Within 6 weeks of submission of the Draft RI Report, the Subcontractor shall attend a review meeting at which the document shall be presented to the NGB, Energy Systems, and regulatory agencies. Within 3 weeks of the conclusion of this meeting, the Subcontractor shall submit at least 15 copies of a Final RI Report that addresses comments as directed by the NGB and Energy Systems.

The RI Report shall be a stand-alone document with format in accordance with EPA Guidance on Remedial Investigations Under CERCLA, dated May 1985 (Table 1).

6.2.2.7 Subsequent Work Plans

If additional field data are required, another WP shall be prepared detailing the Subcontractor's recommendations for obtaining the necessary data, including sufficient technical rationale to justify the recommended investigatory methods; locations where they are to be used; and number, type, and location of samples and analyses. This WP shall be developed and implemented as described in Sect. 6.2 above.

If the recommendations from the risk assessment and RI Report for one or more sites include proceeding with either FSs or preparation of RDs, the Subcontractor shall prepare phase-specific WPs for proceeding with those activities in accordance with this SOW. These WPs shall at least include a description of the activities, their durations, Subcontractor staffing to be used, a brief summary of the objectives of the effort, and the recommended means of accomplishing those objectives. Subcontractor staff plans shall be presented in accordance with the requirements outlined in Sect. 6.2.1.5 above. The WP development, review, revision, and approval cycle will be similar to that for the RI WPs outlined in Sect. 6.2 above.

6.2.2.8 Decision Documents

If a recommendation is made to develop a decision document to terminate RIs at a site and to delete the site from further evaluation in the FS phase of the program, the Subcontractor, on receipt of written instructions from the Energy Systems Project Manager, shall prepare those documents for the NGB. Decision documents shall contain a brief summary of site conditions, with detailed technical rationale to support the Subcontractor's recommendations. It is anticipated that generation of these documents will require at least three reviews and subsequent revisions. Satisfaction of this subtask will be dependent upon NGB, Energy Systems, and regulatory agency acceptance.

6.3 TASK 3 - FEASIBILITY STUDIES

Upon receipt of authorization from the Energy Systems Project Manager, the Subcontractor shall prepare an FS Report, which shall include at least the activities described in the following subsections. Depending upon the results of RI activities at the various sites, multiple FS Reports may be required.

Completion of the FSs shall be contingent upon acceptance of the FS Reports by the EPA, state, and local regulatory agencies; Energy Systems; and the NGB for all sites addressed in the reports. All work shall be completed in accordance with written instructions from the Energy Systems Project Manager.

Table 1. Remedial Investigation Report format

EXECUTIVE SUMMARY

1. INTRODUCTION
    1.1 Site Background Information
    1.2 Nature and Extent of Problem(s)
    1.3 Remedial Investigation Summary
    1.4 Overview of Report

2. SITE FEATURES INVESTIGATION
    2.1 Demography
    2.2 Land Use
    2.3 Natural Resources
    2.4 Climatology

3. HAZARDOUS SUBSTANCES INVESTIGATION
    3.1 Waste Types
    3.2 Waste Component Characteristics and Behavior

4. HYDROGEOLOGIC INVESTIGATION
    4.1 Soils
    4.2 Geology
    4.3 Groundwater

5. SURFACE WATER INVESTIGATION
    5.1 Surface Water
    5.2 Sediments
    5.3 Flood Potential
    5.4 Drainage

6. AIR INVESTIGATION

7. BIOTA INVESTIGATION
    7.1 Flora
    7.2 Fauna

8. BENCH AND PILOT TESTS

9. PUBLIC HEALTH AND ENVIRONMENTAL CONCERNS
    9.1 Potential Receptors
    9.2 Public Health Impacts
    9.3 Environmental Impacts

10. RECOMMENDATIONS

REFERENCES

APPENDIXES

6.3.1 Screening, Development, and Evaluation of Alternatives

6.3.1.1 Screening of Control Measures

To reduce the number of control measures to be considered for the development and review of detailed alternatives, all control measures, including management methods and technologies relevant to remediation of site problems identified in the RIs, shall be screened on the basis of feasibility, cost, and environmental and public health impacts. Control methods shall not be eliminated solely because of a lone inability to meet standards. When used in conjunction with other control measures, those standards may be able to be met. Innovative, unique, or unproved technologies that have relevant application to site problems shall be brought to the attention of the Energy Systems Project Manager.

6.3.1.2 Development of Detailed Alternatives

Detailed alternatives shall be developed from the control measures that passed the screening process. The alternatives shall be described with sufficient detail to apply the evaluation and selection criteria discussed below. The "no action" alternative also shall be developed.

The descriptions of each detailed alternative shall include, at a minimum, identification of technologies incorporated; key design assumptions that will affect performance, implementability, environmental impact, or cost; measures needed to ensure worker safety during implementation; and identification of management methods incorporated, such as land-use controls, right-of-way acquisition, personnel training and supervision, permanent relocations, and coordination with federal, state, and local agencies.

The cost information for each detailed alternative shall include estimates of capital costs, operating and maintenance (O&M) costs, present-worth analysis, and sensitivity analysis.

The Air Force Installation Restoration Program Management Guidance, July 1985, provides information and references from which costing can be derived.

6.3.1.3 Evaluation of Detailed Alternatives

An evaluation of each detailed alternative shall be performed using five criteria: engineering feasibility, cost analysis, public health analysis, environmental assessment, and regulatory requirements.

The Subcontractor shall prepare a narrative matrix that presents the major conclusion of the evaluation of each detailed alternative, including an evaluation of the effectiveness of each. The engineering feasibility criterion shall focus on performance, reliability, and implementability.

When the cost analysis is performed, four types of costs shall be examined: capital costs, O&M costs, best estimates of present worth, and range of present worth calculated from the sensitivity analysis. These costs shall provide the basis for comparing the costs of the detailed alternatives and shall be summarized in a table for each site. All major uncertainties in costs shall be discussed, and recommendations shall be made for dealing with them.

The public health analysis shall focus on three areas: degree of immediate and long-term public health protection, levels at which remedial alternatives reduce adverse long-term effects of residual contamination, and worker health and safety.

The factors to be considered in performing the environmental assessment can be divided into two categories: the "no action" alternative and the detailed alternatives. For the "no action" alternative the environmental assessment shall include determination of the value or uses of the land, water, air, and biotic resources that are, or threaten to become, contaminated; identification and, to the extent practicable, quantification of environmental impacts that exist or are likely to develop; and assessment of the significance of those impacts.

The environmental assessment of the detailed alternatives shall address impacts on public health, water quality, air quality, flora and fauna, socioeconomics, land use, the groundwater flow regime, and cultural resources to the extent that any such impacts distinguish among alternatives or are otherwise significant to the selection of the best alternative. Reasonable means of mitigating adverse impacts shall also be identified.

The Subcontractor shall identify and address any significant adverse environmental impacts associated with implementation of the alternatives under consideration. These impacts shall be included in the detailed evaluation of each alternative or combination of alternatives.

Detailed alternatives shall be reviewed for their level of compliance with standards, regulations, guidances, advisories, and ordinances. The safety and practicability of an alternative shall be reviewed when requirements are not definitive or achievable. The time needed to obtain permits or achieve compliance with standards shall be reviewed for each alternative.

6.3.1.4 Alternatives Evaluation Report

An interim Alternatives Evaluation Report (AE Report) shall be prepared to summarize in the form of a narrative matrix the evaluation of detailed alternatives in terms of each of the evaluation criteria. The report shall include at least a table summarizing the cost analysis for each detailed alternative and the Subcontractor's recommended alternative(s) with supporting rationale.

6.3.1.5 Alternatives Evaluation Report Briefing

Within 2 weeks of delivery of the interim AE Report, the Subcontractor shall brief the NGB and Energy Systems on the AE Report. The objective of this briefing will be to reach a consensus on the alternative(s) on which the FS should focus. Two weeks after the conclusion of this briefing, the Subcontractor shall present a second briefing for regulatory officials to obtain regulatory concurrence.

6.3.2 Description of Selected Alternatives

Having reached a consensus among participants in the FS as to the selection of the alternative(s) that best meet IRP objectives, the Subcontractor shall describe the alternative(s) in detail, including at least the following information: (1) conceptual design drawing(s) of the overall site(s) showing general locations for project actions and facilities; (2) an engineering description, including conceptual design criteria and rationale, of the recommended remedial alternative for each site; (3) an operational description of process units or other facilities; (4) types of equipment required, including approximate capacity, size, and construction materials; (5) unique structural concepts for facilities; (6) a list of additional engineering data required to proceed with design; (7) an estimated volume of materials to be excavated; (8) a preliminary project schedule for completion of the detailed design effort and implementation in the field; (9) a cost analysis, including implementation cost estimates, O&M cost estimates, and duration of operating expenses; and (10) a regulatory compliance analysis, including construction and environmental permit requirements, a description of technical requirements for environmental mitigation measures, right-of-way requirements, and operating permit requirements.

The descriptions shall be comprehensive and of sufficient detail for use as a baseline document for the design and construction of the selected remedial alternative(s).

6.3.3 Environmental Assessment

The Subcontractor shall prepare a stand-alone Environmental Assessment that documents all environmental analyses conducted in support of FS Report preparation. The Environmental Assessment shall include at least summary descriptions of detailed alternatives considered in the FS, the environmental impact analyses for each alternative, and references to all data cited, or the actual data used, in support of the analyses.

6.3.4 Internal Draft Feasibility Study Report

Within 4 weeks of the AE Report regulatory briefing, the Subcontractor shall submit at least 15 copies of an Internal Draft FS Report. The report shall at least include an introduction and reports from Sects. 6.3.1.1-6.3.1.4 and 6.3.2 above. The report format shall be similar to that shown in Table 2.

Within 2 weeks of delivery of the Internal Draft FS Report, the Subcontractor shall attend an Internal Draft FS Report review meeting to be held at the Air National Guard Support Center, Andrews Air Force Base, Washington, D.C.

6.3.5 Draft Feasibility Study Report

Within 4 weeks of the conclusion of the Internal Draft FS Report review meeting, the Subcontractor shall submit at least 15 copies of a Draft FS Report that addresses all comments received at the meeting.

Within 4 weeks of delivery of the Draft FS Report, the Subcontractor shall attend a Draft FS Report review meeting to be held at Duluth ANGB to present the Draft FS Report and receive comments from the NGB, Energy Systems, and regulatory agency officials.

6.3.6 Final Feasibility Study Report

Within 4 weeks of receipt of formal comments from the Draft FS Report review, the Subcontractor shall prepare the Final FS Report, including documentation of any modifications to the Draft FS Report, technical considerations, the responses of the NGB to regulatory agency comments, and either a Record of Decision or a Decision Document.

6.4 TASK 4 - REMEDIAL DESIGN AND TECHNICAL SUPPORT

Following either completion of the FS Report or a decision document with a risk assessment indicating that development of detailed engineering plans and specifications for site remediation should be initiated and upon receipt of approval from the Energy Systems Project Manager, the Subcontractor shall submit a detailed schedule and cost estimate for preparation of the design package. More than one site may be included with each of the design packages.

6.4.1 Remedial Design

The final design package shall include at least engineering drawings and technical specifications, a detailed construction bid-check estimate, health and safety plan requirements, field and analytical QA/QC requirements, identification of all required permits for completing the work, components of the construction bid package required by the Base Contracting Office (provided to the Subcontractor with guidance for its preparation by Base personnel), and a schedule for implementation. The design process shall include provision for at least three design reviews and subsequent revisions before release of the finished documents.

Table 2. Report format for the Feasibility Study Report

Report Cover
Title Page
Disclaimer
Report Documentation Page (including Abstract and a blank page)
Preface
Contents
List of Figures
List of Tables
Summary

I. INTRODUCTION
II. ENVIRONMENTAL SETTING
III. FIELD PROGRAM
IV. DISCUSSION OF RESULTS AND SIGNIFICANCE OF FINDINGS
V. ALTERNATIVE MEASURES
VI. RECOMMENDATIONS

APPENDIXES (when applicable, not necessarily in the following order)
a. Definitions, nomenclature, and units of measurements
b. A copy of the latest task description/SOW
c. Well numbering system
d. U.S. Geological Survey well logs, well completion logs, and geological drilling logs
e. Field raw data
f. Sampling and analytical procedures (including field and laboratory QA/QC plans used for this project); including summary of sampling methods used, detection levels, and holding times must be included in the appendix
g. Chain-of-custody forms
h. Analytical data, including internal QC data (laboratory blanks, spikes, and duplicates) must be included in this appendix
i. Correspondence with federal, state, and/or local regulatory agencies must include the names of all approving state regulatory personnel and dates on which they accepted drilling techniques; well development, purging, and sampling methods; and any other pertinent coordination activities
j. References, including tabulation of reduced data, if any, from previous RI/FS stages
k. Biographies of key personnel
l. Geophysical tracings
m. Technical Operations Plan and Safety Plan (used on this project)

6.4.2 Technical Support During Remediation

To ensure compliance with the design documents and to assist in determining the correct response to unanticipated findings, if any, the Subcontractor shall plan to provide on-site technical support to the Base Contracting Office during the remediation process. This effort shall require at least maintenance of a daily log of events and conditions encountered at the site, submission of periodic progress reports, and preparation of a final report at the conclusion of site activities. The report shall summarize what was done and the results of analyses conducted, and shall include recommendations for the disposition of the site with technical justification. The final report will undergo at least two revisions. Satisfactory conclusion of these activities will be dependent upon receipt of written concurrence to that effect from the Energy Systems Project Manager.

7. MEETINGS

The Subcontractor shall plan to attend the specific meetings outlined above and shall plan supplemental meetings necessary for coordination of project activities. This shall include at least meetings with IRP Technical Review committees, IRP project managers (Energy Systems, Base, and NGB, as appropriate), and regulatory agency representatives. These meetings will be of varying duration and at various locations. Meetings should be outlined in each task WP submitted in support of this SOW.

Within 1 week of meeting completion, the Subcontractor shall be responsible for submitting at least five copies of draft summary minutes of all meetings attended. The minutes shall include at least a summary (not a transcript) of key issues discussed and their disposition, a list of meeting attendees with addresses and telephone numbers, and any other pertinent information discussed at the meeting. Upon approval of this summary, at least 15 copies (total) shall be submitted to persons on a distribution list (also prepared by the Subcontractor during the meeting) approved by the Energy Systems Project Manager.

8. PROGRESS REPORTS

The Subcontractor shall submit to the Energy Systems Project Manager monthly letter reports summarizing contract progress to date. Each report shall address any problems encountered in completing the various tasks and any changes in scope or direction from the original proposal, including schedule impacts. The letter report shall be accompanied by a Contract Management Summary Report (Attachment 1). The actual effort expended vs scheduled levels of effort, planned and actual percent of completion, and planned and actual costs shall be reported on a task order basis by using the format given in Attachments 2 and 3. The monthly progress reports shall be submitted by the seventh working day of each month for the duration of the Task Order.

9. SCHEDULE

The Subcontractor shall provide a detailed schedule of meetings, milestones, and deliverables in the proposal to address this SOW. Upon written request of the Energy Systems Project Manager and at least as a part of each task WP prepared under this task order, the Subcontractor shall update the schedule.

10. SPECIAL CONSIDERATIONS

Initiation of work on each individual task and subtask in response to this SOW must be approved in advance by the Energy Systems Project Manager in coordination with the NGB after the Task Order has been formally executed.

Written responses shall be submitted by the Subcontractor for all written comments generated during the review of project deliverables. Copies of the comment responses shall be provided for all participants in the review process for each particular deliverable.

Draft reports addressed in this SOW are considered "drafts" only in the sense that they have not been reviewed and approved by Energy Systems and the NGB. In all respects, "draft" reports shall be complete, in proper format, and free of grammatical and typographical errors. All draft reports shall be thoroughly screened through in-house peer technical review before being released to Energy Systems and the NGB.

At least three microfiche and one camera-ready copy shall be submitted for all Energy Systems- and NGB-approved final reports prepared in response to this SOW.

All material gathered and/or developed in the performance of the tasks listed in this SOW shall be the property of the NGB and shall not be used or distributed by the Subcontractor without the specific written permission of Energy Systems and the NGB. After completion of the project, all materials shall be returned to Energy Systems, which will return any such documents to the NGB.

Neither the Subcontractor nor the Subcontractor's personnel shall give out any news releases or conduct media interviews concerning the work performed under this SOW. All media inquiries should be directed to the NGB Public Affairs Office, Washington, D.C.

With respect to the performance of all or any portion of the work under the effective interagency agreement, it has been agreed that affiliates of DOE's Operating Contractor (Energy Systems) shall not be restrained or restricted from competing for related follow-on contracts or subcontracts to be awarded by the NGB or Duluth ANGB.

Attachment 1

CONTRACT MANAGEMENT SUMMARY REPORT

1. Contract Identification

2. Reporting Period
through

3. Contract Number

4. Contractor (Name and Address)

5. Contract Start Date

6. Contract Completion Date

7. Months																8. FY

9. Cost Status

a.

($) Cost in thousands

b.

i. Cost Plan Date

j. Planned Costs Prior FSs

k. Actual Costs Prior FYs

l. Total Est'd Costs for Contract

m. Total Contract Value

n. Unfilled Orders Outstanding

o. Estimate for Subsequent Reporting Period

Accrued Costs	c. Planned															
	d. Actual															
	e. Variance															
	f. Cum Planned															
	g. Cum Actual															
	h. Cum Var.															

10. Manpower Status (Direct Labor) -% complete

11. Deliverable/Milestone Status		Status	
		Sched	Act

12. Remarks

Attachment 1 (Continued)

II. Deliverable/Milestone Status (continued)		Status	
		Sched	Act

Attachment 2

EXAMPLE
Task-by-task cost reporting format

PROJECT: XYZ Air National Guard Base Remedial Investigation/Feasibility Study

TASK: Task 1 - (Name)

Period Ending (Date)	Task total Percent complete		Task total Staff-hours		Task total Funds expended	
	Planned (%)	Actual (%)	Planned	Actual	Planned ($)	Actual ($)
Jan 5	51	50	210	229	11,550	12,600
Feb 6	100	100	200	182	11,000	9,500
Mar 6	0		0		0	
Apr 3	0		0		0	

PROJECT: XYZ Air National Guard Base

TASK: Task 2 - (Name)

Period Ending (Date)	Task total Percent complete		Task total Staff-hours		Task total Funds expended	
	Planned (%)	Actual (%)	Planned	Actual	Planned ($)	Actual ($)
Feb 6	39	55	430	440	23,700	24,200
Mar 6	100		685		0	
Apr 3	0		0		0	
May 4	0		0		0	

NOTE: The "planned" columns are to be filled out for the entire project at the beginning of work and reported for the duration of the project. No revisions to these figures are to be made without explicit Company approval, and when made, are to be permanently noted on this form and any necessary attachments. Completed tasks are not to be deleted from the monthly task order reports until all task-related costs have been invoiced.

Attachment 3

Sample format for detailed project schedule

Reporting period: February 198_

Activity/function	Month/task													Project totals	Percent complete	
	January Task 1	February Task 1	February Task 2	March Task 2	April Task 3	May Task 3	June Task 3	July Task 3	August Task 4	September Task 4	October Task 5	November Task 5	December Task 5		Planned	Actual
Project management Names & level/function	20/20	-	30/28	20/	40/	20/	-/	15/	20/	30/	20/	-/	15/	230/		
Project Engineer Names & level/function	50/63	60/51	80/90	80/	120/	90/	80/	40/	80/	40/	80/	80/	60/	940/		
Hydrogeologist Names & level/function	60/65	40/38	90/82	100/	110/	120/	90/	80/	42/	45/	-/	-/	-/	777/		
Geologist Names & level/function	40/38	30/29	60/66	120/	100/	80/	95/	60/	-/	-/	-/	-/	-/	585/		
Sampling & analysis Level/function	-/8	-/0	80/78	160/	80/	110/	115/	100/	-/	-/	-/	-/	-/	645/		
Surveying Level/function	-/	-/	-/	40/	50/	45/	20/	25/	-/	-/	40/	-/	-/	220/		
Technician Level/function	-/	-/	60/68	100/	95/	120/	160/	160/	100/	90/	40/	25/	-/	950/		
Clerical Level/function	40/45	70/64	30/28	65/	40/	55/	60/	80/	-/	50/	20/	35/	80/	625/		
TOTAL HOURS	210/229	200/182	430/440	685/	635/	640/	620/	560/	242/	255/	200/	140/	155/	4975/		
Subcontract costs																
Drilling	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
Analytical	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
TOTAL COSTS	/	/	/	/	/	/	/	/	/	/	/	/	/	/		

NOTE: Monthly progress reports are to show scheduled vs actual (i. e., scheduled/actual) hours and costs.

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APPENDIX C
TABLE OF CONTENTS

APPENDIX C
PROJECT TEAM BIOGRAPHICAL SUMMARIES

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SECTION C.1
INTRODUCTION

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SECTION C.1
INTRODUCTION

The biographical data for the ES project team members are presented in this Appendix. These individuals and their responsibilities are as follows:

Boline, Duane R. - Quality Assurance Manager
Davis, Kimberly L. - Risk Assessment
Grunwald, Edward L. - Project Health and Safety Officer
Hardeman, John D. - Field Team Leader
Hayden, William F. - Deputy Project Manager
McLeod, Robert S. - Project Manager
Riemersma, Peter E. - Project Hydrogeologist
Roddy, Michael S. - Project Hydrogeologist
Sargent, Thomas N. - Principal in Charge
Schultz, Sharon A. - Water Sampling Supervisor
Shangraw, Timothy C. - Soil Gas Survey Supervisor
Sherwin, Jo Ann - Senior Geologist
Thoem, Robert L. - Program Technical Director

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SECTION C.2
PROJECT TEAM BIOGRAPHICAL SUMMARIES

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Biographical Data

DUANE R. BOLINE, PH.D

ES Laboratory Program Manager

EXPERIENCE SUMMARY

Dr. Boline has six years of project and laboratory management experience and 10 years of academic research. He has experience in all aspects of environmental chemical analysis for organic and inorganic parameters. His primary area of technical expertise is the determination of heavy metals by atomic spectroscopy methods. Dr. Boline has managed major laboratory projects for commercial clients and governmental agencies including the EPA and the National Toxicology Program as well as the U.S. Air Force. Dr. Boline is also familiar with the chain of custody requirements, sample handling and presentation, data and recordkeeping and reporting procedures required for legally acceptable laboratory analyses. He has prepared quality assurance project plans for several hazardous waste site investigations and site monitoring projects. Dr. Boline has assisted in the preparation of the QA/QC plans for the sampling and analysis methods for the remedial work and Health and Safety Plans at many Air Force bases.

EXPERIENCE RECORD

1985-Date	Engineering-Science, inc.
1981-1984	Radian Corporation
1969-1980	College Professor
1962-1968	Secondary School Teacher

EDUCATION

B.S. in Physical Science, 1962, Emporia State University
M.S. in Chemistry, 1965, Emporia State University
PhD. in Analytical Chemistry, 1975, Kansas State University

PROFESSIONAL AFFILIATIONS

American Chemical Society
Society for Applied Spectroscopy

PUBLICATIONS

Dr. Boline has authored four publications.

Biographical Data

KIMBERLY L. DAVIS, E.I.T.

Environmental Engineer

EXPERIENCE SUMMARY

Ms. Davis has three years experience in hazardous waste management, regulatory compliance and biological treatment studies.

She participated in a RI/FS at Duluth Air National Guard Base in Minnesota, which included preparation of project and remedial investigation work plans, Feasibility Studies and health risk assessment. Field effort involved soil and water quality sampling.

While employed at Bechtel, Ms. Davis was responsible for maintaining regulatory compliance for the Department of Energy's Formerly Utilized Site Remedial Action Program. She also oversaw the renewal of a site-wide NPDES permit for Savannah River Plant in South Carolina.

As a research assistant at Clemson University, Ms. Davis conducted thesis research involving the modelling of the fate of a priority pollutant under varying environment conditions within a biological continuous flow system.

EXPERIENCE RECORD

1988-Date	Engineering-Science, Inc.
1986-1988	Bechtel Environment, Inc.

EDUCATION

B.S. in Chemical Engineering, 1984, Clemson University
M.S. in Environmental Engineering,1988 Clemson University

PROFESSIONAL AFFILIATIONS

Engineer-in-Training (South Carolina No. 7509)
American Institute of Chemical Engineers
Air Pollution Control Association
Water Pollution Control Federation

PUBLICATIONS

Ms. Davis completed a thesis as a partial requirement for a M.S. Degree, entitled "Dynamics of Lysine and 2-Chlorophenol Removal by Two-Membered Continuous Cultures of Bacteria."

Biographical Data

EDWARD L. GRUNWALD

Health and Safety

EXPERIENCE SUMMARY

Mr. Grunwald has extensive experience in the development and management of Safety and Quality Assurance Programs. He presently serves as Corporate Health and Safety Manager for Engineering-Science, Inc. Mr. Grunwald has developed training programs and has standardized health and safety procedures throughout the company and supervises all regional, office, and project health and safety officers.

He worked as a member of a multidisciplinary field investigation team (FIT) under contract with the U.S. Environmental Protection Agency (EPA) and developed the Health and Safety Standard Operation Procedures for the EPA's FIT office.

As a Quality Assurance Manager for the EPA Region IV FIT office he developed quality assurance/control standard operating procedures. Mr. Grunwald was a Project Manager for investigation of eight CERCLA sites under contract with EPA Region IV. All sites were ranked utilizing the Hazardous Ranking System.

EXPERIENCE RECORD

1985-Date	Engineering-Science, Inc.
1983-1985	NUS Corporation
1982-1983	John Hopkins

EDUCATION

B.S. in Bacteriology, 1978, Ohio Wesleyan University

M.S. in Public Health (Toxicology Specialization), 1982, University of Massachusetts

PROFESSIONAL AFFILIATIONS

Society of Environmental Toxicology and Chemistry

American industrial Hygiene Association

PUBLICATIONS

Health and Safety consideration for Hazardous Waste operations presented before Region IV EPA and State Officials.

Presentation before the Arizona Society of Safety Engineers concerning Safety consideration of underground storage tank investigations.

Biographical Data

JOHN D. HARDEMAN, P.G.

Field Team Leader

EXPERIENCE SUMMARY

Mr. Hardeman has been responsible for collection and reduction of data for contamination assessment and remedial design at hazardous waste sites for three years. Representative experience includes the following:

Project Manager and Hydrogeologist for the remedial investigation project at McConnell Air Force Base, Kansas, for the Hazardous Waste Remedial Action Program (HAZWRAP). Responsibilities included design of RI Program.

Project Manager and Hydrogeologist for the USAF, Installation Restoration Program (IRP) Phase II, Stage 2 and Stage 3 work at Eglin Air Force Base, Florida. Responsibilities for Phase II, Stage 2 program included project management, supervision of field investigation data analysis and evaluation, and report preparation.

Hydrogeologist for USAF IRP, Phase II investigation at March AFB, California. Responsibilities included the supervision of well installation, soil gas surveys, aquifer testing, groundwater and soil sampling, data analysis and evaluation and report preparation.

Hydrogeologist for groundwater assessment programs for six oil and gas terminals in central and western Pennsylvania, an oil recycling facility in Atlanta, Georgia, and a battery recycling facility in Birmingham, Alabama.

EXPERIENCE RECORD

1986-Date	Engineering-Science, Inc.
1982-1985	Geological Consultants, Inc.
1977-1982	Tenkiller Mining Services, Inc.
1976-1977	M.M. Pitts & Company, Inc.
1976-1976	Howard Schoenike and Associates

EDUCATION

B.S. in Geology, Georgia State University, 1975, Atlanta,

PROFESSIONAL AFFILIATIONS

Registered Geologist: Georgia, North Carolina and South Carolina.

Biological Data

WILLIAM F. HAYDEN

Chemical Engineer

EXPERIENCE SUMMARY

Over 39 years experience in the chemical industry in various functions including plant management with recent experience in design of water pollution control equipment, systems engineering, risk assessment, and project management.

Mr. Hayden was Project Manager for the design of a biological process for a DOE plant at Fernald, Ohio. He was Project Manager for the design of dissolved air flotation systems for Carborundum's Pollution Control Division. He also provided consultant services for a dry flue gas desulfurization process at a coal-fired power plant in North Dakota and most recently, was Deputy Project Manager for Remedial Investigation and Feasibility at Duluth, Minnesota Air National Guard Base.

EXPERIENCE RECORD

1988-Date	Engineering-Science, Inc.
1985-1987	Lockwood-Greene Engineering, Inc.
1978-1985	Daniel, Mann, Johnson, and Mendenhall
1977-1978	Carborundum Company, Pollution Control Division
1975-1976	Riverside Chemical Company
1968-1975	Buckman Laboratories, Inc.
1949-1968	EI duPont deNemours

EDUCATION

B.S. in Chemical Engineering, 1948, Bucknell University
M.S. in Chemical Engineering, 1949, Bucknell University

PROFESSIONAL AFFILIATIONS

American Chemical Society
American Institute of Chemical Engineers
Project Management Institute
Honorary Mathematics Fraternity

PUBLICATIONS

"Mechanism of Liquid-Liquid Solvent Extraction" Master's Thesis, Bucknell University.

Biographical Data

ROBERT S. MCLEOD, P.E., P.G.

Civil Engineer and Geologist

EXPERIENCE SUMMARY

Mr. McLeod has more than 26 years of experience in ground water and surface water hydrology. He has served as project manager on various ground water studies and on studies involving remedial investigations (RI), feasibility studies (FS) and remedial design (RD) at hazardous waste facilities. His recent experience includes RI/FS/RD related studies for Principal Responsible Parties (PRP's) and for the Department of Defense at National Priority List (NPL) sites and non-NPL sites. Mr. McLeod is currently manager of the Engineering-Science, Oak Ridge Operations Office.

EXPERIENCE RECORD

1982-Date	Engineering-Science, Inc.
1980-1982	Law Engineering Testing Company
1964-1980	U.S. Geological Survey, Water Resources Division
1961-1964	U.S. Army Corps of Engineers

EDUCATION

B.S. in Civil Engineering, 1962, University of Illinois

M.S. in Civil Engineering, 1965, University of Wisconsin

Full -time advanced graduate studies in hydrogeology, 1966-1967 and 1969-70, University of Wisconsin

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer, Georgia and Tennessee

Registered Professional Geologist, North Carolina and Tennessee

Certified Ground Water Professional, Association of Ground Water Scientists and Engineers

Certified Professional Ground Water Hydrologist, American Institute of Hydrology

PUBLICATIONS

Mr. McLeod authored four publications while with the U.S. Geological Survey, has authored numerous consulting engineering reports, has published in proceedings of the Hazardous Materials Control Research Institute and is an alternate reviewer for Ground Water magazine.

Biographical Data

PETER E. RIEMERSMA

Hydrogeologist

EXPERIENCE SUMMARY

Field experience in collection and interpretation of hydrogeological data. Experience in the evaluation of technical and business proposals for remedial investigations and feasibility studies at hazardous waste sites. Technical training includes course work in geochemistry, ground water and hazardous waste management.

EXPERIENCE RECORD

1988-Date	Engineering-Science, Inc.
1987-1988	Martin Marietta Energy Systems, Inc.
1987-1987	University of Utah
1985-1987	Petroleum Investment

EDUCATION

B.S. in Geology, 1984, University of Michigan.
M.S. in Geology, Expected March 1989, University of Utah.

PROFESSIONAL AFFILIATIONS

National Water Well Association
East Tennessee Geological Society

PUBLICATIONS

"Shelf and Basinal Facies of the Lower Ferron Sandstone, East-Central Utah," presented at the SEPM Midyear Meeting, October 1986.

Biographical Data

MICHAEL S. RODDY

Hydrogeologist

EXPERIENCE SUMMARY

While with Engineering Science, Mr. Roddy has been involved in field investigations and data interpretation of field results. During field investigations, he was involved in the installation of monitoring wells, core description, soil and ground-water sampling, streamflow measurements, and ground- water level measurements. He has interpreted slug test data, constructed ground water contour maps, and evaluated chemical data to determine extent, transport and fate of contaminants.

Mr. Roddy has conducted soil gas and ground-water investigations at numerous hazardous waste sites around the United States. He collected and analyzed soil gas and ground-water samples for volatile organic contaminants using gas chromatography. He interpreted the chemical data from soil gas and ground-water investigations to define the source and extent of contamination.

Mr. Roddy has conducted research involving basin brine-rock reactions, mineral stability, and metal solubilities and transport in solution. He performed geochemical sampling and evaluated geochemical data for scientific and economic implications. From experience and studies, he is familiar with several methods used for trace and major element metals analysis.

EXPERIENCE RECORD

1988-Date	Engineering Science
1987-1988	Tracer Research Corporation
1986-1987	Arizona Bureau of Geology and Mineral Technology
1983-1985	Graduate Assistant, University of Arizona

EDUCATION

B.A. in Geology, 1983, University of Tennessee
M.S. in Geosciences, 1986, University of Arizona

PROFESSIONAL AFFILIATIONS

Registered Professional Geologist, Tennessee

PUBLICATIONS

Mr. Roddy has four publications with the Arizona Geological Survey and a paper entitled "K-Metasomatism and Detachment-Related Mineralization, Harcuvar Mountains" in GSA Bulletin (1988).

Biographical Data

THOMAS N. SARGENT

Principal in Charge

EXPERIENCE SUMMARY

Mr. Sargent has over twenty years of experience in environmental engineering. Mr. Sargent, while with EPA, developed and administered a multi-disciplinary program for multi-media treatment of a variety of industrial wastes. His subsequent responsibilities included the position of Branch Chief in EPA's newly formed Industrial Environmental Research Laboratory. Mr. Sargent's responsibilities with ES have included Project Manager, Project Director, Technical Director and Corporate Vice President.

Technical Director for ES's involvement in the USAF Installation Restoration Program (IRP), activities (Phase I) conducted at over eighty USAF installations.

Program Manager and Technical Advisory Committee on USAF IRP Phase II projects. and Project Director for USAF IRP Phase IV projects.

Principal-in-Charge of Remedial Investigations at EPA Superfund clean-up sites in numerous states including Illinois, Florida, Louisiana and New York.

EXPERIENCE RECORD

1977-Date	Engineering-Science, Inc.
1969-1976	U.S. Environmental Protection Agency
1967-1969	Howard K. Bell, Consulting Engineers

EDUCATION

B.S. in Civil Engineering, 1967, University of Kentucky
M.S., Civil Engineering, 1968, University of Kentucky

PROFESSIONAL AFFILIATIONS

Diplomate, American Academy of Environmental Engineers
Registered Professional Engineer (Georgia, D.C.)
Society of American Military Engineers (Past Post Director)
Water Pollution Control Federation
FWPCA Water Pollution Traineeship

PUBLICATIONS

More than twenty five publications concerning environmental control technologies.

Biographical Data

SHARON A. SHULTZ

Environmental Scientist

EXPERIENCE SUMMARY

Extensive environmental sampling experience during eight years of professional practice. Considerable experience in surface geophysical surveys, soil boring programs and computerization of environmental data. Specialized experience in planning and execution of field sampling programs and in laboratory analytical techniques.

EXPERIENCE RECORD

1984-Date	Engineering-Science, Inc.
1984-1984	Applied Biology, Inc.
1983-1984	Claude Terry & Associates, Inc.
1980-1983	Applied Biology, Inc.
1980-1980	Mangrove Planting Crew
1979-1979	Applied Biology, Inc.
1978-1978	Florida Institue of Technology

EDUCATION

A.S. in Environmental Technology, 1980, Florida Institute of Technology.

Biographical Data

TIMOTHY C. SHANGRAW

Water Resource Engineer

EXPERIENCE SUMMARY

Extensive ground and surface water experience relevant to hazardous waste management, mining, and environmental studies. Direct responsibility for hydrogeologic investigations, RCRA compliance, risk assessments and corrective action evaluations in the western United States.

EXPERIENCE RECORD

1984-Date	Engineering-Science, Inc.
1983-1983	Law Engineering Testing Company
1980-1983	D'Appolonia Consulting Engineers
1979-1980	Cyprus Mines Corporation

EDUCATION

B.S. in Civil Engineering, 1977, Southeastern Massachusetts University
M.S. in Civil Engineering, 1979, University of Colorado

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer in Colorado
National Water Well Association
Colorado Ground Water Association
Colorado Association of Commerce and Industry
Colorado Hazardous Waste Management Society
International Mine Water Association

Biographical Data

JO-ANN SHERWIN, PH.D., P.G.

Geologist

EXPERIENCE SUMMARY

Dr. Sherwin has 20 years of experience as a practicing geologist. Her background ranges from academic research to field exploration and includes seven years in academia, eight years in private industry and four years with the federal government. She has managed large field-oriented multi-discipline project teams for both the government and private industry. She most recently has been involved in Remedial Investigations, Feasibility Studies and Remedial Design Work for hazardous waste sites.

EXPERIENCE RECORD

1988-Date	Engineering-Science, Inc.
1984-1988	U.S. Department of Energy
1978-1983	Mobil Oil Corporation
1976-1978	A. T. Massey Coal Co., Inc.
1969-1976	Wright State University

EDUCATION

B.A. in Geology, 1960, Brown University
M.Sc.in Geology, 1966, Brown University
Ph.D.in Geology, 1972, Brown University

PROFESSIONAL AFFILIATIONS

Registered Professional Geologist, Florida and Tennessee
American Institute of Professional Geologists
Society of Economic Geologists
Association of Woman Geoscientists
AGID - The Geological Association for International Development

PUBLICATIONS

Dr. Sherwin has authored several publications which have appeared in internationally recognized journals. She has given presentations at meetings of the American Chemical Society and the Geological Society of America. She has authored numerous reports including seven Environmental Assessments. She was elected to membership in Sigma Xi, the national scientific honorary society.

Biographical Data

ROBERT L. THOEM

Technical Director

EXPERIENCE SUMMARY

Mr. Thoem has twenty five years of environmental engineering experience. His experience includes managing many large multi-discipline project teams. Mr. Thoem served in technical and managerial positions at Stanley Consultants. At Engineering-Science (ES) he has had Project Manager and Department Manager responsilbilities.

Program Coordinator for ES on the current three-year contract with Martin Marietta Energy Systems on the Hazardous Waste Remedial Action Program (HAZWRAP). This has included coordinating task orders for twelve simultaneous USAF and ANG RI/FS projects. Mr. Thoem is also the Project Manager for one RI/FS task order and serves as a Technical Reviewer on all others.

Project Manager on fifteen USAF Phase I IRP projects which dealt with thirty one active installations. Project Manager for five industrial hazardous waste SI/RI/FS projects, including one NPL site. Project Manager for two hazardous waste remedial design projects.

EXPERIENCE RECORD

1983-Date	Engineering Science
1966-1983	Stanley Consultants
1962-1965	U.S. Public Health Service

EDUCATION

B.S. in Civil Engineering, 1962, Iowa State University
M.S. in Sanitary Engineering, 1967, Rutgers University

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer (Iowa, Illinois, Georgia, Alabama, South Carolina)
American Academy of Environmental Engineering (Diplomate)
American Society of Civil Engineers (Fellow)
National Society of Professional Engineers (Member)
Water Pollution Control Federation (Member)

PUBLICATIONS

Thirteen presentations and/or papers in technical publications dealing with environmental projects and project cost evaluations.

End of Appendix C.

APPENDIX D
PROCEDURES AND TEST METHODS

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APPENDIX D
TABLE OF CONTENTS

APPENDIX D (continued)
TABLE OF CONTENTS

APPENDIX D
LIST OF FIGURES

APPENDIX D
LIST OF TABLES

SECTION D.1
INTRODUCTION

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SECTION D.1
INTRODUCTION

This appendix describes the procedures used in the field work done at the Minnesota Air National Guard Base, Duluth, Minnesota which was performed as part of the Remedial Investigation. The procedures for the chemical analyses performed at the laboratory are not included. The chemical analyses are discussed in detail in Appendix M.

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SECTION D.2
BOREHOLE DRILLING AND WELL CONSTRUCTION PROCEDURES

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SECTION D.2

BOREHOLE DRILLING AND WELL CONSTRUCTION PROCEDURES

This section contains descriptions of the field methods used for drilling, plugging, and abandoning boreholes, construction of monitoring wells, installation of well points and surface finishing of monitoring wells and well points. Monitoring well development procedures are described in Section D.3.

D.2.1 Drilling Procedures

Proposed well locations were staked in the field according to the Remedial Investigation Work Plan and were inspected by Air National Guard personnel in order to avoid damage to buried utilities. A Rotasonic drill rig was used to drill all but three of the deep boreholes for soil sampling, monitoring well construction and well point installation. Two deep boreholes for soil sampling and one borehole for well point installation were drilled using a hollow stem auger drill.

The drill rigs were decontaminated prior to initial use and before a move to a different site. Drill rigs were not decontaminated between borehole locations at the same site. The decontamination procedure used was:

Step 1: Steam clean with potable water.
Step 2: Steam clean with a non-phosphate detergent such as Liquinox.
Step 3: Steam clean with potable water.
Step 4: Allow to air dry.

During all drilling operations, a portable photoionization detector was used to monitor the breathing zone for organic vapors to determine the need for respiratory protection.

The drill pipe was decontaminated prior to drilling each borehole using the following procedure:

Step 1: Steam clean with a non-phosphate detergent such as Liquinox.
Step 2: Steam clean with potable water.
Step 3: Rinse with laboratory grade methanol such as Optima.
Step 4: Rinse with deionized analyte-free water such as HPLC grade water.
Step 5: Allow to air dry.
Step 6: Wrap in clean plastic.

D.2.1.1 Hollow Stem Auger Drilling Procedure Hollow stem auger drilling involved advancement of the borehole by a nominal six-inch internal diameter, continuous flight hollow-stem auger. Continuous soil samples were collected in advance of the hollow stem auger by a 24-inch split spoon sampler. The number of blows necessary for the sampler to penetrate 24 inches of soil during each sampling event was recorded. The sampler was driven with blows of a 140-pound hammer falling 30 inches.

Two soil sample boreholes, DANGB-2-BH1 and DANGB-2-BH2, were drilled using an auger drill rig and sampled continuously with a two-foot split-spoon sampler. Each split-spoon sample was numbered consecutively to the total depth of the hole. Samples were picked for analysis on the basis of high HNu readings and also to obtain representative samples of the entire hole, without over-sampling any particular depth, stratigraphic level or location.

Problems encountered with hollow stem auger drilling include poor soil recovery and auger refusal due to cobbles and boulders within the glacial till.

D.2.1.2 "Rotasonic" Drilling Procedure The Rotasonic drilling system uses a uniquely designed drill head which oscillates the drill pipe and imparts a vibrating resonance focused at the bit (see Figure D-1). Dual vibrational and rotational actions at the circular cutting edges of the drill bit provide continuous and relatively undisturbed cores of soil and bedrock.

The Rotasonic rig used a four-inch diameter inner core barrel drill pipe and a six-inch inner diameter outer drill casing. The inner core barrel was advanced in five or ten-foot sections. The core barrel was then detached from the drill head, sealed and left in the ground. The outer drill casing was then advanced to just above the base of the core barrel. The outer drill casing was advanced while using clean potable water to wash the cuttings from the annulus between the core barrel and outer casing. The cuttings were flushed along the outside of the outer casing and deposited on the ground surface. The inner core barrel was then removed and a clean core was retrieved by extruding the core into plastic sleeves. A clean decontaminated core barrel was placed into the borehole to collect another soil sample. This process was repeated until the desired borehole depth was achieved. The outer casing was left in the borehole until construction of the

Figure D-1 Rotasonic Drill Rig System

monitoring well. As well construction materials were placed in the annulus between the well casing and the borehole, the outer casing was gradually removed.

The Rotasonic technique had a superior drilling rate, was able to drill through boulders and cobbles and produced a clean vertical cased borehole during installation of the well.

D.2.2 Monitoring Well Construction

Each monitoring well was constructed of two-inch diameter Schedule 5S Type 304 stainless steel casing and screen with a bottom cap and a threaded and vented well head cap, as shown in Figure D-2. The screens were wire-wrapped Johnson Well Screens with threaded flush joint connections and a slot size of 0.010 inch. The screen length was 10 feet. Stabilizers were constructed of stainless steel strapping and hose connectors. Two stabilizers were used in each well to center the well casing. The casing, screen and stabilizers were decontaminated in the same manner as the drilling pipe prior to placement in the borehole (see Section D.2.1).

The amount of well construction materials used varied from well to well. The exact description of a particular well is given in Appendix F, Well Construction Records. A general description of the well construction follows.

The annular space between the well casing and the borehole was sandpacked from two feet below to three feet above the top of the screen by the tremie pipe method using washed and bagged silica sand of a 20-40 mesh grain size. Bentonite pellets and then a bentonite slurry were placed into the borehole from the top of the sandpack to the land surface. If the water table was less than ten feet below the land surface, the top of the well screen was placed at a minimum depth of two feet and the sand pack was extended to the land surface.

Wells were completed by finishing the casing approximately 2 1/2 feet above the top of the borehole. A six-inch diameter protective steel riser pipe was set around the well casing. The protective steel riser pipe extended below ground to a depth which depended upon the depth of the ground-water table. It is specified for each well in Appendix F, Well Construction Records. Additional finishing is given in Section D.2.4, Well Finishing.

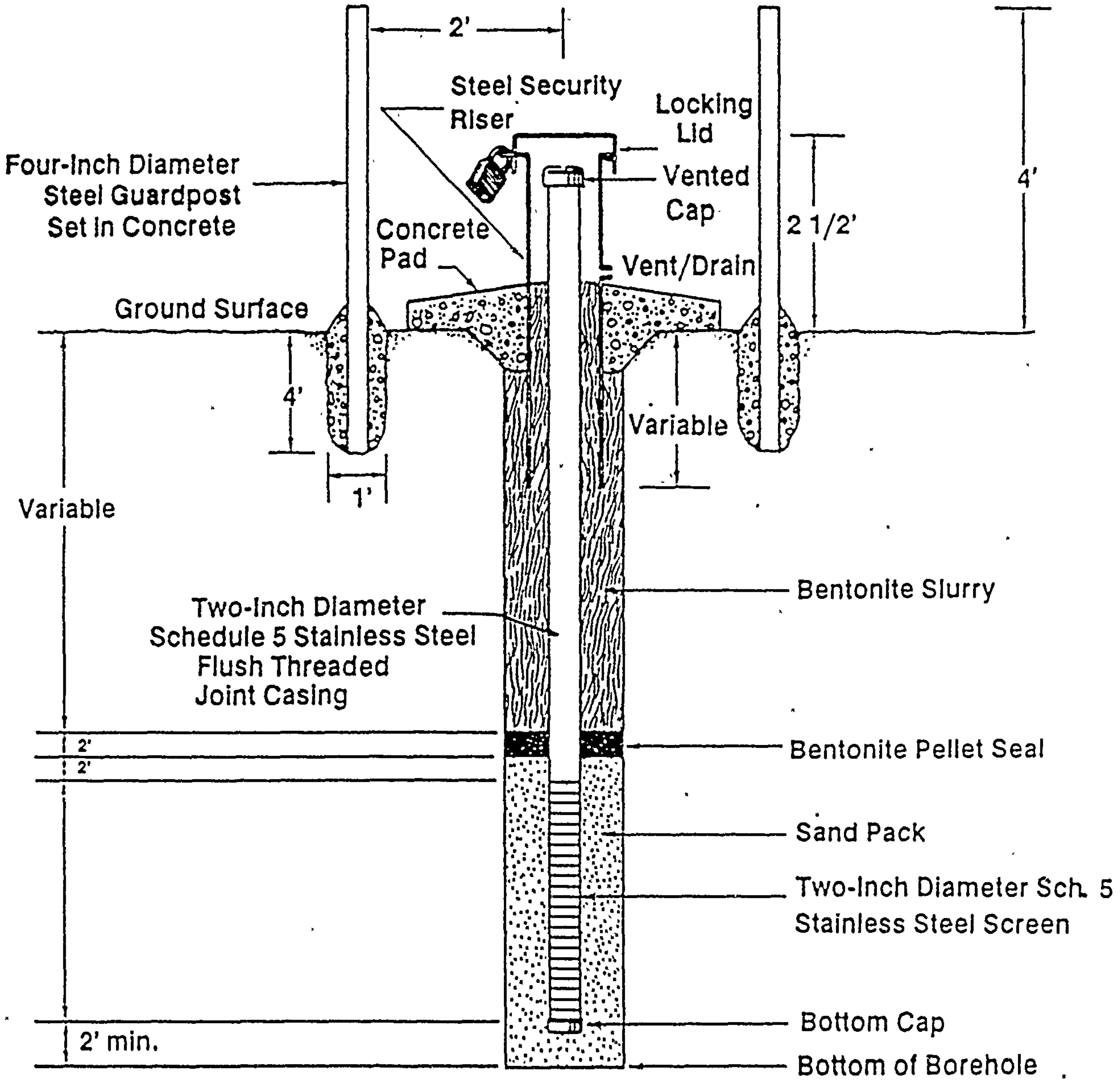

Figure D-2 Typical Monitoring Well Construction.

D.2.3 Well Point Installation

Each well point was constructed of one and one-quarter inch diameter PVC pipe which was pointed at the base, and had a non-threaded, vented, PVC slip cap as shown in Figure D-3. The screens were made of PVC with a slot size of 0.010 inch and were five feet long.

The amount and type of well construction materials that were used varied from well to well. The exact description of a particular well is given in Appendix F, Well Construction Records. A general description of the well construction follows.

The annular space between the well casing and the borehole was sandpacked from two feet below to three feet above the top of the screen by the tremie pipe method using washed and bagged silica sand of 20-40 mesh size. Bentonite pellets and then a bentonite slurry was then placed into the borehole from the top of the sandpack to the land surface.

Wells were completed by finishing the casing 2 1/2 feet above the top of the borehole. A four-inch diameter protective steel riser pipe was set around the well casing. The protective steel riser pipe extended below ground to a depth which depended upon the depth of the ground-water table. It is specified for each well in Appendix F, Well Construction Records. Additional finishing is given in Section D.2.4 Well Finishing.

D.2.4 Well Finishing

All wells were finished in accordance with the State of Minnesota Chapter 4725 Department of Health, Water Well Construction Code.

Boreholes drilled for soil samples, and boreholes drilled for, but not constructed as monitoring wells, were finished by plugging from the bottom to the top with cement grout using a tremie pipe.

Both the monitoring wells and the well points were finished as follows. The protective riser pipe was held in place by a three-foot square concrete pad that was sloped to aid in runoff. Bentonite was placed into the annulus between the protective riser and the well casing to a level several inches above the concrete pad. A weep hole was drilled into the protective riser just above the bentonite filled annulus. All risers were painted brown with paint supplied by the Air National Guard and locked with brass locks, all keyed the same. The well number was permanently welded on the lockable

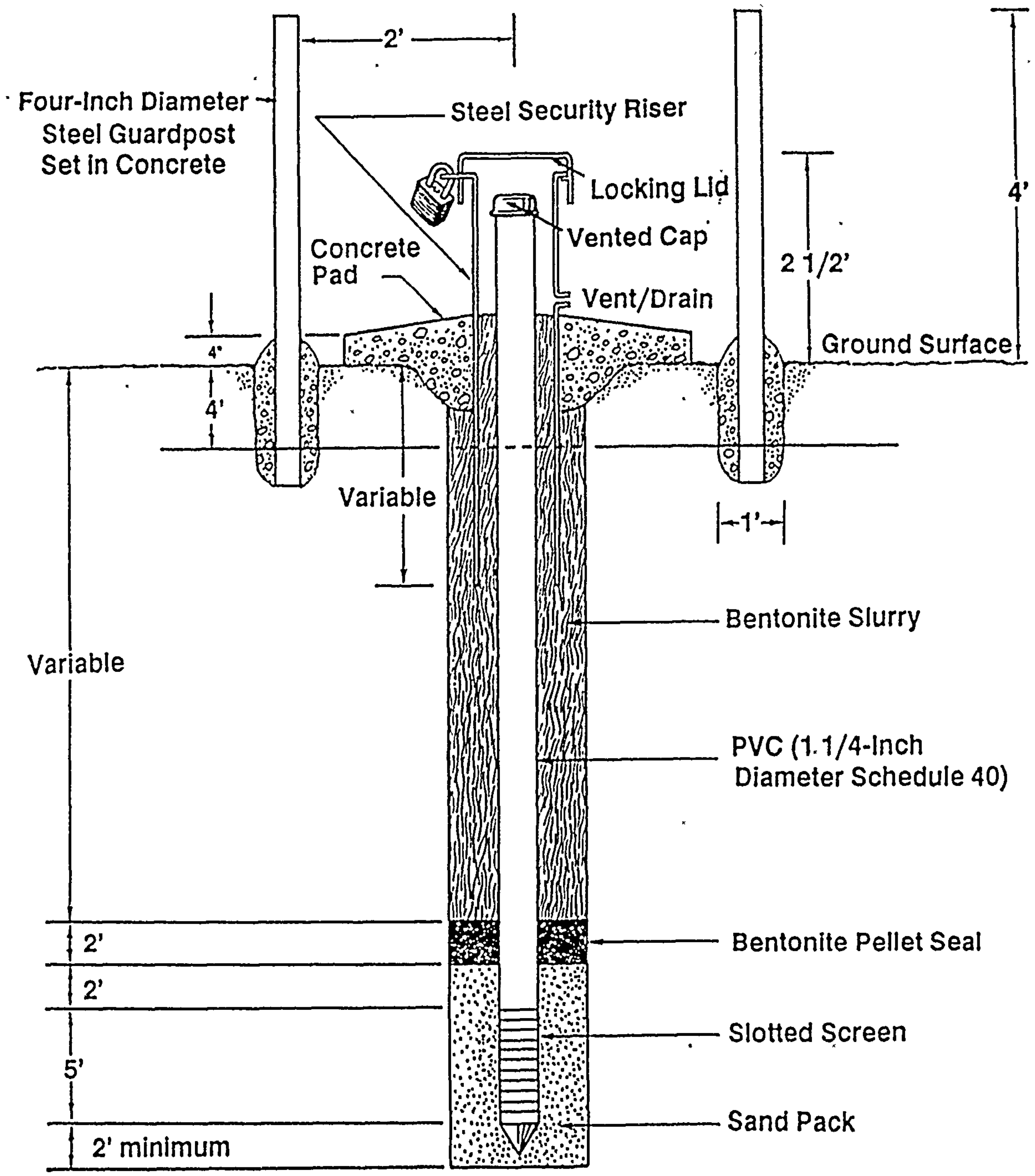

Figure D-3 Typical Well Point Construction.

cap, and stamped into a brass surveying marker imbedded in the concrete base of the well.

Each single well was surrounded by four, and each pair of wells was surrounded by six, ten-foot long, four-inch diameter cement filled steel posts which were buried six feet in the ground.

SECTION D.3
MONITORING WELL DEVELOPMENT PROCEDURES

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SECTION D.3
MONITORING WELL DEVELOPMENT PROCEDURES

Monitoring wells were developed by pumping, taking a sample, recording the clarity, temperature, and pH of the sample, and comparing the measurements, for the same well. When parametric values did not vary between samples, well development was ended.

A few wells were developed with an electric pump. These wells were the deeper ones at Sites 8 and 4 where there was sufficient recharge to the well to permit it. The rest of the wells were developed with hand pumps.

The hand pumps were constructed from white PVC pipe. The hand pumps and all pipe inserted into the well was decontaminated prior to its use on a well.

Some wells were flushed with potable water either before or during development in order to decrease development time. The wells that were flushed were pumped until the temperature indicated that all introduced water was removed.

Most wells had to be developed for four hours; two wells were developed for almost a day. In general, the shallower the well, the more difficult it was to obtain a clear sample.

All well development records are in Appendix Q.3.

All development water was collected in barrels, which were marked and left at the well location.

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SECTION D.4
SLUG TEST PROCEDURES

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SECTION D.4
SLUG TEST PROCEDURES

The equipment used for the slug tests was a Hermit Environmental Data Logger, in Site, Inc., Model SE 1000B, Serial Number 1KB-464. Either of two slugs were used; both slugs were 1.2" in diameter and of variable length. The length of the slug depended upon the volume of water in the well.

The procedure used is an ES Field Procedure. Slugs were decontaminated as specified in the RI Work Plan, Appendix B, pages 6-10 (ES, 1988) prior to testing each individual well.

The slug test method for determining aquifer parametric values is described in Appendix G.2.

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SECTION D.5
WATER LEVEL MEASUREMENT PROCEDURE

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SECTION D.5
WATER LEVEL MEASUREMENT PROCEDURE

Equipment used to take water level measurements were an HNu portable phoionization detector, a water level indicator calibrated to one foot increments, and a Teflon-coated steel retractable measuring tape calibrated to 0.01 foot.

Immediately after removing the inner cap attached to the well head, the well head space was scanned for organic vapors, using the HNu detector. This reading was noted in the field notebook. The water level indicator wire and probe was lowered into the well until the buzzer sounded. After determining the exact length of wire needed to activate the buzzer, which indicated the air/water interface of the well, the distance from the water surface to the top of casing of the well (TOC) was noted on the water level indicator wire with a thumbnail. The distance from the thumbnail to the nearest one-foot increment mark on the water level indicator's wire was measured with the retractable tape in order to obtain accuracy to 0.01 foot.

The water level indicator was decontaminated before starting and between each measurement by a methanol rinse followed by a deionized water rinse.

During the first set of water level measurements, it was necessary to determine the total well depth of previously constructed monitoring wells. In order to do this, the water level indicator was turned off and the probe was allowed to drop until the bottom of well was detected gravimetrically. Again, this distance to TOC was noted visually on the wire, held with a thumbnail, and then measured to the nearest 0.01 foot using the tape measure.

After these measurements were completed, the well head cap was replaced, the protective outer casing was locked, and the water level indicator wire and probe were decontaminated.

During the first round of water level measurements, a record of the condition of previously constructed monitoring wells was established by measuring: (1) the distance from the top of the well head to the top of the outer protective steel casing (TOSC); and (2) the distance from the ground to TOSC. The thickness of the concrete pad, if one existed, and the distance, if any, between the bottom of the concrete pad and the ground surface were also measured. The general condition of the well was noted.

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SECTION D.6
SOIL, GROUND WATER, SURFACE WATER AND SEDIMENT SAMPLING PROCEDURES

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SECTION D.6
SOIL, GROUND WATER, SURFACE WATER AND SEDIMENT SAMPLING PROCEDURES

The locations, quantities and types of samples taken during the course of the Remedial Investigation are described in Section 2 of this report.

D.6.1 Standard Decontamination Procedures

A standard decontamination procedure was used. It consisted of the following steps.

1. Wash and scrub with a non-phosphate detergent such as Liquinox.
2. Rinse with potable water.
3. Rinse with laboratory grade methanol such as Optima.
4. Rinse with deionized analyte-free water such as HPLC grade water.
5. Allow to air dry.
6. Wrap in aluminum foil with the shiny side out.

D.6.2 Soil Samples

Soil samples were collected at various locations and depths and for purposes described in the RI Work Plan and in Section 2.

Soil samples were collected for chemical analyses and for grain size analyses.

D.6.2.1 Collection Procedures Soil samples were collected from holes made specifically for soil sample collection. These were shallow augured holes, deep augured holes and deep boreholes.

All in-ground tools, including augers, fence-post diggers, split-spoons, and drill rod were decontaminated between collection of samples using Standard Decontamination Procedures.

Samples from shallow auger holes were only obtained from Site 8.

These samples were obtained with a fence-post digger after a power auger was used to reach a depth of at least 1.5 feet.

Soil samples from shallow holes dug with a hand-operated fence-post digger were obtained from Site 3.

Soil samples from deep augered holes were only obtained from Site 2. An auger drill rig was used at the start of the field program. Only holes

DANGB-2-BH1 and DANGB-2-BH2 were drilled with an auger drill rig and a split-spoon to obtain samples. Location DANGB-2-WP6 was also drilled using an auger rig, but a well point was installed at this location. Soil samples were not obtained from well point locations.

Locations DANGB-2-BH1 and DANGB-2-BH2 were drilled specifically for soil samples and a split-spoon sample was obtained every 2 feet to a total depth of 25 feet.

In order to correct information loss due to analytical delays, these two holes were redrilled using the "Rotasonic" drill rig, and samples were selected from the continuous cores at two-foot intervals.

Soil samples were also obtained from boreholes drilled for construction of monitoring wells. Three samples were collected, one from the surface, one from the water table, and one from just above the bedrock surface. In instances when two boreholes were drilled next to each other for construction of a pair of shallow and deep monitoring wells, soil samples were collected only from the deep boreholes.

Soil samples to be used for grain size analysis were collected from one borehole drilled for construction of a monitoring well at each site. A sample was collected from an interval which bracketed the screened interval. Samples were selected to represent each different lithology as determined by visual observation.

To determine the presence of volatile compounds a portable HNu meter was used to scan the continuous core through slits in the plastic sleeve before the core was exposed to the air. Shallow soil sampling holes were scraped and scanned with an HNu meter before the holes were refilled.

D.6.2.2 Preparation of Soil Samples for Chemical Analyses Soil sample container types and holding times for chemical analyses are given in Table D-1.

After a soil sample interval was selected from either the shallow borehole or from examination of the core in the core tray, the soil sample was placed into a stainless steel bowl using a stainless steel spoon.

A subsample was immediately placed in a 4-ounce wide-mouth clear jar for volatile organic analysis (SW 8010, SW 8020). The soil was tamped down tightly as the jar was filled to the top. After the jar was

TABLE D-1
PROTOCOLS FOR CHEMICAL ANALYSES OF WATER SAMPLES

Parameter	Analytical Method[1]	Sample Container		Sample Preservation	Holding Time
		Type	Quantity	Comments	
Volatile Organics	SW 8010 SW 8020	40 mL VOA glass vials	5	4 drops of concentrated reagent HCl per vial, cool, 4°C	Analyze within 14 days of collection.
Semi-Volatile Organics	EPA 625	1 L amber glass bottle	2	Cool, 4°C	Extract within 14 days of collection and analyze within 40 days of extraction.
Pesticides/PCBs	EPA 608	1 L amber glass bottle	2	Cool, 4°C	Extract within 14 days of collection and analyze within 40 days of extraction.
Total Petroleum Hydrocarbons	EPA 418.1	1 L amber glass bottle	2	5 mL of concentrated reagent grade HCl per bottle, cool, 4°C	Extract within 14 days of collection and analyze within 40 days of extraction.
Metals:		1L polyethylene bottle	2	5 mL of concentrated reagent grade HNO_3 per bottle	180 days after collection for all metals except mercury which requires 28 days.
Arsenic	SW 7060				
Barium	SW 6010				
Cadmium	SW 7131				
Chromium	SW 7191				
Lead	SW 7421				
Mercury	SW 7470				
Radiation		1 L polyethylene bottle	1	5 mL of concentrated reagent grade HNO_3 per bottle	No holding time limit.
Gross Alpha	SW 9310				
Gross Beta	SW 9310				
Radium 226	SW 9315				
Tritium	EPA 9060				
Nitrate	EPA 353.2	500 mL polyethylene bottle	1	2.5 mL of reagent grade sulfuric acid	Analyze within 28 days of collection.

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1. SW methods from U.S. Environmental Protection Agency, SW-846, Third Edition, November 1986.
   EPA method from U.S. Environmental Protection Agency, EPA-600/4-79-020, Revised March 1983.

filled, the lid was screwed on and the interface secured with Teflon tape. The remaining soil in the stainless steel bowl was then homogenized with the spoon until uniform in texture and color. Another soil sample to be analyzed for all other parameters was placed into a 32-ounce wide-mouth, amber jar, the lid screwed on, and the interface secured with Teflon tape.

Large cobbles or pebbles were avoided for any of the soil samples. Any deviations from normal procedures or unusual occurrences that may have affected analysis results were noted in the field log book kept by the sampling team.

D.6.2.3 Preparation of Soil Samples for Grain Size Analysis Grain size samples were taken from selected boreholes at proposed monitoring well locations. Samples were generally collected to bracket the estimated screened interval. Grain size samples were chosen to represent the different lithologies encountered and placed within a properly labeled mason jar.

D.6.3 Ground-Water Samples

Ground-water samples for chemical analysis were taken from each monitoring well upon completion of all well construction and development.

D.6.3.1 Collection Procedures These samples were collected using either a Teflon or stainless steel bailer.

Before each sample was taken, the bailer was decontaminated in accordance with the Standard Decontamination Procedure, with two additional steps for the stainless steel bailer. These were:

2a. Rinse with 5% nitric acid and;

5a. Scan with portable HNu meter to assure complete removal of solvents.

A new nylon retrieval cord was attached to the bailer prior to sampling each well.

Each well was purged of approximately three times the existing water volume in the well. This volume was calculated by measuring the depth to the water from the top of the well casing and using the known total depth of the well to determine the height of the standing water column. The water was removed using a Teflon or stainless steel bailer which had been decontaminated using the procedure described above. A portable HNu meter was used to scan the headspace of the well immediately following cap removal. Specific conductivity, temperature, and pH were measured at regular intervals during the purging process in order to ascertain the stabilization of ground-water characteristics. The criteria for stabilization were variation of pH, less than ± 0.1 pH Unit; conductivity, less than ± 10 umhos; and temperature less than ± 1^{o}C.

No more than 24 hours were allowed to elapse between the time of purge completion and water sample collection for a given monitoring well.

D.6.3.2 Preparation of Ground-Water Samples for Chemical Analyses Water sample container types and holding times for chemical analyses are given in Table D-2. Ground water sample collection was conducted in the following manner:

The evening prior to a day of sampling, the numbers of samples, duplicates, bailer rinsates, and field blanks that were expected to be obtained on the following day were estimated. The numbers of the different types of sample bottles that would be needed for the required analyses were then calculated. All of the necessary preservatives were then added to this set of bottles.

Bailers were decontaminated the evening before they were to be used.

Immediately prior to each sampling event, sample bottle labels were filled out and affixed to each container to identify the sample name, analyses and preservative types, date, and time (see Section D.7 for sample identification nomenclature). These labels were covered with clear plastic tape.

At the sampling location, all bottles to be filled and trip blanks were placed on clean plastic which covered a card table. A picture was taken as evidence of the sampling event.

The first bailer full of water was "wasted" to be sure that no traces of decontamination liquids remained on the bailer. The first sample bottles filled were those designated for volatile organic analysis. Water to be analyzed for dissolved metals was placed into unpreserved containers. This water was filtered using a 0.45 um pore size filter later the same day. Samples were placed into a styrofoam cooler containing crushed ice.

TABLE D-2
PROTOCOLS FOR CHEMICAL ANALYSES OF SOIL SAMPLES

Parameter	Analytical Method[1]	Sample Container		Sample Preservation Comments	Holding Time
		Type	Quantity		
Volatile Organics	SW 8010 SW 8020	4 oz. amber glass jar	1	Cool, 4°C; pack tightly to minimize vapor space	Analyze within 14 days of collection.
Semi-Volatile Organics	SW 8270	32 oz. amber glass jar	1*	Cool, 4°C	Extract within 14 days of collection and analyze within 40 days of extraction.
Pesticides/PCBs	SW 8080	32 oz. amber glass jar	1*	Cool, 4°C	Extract within 14 days of collection and analyze within 40 days of extraction.
Total Petroleum Hydrocarbons	EPA 418.1	32 oz. amber glass jar	1*	Cool, 4°C	No holding time specified.
Metals:		32 oz. amber glass jar	1*	Cool, 4°C	180 days after collection for all metals except mercury which requires 28 days.
Arsenic	SW 7060				
Barium	SW 6010				
Cadmium	SW 7131				
Chromium	SW 7191				
Lead	SW 7421				
Mercury	SW 7471				

1. SW methods from U.S. Environmental Protection Agency, SW-846, Third Edition, November 1986.
   EPA method from U.S. Environmental Protection Agency, EPA-600/4-79-020, Revised March 1983.

* Only one sample jar is required for all of these analyses.

The specific conductivity, temperature, and pH of the water in the field was recorded in the log notebook dedicated to sampling activities. All deviations from sampling protocol or unusual occurrences which could affect the outcome of sample analysis results were noted.

Samples were prepared for shipment (see Section D.6.5).

D.6.4 Surface Water and Sediment Samples

Sediment and surface water samples were both collected at the same locations which are described in Section 2.

D.6.4.1 Surface Water Sample Collection If one stream contained several sampling locations, the direction of sampling was downstream to upstream. Surface water samples were collected in the following manner:

In sampling locations exhibiting little or no water flow, such as in grassy or marshy areas, a small hole was dug 24 hours in advance of the time of sampling in order to facilitate surface water collection.

The evening prior to a day of sampling, the numbers and types of sampling bottles were estimated. This was done by taking into account the number of samples, duplicates, and field blanks that could be reasonably obtained during the course of one day. All of the necessary preservatives were added to this set of bottles.

Immediately prior to each sampling event, sample bottle labels were filled out and affixed to each container to identify the sample name, analyses and preservative types, date, and time (see Section D.5 for sample identification nomenclature). These labels were covered with clear plastic tape.

Water samples were obtained by carefully dipping the sample container into the water, taking care to not disturb the surrounding sediment. The first sample bottles to be filled were the ones designated for volatile organic analysis. Water to be analyzed for dissolved metals was placed into unpreserved containers and filtered (0.45 um pore size) later that day. The water samples from some of the monitoring wells which had been constructed during the Phase II, Stage 1 and Phase II, Stage 2 studies unexpectedly required several hours to filter. This occassionally caused sample filtration for some samples to be delayed by a day. In all cases, filtration proceeded as expeditiously as possible.

Samples were placed into a styrofoam cooler containing crushed ice.

The specific conductivity, temperature, and pH of the water were recorded in the field log notebook dedicated to the sampling activities. All deviations from sampling protocol or unusual occurrences which could affect the outcome of sample analysis results were noted.

Filled sample bottles were prepared for shipment (see Section D.6.5).

D.6.4.2 Sediment Sample Collection A hand auger, shovel or spoon (all constructed of stainless steel) was used to collect the sediment sample. Samples were collected as follows:

Sediment samples were collected and handled in the same way as described for soil samples.

Filled sample bottles were prepared for shipment (see Section D.6.5).

D.6.5 Sample Containers, Packaging and Shipment

Engineering-Science provided the sample containers to be used on this project. These containers were purchased from a outside source whose business includes selling sample containers prepared according to EPA protocols.

Samples to be analyzed by several laboratory methods but requiring the same type and amount of preservation were shipped in just one container. This procedure minimized the number of sample containers needed to complete the sampling event. The type of sample containers used, the volume of samples collected, and the preservatives added to the sample containers for specified analyses are outlined in Table D-1 and D-2.

The samples collected during this investigation contained concentrations although (generally less than 10 parts per million), of organic and inorganic chemical compounds and were therefore considered environmental samples. Procedures for packing these samples for shipment were:

After the sample had been placed in a container, the bottle surface was wiped clean and Teflon tape was wrapped around the interface of the container and its lid.

A polyethylene net sleeve was placed over the glass container.

"Bubble pack" cushioning material was wrapped around the glassware.

All sample containers, with the exception of water samples to be analyzed for volatile organics, were placed individually into plastic "ziplock" bags and sealed. Several volatile organic samples were placed together in a "ziplock" bag and sealed.

The samples were placed into polystyrene insulated mailing containers and kept at $4^{o}C$ with approximately five pounds of crushed ice in plastic bags per cooler.

Chain-of-custody (COC) forms were filled out in duplicate for each cooler. The original COC was sealed in a plastic bag and taped to the cooler lid. A carbon or xeroxed copy was retained by the Field Team Leader for future reference (see Appendix M).

Packing material consisting of either vermiculite or styrofoam bead was added to the cooler. The cooler was taped shut with strapping tape, placed in a cardboard shipping container, and a signed COC seal was placed on the outside. The coolers were shipped to the designated laboratory via an overnight courier on the same day that the samples were taken. In a few instances, due to the time needed to filter some samples, the samples were shipped the day after sampling. These samples were either samples collected from Phase II, Stage 1 or Phase II, Stage 2 wells, which required unexpectedly lengthy filtering times, or samples collected on the same day as samples which required lengthy filtering times.

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APPENDIX D.7
IDENTIFICATION SYSTEMS

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APPENDIX D.7
IDENTIFICATION SYSTEMS

The system used to assign identification numbers to locations and field samples is explained in this section.

D.7.1 Location and Field Sample Identification

The field location and sample identifiers have the following format:

DANGB-3-MW25-SS3.

The meanings of the different parts of the identifier are given in Table D-3 and is also explained below.

Project Identification The designation DANGB (Duluth Air National Guard Base) was used to identify the project.

Site Identification Each Site was identified by the assigned site number.

Location Type Identification This is an alpha-numerical sequence. The letters identify the type of location. A number was assigned sequentially to each location within one of 6 types of locations established.

The borehole locations, BH, consisted of two augered holes at Site 2. These holes were drilled to obtain soil samples only. The samples were lost by the laboratory before all analyses were complete and the holes were redrilled using the Rotasonic drill rig to obtain additional sample. The redrilled holes are identified with an R after the location identifier. Example: DANGB-2-BH1 R.

The monitoring well, MW, locations started with the number 12 and ended with the number 43; with the exception that there is no number 36. In the instances where a borehole was drilled for the construction of a monitoring well but the well was not constructed, the letter "A" was added to the numerical designator.

The well point, WP, locations started with the number 6 and ended with the number 16. At the locations where a pair of well points were installed, both were given the same numerical designation. The letter "D" was added to the numerical designator to identify the deep well of the pair.

TABLE D-3
IDENTIFICATION CODE EXPLANATION

Code	Explanation
DANGB	Duluth Air National Guard Base.
	Site Identification
2	Site 2, Fire Training Areas FTA-1 and FTA-2.
3	Site 3, DRMO, formerly DPDO, Storage Area C.
4	Site 4, Tank Farm.
8	Site 8, Old DPDO Storage Area.
10	Site 10, Low-Level Radioactive Waste Site.
BG	Area locations.
	Location Type
BH	Borehole.
MW	Monitoring Well(a).
SG	Soil Gas.
SL	Stream Location.
SS	Soil Site.
WP	Well Point.
	Location Number
A0	A location on a grid at the intersection of the A and 0 grid lines.
15	A location number.
	Additional Information
R	The second hole, either drilled or hand augered, at a particular location.
	Sample Type
SS	Soil Sample.
SD	Sediment Sample.
GW	Ground-Water Sample.
SW	Surface Water Sample.
	Sample Number
1	The sample number.

---

a. Includes five locations at which boreholes were drilled for construction of monitoring wells, but which were plugged and abandoned after soil samples were obtained. An "A" was added after the number. These are shown as boreholes on the figures in this report.

The soil gas, SG, locations were represented by points on a grid. These points had both an alphabetical and numeric designation. The locations started with A0 and went to G5. In addition, some sampling points were added to intergrid spaces, and some points were added outside of the grid. These points were given numeric designations starting with 53 and ending with 59. One point was numbered 49. Soil samples were obtained from some soil gas locations. These locations retained their SG designation. It was necessary to re-dig the holes at some of these locations to obtain an additional soil sample. In these instances an R was added after the location identifier. Example: DANGB-3-SGC4 R.

The soil sample, SS, locations were represented by points on a grid. These points had both an alphabetical and numeric designation. The locations started with A0 and went to F3.

Sample Type Designation A two letter code was used to identify the type of sample collected.

Sample Number Surface water and sediment samples were all assigned the sample number "1," designating that the sample was taken from the first round of sampling. The ground-water samples were assigned the sample number "1" or "2" designating that the sample was obtained during either the first or second sampling round.

One sample was taken from each Surface Sample and Soil Gas location and no additional specific sample identification other than the location itself was used.

Soil samples from deep boreholes for chemical analysis were assigned sample numbers in one of two ways, depending upon whether they were obtained from holes drilled with an auger drill rig or a "Rotasonic" drill rig.

The boreholes drilled with the auger drill rig were cored continuously using a two-foot split-spoon sampler. Each two-foot interval was numbered sequentially. Samples were given the number of the interval from which they were obtained, for example, soil sample 6 is from the interval 10 to 12 feet.

Boreholes drilled with the Rotasonic drill rig were cored continuously with either a 5 or 10 foot long core barrel. Samples were numbered sequentially increasing with depth as they were chosen from the core observed in the core tray. The intervals from which samples were taken was noted in the field notes and on the sample containers.

Examples:

DANGB-8-MW14-GW1: Duluth Air National Guard Base, Site 8, Monitoring Well 14, ground-water sample, first sampling round.

DANGB-2-MW37-SS1: Duluth Air National Guard Base, Site 2, Monitoring Well 37, first soil sample taken from borehole for MW37.

DANGB-3-SSAO: Duluth Air National Guard Base, Site 3, surface soil sample taken at position A0 on the sampling grid.

DANGB-2-BH1-SS5: Duluth Air National Guard Base, Site 2, Borehole 1, fifth soil sample taken.

DANGB-8-SL17-SW1: Duluth Air National Guard Base, Site 8, surface water and sediment sampling location number 17, surface water sample, first sampling round.

D.7.2 Field Quality Control Sample Identification For field sampling quality control (QC), trip blanks, field blanks, equipment rinsate samples, and field sample duplicates were taken.

The following numbering system was utilized:

Trip blanks: TB

Field blanks: FB

Equipment rinsate samples: BR

Field Duplicates: Field duplicates were assigned numbers similar to sample numbers, as described in the previous section. For example, a duplicate of a ground-water sample taken at monitoring well number 26, DANGB-4-MW26-GW-1, was assigned the identifier DANGB-4-MW53-GW-1. The sample results are listed under DANGB-4-MW26 DUP. All duplicate sample numbers were noted in the field log book dedicated to sampling activities and are also listed as the field sample number in the Tables in Appendix L.

D.7.2 Laboratory Sample Identification

Laboratory sample numbers were assigned to each sample that was analyzed according to their own protocols. These numbers are on the completed chain of custody forms (Appendix M) and are also shown along with the field sample numbers in Appendices L and N.

SECTION D.8
PACE AND COMPASS PROCEDURE

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SECTION D.8
PACE AND COMPASS PROCEDURE

The Pace and Compass Procedure was used to lay out sampling locations and to determine the correct map locations of previously installed monitoring wells.

The soil gas sampling grid at Site 3 and at Site 8 were laid out. The location of existing monitoring wells at Sites 2 and 4 were surveyed by this method to determine their actual spatial relationships in order to locate new wells correctly. At Site 2 this procedure was used to create a working map of trench locations. This was used along with examination of the aerial photographs to pin down the location of FTA-1.

A known location was picked such as a concrete post or a building corner when working from an aerial photograph. A 200 foot surveyor's tape was used for distance measurements. It was pulled taut and the personnel stood directly over it, looking down to read a measurement or mark a point. Direction was determined using Brunton compasses. Both fore-sighting and back-sighting readings were taken by personnel on either end of the surveyor's tape.

In a few instances, points were greater than 200 feet apart. In these situations an intermediate point was established. Along the line of sight between the two end points. Occasionally, a direct line of sight was not possible and a temporary end station had to be set up. The end station was marked by a stake with fluorescent paint hammered into the ground.

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SECTION D.9
TRENCHING PROCEDURE

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SECTION D.9
TRENCHING PROCEDURE

Trenching was accomplished with a backhoe and involved a backhoe operated by a backhoe operator at the direction of a field geologist. Trenching was done in an attempt to locate an abandoned Fire Training Area. The geologist would indicate the location to be trenched. The backhoe operator would trench down approximately four feet. The geologist stood up wind while observing the materials being excavated. Any materials or unearthed soil that looked different from the typical cover soil were examined. These materials on examination were concrete asphalt and sand lenses. After total depth had been reached, the trench was refilled before moving to a new location.

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SECTION D.10
STREAMFLOW MEASUREMENT PROCEDURE

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SECTION D.10
STREAMFLOW MEASUREMENT PROCEDURE

Two different pieces of equipment each with its associated procedures were used to obtain streamflow measurement. These were a pygmy flow meter and a weir.

D.10.1 Pygmy Flow Meter

The stream cross-section where measurements were to be made was chosen based on the appearance of its representativeness of the total flow in the stream and relative absence of plants and other debris. A tape was stretched over the width of the stream at the chosen location and marked off in 0.3-foot increments. The cummulative width and the depth of the stream at each incremental location was recorded. If the depth did not vary dramatically, as usually was the case, the average depth was calculated in order to establish the depth at which the Pygmy flow meter would be set for that stream location. The Pygmy flow meter was then placed at each 0.3-foot increment for a minimum of 40 seconds, and the number of revolutions was counted visually and tabulated. (The flow rate was too low to use the headphones provided with the flow meter in each case.) These numbers were used in a as described in Appendix J formula to calculate the flowrate at each point across the stream.

D.10.2 Weir

A 90-degree V-notch weir mounted in a one-foot long six-inch diameter PVC pipe was used to measure streamflow at location SL-11. This method is useful for streams with low discharge rates. Streamflow was diverted to the weir by constructing a dam to channel the flow through the pipe. A level on the weir was used to keep the pipe horizontal. The flow measurement was made by reading the discharge rate off the calibrated faceplate of the weir in gallons per day.

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SECTION D.11
GRAIN SIZE ANALYSIS PROCEDURE

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SECTION D.11
GRAIN SIZE SAMPLE ANALYSIS PROCEDURES

The procedure for grain size analysis consisted of drying the entire sample, weighing out 300 grams, and sieving the material into 7 separate fractions. Each fraction was weighed and the grain size distribution was plotted on a graph.

The first step consisted of drying and disaggregating the sample. Most samples had a high clay-sized content which commonly formed balls. These balls were crushed using a mortar and pestle. The samples were dried in an oven.

The second step was to weigh 300 grams of the sample in a pre-weighed cup using a triple balance accurate to .05 grains.

The third step was to separate the sample into seven component grain sizes. This was done using four inch diameter, hand-operated sieves. The mesh size of the sieves were 2.0, 1.0, 0.5, 0.25, 0.125 and 0.063 millimeters (mm). The seven size fractions were placed into seven pre-weighed cups.

The fourth step was to weigh each size fraction. The weight of each size fraction was obtained by subtracting the weight of the cup. The total weight of the sieved size fractions was within 3% of the original 300 gram weight of the original sample for all samples.

The grain size data was analyzed graphically by plotting the weight of a particular grain size on the X-axis of semi-log graph paper versus the sum of that weight plus the weight of all finer fraction percent of the sample finer than that grain size on the Y-axis. For example, if

x = weight of the sample retained in the 0.5 mm sieve, then

y = the sum of the weight of the sample retained in the 0.5, 0.25, 0.125, 0.063 sieves and weight of the sample in the bottom cap.

Also examination of Figure K-21 shows that for the 6 to 7 foot soil sample from DANGB-8-MW20A, 65 percent of the total 300 gram soil sample is less than 0.5 mm in diameter.

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APPENDIX E
DRILLING RECORDS

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APPENDIX E
TABLE OF CONTENTS

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SECTION E.1
INTRODUCTION

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SECTION E.1
INTRODUCTION

Records of the subsurface lithology have been completed for each borehole location. These records are presented in this appendix. All but two of the descriptions are from four inch diameter continuous cores. Boreholes DANGB-2-BH1 and DANGB-2-BH2 at Site 2 are described from continuous split spoon samples from hollow stem augers.

Soil samples collected from the continuous core obtained from boreholes DANGB-2-MW12A, DANGB-8-MW16, DANGB-8-MW20A, DANGB-4-MW22 and DANGB-3-MW25 were analyzed for grain size for the soil fraction smaller than 2 millimeters in diameter. Grain size analysis results are presented in Appendix K.

The land surface datum records the surveyed altitude of the ground surface at the borehole location. Borehole coordinates are referenced to the Minnesota State Plane Coordinate System and record the horizontal map location of the borehole.

Drilling records are organized numerically within each borehole type sequence. The borehole identification is keyed to the site number (DANGB-2-BH1), borehole (BH), or monitoring well designation (MW). Appendix D gives a complete description of borehole identification.

The sample description includes the color, texture, mineralogy, moisture, and consistency of each distinct lithologic sample encountered. The primary major component or components of the sample are underlined. The proportions of sand, gravel, and fines are visually estimated and described using the following semi-quantitative adjectives:

Adjective	Estimated Percent of Total Sample
Trace	0-5
Little	5-12
Some	12-35
Abundant	35-50

Sand sizes were estimated by comparison with a sand gauge. Proportional adjectives precede the lithology, such as little clay, (5-12% clay) and some sand (30% sand). A visual estimate of the size range of pebbles within the glacial till is included.

The fine fraction was described using one of the following terms: silt, silt and clay, or clay. These are field terms and take into account plasticity as well as grain size. Distinction between clay and silt was determined by the ability to roll a small piece into a thin ribbon. Clay can easily be smeared into a ribbon when wet while it is more difficult to do so with silt. A dry sample of clay is difficult to crush with fingers while a dry sample of silt is more easily crushed. The term pliable was used for clay that was exceptionally malleable.

Drilling records and sample descriptions characterize the unconsolidated glacial till as a heterogenous, poorly-sorted mixture of silt and clay, with abundant pebbles and lesser quantities of sand. Sand, on the average, is fine-grained and restricted to occasional lenticular deposits of limited lateral extent not exceeding 1/2 to 1 foot in thickness.

SECTION E.2
DRILLING RECORDS

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SECTION E.2

DRILLING RECORDS

In the records that follow, the column headings have the following meanings:

Depth:	Depth in feet below land surface.
Sample Interval:	The interval of sample cored below land surface during a single, continuous sampling run. This column is filled in when several lithologic sample descriptions occur within a single sampling run.
Sampler Blows:	The number of blows required to drive a split-spoon sampler 24 inches into the ground. Testing is divided into four, six-inch increments. The maximum number of blows used in this test per six-inch increment is 50. Rotasonic coring does not involve this percussive technique.
Percent Recovery:	The percentage of sample recovered in the continuous core barrel per sampling run. Percentages greater than 100% indicate stretching of the core as it was vibrated out of the core barrel.
Notes:	Observations and measurements made while drilling regarding the detection of airborne contaminants and general comments. An HNU photoionization meter was used to test the soil sample, entrance of the borehole and breathing zone for volatile contaminants. Small HNU readings (0-3 ppm) from soil samples are often the result of moisture in the plastic core sleeve. The majority of HNU readings are not above background.

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 2

Borehole ID:	DANGB-2-BH1	**Drilling Start Date:**	7/29/88
Location:	Duluth, MN	**Drilling Completion Date:**	7/30/88
Client:	Duluth ANGB	**Drilling Method:**	Hollow Stem Auger
Project No.:	OR001	**Sampling Method:**	Continuous Split Spoon
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 56422.5 East 629357.4
Land Surface Datum:	1430.99		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2		14-21-18-14	10	Clay, brown with black mottled areas, some silt, micaceous, dry, stiff.	HNU: Borehole: 0 ppm Breathing Zone: 0 ppm Strong hydrocarbon odor.
2-4		9-11-10-10	40	Clay, same as above.	Sample: 150 ppm
4-6		16-35-22-22	5	Clay, same as above.	Sample: 175 ppm Borehole: 7 ppm Breathing zone: 0 ppm.
6-8		9-5-9-8	30	Clay, medium to dark brown, some silt and sand, fine, micaceous, slightly moist.	Sample: 255 ppm Borehole: 0 ppm Strong hydrocarbon odor.
8-10		1-4-12-25	100	Clay, grayish green, little sand and silt, slightly moist, stiff.	Sample: 175 ppm Borehole: 0 ppm Strong fuel odor.
10-12		10-28-20-25	75	Clay, dark brown with grayish green spots, some silt, little sand, fine, trace pebbles, wet.	Sample: 5 ppm Borehole: 45 ppm Breathing zone: <1 ppm Strong petroleum odor.

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-2-BH1 **Page** 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
12-14		8-9-17-27	75	Clay, dark brown, some silt, trace pebbles, thin 0.5 inch sandy laminations, moist, firm.	Sample: 5 ppm Borehole: 30 ppm Breathing zone: <1 ppm Weak petroleum odors.
14-16		11-27-refusal	100	Clay and Silt, dark brown, some sand, fine to medium, little pebbles 1/4 to 1" diameter, moist to wet.	Sample: 0 ppm Borehole: <1 ppm Breathing zone: 0 ppm No petroleum odor.
16				Auger refusal (Bedrock?). Total Depth: 16 ft. Plugged and Abandoned	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID:	DANGB-2-BH2	**Drilling Start Date:**	7/30/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/1/88
Client:	Duluth ANGB	**Drilling Method:**	Hollow Stem Auger
Project No.:	OR001	**Sampling Method:**	Continuous Split Spoon
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 56408.8 East 629322.6
Land Surface Datum:	1431.05		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2		11-10-12-20	60	Clay, mottled dark brown and black, some silt, abundant pebbles 1/8" to 1.5" diameter, dry, firm.	HNU: Sample: 90 ppm Borehole: 180 ppm Breathing Zone: 0 ppm; Strong petroleum odor.
2-4		17-22-16-18	75	Clay, same as above.	
4-6		4-9-10-15	80	Clay, mottled brown and black, some silt, pebbles 1 to 2" diameter, trace wood fragments, some sandy silt layers .5" thick, dry, firm.	Sample: 40 ppm Borehole: 70 ppm Breathing zone: <1 ppm Strong petroleum odor.
6-8		10-15-8-6	50	Clay, same as above.	Sample: 400 ppm Borehole: 10 ppm Breathing zone: <1 ppm
8-10		3-5-4-9	40	Peat and Clay, brown to black, trace 1/8" pebbles, plant fragments, moist, loose to firm.	Sample: 300 ppm Borehole: 35 ppm Breathing zone: 0 ppm Strong petroleum odor.

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-2-BH2 **Page** 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
10-12		4-7-14-13	80	Silt, dark brown, some clay, pebbles, moist to wet, soft.	Sample: not taken Borehole: 35 ppm Breathing zone 0 ppm Strong petroleum odor.
12-14		8-6-18-21	85	Silt, brown with black peat areas, some clay, little sand, fine, trace pebbles, very moist.	Sample: 35 ppm Borehole: 4 ppm Breathing zone: 0 ppm
14-16		8-20-11-13	70	Silt, brown, some clay, some sand, fine to medium, some pebbles, trace plant fragments, very wet, firm.	Sample: 5 ppm Borehole: 3 ppm Breathing zone: 0 ppm Slight petroleum odor.
16-18		12-23-25-18" refusal	100	Silt, brown, some sand, fine to coarse, lower 4" dry, moist to wet.	Sample: 5 ppm Borehole: 60 ppm Breathing zone: <1 ppm Slight petroleum odor.
18-20.5			0	Auger refusal, boulder? or stones obstruct auger.	Borehole: 40 ppm Breathing: 0 ppm
20.5-21.1			30	Sand, dark brown, fine to medium, some clay, some silt, abundant pebbles 1/8 to 1/4", wet.	Borehole: 15 ppm Breathing: 0 ppm No petroleum odor.
21.1				Auger refusal; interpreted as bedrock. Total Depth: 21.1 ft. Plugged and Abandoned	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-2-MW12A	**Drilling Start Date:**	8/4/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/4/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 56642.3 East 629408.0
Land Surface Datum:	--		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2			100	Clay, brown, some silt, dry.	HNU: No readings above background.
2-5			100	Clay, same as above, slightly moist.	
5-14.5	5-15'		33	Clay and Silt, brown to dark brown, little sand, fine, slightly moist, firm.	
14.5-15				Gravel, gray, some sand, fine to coarse, little clay, moist.	
15-18			100	Silt and Gravel, grayish brown 5RY3/2, some clay, very moist, very firm.	
18-20			100	Silt, brown, some clay, trace pebbles, moist, firm.	
20-23			100	Bedrock, gabbro.	
				Total Depth: 23 ft.	
				Plugged and Abandoned.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-MW13A	**Drilling Start Date:** 8/5/88
Location: Duluth, MN	**Drilling Completion Date:** 8/5/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** --
Land Surface Datum: --	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-2′		100	Clay, dark brown, some silt, abundant root and plant fragments, slightly moist, loose.	HNU: No reading above background.
1-2				Silt, brown, some clay, little pebbles, firm.	
2-5			100	Silt, brown, some clay, little pebbles 1/4 to 1" diameter, slightly moist, very firm.	
5-8	5-15′		100	Silt and Clay, brown, some pebbles 1/4 to 3" diameter, moist, very firm.	
8-8.5				Sand, brown, fine to coarse, some clay, pebbles, wet, loose.	
8.5-14				Silt and Clay, brown, some sand, fine to coarse, some pebbles 1/4 to 3", moist, firm.	
14-15				Sand, brown, fine to coarse, some pebbles, wet, loose.	
15-19.5			100	Bedrock.	
				Total Depth: 19.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID: DANGB-8-MW14
Drilling Start Date: 8/8/88
Location: Duluth, MN
Drilling Completion Date: 8/8/88
Client: Duluth ANGB
Drilling Method: Rotasonic
Project No.: OR001
Sampling Method: Continuous Core
Geologist: Peter Riemersma
Borehole Coordinates: North 53343.6 East 624842.2
Land Surface Datum: 1412.2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5	0-5′		70	Clay, brown, some gravel and pebbles 1/8 to 1/2" diameter, moist in 1′, dry from 1 to 4′, loose.	HNU: No readings above background.
5-7	5-10′		100	Clay and Silt. brown, little gravel, plant fragments, dry, loose.	
7-10				Silt, brown, some gravel, some pebbles up to 4" diameter, wet, loose.	Hit water at 10′.
10-12	10-15′		100	Sand and Gravel, brown to dark brown, medium to coarse-grained, little clay, pebbles 1/4 to 2" diameter, angular, wet loose.	
12-15				Silt, brown, some sand, fine to medium, little clay, gravel and sand laminations, pebbles, wet, slightly firm.	
15-16	15-25′		30	Clay, brown, little silt, no pebbles or gravel, slightly wet to wet, pliable.	
16-18				Sand, brown, fine, some clay and silt, wet.	
18-25			no recovery		
25-33.5			100	Clay, brown, little silt, trace sand, fine to medium, pebbles 1/4" to 4", wet, pliable.	
33.5-34			100	Clay, brown, little silt, trace pebbles, wet, loose, pliable.	

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID DANGB-8-MW14

Page 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
34-35			100	Clay, brown, little silt, little gravel, some pebbles 1/4 to 4", dry, firm.	Harder drilling.
35-39			100	Clay, brownish red, some silt, little sand, fine, some pebbles 1/2 to 3" with trace granitic rock fragments, slightly moist from 35.to 36′, dry from 38-39′, pliable to firm.	Hit boulder at 35′
39-40			100	Sand and Gravel, gray, coarse, subangular to angular, some pebbles 1/2 to 1", wet, loose.	
40-44			100	Bedrock, gabbro.	
				Total Depth: 44 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-8-MW15	**Drilling Start Date:** 8/9/88
Location: Duluth, MN	**Drilling Completion Date:** 8/9/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 53333.6 East 624840.9
Land Surface Datum: 1412.2	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-6	0-5'		100	Clay, brown to light brown, little silt, some pebbles 1/4 to 5" diameter, dry, loose to firm (2 to 5').	HNU: No readings above background.
6-12.5	5-10'		100	Sand and Gravel, brown, medium to coarse, little clay, quartz, feldspar rock fragments, some pebbles 1/2 to 1" diameter, wet, loose.	
12.5-14.5	10-15'		100	Clay, brown, some silt, firm, pliable.	
14.5-15				Sand, brown, fine to coarse, some clay, little pebbles 1/4 to 1/2", angular.	
15-20			60	Clay, brown, little silt, very moist, very pliable.	
				Total Depth: 20 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID:	DANGB-8-MW16	**Drilling Start Date:**	8/10/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/10/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53318.9 East 624477.7
Land Surface Datum:	1410.5		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-6.5	0-5′		70	Peat, black, little silt, organics, moist 0 to 3′, wet 3 to 6.5′, very loose.	HNU: No readings above background unless noted.
6.5-14	5-10′		100	Clay, brown, little silt, trace pebbles, wet, pliable.	
14-15	10-15′		100	Sand, brown, fine to medium, some clay, trace gravel, wet, loose.	
15-20			100	Clay, dark brown, little silt, trace pebbles 1/4 to 4" diameter, moist to wet, pliable.	Sample: 0-3 ppm.
20-21.75	20-25′		100	Silt, brown, some clay, little sand, fine, rare pebbles, very moist.	Elongated core recovery.
					Sample: 0-3 ppm; probably moisture.
21.75-25′				Sand and Silt, brown, fine, some clay, trace pebbles.	
25-26.5	25-30′		80	Gravel, gray, coarse, some sand, medium to coarse, wet.	
26.5-29				Boulder.	
29-30				Gravel, gray, coarse rock fragments, angular, quartz and feldspar, some sand, medium to coarse.	

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID DANGB-8-MW16

Page 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
30-33.66′			100	Bedrock. Total Depth: 33.66 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-8-MW17	**Drilling Start Date:** 8/10/88
Location: Duluth, MN	**Drilling Completion Date:** 8/10/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 53308.3 East 624477.9
Land Surface Datum: 1410.3	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			80	Peat, dark brownish black, organic material, plant fragments, dry 0 to 2′, moist 2 to 5′.	HNU: No reading above background.
5-9.5	5-10′		100	Silt, brown, some clay, no pebbles, very moist to wet, firm, pliable.	
9.5-10				Sand, brown, fine to medium, some clay, no gravel or pebbles.	
10-13	10-15′		100	Clay, brown, some silt, some pebbles.	
13-15				Clay and Silt, brown, some pebbles, little sand, fine.	
				Total Depth: 15 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-8-MW18A	**Drilling Start Date:**	8/5/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/5/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53569.1 East 624528.5
Land Surface Datum:	--		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			80	Silt and Clay, brown, little sand, fine, abundant pebbles and rock fragments 1/4 to 4" diameter, dry.	HNU: No reading above background. 0-5′ fill material.
5-12	5-15′		10	Silt and Gravel, brown, some sand, fine to coarse, little clay, wet, firm, probably from 8 to 9′.	
12-15				Clay, brown, some silt, little pebbles, dry, very firm.	
15-19′			100	Bedrock, fractured.	
				Total Depth: 19 ft. Plugged and Abandoned.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-8-MW19A	**Drilling Start Date:**	8/10/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/10/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53809.0 East 624634.3
Land Surface Datum:	1412.2		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			60	Clay, dark brown, some silt, little sand, fine, no pebbles or gravel, slightly moist	HNU: No reading above background.
5-10			100	Silt, brown, some clay, some pebbles 1 to 3" diameter, some sand at 7 to 8' very moist to wet, firm.	
10-13.5			100	Bedrock.	
				Total Depth: 13.5 ft. Plugged and Abandoned.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-8-MW20A	**Drilling Start Date:**	8/5/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/5/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53839.7 East 624339.6
Land Surface Datum:	1411.46		

Depth Below LS (feet)	**Sample Interval**	**Sampler Blows**	**Percent Recovery**	**Sample Description**	**Notes**
0-5			100	Clay, brown, some silt, trace pebbles, dry, very firm.	HNU: No readings above background.
5-6.5			100	Silt, brown, some clay, some sand, fine, little pebbles 1/4 to 1/2" diameter, very moist.	
6.5-8	6.5-15′		100	Silt, brown, some sand, fine, little clay, little pebbles, wet, firm.	
8-9				Clay, brown, some silt, little pebbles, damp.	
9-15				Silt, some sand and gravel, fine to coarse, rock fragments up to 5" diameter, very damp, very firm. Sand lenses, fine to medium, up to 5" thick.	
15-20.5			100	Silt and Clay, brown, some pebbles 1/8 to 3" diameter, slightly moist, firm.	
20.5-23.5			100	Bedrock, dark grayish green, gabbro, competent.	
				Total Depth: 23.5 ft.	
				Plugged and Abandoned	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID:	DANGB-4-MW21	**Drilling Start Date:**	8/20/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/20/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	
Land Surface Datum:	1411.7		North 53848.6 East 623851.6

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			40	Sand and Silt, brown, little to some clay, wet from 3-5', soft, pliable.	HNU: No readings above background
5-6	5-15'		100	Sand, brown, some silt and clay, little pebbles 1/4 to 2" diameter, wet, soft, pliable.	
6-8				Clay, brown, little silt, trace pebbles 1/4 to 1" diameter, wet, soft.	
8-10				Silt and Clay, brown, little sand, abundant pebbles 1/4 to 2" diameter, wet, soft.	
10-11				Sand, brown, some silt and clay, abundant pebbles 1/4 to 2" diameter, wet, soft.	
11-12				Clay, brown, some silt, abundant pebbles 1/4 to 2" diameter, wet, soft.	
12-13				Silt and Clay, brown, abundant pebbles 1/4 to 2" diameter, wet, soft.	
13-15				Clay, brown, some silt, abundant pebbles 1/4 to 2" diameter, wet, soft.	
15-19			100	Clay, brown, little to some silt, abundant pebbles from 1/4 to 2" diameter, moist, stiff.	

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-4-MW21

Page 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
19-22.5			100	**Bedrock, gabbro, massive coarse-grained intrusive rock, possible thin sand and gravel layer just above bedrock.**	
				Total Depth: 22.5 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-4-MW22	**Drilling Start Date:**	8/20/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/20/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	
Land Surface Datum:	1413.5		North 54038.6 East 623548.7

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-8.7	0-5.7′		70	Peat, black, organic material, moist.	HNU: No readings above background unless noted.
8.71-15.7	5.7-15.7′		100	Clay, mottled gray and brown to brown, little silt, no pebbles, very moist from 5 to 8′, moist from 8 to 15′, firm, pliable.	HNU -- Borehole: 150 ppm; Breathing Zone: <1 ppm
15.7-21	15.7-25.7′		100	Clay, brown, little silt, no pebbles or gravel, firm, pliable, with thin sand layers, fine at 18.5' and 19.5', wet.	
21-25.7				Silt, brown, some clay, no gravel or pebbles, with sand layers, fine, wet, loose.	
25.7-30.5	25.7-31.7		100	Silt, brown, some clay, some gravel and pebbles 1/4 to 1" diameter, moist, firm to very firm.	
30.5-31.7				Sand, brown, fine, some silt, some clay, wet.	
31.7-35			100	Bedrock.	
				Total Depth: 35 ft.	

8812117

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 2

Borehole ID: DANGB-4-MW23	**Drilling Start Date:** 8/19/88
Location: Duluth, MN	**Drilling Completion Date:** 8/19/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma & Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1412.9	North 53996.0 East 623338.5

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-4	0-5′		80	Clay and Silt, brown, some gravel and pebbles 1/4 to 1", slightly moist, loose.	HNU: No readings above background.
4-7	5-15′		100	Peat, black, plant material, damp.	
7-7.5				Clay, mottled green and brown, little silt, firm, pliable.	
7.5-7.8				Clay, brown, some silt, firm, pliable.	
7.8-8				Clay, brown, some silt, some sand, fine, wet, loose.	
8-13.5				Clay, brown, little silt, trace pebbles, moist to very moist, pliable.	
13.5-14				Silt and Sand, brown, fine to medium, little clay, very moist, loose.	
15-25			100	Clay, brown, some silt, little to some pebbles 1/4 to 1" diameter, moist to slightly moist, firm.	
25-27	25-31′		85	Silt, brown, some sand and clay, some pebbles 1/4 to 4" diameter, moist to wet, soft.	
27-31				Sand, brown, little silt and clay, abundant pebbles 1/4 to 2" diameter, wet, soft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-4-MW23

Page 2 of 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
31-33.83			100	Bedrock. Total Depth: 33.83 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-4-MW24	**Drilling Start Date:** 8/24/88
Location: Duluth, MN	**Drilling Completion Date:** 8/24/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:** North 53676.1 East 623504.8
Land Surface Datum: 1410.5	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-3.5	0-5'		80	Sand, brown, some clay and silt, some pebbles 1/4 to 2" diameter, wet to moist, soft.	HNU: No readings above background.
3.5-4				Sand, brown, trace silt and clay, wet, soft.	
4-5				Clay, gray, little silt, moist to wet, firm.	
5-7	5-15'		90	Clay, brown, little silt, little pebbles 1/4 to 3" diameter, moist to wet, soft.	
7-12				Clay, brown, some silt, little sand, abundant pebbles 1/4 to 4" diameter, wet, soft.	
12-15				Clay, brown, little silt, trace sand, abundant pebbles 1/4 to 3", moist to wet, firm.	
15-25			100	Clay, brown, some silt, little sand, abundant pebbles 1/4 to 4" diameter, wet, firm.	
25-33.8			50	Clay, mottled brown and gray, some silt, little sand, fine, abundant pebbles 1/4 to 3" diameter, wet, firm.	
33.8-37'			100	Bedrock, gabbro, massive, intrusive rock.	
				Total Depth: 37 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW25	**Drilling Start Date:**	8/26/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/26/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53821.6 East 623054.8
Land Surface Datum:	1412.2		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			80	Clay, brown, some silt, trace sand, fine abundant pebbles, 1/4 to 4" diameter, moist to wet, soft.	HNU: No reading above background.
5-14	5-16'		100	Clay and Silt, brown, trace to little sand, fine, abundant pebbles 1/4 to 4" diameter, wet, soft to firm.	
14-15				Sand, brown, some clay and silt, abundant pebbles 1/4 to 2" diameter, wet, soft.	
15-18			100	Bedrock, gabbro, massive, coarse-grained intrusive rock.	
				Total Depth: 18 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW26	**Drilling Start Date:**	8/26/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/26/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53822.8 East 623048.6
Land Surface Datum:	1412.7		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			60	Clay, brown, little to some silt, abundant pebbles 1/4 to 4" diameter, moist to wet, soft, 2" sand layer, coarse at 4'.	HNU: No reading above background.
5-14.5			100	Clay and Silt, brown, trace to little sand, abundant pebbles 1/4 to 4", wet, soft to firm.	
				Total Depth: 14.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-3-MW27	**Drilling Start Date:** 8/24/88
Location: Duluth, MN	**Drilling Completion Date:** 8/24/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:** North 53874.3 East 622844.9
Land Surface Datum: 1413.0	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2	0-5′′		80	Clay and Silt, gray to brown, trace sand, fine, trace pebbles 1/4 to 2" diameter, moist to wet, soft.	HNU: No reading above background.
2-5				Clay, brown, little to some silt, trace pebbles 1/4 to 2", moist to wet, soft.	
5-15			100	Clay, brown, some silt, abundant pebbles 1/4 to 4" in diameter, wet, firm to very firm.	
				Total Depth: 15 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW28	**Drilling Start Date:**	8/27/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/27/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53840.0 . East 622545.3
Land Surface Datum:	1409.8		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5'		80	Clay, black, little silt, moist, soft.	HNU: No reading above background.
1-4				Clay, mottled gray and brown, little silt, trace 1/4 to 2" pebbles, moist, soft.	
4-5				Clay, brown, some silt, abundant 1/4 to 2" pebbles.	
5-11.5			100	Clay and Silt, brown, trace sand, fine, abundant 1/4 to 4" pebbles, moist to wet, soft to firm.	
11.5-12.5			100	Boulder, gabbro, massive, coarse-grained.	
12.5-15			50	Clay and Silt, brown, trace sand, fine, abundant 1/4 to 4" pebbles, wet, firm to very firm.	
				Total Depth: 15 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW29	**Drilling Start Date:**	8/30/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/30/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53696.4 East 622858.6
Land Surface Datum:	1414.4		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-7	0-5′		80	Clay and Silt, brown, trace sand, fine, abundant pebbles 1/4 to 4" diameter, moist to wet, soft.	HNU: No reading above background.
7-14	5-16′		90	Clay, brown, little to some silt, abundant 1/4 to 4" pebbles, wet, firm.	
14-16				Sand, brown, some silt, little gravel, trace clay, abundant 1/4 to 3" pebbles, wet, soft.	
				Total Depth: 16 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-3-MW30	**Drilling Start Date:** 8/26/88
Location: Duluth, MN	**Drilling Completion Date:** 8/26/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1417.0	North 53492.6 East 622863.8

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1.5	0-5.5′		80	Clay and Silt, brown, trace sand, fine, abundant 1/4 to 4" pebbles, moist to wet, soft to firm.	HNU: No reading above background.
1.5-2.5				Boulder, gabbro.	
2.5-5.75	5.5-6.5′		100	Clay and Silt, brown to mottled brown and gray, abundant pebbles, wet, firm.	
5.75-9	6.5-9′		100	Boulder, gabbro, gray, massive.	
9-15			100	Silt, brown, some clay, little sand, abundant 1/4 to 4" pebbles, wet, soft to firm.	
15-17.5				Silt, brown, some clay and sand, fine, abundant 1/4 to 4" pebbles, wet, soft.	
				Total Depth: 17.5 ft.	

8812117

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW31	**Drilling Start Date:**	8/27/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/27/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53423.3 East 622748.5
Land Surface Datum:	1419.5		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			80	Clay and Silt, light brown, trace to little sand, abundant pebbles 1/4 to 4" diameter, moist to very moist, soft.	HNU: No readings above background.
5-7.5			100	Clay and Silt, brown, trace sand, fine, abundant pebbles, moist, firm.	
7.5-8.5	7.5-15'		15	Boulder.	
8.5-15				Clay and Silt, brown, trace sand, abundant pebbles, wet, soft to firm.	
15-16	15-18'		80	Sand and Gravel, gray, medium to coarse, wet, loose, fines washed away during drilling.	
16-18				Bedrock, gabbro, gray.	
				Total Depth: 18 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-BG-MW32	**Drilling Start Date:**	8/29/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/29/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53377.5 East 622511.1
Land Surface Datum:	1426.9		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2	0-5′		60	Boulder	HNU: No readings above background
2-7.5	5-7.5′		100	Clay, mottled tan and brown 2 to 3.5′, brown, some silt, abundant pebbles 1/4 to 2" diameter, dry, firm, pliable.	
7.5-10			100	Boulder, gabbro, gray, massive.	
10-18	10-14.5′		100	Clay, brown, some silt, abundant 1/4 to 4" pebbles, moist to very wet, firm.	
18-20	14.5-22.5′		100	Sand, brown, some silt and clay, abundant pebbles 1/4 to 3" diameter, wet, soft.	
20-22.5				Sand and Gravel, brown, trace silt and clay, abundant pebbles 1/4 to 3", wet, soft.	
				Total Depth: 22.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-3-MW33	**Drilling Start Date:** 8/27/88
Location: Duluth, MN	**Drilling Completion Date:** 8/27/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1418.3	North 53559.5 East 622523.4

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5′		60	Clay and Silt, black, abundant pebbles 1/4 to 2" diameter, abundant organics, moist, soft.	HNU: No readings above background.
1-5				Clay and Silt, brown, abundant pebbles, moist, firm.	
5-12	5-15′		100	Clay and Silt, brown, trace sand, fine, abundant 1/4 to 2" pebbles, wet, firm.	
12-21	15-21′		100	Silt, brown, some clay and sand, fine, abundant pebbles, wet, firm.	
21-21.5	21-24′		70	Sand and Gravel, gray-brown, fines washed out by drilling.	
21.5-24				Bedrock, gabbro, gray, massive.	
				Total Depth: 24 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-3-MW34		**Drilling Start Date:**	8/29/88
Location: Duluth, MN		**Drilling Completion Date:**	8/29/88
Client: Duluth ANGB		**Drilling Method:**	Rotasonic
Project No: OR001		**Sampling Method:**	Continuous Core
Geologist: Mike Roddy		**Borehole Coordinates:** North 53557.7 East 622529.0	
Land Surface Datum: 1418.3			

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-7	0-5′		75	Clay, brown, little to some silt, abundant 1/4 to 3" pebbles, moist, soft.	HNU: No readings above background.
7-13	5-15′		100	Clay and Silt, brown, trace sand, fine, abundant 1/4 to 3" pebbles, moist to wet, soft to firm.	
13-15				Silt, brown, some clay, trace sand, fine, abundant 1/4 to 3" pebbles, wet, firm.	
				Total Depth: 15 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-3-MW35	**Drilling Start Date:**	8/25/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/25/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 53794.2 East 622686.1
Land Surface Datum:	1413.1		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2	0-5′		80	Sand, black-brown, some silt, trace clay, abundant pebbles 1/4 to 4" diameter, moist to wet, soft.	HNU: No readings above background.
2-5				Clay, brown, little to some silt, abundant pebbles 1/4 to 4" diameter, wet, soft.	
5-11.5			85	Clay, brown, some silt, trace sand, abundant pebbles 1/4 to 4" diameter, wet, firm to very firm.	
11.5-15			70	Boulder, gabbro, massive, coarse-grained, intrusive rock.	
15-16			80	Clay, brown, some silt and sand, abundant pebbles 1/4 to 4", very wet, firm.	
16-17			100	Sand, brown, some silt, little clay, abundant pebbles 1/4 to 3" diameter.	
17-17.5			100	Bedrock, gabbro.	
				Total Depth: 17.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-2-MW37	**Drilling Start Date:**	8/15/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/15/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 56079.2 East 629533.8
Land Surface Datum:	1426.4		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			100	Clay, brown, some silt, trace sand, fine, slightly moist to moist, soft, pliable.	HNU: No readings above background unless noted. Sample (0-5'): 1.5 to 2.0 ppm.
5-16			100	Clay, brown, some silt, little gravel and pebbles 1/4 to 1" diameter, moist from 5 to 5.5', slightly moist from 5.5 to 16'.	
16-16.7	16-18.5'		100	Sand, brown, fine to coarse, some gravel, little clay, wet, loose.	
16.7-18				Clay, brown, some silt, little pebbles up to 5" diameter, moist.	
18-18.5				Bedrock.	
				Total Depth: 18.5 ft.	

881217

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-MW38	**Drilling Start Date:** 8/13/88
Location: Duluth, MN	**Drilling Completion Date:** 8/13/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 55730.8 East 629341.2
Land Surface Datum: 1431.4	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			60	Clay, brown, some silt, little sand, fine, trace pebbles, slightly moist, firm.	HNU: No reading above background.
5-10			100	Clay and Silt, brown, little sand, fine, little gravel, slightly moist, firm.	
10-10.2	10-15.5'		200	Gravel and Sand, gray-brown, fine to coarse, rock fragments, wet, loose.	
10.2-19	15.5-19'		100	Clay and Silt, brown, little sand, fine, little gravel, slightly moist, firm.	
19-20			100	Bedrock	
				Total Depth: 20 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-MW39	**Drilling Start Date:** 8/15/88
Location: Duluth, MN	**Drilling Completion Date:** 8/15/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1427.4	North 55547.0 East 628993.0

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2	0-5'		20	Clay, dark brown, some silt, little sand, fine, organic fragments, moist.	HNU: No readings above background.
2-5				Clay, brown, little silt, moist, pliable.	
5-12	5-15'		100	Silt, brown, some clay, little sand, fine, some thin sand laminations, fine, some pebbles, rounded to subangular 1/4 to 2" in diameter, wet.	
12-15				Silt, brown, some sand, fine, little clay, very moist to wet.	
15-21.9	15-22.5'		100	Clay, brown, some silt, sand laminations 1" thick, moist to very moist, soft, pliable.	
21.9-22.5				Bedrock.	
				Total Depth: 22.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-MW40	**Drilling Start Date:** 8/16/88
Location: Duluth, MN	**Drilling Completion Date:** 8/16/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1428.4	North 55593.7 East 629629.5

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			60	Clay, brown, little silt, moist, firm, 2" sand and gravel layer at 3′, slightly moist, pliable.	HNU: No readings above background.
5-16.5	5-15.5′		100	Clay, brown, some silt, trace sand, fine, abundant pebbles 1/4 to 5" diameter, slightly moist to moist, wet at 14.5 to 15.5′, pliable.	
16.5-17	15.5-17′		100	Bedrock.	
				Total Depth: 17 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-2-MW41	**Drilling Start Date:**	8/17/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/17/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 55996.1 East 628364.7
Land Surface Datum:	1432.0		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			80	Clay, brown, little silt, abundant pebbles 1/4 to 3" diameter, slightly moist to wet, gray clay layer from 4 to 5', firm, very tight.	HNU: No readings above background.
5-8	5-15'		100	Silt, brown, little sand and clay, abundant pebbles 1/4 to 3" diameter, very wet.	
8-9				Clay, brown, some silt, abundant pebbles 1/4 to 3" diameter, wet, pliable.	
9-12				Silt, brown, some clay, little sand, fine, abundant pebbles 1/4 to 3", moist to wet.	
12-15				Clay, brown, little silt, abundant pebbles 1/4 to 3", moist, firm to very firm.	
15-20			80	Clay, brown, some silt, abundant pebbles 1/4 to 4" diameter, moist, firm.	
				Total Depth: 20 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-BG-MW42	**Drilling Start Date:** 8/18/88
Location: Duluth, MN	**Drilling Completion Date:** 8/18/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1416.8	North 54351.0 East 619896.2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			100	Clay and Silt, brown with black lenses, some sand, fine, slightly moist from 0 to 2′ wet from 2 to 5′, loose from 0 to 2′, firm.	HNU: No readings above background.
5-10			100	Silt, brown, some clay, some pebbles and gravel up to 3" diameter, slightly moist, firm to very firm.	
10-12.5	10-15.5′		100	Clay, mottled brown and black, plant fragments, some silt, trace pebbles, very moist to wet, soft, pliable.	
12.5-15.5				Silt, brown, some clay, some gravel and pebbles, slightly moist, very dense and hard.	
				Total Depth: 15.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-BG-MW43	**Drilling Start Date:** 8/18/88
Location: Duluth, MN	**Drilling Completion Date:** 8/18/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 52548.8 East 628808.2
Land Surface Datum: 1404.6	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-13.5	0-5′		100	Peat, dark brown to black, some clay, dry 0 to 1.5′, slightly moist to moist 1.5 to 5′, moist to very moist 5 to 13.5′, pliable, soft.	HNU: No readings above background.
13.5-14.5	5-15′		100	Gravel and Sand, brown, fine to coarse, angular to subrounded, some clay, pebbles, wet, loose.	
14.5-15				Clay, brown, little silt, soft, pliable, moist.	
15-24			100	Clay, brown, some silt, little pebbles 1/4 to 1" diameter, moist.	
				Total Depth: 24 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-WP6	**Drilling Start Date:** 8/1/88
Location: Duluth, MN	**Drilling Completion Date:** 8/3/88
Client: Duluth ANGB	**Drilling Method:** Hollow Stem Auger, Rotasonic
Project No.: OR001	**Sampling Method:** Split Spoon
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1418.1	North 56970.9 East 629042.7

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-2		16-11-15-16	80	Silt, light to dark brown, some sand, fine, some clay, trace pebbles, dry, loose.	HNU: No reading above background.
5-7		6-10-18-32	80	Clay, medium to dark brown, some silt, some pebbles, 1" sand layer, coarse, at 7', slightly damp.	
10-11	10-12'	11-14-24 6 for 2"	70	Clay, moderate brown, SYR3/4, some sand, fine to coarse, pebbles, slightly damp.	Move 7' west to new location due to split spoon refusal at 10'
11-12				Sand, dusky yellowish brown, 10YR2/2, medium to coarse, pebbly, wet.	
15-17		Split spoon refusal due to rocks.	0		Finish borehole with Rotasonic rig.
				Total Depth: 25.4 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-2-WP7	**Drilling Start Date:**	8/17/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/17/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Mike Roddy	**Borehole Coordinates:**	North 56367.1 East 628656.9
Land Surface Datum:	1424.0		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5′		80	Clay, brown, some silt, organic fragments, abundant pebbles 1/4 to 3", moist to wet, pliable.	HNU: No readings above background.
1-1.7				Peat, black, moist to wet.	
1.7-5				Clay, same as 0-1′ above.	
5-8			100	Clay and Silt, brown, trace sand, abundant pebbles 1/4 to 3" diameter, gravel layers 1 to 2" thick, moist to wet.	
8-9	8-11′		100	Sand, brown, little silt and clay, abundant gravel 1/4 to 2", wet.	
9-10′				Clay, brown, abundant pebbles, moist.	
10-12	11-15′		100	Sand, brown, little clay and silt, abundant pebbles 1/4 to 3", wet.	
12-15				Clay, gray-brown, abundant pebbles, moist, firm.	
				Total Depth: 15 ft.	

8812117

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID: DANGB-2-WP7D	**Drilling Start Date:** 8/16/88
Location: Duluth, MN	**Drilling Completion Date:** 8/16/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1423.8	North 56369.5 East 628654.0

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5′		100	Clay, brown, little silt, some organic plant fragments, moist, pliable.	HNU: No readings above background.
1-2				Peat, black, moist, loose.	
2-5				Clay, brown, some silt, little sand, fine, abundant pebbles 1/4 to 3" diameter, wet, very moist from 3 to 5′.	
5-6	5-15.5′		100	Clay and Peat, mottled brown and black, some silt, very moist, firm.	
6-7				Clay, brown, some silt, abundant pebbles, very moist.	
7-9.5				Sand and Gravel, grayish brown, fine to coarse, little clay, some pebbles 1/4 to 4" diameter, wet, loose.	
9.5-13				Silt, dark brown, some clay, trace pebbles, slightly moist, very firm.	
13-14				Sand and Gravel, brown, fine to coarse, little clay, wet, loose.	
14-15				Silt, dark brown, some clay, trace pebbles, slightly moist, very firm.	
15-15.5				Gravel, gray and brown, fine to coarse, angular, some sand, fine to coarse, some pebbles, wet, loose.	

8812J17

ENGINEERING-SCIENCE

DRILLING RECORD

Borehole ID DANGB-2-WP7D

Page 2 of 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
15.5-23.4			100	Silt, dark brown, some clay, some pebbles up to 4" diameter, slghtly moist to 18′, moist from 18 to 22′, dry from 22 to 23.4′ very firm.	
23.4-25			100	Silt and Clay, brown, some pebbles 1/4 to 1", rounded to angular, slightly moist to dry, very firm to hard.	
25-33			80	Bedrock.	
				Total Depth: 33 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-2-WP8	**Drilling Start Date:** 8/17/88
Location: Duluth, MN	**Drilling Completion Date:** 8/17/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:** North 56638.0 East 629755.5
Land Surface Datum: 1417.5	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-8			80	Clay, light to dark, brown, little silt, some pebbles 1/4 to 2", moist, soft.	HNU: No readings above background.
8-12			100	Clay, brown, some silt, little sand, fine, abundant pebbles 1/4 to 4", slightly moist to moist.	
12-14			100	Silt, brown, some clay, little sand, fine, abundant pebbles 1/4 to 4", wet.	
14-18			100	Bedrock, gabbro, gray, massive.	
				Total Depth: 18 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-8-WP9	**Drilling Start Date:**	8/11/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/11/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53209.6 East 624260.2
Land Surface Datum:	1412.3		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			50	Peat, dark brown to black, abundant plant fragments, dry, loose.	HNU: No readings above background.
5-6	5-15′		100	Sand and Gravel, dark gray, fine to coarse, little clay, wet, loose.	
6-12.5				Clay, brown, some silt, trace pebbles, very moist, increase in silt downward.	
12.5-14				Sand, dark gray, fine to coarse, some clay, some gravel, rock fragments, wet.	
14-15	15-21′		100	Clay, brown, some silt, some pebbles, 1/4 to 2" diameter, very moist.	
15-18				Silt, brown, some pebbles, little clay, little gravel, slightly moist.	
18-21				Clay, brown, some silt, some pebbles, very moist.	
				Total Depth: 21 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID: DANGB-8-WP9D	**Drilling Start Date:** 8/11/88
Location: Duluth, MN	**Drilling Completion Date:** 8/11/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 53204.6 East 624258.2
Land Surface Datum: 1412.5	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-6			30 partial recovery	Clay, light brown, little silt, organics, firm, from 0 to 0.5′.	HNU: No readings above background unless noted.
				Peat, black, organic rich, dry to slightly moist, estimate interval sampled from 0.5 to 2′.	
6-7	6-11′		100	Clay, brown and black, some peat, moist.	
7-8.5				Clay and Sand, gray, fine to coarse, some pebbles and gravel 1 to 3" diameter, wet.	
8.5-11				Clay, brown, little gravel, little pebbles, moist.	
11-12	11-18		100	Clay, brown, wet, pliable.	
12-13.5				Sand and Gravel, gray, medium to coarse, some pebbles 1 to 3" diameter, angular, rock fragments, wet, loose.	
13.5-16				Clay, brown, some pebbles, wet, pliable.	
16-18				Silt, brown, some clay, pebbles 1/4 to 2" diameter, moist, firm.	
18-18.5	18-26′		100	Gravel and Sand, gray, medium to coarse, pebbles, angular, wet, loose.	
18.5-21				Clay, brown, little silt, pebbles, very moist, pliable.	

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-8-WP9D

Page 2 of 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
21-26				Clay and Silt, brown, some pebbles 1/4 to 2", little sand, fine, very moist, pliable.	
26-28	26-36'		90	Clay, brown, some silt, little pebbles 1/4", very moist to wet, pliable.	Sample: 3 ppm; probably moisture.
28-31				Silt, brown, some clay, some gravel, rock fragments, slightly moist, firm.	
31-36				Silt, brown, some sand, fine, little clay, little gravel and pebbles, slightly moist, firm.	
36-41			100	Silt, brown, same as above, with some gravel, dry, very firm.	Sample: 0-2 ppm; probably moisture.
41-41.5	41-46'		100	Sand, brown, fine to medium, rock fragments, little clay, wet, loose.	
41.5-46				Silt, brown, some sand, fine, some gravel, little clay, dry, hard.	
46-47.5	46-54'		100	Boulder, granite.	
47.5-49				Sand and Gravel, gray, coarse, wet, loose.	
49-50				Clay, brown, some silt, slightly moist, firm.	
50-54				Bedrock.	
				Total Depth: 54 ft.	

8312J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-8-WP10	**Drilling Start Date:**	8/6/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/6/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53646.3 East 624089.0
Land Surface Datum:	1413.2		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-6	0-5'		100	Clay, brown, some silt, scattered black organic areas, trace pebbles, dry, firm.	HNU: No readngs above background 0-6' fill material.
6-10	5-10'		100	Peat, dark brown to black, organic plant material little clay, trace silt, no pebbles, wet, soft, loose.	
10-12	10-15'		80	Clay, dark gray to black, abundant plant fragments in top foot, trace silt, organic odor.	
12-13'				Sand, gray, fine to coarse, some clay, some silt, wet.	
13-14				Gravel, gray, some sand, fine to coarse, trace clay, wet, loose.	
14-15				Clay, brown, some silt, moist, firm.	
15-19	15-20'		80	Silt, brown, some clay, trace pebbles, dry.	
19-20				Clay, brown, little silt, trace pebbles, slightly moist.	
				Total Depth: 20 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID:	DANGB-8-WP10D	**Drilling Start Date:**	8/6/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/6/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	
Land Surface Datum:	1413.3		North 53646.1 East 624082.7

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-9.5	0-5′		90	Clay, brown, some silt, abundant pebbles 1/4 to 1" diameter, dry; moist at 8′.	HNU: No readings above background unless noted. 0-9′ fill material.
9.5-10	5-10′		90	Peat, brownish black, woody, moist.	
10-14	10-15′		100	Silt, brown to dark brown, some clay, very organic rich with plant fragments, wet, loose.	
14-15				Clay, brown, some silt, abundant pebbles 1/8 to 1/2", slightly moist to moist.	
15-20			100	Clay, brown, some silt, abundant pebbles 1/4 to 3" diameter, slightly moist, very firm.	Sample: 2 ppm; probable water vapor.
20-20.5	20-22.5′		100	Sand, brown, fine, some clay, wet, loose.	
20.5-22.5				Silt and Clay, brown, abundant pebbles 1/4 to 2", slightly moist, very firm.	
22.5-23.3	22.5-32′		100	Silt, brown to dark brown, some sand, fine to medium, little gravel, little clay, very wet.	
23.3-27.5				Silt and Clay, brown, little sand, fine, pebbles, slightly moist, very firm.	

8813117

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-8-WP10D

Page 2 of 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
27.5-35	32-35′		100	Clay, brown, some silt, abundant rock fragments and pebbles up to 5", slightly moist, very firm.	
35-40.5			100	Silt, brown, some clay, some sand, fine to coarse, little gravel, angular, pebbles 1/4 to 2" diameter, moist to wet from 35 to 37′, slightly moist from 37 to 40.5′.	
40.5-45			100	Silt, brown, some sand and gravel, fine to medium, little clay, abundant cobbles and rock fragments, moist to wet.	
45-47.5			100	Bedrock, gabbro.	
				Total Depth: 47.5 ft.	

8812J17

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-4 WP11	**Drilling Start Date:**	8/19/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/19/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53301.2 East 623927.2
Land Surface Datum:	1413.6		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-.5	0-5′		80	Peat, black, organics.	HNU: No reading above background.
.5-5				Clay, brown, some silt, abundant pebbles 1/4 to 2′ diameter, slightly moist, firm.	Upper 5 feet may be fill material.
5-9	5-7′		100	Peat, dark brown to black, small plant fragments, no pebbles, moist, wet from 7 to 9′, soft.	Driller notes hard object at 7′.
9-12.8	7-15.5′		100	Silt, brown, some clay, trace pebbles, moist to very moist, stiff.	
12.8-13.3				Sand, brown, fine to medium, some clay, little silt, pebbles, wet, loose.	
13.3-15.5				Silt, brown, some clay, trace pebbles, moist to very moist, stiff.	
15.5-23.5			100	Silt, brown, some clay, some gravel and pebbles, very firm to stiff, slightly moist to very moist at bottom .5′	
23.5-24.3				Bedrock.	
			100		
				Total Depth: 24.3 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 **of** 1

Borehole ID:	DANGB-4-WP12	**Drilling Start Date:**	8/22/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/22/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma	**Borehole Coordinates:**	North 53301.2 East 623927.2
Land Surface Datum:	1413.6		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5′		50	Clay, brown, some silt, organic fragments, moist	HNU: No readings above background.
1-2.5				Silt, brown, some clay, some pebbles 1/4 to 1" diameter, dry to slightly moist, firm to hard.	
2.5-5			not recovered		
5-7	5-10′		100	Clay, brown, some sand, fine, little silt, wet, soft.	
7-7.5				Clay, black to dark gray, little silt, moist, soft, pliable.	
7.5-9				Clay, mottled brown and dark gray, little sand, fine, little silt, little pebbles, moist.	
9-10				Silt, brown, some clay, some sand, fine, some pebbles 1/4 to 1" diameter, very moist, firm.	
10-11	10-18′		100	Clay, brown, some silt, little pebbles 1/4 to 1" diameter, very moist.	
11-18				Silt, brown, some clay, some gravel, abundant pebbles 1 to 3" in diameter, rounded, slightly moist, firm to very firm.	
				Total Depth: 18 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID: DANGB-4-WP12D	**Drilling Start Date:** 8/22/88
Location: Duluth, MN	**Drilling Completion Date:** 8/22/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 54106.5 East 624215.9
Land Surface Datum: 1414.8	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			50	Clay, brown, some silt, abundant pebbles 1/4 to 1/2" diameter, dry, very firm to dense.	HNU: No readings above background.
5-6	5-15'		100	Clay, same as above, slightly moist.	
6-6.5				Sand, brown, fine, some silt, moist, stiff.	
6.5-7.5				Clay, greenish blue, little silt, trace sand, fine, moist, soft, pliable.	
7.5-8				Clay, brown, some silt, abundant pebbles 1/4 to 1/2" diameter, slightly moist.	
8-10.5				Clay, mottled brown, green and red, some silt, little sand lenses, fine to medium, moist to very moist, firm.	
10.5-11.5				Silt, brown, some clay, some sand, fine, abundant pebbles, moist.	
11.5-15			100	Clay, brown, some silt, abundant pebbles up to 3" diameter, rounded, slightly moist, firm to very firm.	
15-20	15-25'		100	Silt, brown, some clay, abundant pebbles and gravel from 3/4 to 3", rounded, moist to slightly moist, firm.	
20-24.5				Silt, same as above, little clay.	

ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-4-WP12D

Page 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
24.5-25				Sand, brown, fine, some silt, little clay, abundant pebbles, very moist, loose.	
25-31.3			10	Sand, same as above, note poor recovery.	
31.3-34.9			100	Bedrock, gabbro.	
				Total Depth: 34.9 ft.	

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ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-4-WP13	**Drilling Start Date:** 8/22/88
Location: Duluth, MN	**Drilling Completion Date:** 8/22/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:** North 54118.7 East 623808.3
Land Surface Datum: 1416.8	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-10	0-11''		60	Clay, brown, some silt, some pebbles 1/2 to 2" diameter, black colored layer at 6", slightly moist.	HNU: No readings above background.
10-11				Sand, brown, fine, some clay, moist to wet.	
				Total Depth: 11 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-4-WP13D	**Drilling Start Date:** 8/22/88
Location: Duluth, MN	**Drilling Completion Date:** 8/22/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma	**Borehole Coordinates:**
Land Surface Datum: 1416.8	North 54118.7 East 623808.3

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-3	0-5′		80	Silt, brown, some clay, little pebbles, slightly moist, firm.	HNU: No readings above background.
3-4				Peat, black, organic rich.	
4-5				Silt, brown, some clay, little pebbles, slightly moist, firm.	
5-6	5-15′		100	Clay, mottled brown and gray, some silt, moist, firm.	
6-10				Sand, light brown, fine, some clay, little silt, little gravel, wet, loose to firm.	
10-15				Clay, mottled brown and gray, little silt, moist, very pliable, soft.	
15-17	15-21′		100	Silt, brown, some clay, little sand lenses, fine, moist, soft to firm.	
17-18				Clay, brown, little silt, moist, soft, pliable.	
18-21				Silt, brown, some clay, some pebbles from 1/4 to 2" diameter, rounded, little sand, fine, little gravel, moist, soft to firm.	
21-25			100	Bedrock.	
				Total Depth: 25 ft.	
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ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-4-WP14	**Drilling Start Date:**	8/23/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/23/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	Peter Riemersma & Mike Roddy	**Borehole Coordinates:**	
Land Surface Datum:	1415.6	North 54130.7 East 623319.3	

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-5			60	Silt and Clay, brown, some pebbles 1/4 to 2" diameter, 2" peat layer at 2.5′, slightly moist.	HNU: No readings above background.
5-6	5-12′		70	Silt and Clay, same as above, mottled brown and black.	
6-10				Sand, brown, fine-to-coarse, some gravel, little clay, wet, loose, 4" gravel layer at 8'10-12	
				Clay, dark brown, little silt, moist, pliable, firm.	
				Total Depth: 12 ft.	

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ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID:	DANGB-4-WP14D	**Drilling Start Date:**	8/23/88
Location:	Duluth, MN	**Drilling Completion Date:**	8/23/88
Client:	Duluth ANGB	**Drilling Method:**	Rotasonic
Project No.:	OR001	**Sampling Method:**	Continuous Core
Geologist:	P. Riemersma, M. Roddy, J. Sherwin	**Borehole Coordinates:**	North 54131.2 East 623324.6
Land Surface Datum:	1415.8		

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-6	0-5′		60	Silt and Clay, brown, little pebbles 1/4 to 1" diameter, slightly moist, very firm to hard, 2" peat layer at 2′.	HNU: No readings above background.
6-8.5	5-15′		100	Sand, brown, fine-to-coarse, little gravel, little clay, wet, loose.	
8.5-21	15-24′		100	Clay, dark brown, little silt, moist to very moist, pliable, firm.	
21-24				Sand and Clay, brown, little silt, little gravel and pebbles, very moist to wet, loose.	
24-27.5			100	Bedrock.	
				Total Depth: 27.5 ft.	
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ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-4-WP15	**Drilling Start Date:** 8/23/88
Location: Duluth, MN	**Drilling Completion Date:** 8/23/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1416.6	North 54142.9 East 022938.8

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1′	0-5′		60	Sand and silt, brown, abundant pebbles 1/4 to 2" in diameter, moist soft, pliable.	HNU: No reading above background.
1-5′				Peat, black, moist, very soft.	
5-12′			100	Clay, brown to tan, some silt, abundant pebbles 1/4 to 3" in diameter, moist to wet, soft.	
12-17′			80	Clay, brown, little silt, trace pebbles 1/4 to 2" in diameter, moist to wet, firm.	
				Total Depth: 19 ft.	

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ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 1

Borehole ID: DANGB-4-WP15D	**Drilling Start Date:** 8/23/88
Location: Duluth, MN	**Drilling Completion Date:** 8/23/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1416.6	North 54142.9 East 622938.8

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1	0-5'		80	Sand and Silt, brown, abundant pebbles 1/4" to 2" in diameter, moist, soft, pliable.	HNU: No readings above background.
1-4				Peat, black, moist, very soft.	
4-4.25				Sand and Clay, brown, moist, soft, pliable.	
4.25-5				Clay, brown, some silt, trace sand, fine, trace pebbles.	
5-15			100	Clay, brown, some silt, abundant pebbles 1/4 to 4" in diameter, moist, lower half firm, upper half soft.	
15-25			90	Clay and Silt, brown, trace sand, fine, abundant pebbles 1/4 to 3" in diameter, wet, firm to very firm.	
25-29			0		
29-31.5			100	Bedrock, gabbro, gray, holocrystalline, massive, coarse-grained intrusive rock, plagioclase, pyroxenes, trace opaque metallic minerals.	
				Total Depth: 31.5 ft.	

ENGINEERING-SCIENCE
DRILLING RECORD

Page 1 of 2

Borehole ID: DANGB-4-WP16	**Drilling Start Date:** 8/19/88
Location: Duluth, MN	**Drilling Completion Date:** 8/19/88
Client: Duluth ANGB	**Drilling Method:** Rotasonic
Project No.: OR001	**Sampling Method:** Continuous Core
Geologist: Peter Riemersma & Mike Roddy	**Borehole Coordinates:**
Land Surface Datum: 1413.1	North 53377.1 East 623240.3

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
0-1.5	0-5′		100	Sand and Gravel, black, fine-to-coarse, some silt, slightly moist, loose.	HNU: No readings above background unless noted. Surface Fill to 3′.
1.5-2.5				Silt and Sand, brown, fine, some clay, pebbles 1/4 to 4" diameter, moist, loose.	
2.5-3.0				Sand, brownish black, fine-to-medium, little clay, wet, loose.	
3-3.5				Clay, brown, some silt, plant roots.	
3.5-4.3				Peat, black, moist, soft.	
4.3-5.0				Clay, grayish black, trace silt, moist, soft, pliable.	
5-14			100	Clay, brown, little silt, trace to some pebbles, very moist from 5 to 8′, moist from 8 to 10′, slightly moist from 10 to 14′, very soft to firm.	
14-16.8	14-17′		100	Clay, brown, little to some silt, trace pebbles, moist, soft, pliable.	Hit rock at 14′
16.8-17				Sand, brown, fine, very moist, loose.	Sample: 2.0 ppm.
17-20			100	Sand and Gravel, brown, fine-to-coarse, little clay, little silt, pebbles, wet.	
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ENGINEERING-SCIENCE
DRILLING RECORD

Borehole ID DANGB-4-WP16

Page 2 **of** 2

Depth Below LS (feet)	Sample Interval	Sampler Blows	Percent Recovery	Sample Description	Notes
20-22			100	Silt, brown, some clay pebbles up to 2" diameter.	
22-23.5			100	Silt, brown, some clay, some pebbles and gravel, slightly moist to dry, hard.	
23.5-24.4			100	Bedrock.	
				Total Depth: 24.4 ft.	

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This is the end of Appendix E.

APPENDIX F
WELL CONSTRUCTION

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APPENDIX F
TABLE OF CONTENTS

TABLE OF CONTENTS(continued)

LIST OF FIGURES

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SECTION F.1
INTRODUCTION

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SECTION F.1
INTRODUCTION

Well construction diagrams have been completed for each location where monitoring well or well points were constructed as part of the Remedial Investigation. Diagrams are presented in numerical order by either monitoring well or well point designation. The diagrams combine in one page: water level data, general subsurface lithology, and well construction information for an individual well. Well construction information includes an outline of the monitoring well or well point and contains the depth of the borehole, the screened interval, and the sand packed and bentonite interval. The water level in the well measured on September 27, 1988 is graphically illustrated. The left column of the diagram contains a verbal and graphical illustration of the predominant lithology encountered during drilling of the borehole. Lithologic symbols are derived and generalized from the Unified Soil Classification System shown in Figure F-1. Symbols used in well construction records are shown in Figure F-2.

MAJOR DIVISIONS			GRAPHIC SYMBOL	LETTER SYMBOL	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS MORE THAN 50% OF MATERIAL IS LARGER THAN NO. 200 SIEVE SIZE	GRAVEL AND GRAVELLY SOILS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS (LITTLE OR NO FINES)	∴	GW	WELL GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
			⁙	GP	POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES (APPRECIABLE AMOUNT OF FINES)	▥	GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
			▨	GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES
	SAND AND SANDY SOILS MORE THAN 50% OF COARSE FRACTION PASSING NO. 4 SIEVE	CLEAN SAND (LITTLE OR NO FINES)	∴	SW	WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
			⁘	SP	POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES (APPRECIABLE AMOUNT OF FINES)	▥	SM	SILTY SANDS, SAND-SILT MIXTURES
			▨	SC	CLAYEY SANDS, SAND-CLAY MIXTURES
FINE GRAINED SOILS MORE THAN 50% OF MATERIAL IS SMALLER THAN NO. 200 SIEVE SIZE	SILTS AND CLAYS	LIQUID LIMIT LESS THAN 50	▥	ML	INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY
			▨	CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS
			▥	OL	ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY
	SILTS AND CLAYS	LIQUID LIMIT GREATER THAN 50	▥	MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS
			▨	CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS
			▨	OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS
HIGHLY ORGANIC SOILS			▤	PT	PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS

Figure F-1 Unified Soil Classification System.

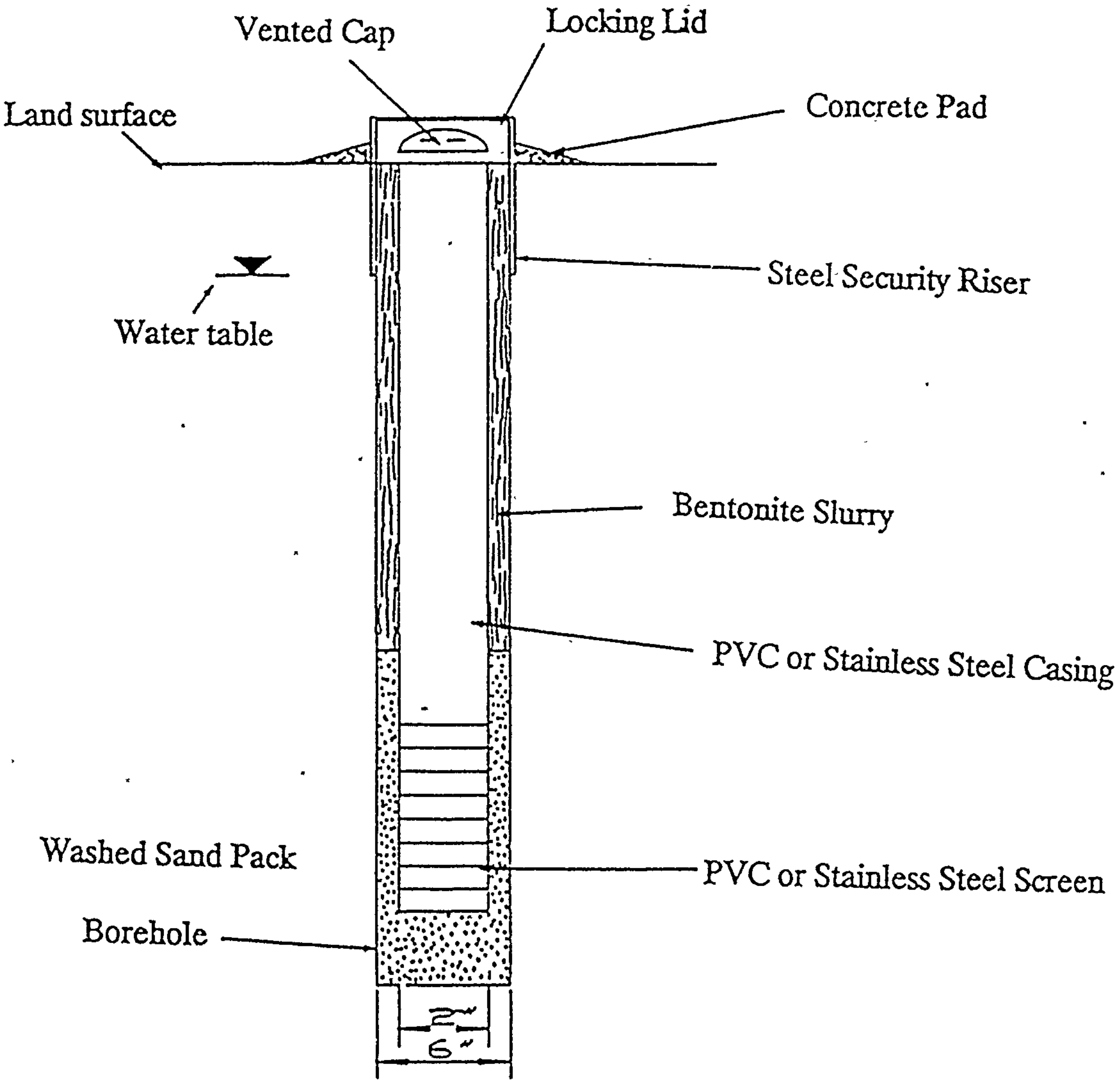

Figure F-2 Identification of Symbols Used in Well Construction.

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SECTION F.2
WELL CONSTRUCTION DIAGRAMS

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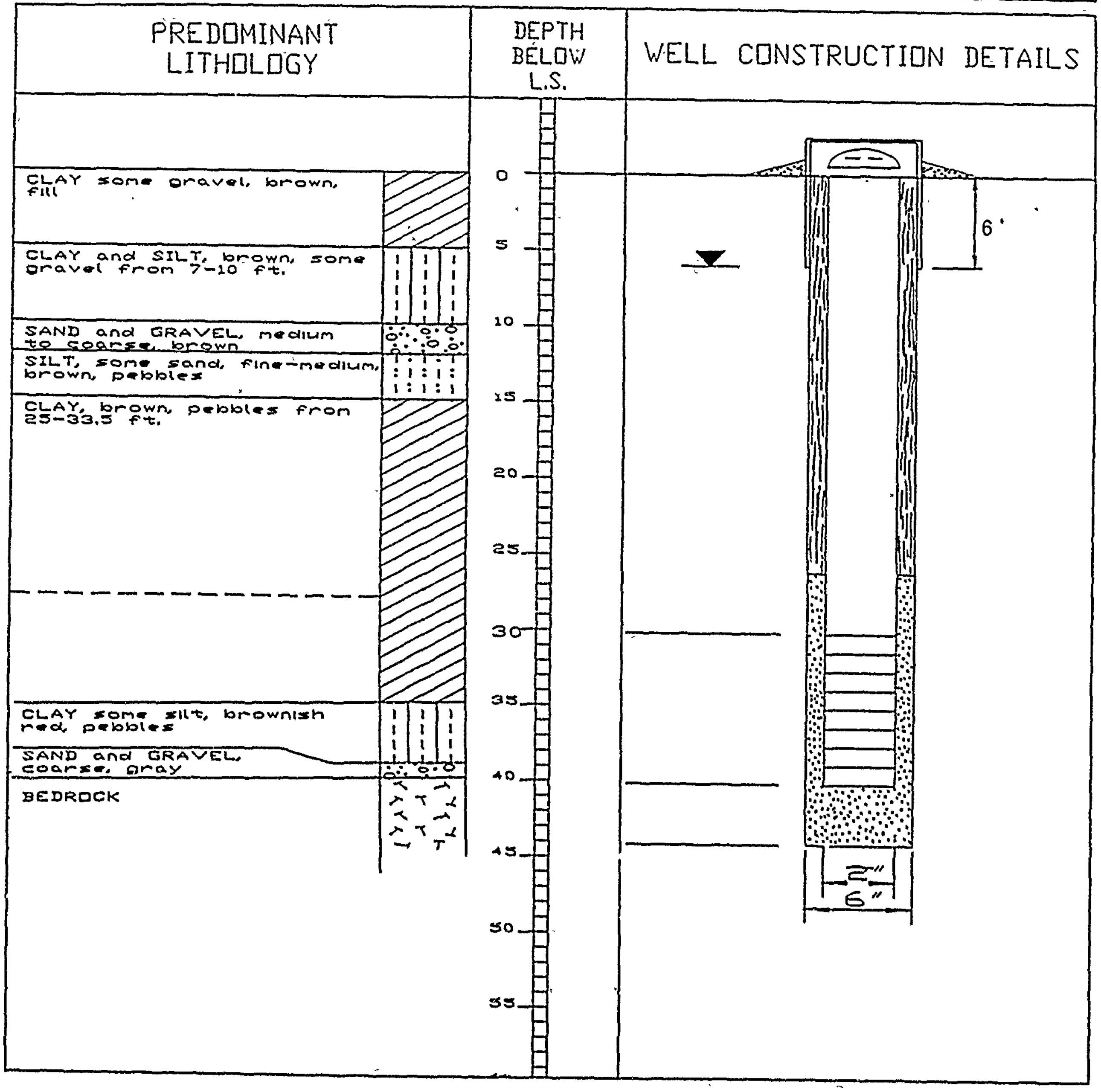
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-MW14
DATE DRILLED:	8/8/88
DATE INSTALLED:	8/9/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well MW14 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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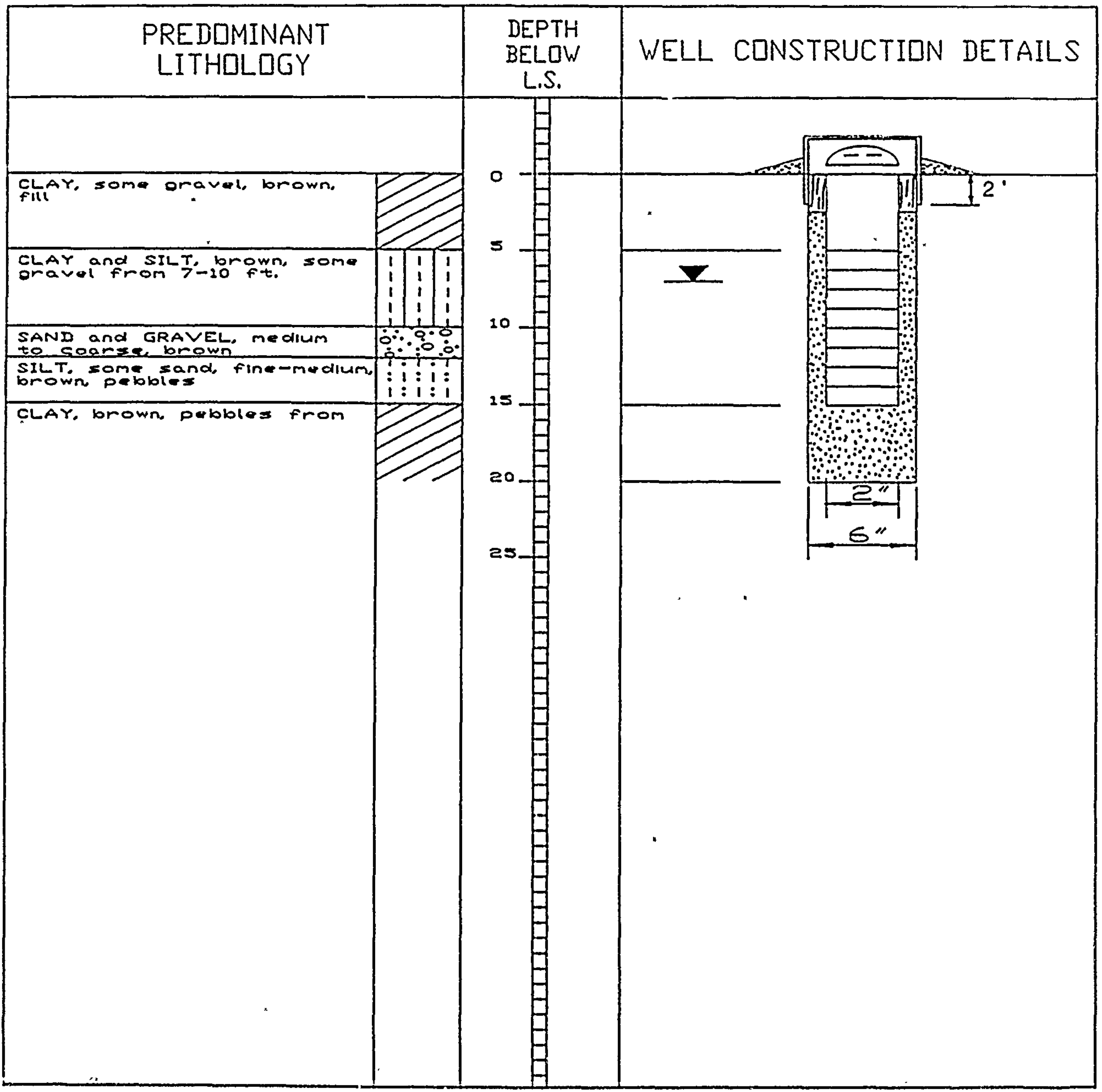
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-MW15
DATE DRILLED:	8/9/88
DATE INSTALLED:	8/9/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well MW15 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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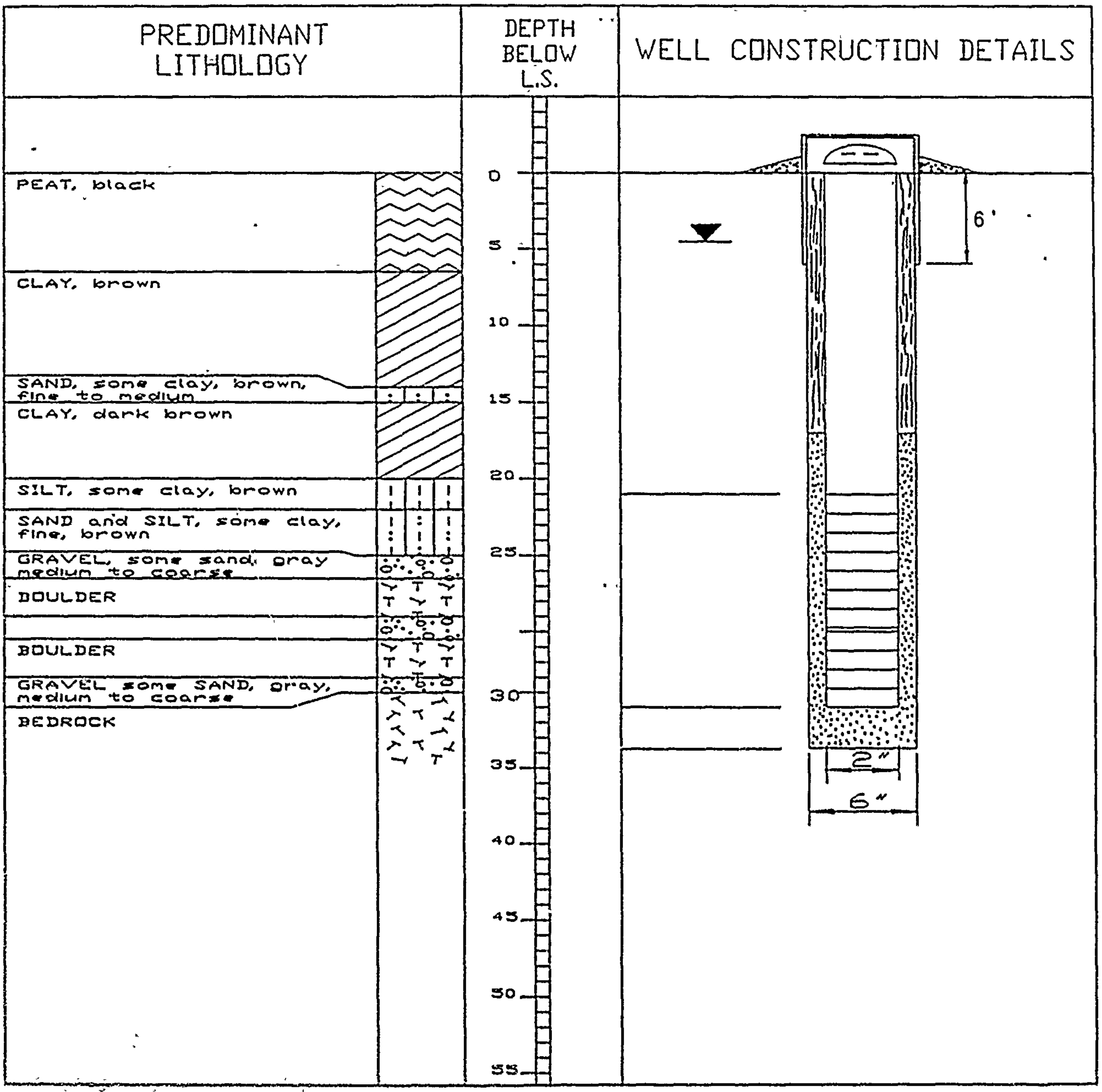
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-MW16
DATE DRILLED:	8/10/88
DATE INSTALLED:	8/10/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 8MW16 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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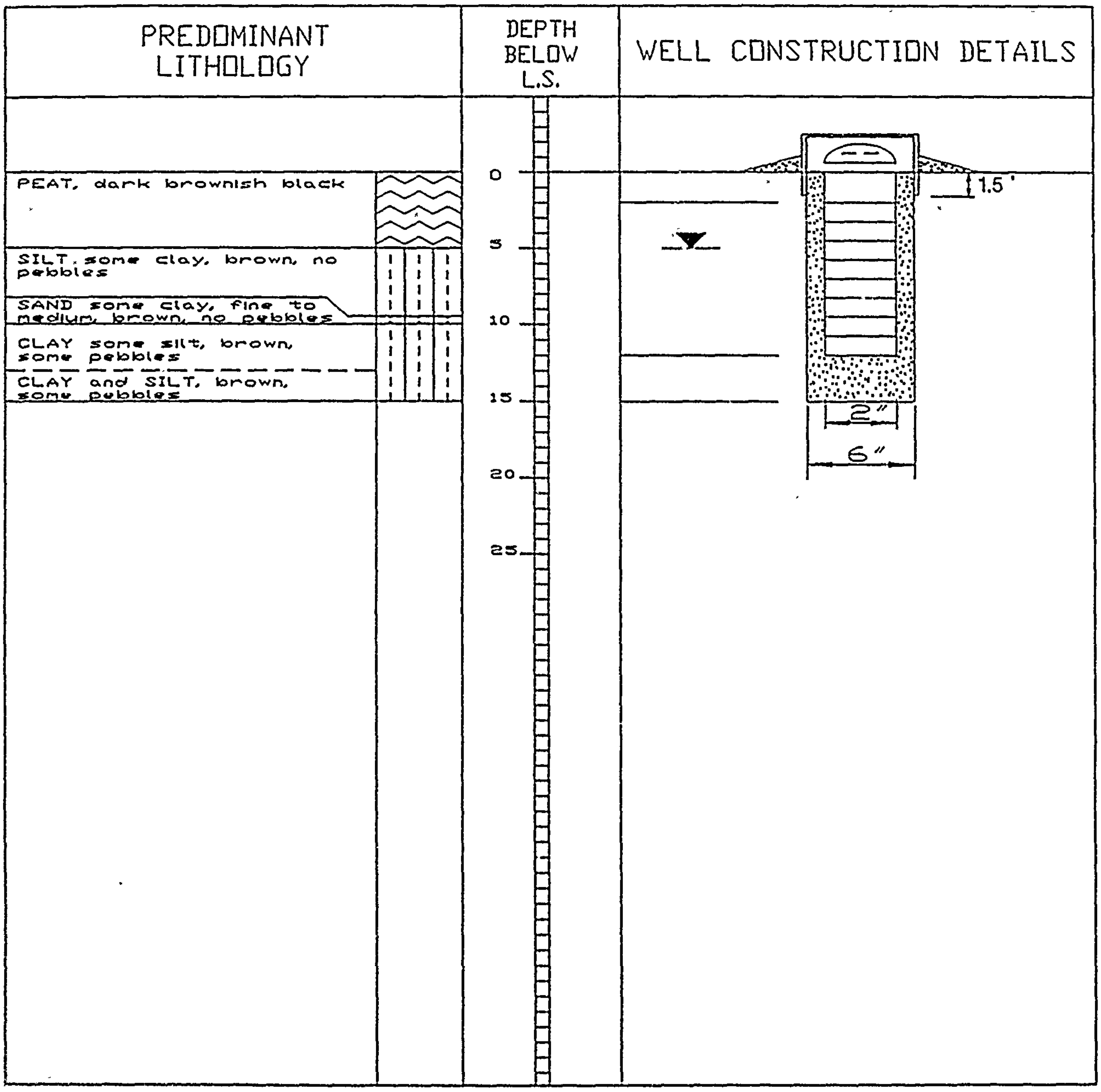
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-MW17
DATE DRILLED:	8/10/88
DATE INSTALLED:	8/10/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 8MW17 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



PEAT, dark brownish black

SILT, some clay, brown, no pebbles

SAND sone clay, fine to medium, brown, no pebbles

CLAY some silt, brown, some pebbles

CLAY and SILT, brown, some pebbles

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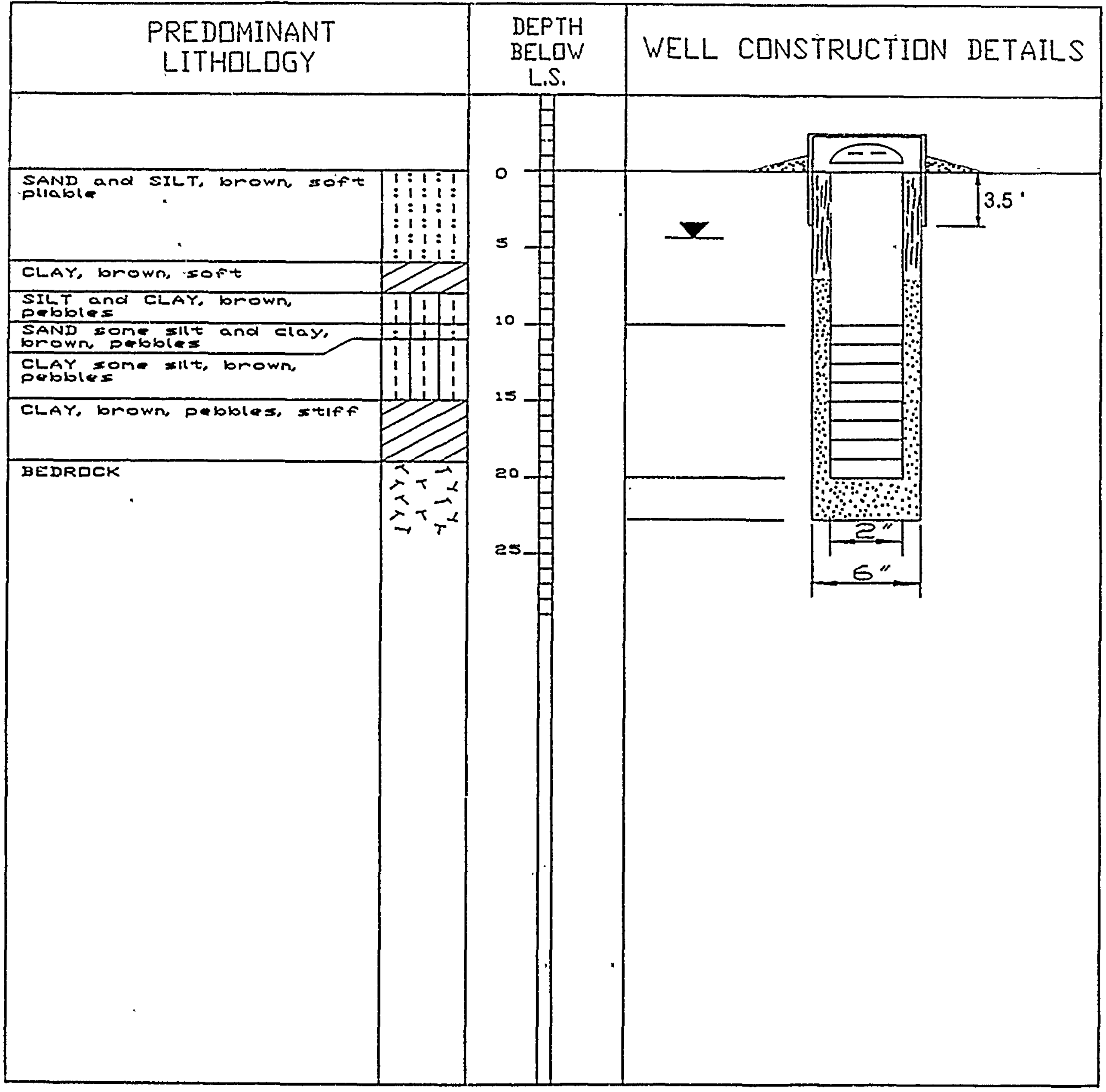
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-MW21
DATE DRILLED:	8/20/88
DATE INSTALLED:	8/20/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 4MW21 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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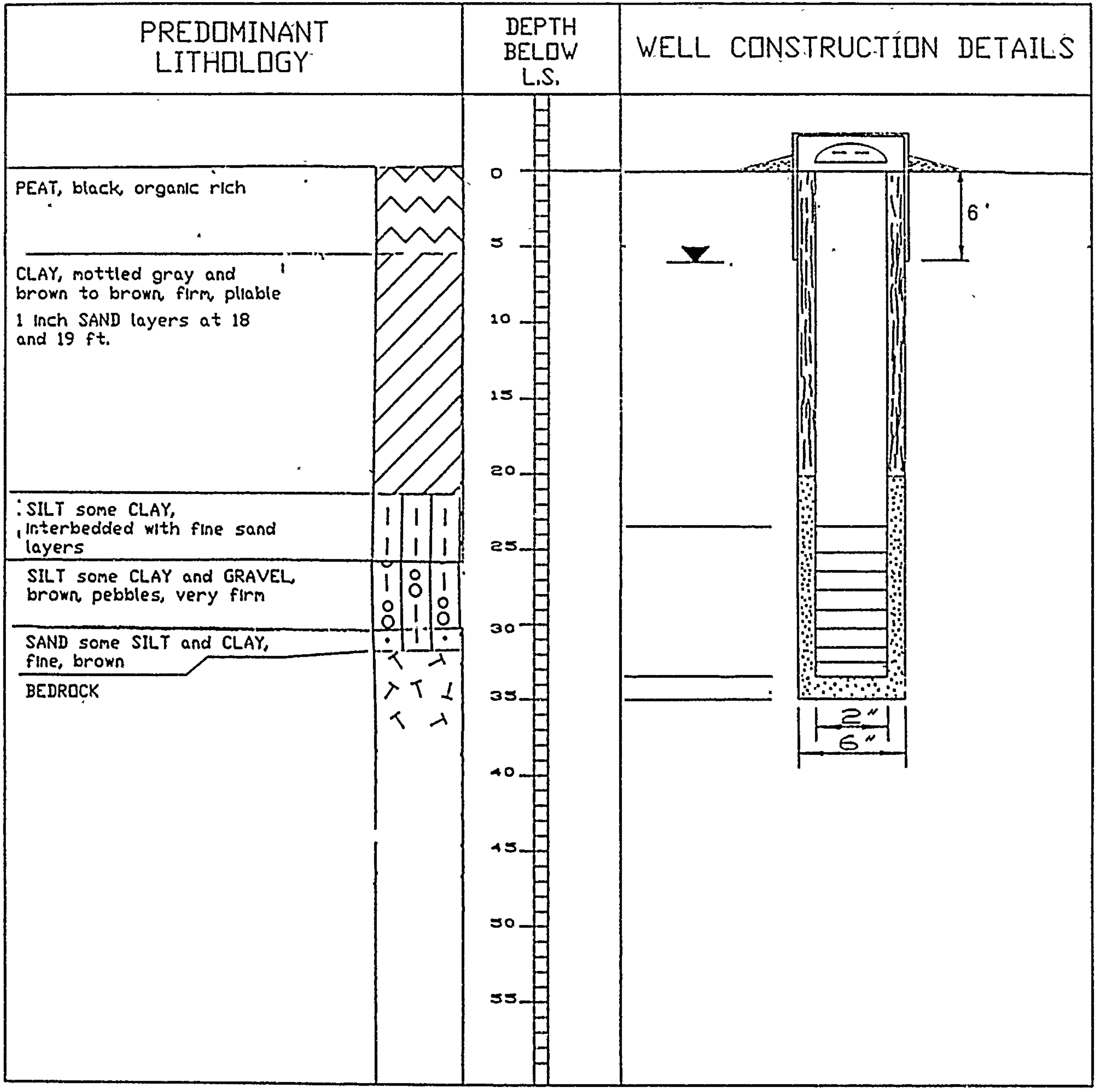
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-MW22
DATE DRILLED:	8/20/88
DATE INSTALLED:	8/20/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIERMERSMA

WELL CONSTRUCTION:

Well 4MW22 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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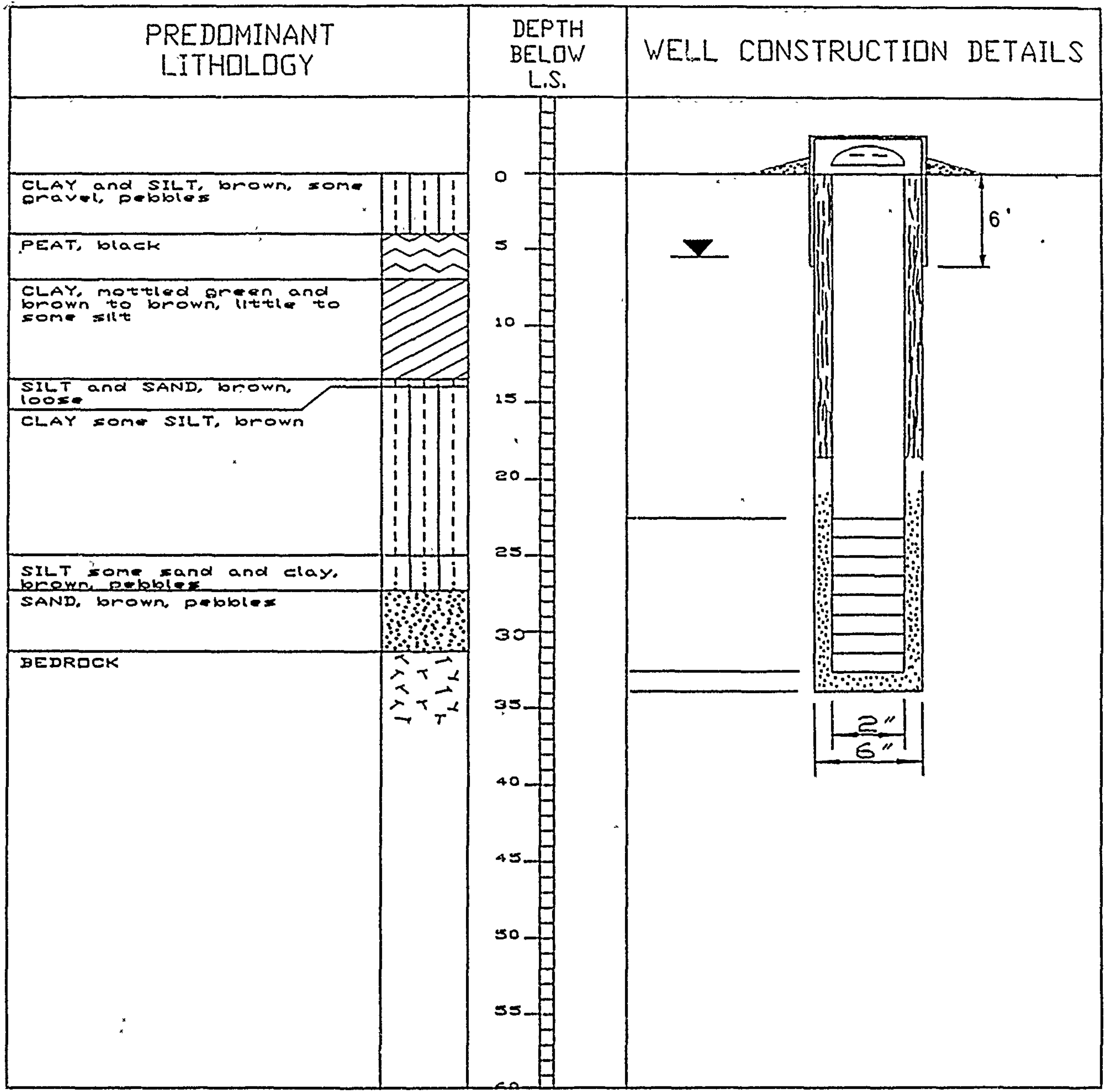
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-MW23
DATE DRILLED:	8/18/88
DATE INSTALLED:	8/18/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIERMERSMA & M. RODDY

WELL CONSTRUCTION:

Well 4MW23 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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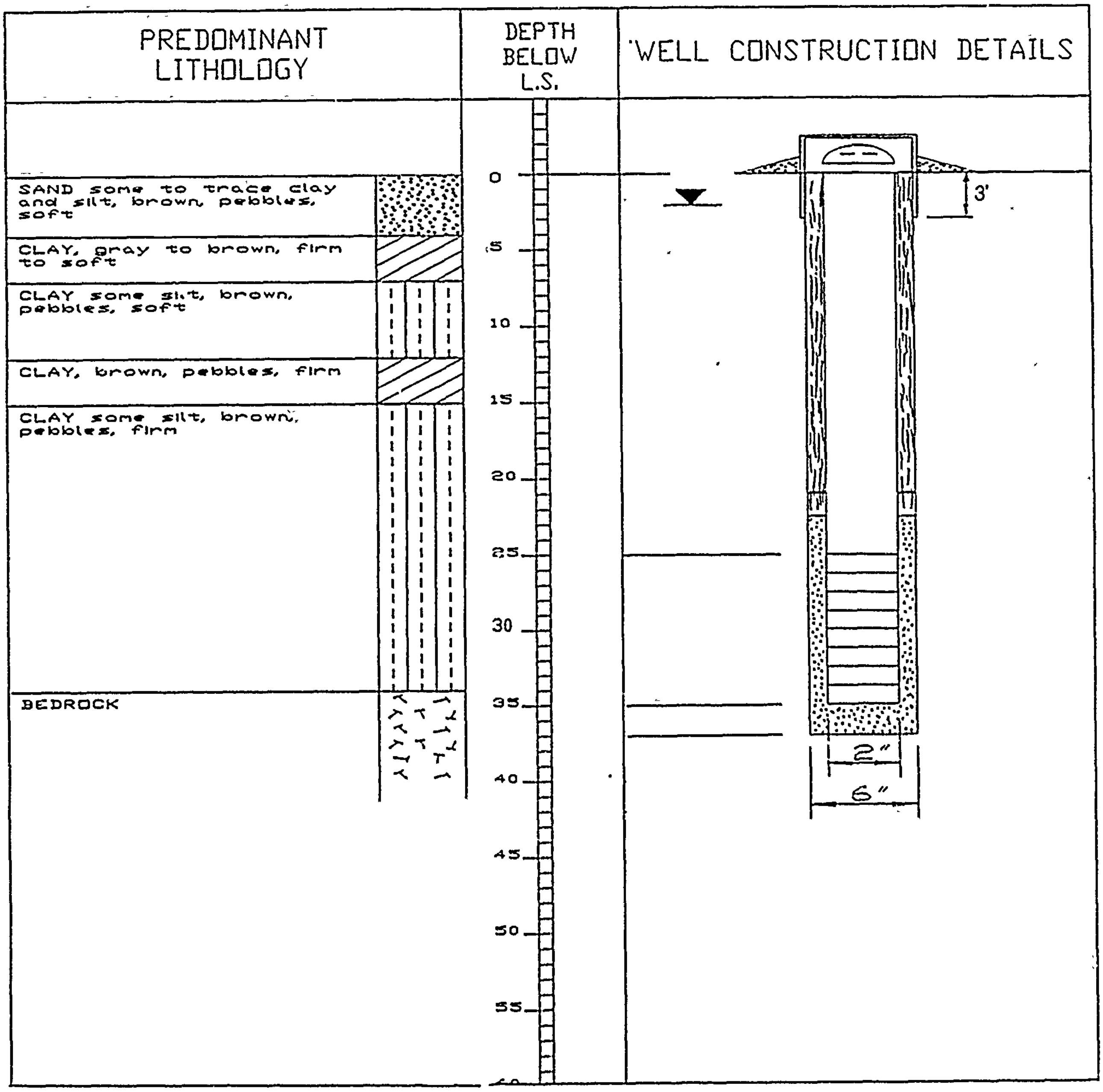
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-MW24
DATE DRILLED:	8/24/88
DATE INSTALLED:	8/24/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 4MW24 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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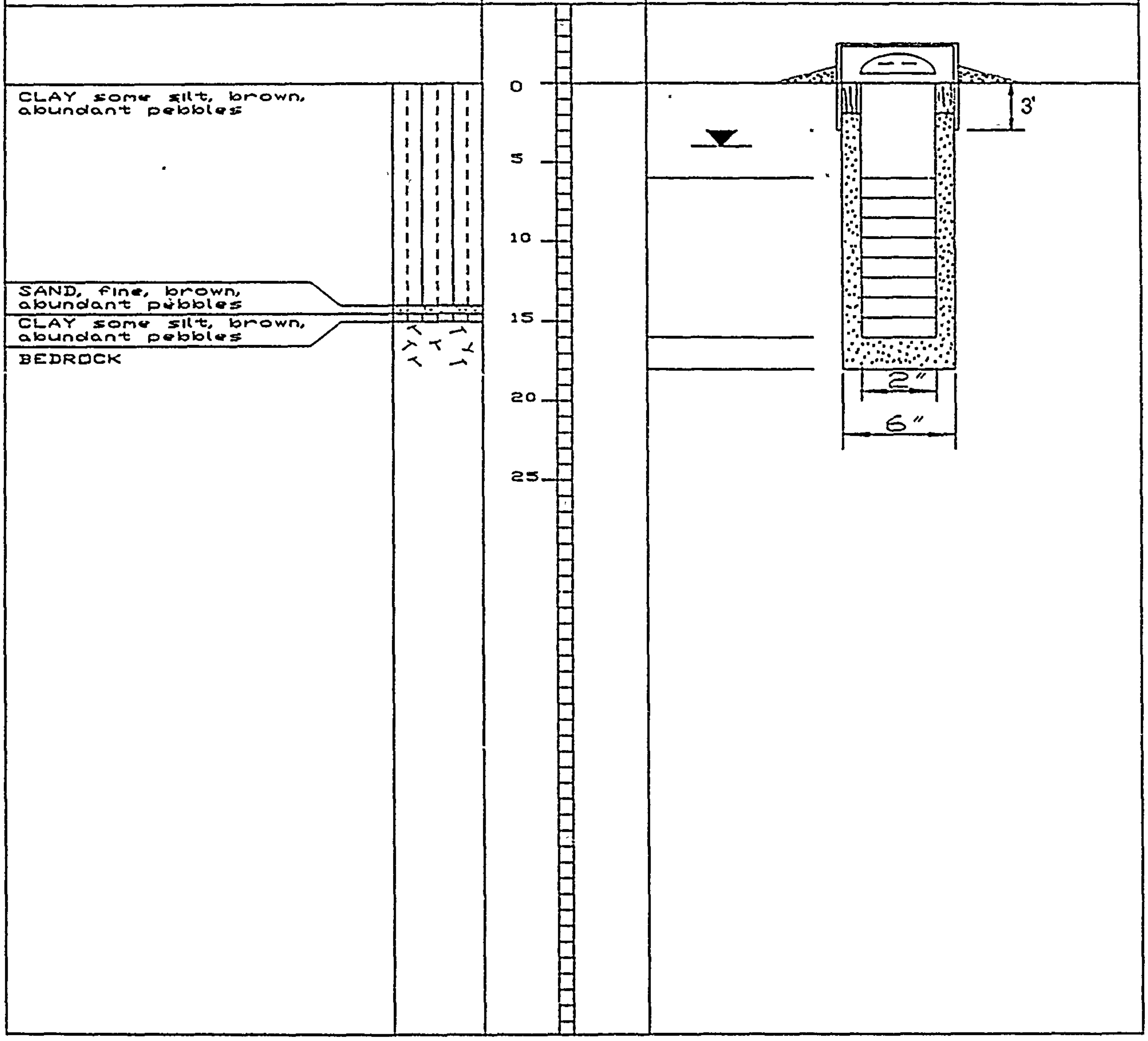
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW25
DATE DRILLED:	8/26/88
DATE INSTALLED:	8/26/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW25 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



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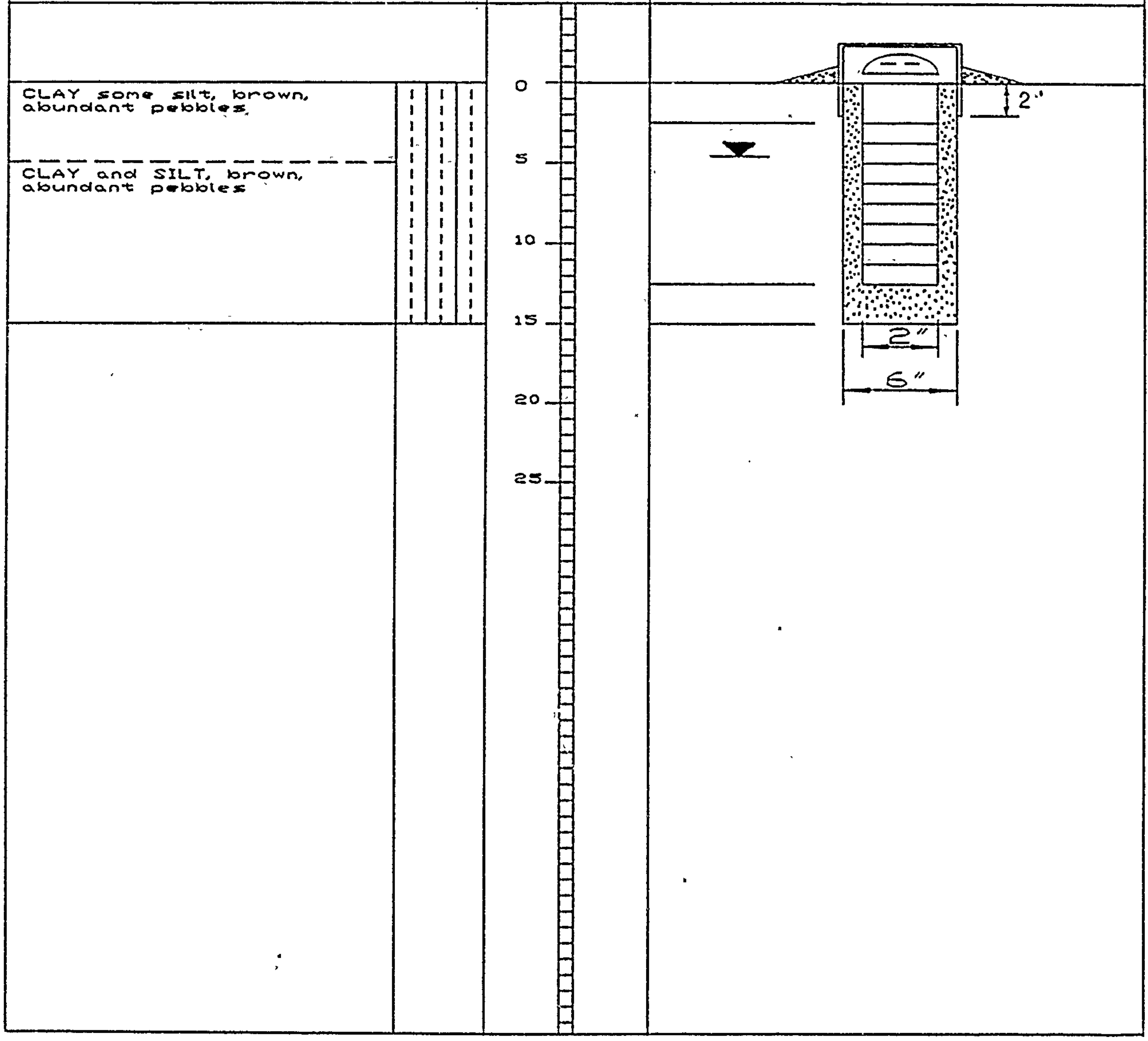
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW26
DATE DRILLED:	8/26/88
DATE INSTALLED:	8/26/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW26 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS
CLAY some silt, brown, abundant pebbles		
CLAY and SILT, brown, abundant pebbles		

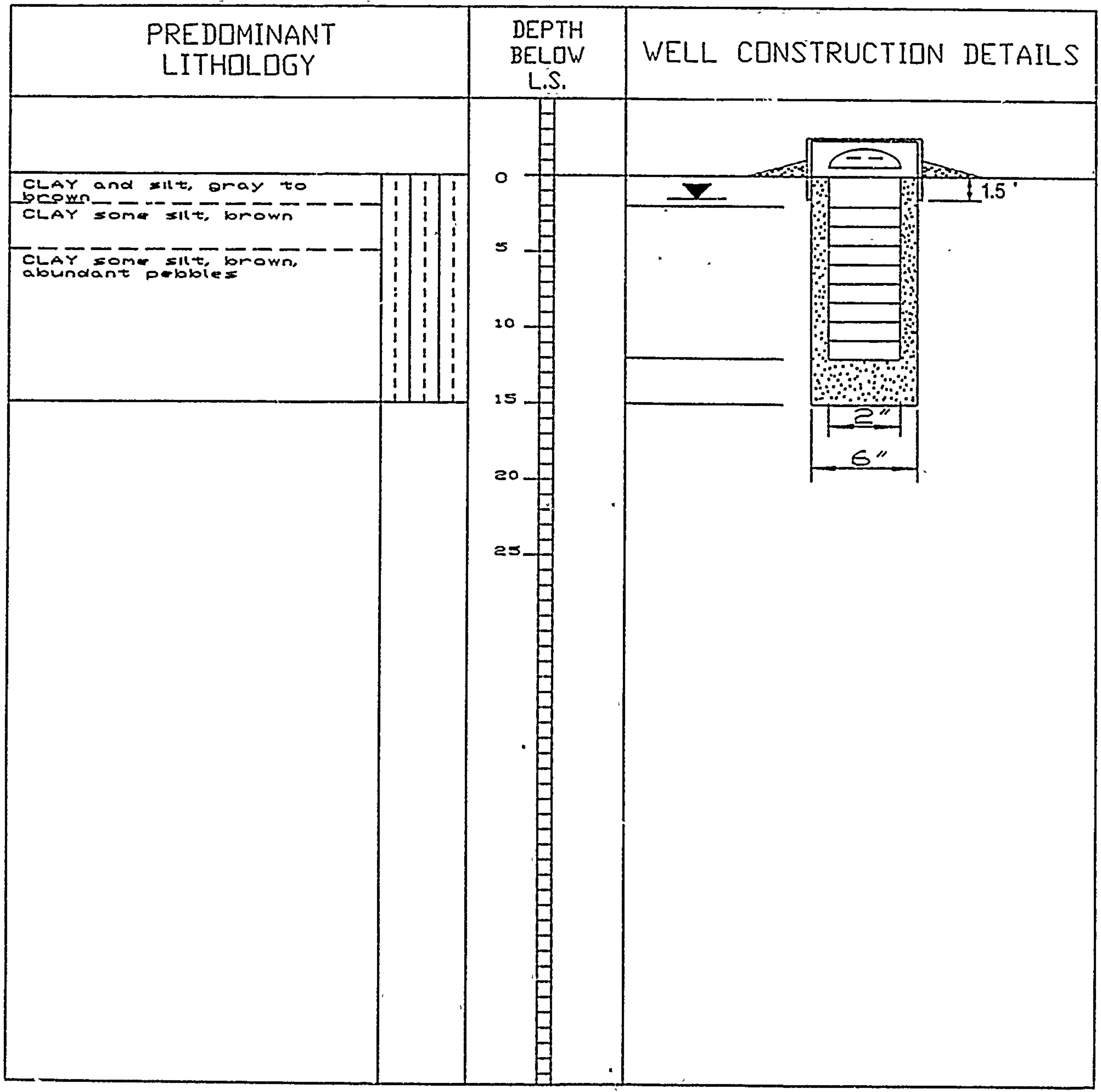


DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW27
DATE DRILLED:	8/24/88
DATE INSTALLED:	8/24/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW27 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



ES

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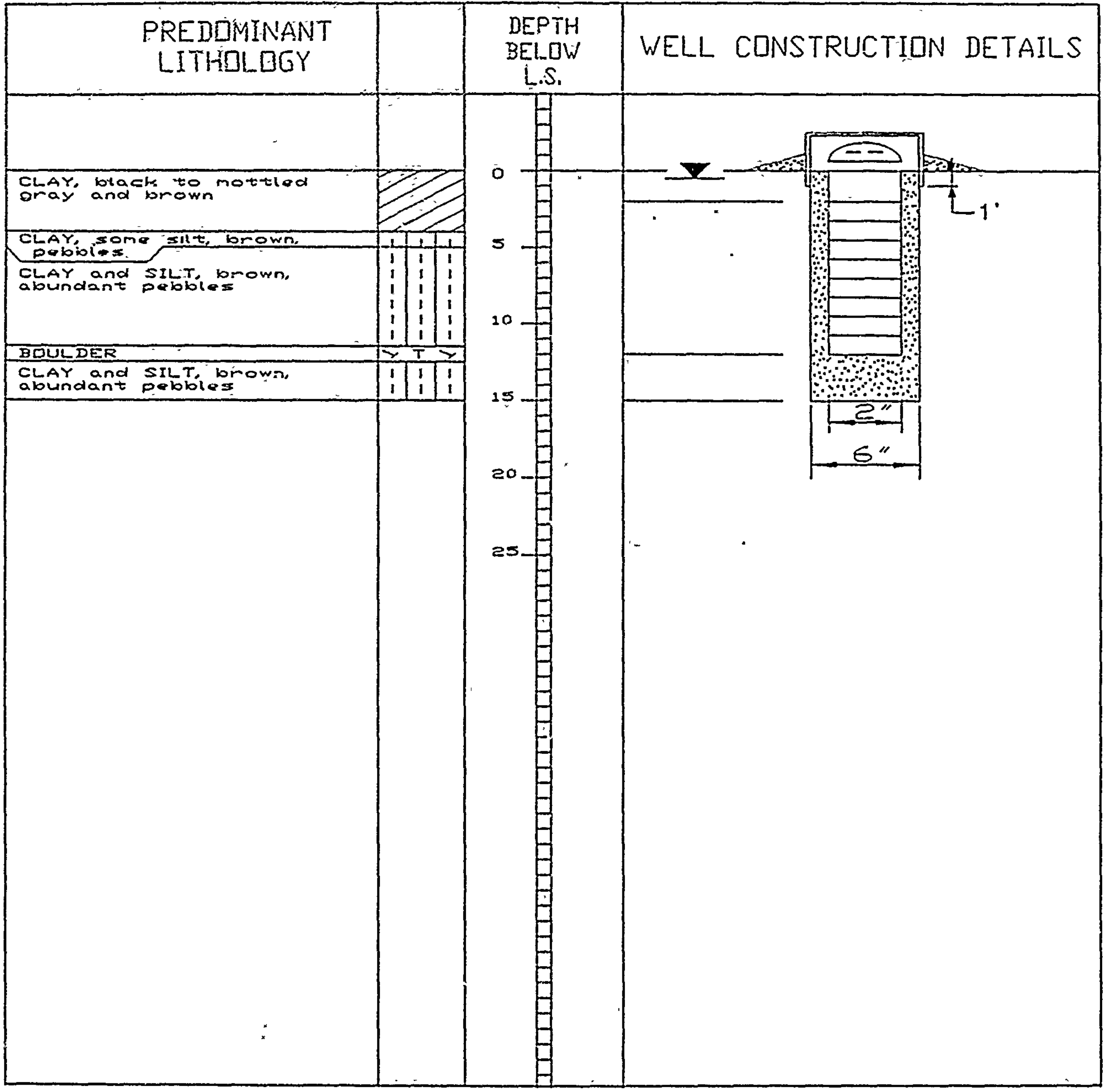
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW28
DATE DRILLED:	8/27/88
DATE INSTALLED:	8/27/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW28 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW29
DATE DRILLED:	8/30/88
DATE INSTALLED:	8/30/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

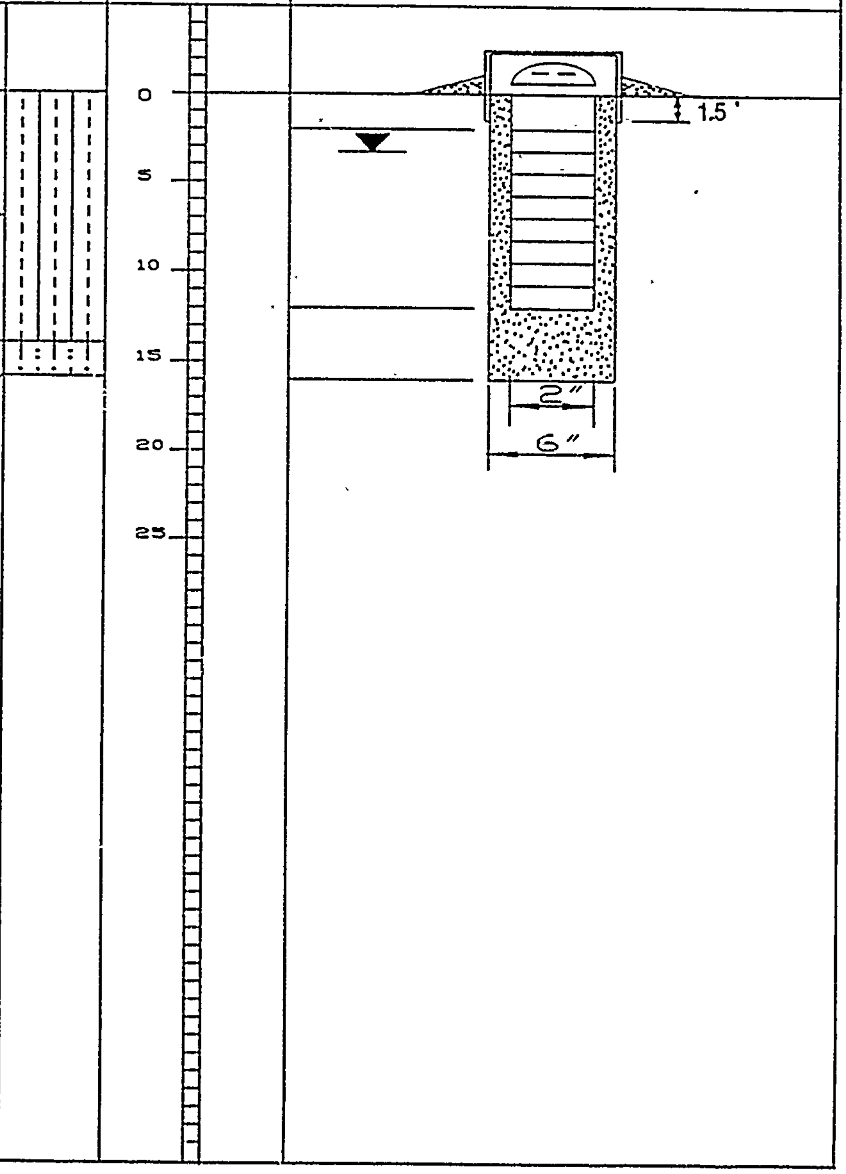
WELL CONSTRUCTION:

Well 3MW29 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY
CLAY and SILT, brown, abundant pebbles
CLAY, some silt, brown, abundant pebbles
SAND, some silt, brown, abundant pebbles

DEPTH BELOW L.S.

WELL CONSTRUCTION DETAILS



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DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW30
DATE DRILLED:	8/26/88
DATE INSTALLED:	8/26/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

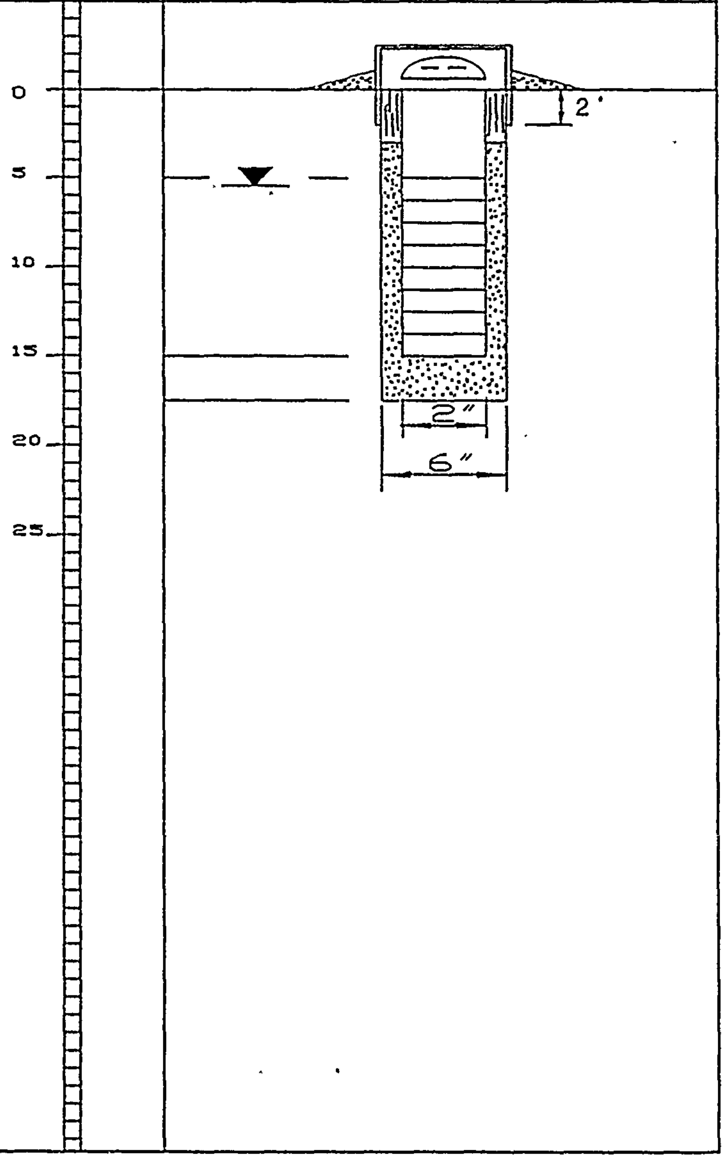
WELL CONSTRUCTION:

Well 3MW30 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size 0.010 inches. The well is complete about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY
CLAY and SILT, brown, pebbles
BOULDER
CLAY and SILT, brown and gray, abundant pebbles
BOULDER
SILT, some clay, brown, abundant pebbles
SILT, some clay and sand, fine, brown, abundant pebbles

DEPTH BELOW L.S.

WELL CONSTRUCTION DETAILS



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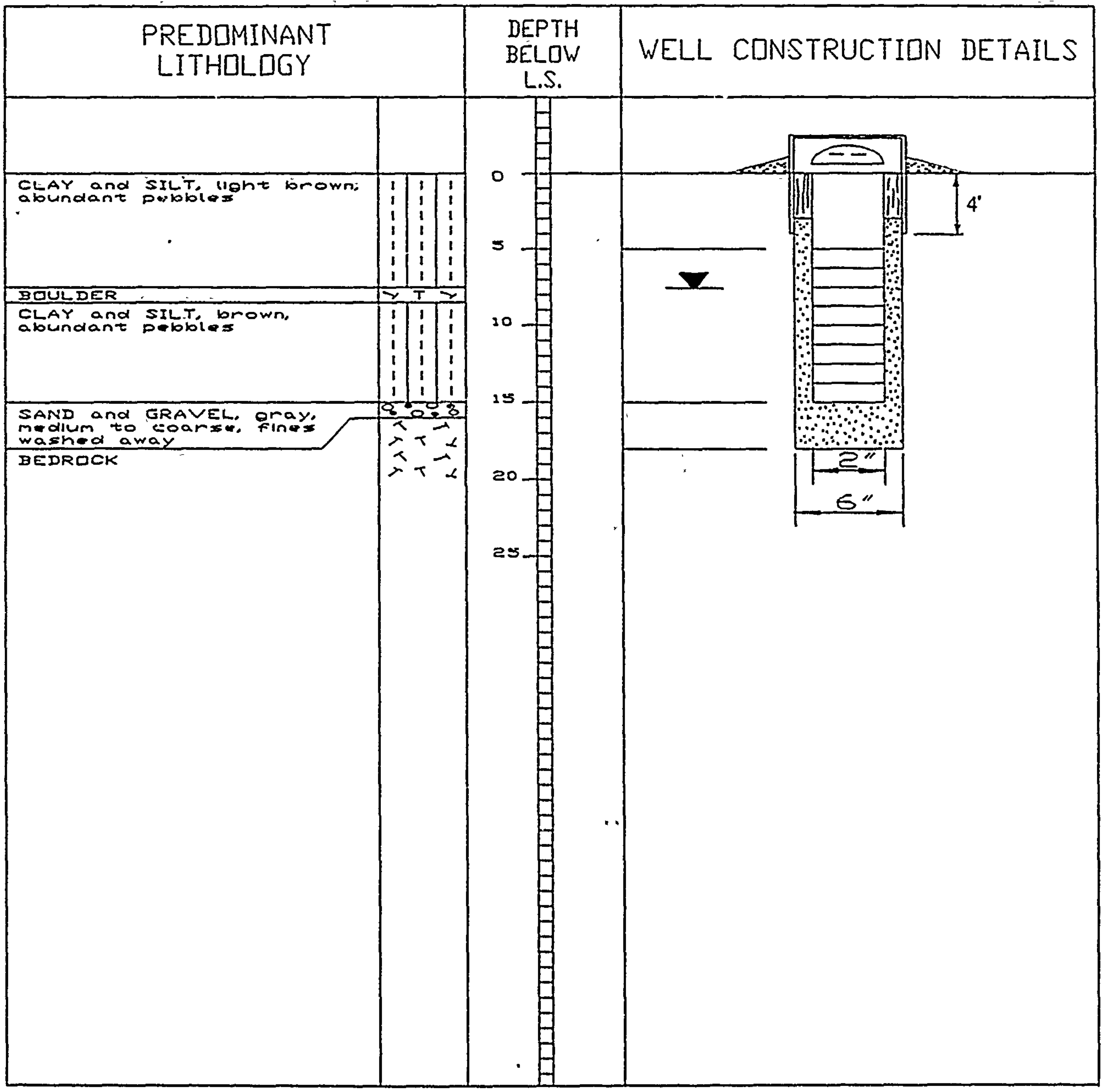
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW31
DATE DRILLED:	8/27/88
DATE INSTALLED:	8/27/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW31 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in metal protective casing.



PREDOMINANT LITHOLOGY

CLAY and SILT, light brown; abundant pebbles

BOULDER

CLAY and SILT, brown, abundant pebbles

SAND and GRAVEL, gray, medium to coarse, fines washed away

BEDROCK

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DRILLING AND WELL COMPLETION RECORD

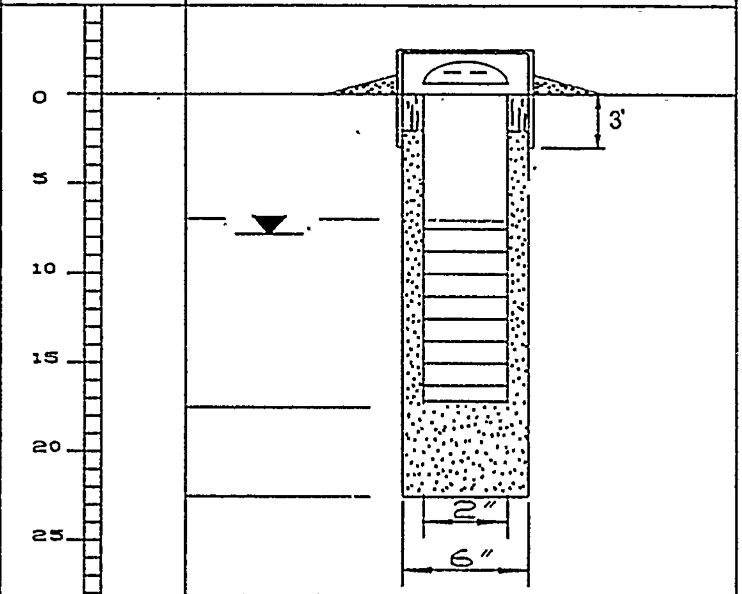
SITE ID:	DANGB-BG-MW32
DATE DRILLED:	8/29/88
DATE INSTALLED:	8/29/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well BGMW32 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY
BOULDER
CLAY, some silt, tan and brown, abundant pebbles
BOULDER
CLAY, some silt, brown, abundant pebbles
SAND, some silt, fine, brown, abundant pebbles
SAND and GRAVEL, brown, abundant pebbles

DEPTH BELOW L.S. / WELL CONSTRUCTION DETAILS



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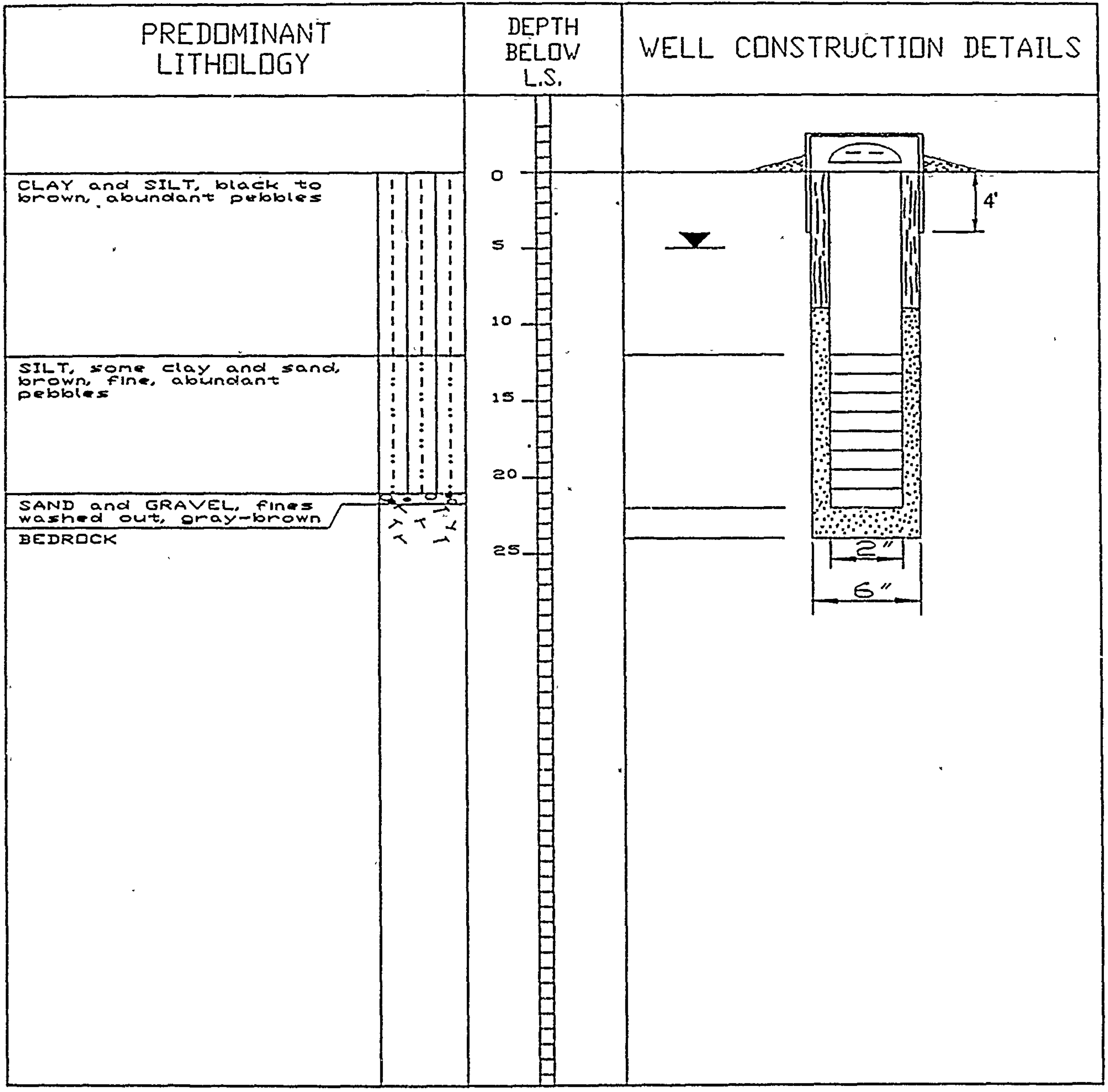
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW33
DATE DRILLED:	8/27/88
DATE INSTALLED:	8/27/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW33 is contructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



CLAY and SILT, black to brown, abundant pebbles

SILT, some clay and sand, brown, fine, abundant pebbles

SAND and GRAVEL, fines washed out, gray-brown

BEDROCK

ES
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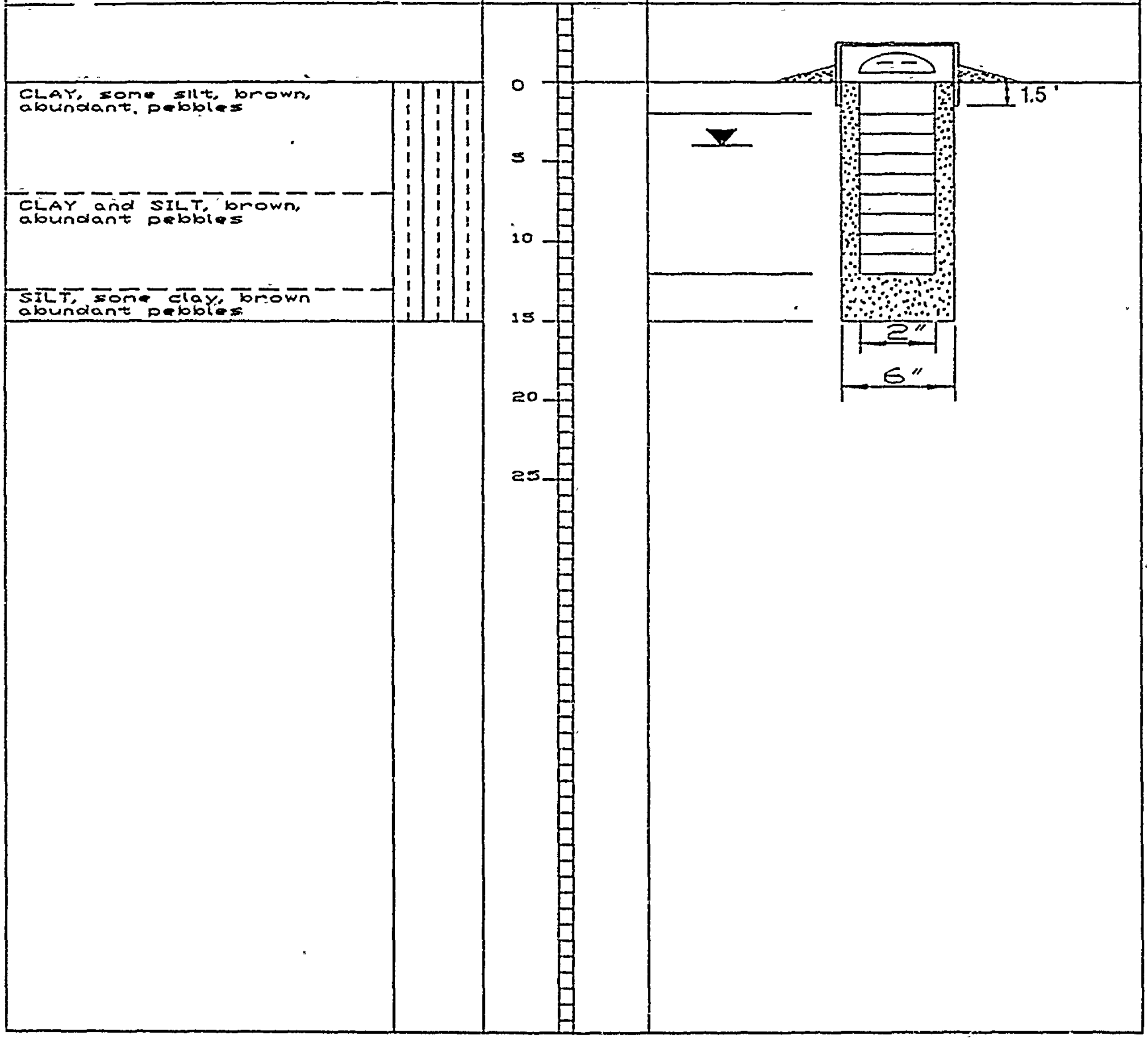
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW34
DATE DRILLED:	8/29/88
DATE INSTALLED:	8/29/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW34 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



CLAY, some silt, brown, abundant pebbles

CLAY and SILT, brown, abundant pebbles

SILT, some clay, brown abundant pebbles

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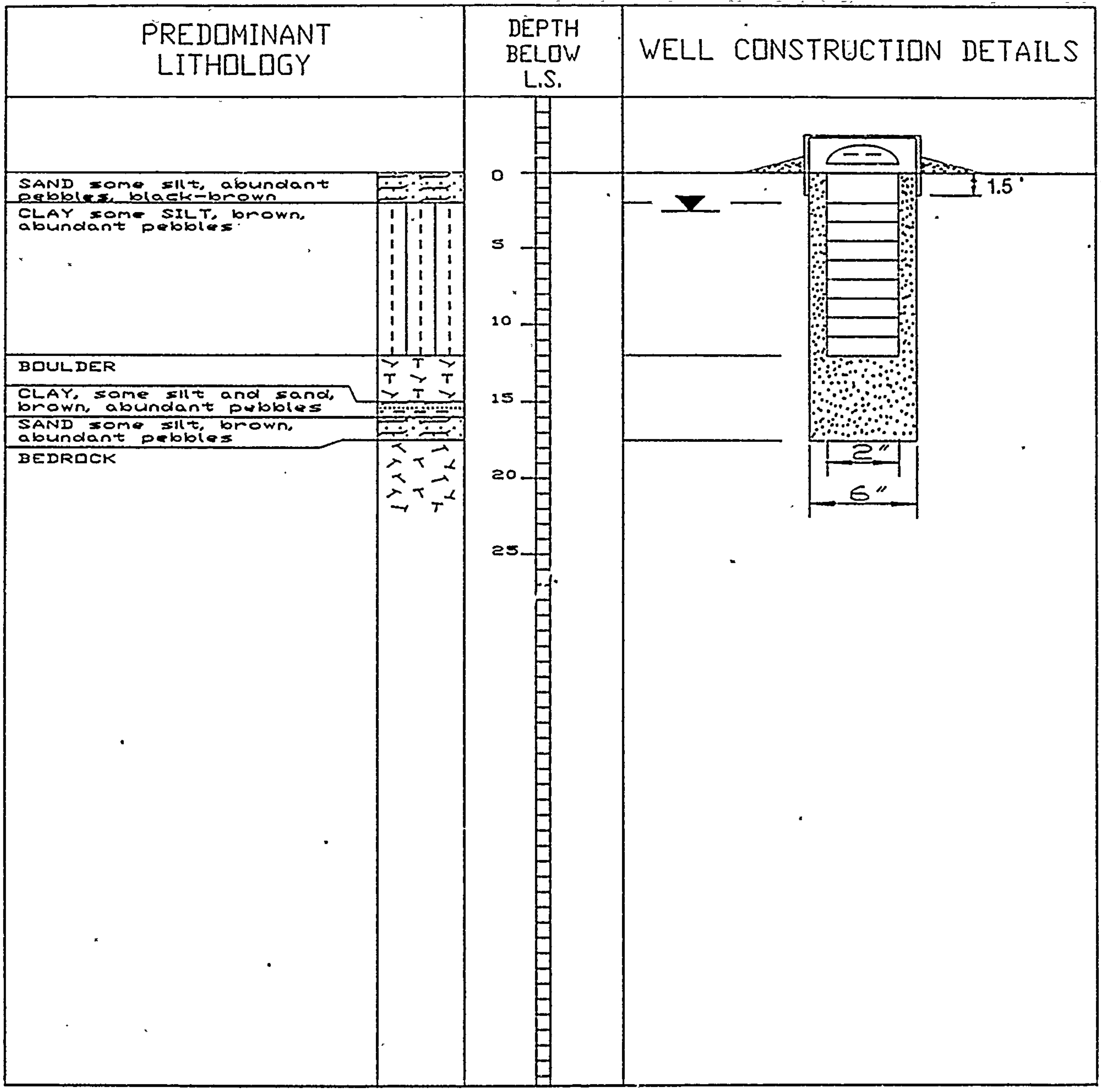
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-3-MW35
DATE DRILLED:	8/25/88
DATE INSTALLED:	8/25/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 3MW35 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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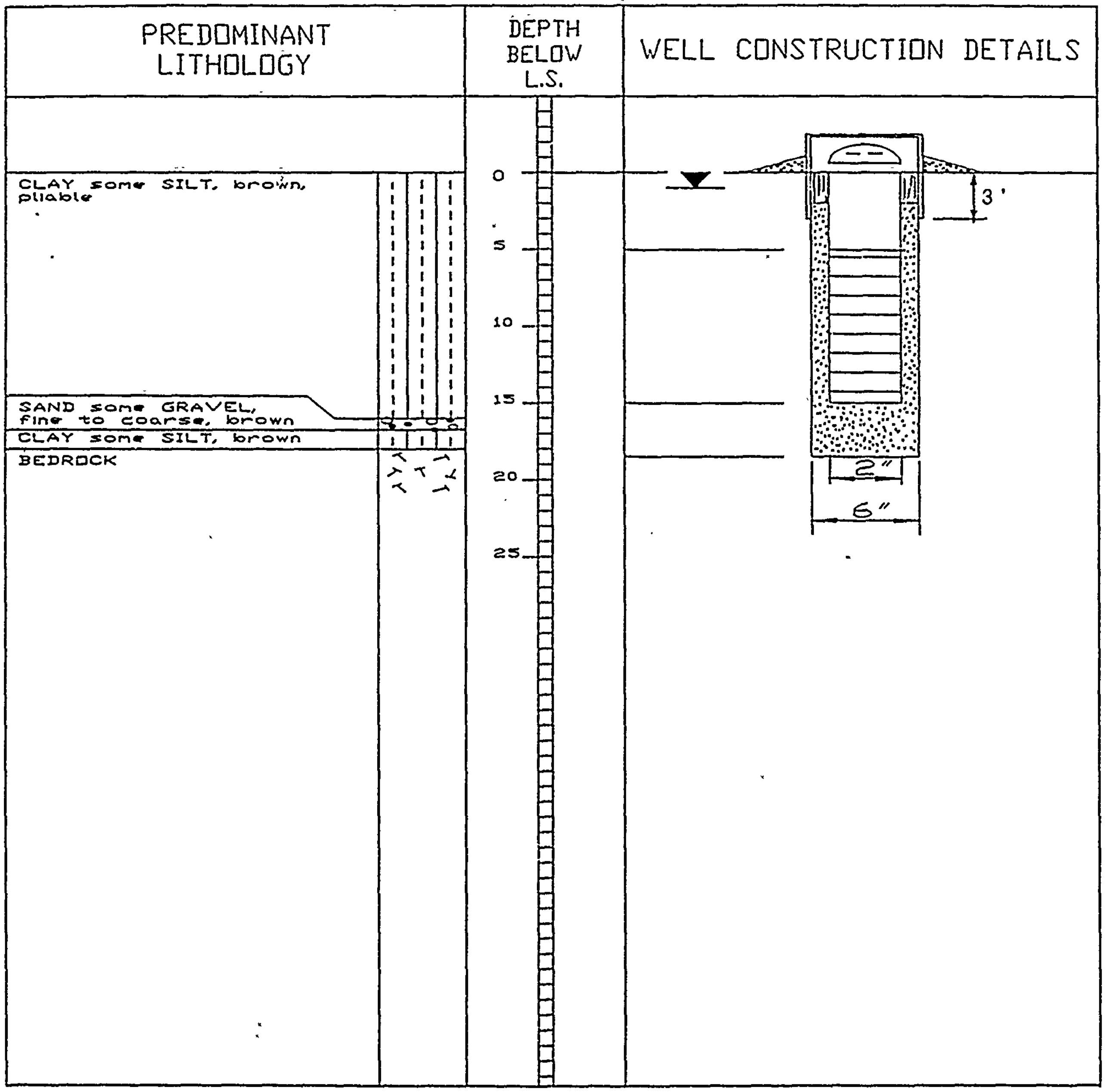
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-MW37
DATE DRILLED:	8/15/88
DATE INSTALLED:	8/15/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA and M. RODDY

WELL CONSTRUCTION:

Well 2MW37 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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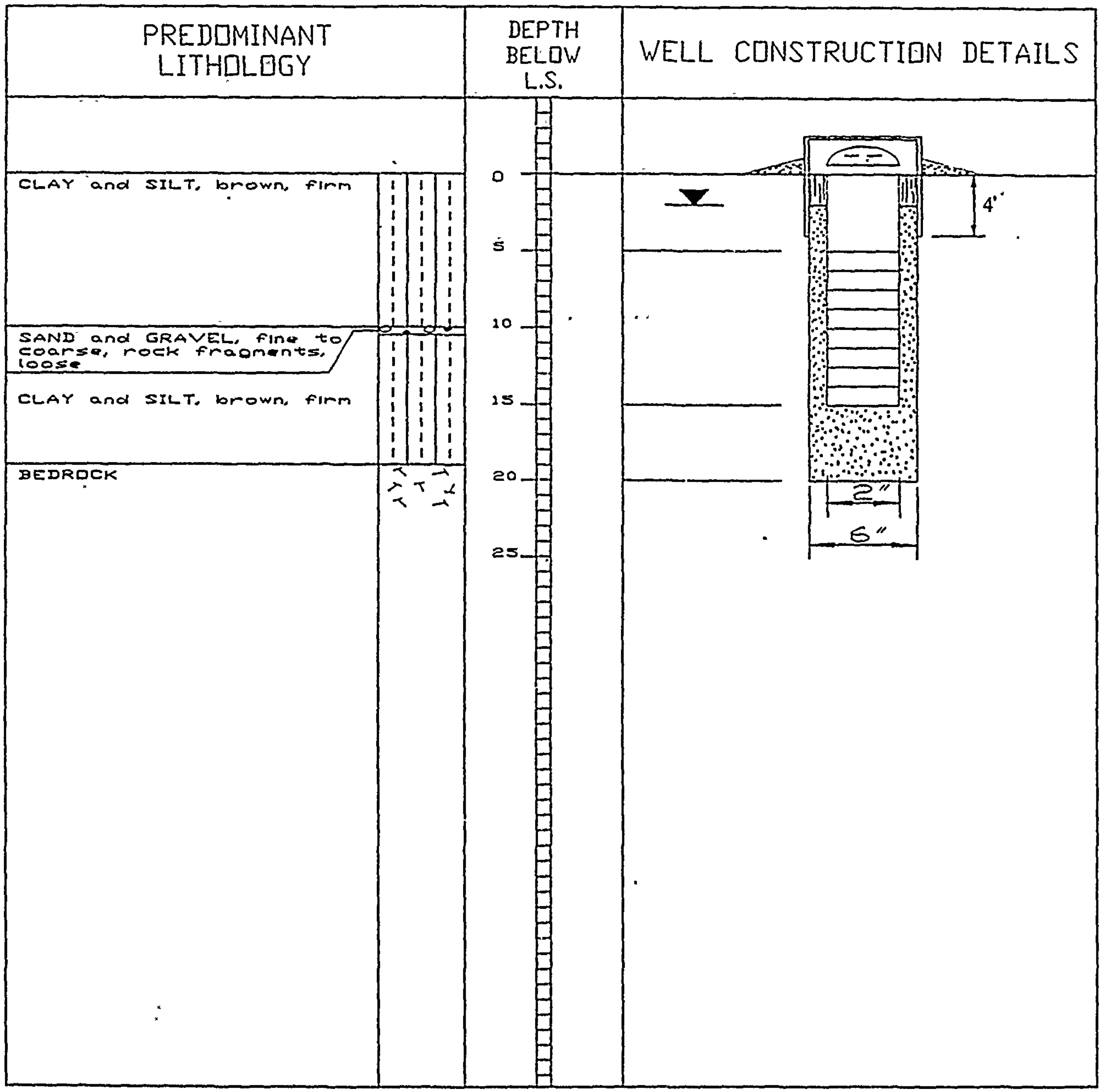
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-MW38
DATE DRILLED:	8/13/88
DATE INSTALLED:	8/13/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 2MW38 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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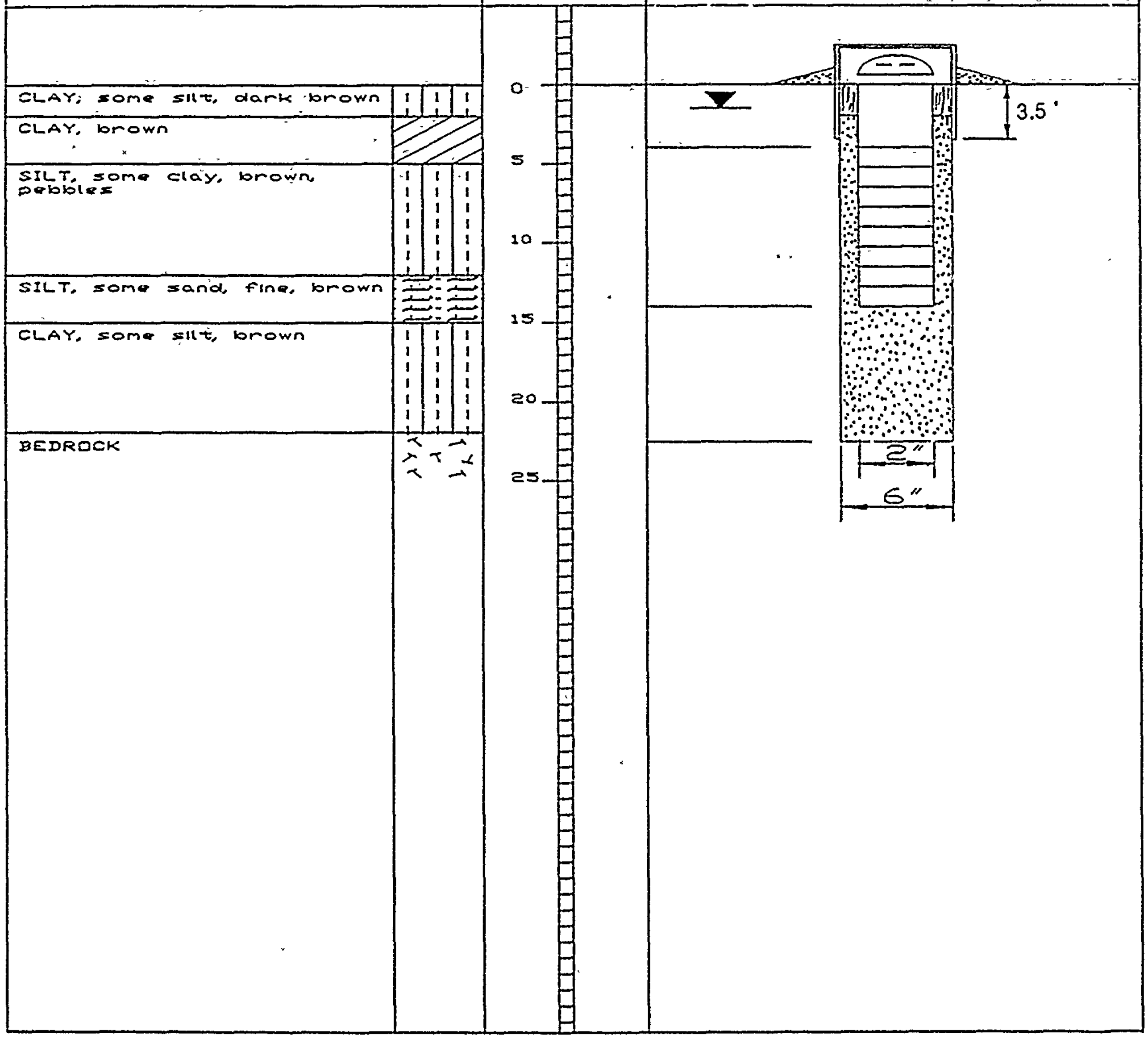
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANG-2-MW39
DATE DRILLED:	8/15/88
DATE INSTALLED:	8/15/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 2MW39 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



CLAY; some silt, dark brown

CLAY, brown

SILT, some clay, brown, pebbles

SILT, some sand, fine, brown

CLAY, some silt, brown

BEDROCK

ES

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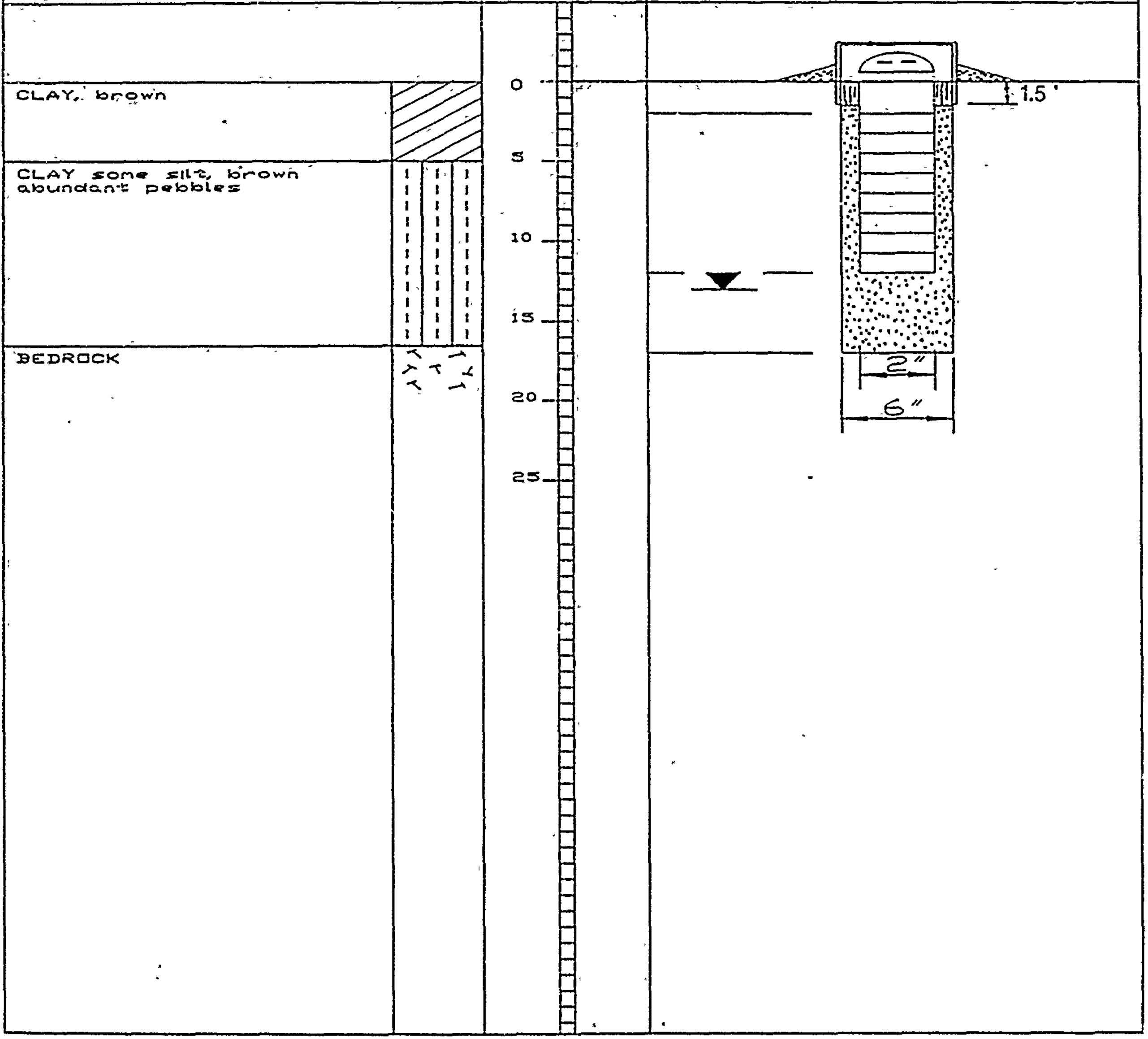
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-MW40
DATE DRILLED:	8/16/88
DATE INSTALLED:	8/16/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 2MW40 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



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DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-MW41
DATE DRILLED:	8/17/88
DATE INSTALLED:	8/17/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

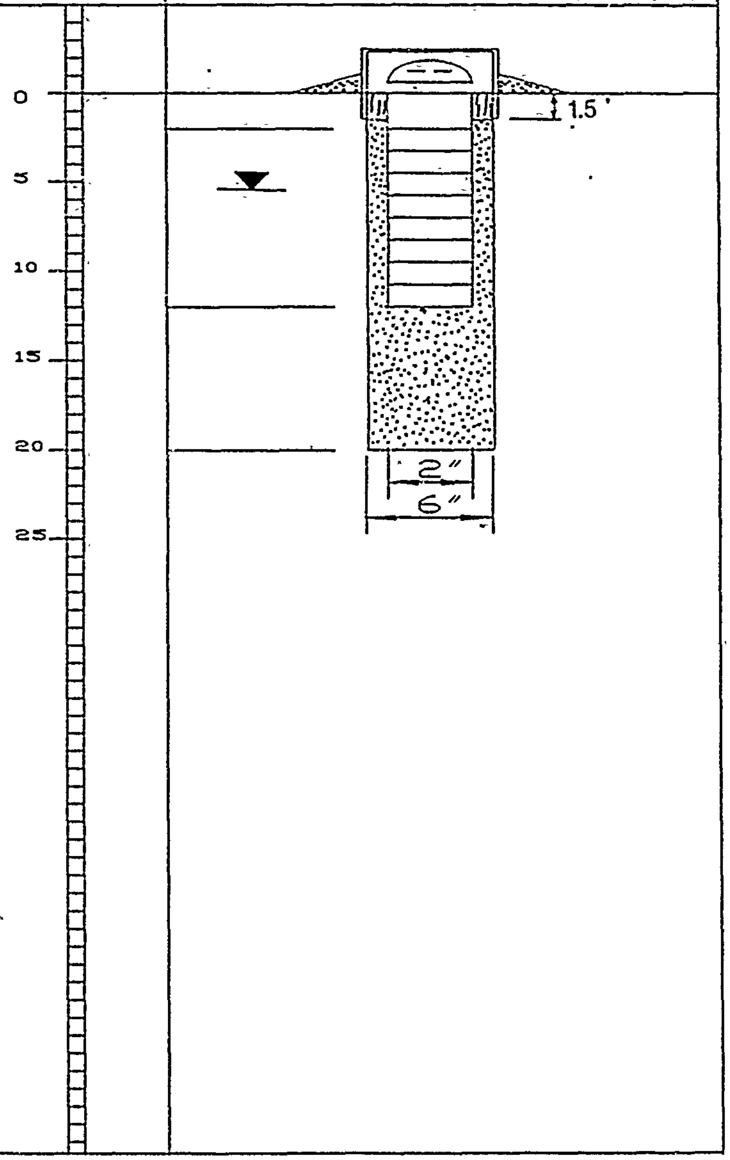
WELL CONSTRUCTION:

Well 2MW41 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY
CLAY, brown, abundant pebbles
SILT, brown
SILT and CLAY, brown, abundant pebbles
CLAY, brown, abundant pebbles
SILT and CLAY, brown

DEPTH BELOW L.S.

WELL CONSTRUCTION DETAILS



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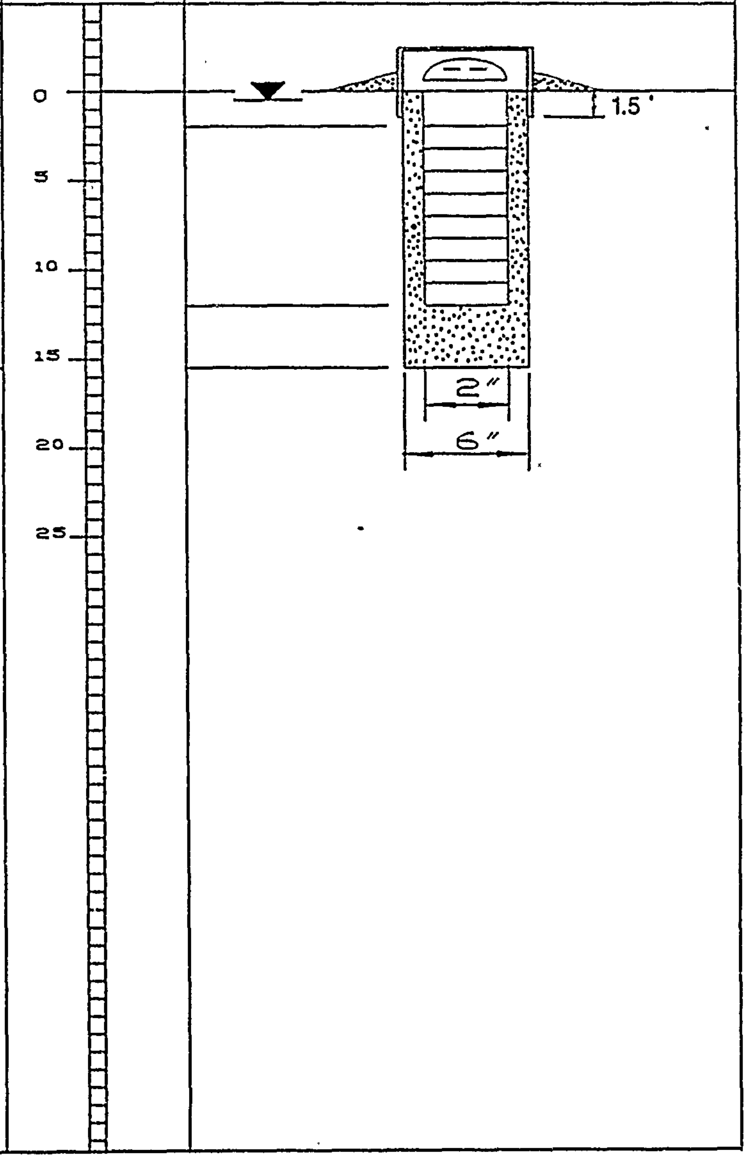
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-BG-MW42
DATE DRILLED:	8/18/88
DATE INSTALLED:	8/18/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well BGMW42 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS
CLAY and SILT, brown with black lenses, some sand, fine		
SILT some CLAY, brown, pebbles		
CLAY and SILT, brown, pebbles		



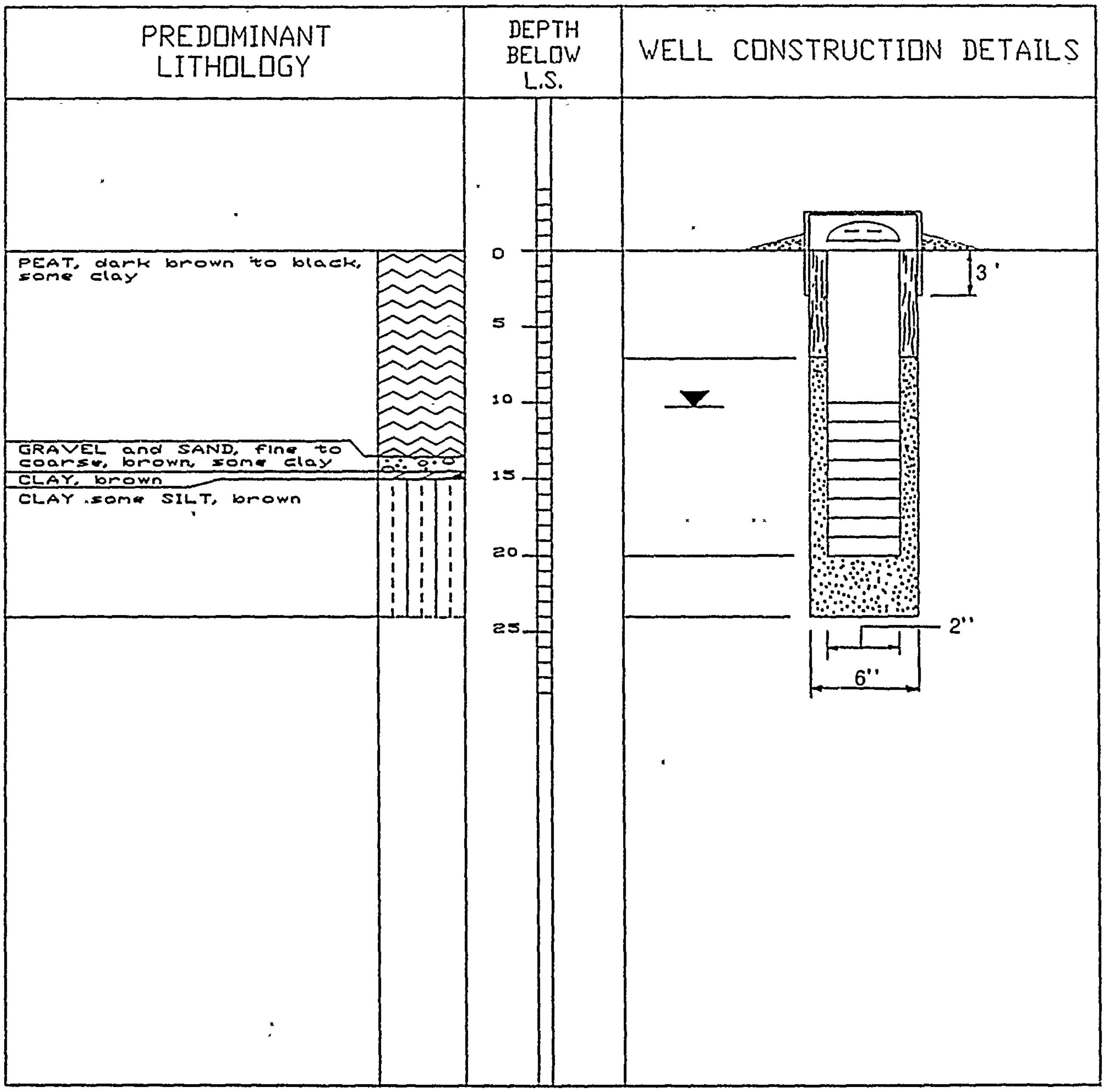
ES
ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-BG-MW43
DATE DRILLED:	8/18/88
DATE INSTALLED:	8/18/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well BGMW43 is constructed of schedule 5S type 304 stainless steel casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



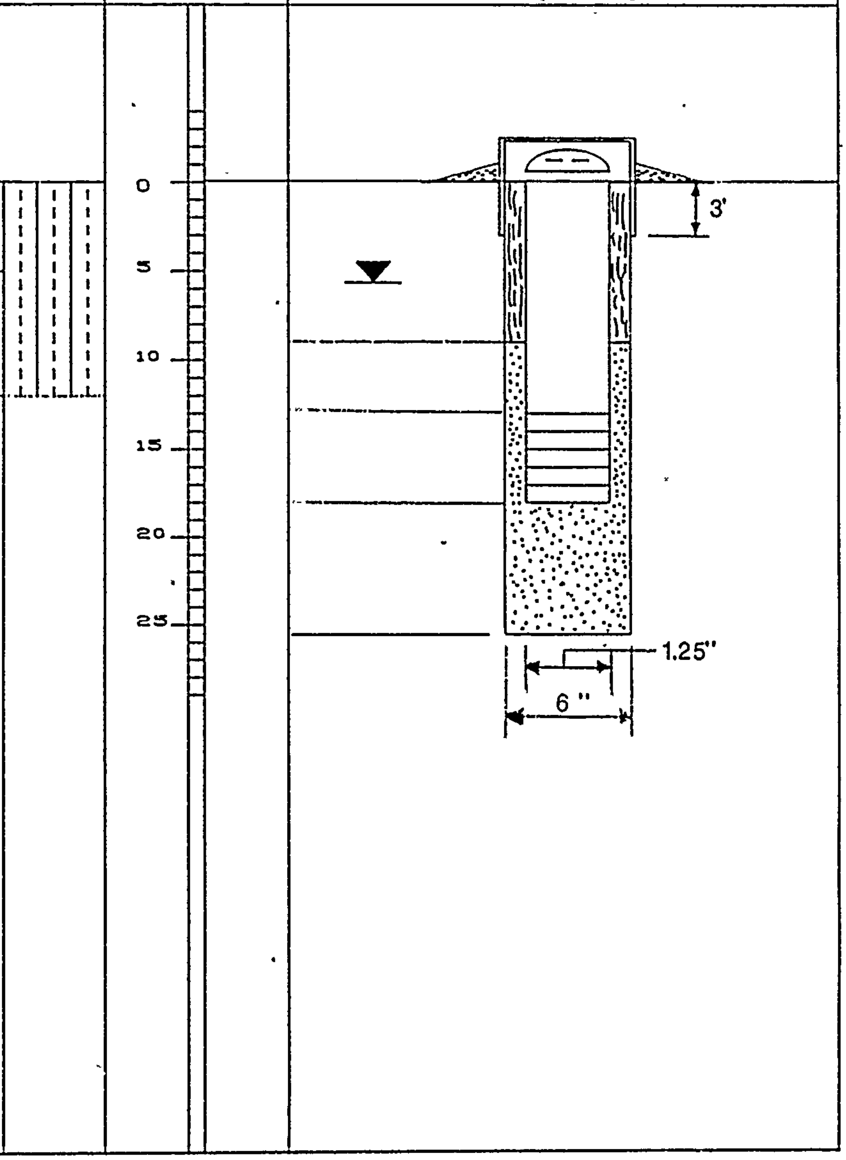
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-WP6
DATE DRILLED:	8/1/88 - 8/3/88
DATE INSTALLED:	8/3/88
DRILLING METHOD:	HSA; ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 2WP6 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS
SILT, light brown, some CLAY, some SAND, rare PEBBLES		
CLAY, brown, some SILT, abundant PEBBLES		
No Recovery		



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ENGINEERING-SCIENCE, INC.

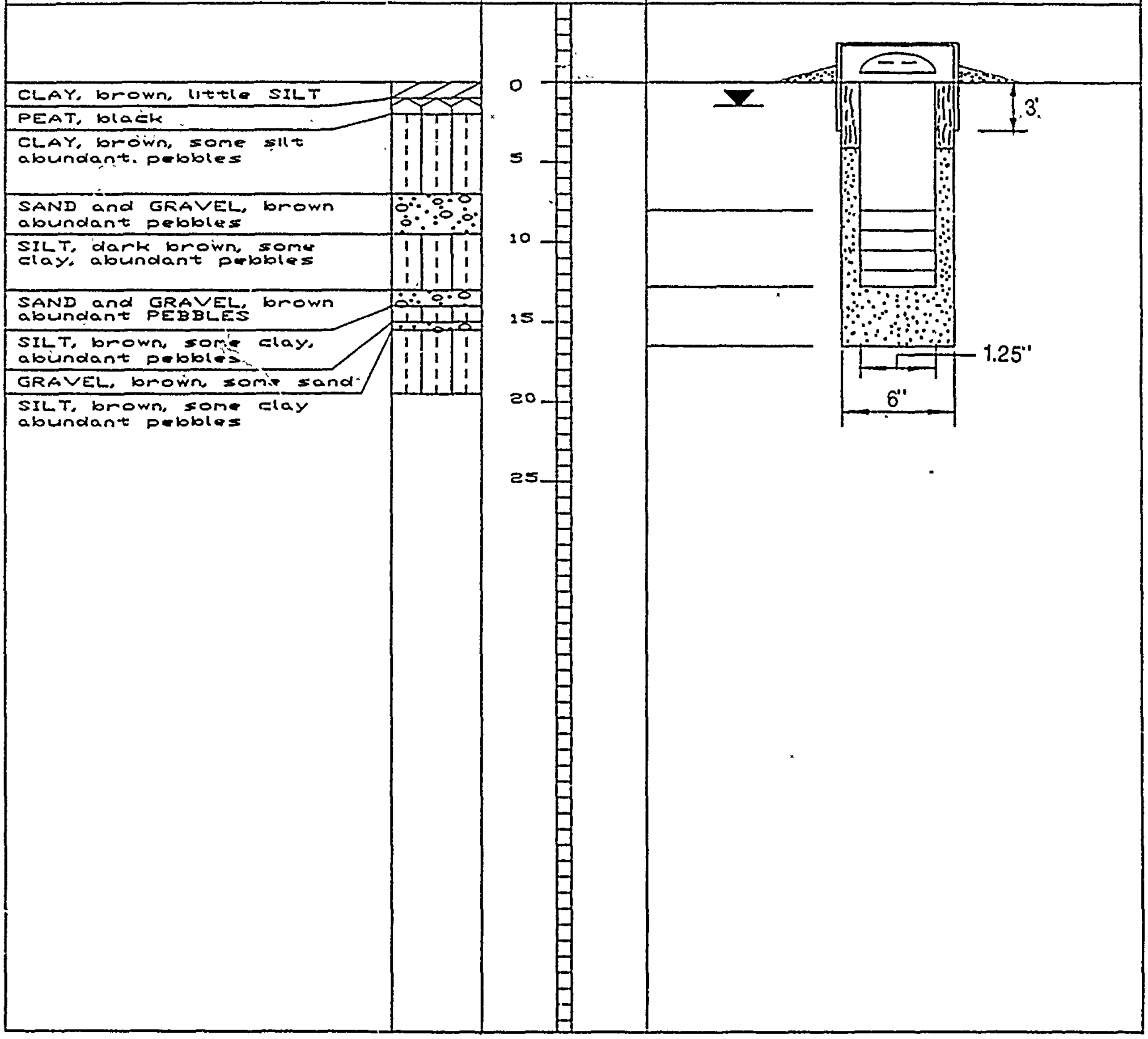
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-WP7
DATE DRILLED:	8/17/88
DATE INSTALLED:	8/17/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY; P. RIEMERSMA

WELL CONSTRUCTION:

Well 2WP7 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



CLAY, brown, little SILT

PEAT, black

CLAY, brown, some silt abundant pebbles

SAND and GRAVEL, brown abundant pebbles

SILT, dark brown, some clay, abundant pebbles

SAND and GRAVEL, brown abundant PEBBLES

SILT, brown, some clay, abundant pebbles

GRAVEL, brown, some sand

SILT, brown, some clay abundant pebbles

ES

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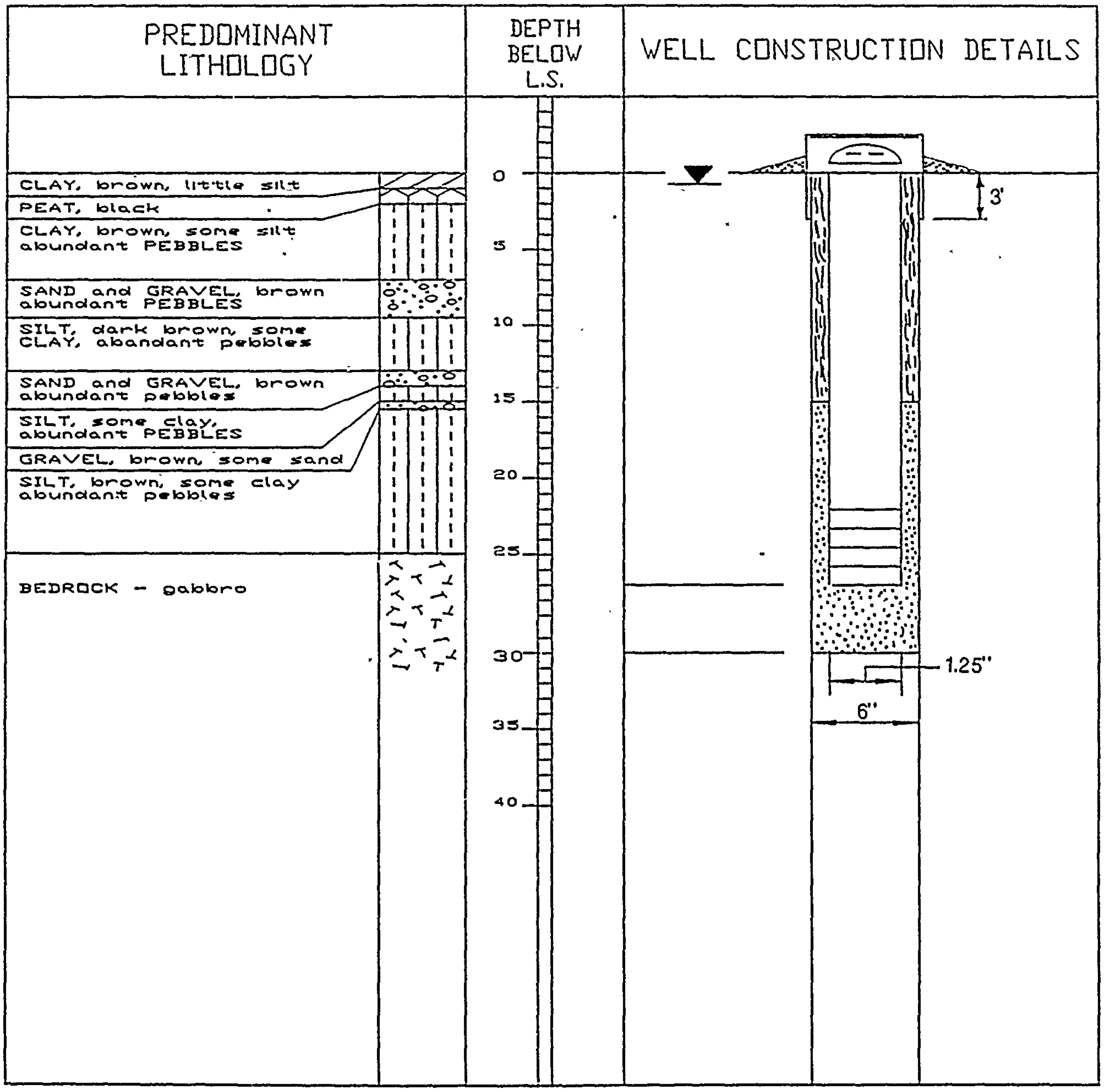
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-WP7D
DATE DRILLED:	8/16/88
DATE INSTALLED:	8/16/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY; P. RIEMERSMA

WELL CONSTRUCTION:

Well 2WP7D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing



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ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-2-WP8
DATE DRILLED:	8/17/88
DATE INSTALLED:	8/17/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 2WP8 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing

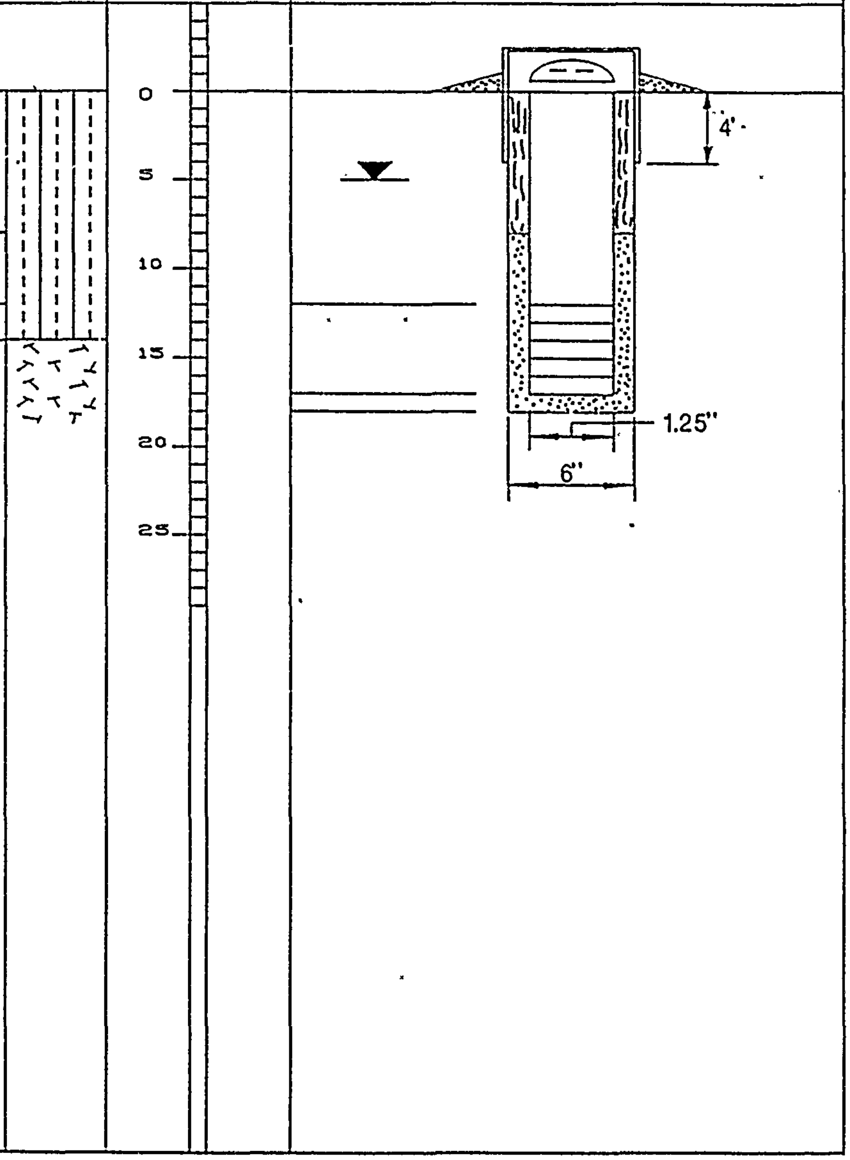
PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS

CLAY, brown, little silt, abundant pebbles.

CLAY, brown, some silt, little SAND, abundant PEBBLES

SILT, brown, some clay, abundant pebbles

BEDROCK – gabbro



ES
ENGINEERING-SCIENCE, INC.

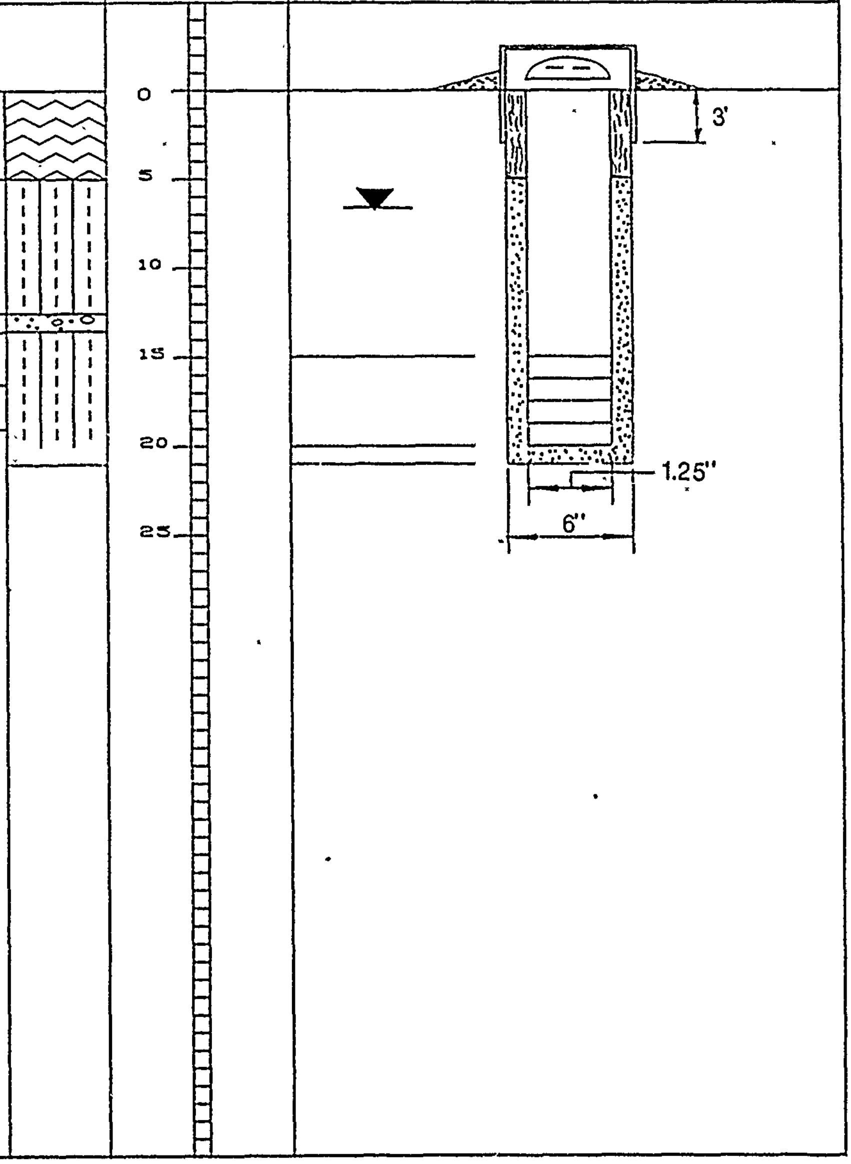
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-WP9
DATE DRILLED:	8/11/88
DATE INSTALLED:	8/11/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 8WP9 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS
PEAT, black	0	
CLAY, brown, some sand, and silt, abundant pebbles	5	
SAND and GRAVEL, brown		
CLAY, brown, trace silt, some pebbles	15	
SILT, brown, some clay, abundant pebbles		
CLAY, brown, little silt, some pebbles	20	



ES
ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-WP9D
DATE DRILLED:	8/11/88
DATE INSTALLED:	8/11/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIEMERSMA

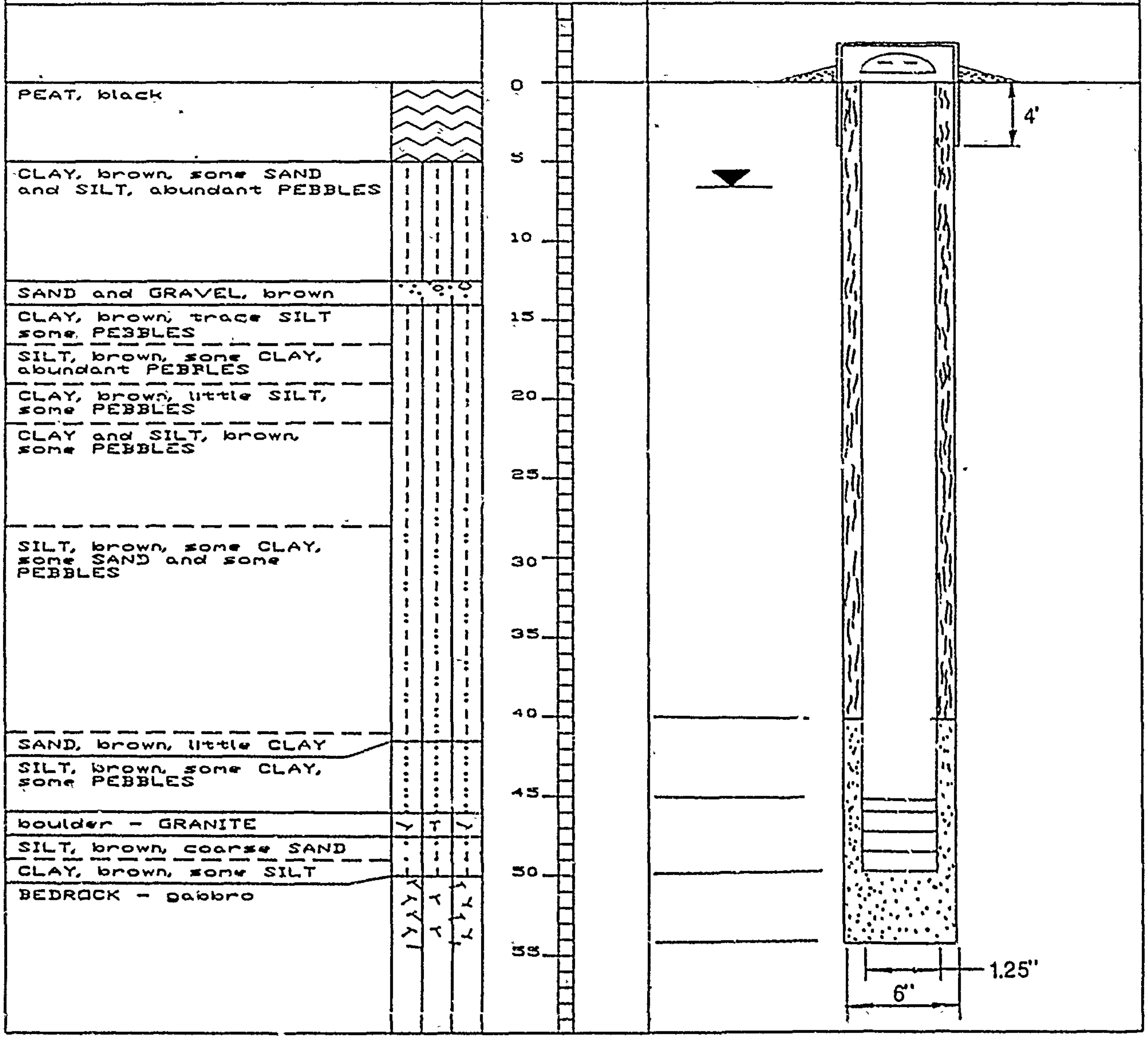
WELL CONSTRUCTION:

Well 8WP9D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY

DEPTH BELOW L.S.

WELL CONSTRUCTION DETAILS



PEAT, black

CLAY, brown, some SAND and SILT, abundant PEBBLES

SAND and GRAVEL, brown

CLAY, brown, trace SILT some PEBBLES

SILT, brown, some CLAY, abundant PEBBLES

CLAY, brown, little SILT, some PEBBLES

CLAY and SILT, brown, some PEBBLES

SILT, brown, some CLAY, some SAND and some PEBBLES

SAND, brown, little CLAY

SILT, brown, some CLAY, some PEBBLES

boulder - GRANITE

SILT, brown, coarse SAND

CLAY, brown, some SILT

BEDROCK - gabbro

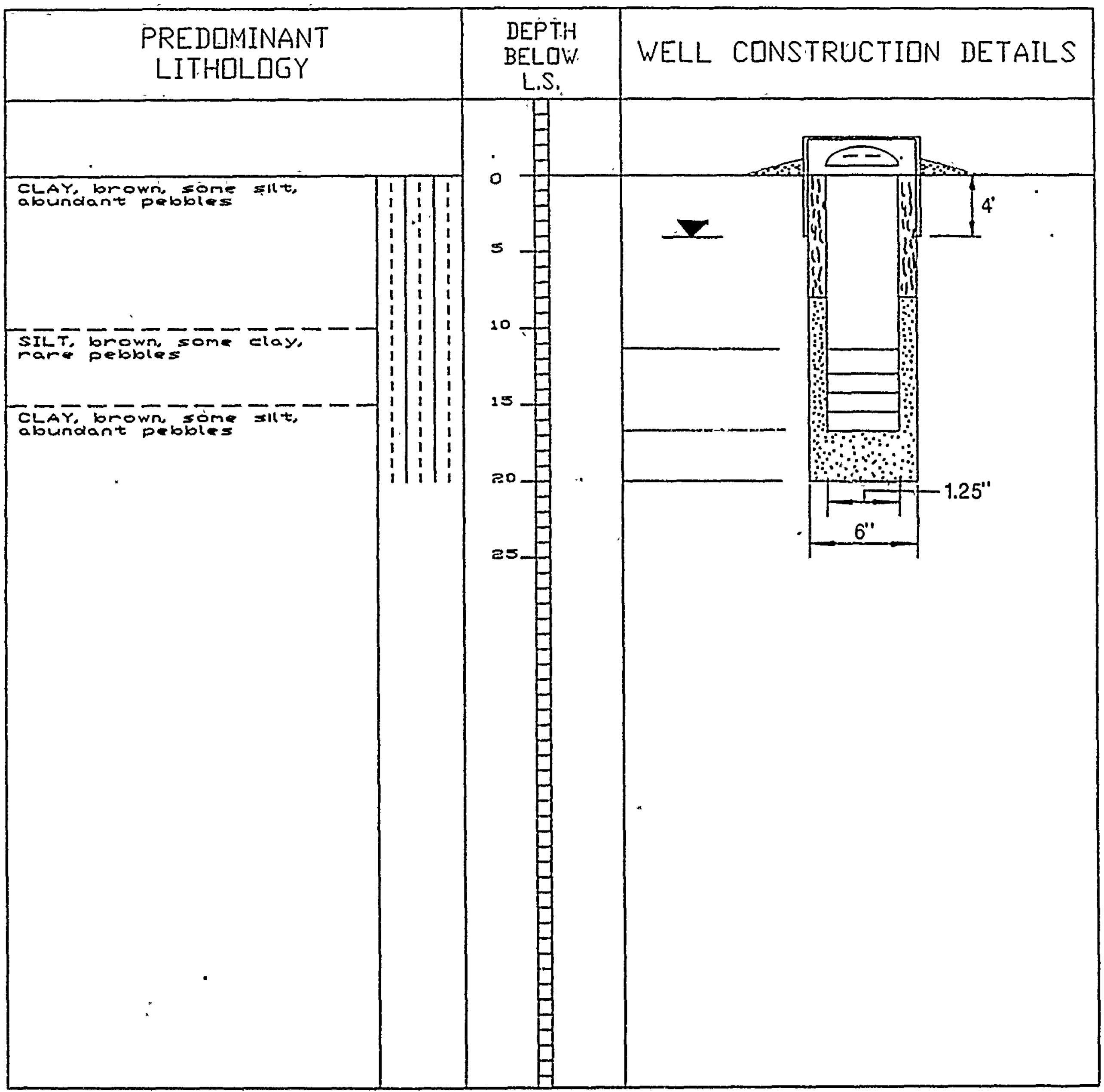
ES
ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-WP10
DATE DRILLED:	8/6/88
DATE INSTALLED:	8/6/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 8WP10 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing



CLAY, brown, sone silt, abundant pebbles

SILT, brown, sone clay, rare pebbles

CLAY, brown, sone silt, abundant pebbles

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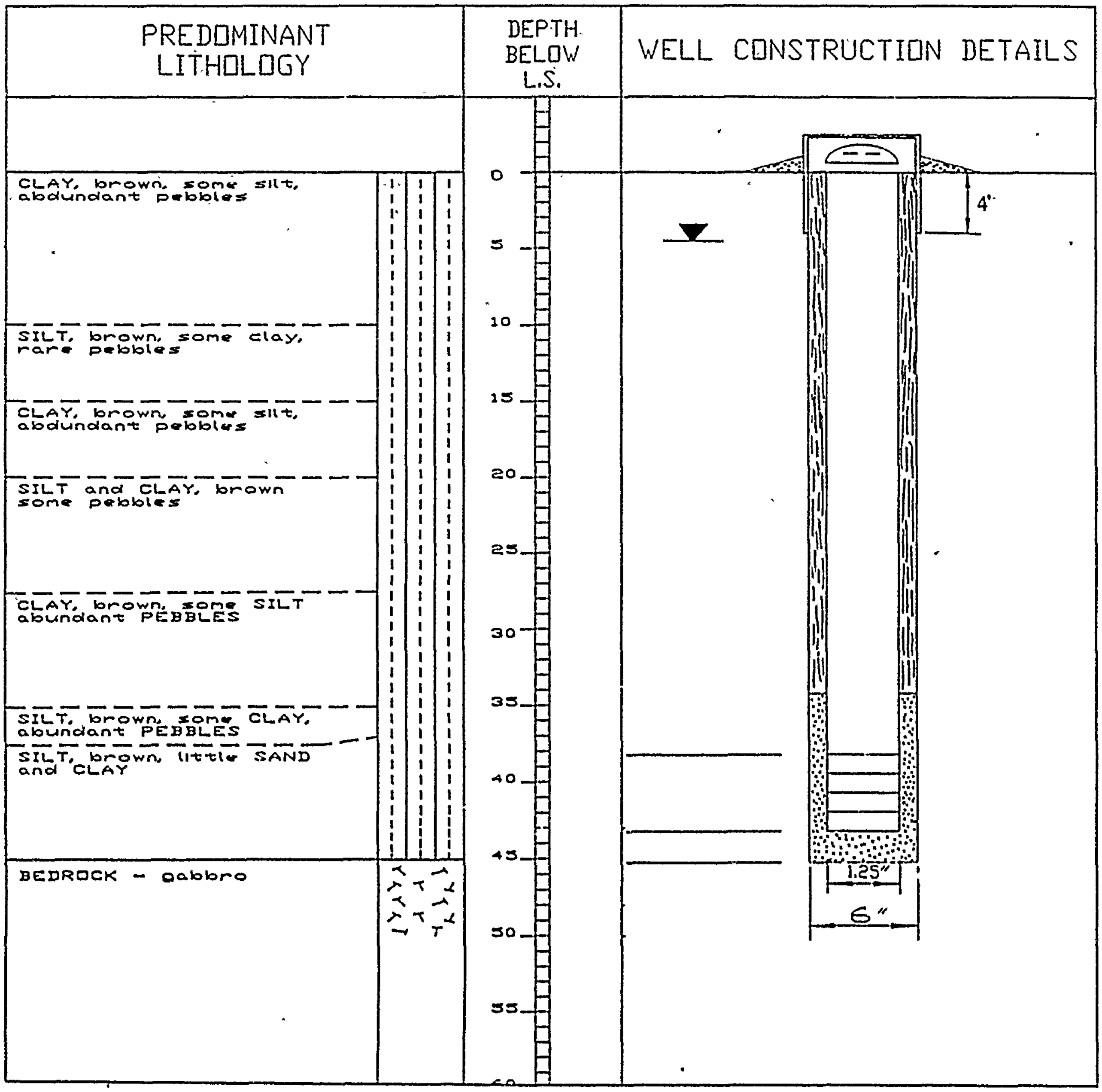
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-8-WP10D
DATE DRILLED:	8/6/88
DATE INSTALLED:	8/6/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 8WP10D is constructed of1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing



CLAY, brown, some silt, abdundant pebbles

SILT, brown, some clay, rare pebbles

CLAY, brown, some silt, abdundant pebbles

SILT and CLAY, brown some pebbles

CLAY, brown, some SILT abundant PEBBLES

SILT, brown, some CLAY, abundant PEBBLES

SILT, brown, little SAND and CLAY

BEDROCK - gabbro

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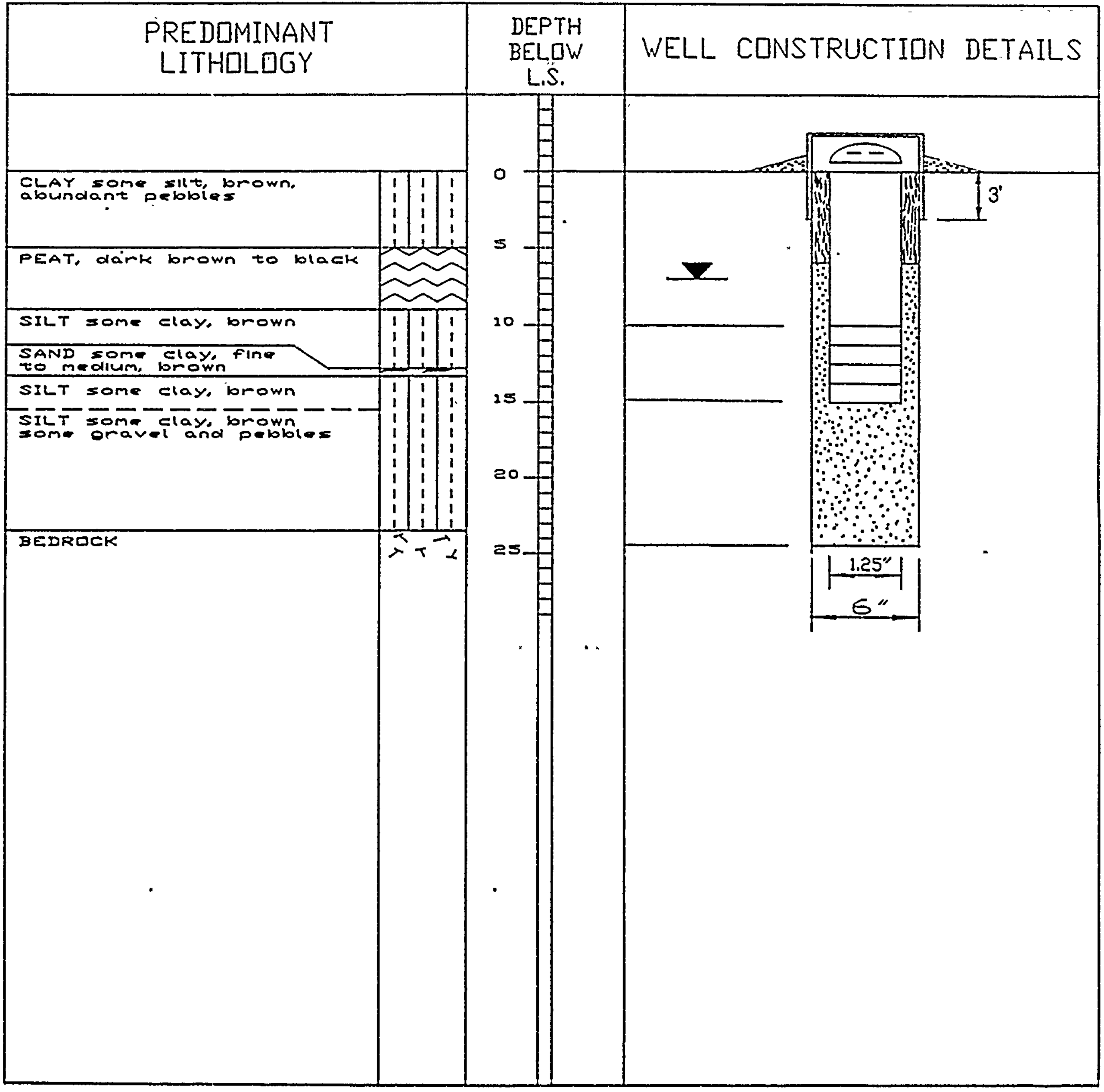
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP11
DATE DRILLED:	8/19/88
DATE INSTALLED:	8/19/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA & M. RODDY

WELL CONSTRUCTION:

Well 4WP11 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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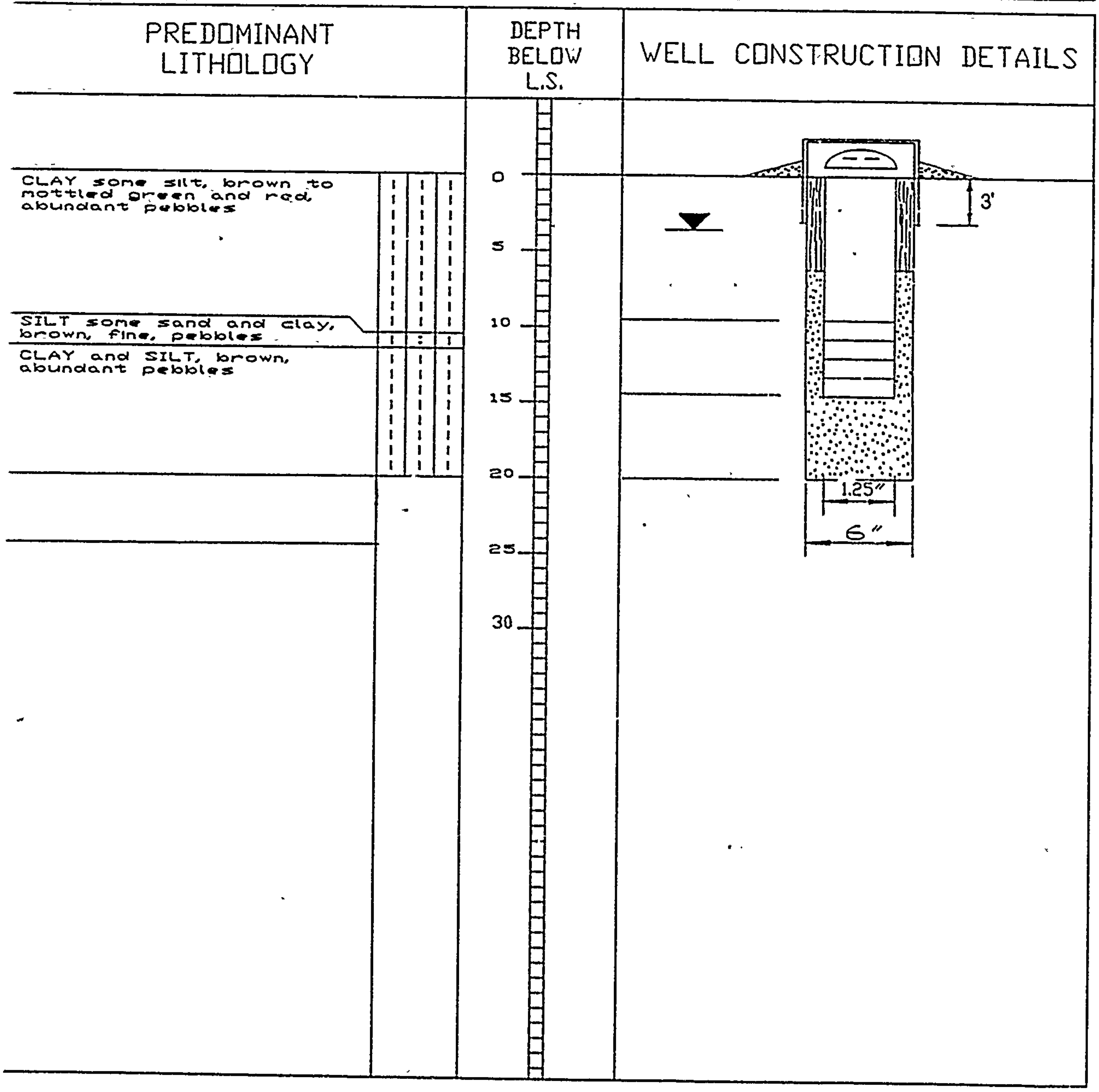
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP12
DATE DRILLED:	8/22/88
DATE INSTALLED:	8/22/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 4WP12 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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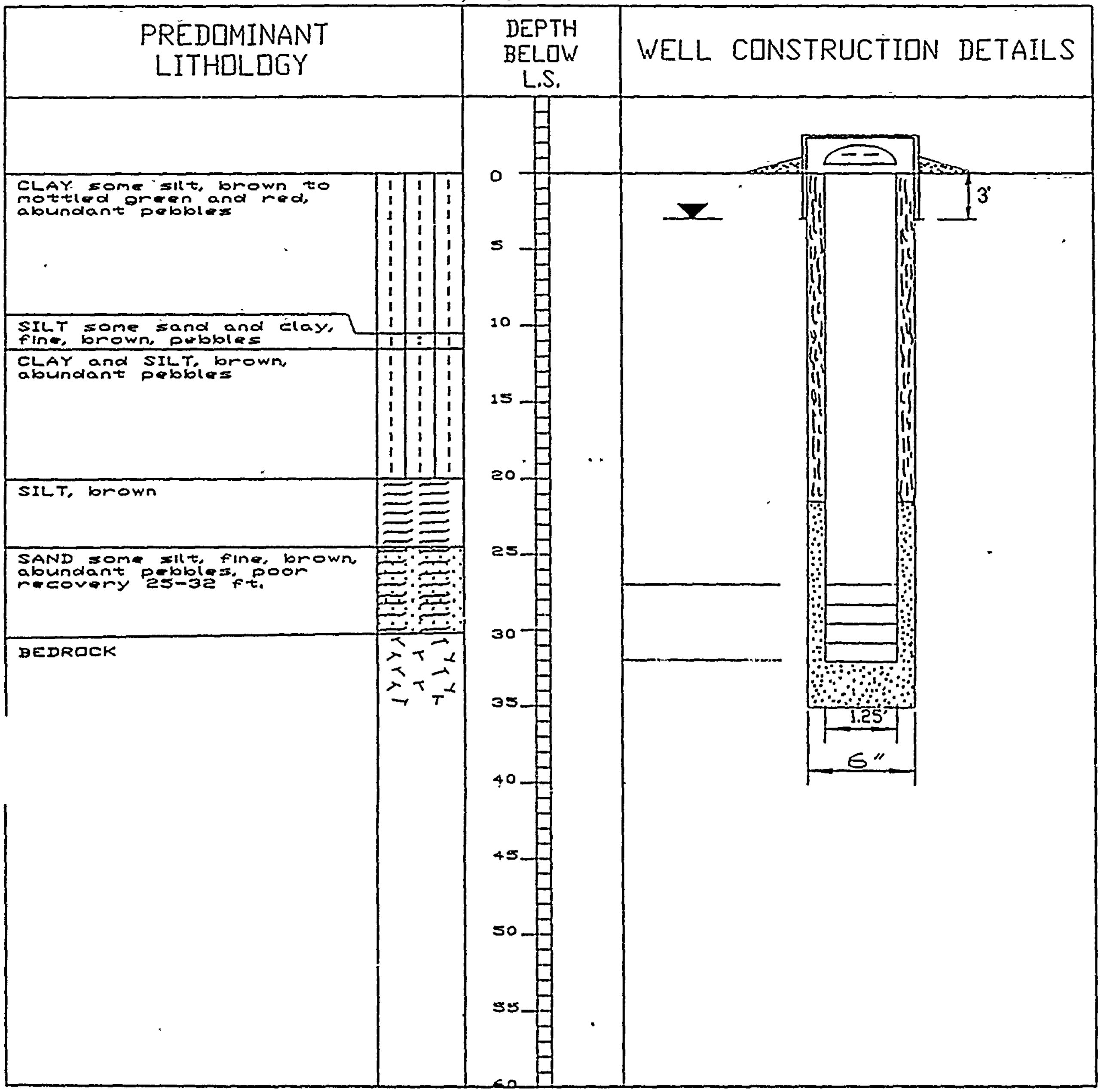
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP12D
DATE DRILLED:	8/22/88
DATE INSTALLED:	8/22/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 4WP12D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



CLAY some silt, brown to mottled green and red, abundant pebbles

SILT some sand and clay, fine, brown, pebbles

CLAY and SILT, brown, abundant pebbles

SILT, brown

SAND some silt, fine, brown, abundant pebbles, poor recovery 25-32 ft.

BEDROCK

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DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP13
DATE DRILLED:	8/22/88
DATE INSTALLED:	8/22/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 4WP13 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS

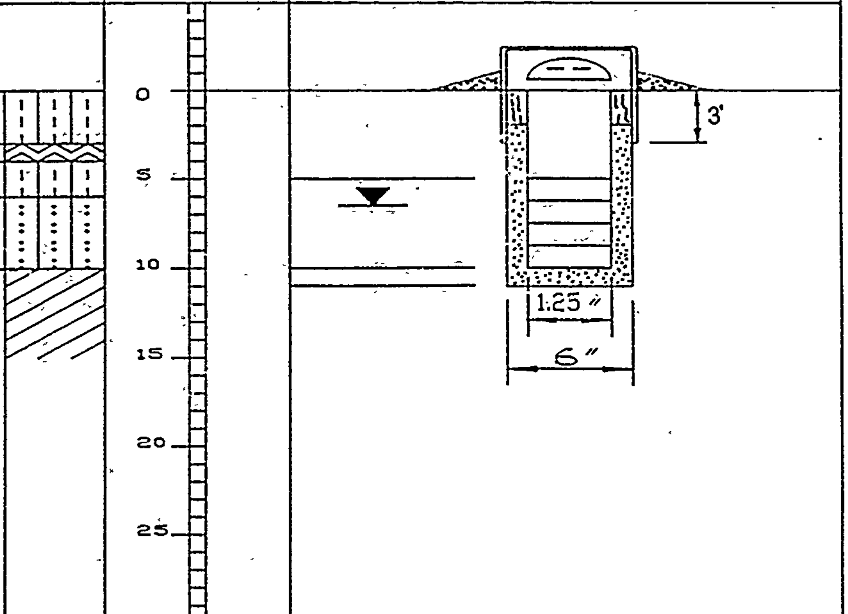
SILT, some clay, brown

PEAT, black

SILT and CLAY, brown to gray

SAND, some clay, fine, light brown

CLAY, mottled brown and gray



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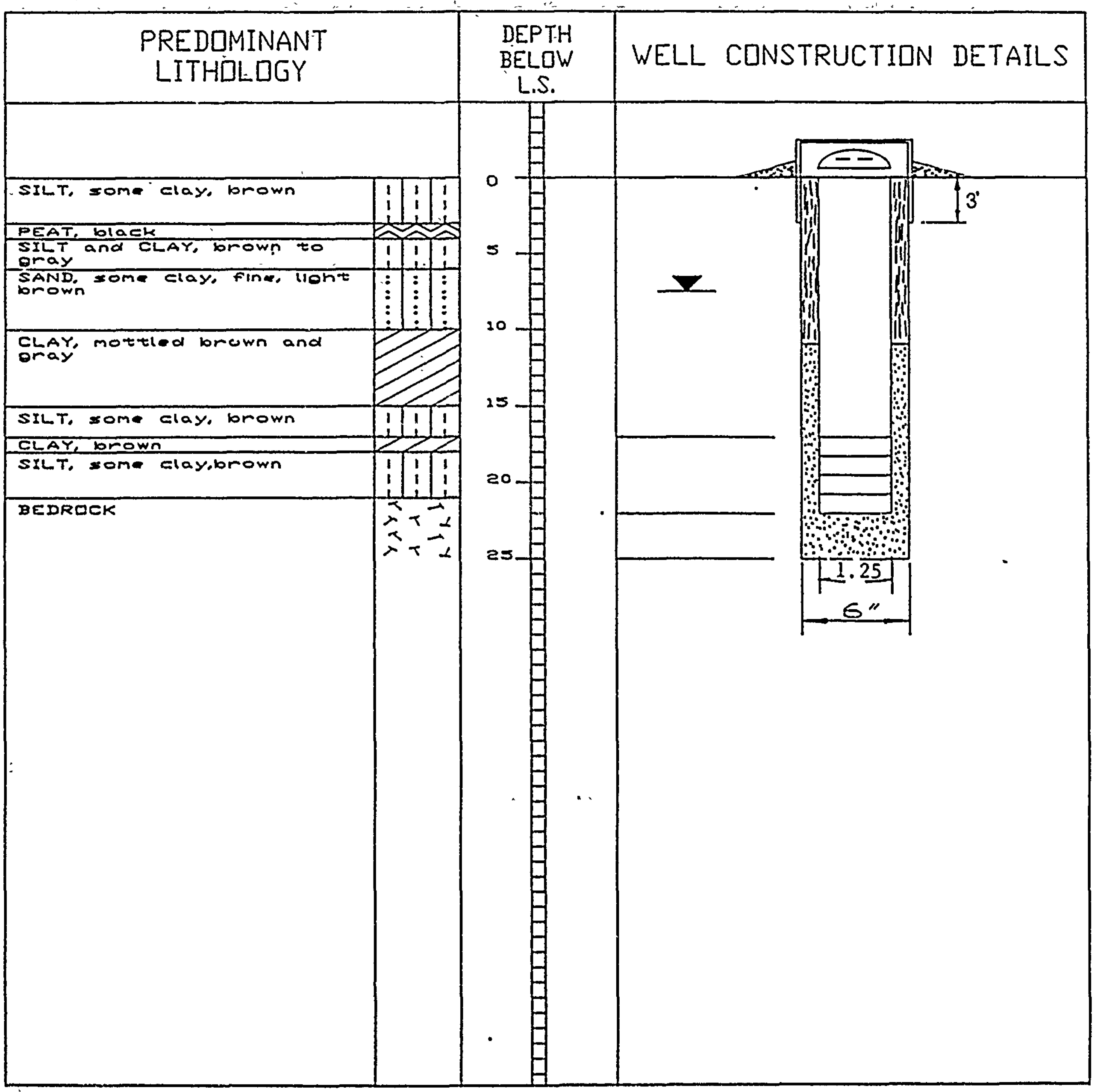
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP13D
DATE DRILLED:	8/22/88
DATE INSTALLED:	8/22/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA

WELL CONSTRUCTION:

Well 4WP13D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



PREDOMINANT LITHOLOGY

- SILT, some clay, brown
- PEAT, black
- SILT and CLAY, brown to gray
- SAND, some clay, fine, light brown
- CLAY, mottled brown and gray
- SILT, some clay, brown
- CLAY, brown
- SILT, some clay, brown
- BEDROCK

ES
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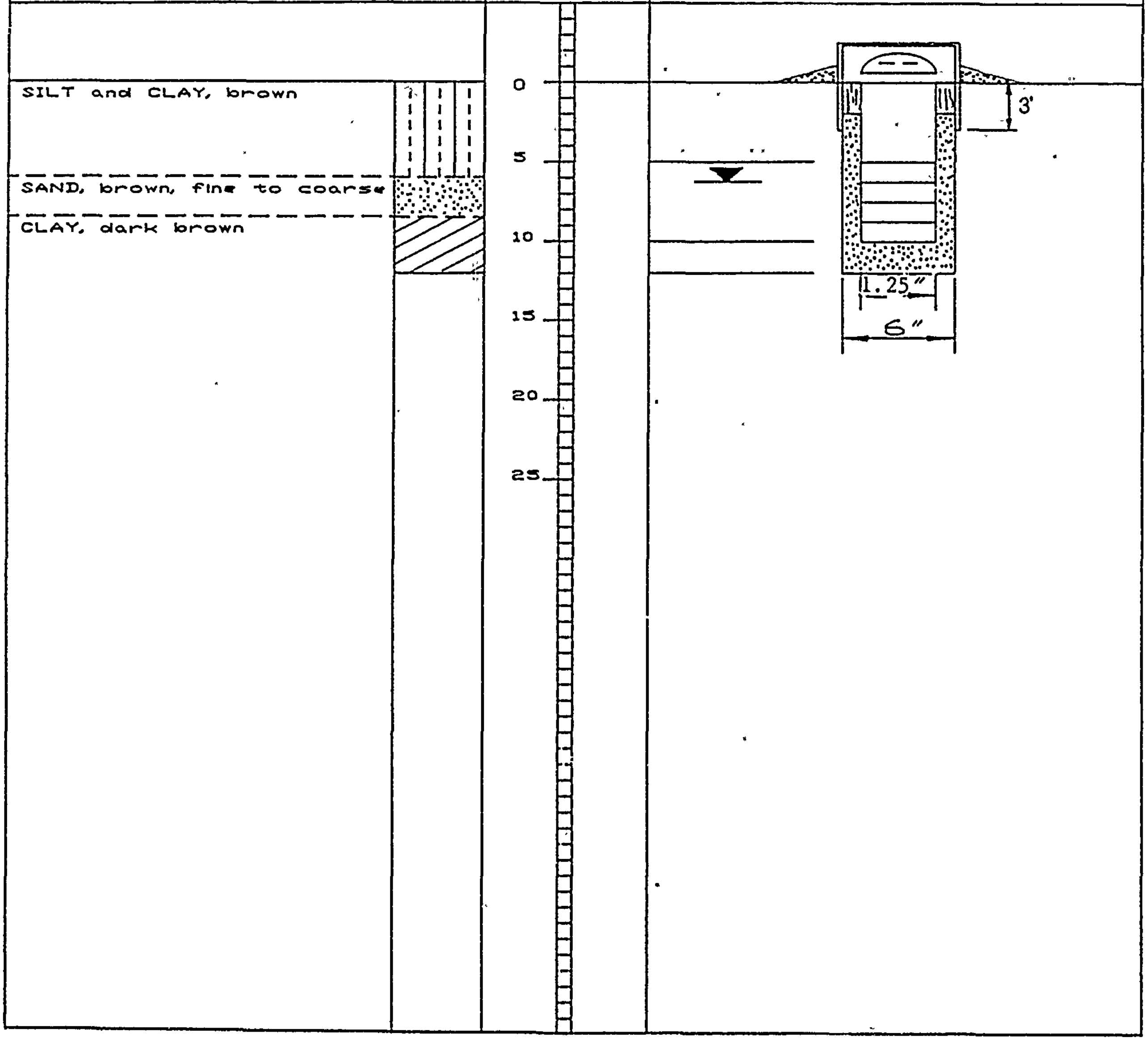
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP14
DATE DRILLED:	8/23/88
DATE INSTALLED:	8/23/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	DR001
GEOLOGIST:	P. RIEMERSMA & M. RODDY

WELL CONSTRUCTION:

Well 4WP14 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY	DEPTH BELOW L.S.	WELL CONSTRUCTION DETAILS



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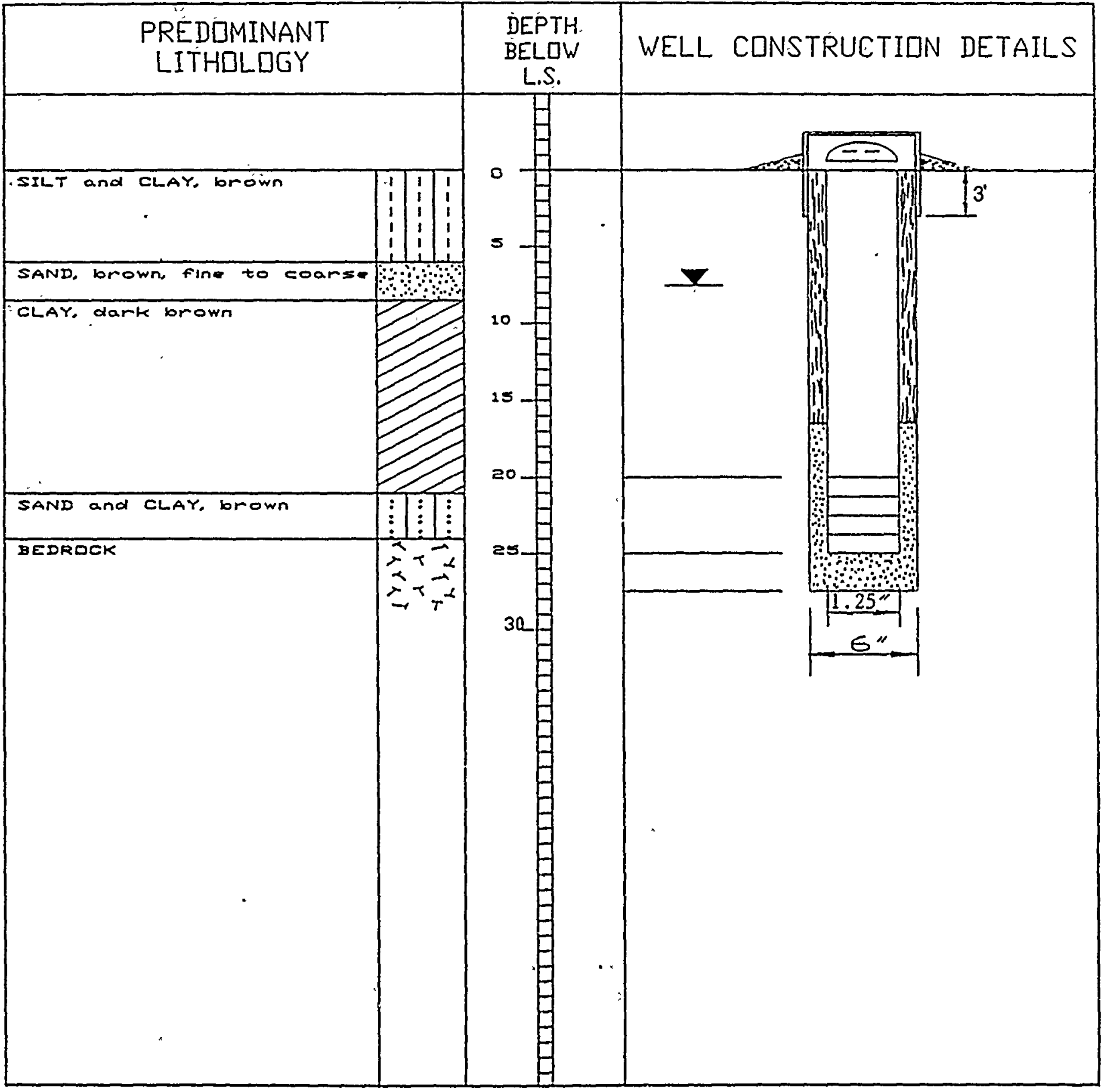
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP14D
DATE DRILLED:	8/23/88
DATE INSTALLED:	8/23/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	P. RIEMERSMA & M. RODDY

WELL CONSTRUCTION:

Well 4WP14D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.



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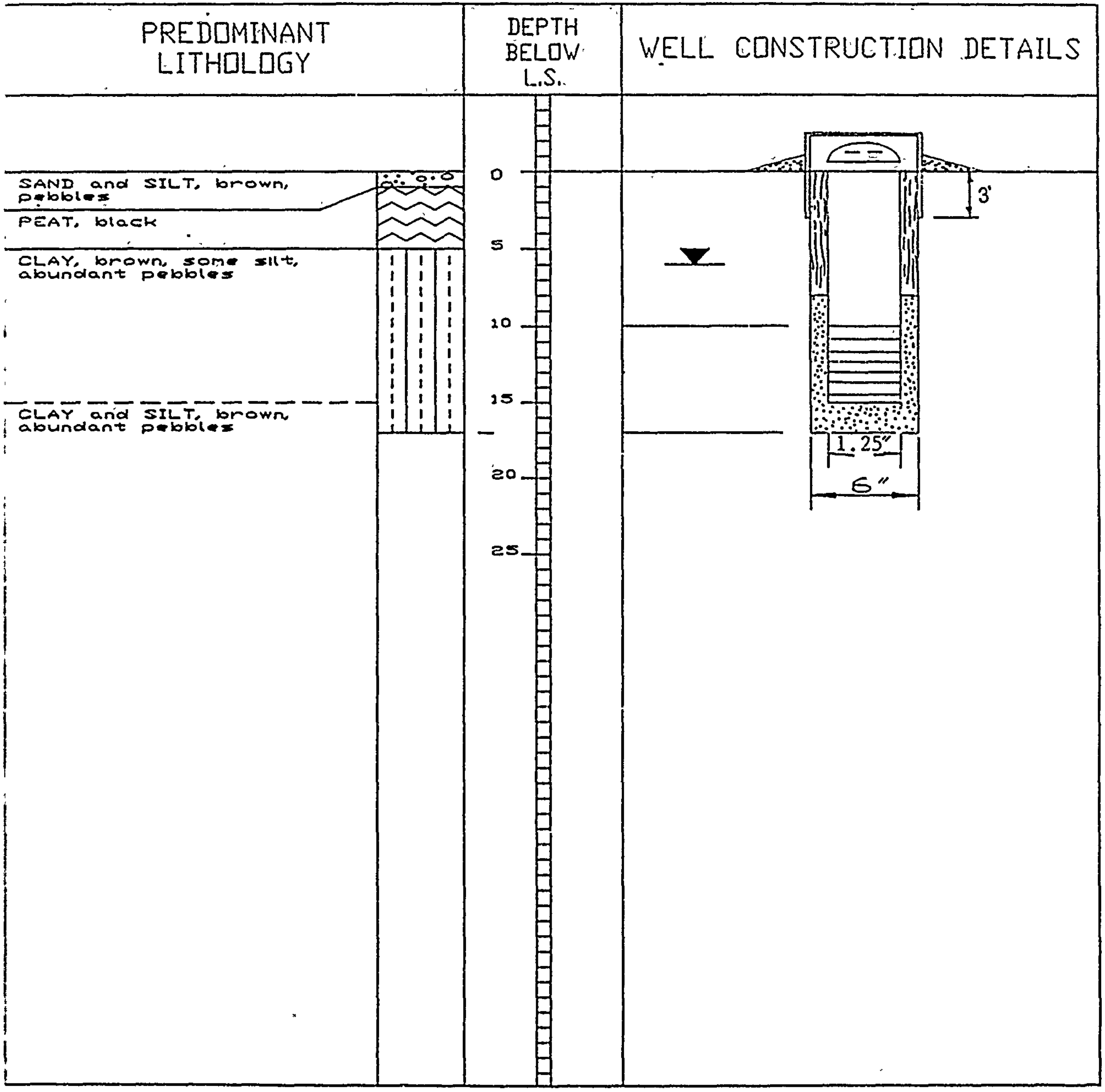
ENGINEERING-SCIENCE, INC.

DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP15
DATE DRILLED:	8/23/88
DATE INSTALLED:	8/23/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 4WP15 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing



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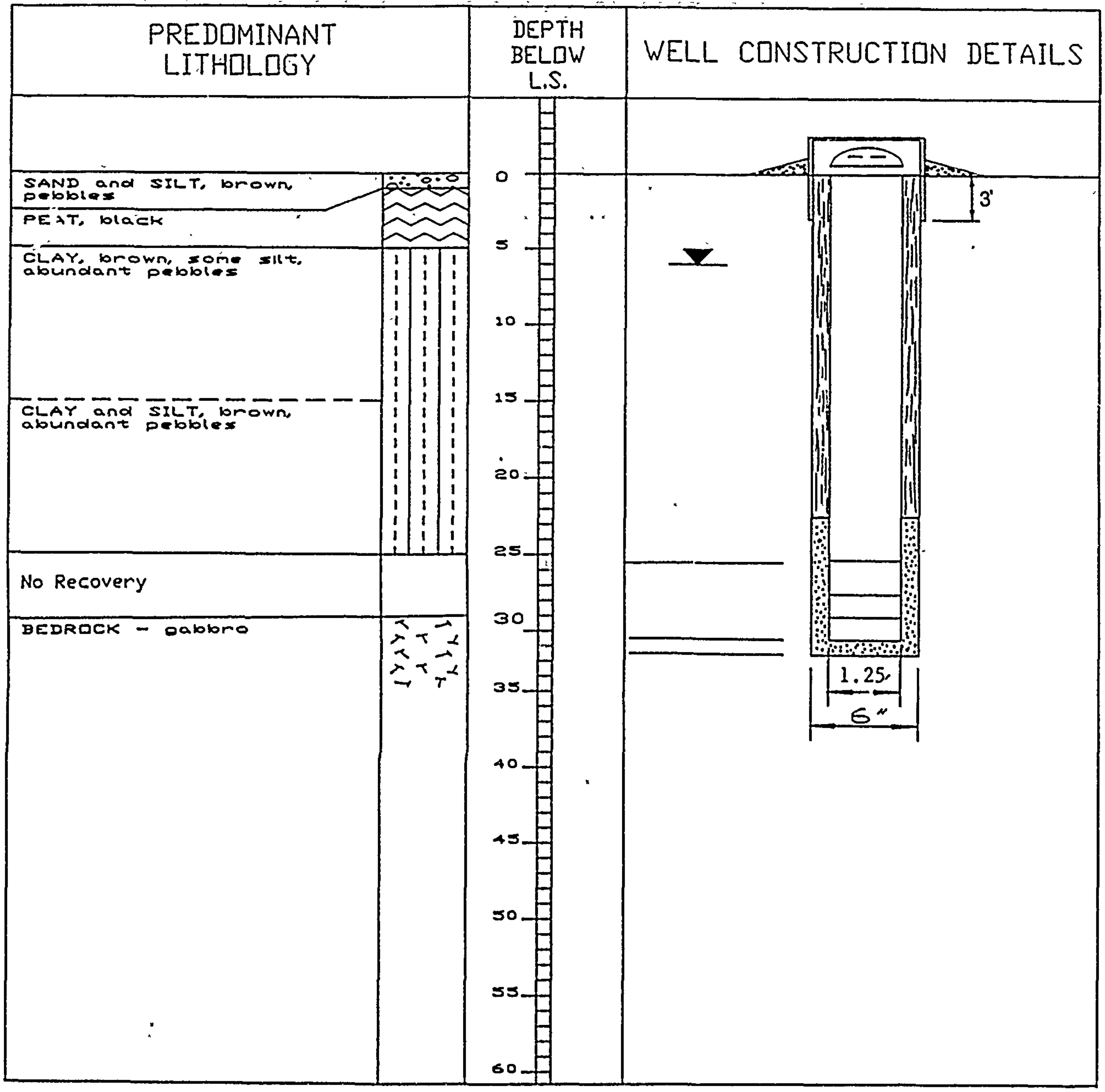
DRILLING AND WELL COMPLETION RECORD

SITE ID:	DANGB-4-WP15D
DATE DRILLED:	8/23/88
DATE INSTALLED:	8/23/88
DRILLING METHOD:	ROTASONIC
PROJECT NO.:	OR001
GEOLOGIST:	M. RODDY

WELL CONSTRUCTION:

Well 4WP15D is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a 4 inch diameter metal protective casing



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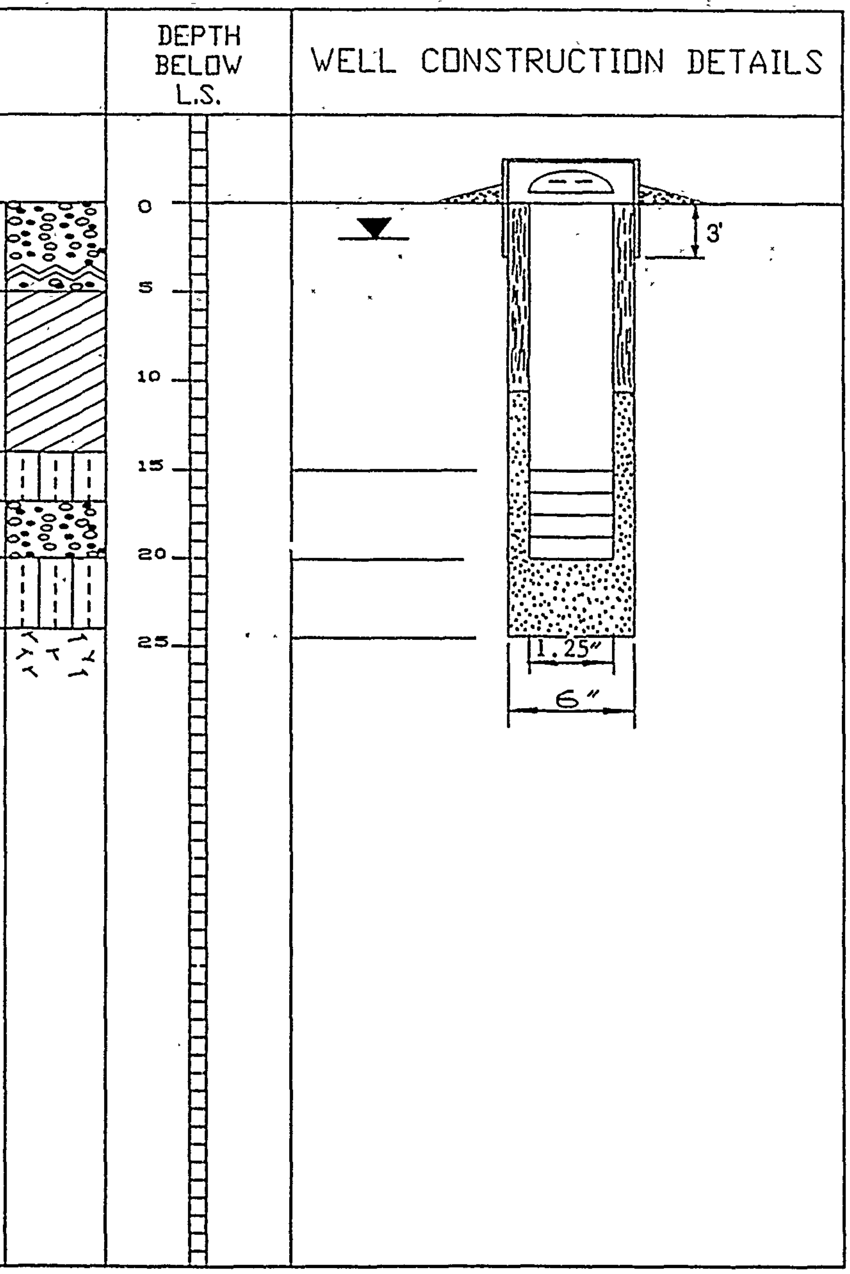
DRILLING AND WELL COMPLETION RECORD

SITE ID: DANGB-4-WP16
DATE DRILLED: 8/19/88
DATE INSTALLED: 8/19/88
DRILLING METHOD: ROTASONIC
PROJECT NO.: OR001
GEOLOGIST: P. RIEMERSMA & M. RODDY

WELL CONSTRUCTION:

Well 4WP16 is constructed of 1.25 inch diameter schedule 40 PVC casing. The screen slot size is 0.010 inches. The well is completed about two and one half feet above land surface and is enclosed in a metal protective casing.

PREDOMINANT LITHOLOGY
SAND and GRAVEL, fine to coarse, black, some silt, PEAT layer from 3.5-4.3' ft.
CLAY, brown
CLAY some silt, brown
SAND and GRAVEL, fine to coarse, brown
SILT some clay, brown, some pebbles
BEDROCK



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APPENDIX G
AQUIFER SLUG TESTS

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APPENDIX G
TABLE OF CONTENTS

APPENDIX G
LIST OF FIGURES

APPENDIX G

LIST OF FIGURES (continued)

APPENDIX G
LIST OF TABLES

APPENDIX G

LIST OF TABLES(Continued)

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SECTION G.1
INTRODUCTION

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SECTION G.1
INTRODUCTION

Seven aquifer slug tests were conducted to investigate the hydraulic properties of the unconsolidated glacial till aquifer underlying the Minnesota Air National Guard Base at Duluth International Airport. Three slug tests were performed at Site 3; two slug tests were conducted at Site 8; and one each at Sites 2 and 4. A summary of slug tested wells and of each well's construction details is given in Table G-1. Well locations are shown in Figure G-1. A detailed description of the data collection and analysis is presented in the following sections.

TABLE G-1

WELL CONSTRUCTION SUMMARY FOR SLUG TESTED WELLS

Well No.	Well Depth (feet)	Well Diameter (inches)	Screen Length (feet)	Saturated Thickness of Screened Interval (feet)
GW 2-E	19	2	10	7.25
DANGB-3-MW25	16	2	10	10.00
DANGB-3-MW33	22	2	10	10.00
DANGB-3-MW34	12	2	10	5.41
DANGB-4-MW22	33.5	2	10	10.00
DANGB-8-MW16	31	2	10	10.00
GW 8-A	13	2	10	6.21

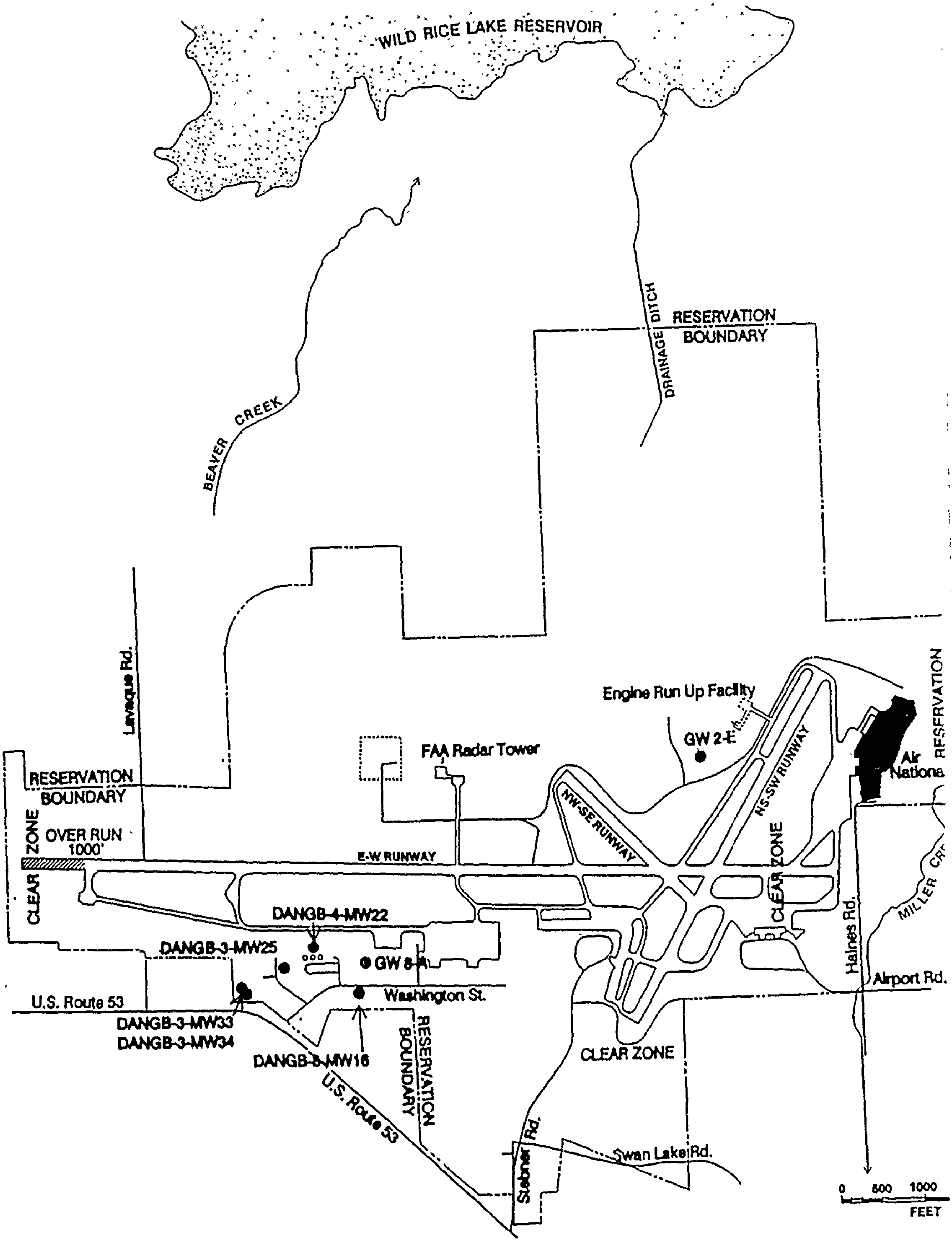
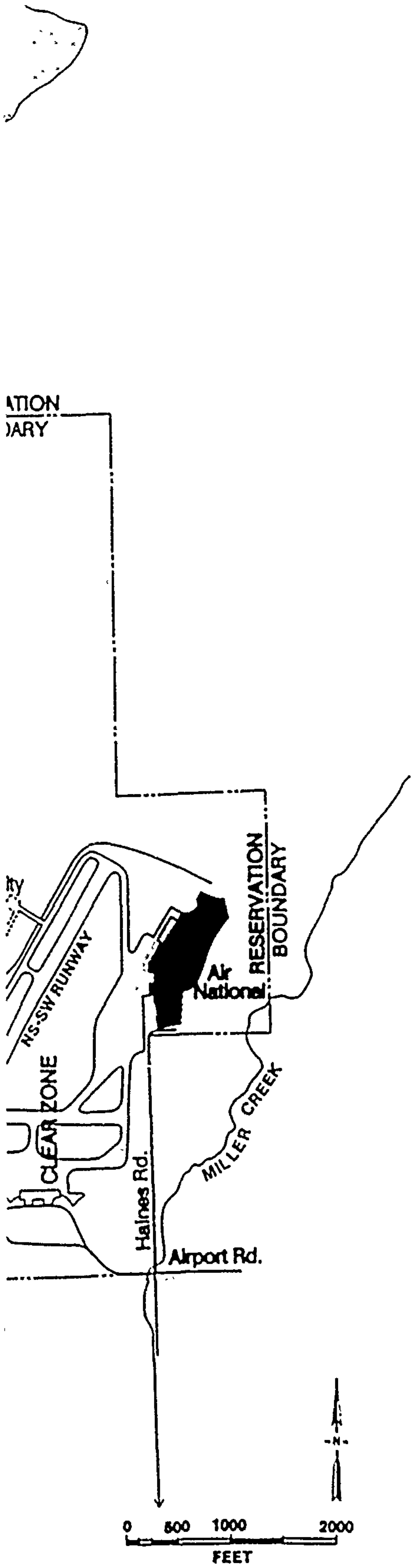


Figure G - 1 Slug Test Locations.

1 of 2



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SECTION G.2
SLUG TEST METHOD

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SECTION G.2
SLUG TEST METHOD

The slug test method is a technique used to calculate values of transmissivity (T). This method is recommended for confined aquifers whose transmissivity is less than 7000 square feet per day (ft^2/day) (Lohman, 1972). The value of transmissivity derived from this method would apply to the saturated thickness of the screened or open interval in each well.

A pressure transducer and automatic recorder were used to collect data during testing. The pressure sensor was placed below the water level in the well and the water level allowed to stabilize; then a metal slug was injected into the well and the water levels were measured at closely spaced intervals over the time required for the water level to recover to its approximate original position (Figure G-2). After equilibrium was reached, the slug was withdrawn and again the water levels were measured at closely spaced intervals over the time required for the water level to recover to its approximate original position.

The slug test data were reduced and transmissivities were computed following the method outlined in Lohman (1972). Values of H/H_0 versus time were then plotted on semi-logarithmic paper and the resulting data curve matched to the type curves to obtain the information required to compute transmissivity. The terms H and H_0 are defined as:

H = head inside the well above or below the reference water level at some time, t, after injection of the slug; and

H_0 = initial head inside the well above or below the reference water level at the start of the slug test.

Time for the analysis starts when the slug is placed in the water.

The type curves used in the slug test method are numerical solutions to the theoretical equation used to describe the response of a well to an instantaneous injection of a slug (Cooper, Bredehoft, and Papadopulus, 1967). These curves are shown in Figure G-3 as a dimensionless plot of H/H_0 versus Tt/r_c^2 for various values of α where:

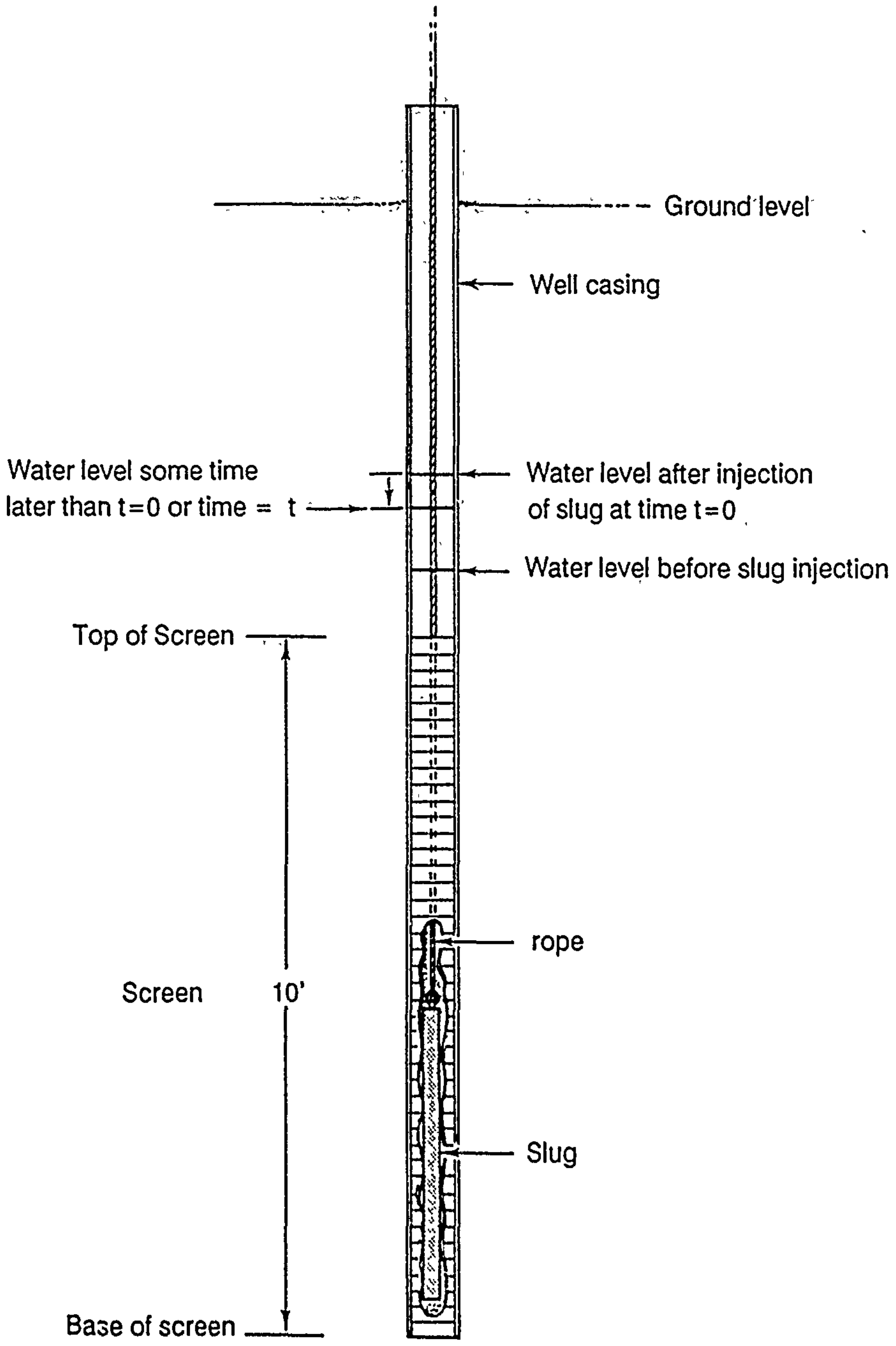

Figure G - 2 Schematic Illustration of a Slug Test.

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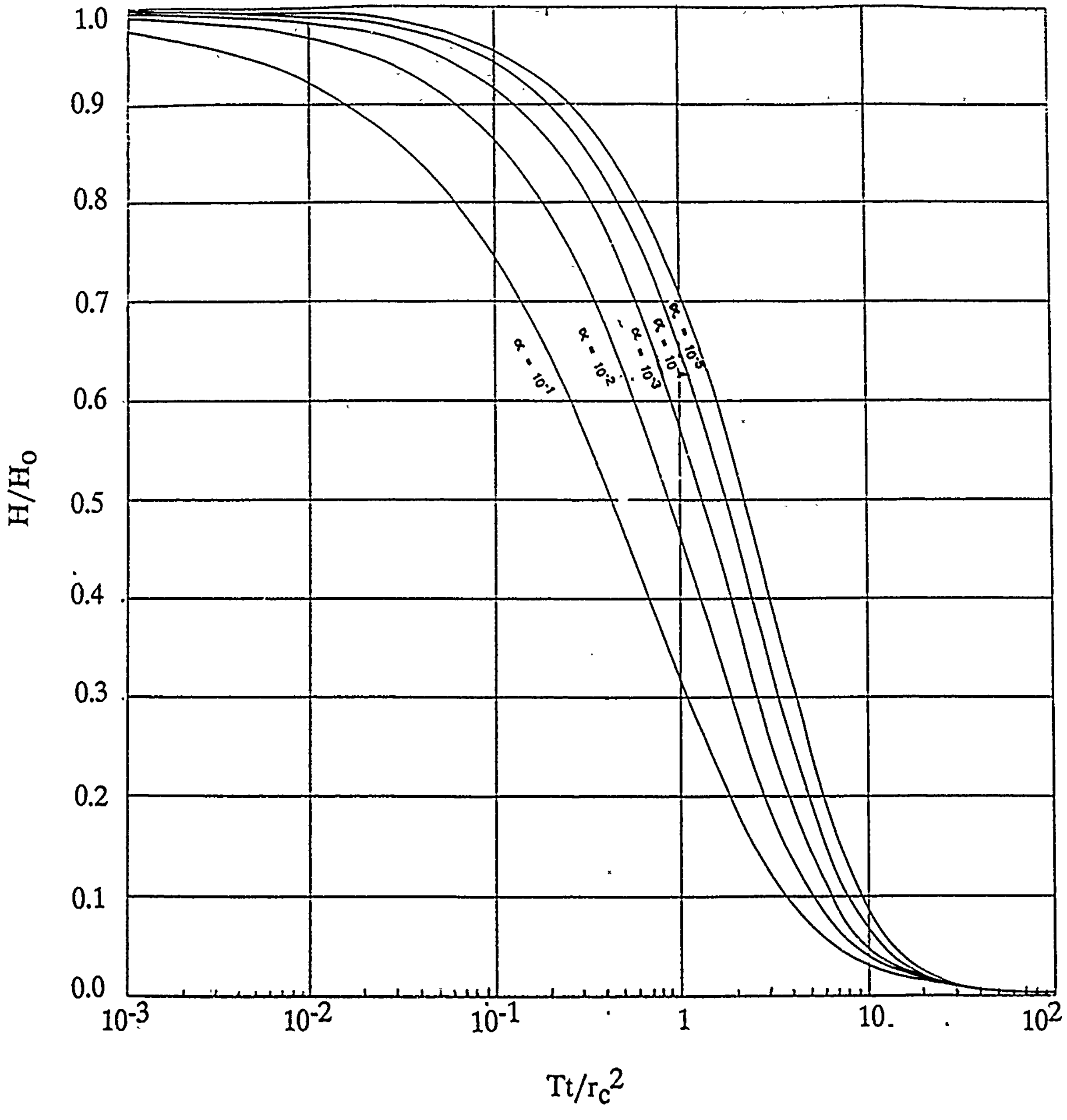

Figure G - 3 Type Curves for H/H_o versus Tt/r_c^2 for five values of α.

α $= (r_s/r_c)^2 S$; no dimensions:

r_s = radius of screened interval, in units of length;

r_c = radius of the casing over which water level fluctuates, in units of length;

S = storage coefficient, no dimensions;

t = time in seconds; and

T = transmissivity in units of length squared per unit time.

After the curves are superimposed, time on the data curve can be matched at any point to the dimensionless parameter Tt/r_c^2 on the type curve to find a solution for transmissivity. Choosing time on the data curve where $Tt/r_c^2 = 1.0$ leads to the following equation for transmissivity:

$$T = 1.0\, r_c^2 / t.$$

This equation is used in the analyses presented in this report.

The hydraulic conductivity is calculated from the equation,

$$K = T/b,$$

where b is the saturated thickness of the screened interval. Values of initial head and initial time used in the analysis varied from the theoretical values. Because of instability of early water levels within the well upon injection of the slug, the value of the initial head was chosen as that where water levels stopped oscillating, usually less than five seconds after the slug was in place. The corresponding initial time was then adjusted to start at the selected value of initial head and the data adjusted to reflect this translation in the time parameter.

The storage coefficient for the aquifer can also be computed from the equation:

$$S = \alpha\ (r_c/r_s)^2$$

Determination of the storage coefficient by this method is of questionable validity since the type curves differ only slightly when "alpha" differs by an order of magnitude (Cooper, Bredenhoeft, and Papadopulos, 1967). Storage coefficients were computed as a part of the analyses as general information for the reader.

SECTION G.3
SLUG TEST ANALYSIS

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SECTION G.3
SLUG TEST RESULTS

Slug injection tests and slug withdrawal tests were performed on seven wells. The slug injection test was initiated by inserting a slug into the well and recording the subsequent decline in water levels. After water levels had stabilized, the slug was removed from the well and the subsequent rise in water levels recorded as part of the withdrawal test.

Transmissivity and hydraulic conductivity were calculated from the data collected from each test with the results summarized in Table G-2. The results of the two tests are generally in agreement for the four wells where the screened interval was saturated. The withdrawal results for the three wells where the screen was not saturated are suspect and do not agree with the injection test results. Both newly constructed and previously constructed wells show this discrepancy. Dewatering of the sand pack around each well may have caused initial rapid rises in water level which distorted the withdrawal results. The transmissivities and hydraulic conductivities obtained from the injection results for all wells correlate with recharge times made during purging of wells.

G.3.1 Slug Testing at Site 2

At Site 2, monitoring well GW 2-E was slug tested. The well is located downgradient from Fire Training Area 2 (FTA 2) which is the nearest contaminant source area. Well GW 2-E was completed in reddish-brown well-graded sand with coarse gravel and some silt (Dames & Moore, 1987).

The slug test data for GW 2-E were collected on September 9, 1988. The injection data and withdrawal data are presented in Tables G-3 and G-4, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-5 for the injection test and Table G-6 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-5 and G-6 are based on a visual inspection of the graphs of water level, H versus elapsed time for slug injection and withdrawal, Figures G-4 and G-5.

Analysis of the slug injection test results gives an apparent transmissivity of 37.4 gallons per day per foot (g/d/ft) and the apparent storage coefficient is 10^{-3} (Figure G-6). The apparent hydraulic conductivity is 5.2 gallons per day per square foot (g/d/ft^2) based on the apparent transmissvity and a saturated

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TABLE G-2

SUMMARY OF SLUG TEST RESULTS

Well No.	Transmissivity (gal/day/ft)		Conductivity Hydraulic (gal/day/ft^2)		Saturated thickness of screened interval(2) (feet)
	Injection	Withdrawal	Injection	Withdrawal	
GW 2-E	37.4	345[1]	5.2	47.6[1]	7.25
DANGB-3-MW25	20.4	37.4	2.0	3.7	10.00
DANGB-3-MW33	14.5	4.1	1.4	0.4	10.00
DANGB-3-MW34	1.2	64.1[1]	0.2	11.8[1]	5.41
DANGB-4-MW22	22.4	10.9	2.2	1.1	10.00
DANGB-8-MW16	15.0	10.9	1.5	1.1	10.00
GW 8-A	8.6	321[1]	1.4	51.7[1]	6.21

1. These numbers are interpreted as not representative of aquifer properties but are presented here for completeness. The lack of 100 percent saturated screen thickness and dewatering of the sand pack around each well may have caused initial rapid rises in water level which distorted the withdrawal results.

2. The total length of the screened interval is ten feet.

TABLE G-3

SLUG INJECTION TEST DATA FROM SITE 2

MONITORING WELL, GW 2-E

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.00	70.0	0.33
0.2	0.03	75.0	0.31
0.4	0.04	80.0	0.31
0.6	0.04	85.0	0.30
0.8	0.04	90.0	0.30
1.0	0.04	95.0	0.28
1.2	0.06	100.0	0.28
1.4	0.06	105.0	0.28
1.6	0.06	110.0	0.26
1.8	0.06	115.0	0.26
2.0	0.06	120.0	0.25
3.0	0.06	150.0	0.23
4.0	0.06	180.0	0.22
5.0	0.04	210.0	0.20
6.0	0.06	240.0	0.19
7.0	0.06	270.0	0.17
8.0	0.04	300.0	0.15
9.0	0.69	330.0	0.14
10.0	0.49	360.0	0.11
11.0	0.50	390.0	0.11
12.0	0.49	420.0	0.09
13.0	0.49	450.0	0.09
14.0	0.45	480.0	0.09
15.0	0.44	510.0	0.07
16.0	0.44	540.0	0.06
17.0	0.42	570.0	0.06
18.0	0.41	600.0	0.04
19.0	0.42	660.0	0.06
20.0	0.41	720.0	0.04
25.0	0.44	780.0	0.03
30.0	0.47	840.0	0.03
35.0	0.39	900.0	0.03
40.0	0.39	960.0	0.03
45.0	0.38	1020.0	0.01
50.0	0.36	1080.0	0.01
55.0	0.36	1140.0	0.01
60.0	0.34	1200.0	0.01
65.0	0.33		

TABLE G-4

SLUG WITHDRAWAL TEST DATA FROM SITE 2

MONITORING WELL GW 2-E

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	-0.01	1.5000	0.41
0.0033	0.01	1.5833	0.41
0.0066	0.01	1.6667	0.41
0.0099	0.03	1.7500	0.39
0.0133	0.01	1.8333	0.38
0.0166	0.03	1.9167	0.36
0.0200	0.03	2.0000	0.36
0.0233	0.03	2.5000	0.31
0.0266	0.03	3.0000	0.28
0.0300	0.03	3.5000	0.25
0.0333	0.03	4.0000	0.23
0.0500	0.03	4.5000	0.22
0.0666	0.23	5.0000	0.20
0.0833	0.58	5.5000	0.19
0.1000	1.04	6.0000	0.17
0.1166	1.39	6.5000	0.15
0.1333	1.31	7.0000	0.15
0.1500	1.34	7.5000	0.15
0.1666	1.23	8.0000	0.15
0.1833	1.15	8.5000	0.15
0.2000	1.10	9.0000	0.14
0.2166	1.04	9.5000	0.14
0.2333	0.98	10.0000	0.14
0.2500	0.95	11.0000	0.11
0.2666	0.90	12.0000	0.11
0.2833	0.87	13.0000	0.11
0.3000	0.83	14.0000	0.09
0.3166	0.80	15.0000	0.09
0.3333	0.77	16.0000	0.09
0.4167	0.71	17.0000	0.07
0.5000	0.63	18.0000	0.09
0.5833	0.60	19.0000	0.09
0.6667	0.57	20.0000	0.09
0.7500	0.55	21.0000	0.09
0.8333	0.52	22.0000	0.09
0.9167	0.50	23.0000	0.09
1.0000	0.49	24.0000	0.09
1.0833	0.47	25.0000	0.09
1.1667	0.45	26.0000	0.09
1.2500	0.44	27.0000	0.07
1.3333	0.42	28.0000	0.07
1.4166	0.42	29.0000	0.09
		30.0000	0.07

TABLE G-5

SLUG INJECTION ANALYSIS DATA

FOR SITE 2 MONITORING WELL, GW 2-E

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_o
15.0	0.0	0.44	1.0000
16.0	1.0	0.44	1.0000
17.0	2.0	0.42	0.9545
18.0	3.0	0.41	0.9318
19.0	4.0	0.42	0.9545
20.0	5.0	0.41	0.9318
25.0	10.0	0.44	1.0000
30.0	15.0	0.47	1.0682
35.0	20.0	0.39	0.8864
40.0	25.0	0.39	0.8864
45.0	30.0	0.38	0.8636
50.0	35.0	0.36	0.8182
55.0	40.0	0.36	0.8182
60.0	45.0	0.34	0.7727
65.0	50.0	0.33	0.7500
70.0	55.0	0.33	0.7500
75.0	60.0	0.31	0.7045
80.0	65.0	0.31	0.7045
85.0	70.0	0.30	0.6818
90.0	75.0	0.30	0.6818
95.0	80.0	0.28	0.6364
100.0	85.0	0.28	0.6364
105.0	90.0	0.28	0.6364
110.0	95.0	0.26	0.5909
115.0	100.0	0.26	0.5909
120.0	105.0	0.25	0.5682
150.0	135.0	0.23	0.5227
180.0	165.0	0.22	0.5000
210.0	195.0	0.20	0.4545
240.0	225.0	0.19	0.4318
270.0	255.0	0.17	0.3864
300.0	285.0	0.15	0.3409
330.0	315.0	0.14	0.3182
360.0	345.0	0.11	0.2500
390.0	375.0	0.11	0.2500
420.0	405.0	0.09	0.2045
450.0	435.0	0.09	0.2045
480.0	465.0	0.09	0.2045
510.0	495.0	0.07	0.1591
540.0	525.0	0.06	0.1364
570.0	555.0	0.06	0.1364

TABLE G-5 (CONTINUED)

SLUG INJECTION ANALYSIS DATA

FOR SITE 2 MONITORING WELL, GW 2-E

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
600.0	585.0	0.04	0.0909
660.0	645.0	0.06	0.1364
720.0	705.0	0.04	0.0909
780.0	765.0	0.03	0.0682
840.0	825.0	0.03	0.0682
900.0	885.0	0.03	0.0682
960.0	945.0	0.03	0.0682
1020.0	1005.0	0.01	0.0227
1080.0	1065.0	0.01	0.0227
1140.0	1125.0	0.01	0.0227
1200.0	1185.0	0.01	0.0227

TABLE G-6

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 2 MONITORING WELL, GW 2-E

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.1000	0	1.39	1.0000
0.1166	1	1.31	0.9424
0.1500	2	1.34	0.9640
0.1666	3	1.23	0.8848
0.1833	4	1.15	0.8273
0.2000	5	1.10	0.7913
0.2166	6	1.04	0.7482
0.2333	7	0.98	0.7050
0.2500	8	0.95	0.6834
0.2666	9	0.90	0.6474
0.2833	10	0.87	0.6258
0.3000	11	0.83	0.5971
0.3166	12	0.80	0.5755
0.3333	13	0.77	0.5539
0.4167	18	0.71	0.5107
0.5000	23	0.63	0.4532
0.5833	28	0.60	0.4316
0.6667	33	0.57	0.4100
0.7500	38	0.55	0.3956
0.8333	43	0.52	0.3741
0.9167	48	0.50	0.3597
1.0000	53	0.49	0.3525
1.0833	58	0.47	0.3381
1.1667	63	0.45	0.3237
1.2500	68	0.44	0.3165
1.3333	73	0.42	0.3021
1.4166	78	0.42	0.3021
1.5000	83	0.41	0.2949
1.5833	88	0.41	0.2949
1.6667	93	0.41	0.2949
1.7500	98	0.39	0.2805
1.8333	103	0.38	0.2733
1.9167	108	0.36	0.2589
2.0000	113	0.36	0.2589
2.5000	148	0.31	0.2230
3.0000	173	0.28	0.2014
3.5000	203	0.25	0.1798
4.0000	233	0.23	0.1654
4.5000	263	0.22	0.1582
5.0000	293	0.20	0.1438
5.5000	323	0.19	0.1366
6.0000	353	0.17	0.1223

TABLE G-6 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
6.5000	383	0.15	0.1079
7.0000	413	0.15	0.1079
7.5000	443	0.15	0.1079
8.0000	473	0.15	0.1079
8.5000	503	0.15	0.1079
9.0000	533	0.14	0.1007
9.5000	563	0.14	0.1007
10.0000	593	0.14	0.1007
11.0000	653	0.11	0.0791
12.0000	713	0.11	0.0791
13.0000	773	0.11	0.0791
14.0000	833	0.09	0.0647
15.0000	893	0.09	0.0647
16.0000	953	0.09	0.0647
17.0000	1013	0.07	0.0503
18.0000	1073	0.09	0.0647
19.0000	1133	0.09	0.0647
20.0000	1193	0.09	0.0647
21.0000	1253	0.09	0.0647
22.0000	1313	0.09	0.0647
23.0000	1373	0.09	0.0647
24.0000	1433	0.09	0.0647
25.0000	1493	0.09	0.0647
26.0000	1553	0.09	0.0647
27.0000	1613	0.07	0.0503
28.0000	1673	0.07	0.0503
29.0000	1733	0.09	0.0647
30.0000	1793	0.07	0.050

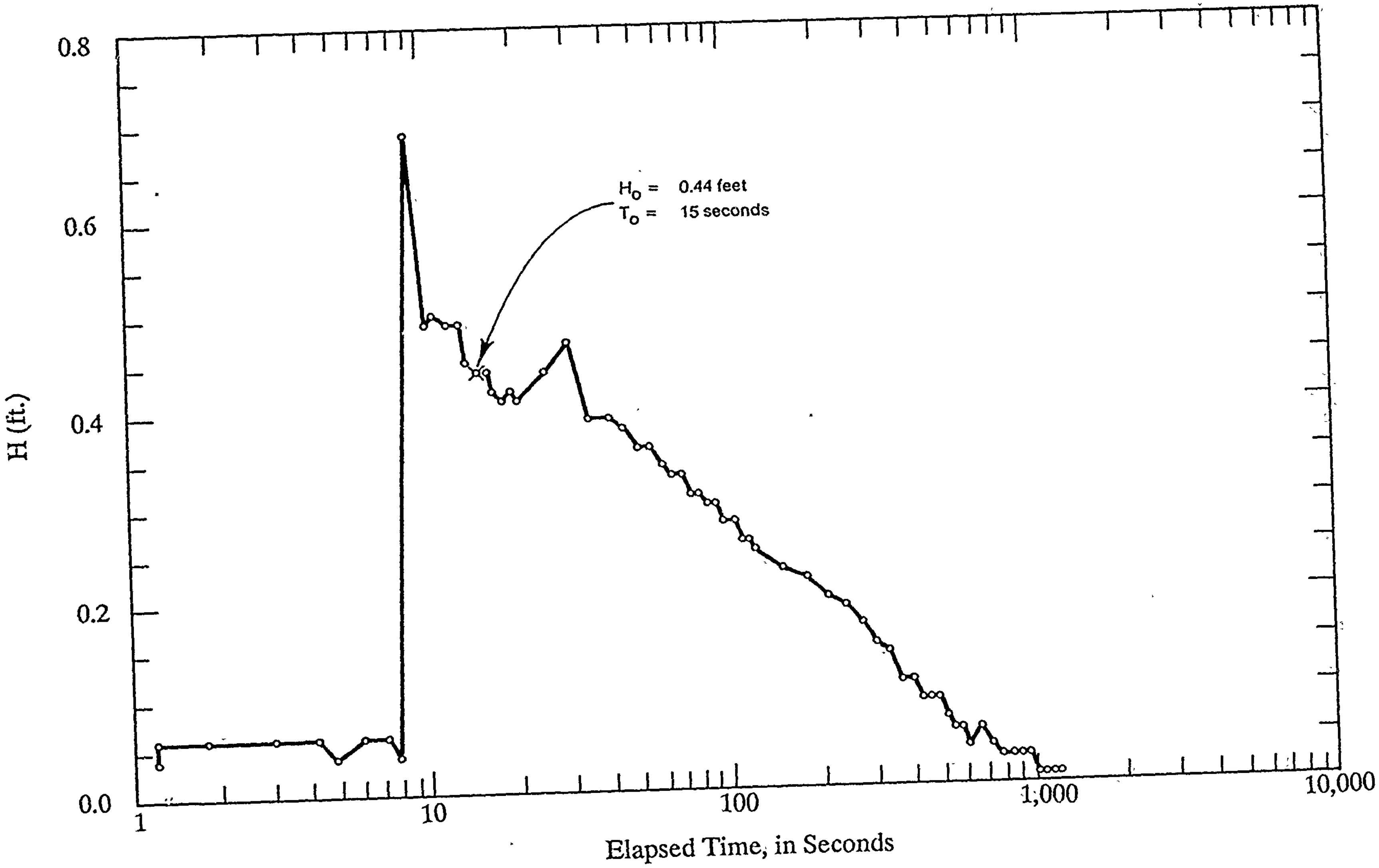

Figure G - 4 Water Level, H, Versus Elapsed Time For Slug Injection Test at Well GW 2-E.

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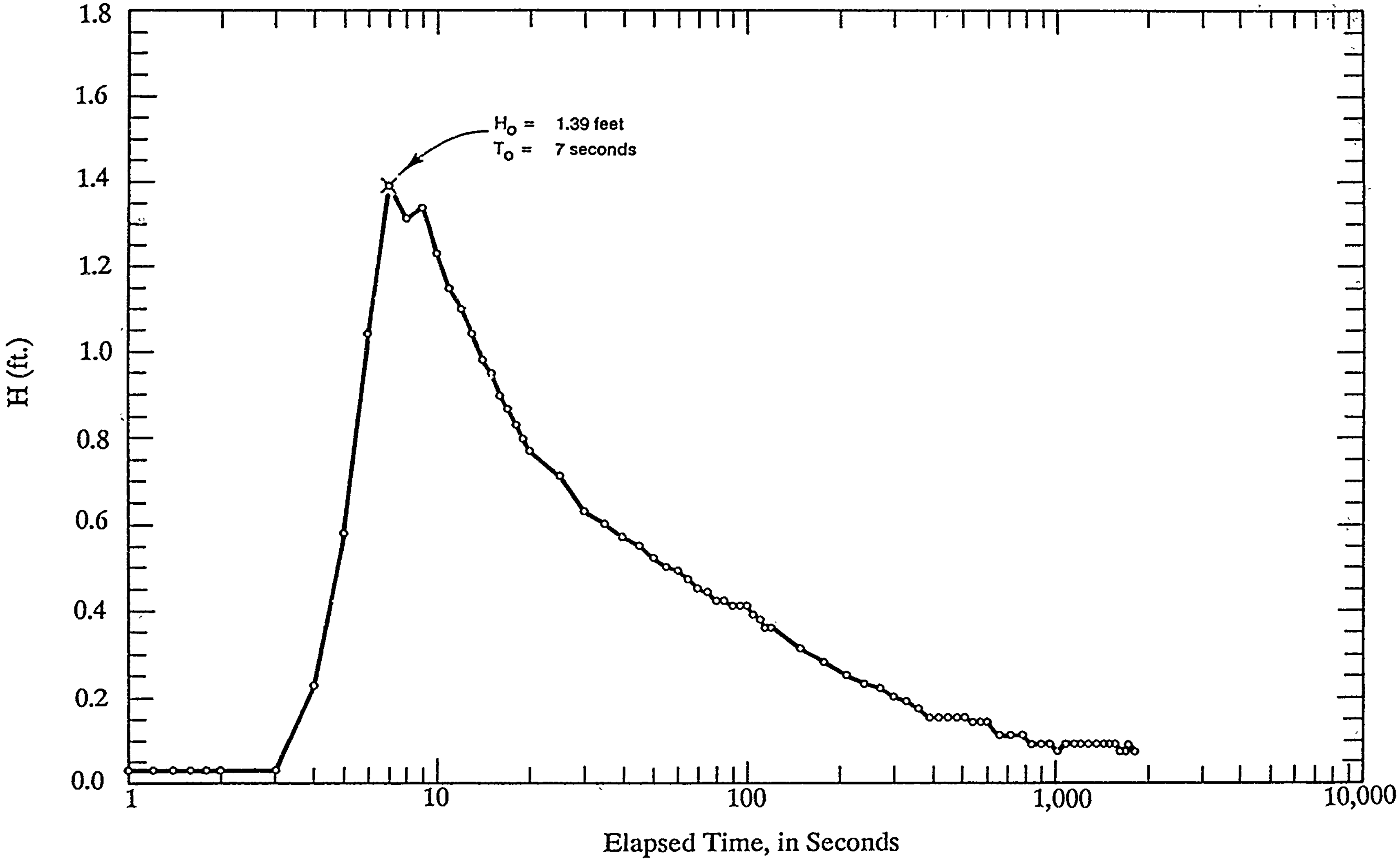
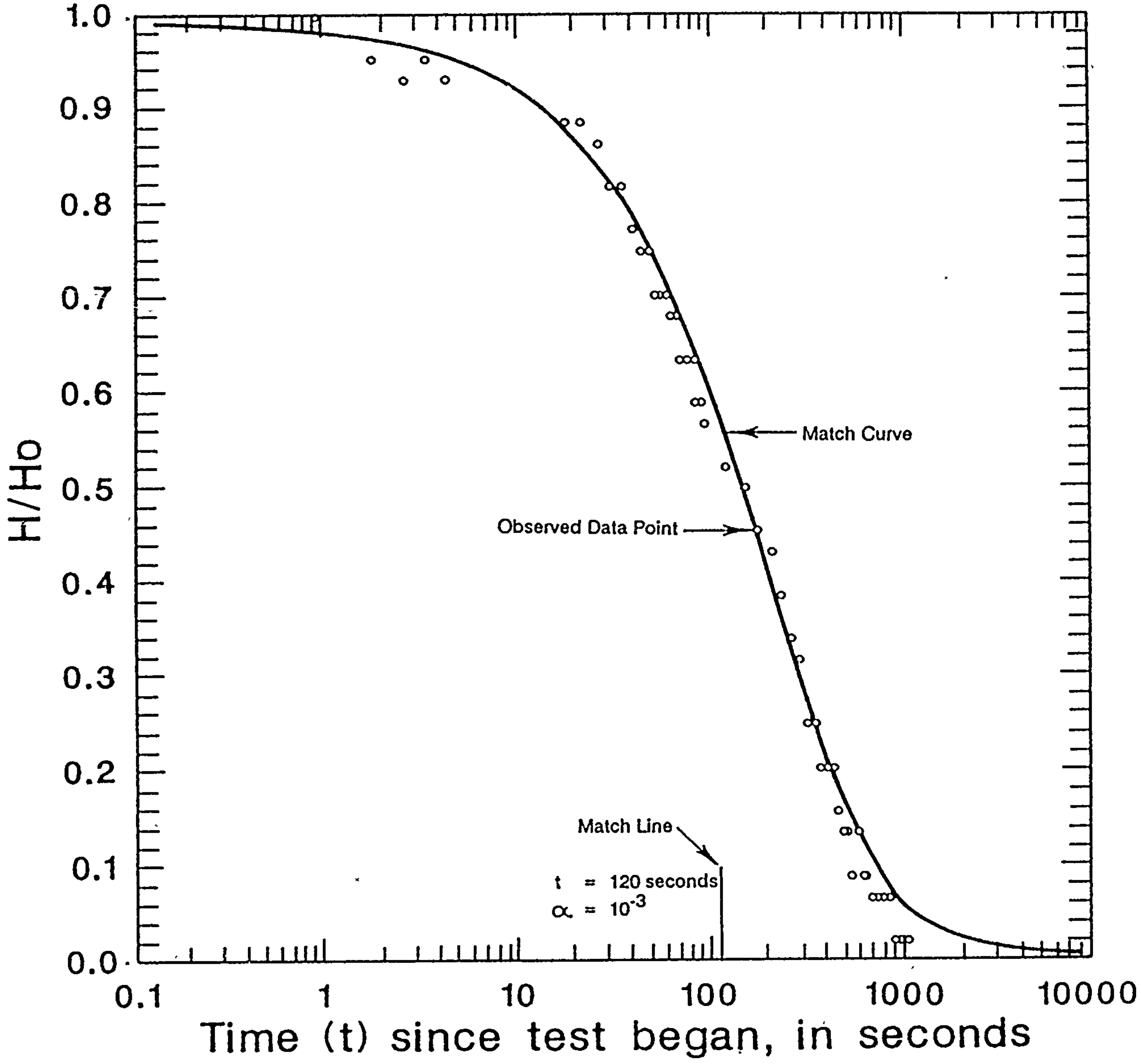


Figure G - 5 Water Level ; H , Versus Elapsed Time for Slug Withdrawal Test at Well GW 2-E.



DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\ (1/12\ \text{ft})^2/120$ seconds
$T = 1\ \text{ft}^2/17{,}280$ seconds
T = 37.4 gal/day/ft

K = T/b
K = 37.4/7.25 ft
$K = 5.2\ \text{gal/day/ft}^2$

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-3}$

Figure G - 6 Analysis of Slug Injection Data From Well GW 2-E.

thickness for the screened interval of 7.25 feet.

Analysis of the slug withdrawal data for well DANGB-3-MW25 yields an apparent transmissivity of 345 g/d/ft and an apparent storage coefficient of 10^{-3} (Figure G-7). The apparent hydraulic conductivity is 47.6 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 7.25 feet.

G.3.2 Slug Testing at Site 3

The wells tested at Site 3 were DANGB-3-MW33 and DANGB-3-MW34 which are hydraulically upgradient and DANGB-3-MW25 which is located hydraulically downgradient from the suspected principal area of contamination. Monitoring wells DANGB-3-MW33 and DANGB-3-MW25 are wells completed across the bedrock-glacial till contact while DANGB-3-MW34 is completed within the glacial till. The lithology of the screened interval of DANGB-3-MW33 consists of a thin gravel layer at the contact surface and glacial till consisting of poorly sorted silt, clay, and sand with abundant pebbles making up the rest of the interval. The screened interval of DANGB-3-MW34 consists of a glacial till similar to that encountered in well DANGB-3-MW33. For DANGB-3-MW25, the screened interval consists of a six inch sand layer near the bedrock-glacial till contact and poorly sorted clay and silt with abundant pebbles throughout the rest of the interval.

The slug test data for DANGB-3-MW25 were collected on September 8, 1988. The injection data and withdrawal data are presented in Tables G-7 and G-8, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-9 for the injection test and Table G-10 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-9 and G-10 are based on a visual inspection of the field data plots (Figures G-8 and G-9).

Analysis of the slug injection test results for well DANGB-3-MW25 gives an apparent transmissivity of 20.4 g/d/ft and the apparent storage coefficient is 10^{-2} (Figure G-10). The apparent hydraulic conductivity is 2.0 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

Analysis of the slug withdrawal data for well DANGB-3-MW25 yields an apparent transmissivity of 37.4 g/d/ft and an apparent storage coefficient of 10^{-2} (Figure G-11). The apparent hydraulic conductivity is 3.7 g/d/ft^2 based

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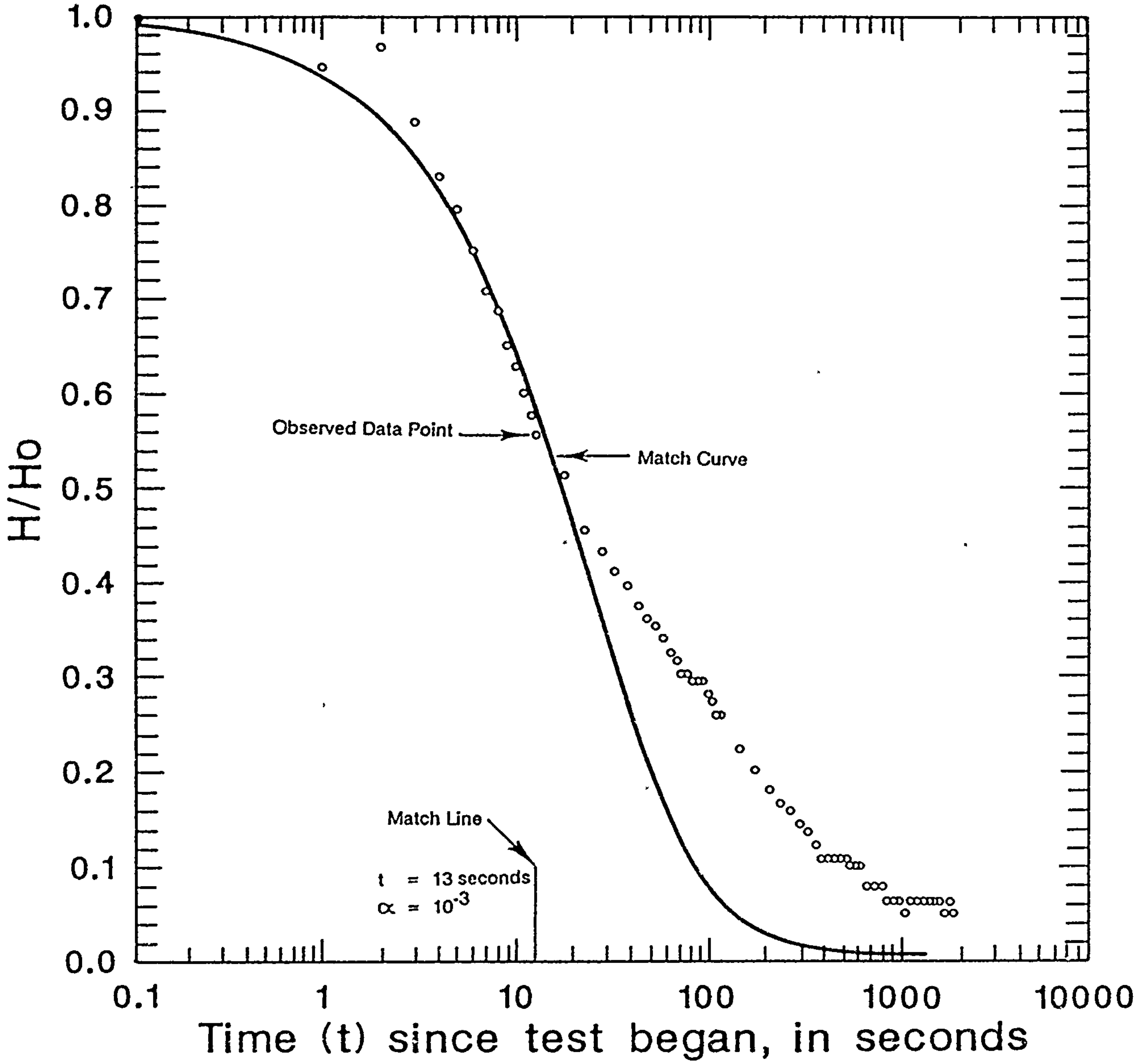

DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\,(1/12\ ft)^2/13$ seconds
$T = ft^2/1{,}872$ seconds
$T = 345$ gal/day/ft

$K = T/b$
$K = 345/7.25$ ft
$K = 47.6$ gal/day/ft^2

$S = \alpha\,(r_c/r_s)^2 = \alpha$
$S = 10^{-3}$

Figure G - 7 Analysis of Slug Withdrawal Data From Well GW 2-E.

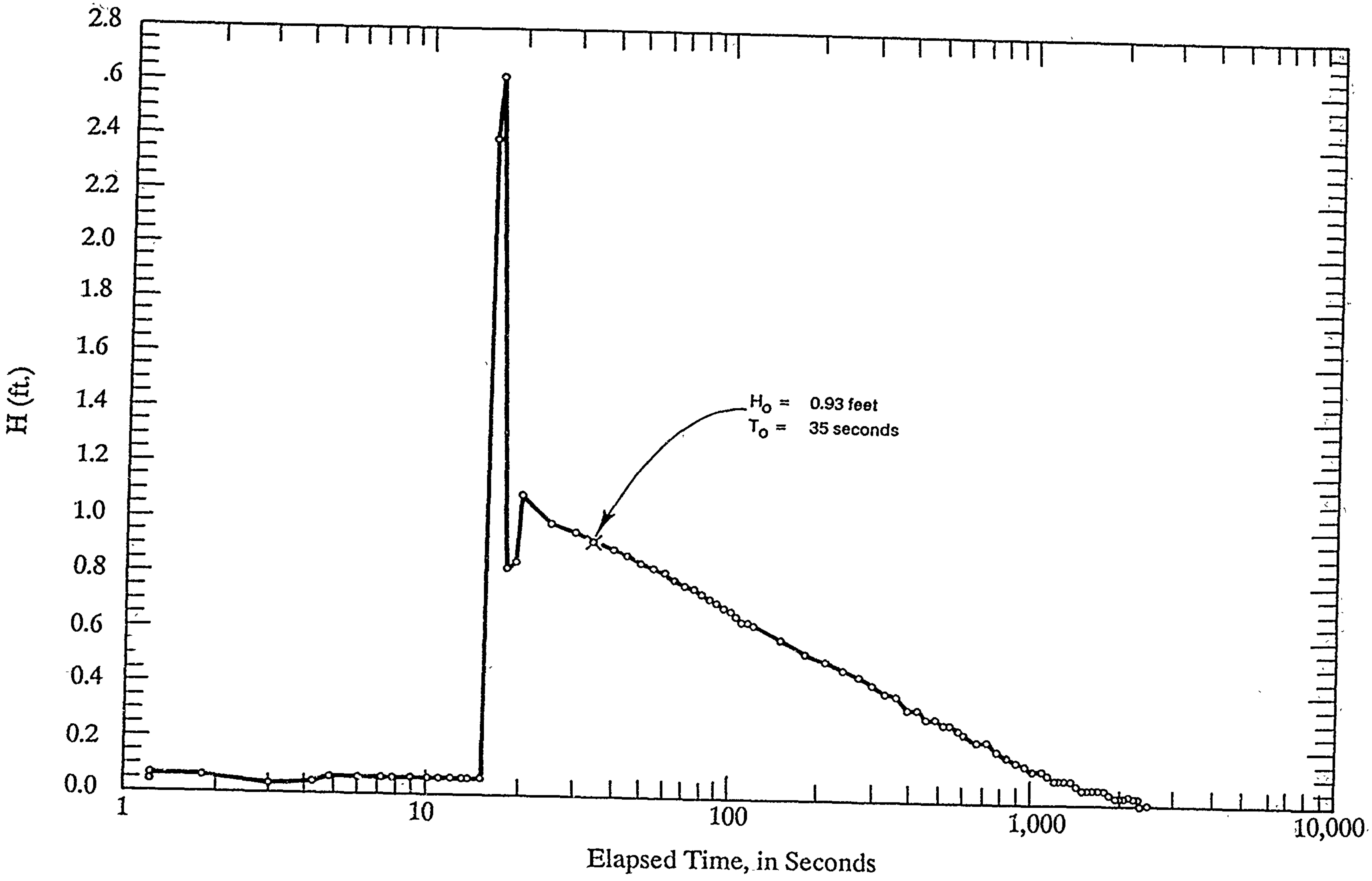

Figure G - 8 Water Level, H , Versus Elapsed Time For Slug Injection Test at Well DANGB-3-MW25.

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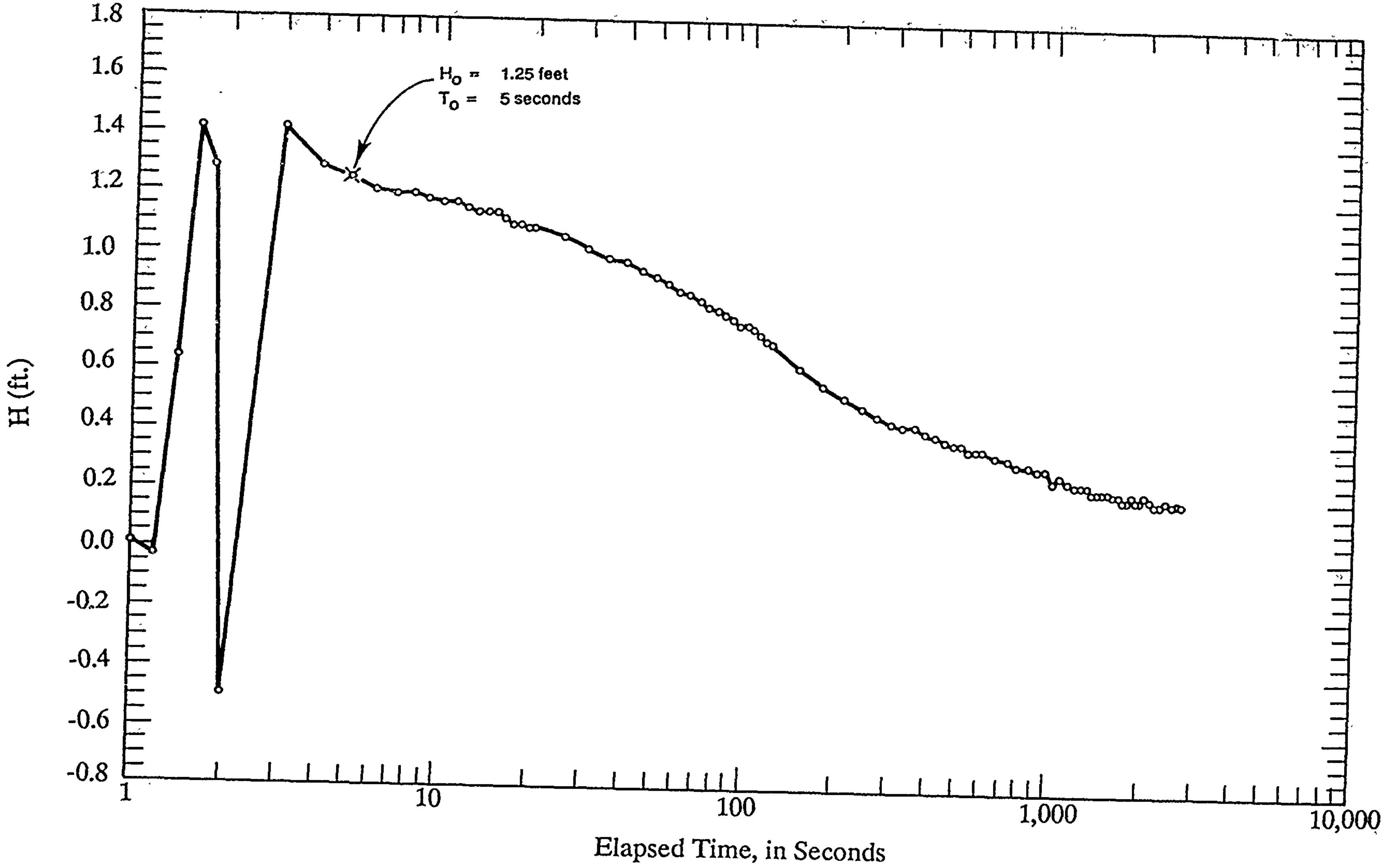

Figure G - 9 Water Level , H , Versus Elapsed Time for Slug Withdrawal Test at Well DANGB-3-MW25.

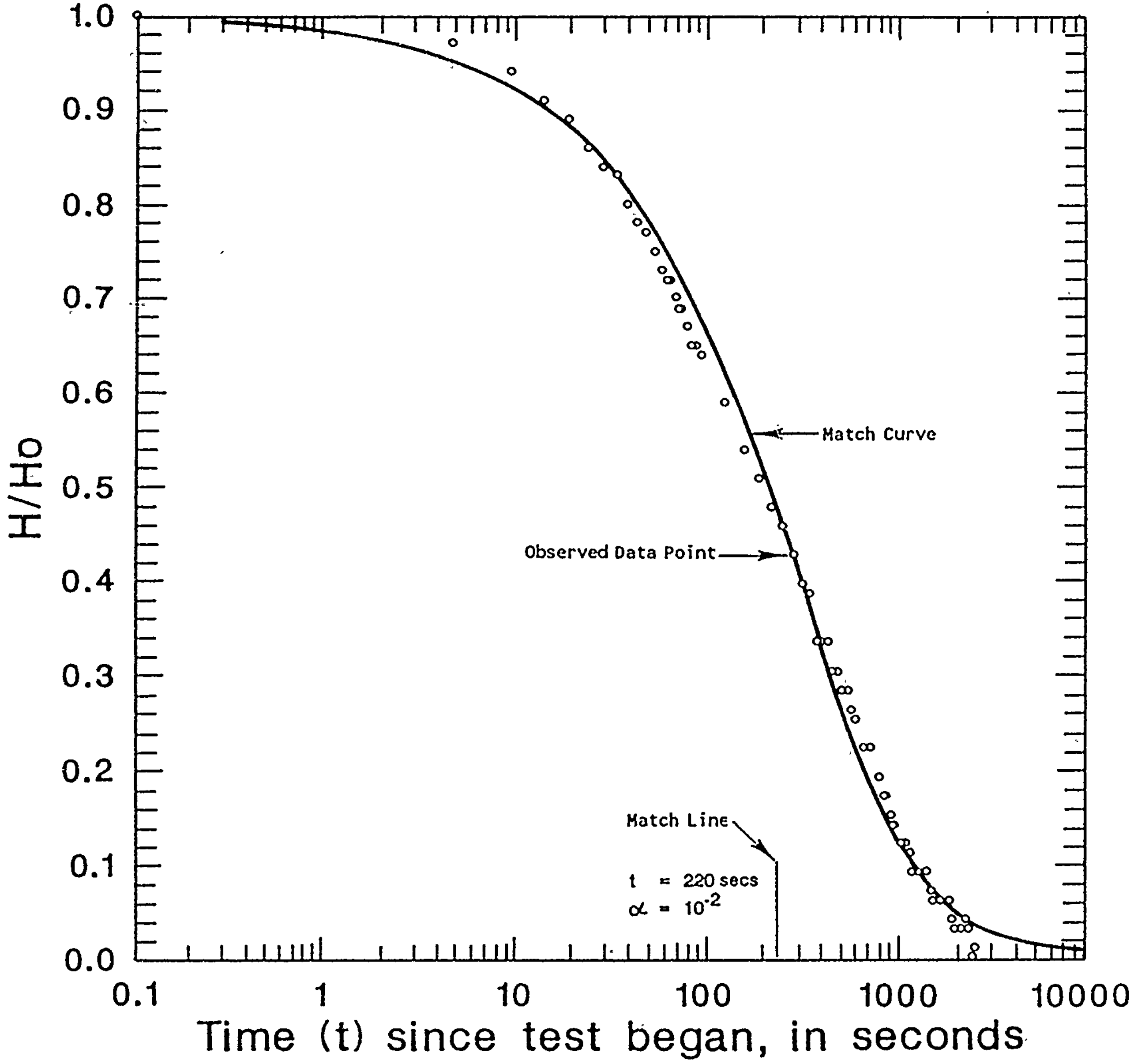

Figure G - 10 Analysis of Slug Injection Data From Well DANGB-3-MW25.

DATA EVALUATION

$T = 1.0\, r_c^2/t$

$T = 1.0\, (1/12\ \text{ft})^2/220$ seconds

$T = 1\ \text{ft}^2/31{,}680$ seconds

T = 20.4 gal/day/ft

K = T/b

K = 20.4/10 ft

$K = 2.0/\text{day}/\text{ft}^2$

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-2}$

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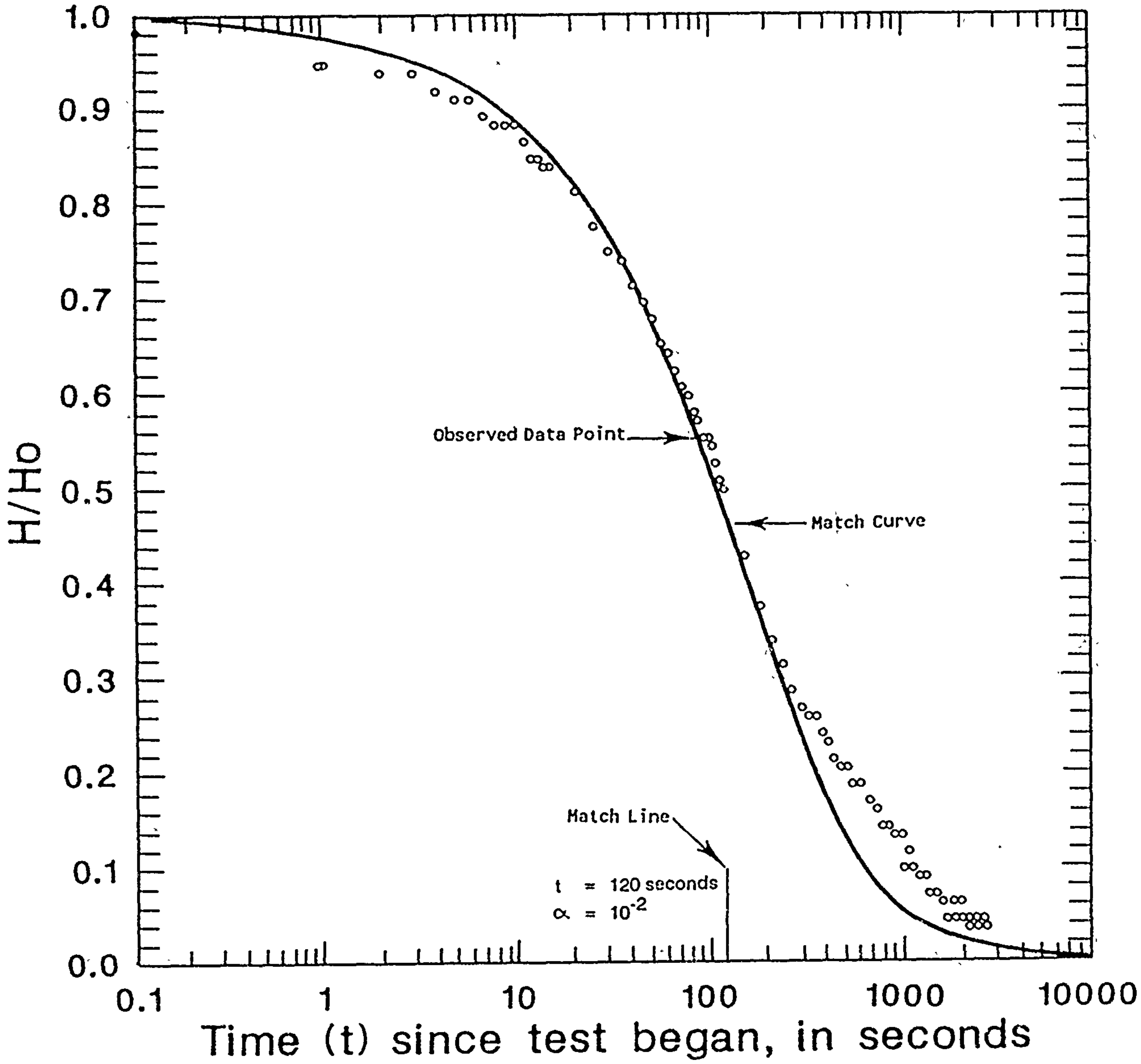

DATA EVALUATION

$T = 1.0\, r_c^2/t$

$T = 1.0\, (1/12\ \text{ft})^2/120$ seconds

$T = \text{ft}^2/17{,}280$ seconds

T = 37.4 gal/day/ft

K = T/b

K = 37.4/10 ft

$K = 3.7$ gal/day/ft^2

$S = \alpha\, (r_c/r_s)^2 = \alpha$

$S = 10^{-2}$

Figure G - 11 Analysis of Slug Withdrawal Data From Well DANGB-3-MW25.

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TABLE G-7

SLUG INJECTION TEST DATA FOR

SITE 3 MONITORING WELL, DANGB-3-MW25

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.01	120.0	0.63
0.2	0.04	150.0	0.58
0.4	0.04	180.0	0.53
0.6	0.03	210.0	0.50
0.8	0.04	240.0	0.47
1.0	0.04	270.0	0.45
1.2	0.04	300.0	0.42
1.4	0.06	330.0	0.39
1.6	0.06	360.0	0.38
1.8	0.06	390.0	0.33
2.0	0.06	420.0	0.33
3.0	0.03	450.0	0.30
4.0	0.04	480.0	0.30
5.0	0.06	510.0	0.28
6.0	0.06	540.0	0.28
7.0	0.06	570.0	0.26
8.0	0.06	600.0	0.25
9.0	0.06	660.0	0.22
10.0	0.06	720.0	0.22
11.0	0.06	780.0	0.19
12.0	0.06	840.0	0.17
13.0	0.06	900.0	0.15
14.0	0.06	960.0	0.14
15.0	0.06	1020.0	0.12
16.0	2.39	1080.0	0.12
17.0	2.62	1140.0	0.11
18.0	0.83	1200.0	0.09
19.0	0.85	1260.0	0.09
20.0	1.09	1320.0	0.09
25.0	0.99	1380.0	0.09
30.0	0.96	1440.0	0.07
35.0	0.93	1500.0	0.06
40.0	0.90	1560.0	0.06
45.0	0.88	1620.0	0.06
50.0	0.85	1680.0	0.06
55.0	0.83	1740.0	0.06
60.0	0.82	1800.0	0.06
65.0	0.79	1860.0	0.04
70.0	0.77	1920.0	0.03
75.0	0.76	1980.0	0.03

TABLE G-7 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
80.0	0.74	2040.0	0.03
85.0	0.72	2100.0	0.03
90.0	0.71	2160.0	0.04
95.0	0.69	2220.0	0.03
100.0	0.68	2280.0	0.03
105.0	0.66	2340.0	0.00
110.0	0.64	2400.0	0.00
115.0	0.64	2460.0	0.01

TABLE G-8

SLUG WITHDRAWAL TEST DATA FROM SITE 3

MONITORING WELL DANGB-3-MW25

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	-0.01	3.0000	0.57
0.0033	0.00	3.5000	0.53
0.0066	0.01	4.0000	0.50
0.0099	0.01	4.5000	0.47
0.0133	0.01	5.0000	0.45
0.0166	0.01	5.5000	0.44
0.0200	-0.03	6.0000	0.44
0.0233	0.64	6.5000	0.42
0.0266	1.42	7.0000	0.41
0.0300	12.8	7.5000	0.39
0.0333	-0.49	8.0000	0.38
0.0500	1.42	8.5000	0.38
0.0666	1.29	9.0000	0.36
0.0833	1.25	9.5000	0.34
0.1000	1.21	10.5000	0.33
0.1166	1.20	11.0000	0.31
0.1333	1.20	12.5000	0.31
0.1500	1.18	13.0000	0.30
0.1666	1.17	14.5000	0.30
0.1833	1.17	5.0000	0.26
0.2000	1.15	6.5000	0.28
0.2166	1.14	17.0000	0.26
0.2333	1.14	18.0000	0.25
0.2500	1.14	19.0000	0.25
0.2666	1.12	20.0000	0.25
0.2833	1.10	21.0000	0.25
0.3000	1.10	22.0000	0.25
0.3166	1.09	23.0000	0.23
0.3333	1.09	24.0000	0.23
0.4167	1.06	25.0000	0.23
0.5000	1.02	26.0000	0.23
0.5833	0.99	27.0000	0.22
0.6667	0.98	28.0000	0.22
0.7500	0.95	39.0000	0.20
0.8333	0.93	30.0000	0.20
0.9167	0.91	31.0000	0.22
1.0000	0.88	32.0000	0.20
1.0033	0.87	33.0000	0.20
1.1667	0.85	34.0000	0.22

TABLE G-8 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
1.2500	0.83	35.0000	0.20
1.3333	0.82	36.0000	0.20
1.4166	0.80	37.0000	0.19
1.5000	0.79	38.0000	0.20
1.5833	0.77	39.0000	0.19
1.6667	0.77	40.0000	0.20
1.7500	0.76	41.0000	0.19
1.8333	0.74	42.0000	0.20
1.9167	0.72	43.0000	0.19
2.0000	0.71	44.0000	0.20
2.5000	0.63	45.0000	0.19

TABLE G-9

SLUG INJECTION ANALYSIS DATA

FOR SITE 3 MONITORING WELL, DANGB-3-MW25

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
35.0	0.0	0.93	1.0000
40.0	5.0	0.90	0.9677
45.0	10.0	0.88	0.9462
50.0	15.0	0.85	0.9140
55.0	20.0	0.83	0.8925
60.0	25.0	0.82	0.8817
65.0	30.0	0.79	0.8495
70.0	35.0	0.77	0.8280
75.0	40.0	0.76	0.8172
80.0	45.0	0.74	0.7957
85.0	50.0	0.72	0.7742
90.0	55.0	0.71	0.7634
95.0	60.0	0.69	0.7419
100.0	65.0	0.68	0.7312
105.0	70.0	0.66	0.7097
110.0	75.0	0.64	0.6882
115.0	80.0	0.64	0.6882
120.0	85.0	0.63	0.6774
150.0	115.0	0.58	0.6237
180.0	145.0	0.53	0.5699
210.0	175.0	0.50	0.5376
240.0	205.0	0.47	0.5054
270.0	235.0	0.45	0.4839
300.0	265.0	0.42	0.4516
330.0	295.0	0.39	0.4194
360.0	325.0	0.38	0.4086
390.0	355.0	0.33	0.3548
420.0	385.0	0.33	0.3548
450.0	415.0	0.30	0.3226
480.0	445.0	0.30	0.3226
510.0	475.0	0.28	0.3011
540.0	505.0	0.28	0.3011
570.0	535.0	0.26	0.2796
600.0	565.0	0.25	0.2688
660.0	625.0	0.22	0.2366
720.0	685.0	0.22	0.2366
780.0	745.0	0.19	0.2043
840.0	805.0	0.17	0.1828
900.0	865.0	0.15	0.1613
960.0	925.0	0.14	0.1505

TABLE G-9 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
1020.0	985.0	0.12	0.1290
1080.0	1045.0	0.12	0.1290
1140.0	1105.0	0.11	0.1183
1200.0	1165.0	0.09	0.0968
1260.0	1225.0	0.09	0.0968
1320.0	1285.0	0.09	0.0968
1380.0	1345.0	0.09	0.0968
1440.0	1405.0	0.07	0.0753
1500.0	1465.0	0.06	0.0645
1560.0	1525.0	0.06	0.0645
1620.0	1585.0	0.06	0.0645
1680.0	1645.0	0.06	0.0645
1740.0	1705.0	0.06	0.0645
1800.0	1765.0	0.06	0.0645
1860.0	1825.0	0.04	0.0430
1920.0	1885.0	0.03	0.0323
1980.0	1945.0	0.03	0.0323
2040.0	2005.0	0.03	0.0323
2100.0	2065.0	0.03	0.0323
2160.0	2125.0	0.02	0.0430
2220.0	2185.0	0.03	0.0323
2280.0	2245.0	0.03	0.0323
2340.0	2305.0	0.00	0.0000
2400.0	2365.0	0.00	0.0000
2460.0	2425.0	0.01	0.0108

TABLE G-10

SLUG WITHDRAWAL ANALYSIS DATA FOR SITE 3 MONITORING WELL, DANGB-3-MW25

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.0833	0	1.25	1.0000
0.1000	1	1.21	0.9680
0.1166	2	1.20	0.9600
0.1333	3	1.20	0.9600
0.1500	4	1.18	0.9440
0.1666	5	1.17	0.9360
0.1833	6	1.17	0.9360
0.2000	7	1.15	0.9200
0.2166	8	1.14	0.9120
0.2333	9	1.14	0.9120
0.2500	10	1.14	0.9120
0.2666	11	1.12	0.8960
0.2833	12	1.10	0.8800
0.3000	13	1.10	0.8800
0.3166	14	1.09	0.8720
0.3333	15	1.09	0.8720
0.4167	20	1.06	0.8480
0.5000	25	1.02	0.8160
0.5833	30	0.99	0.7920
0.6667	35	0.98	0.7840
0.7500	40	0.95	0.7600
0.8333	45	0.93	0.7440
0.9167	50	0.91	0.7280
1.0000	55	0.88	0.7040
1.0833	60	0.87	0.6960
1.1667	65	0.85	0.6800
1.2500	70	0.83	0.6640
1.3333	75	0.82	0.6560
1.4166	80	0.80	0.6400
1.5000	85	0.79	0.6320
1.5833	90	0.77	0.6160
1.6667	95	0.77	0.6160
1.7500	100	0.76	0.6080
1.8333	105	0.74	0.5920
1.9167	110	0.72	0.5760
2.0000	115	0.71	0.5680
2.5000	145	0.63	0.5040
3.0000	175	0.57	0.4560
3.5000	205	0.53	0.4240
4.0000	235	0.50	0.4000
4.5000	265	0.47	0.3760

TABLE G-10 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
5.0000	295	0.45	0.3600
5.5000	325	0.44	0.3520
6.0000	355	0.44	0.3520
6.5000	385	0.42	0.3360
7.0000	415	0.41	0.3280
7.5000	445	0.39	0.3120
8.0000	475	0.38	0.3040
8.5000	505	0.38	0.3040
9.0000	535	0.36	0.2880
9.5000	565	0.36	0.2880
10.0000	595	0.36	0.2880
11.0000	655	0.34	0.2720
12.0000	715	0.33	0.2640
13.0000	775	0.31	0.2480
14.0000	835	0.30	0.2480
15.0000	895	0.30	0.2400
16.0000	955	0.26	0.2400
17.0000	1015	0.28	0.2080
18.0000	1075	0.26	0.2240
19.0000	1135	0.25	0.2080
20.0000	1195	0.25	0.2000
21.0000	1255	0.25	0.2000
22.0000	1315	0.25	0.2000
23.0000	1375	0.23	0.1840
24.0000	1435	0.23	0.1840
25.0000	1495	0.23	0.1840
26.0000	1555	0.23	0.1840
27.0000	1615	0.22	0.1760
28.0000	1675	0.22	0.1760
29.0000	1735	0.20	0.1600
30.0000	1795	0.20	0.1600
31.0000	1855	0.22	0.1760
32.0000	1915	0.20	0.1600
33.0000	1975	0.20	0.1600
34.0000	2035	0.22	0.1760
35.0000	2095	0.20	0.1600
36.0000	2155	0.20	0.1600
37.0000	2215	0.19	0.1520
38.0000	2275	0.20	0.1600
39.0000	2335	0.19	0.1520
40.0000	2395	0.20	0.1600
41.0000	2455	0.20	0.1600
42.0000	2515	0.19	0.1520
43.0000	2575	0.19	0.1520
44.0000	2635	0.20	0.1600
45.0000	2695	0.19	0.1520

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on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

The slug test data for DANGB-3-MW33 were collected on September 10, 1988. The injection data and withdrawal data are presented in Tables G-11 and G-12, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-13 for the injection test and Table G-14 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-13 and G-14 are based on a visual inspection of the field data plots (Figures G-12 and G-13).

Analysis of the slug injection test results for well DANGB-3-MW33 gives an apparent transmissivity of 14.5 g/d/ft and the apparent storage coefficient is 10^{-5} (Figure G-14). The apparent hydraulic conductivity is 1.4 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

Analysis of the slug withdrawal data for well DANGB-3-MW33 yields an apparent transmissivity of 4.1 g/d/ft and an apparent storage coefficient of 10^{-2} (Figure G-15). The apparent hydraulic conductivity is 0.4 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

The slug test data for well DANGB-3-MW34 were collected on September 10, 1988. The injection data and withdrawal data are presented in Tables G-15 and G-16, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-17 for the injection test and Table G-18 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-17 and G-18 are based on a visual inspection of the field data plots (Figures G-16 and G-17).

Analysis of the slug injection test results for well DANGB-3-MW25 gives an apparent transmissivity of 1.2 g/d/ft and the apparent storage coefficient is 10^{-1} (Figure G-18). The apparent hydraulic conductivity is 0.2 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 5.41 feet.

Analysis of the slug withdrawal data yields an apparent transmissivity of 64.1 g/d/ft and an apparent storage coefficient of 10^{-3} (Figure G-19). The apparent hydraulic conductivity is 47.6 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 7.25 feet.

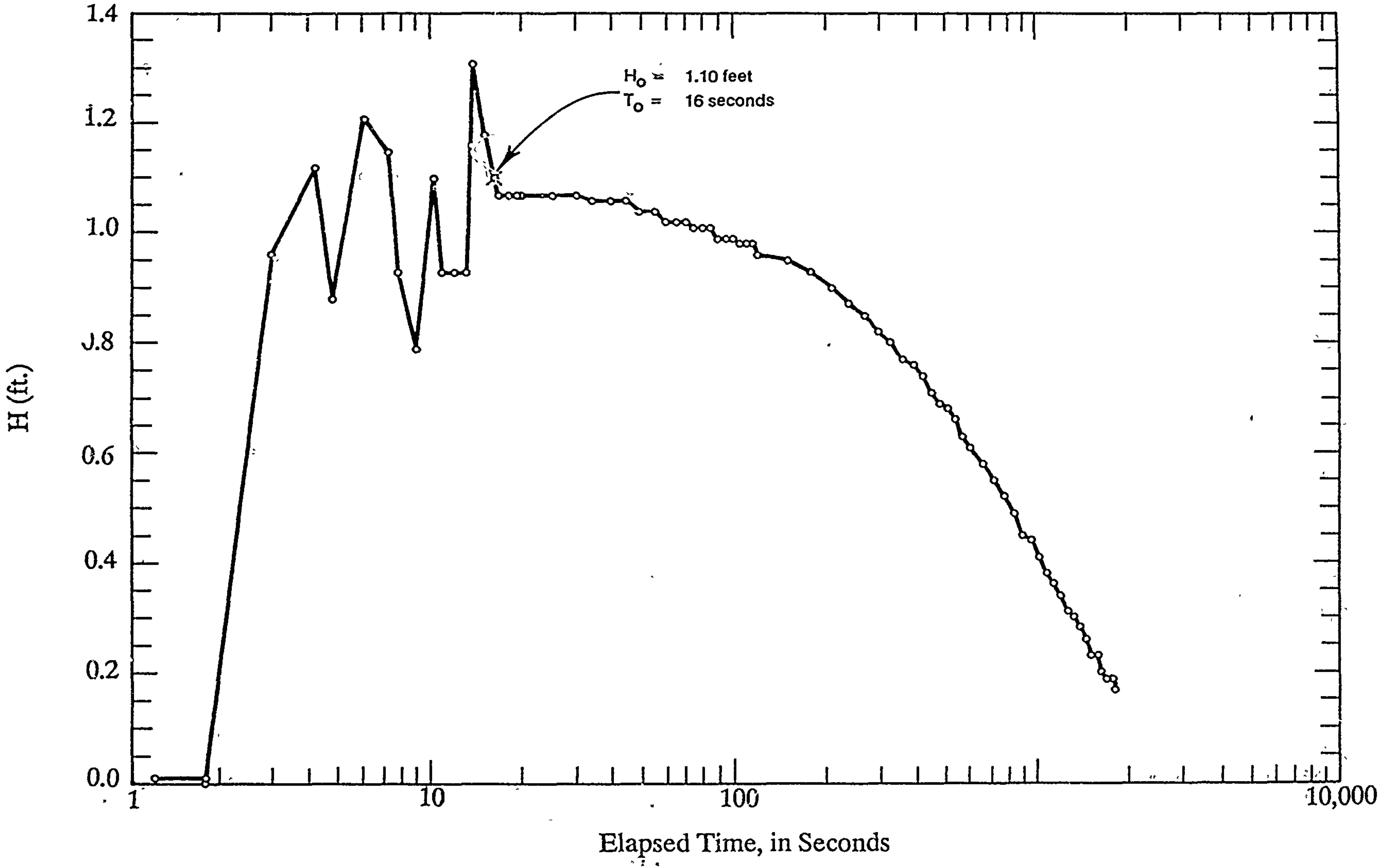

Figure G - 12 Water Level, H, Versus Elapsed Time For Slug Injection Test at Well DANGB-3-MW33.

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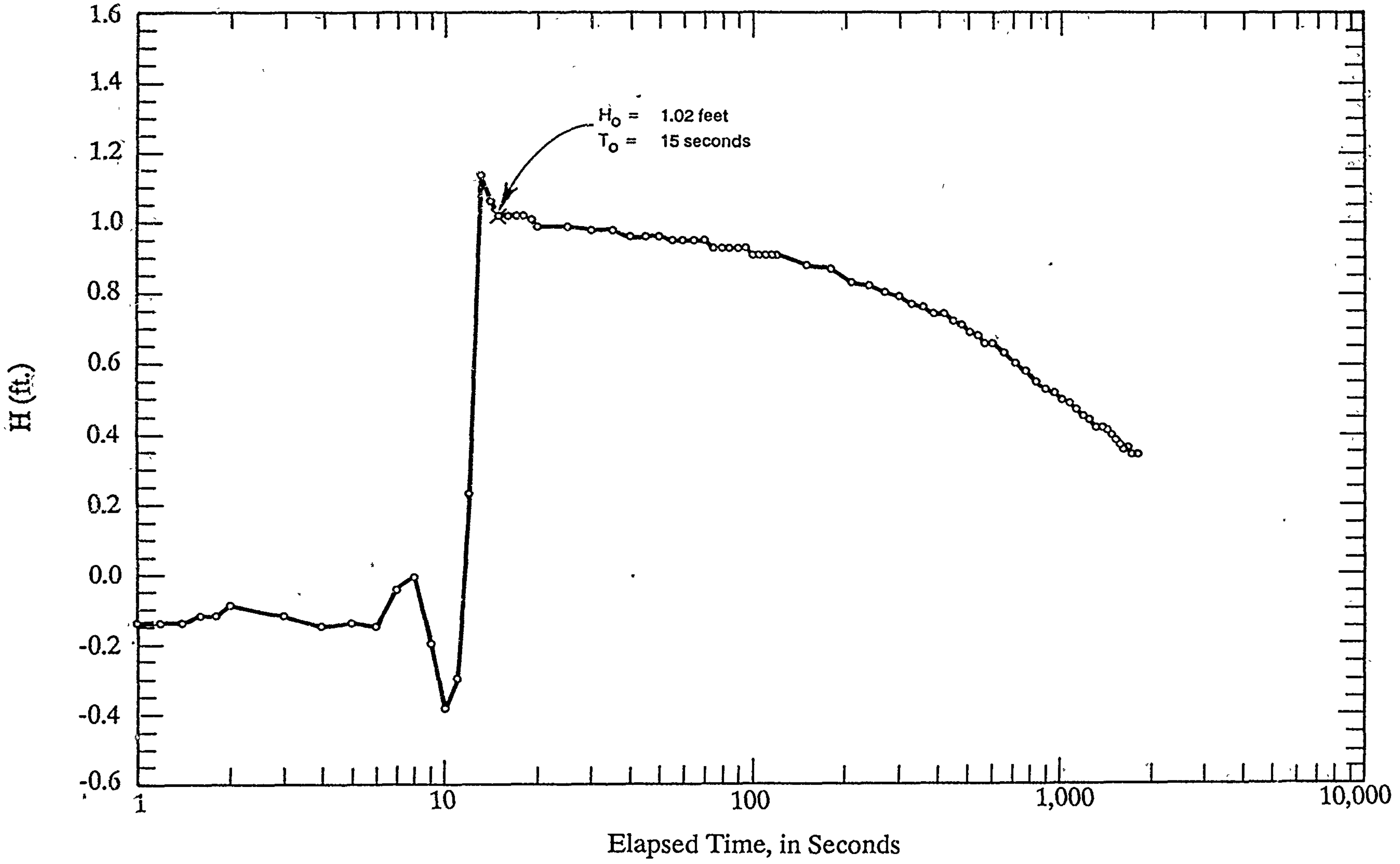


Figure G - 13 Water Level ,H, Versus Elapsed Time for Slug Withdrawal Test at Well DANGB-3-MW33.

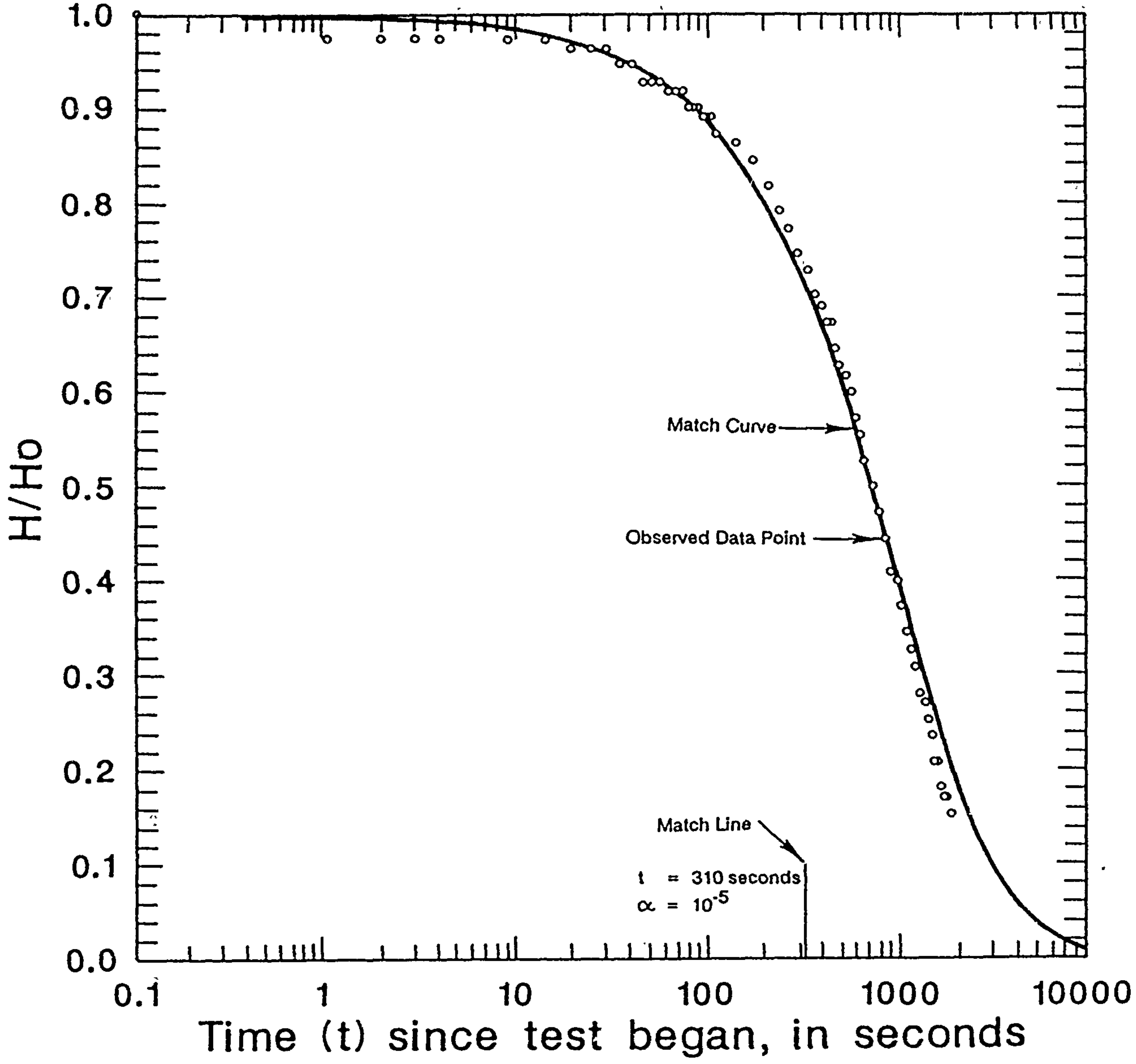


Figure G - 14 Analysis of Slug Injection Data From Well DANGB-3-MW33.

DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\, (1/12\text{ ft})^2/310$ seconds
$T = 1\text{ ft}^2/44{,}640$ seconds
$T = 14.5$ gal/day/ft

$K = T/b$
$K = 14.5/10$ ft
$K = 1.4\text{ gal/day/ft}^2$

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-5}$

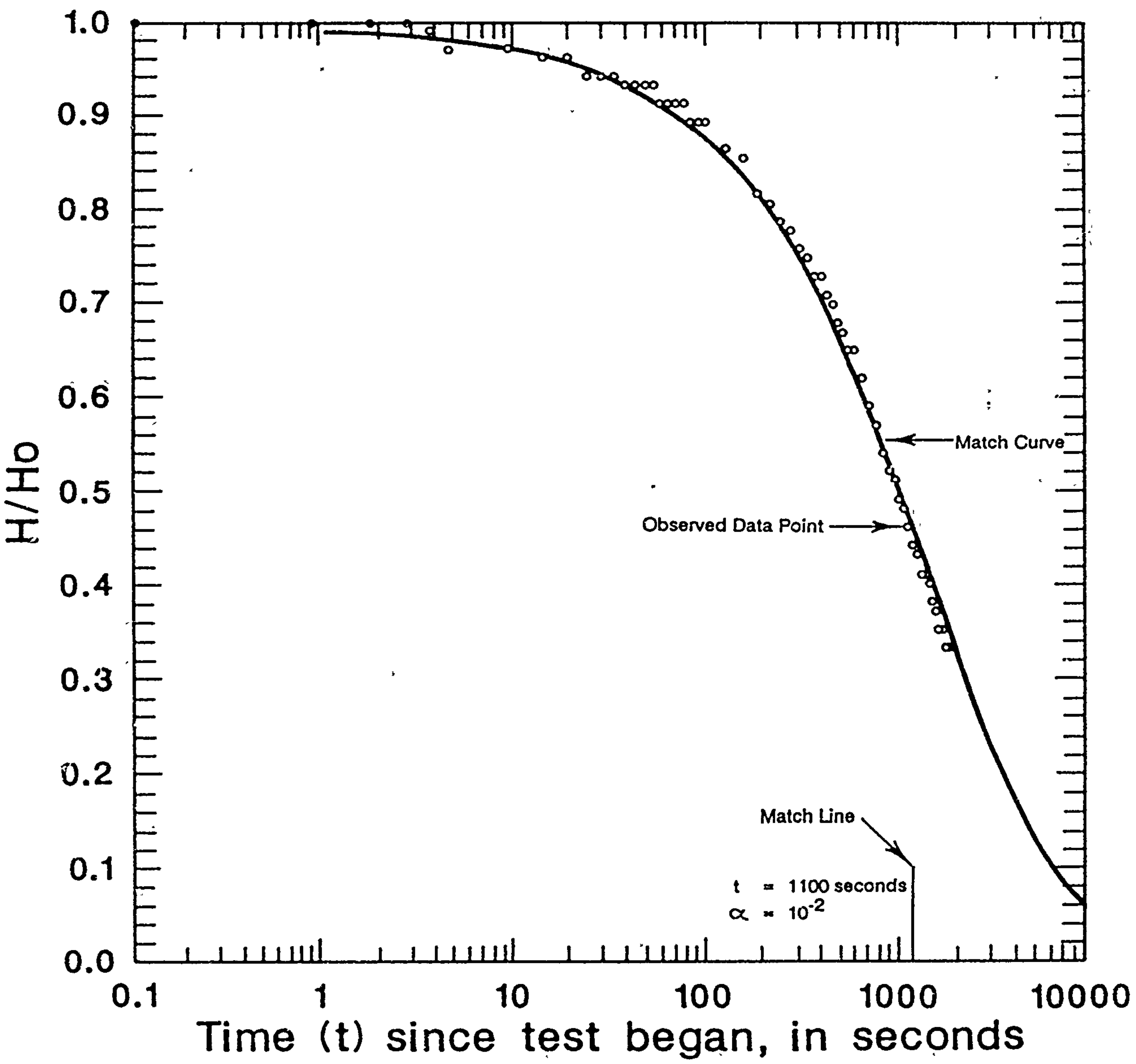


Figure G - 15 Analysis of Slug Withdrawal Data From Well DANGB-3-MW33.

DATA EVALUATION

$T = 1.0\ r_c^2/t$
$T = 1.0\ (1/12\ \text{ft})^2/1100$ seconds
$T = \text{ft}^2/158{,}400$ seconds
$T = 4.1$ gal/day/ft

$K = T/b$
$K = 4.1/10$ ft
$K = 0.4$ gal/day/ft^2

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-2}$

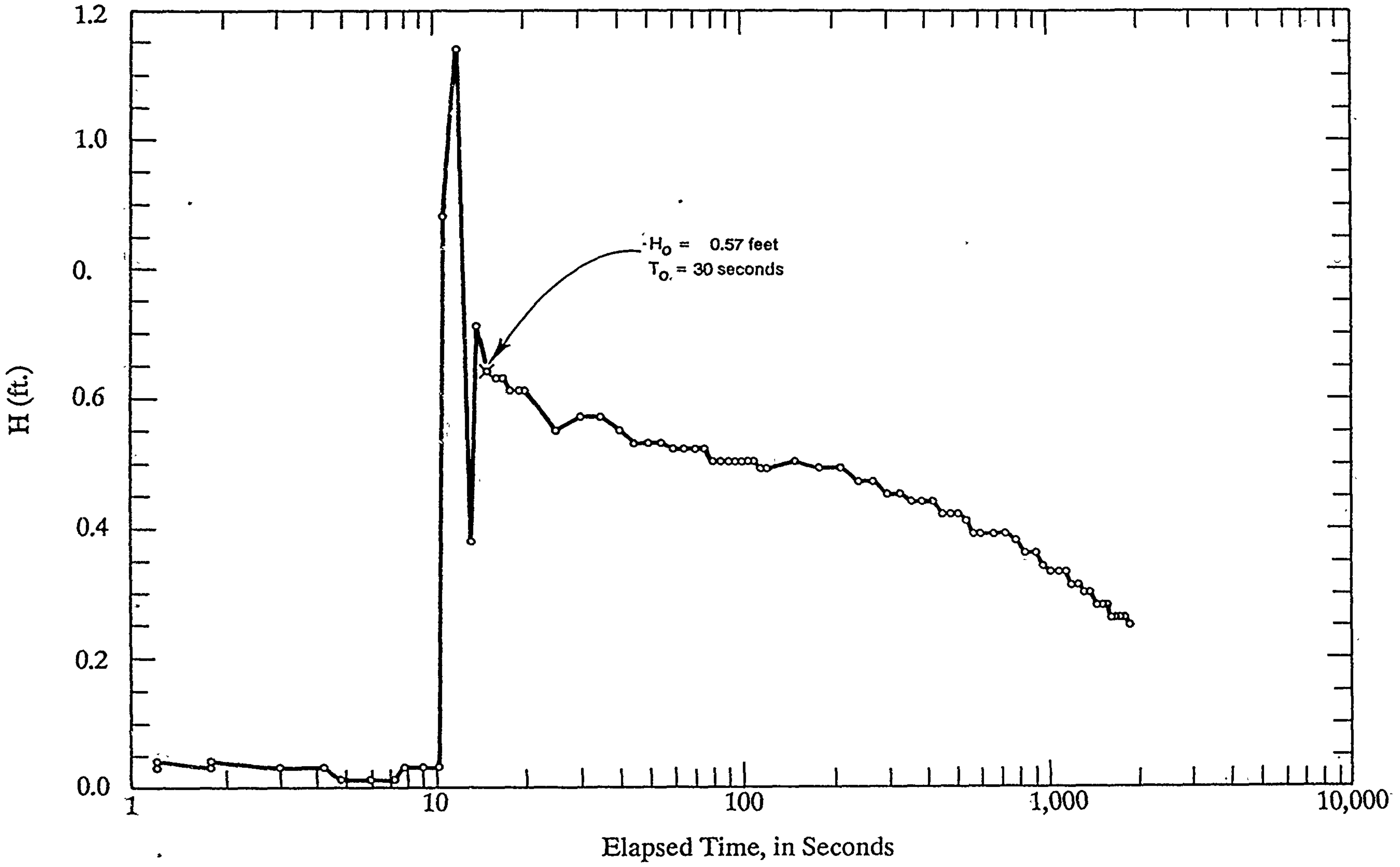


Figure G - 16 Water Level, H, Versus Elapsed Time For Slug Injection Test at Well DANGB-B-MW34.

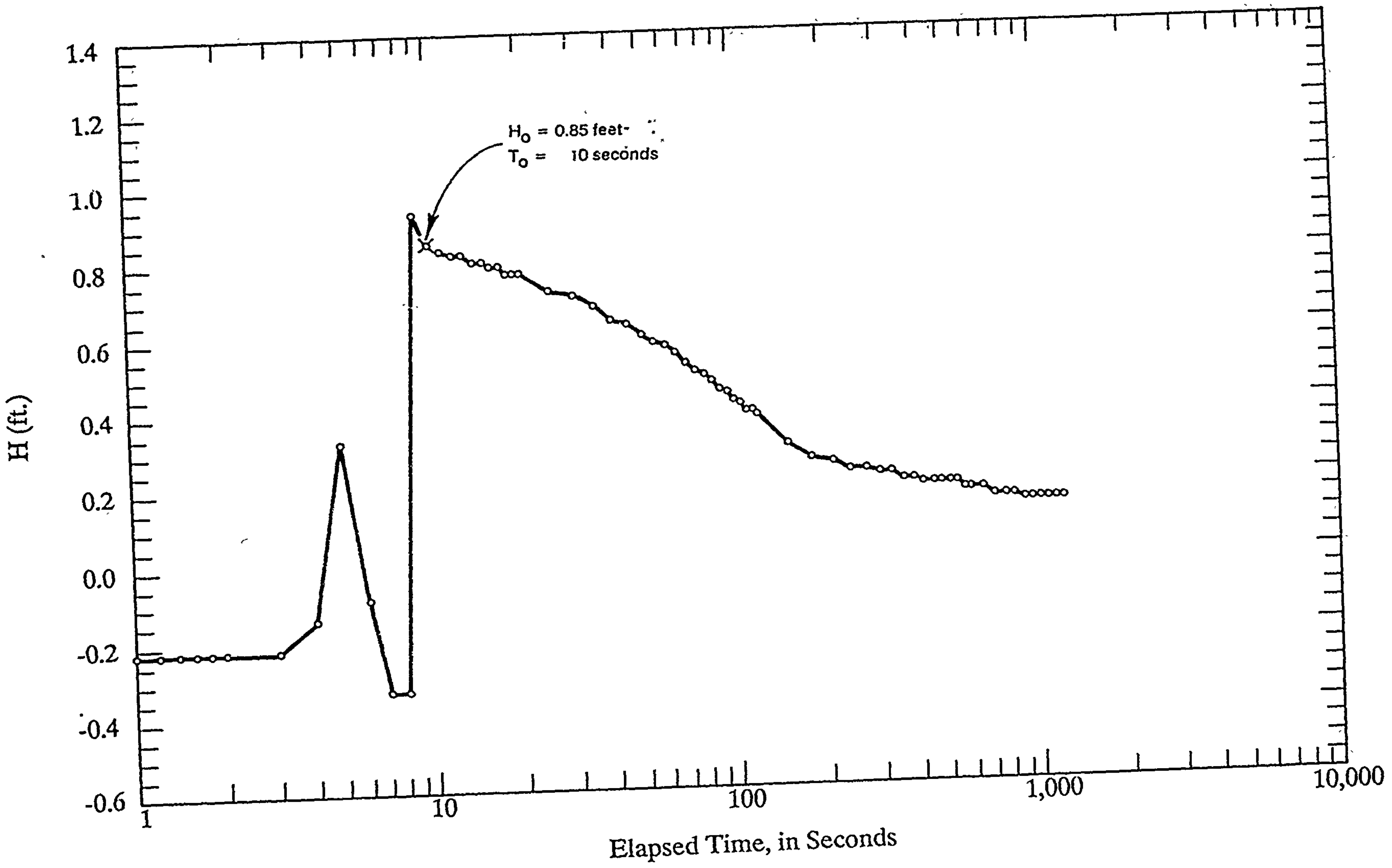
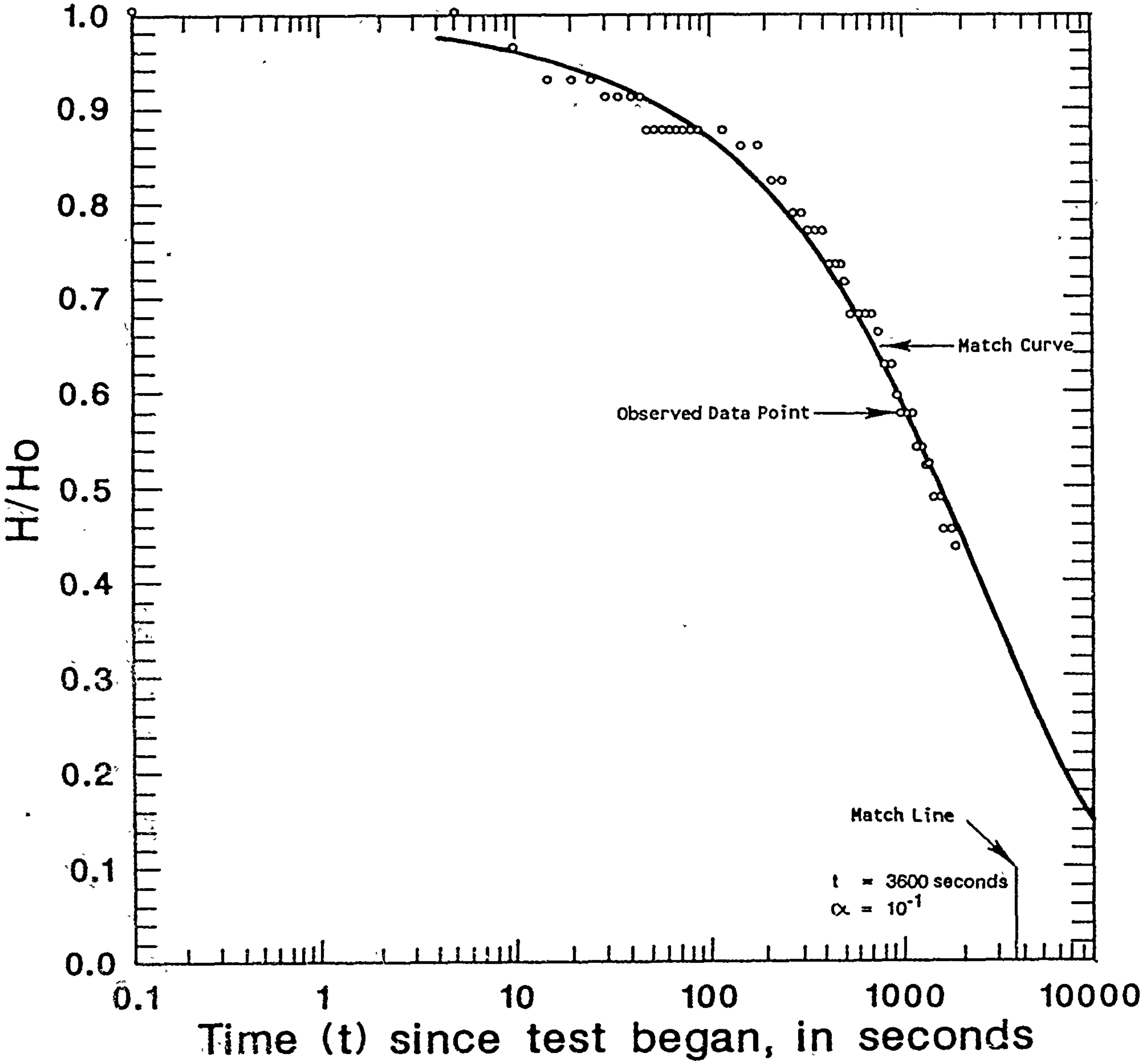


Figure G - 17 Water Level, H, Versus Elapsed Time for Slug Withdrawal Test at Well DANGB-3-MW34.



DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\, (1/12\ ft)^2/3600$ seconds
$T = 1\ ft^2/518{,}400$ seconds
$T = 1.25$ gal/day/ft

$K = T/b$
$K = 125/5.41$ ft
$K = 0.2/day/ft^2$

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-1}$

Figure G - 18 Analysis of Slug Injection Data From Well DANGB-3-MW34.

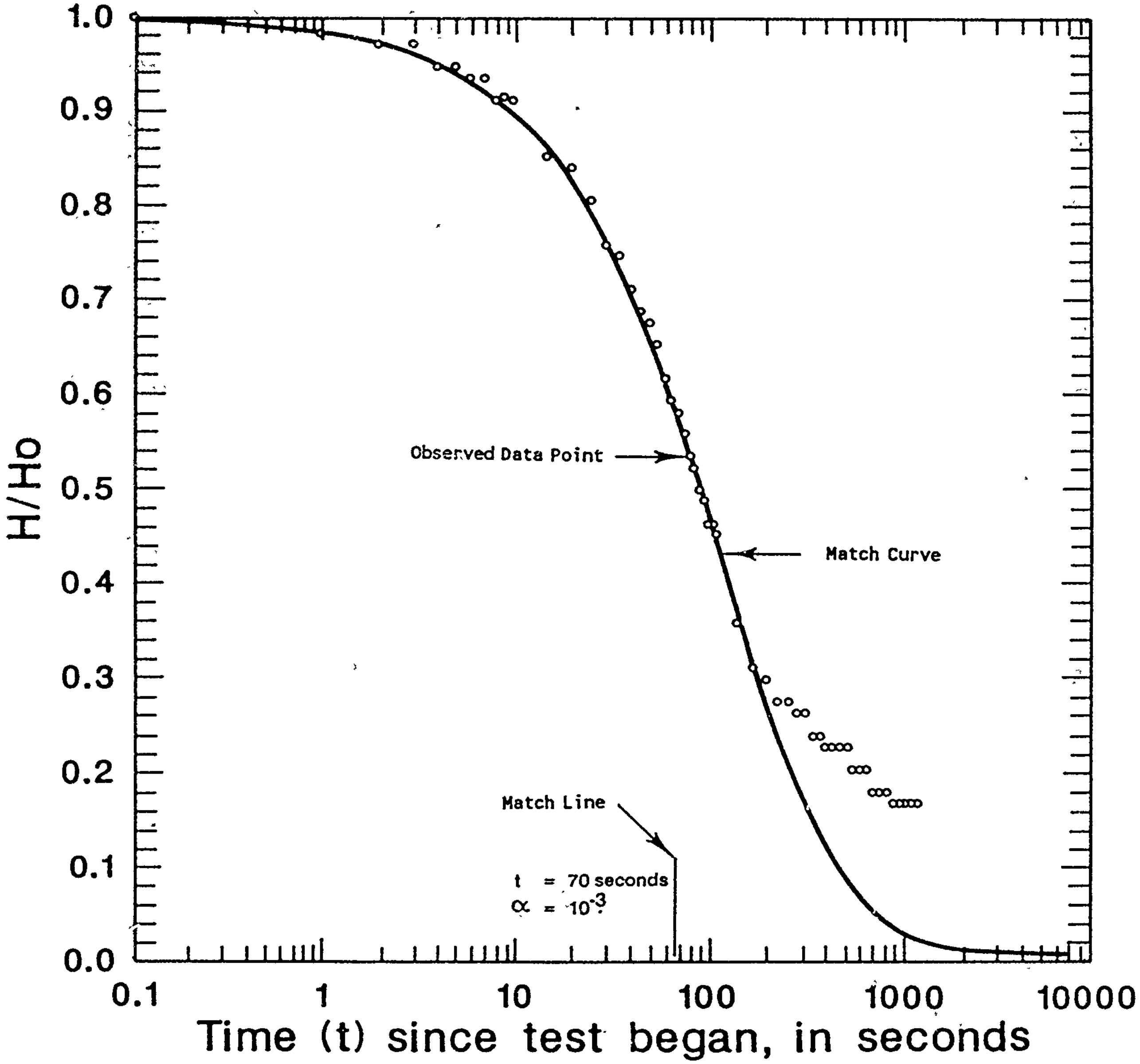


Figure G - 19 Analysis of Slug Withdrawal Data From Well DANGB-3-MW34.

DATA EVALUATION

$T = 1.0\,r_c^2/t$
$T = 1.0\,(1/12\text{ ft})^2/70$ seconds
$T = \text{ft}^2/10{,}080$ seconds
$T = 64.1$ gal/day/ft

$K = T/b$
$K = 64.1/5.41$
$K = 11.8$ gal/day/ft

$S = \alpha\,(r_c/r_s)^2 = \alpha$
$S = 10^{-3}$

TABLE G-11

SLUG INJECTION TEST DATA FOR
SITE 3 MONITORING WELL, DANGB-3-MW33

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.01	90.0	0.99
0.2	0.00	95.0	0.99
0.4	0.00	100.0	0.99
0.6	0.00	100.0	0.98
0.8	0.00	110.0	0.98
1.0	0.01	110.0	0.98
1.2	0.01	120.0	0.96
1.4	0.01	150.0	0.95
1.6	0.01	180.0	0.93
1.8	0.01	210.0	0.90
2.0	0.00	240.0	0.87
3.0	0.96	270.0	0.85
4.0	1.12	300.0	0.82
5.0	0.88	330.0	0.80
6.0	1.21	360.0	0.77
7.0	1.15	390.0	0.76
8.0	0.93	420.0	0.74
9.0	0.79	450.0	0.71
10.0	1.10	480.0	0.69
11.0	0.93	510.0	0.68
12.0	0.93	540.0	0.66
13.0	0.93	570.0	0.63
14.0	1.31	600.0	0.61
15.0	1.18	660.0	0.58
16.0	1.10	720.0	0.55
17.0	1.07	780.0	0.52
18.0	1.07	840.0	0.49
19.0	1.07	900.0	0.45
20.0	1.07	960.0	0.44
25.0	1.07	1020.0	0.41
30.0	1.07	1080.0	0.38
35.0	1.06	1140.0	0.36
40.0	1.06	1200.0	0.34
45.0	1.06	1260.0	0.31
50.0	1.04	1320.0	0.30
55.0	1.04	1380.0	0.28
60.0	1.02	1440.0	0.26
65.0	1.02	1500.0	0.23
70.0	1.02	1560.0	0.23
75.0	1.01	1620.0	0.20
80.0	1.01	1680.0	0.19
85.0	1.01	1740.0	0.19
		1800.0	0.17

TABLE G-12

SLUG WITHDRAWAL TEST DATA FROM SITE 3 MONITORING WELL, DANGB-3-MW33

TIME FROM START OF TEST (MIN)	H (FT)
0.0000	-0.15
0.0033	-0.14
0.0066	-0.14
0.0099	-0.14
0.0133	-0.14
0.0166	-0.14
0.0200	-0.14
0.0233	-0.14
0.0266	-0.12
0.0300	-0.12
0.0333	-0.09
0.0666	-0.12
0.0833	-0.15
0.1000	-0.14
0.1166	-0.15
0.1333	-0.04
0.1500	-0.01
0.1666	-0.20
0.1833	-0.39
0.2000	-0.30
0.2166	0.23
0.2333	1.14
0.2500	1.06
0.2666	1.02
0.2833	1.02
0.3000	1.02
0.3166	1.02
0.3333	1.01
0.4167	0.99
0.5000	0.99
0.5833	0.98
0.6667	0.98
0.7500	0.98
0.8333	0.96
0.9167	0.96
1.0000	0.96
1.0833	0.95
1.1667	0.95
1.2500	0.95
1.3333	0.95
1.4166	0.93
1.5000	0.93
1.5833	0.93
1.6677	0.91
1.7500	0.91
1.8333	0.91
1.9167	0.91
2.0000	0.91
2.5000	0.88
3.0000	0.87
3.5000	0.83
4.0000	0.82
4.5000	0.80
5.0000	0.79
5.5000	0.77
6.0000	0.76
6.5000	0.74
7.0000	0.74
7.5000	0.72
8.0000	0.71
8.5000	0.69
9.0000	0.68
9.5000	0.66
10.0000	0.66
11.0000	0.63
12.0000	0.60
13.0000	0.58
14.0000	0.55
15.0000	0.53
16.0000	0.52
17.0000	0.50
18.0000	0.49
19.0000	0.47
20.0000	0.45
21.0000	0.44
22.0000	0.42
23.0000	0.42
24.0000	0.41
25.0000	0.39
26.0000	0.38
27.0000	0.36
28.0000	0.36
29.0000	0.34
30.0000	0.34

TABLE G-13

SLUG INJECTION ANALYSIS DATA

FOR SITE 3 MONITORING WELL, DANGB-3-MW33

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
16.0	0.0	1.10	1.0000
17.0	1.0	1.07	0.9727
18.0	2.0	1.07	0.9727
19.0	3.0	1.07	0.9727
20.0	4.0	1.07	0.9727
25.0	9.0	1.07	0.9727
30.0	14.0	1.07	0.9727
35.0	19.0	1.06	0.9636
40.0	24.0	1.06	0.9636
45.0	29.0	1.06	0.9636
50.0	34.0	1.04	0.9455
55.0	39.0	1.04	0.9455
60.0	44.0	1.02	0.9273
65.0	49.0	1.02	0.9273
70.0	54.0	1.02	0.9273
75.0	59.0	1.01	0.9182
80.0	64.0	1.01	0.9182
85.0	69.0	1.01	0.9182
90.0	74.0	0.99	0.9000
95.0	79.0	0.99	0.9000
100.0	84.0	0.99	0.9000
105.0	89.0	0.98	0.8097
110.0	94.0	0.98	0.8882
115.0	99.0	0.98	0.8882
120.0	104.0	0.96	0.8774
150.0	134.0	0.95	0.8237
180.0	164.0	0.93	0.8699
210.0	194.0	0.90	0.8376
240.0	224.0	0.87	0.7900
270.0	254.0	0.85	0.7727
300.0	284.0	0.82	0.7455
330.0	314.0	0.80	0.7273
360.0	344.0	0.77	0.7000
390.0	374.0	0.76	0.6909
420.0	404.0	0.74	0.6727
450.0	434.0	0.71	0.6455
480.0	464.0	0.69	0.6273
510.0	494.0	0.68	0.6182
540.0	524.0	0.66	0.6000

TABLE G-13 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
570.0	554.0	0.53	0.5727
600.0	584.0	0.51	0.5545
660.0	644.0	0.58	0.5273
720.0	704.0	0.55	0.5000
780.0	764.0	0.42	0.4727
840.0	824.0	0.49	0.4455
900.0	884.0	0.45	0.4091
960.0	944.0	0.44	0.4000
1020.0	1004.0	0.41	0.3727
1080.0	1064.0	0.38	0.3455
1140.0	1124.0	0.36	0.3273
1200.0	1184.0	0.34	0.3091
1260.0	1244.0	0.31	0.2818
1320.0	1304.0	0.30	0.2727
1380.0	1364.0	0.28	0.2545
1440.0	1424.0	0.26	0.2364
1500.0	1484.0	0.23	0.2091
1560.0	1544.0	0.23	0.2091
1620.0	1604.0	0.20	0.1818
1680.0	1664.0	0.19	0.1727
1740.0	1724.0	0.19	0.1727
1800.0	1784.0	0.17	0.1545

TABLE G-14

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 3 MONITORING WELL, DANGB-3-MW33

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.2500	0	1.02	1.0000
0.2666	1	1.02	1.0000
0.2833	2	1.02	1.0000
0.3000	3	1.02	1.0000
0.3166	4	1.01	0.9902
0.3333	5	0.99	0.9706
0.4167	10	0.99	0.9706
0.5000	15	0.98	0.9608
0.5833	20	0.98	0.9608
0.6667	25	0.96	0.9412
0.7500	30	0.96	0.9412
0.8333	35	0.96	0.9412
0.9167	40	0.95	0.9314
1.0000	45	0.95	0.9314
1.0833	50	0.95	0.9314
1.1667	55	0.95	0.9314
1.2500	60	0.93	0.9118
1.3333	65	0.93	0.9118
1.4166	70	0.93	0.9118
1.5000	75	0.93	0.9118
1.5833	80	0.93	0.9118
1.6667	85	0.91	0.8922
1.7500	90	0.91	0.8922
1.8333	95	0.91	0.8922
1.9167	100	0.91	0.8922
2.0000	105	0.91	0.8922
2.5000	135	0.88	0.8627
3.0000	165	0.87	0.8529
3.5000	195	0.83	0.8139
4.0000	225	0.82	0.8039
4.5000	255	0.80	0.7843
5.0000	285	0.79	0.7745
5.5000	315	0.77	0.7549
6.0000	345	0.76	0.7451
6.5000	375	0.74	0.7255
7.0000	405	0.74	0.7255
7.5000	435	0.72	0.6059
8.0000	465	0.71	0.6961
8.5000	495	0.69	0.6765
9.0000	525	0.68	0.6667
9.5000	555	0.66	0.6471

TABLE G-14 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
10.0000	585	0.66	0.6471
11.0000	645	0.63	0.6176
12.0000	705	0.60	0.5882
13.0000	765	0.58	0.5686
14.0000	825	0.09	0.5392
15.0000	885	0.09	0.5196
16.0000	945	0.09	0.5098
17.0000	1005	0.07	0.4902
18.0000	1065	0.09	0.4804
19.0000	1125	0.09	0.4608
20.0000	1185	0.09	0.4412
21.0000	1245	0.09	0.4314
22.0000	1305	0.09	0.4118
23.0000	1365	0.09	0.4118
24.0000	1425	0.09	0.4020
25.0000	1485	0.09	0.3824
26.0000	1545	0.09	0.3725
27.0000	1605	0.07	0.3529
28.0000	1663	0.07	0.3529
29.0000	1723	0.09	0.3333
30.0000	1783	0.07	0.3333

TABLE G-15

SLUG INJECTION TEST DATA FROM

SITE 3 MONITORING WELL, DANGB-3-MW34

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.01	95.0	0.50
0.0	0.01	100.0	0.50
0.4	0.03	105.0	0.50
0.6	0.03	110.0	0.50
0.8	0.03	115.0	0.49
1.0	0.03	120.0	0.49
1.2	0.04	150.0	0.50
1.4	0.04	180.0	0.49
1.6	0.03	210.0	0.49
1.8	0.04	240.0	0.47
2.0	0.04	270.0	0.47
3.0	0.03	300.0	0.45
4.0	0.03	330.0	0.45
5.0	0.01	360.0	0.44
6.0	0.01	390.0	0.44
7.0	0.01	420.0	0.44
8.0	0.03	450.0	0.42
9.0	0.03	480.0	0.42
10.0	0.03	510.0	0.42
11.0	0.88	540.0	0.41
12.0	0.14	570.0	0.39
13.0	0.38	600.0	0.39
14.0	0.71	660.0	0.39
15.0	0.64	720.0	0.39
16.0	0.63	780.0	0.38
17.0	0.63	840.0	0.36
18.0	0.61	900.0	0.36
19.0	0.61	960.0	0.34
20.0	0.61	1020.0	0.33
25.0	0.55	1080.0	0.33
30.0	0.57	1140.0	0.33
35.0	0.57	1200.0	0.31
40.0	0.55	1260.0	0.31
45.0	0.53	1320.0	0.30
50.0	0.53	1380.0	0.30
55.0	0.53	1440.0	0.28
60.0	0.52	1500.0	0.28
65.0	0.52	1560.0	0.28
70.0	0.52	1620.0	0.26
75.0	0.52	1680.0	0.26
80.0	0.50	1740.0	0.26
85.0	0.50	1800.0	0.26
90.0	0.50	1860.0	0.25

TABLE G-16

SLUG WITHDRAWAL TEST DATA FROM SITE 3

MONITORING WELL DANGB-3-MW34

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	0.26	1.1667	0.52
0.0033	0.23	1.2500	0.50
0.0066	0.22	1.3333	0.49
0.0099	0.22	1.4166	0.47
0.0133	0.22	1.5000	0.45
0.0166	0.22	1.5833	0.44
0.0200	0.22	1.6667	0.42
0.0233	0.22	1.7500	0.41
0.0266	0.22	1.8333	0.39
0.0300	0.22	1.9167	0.39
0.0333	0.22	2.0000	0.38
0.0500	0.22	2.5000	0.30
0.0666	0.14	3.0000	0.26
0.0833	0.33	3.5000	0.25
0.1000	0.09	4.0000	0.23
0.1166	0.33	4.5000	0.23
0.1333	0.33	5.0000	0.22
0.1500	0.93	5.5000	0.22
0.1666	0.85	6.0000	0.20
0.1833	0.83	6.5000	0.20
0.2000	0.82	7.0000	0.19
0.2166	0.82	7.5000	0.19
0.2333	0.80	8.0000	0.19
0.2500	0.80	8.5000	0.19
0.2666	0.79	9.0000	0.19
0.2833	0.79	9.5000	0.17
0.3000	0.77	10.0000	0.17
0.3166	0.77	11.0000	0.17
0.3333	0.77	12.0000	0.15
0.4167	0.72	13.0000	0.15
0.5000	0.71	14.0000	0.15
0.5833	0.68	15.0000	0.14
0.6667	0.64	16.0000	0.14
0.7500	0.63	17.0000	0.14
0.8333	0.60	18.0000	0.14
0.9167	0.58	19.0000	0.14
1.0000	0.57	20.0000	0.14
1.0833	0.55		

TABLE G-17

SLUG INJECTION ANALYSIS DATA

FOR SITE 3 MONITORING WELL, DANGB-3-MW34

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
30.0	0.0	0.57	1.0000
35.0	5.0	0.57	1.0000
40.0	10.0	0.55	0.9649
45.0	15.0	0.53	0.9298
50.0	20.0	0.53	0.9298
55.0	25.0	0.53	0.9298
60.0	30.0	0.52	0.9123
65.0	35.0	0.52	0.9123
70.0	40.0	0.52	0.9123
75.0	45.0	0.52	0.9123
80.0	50.0	0.50	0.8772
85.0	55.0	0.50	0.8772
90.0	60.0	0.50	0.8772
95.0	65.0	0.50	0.8772
100.0	70.0	0.50	0.8772
105.0	75.0	0.50	0.8772
110.0	80.0	0.50	0.8772
115.0	85.0	0.49	0.8596
120.0	90.0	0.49	0.8596
150.0	120.0	0.50	0.8772
180.0	150.0	0.49	0.8596
210.0	180.0	0.49	0.8596
240.0	210.0	0.47	0.8246
270.0	240.0	0.47	0.8246
300.0	270.0	0.45	0.7895
330.0	300.0	0.45	0.7895
360.0	330.0	0.44	0.7719
390.0	360.0	0.44	0.7719
420.0	390.0	0.44	0.7719
450.0	420.0	0.42	0.7368
480.0	450.0	0.42	0.7368
510.0	480.0	0.42	0.7368
540.0	510.0	0.41	0.7193
570.0	540.0	0.39	0.6842
600.0	570.0	0.39	0.6842
660.0	630.0	0.39	0.6842
720.0	690.0	0.39	0.6842
780.0	750.0	0.38	0.6667
840.0	810.0	0.36	0.6316
900.0	870.0	0.36	0.6316

TABLE G-17 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
960.0	930.0	0.34	0.5965
1020.0	990.0	0.33	0.5789
1080.0	1050.0	0.33	0.5789
1140.0	1110.0	0.33	0.5789
1200.0	1170.0	0.31	0.5439
1260.0	1230.0	0.31	0.5439
1320.0	1290.0	0.30	0.5263
1380.0	1350.0	0.30	0.5263
1440.0	1410.0	0.28	0.4912
1500.0	1470.0	0.28	0.4912
1560.0	1530.0	0.28	0.4912
1620.0	1590.0	0.26	0.4561
1680.0	1650.0	0.26	0.4561
1740.0	1710.0	0.26	0.4561
1800.0	1770.0	0.26	0.4561
1860.0	1830.0	0.25	0.4386

TABLE G-18

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 3 MONITORING WELL, DANGD-3-MW34

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.1666	0	0.85	0.9764
0.1833	1	0.83	0.9647
0.2000	2	0.82	0.9647
0.2166	3	0.82	0.9647
0.2333	4	0.80	0.9411
0.2500	5	0.80	0.9411
0.2666	6	0.79	0.9294
0.2833	7	0.79	0.9294
0.2000	8	0.77	0.9058
0.2166	9	0.77	0.9058
0.3333	10	0.77	0.9058
0.4167	15	0.72	0.8470
0.5000	20	0.71	0.8352
0.5833	25	0.68	0.8000
0.6667	30	0.64	0.7529
0.7500	35	0.63	0.7411
0.8333	40	0.60	0.7058
0.9167	45	0.58	0.6823
1.0000	50	0.57	0.6705
1.0833	55	0.55	0.6470
1.1667	60	0.52	0.6117
1.2500	65	0.50	0.5882
1.3333	70	0.49	0.5764
1.4166	75	0.47	0.5529
1.5000	80	0.45	0.5294
1.5833	85	0.44	0.5176
1.6667	90	0.42	0.4941
1.7500	95	0.41	0.4823
1.8333	100	0.39	0.4588
1.9167	105	0.39	0.4588
2.0000	110	0.38	0.4470
2.5000	140	0.30	0.3529
3.0000	170	0.26	0.3058
3.5000	200	0.25	0.2941
4.0000	230	0.23	0.2705
4.5000	260	0.23	0.2705
5.0000	290	0.22	0.2588
5.5000	320	0.22	0.2588
6.0000	350	0.20	0.2352
6.5000	380	0.20	0.2352

TABLE G-18 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
7.0000	410	0.19	0.2235
7.5000	440	0.19	0.2235
8.0000	470	0.19	0.2235
8.5000	500	0.19	0.2235
9.0000	530	0.19	0.2235
9.5000	560	0.17	0.2000
10.0000	590	0.17	0.2000
11.0000	650	0.17	0.2000
12.0000	710	0.15	0.1764
13.0000	770	0.15	0.1764
14.0000	830	0.15	0.1764
15.0000	890	0.14	0.1647
16.0000	950	0.14	0.1647
17.0000	1010	0.14	0.1647
18.0000	1070	0.14	0.1647
19.0000	1130	0.14	0.1647
20.0000	1190	0.14	0.1647

G.3.3 Slug Testing at Site 4

At Site 4, well DANGB-4-MW22 was slug tested. The well is located north of the Tank Farm area and hydraulically upgradient from the potential source area. The well was completed near the bedrock-glacial till contact. Near the base of the screened interval, a one foot thick poorly sorted sand layer with some silt and clay is present with the remainder of the screened section being composed of a poorly sorted silt with some clay and abundant pebbles.

The slug test data for DANGB-4-MW22 were collected on September 8, 1988. The injection data and withdrawal data are presented in Tables G-19 and G-20, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-21 for the injection test and Table G-22 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-21 and G-22 are based on a visual inspection of the field data plots (Figures G-20 and G-21).

Analysis of the slug injection test results gives an apparent transmissivity of 22.4 g/d/ft and the apparent storage coefficient is 10^{-5} (Figure G-22). The apparent hydraulic conductivity is 2.2 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

Analysis of the slug withdrawal data yields an apparent transmissivity of 10.9 g/d/ft and an apparent storage coefficient of 10^{-5} (Figure G-23). The apparent hydraulic conductivity is 47.6 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

G.3.4 Slug Testing at Site 8

At Site 8, Wells GW 8-A and DANGB-8-MW16 were slug tested. Well DANGB-8-MW16 was completed at the bedrock-glacial till contact. The screened interval includes a 1 foot gravel and sand zone at the base along with 3 feet of a boulder and about 5 feet of poorly sorted fine-grained sand, silt, and clay. GW 8-A was completed and screened in an interval consisting of dark brown peat and organics mixed with silt, clay, and sand (Dames & Moore, 1987).

The slug test data for DANGB-8-MW16 were collected on September 9, 1988. The injection data and withdrawal data are presented in Tables G-23 and G-24, respectively. The values of H/H_0 and time used for computing

Figure G-20

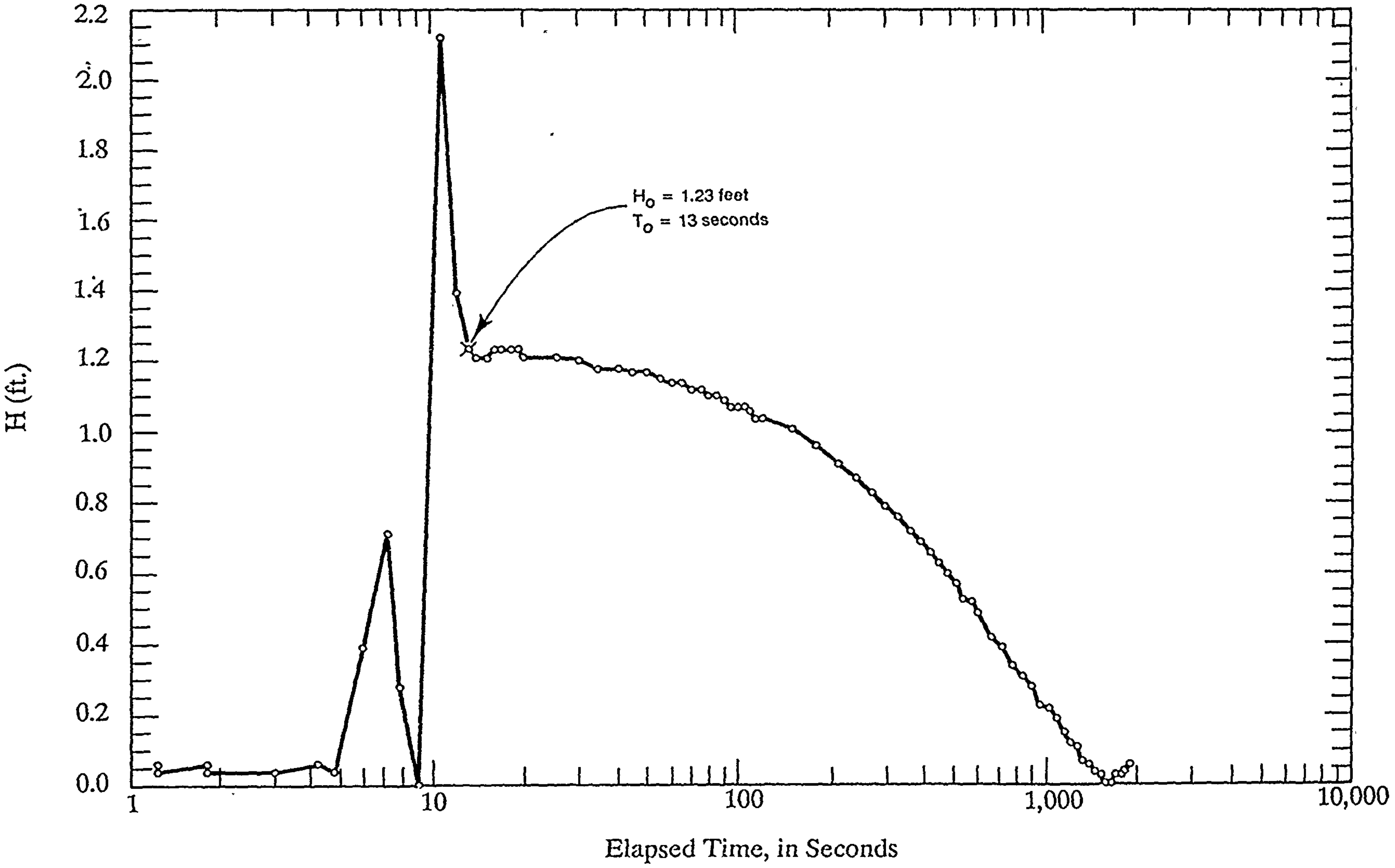


Figure G - 20 Water Level H Versus Elapsed Time For Slug Injection Test at Well DANGB-4-MW22

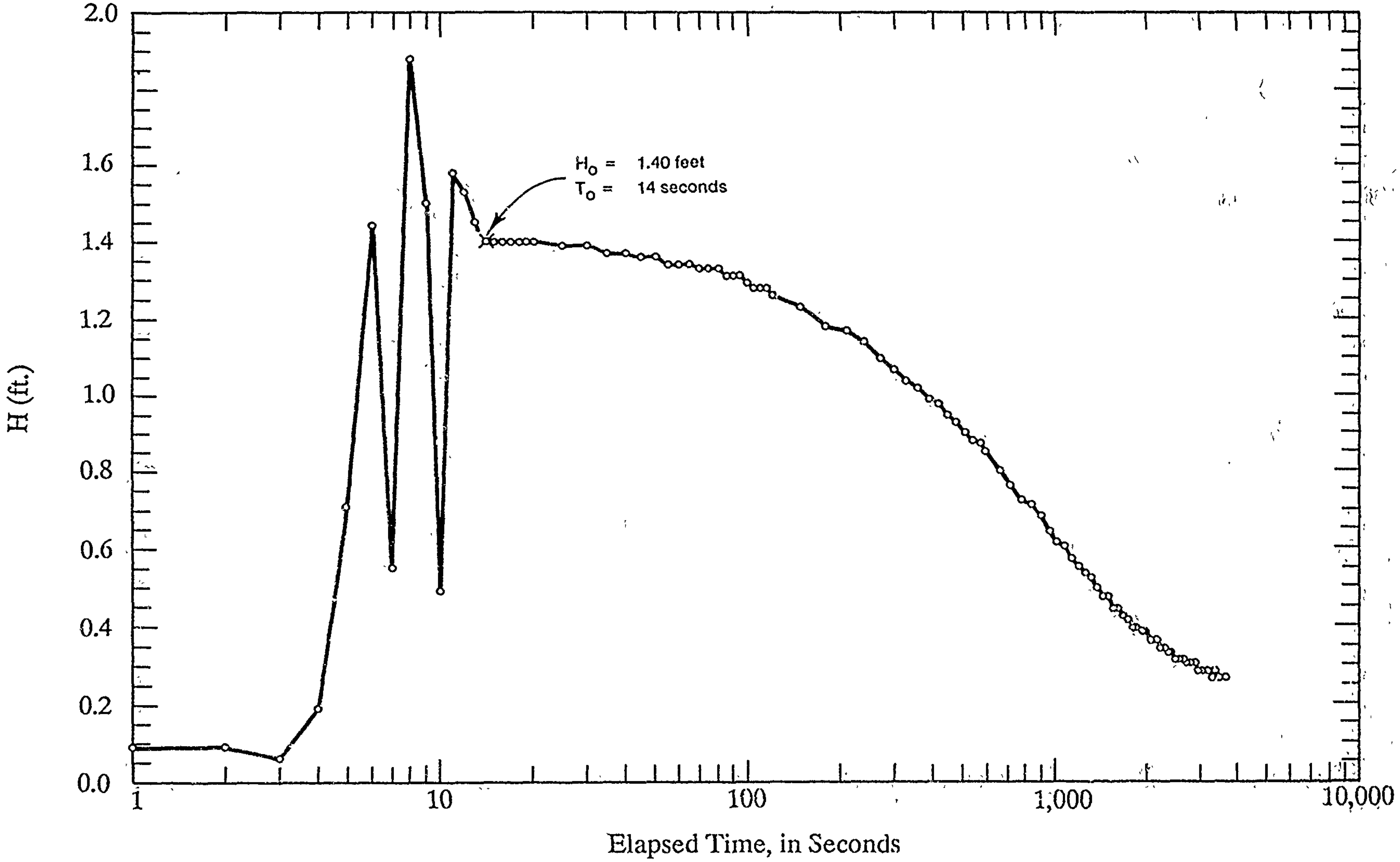


Figure G - 21 Water Level, H , Versus Elapsed Time for Slug Withdrawal Test at Well DANGB-4-MW22.

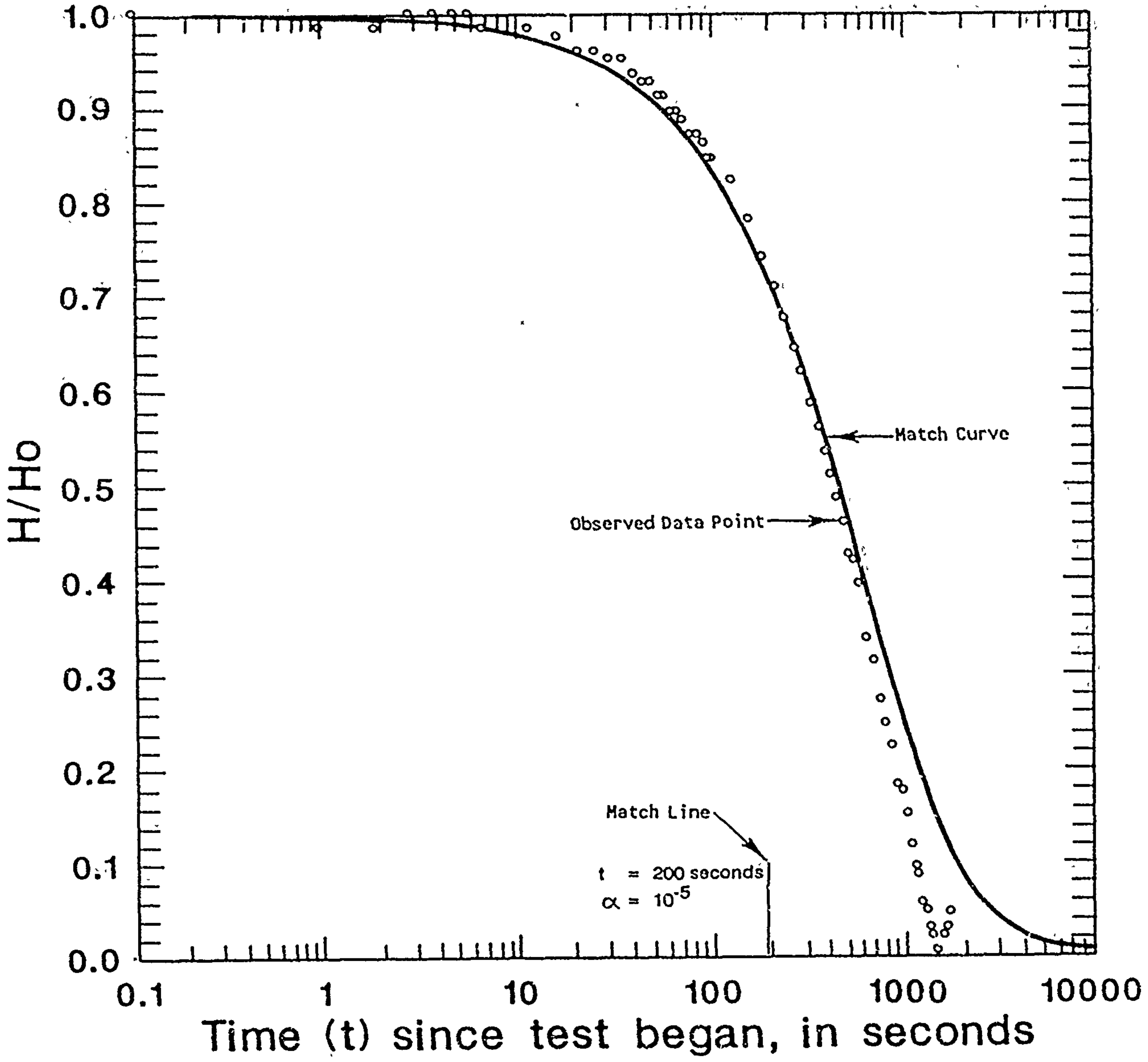


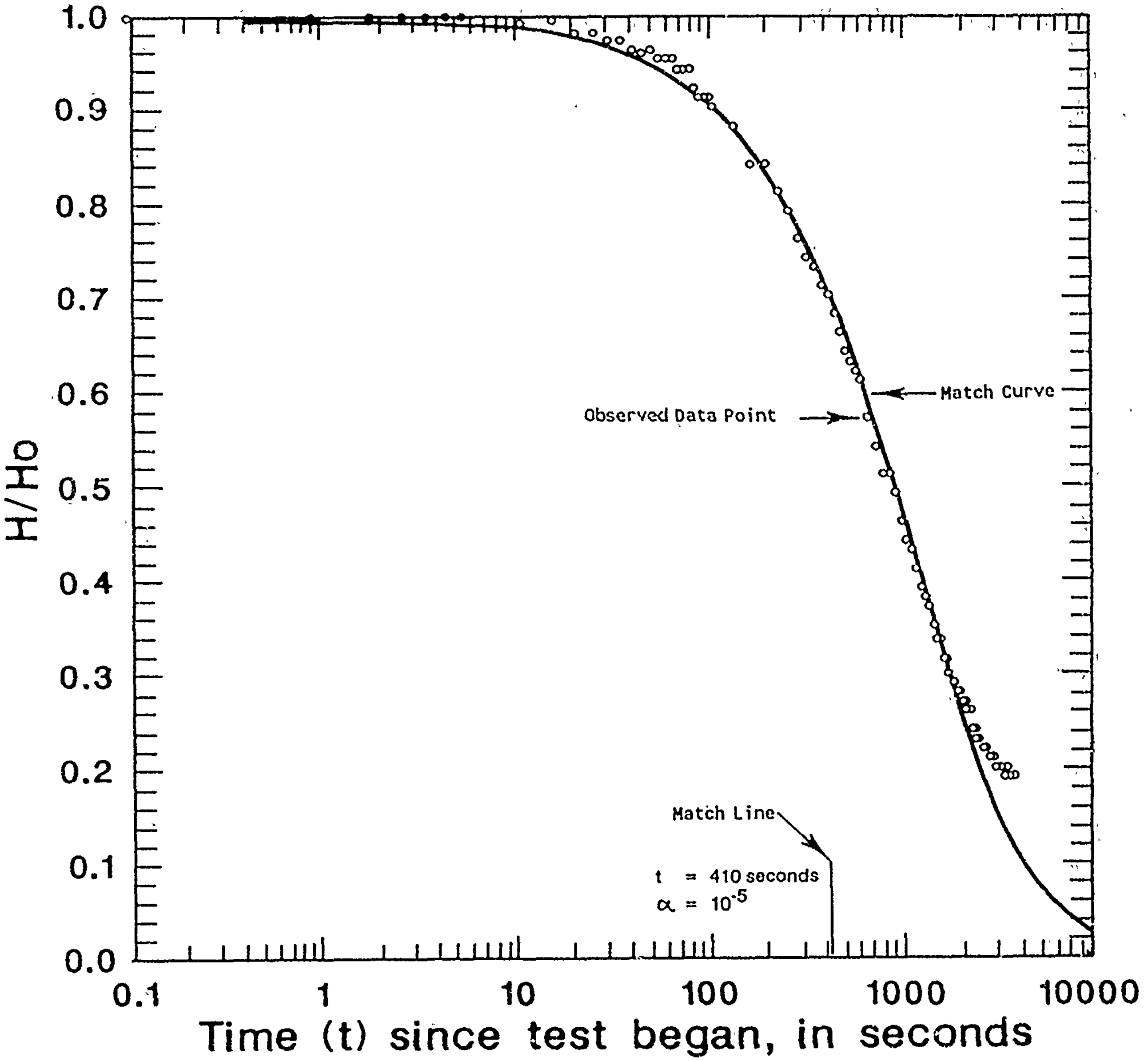
Figure G - 22 Analysis of Slug Injection Data From Well DANGB-4-MW22.

DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\, (1\ Ft/12)^2/200$ seconds
$T = 1\ ft^2/28{,}800$ seconds
$T = 22.4$ gal/day/ft

$K = T/b$
$K = 22.4/10$ ft
$K = 2.2$ gal/day/ft^2

$S = \alpha(r_c/r_s)^2 = \alpha$
$S = 10^{-5}$



DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\, (1/12\ ft)^2/410$ seconds
$T = ft^2/59{,}040$ seconds.
$T = 10.9$ gal/day/ft

$K = T/b$
$K = 10.9/10$ ft
$K = 1.1$ gal/day/ft^2

$S = \alpha (r_c/r_s)^2 = \alpha$

$S = 10^{-5}$

Figure G - 23 Analysis of Slug Withdrawal Data From Well DANGB-4-MW22.

TABLE G-19

SLUG INJECTION TEST DATA FROM

SITE 4 MONITORING WELL, DANGB-4-MW22

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.01	95.0	1.07
0.0	0.04	100.0	1.07
0.4	0.04	105.0	1.07
0.6	0.06	110.0	1.06
0.8	0.04	115.0	1.04
1.0	0.04	120.0	1.04
1.2	0.06	150.0	1.01
1.4	0.04	180.0	0.96
1.6	0.06	210.0	0.91
1.8	0.04	240.0	0.87
2.0	0.04	270.0	0.83
3.0	0.04	300.0	0.79
4.0	0.06	330.0	0.76
5.0	0.04	360.0	0.72
6.0	0.39	390.0	0.69
7.0	0.71	420.0	0.66
8.0	0.28	450.0	0.63
9.0	0.00	480.0	0.60
10.0	1.45	510.0	0.57
11.0	2.12	540.0	0.53
12.0	1.39	570.0	0.52
13.0	1.23	600.0	0.49
14.0	1.21	660.0	0.42
15.0	1.21	720.0	0.39
16.0	1.23	780.0	0.34
17.0	1.23	840.0	0.31
18.0	1.23	900.0	0.28
19.0	1.23	960.0	0.23
20.0	1.21	1020.0	0.22
25.0	1.21	1080.0	0.19
30.0	1.20	1140.0	0.15
35.0	1.18	1200.0	0.12
40.0	1.18	1260.0	0.11
45.0	1.17	1320.0	0.07
50.0	1.17	1380.0	0.06
55.0	1.15	1440.0	0.04
60.0	1.14	1500.0	0.03
65.0	1.14	1560.0	0.01
70.0	1.12	1620.0	0.01
75.0	1.12	1680.0	0.03
80.0	1.10	1740.0	0.03
85.0	1.10	1800.0	0.04
90.0	1.09	1860.0	0.06

TABLE G-20

SLUG WITHDRAWAL TEST DATA FROM

MONITORING WELL DANGB-4-MW22

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	0.06	7.0000	0.98
0.0033	0.07	7.5000	0.95
0.0066	0.09	8.0000	0.93
0.0099	0.09	8.5000	0.90
0.0133	0.09	9.0000	0.88
0.0166	0.09	9.5000	0.87
0.0200	0.09	10.0000	0.85
0.0233	0.11	11.0000	0.80
0.0266	0.09	12.0000	0.76
0.0300	0.12	13.0000	0.72
0.0333	0.09	14.0000	0.71
0.0500	0.06	15.0000	0.68
0.0666	0.19	16.0000	0.64
0.0833	0.71	17.0000	0.61
0.1000	1.44	18.0000	0.60
0.1166	0.55	19.0000	0.57
0.1500	1.88	20.0000	0.55
0.1666	1.50	21.0000	0.53
0.1833	0.49	22.0000	0.52
0.2000	1.58	23.0000	0.49
0.2166	1.53	24.0000	0.47
0.2333	1.45	25.0000	0.47
0.2500	1.40	26.0000	0.44
0.2666	1.40	27.0000	0.44
0.2833	1.40	28.0000	0.42
0.3000	1.40	29.0000	0.41
0.3166	1.40	30.0000	0.39
0.3333	1.40	31.0000	0.39
0.4167	1.39	32.0000	0.38
0.5000	1.39	33.0000	0.38
0.5833	1.37	34.0000	0.36
0.6667	1.37	35.0000	0.36
0.7500	1.36	36.0000	0.36
0.8333	1.36	37.0000	0.34
0.9167	1.34	38.0000	0.34
1.0000	1.34	39.0000	0.33
1.0833	1.34	40.0000	0.33
1.1667	1.33	41.0000	0.31
1.2500	1.33	42.0000	0.31
1.3333	1.33	43.0000	0.31

TABLE G-20 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
1.4166	1.31	44.0000	0.31
1.5000	1.31	45.0000	0.30
1.5833	1.31	46.0000	0.30
1.6677	1.29	47.0000	0.30
1.7500	1.28	48.0000	0.30
1.8333	1.28	49.0000	0.28
1.9167	1.28	50.0000	0.28
2.0000	1.26	51.0000	0.28
2.5000	1.23	52.0000	0.28
3.0000	1.18	53.0000	0.28
3.5000	1.17	54.0000	0.26
4.0000	1.14	55.0000	0.28
4.5000	1.10	56.0000	0.28
5.0000	1.07	57.0000	0.26
5.5000	1.04	58.0000	0.26
6.0000	1.02	59.0000	0.26
6.5000	0.99	60.0000	0.26

TABLE G-21

SLUG INJECTION ANALYSIS DATA

FOR SITE 4 MONITORING WELL, DANGB-4-MW22

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
13.0	0.0	1.23	1.0000
14.0	1.0	1.21	0.9837
15.0	2.0	1.21	0.9837
16.0	3.0	1.23	1.0000
17.0	4.0	1.23	1.0000
18.0	5.0	1.23	1.0000
19.0	6.0	1.23	1.0000
20.0	7.0	1.21	0.9837
25.0	12.0	1.21	0.9837
30.0	17.0	1.20	0.9756
35.0	22.0	1.18	0.9593
40.0	27.0	1.18	0.9593
45.0	32.0	1.17	0.9512
50.0	37.0	1.17	0.9512
55.0	42.0	1.15	0.9350
60.0	47.0	1.14	0.9268
65.0	52.0	1.14	0.9268
70.0	57.0	1.12	0.9106
75.0	62.0	1.12	0.9106
80.0	67.0	1.10	0.8943
85.0	72.0	1.10	0.8843
90.0	77.0	1.09	0.8868
95.0	82.0	1.07	0.8699
100.0	87.0	1.07	0.8699
105.0	92.0	1.07	0.8699
110.0	97.0	1.06	0.8618
115.0	102.0	1.04	0.8455
120.0	107.0	1.04	0.8455
150.0	137.0	1.01	0.8211
180.0	167.0	0.96	0.7805
210.0	197.0	0.91	0.7398
240.0	227.0	0.87	0.7073
270.0	257.0	0.83	0.6748
300.0	287.0	0.79	0.6423
330.0	317.0	0.76	0.6179
360.0	347.0	0.72	0.5854
390.0	377.0	0.69	0.5610
420.0	407.0	0.66	0.5366
450.0	437.0	0.63	0.5122
480.0	467.0	0.60	0.4878

TABLE G-21 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
510.0	497.0	0.57	0.4634
540.0	527.0	0.53	0.4309
570.0	557.0	0.52	0.4228
600.0	587.0	0.59	0.3984
660.0	647.0	0.52	0.3415
720.0	707.0	0.39	0.3171
780.0	767.0	0.34	0.2764
840.0	827.0	0.31	0.2520
900.0	887.0	0.28	0.2276
960.0	947.0	0.23	0.1870
1020.0	1007.0	0.22	0.1789
1080.0	1067.0	0.19	0.1545
1140.0	1127.0	0.15	0.1220
1200.0	1187.0	0.12	0.0976
1260.0	1247.0	0.11	0.0894
1320.0	1307.0	0.07	0.0569
1380.0	1367.0	0.06	0.0488
1440.0	1427.0	0.04	0.0325
1500.0	1487.0	0.03	0.0244
1560.0	1547.0	0.01	0.0081
1620.0	1607.0	0.01	0.0081
1680.0	1667.0	0.03	0.0244
1740.0	1727.0	0.03	0.0244
1800.0	1787.0	0.04	0.0325
1860.0	1847.0	0.06	0.0488

TABLE G-22

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 4 MONITORING WELL, DANGB-4-MW22

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.2333	0	1.40	1.0000
0.2500	1	1.40	1.0000
0.2666	2	1.40	1.0000
0.2833	3	1.40	1.0000
0.3000	4	1.40	1.0000
0.3166	5	1.40	1.0000
0.3333	6	1.40	1.0000
0.4167	11	1.39	0.9929
0.5000	16	1.39	0.9929
0.5833	21	1.37	0.9786
0.6667	26	1.37	0.9786
0.7500	31	1.36	0.9714
0.8333	36	1.36	0.9714
0.9167	41	1.34	0.9571
1.0000	46	1.34	0.9571
1.0833	51	1.34	0.9571
1.1667	56	1.33	0.9500
1.2500	61	1.33	0.9500
1.3333	66	1.33	0.9500
1.4166	71	1.31	0.9357
1.5000	76	1.31	0.9357
1.5833	81	1.31	0.9357
1.6667	86	1.29	0.9214
1.7500	91	1.28	0.9143
1.8333	96	1.28	0.9143
1.9167	101	1.28	0.9143
2.0000	106	1.26	0.9000
2.5000	136	1.23	0.8786
3.0000	166	1.18	0.8429
3.5000	296	1.17	0.8357
4.0000	226	1.14	0.8143
4.5000	256	1.10	0.7857
5.0000	286	1.07	0.7643
5.5000	316	1.04	0.7429
6.0000	346	1.02	0.7286
6.5000	376	0.99	0.7071
7.0000	406	0.98	0.7000
7.5000	436	0.95	0.6786
8.0000	466	0.93	0.6643
8.5000	596	0.90	0.6429
9.0000	526	0.88	0.6286
9.5000	556	0.87	0.6214
10.0000	586	0.85	0.6071
11.0000	646	0.80	0.5714
12.0000	706	0.76	0.5429

TABLE G-22 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
13.0000	766	0.72	0.5143
14.0000	826	0.71	0.5071
15.0000	886	0.68	0.4857
16.0000	946	0.64	0.4571
17.0000	1006	0.61	0.4357
18.0000	1066	0.60	0.4286
19.0000	1126	0.57	0.4071
20.0000	1186	0.55	0.3929
21.0000	1246	0.53	0.3786
22.0000	1306	0.52	0.3714
23.0000	1366	0.49	0.3500
24.0000	1426	0.47	0.3357
25.0000	1486	0.47	0.3357
26.0000	1546	0.44	0.3143
27.0000	1606	0.44	0.3143
28.0000	1666	0.42	0.3000
29.0000	1726	0.41	0.2929
30.0000	1786	0.39	0.2786
31.0000	1846	0.39	0.2786
32.0000	1906	0.38	0.2714
33.0000	1966	0.38	0.2714
34.0000	2026	0.36	0.2571
35.0000	2086	0.36	0.2571
36.0000	2146	0.36	0.2571
37.0000	2206	0.34	0.2429
38.0000	2226	0.34	0.2429
39.0000	2366	0.33	0.2357
40.0000	2386	0.33	0.2357
41.0000	2446	0.31	0.2214
42.0000	2506	0.31	0.2214
43.0000	2566	0.31	0.2214
44.0000	2626	0.31	0.2214
45.0000	2686	0.30	0.2143
46.0000	2746	0.30	0.2143
47.0000	2806	0.30	0.2143
48.0000	2866	0.30	0.2143
49.0000	2926	0.28	0.2000
50.0000	2986	0.28	0.2000
51.0000	3046	0.28	0.2000
52.0000	3106	0.28	0.2000
53.0000	3166	0.28	0.2000
54.0000	3226	0.26	0.1857
55.0000	3286	0.28	0.2000
56.0000	3346	0.28	0.2000
57.0000	3406	0.26	0.1857
58.0000	3466	0.26	0.1857
59.0000	3526	0.26	0.1857
60.0000	3586	0.26	0.1857

TABLE G-23

SLUG INJECTION TEST DATA FOR

SITE 8 MONITORING WELL, DANGB-8-MW16

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.00	120.0	1.01
0.2	0.01	150.0	0.98
0.4	0.01	180.0	0.95
0.6	0.03	210.0	0.91
0.8	0.03	240.0	0.88
1.0	0.03	270.0	0.85
1.2	0.03	300.0	0.82
1.4	0.03	330.0	0.79
1.6	0.03	360.0	0.76
1.8	0.03	390.0	0.72
2.0	0.03	420.0	0.71
3.0	0.03	450.0	0.68
4.0	0.03	480.0	0.64
5.0	0.03	510.0	0.63
6.0	0.03	540.0	0.60
7.0	0.03	570.0	0.58
8.0	0.03	600.0	0.57
9.0	0.91	660.0	0.53
10.0	1.20	720.0	0.50
11.0	0.41	780.0	0.45
12.0	0.91	840.0	0.42
13.0	1.23	900.0	0.41
14.0	1.20	960.0	0.38
15.0	1.15	1020.0	0.34
16.0	1.15	1080.0	0.33
17.0	1.15	1140.0	0.30
18.0	1.17	1200.0	0.28
19.0	1.17	1260.0	0.26
20.0	1.15	1320.0	0.25
25.0	1.15	1380.0	0.22
30.0	1.15	1440.0	0.22
35.0	1.14	1500.0	0.20
40.0	1.12	1560.0	0.19
45.0	1.12	1620.0	0.17
50.0	1.10	1680.0	0.15
55.0	1.10	1740.0	0.14
60.0	1.09	1800.0	0.14
65.0	1.09	1860.0	0.12
70.0	1.09	1920.0	0.12
75.0	1.07	1980.0	0.11

TABLE G-23 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
80.0	1.06	2040.0	0.09
85.0	1.06	2100.0	0.09
90.0	1.04	2160.0	0.09
95.0	1.04	2220.0	0.07
100.0	1.04	2280.0	0.07
105.0	1.02	2340.0	0.07
110.0	1.02	2400.0	0.06
115.0	1.01	2460.0	0.06

TABLE G-24

SLUG WITHDRAWAL TEST DATA FROM

SITE 8 MONITORING WELL, DANGB-8-MW16

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	0.00	2.0000	1.01
0.0033	0.01	2.5000	0.98
0.0066	0.01	3.0000	0.95
0.0099	0.03	3.5000	0.91
0.0133	0.03	4.0000	0.88
0.0166	0.03	4.5000	0.85
0.0200	0.03	5.0000	0.82
0.0233	0.03	5.5000	0.79
0.0266	0.03	6.0000	0.76
0.0300	0.03	6.5000	0.72
0.0333	0.03	7.0000	0.71
0.0500	0.03	7.5000	0.68
0.0666	0.03	8.0000	0.64
0.0833	0.03	8.5000	0.63
0.1000	0.03	9.0000	0.60
0.1166	0.03	9.5000	0.58
0.1333	0.03	10.0000	0.57
0.1500	0.91	11.0000	0.53
0.1666	1.20	12.0000	0.50
0.1833	0.41	13.0000	0.45
0.2000	0.91	14.0000	0.42
0.2166	1.23	15.0000	0.41
0.2333	1.20	16.0000	0.38
0.2500	1.15	17.0000	0.34
0.2666	1.15	18.0000	0.33
0.2833	1.15	19.0000	0.30
0.3000	1.17	20.0000	0.28
0.3166	1.17	21.0000	0.26
0.3333	1.15	22.0000	0.25
0.4167	1.15	23.0000	0.22
0.5000	1.15	24.0000	0.22
0.5833	1.14	25.0000	0.20
0.6667	1.12	26.0000	0.19
0.7500	1.12	27.0000	0.17
0.8333	1.10	28.0000	0.15
0.9167	1.10	29.0000	0.14
1.0000	1.09	30.0000	0.14
1.0833	1.09	31.0000	0.12
1.1667	1.09	32.0000	- 0.17
1.2500	1.07	33.0000	- 0.15

TABLE G-24 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
1.3333	1.06	34.0000	- 0.04
1.4166	1.06	35.0000	- 0.04
1.5000	1.04	36.0000	- 0.02
1.5833	1.04	37.0000	- 0.07
1.6667	1.04	38.0000	- 0.07
1.7500	1.02	39.0000	- 0.07
1.8333	1.02	40.0000	- 0.06
1.9167	1.01	41.0000	- 0.06

transmissivity are given in Table G-25 for the injection test and Table G-26 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-25 and G-26 are based on a visual inspection of the field data plots (Figures G-24 and G-25).

Analysis of the slug injection test results for well DANGB-8-MW16 gives an apparent transmissivity of 15.0 g/d/ft and the apparent storage coefficient is 10^{-4} (Figure G-26). The apparent hydraulic conductivity is 1.5 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

Analysis of the slug withdrawal data for well DANGB-8-MW16 yields an apparent transmissivity of 10.9 g/d/ft and an apparent storage coefficient of 10^{-4} (Figure G-27). The apparent hydraulic conductivity is 1.1 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 10 feet.

The slug test data for GW 8-A were collected on September 9, 1988. The injection data and withdrawal data are presented in Tables G-27 and G-28, respectively. The values of H/H_0 and time used for computing transmissivity are given in Table G-29 for the injection test and Table G-30 for the withdrawal test. The values of H_0 and initial time used to construct Tables G-29 and G-30 are based on a visual inspection of the field data plots (Figures G-28 and G-29).

Analysis of the slug injection test results for well DANGB-8-MW16 gives an apparent transmissivity of 8.6 g/d/ft and the apparent storage coefficient is 10^{-2} (Figure G-30). The apparent hydraulic conductivity is 1.4 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 6.21 feet.

Analysis of the slug withdrawal data for well DANGB-8-MW16 yields an apparent transmissivity of 321 g/d/ft and an apparent storage coefficient of 10^{-3} (Figure G-31). The apparent hydraulic conductivity is 51.7 g/d/ft^2 based on the apparent transmissivity and a saturated thickness for the screened interval of 6.21 feet.

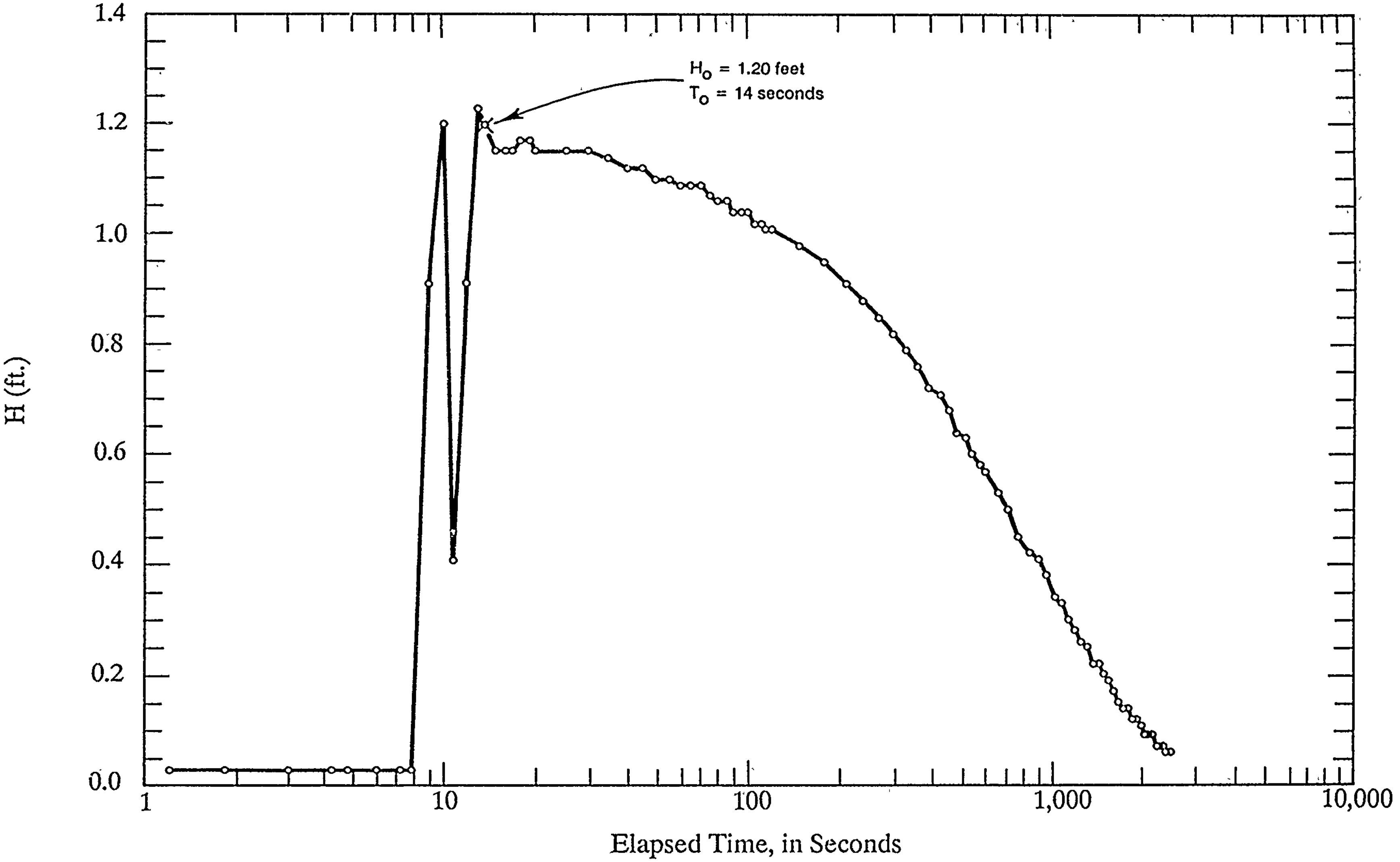


Figure G - 24 Water Level, H , Versus Elapsed Time For Slug Injection Test at Well DANGB-8-MW16.

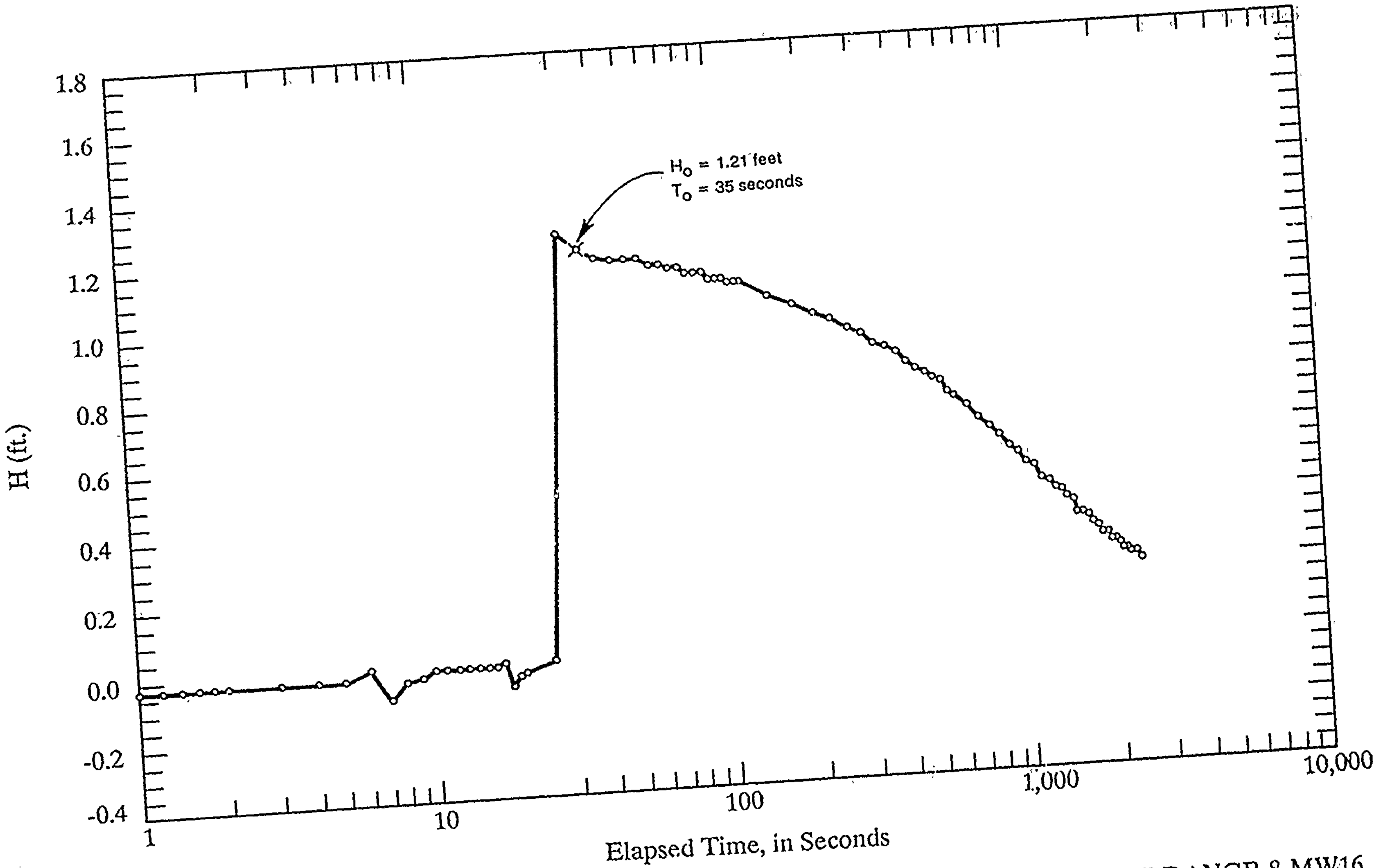


Figure G - 25 Water Level, H, Versus Elapsed Time for Slug Withdrawal Test at Well DANGB-8-MW16.

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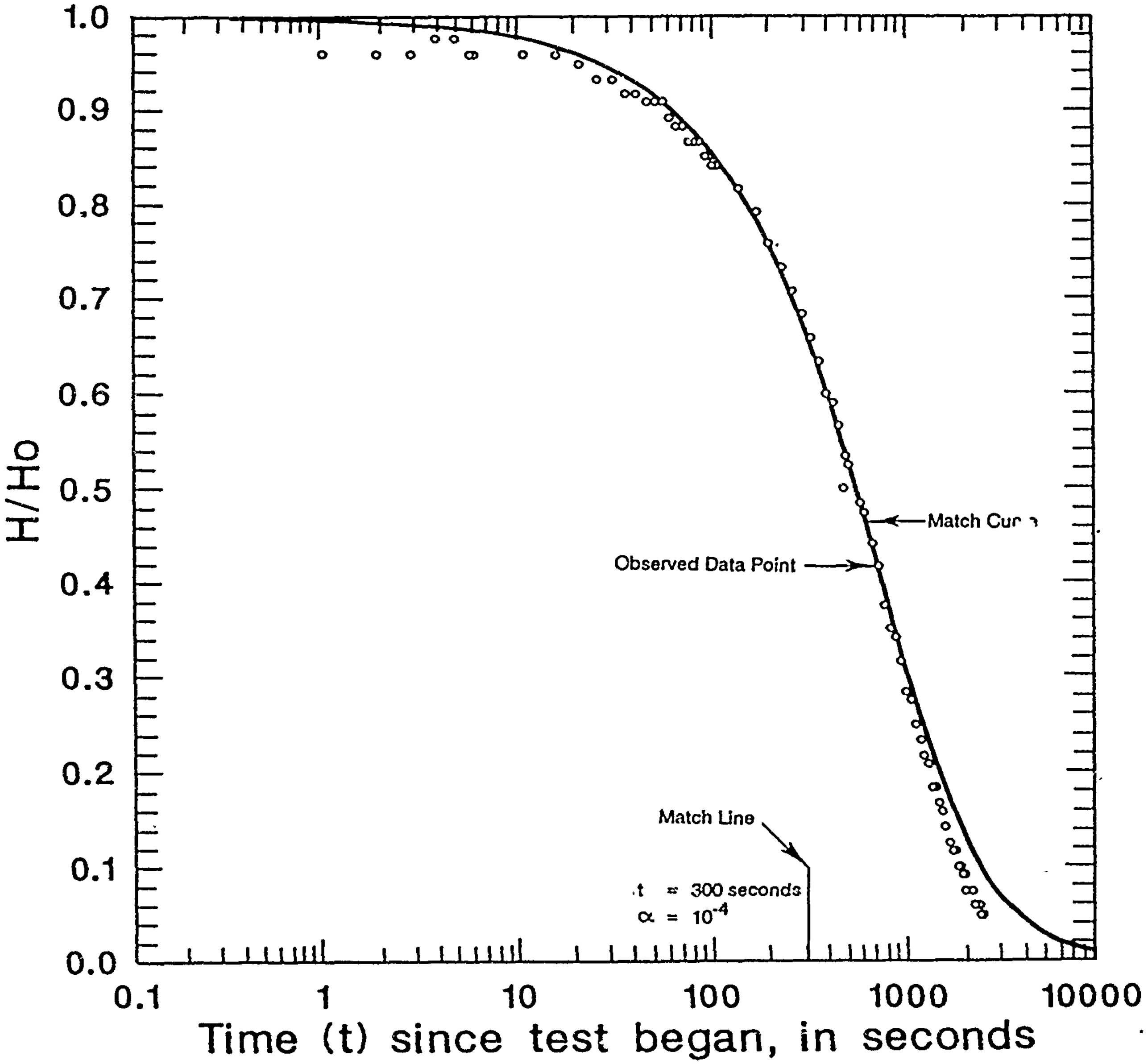

Figure G - 26 Analysis of Slug Injection Data From Well DANGB-8-MW16.

DATA EVALUATION

$T = 1.0\,r_c^2/t$
$T = 1.0\,(1\text{ ft}/12)/300$ seconds
$T = 1\text{ ft}^2/43{,}200$ seconds
$T = 15.0$ gal/day/ft

$K = T/b$
$K = 15.0/10$ ft
$K = 1.5$ gal/day/ft^2

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-4}$

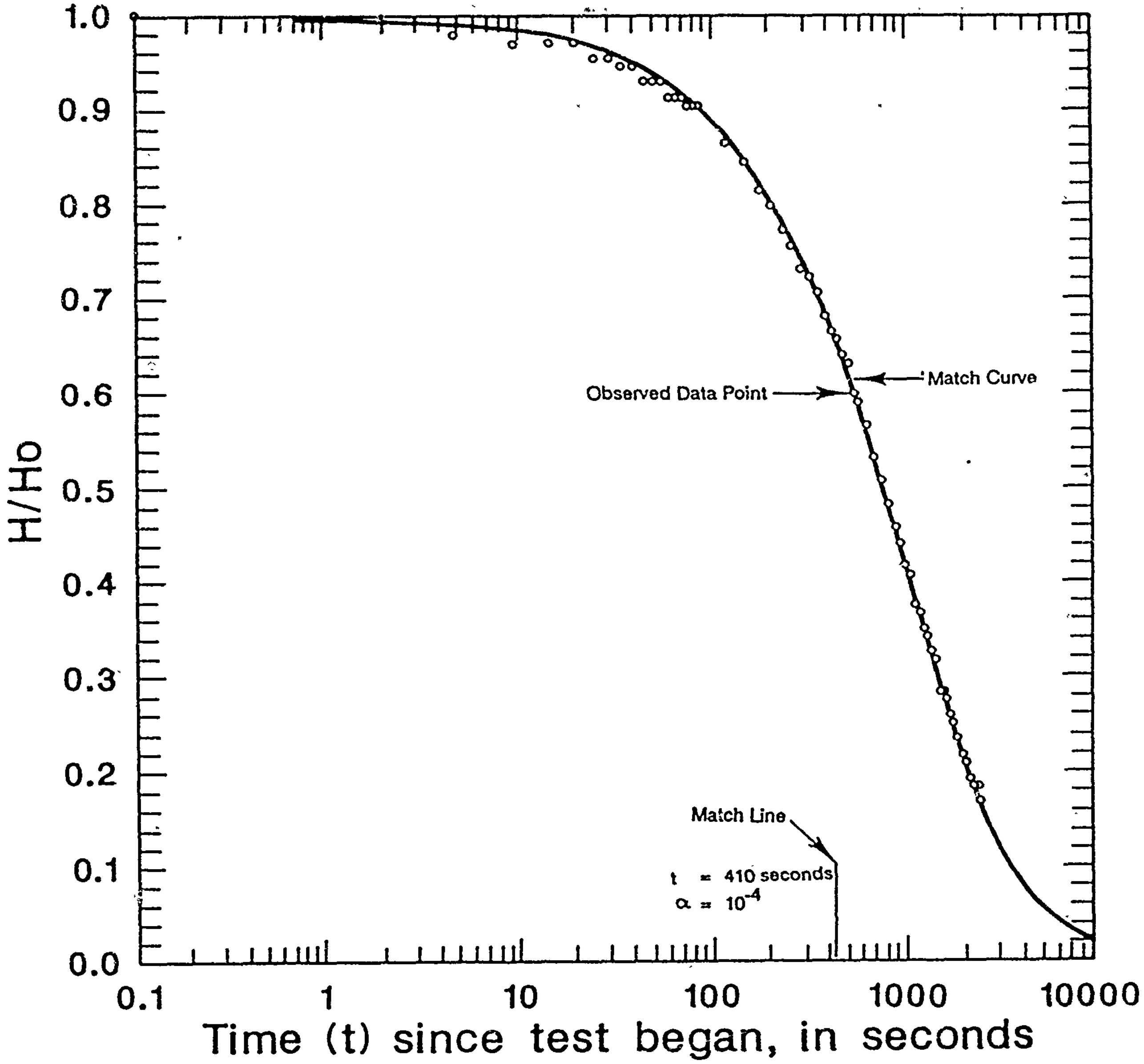

Figure G - 27 Analysis of Slug Withdrawal Data From Well DANGB-8-MW16.

DATA EVALUATION

$T = 1.0 r_c^2/t$

$T = 1.0\ (1/12\ ft)^2/410$ seconds

$T \doteq ft^2/59{,}040$ seconds

T = 10.9 gal/day/ft

K = T/b

K = 10.9/10 ft

$K = 1.1\ gal/day/ft^2$

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-4}$

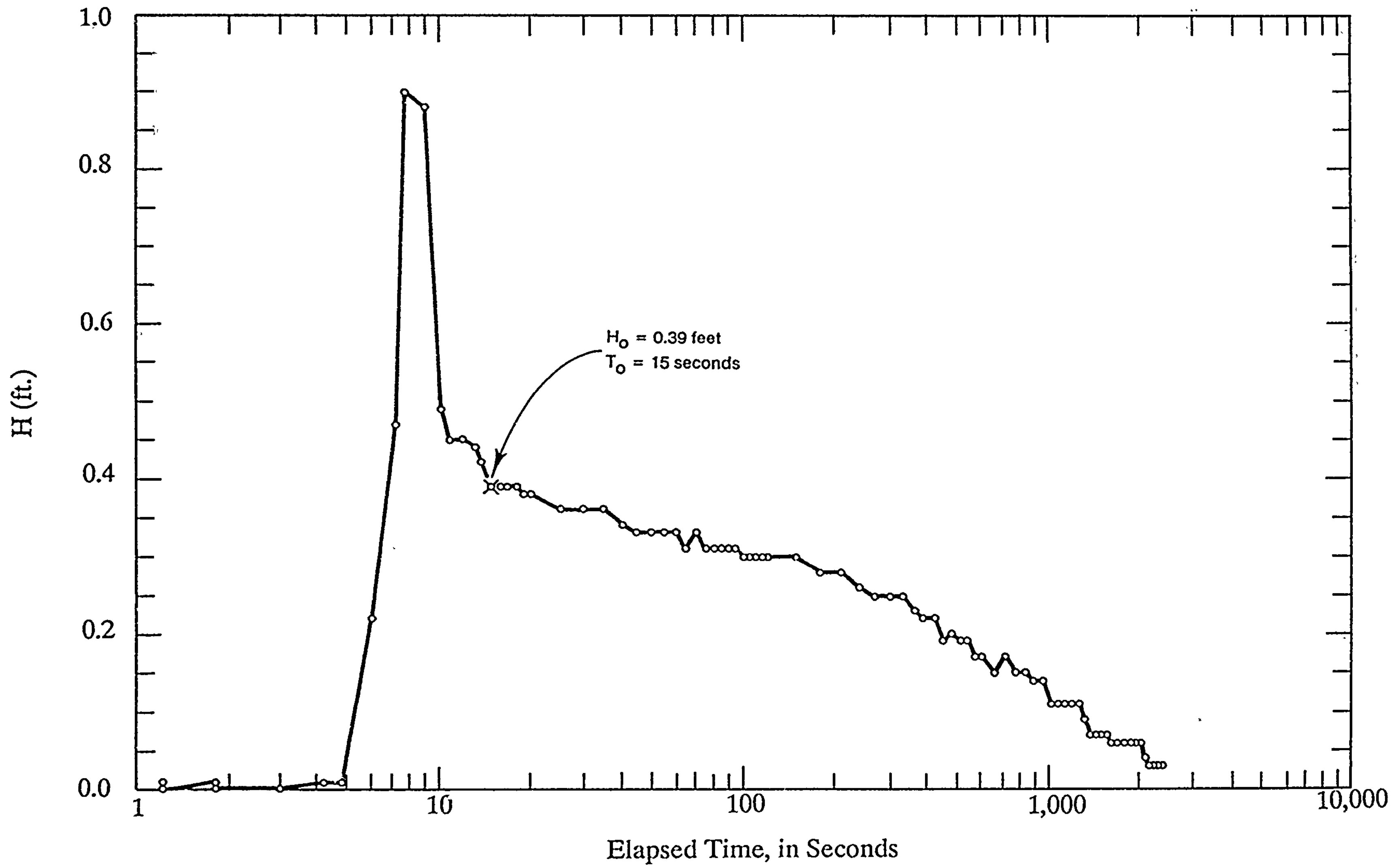

Figure G - 28 Water Level, H, Versus Elapsed Time For Slug Injection Test at Well GW 8-A.

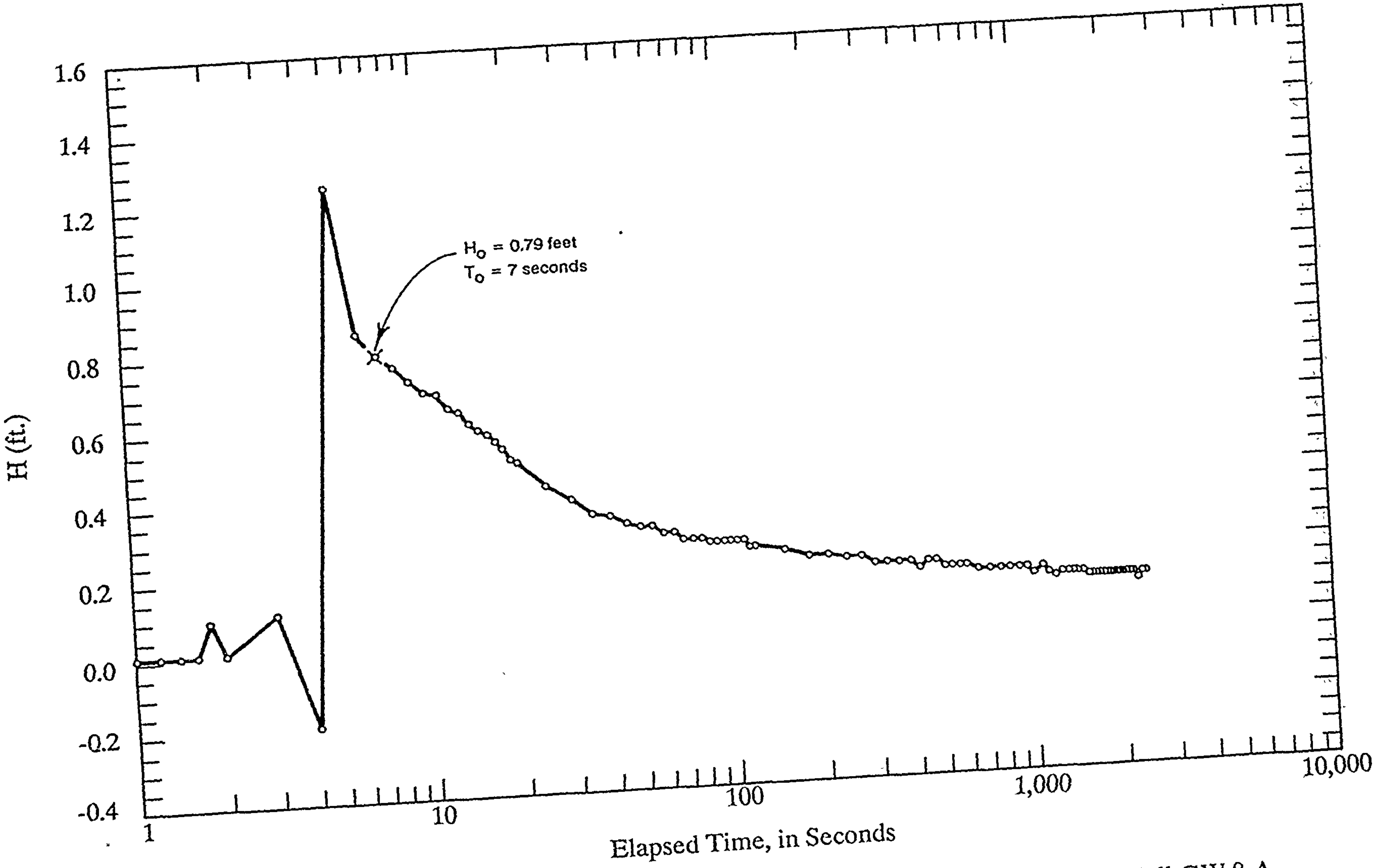

Figure G - 29 Water Level, H, Versus Elapsed Time for Slug Withdrawal Test at Well GW 8-A.

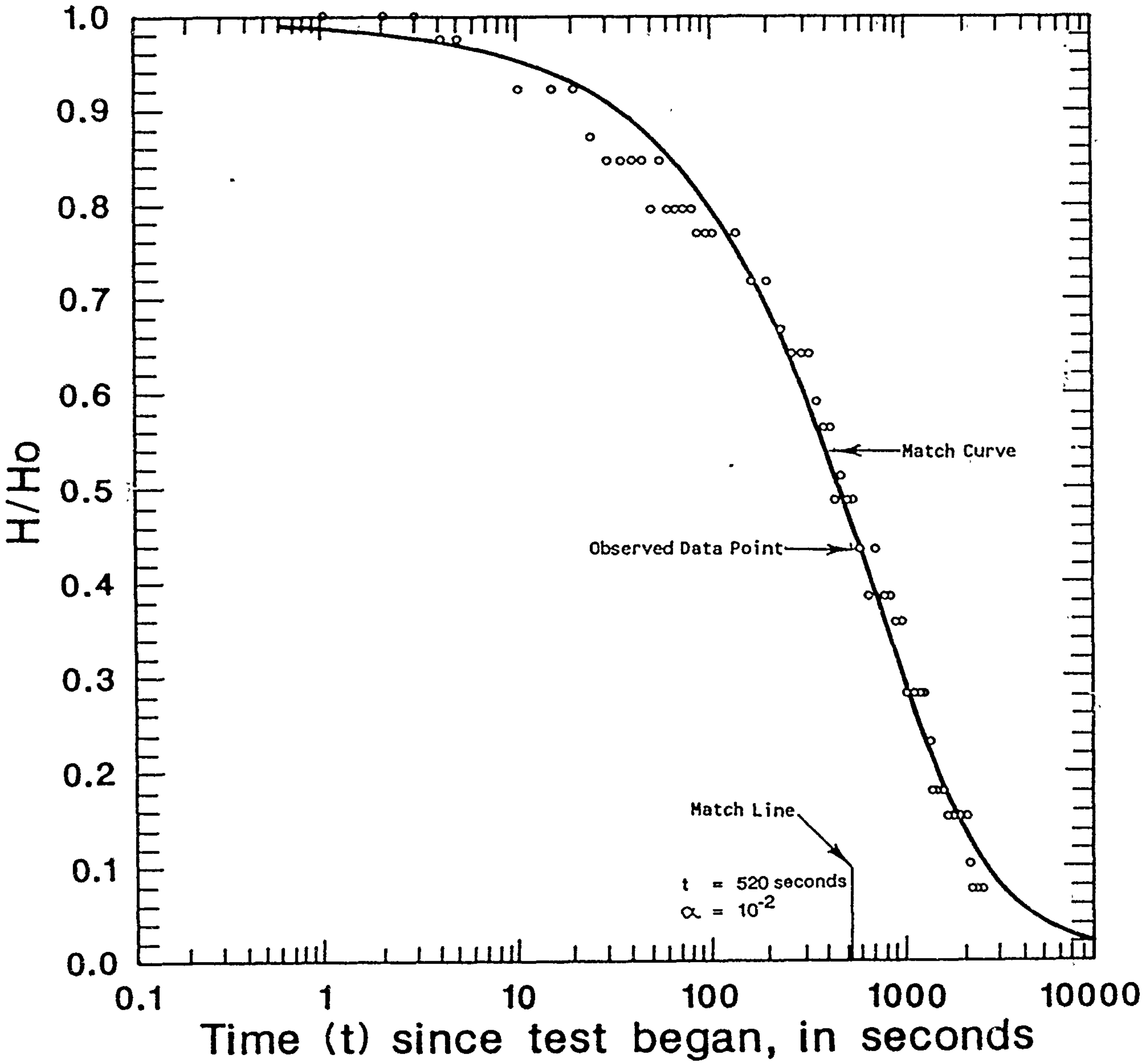

Figure G - 30 Analysis of Slug Injection Data From Well GW 8-A.

DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\ (ft/12)^2/520$ seconds
$T = 1\ ft^2/74{,}880$ seconds
$T = 8.6$ gal/day/ft

$K = T/b$
$K = 8.6/6.21$ ft
$K = 1.4$ gal/day/ft^2

$S = \alpha(r_c/r_s)^2 = \alpha$

$S = 10^{-2}$

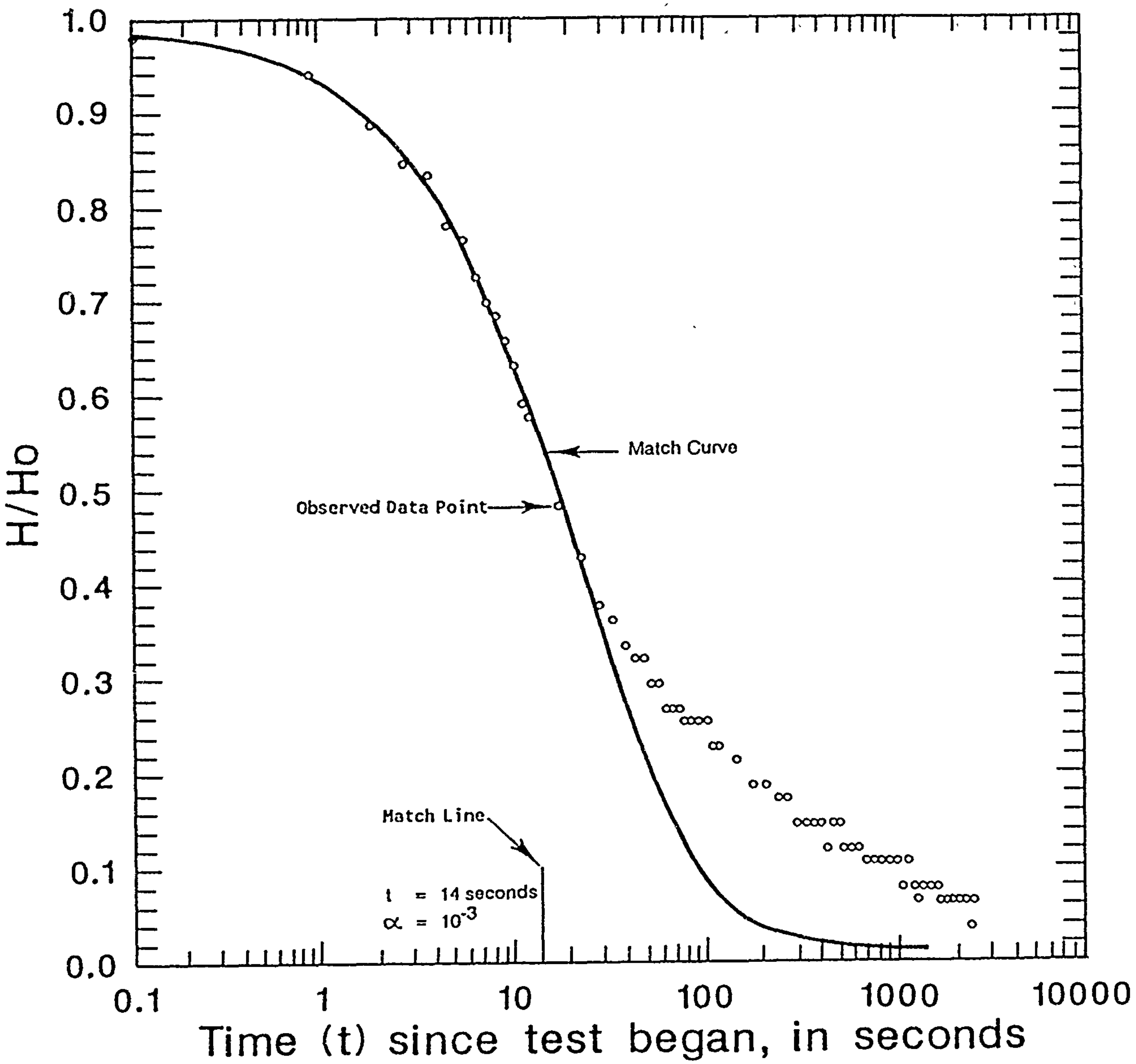

Figure G - 31. Analysis of Slug Withdrawal Data From Well GW 8-A.

DATA EVALUATION

$T = 1.0\, r_c^2/t$
$T = 1.0\, (1/12\ ft)^2/14$ seconds
$T = ft^2/20.6$ seconds
$T = 321$ gal/day/ft^2

$K = T/b$
$K = 321/621$ ft
$K = 51.7$ gal/day/ft^2

$S = \alpha (r_c/r_s)^2 = \alpha$

$S = 10^{-3}$

TABLE G-25

SLUG INJECTION ANALYSIS DATA

FOR SITE 8 MONITORING WELL, DANGB-8-MW16

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
14.0	0.0	1.20	1.0000
15.0	1.0	1.15	0.9583
16.0	2.0	1.15	0.9583
17.0	3.0	1.15	0.9583
18.0	4.0	1.17	0.9750
18.0	5.0	1.17	0.9750
20.0	6.0	1.15	0.9583
25.0	11.0	1.15	0.9583
30.0	16.0	1.15	0.9583
35.0	21.0	1.14	0.9500
40.0	26.0	1.12	0.9333
45.0	31.0	1.12	0.9333
50.0	36.0	1.10	0.9167
55.0	41.0	1.10	0.9167
60.0	46.0	1.09	0.9083
65.0	51.0	1.09	0.9083
70.0	56.0	1.09	0.9083
75.0	61.0	1.07	0.8917
80.0	66.0	1.06	0.8833
85.0	71.0	1.06	0.8833
90.0	76.0	1.04	0.8667
95.0	81.0	1.04	0.8667
100.0	86.0	1.04	0.8667
105.0	91.0	1.02	0.8500
110.0	96.0	1.02	0.8500
115.0	101.0	1.01	0.8417
120.0	106.0	1.01	0.8417
150.0	136.0	0.98	0.8167
180.0	166.0	0.95	0.7917
210.0	196.0	0.91	0.7583
240.0	226.0	0.88	0.7333
270.0	256.0	0.85	0.7083
300.0	285.0	0.82	0.6833
330.0	316.0	0.79	0.6583
360.0	346.0	0.76	0.6333
390.0	376.0	0.72	0.6000
420.0	406.0	0.71	0.5917
450.0	436.0	0.68	0.5667
480.0	466.0	0.64	0.5333
510.0	496.0	0.63	0.5250
540.0	526.0	0.60	0.5000

TABLE G-25 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
570.0	556.0	0.58	0.4833
600.0	586.0	0.57	0.4750
660.0	646.0	0.53	0.4417
720.0	706.0	0.50	0.4167
780.0	766.0	0.45	0.3750
840.0	826.0	0.42	0.3500
900.0	886.0	0.41	0.3417
960.0	946.0	0.38	0.3167
1020.0	1006.0	0.34	0.2833
1080.0	1066.0	0.33	0.2750
1140.0	1126.0	0.30	0.2500
1200.0	1186.0	0.28	0.2333
1260.0	1246.0	0.26	0.2167
1320.0	1306.0	0.25	0.2083
1380.0	1366.0	0.22	0.1833
1440.0	1426.0	0.22	0.1833
1500.0	1486.0	0.20	0.1667
1560.0	1546.0	0.19	0.1583
1620.0	1606.0	0.17	0.1417
1680.0	1666.0	0.15	0.1250
1740.0	1726.0	0.14	0.1167
1800.0	1786.0	0.14	0.1167
1860.0	1846.0	0.12	0.1000
1920.0	1906.0	0.12	0.1000
1980.0	1966.0	0.11	0.0917
2040.0	2026.0	0.09	0.0750
2100.0	2086.0	0.09	0.0750
2160.0	2146.0	0.09	0.0750
2220.0	2206.0	0.07	0.0583
2280.0	2266.0	0.07	0.0583
2340.0	2326.0	0.07	0.0583
2400.0	2386.0	0.06	0.0500
2460.0	2446.0	0.06	0.0500

TABLE G-26

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 8 MONITORING WELL, DANGB-8-MW16

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_O
0.5833	0	1.21	1.0000
0.6667	5	1.18	0.9752
0.7500	10	1.17	0.9669
0.8333	15	1.17	0.9669
0.9167	20	1.17	0.9669
0.1000	25	1.15	0.9504
0.1166	30	1.15	0.9504
0.1500	35	1.14	0.9421
0.1666	40	1.14	0.9421
0.1833	45	1.12	0.9256
0.2000	50	1.12	0.9256
0.2166	55	1.12	0.9256
0.2333	60	1.10	0.9090
0.2500	65	1.10	0.9090
0.2666	70	1.10	0.9090
0.2833	75	1.09	0.9008
0.3000	80	1.09	0.9008
0.3166	85	1.09	0.9008
0.3333	115	1.04	0.8595
0.4167	145	1.01	0.8347
0.5000	175	0.98	0.8099
0.5833	205	0.96	0.7933
0.6667	235	0.93	0.7685
0.7500	265	0.91	0.7520
0.8333	295	0.88	0.7272
0.9167	325	0.87	0.7190
1.0000	355	0.85	0.7024
1.0833	385	0.82	0.6776
1.1667	415	0.80	0.6611
1.2500	445	0.79	0.6528
1.3333	475	0.77	0.6363
1.4166	505	0.76	0.6280
1.5000	535	0.72	0.5950
1.5833	565	0.71	0.5867
1.6667	625	0.68	0.5619
1.7500	685	0.64	0.5289
1.8333	745	0.61	0.5041
1.9167	805	0.58	0.4793
2.0000	865	0.55	0.4545
2.5000	925	0.50	0.4380

TABLE G-26 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
3.0000	985	0.50	0.4132
3.5000	1045	0.49	0.4049
4.0000	1105	0.45	0.3719
4.5000	1165	0.44	0.3636
5.0000	1225	0.42	0.3471
5.5000	1285	0.41	0.3388
6.0000	1345	0.39	0.3223
6.5000	1405	0.38	0.3140
7.0000	1465	0.34	0.2809
7.5000	1525	0.34	0.2809
8.0000	1585	0.33	0.2727
8.5000	1645	0.31	0.2561
9.0000	1705	0.30	0.2479
9.5000	1765	0.28	0.2314
10.0000	1825	0.28	0.2314
11.0000	1885	0.26	0.2148
12.0000	1945	0.26	0.2148
13.0000	2005	0.25	0.2066
14.0000	2065	0.23	0.1900
15.0000	2125	0.23	0.1900
16.0000	2185	0.22	0.1818
17.0000	2245	0.22	0.1818
18.0000	2305	0.22	0.1818
19.0000	2365	0.22	0.1652

TABLE G-27

SLUG INJECTION TEST DATA FOR

SITE 8 MONITORING WELL, GW 8-A

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0	0.06	120.0	0.30
0.2	0.03	150.0	0.30
0.4	0.01	180.0	0.28
0.6	0.01	210.0	0.28
0.8	0.00	240.0	0.26
1.0	0.01	270.0	0.25
1.2	0.00	300.0	0.25
1.4	0.00	330.0	0.25
1.6	0.01	360.0	0.23
1.8	0.00	390.0	0.22
2.0	0.00	420.0	0.22
3.0	0.00	450.0	0.19
4.0	0.01	480.0	0.20
5.0	0.01	510.0	0.19
6.0	0.22	540.0	0.19
7.0	0.47	570.0	0.17
8.0	0.90	600.0	0.17
9.0	0.88	660.0	0.15
10.0	0.49	720.0	0.17
11.0	0.45	780.0	0.15
12.0	0.45	840.0	0.15
13.0	0.44	900.0	0.14
14.0	0.42	960.0	0.14
15.0	0.39	1020.0	0.11
16.0	0.39	1080.0	0.11
17.0	0.39	1140.0	0.11
18.0	0.39	1200.0	0.11
19.0	0.38	1260.0	0.11
20.0	0.38	1320.0	0.09
25.0	0.36	1380.0	0.07
30.0	0.36	1440.0	0.07
35.0	0.36	1500.0	0.07
40.0	0.34	1560.0	0.07
45.0	0.33	1620.0	0.06
50.0	0.33	1680.0	0.06
55.0	0.33	1740.0	0.06
60.0	0.33	1800.0	0.06
65.0	0.31	1860.0	0.06
70.0	0.33	1920.0	0.06
75.0	0.31	1980.0	0.06

TABLE G-27 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
80.0	0.31	2040.0	0.06
85.0	0.31	2100.0	0.04
90.0	0.31	2160.0	0.03
95.0	0.31	2220.0	0.03
100.0	0.30	2280.0	0.03
105.0	0.30	2340.0	0.03
110.0	0.30	2400.0	0.03
115.0	0.30		

TABLE G-28

SLUG WITHDRAWAL TEST DATA FROM SITE 8

MONITORING WELL, DANGB-8-GW-8-A

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
0.0000	-0.03	2.0000	0.25
0.0033	0.00	2.5000	0.25
0.0066	0.00	3.0000	0.25
O.0099	0.01	3.5000	0.25
0.0133	0.01	4.0000	0.23
0.0166	0.01	4.5000	0.23
0.0200	0.01	5.0000	0.22
0.0233	0.01	5.5000	0.20
0.0266	0.01	6.0000	0.20
0.0300	0.01	6.5000	0.19
0.0333	0.01	7.0000	0.19
0.0500	0.11	7.5000	0.17
0.0666	-0.19	8.0000	0.17
0.0833	1.25	8.5000	0.17
0.1000	0.85	19.0000	0.17
0.1166	0.79	19.0000	0.15
0.1333	0.76	10.0000	0.17
0.1500	0.72	11.0000	0.17
0.1666	0.69	12.0000	0.15
0.1833	0.68	13.0000	0.15
0.2000	0.64	14.0000	0.15
0.2166	0.63	15.0000	0.15
0.2333	0.60	16.0000	0.14
0.2500	0.58	17.0000	0.14
0.2666	0.57	28.0000	0.14
0.2833	0.55	29.0000	0.14
0.3000	0.53	20.0000	0.14
0.3166	0.50	21.0000	0.14
0.3333	0.49	22.0000	0.12
0.4167	0.42	23.0000	0.14
0.5000	0.38	24.0000	0.12
0.5833	0.34	25.0000	0.11
0.6667	0.33	26.0000	0.12
0.7500	0.31	27.0000	0.12
0.8333	0.30	38.0000	0.12
0.9167	0.30	39.0000	0.12
1.0000	0.28	30.0000	0.12
1.0833	0.28	31.0000	0.11
1.1667	0.27	32.0000	0.11
1.2500	0.26	33.0000	0.11

TABLE G-28 (CONTINUED)

TIME FROM START OF TEST (MIN)	H (FT)	TIME FROM START OF TEST (MIN)	H (FT)
1.3333	0.26	34.0000	0.11
1.4166	0.25	35.0000	0.11
1.5000	0.25	36.0000	0.11
1.5833	0.25	37.0000	0.11
1.6667	0.25	38.0000	0.09
1.7500	0.25	39.0000	0.11
1.8333	0.25	40.0000	0.11

TABLE G-29

SLUG INJECTION ANALYSIS DATA

FOR SITE 8 MONITORING WELL, GW 8-A

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
15.0	0.0	0.39	1.0000
16.0	1.0	0.39	1.0000
17.0	2.0	0.39	1.0000
18.0	3.0	0.39	1.0000
18.0	4.0	0.38	0.9744
20.0	5.0	0.38	0.9744
25.0	10.0	0.36	0.9231
30.0	15.0	0.36	0.9231
35.0	20.0	0.36	0.9231
40.0	25.0	0.34	0.8718
45.0	30.0	0.33	0.8462
50.0	35.0	0.33	0.8462
55.0	40.0	0.33	0.8462
60.0	45.0	0.33	0.8462
65.0	50.0	0.31	0.7949
70.0	55.0	0.33	0.8462
75.0	60.0	0.31	0.7949
80.0	65.0	0.31	0.7949
85.0	70.0	0.31	0.7949
90.0	75.0	0.31	0.7949
95.0	80.0	0.31	0.7949
100.0	85.0	0.30	0.7692
105.0	90.0	0.30	0.7692
110.0	95.0	0.30	0.7692
115.0	100.0	0.30	0.7692
120.0	105.0	0.30	0.7692
150.0	135.0	0.30	0.7692
180.0	165.0	0.28	0.7179
210.0	195.0	0.28	0.7179
240.0	225.0	0.26	0.6667
270.0	255.0	0.25	0.6410
300.0	285.0	0.25	0.6410
330.0	315.0	0.25	0.6410
360.0	345.0	0.23	0.5897
390.0	375.0	0.22	0.5641
420.0	405.0	0.22	0.5641
450.0	435.0	0.19	0.4872
480.0	465.0	0.10	0.5128
510.0	495.0	0.19	0.4872
540.0	525.0	0.19	0.4872

TABLE G-29 (CONTINUED)

TIME FROM START OF TEST (SEC)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
570.0	555.0	0.17	0.4359
600.0	585.0	0.17	0.4359
660.0	645.0	0.15	0.3846
720.0	705.0	0.17	0.4359
780.0	765.0	0.15	0.3846
840.0	825.0	0.15	0.3846
900.0	885.0	0.14	0.3590
960.0	945.0	0.14	0.3590
1020.0	1005.0	0.11	0.2821
1080.0	1065.0	0.11	0.2821
1140.0	1125.0	0.11	0.2821
1200.0	1185.0	0.11	0.2821
1260.0	1245.0	0.11	0.2821
1320.0	1305.0	0.09	0.2308
1380.0	1365.0	0.07	0.1795
1440.0	1425.0	0.07	0.1795
1500.0	1485.0	0.07	0.1795
1560.0	1545.0	0.07	0.1795
1620.0	1605.0	0.06	0.1538
1680.0	1665.0	0.06	0.1538
1740.0	1725.0	0.06	0.1538
1800.0	1785.0	0.06	0.1538
1860.0	1845.0	0.06	0.1538
1920.0	1905.0	0.06	0.1538
1980.0	1965.0	0.06	0.1538
2040.0	2025.0	0.06	0.1538
2100.0	2085.0	0.04	0.1026
2160.0	2145.0	0.03	0.0769
2220.0	2205.0	0.03	0.0769
2280.0	2265.0	0.03	0.0769
2340.0	2325.0	0.03	0.0769
2400.0	2385.0	0.03	0.0769

TABLE G-30

SLUG WITHDRAWAL ANALYSIS DATA

FOR SITE 8 MONITORING WELL, GW 8-A

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
0.1166	0	0.79	1.0000
0.1333	1	0.76	0.9620
0.1500	2	0.72	0.9113
0.1666	3	0.69	0.8734
0.1833	4	0.68	0.8607
0.2000	5	0.64	0.8101
0.2166	6	0.63	0.7974
0.2333	7	0.60	0.7594
0.2500	8	0.58	0.7341
0.2666	9	0.57	0.7215
0.2833	10	0.55	0.6962
0.3000	11	0.53	0.6708
0.3166	12	0.50	0.6329
0.3333	13	0.49	0.6202
0.4167	18	0.42	0.5316
0.5000	23	0.38	0.4810
0.5833	28	0.34	0.4303
0.6667	33	0.33	0.4177
0.7500	38	0.31	0.3924
0.8333	43	0.30	0.3797
0.9167	48	0.30	0.3797
1.0000	53	0.28	0.3544
1.0833	58	0.28	0.3544
1.1667	63	0.26	0.3291
1.2500	68	0.26	0.3291
1.3333	73	0.26	0.3291
1.4166	78	0.25	0.3164
1.5000	83	0.25	0.3164
1.5833	88	0.25	0.3164
1.6667	93	0.25	0.3164
1.7500	98	0.25	0.3164
1.8333	103	0.25	0.3164
1.9167	108	0.23	0.2911
2.0000	113	0.23	0.2911
2.5000	143	0.22	0.2784
3.0000	173	0.20	0.2531
3.5000	203	0.20	0.2531
4.0000	233	0.19	0.2405
4.5000	263	0.19	0.2405
5.0000	293	0.17	0.2151

TABLE G-30 (CONTINUED)

TIME FROM START OF TEST (MIN)	CALCULATED TIME USED FOR ANALYSIS (SEC)	H (FT)	H/H_0
5.5000	323	0.17	0.2151
6.0000	353	0.17	0.2151
6.5000	383	0.17	0.2151
7.0000	413	0.15	0.1898
7.5000	443	0.17	0.2151
8.0000	473	0.17	0.2151
8.5000	503	0.15	0.1895
9.0000	533	0.15	0.1894
9.5000	563	0.15	0.1894
10.0000	593	0.15	0.1894
11.0000	653	0.14	0.1772
12.0000	713	0.14	0.1772
13.0000	773	0.14	0.1772
14.0000	833	0.14	0.1772
15.0000	893	0.14	0.1772
16.0000	953	0.14	0.1772
17.0000	1013	0.12	0.1518
18.0000	1073	0.14	0.1772
19.0000	1133	0.12	0.1518
20.0000	1193	0.11	0.1392
21.0000	1253	0.12	0.1518
22.0000	1313	0.12	0.1518
23.0000	1373	0.12	0.1518
24.0000	1433	0.12	0.1518
25.0000	1493	0.12	0.1518
26.0000	1553	0.12	0.1518
27.0000	1613	0.11	0.1393
28.0000	1673	0.11	0.1393
29.0000	1733	0.11	0.1397
30.0000	1793	0.11	0.1392
31.0000	1853	0.11	0.1392
32.0000	1913	0.11	0.1392
33.0000	1973	0.11	0.1392
34.0000	2033	0.11	0.1392
35.0000	2093	0.11	0.1392
36.0000	2153	0.11	0.1392
37.0000	2213	0.11	0.1392
38.0000	2273	0.09	0.1139
39.0000	2333	0.11	0.1392
40.0000	2393	0.11	0.1392

APPENDIX H
ALTITUDE AND COORDINATE SURVEY SUMMARY FOR SAMPLE LOCATIONS

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APPENDIX H
TABLE OF CONTENTS

APPENDIX H

LIST OF TABLES

SECTION H.1
INTRODUCTION

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SECTION H.1
INTRODUCTION

The altitude and coordinates of each sampling site were determined by surveying. Salo Engineering, Inc. of Duluth Minnesota, a land surveyor registered in the state of Minnesota did this work. Water level measuring points on wells were surveyed to ± 0.01 feet of altitude. The ground surface at borehole monitoring well locations, and well point locations; sediment and surface water sampling location; and at some of the corner and interior points of hand-augured borehole grids at Sites 3 and 8, were surveyed to ± 0.1 feet of altitude. The horizontal coordinates of each sampling.site were surveyed to within ± 0.5 feet.

The locations and altitudes of the eleven monitoring wells constructed during the Phase II, Stage 1 investigation conducted by Weston (1984) and the 16 monitoring wells constructed during the Phase II, Stage 2 investigation conducted by Dames and Moore, Inc. (1987) were also surveyed.

Altitudes were referenced to the National Geodetic Vertical Datum of 1929 (NGVD) while horizontal coordinates were referenced to the Minnesota State Plane Coordinate System.

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SECTION H.2

ALTITUDE AND COORDINATE DATA FOR SAMPLE LOCATIONS

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SECTION H.2

ALTITUDE AND COORDINATE DATA FOR SAMPLE LOCATIONS

Survey results are summarized in two types of tables. Tables H-1 through H-6 summarize the survey results by site. Table H-7 summarizes the survey results for all sites sequentially by type of sampling site. In these tables the column headings have the following meanings:

Sample Point ID:	The alpha-numeric identifier assigned to the sampling point. See Appendix D.7 for a complete explanation of the system used.
Measuring Point Altitude: (for wells only)	The altitude of the water-level measuring point referenced to the NGVD in feet. The measuring point is the well casing.
Ground Surface Altitude:	Altitude of the ground surface or water level surface at the sampling point referenced to the NGVD in feet.
Horizontal Coordinates:	The coordinates of the sampling point referenced to the Minnesota State Coordinate System, in feet.
Site:	The site at which the sample point is located.

TABLE H-1

ALTITUDE AND COORDINATE DATA SUMMARY FOR AREA SAMPLE LOCATIONS

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates	
			North (Feet)	East (Feet)
Surface Water and Sediment (RI)				
DANGB-BG-SL1		1384.97[a]	63743.6	628581.8
DANGB-BG-SL2		1382.86[a]	63614.5	623864.8
DANGB-BG-SL3		1394.74[b]	59146.7	623777.9
DANGB-BG-SL4		1367.75[b]	53199.5	631551.3
DANGB-BG-SL5		1396.99[c]	50537.9	626419.9
Monitoring Wells (RI)				
DANGB-BG-MW32	1428.40	1426.9	53377.5	622511.1
DANGB-BG-MW42	1419.68	1416.8	54351.0	619896.2
DANGB-BG-MW43	1406.99	1404.6	52548.8	628808.2

a. Elevation of water surface on September 23, 1988.
b. Elevation of water surface on November 3, 1988.
c. Elevation of water surface on September 30, 1988.

TABLE H-2

ALTITUDE AND COORDINATE DATA SUMMARY FOR SITE 2 SAMPLE LOCATIONS

Sample Location	Water Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates	
			North (Feet)	East (Feet)
Surface Water and Sediment (RI)				
DANGB-2-SL6		1409.73[a]	56732.6	629761.3
DANGB-2-SL7		1413.52[a]	56341.3	629910.6
Boreholes for Soil Samples (RI)				
DANGB-2-BH1		1430.99	56422.5	629357.4
DANGB-2-BH2		1431.05	56408.8	629322.6
Boreholes for Monitoring Wells (Plugged and Abandoned) (RI)				
DANGB-2-MW12A		1425.22	56642.3	629408.0
DANGB-2-MW13A		1434.65	55776.3	628716.3
Monitoring Wells (RI)				
DANGB-2-MW37	1428.97	1426.4	56079.2	629533.8
DANGB-2-MW38	1433.97	1431.4	55730.8	629341.2
DANGB-2-MW39	1430.20	1427.4	55547.0	628993.0
DANGB-2-MW40	1431.11	1428.4	55593.7	629629.5
DANGB-2-MW41	1434.38	1432.0	55996.1	628364.7
Monitoring Wells (Phase II Stage 2)				
GW 2-A	1437.72	1434.6	55767.7	628710.8
GW 2-B	1436.25	1433.84[b]	55993.3	629180.7
GW 2-C	1438.55	1436.17[b]	56189.4	629002.6
GW 2-D	1429.55	1427.78[b]	56546.5	629535.7
GW 2-E	1427.13	1426.25[b]	56633.0	629427.3
Monitoring Wells (Phase II Stage 1)				
MW 1	1433.40	1431.2	56539.8	629277.4
MW 2	1434.81	1432.2	56407.3	629210.8
MW 4	1437.46	1434.7	56085.1	629065.8
MW 5	1437.18	1434.1	55816.7	629048.8
MW 6	1436.01	1432.9	55796.9	628906.2
MW 7	1438.16	1435.6	55867.9	628757.1
Well Points (RI)				
DANGB-2-WP6	1420.63	1418.1	56970.8	629042.7
DANGB-2-WP7	1426.49	1424.0	56367.1	628656.9
DANGB-2-WP7D	1426.19	1423.8	56369.5	628654.0
DANGB-2-WP8	1419.51	1417.5	56638.0	629755.5

a. Elevation of Water surface on September 23, 1988.
b. Elevation on top of 4 inch concrete pad.

TABLE H-3

ALTITUDE AND COORDINATE DATA SUMMARY FOR SITE 3 SAMPLE LOCATIONS

Sample Location	Water Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates North (Feet)	East (Feet)
Surface Water and Sediment (RI)				
DANGB-3-SL8		1410.51[a]	53655.1	622806.3
DANGB-3-SL9		1411.22[a]	53693.5	622681.8
DANGB-3-SL10		1411.37[a]	53550.1	622791.2
Monitoring Wells (RI)				
DANGB-3-MW25	1415.14	1412.2	53821.6	623054.8
DANGB-3-MW26	1415.23	1412.7	53822.8	623048.6
DANGB-3-MW27	1415.79	1413.0	53874.3	622844.9
DANGB-3-MW28	1412.47	1409.8	53840.0	622545.3
DANGB-3-MW29	1416.96	1414.4	53696.4	622858.6
DANGB-3-MW30	1419.78	1417.0	53492.6	622863.8
DANGB-3-MW31	1421.61	1419.5	53423.3	622748.5
DANGB-3-MW33	1420.64	1418.3	53559.5	622523.4
DANGB-3-MW34	1420.65	1418.3	53557.7	622529.0
DANGB-3-MW35	1415.91	1413.1	53794.2	622686.1
Monitoring Wells (Phase II Stage 2)				
GW 3-A	1423.84	1421.25[b]	53520.3	622721.9
GW 3-B	1421.25	1418.92[b]	53654.6	622662.3
GW 3-C	1419.59	1417.97[b]	53616.9	622645.7
GW 3-D	1417.59	1416.23[b]	53672.6	622723.8
Soil Gas Grid Locations				
DANGB-3-SGB2		1418.00	53577.2	622675.8
DANGB-3-SGE1		1412.21	53604.9	622995.4
DANGB-3-SGE3		1414.69	53775.3	622874.5
DANGB-3-SGE5		1415.05	54059.9	622793.4
DANGB-3-SGD3		1415.02	53752.4	622820.0

a. Elevation of water surface on October 7, 1988.
b. Elevation on top of 4 inch thick concrete pad.

TABLE H-4

ALTITUDE AND COORDINATE DATA SUMMARY FOR SITE 4 SAMPLE LOCATIONS

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates	
			North (Feet)	East (Feet)
Surface Water and Sediment (RI)				
DANGB-4-SL11		1402.61[a]	53921.7	623451.9
DANGB-4-SL12		1402.86[a]	53920.5	623614.4
DANGB-4-SL13		1403.54[a]	53910.7	623827.6
DANGB-4-SL14		1406.45[a]	53720.1	623892.4
DANGB-4-SL15		1407.95[a]	53655.8	623524.5
DANGB-4-SL16		1407.37	53733.3	623329.9
Monitoring Wells (RI)				
DANGB-4-MW21	1414.40	1411.7	53848.6	623851.6
DANGB-4-MW22	1416.16	1413.5	54038.6	623548.7
DANGB-4-MW23	1415.39	1412.9	53996.0	623338.5
DANGB-4-MW24	1412.97	1410.5	53676.1	623504.8
Monitoring Wells (Phase II, Stage 2)				
GW 4-A	1413.27	1410.68[b]	53455.0	623679.5
GW 4-B	1412.25	1409.83[b]	53814.0	623300.9
GW 4-C	1416.29	1413.59[b]	53987.0	623339.4
GW 4-D	1417.17	1414.62[b]	54047.2	623550.2
Monitoring Wells (Phase II, Stage 1)				
MW 8	1414.83	1412.4	53565.1	623849.1
MW 9	1414.06	1412.4	53849.9	623848.3
MW 10	1413.70	1410.8	53672.4	623537.3
MW 11	1414.36	1411.4	53897.5	623283.6
Well Points (RI)				
DANGB-4-WP11	1416.48	1413.6	53301.2	623927.2
DANGB-4-WP12	1417.01	1414.8	54106.6	624211.6
DANGB-4 WP12D	1417.04	1414.8	54106.5	624215.9
DANGB-4-WP13	1419.08	1416.8	54118.7	623808.3
DANGB-4-WP13D	1419.13	1416.7	54118.7	623815.4
DANBG-4-WP14	1418.02	1415.6	54130.7	623319.3
DANGB-4-WP14D	1418.01	1415.8	54131.2	623324.6
DANGB-4-WP15	1418.76	1416.6	54142.9	622938.8
DANGB-4-WP15D	1418.71	1416.6	54143.0	622943.8
DANGB-4-WP16	1415.52	1413.1	53377.2	623240.3

a. Elevation of water surface on November 3, 1988.
b. Elevation on top of 4 inch concrete pad.

TABLE H-5

ALTITUDE AND COORDINATE DATA SUMMARY FOR SITE 8 SAMPLE LOCATIONS

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates North (Feet)	Horizontal Coordinates East (Feet)
Surface Water and Sediment (RI)				
DANGB-8-SL17		1407.86[a]	53894.3	624287.3
DANGB-8-SL18		1409.31[a]	53842.5	624534.0
DANGB-8-SL19		1408.55[a]	53833.3	624746.7
Boreholes for Monitoring Wells (Plugged and Abandoned) (RI)				
DANGB-8-MW18A		1412.75	53569.1	624528.5
DANGB-8-MW19A		1412.29	53809.0	624634.3
DANGB-8-MW20A		1411.46	53839.7	624339.6
Monitoring Wells (RI)				
DANGB-8-MW14	1414.26	1412.2	53343.6	624842.2
DANGB-8-MW15	1414.56	1412.2	53333.6	624840.9
DANGB-8-MW16	1413.32	1410.5	53318.9	624477.7
DANGB-8-MW17	1412.90	1410.3	53308.3	624477.9
Monitoring Wells (Phase II, Stage 2)				
GW 8-A	1414.36	1412.62[b]	53806.7	624645.5
GW 8-B	1414.96	1412.15[b]	53850.1	624344.7
GW 8-C	1415.97	1413.22[b]	53579.8	624529.9
Well Points (RI)				
DANGB-8-WP9	1414.68	1412.3	53209.6	624260.2
DANGB-8-WP9D	1415.42	1412.5	53204.6	624258.2
DANGB-8-WP10	1415.61	1413.2	53646.3	624089.0
DANGB-8-WP10D	1415.72	1413.3	53646.1	624087.7
DANBG-8-WP11	1416.48	1413.6	53301.2	623927.2
Shallow Soil Samples (RI)				
DANGB-8-SSAO		1412.04	53508.2	624291.7
DANGB-8-SSA3		1412.14	53807.7	624276.7
DANGB-8-SSF3		1411.75	53791.4	624776.5

a. Elevation of water surface on October 7, 1988.
b. Elevation on top of 4 inch thick concrete pad.

TABLE H-6

ALTITUDE AND COORDINATE DATA SUMMARY FOR SITE 10 SAMPLE LOCATIONS

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates North (Feet)	Horizontal Coordinates East (Feet)
Monitoring Wells (Phase II Stage 2)				
GW 10-A	1411.06	1407.90[a]	55997.8	624565.7
GW 10-B	1410.09	1408.02[a]	56286.0	624522.4
GW 10-C	1407.53	1405.73[a]	56319.5	624412.6

a. Elevation on top of 4 inch thick concrete pad.

TABLE H-7

ALTITUDE AND COORDINATE DATA SUMMARY FOR SAMPLE LOCATIONS SEQUENTIAL LISTING BY TYPE OF SAMPLE LOCATION

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates North (Feet)	Horizontal Coordinates East (Feet)	Site
Monitoring Wells (Phase II, Stage I)					
MW 1	1433.40	1431.2	56539.8	629277.4	2
MW 2	1434.31	1432.2	56407.3	629210.8	2
MW 4	1437.46	1434.7	56085.1	629065.8	2
MW 5	1437.18	1434.1	55816.7	629048.8	2
MW 6	1436.01	1432.9	55796.9	628906.2	2
MW 7	1438.16	1435.6	55867.9	628757.1	2
MW 8	1414.83	1412.4	53565.1	623849.1	4
MW 9	1414.06	1412.4	53849.9	623848.3	4
MW 10	1413.70	1410.8	53672.4	623537.3	4
MW 11	1414.36	1411.4	53897.5	623283.6	4
Monitoring Wells (Phase II, Stage 2)[a]					
GW 2-A	1437.72	1434.6	55767.7	628710.8	2
GW 2-B	1436.25	1433.84	55993.3	629180.7	2
GW 2-C	1438.55	1436.17	56189.4	629002.6	2
GW 2-D	1429.55	1427.78	56546.5	629535.7	2
GW 2-E	1427.18	1426.25	56633.0	629427.3	2
GW 3-A	1423.84	1421.25	53520.3	622721.9	3
GW 3-B	1421.25	1418.92	53654.6	622662.3	3
GW 3-C	1419.59	1417.97	53616.9	622645.7	3
GW 3-D	1417.59	1416.23	53672.6	622723.8	3
GW 4-A	1413.27	1410.68	53455.0	623679.5	4
GW 4-B	1412.25	1409.83	53814.0	623300.9	4
GW 4-C	1416.29	1413.59	53987.0	623339.4	4
GW 4-D	1417.17	1414.62	54047.2	623550.2	4
GW 8-A	1414.36	1412.62	53806.7	624645.5	8
GW 8-B	1414.96	1412.15	53850.1	624344.7	8
GW 8-C	1415.97	1413.22	53579.8	624529.9	8
GW 10-A	1411.06	1407.90	55997.8	624565.7	10
GW 10-B	1410.09	1438.02	56286.0	624522.4	10
GW 10-C	1407.53	1405.73	56319.5	624412.6	10

TABLE H-7 (continued)

ALTITUDE AND COORDINATE DATA SUMMARY FOR SAMPLE LOCATIONS SEQUENTIAL LISTING BY TYPE OF SAMPLE LOCATION

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates		Site
			North (Feet)	East (Feet)	
Monitoring Wells (RI)					
DANGB-2-MW12A		1425.22	56642.3	629408.0	2
DANGB-2-MW13A		1434.65	55776.3	628716.3	2
DANGB-8-MW14	1414.26	1412.2	53343.6	624842.2	8
DANGB-8-MW15	1414.56	1412.2	53333.6	624840.2	8
DANGB-8-MW16	1413.32	1410.5	53318.9	624477.7	8
DANGB-8-MW17	1412.90	1410.3	53308.3	624477.9	8
DANGB-8-MW18A		1412.75	53569.1	624528.5	8
DANGB-8-MW19A		1412.29	53809.0	624634.3	8
DANGB-8-MW20A		1411.46	53889.7	624339.6	8
DANGB-4-MW21	1414.40	1411.7	53848.6	623851.6	4
DANGB-4-MW22	1416.16	1413.5	54038.6	623548.7	4
DANGB-4-MW23	1415.39	1412.9	53996.0	623338.5	4
DANGB-4-MW24	1412.97	1410.5	53676.1	623504.8	4
DANGB-3-MW25	1415.14	1412.2	53821.6	623054.8	3
DANGB-3-MW26	1415.23	1412.7	53822.8	623048.6	3
DANGB-3-MW27	1415.79	1413.0	53874.3	622844.9	3
DANGB-3-MW28	1412.47	1409.8	53840.0	622545.3	3
DANGB-3-MW29	1416.96	1414.4	53696.4	622858.6	3
DANGB-3-MW30	1419.78	1417.0	53492.6	622863.8	3
DANGB-3-MW31	1421.61	1419.5	53423.3	622748.5	3
DANGB-BG-MW32	1428.40	1426.9	53377.5	622511.1	Area
DANGB-3-MW33	1420.64	1418.3	53559.5	622523.4	3
DANGB-3-MW34	1420.65	1418.3	53557.7	622529.0	3
DANGB-3-MW35	1415.91	1413.1	53794.2	622686.1	3
DANGB-2-MW37	1428.97	1426.4	56079.2	629533.8	2
DANGB-2-MW38	1433.97	1431.4	55780.8	629341.2	2
DANGB-2-MW39	1430.20	1427.4	55547.0	628993.0	2
DANGB-2-MW40	1431.11	1428.4	55593.7	629629.5	2
DANGB-2-MW41	1434.46	1432.0	55996.1	628364.7	2
DANGB-BG-MW42	1419.68	1416.8	54351.0	619896.2	Area
DANGB-BG-MW43	1406.99	1404.6	52548.8	628808.2	Area
Well Points (RI)					
DANGB-2-WP6	1420.63	1418.1	56970.8	629042.7	2
DANGB-2-WP7	1426.49	1424.0	56367.1	628656.9	2
DANGB-2-WP7D	1426.19	1423.8	56369.5	628654.0	2
DANGB-2-WP8	1419.51	1417.5	56638.0	629755.5	2

TABLE H-7 (continued)
ALTITUDE AND COORDINATE DATA SUMMARY FOR SAMPLE LOCATIONS
SEQUENTIAL LISTING BY TYPE OF SAMPLE LOCATION

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates		Site
			North (Feet)	East (Feet)	
Well Points (RI) (continued)					
DANGB-8-WP9	1414.68	1412.3	53209.6	624260.2	8
DANGB-8-WP9D	1415.42	1412.5	53204.6	624258.2	8
DANGB-8-WP10	1415.61	1413.2	53646.3	624089.0	8
DANGB-8-WP10D	1415.72	1413.3	53646.1	624082.7	8
DANGB-8-WP11	1416.48	1413.6	53301.2	623927.2	8
DANGB-4-WP12	1417.01	1414.8	54106.6	624211.6	4
DANGB-4-WP12D	1417.04	1414.8	54106.5	624215.9	4
DANGB-4-WP13	1419.08	1416.8	54118.7	623808.3	4
DANGB-4-WP13D	1419.13	1416.7	54118.7	623815.4	4
DANGB-4-WP14	1418.02	1415.6	54130.7	623319.3	4
DANGB-4-WP14D	1418.01	1415.8	54131.2	623324.6	4
DANGB-4-WP15	1418.76	1416.6	54142.9	622938.8	4
DANGB-4-WP15D	1418.71	1416.6	54143.0	622943.8	4
DANGB-4-WP16	1415.52	1413.1	53377.2	623240.3	4
Soil Borings					
DANGB-2-BH1		1430.99	56422.5	629357.4	2
DANGB-2-BH2		1431.05	56408.8	629322.6	2
Soil Gas Grid Locations					
DANGB-3-SGB2		1418.00	53577.2	622675.8	3
DANGB-3-SGE1		1412.21	53604.9	622995.4	3
DANGB-3-SGE5		1415.05	54059.9	622793.4	3
DANGB-3-SGD3		1415.02	53752.4	622820.0	3
DANGB-3-SGE3		1414.69	53775.3	622874.5	3
Soil Sample Grid Locations					
DANGB-8-SSA0		1412.04	53508.2	624291.7	8
DANGB-8-SSA3		1412.14	53807.7	624276.7	8
DANGB-8-SSF3		1411.75	53791.4	624776.5	8
Surface Water and Sediment (RI)					
DANGB-BG-SL1		1384.94[b]	63743.6	628581.8	Area
DANGB-BG-SL2		1382.86[b]	63614.5	623864.8	Area
DANGB-BG-SL3		1394.74[c]	59146.7	623777.9	Area
DANGB-BG-SL4		1367.75[c]	53199.5	631551.3	Area
DANGB-BG-SL5		1396.99d	50537.9	626419.9	Area
DANGB-2-SL6		1409.73[b]	56732.6	629761.3	2
DANGB-2-SL7		1413.52[b]	56341.3	629910.6	2

TABLE H-7 (continued)

ALTITUDE AND COORDINATE DATA SUMMARY FOR SAMPLE LOCATIONS SEQUENTIAL LISTING BY TYPE OF SAMPLE LOCATION

Sample Location	Water-Level Measuring Point Altitude (Feet)	Ground Surface Altitude (Feet)	Horizontal Coordinates North (Feet)	Horizontal Coordinates East (Feet)	Site
Surface Water and Sediment (RI)					
DANGB-3-SL8		1410.51[e]	53655.1	622806.3	3
DANGB-3-SL9		1411.22[e]	53693.5	622681.8	3
DANGB-3-SL10		1411.37[e]	53550.1	622791.2	3
DANGB-4-SL11		1402.61[d]	53921.7	623451.9	4
DANGB-4-SL12		1402.86[d]	53920.5	623614.4	4
DANGB-4-SL13		1403.54[d]	53910.7	623827.6	4
DANGB-4-SL14		1406.45[d]	53720.1	623892.4	4
DANGB-4-SL15		1407.95[d]	53655.8	623524.5	4
DANGB-4-SL16		1407.37[d]	55733.3	623329.9	4
DANGB-8-SL17		1407.86[e]	53894.3	624287.3	8
DANGB-8-SL18		1409.31[e]	53842.5	624534.0	8
DANGB-8-SL19		1408.55[e]	53833.3	624746.7	8

a. Elevation on top of 4 inch thick concrete pad.
b. Elevation of water surface on September 23, 1988.
b. Elevation of water surface on September 30, 1988.
b. Elevation of water surface on November 3, 1988.
b. Elevation of water surface on October 7, 1988.

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APPENDIX I
GROUND-WATER LEVEL MEASUREMENT SUMMARY

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APPENDIX I
TABLE OF CONTENTS

APPENDIX I
LIST OF TABLES

SECTION I.1
INTRODUCTION

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SECTION I.1
INTRODUCTION

Ground-water level data were collected on four occasions. The first three rounds of measurements took place during the 1988 summer field season. The fourth round took place during the second sampling round at Site 10 in February, 1989. The first set of water-level measurements was collected on July 28, 1988, from wells at Sites 2, 3, 4, and 8 installed during prior investigations. See Section 1 for description of these locations. The second set of water-level data was collected from all the pre-existing wells at Sites 2, 3, 4, and 8 and all the new wells completed by August 22, 1988. A third set of water-level measurements was collected from all wells at Sites 2, 3, 4, 8, and 10 on September 27, 1988. The fourth set of measurements was collected from all but three wells at Sites 2, 3, 4, 8 and 10 on February 26, 27 and 28, 1989. The exceptions were monitoring well MW 11 and well points DANGB-4-WP14D and DANGB-4-WP14 which could not be found due to depth of snow cover.

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SECTION I.2

GROUND-WATER LEVEL MEASUREMENT DATA

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SECTION I.2

GROUND-WATER LEVEL MEASUREMENT DATA

Ground-water level data are listed in the table that follows along with water level altitudes computed from the data. In this table, column headings have the following meaning:

Site:	The site in which the monitoring well or well point is located.
Well No.:	The well identifier.
Measurement Date:	The date of measurement.
Measurement Time:	The time of measurement.
Depth to Water from Top of Casing (TOC):	The distance in feet from the measuring point to the water surface.
Altitude of Measuring Point:	The altitude of the measuring point, in feet above National Geodetic Vertical Datum of 1929 (NGVD).
Altitude of Water Level:	The altitude of the water surface, in feet above NGVD.

TABLE I-1

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
2	MW-1	7/28/88	10:31	15.32	1433.40	1418.08
		8/22/88	08:43	15.57		1417.83
		9/27/88	11:45	15.00		1418.40
		2/27/89	15:54	14.02		1419.38
2	MW-2	7/28/88	10:55	12.56	1434.31	1421.75
		8/22/88	08:35	12.57		1421.74
		9/27/88	11:43	11.25		1423.06
		2/27/89	15:46	10.93		1423.38
2	MW-4	7/28/88	11:30	12.97	1437.46	1424.09
		8/22/88	09:35	10.41		1427.05
		9/27/88	11:18	7.00		1430.46
		2/27/89	15:19	9.13		1428.05
2	MW-5	7/28/88	11:45	20.14	1437.18	1417.04
		8/22/88	10:05	8.27		1428.91
		9/27/88	11:08	3.92		1433.26
		2/26/89	16:15	6.82		1430.36
2	MW-6	7/28/88	12:09	13.02	1436.01	1422.99
		8/22/88	10:01	07.15		1428.86
		9/27/88	11:10	3.33		1432.68
		2/26/89	15:55	3.26		1432.75
2	MW-7	7/28/88	12:30	11.00	1438.16	1427.16
		8/22/88	09:51	7.50		1430.66
		9/27/88	10:52	5.23		1432.93
		2/26/89	16:50	9.06		1429.10

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
2	GW 2-A	7/28/88	12:21	11.41	1437.72	1426.31
		8/22/88	09:56	8.84		1428.88
		9/27/88	10:49	5.85		1431.84
		2/26/89	15:35	9.88		1427.84
2	GW 2-B	7/28/88	11:58	10.62	1436.25	1425.63
		8/22/88	10:08	8.44		1427.81
		9/27/88	11:37	4.96		1431.29
		2/26/89	16:30	5.73		1430.52
2	GW 2-C	7/28/88	11:17	13.99	1438.55	1424.56
		8/22/88	09:31	12.48		1426.07
		9/27/88	11:17	7.91		1430.64
		2/27/89	14:50	10.54		1428.01
2	GW 2-D	7/28/88	09:30	13.57	1429.55	1415.98
		8/22/88	08:56	13.81		1415.74
		9/27/88	11:50	13.41		1416.14
		2/27/89	16:10	13.22		1416.33
2	GW 2-E	7/28/88	10:12	12.93	1427.18	1414.25
		8/22/88	08:50	12.70		1414.48
		9/27/88	11:48	12.29		1414.89
		2/27/89	16:02	11.92		1415.26
2	DANGB-2-MW37	8/22/88	10:17	4.75	1428.97	1424.22
		9/27/88	11:55	3.66		1425.31
		2/26/89	16:02	11.92		1415.26

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
2	DANGB-2-MW38	8/22/88	10:12	7.99	1433.97	1425.98
		9/27/88	11:39	4.57		1429.40
		2/26/89	16:25	9.29		1424.68
2	DANGB-2-MW39	8/22/88	10:24	9.72	1430.20	1420.48
		9/27/88	11:03	4.42		1425.78
		2/26/89	16:05	7.52		1422.68
2	DANGB-2-MW40	8/22/88	10:35	8.60	1431.11	1422.51
		9/27/88	10:59	5.77		1425.34
		2/26/89	15:45	8.02		1423.09
2	DANGB-2-MW41	8/22/88	9:43	10.63	1434.48	1423.85
		9/27/88	10:41	8.10		1426.38
		2/26/89	15:30	7.70		1426.78
2	DANGB-2-WP6	8/22/88	09:08	9.94	1420.63	1410.69
		9/27/88	11:24	8.19		1412.44
		2/27/89	15:33	8.27		1412.36
2	DANGB-2-WP7	8/22/88	09:25	3.46	1426.49	1423.03
		9/27/88	11:25	3.75		1422.74
		2/27/88	14:57	3.58		1422.91
2	DANGB-2-WP7D	8/22/88	09:22	3.33	1426.19	1422.86
		9/27/88	11:24	3.01		1423.18
		2/27/89	14:55	2.33		1423.86
2	DANGB-2-WP8	8/22/88	10:53	8.73	1419.51	1410.78
		9/27/88	12:11	7.29		1412.22
		2/27/89	16:38	9.77		1409.74

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
3	GW 3-A	7/27/88	16:35	13.60	1423.84	1410.24
		8/22/88	15:33	11.98		1411.86
		9/27/88	15:56	11.66		1412.18
		2/27/89	12:00	11.98		1411.86
3	GW 3-B	7/27/88	16:10	11.40	1421.25	1409.85
		8/22/88	15:26	9.82		1411.43
		9/27/88	15:28	8.97		1412.28
		2/27/89	13:02	9.57		1411.68
3	GW 3-C	7/27/88	15:55	9.24	1419.59	1410.35
		8/22/88	15:30	9.95		1409.64
		9/27/88	15:30	6.15		1413.44
		2/27/89	12:55	7.60		1411.99
3	GW 3-D	7/27/88	16:23	8.21	1417.59	1409.38
		8/22/88	15:22	6.40		1411.19
		9/27/88	15:25	6.01		1411.58
		2/27/89	13:37	6.63		1410.96
3	DANGB-3-MW25	9/27/88	14:55	6.84	1415.14	1408.30
		2/27/89	8:05	8.39		1406.75
3	DANGB-3-MW26	9/27/88	14:54	6.98	1415.23	1408.25
		2/27/89	8:00	8.72		1406.51
3	DANGB-3-MW27	9/27/88	14:52	5.33	1415.79	1410.46
		2/27/89	8:12	8.15		1407.64
3	DANGB-3-MW28	9/27/88	15:20	2.88	1412.47	1409.59
		2/27/89	13:15	2.42		1410.05

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
3	DANGB-3-MW29	9/27/88	14:58	5.79	1416.96	1411.17
		2/27/89	8:20	7.42		1409.54
3	DANGB-3-MW30	9/27/88	15:05	8.29	1419.78	1411.49
		2/27/89	12:20	8.78		1411.00
3	DANGB-3-MW31	9/27/88	15:08	9.58	1421.61	1412.03
		2/27/89	12:10	9.74		1411.87
3	DANGB-3-MW33	9/27/88	15:15	7.75	1420.64	1412.89
		2/27/89	12:43	8.18		1412.46
3	DANGB-3-MW34	9/27/88	15:17	6.62	1420.65	1414.03
		2/27/89	12:40	8.29		1412.36
3	DANGB-3-MW35	9/27/88	15:00	5.62	1415.91	1410.29
		2/27/89	13:23	7.00		1408.91
4	MW 8	7/29/88	9:24	8.23	1414.83	1406.60
		8/22/88	14:21	6.78		1408.05
		9/27/88	13:26	6.46		1408.37
		2/28/89	12:05	8.48		1406.35
4	MW 9	7/29/88	17:14	8.16	1414.06	1405.90
		8/22/88	14:27	6.49		1407.57
		9/27/88	13:28	6.20		1407.86
		2/28/89	14:50	8.79		1405.27
4	MW 10	7/29/88	9:38	7.14	1413.70	1406.56
		8/22/88	14:17	5.61		1408.09
		9/27/88	13:21	5.40		1408.30
		2/28/89	12:00	7.52		1406.18

TABLE I-1 (*continued*)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
4	MW 11	7/29/88	9:47	9.00	1414.36	1405.36
		8/22/88	15:03	7.83		1406.53
		9/27/88	13:55	7.40		1406.96
4	GW 4-A	7/28/88	10:00	9.13	1413.27	1404.14
		8/22/88	15:47	5.00		1408.27
		9/27/88	14:32	4.66		1408.61
		2/28/89	16:44	6.38		1406.89
4	GW 4-B	7/28/88	10:19	8.06	1412.25	1404.19
		8/22/88	15:39	5.70		1406.55
		9/27/88	14:48	5.04		1407.21
		2/28/89	9:25	6.20		1406.25
4	GW 4-C	7/28/88	17:53	11.53	1416.29	1404.76
		8/22/88	14:54	10.95		1405.34
		9/27/88	13:50	10.50		1405.79
		2/28/89	15:20	11.81		1404.48
4	GW 4-D	7/28/88	17:42	11.22	1417.17	1405.95
		8/22/88	14:48	10.59		1406.58
		9/27/88	13:46	9.80		1407.37
		2/28/89	15:10	11.39		1405.78
4	DANGB-4-MW21	8/22/88	14:32	7.30	1414.40	1407.10
		9/27/88	13:29	6.91		1407.49
		2/28/89	14:48	8.88		1405.52

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
4	DANGB-4-MW22	8/22/88	14:51	9.49	1416.16	1406.67
		9/27/88	13:45	8.77		1407.39
		2/28/89	15:05	10.13		1406.03
4	DANGB-4-MW23	8/22/88	[illegible]	7.72	1415.39	1407.67
		9/27/88	13:49	7.96		1407.43
		2/28/89	13:52	9.56		1405.83
4	DANGB-4-MW24	9/27/88	13:22	4.40	1412.97	1408.57
		2/28/89	14:02	6.56		1406.41
4	DANGB-4-WP11	9/27/88	14:35	9.83	1416.48	1406.65
		2/28/89	9:40	10.47		1406.01
4	DANGB-4-WP12	9/27/88	13:35	5.56	1417.01	1411.45
		2/28/89	11:28	8.73		1408.28
4	DANGB-4-WP12D	9/27/88	13:36	5.02	1417.04	1412.02
		2/28/89	11:30	8.88		1408.16
4	DANGB-4-WP13	9/27/88	13:42	8.96	1419.08	1410.12
		2/28/89	15:45	10.35		1408.73
4	DANGB-4-WP13D	9/27/88	13:41	9.96	1419.13	1409.17
		2/28/89	15:37	12.33		1406.80
4	DANGB-4-WP14	9/27/88	13:53	8.62	1418.02	1409.40
4	DANGB-4-WP14D	9/27/88	13:52	9.79	1418.01	1408.22
4	DANGB-4-WP15	9/27/88	13:59	7.74	1418.76	1411.02
		2/28/89	15:12	10.18		1408.58

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
4	DANGB-4-WP15D	9/27/88	13:58	8.59	1418.71	1410.12
		2/28/89	16:20	10.77		1407.94
4	DANGB-4-WP16	9/27/88	14:44	4.50	1415.52	1411.02
		2/28/89	9:16	5.91		1409.61
8	GW 8-A	7/29/88	10:49	8.90	1414.36	1405.46
		8/22/88	13:52	6.56		1407.80
		9/27/88	13:10	5.80		1408.56
		2/28/89	11:06	7.75		1406.61
8	GW 8-B	7/29/88	10:38	9.65	1414.96	1405.31
		8/22/88	13:59	6.63		1408.33
		9/27/88	13:07	5.02		1409.94
		2/28/89	11:10	8.42		1406.54
8	GW 8-C	7/29/88	11:00	10.85	1415.97	1405.12
		8/22/88	13:41	6.91		1409.06
		9/27/88	12:54	6.39		1409.58
		2/28/89	9:07	10.23		1405.74
8	DANGB-8-MW14	8/22/88	12:50	8.74	1414.26	1405.52
		9/27/88	12:50	8.83		1405.43
		2/28/89	8:26	10.25		1404.01
8	DANGB-8-MW15	8/22/88	12:47	10.14	1414.56	1404.42
		9/27/88	12:51	9.66		1404.90
		2/28/89	8:30	10.57		1403.99

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
8	DANGB-8-MW16	8/22/88	13:27	7.61	1413.32	1405.71
		9/27/88	12:57	7.33		1405.99
		2/28/89	8:45	8.44		1404.88
8	DANGB-8-MW17	8/22/88	13:31	8.25	1412.90	1404.65
		9/27/88	12:58	7.83		1405.07
		2/28/88	8.47	8.25		1404.65
8	DANGB-8-WP9	8/22/88	13:07	7.59	1414.68	1407.09
		9/27/88	14:39	8.75		1405.93
		2/28/89	9:50	9.39		1405.29
8	DANGB-8-WP9D	8/22/88	13:10	8.11	1415.42	1407.31
		9/27/88	14:38	8.99		1406.43
		2/28/89	9:46	10.12		1395.30
8	DANGB-8-WP10	8/22/88	14:11	5.80	1415.61	1409.81
		9/27/88	13:14	6.58		1409.03
		2/28/89	11:53	10.02		1405.59
8	DANGB-8-WP10D	8/22/88	14:08	7.11	1415.72	1408.61
		9/27/88	13:13	6.93		1408.79
		2/28/89	11:52	9.92		1405.80
10	GW 10-A	9/27/88	10:18	7.56	1411.06	1403.50
		2/26/88	2:00	9.33		1401.73
10	GW 10-B	9/27/88	10:10	9.93	1410.09	1400.16
		2/26/88	11:10	7.92		1402.17
10	GW 10-C	9/27/88	10:05	7.95	1407.53	1399.58
		2/26/88	8:50	8.23		1399.30

TABLE I-1 (continued)

GROUND-WATER LEVEL MEASUREMENT DATA

Site	Well No.	Measurement Date	Measurement Time	Depth to Water From TOC	Altitude of Measuring Point (feet)	Water Level Altitude (feet)
AREA	DANGB-BG-MW32	9/27/88	15:12	9.11	1428.40	1419.29
		2/27/89	12:30	10.02		1418.38
AREA	DANGB-BG-MW42	8/22/88	14:42	6.26	1419.68	1413.42
		9/27/88	16:57	3.67		1416.01
		2/28/89	14:25	3.46		1416.22
AREA	DANGB-BG-MW43	8/22/88	16:04	13.13	1406.99	1393.86
		9/27/88	12:43	12.40		1394.59
		2/28/89	10:42	12.61		1394.38

This is the end of Appendix I.

APPENDIX J
STREAMFLOW MEASUREMENT DATA SUMMARY

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APPENDIX J

TABLE OF CONTENTS

APPENDIX J

LIST OF FIGURES

SECTION J.1
INTRODUCTION

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SECTION J.1
INTRODUCTION

Streamflow measurements were made at surface water sampling locations wherever practical. The methodology used in making these measurements and the measurement computations are presented in this appendix.

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SECTION J.2
METHODS USED TO MEASURE STREAMFLOW

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SECTION J.2

METHODS USED TO MEASURE STREAMFLOW

Two methods were used to obtain streamflow measurements. Both a flow meter and a portable weir were used. Streamflow was measured by current meter techniques at surface water and sediment sampling sites DANGB-BG-SL-1, DANGB-BG-SL-2, and DANGB-BG-SL-4. A portable weir was used to obtain the streamflow measurement at DANGB-4-SL11.

J.2.1 Streamflow Measurements Using a Current Meter

Streamflow was computed from stream depth and velocity data collected by wading measurements. A pygmy type current meter was used to measure flow velocity for these computations.

The midsection method was used for computing streamflow (Figure J.1). This method assumes that the velocity at given locations represents the mean velocity in a partial rectangular area. The area extends laterally half the distance to each adjacent section from the water surface to the stream bottom.

The discharge through partial section 4 in Figure 1 using the midsection method is:

$$q_4 = V_4 \frac{b_5 - b_3}{2} d_4$$

where:

q_4 = discharge through partial Section 4, in cubic feet per second (cfs);

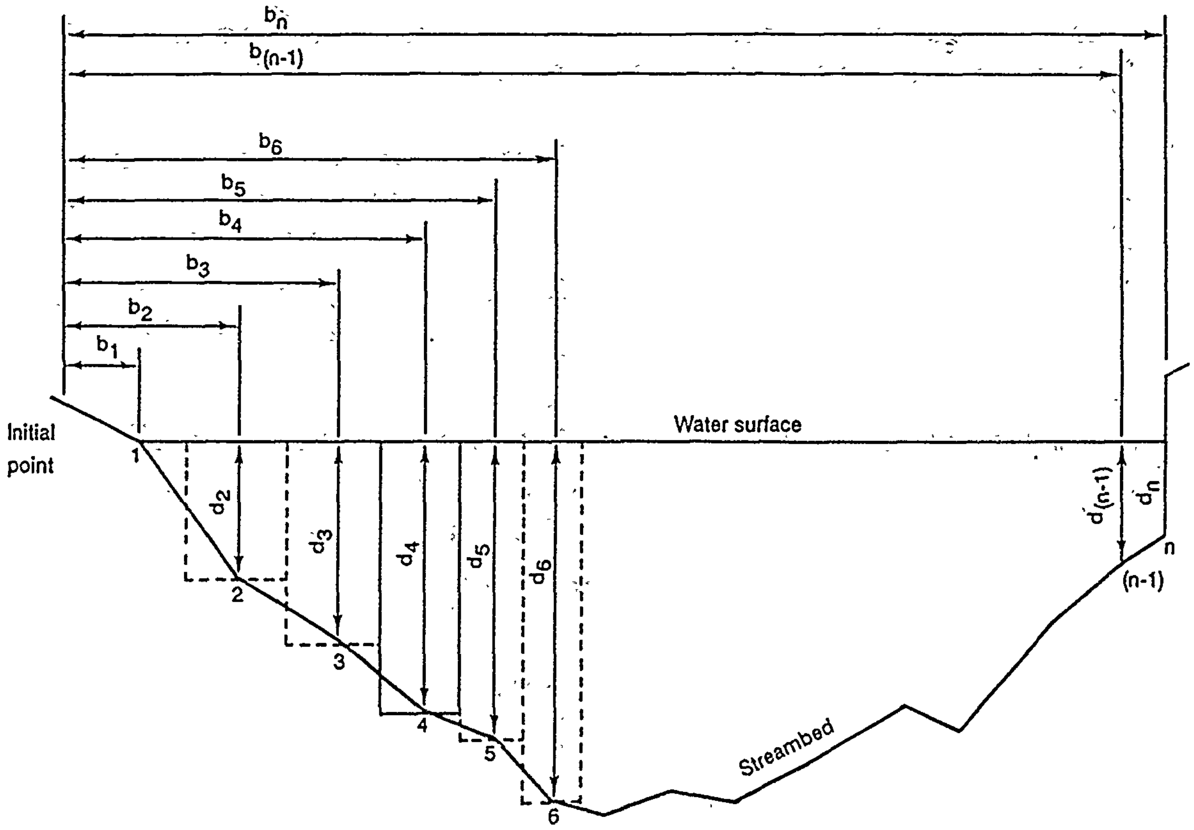
b_3, b_5 = measured distances from initial point to locations 3 and 5, respectively, in feet;

d_4 = measured depth at location 4, in feet; and

V_4 = mean velocity in the section, in feet per second.

The mean velocity in the section was determined by the six-tenths method. In this method, an observation of velocity is made at 0.6 of the depth below the surface in the vertical and is used as the mean velocity in the vertical. For Section 4 in Figure J.1, the mean velocity is that measured at a depth of 0.6 d_4.

Standard forms have been devised for computing streamflow using the above described procedures and were used on this project. Completed



EXPLANATION

1, 2, 3, ...n	Observation points.
$b_1, b_2, b_c, ... b_n$	Distance, in feet, from the initial points to the observation point.
$d_1, d_2, d_3, ... d_n$	Depth of water, in feet, at the observation point.
Dashed lines	Boundary of partial sections; one heavily outlined, discussed in text.

FIGURE J-1. Definition Sketch of Midsection Method for Computing Cross-Section Area for Discharge Measurements.

computational forms for streamflow measurements made at Duluth ANGB are presented in Section J.3.

J.2.2 Streamflow Through a Weir

A 90^{0} V-notch weir mounted in a one-foot long, six- inch diameter piece of PVC pipe with a faceplate graduated to different flow levels was used at location DANGB-BG-SL-11 to measure streamflow. Streamflow measurements were obtained by diverting the entire flow of the stream through the weir by constructing a dam to channel the flow through the pipe. A level on the weir was used to keep the pipe horizontal. The flow measurement was made by reading the discharge rate in gallons per day from the calibrated faceplate. This method is useful for streams with low discharge rates.

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SECTION J.3
STREAMFLOW MEASUREMENT DATA

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Meas. by MSR
Comp. by MSR
Calc. by MSR.
Checked by WTW

WGNU ______
Location SL1
Date Sept 25, 1988 Party M. Rodda K. Davis
Width 4.8 Area 656 Vel. 0 044 Mean GH ______ Disch. 0.29 cfs
Mean Depth 1.29 No. secs. 16 GH change – in ___ hrs
Type Meas. ______ Type Meter Pygmy Meter No. ______

GAGE READINGS				
Time	Tape	Weight	L.B.	R.B.
Time Started	11:25	[✓ LEW]	REW	
Time Stopped	12:05	LEW	[✓ REW]	

Susp. meter ___ ft. above bottom of weight

Drainage Ditch N. Side of Road
Cross Section Location:

[✓ Wading], cable, boat, upstream, downstr., side. bridge 40 [✓ feet], mile, above, [✓ below] Culvert, North of the road

Measurement Rating: Excellent, Good, [✓ Fair], Poor
Conditions: Cross Section Sandy regular bottom
Flow ______ Weather Clear and windy
Other ______ Air Temp. ___ ⊙ ___
______ Water Temp. ___ ⊙ ___

Reference Point ______

Bench Mark ______

Gage Datum ______ ft.

	Dist. from initial point	Width	Depth		Revolutions	Time in seconds	Velocity At point	Velocity Mean in vertical	Adjusted for hor. angle or	Area	Discharge
LEW	0	.15	1.20							0	0
	0 3	.3	1 20	.6	0	40	0			0 360	0
	0.6	.3	1 22	.6	0	40	0			0 366	0
	0.9	.3	1.29	.6	2	40	0 05			0 387	0 019
	1.2	.3	1.25	.6	5	45	0 11			0 375	0 041
	1.5	.3	1.38	.6	6	41	0 15			0.414	0.062
	1 8	.3	1 39	.6	7	44	0 16			0.417	0.067
	2.1	.3	1.32	.6	3	40	0 08			0 396	0.032
	2.4	.3	1.36	.6	1	40	0 03			0 408	0 012
	2 7	.3	1.41	.6	2	40	0.05			0.423	0.021
	3.0	.3	1.41	.6	3	40	0 08			0.423	0 034
	3.3	.3	1 42	.6	0	40	0			0.426	0
	3 6	.3	1.38	.6	0	40	0			0.414	0
	3.9	.3	1.20	.6	0	40	0			0 360	0
	4.2	.3	1.20	.6	0	40	0			0.360	0
	4 5	.3	1.28	.6	0	40	0			0.384	0
REW	4.8	.15	0.96	.6	0	40	0			0.144	0
	4.8	4.8								6.09	0.288

Meas. by MSR
Comp. by MSR
Calc. by MSR
Checked by DTJ

WOLUJ ______
Location SL2
Date Sept 25, 19 88 Party M Roddy, K Davis
Width 5.4 Area 3 42 Vel. 0.05 Mean G.H. ______ Dsch. 0.267
Mean Depth 0.65 No. secs. 18 G.H. change ____ in ____ hrs.
Type Meas. ________ Type Meter Pygmy Meter No. ______

GAGE READINGS				
Time	Tape	Weight	I. D.	G.H.
Time Started	1225	[✓ LEW]	NEW	
Time Stopped	1315	LEW	[✓ NEW]	

Susp. meter ____ ft. above bottom of weight

N. of road

Cross Section Location:

[✓ Wading], cable, boat, upstream, downstr., side.
bridge 50 [✓ feet] mile, above, [✓ below]
Culvert under road

Measurement Rating Excellent, Good, Fair, [✓ Poor]
Conditions: Cross Section uneven sand and mud with vegetation
Flow ______ Weather Sunny and windy
Other ______ Air Temp ____ ⊙ ____
______ Water Temp ____ ⊙ ____

Reference Point ______
Note: other branch of stream not measured, but
width and depth comparable to measured section and
flow from visual observation was less. Estimate
Bench Mark this flow at 0.1 cfs.

Gage Datum ______ ft.

[illegible]	Dist. from initial point	Width	Depth	[illegible]	Revolutions	Time in seconds	Velocity: At point	Velocity: Mean in vertical	Adjusted for hor. angle or	Area	Discharge
LEW	0	.15	0.59							0	0
	.3	.3	0.58	.6	0	40	0			0.174	0
	.6	.3	0.74	.6	0	40	0			0.222	0
	.9	.3	0.71	.6	0	40	0			0.213	0
	1.2	.3	0.64	.6	2	40	0.05			0.192	0.010
	1.5	.3	0.60	.6	6	46	0.13			0.180	0.023
	1.8	.3	0.60	.6	5	40	0.13			0.180	0.023
	2.1	.3	0.60	.6	6	42	0.14			0.180	0.025
	2.4	.3	0.60	.6	5	51	0.10			0.180	0.018
	2.7	.3	0.60	.6	6	45	0.13			0.180	0.023
	3.0	.3	0.61	.6	4	45	0.09			0.183	0.016
	3.3	.3	0.60	.6	4	40	0.10			0.180	0.018
	3.6	.3	0.72	.6	2	40	0.05			0.216	0.011
	3.9	.3	0.72	.6	0	40	0			0.216	0
	4.2	.3	0.72	.6	0	40	0			0.216	0
	4.5	.3	0.69	.6	0	40	0			0.207	0
	4.8	.3	0.70	.6	0	40	0			0.210	0
	5.1	.3	0.66	.6	0	40	0			0.198	0
	5.4	.15	0.64	.6	0	40	0			0.096	0
	5.4	5.4								3.423	0.167
											+0.1
											0.267

Meas. by MSR
Comp. by MSR
Calc. by MSR
Checked by VTV

WOHU ______
Location SL 4
Date Sept 23, 19 88 Party J. Hardeman, M. Raddy
Width 6.6 Area 9.16 Vel. 0.29 Mean G.H. ______ Disch. 2.61
Mean Depth 1.34 No. secs. 22 G.H. change ____ in ____ hrs.
Type Meas. ______ Type Meter Pygmy Meter No. ______

GAGE READINGS				
Time	Tape	Weight	I. D.	G. H.
Time Started	1330	LEW	NEW	
Time Stopped	1415	LEW	NEW	

Susp. meter ____ ft. above bottom of weight

Cross Section Location:

[✓ Wading], cable, boat, upstream, downstr., side.
bridge 70 [✓ feet], mile, [✓ above], below
Culvert on access road to Airport

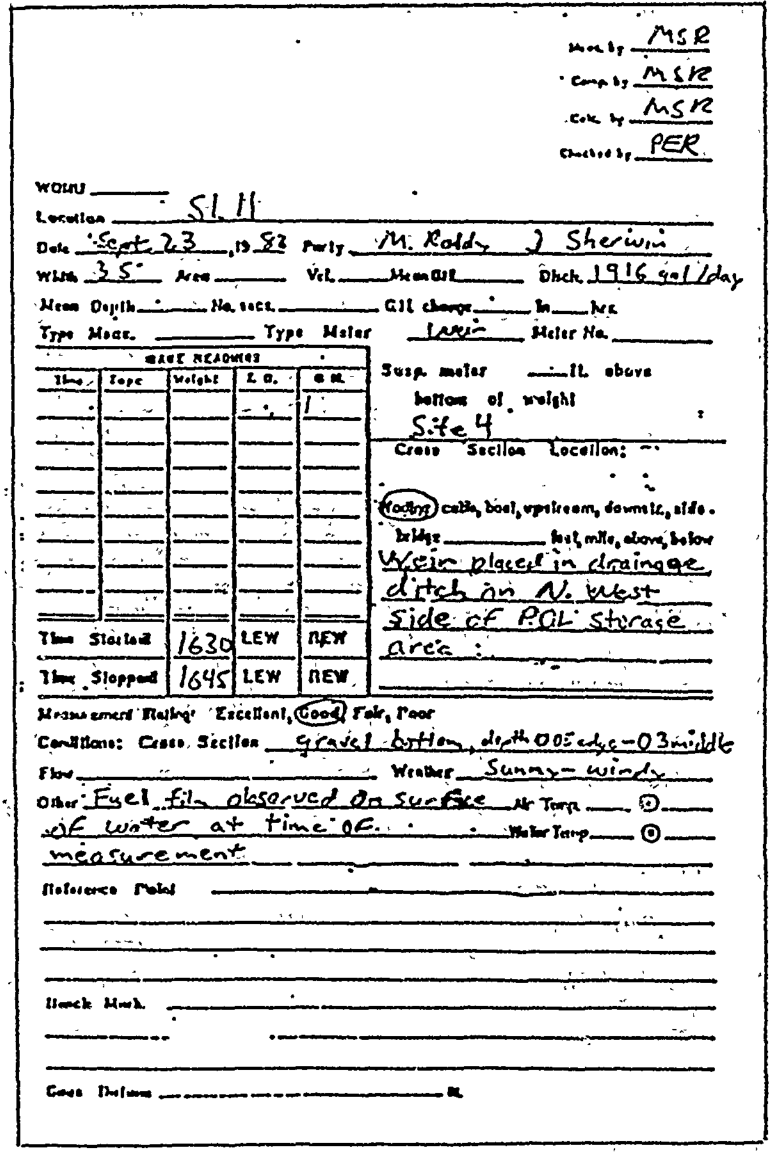
Measurement Rating: Excellent, [✓ Good], Fair, Poor
Conditions: Cross Section ______
Flow ______ Weather Sunny - windy
Other ______ Air Temp ____ °
______ Water Temp ____ °

Reference Point ______

Bench Mark ______

Gage Datum ______ ft.

[illegible]	Dist. from initial point	Width	Depth	[illegible]	Revolutions	Time in seconds	Velocity: At point	Velocity: Mean in vertical	Adjusted for hor. angle or	Area	Discharge
LEW	0	.15	.20	.6						0	0
	.3	.3	1.21	.6	0	40	0			0.363	0
	.6	.3	1.40	.6	0	40	0			0.420	0
	.9	.3	1.45	.6	5	40	0.13			0.435	0.057
	1.2	.3	1.56	.6	8	40	0.20			0.468	0.094
	1.5	.3	1.57	.6	14	44	0.32			0.471	0.151
	1.8	.3	1.66	.6	17	43	0.40			0.499	0.199
	2.1	.3	1.72	.6	24	43	0.56			0.516	0.289
	2.4	.3	1.68	.6	40	60	0.67			0.504	0.338
	2.7	.3	1.75	.6	30	43	0.70			0.525	0.368
	3.0	.3	1.70	.6	30	49	0.61			0.510	0.311
	3.3	.3	1.64	.6	31	41	0.76			0.492	0.374
	3.6	.3	1.62	.6	18	42	0.43			0.486	0.209
	3.9	.3	1.60	.6	9	43	0.21			0.480	0.101
	4.2	.3	1.59	.6	4	45	0.09			0.477	0.043
	4.5	.3	1.51	.6	1	40	0.03			0.453	0.014
	4.8	.3	1.42	.6	4	43	0.09			0.426	0.038
	5.1	.3	1.29	.6	3	57	0.05			0.387	0.019
	5.4	.3	1.14	.6	0	40	0			0.342	0
	5.7	.3	0.81	.6	0	40	0			0.243	0
	6.0	.3	0.84	.6	0	40	0			0.252	0
	6.3	.3	0.71	.6	0	40	0			0.213	0
REW	6.6	.15	0.67	.6	0	40	0			0.100	0
	6.6	6.6								9.062	2.605



Meas. by MSR
Comp. by MSR
Calc. by MSR
Checked by PER

WOUU ______
Location SI. 11
Date Sept. 23, 19 83 Party M. Roddy J. Sherwin
Width 3.5' Area ______ Vel. ______ Mean G.H. ______ Disch. 1916 gal/day
Mean Depth ______ No. sect. ______ G.H. change ______ in ___ hrs.
Type Meas. ______ Type Meter Weir Meter No. ______

GAGE READINGS				
Time	Tape	Weight	L. G.	G. H.
				1
Time Started		1630	LEW	REW
Time Stopped		1645	LEW	REW

Susp. meter ___ ft. above bottom of weight
Site 4

Cross Section Location:

[✓ Wading] cable, boat, upstream, downstr., side.
bridge ______ feet, mile, above, below
Weir placed in drainage ditch on N. West side of POL storage area.

Measurement Rating: Excellent, [✓ Good] Fair, Poor
Conditions: Cross. Section gravel bottom, depth 005 edge-03 middle
Flow ______ Weather Sunny-windy
Other Fuel film observed on surface of water at time of measurement Air Temp ___ ⊙ ___ Water Temp ___ ⊙ ___

Reference Point ______

Bench Mark ______

Gage Datum ______ ft.

APPENDIX K
GRAIN-SIZE ANALYSES

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APPENDIX K
TABLE OF CONTENTS

APPENDIX K

LIST OF FIGURES

APPENDIX K (continued)

LIST OF FIGURES

APPENDIX K
LIST OF TABLES

SECTION K.1
INTRODUCTION

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SECTION K.1
INTRODUCTION

Grain size analyses of soil samples provide a quantitative measure of the grain size distribution. The grain size distribution influences the permeability of the glacial aquifer and the ground-water flow within it. Grain size distribution curves are also useful in the interpretation of slug test results.

A total of twenty-one soil samples from five boreholes at four sites were analyzed for grain size distribution. Three boreholes from which soil samples were analyzed for grain size, DANGB-3-MW25, DANGB-4-MW22, and DANGB-8-MW16 were also slug tested to determine aquifer transmissivity and hydraulic conductivity. Samples from borehole DANGB-2-MW12A were analyzed for grain size. This hole is a twin to monitoring well GW 2-E at which a slug test was performed. Similarly, samples from borehole DANGB-8-MW20A were analyzed for grain size. This hole is a twin to monitoring well GW 8-A at which a slug test was performed.

Grain size analysis procedures are outlined in Section D.11 Appendix D Procedures and Test Methods.

The soil samples which were analyzed represent the lithology of the sampled interval. The majority of the samples are well graded mixtures of clay, silt and very fine to fine sand. Several samples are predominantly clay or sand gravel. In virtually all samples, pebbles which are common throughout the till increased the percentage of the sample above the 2 mm grain size measurement.

The grain size analysis results are presented graphically. A point on the graph is the percentage of the total sample (y-axis) which is smaller than a particular grain size (x-axis). For example, in Figure K-1, 68% of the total soil sample is less than 2 millimeters in diameter.

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SECTION K.2
RESULTS

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SECTION K.2
RESULTS

Grain size analyses of samples from monitoring wells at which slug tests were performed suggest that the base of the glacial till aquifer is the most permeable part of the aquifer. Hydraulic conductivity values for DANGB-3-MW25, DANGB-4-MW22, and DANGB-8-MW16 as computed from slug tests are similar and range from 1.5 to 2.2 gal/day/ft^2. The screens of these wells intersect the base of the till and the bedrock contact. The lowest hydraulic conductivity value (0.2 gal/day/ft^2) calculated from slug testing of monitoring well DANGB-3-MW34 was from a well screened entirely within silt and clay of the glacial aquifer. Similar slug test results for MW16, MW22, and MW25 and other wells may result from a zone of high permeability and dominant component of ground-water flow at the base of the glacial till aquifer.

Grain size distribution curves for samples within the screened intervals of DANGB-8-MW16, DANGB-4-MW22, and DANGB-3-MW25 are similar. Sand content increases near the base of the well. DANGB-8-MW16 had a higher sand content than DANGB-3-MW25 but the hydraulic conductivity value was similar. Perhaps ground-water movement is concentrated at the base of the glacial till aquifer, even in fine-grained sediment.

The grain size distribution of many soil samples was similar. Well graded mixtures of clay, silt, and fine sand were analyzed from soil samples as shown in Figures K-2, K-5 to K-7, and K-16 to K-20. These samples are probably the typical lithology of the glacial till aquifer and have a nearly identical grain size distribution. Other grain size samples are dominantly clay, location DANGB-4-MW22, depth of 5 to 15 feet (Figure K-8) or sand, location DANGB-8-MW16, depth of 24 to 25 feet (Figure K-15). Approximately 20-30% by weight of most samples consists of small pebbles and cobbles greater than 2 millimeters in diameter.

Grain size analysis of selected samples documents the poorly sorted nature of the mixture of clay, silt, sand and pebbles comprising the glacial till aquifer. Pure sand or clay layers are rare. The glacial till aquifer can be envisioned as a mixture of sediment with little sedimentary bedding and no predictable vertical or lateral change in lithology. An increase in grain size at the base of the glacial aquifer may support similar hydraulic conductivity values derived from slug tests for monitoring wells screened in this interval.

Porosity values of soil samples were derived from analysis of grain size distribution curves. The median grain size from the grain size curves was determined and the estimated porosity was found from a plot of median grain size vs. porosity for alluvium Davis and DeWiest, 1966. Porosity values ranged from 40.5 to 47 percent (Table K-1). A better measure of specific yield of the aquifer would be the effective porosity. Effective porosity refers to the amount of interconnected pore space through which water may be transmitted. Effective porosities for a silty clay range from 5 to 20%. Effective porosities for fine sand range from 25-35% (Davis and DeWiest, 1966 and Morris and Johnson, 1967). The abundance of clay in the aquifer material suggests that the effective porosity of the aquifer is on the average about 20%.

TABLE K-1

POROSITY VALUES

Location	Median Grain Size (mm)	Porosity[1]
DANGB-2-MW12A		
15 - 16	0.32	43.5
16 - 17.8	0.33	43.5
18.6 - 19.3	0.12	46
19.3 - 20.3	0.19	44.5
DANGB-3-MW25		
0 - 5	0.35	43.2
5 - 10	0.5	42
10 - 15	0.48	42.2
DANGB-4-MW22		
5 - 15	0.055	47.0
15 - 21	0.13	45.8
21 - 25	0.10	46.3
25 - 31	0.18	44.5
DANGB-8-MW16		
14 - 15	0.23	44.2
16 - 17	0.20	44.4
20 - 21	0.10	46.3
24 - 25	0.40	43.0
29 - 30	0.75	41.5
DANGB-8-MW20A		
6 - 7	0.22	44.2
7 - 8	0.30	43.6
8 - 9.5	0.21	44.4
9.5 - 10.3	0.40	43.0
10.5 - 11.5		

1. Values reflect estimated porosity.

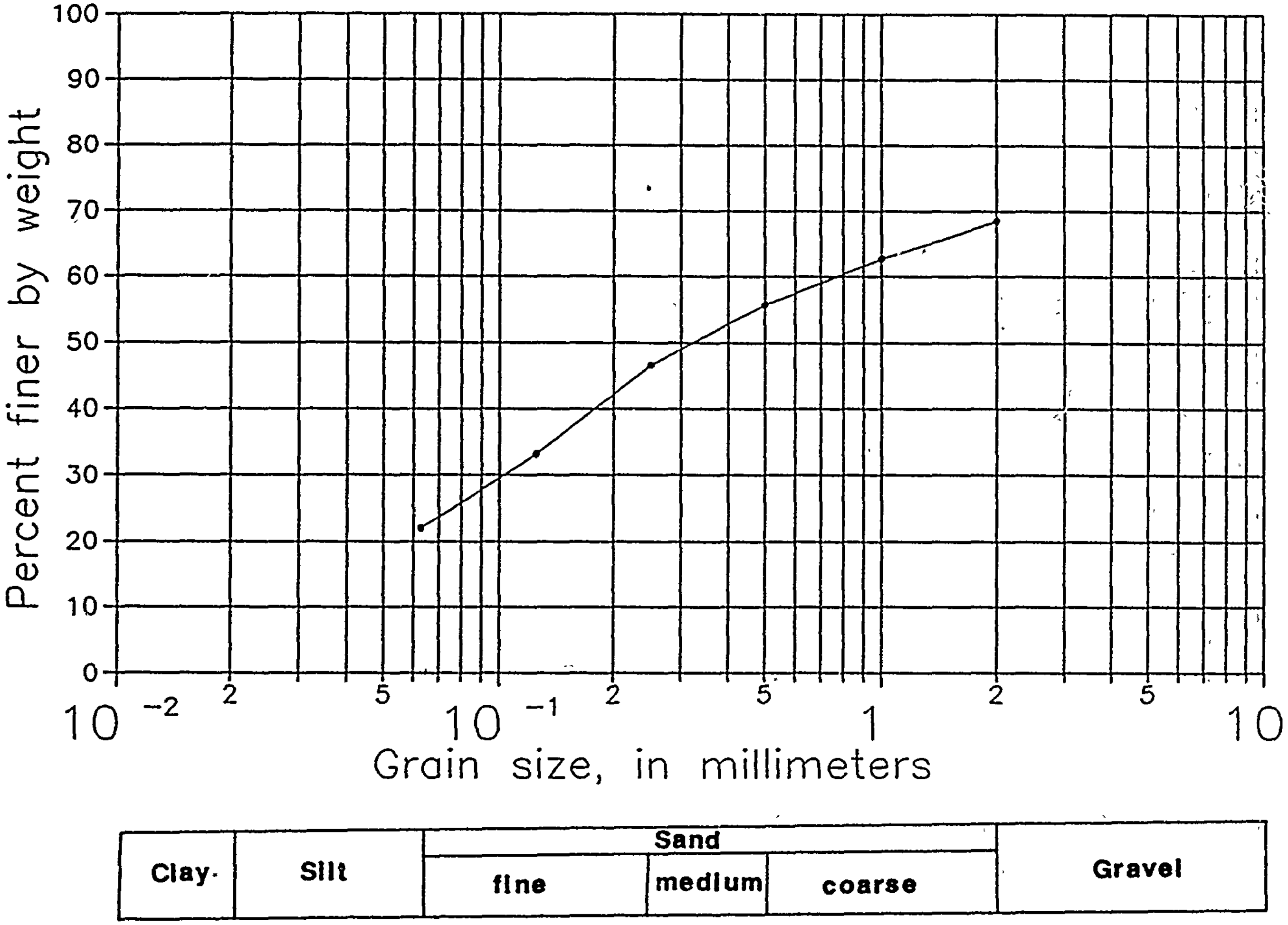

Figure K-1 Grain Size Distribution of Soil Sample From Site 2 Borehole DANGB-2-MW12A at a Depth of 15 to 16 Feet.

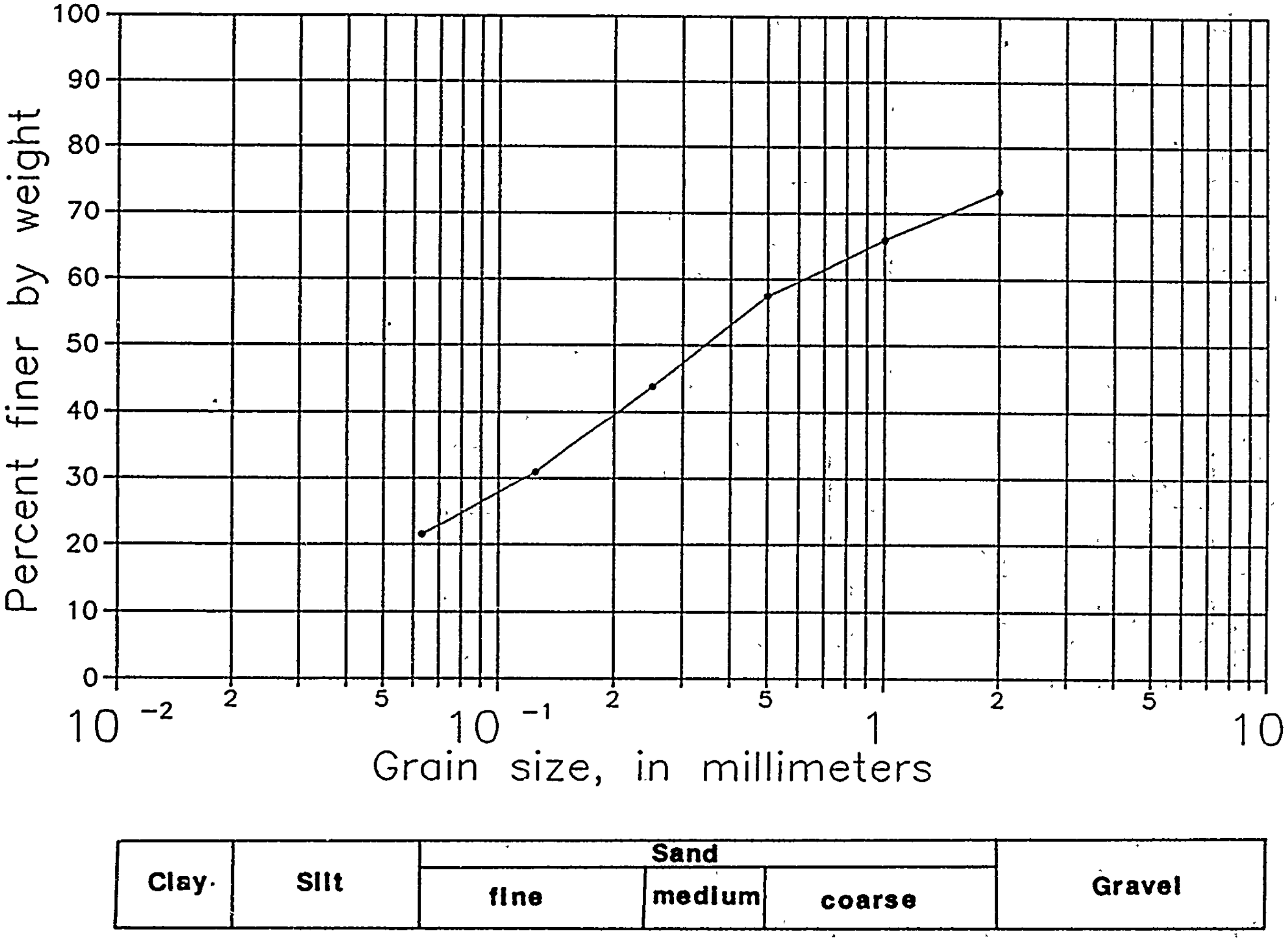

Figure K-2 Grain Size Distribution of Soil Sample From Site 2 Borehole DANGB-2-MW12A at a Depth of 16 to 17.8 Feet.

ES
ENGINEERING-SCIENCE, INC.

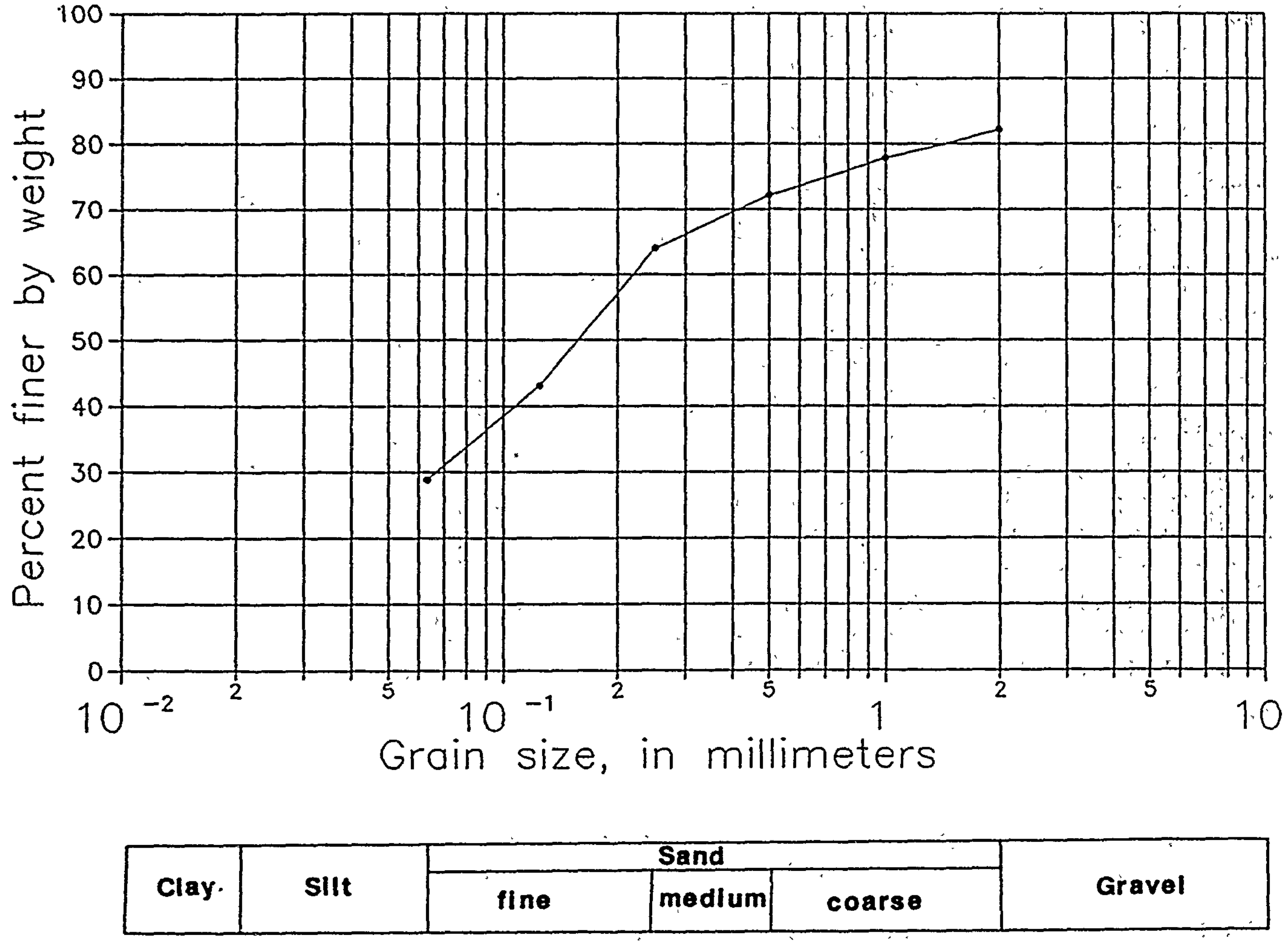

Figure K-3 Grain Size Distribution of Soil Sample From Site 2 Borehole DANGB-2-MW12A at a Depth of 18.6 to 19.3 Feet.

ES
ENGINEERING-SCIENCE, INC.

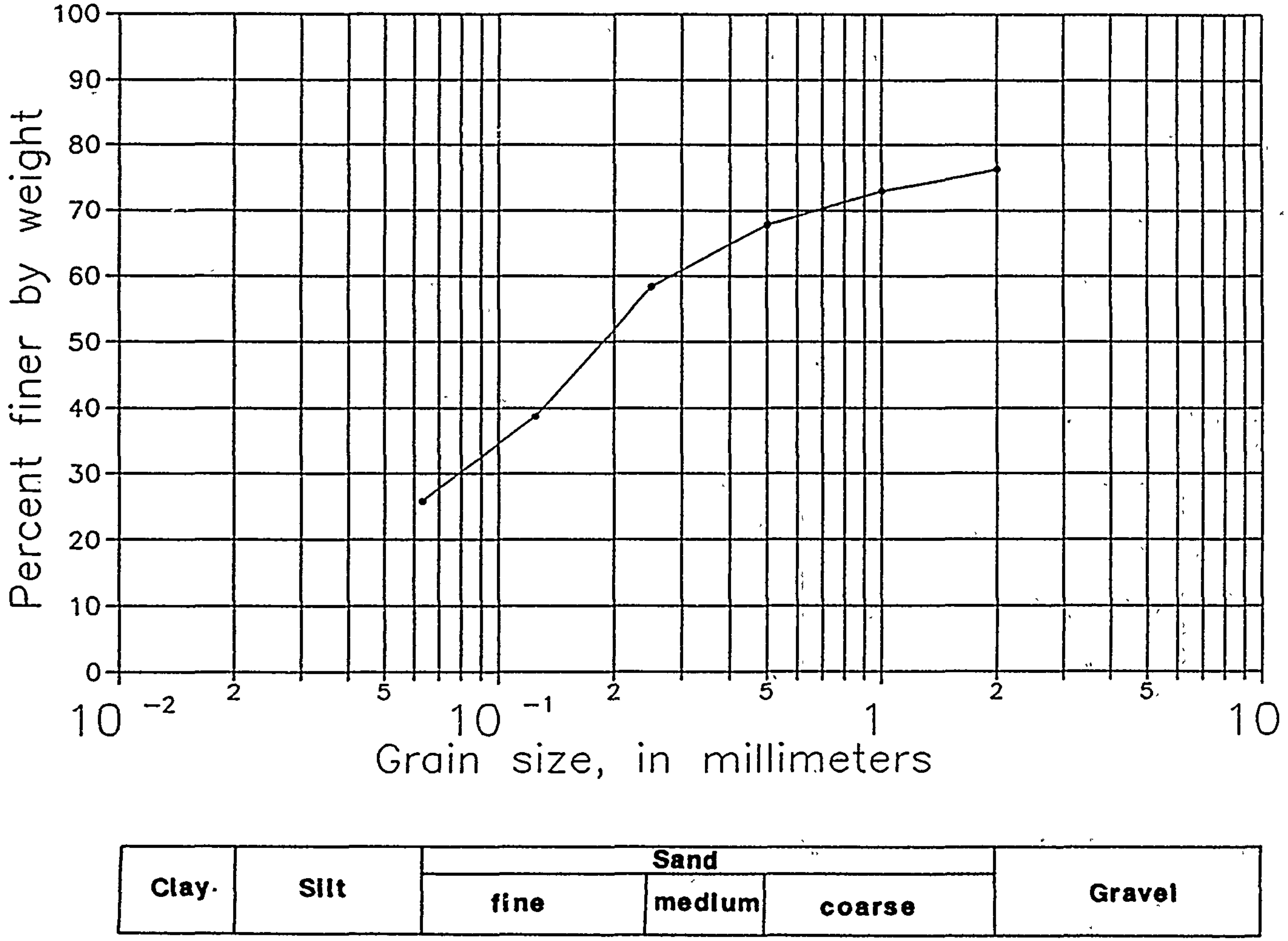

Figure K-4 Grain Size Distribution of Soil Sample From Site 2 Borehole DANGB-2-MW12A at a Depth of 19.3 to 20.3 Feet.

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ENGINEERING-SCIENCE, INC.

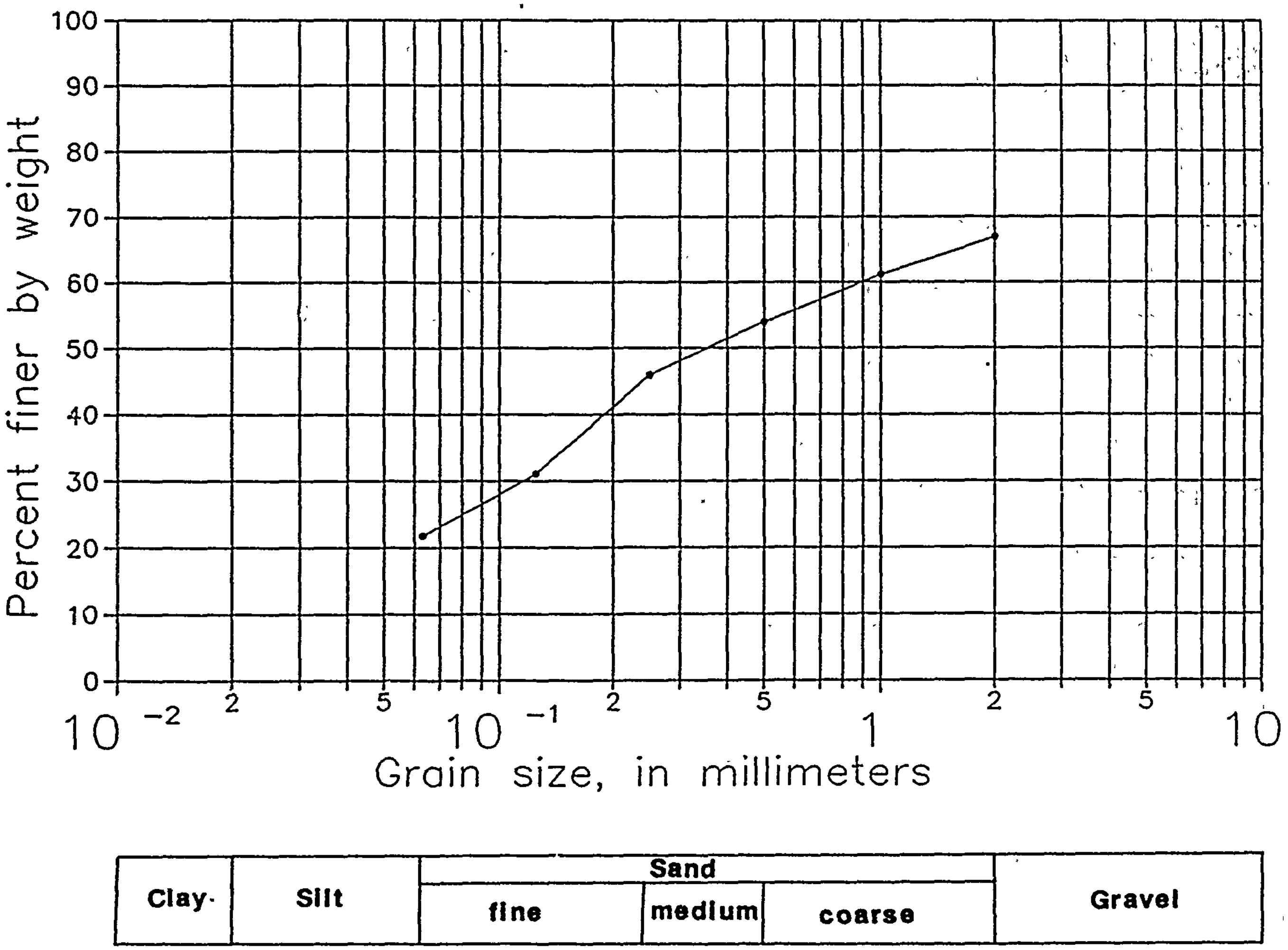

Figure K-5 Grain Size Distribution of Soil Sample From Site 3 Borehole DANGB-3-MW25 at a Depth of 0 to 5 Feet.

ES
ENGINEERING-SCIENCE, INC.

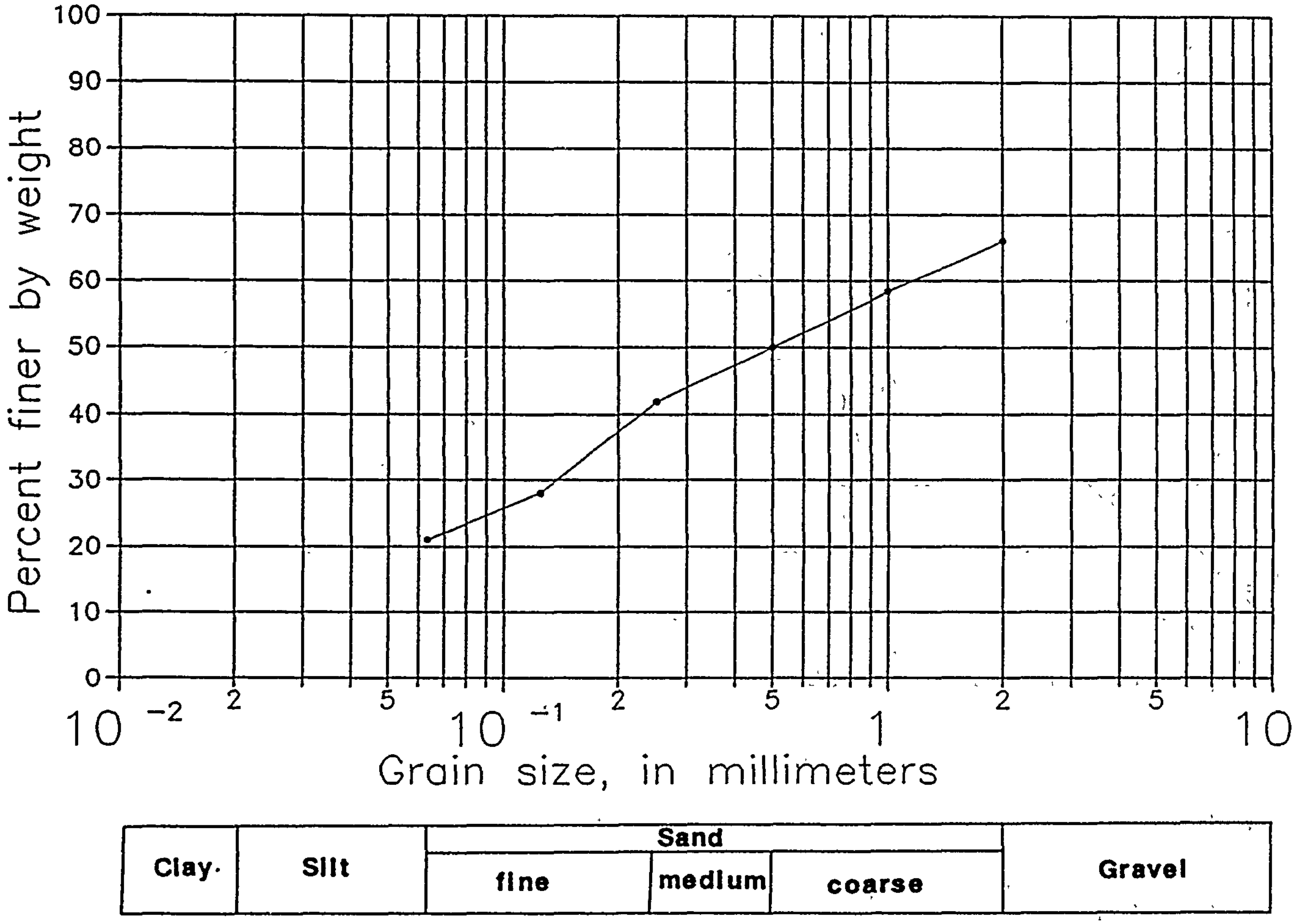

Figure K-6 Grain Size Distribution of Soil Sample From Site 3 Borehole DANGB-3-MW25 at a Depth of 5 to 10 Feet.

ES
ENGINEERING-SCIENCE, INC.

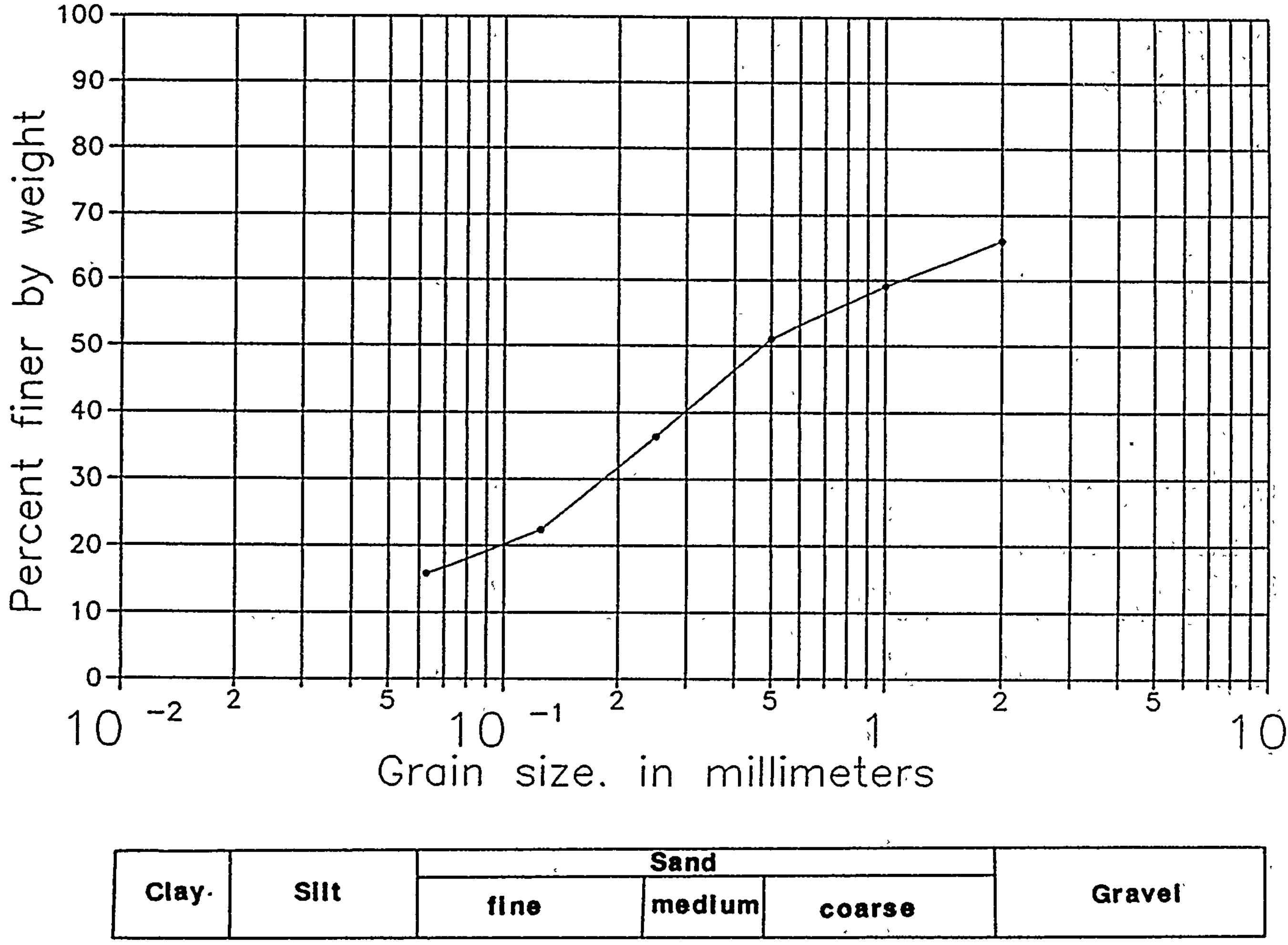

Figure K-7 Grain Size Distribution of Soil Sample From Site 3 Borehole DANGB-3-MW25 at a Depth of 10 to 15 Feet.

ES
ENGINEERING-SCIENCE, INC.

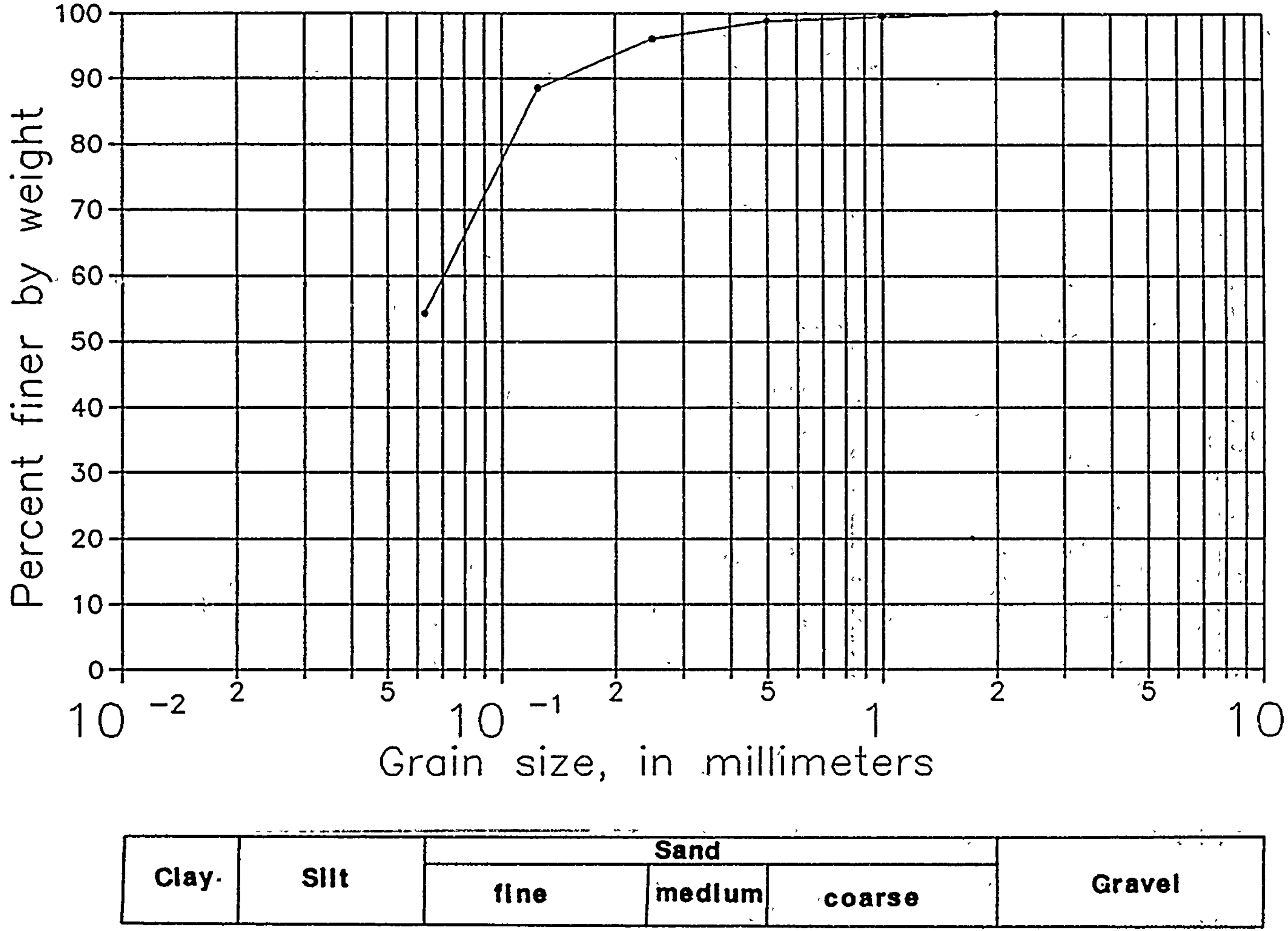

Figure K-8 Grain Size Distribution of Soil Sample From Site 4 Borehole DANGB-4-MW22 at a Depth of 5 to 15 Feet.

ES
ENGINEERING-SCIENCE, INC.

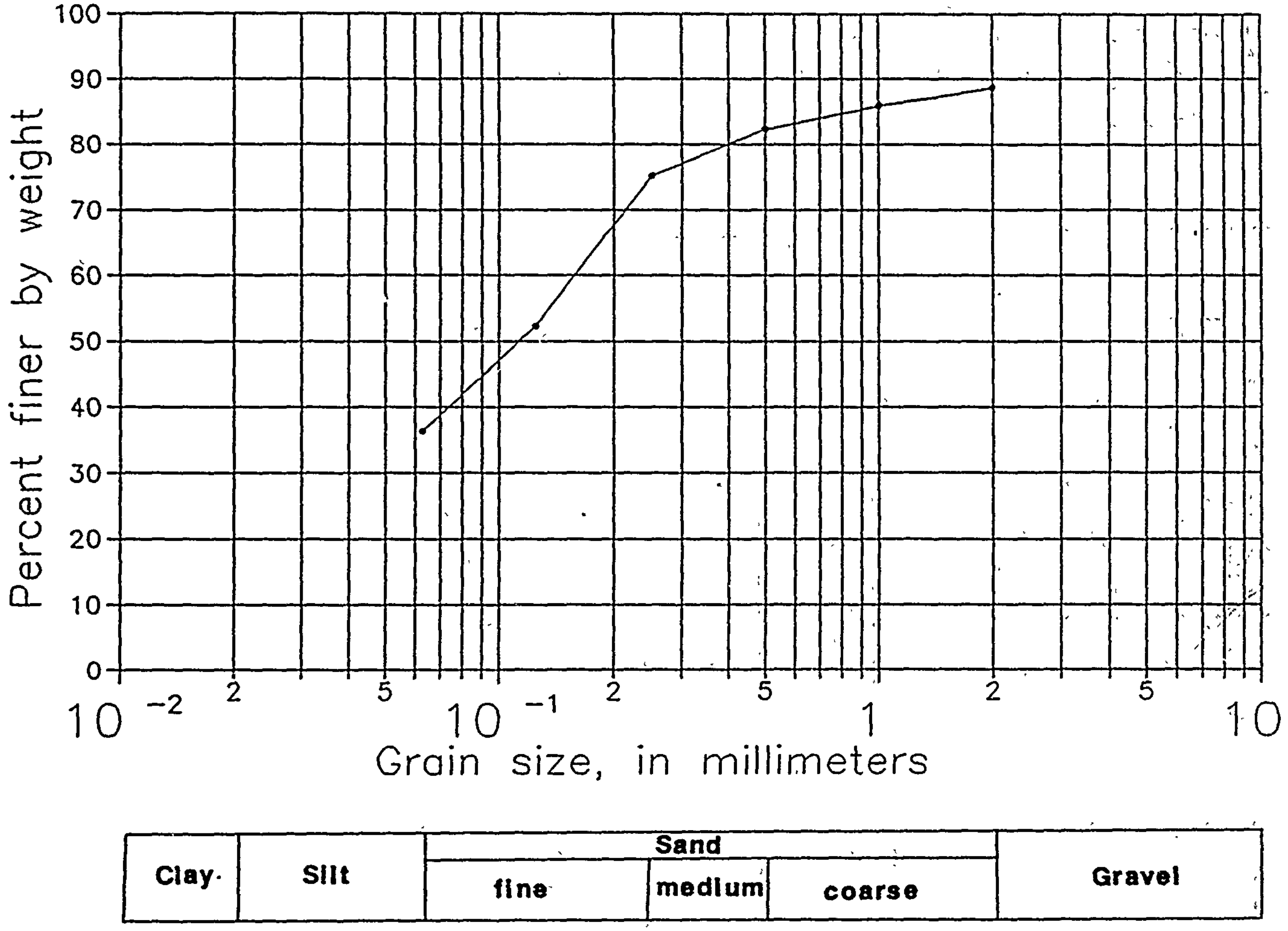

Figure K-9 Grain Size Distribution of Soil Sample From Site 4 Borehole DANGB-4-MW22 at a Depth of 15 to 21 Feet.

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ENGINEERING-SCIENCE, INC.

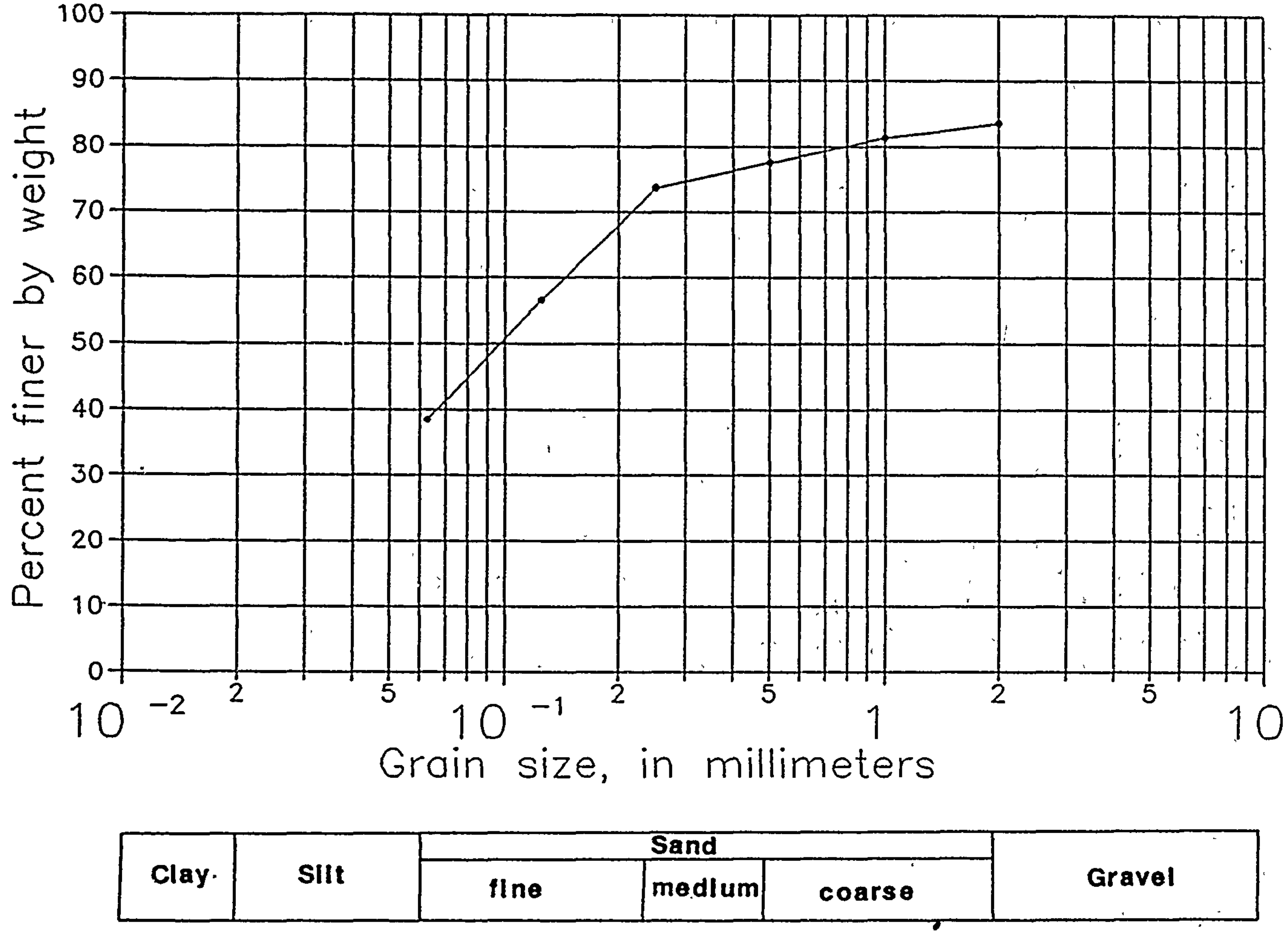

Figure K-10 Grain Size Analysis of Soil Sample From Site 4 Borehole DANGB-4-MW22 at a Depth of 21 to 25 Feet.

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ENGINEERING-SCIENCE, INC.

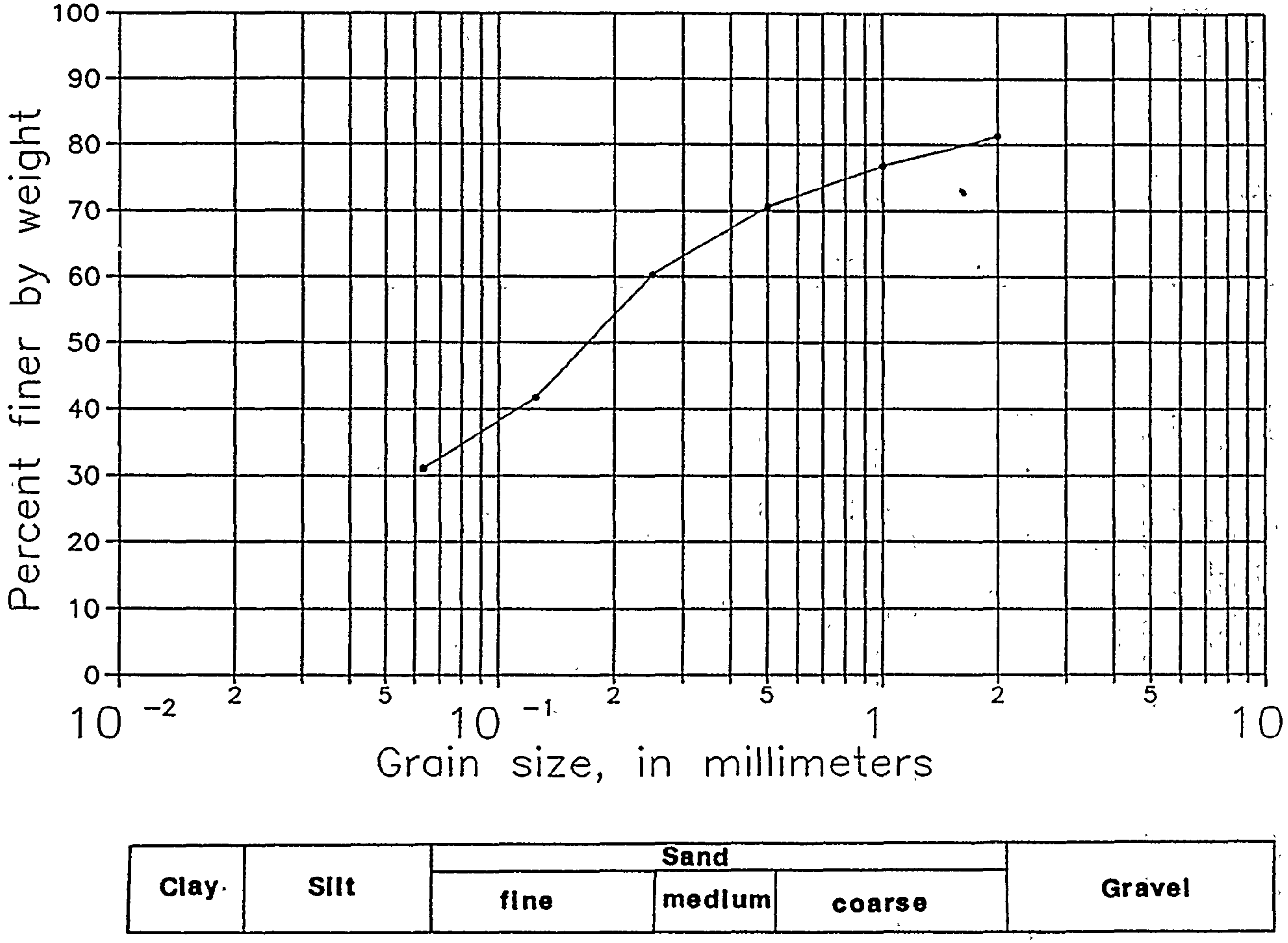

Figure K-11 Grain Size Distribution of Soil Sampling From Site 4 Borehole DANGB-4-MW22 at a Depth of 25 to 31 Feet.

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ENGINEERING-SCIENCE, INC.

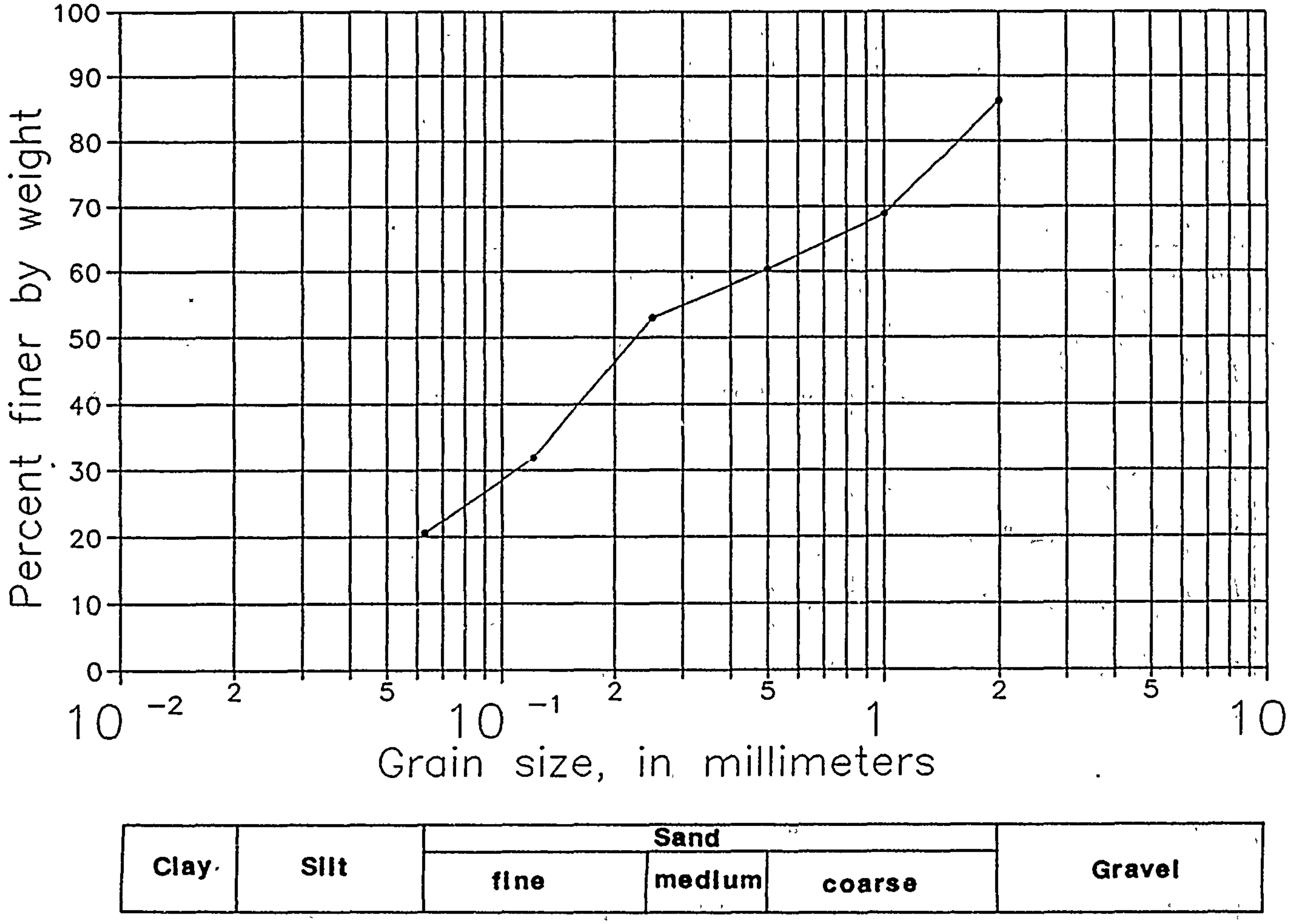

Figure K-12 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW16 at a Depth of 14 to 15 Feet.

ES
ENGINEERING-SCIENCE, INC.

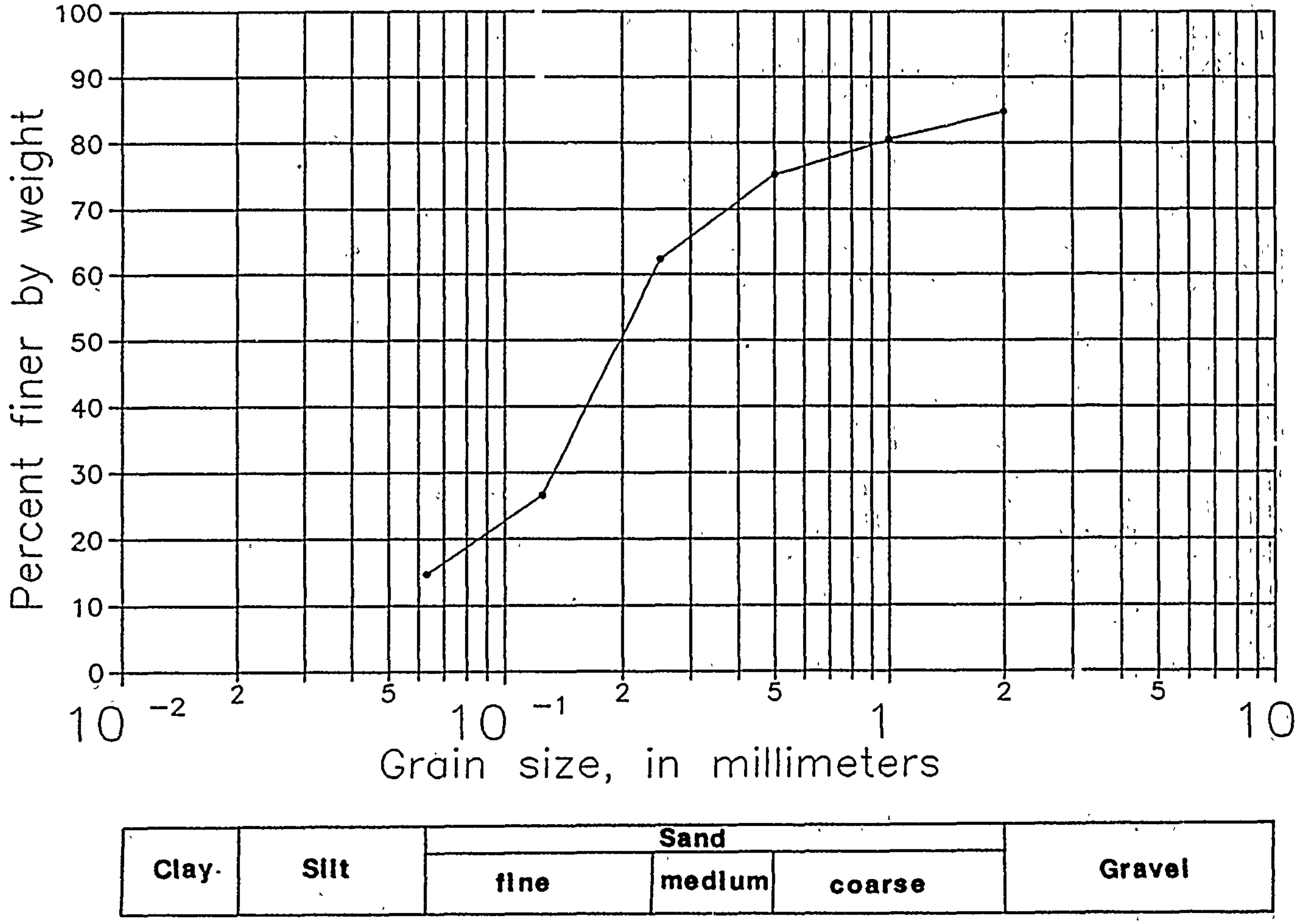

Figure K-13 Grain Size Distribution for Soil Sample From Site 8 Borehole DANGB-8-MW16 at a Depth of 16 to 17 Feet.

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ENGINEERING-SCIENCE, INC.

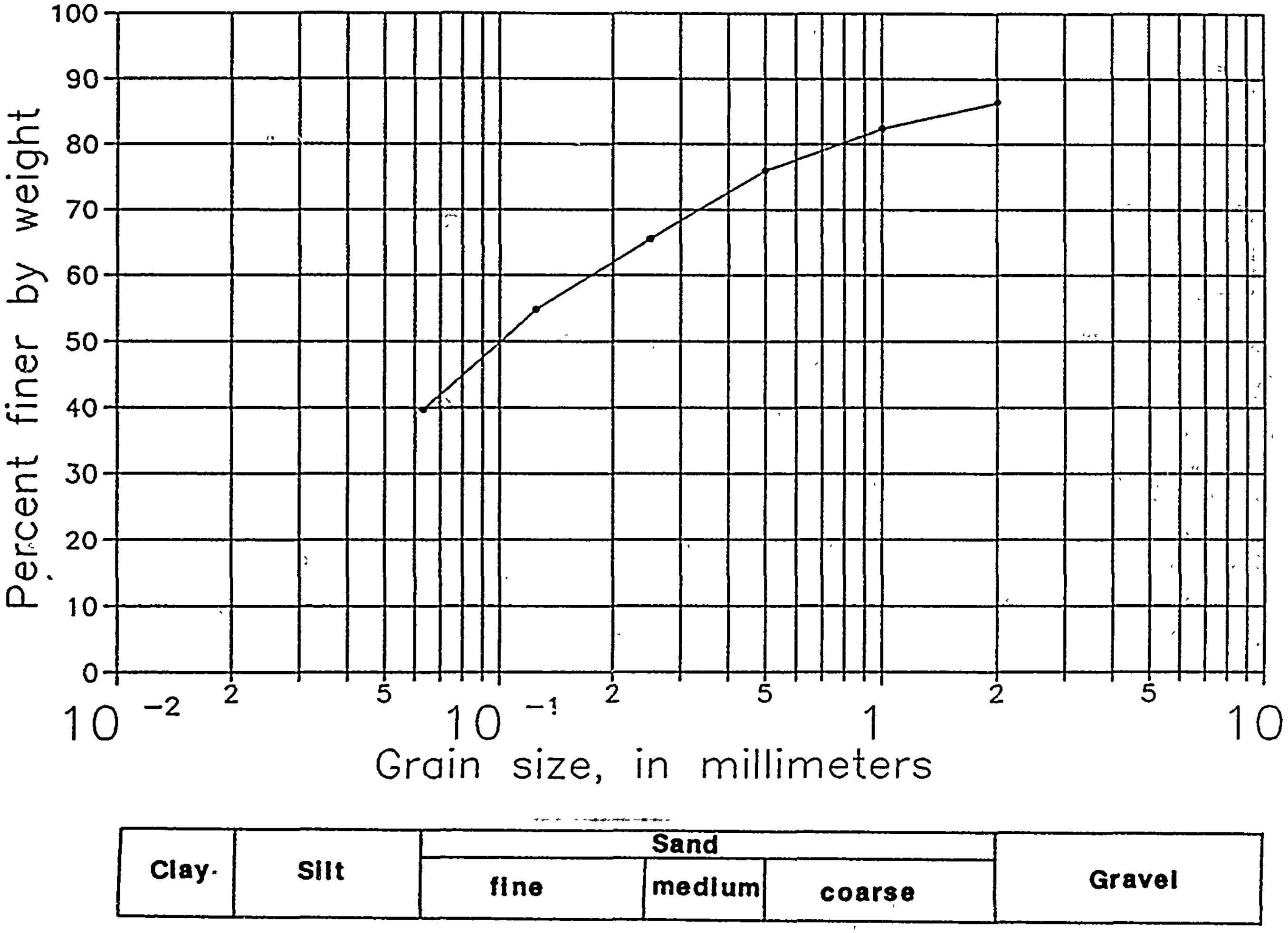

Figure K-14 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW16 at a Depth of 20 to 21 Feet.

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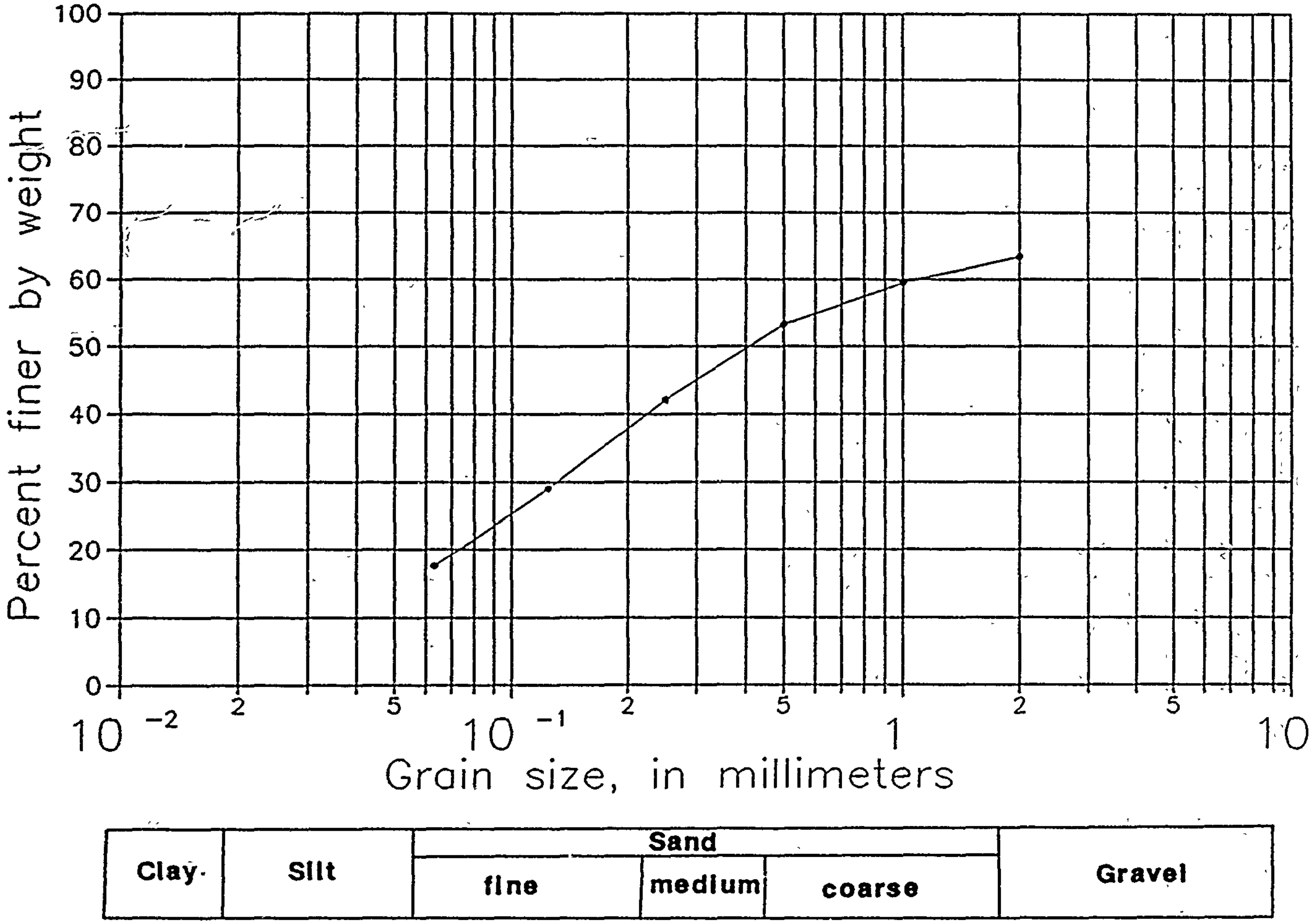

Figure K-15 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW16 at a Depth of 24 to 25 Feet.

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ENGINEERING-SCIENCE, INC.

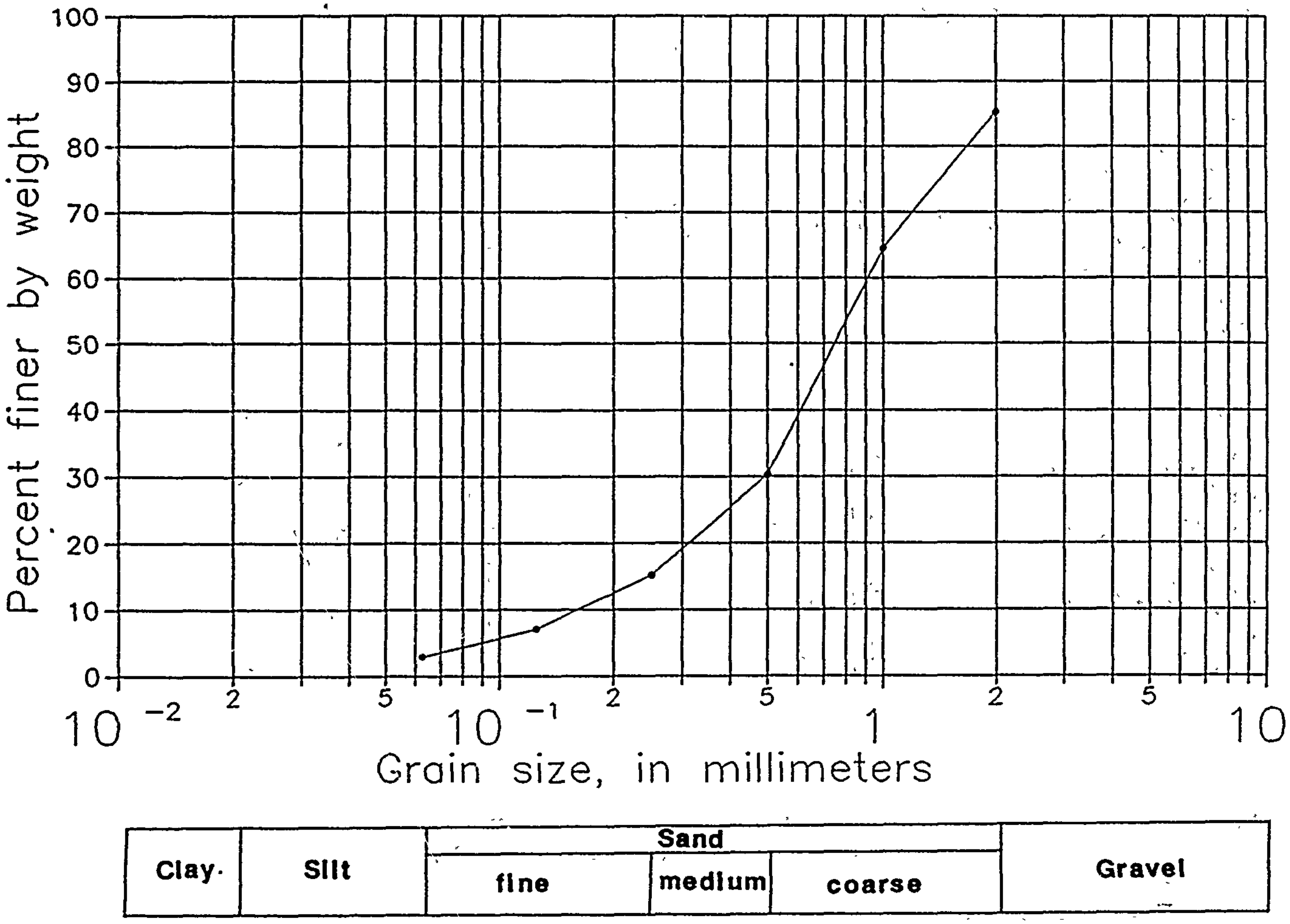

Figure K-16 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW16 at a Depth of 29 to 30 Feet.

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ENGINEERING-SCIENCE, INC.

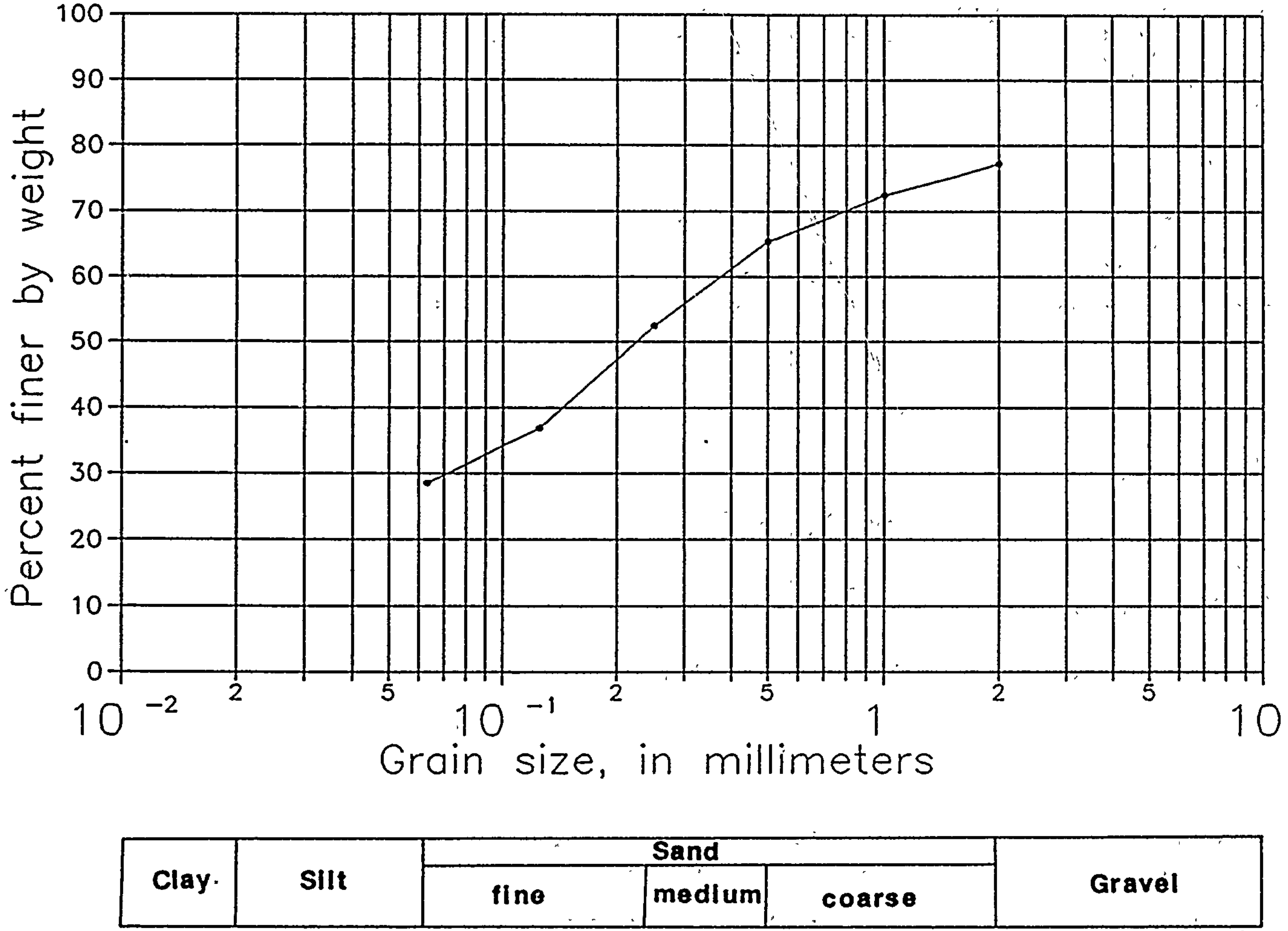

Figure K-17 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW20A at a Depth of 6 to 7 Feet.

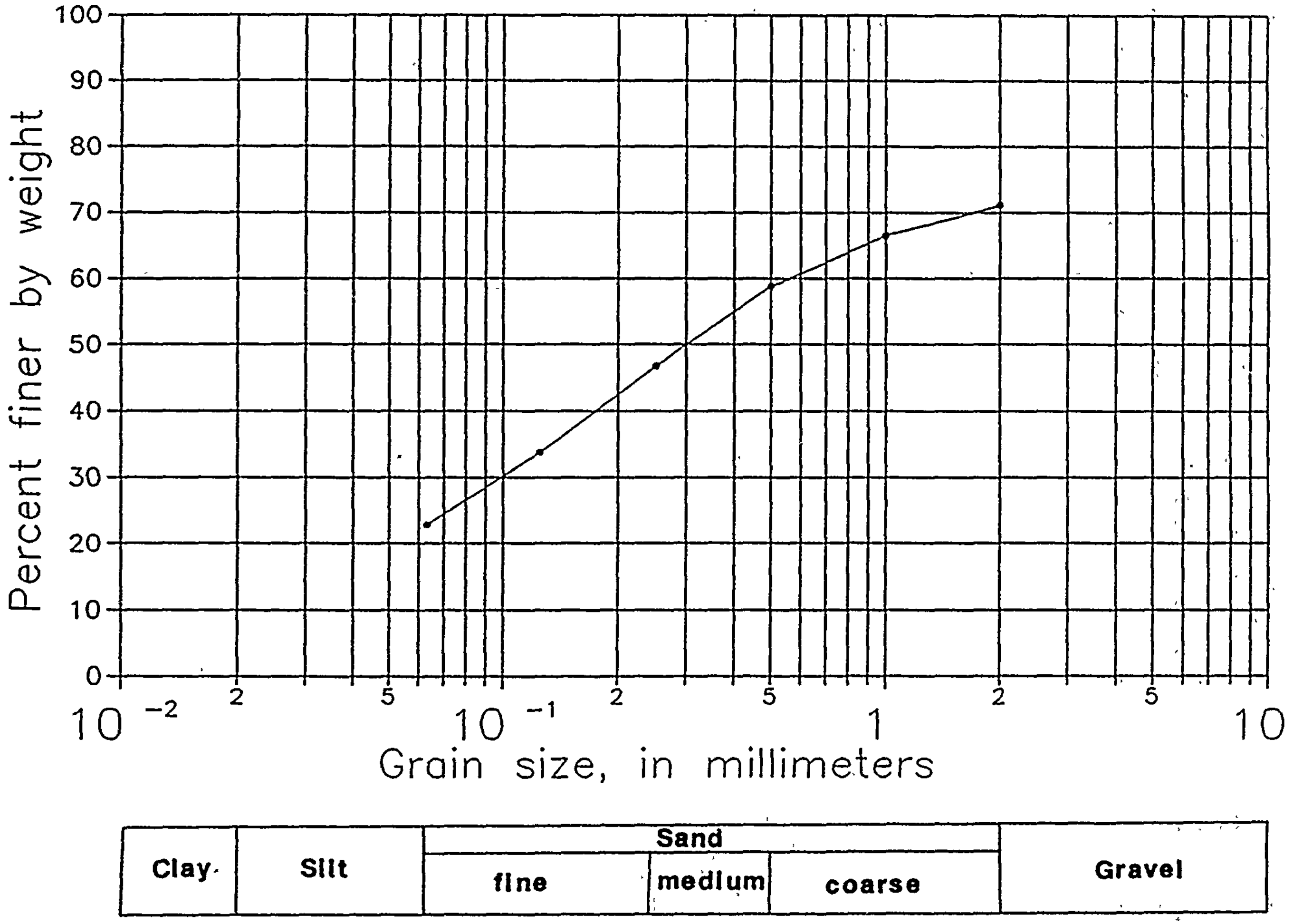

Figure K-18 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW20A at a Depth of 7 to 8 Feet.

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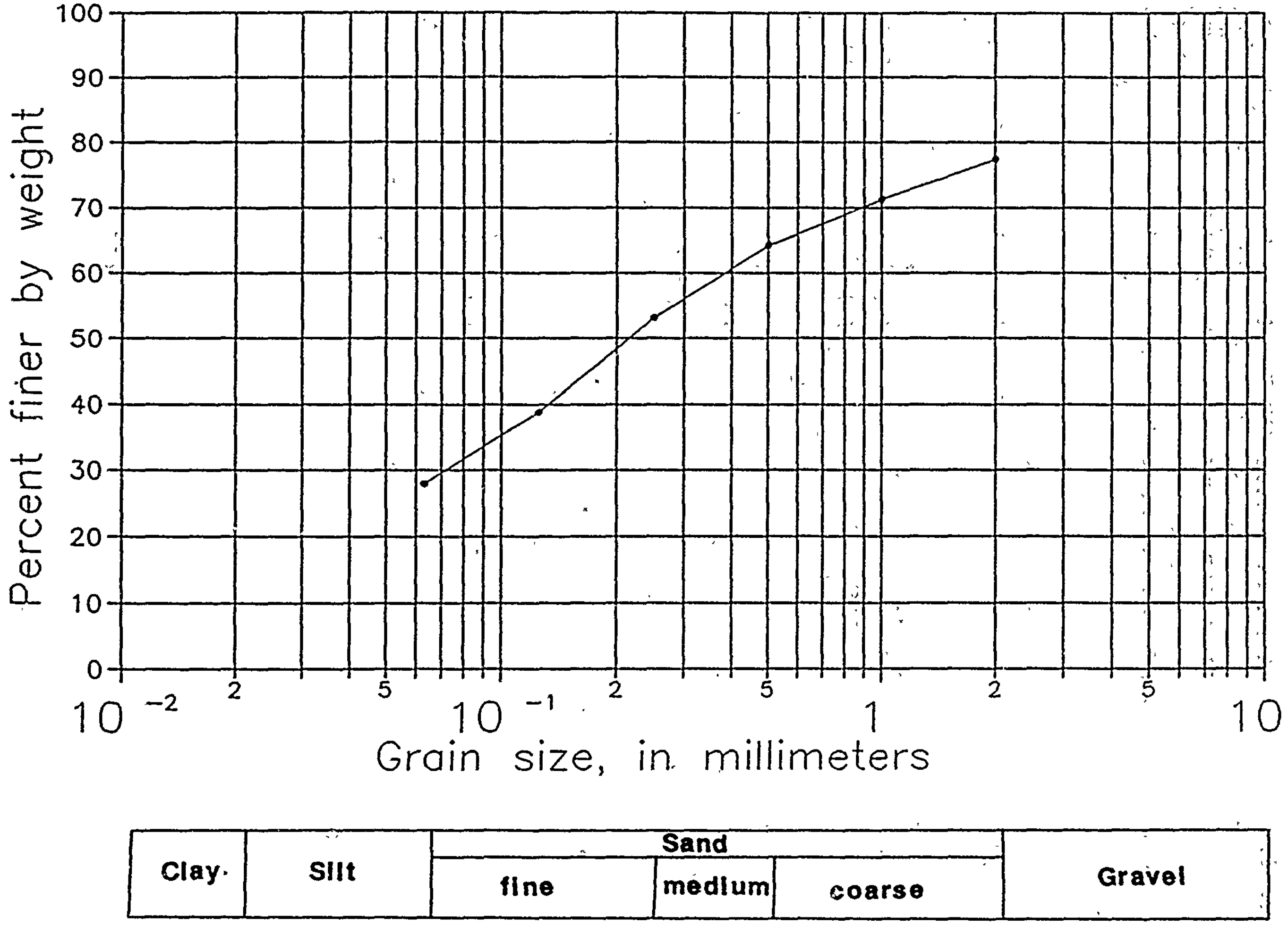

Figure K-19 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW20A at a Depth of 8 to 9.5 Feet.

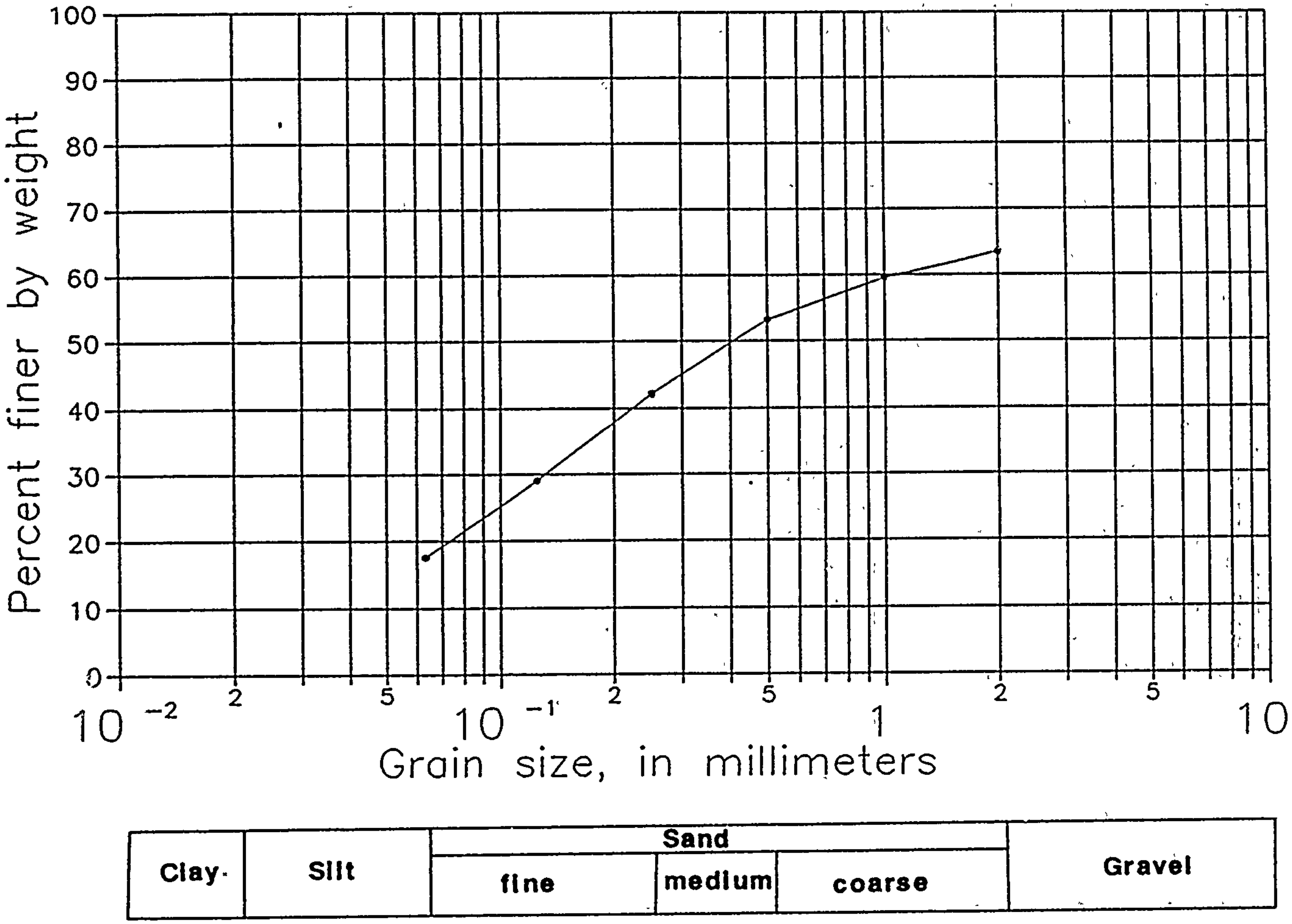

Figure K-20 Grain Size Distribution of Soil Sample From Site 8 Borehole DANGB-8-MW20A at a Depth of 9.5 to 10.3 Feet.

ES
ENGINEERING-SCIENCE, INC.

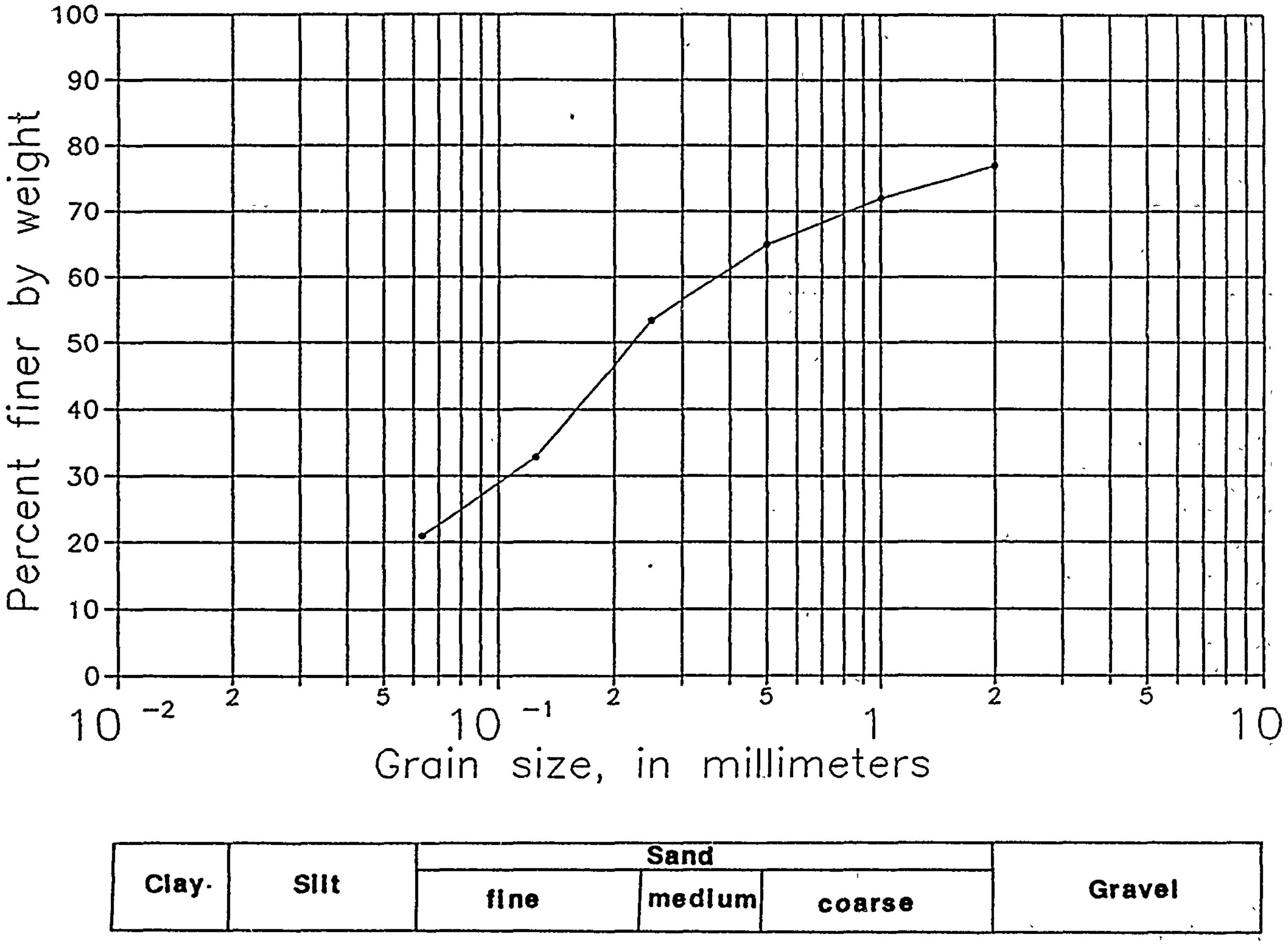

Figure K-21 Grain Size Distribution of Soil Sample From Site 8
Borehole DANGB-8-MW20A at a Depth of 10.5 to 11.5 Feet.

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APPENDIX L
CHEMICAL ANALYSES RESULTS FOR SURFACE WATER, SEDIMENT, SOIL AND GROUND-WATER SAMPLES

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APPENDIX L
TABLE OF CONTENTS

APPENDIX L
LIST OF TABLES

SECTION L.1
INTRODUCTION

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SECTION L.1
INTRODUCTION

The chemical analyses results for surface water, sediment, soil and ground-water samples are presented in this section.

The results are separated into six groups. There is a group of analyses results for the area sampling locations, and for each of the five sites studied. Each of the groups contains four tables: one each for surface water, sediment, soil, and ground-water samples except for Site 10. There are two tables for Site 10, one for each of the two ground-water sampling rounds.

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SECTION L.2
EXPLANATION OF TABLE ORGANIZATION AND NOMENCLATURE

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SECTION L2

EXPLANATION OF TABLE ORGANIZATION AND NOMENCLATURE

Each table in this appendix is a matrix which consists of more samples (columns) and more analyses (rows) than can be presented on a single sheet of paper. The method of presentation used is that for a specific set of parameters (rows) the results for all the samples analyzed (columns) is presented. The table continuation pages are numbered 1A, 1B, 1C, etc. for this first set of parameters. For the next set of parameters, the results are given for all the samples analyzed. These table continuation pages are numbered 2A, 2B, 2C, etc. This scheme is repeated until all the parameters are listed and all the results given for them. The physical pages themselves are numbered sequentially as they appear in this appendix.

The following nomenclature is used in the tables.

Parameter:	Parameter for which the analysis was performed.
Method Detection Limit:	The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the true value is greater than zero.
Analysis Method:	The method used by the laboratory to do the analysis. The methods are those described in EPA, 1988.
Location:	The sampling location identifier.
Sample Depth:	The depth below ground surface at which the soil sample was taken, in feet.
Date Sampled:	The sampling date.
Field Sample ID:	The alpha-numeric identifier assigned to the sample.
Laboratory Sample No.:	The numeric identifier assigned to the sample by the laboratory.

Note: Symbology used in each specific table is explained in footnotes at the end of each table.

TABLE L-1
BACKGROUND
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SURFACE WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL1	SL1 FB	SL2	SL3	SL4	SL4 DUP	SL5	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88	9-24-88
		Field Sample No.:	DANGB-BG-SL1-SW-1	DANGB-FB16	DANGB-BG-SL2-SW-1	DANGB-BG-SL3-SW-1	DANGB-BG-SL4-SW-1	DANGB-BG-SL25-SW-1	DANGB-BG-SL5-SW-1	DANGB-TB12
		Lab Sample No.:	88092694	88092698	88092695	88092696	88092677	88092678	88092681	88092697
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#6	#6	#6	#6	#1	#1	#1	#6
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	26
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	4.2 B	U	U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	4.7
Dibromoethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		U	2.3 B	U	6.9 B	U	U	U	0.84 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-1
Background - Surface Water
Page 2

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL1	SL1 FB	SL2	SL3	SL4	SL4 DUP	SL5	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88	9-24-88
		Field Sample No.:	DANGB-BG-SL1-SW-1	DANGB-FB16	DANGB-BG-SL2-SW-1	DANGB-BG-SL3-SW-1	DANGB-BG-SL4-SW-1	DANGB-BG-SL25-SW-1	DANGB-BG-SL5-SW-1	DANGB-TB12
		Lab Sample No.:	88092694	88092698	88092695	88092696	88092677	88092678	88092681	88092697
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#6	#6	#6	#6	#1	#1	#1	#6
Benzene	0.2		U	U	U	18	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		U	U	U	19	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-1
Background - Surface Water
Page 3

	Method Detection Limit	Location/QC No.:	SL1	SL1 FB	SL2	SL3	SL4	SL4 DUP	SL5	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88	9-24-88
		Field Sample No.:	DANGB-BG-SL1-SW-1	DANGB-FB16	DANGB-BG-SL2-SW-1	DANGB-BG-SL3-SW-1	DANGB-BG-SL4-SW-1	DANGB-BG-SL25-SW-1	DANGB-BG-SL5-SW-1	DANGB-TB12
Parameter and Analysis Method		Lab Sample No.:	88092694	88092698	88092695	88092696	88092677	88092678	88092681	88092697
SEMI-VOLATILE ORGANICS (EPA 625)										
Data Package			#6		#6	#13	#1	#1	#1	
1,3-Dichlorobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
1,4-Dichlorobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Hexachloroethane	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Bis(2-chloroethyl)ether	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
1,2-Dichlorobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
N-Nitrosodimethylamine	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Bis(2-chloroisopropyl)ether	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
N-Nitrosodi-n-propylamine	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Hexachlorobutadiene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
1,2,4-Trichlorobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Nitrobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Isophorone	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Naphthalene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Bis(2-chloroethoxy)methane	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2-Chloronaphthalene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Hexachlorocyclopentadiene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Acenaphthylene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Acenaphthene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Dimethyl Phthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,6-Dinitrotoluene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Fluorene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4-Dinitrotoluene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Diethyl Phthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
N-Nitrosodiphenylamine	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Hexachlorobenzene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Phenanthrene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Anthracene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Dibutyl Phthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Fluoranthene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
4-Chlorophenyl Phenyl Ether	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Pyrene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Butyl Benzyl Phthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Bis(2-ethylhexyl)phthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Chrysene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
4-Bromophenyl Phenyl Ether	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzo(a)anthracene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Di-n-octylphthalate	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzo(b)fluoranthene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzo(k)fluoranthene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzidine	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
3,3'-Dichlorobenzidine	20		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzo(a)pyrene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Indeno(1,2,3-cd)pyrene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Dibenzo(a,h)anthracene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzo(ghi)perylene	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzyl Alcohol	20		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR

Table L-1
Background - Surface Water
Page 4

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL1 9-24-88 DANGB-BG-SL1-SW-1 88092694	SL1 FB 9-24-88 DANGB-FB16 88092698	SL2 9-24-88 DANGB-BG-SL2-SW-1 88092695	SL3 9-24-88 DANGB-BG-SL3-SW-1 88092696	SL4 9-23-88 DANGB-BG-SL4-SW-1 88092677	SL4 DUP 9-23-88 DANGB-BG-SL25-SW-1 88092678	SL5 9-23-88 DANGB-BG-SL5-SW-1 88092681	TB1 9-24-88 DANGB-TB12 88092697
SEMI-VOLATILE ORGANICS (EFA 625) Continued page 2										
Acetophenone	-		U!	NR	U!	U!	U!	U!	U!	NR
Aniline	-		U!	NR	U!	U!	U!	U!	U!	NR
4-Aminobyphenyl	-		U!	NR	U!	U!	U!	U!	U!	NR
4-Chloroaniline	20		U!	NR	U!	U!	U!	U!	U!	NR
1-Chloronapththalene	-		U!	NR	U!	U!	U!	U!	U!	NR
Dibenzofuran	10		U!	NR	U!	U!	U!	U!	U!	NR
p-Dimethylaminoazobenzene	-		U!	NR	U!	U!	U!	U!	U!	NR
7,12-Dimethylbenz(a)anthracene	-		U!	NR	U!	U!	U!	U!	U!	NR
a-,a-Dimethylphenethylamine	-		U!	NR	U!	U!	U!	U!	U!	NR
Diphenylamine	-		U!	NR	U!	U!	U!	U!	U!	NR
1,2-Diphenylhydrazine	-		U!	NR	U!	U!	U!	U!	U!	NR
Ethylmethanesulfonate	-		U!	NR	U!	U!	U!	U!	U!	NR
3-Methylcholanthrene	-		U!	NR	U!	U!	U!	U!	U!	NR
Methylmethanesulfonate	-		U!	NR	U!	U!	U!	U!	U!	NR
2-Methylnaphthalene	10		U!	NR	U!	U!	U!	U!	U!	NR
1-Naphthylamine	-		U!	NR	U!	U!	U!	U!	U!	NR
2-Naphthylamine	-		U!	NR	U!	U!	U!	U!	U!	NR
2-Nitroaniline	50		U!	NR	U!	U!	U!	U!	U!	NR
3-Nitroaniline	50		U!	NR	U!	U!	U!	U!	U!	NR
4-Nitroaniline	50		U!	NR	U!	U!	U!	U!	U!	NR
N-Nitroso-di-n-butylamine	-		U!	NR	U!	U!	U!	U!	U!	NR
N-Nitrosopiperidiene	-		U!	NR	U!	U!	U!	U!	U!	NR
Pentachlorobenzene	-		U!	NR	U!	U!	U!	U!	U!	NR
Pentachloronitrobenzene	-		U!	NR	U!	U!	U!	U!	U!	NR
Phenacetin	-		U!	NR	U!	U!	U!	U!	U!	NR
2-Picoline	-		U!	NR	U!	U!	U!	U!	U!	NR
Pronamide	-		U!	NR	U!	U!	U!	U!	U!	NR
1,2,4,5-Tetrachlorobenzene	-		U!	NR	U!	U!	U!	U!	U!	NR
Alpha-BHC	-		U!	NR	U!	U!	U!	U!	U!	NR
Gamma-BHC	-		U!	NR	U!	U!	U!	U!	U!	NR
Beta-BHC	20		U!	NR	U!	U!	U!	U!	U!	NR
Heptachlor	10		U!	NR	U!	U!	U!	U!	U!	NR
Delta-BHC	15		U!	NR	U!	U!	U!	U!	U!	NR
Aldrin	10		U!	NR	U!	U!	U!	U!	U!	NR
Heptachlor Epoxide	10		U!	NR	U!	U!	U!	U!	U!	NR
Endosulfan I	-		U!	NR	U!	U!	U!	U!	U!	NR
Dieldrin	15		U!	NR	U!	U!	U!	U!	U!	NR
4,4'-DDE	30		U!	NR	U!	U!	U!	U!	U!	NR
Endrin	-		U!	NR	U!	U!	U!	U!	U!	NR
Endosulfan II	-		U!	NR	U!	U!	U!	U!	U!	NR
4,4'-DDD	15		U!	NR	U!	U!	U!	U!	U!	NR
4,4-DDT	25		U!	NR	U!	U!	U!	U!	U!	NR
Endosulfan Sulfate	30		U!	NR	U!	U!	U!	U!	U!	NR
Endrin Aldehyde	-		U!	NR	U!	U!	U!	U!	U!	NR
Endrin Ketone	-		U!	NR	U!	U!	U!	U!	U!	NR

Table L-1
Background - Surface Water
Page 5

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL1 9-24-88 DANGB-BG-SL1-SW-1 88092694	SL1 FB 9-24-88 DANGB-FB16 88092698	SL2 9-24-88 DANGB-BG-SL2-SW-1 88092695	SL3 9-24-88 DANGB-BG-SL3-SW-1 88092696	SL4 9-23-88 DANGB-BG-SL4-SW-1 88092677	SL4 DUP 9-23-88 DANGB-BG-SL25-SW-1 88092678	SL5 9-23-88 DANGB-BG-SL5-SW-1 88092681	TB1 9-24-88 DANGB-TB12 88092697
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3										
Chlordane	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Methoxychlor	-		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Toxaphene	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1016	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1221	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1232	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1242	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1248	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1254	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Aroclor-1260	60		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2-Chlorophenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2-Nitrophenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Phenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4-Dimethylphenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4-Dichlorophenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4,6-Trichlorophenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
4-Chloro-3-methylphenol	20		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4-Dinitrophenol	50		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,6-Dichlorophenol	-		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2-Methyl-4,6-dinitrophenol	50		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Pentachlorophenol	50		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
4-Nitrophenol	50		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
Benzoic Acid	50		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2-Methylphenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
3&4-Methylphenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,3,4,6-Tetrachlorophenol	-		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR
2,4,5-Trichlorophenol	10		UJ	NR	UJ	UJ	UJ	UJ	UJ	NR

Table L-1
Background - Surface Water
Page 6

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL1	SL1 FB	SL2	SL3	SL4	SL4 DUP	SL5	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88	9-24-88
		Field Sample No.:	DANGB-BG-SL1-SW-1	DANGB-FB16	DANGB-BG-SL2-SW-1	DANGB-BG-SL3-SW-1	DANGB-BG-SL4-SW-1	DANGB-BG-SL25-SW-1	DANGB-BG-SL5-SW-1	DANGB-TB12
		Lab Sample No.:	88092694	88092698	88092695	88092696	88092677	88092678	88092681	88092697
PESTICIDES AND PCB's (EPA 608)										
Data Package			#6		#6	#6	#1	#1	#1	
Aldrin	0.05		U	NR	U	U	U	U	U	NR
Alpha-BHC	0.05		U	NR	U	U	U	U	U	NR
Beta-BHC	0.05		U	NR	U	U	U	U	U	NR
Delta-BHC	0.05		U	NR	U	U	U	U	U	NR
Gamma-BHC	0.05		U	NR	U	U	U	U	U	NR
Chlorodane	0.5		U	NR	U	U	U	U	U	NR
4,4'-DDD	0.10		U	NR	U	U	U	U	U	NR
4,4'-DDE	0.10		U	NR	U	U	U	U	U	NR
4,4'-DDT	0.10		U	NR	U	U	U	U	U	NR
Dieldrin	0.10		U	NR	U	U	U	U	U	NR
Endosulfan I	0.05		U	NR	U	U	U	U	U	NR
Endosulfan II	0.10		U	NR	U	U	U	U	U	NR
Endosulfan Sulfate	0.10		U	NR	U	U	U	U	U	NR
Endrin	0.10		U	NR	U	U	U	U	U	NR
Endrin Aldehyde	0.10		U	NR	U	U	U	U	U	NR
Heptachlor	0.05		U	NR	U	U	U	U	U	NR
Heptachlor Epoxide	0.05		U	NR	U	U	U	U	U	NR
Kepone	0.10		U	NR	U	U	U	U	U	NR
Methoxychlor	0.5		U	NR	U	U	U	U	U	NR
Toxaphene	1.0		U	NR	U	U	U	U	U	NR
PCB-1016	0.5		U	NR	U	U	U	U	U	NR
PCB-1221	0.5		U	NR	U	U	U	U	U	NR
PCB-1232	0.5		U	NR	U	U	U	U	U	NR
PCB-1242	0.5		U	NR	U	U	U	U	U	NR
PCB-1248	0.5		U	NR	U	U	U	U	U	NR
PCB-1254	1.0		U	NR	U	U	U	U	U	NR
PCB-1260	1.0		U	NR	U	U	U	U	U	NR

Table L-1
Background - Surface Water
Page 7

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL1	SL1 FB	SL2	SL3	SL4	SL4 DUP	SL5	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88	9-24-88
		Field Sample No.:	DANGB-BG-SL1-SW-1	DANGB-FB16	DANGB-BG-SL2-SW-1	DANGB-BG-SL3-SW-1	DANGB-BG-SL4-SW-1	DANGB-BG-SL25-SW-1	DANGB-BG-SL5-SW-1	DANGB-TB12
		Lab Sample No.:	88092694/88092763/ P101521	88092698	88092695/88092764/ P101519	88092696/88092724/, P101520	88092677/ P101427	88092678/ P101429	88092681/ P101433	88092697
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#6		#6	#13	#1	#1	#1	
Units: mg/L			<1	NR	<1	<1.5	< 1 B	< 1 B	< 1	NR
METALS (Units mg/L)										
Data Package			#3		#3	#13	#1	#1	#1	
Arsenic (SW 7060)	0.01		<0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	NR
Barium (SW 6010)	0.2		<0.2	NR	<0.2	<0.2	<0.2	<0.2	<0.2	NR
Cadmium (SW 7131)	0.005		<0.005	NR	<0.005	<0.005	<0.005	<0.005	<0.005	NR
Chromium (SW 7191)	0.01		<0.01	NR	<0.01	<0.01	<0.01	<0.01	<0.01	NR
Lead (SW 7421)	0.005		<0.005	NR	<0.005	<0.005	<0.005	<0.005	<0.005	NR
Mercury (SW 7470)	0.0002		<0.0002	NR	<0.0002	63	<0.0002	<0.0002	<0.0002	NR
RADIOLOGICAL PARAMETERS (Units: pCi/L)										
Data Package			#66		#66	#66	#66	#66	#66	
Gross Alpha (SW 9310)	4		<4	NR	<4	<4	<4	<4	<4	NR
Gross Beta (SW 9310)	6		<6	NR	<6	<6	<6	<6	<6	NR
Radium 226 (SW 9315)	0.3		<0.3	NR	<0.3	<0.3	<0.2	0.4 +/- 0.2	0.2 +/- 0.2	NR
Tritium (EPA 906.0)	2000		< 2000	NR	<2000	<2000	<2000	<2000	<2000	NR
NITRATES (EPA 353.2)										
Data Package			#68		#68	#68	#68	#68	#68	
Units: mg/L	0.02		0.09	NR	0.04	0.74	0.10	0.07	0.69	NR
SPECIFIC CONDUCTANCE (EPA 120.1)			0.139	NR	0.260	0.311	0.338	0.338	0.581	NR
Units: mS/cm @ 25°C			0.11		0.205	0.255	0.261	0.261	0.458	
TEMPERATURE (EPA 170.1)			11.6	NR	11.7	14.0	10.2	10.2	11.6	NR
Units: °C			13.4		13.3	11	14.8	14.8	13.4	
pH (EPA 150.1)			6.56	NR	6.65	7.45	7.12	7.12	6.77	NR
Units: pH units										

DUP	Duplicate.
FB	Field blank.
TB	Trip blank.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
NR	The analysis was not requested.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
!	The holding time was missed for this analysis. See Appendix N.
<	Less than.
+/-	Plus or minus.

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TABLE L-2
BACKGROUND
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SEDIMENT SAMPLES
(Results in micrograms per kilogram unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL1 9-24-88 DANGB-BG-SL1-SD-1 88092733	SL2 9-24-88 DANGB-BG-SL2-SD-1 88092732	SL3 9-24-88 DANGB-BG-SL3-SD-1 88092731	SL4 9-23-88 DANGB-BG-SL4-SD-1 88092673	SL4 DUP 9-23-88 DANGB-BG-SL25-SD-1 88092674	SL5 9-23-88 DANGB-BG-SL5-SD-1 88092672
HALOGENATED VOLATILE ORGANICS (SW 8010)								
Data Package			#28	#28	#28	#26	#26	#26
Benzyl Chloride	0.50		U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U
Chloroform	0.05		U	U	U	1.5	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U
Dichloromethane	0.25		34 B	69 B	0.77 B	42 B	53 B	62 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U

Table L-2
Background - Sediment
Page 2

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL1 9-24-88 DANGB-BG-SL1-SD-1 88092733	SL2 9-24-88 DANGB-BG-SL2-SD-1 88092732	SL3 9-24-88 DANGB-BG-SL3-SD-1 88092731	SL4 9-23-88 DANGB-BG-SL4-SD-1 88092673	SL4 DUP 9-23 88 DANGB-BG-SL25-SD-1 88092674	SL5 9-23-88 DANGB-BG-SL5-SD-1 88092672
AROMATIC VOLATILE ORGANICS (SW 8020)								
Data Package			#28	#28	#28	#26	#26	#26
Benzene	0.2		U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U

Table L-2
Background - Sediment
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No: Date Sampled: Field Sample No: Lab Sample No:	SL1 9-24 88 DANGB-BG-SL1-SD-1 88092733	SL2 9-24-88 DANGB-BG-SL2-SD-1 88092732	SL3 9-24-88 DANGB-BG-SL3-SD-1 88092731	SL4 9-23-88 DANGB-BG-SL4-SD-1 88092673	SL4 DUP 9-23-88 DANGB-BG-SL25-SD-1 88092674	SL5 9-23-88 DANGB-BG-SL5-SD-1 88092672
SEMI-VOLATILE ORGANICS (SW 8270)								
Data Package			#28	#28	#28	#26	#26	#26
1,3-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!
1,4-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!
Hexachloroethane	330		U!	U!	U!	U!	U!	U!
Bis(2-chloroethyl)ether	330		U!	U!	U!	U!	U!	U!
1,2-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!
N-nitrosodimethylamine	330		U!	U!	U!	U!	U!	U!
Bis(2-chloroisopropyl)ether	330		U!	U!	U!	U!	U!	U!
N-Nitrosodi-n-propylamine	330		U!	U!	U!	U!	U!	U!
Hexachlorobutadiene	330		U!	U!	U!	U!	U!	U!
1,2,4-Trichlorobenzene	330		U!	U!	U!	U!	U!	U!
Nitrobenzene	330		U!	U!	U!	U!	U!	U!
Isophorone	330		U!	U!	U!	U!	U!	U!
Naphthalene	330		U!	U!	U!	U!	U!	U!
Bis(2-chloroethoxy)methane	330		U!	U!	U!	U!	U!	U!
2-Chloronaphthalene	330		U!	U!	U!	U!	U!	U!
Hexachlorocyclopentadiene	330		U!	U!	U!	U!	U!	U!
Acenaphthylene	330		U!	U!	U!	U!	U!	U!
Acenaphthene	330		U!	U!	U!	U!	U!	U!
Dimethyl Phthalate	330		U!	U!	U!	U!	U!	U!
2,6-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!
Fluorene	330		U!	U!	U!	U!	U!	U!
2,4-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!
Diethyl Phthalate	330		U!	U!	U!	U!	U!	U!
N-Nitrosodiphenylamine	330		U!	U!	U!	U!	U!	U!
Hexachlorobenzene	330		U!	U!	U!	U!	U!	U!
Phenanthrene	330		U!	790	U!	U!	U!	U!
Anthracene	330		U!	U!	U!	U!	U!	U!
Dibutyl Phthalate	330		U!	U!	U!	U!	U!	U!
Fluoranthene	330		U!	890	U!	U!	U!	U!
4-Chlorophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!
Pyrene	330		U!	590	U!	U!	U!	U!
Butyl Benzyl Phthalate	330		U!	U!	U!	U!	U!	U!
Bis(2-ethylhexyl)phthalate	330		770	U!	U!	U!	U!	U!
Chrysene	330		U!	420	U!	U!	U!	U!
4-Bromophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!
Benzo(a)anthracene	330		U!	U!	U!	U!	U!	U!
Di-n-octylphthalate	330		U!	U!	U!	U!	U!	U!
Benzo(b)fluoranthene	330		U!	U!	U!	U!	U!	U!
Benzo(k)fluoranthene	330		U!	U!	U!	U!	U!	U!
Benzidine	2000		U!	U!	U!	U!	U!	U!
3,3'-Dichlorobenzidine	660		U!	U!	U!	U!	U!	U!
Benzo(a)pyrene	330		U!	U!	U!	U!	U!	U!
Indeno(1,2,3-cd)pyrene	330		U!	U!	U!	U!	U!	U!
Dibenzo(a,h)anthracene	330		U!	U!	U!	U!	U!	U!
Benzo(ghi)perylene	330		U!	U!	U!	U!	U!	U!
Benzyl Alcohol	660		U!	U!	U!	U!	U!	U!

Table L-2
Background - Sediment
Page 4

	Method	Well/QC No.:	SL1	SL2	SL3	SL4	SL4 DUP	SL5
	Detection	Date Sampled:	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88
	Limit	Field Sample No.:	DANGB-BG-SL1-SD-1	DANGB-BG-SL2-SD-1	DANGB-BG-SL3-SD-1	DANGB-BG-SL4-SD-1	DANGB-BG-SL25-SD-1	DANGB-BG-SL5-SD-1
Parameter and Analysis Method		Lab Sample No.:	88092733	88092732	88092731	88092673	88092674	88092672
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2								
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ
4,4-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ

Table L-2
Background - Sediment
Page 5

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL1 9-24-88 DANGB-BG-SL1-SD-1 88092733	SL2 9-24-88 DANGB-BG-SL2-SD-1 88092732	SL3 9-24-88 DANGB-BG-SL3-SD-1 88092731	SL4 9-23-88 DANGB-BG-SL4-SD-1 88092673	SL4 DUP 9-23-88 DANGB-BG-SL25-SD-1 88092674	SL5 9-23-88 DANGB-BG-SL5-SD-1 88092672
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3								
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ

Table L-2
Background - Sediment
Page 6

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL1	SL2	SL3	SL4	SL4 DUP	SL5
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-23-88	9-23-88	9-23-88
		Field Sample No.:	DANGB-BG-SL1-SD-1	DANGB-BG-SL2-SD-1	DANGB-BG-SL3-SD-1	DANGB-BG-SL4-SD-1	DANGB-BG-SL25-SD-1	DANGB-BG-SL5-SD-1
		Lab Sample No.:	88092733	88092732	88092731	88092673	88092674	88092672
PESTICIDES AND PCB's (SW 8080)								
Data Package			#28	#28	#28	#26	#26	#26
Aldrin	0.05		U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U
Chlorodane	0.5		U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U
4,4'-DDT	0.10		U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)								
Data Package			#28	#28	#28	#26	#26	#26
Units: mg/kg			<100	170	<100	<100	<100	<100
MOISTURE								
Data Package			#28	#28	#28	#26	#26	#26
Units: weight percent			16.9	33.5	18.3	23.5	15.4	24.3
METALS (Units: mg/kg)								
Data Package			#28	#28	#28	#26	#26	#26
Arsenic (SW 7060)			< 1.2	< 1.5	< 1.2	< 1.2	1.7 B	< 1.2
Barium (SW 6010)			31.4	46.4	36.3	33.2	29.2	41.4
Cadmium (SW 7131)			< 0.61	< 0.75	< 0.6	< 0.59	< 0.59	< 0.62
Chromium (SW 7191)			12.9 N	15.5 N	11.2 N	16.3 N	15.1 N	14.2 N
Lead (SW 7421)			4.8 S	< 0.15	4.0	4.8	7.9 S	4.0
Mercury (SW 7471)			< 0.12	63	< 0.12	< 0.12	< 0.12	< 0.12

DUP Duplicate.
Data Package # Numbers refer to Data Packages in Appendix M.
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit; but greater than the Instrument Detection Limit.
N For metals the percentage recovery of the spiked sample was not within the control limits.
S For metals the reported value was determined by the method of standard additions.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
! The holding time was missed for this analysis. See Appendix N.
< Less than.
- The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-3
BACKGROUND
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSIS FOR SOIL SAMPLES
(Results in micrograms per kilogram unless noted otherwise.)

	Method Detection Limit	Location/QC No:	MW32-SS1	MW32 R SS1	MW 32 R SS1-DUP	MW32-SS2	MW32-SS3	MW42-SS1	MW42-SS2	MW42-SS3
		Sample Depth, (ft):	2-3	0-1	0-1	11-12	19-20	0-1	7-8	14.5-15.5
		Sample Date:	8-29-88	8-31-88	8-31-88	8-29-88	8-29-88	8-18-88	8-18-88	8-18-88
		Field Sample No:	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS4	DANGB-BG-MW32-SS2	DANGB-BG-MW32-SS3	DANGB-BG-MW42-SS1	DANGB-BG-MW42-SS2	DANGB-BG-MW42-SS3
Parameter and Analysis Method		Lab Sample No:	88082186	88092244	88092245	88082187	88082188	88081970	88081968	88081971
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Benzyl Chloride	0.5		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	U	0.22
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		4.1 B	1.2 B	0.41 B	4.0 B	1.5 B	1.3 B	0.29 B	2.2 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-3
Background - Soil
Page 1B

	Method Detection Limit	Location/QC No:	MW43-SS1	MW43-SS2	MW43-SS3
		Sample Depth, (ft):	1-2	14-15	23-24
		Sample Date:	8-18-88	8-18-88	8-18-88
		Field Sample No.:	DANGB-BG-MW43-SS1	DANGB-BG-MW43-SS2	DANGB-BG-MW43-SS3
Parameter and Analysis Method		Lab Sample No.:	88081967	88081969	88081966
HALOGENATED VOLATILE ORGANICS (SW 8010)					
Data Package			#39	#39	#39
Benzyl Chloride	0.5		U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U
Bromobenzene	0.50		U	U	U
Bromodichloromethane	0.10		U	U	U
Bromoform	0.20		U	U	U
Bromoethane	1.2		U	U	U
Carbon Tetrachloride	0.12		U	U	U
Chloracetaldehyde	50.0		U	U	U
Chloral	50.0		U	U	U
Chlorobenzene	0.25		U	U	U
Chloroethane	0.52		U	U	U
Chloroform	0.05		U	0.12	U
1-Chlorohexane	0.50		U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U
Chloromethane	0.08		U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U
Chlorotoluene	0.50		U	U	U
Dibromochloromethane	0.09		U	U	U
Dibromomethane	0.50		U	U	U
1,2-Dichlorobenzene	0.15		U	U	U
1,3-Dichlorobenzene	0.32		U	U	U
1,4-Dichlorobenzene	0.24		U	U	U
Dichlorodifluoromethane	1.8		U	U	U
1,1-Dichloroethane	0.07		U	U	U
1,2-Dichloroethane	0.03		U	U	U
1,1-Dichloroethene	0.13		U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U
Dichloromethane	0.25		3.1 B	4.8 B	7.4 B
1,2-Dichloropropane	0.04		U	U	U
1,3-Dichloropropylene	0.34		U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U
Tetrachloroethene	0.03		U	U	U
1,1,1-Trichloroethane	0.03		U	U	U
1,1,2-Trichloroethane	0.02		U	U	U
Trichloroethene	0 12		U	U	U
Trichlorofluoromethane	0.50		U	U	U
Trichloropropane	0.50		U	U	U
Vinyl Chloride	0.18		U	U	U

Table L-3
Background - Soil
Page 2A

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW32-SS1	MW32 R SS1	MW32 R SS1-DUP	MW32-SS2	MW32-SS3	MW42-SS1	MW42-SS2	MW42-SS3
		Sample Depth, (ft):	2-3	0-1	0-1	11-12	19-20	0-1	7-8	14.5-15.5
		Sample Date:	8-29-88	8-31-88	8-31-88	8-29-88	8-29-88	8-18-88	8-18-88	8-18-88
		Field Sample No.:	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS4	DANGB-BG-MW32-SS2	DANGB-BG-MW32-SS3	DANGB-BG-MW42-SS1	DANGB-BG-MW42-SS2	DANGB-BG-MW42-SS3
		Lab Sample No.:	88082186	88092244	88092245	88082187	88082188	88081970	88081968	88081971
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		28	U	1.0	47	31	1.8 B	U	198 B
Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-3
Background - Soil
Page 2B

	Method Detection Limit	Location/QC No:	MW43-SS1	MW43-SS2	MW43-SS3
		Sample Depth, (ft):	1-2	14-15	23-24
		Sample Date:	8-18-88	8-18-88	8-18-88
		Field Sample No:	DANGB-BG-MW43-SS1	DANGB-BG-MW43-SS2	DANGB-BG-MW43-SS3
Parameter and Analysis Method		Lab Sample No:	88081967	88081969	88081966
AROMATIC VOLATILE ORGANICS (SW 8020)					
Data Package			#39	#39	#39
Benzene	0.2		U	U	U
Chlorobenzene	0.2		U	U	U
1,2-Dichlorobenzene	0.4		U	U	U
1,3-Dichlorobenzene	0.4		U	U	U
1,4-Dichlorobenzene	0.3		U	U	U
Ethyl Benzene	0.2		U	U	U
Toluene	0.2		25 B	8.3 B	160 B
Xylenes	0.4		U	U	U

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW32-SS1	MW32 R SS1	MW32 R SS1-DUP	MW32-SS2	MW32-SS3	MW42-SS1	MW42-SS2	MW42-SS3
		Sample Depth, (ft):	3-Feb	0-1	0-1	11-12	19-20	0-1	7-8	14.5-15.5
		Sample Date:	8-29-88	8-31-88	8-31-88	8-29-88	8-29-88	8-18-88	8-18-88	8/18/88
		Field Sample No.:	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS4	DANGB-BG-MW32-SS2	DANGB-BG-MW32-SS3	DANGB-BG-MW42-SS1	DANGB-BG-MW42-SS2	DANGB-BG-MW42-SS3
		Lab Sample No.:	88082186	88092244	88092245	88082187	88082188	88081970	88081968	88081971
SEMIVOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	230		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-3
Background - Soil
Page 3B

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW43-SS1 1-2 8-18-88 DANGB-BG-MW43-SS1 88081967	MW43-SS2 14-15 8-18-88 DANGB-BG-MW43-SS2 88081969	MW43-SS3 23-24 8-18-88 DANGB-BG-MW43-SS3 88081966
SEMIVOLATILE ORGANICS (SW 8270) Page 1					
Data Package			#39	#39	#39
1,3-Dichlorobenzene	330		UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ
Diethyl phthalate	330		UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ
Benzyl Alcohol	660		UJ	UJ	UJ

Table L-3
Background - Soil
Page 4A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW32-SS1 2-3 8-29-88 DANGB-BG-MW32-SS1 88082186	MW 32 R SS1 0-1 8-31-88 DANGB-BG-MW32-SS1 88092244	MW 32 R SS1-DUP 0-1 8-31-88 DANGB-BG-MW32-SS4 88092245	MW32-SS2 11-12 8-29-88 DANGB-BG-MW32-SS2 88082187	MW32-SS3 19-20 8-29-88 DANGB-BG-MW32-SS3 88082188	MW42-SS1 0-1 8-18-88 DANGB-BG-MW42-SS1 88081970	MW42-SS2 7-8 8-18-88 DANGB-BG-MW42-SS2 88081968	MW42-SS3 14.5-15.5 8-18-88 DANGB-BG-MW42-SS3 88081971
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Acetophenone	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	U	U	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	U	U	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	U	U	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	U	U	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	U	U	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	U	U	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Endrin Ketone	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	U	U	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	U	U	UJ	UJ	UJ	UJ	UJ

Table L-3
Background - Soil
Page 4B

	Method Detection Limit	Location/QC No:	MW43-SS1	MW43-SS2	MW43-SS3
		Sample Depth, (ft):	1-2	14-15	23-24
		Sample Date:	8-18-88	8-18-88	8-18-88
		Field Sample No:	DANGB-BG-MW43-SS1	DANGB-BG-MW43-SS2	DANGB-BG-MW43-SS3
Parameter and Analysis Method		Lab Sample No:	88081967	88081969	88081966
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2					
Acetophenone	-		UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ
Endrin Ketone	-		UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ

Table L-3
Background - Soil
Page 5A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	MW32-SS1 2-3 8-29-88 DANGB-BG-MW32-SS1 88082186	MW32 R SS1 0-1 8-31-88 DANGB-BG-MW32-SS1 88092244	MW32 R SS1-DUP 0-1 8-31-88 DANGB-BG-MW32-SS4 88092245	MW32-SS2 11-12 8-29-88 DANGB-BG-MW32-SS2 88082187	MW32-SS3 19-20 8-29-88 DANGB-BG-MW32-SS3 88082188	MW42-SS1 0-1 8-18-88 DANGB-BG-MW42-SS1 88081970	MW42-SS2 7-8 8-18-88 DANGB-BG-MW42-SS2 88081968	MW42-SS3 14.5-15.5 8-18-88 DANGB-BG-MW42-SS3 88081971
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Aroclor-1016	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1221	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1232	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1242	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1248	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1254	2000		U!	U	U	U!	U!	U!	U!	U!
Aroclor-1260	2000		U!	U	U	U!	U!	U!	U!	U!
2-Chlorophenol	330		U!	U	U	U!	U!	U!	U!	U!
2-Nitrophenol	330		U!	U	U	U!	U!	U!	U!	U!
Phenol	330		U!	U	U	U!	U!	U!	U!	U!
2,4-Dimethylphenol	330		U!	U	U	U!	U!	U!	U!	U!
2,4-Dichlorophenol	330		U!	U	U	U!	U!	U!	U!	U!
2,4,6-Trichlorophenol	330		U!	U	U	U!	U!	U!	U!	U!
4-Chloro-3-methylphenol	660		U!	U	U	U!	U!	U!	U!	U!
2,4-Dinitrophenol	1600		U!	U	[illegible]	U!	U!	U!	U!	U!
2,6-Dichlorophenol	-		U!	U	U	U!	U!	U!	U!	U!
2-Methyl-4,6-dinitrophenol	1600		U!	U	U	U!	U!	U!	U!	U!
Pentachlorophenol	1600		U!	U	U	U!	U!	U!	U!	U!
4-Nitrophenol	1600		U!	U	U	U!	U!	U!	U!	U!
Benzoic Acid	1600		U!	U	U	U!	U!	U!	U!	U!
2-Methylphenol	330		U!	U	U	U!	U!	U!	U!	U!
3&4-Methylphenol	330		U!	U	U	U!	U!	U!	U!	U!
2,3,4,6-Tetrachlorophenol	-		U!	U	U	U!	U!	U!	U!	U!
2,4,5-Trichlorophenol	330		U!	U	U	U!	U!	U!	U!	U!

Table L-3
Background - Soil
Page 5B

Parameter and Analysis Method	Method Detection Limit				
		Location/OC No:	MW43-SS1	MW43-SS2	MW43-SS3
		Sample Depth, (ft):	1-2	14-15	23-24
		Sample Date:	8-18-88	8-18-88	8-18-88
		Field Sample No.:	DANGB-BG-MW43-SS1	DANGB-BG-MW43-SS2	DANGB-BG-MW43-SS3
		Lab Sample No.:	88081967	88081969	88081966
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3					
Aroclor-1016	2000		UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ

Table L-3
Background - Soil
Page 6A

	Method Detection Limit	Location/QC No:	MW32-SS1	MW32 R SS1	MW32 R SS1-DUP	MW32-SS2	MW32-SS3	MW42-SS1	MW42-SS2	MW42-SS3
		Sample Depth, (ft):	2-3	0-1	0-1	11-12	19-20	0-1	7-8	14.5-15.5
		Sample Date:	8-29-88	8/31/88	8/31/88	8-29-88	8-29-88	8/18/88	8-18-88	8-18-88
		Field Sample No:	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS1	DANGB-BG-MW32-SS4	DANGB-BG-MW32-SS2	DANGB-BG-MW32-SS3	DANGB-BG-MW42-SS1	DANGB-BG-MW42-SS2	DANGB-BG-MW42-SS3
Parameter and Analysis Method		Lab Sample No:	88082186	88092244	88092245	88082187	88082188	88081970	88081968	88081971
PESTICIDES AND PCBs (SW 8080)										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlorodane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		U	U	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Units: mg/kg	100		<100	U	U	<100	<100	<100	<100	<100
PERCENT MOISTURE										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Units: Weight percent			8.2	17.4	15	11.7	14.1	15.6	11.3	9.1
METALS										
Data Package			#42	#46	#46	#42	#42	#39	#39	#39
Units: mg/kg										
Arsenic (SW 7060)			<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E
Barium (SW 6010)			82.6	103	93.4	49.2	34.9	69.7 *	48.4	39.7 *
Cadmium (SW 7131)			9.8 N	7.8 N	6.8 N	7.6 N	6.8 N	11.5 * N	10.4 N	10.1 * N
Chromium (SW 7191)			46.8	17.1	14.4	23	22.8	42.2	20	27.6
Lead (SW 7421)			6.3 N	9.9	16.6	4.3 N	2.9 N	4.9 * N	4.7 * N	3.4 * N
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-3
Background - Soil
Page 6B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW43-SS1	MW43-SS2	MW43-SS3
		Sample Depth, (ft):	1-2	14-15	23-24
		Sample Date:	8-18-88	8-18-88	8/18/88
		Field Sample No.:	GB-BG-MW43-SS1	GB-BG-MW43-SS2	GB-BG-MW43-SS3
		Lab Sample No.:	88081967	88081969	88081966
PESTICIDES AND PCBs (SW 8080)					
Data Package			#39	#39	#39
Aldrin	0.05		U	U	U
Alpha-BHC	0.05		U	U	U
Beta-BHC	0.05		U	U	U
Delta-BHC	0.05		U	U	U
Gamma-BHC	0.05		U	U	U
Chlorodane	0.5		U	U	U
4,4'-DDD	0.10		U	U	U
4,4'-DDE	0.10		U	U	U
4,4'-DDT	0.10		U	U	U
Dieldrin	0.10		U	U	U
Endosulfan I	0.05		U	U	U
Endosulfan II	0.10		U	U	U
Endosulfan Sulfate	0.10		U	U	U
Endrin	0.10		U	U	U
Heptachlor	0.05		U	U	U
Heptachlor Epoxide	0.05		U	U	U
Methoxychlor	0.5		U	U	U
Toxaphene	1.0		U	U	U
PCB-1016	0.5		U	U	U
PCB-1221	0.5		U	U	U
PCB-1232	0.5		U	U	U
PCB-1242	0.5		U	U	U
PCB-1248	0.5		U	U	U
PCB-1254	1.0		U	U	U
PCB-1260	1.0		U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)					
Data Package			#39	#39	#39
Units: mg/kg	100		200	<100	<100
PERCENT MOISTURE					
Data Package			#39	#39	#39
Units: Weight percent			29.3	17.2	14
METALS					
Data Package			#39	#39	#39
Units: mg/kg					
Arsenic (SW 7060)			<5.0 E	<5.0 E	<5.0 E
Barium (SW 6010)			61.5	96.7 *	51.3
Cadmium (SW 7131)			7.6 N	13.6 * N	9.5 N
Chromium (SW 7191)			14.4	36.8	17.2
Lead (SW 7421)			5.1 * N	4.7 * N	4.2 * N
Mercury (SW 7471)			<0.1	<0.1	<0.1

DUP	Duplicate.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
E	The value is estimated due to interference.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantiation limit.
*	Duplicate not within control limits.
!	The holding time was missed for this analysis. See Appendix N.
<	Less than.
-	The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-4
BACKGROUND
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

	Method Detection Limit	Well/OC No.:	MW32	MW42	MW42 FB	MW43	MW43 DUP	MW43 FB	TB1	BR1
		Date Sampled:	9-8-88	9-8-88	9-8-88	9-7-88	9-7-88	9-7-88	9-8-88	9-7-88
		Field Sample No.:	DANGB-BG-MW32-GW-1	DANGB-BG-MW42-GW-1	DANGB-FB2	DANGB-BG-MW43 GW-1	DANGB-BG-MW50-GW-1	DANGB-FB1	DANGB-TB1	DANGB-BR1
Parameter and Analysis Method		Lab Sample No.:	88092306	88092305	88092307	88092293	88092292	88092294	88092308	88092291
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#47	#47	#47	#5	#5	#63	#47	#5
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	1.0 B	13	U	14	U	U	14
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		2.2 B	0.98 B	1.2 B	1.6 B	1.7 B	0.80 B	1.5 B	1.1 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-4
Background - Ground Water
Page 2

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW32	MW42	MW42 FB	MW43	MW43 DUP	MW43 FB	TB1	BR1
		Date Sampled:	9-8-88	9-8-88	9-8-88	9-7-88	9-7-88	9-7-88	9-8-88	9-7-88
		Field Sample No.:	DANGB-BG-MW32-GW-1	DANGB-BG-MW42-GW-1	DANGB-FB2	DANGB-BG-MW43-GW-1	DANGB-BG-MW50-GW-1	DANGB-FB1	DANGB-TB1	DANGB-BR1
		Lab Sample No.:	88092306	88092305	88092307	88092293	88092292	88092294	88092308	88092291
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#47	#47	#47	#5	#5	#63	#47	#5
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-4
Background - Ground Water
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW32 9-8-88 DANGB-BG-MW32-GW-1 88092306	MW42 9-8-88 DANGB-BG-MW42-GW-1 88092305	MW42 FB 9-8-88 DANGB-FB2 88092307	MW43 9-7-88 DANGB-BG-MW43-GW-1 88092293	MW43 DUP 9-7-88 DANGB-BG-MW50-GW-1 88092292	MW43 FB 9-7-88 DANGB-FB1 88092294	TB1 9-8-88 DANGB-TB1 88092308	BR1 9-7-88 DANGB-BR1 88092291
SEMI-VOLATILE ORGANICS (EPA 625)										
Data Package			#47	#47		#5	#5			#5
1,3-Dichlorobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
1,4-Dichlorobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
Hexachloroethane	10		U!	U!	NR	U!	U!	NR	NR	U!
Bis(2-chloroethyl)ether	10		U!	U!	NR	U!	U!	NR	NR	U!
1,2-Dichlorobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
N-Nitrosodimethylamine	10		U!	U!	NR	U!	U!	NR	NR	U!
Bis(2-chloroisopropyl)ether	10		U!	U!	NR	U!	U!	NR	NR	U!
N-Nitrosodi-n-propylamine	10		U!	U!	NR	U!	U!	NR	NR	U!
Hexachlorobutadiene	10		U!	U!	NR	U!	U!	NR	NR	U!
1,2,4-Trichlorobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
Nitrobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
Isophorone	10		U!	U!	NR	U!	U!	NR	NR	U!
Naphthalene	10		U!	U!	NR	U!	U!	NR	NR	U!
Bis(2-chloroethoxy)methane	10		U!	U!	NR	U!	U!	NR	NR	U!
2-Chloronaphthalene	10		U!	U!	NR	U!	U!	NR	NR	U!
Hexachlorocyclopentadiene	10		U!	U!	NR	U!	U!	NR	NR	U!
Acenaphthylene	10		U!	U!	NR	U!	U!	NR	NR	U!
Acenaphthene	10		U!	U!	NR	U!	U!	NR	NR	U!
Dimethyl Phthalate	10		U!	U!	NR	U!	U!	NR	NR	U!
2,6-Dinitrotoluene	10		U!	U!	NR	U!	U!	NR	NR	U!
Fluorene	10		U!	U!	NR	U!	U!	NR	NR	U!
2,4-Dinitrotoluene	10		U!	U!	NR	U!	U!	NR	NR	U!
Diethyl Phthalate	10		U!	U!	NR	U!	U!	NR	NR	U!
N-Nitrosodiphenylamine	10		U!	U!	NR	U!	U!	NR	NR	U!
Hexachlorobenzene	10		U!	U!	NR	U!	U!	NR	NR	U!
Phenanthrene	10		U!	U!	NR	U!	U!	NR	NR	U!
Anthracene	10		U!	U!	NR	U!	U!	NR	NR	U!
Dibutyl Phthalate	10		U!	U!	NR	U!	U!	NR	NR	15
Fluoranthene	10		U!	U!	NR	U!	U!	NR	NR	U!
4-Chlorophenyl Phenyl Ether	10		U!	U!	NR	U!	U!	NR	NR	U!
Pyrene	10		U!	U!	NR	U!	U!	NR	NR	U!
Butyl Benzyl Phthalate	10		U!	U!	NR	U!	U!	NR	NR	U!
Bis(2-ethylhexyl)phthalate	10		U!	10 B	NR	13	U!	NR	NR	U!
Chrysene	10		U!	U!	NR	U!	U!	NR	NR	U!
4-Bromophenyl Phenyl Ether	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzo(a)anthracene	10		U!	U!	NR	U!	U!	NR	NR	U!
Di-n-octylphthalate	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzo(b)fluoranthene	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzo(k)fluoranthene	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzidine	60		U!	U!	NR	U!	U!	NR	NR	U!
3,3'-Dichlorobenzidine	20		U!	U!	NR	U!	U!	NR	NR	U!
Benzo(a)pyrene	10		U!	U!	NR	U!	U!	NR	NR	U!
Indeno(1,2,3-cd)pyrene	10		U!	U!	NR	U!	U!	NR	NR	U!
Dibenzo(a,h)anthracene	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzo(ghi)perylene	10		U!	U!	NR	U!	U!	NR	NR	U!
Benzyl Alcohol	20		U!	U!	NR	U!	U!	NR	NR	U!

Table L-4
Background - Ground Water
Page 4

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW32	MW42	MW42 FB	MW43	MW43 DUP	MW43 FB	TB1	BR1
		Date Sampled:	9-8-88	9-8-88	9-8-88	9-7-88	9-7-88	9-7-88	9-8-88	9-7-88
		Field Sample No.:	DANGB-BG-MW32-GW-1	DANGB-BG-MW42-GW-1	DANGB-FB2	DANGB-BG-MW43-GW-1	DANGB-BG-MW50-GW-1	DANGB-FB1	DANGB-TB1	DANGB-BR1
		Lab Sample No.:	88092306	88092305	88092307	88092293	88092292	88092294	88092308	88092291
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2										
Acetophenone	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aniline	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4-Aminobyphenyl	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4-Chloroaniline	20		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
1-Chloronapthhalene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Dibenzofuran	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Diphenylamine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Ethyl methanesulfonate	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
3-Methylcholanthrene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Methylmethanesulfonate	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Methylnaphthalene	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
1-Naphthylamine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Naphthylamine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
3-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
N-Nitrosopiperidiene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Pentachlorobenzene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Pentachloronitrobenzene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Phenacetin	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Picoline	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Pronamide	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Alpha-BHC	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Gamma-BHC	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Beta-BHC	20		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Heptachlor	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Delta-BHC	15		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aldrin	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Heptachlor Epoxide	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endosulfan I	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Dieldrin	15		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4,4'-DDE	30		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endrin	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endosulfan II	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4,4'-DDD	15		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4,4-DDT	25		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endosulfan Sulfate	30		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endrin Aldehyde	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Endrin Ketone	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Chlordane	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Methoxychlor	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Toxaphene	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ

Table L-4
Background - Ground Water
Page 5

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW32 9-8-88 DANGB-BG-MW32-GW-1 88092306	MW42 9-8-88 DANGB-BG-MW42-GW-1 88092305	MW42 FB 9-8-88 DANGB FB2 88092307	MW43 9-7-88 DANGB-BG-MW43 GW-1 88092293	MW43 DUP 9-7-88 DANGB-BG-MW50-GW-1 88092292	MW43 FB 9-7-88 DANGB-FB1 88092294	TB1 9-8-88 DANGB-TB1 88092308	BR1 9-7-88 DANGB-BR1 88092291
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3										
Aroclor-1016	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1221	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1232	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1242	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1248	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1254	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Aroclor-1260	60		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Chlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Nitrophenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Phenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,4-Dimethylphenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,4-Dichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,4-Dinitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,6-Dichlorophenol	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Pentachlorophenol	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
4-Nitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
Benzoic Acid	50		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2-Methylphenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
3&4-Methylphenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	NR	UJ	UJ	NR	NR	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	NR	UJ

Table L-4
Background - Ground Water
Page 6

	Method Detection Limit	Well/QC No.:	MW32	MW42	MW42 FB	MW43	MW43 DUP	MW43 FB	TB1	BR1
		Date Sampled:	9-8-88	9-8-88	9-8-88	9-7-88	9-7-88	9-7-88	9-8-88	9-7-88
		Field Sample No.:	DANGB-BG-MW32-GW-1	DANGB-BG-MW42-GW-1	DANGB-FB2	DANGB-BG-MW43-GW-1	DANGB-BG-MW50-GW-1	DANGB-FB1	DANGB-TB1	DANGB-BR1
Parameter and Analysis Method		Lab Sample No.:	88092306	88092305	88092307	88092293	88092292	88092294	88092308	88092291
PESTICIDES AND PCB's (EPA 8080)										
Data Package			#47	#47		#5	#5			#5
Aldrin	0.05		U	U	NR	U	U	NR	NR	U
Alpha-BHC	0.05		U	U	NR	U	U	NR	NR	U
Beta-BHC	0.05		U	U	NR	U	U	NR	NR	U
Delta-BHC	0.05		U	U	NR	U	U	NR	NR	U
Gamma-BHC	0.05		U	U	NR	U	U	NR	NR	U
Chlorodane	0.5		U	U	NR	U	U	NR	NR	U
4,4'-DDD	0.10		U	U	NR	U	U	NR	NR	U
4,4'-DDE	0.10		U	U	NR	U	U	NR	NR	U
4,4'-DDT	0.10		U	U	NR	U	U	NR	NR	U
Dieldrin	0.10		U	U	NR	U	U	NR	NR	U
Endosulfan I	0.05		U	U	NR	U	U	NR	NR	U
Endosulfan II	0.10		U	U	NR	U	U	NR	NR	U
Endosulfan Sulfate	0.10		U	U	NR	U	U	NR	NR	U
Endrin	0.10		U	U	NR	U	U	NR	NR	U
Heptachlor	0.05		U	U	NR	U	U	NR	NR	U
Heptachlor Epoxide	0.05		U	U	NR	U	U	NR	NR	U
Methoxychlor	0.5		U	U	NR	U	U	NR	NR	U
Toxaphene	1.0		U	U	NR	U	U	NR	NR	U
PCB-1016	0.5		U	U	NR	U	U	NR	NR	U
PCB-1221	0.5		U	U	NR	U	U	NR	NR	U
PCB-1232	0.5		U	U	NR	U	U	NR	NR	U
PCB-1242	0.5		U	U	NR	U	U	NR	NR	U
PCB-1248	0.5		U	U	NR	U	U	NR	NR	U
PCB-1254	1.0		U	U	NR	U	U	NR	NR	U
PCB-1260	1.0		U	U	NR	U	U	NR	NR	U

Table L-4
Background - Ground Water
Page 7

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW32	MW42	MW42 FB	MW43	MW43 DUP	MW43 FB	TB1	BR1
		Date Sampled:	9-8-88	9-8-88	9-8-88	9-7-88	9-7-88	9-7-88	9-8-88	9-7-88
		Field Sample No.:	DANGB-BG-MW32-GW-1	DANGB-BG-MW42-GW-1	DANGB-FB2	DANGB-BG-MW43-GW-1	DANGB-BG-MW50-GW-1	DANGB-FB1	DANGB-TB1	DANGB-BR1
		Lab Sample No.:	88092306	88092305	88092307	88092293	88092292	88092294	88092308	88092291
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#47	#47		#5	#5			#5
Units: mg/L	1.5		U	U	NR	U	U	NR	NR	U
METALS (Units: mg/L)										
Data Package			#47	#47		#5	#5			#5
Arsenic (SW 7060)	0.01		< 0.005	< 0.005	NR	< 0.005	< 0.005	NR	NR	< 0.005
Barium (SW 6010)	0.2		0.12 B N	< 0.05 N	NR	< 0.13 B N	< 0.13 B N	NR	NR	< 0.05 N
Cadmium (SW 7131)	0.005		< 0.001	< 0.001	NR	< 0.001	< 0.001	NR	NR	< 0.001
Chromium (SW 7191)	0.01		0.0026 B	< 0.002	NR	< 0.003 B	< 0.002	NR	NR	< 0.002
Lead (SW 7421)	0.005		< 0.005	< 0.005	NR	< 0.005	< 0.005	NR	NR	< 0.005
Mercury (SW 7470)	0.0002		< 0.0002	< 0.0002	NR	< 0.0002	< 0.0002	NR	NR	< 0.0002
NITRATES (EPA 353.2)										
Data Package			#68	#68		#68	#68			#68
Units: mg/L	0.02		< 0.02	< 0.02	NR	< 0.02	< 0.02	NR	NR	< 0.02
RADIOLOGICAL PARAMETERS (Units: pCi/L)										
Data Package			#66	#66		#66	#66			#66
Gross Alpha (EPA SW 9310)	4		5.5 +/- 2.9	< 3	NR	4.6 +/- 2.7	4.2 +/- 2.6	NR	NR	< 3
Gross Beta (EPA SW 9130)	6		11 +/- 4	< 6	NR	11 +/- 4	8.5 +/- 3.7	NR	NR	< 6
Radium 226 (EPA SW 9315)	0.3		0.4 +/- 0.2	< 0.2	NR	< 0.3	0.3 +/- 0.2	NR	NR	< 0.2
SPECIFIC CONDUCTANCE (EPA 120.1)										
Units: mS/cm @ 25 C			1.9	0.48	NR	1.03	1.03	NR	NR	NR
TEMPERATURE (EPA 170.1)										
Units: C			9.2	11.0	NR	10.2	10.2	NR	NR	NR
pH (EPA 150.1)										
Units: pH Units			7.36	7.72	NR	6.95	6.95	NR	NR	NR

DUP	Duplicate
BR	Boiler rinsate.
FB	Field blank.
TB	Trip blank.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
NR	The analysis was not requested.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
!	The holding time was missed for this analysis. See Appendix N.
+/-	Plus or minus.

TABLE L-5
SITE 2
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SURFACE WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL6	SL6 DUP	SL6 FB	SL7	TB1
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SW-1	DANGB-2-SL20-SW-1	DANGB-FB20	DANGB-2-SL7-SW-1	DANGB-TB14
		Lab Sample No.:	88092769	88092768	88092775	88092770	88092773
HALOGENATED VOLATILE ORGANICS (SW 8010)							
Data Package			#3	#3	#3	#3	#3
Benzyl Chloride	0.50		U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U
Bromoform	0.20		U	U	U	U	24
Bromoethane	1.2		U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U
Chloral	50.0		U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U
Chloroform	0.05		U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	3.6
1,2-Dichlorobenzene	0.15		U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U
Dichloromethane	0.25		U	U	0.96 B	0.24 B	1.2 B
1,2-Dichloropropane	0.04		U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U

Table L-5
Site 2 - Surface Water
Page 2

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL6 9-26-88 DANGB-2-SL6-SW-1 88092769	SL6 DUP 9-26-88 DANGB-2-SL29-SW-1 88092768	SL6 FB 9-26-88 DANGB-FB20 88092775	SL7 9-26-88 DANGB-2-SL7-SW-1 88092770	TB1 9-26-88 DANGB-TB14 88092773
AROMATIC VOLATILE ORGANICS (SW 8020)							
Data Package			#3	#3	#3	#3	#3
Benzene	0.2		U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U
Toluene	0.2		U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U

Table L-5
Site 2 - Surface Water
Page 3

	Method Detection Limit	Location/QC No.:	SL6	SL6 DUP	SL6 FB	SL7	TB1
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SW-1	DANGB-2-SL29-SW-1	DANGB-FB20	DANGB-2-SL7-SW-1	DANGB-TB14
Parameter and Analysis Method		Lab Sample No.:	88092769	88092768	88092775	88092770	88092773
SEMI-VOLATILE ORGANICS (EPA 625)							
Data Package			#3	#3		#3	
1,3-Dichlorobenzene	10		U!	U!	NR	U!	NR
1,4-Dichlorobenzene	10		U!	U!	NR	U!	NR
Hexachloroethane	10		U!	U!	NR	U!	NR
Bis(2-chloroethyl)ether	10		U!	U!	NR	U!	NR
1,2-Dichlorobenzene	10		U!	U!	NR	U!	NR
N-Nitrosodimethylamine	10		U!	U!	NR	U!	NR
Bis(2-chloroisopropyl)ether	10		U!	U!	NR	U!	NR
N-Nitrosodi-n-propylamine	10		U!	U!	NR	U!	NR
Hexachlorobutadiene	10		U!	U!	NR	U!	NR
1,2,4-Trichlorobenzene	10		U!	U!	NR	U!	NR
Nitrobenzene	10		U!	U!	NR	U!	NR
Isophorone	10		U!	U!	NR	U!	NR
Naphthalene	10		U!	U!	NR	U!	NR
Bis(2-chloroethoxy)methane	10		U!	U!	NR	U!	NR
2-Chloronaphthalene	10		U!	U!	NR	U!	NR
Hexachlorocyclopentadiene	10		U!	U!	NR	U!	NR
Acenaphthylene	10		U!	U!	NR	U!	NR
Acenaphthene	10		U!	U!	NR	U!	NR
Dimethyl Phthalate	10		U!	U!	NR	U!	NR
2,6-Dinitrotoluene	10		U!	U!	NR	U!	NR
Fluorene	10		U!	U!	NR	U!	NR
2,4-Dinitrotoluene	10		U!	U!	NR	U!	NR
Diethyl Phthalate	10		U!	U!	NR	U!	NR
N-Nitrosodiphenylamine	10		U!	U!	NR	U!	NR
Hexachlorobenzene	10		U!	U!	NR	U!	NR
Phenanthrene	10		U!	U!	NR	U!	NR
Anthracene	10		U!	U!	NR	U!	NR
Dibutyl Phthalate	10		U!	U!	NR	U!	NR
Fluoranthene	10		U!	U!	NR	U!	NR
4-Chlorophenyl Phenyl Ether	10		U!	U!	NR	U!	NR
Pyrene	10		U!	U!	NR	U!	NR
Butyl Benzyl Phthalate	10		U!	U!	NR	U!	NR
Bis(2-ethylhexyl)phthalate	10		34 B	11 B	NR	U!	NR
Chrysene	10		U!	U!	NR	U!	NR
4-Bromophenyl Phenyl Ether	10		U!	U!	NR	U!	NR
Benzo(a)anthracene	10		U!	U!	NR	U!	NR
Di-n-octylphthalate	10		U!	U!	NR	U!	NR
Benzo(b)fluoranthene	10		U!	U!	NR	U!	NR
Benzo(k)fluoranthene	10		U!	U!	NR	U!	NR
Benzidine	60		U!	U!	NR	U!	NR
3,3'-Dichlorobenzidine	20		U!	U!	NR	U!	NR
Benzo(a)pyrene	10		U!	U!	NR	U!	NR
Indeno(1,2,3-cd)pyrene	10		U!	U!	NR	U!	NR
Dibenzo(a,h)anthracene	10		U!	U!	NR	U!	NR
Benzo(ghi)perylene	10		U!	U!	NR	U!	NR
Benzyl Alcohol	20		U!	U!	NR	U!	NR

Table L-5
Site 2 - Surface Water
Page 4

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL6	SL6 DUP	SL6 FB	SL7	TB1
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SW-1	DANGB-2-SL29-SW-1	DANGB-FB20	DANGB-2-SL7-SW-1	DANGB-TB14
		Lab Sample No.:	88092769	88092768	88092775	88092770	88092773
SEMI-VOLATILE ORGANICS (EPA 625) Continued Page 2.							
Acetophenone	-		UI	UI	NR	UI	NR
Aniline	-		UI	UI	NR	UI	NR
4-Aminobyphenyl	-		UI	UI	NR	UI	NR
4-Chloroaniline	20		UI	UI	NR	UI	NR
1-Chloronapththalene	-		UI	UI	NR	UI	NR
Dibenzofuran	10		UI	UI	NR	UI	NR
p-Dimethylaminoazobenzene	-		UI	UI	NR	UI	NR
7,12-Dimethylbenz(a)anthracene	-		UI	UI	NR	UI	NR
a-,a-Dimethylphenethylamine	-		UI	UI	NR	UI	NR
Diphenylamine	-		UI	UI	NR	UI	NR
1,2-Diphenylhydrazine	-		UI	UI	NR	UI	NR
Ethylmethanesulfonate	-		UI	UI	NR	UI	NR
3-Methylcholanthrene	-		UI	UI	NR	UI	NR
Methylmethanesulfonate	-		UI	UI	NR	UI	NR
2-Methylnaphthalene	10		UI	UI	NR	UI	NR
1-Naphthylamine	-		UI	UI	NR	UI	NR
2-Naphthylamine	-		UI	UI	NR	UI	NR
2-Nitroaniline	50		UI	UI	NR	UI	NR
3-Nitroaniline	50		UI	UI	NR	UI	NR
4-Nitroaniline	50		UI	UI	NR	UI	NR
N-Nitroso-di-n-butylamine	-		UI	UI	NR	UI	NR
N-Nitrosopiperidien	-		UI	UI	NR	UI	NR
Pentachlorobenzene	-		UI	UI	NR	UI	NR
Pentachloronitrobenzene	-		UI	UI	NR	UI	NR
Phenacetin	-		UI	UI	NR	UI	NR
2-Picoline	-		UI	UI	NR	UI	NR
Pronamide	-		UI	UI	NR	UI	NR
1,2,4,5-Tetrachlorobenzene	-		UI	UI	NR	UI	NR
Alpha-BHC	-		UI	UI	NR	UI	NR
Gamma-BHC	-		UI	UI	NR	UI	NR
Beta-BHC	20		UI	UI	NR	UI	NR
Heptachlor	10		UI	UI	NR	UI	NR
Delta-BHC	15		UI	UI	NR	UI	NR
Aldrin	10		UI	UI	NR	UI	NR
Heptachlor Epoxide	10		UI	UI	NR	UI	NR
Endosulfan I	-		UI	UI	NR	UI	NR
Dieldrin	15		UI	UI	NR	UI	NR
4,4'-DDE	30		UI	UI	NR	UI	NR
Endrin	-		UI	UI	NR	UI	NR
Endosulfan II	-		UI	UI	NR	UI	NR
4,4'-DDD	15		UI	UI	NR	UI	NR
4,4-DDT	25		UI	UI	NR	UI	NR
Endosulfan Sulfate	30		UI	UI	NR	UI	NR
Endrin Aldehyde	-		UI	UI	NR	UI	NR
Endrin Ketone	-		UI	UI	NR	UI	NR
Chlordane	60		UI	UI	NR	UI	NR
Methoxychlor	-		UI	UI	NR	UI	NR
Toxaphene	60		UI	UI	NR	UI	NR

Table L-5
Site 2 - Surface Water
Page 5

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL6 9-26-88 DANGB-2-SL6-SW-1 88092769	SL6 DUP 9-26-88 DANGB-2-SL29-SW-1 88092768	SL6 FB 9-26-88 DANGB-FB20 88092775	SL7 9-26-88 DANGB-2-SL7-SW-1 88092770	TB1 9-26-88 DANGB-TB14 88092773
SEMI-VOLATILE ORGANICS (EPA 625) Continued Page 3.							
Aroclor-1016	60		UJ	UJ	NR	UJ	NR
Aroclor-1221	60		UJ	UJ	NR	UJ	NR
Aroclor-1232	60		UJ	UJ	NR	UJ	NR
Aroclor-1242	60		UJ	UJ	NR	UJ	NR
Aroclor-1248	60		UJ	UJ	NR	UJ	NR
Aroclor-1254	60		UJ	UJ	NR	UJ	NR
Aroclor-1260	60		UJ	UJ	NR	UJ	NR
2-Chlorophenol	10		UJ	UJ	NR	UJ	NR
2-Nitrophenol	10		UJ	UJ	NR	UJ	NR
Phenol	10		UJ	UJ	NR	UJ	NR
2,4-Dimethylphenol	10		UJ	UJ	NR	UJ	NR
2,4-Dichlorophenol	10		UJ	UJ	NR	UJ	NR
2,4,6-Trichlorophenol	10		UJ	UJ	NR	UJ	NR
4-Chloro-3-methylphenol	20		UJ	UJ	NR	UJ	NR
2,4-Dinitrophenol	50		UJ	UJ	NR	UJ	NR
2,6-Dichlorophenol	-		UJ	UJ	NR	UJ	NR
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	NR	UJ	NR
Pentachlorophenol	50		UJ	UJ	NR	UJ	NR
4-Nitrophenol	50		UJ	UJ	NR	UJ	NR
Benzoic Acid	50		UJ	UJ	NR	UJ	NR
2-Methylphenol	10		UJ	UJ	NR	UJ	NR
3&4-Methylphenol	10		UJ	UJ	NR	UJ	NR
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	NR	UJ	NR
2,4,5-Trichlorophenol	10		UJ	UJ	NR	UJ	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)	1.5						
Data Package			#3	#3		#3	
Units: mg/L			UJ	UJ	NR	U	NR
METALS (Units: mg/L)							
Data Package			#3	#3		#3	
Barium (SW 6010)	0.2		<0.2	<0.2	NR	<0.2	NR
Cadmium (SW 7131)	0.005		<0.005	<0.005	NR	<0.005	NR
Chromium (SW 7191)	0.01		<0.01	<0.01	NR	<0.01	NR
Lead (SW 7421)	0.005		<0.005	<0.005	NR	<0.005	NR
NITRATE							
Data Package			#68	#68	#68	#68	
Units: mg/L	0.02		0.04	< 0.02	NR	0.04	NR
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			0.493	0.493	NR	0.493	NR
TEMPERATURE (EPA 170.1) Units: °C			11.8	11.8	NR	11.6	NR
pH (EPA 150.1) Units: pH Units			7.14	7.14	NR	7.1	NR

DUP	Duplicate.
FB	Field blank.
TB	Trip blank.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
NR	The analysis was not requested.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
!	The holding time was missed for this analysis. See Appendix N.
<	Less than.
-	The EPA has not yet reported on a method detection limit for this parameter.

TABLE L-6
SITE 2
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SEDIMENT SAMPLES
(Results in micrograms per kilogram unlses otherwise noted.)

Parameter and Analysis Method	Method Detection Limit				
		Well/QC No.:	SL6	SL6 DUP	SL7
		Date Sampled:	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SD-1	DANGB-2-SL29-SD-1	DANGB-2-SL7-SD-1
		Lab Sample No.:	88092800	88092801	88092799
HALOGENATED VOLATILE ORGANICS (SW 8010)					
Data Package			#24	#24	#24
Benzyl Chloride	0.50		U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U
Bromobenzene	0.50		U	U	U
Bromodichloromethane	0.10		U	U	U
Bromoform	0.20		U	U	U
Bromoethane	1.2		U	U	U
Carbon Tetrachloride	0.12		U	U	U
Chloracetaldehyde	50.0		U	U	U
Chloral	50.0		U	U	U
Chlorobenzene	0.25		U	U	U
Chloroethane	0.52		U	U	U
Chloroform	0.05		U	U	U
1-Chlorohexane	0.50		U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U
Chloromethane	0.08		U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U
Chlorotoluene	0.50		U	U	U
Dibromochloromethane	0.09		U	U	U
Dibromoethane	0.50		U	U	U
1,2-Dichlorobenzene	0.15		U	U	U
1,3-Dichlorobenzene	0.32		U	U	U
1,4-Dichlorobenzene	0.24		U	U	U
Dichlorodifluoromethane	1.8		U	U	U
1,1-Dichloroethane	0.07		U	U	U
1,2-Dichloroethane	0.03		U	U	U
1,1-Dichloroethene	0.13		U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U
Dichloromethane	0.25		65 B	51 B	52 B
1,2-Dichloropropane	0.04		U	U	U
1,3-Dichloropropylene	0.34		U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U
Tetrachloroethene	0.03		U	U	U
1,1,1-Trichloroethane	0.03		U	U	U
1,1,2-Trichloroethane	0.02		U	U	U
Trichloroethene	0.12		U	U	0.26
Trichlorofluoromethane	0.50		U	U	U
Trichloropropane	0.50		U	U	U
Vinyl Chloride	0.18		U	U	U

Table L-6
Site 2 - Sediment
Page 2

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL6	SL6 DUP	SL7
		Date Sampled:	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SD-1	DANGB-2-SL29-SD-1	DANGB-2-SL7-SD-1
		Lab Sample No.:	88092800	88092801	88092799
AROMATIC VOLATILE ORGANICS (SW 8020)					
Data Package			#24	#24	#24
Benzene	0.2		U	U	U
Chlorobenzene	0.2		U	U	U
1,2-Dichlorobenzene	0.4		U	U	U
1,3-Dichlorobenzene	0.4		U	U	U
1,4-Dichlorobenzene	0.3		U	U	U
Ethyl Benzene	0.2		U	U	U
Toluene	0.2		U	U	U
Total Xylenes	0.4		U	U	U

Table L-6
Site 2 - Sediment
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL6	SL6 DUP	SL7
		Date Sampled:	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SD-1	DANGB-2-SL29-SD-1	DANGB-2-SL7-SD-1
		Lab Sample No.:	88092800	88092801	88092799
SEMI-VOLATILE ORGANICS (SW 8270)					
Data Package			#24	#24	#24
1,3-Dichlorobenzene	330		U	U	U
1,4-Dichlorobenzene	330		U	U	U
Hexachloroethane	330		U	U	U
Bis(2-chloroethyl)ether	330		U	U	U
1,2-Dichlorobenzene	330		U	U	U
N-Nitrosodimethylamine	330		U	U	U
Bis(2-chloroisopropyl)ether	330		U	U	U
N-Nitrosodi-n-propylamine	330		U	U	U
Hexachlorobutadiene	330		U	U	U
1,2,4-Trichlorobenzene	330		U	U	U
Nitrobenzene	330		U	U	U
Isophorone	330		U	U	U
Naphthalene	330		U	U	U
Bis(2-chloroethoxy)methane	330		U	U	U
2-Chloronaphthalene	330		U	U	U
Hexachlorocyclopentadiene	330		U	U	U
Acenaphthylene	330		U	U	U
Acenaphthene	330		U	U	U
Dimethyl Phthalate	330		U	U	U
2,6-Dinitrotoluene	330		U	U	U
Fluorene	330		U	U	U
2,4-Dinitrotoluene	330		U	U	U
Diethyl Phthalate	330		U	U	U
N-Nitrosodiphenylamine	330		U	U	U
Hexachlorobenzene	330		U	U	U
Phenanthrene	330		U	U	U
Anthracene	330		U	U	U
Dibutyl Phthalate	330		U	U	U
Fluoranthene	330		U	U	U
4-Chlorophenyl Phenyl Ether	330		U	U	U
Pyrene	330		U	U	U
Butyl Benzyl Phthalate	330		U	U	U
Bis(2-ethylhexyl)phthalate	330		U	U	U
Chrysene	330		U	U	U
4-Bromophenyl Phenyl Ether	330		U	U	U
Benzo(a)anthracene	330		U	U	U
Di-n-octylphthalate	330		U	U	U
Benzo(b)fluoranthene	330		U	U	U
Benzo(k)fluoranthene	330		U	U	U
Benzidine	2000		U	U	U
3,3'-Dichlorobenzidine	660		U	U	U
Benzo(a)pyrene	330		U	U	U
Indeno(1,2,3-cd)pyrene	330		U	U	U
Dibenzo(a,h)anthracene	330		U	U	U
Benzo(ghi)perylene	330		U	U	U
Benzyl Alcohol	660		U	U	U

Table L-6
Site 2 - Sediment
Page 4

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL6	SL6 DUP	SL7
		Date Sampled:	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SD-1	DANGB-2-SL29-SD-1	DANGB-2-SL7-SD-1
		Lab Sample No.:	88092800	88092801	88092799
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2					
Acetophenone	-		U	U	U
Aniline	-		U	U	U
4-Aminobyphenyl	-		U	U	U
4-Chloroaniline	660		U	U	U
1-Chloronapththalene	-		U	U	U
Dibenzofuran	330		U	U	U
p-Dimethylaminoazobenzene	-		U	U	U
7,12-Dimethylbenz(a)anthracene	-		U	U	U
s-,a-Dimethylphenethylamine	-		U	U	U
Diphenylamine	-		U	U	U
1,2-Diphenylhydrazine	-		U	U	U
Ethyl methanesulfonate	-		U	U	U
3-Methylcholanthrene	-		U	U	U
Methylmethanesulfonate	-		U	U	U
2-Methylnaphthalene	330		U	U	U
1-Naphthylamine	-		U	U	U
2-Naphthylamine	-		U	U	U
2-Nitroaniline	1600		U	U	U
3-Nitroaniline	1600		U	U	U
4-Nitroaniline	1600		U	U	U
N-Nitroso-di-n-butylamine	-		U	U	U
N-Nitrosopiperidiene	-		U	U	U
Pentachlorobenzene	-		U	U	U
Pentachloronitrobenzene	-		U	U	U
Phenacetin	-		U	U	U
2-Picoline	-		U	U	U
Pronamide	-		U	U	U
1,2,4,5-Tetrachlorobenzene	-		U	U	U
Alpha-BHC	-		U	U	U
Gamma-BHC	-		U	U	U
Beta-BHC	660		U	U	U
Heptachlor	330		U	U	U
Delta-BHC	500		U	U	U
Aldrin	330		U	U	U
Heptachlor Epoxide	330		U	U	U
Endosulfan I	-		U	U	U
Dieldrin	500		U	U	U
4,4'-DDE	1000		U	U	U
Endrin	-		U	U	U
Endosulfan II	-		U	U	U
4,4'-DDD	500		U	U	U
4,4-DDT	830		U	U	U
Endosulfan Sulfate	1000		U	U	U
Endrin Aldehyde	-		U	U	U
Endrin Ketone	-		U	U	U
Chlordane	2000		U	U	U
Methoxychlor	-		U	U	U
Toxaphene	2000		U	U	U

Table L-6
Site 2 - Sediment
Page 5

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL6	SL6 DUP	SL7
		Date Sampled:	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-2-SL6-SD-1	DANGB-2-SL29-SD-1	DANGB-2-SL7-SD-1
		Lab Sample No.:	88092800	88092801	88092799
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3					
Aroclor-1016	2000		U	U	U
Aroclor-1221	2000		U	U	U
Aroclor-1232	2000		U	U	U
Aroclor-1242	2000		U	U	U
Aroclor-1248	2000		U	U	U
Aroclor-1254	2000		U	U	U
Aroclor-1260	2000		U	U	U
2-Chlorophenol	330		U	U	U
2-Nitrophenol	330		U	U	U
Phenol	330		U	U	U
2,4-Dimethylphenol	330		U	U	U
2,4-Dichlorophenol	330		U	U	U
2,4,6-Trichlorophenol	330		U	U	U
4-Chloro-3-methylphenol	660		U	U	U
2,4-Dinitrophenol	1600		U	U	U
2,6-Dichlorophenol	-		U	U	U
2-Methyl-4,6-dinitrophenol	1600		U	U	U
Pentachlorophenol	1600		U	U	U
4-Nitrophenol	1600		U	U	U
Benzoic Acid	1600		U	U	U
2-Methylphenol	330		U	U	U
3&4-Methylphenol	330		U	U	U
2,3,4,6-Tetrachlorophenol	-		U	U	U
2,4,5-Trichlorophenol	330		U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)					
Data Package			#24	#24	#24
Units: mg/kg	100		< 100	120	< 100
MOISTURE, ETC.					
Data Package			#24	#24	#24
Units: Weight percent			16.9	22.5	21.5
METALS (Units mg/kg)					
Data Package			#24	#24	#24
Arsenic (SW 7060)			0.00076	0.001	1.3
Barium (SW 6010)			53.9	52.2	45
Cadmium (SW 7131)			< 0.87	< 0.88	< 0.61
Chromium (SW 7191)			19.0 N	21.9 *	20 N
Lead (SW 7421)			4.8	6.7 S	4.3
Mercury (SW 7471)			<0.00017	< 0.00018	< 0.00012

DUP	Duplicate.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
S	For metals the reported value was determined by the method of standard additions.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
*	Duplicate not within control limits.
<	Less than.
-	The EPA has not yet reported on a method detection limit for this parameter.

TABLE L-7
SITE 2
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SOIL SAMPLES
(Results in micrograms per kilogram unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
		Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
		Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30-88	7-30-38	7-30-88	7-30-88
		Field Sample No:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
		Lab Sample No:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Benzyl Chloride	0.50									
Bis(2-chloroethoxy)methane	5.0									
Bis(2-chloroisopropyl)ether	5.0									
Bromobenzene	0.50									
Bromodichloromethane	0.10									
Bromoform	0.20									
Bromoethane	1.2									
Carbon Tetrachloride	0.12									
Chloracetaldehyde	50.0									
Chloral	50.0									
Chlorobenzene	0.25									
Chloroethane	0.52									
Chloroform	0.05		Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.
1-Chlorohexane	0.50									
2-Chloroethyl Vinyl Ether	0.13									
Chloromethane	0.08		See	See	See	See	See	See	See	See
Chloromethyl Methyl Ether	5.0		SW8010	SW8010	SW8010	SW8010	SW8010	SW8010	SW8010	SW8010
Chlorotoluene	0.50		Analysis	Analysis	Analysis	Analysis	Analysis	Analysis	Analysis	Analysis
Dibromochloromethane	0.09		for	for	for	for	for	for	for	for
Dibromomethane	0.50		BH1 R-SS1	BH1 R-SS2	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH2 R-SS1	BH2 R-SS4	BH2 R-SS6
1,2-Dichlorobenzene	0.15		88092215	88092216	88092217	88092219	88092223	88092220	88092225	88092227
1,3-Dichlorobenzene	0.32									
1,4-Dichlorobenzene	0.24									
Dichlorodifluoromethane	1.8									
1,1-Dichloroethane	0.07									
1,2-Dichloroethane	0.03									
1,1-Dichloroethene	0.13									
Trans-1,2-Dichloroethene	0.10									
Dichloromethane	0.25									
1,2-Dichloropropane	0.04									
1,3-Dichloropropylene	0.34									
1,1,2,2-Tetrachloroethane	0.03									
1,1,1,2-Tetrachloroethane	0.50									
Tetrachloroethene	0.03									
1,1,1-Trichloroethane	0.03									
1,1,2-Trichloroethane	0.02									
Trichloroethene	0.12									
Trichlorofluoromethane	0.50									
Trichloropropane	0.50									
Vinyl Chloride	0.18									

Table L-7
Site 2 - Soil
Page 1B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2-SS9	BH1 R-SS1	BH1 R-SS2	BH1 R-SS3	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH1 R-SS7
		Sample Depth, (ft):	16-18	0-2	2-4	6-8	8-10	10-12	15-17	22-24
		Sample Date:	7-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88
		Field Sample No.:	DANGB-2-BH2-SS9	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS3	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH1-SS7
		Lab Sample No.:	88081593	88092215	88092216	88092218	88092217	88092219	88092223	88092224
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package				#35	#35	#35	#35	#35	#32	#32
Benzyl Chloride	0.50			U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0			U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0			U	U	U	U	U	U	U
Bromobenzene	0.50			U	U	U	U	U	U	U
Bromodichloromethane	0.10			U	U	U	U	U	U	U
Bromoform	0.20			U	U	U	U	U	U	U
Bromoethane	1.2			U	U	U	U	U	U	U
Carbon Tetrachloride	0.12			U	U	U	U	U	U	U
Chloracetaldehyde	50.0			U	U	U	U	U	U	U
Chloral	50.0			U	U	U	U	U	U	U
Chlorobenzene	0.25			U	U	U	U	U	U	U
Chloroethane	0.52			U	U	U	U	U	U	U
Chloroform	0.05			U	U	1.7 B	0.9 B	0.6 B	0.44 B	1.4 B
1-Chlorohexane	0.50			U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13			U	U	U	U	U	U	U
Chloromethane	0.08			U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0			U	U	U	U	U	U	U
Chlorotoluene	0.50			U	U	U	U	U	U	U
Dibromochloromethane	0.09		Note 1.	U	U	U	U	U	U	U
Dibromomethane	0.50			U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15			61	****	260	30	36	U	U
1,3-Dichlorobenzene	0.32			U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24			U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8			U	U	U	U	U	U	U
1,1-Dichloroethane	0.07			U	U	U	U	U	U	U
1,2-Dichloroethane	0.03			U	U	U	U	U	U	U
1,1-Dichloroethene	0.13			U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10			U	U	10	17	7.4	U	U
Dichloromethane	0.25			5.2 B	2.6 B	12 B	2.2 B	7.3 B	21 B	U
1,2-Dichloropropane	0.04			U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34			U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03			U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50			U	U	U	U	U	U	U
Tetrachloroethene	0.03			5.2	U	1.0	0.3	0.3	U	U
1,1,1-Trichloroethane	0.03			U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02			U	U	U	U	U	U	U
Trichloroethene	0.12			1.9	1.8	58	15	63	U	U
Trichlorofluoromethane	0.50			U	U	U	U	U	U	U
Trichloropropane	0.50			U	U	U	U	U	U	U
Vinyl Chloride	0.18			U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 1C

	Method Detection Limit									
		Location/QC No:	BH2 R-SS1	BH2 R-SS2	BH2 R-SS3	BH2 R-SS4	BH2 R-SS5	BH2 R-SS6	MW12A-SS1	MW12A-SS1 DUP
		Sample Depth, (ft):	0-2	5-6	10-12	14-15	20-22	24-25	0-2	0-2
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-2-BH2-SS1	DANGB-2-BH2-SS2	DANGB-2-BH2-SS3	DANGB-2-BH2-SS4	DANGB-2-BH2-SS5	DANGB-2-BH2-SS6	DANGB-2-MW12-SS1	DANGB-2-MW12-SS4
Parameter and Analysis Method		Lab Sample No.:	88092220	88092221	88092222	88092225	88092226	88092227	88081651	88081664
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#35	#35	#35	#32	#32	#32	#14	#14
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		1.3 B	U	33 B	1.7 B	0.43 B	0.33 B	0.06 B	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		340	21	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		1.8	0.8	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		90	95	150	U	U	U	U	U
Dichloromethane	0.25		7.8 B	19 B	4.0 B	1.5 B	3.2 B	1.9 B	1.0 B	1.0 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	17	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		2300	150	0.7	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		1600	71	24	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 1D

Parameter and Analysis Method	Method Detection Limit	Location/OC No:	MW12A-SS3	MW12A-SS5	MW13A-SS1	MW13A-SS3	MW13A-SS4	MW37-SS1	MW37-SS2	MW37-SS2 DUP
		Sample Depth, (ft):	5-15	15-20	0-2	8-10	14-15	0-1	5-6	5-6
		Sample Date:	8-5-88	8-5-88	8-5-88	8-5-88	8-5-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW12-SS3	DANGB-2-MW12-SS5	DANGB-2-MW13-SS1	DANGB-2-MW13-SS3	DANGB-2-MW13-SS4	DANGB-2-MW37-SS1	DANGB-2-MW37-SS2	DANGB-2-MW37-SS5
		Lab Sample No.:	88081662	88081663	88081692	88081693	88081694	88081883	88081884	88081887
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#14	#14	#31	#31	#31	#52	#52	#52
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	0.12 B	U	U	U	0.17 B	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		1.6 B	1.7 B	9.9 B	4.3 B	4.4 B	6.0 B	2.9 B	3.8 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 1B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW37-SS3	MW37-SS4	MW38-SS1	MW38-SS2	MW38-SS3	MW39-SS1	MW39-SS2	MW39-SS3
		Sample Depth, (ft):	16-17	17.5-18	0-1.5	9-10.5	17-19	0-1	5-6	21-22
		Sample Date:	8-15-88	8-15-88	8-13-88	8-13-88	8-13-88	8-15-88	8-15-88	8-15-88
		Field Sample No:	DANGB-2-MW37-SS3	DANGB-2-MW37-SS4	DANGB-2-MW38-SS1	DANGB-2-MW38-SS2	DANGB-2-MW38-SS3	DANGB-2-MW39-SS1	DANGB-2-MW39-SS2	DANGB-2-MW39-SS3
		Lab Sample No:	88081885	88081886	88081877	88081878	88081879	88081888	88081889	88081890
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#52	#52	#15	#15	#15	#52	#52	#52
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	0.08 B	U	0.2 B	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		2.1 B	2.2 B	6.1 B	6.5 B	63 B	18 B	4.6 B	49 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 1F

	Method Detection Limit	Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No.:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MW41-SS3
Parameter and Analysis Method		Lab Sample No.:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	88081941
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		0.13 B	U	0.1 B	0.6 B	U	0.5 B	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		4.4 B	0.9 B	4.4 B	6.8 B	5.6 B	5.4 B	3.8 B	3.4 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 2A

	Method Detection Limit	Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
		Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
		Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30-88	7-30-88	7-30-88	7-30-88
		Field Sample No.:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
Parameter and Analysis Method		Lab Sample No.:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package										
Benzene	0.2		Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.
Chlorobenzene	0.2									
1,2-Dichlorobenzene	0.4		See	See	See	See	See	See	See	See
1,3-Dichlorobenzene	0.4		SW8020	SW8020	SW8020	SW8020	SW8020	SW8020	SW8020	SW8020
1,4-Dichlorobenzene	0.3		Analysis	Analysis	Analysis	Analysis	Analysis	Analysis	Analysis	Analysis
Ethyl Benzene	0.2		for	for	for	for	for	for	for	for
Toluene	0.2		BH1 R-SS1	BH1 R-SS2	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH2 R-SS1	BH2 R-SS4	BH2 R-SS6
Xylenes	0.4		88092215	88092216	88092217	88092219	88092223	88092220	88092225	88092227

Table L-7
Site 2 - Soil
Page 2B

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	BH2-SS9 16-18 7-30-88 DANGB-2-BH2-SS9 88081593	BH1 R-SS1 0-2 8-30-88 DANGB-2-BH1-SS1 88092215	BH1 R-SS2 2-4 8-30-88 DANGB-2-BH1-SS2 88092216	BH1 R-SS3 6-8 8-30-88 DANGB-2-BH1-SS3 88092218	BH1 R-SS4 8-10 8-30-88 DANGB-2-BH1-SS4 88092217	BH1 R-SS5 10-12 8-30-88 DANGB-2-BH1-SS5 88092219	BH1 R-SS6 15-17 8-30-88 DANGB-2-BH1-SS6 88092223	BH1 R-SS7 22-24 8-30-88 DANGB-2-BH1-SS7 88092224
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package				#35	#35	#35	#35	#35	#32	#32
Benzene	0.2		Note 1.	2500	1500	1400	3100	1900	2.8	U
Chlorobenzene	0.2			U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4			U	U	U	•	•	U	U
1,3-Dichlorobenzene	0.4			U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3			U	U	U	U	U	U	U
Ethyl Benzene	0.2			4400	6600	14000	22000	2400	U	0.44
Toluene	0.2			2000 B	610 B	15000	1700	1100	200	1.7
Xylenes	0.4			24000	13000	71000	27000	8600	U	U

Table L-7
Site 2 - Soil
Page 2C

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	BH2 R-SS1 0-2 8-30-88 DANGB-2-BH2-SS1 88092220	BH2 R-SS2 5-6 8-30-88 DANGB-2-BH2-SS2 88092221	BH2 R-SS3 10-12 8-30-88 DANGB-2-BH2-SS3 88092222	BH2 R-SS4 14-15 8-30-88 DANGB-2-BH2-SS4 88092225	BH2 R-SS5 20-22 8-30-88 DANGB-2-BH2-SS5 88092226	BH2 R-SS6 24-25 8-30-88 DANGB-2-BH2-SS6 88092227	MW12A-SS1 0-2 8-5-88 DANGB-2-MW12-SS1 88081661	MW12A-SS1 DUP 0-2 8-5-88 DANGB-2-MW12-SS4 88081664
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#35	#35	#35	#32	#32	#32	#14	#14
Benzene	0.2		1200	1700	1100	U	0.43	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		•••	•	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		5200	25000	500	U	U	U	U	U
Toluene	0.2		36000	7200	570	U	4.0	11	3.1	73
Xylenes	0.4		180000	27000	2200	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 2D

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW12A-SS3 5-15 8-5-88 DANGB-2-MW12-SS3 88081662	MW12A-SS5 15-20 8-5-88 DANGB-2-MW12-SS5 88081663	MW13A-SS1 0-2 8-5-88 DANGB-2-MW13-SS1 88081692	MW13A-SS3 8-10 8-5-88 DANGB-2-MW13-SS3 88081693	MW13A-SS4 14-15 8-5-88 DANGB-2-MW13-SS4 88081694	MW37-SS1 0-1 8-15-88 DANGB-2-MW37-SS1 88081883	MW37-SS2 5-6 8-15-88 DANGB-2-MW37-SS2 88081884	MW37-SS2 DUP 5-6 8-15-88 DANGB-2-MW37-SS5 88081887
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#14	#14	#31	#31	#31	#52	#52	#52
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		2.1	2.3	19	13	4.9	38	90	61
Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 2E

		Location/QC No:	MW37-SS3	MW37-SS4	MW38-SS1	MW38-SS2	MW38-SS3	MW39-SS1	MW39-SS2	MW39-SS3
	Method	Sample Depth, (ft):	16-17	17.5-18	0-1.5	9-10.5	17-19	0-1	5-6	21-22
	Detection	Sample Date:	8-15-88	8-15-88	8-13-88	8-13-88	8-13-88	8-15-88	8-15-88	8-15-88
	Limit	Field Sample No.:	DANGB-2-MW37-SS3	DANGB-2-MW37-SS4	DANGB-2-MW38-SS1	DANGB-2-MW38-SS2	DANGB-2-MW38-SS3	DANGB-2-MW39-SS1	DANGB-2-MW39-SS2	DANGB-2-MW39-SS3
Parameter and Analysis Method		Lab Sample No.:	88081885	88081886	88081877	88081878	88081879	88081888	88081889	88081890
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#52	#52	#15	#15	#15	#52	#52	#52
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		64	56	12	8.8	105	1.4	520	12
Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 2F

	Method Detection Limit	Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No.:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MW41-SS3
Parameter and Analysis Method		Lab Sample No.:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	88081941
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		37	8.8	8.9	4.2	29	57	200	47
Xylenes	0.4		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 3A

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
		Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
		Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30-88	7-30-88	7-30-88	7-30-88
		Field Sample No.:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
		Lab Sample No.:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#16	#16	#16	#16	#7	#7	#7	#7
1,3-Dichlorobenzene	330		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	330		U	U	U	U	U	U	U	U
Hexachloroethane	330		U	U	U	U	U	U	U	U
Bis(2-chloroethyl)ether	330		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	330		U	U	U	U	U	U	U	U
N-Nitrosodimethylamine	330		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	330		U	U	U	U	U	U	U	U
N-Nitrosodi-n-propylamine	330		U	U	U	U	U	U	U	U
Hexachlorobutadiene	330		U	U	U	U	U	U	U	U
1,2,4-Trichlorobenzene	330		U	U	U	U	U	U	U	U
Nitrobenzene	330		U	U	U	U	U	U	U	U
Isophorone	330		U	U	U	U	U	U	U	U
Naphthalene	330		U	1500	U	480	U	3700	U	U
Bis(2-chloroethoxy)methane	330		U	U	U	U	U	U	U	U
2-Chloronaphthalene	330		U	U	U	U	U	U	U	U
Hexachlorocyclopentadiene	330		U	U	U	U	U	U	U	U
Acenaphthylene	330		U	U	U	U	U	U	U	U
Acenaphthene	330		U	U	U	U	U	U	U	U
Dimethyl Phthalate	330		U	U	U	U	U	U	U	U
2,6-Dinitrotoluene	330		U	U	U	U	U	U	U	U
Fluorene	330		U	U	U	U	U	U	U	U
2,4-Dinitrotoluene	330		U	U	U	U	U	U	U	U
Diethyl Phthalate	330		U	U	U	U	U	U	U	U
N-Nitrosodiphenylamine	330		U	U	U	U	U	U	U	U
Hexachlorobenzene	330		U	U	U	U	U	U	U	U
Phenanthrene	330		U	U	U	U	U	U	U	U
Anthracene	330		U	U	U	U	U	U	U	U
Dibutyl Phthalate	330		U	940 B	U	2000 B	2000 B	U	U8	1800 B
Fluoranthene	330		U	U	U	U	U	U	U	U
4-Chlorophenyl Phenyl Ether	330		U	U	U	U	U	U	U	U
Pyrene	330		U	620	U	U	U	3700	U	U
Butyl Benzyl Phthalate	330		U	U	U	U	U	U	U	510
Bis(2-ethylhexyl)phthalate	330		U	1600	6500	520	U	U	650	U
Chrysene	330		U	U	U	U	U	U	U	U
4-Bromophenyl Phenyl Ether	330		U	U	U	U	U	U	U	U
Benzo(a)anthracene	330		U	U	U	U	U	U	U	U
Di-n-octylphthalate	330		U	U	U	U	U	U	U	U
Benzo(b)fluoranthene	330		U	U	U	U	U	U	U	U
Benzo(k)fluoranthene	330		U	U	U	U	U	U	U	U
Benzidine	2000		U	U	U	U	U	U	U	U
3,3'-Dichlorobenzidine	660		U	U	U	U	U	U	U	U
Benzo(a)pyrene	330		U	U	U	U	U	U	U	U
Indeno(1,2,3-cd)pyrene	330		U	U	U	U	U	U	U	U
Dibenzo(a,h)anthracene	330		U	U	U	U	U	U	U	U
Benzo(ghi)perylene	330		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 3B

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	BH2-SS9	BH1 R-SS1	BH1 R-SS2	BH1 R-SS3	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH1 R-SS7
		Sample Depth, (ft):	16-18	0-2	2-4	6-8	8-10	10-12	15-17	22-24
		Sample Date:	7-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88
		Field Sample No:	DANGB-2-BH2-SS9	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS3	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH1-SS7
		Lab Sample No:	88081593	88092215	88092216	88092218	88092217	88092219	88092223	88092224
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#7						#32	#32
1,3-Dichlorobenzene	330		U						U!	U!
1,4-Dichlorobenzene	330		U						U!	U!
Hexachloroethane	330		U						U!	U!
Bis(2-chloroethyl)ether	330		U						U!	U!
1,2-Dichlorobenzene	330		U						U!	U!
N-Nitrosodimethylamine	330		U						U!	U!
Bis(2-chloroisopropyl)ether	330		U						U!	U!
N-Nitrosodi-n-propylamine	330		U						U!	U!
Hexachlorobutadiene	330		U						U!	U!
1,2,4-Trichlorobenzene	330		U						U!	U!
Nitrobenzene	330		U						U!	U!
Isophorone	330		U						U!	U!
Naphthalene	330		U						U!	U!
Bis(2-chloroethoxy)methane	330		U						U!	U!
2-Chloronaphthalene	330		U						U!	U!
Hexachlorocyclopentadiene	330		U						U!	U!
Acenaphthylene	330		U						U!	U!
Acenaphthene	330		U						U!	U!
Dimethyl Phthalate	330		U						U!	U!
2,6-Dinitrotoluene	330		U						U!	U!
Fluorene	330		U	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	U!	U!
2,4-Dinitrotoluene	330		U						U!	U!
Diethyl Phthalate	330		U						U!	U!
N-Nitrosodiphenylamine	330		U						U!	U!
Hexachlorobenzene	330		U						U!	U!
Phenanthrene	330		U						U!	U!
Anthracene	330		U						U!	U!
Dibutyl Phthalate	330		U						U!	U!
Fluoranthene	330		U						U!	U!
4-Chlorophenyl Phenyl Ether	330		U						U!	U!
Pyrene	330		U						U!	U!
Butyl Benzyl Phthalate	330		U						U!	U!
Bis(2-ethylhexyl)phthalate	330		U						U!	U!
Chrysene	330		U						U!	U!
4-Bromophenyl Phenyl Ether	330		U						U!	U!
Benzo(a)anthracene	330		U						U!	U!
Di-n-octylphthalate	330		U						U!	U!
Benzo(b)fluoranthene	330		U						U!	U!
Benzo(k)fluoranthene	330		U						U!	U!
Benzidine	2000		U						U!	U!
3,3'-Dichlorobenzidine	660		U						U!	U!
Benzo(a)pyrene	330		U						U!	U!
Indeno(1,2,3-cd)pyrene	330		U						U!	U!
Dibenzo(a,h)anthracene	330		U						U!	U!
Benzo(ghi)perylene	330		U						U!	U!

Table L-7
Site 2 - Soil
Page 3C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2 R-SS1	BH2 R-SS2	BH2 R-SS3	BH2 R-SS4	BH2 R-SS5	BH2 R-SS6	MW12A-SS1	MW12A-SS1 DUP
		Sample Depth, (ft):	0-2	5-6	10-12	14-15	20-22	24-25	0-2	0-2
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-5-88	8-5-88
		Field Sample No:	DANGB-2-BH2-SS1	DANGB-2-BH2-SS2	DANGB-2-BH2-SS3	DANGB-2-BH2-SS4	DANGB-2-BH2-SS5	DANGB-2-BH2-SS6	DANGB-2-MW12-SS1	DANGB-2-MW12-SS4
		Lab Sample No:	88092220	88092221	88092222	88092225	88092226	88092227	88081661	88081664
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package						#32	#32	#32	#14	#14
1,3-Dichlorobenzene	330					UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330					UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330					UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330					UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330					UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330					UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330					UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330					UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330					UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330					UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330					UJ	UJ	UJ	UJ	UJ
Isophorone	330					UJ	UJ	UJ	UJ	UJ
Naphthalene	330					UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330					UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330					UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330					UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330					UJ	UJ	UJ	UJ	UJ
Acenaphthene	330					UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330					UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330					UJ	UJ	UJ	UJ	UJ
Fluorene	330		Note 2.	Note 2.	Note 2.	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330					UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330					UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330					UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330					UJ	UJ	UJ	UJ	UJ
Phenanthrene	330					UJ	UJ	UJ	UJ	UJ
Anthracene	330					UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330					UJ	UJ	UJ	UJ	UJ
Fluoranthene	330					UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330					UJ	UJ	UJ	UJ	UJ
Pyrene	330					UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330					UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330					UJ	UJ	UJ	UJ	UJ
Chrysene	330					UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330					UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330					UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330					UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330					UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330					UJ	UJ	UJ	UJ	UJ
Benzidine	2000					UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660					UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330					UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330					UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330					UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330					UJ	UJ	UJ	UJ	UJ

Table L-7
Site 2 - Soil
Page 3D

	Method Detection Limit	Location/OC No:	MW12A-SS3	MW12A-SS5	MW13A-SS1	MW13A-SS3	MW13A-SS4	MW37-SS1	MW37-SS2	MW37-SS2 DUP
		Sample Depth, (ft):	5-15	15-20	0-2	8-10	14-15	0-1	5-6	5-6
		Sample Date:	8-5-88	8-5-88	8-5-88	8-5-88	8-5-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW12-SS3	DANGB-2-MW12-SS5	DANGB-2-MW13-SS1	DANGB-2-MW13-SS3	DANGB-2-MW13-SS4	DANGB-2-MW37-SS1	DANGB-2-MW37-SS2	DANGB-2-MW37-SS5
Parameter and Analysis Method		Lab Sample No.:	88081662	88081663	88081692	88081693	88081694	88081883	88081884	88081887
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#14	#14	#31	#31	#31	#61	#61	#61
1,3-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
1,4-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
Hexachloroethane	330		U!	U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroethyl)ether	330		U!	U!	U!	U!	U!	U!	U!	U!
1,2-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
N-Nitrosodimethylamine	330		U!	U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroisopropyl)ether	330		U!	U!	U!	U!	U!	U!	U!	U!
N-Nitrosodi-n-propylamine	330		U!	U!	U!	U!	U!	U!	U!	U!
Hexachlorobutadiene	330		U!	U!	U!	U!	U!	U!	U!	U!
1,2,4-Trichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
Nitrobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
Isophorone	330		U!	U!	U!	U!	U!	U!	U!	U!
Naphthalene	330		U!	U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroethoxy)methane	330		U!	U!	U!	U!	U!	U!	U!	U!
2-Chloronaphthalene	330		U!	U!	U!	U!	U!	U!	U!	U!
Hexachlorocyclopentadiene	330		U!	U!	U!	U!	U!	U!	U!	U!
Acenaphthylene	330		U!	U!	U!	U!	U!	U!	U!	U!
Acenaphthene	330		U!	U!	U!	U!	U!	U!	U!	U!
Dimethyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
2,6-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!	U!	U!
Fluorene	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!	U!	U!
Diethyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
N-Nitrosodiphenylamine	330		U!	U!	U!	U!	U!	U!	U!	U!
Hexachlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U!
Phenanthrene	330		U!	U!	U!	U!	U!	U!	U!	U!
Anthracene	330		U!	U!	U!	U!	U!	U!	U!	U!
Dibutyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
Fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U!
4-Chlorophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!	U!	U!
Pyrene	330		U!	U!	U!	U!	U!	U!	U!	U!
Butyl Benzyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
Bis(2-ethylhexyl)phthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
Chrysene	330		U!	U!	U!	U!	U!	U!	U!	U!
4-Bromophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!	U!	U!
Benzo(a)anthracene	330		U!	U!	U!	U!	U!	U!	U!	U!
Di-n-octylphthalate	330		U!	U!	U!	U!	U!	U!	U!	U!
Benzo(b)fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U!
Benzo(k)fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U!
Benzidine	2000		U!	U!	U!	U!	U!	U!	U!	U!
3,3'-Dichlorobenzidine	660		U!	U!	U!	U!	U!	U!	U!	U!
Benzo(a)pyrene	330		U!	U!	U!	U!	U!	U!	U!	U!
Indeno(1,2,3-cd)pyrene	330		U!	U!	U!	U!	U!	U!	U!	U!
Dibenzo(a,h)anthracene	330		U!	U!	U!	U!	U!	U!	U!	U!
Benzo(ghi)perylene	330		U!	U!	U!	U!	U!	U!	U!	U!

Table L-7
Site 2 - Soil
Page 3E

		Location/QC No:	MW37-SS3	MW37-SS4	MW38-SS1	MW38-SS2	MW38-SS4	MW39-SS1	MW39-SS2	MW39-SS3
		Sample Depth, (ft):	16-17	17.5-18	0-1.5	9-10.5	17-19	0-1	5-6	21-22
		Sample Date:	8-15-88	8-15-88	8-13-88	8-13-88	8-13-88	8-15-88	8-15-88	8-15-88
		Field Sample No:	DANGB-2-MW37-SS3	DANGB-2-MW37-SS4	DANGB-2-MW38-SS1	DANGB-2-MW38-SS2	DANGB-2-MW38-SS3	DANGB-2-MW39-SS1	DANGB-2-MW39-SS2	DANGB-2-MW39-SS3
Parameter and Analysis Method	Method Detection Limit	Lab Sample No:	88081885	88081886	88081877	88081878	88081879	88081888	88081889	88081890
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#61	#61	#15	#15	#15	#61	#61	#61
1,3-Dichlorobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
1,4-Dichlorobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Hexachloroethane	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Bis(2-chloroethyl)ether	330		UJ	UJ	U	U	UJ	UJ	UJ	U
1,2-Dichlorobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
N-Nitrosodimethylamine	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Bis(2-chloroisopropyl)ether	330		UJ	UJ	U	U	UJ	UJ	UJ	U
N-Nitrosodi-n-propylamine	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Hexachlorobutadiene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
1,2,4-Trichlorobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Nitrobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Isophorone	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Naphthalene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Bis(2-chloroethoxy)methane	330		UJ	UJ	U	U	UJ	UJ	UJ	U
2-Chloronaphthalene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Hexachlorocyclopentadiene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Acenaphthylene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Acenaphthene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Dimethyl Phthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
2,6-Dinitrotoluene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Fluorene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
2,4-Dinitrotoluene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Diethyl Phthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
N-Nitrosodiphenylamine	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Hexachlorobenzene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Phenanthrene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Anthracene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Dibutyl Phthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Fluoranthene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Pyrene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Butyl Benzyl Phthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Chrysene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
4-Bromophenyl Phenyl Ether	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzo(a)anthracene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Di-n-octylphthalate	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzo(b)fluoranthene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzo(k)fluoranthene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzidine	2000		UJ	UJ	U	U	UJ	UJ	UJ	U
3,3'-Dichlorobenzidine	660		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzo(a)pyrene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Dibenzo(a,h)anthracene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Benzo(ghi)perylene	330		UJ	UJ	U	U	UJ	UJ	UJ	U

Table L-7
Site 2 - Soil
Page 3F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MW41-SS3
		Lab Sample No:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	88081941
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
1,3-Dichlorobenzene	330		U	U	U	U!	U!	U!	U!	U!
1,4-Dichlorobenzene	330		U	U	U	U!	U!	U!	U!	U!
Hexachloroethane	330		U	U	U	U!	U!	U!	U!	U!
Bis(2-chloroethyl)ether	330		U	U	U	U!	U!	U!	U!	U!
1,2-Dichlorobenzene	330		U	U	U	U!	U!	U!	U!	U!
N-Nitrosodimethylamine	330		U	U	U	U!	U!	U!	U!	U!
Bis(2-chloroisopropyl)ether	330		U	U	U	U!	U!	U!	U!	U!
N-Nitrosodi-n-propylamine	330		U	U	U	U!	U!	U!	U!	U!
Hexachlorobutadiene	330		U	U	U	U!	U!	U!	U!	U!
1,2,4-Trichlorobenzene	330		U	U	U	U!	U!	U!	U!	U!
Nitrobenzene	330		U	U	U	U!	U!	U!	U!	U!
Isophorone	330		U	U	U	U!	U!	U!	U!	U!
Naphthalene	330		U	U	U	U!	U!	U!	U!	U!
Bis(2-chloroethoxy)methane	330		U	U	U	U!	U!	U!	U!	U!
2-Chloronaphthalene	330		U	U	U	U!	U!	U!	U!	U!
Hexachlorocyclopentadiene	330		U	U	U	U!	U!	U!	U!	U!
Acenaphthylene	330		U	U	U	U!	U!	U!	U!	U!
Acenaphthene	330		U	U	U	U!	U!	U!	U!	U!
Dimethyl Phthalate	330		U	U	U	U!	U!	U!	U!	U!
2,6-Dinitrotoluene	330		U	U	U	U!	U!	U!	U!	U!
Fluorene	330		U	U	U	U!	U!	U!	U!	U!
2,4-Dinitrotoluene	330		U	U	U	U!	U!	U!	U!	U!
Diethyl Phthalate	330		U	U	U	U!	U!	U!	U!	U!
N-Nitrosodiphenylamine	330		U	U	U	U!	U!	U!	U!	U!
Hexachlorobenzene	330		U	U	U	U!	U!	U!	U!	U!
Phenanthrene	330		U	U	U	U!	U!	U!	U!	U!
Anthracene	330		U	U	U	U!	U!	U!	U!	U!
Dibutyl Phthalate	330		U	U	U	U!	U!	U!	U!	U!
Fluoranthene	330		U	U	U	U!	U!	U!	U!	U!
4-Chlorophenyl Phenyl Ether	330		U	U	U	U!	U!	U!	U!	U!
Pyrene	330		U	U	U	U!	U!	U!	U!	U!
Butyl Benzyl Phthalate	330		U	U	U	U!	U!	U!	U!	U!
Bis(2-ethylhexyl)phthalate	330		U	U	U	U!	U!	U!	U!	U!
Chrysene	330		U	U	U	U!	U!	U!	U!	U!
4-Bromophenyl Phenyl Ether	330		U	U	U	U!	U!	U!	U!	U!
Benzo(a)anthracene	330		U	U	U	U!	U!	U!	U!	U!
Di-n-octylphthalate	330		U	U	U	U!	U!	U!	U!	U!
Benzo(b)fluoranthene	330		U	U	U	U!	U!	U!	U!	U!
Benzo(k)fluoranthene	330		U	U	U	U!	U!	U!	U!	U!
Benzidine	2000		U	U	U	U!	U!	U!	U!	U!
3,3'-Dichlorobenzidine	660		U	U	U	U!	U!	U!	U!	U!
Benzo(a)pyrene	330		U	U	U	U!	U!	U!	U!	U!
Indeno(1,2,3-cd)pyrene	330		U	U	U	U!	U!	U!	U!	U!
Dibenzo(a,h)anthracene	330		U	U	U	U!	U!	U!	U!	U!
Benzo(ghi)perylene	330		U	U	U	U!	U!	U!	U!	U!

Table L-7
Site 2 - Soil
Page 4A

	Method	Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
	Detection	Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
	Limit	Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30 88	7-30-88	7-30-88	7-30-88
		Field Sample No.:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
Parameter and Analysis Method		Lab Sample No.:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		U	U	U	U	U	U	U	U
Acetophenone	-		U	U	U	U	U	U	U	U
Aniline	-		U	U	U	U	U	U	U	U
4-Aminobyphenyl	-		U	U	U	U	U	U	U	U
4-Chloroaniline	660		U	U	U	U	U	U	U	U
1-Chloronapththalene	-		U	U	U	U	U	U	U	U
Dibenzofuran	330		U	U	U	U	U	U	U	U
p-Dimethylaminoazobenzene	-		U	U	U	U	U	U	U	U
7,12-Dimethylbenz(a)anthracene	-		U	U	U	U	U	U	U	U
a-,a-Dimethylphenethylamine	-		U	U	U	U	U	U	U	U
Diphenylamine	-		U	U	U	U	U	U	U	U
1,2-Diphenylhydrazine	-		U	U	U	U	U	U	U	U
Ethylmethanesulfonate	-		U	U	U	U	U	U	U	U
3-Methylcholanthrene	-		U	U	U	U	U	U	U	U
Methylmethanesulfonate	-		U	U	U	U	U	U	U	U
2-Methylnaphthalene	330		U	580	U	460	U	6200	U	U
1-Naphthylamine	-		U	U	U	U	U	U	U	U
2-Naphthylamine	-		U	U	U	U	U	U	U	U
2-Nitroaniline	1600		U	U	U	U	U	U	U	U
3-Nitroaniline	1600		U	U	U	U	U	U	U	U
4-Nitroaniline	1600		U	U	U	U	U	U	U	U
N-Nitroso-di-n-butylamine	-		U	U	U	U	U	U	U	U
N-Nitrosopiperdiene	-		U	U	U	U	U	U	U	U
Pentachlorobenzene	-		U	U	U	U	U	U	U	U
Pentachloronitrobenzene	-		U	U	U	U	U	U	U	U
Phenacetin	-		U	U	U	U	U	U	U	U
2-Picoline	-		U	U	U	U	U	U	U	U
Pronamide	-		U	U	U	U	U	U	U	U
1,2,4,5-Tetrachlorobenzene	-		U	U	U	U	U	U	U	U
Alpha-BHC	-		U	U	U	U	U	U	U	U
Gamma-BHC	-		U	U	U	U	U	U	U	U
Beta-BHC	660		U	U	U	U	U	U	U	U
Heptachlor	330		U	U	U	U	U	U	U	U
Delta-BHC	500		U	U	U	U	U	U	U	U
Aldrin	330		U	U	U	U	U	U	U	U
Heptachlor Epoxide	330		U	U	U	U	U	U	U	U
Endosulfan I	-		U	U	U	U	U	U	U	U
Dieldrin	500		U	U	U	U	U	U	U	U
4,4'-DDE	1000		U	U	U	U	U	U	U	U
Endrin	-		U	U	U	U	U	U	U	U
Endosulfan II	-		U	U	U	U	U	U	U	U
4,4'-DDD	500		U	U	U	U	U	U	U	U
4,4'-DDT	830		U	U	U	U	U	U	U	U
Endosulfan Sulfate	1000		U	U	U	U	U	U	U	U
Endrin Aldehyde	-		U	U	U	U	U	U	U	U
Endrin Ketone	-		U	U	U	U	U	U	U	U
Chlordane	2000		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 4B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2-SS9	BH1 R-SS1	BH1 R-SS2	BH1 R-SS3	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH1 R-SS7
		Sample Depth, (ft):	16-18	0-2	2-4	6-8	8-10	10-12	15-17	22-24
		Sample Date:	7-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88
		Field Sample No.:	DANGB-2-BH2-SS9	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS3	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH1-SS7
		Lab Sample No.:	88081593	88092215	88092216	88092218	88092217	88092219	88092223	88092224
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		U						U!	U!
Acetophenone	-		U						U!	U!
Aniline	-		U						U!	U!
4-Aminobyphenyl	-		U						U!	U!
4-Chloroaniline	660		U						U!	U!
1-Chloronapththalene	-		U						U!	U!
Dibenzofuran	330		U						U!	U!
p-Dimethylaminoazobenzene	-		U						U!	U!
7,12-Dimethylbenz(a)anthracene	-		U						U!	U!
a-,a-Dimethylphenethylamine	-		U						U!	U!
Diphenylamine	-		U						U!	U!
1,2-Diphenylhydrazine	-		U						U!	U!
Ethylmethanesulfonate	-		U						U!	U!
3-Methylcholanthrene	-		U						U!	U!
Methylmethanesulfonate	-		U						U!	U!
2-Methylnaphthalene	330		U						U!	U!
1-Naphthylamine	-		U						U!	U!
2-Naphthylamine	-		U						U!	U!
2-Nitroaniline	1600		U						U!	U!
3-Nitroaniline	1600		U						U!	U!
4-Nitroaniline	1600		U	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	U!	U!
N-Nitroso-di-n-butylamine	-		U						U!	U!
N-Nitrosopiperidiene	-		U						U!	U!
Pentachlorobenzene	-		U						U!	U!
Pentachloronitrobenzene	-		U						U!	U!
Phenacetin	-		U						U!	U!
2-Picoline	-		U						U!	U!
Pronamide	-		U						U!	U!
1,2,4,5-Tetrachlorobenzene	-		U						U!	U!
Alpha-BHC	-		U						U!	U!
Gamma-BHC	-		U						U!	U!
Beta-BHC	660		U						U!	U!
Heptachlor	330		U						U!	U!
Delta-BHC	500		U						U!	U!
Aldrin	330		U						U!	U!
Heptachlor Epoxide	330		U						U!	U!
Endosulfan I	-		U						U!	U!
Dieldrin	500		U						U!	U!
4,4'-DDE	1000		U						U!	U!
Endrin	-		U						U!	U!
Endosulfan II	-		U						U!	U!
4,4'-DDD	500		U						U!	U!
4,4'-DDT	830		U						U!	U!
Endosulfan Sulfate	1000		U						U!	U!
Endrin Aldehyde	-		U						U!	U!
Endrin Ketone	-		U						U!	U!
Chlordane	2000		U						U!	U!

Table L-7
Site 2 - Soil
Page 4C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2 R-SS1	BH2 R-SS2	BH2 R-SS3	BH2 R-SS4	BH2 R-SS5	BH2 R-SS6	MW12A-SS1	MW12A-SS1 DUP
		Sample Depth, (ft):	0-2	5-6	10-12	14-15	20-22	24-25	0-2	0-2
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-2-BH2-SS1	DANGB-2-BH2-SS2	DANGB-2-BH2-SS3	DANGB-2-BH2-SS4	DANGB-2-BH2-SS5	DANGB-2-BH2-SS6	DANGB-2-MW12-SS1	DANGB-2-MW12-SS4
		Lab Sample No.:	88092220	88092221	88092222	88092225	88092226	88092227	88081661	88081664
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660					UJ	UJ	UJ	U	UJ
Acetophenone	-					UJ	UJ	UJ	U	UJ
Aniline	-					UJ	UJ	UJ	U	UJ
4-Aminobyphenyl	-					UJ	UJ	UJ	U	UJ
4-Chloroaniline	660					UJ	UJ	UJ	U	UJ
1-Chloronapththalene	-					UJ	UJ	UJ	U	UJ
Dibenzofuran	330					UJ	UJ	UJ	U	UJ
p-Dimethylaminoazobenzene	-					UJ	UJ	UJ	U	UJ
7,12-Dimethylbenz(a)anthracene	-					UJ	UJ	UJ	U	UJ
a-,a-Dimethylphenethylamine	-					UJ	UJ	UJ	U	UJ
Diphenylamine	-					UJ	UJ	UJ	U	UJ
1,2-Diphenylhydrazine	-					UJ	UJ	UJ	U	UJ
Ethylmethanesulfonate	-					UJ	UJ	UJ	U	UJ
3-Methylcholanthrene	-					UJ	UJ	UJ	U	UJ
Methylmethanesulfonate	-					UJ	UJ	UJ	U	UJ
2-Methylnaphthalene	330					UJ	UJ	UJ	U	UJ
1-Naphthylamine	-					UJ	UJ	UJ	U	UJ
2-Naphthylamine	-					UJ	UJ	UJ	U	UJ
2-Nitroaniline	1600					UJ	UJ	UJ	U	UJ
3-Nitroaniline	1600					UJ	UJ	UJ	U	UJ
4-Nitroaniline	1600		Note 2.	Note 2.	Note 2.	UJ	UJ	UJ	U	UJ
N-Nitroso-di-n-butylamine	-					UJ	UJ	UJ	U	UJ
N-Nitrosopiperidiene	-					UJ	UJ	UJ	U	UJ
Pentachlorobenzene	-					UJ	UJ	UJ	U	UJ
Pentachloronitrobenzene	-					UJ	UJ	UJ	U	UJ
Phenacetin	-					UJ	UJ	UJ	U	UJ
2-Picoline	-					UJ	UJ	UJ	U	UJ
Pronamide	-					UJ	UJ	UJ	U	UJ
1,2,4,5-Tetrachlorobenzene	-					UJ	UJ	UJ	U	UJ
Alpha-BHC	-					UJ	UJ	UJ	U	UJ
Gamma-BHC	-					UJ	UJ	UJ	U	UJ
Beta-BHC	660					UJ	UJ	UJ	U	UJ
Heptachlor	330					UJ	UJ	UJ	U	UJ
Delta-BHC	500					UJ	UJ	UJ	U	UJ
Aldrin	330					UJ	UJ	UJ	U	UJ
Heptachlor Epoxide	330					UJ	UJ	UJ	U	UJ
Endosulfan I	-					UJ	UJ	UJ	U	UJ
Dieldrin	500					UJ	UJ	UJ	U	UJ
4,4'-DDE	1000					UJ	UJ	UJ	U	UJ
Endrin	-					UJ	UJ	UJ	U	UJ
Endosulfan II	-					UJ	UJ	UJ	U	UJ
4,4'-DDD	500					UJ	UJ	UJ	U	UJ
4,4'-DDT	830					UJ	UJ	UJ	U	UJ
Endosulfan Sulfate	1000					UJ	UJ	UJ	U	UJ
Endrin Aldehyde	-					UJ	UJ	UJ	U	UJ
Endrin Ketone	-					UJ	UJ	UJ	U	UJ
Chlordane	2000					UJ	UJ	UJ	U	UJ

Table L-7
Site 2 - Soil
Page 4D

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW12A-SS3	MW12A-SS5	MW13A-SS1	MW13A-SS3	MW13A-SS4	MW37-SS1	MW37-SS2	MW37-SS2 DUP
		Sample Depth, (ft):	5-15	15-20	0-2	8-10	14-15	0-1	5-6	5-6
		Sample Date:	8-5-88	8-5 88	8-5-88	8-5-88	8-5-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW12-SS3	DANGB-2-MW12-SS5	DANGB-2-MW13-SS1	DANGB-2-MW13-SS3	DANGB-2-MW13-SS4	DANGB-2-MW37-SS1	DANGB-2-MW37-SS2	DANGB-2-MW37-SS5
		Lab Sample No.:	88081662	88081663	88081692	88081693	88081694	88081883	88081884	88081887
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-7
Site 2 - Soil
Page 4E

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	MW37-SS3 16-17 8-15-88 DANGB-2-MW37-SS3 88081885	MW37-SS4 17.5-18 8-15-88 DANGB-2-MW37-SS4 88081886	MW38-SS1 0-1.5 8-13-88 DANGB-2-MW38-SS1 88081877	MW38-SS2 9-10.5 8-13-88 DANGB-2-MW38-SS2 88081878	MW38-SS4 17-19 8-13-88 DANGB-2-MW38-SS3 88081879	MW39-SS1 0-1 8-15-88 DANGB-2-MW39-SS1 88081888	MW39-SS2 5-6 8-15-88 DANGB-2-MW39-SS2 88081889	MW39-SS3 21-22 8-15-88 DANGB-2-MW39-SS3 88081890
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	U	U	UJ	UJ	UJ	U
Acetophenone	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Aniline	-		UJ	UJ	U	U	UJ	UJ	UJ	U
4-Aminobyphenyl	-		UJ	UJ	U	U	UJ	UJ	UJ	U
4-Chloroaniline	660		UJ	UJ	U	U	UJ	UJ	UJ	U
1-Chloronapththalene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Dibenzofuran	330		UJ	UJ	U	U	UJ	UJ	UJ	U
p-Dimethylaminoazobenzene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
a-,a-Dimethylphenethylamine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Diphenylamine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
1,2-Diphenylhydrazine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Ethylmethanesulfonate	-		UJ	UJ	U	U	UJ	UJ	UJ	U
3-Methylcholanthrene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Methylmethanesulfonate	-		UJ	UJ	U	U	UJ	UJ	UJ	U
2-Methylnaphthalene	330		UJ	UJ	U	U	UJ	UJ	UJ	U
1-Naphthylamine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
2-Naphthylamine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
2-Nitroaniline	1600		UJ	UJ	U	U	UJ	UJ	UJ	U
3-Nitroaniline	1600		UJ	UJ	U	U	UJ	UJ	UJ	U
4-Nitroaniline	1600		UJ	UJ	U	U	UJ	UJ	UJ	U
N-Nitroso-di-n-butylamine	-		UJ	UJ	U	U	UJ	UJ	UJ	U
N-Nitrosopiperidiene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Pentachlorobenzene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Pentachloronitrobenzene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Phenacetin	-		UJ	UJ	U	U	UJ	UJ	UJ	U
2-Picoline	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Pronamide	-		UJ	UJ	U	U	UJ	UJ	UJ	U
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Alpha-BHC	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Gamma-BHC	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Beta-BHC	660		UJ	UJ	U	U	UJ	UJ	UJ	U
Heptachlor	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Delta-BHC	500		UJ	UJ	U	U	UJ	UJ	UJ	U
Aldrin	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Heptachlor Epoxide	330		UJ	UJ	U	U	UJ	UJ	UJ	U
Endosulfan I	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Dieldrin	500		UJ	UJ	U	U	UJ	UJ	UJ	U
4,4'-DDE	1000		UJ	UJ	U	U	UJ	UJ	UJ	U
Endrin	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Endosulfan II	-		UJ	UJ	U	U	UJ	UJ	UJ	U
4,4'-DDD	500		UJ	UJ	U	U	UJ	UJ	UJ	U
4,4'-DDT	830		UJ	UJ	U	U	UJ	UJ	UJ	U
Endosulfan Sulfate	1000		UJ	UJ	U	U	UJ	UJ	UJ	U
Endrin Aldehyde	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Endrin Ketone	-		UJ	UJ	U	U	UJ	UJ	UJ	U
Chlordane	2000		UJ	UJ	U	U	UJ	UJ	UJ	U

Table L-7
Site 2 - Soil
Page 4F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MP41-SS3
		Lab Sample No:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	8808194
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		U	U	U	U!	U!	U!	U!	U!
Acetophenone	-		U	U	U	U!	U!	U!	U!	U!
Aniline	-		U	U	U	U!	U!	U!	U!	U!
4-Aminobyphenyl	-		U	U	U	U!	U!	U!	U!	U!
4-Chloroaniline	660		U	U	U	U!	U!	U!	U!	U!
1-Chloronapththalene	-		U	U	U	U!	U!	U!	U!	U!
Dibenzofuran	330		U	U	U	U!	U!	U!	U!	U!
p-Dimethylaminoazobenzene	-		U	U	U	U!	U!	U!	U!	U!
7,12-Dimethylbenz(a)anthracene	-		U	U	U	U!	U!	U!	U!	U!
a-,a-Dimethylphenethylamine	-		U	U	U	U!	U!	U!	U!	U!
Diphenylamine	-		U	U	U	U!	U!	U!	U!	U!
1,2-Diphenylhydrazine	-		U	U	U	U!	U!	U!	U!	U!
Ethylmethanesulfonate	-		U	U	U	U!	U!	U!	U!	U!
3-Methylcholanthrene	-		U	U	U	U!	U!	U!	U!	U!
Methylmethanesulfonate	-		U	U	U	U!	U!	U!	U!	U!
2-Methylnaphthalene	330		U	U	U	U!	U!	U!	U!	U!
1-Naphthylamine	-		U	U	U	U!	U!	U!	U!	U!
2-Naphthylamine	-		U	U	U	U!	U!	U!	U!	U!
2-Nitroaniline	1600		U	U	U	U!	U!	U!	U!	U!
3-Nitroaniline	1600		U	U	U	U!	U!	U!	U!	U!
4-Nitroaniline	1600		U	U	U	U!	U!	U!	U!	U!
N-Nitroso-di-n-butylamine	-		U	U	U	U!	U!	U!	U!	U!
N-Nitrosopiperidiene	-		U	U	U	U!	U!	U!	U!	U!
Pentachlorobenzene	-		U	U	U	U!	U!	U!	U!	U!
Pentachloronitrobenzene	-		U	U	U	U!	U!	U!	U!	U!
Phenacetin	-		U	U	U	U!	U!	U!	U!	U!
2-Picoline	-		U	U	U	U!	U!	U!	U!	U!
Pronamide	-		U	U	U	U!	U!	U!	U!	U!
1,2,4,5-Tetrachlorobenzene	-		U	U	U	U!	U!	U!	U!	U!
Alpha-BHC	-		U	U	U	U!	U!	U!	U!	U!
Gamma-BHC	-		U	U	U	U!	U!	U!	U!	U!
Beta-BHC	660		U	U	U	U!	U!	U!	U!	U!
Heptachlor	330		U	U	U	U!	U!	U!	U!	U!
Delta-BHC	500		U	U	U	U!	U!	U!	U!	U!
Aldrin	330		U	U	U	U!	U!	U!	U!	U!
Heptachlor Epoxide	330		U	U	U	U!	U!	U!	U!	U!
Endosulfan I	-		U	U	U	U!	U!	U!	U!	U!
Dieldrin	500		U	U	U	U!	U!	U!	U!	U!
4,4'-DDE	1000		U	U	U	U!	U!	U!	U!	U!
Endrin	-		U	U	U	U!	U!	U!	U!	U!
Endosulfan II	-		U	U	U	U!	U!	U!	U!	U!
4,4'-DDD	500		U	U	U	U!	U!	U!	U!	U!
4,4'-DDT	830		U	U	U	U!	U!	U!	U!	U!
Endosulfan Sulfate	1000		U	U	U	U!	U!	U!	U!	U!
Endrin Aldehyde	-		U	U	U	U!	U!	U!	U!	U!
Endrin Ketone	-		U	U	U	U!	U!	U!	U!	U!
Chlordane	2000		U	U	U	U!	U!	U!	U!	U!

Table L-7
Site 2 - Soil
Page 5A

		Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
	Method	Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
	Detection	Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30-88	7-30-88	7-30-88	7-30-88
	Limit	Field Sample No.:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
Parameter and Analysis Method	-	Lab Sample No.:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-		U	U	U	U	U	U	U	U
Toxaphene	2000		U	U	U	U	U	U	U	U
Aroclor-1016	2000		U	U	U	U	U	U	U	U
Aroclor-1221	2000		U	U	U	U	U	U	U	U
Aroclor-1232	2000		U	U	U	U	U	U	U	U
Aroclor-1242	2000		U	U	U	U	U	U	U	U
Aroclor-1248	2000		U	U	U	U	U	U	U	U
Aroclor-1254	2000		U	U	U	U	U	U	U	U
Aroclor-1260	2000		U	U	U	U	U	U	U	U
2-Chlorophenol	330		U	U	U	U	U	U	U	U
2-Nitrophenol	330		U	U	U	U	U	U	U	U
Phenol	330		U	U	U	U	U	U	U	U
2,4-Dimethylphenol	330		U	U	U	U	U	U	U	U
2,4-Dichlorophenol	330		U	U	U	U	U	U	U	U
2,4,6-Trichlorophenol	330		U	U	U	U	U	U	U	U
4-Chloro-3-methylphenol	660		U	U	U	U	U	U	U	U
2,4-Dinitrophenol	1600		U	U	U	U	U	U	U	U
2,6-Dichlorophenol	-		U	U	U	U	U	U	U	U
2-Methyl-4,6-dinitrophenol	1600		U	U	U	U	U	U	U	U
Pentachlorophenol	1600		U	U	U	U	U	U	U	U
4-Nitrophenol	1600		U	U	U	U	U	U	U	U
Benzoic Acid	1600		U	U	U	U	U	U	U	U
2-Methylphenol	330		U	U	U	U	U	U	U	U
3&4-Methylphenol	330		U	U	U	U	U	U	U	U
2,3,4,6-Tetrachlorophenol	-		U	U	U	U	U	U	U	U
2,4,5-Trichlorophenol	330		U	U	U	U	U	U	U	U

Table L-7
Site 2 - Soil
Page 5B

	Method	Location/QC No:	BH2-SS9	BH1 R-SS1	BH1 R-SS2	BH1 R-SS3	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH1 R-SS7
	Detection	Sample Depth, (ft):	16-18	0-2	2-4	6-8	8-10	10-12	15-17	22-24
	Limit	Sample Date:	7-30-88	8-30-88	8-30-88	8-30-88	8-30 88	8-30-88	8-30-88	8-30-88
		Field Sample No.:	DANGB-2-BH2-SS9	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS3	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH1-SS7
Parameter and Analysis Method		Lab Sample No.:	88081593	88092215	88092216	88092218	88092217	88092219	88092223	88092224
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-		U						UJ	UJ
Toxaphene	2000		U						UJ	UJ
Aroclor-1016	2000		U						UJ	UJ
Aroclor-1221	2000		U						UJ	UJ
Aroclor-1232	2000		U						UJ	UJ
Aroclor-1242	2000		U						UJ	UJ
Aroclor-1248	2000		U						UJ	UJ
Aroclor-1254	2000		U						UJ	UJ
Aroclor-1260	2000		U						UJ	UJ
2-Chlorophenol	330		U						UJ	UJ
2-Nitrophenol	330		U						UJ	UJ
Phenol	330		U	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	UJ	UJ
2,4-Dimethylphenol	330		U						UJ	UJ
2,4-Dichlorophenol	330		U						UJ	UJ
2,4,6-Trichlorophenol	330		U						UJ	UJ
4-Chloro-3-methylphenol	660		U						UJ	UJ
2,4-Dinitrophenol	1600		U						UJ	UJ
2,6-Dichlorophenol	-		U						UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		U						UJ	UJ
Pentachlorophenol	1600		U						UJ	UJ
4-Nitrophenol	1600		U						UJ	UJ
Benzoic Acid	1600		U						UJ	UJ
2-Methylphenol	330		U						UJ	UJ
3&4-Methylphenol	330		U						UJ	UJ
2,3,4,6-Tetrachlorophenol	-		U						UJ	UJ
2,4,5-Trichlorophenol	330		U						UJ	UJ

Table L-7
Site 2 - Soil
Page 5C

	Method	Location/QC No:	BH2 R-SS1	BH2 R-SS2	BH2 R-SS3	BH2 R-SS4	BH2 R-SS5	BH2 R-SS6	MW12A-SS1	MW12A-SS1 DUP
	Detection	Sample Depth, (ft):	0-2	5-6	10-12	14-15	20-22	24-25	0-2	0-2
	Limit	Sample Date:	8-30-88	8-30-88	8-30-88	8-30 88	8-30-88	8-30-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-2-BH2-SS1	DANGB-2-BH2-SS2	DANGB-2-BH2-SS3	DANGB-2-BH2-SS4	DANGB-2-BH2-SS5	DANGB-2-BH2-SS6	DANGB-2-MW12-SS1	DANGB-2-MW12-SS4
Parameter and Analysis Method		Lab Sample No.:	88092220	88092221	88092222	88092225	88092226	88092227	88081661	88081664
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-					UJ	UJ	UJ	U	UJ
Toxaphene	2000					UJ	UJ	UJ	U	UJ
Aroclor-1016	2000					UJ	UJ	UJ	U	UJ
Aroclor-1221	2000					UJ	UJ	UJ	U	UJ
Aroclor-1232	2000					UJ	UJ	UJ	U	UJ
Aroclor-1242	2000					UJ	UJ	UJ	U	UJ
Aroclor-1248	2000					UJ	UJ	UJ	U	UJ
Aroclor-1254	2000					UJ	UJ	UJ	U	UJ
Aroclor-1260	2000					UJ	UJ	UJ	U	UJ
2-Chlorophenol	330					UJ	UJ	UJ	U	UJ
2-Nitrophenol	330					UJ	UJ	UJ	U	UJ
Phenol	330		Note 2.	Note 2.	Note 2.	UJ	UJ	UJ	U	UJ
2,4-Dimethylphenol	330					UJ	UJ	UJ	U	UJ
2,4-Dichlorophenol	330					UJ	UJ	UJ	U	UJ
2,4,6-Trichlorophenol	330					UJ	UJ	UJ	U	UJ
4-Chloro-3-methylphenol	660					UJ	UJ	UJ	U	UJ
2,4-Dinitrophenol	1600					UJ	UJ	UJ	U	UJ
2,6-Dichlorophenol	-					UJ	UJ	UJ	U	UJ
2-Methyl-4,6-dinitrophenol	1600					UJ	UJ	UJ	U	UJ
Pentachlorophenol	1600					UJ	UJ	UJ	U	UJ
4-Nitrophenol	1600					UJ	UJ	UJ	U	UJ
Benzoic Acid	1600					UJ	UJ	UJ	U	UJ
2-Methylphenol	330					UJ	UJ	UJ	U	UJ
3&4-Methylphenol	330					UJ	UJ	UJ	U	UJ
2,3,4,6-Tetrachlorophenol	-					UJ	UJ	UJ	U	UJ
2,4,5-Trichlorophenol	330					UJ	UJ	UJ	U	UJ

Table L-7
Site 2 - Soil
Page 5D

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW12A-SS3	MW12A-SS5	MW13A-SS1	MW13A-SS3	MW13A-SS4	MW37-SS1	MW37-SS2	MW37-SS2 DUP
		Sample Depth, (ft):	5-15	15-20	0-2	8-10	14-15	0-1	5-6	5-6
		Sample Date:	8-5-88	8-5-88	8-5-88	8-5-88	8-5-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW12-SS3	DANGB-2-MW12-SS5	DANGB-2-MW13-SS1	DANGB-2-MW13-SS3	DANGB-2-MW13-SS4	DANGB-2-MW37-SS1	DANGB-2-MW37-SS2	DANGB-2-MW37-SS5
		Lab Sample No.:	88081662	88081663	88081692	88081693	88081694	88081883	88081884	88081887
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-7
Site 2 - Soil
Page 5E

	Method Detection Limit	Location/QC No:	MW37-SS3	MW37-SS4	MW38-SS1	MW38-SS2	MW38-SS3	MW39-SS1	MW39-SS2	MW39-SS3
		Sample Depth, (ft):	16-17	17.5-18	0-1.5	9-10.5	17-19	0-1	5-6	21-22
		Sample Date:	8-15-88	8-15-88	8-13-88	8-13-88	8-13-88	8-15-88	8-15-88	8-15-88
		Field Sample No:	DANGB-2-MW37-SS3	DANGB-2-MW37-SS4	DANGB-2-MW38-SS1	DANGB-2-MW38-SS2	DANGB-2-MW38-SS3	DANGB-2-MW39-SS1	DANGB-2-MW39-SS2	DANGB-2-MW39-SS3
Parameter and Analysis Method		Lab Sample No:	88081885	88081886	88081877	88081878	88081879	88081888	88081889	88081890
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-		UJ	UJ	U	U	U	UJ	UJ	U
Toxaphene	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1016	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1221	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1232	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1242	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1248	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1254	2000		UJ	UJ	U	U	U	UJ	UJ	U
Aroclor-1260	2000		UJ	UJ	U	U	U	UJ	UJ	U
2-Chlorophenol	330		UJ	UJ	U	U	U	UJ	UJ	U
2-Nitrophenol	330		UJ	UJ	U	U	U	UJ	UJ	U
Phenol	330		UJ	UJ	U	U	U	UJ	UJ	U
2,4-Dimethylphenol	330		UJ	UJ	U	U	U	UJ	UJ	U
2,4-Dichlorophenol	330		UJ	UJ	U	U	U	UJ	UJ	U
2,4,6-Trichlorophenol	330		UJ	UJ	U	U	U	UJ	UJ	U
4-Chloro-3-methylphenol	660		UJ	UJ	U	U	U	UJ	UJ	U
2,4-Dinitrophenol	1600		UJ	UJ	U	U	U	UJ	UJ	U
2,6-Dichlorophenol	-		UJ	UJ	U	U	U	UJ	UJ	U
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	U	U	U	UJ	UJ	U
Pentachlorophenol	1600		UJ	UJ	U	U	U	UJ	UJ	U
4-Nitrophenol	1600		UJ	UJ	U	U	U	UJ	UJ	U
Benzoic Acid	1600		UJ	UJ	U	U	U	UJ	UJ	U
2-Methylphenol	330		UJ	UJ	U	U	U	UJ	UJ	U
3&4-Methylphenol	330		UJ	UJ	U	U	U	UJ	UJ	U
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	U	U	U	UJ	UJ	U
2,4,5-Trichlorophenol	330		UJ	UJ	U	U	U	UJ	UJ	U

Table L-7
Site 2 - Soil
Page 5F

	Method Detection Limit	Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No.:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MW41-SS3
Parameter and Analysis Method		Lab Sample No.:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	88081941
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Methoxychlor	-		U	U	U	U!	U!	U!	U!	U!
Toxaphene	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1016	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1221	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1232	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1242	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1248	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1254	2000		U	U	U	U!	U!	U!	U!	U!
Aroclor-1260	2000		U	U	U	U!	U!	U!	U!	U!
2-Chlorophenol	330		U	U	U	U!	U!	U!	U!	U!
2-Nitrophenol	330		U	U	U	U!	U!	U!	U!	U!
Phenol	330		U	U	U	U!	U!	U!	U!	U!
2,4-Dimethylphenol	330		U	U	U	U!	U!	U!	U!	U!
2,4-Dichlorophenol	330		U	U	U	U!	U!	U!	U!	U!
2,4,6-Trichlorophenol	330		U	U	U	U!	U!	U!	U!	U!
4-Chloro-3-methylphenol	660		U	U	U	U!	U!	U!	U!	U!
2,4-Dinitrophenol	1600		U	U	U	U!	U!	U!	U!	U!
2,6-Dichlorophenol	-		U	U	U	U!	U!	U!	U!	U!
2-Methyl-4,6-dinitrophenol	1600		U	U	U	U!	U!	U!	U!	U!
Pentachlorophenol	1600		U	U	U	U!	U!	U!	U!	U!
4-Nitrophenol	1600		U	U	U	U!	U!	U!	U!	U!
Benzoic Acid	1600		U	U	U	U!	U!	U!	U!	U!
2-Methylphenol	330		U	U	U	U!	U!	U!	U!	U!
3&4-Methylphenol	330		U	U	U	U!	U!	U!	U!	U!
2,3,4,6-Tetrachlorophenol	-		U	U	U	U!	U!	U!	U!	U!
2,4,5-Trichlorophenol	330		U	U	U	U!	U!	U!	U!	U!

Table L-7
Site 2 - Soil
Page 6A

	Method Detection Limit	Location/QC No:	BH1-SS1	BH1-SS2	BH1-SS4	BH1-SS5	BH1-SS6	BH2-SS1	BH2-SS4	BH2-SS6
		Sample Depth, (ft):	0-2	2-4	6-8	8-10	10-12	0-2	6-8	10-12
		Sample Date:	7-29-88	7-29-88	7-29-88	7-29-88	7-30-88	7-30-88	7-30-88	7-30-88
		Field Sample No.:	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH2-SS1	DANGB-2-BH2-SS4	DANGB-2-BH2-SS6
Parameter and Analysis Method		Lab Sample No.:	88071554	88071553	88071552	88071555	88081589	88081590	88081591	88081592
PESTICIDES AND PCB's (SW 8080)										
Data Package			#16	#16	#16	#16	#7	#7	#7	#7
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		U	U	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418 1)										
Data Package			#16	#16	#16	#16	#7	#7	#7	#7
Units: mg/kg	100		9600	3200	2200	2300	150	9100	104	<100
MOISTURE										
Data Package			#16	#16	#16	#16	#7	#7	#7	#7
Units: Weight percent			6.4	8.4	12.8	15.9	13.6	9.4	9	11.8
METALS (Units mg/kg)										
Data Package			#16	#16	#16	#16	#7	#7	#7	#7
Arsenic (SW 7060)			3.7 #	1.8 #	1.4 #	2.7 #	1.7 #	1.7 #	1.3 #	1.2 #
Barium (SW 6010)			295	262	60	61	57	104	41	54
Cadmium (SW 7131)			1.8 #	0.52 #	0.15 B #	0.06 B #	0.09 B #	0.56 #	0.13 B #	0.11 B #
Chromium (SW 7191)			NR	NR	NR	NR	NR	NR	NR	NR
Lead (SW 7421)			260	102	8	6	6.5	54	5	6.4
Mercury (SW 7471)			0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.1 B

Table L-7
Site 2 - Soil
Page 6B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2-SS9	BH1 R-SS1	BH1 R-SS2	BH1 R-SS3	BH1 R-SS4	BH1 R-SS5	BH1 R-SS6	BH1 R-SS7
		Sample Depth, (ft):	16-18	0-2	2-4	6-8	8-10	10-12	15-17	22-24
		Sample Date:	7-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88
		Field Sample No.:	DANGB-2-BH2-SS9	DANGB-2-BH1-SS1	DANGB-2-BH1-SS2	DANGB-2-BH1-SS3	DANGB-2-BH1-SS4	DANGB-2-BH1-SS5	DANGB-2-BH1-SS6	DANGB-2-BH1-SS7
		Lab Sample No.:	88081593	88092215	88092216	88092218	88092217	88092219	88092223	88092224
PESTICIDES AND PCB's (SW 8080)										
Data Package			#7							
Aldrin	0.05		U	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		U	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		U	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		U	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		U	NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		U	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		U	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		U	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		U	NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		U	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		U	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		U	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		U	NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		U	NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		U	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		U	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	0.5		U	NR	NR	NR	NR	NR	NR	NR
Toxaphene	1.0		U	NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		U	NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		U	NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		U	NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		U	NR	NR	NR	NR	NR	NR	NR
PCB-1248	0.5		U	NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		U	NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		U	NR	NR	NR	NR	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#7						#32	#32
Units: mg/kg	100		<100	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	U	U
MOISTURE										
Data Package			#7	#35	#35	#35	#35	#35	#32	#32
Units: Weight percent			8.2	6.9	9.0	13.8	12.0	9.1	7.9	8.9
METALS (Units mg/kg)										
Data Package			#7						#32	#32
Arsenic (SW 7060)			1.5#	NR	NR	NR	NR	NR	NR	NR
Barium (SW 6010)			41	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	67.5	44.5
Cadmium (SW 7131)			0.12 B #	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	8.6 N	7.8 N
Chromium (SW 7191)			NR	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	30.3	34.6
Lead (SW 7421)			3.8	Note 2.	Note 2.	Note 2.	Note 2.	Note 2.	4.7	4.5 N
Mercury (SW 7471)			<0.2	NR	NR	NR	NR	NR	NR	NR

Table L-7
Site 2 - Soil
Page 6C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	BH2 R-SS1	BH2 R-SS2	BH2 R-SS3	BH2 R-SS4	BH2 R-SS5	BH2 R-SS6	MW12A-SS1	MW12A-SS1 DUP
		Sample Depth, (ft):	0-2	5-6	10-12	14-15	20-22	24-25	0-2	0-2
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-2-BH2-SS1	DANGB-2-BH2-SS2	DANGB-2-BH2-SS3	DANGB-2-BH2-SS4	DANGB-2-BH2-SS5	DANGB-2-BH2-SS6	DANGB-2-MW12-SS1	DANGB-2-MW12-SS4
		Lab Sample No.:	88092220	88092221	88092222	88092225	88092226	88092227	88081661	88081664
PESTICIDES AND PCB's (SW 8080)										
Data Package										
Aldrin	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	0.5		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1248	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		NR	NR	NR	NR	NR	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package						#32	#32	#32	#14	#14
Units: mg/kg	100		Note 2.	Note 2.	Note 2.	U	U	U	< 100	< 100
MOISTURE										
Data Package			#35	#35	#35	#32	#32	#32	#14	#14
Units: Weight percent			9.8	7.5	11.9	9.4	7.8	7.9	5.8	6.3
METALS (Units mg/kg)										
Data Package						#32	#32	#32	#14	#14
Arsenic (SW 7060)			NR	NR	NR	NR	NR	NR	NR	NR
Barium (SW 6010)			Note 2.	Note 2.	Note 2.	62.1	94.1	25.4	64.9	69.2
Cadmium (SW 7131)			Note 2.	Note 2.	Note 2.	8.4 N	6.3 N	7.9 N	10.9 N	9.8 N
Chromium (SW 7191)			Note 2.	Note 2.	Note 2.	28.4	24.8	24.9	37.4 N	32.1 N
Lead (SW 7421)			Note 2.	Note 2.	Note 2.	11.3	4.1 N	2.9	6.7 N	10.5 S N
Mercury (SW 7471)			NR	NR	NR	NR	NR	NR	NR	NR

Table L-7
Site 2 - Soil
Page 6D

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW12A-SS3	MW12A-SS5	MW13A-SS1	MW13A-SS3	MW13A-SS4	MW37-SS1	MW37-SS2	MW37-SS2 DUP
		Sample Depth, (ft):	5-15	15-20	0-2	8-10	14-15	0-1	5-6	5-6
		Sample Date:	8-5-88	8-5-88	8-5-88	8-5-88	8-5-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW12-SS3	DANGB-2-MW12-SS5	DANGB-2-MW13-SS1	DANGB-2-MW13-SS3	DANGB-2-MW13-SS4	DANGB-2-MW37-SS1	DANGB-2-MW37-SS2	DANGB-2-MW37-SS5
		Lab Sample No.:	88081662	88081663	88081692	88081693	88081694	88081883	88081884	88081887
PESTICIDES AND PCB's (SW 8080)										
Data Package										
Aldrin	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	0.5		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1248	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		NR	NR	NR	NR	NR	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#14	#14	#31	#31	#31	#52	#52	#52
Units: mg/kg	100		<100	< 100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#14	#14	#31	#31	#31	#52	#52	#52
Units: Weight percent			9.9	8.8	10.1	8.1	8.1	14	10.8	9.9
METALS (Units mg/kg)										
Data Package			#14	#14	#31	#31	#31	#52	#52	#52
Arsenic (SW 7060)			NR	NR	NR	NR	NR	NR	NR	NR
Barium (SW 6010)			48.1	28.2	54.9	38.2	58.7	75	52.5	53.4
Cadmium (SW 7131)			12.0 N	9.2 N	11.1 N	10.1 N	11.0 N	13.3 # N	12.2 # N	11.8 # N
Chromium (SW 7191)			26.7 N	22.6 N	31.3 N	28.3 N	26.0 N	37.9	24.8	23.6
Lead (SW 7421)			6.6 S N	3.4 N	10.9 S N	3.3 S N	3.8 S N	4.2	3.5	3.4
Mercury (SW 7471)			NR	NR	NR	NR	NR	NR	NR	NR

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW37-SS3	MW37-SS4	MW38-SS1	MW38-SS2	MW38-SS3	MW39-SS1	MW39-SS2	MW39-SS3
		Sample Depth, (ft):	16-17	17.5-18	0-1.5	9-10.5	17-19	0-1	5-6	21-22
		Sample Date:	8-15-88	8-15-88	8-13-88	8-13-88	8-13-88	8-15-88	8-15-88	8-15-88
		Field Sample No.:	DANGB-2-MW37-SS3	DANGB-2-MW37-SS4	DANGB-2-MW38-SS1	DANGB-2-MW38-SS2	DANGB-2-MW38-SS3	DANGB-2-MW39-SS1	DANGB-2-MW39-SS2	DANGB-2-MW39-SS3
		Lab Sample No.:	88081885	88081886	88081877	88081878	88081879	88081888	88081889	88081890
PESTICIDES AND PCB's (SW 8080)										
Data Package										
Aldrin	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	0.5		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1248	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		NR	NR	NR	NR	NR	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#52	#52	#15	#15	#15	#52	#52	#52
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#52	#52	#15	#15	#15	#52	#52	#52
Units: Weight percent			14.8	8.4	13.1	10.8	9.6	11.7	12.9	8.4
METALS (Units mg/kg)										
Data Package			#52	#52	#15	#15	#15	#52	#52	#52
Arsenic (SW 7060)	200		NR	NR	NR	NR	NR	NR	NR	NR
Barium (SW 6010)	5		32	38.4	69.2	50.1	40.2	61.2	60.6	40.3
Cadmium (SW 7131)	10		11.5 # N	11.2 # N	3.22 # N	12.0 # N	6.31 # N	12.0 # N	10.1 # N	11.6 # N
Chromium (SW 7191)	5		29.6	27.8	33.1	26.5	20.9	23.1	23.9	22.6
Lead (SW 7421)	0.2		2	4.0 S	8.0 S	3.6	4.5 S	4.1	3.5	2.6
Mercury (SW 7471)	10		NR	NR	NR	NR	NR	NR	NR	NR

Table L-7
Site 2 - Soil
Page 6F

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW40-SS1	MW40-SS2	MW40-SS3	MW41-SS1	MW41-SS1 DUP	MW41-SS2	MW41-SS2 DUP	MW41-SS3
		Sample Depth, (ft):	0-1	7-8	15.5-16.5	0-5	0-5	5-15	5-15	15-20
		Sample Date:	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-17-88	8-17-88	8-17-88
		Field Sample No.:	DANGB-2-MW40-SS1	DANGB-2-MW40-SS2	DANGB-2-MW40-SS3	DANGB-2-MW41-SS1	DANGB-2-MP41-SS1	DANGB-2-MW41-SS2	DANGB-2-MP41-SS2	DANGB-2-MW41-SS3
		Lab Sample No.:	88081898	88081899	88081900	88081938	88081940	88081939	88081942	88081941
PESTICIDES AND PCB's (SW 8080)										
Data Package										
Aldrin	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	0.5		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1248	0.5		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		NR	NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		NR	NR	NR	NR	NR	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
Units: mg/kg	100		<100	<100	<100	<100	130	<100	<100	<100
MOISTURE										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
Units: Weight percent			10.9	8.9	8.3	15.8	13.4	18	17.6	9
METALS (Units mg/kg)										
Data Package			#17	#17	#17	#41	#41	#41	#41	#41
Arsenic (SW 7060)			NR	NR	NR	NR	NR	NR	NR	NR
Barium (SW 6010)			54.8	41.2	39.2	51.7	59.5	62.8	62.5	35.4
Cadmium (SW 7131)			11.9 # N	9.6 # N	9.4 # N	12.0 # N	12.6 # N	9.8 # N	10.0 # N	11.8 # N
Chromium (SW 7191)			29.6	19.2	21.2	27.1	33.1	25.6	23.4	23.1
Lead (SW 7421)			3.8	4.1	4.2	8.6 N	8.4SN	5.3 N	5.2 N	4.1SN
Mercury (SW 7471)			NR	NR	NR	NR	NR	NR	NR	NR

Note 1. Samples were broken in a laboratory accident prior to SW8010 and SW8020 Analysis.
SW8010 and SW8020 analyses were performed on resamples.

Note 2. SW8270, SW6010, SW7131, SW7191, SW7421 AND EPA 418.1 analysis were requested on chain of custody forms for these resamples but were canceled since these analyses had been done on the original samples before they were broken. See Note 1.

DUP Duplicate
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N For metals the percentage recovery of the spiked sample was not within the control limits.
NR The analysis was not requested.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
Data Package # Numbers refer to Data Packages in Appendix M.
* 1,2 Dichlorobenzene was present by 8010 analysis but was not quantifiable by 8020 due to fuel hydrocarbon interferences.
** Surrogate recovery high due to matrix interferences- Sample 88092218.
*** Chlorobenzene is present by 8010 analysis but is not quantifable by 8020 or confirmed due to fuel hydrocarbon interferences.
**** This compound is possibly present but it was not confirmed on the second column. The sample was non-homogeneous and was difficult to subsample accurately.
! The holding time was missed for this analysis. See Appendix N.
- The EPA has not yet reported on a method detection limit for this parameter.
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TABLE L-8
SITE 2
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 1 9-19-88 DANGB-2-MW1-GW-1 88092524	MW 2 9-19-88 DANGB-2-MW2-GW-1 88092523	MW 4 9-21-88 DANGB-2-MW4-GW-1 88092575	MW 5 9-22-88 DANGB-2-MW5-GW-1 88092614	MW 5 FB 9-22-88 DANGB-FB15 88092618	MW 6 9-22-88 DANGB-2-MW6-GW-1 88092613	MW 7 9-22-88 DANGB-2-MW7-GW-1 88092612
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#22	#22	#11	#12	#12	#12	#12
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		0.63	1200	U	U	U	U	U
Dichloromethane	0.25		U	0.42 B	U	0.53 B	1.7 B	U	U
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	0.32	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	3.1	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 1B

	Method Detection Limit	Well/QC No.:	GW 2-A	GW 2-A DUP	GW 2-A FB	GW 2-B	GW 2-C	GW 2-C FB	GW 2-D
		Date Sampled:	9-21-88	9-21-88	9-21-88	9-22-88	9-21-88	9-21-88	9-21-88
		Field Sample No.:	DANGB-2-GW2A-GW-1	DANGB-2-MW56-GW-1	DANGB-FB13	DANGB-2-GW2B-GW-1	DANGB-2-GW2C-GW-1	DANGB-FB14	DANGB-2-GW2D-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092573	88092574	88092580	88092616	88092576	88092581	88092577
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#11	#11	#11	#12	#11	#11	#11
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	23*B	U	U	15 B	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethylene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		U	U	0.40*B	U	U	0.80 B	U
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethylene	0.03		U	U	0.43*B	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethylene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 1C

	Method Detection Limit	Well/QC No.:	GW 2-E	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20-88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2-MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092519	88092547	88092615	88092578	88092550	88092551	88092548
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#10	#10	#12	#11	#10	#10	#10
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	0.32 B	0.86 B	U	U	U	0.15 B
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	0.22	U	U	U	U
1,1-Dichloroethene	0.13		0.61	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		330	U	5.5	U	U	U	U
Dichloromethane	0.25		0.80 B	U	0.96 B	U	0.85 B	U	U
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		33	U	16	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 1D

Parameter and Analysis Method	Method Detection Limit					
		Well/QC No.:	BR1	BR2	TB1	TB2
		Date Sampled:	9-20-88	9-21-88	9-21-88	9-22-88
		Field Sample No.:	DANGB-BR9	DANGB-BR10	DANGB-TB10	DANGB-TB11
		Lab Sample No.:	88092546	88092579	88092582	88092619
HALOGENATED VOLATILE ORGANICS (SW 8010)						
Data Package			#10	#11	#11	#12
Benzyl Chloride	0.50		U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U
Bromobenzene	0.50		U	U	U	U
Bromodichloromethane	0.10		U	U	U	U
Bromoform	0.20		U	U	8.1	14
Bromoethane	1.2		U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U
Chloral	50.0		U	U	U	U
Chlorobenzene	0.25		U	U	U	U
Chloroethane	0.52		U	U	U	U
Chloroform	0.05		14 B	9.2 B	U	U
1-Chlorohexane	0.50		U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U
Chloromethane	0.08		U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U
Chlorotoluene	0.50		U	U	U	U
Dibromochloromethane	0.09		U	U	13	2
Dibromoethane	0.50		U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U
Dichloromethane	0.25		0.34 B	U	1.3 B	0.61 B
1,2-Dichloropropane	0.04		U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U
Tetrachloroethene	0.03		U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U
Trichloroethene	0.12		U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U
Trichloropropane	0.50		U	U	U	U
Vinyl Chloride	0.18		U	U	U	U

Table L-8
Site 2 - Ground Water
Page 2A

	Method Detection Limit	Well/QC No.:	MW 1	MW 2	MW 4	MW 5	MW 5 FB	MW 6	MW 7
		Date Sampled:	9-19-88	9-19-88	9-21-88	9-22-88	9-22-88	9-22-88	9-22-88
		Field Sample No.:	DANGB-2-MW1-GW-1	DANGB-2-MW2-GW-1	DANGB-2-MW4-GW-1	DANGB-2-MW5-GW-1	DANGB-FB15	DANGB-2-MW6-GW-1	DANGB-2-MW7-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092524	88092523	88092575	88092614	88092618	88092613	88092612
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#22	#22	#11	#12	#12	#12	#12
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 2B

Parameter and Analysis Method	Method Detection Limit								
		Well/OC No.:	GW 2-A	GW 2-A DUP	GW 2-A FB	GW 2-B	GW 2-C	GW 2-C FB	GW 2-D
		Date Sampled:	9-21-88	9-21-88	9-21-88	9-22-88	9-21-88	9-21-88	9-21-88
		Field Sample No.:	DANGB-2-GW2A-GW-1	DANGB-2-MW56-GW-1	DANGB-FB13	DANGB-2-GW2B-GW-1	DANGB-2-GW2C-GW-1	DANGB-FB14	DANGB-2-GW2D-GW-1
		Lab Sample No.:	88092573	88092574	88092580	88092616	88092576	88092581	88092577
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#11	#11	#11	#12	#11	#11	#11
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 2C

	Method Detection Limit	Well/QC No.:	GW 2-E	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20-88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2-MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092549	88092547	88092615	88092578	88092550	88092551	88092548
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#10	#10	#12	#11	#10	#10	#10
Benzene	0.2		1.2	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-8
Site 2 - Ground Water
Page 2D

	Method Detection Limit	Well/QC No.:	BR1	BR2	TB1	TB2
		Date Sampled:	9-20-88	9-21-88	9-21-88	9-22-88
		Field Sample No.:	DANGB-BR9	DANGB-BR10	DANGB-TB10	DANGB-TB11
Parameter and Analysis Method		Lab Sample No.:	88092546	88092579	88092582	88092619
AROMATIC VOLATILE ORGANICS (SW 8020)						
Data Package			#10	#11	#11	#12
Benzene	0.2		U	U	U	U
Chlorobenzene	0.2		U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U
Ethyl Benzene	0.2		U	U	U	U
Toluene	0.2		U	U	U	U
Total Xylenes	0.4		U	U	U	U

Table L-8
Site 2 - Ground Water
Page 3A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 1 9-19-88 DANGB-2-MW1-GW-1 88092524	MW 2 9-19-88 DANGB-2-MW2-GW-1 88092523	MW 4 9-21-88 DANGB-2-MW4 GW-1 88092575	MW 5 9-22-88 DANGB-2-MW5-GW-1 88092614	MW 5 FB 9-22-88 DANGB-FB15 88092618	MW 6 9-22-88 DANGB-2-MW6-GW-1 88092613	MW 7 9-22-88 DANGB-2-MW7-GW-1 88092612
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#22	#22	#11	#12	#12	#12	#12
1,3-Dichlorobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
1,4-Dichlorobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
Hexachloroethane	10		U	U	UJ	UJ	NR	UJ	UJ
Bis(2-chloroethyl)ether	10		U	U	UJ	UJ	NR	UJ	UJ
1,2-Dichlorobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
N-Nitrosodimethylamine	10		U	U	UJ	UJ	NR	UJ	UJ
Bis(2-chloroisopropyl)ether	10		U	U	UJ	UJ	NR	UJ	UJ
N-Nitrosodi-n-propylamine	10		U	U	UJ	UJ	NR	UJ	UJ
Hexachlorobutadiene	10		U	U	UJ	UJ	NR	UJ	UJ
1,2,4-Trichlorobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
Nitrobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
Isophorone	10		U	U	UJ	UJ	NR	UJ	UJ
Naphthalene	10		U	U	UJ	UJ	NR	UJ	UJ
Bis(2-chloroethoxy)methane	10		U	U	UJ	UJ	NR	UJ	UJ
2-Chloronaphthalene	10		U	U	UJ	UJ	NR	UJ	UJ
Hexachlorocyclopentadiene	10		U	U	UJ	UJ	NR	UJ	UJ
Acenaphthylene	10		U	U	UJ	UJ	NR	UJ	UJ
Acenaphthene	10		U	U	UJ	UJ	NR	UJ	UJ
Dimethyl Phthalate	10		U	U	UJ	UJ	NR	63	UJ
2,6-Dinitrotoluene	10		U	U	UJ	UJ	NR	UJ	UJ
Fluorene	10		U	U	UJ	UJ	NR	UJ	UJ
2,4-Dinitrotoluene	10		U	U	UJ	UJ	NR	UJ	UJ
Diethyl Phthalate	10		U	U	UJ	79	NR	UJ	UJ
N-Nitrosodiphenylamine	10		U	U	UJ	UJ	NR	UJ	UJ
Hexachlorobenzene	10		U	U	UJ	UJ	NR	UJ	UJ
Phenanthrene	10		U	U	UJ	UJ	NR	UJ	UJ
Anthracene	10		U	U	UJ	UJ	NR	UJ	UJ
Dibutyl Phthalate	10		U	U	UJ	UJ	NR	UJ	UJ
Fluoranthene	10		U	U	UJ	UJ	NR	UJ	UJ
4-Chlorophenyl Phenyl Ether	10		U	U	UJ	UJ	NR	UJ	UJ
Pyrene	10		U	U	UJ	UJ	NR	UJ	UJ
Butyl Benzyl Phthalate	10		U	U	UJ	UJ	NR	UJ	UJ
Bis(2-ethylhexyl)phthalate	10		15 B	10 B	UJ	14 B	NR	UJ	UJ
Chrysene	10		U	U	UJ	UJ	NR	UJ	UJ
4-Bromophenyl Phenyl Ether	10		U	U	UJ	UJ	NR	UJ	UJ
Benzo(a)anthracene	10		U	U	UJ	UJ	NR	UJ	UJ
Di-n-octylphthalate	10		U	U	UJ	UJ	NR	UJ	UJ
Benzo(b)fluoranthene	10		U	U	UJ	UJ	NR	UJ	UJ
Benzo(k)fluoranthene	10		U	U	UJ	UJ	NR	UJ	UJ
Benzidine	60		U	U	UJ	UJ	NR	UJ	UJ
3,3'-Dichlorobenzidine	20		U	U	UJ	UJ	NR	UJ	UJ
Benzo(a)pyrene	10		U	U	UJ	UJ	NR	UJ	UJ
Indeno(1,2,3-cd)pyrene	10		U	U	UJ	UJ	NR	UJ	UJ
Dibenzo(a,h)anthracene	10		U	U	UJ	UJ	NR	UJ	UJ
Benzo(ghi)perylene	10		U	U	UJ	UJ	NR	UJ	UJ
Benzyl Alcohol	20		U	U	UJ	UJ	NR	UJ	UJ

Table L-8
Site 2 - Ground Water
Page 3B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	GW 2-A 9-21-88 DANGB-2-GW2A-GW-1 88092573	GW 2-A DUP 9-21-88 DANGB-2-MW56-GW-1 88092574	GW 2-A FB 9-21-88 DANGB-FB13 88092580	GW 2-B 9-22-88 DANGB-2-GW2B-GW-1 88092616	GW 2-C 9-21-88 DANGB-2-GW2C-GW-1 88092576	GW 2-C FB 9-21-88 DANGB-FB14 88092581	GW 2-D 9-21-88 DANGB-2-GW2D-GW-1 88092577
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#11	#11		#12	#11		#11
1,3-Dichlorobenzene	10		UI	UI	NR	UI	UI	NR	UI
1,4-Dichlorobenzene	10		UI	UI	NR	UI	UI	NR	UI
Hexachloroethane	10		UI	UI	NR	UI	UI	NR	UI
Bis(2-chloroethyl)ether	10		UI	UI	NR	UI	UI	NR	UI
1,2-Dichlorobenzene	10		UI	UI	NR	UI	UI	NR	UI
N-Nitrosodimethylamine	10		UI	UI	NR	UI	UI	NR	UI
Bis(2-chloroisopropyl)ether	10		UI	UI	NR	UI	UI	NR	UI
N-Nitrosodi-n-propylamine	10		UI	UI	NR	UI	UI	NR	UI
Hexachlorobutadiene	10		UI	UI	NR	UI	UI	NR	UI
1,2,4-Trichlorobenzene	10		UI	UI	NR	UI	UI	NR	UI
Nitrobenzene	10		UI	UI	NR	UI	UI	NR	UI
Isophorone	10		UI	UI	NR	UI	UI	NR	UI
Naphthalene	10		UI	UI	NR	UI	UI	NR	UI
Bis(2-chloroethoxy)methane	10		UI	UI	NR	UI	UI	NR	UI
2-Chloronaphthalene	10		UI	UI	NR	UI	UI	NR	UI
Hexachlorocyclopentadiene	10		UI	UI	NR	UI	UI	NR	UI
Acenaphthylene	10		UI	UI	NR	UI	UI	NR	UI
Acenaphthene	10		UI	UI	NR	UI	UI	NR	UI
Dimethyl Phthalate	10		UI	UI	NR	UI	UI	NR	UI
2,6-Dinitrotoluene	10		UI	UI	NR	UI	UI	NR	UI
Fluorene	10		UI	UI	NR	UI	UI	NR	UI
2,4-Dinitrotoluene	10		UI	UI	NR	UI	UI	NR	UI
Diethyl Phthalate	10		144	UI	NR	UI	UI	NR	UI
N-Nitrosodiphenylamine	10		UI	UI	NR	UI	UI	NR	UI
Hexachlorobenzene	10		UI	UI	NR	UI	UI	NR	UI
Phenanthrene	10		UI	UI	NR	UI	UI	NR	UI
Anthracene	10		UI	UI	NR	UI	UI	NR	UI
Dibutyl Phthalate	10		UI	UI	NR	UI	UI	NR	UI
Fluoranthene	10		UI	UI	NR	UI	UI	NR	UI
4-Chlorophenyl Phenyl Ether	10		UI	UI	NR	UI	UI	NR	UI
Pyrene	10		UI	UI	NR	UI	UI	NR	UI
Butyl Benzyl Phthalate	10		UI	UI	NR	UI	UI	NR	UI
Bis(2-ethylhexyl)phthalate	10		UI	UI	NR	UI	UI	NR	UI
Chrysene	10		UI	UI	NR	UI	UI	NR	UI
4-Bromophenyl Phenyl Ether	10		UI	UI	NR	UI	UI	NR	UI
Benzo(a)anthracene	10		UI	UI	NR	UI	UI	NR	UI
Di-n-octylphthalate	10		UI	UI	NR	UI	UI	NR	UI
Benzo(b)fluoranthene	10		UI	UI	NR	UI	UI	NR	UI
Benzo(k)fluoranthene	10		UI	UI	NR	UI	UI	NR	UI
Benzidine	60		UI	UI	NR	UI	UI	NR	UI
3,3'-Dichlorobenzidine	20		UI	UI	NR	UI	UI	NR	UI
Benzo(a)pyrene	10		UI	UI	NR	UI	UI	NR	UI
Indeno(1,2,3-cd)pyrene	10		UI	UI	NR	UI	UI	NR	UI
Dibenzo(a,h)anthracene	10		UI	UI	NR	UI	UI	NR	UI
Benzo(ghi)perylene	10		UI	UI	NR	UI	UI	NR	UI
Benzyl Alcohol	20		UI	UI	NR	UI	UI	NR	UI

Table L-8
Site 2 - Ground Water
Page 3C

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	GW 2-E	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20 88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2-MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
		Lab Sample No.:	88092549	88092547	88092615	88092578	88092550	88092551	88092548
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#10	#10	#12	#11	#10	#10	#10
1,3-Dichlorobenzene	10		U!	U!	U!	U!	U!	U!	U!
1,4-Dichlorobenzene	10		U!	U!	U!	U!	U!	U!	U!
Hexachloroethane	10		U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroethyl)ether	10		U!	U!	U!	U!	U!	U!	U!
1,2-Dichlorobenzene	10		U!	U!	U!	U!	U!	U!	U!
N-Nitrosodimethylamine	10		U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroisopropyl)ether	10		U!	U!	U!	U!	U!	U!	U!
N-Nitrosodi-n-propylamine	10		U!	U!	U!	U!	U!	U!	U!
Hexachlorobutadiene	10		U!	U!	U!	U!	U!	U!	U!
1,2,4-Trichlorobenzene	10		U!	U!	U!	U!	U!	U!	U!
Nitrobenzene	10		U!	U!	U!	U!	U!	U!	U!
Isophorone	10		U!	U!	U!	U!	U!	U!	U!
Naphthalene	10		U!	U!	U!	U!	U!	U!	U!
Bis(2-chloroethoxy)methane	10		U!	U!	U!	U!	U!	U!	U!
2-Chloronaphthalene	10		U!	U!	U!	U!	U!	U!	U!
Hexachlorocyclopentadiene	10		U!	U!	U!	U!	U!	U!	U!
Acenaphthylene	10		U!	U!	U!	U!	U!	U!	U!
Acenaphthene	10		U!	U!	U!	U!	U!	U!	U!
Dimethyl Phthalate	10		U!	U!	U!	U!	U!	U!	U!
2,6-Dinitrotoluene	10		U!	U!	U!	U!	U!	U!	U!
Fluorene	10		U!	U!	U!	U!	U!	U!	U!
2,4-Dinitrotoluene	10		U!	U!	U!	U!	U!	U!	U!
Diethyl Phthalate	10		U!	U!	U!	20	U!	U!	U!
N-Nitrosodiphenylamine	10		U!	U!	U!	U!	U!	U!	U!
Hexachlorobenzene	10		U!	U!	U!	U!	U!	U!	U!
Phenanthrene	10		U!	U!	U!	U!	U!	U!	U!
Anthracene	10		U!	U!	U!	U!	U!	U!	U!
Dibutyl Phthalate	10		U!	U!	U!	U!	U!	U!	U!
Fluoranthene	10		U!	U!	U!	U!	U!	U!	U!
4-Chlorophenyl Phenyl Ether	10		U!	U!	U!	U!	U!	U!	U!
Pyrene	10		U!	U!	U!	U!	U!	U!	U!
Butyl Benzyl Phthalate	10		U!	U!	U!	U!	U!	U!	U!
Bis(2-ethylhexyl)phthalate	10		U!	U!	U!	100 B	U!	U!	U!
Chrysene	10		U!	U!	U!	U!	U!	U!	U!
4-Bromophenyl Phenyl Ether	10		U!	U!	U!	U!	U!	U!	U!
Benzo(a)anthracene	10		U!	U!	U!	U!	U!	U!	U!
Di-n-octylphthalate	10		U!	U!	U!	U!	U!	U!	U!
Benzo(b)fluoranthene	10		U!	U!	U!	U!	U!	U!	U!
Benzo(k)fluoranthene	10		U!	U!	U!	U!	U!	U!	U!
Benzidine	60		U!	U!	U!	U!	U!	U!	U!
3,3'-Dichlorobenzidine	20		U!	U!	U!	U!	U!	U!	U!
Benzo(a)pyrene	10		U!	U!	U!	U!	U!	U!	U!
Indeno(1,2,3-cd)pyrene	10		U!	U!	U!	U!	U!	U!	U!
Dibenzo(a,h)anthracene	10		U!	U!	U!	U!	U!	U!	U!
Benzo(ghi)perylene	10		U!	U!	U!	U!	U!	U!	U!
Benzyl Alcohol	20		U!	U!	U!	U!	U!	U!	U!

Table L-8
Site 2 - Ground Water
Page 3D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	BR1 9-20-88 DANGB-BR9 88092546	BR2 9-21-88 DANGB-BR10 88092579	TB1 9-21-88 DANGB-TB10 88092582	TB2 9-22-88 DANGB-TB11 88092619
SEMI-VOLATILE ORGANICS (EPA 625)						
Data Package			#10	#11		
1,3-Dichlorobenzene	10		UJ	UJ	NR	NR
1,4-Dichlorobenzene	10		UJ	UJ	NR	NR
Hexachloroethane	10		UJ	UJ	NR	NR
Bis(2-chloroethyl)ether	10		UJ	UJ	NR	NR
1,2-Dichlorobenzene	10		UJ	UJ	NR	NR
N-Nitrosodimethylamine	10		UJ	UJ	NR	NR
Bis(2-chloroisopropyl)ether	10		UJ	UJ	NR	NR
N-Nitrosodi-n-propylamine	10		UJ	UJ	NR	NR
Hexachlorobutadiene	10		UJ	UJ	NR	NR
1,2,4-Trichlorobenzene	10		UJ	UJ	NR	NR
Nitrobenzene	10		UJ	UJ	NR	NR
Isophorone	10		UJ	UJ	NR	NR
Naphthalene	10		UJ	UJ	NR	NR
Bis(2-chloroethoxy)methane	10		UJ	UJ	NR	NR
2-Chloronaphthalene	10		UJ	UJ	NR	NR
Hexachlorocyclopentadiene	10		UJ	UJ	NR	NR
Acenaphthylene	10		UJ	UJ	NR	NR
Acenaphthene	10		UJ	UJ	NR	NR
Dimethyl Phthalate	10		UJ	UJ	NR	NR
2,6-Dinitrotoluene	10		UJ	UJ	NR	NR
Fluorene	10		UJ	UJ	NR	NR
2,4-Dinitrotoluene	10		UJ	UJ	NR	NR
Diethyl Phthalate	10		UJ	UJ	NR	NR
N-Nitrosodiphenylamine	10		UJ	UJ	NR	NR
Hexachlorobenzene	10		UJ	UJ	NR	NR
Phenanthrene	10		UJ	UJ	NR	NR
Anthracene	10		UJ	UJ	NR	NR
Dibutyl Phthalate	10		UJ	UJ	NR	NR
Fluoranthene	10		UJ	UJ	NR	NR
4-Chlorophenyl Phenyl Ether	10		UJ	UJ	NR	NR
Pyrene	10		UJ	UJ	NR	NR
Butyl Benzyl Phthalate	10		UJ	UJ	NR	NR
Bis(2-ethylhexyl)phthalate	10		UJ	UJ	NR	NR
Chrysene	10		UJ	UJ	NR	NR
4-Bromophenyl Phenyl Ether	10		UJ	UJ	NR	NR
Benzo(a)anthracene	10		UJ	UJ	NR	NR
Di-n-octylphthalate	10		UJ	UJ	NR	NR
Benzo(b)fluoranthene	10		UJ	UJ	NR	NR
Benzo(k)fluoranthene	10		UJ	UJ	NR	NR
Benzidine	60		UJ	UJ	NR	NR
3,3'-Dichlorobenzidine	20		UJ	UJ	NR	NR
Benzo(a)pyrene	10		UJ	UJ	NR	NR
Indeno(1,2,3-cd)pyrene	10		UJ	UJ	NR	NR
Dibenzo(a,h)anthracene	10		UJ	UJ	NR	NR
Benzo(ghi)perylene	10		UJ	UJ	NR	NR
Benzyl Alcohol	20		UJ	UJ	NR	NR

Table 1-8
Site 2 - Ground Water
Page 4A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 1 9-19-88 DANGB-2-MW1-GW-1 88092524	MW 2 9-19-88 DANGB-2-MW2 GW-1 88092523	MW 4 9-21-88 DANGB-2-MW4-GW-1 88092575	MW 5 9-22-88 DANGB-2-MW5-GW-1 88092614	MW 5 FB 9-22-88 DANGB-FB15 88092618	MW 6 9-22-88 DANGB-2-MW6-GW-1 88092613	MW 7 9-22-88 DANGB-2-MW7-GW-1 88092612
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		U	U	UJ	UJ	NR	UJ	UJ
Aniline	-		U	U	UJ	UJ	NR	UJ	UJ
4-Aminobyphenyl	-		U	U	UJ	UJ	NR	UJ	UJ
4-Chloroaniline	20		U	U	UJ	UJ	NR	UJ	UJ
1-Chloronapththalene	-		U	U	UJ	UJ	NR	UJ	UJ
Dibenzofuran	10		U	U	UJ	UJ	NR	UJ	UJ
p-Dimethylaminoazobenzene	-		U	U	UJ	UJ	NR	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		U	U	UJ	UJ	NR	UJ	UJ
a-,a-Dimethylphenethylamine	-		U	U	UJ	UJ	NR	UJ	UJ
Diphenylamine	-		U	U	UJ	UJ	NR	UJ	UJ
1,2-Diphenylhydrazine	-		U	U	UJ	UJ	NR	UJ	UJ
Ethylmethanesulfonate	-		U	U	UJ	UJ	NR	UJ	UJ
3-Methylchloranthrene	-		U	U	UJ	UJ	NR	UJ	UJ
Methylmethanesulfonate	-		U	U	UJ	UJ	NR	UJ	UJ
2-Methyl Naphthalene	10		U	U	UJ	UJ	NR	UJ	UJ
1-Naphthylamine	-		U	U	UJ	UJ	NR	UJ	UJ
2-Naphthylamine	-		U	U	UJ	UJ	NR	UJ	UJ
2-Nitroaniline	50		U	U	UJ	UJ	NR	UJ	UJ
3-Nitroaniline	50		U	U	UJ	UJ	NR	UJ	UJ
4-Nitroaniline	50		U	U	UJ	UJ	NR	UJ	UJ
N-Nitroso-di-n-butylamine	-		U	U	UJ	UJ	NR	UJ	UJ
N-Nitrosopiperidiene	-		U	U	UJ	UJ	NR	UJ	UJ
Pentachlorobenzene	-		U	U	UJ	UJ	NR	UJ	UJ
Pentachloronitrobenzene	-		U	U	UJ	UJ	NR	UJ	UJ
Phenacetin	-		U	U	UJ	UJ	NR	UJ	UJ
2-Picoline	-		U	U	UJ	UJ	NR	UJ	UJ
Pronamide	-		U	U	UJ	UJ	NR	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		U	U	UJ	UJ	NR	UJ	UJ
Alpha-BHC	-		U	U	UJ	UJ	NR	UJ	UJ
Gamma-BHC	-		U	U	UJ	UJ	NR	UJ	UJ
Beta-BHC	20		U	U	UJ	UJ	NR	UJ	UJ
Heptachlor	10		U	U	UJ	UJ	NR	UJ	UJ
Delta-BHC	15		U	U	UJ	UJ	NR	UJ	UJ
Aldrin	10		U	U	UJ	UJ	NR	UJ	UJ
Heptachlor Epoxide	10		U	U	UJ	UJ	NR	UJ	UJ
Endosulfan I	-		U	U	UJ	UJ	NR	UJ	UJ
Dieldrin	15		U	U	UJ	UJ	NR	UJ	UJ
4,4'-DDE	30		U	U	UJ	UJ	NR	UJ	UJ
Endrin	-		U	U	UJ	UJ	NR	UJ	UJ
Endosulfan II	-		U	U	UJ	UJ	NR	UJ	UJ
4,4'-DDD	15		U	U	UJ	UJ	NR	UJ	UJ
4,4-DDT	25		U	U	UJ	UJ	NR	UJ	UJ
Endosulfan Sulfate	30		U	U	UJ	UJ	NR	UJ	UJ
Endrin Aldehyde	-		U	U	UJ	UJ	NR	UJ	UJ
Endrin Ketone	-		U	U	UJ	UJ	NR	UJ	UJ
Chlordane	60		U	U	UJ	UJ	NR	UJ	UJ
Methoxychlor	-		U	U	UJ	UJ	NR	UJ	UJ
Toxaphene	60		U	U	UJ	UJ	NR	UJ	UJ

Table L-8
Site 2 - Ground Water
Page 4B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	GW 2-A 9-21-88 DANGB-2-GW2A-GW-1 88092573	GW 2-A DUP 9-21-88 DANGB-2-MW56-GW-1 88092574	GW 2-A FB 9-21-88 DANGB-FB13 88092580	GW 2-B 9-22-88 DANGB-2-GW2B-GW-1 88092616	GW 2-C 9-21-88 DANGB-2-GW2C-GW-1 88092576	GW 2-C FB 9-21-88 DANGB-FB14 88092581	GW 2-D 9-21-88 DANGB-2-GW2D-GW-1 88092577
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Aniline	-		UJ	UJ	NR	UJ	UJ	NR	UJ
4-Aminobyphenyl	-		UJ	UJ	NR	UJ	UJ	NR	UJ
4-Chloroaniline	20		UJ	UJ	NR	UJ	UJ	NR	UJ
1-Chloronapththalene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Dibenzofuran	10		UJ	UJ	NR	UJ	UJ	NR	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Diphenylamine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Ethylmethanesulfonate	-		UJ	UJ	NR	UJ	UJ	NR	UJ
3-Methylchloranthrene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Methylmethanesulfonate	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Methyl Naphthalene	10		UJ	UJ	NR	UJ	UJ	NR	UJ
1-Naphthylamine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Naphthylamine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	UJ
3-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	UJ
4-Nitroaniline	50		UJ	UJ	NR	UJ	UJ	NR	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	NR	UJ	UJ	NR	UJ
N-Nitrosopiperidiene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Pentachlorobenzene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Pentachloronitrobenzene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Phenacetin	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Picoline	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Pronamide	-		UJ	UJ	NR	UJ	UJ	NR	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Alpha-BHC	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Gamma-BHC	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Beta-BHC	20		UJ	UJ	NR	UJ	UJ	NR	UJ
Heptachlor	10		UJ	UJ	NR	UJ	UJ	NR	UJ
Delta-BHC	15		UJ	UJ	NR	UJ	UJ	NR	UJ
Aldrin	10		UJ	UJ	NR	UJ	UJ	NR	UJ
Heptachlor Epoxide	10		UJ	UJ	NR	UJ	UJ	NR	UJ
Endosulfan I	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Dieldrin	15		UJ	UJ	NR	UJ	UJ	NR	UJ
4,4'-DDE	30		UJ	UJ	NR	UJ	UJ	NR	UJ
Endrin	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Endosulfan II	-		UJ	UJ	NR	UJ	UJ	NR	UJ
4,4'-DDD	15		UJ	UJ	NR	UJ	UJ	NR	UJ
4,4-DDT	25		UJ	UJ	NR	UJ	UJ	NR	UJ
Endosulfan Sulfate	30		UJ	UJ	NR	UJ	UJ	NR	UJ
Endrin Aldehyde	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Endrin Ketone	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Chlordane	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Methoxychlor	-		UJ	UJ	NR	UJ	UJ	NR	UJ
Toxaphene	60		UJ	UJ	NR	UJ	UJ	NR	UJ

Table L-8
Site 2 - Ground Water
Page 4C

	Method Detection Limit	Well/QC No.:	GW 2-E	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20-88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2-MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092549	88092547	88092615	88092578	88092550	88092551	88092548
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	20		UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl Naphthalene	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	20		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	15		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	15		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	30		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	15		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4-DDT	25		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	30		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-8
Site 2 - Ground Water
Page 4D

	Method	Well/QC No.:	BR1	BR2	TB1	TB2
	Detection	Date Sampled:	9-20-88	9-21-88	9-21-88	9-22-88
	Limit	Field Sample No.:	DANGB-BR9	DANGB-BR10	DANGB-TB10	DANGB-TB11
Parameter and Analysis Method		Lab Sample No.:	88092546	88092579	88092582	88092619
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2						
Acetophenone	-		UJ	UJ	NR	NR
Aniline	-		UJ	UJ	NR	NR
4-Aminobyphenyl	-		UJ	UJ	NR	NR
4-Chloroaniline	20		UJ	UJ	NR	NR
1-Chloronapththalene	-		UJ	UJ	NR	NR
Dibenzofuran	10		UJ	UJ	NR	NR
p-Dimethylaminoazobenzene	-		UJ	UJ	NR	NR
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	NR	NR
a-,a-Dimethylphenethylamine	-		UJ	UJ	NR	NR
Diphenylamine	-		UJ	UJ	NR	NR
1,2-Diphenylhydrazine	-		UJ	UJ	NR	NR
Ethylmethanesulfonate	-		UJ	UJ	NR	NR
3-Methylcholanthrene	-		UJ	UJ	NR	NR
Methylmethanesulfonate	-		UJ	UJ	NR	NR
2-Methyl Naphthalene	10		UJ	UJ	NR	NR
1-Naphthylamine	-		UJ	UJ	NR	NR
2-Naphthylamine	-		UJ	UJ	NR	NR
2-Nitroaniline	50		UJ	UJ	NR	NR
3-Nitroaniline	50		UJ	UJ	NR	NR
4-Nitroaniline	50		UJ	UJ	NR	NR
N-Nitroso-di-n-butylamine	-		UJ	UJ	NR	NR
N-Nitrosopiperidiene	-		UJ	UJ	NR	NR
Pentachlorobenzene	-		UJ	UJ	NR	NR
Pentachloronitrobenzene	-		UJ	UJ	NR	NR
Phenacetin	-		UJ	UJ	NR	NR
2-Picoline	-		UJ	UJ	NR	NR
Pronamide	-		UJ	UJ	NR	NR
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	NR	NR
Alpha-BHC	-		UJ	UJ	NR	NR
Gamma-BHC	-		UJ	UJ	NR	NR
Beta-BHC	20		UJ	UJ	NR	NR
Heptachlor	10		UJ	UJ	NR	NR
Delta-BHC	15		UJ	UJ	NR	NR
Aldrin	10		UJ	UJ	NR	NR
Heptachlor Epoxide	10		UJ	UJ	NR	NR
Endosulfan I	-		UJ	UJ	NR	NR
Dieldrin	15		UJ	UJ	NR	NR
4,4'-DDE	30		UJ	UJ	NR	NR
Endrin	-		UJ	UJ	NR	NR
Endosulfan II	-		UJ	UJ	NR	NR
4,4'-DDD	15		UJ	UJ	NR	NR
4,4'-DDT	25		UJ	UJ	NR	NR
Endosulfan Sulfate	30		UJ	UJ	NR	NR
Endrin Aldehyde	-		UJ	UJ	NR	NR
Endrin Ketone	-		UJ	UJ	NR	NR
Chlordane	60		UJ	UJ	NR	NR
Methoxychlor	-		UJ	UJ	NR	NR
Toxaphene	60		UJ	UJ	NR	NR

Table L-8
Site 2 - Ground Water
Page 5A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 1 9-19-88 DANGB-2-MW1-GW-1 88092524	MW 2 9-19-88 DANGB-2-MW2-GW-1 88092523	MW 4 9-21-88 DANGB-2-MW4-GW-1 88092575	MW 5 9-22-88 DANGB-2-MW5-GW-1 88092614	MW 5 FB 9-22-88 DANGB-FB15 88092618	MW 6 9-22-88 DANGB-2-MW6-GW-1 88092613	MW 7 9-22-88 DANGB-2-MW7-GW-1 88092612
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1221	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1232	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1242	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1248	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1254	60		U	U	UJ	UJ	NR	UJ	UJ
Aroclor-1260	60		U	U	UJ	UJ	NR	UJ	UJ
2-Chlorophenol	10		U	U	UJ	UJ	NR	UJ	UJ
2-Nitrophenol	10		U	U	UJ	UJ	NR	UJ	UJ
Phenol	10		U	U	UJ	UJ	NR	UJ	UJ
2,4-Dimethylphenol	10		U	U	UJ	UJ	NR	UJ	UJ
2,4-Dichlorophenol	10		U	U	UJ	UJ	NR	UJ	UJ
2,4,6-Trichlorophenol	10		U	U	UJ	UJ	NR	UJ	UJ
4-Chloro-3-methylphenol	20		U	U	UJ	UJ	NR	UJ	UJ
2,4-Dinitrophenol	50		U	U	UJ	UJ	NR	UJ	UJ
2,6-Dichlorophenol	-		U	U	UJ	UJ	NR	UJ	UJ
2-Methyl-4,6-dinitrophenol	50		U	U	UJ	UJ	NR	UJ	UJ
Pentachlorophenol	50		U	U	UJ	UJ	NR	UJ	UJ
4-Nitrophenol	50		U	U	UJ	UJ	NR	UJ	UJ
Benzoic Acid	50		U	U	UJ	UJ	NR	UJ	UJ
2-Methylphenol	10		U	U	UJ	UJ	NR	UJ	UJ
3&4-Methylphenol	10		U	U	UJ	UJ	NR	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		U	U	UJ	UJ	NR	UJ	UJ
2,4,5-Trichlorophenol	10		U	U	UJ	UJ	NR	UJ	UJ

Table L-8
Site 2 - Ground Water
Page 5B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	GW 2-A	GW 2-A DUP	GW 2-A FB	GW 2-B	GW 2-C	GW 2-C FB	GW 2-D
		Date Sampled:	9-21-88	9-21-88	9-21-88	9-22-88	9-21-88	9-21-88	9-21-88
		Field Sample No.:	DANGB-2-GW2A-GW-1	DANGB-2-MW56-GW-1	DANGB-FB13	DANGB-2-GW2B-GW-1	DANGB-2-GW2C-GW-1	DANGB-FB14	DANGB-2-GW2D-GW-1
		Lab Sample No.:	88092573	88092574	88092580	88092616	88092576	88092581	88092577
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1221	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1232	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1242	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1248	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1254	60		UJ	UJ	NR	UJ	UJ	NR	UJ
Aroclor-1260	60		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Chlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Nitrophenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
Phenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
2,4-Dimethylphenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
2,4-Dichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	NR	UJ	UJ	NR	UJ
2,4-Dinitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	UJ
2,6-Dichlorophenol	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	UJ
Pentachlorophenol	50		UJ	UJ	NR	UJ	UJ	NR	UJ
4-Nitrophenol	50		UJ	UJ	NR	UJ	UJ	NR	UJ
Benzoic Acid	50		UJ	UJ	NR	UJ	UJ	NR	UJ
2-Methylphenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
3&4-Methylphenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	NR	UJ	UJ	NR	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	NR	UJ	UJ	NR	UJ

Table L-8
Site 2 - Ground Water
Page 5C

	Method Detection Limit	Well/QC No.:	GW 2-B	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20-88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2-MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092549	88092547	88092615	88092578	88092550	88092551	88092548
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	60		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	50		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-8
Site 2 - Ground Water
Page 5D

	Method	Well/QC No.:	BR1	BR2	TB1	TB2
	Detection	Date Sampled:	9-20-88	9-21-88	9-21-88	9-22-88
	Limit	Field Sample No.:	DANGB-BR9	DANGB-BR10	DANGB-TB10	DANGB-TB11
Parameter and Analysis Method		Lab Sample No.:	88092546	88092579	88092582	88092619
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3						
Aroclor-1016	60		U1	U1	NR	NR
Aroclor-1221	60		U1	U1	NR	NR
Aroclor-1232	60		U1	U1	NR	NR
Aroclor-1242	60		U1	U1	NR	NR
Aroclor-1248	60		U1	U1	NR	NR
Aroclor-1254	60		U1	U1	NR	NR
Aroclor-1260	60		U1	U1	NR	NR
2-Chlorophenol	10		U1	U1	NR	NR
2-Nitrophenol	10		U1	U1	NR	NR
Phenol	10		U1	U1	NR	NR
2,4-Dimethylphenol	10		U1	U1	NR	NR
2,4-Dichlorophenol	10		U1	U1	NR	NR
2,4,6-Trichlorophenol	10		U1	U1	NR	NR
4-Chloro-3-methylphenol	20		U1	U1	NR	NR
2,4-Dinitrophenol	50		U1	U1	NR	NR
2,6-Dichlorophenol	-		U1	U1	NR	NR
2-Methyl-4,6-dinitrophenol	50		U1	U1	NR	NR
Pentachlorophenol	50		U1	U1	NR	NR
4-Nitrophenol	50		U1	U1	NR	NR
Benzoic Acid	50		U1	U1	NR	NR
2-Methylphenol	10		U1	U1	NR	NR
3&4-Methylphenol	10		U1	U1	NR	NR
2,3,4,6-Tetrachlorophenol	-		U1	U1	NR	NR
2,4,5-Trichlorophenol	10					

Table L-8
Site 2 - Ground Water
Page 6A

Parameter	Method Detection Limit	Well/QC No.:	MW 1	MW 2	MW 4	MW 5	MW 5 FB	MW 6	MW 7
		Date Sampled:	9-19-88	9-19-88	9-21-88	9-22-88	9-22-88	9-22-88	9-22-88
		Field Sample No.:	DANGB-2-MW1-GW-1	DANGB-2-MW2-GW-1	DANGB-2-MW4-GW-1	DANGB-2-MW5-GW-1	DANGB-FB15	DANGB-2-MW6-GW-1	DANGB-2-MW7-GW-1
		Lab Sample No.:	88092524	88092523	88092575	88092614	88092618	88092613	88092612
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#22	#22	#11	#12		#12	#12
Units: mg/L	1.5		U	U	U	U	NR	U	U
METALS (Units: mg/L)									
Data Package			#22	#22	#11	#12		#12	#12
Barium (SW 6010)	0.05		< 0.2	< 0.2	< 0.2	< 0.2	NR	< 0.2	< 0.2
Cadmium (SW 7131)	0.001		< 0.005	< 0.005	< 0.005	< 0.005	NR	< 0.005	< 0.005
Chromium (SW 7191)	0.002		< 0.01	< 0.01	< 0.01	< 0.01	NR	< 0.01	< 0.01
Lead (SW 7421)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	NR	< 0.005	< 0.005
NITRATE									
Data Package			#68	#68	#68	#68	#68	#68	#68
Units: mg/L	0.02		< 0.02	< 0.02	0.53	< 0.02	NR	0.14	< 0.02
SPECIFIC CONDUCTANCE (EPA 120.1)									
Units: mS/cm @ 25°C			1.436	1.257	0.775	0.670	NR	0.617	0.947
TEMPERATURE (EPA 170.1)									
Units: °C			11.5	11.6	11.3	10.9	NR	13.7	11.7
pH (EPA 150.1)									
Units: pH Units			7.64	7.58	6.93	7.40	NR	7.07	7.27

Table L-8
Site 2 - Ground Water
Page 6B

Parameter	Method Detection Limit	Well/QC No.:	GW 2-A	GW 2-A DUP	GW 2-A FB	GW 2-B	GW 2-C	GW 2-C FB	GW 2-D
		Date Sampled:	9-21-88	9-21-88	9-21-88	9-22-88	9-21-88	9-21-88	9-21-88
		Field Sample No.:	DANGB-2-GW2A-GW-1	DANGB-2-MW56-GW-1	DANGB-FB13	DANGB-2-GW2B-GW-1	DANGB-2 GW2C-GW-1	DANGB-FB14	DANGB-2-GW2D-GW-1
		Lab Sample No.:	88092573	88092574	88092580	88092616	88092576	88092581	88092577
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#11	#11		#12	#11		#11
Units: mg/L	1.5		U	U	NR	U	U	NR	U
METALS (Units: mg/L)									
Data Package			#11	#11		#12	#11		#11
Barium (SW 6010)	0.05		< 0.2	< 0.2	NR	< 0.2	< 0.2	NR	< 0.2
Cadmium (SW 7131)	0.001		< 0.005	< 0.005	NR	< 0.005	< 0.005	NR	< 0.005
Chromium (SW 7191)	0.002		< 0.01	< 0.01	NR	< 0.01	< 0.01	NR	< 0.01
Lead (SW 7421)	0.005		< 0.005	< 0.005	NR	< 0.005	< 0.005	NR	< 0.005
NITRATE									
Data Package			#68	#68		#68	#68		#68
Units: mg/L	0.02		< 0.02	< 0.02	NR	< 0.02	0.86	NR	< 0.02
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			0.575	0.575	NR	1.321	0.191	NR	1.125
TEMPERATURE (EPA 170.1) Units: °C			12.0	12.0	NR	13.9	11.2	NR	10.7
pH (EPA 150.1) Units: ph Units			7.23	7.23	NR	6.96	6.76	NR	7.35

Table L-8
Site 2 - Ground Water
Page 6C

Parameter	Method Detection Limit	Well/QC No.:	GW 2-E	MW37	MW38	MW39	MW40	MW40 DUP	MW41
		Date Sampled:	9-20-88	9-20-88	9-22-88	9-21-99	9-20-88	9-20-88	9-20-88
		Field Sample No.:	DANGB-2-GW2E-GW-1	DANGB-2 MW37-GW-1	DANGB-2-MW38-GW-1	DANGB-2-MW39-GW-1	DANGB-2-MW40-GW-1	DANGB-2-MW55-GW-1	DANGB-2-MW41-GW-1
		Lab Sample No.:	88092549	88092547	88092615	88092578	88092550	88092551	88092548
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#10	#10	#12	#11	#10	#10	#10
Units: mg/L	1.5		U	U	U	U	U	U	U
METALS (Units: mg/L)									
Data Package			#10	#10	#12	#11	#10	#10	#10
Barium (SW 6010)	0.05		< 0.2	< 0.2	< 0 2	< 0.2	< 0.2	< 0.2	< 0.2
Cadmium (SW 7131)	0.001		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Chromium (SW 7191)	0.002		< 0.01	< 0 01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Lead (SW 7421)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0 005
NITRATE									
Data Package			#68	#68	#68	#68	#68	#68	#68
Units: mg/L	0.02		< 0.02	< 0 02	< 0.02	0.52	0.08	0.09	0.05
SPECIFIC CONDUCTANCE (EPA 120.1)									
Units: mS/cm @ 25°C			1.813	0.455	0 642	0.834	0.411	0.411	0.456
TEMPERATURE (EPA 170.1)			9.7	12.1	10.9	11.7	11.6	11.6	9.8
Units: °C									
pH (EPA 150.1)									
Units: pH Units			6.83	7.76	7.61	6.98	7.66	7.66	7.70

Table L-8
Site 2 - Ground Water
Page 6D

Parameter	Method Detection Limit	Well/QC No.:	BR1	BR2	TB1	TB2
		Date Sampled:	9-20-88	9-21-88	9-21-88	9-22-88
		Field Sample No.:	DANGB-BR9	DANGB-BR10	DANGB-TB10	DANGB-TB11
		Lab Sample No.:	88092546	88092579	88092582	88092619
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)						
Data Package			#10	#11		
Units: mg/L	1.5		U	U	NR	NR
METALS (Units: mg/L)						
Data Package			#10	#11		
Barium (SW 6010)	0.05		< 0.2	< 0.2	NR	NR
Cadmium (SW 7131)	0.001		< 0.005	< 0.005	NR	NR
Chromium (SW 7191)	0.002		< 0.01	< 0.01	NR	NR
Lead (SW 7421)	0.005		< 0.005	< 0.005	NR	NR
NITRATE						
Data Package			#68	#68		
Units: mg/L	0.02		< 0.02	< 0.02	NR	NR
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			NR	NR	NR	NR
TEMPERATURE (EPA 170.1) Units: °C			NR	NR	NR	NR
pH (EPA 150.1) Units: pH Units			NR	NR	NR	NR

DUP Duplicate.
FB Field blank.
BR Bailer rinsate.
TB Trip blank.
Data Package # Numbers refer to Data Packages in Appendix M.
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
* This sample was analyzed as part of an overnight run using an autosampler. When the analyst went to get the second bottle for confirmatory analysis, it was found to be broken. Thus, no confirmatory analysis was possible. The first analysis was performed using a megabore capillary column; this minimizes the possibility of false positives.
NR The analysis was not requested.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
! The holding time was missed for this analysis. See Appendix N.
< Less than.
\- The EPA has not yet reported on a method detection limit for this parameter.

TABLE L-9
SITE 3
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SURFACE WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL8	SL9	SL10	SL10 DUP	SL10 FB
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-3-SL8-SW-1	DANGB-3-SL9-SW-1	DANGB-3-SL10-SW-1	DANGB-3-SL28-SW-1	DANGB-FB19
		Lab Sample No.:	88092766	88092772	88092767	88092765	88092774
HALOGENATED VOLATILE ORGANICS (SW 8010)							
Data Package			#4	#3	#3	#3	#3
Benzyl Chloride	0.05		U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U
Bromoform	0.20		U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U
Chloral	50.0		U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U
Chloroform	0.05		U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U
1,1-Dichloroethane	0.07		U	1.8	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U
1,1-Dichloroethene	0.13		U	0.56	U	U	U
Trans-1,2-Dichloroethene	0.10		U	9.3	U	U	U
Dichloromethane	0.25		0.26 B	0.58 B	U	0.29 B	1.3 B
1,2-Dichloropropane	0.04		U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U
Tetrachloroethene	0.03		U	1.1	U	U	U
1,1,1-Trichloroethane	0.03		U	8.6	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U
Trichloroethene	0.12		10	110	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U

Table L-9
Site 3 - Surface Water
Page 2

	Method	Location/QC No.:	SL8	SL9	SL10	SL10 DUP	SL10 FB
	Detection	Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88	9-26-88
	Limit	Field Sample No.:	DANGB-3-SL8-SW-1	DANGB-3-SL9-SW-1	DANGB-3-SL10-SW-1	DANGB-3-SL28-SW-1	DANGB-FB19
Parameter and Analysis Method		Lab Sample No.:	88092766	88092772	88092767	88092765	88092774
AROMATIC VOLATILE ORGANICS (SW 8020)							
Data Package			#4	#3	#3	#3	#3
Benzene	0.2		U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U
Toluene	0.2		U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U

Table L-9
Site 3 - Surface Water
Page 3

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL8 9-26-88 DANGB-3-SL8-SW-1 88092807	SL9 9-26-88 DANGB-3-SL9-SW-1 88092772	SL10 9-26-88 DANGB-3-SL10-SW-1 88092767	SL10 DUP 9-26-88 DANGB-3-SL28-SW-1 88092765	SL10 FB 9-26-88 DANGB-FB19 88092774
SEMI-VOLATILE ORGANICS (EPA 625) Page 1							
Data Package			#3	#3	#4	#3	
1,3-Dichlorobenzene	10		U!	U!	U!	U!	NR
1,4-Dichlorobenzene	10		U!	U!	U!	U!	NR
Hexachloroethane	10		U!	U!	U!	U!	NR
Bis(2-chloroethyl)ether	10		U!	U!	U!	U!	NR
1,2-Dichlorobenzene	10		U!	U!	U!	U!	NR
N-Nitrosodimethylamine	10		U!	U!	U!	U!	NR
Bis(2-chloroisopropyl)ether	10		U!	U!	U!	U!	NR
N-Nitrosodi-n-propylamine	10		U!	U!	U!	U!	NR
Hexachlorobutadiene	10		U!	U!	U!	U!	NR
1,2,4-Trichlorobenzene	10		U!	U!	U!	U!	NR
Nitrobenzene	10		U!	U!	U!	U!	NR
Isophorone	10		U!	U!	U!	U!	NR
Naphthalene	10		U!	U!	U!	U!	NR
Bis(2-chloroethoxy)methane	10		U!	U!	U!	U!	NR
2-Chloronaphthalene	10		U!	U!	U!	U!	NR
Hexachlorocyclopentadiene	10		U!	U!	U!	U!	NR
Acenaphthylene	10		U!	U!	U!	U!	NR
Acenaphthene	10		U!	U!	U!	U!	NR
Dimethyl Phthalate	10		U!	12	U!	U!	NR
2,6-Dinitrotoluene	10		U!	U!	U!	U!	NR
Fluorene	10		U!	U!	U!	U!	NR
2,4-Dinitrotoluene	10		U!	U!	U!	U!	NR
Diethyl Phthalate	10		U!	U!	U!	U!	NR
N-Nitrosodiphenylamine	10		U!	U!	U!	U!	NR
Hexachlorobenzene	10		U!	U!	U!	U!	NR
Phenanthrene	10		U!	U!	U!	U!	NR
Anthracene	10		U!	U!	U!	U!	NR
Dibutyl Phthalate	10		U!	U!	U!	U!	NR
Fluoranthene	10		U!	U!	U!	U!	NR
4-Chlorophenyl Phenyl Ether	10		U!	U!	U!	U!	NR
Pyrene	10		U!	U!	U!	U!	NR
Butyl Benzyl Phthalate	10		U!	U!	U!	U!	NR
Bis(2-ethylhexyl)phthalate	10		U!	U!	U!	10 B	NR
Chrysene	10		U!	U!	U!	U!	NR
4-Bromophenyl Phenyl Ether	10		U!	U!	U!	U!	NR
Benzo(a)anthracene	10		U!	U!	U!	U!	NR
Di-n-octylphthalate	10		U!	U!	U!	U!	NR
Benzo(b)fluoranthene	10		U!	U!	U!	U!	NR
Benzo(k)fluoranthene	10		U!	U!	U!	U!	NR
Benzidine	60		U!	U!	U!	U!	NR
3,3'-Dichlorobenzidine	20		U!	U!	U!	U!	NR
Benzo(a)pyrene	10		U!	U!	U!	U!	NR
Indeno(1,2,3-cd)pyrene	10		U!	U!	U!	U!	NR
Dibenzo(a,h)anthracene	10		U!	U!	U!	U!	NR
Benzo(ghi)perylene	10		U!	U!	U!	U!	NR
Benzyl Alcohol	20		U!	U!	U!	U!	NR

Table L-9
Site 3 - Surface Water
Page 4

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL8 9-26-88 DANGB-3-SL8-SW-1 88092807	SL9 9-26-88 DANGB-3-SL9-SW-1 88092772	SL10 9-26-88 DANGB-3-SL10-SW-1 88092767	SL10 DUP 9-26-88 DANGB-3-SL28-SW-1 88092765	SL10 FB 9-26-88 DANGB-FB19 88092774
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2							
Acetophenone	-		UJ	UJ	UJ	UJ	NR
Aniline	-		UJ	UJ	UJ	UJ	NR
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	NR
4-Chloroaniline	20		UJ	UJ	UJ	UJ	NR
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	NR
Dibenzofuran	10		UJ	UJ	UJ	UJ	NR
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	NR
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	NR
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	NR
Diphenylamine	-		UJ	UJ	UJ	UJ	NR
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	NR
Ethyl methanesulfonate	-		UJ	UJ	UJ	UJ	NR
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	NR
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	NR
2-Methylnaphthalene	10		UJ	UJ	UJ	UJ	NR
1-Naphthylamine	-		UJ	UJ	UJ	UJ	NR
2-Naphthylamine	-		UJ	UJ	UJ	UJ	NR
2-Nitroaniline	50		UJ	UJ	UJ	UJ	NR
3-Nitroaniline	50		UJ	UJ	UJ	UJ	NR
4-Nitroaniline	50		UJ	UJ	UJ	UJ	NR
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	NR
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	NR
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	NR
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	NR
Phenacetin	-		UJ	UJ	UJ	UJ	NR
2-Picoline	-		UJ	UJ	UJ	UJ	NR
Pronamide	-		UJ	UJ	UJ	UJ	NR
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	NR
Alpha-BHC	-		UJ	UJ	UJ	UJ	NR
Gamma-BHC	-		UJ	UJ	UJ	UJ	NR
Beta-BHC	20		UJ	UJ	UJ	UJ	NR
Heptachlor	10		UJ	UJ	UJ	UJ	NR
Delta-BHC	15		UJ	UJ	UJ	UJ	NR
Aldrin	10		UJ	UJ	UJ	UJ	NR
Heptachlor Epoxide	10		UJ	UJ	UJ	UJ	NR
Endosulfan I	-		UJ	UJ	UJ	UJ	NR
Dieldrin	15		UJ	UJ	UJ	UJ	NR
4,4'-DDE	30		UJ	UJ	UJ	UJ	NR
Endrin	-		UJ	UJ	UJ	UJ	NR
Endosulfan II	-		UJ	UJ	UJ	UJ	NR
4,4'-DDD	15		UJ	UJ	UJ	UJ	NR
4,4-DDT	25		UJ	UJ	UJ	UJ	NR
Endosulfan Sulfate	30		UJ	UJ	UJ	UJ	NR
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	NR
Endrin Ketone	-		UJ	UJ	UJ	UJ	NR
Chlordane	60		UJ	UJ	UJ	UJ	NR
Methoxychlor	-		UJ	UJ	UJ	UJ	NR
Toxaphene	60		UJ	UJ	UJ	UJ	NR

Table L-9
Site 3 - Surface Water
Page 5

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL8 9-26-88 DANGB-3-SL8-SW-1 88092807	SL9 9-26-88 DANGB-3-SL9-SW-1 88092772	SL10 9-26-88 DANGB-3-SL10-SW-1 88092767	SL10 DUP 9-26-88 DANGB-3-SL28-SW-1 88092765	SL10 FB 9-26-88 DANGB-FB19 88092774
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3							
Aroclor-1016	60		UJ	UJ	UJ	UJ	NR
Aroclor-1221	60		UJ	UJ	UJ	UJ	NR
Aroclor-1232	60		UJ	UJ	UJ	UJ	NR
Aroclor-1242	60		UJ	UJ	UJ	UJ	NR
Aroclor-1248	60		UJ	UJ	UJ	UJ	NR
Aroclor-1254	60		UJ	UJ	UJ	UJ	NR
Aroclor-1260	60		UJ	UJ	UJ	UJ	NR
2-Chlorophenol	10		UJ	UJ	UJ	UJ	NR
2-Nitrophenol	10		UJ	UJ	UJ	UJ	NR
Phenol	10		UJ	UJ	UJ	UJ	NR
2,4-Dimethylphenol	10		UJ	UJ	UJ	UJ	NR
2,4-Dichlorophenol	10		UJ	UJ	UJ	UJ	NR
2,4,6-Trichlorophenol	10		UJ	UJ	UJ	UJ	NR
4-Chloro-3-methylphenol	20		UJ	UJ	UJ	UJ	NR
2,4-Dinitrophenol	50		UJ	UJ	UJ	UJ	NR
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	NR
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	UJ	UJ	NR
Pentachlorophenol	50		UJ	UJ	UJ	UJ	NR
4-Nitrophenol	50		UJ	UJ	UJ	UJ	NR
Benzoic Acid	50		UJ	UJ	UJ	UJ	NR
2-Methylphenol	10		UJ	UJ	UJ	UJ	NR
3&4-Methylphenol	10		UJ	UJ	UJ	UJ	NR
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	NR
2,4,5-Trichlorophenol	10		UJ	UJ	UJ	UJ	NR

Table L-9
Site 3 - Surface Water
Page 6

	Method Detection Limit	Location/QC No.:	SL8	SL9	SL10	SL10 DUP	SL10 FB
		Date Sampled:	9-26-83	9-26-88	9-26-88	9-26 88	9-26-88
		Field Sample No.:	DANGB-3-SL8-SW-1	DANGB-3-SL9-SW-1	DANGB-3-SL10-SW-1	DANGB-3-SL28-SW-1	DANGB-FB19
Parameter and Analysis Method		Lab Sample No.:	88092807	88092772	88092767	88092765	88092774
PESTICIDES AND PCB's (EPA 8080)							
Data Package			#3	#3	#4	#3	
Aldrin	0.05		U	U	U	U	NR
Alpha-BHC	0.05		U	U	U	U	NR
Beta-BHC	0.05		U	U	U	U	NR
Delta-BHC	0.05		U	U	U	U	NR
Gamma-BHC	0.05		U	U	U	U	NR
Chlorodane	0.5		U	U	U	U	NR
4,4'-DDD	0.10		U	U	U	U	NR
4,4'-DDE	0.10		U	U	U	U	NR
4,4'-DDT	0.10		U	U	U	U	NR
Dieldrin	0.10		U	U	U	U	NR
Endosulfan I	0.05		U	U	U	U	NR
Endosulfan II	0.10		U	U	U	U	NR
Endosulfan Sulfate	0.10		U	U	U	U	NR
Endrin	0.10		U	U	U	U	NR
Endrin Aldehyde	0.10		U	U	U	U	NR
Heptachlor	0.05		U	U	U	U	NR
Heptachlor Epoxide	0.05		U	U	U	U	NR
Kepone	0.10		U	U	U	U	NR
Methoxychlor	0.5		U	U	U	U	NR
Toxaphene	1.0		U	U	U	U	NR
PCB-1016	0.5		U	U	U	U	NR
PCB-1221	0.5		U	U	U	U	NR
PCB-1232	0.5		U	U	U	U	NR
PCB-1242	0.5		U	U	U	45	NR
PCB-1248	0.5		U	U	U	U	NR
PCB-1254	1.0		U	U	U	U	NR
PCB-1260	1.0		U	U	U	U	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)							
Data Package			#3	#3	#4	#3	
Units: mg/L	1.0		1.5	U	U	U	NR
METALS (Units mg/L)							
Data Package			#2	#2	#2		
Arsenic (SW 7060)			<0.01	<0.01	<0.01	NR	NR
Barium (SW 6010)			<0.2	<0.2	<0.2	NR	NR
Cadmium (SW 7131)			<0.005	<0 005	<0.005	NR	NR
Chromium (SW 7191)			<0.01	<0.01	<0.01	NR	NR
Lead (SW 7421)			<0.005	<0.005	<0 005	NR	NR
Mercury (SW 7470)			<0.0002	<0 0002	<0.0002	NR	NR
SPECIFIC CONDUCTANCE Units: mS/cm @ 25°C			0.365	0.628	0.809	0.809	NR
TEMPERATURE (EPA 170.1) Units: °C			13.0	13.9	12.7	12.7	NR
pH (EPA 150.1) Units: pH Units			7.03	6.72	6.72	6.72	NR

DUP	Duplicate.
Data Package #	Numbers refer to Data Packages in Appendix M.
FB	Field blank.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample.
NR	The analysis was not requested.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
I	The holding time was missed for this analysis. See Appendix N.
<	Less than.
-	The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-10
SITE 3
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SEDIMENT SAMPLES
(Results in micrograms per kilogram unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL8 9-26-88 DANGB-3-SL8-SD-1 88092805	SL9 9-26-88 DANGB-3-SL9-SD-1 88092804	SL10 9-26-88 DANGB-3-SL10-SD-1 88092803	SL10 DUP 9-26-88 DANGB-3-SL28-SD-1 88092802
LATILE ORGANICS (SW 8010)						
Data Package			#24	#24	#24	#24
Benzyl Chloride	0.50		U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U
Bromobenzene	0.50		U	U	U	U
Bromodichloromethane	0.10		U	U	U	U
Bromoform	0.20		U	U	U	U
Bromoethane	1.2		U	U	U	U
Carbon Tetrachloride	C.12		U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U
Chloral	50.0		U	U	U	U
Chlorobenzene	0.25		U	U	U	U
Chloroethane	0.52		U	U	U	U
Chloroform	0.05		U	U	U	U
1-Chlorohexane	0.50		U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U
Chloromethane	0.08		U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U
Chlorotoluene	0.50		U	U	U	U
Dibromochloromethane	0.09		U	U	U	U
Dibromoethane	0.50		U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U
1,1-Dichloroethane	0.07		U	5.6	U	U
1,2-Dichloroethane	0.03		U	U	U	U
1,1-Dichloroethene	0.13		U	16	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U
Dichloromethane	0.25		23 B	36 B	37 B	41 B
1,2-Dichloropropane	0.04		U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U
Tetrachloroethene	0.03		U	5.1	U	U
1,1,1-Trichloroethane	0.03		U	240	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U
Trichloroethene	0.12		U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U
Trichloropropane	0.50		U	U	U	U
Vinyl Chloride	0.18		U	U	U	U

Table L-10
Site 3 - Sediment
Page 2

Parameter and Analysis Method	Method Detection Limit					
		Well/QC No.:	SL8	SL9	SL10	SL10 DUP
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-3-SL8-SD-1	DANGB-3-SL9-SD-1	DANGB-3-SL10-SD-1	DANGB-3-SL28-SD-1
		Lab Sample No.:	88092805	88092804	88092803	88092802
AROMATIC VOLATILE ORGANICS (SW 8020)						
Data Package			#24	#24	#24	#24
Benzene	0.2		U	U	U	U
Chlorobenzene	0.2		U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U
Ethyl Benzene	0.2		U	U	U	U
Toluene	0.2		U	U	U	U
Total Xylenes	0.4		U	U	U	U

Table L-10
Site 3 - Sediment
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No: Date Sampled: Field Sample No: Lab Sample No:	SL8 9-26-88 DANGB-3-SL8-SD-1 88092805	SL9 9-26-88 DANGB-3-SL9-SD-1 88092804	SL10 9-26-88 DANGB-3-SL10-SD-1 88092803	SL10 DUP 9-26-88 DANGB-3-SL28-SD-1 88092802
SEMI-VOLATILE ORGANICS (SW 8270)						
Data Package			#24	#24	#24	#24
1,3-Dichlorobenzene	330		U	U	U	U
1,4-Dichlorobenzene	330		U	U	U	U
Hexachloroethane	330		U	U	U	U
Bis(2-chloroethyl)ether	330		U	U	U	U
1,2-Dichlorobenzene	330		U	U	U	U
N-Nitrosodimethylamine	330		U	U	U	U
Bis(2-chloroisopropyl)ether	330		U	U	U	U
N-Nitrosodi-n-propylamine	330		U	U	U	U
Hexachlorobutadiene	330		U	U	U	U
1,2,4-Trichlorobenzene	330		U	U	U	U
Nitrobenzene	330		U	U	U	U
Isophorone	330		U	U	U	U
Naphthalene	330		U	U	U	U
Bis(2-chloroethoxy)methane	330		U	U	U	U
2-Chloronaphthalene	330		U	U	U	U
Hexachlorocyclopentadiene	330		U	U	U	U
Acenaphthylene	330		U	U	U	U
Acenaphthene	330		U	U	U	U
Dimethyl Phthalate	330		U	U	U	U
2,6-Dinitrotoluene	330		U	U	U	U
Fluorene	330		U	U	U	U
2,4-Dinitrotoluene	330		U	U	U	U
Diethyl Phthalate	330		U	U	U	U
N-Nitrosodiphenylamine	330		U	U	U	U
Hexachlorobenzene	330		U	U	U	U
Phenanthrene	330		U	U	U	U
Anthracene	330		U	U	U	U
Dibutyl Phthalate	330		U	U	U	U
Fluoranthene	330		U	U	U	U
4-Chlorophenyl Phenyl Ether	330		U	U	U	U
Pyrene	330		U	U	U	U
Butyl Benzyl Phthalate	330		U	U	U	U
Bis(2-ethylhexyl)phthalate	330		330	16	U	U
Chrysene	330		U	U	U	U
4-Bromophenyl Phenyl Ether	330		U	U	U	U
Benzo(a)anthracene	330		U	U	U	U
Di-n-octylphthalate	330		U	U	U	U
Benzo(b)fluoranthene	330		U	U	U	U
Benzo(k)fluoranthene	330		U	U	U	U
Benzidine	2000		U	U	U	U
3,3'-Dichlorobenzidine	660		U	U	U	U
Benzo(a)pyrene	330		U	U	U	U
Indeno(1,2,3-cd)pyrene	330		U	U	U	U
Dibenzo(a,h)anthracene	330		U	U	U	U
Benzo(ghi)perylene	330		U	U	U	U
Benzyl Alcohol	660		U	U	U	U

Table L-10
Site 3 - Sediment
Page 4

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL8	SL9	SL10	SL10 DUP
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-3-SL8-SD-1	DANGB-3-SL9-SD-1	DANGB-3-SL10-SD-1	DANGB-3-SL28-SD-1
		Lab Sample No.:	88092805	88092804	88092803	88092802
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2						
Acetophenone	-		U	U	U	U
Aniline	-		U	U	U	U
4-Aminobyphenyl	-		U	U	U	U
4-Chloroaniline	660		U	U	U	U
1-Chloronapththalene	-		U	U	U	U
Dibenzofuran	330		U	U	U	U
p-Dimethylaminoazobenzene	-		U	U	U	U
7,12-Dimethylbenz(a)anthracene	-		U	U	U	U
a-,a-Dimethylphenethylamine	-		U	U	U	U
Diphenylamine	-		U	U	U	U
1,2-Diphenylhydrazine	-		U	U	U	U
Ethylmethanesulfonate	-		U	U	U	U
3-Methylcholanthrene	-		U	U	U	U
Methylmethanesulfonate	-		U	U	U	U
2-Methylnaphthalene	330		U	U	U	U
1-Naphthylamine	-		U	U	U	U
2-Naphthylamine	-		U	U	U	U
2-Nitroaniline	1600		U	U	U	U
3-Nitroaniline	1600		U	U	U	U
4-Nitroaniline	1600		U	U	U	U
N-Nitroso-di-n-butylamine	-		U	U	U	U
N-Nitrosopiperidiene	-		U	U	U	U
Pentachlorobenzene	-		U	U	U	U
Pentachloronitrobenzene	-		U	U	U	U
Phenacetin	-		U	U	U	U
2-Picoline	-		U	U	U	U
Pronamide	-		U	U	U	U
1,2,4,5-Tetrachlorobenzene	-		U	U	U	U
Alpha-BHC	-		U	U	U	U
Gamma-BHC	-		U	U	U	U
Beta-BHC	660		U	U	U	U
Heptachlor	330		U	U	U	U
Delta-BHC	500		U	U	U	U
Aldrin	330		U	U	U	U
Heptachlor Epoxide	330		U	U	U	U
Endosulfan I	-		U	U	U	U
Dieldrin	500		U	U	U	U
4,4'-DDE	1000		U	U	U	U
Endrin	-		U	U	U	U
Endosulfan II	-		U	U	U	U
4,4'-DDD	500		U	U	U	U
4,4-DDT	830		U	U	U	U
Endosulfan Sulfate	1000		U	U	U	U
Endrin Aldehyde	-		U	U	U	U
Endrin Ketone	-		U	U	U	U
Chlordane	2000		U	U	U	U
Methoxychlor	-		U	U	U	U
Toxaphene	2000		U	U	U	U

Table L-10
Site 3 - Sediment
Page 5

	Method Detection Limit	Well/QC No.:	SL8	SL9	SL10	SL10 DUP
		Date Sampled:	9-26-88	9-26-88	9-26-88	9-26-88
		Field Sample No.:	DANGB-3-SL8-SD-1	DANGB-3-SL9-SD-1	DANGB-3-SL10-SD-1	DANGB-3-SL28-SD-1
Parameter and Analysis Method		Lab Sample No.:	88092805	88092804	88092803	88092802
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3						
Aroclor-1016	2000		U	U	U	U
Aroclor-1221	2000		U	U	U	U
Aroclor-1232	2000		U	U	U	U
Aroclor-1242	2000		U	U	U	U
Aroclor-1248	2000		U	U	U	U
Aroclor-1254	2000		U	U	U	U
Aroclor-1260	2000		U	U	U	U
2-Chlorophenol	330		U	U	U	U
2-Nitrophenol	330		U	U	U	U
Phenol	330		U	U	U	U
2,4-Dimethylphenol	330		U	U	U	U
2,4-Dichlorophenol	330		U	U	U	U
2,4,6-Trichlorophenol	330		U	U	U	U
4-Chloro-3-methylphenol	660		U	U	U	U
2,4-Dinitrophenol	1600		U	U	U	U
2,6-Dichlorophenol	-		U	U	U	U
2-Methyl-4,6-dinitrophenol	1600		U	U	U	U
Pentachlorophenol	1600		U	U	U	U
4-Nitrophenol	1600		U	U	U	U
Benzoic Acid	1600		U	U	U	U
2-Methylphenol	330		U	U	U	U
3&4-Methylphenol	330		U	U	U	U
2,3,4,6-Tetrachlorophenol	-		U	U	U	U
2,4,5-Trichlorophenol	330		U	U	U	U

Table L-10
Site 3 - Sediment
Page 6

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL8 9-26-88 DANGB-3-SL8-SD-1 88092805	SL9 9-26-88 DANGB-3-SL9-SD-1 88092804	SL10 9-26-88 DANGB-3-SL10-SD-1 88092803	SL10 DUP 9-26-88 DANGB-3-SL28-SD-1 88092802
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)						
Data Package			#24	#24	#24	#24
Units: mg/kg	100		2000	110	150	170
MOISTURE						
Data Package			#24	#24	#24	#24
Units: weight percent			18.5	13.4	12.6	11.4
METALS (Units: mg/kg)						
Data Package			#24	#24	#24	#24
Arsenic (SW 7060)			<0.00220 U	<0.00130 U	<0 0014 U	<0.0013 U
Barium (SW 6010)			53.7	63	39 0	45
Cadmium (SW 7131)			4.4	< 0.66	< 0.67	< 0.67
Chromium (SW 7191)			54.6 *	27.4 *	22.9 *	15.6 *
Lead (SW 7421)			478	63 S	20.2	6.1
Mercury (SW 7471)			0.00058	<0.00013 U	<0.00013 U	<0.00013 U

DUP Duplicate.
Data Package # Numbers refer to Data Packages in Appendix M.
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
* Duplicate not within control limits.
< Less than.
- The EPA has not yet reported on a method detection limit for this parameter.

TABLE L-11
SITE 3
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SOIL SAMPLES
(Results in micrograms per kilogram unless noted otherwise.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGA0	SGA1	SGA2	SGA3	SGA4	SGA4 DUP	SGA5	SGB1
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-16-88
		Field Sample No.:	DANGB-3-SG-A0	DANGB-3-SG-A1	DANGB-3-SG-A2	DANGB-3-SG-A3	DANGB-3-SG-A4	DANGB-3-SG-A4	DANGB-3-SG-A1	DANGB-3-SG-B1
		Lab Sample No.:	88081902 88081960	88081955	88081959	88081954	88081904	88081945	88081946	88081903/ 88081961
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#53	#54	#54	#54	#18	#54	#54	#53
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		0.2 B	U	U	0.8 B	0.2 B	0.7	0.2	2.6 B
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		3.4 B	8.8 B	2.0 B	2.5 B	12 B	5.5 B	25 B	5.7 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-11
Site 3 - Soil
Page 1B

Location/QC No:	Method Detection Limit	SGB2	SGB3	SGC0	SGC1	SGC2	SGC3	SGC4	SGC4 R
Sample Depth, (ft):		0-2	0-2	0-2	0-2	0-2	0-2	0-2	
Sample Date:		8-17-88	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-31-88	9-27-88
Field Sample No.:		DANGB-3-SG-B2	DANGB-3-SG-B3	DANGB-3-SG-C0	DANGB-3-SG-C1	DANGB-3-SG-C2	DANGB-3-SG-C3	DANGB-3-SGC4-SG1	DANGB-SGC4-SG1R
Lab Sample No.:		88081949	88081905	88081956	88081957	88081901/ 88081962	88081958	88092247	88092782
Parameter and Analysis Method									
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package		#54	#18	#54	#54	#53	#54	#46	#25
Benzyl Chloride	0.50	U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0	U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0	U	U	U	U	U	U	U	U
Bromobenzene	0.50	U	U	U	U	U	U	U	U
Bromodichloromethane	0.10	U	U	U	U	U	U	U	U
Bromoform	0.20	U	U	U	U	U	U	U	U
Bromoethane	1.2	U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12	U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0	U	U	U	U	U	U	U	U
Chloral	50.0	U	U	U	U	U	U	U	U
Chlorobenzene	0.25	U	U	U	U	U	U	U	U
Chloroethane	0.52	U	U	U	U	U	U	U	U
Chloroform	0.05	U	1.1 B	U	U	0.2 B	U	U	U
1-Chlorohexane	0.50	U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13	U	U	U	U	U	U	U	U
Chloromethane	0.08	U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0	U	U	U	U	U	U	U	U
Chlorotoluene	0.50	U	U	U	U	U	U	U	U
Dibromochloromethane	0.09	U	U	U	U	U	U	U	U
Dibromomethane	0.50	U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15	U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32	U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24	U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8	U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07	U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03	U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13	U	0.7	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10	U	U	U	U	U	U	U	U
Dichloromethane	0.25	U	5.8 B	3.9 B	1.9 B	12 B	1.7 B	0.41 B	1.9 B
1,2-Dichloropropane	0.04	U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34	U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03	U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50	U	U	U	U	U	U	U	U
Tetrachloroethene	0.03	U	15	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03	U	89	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02	U	U	U	U	U	U	U	U
Trichloroethene	0.12	U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50	U	U	U	U	U	U	U	U
Trichloropropane	0.50	U	U	U	U	U	U	U	U
Vinyl Chloride	0.18	U	U	U	U	U	U	U	U

Table L-11
Site 3 - Soil
Page 1C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGC4 R DUP	SGC5	SGD0	SGD1	SGD2	SGD3	SGD3 DUP	SGD4
		Sample Depth, (ft):		0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	9-27-88	8-17-88	8-18-88	8-18-88	8-17-88	8-30-88	8-30-88	8-17-88
		Field Sample No.:	DANGB-SGC4-SG2R	DANGB-3-SG-C5	DANGB-3-SG-D0	DANGB-3-SG-D1	DANGB-3-SG-D2	DANGB-3-SGD3-SG1	DANGB-3-SGD3-SG1A	DANGB-3-SG-D4
		Lab Sample No.:	88092783	88081944	88081973	88081975	88081952	88082200	88082201	88081953
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		U	11 B	13 B	1.4 B	3.4 B	1.5 B	2.2 B	6.6 B
1,2-Dichloropropane	0.04		13 B	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-11
Site 3 - Soil
Page 1D

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGD5	SGE0	SGE1	SGE2	SGE3	SGE3 DUP	SGE4	SGE4 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-18-88	8-18 88	8-18-88	8-30-88	8-30-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-3-SG-D5	DANGB-3-SG-E0	DANGB-3-SG-E1	DANGB-3-SG-E2	DANGB-3-SGE3-SG1	DANGB-3-SGE3-SG1A	DANGB-3-SGE4-SG2	DANGB-3-SGE4-SG1
		Lab Sample No.:	88081943	88081976	88081977	88081972	88082202	88082203	88092248	88092249
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#51	#39	#39	#39	#51	#51	#46	#46
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		0.5	U	U	0.23 B	U	U	3.5	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		5.8 B	1.4 B	3.5 B	1.3 B	5.4 B	8.1 B	4.6 B	0.55 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-11
Site 3 - Soil
Page 1E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No.:	DANGB-3-SG-49	DANGB-3-SG-Z2	DANGB-3-SG-A3.5	DANGB-3-SG-A3.5	DANGB-3-SG-A2.5	DANGB-3-SG-Y2	DANGB-3-MW25-SG1	DANGB-3-MW25-SG2
		Lab Sample No.:	88081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		0.30 B	U	U	0.2 B	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		1.2	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		2.4 B	9.1 B	U	4.3 B	7.4 B	U	2.5 B	U
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		37 B	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		4.5 B	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		0.73	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
		Sample Depth, (ft):	14-15	0-1	5-6	14-15	0-1	2-3	14-15	0-1
		Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No.:	DANGB-3-MW25-SG3	DANGB-3-MW27-SG1	DANGB-3-MW27-SG2	DANGB-3-MW27-SG3	DANGB-3-MW28-SG1	DANGB-3-MW28-SG2	DANGB-3-MW28-SG3	DANGB-3-MW29-SG1
		Lab Sample No.:	88082148	88082102	88082103	88082104	88082158	88082159	88082160	88082196
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	0.24 B	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		U	3.0 B	1.9 B	12 B	3.1 B	2.2 B	1.7 B	0.94 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		4.4	U	U	U	U	U	U	0.74
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

	Method Detection Limit	Location/QC No:	MW29-SS2	MW29-SS3	MW29-SS3 DUP	MW30-SS1	MW30-SS1 DUP	MW30-SS2	MW30-SS3	MW31-SS1
		Sample Depth, (ft):	3-4	14-15	14-15	0-1	0-1	9-11	14-15	0-1
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-27-88
		Field Sample No.:	DANGB-3-MW29-SG2	DANGB-3-MW29-SG3	DANGB-3-MW29-SG3A	DANGB-3-MW30-SG1	DANGB-3-MW30-SG1A	DANGB-3-MW30-SG2	DANGB-3-MW30-SG3	DANGB-3-MW31-SG1
Parameter and Analysis Method		Lab Sample No.:	88082197	88082198	88082199	88082192	88082193	88082194	88082195	88082156
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		0.57 B	U	0.67 B	1.2 B	1.3 B	U	1.2 B	5.9 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	0.41	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		3.1	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	0.66
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-11
Site 3 - Soil
Page 114

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW31-SS2	MW33-SS1	MW33-SS2	MW33-SS3	MW35-SS1	MW35-SS2	MW35-SS3	MW35-SS3 DUP
		Sample Depth, (ft):	9-10	0-1	11-12	20-21	0-1	2-3	10-11.5	10-11.5
		Sample Date:	8-27-88	8-27-88	8-27-88	8-27-88	8-25-88	8-25-88	8-25-88	8-25-88
		Field Sample No.:	DANGB-3-MW31-SG2	DANGB-3-MW33-SG1	DANGB-3-MW33-SG2	DANGB-3-MW33-SG3	DANGB-3-MW35-SG1	DANGB-3-MW35-SG2	DANGB-3-MW35-SG3	DANGB-3-MW35-SG3A
		Lab Sample No.:	88082157	88082161	88082162	88082163	88082132	88082131	88082133	88082130
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform *	0.05		0.43 B	U	U	U	U	U	0.09 B	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	0.25	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		2.3 B	3.9 B	2.6 B	4.1 B	9.2 B	81 B	8.6 B	5.2 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2A

	Method Detection Limit	Location/QC No:	SGA0	SGA1	SGA2	SGA3	SGA4	SGA4 DUP	SGA5	SGB1
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-16-88
		Field Sample No.:	DANGB-3-SG-A0	DANGB-3-SG-A1	DANGB-3-SG-A2	DANGB-3-SG-A3	DANGB-3-SG-A4	DANGB-3-SG-A4	DANGB-3-SG-A1	DANGB-3-SG-B1
Parameter and Analysis Method		Lab Sample No.:	88081902/88081960	88081955	88081959	88081954	88081904	88081945	88081946	88081903/88081961
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#53	#54	#54	#54	#18	#54	#54	#53
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		17	8.5	3.4	12	1.6	U	39	4.5
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2B

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGB2 0-2 8-17-88 DANGB-3-SG-B2 88081949	SGB3 0-2 8-16-88 DANGB-3-SG-B3 88081905	SGC0 0-2 8-16-88 DANGB-3-SG-C0 88081956	SGC1 0-2 8-16-88 DANGB-3-SG-C1 88081957	SGC2 0-2 8-16-88 DANGB-3-SG-C2 88081901/88081962	SGC3 0-2 8-16-88 DANGB-3-SG-C3 88081958	SGC4 0-2 8-31-88 DANGB-3-SGC4-SG1 88092247	SGC4 R 9-27-88 DANGB-SGC4-SG1 88092782
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#54	#18	#54	#54	#53	#54	#46	#25
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.[illegible]		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		ND	36	6.7	8.1	53	4.2	U	U
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGC4 R DUP	SGC5	SGD0	SGD1	SGD2	SGD3	SGD3 DUP	SGD4
		Sample Depth, (ft):		0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	9-27-88	8-17-88	8-18-88	8-18-88	8-17-88	8-30-88	8-30-88	8-17-88
		Field Sample No.:	DANGB-SGC4-SG2	DANGB-3-SG-C5	DANGB-3-SG-D0	DANGB-3-SG-D1	DANGB-3-SG-D2	DANGB-3-SGD3-SG1	DANGB-3-SGD3-SG1A	DANGB-3-SG-D4
		Lab Sample No.:	88092783	88081944	88081973	88081975	88081952	88102200	88102201	88081953
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		U	190	20 B	12 B	U	44	23	8.6
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2D

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGD5 0-2 8-17-88 DANGB-3-SG-D5 88081943	SGE0 .0-2 8-18-88 DANGB-3-SG-E0 88081976	SGE1 0-2 8-18-88 DANGB-3-SG-E1 88081977	SGE2 0-2 8-18-88 DANGB-3-SG-E2 88081972	SGE3 0-2 8-30-88 DANGB-3-SGE3-SG1 88102202	SGE3 DUP 0-2 8-30-88 DANGB-3-SGE3-SG1A 88102203	SGE4 0-2 8-31-88 DANGB-3-SGE4-SG2 88092248	SGE4 DUP 0-2 8-31-88 DANGB-3-SGE4-SG1 88092249
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#54	#39	#39	#39	#51	#51	#46	#46
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		12	3.1 B	53 B	38 B	8.8	22	140	140
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No.:	DANGB-3-SG-49	DANGB-3-SG-Z2	DANGB-3-SG-A3.5	DANGB-3-SG-A3.5	DANGB-3-SG-A2.5	DANGB-3-SG-Y2	DANGB-3-MW25-SG1	DANGB-3-MW25-SG2
		Lab Sample No.:	88081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Benzene	0.2		900	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		260	U	U	U	U	U	U	U
Toluene	0.2		1300 B	12	U	1.6	11	U	U	U
Xylenes	0.2		2000	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 2F

	Method	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
	Detection	Sample Depth, (ft):	14-15	0-1	6-May	14-15	0-1	2-3	14-15	0-1
	Limit	Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No.:	DANGB-3-MW25-SG3	DANGB-3-MW27-SG1	DANGB-3-MW27-SG2	DANGB-3-MW27-SG3	DANGB-3-MW28-SG1	DANGB-3-MW28-SG2	DANGB-3-MW28-SG3	DANGB-3-MW29-SG1
Parameter and Analysis Method		Lab Sample No.:	88082148	88082102	88082103	88082104	88102158	88102159	88102160	88102196
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		U	610	740	100	5.5	60	23	18
Xylenes	0.2		U	U	U	U	U	U	U	U

	Method Detection Limit	Location/QC No:	MW29-SS2	MW29-SS3	MW29-SS3 DUP	MW30-SS1	MW30-SS1 DUP	MW30-SS2	MW30-SS3	MW31-SS1
		Sample Depth, (ft):	3-4	14-15	14-15	0-1	0-1	9-11	14-15	0-1
		Sample Date:	8-30-88	8-30-88	8-30 88	8-30-88	8-30-88	8-30-88	8-30-88	8-27-88
		Field Sample No.:	DANGB-3-MW29-SG2	DANGB-3-MW29-SG3	DANGB-3-MW29-SG3A	DANGB-3-MW30-SG1	DANGB-3-MW30-SG1A	DANGB-3-MW30-SG2	DANGB-3-MW30-SG3	DANGB-3-MW31-SG1
Parameter and Analysis Method		Lab Sample No.:	88102197	88102198	88102199	88092192	88082193	88082194	88082195	88082156
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		38	7	7.1	U	U	U	20	9.8
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 211

	Method Detection Limit	Location/QC No:	MW31-SS2	MW33-SS1	MW33-SS2	MW33-SS3	MW35-SS1	MW35-SS2	MW35-SS3	MW35-SS3 DUP
		Sample Depth, (ft):	9-10	0-1	11-12	20-21	0-1	2-3	10-11.5	10-11.5
		Sample Date:	8-27-88	8-27-88	8-27-88	8-27-88	8-25-88	8-25-88	8-25-88	8-25-88
		Field Sample No.:	DANGB-3-MW31-SG2	DANGB-3-MW33-SG1	DANGB-3-MW33-SG2	DANGB-3-MW33-SG3	DANGB-3-MW35-SG1	DANGB-3-MW35-SG2	DANGB-3-MW35-SG3	DANGB-3-MW35-SG3A
Parameter and Analysis Method		Lab Sample No.:	88082157	88082161	88082162	88082163	88082132	88082131	88082133	88082130
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		60	150	28	9.4	18	13	7.9	2
Xylenes	0.2		U	U	U	U	U	U	U	U

Table L-11
Site 3 Soil
Page 3A

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGA0	SGA1	SGA2	SGA3	SGA4	SGA4 DUP	SGA5	SGB1
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-16-88
		Field Sample No.:	DANGB-3-SG-A0	DANGB-3-SG-A1	DANGB-3-SG-A2	DANGB-3-SG-A3	DANGB-3-SG-A4	DANGB-3-SG-A4	DANGB-3-SG-A1	DANGB-3-SG-B1
		Lab Sample No.:	88081902/88081960	88081955	88081959	88081954	88081904	88081945	88081946	88081903/88081961
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#18	#40	#40	#40	#18	#40	#40	#18
1,3-Dichlorobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
1,4-Dichlorobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Hexachloroethane	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Bis(2-chloroethyl)ether	330		U	UJ	UJ	UJ	U	U	UJ	UJ
1,2-Dichlorobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
N-Nitrosodimethylamine	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Bis(2-chloroisopropyl)ether	330		U	UJ	UJ	UJ	U	U	UJ	UJ
N-Nitrosodi-n-propylamine	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Hexachlorobutadiene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
1,2,4-Trichlorobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Nitrobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Isophorone	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Naphthalene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Bis(2-chloroethoxy)methane	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2-Chloronaphthalene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Hexachlorocyclopentadiene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Acenaphthylene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Acenaphthene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Dimethyl Phthalate	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,6-Dinitrotoluene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Fluorene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4-Dinitrotoluene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Diethyl Phthalate	330		U	UJ	UJ	UJ	U	U	UJ	UJ
N-Nitrosodiphenylamine	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Hexachlorobenzene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Phenanthrene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Anthracene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Dibutyl Phthalate	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Fluoranthene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Pyrene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Butyl Benzyl Phthalate	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		U	590	UJ	UJ	U	U	UJ	UJ
Chrysene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
4-Bromophenyl Phenyl Ether	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzo(a)anthracene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Di-n-octylphthalate	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzo(b)fluoranthene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzo(k)fluoranthene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzidine	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
3,3'-Dichlorobenzidine	660		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzo(a)pyrene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Dibenzo(a,h)anthracene	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzo(ghi)perylene	330		U	UJ	UJ	UJ	U	U	UJ	UJ

Table L-11
Site 3 Soil
Page 3B

	Method Detection Limit	Location/QC No:	SGB2	SGB3	SGC0	SGC1	SGC2	SGC3	SGC4	SGC4 R
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-31-88	9-27-88
		Field Sample No.:	DANGB-3-SG-B2	DANGB-3-SG-B3	DANGB-3-SG-C0	DANGB-3-SG-C1	DANGB-3-SG-C2	DANGB-3-SG-C3	DANGB-3-SGC4-SG1	DANGB-3-SGC4-SG1R
Parameter and Analysis Method		Lab Sample No.:	88081949	88081905	88081956	88081957	88081901/88081962	88081958	88092247	88092782
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#40	#18	#40	#40	#18	#40	#46	#25
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 3C

	Method Detection Limit	Location/QC No:	SGC4 R DUP	SGC5	SGD0	SGD1	SGD2	SGD3	SGD3 DUP	SGD4
		Sample Depth, (ft):		0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	9-27-88	8-17-88	8-18-88	8-18-88	8-17-88	8-30-88	8-30-88	8-17-88
		Field Sample No.:	DANGB-3-SGC4-SG2R	DANGB-3-SG-C5	DANGB-3-SG-D0	DANGB-3-SG-D1	DANGB-3-SG-D2	DANGB-3-SGD3-SG1	DANGB-3-SGD3-SG1A	DANGB-3-SG-D4
Parameter and Analysis Method		Lab Sample No.:	88092783	88081944	88081973	88081975	88081952	88102200	88102201	88081953
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#25	#40	#39	#39	#40	#60	#60	#40
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	540	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	480	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 3D

	Method Detection Limit	Location/QC No:	SGD5	SGE0	SGE1	SGE2	SGE3	SGE3 DUP	SGE4	SGE4 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-18-88	8-18-88	8-18-88	8-30-88	8-30-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-3-SG-D5.	DANGB-3-SG-E0	DANGB-3-SG-E1	DANGB-3-SG-E2	DANGB-3-SGE3-SG1	DANGB-3-SGE3-SG1A	DANGB-3-SGE4-SG2	DANGB-3-SGE4-SG1
Parameter and Analysis Method		Lab Sample No.:	88081943	88081976	88081977	88081972	8808220	88082203	88092248	88092249
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#40	#39	#39	#39	#60	#60	#46	#46
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	1500	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 312

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No.:	DANGB-3-SG-49	DANGB-3-SG-Z2	DANGB-3-SG-A3.5	DANGB-3-SG-A3.5	DANGB-3-SG-A2.5	DANGB-3-SG-Y2	DANGB-3-MW25-SG1	DANGB-3-MW25-SG2
		Lab Sample No.:	88081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#39	#40	#40	#18	#40	#40	#58	#58
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 3F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
		Sample Depth, (ft):	14-15	0-1	5-6	14-15	0-1	2-3	14-15	0-1
		Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No.:	DANGB-3-MW25-SG3	DANGB-3-MW27-SG1	DANGB-3-MW27-SG2	DANGB-3-MW27-SG3	DANGB-3-MW28-SG1	DANGB-3-MW28-SG2	DANGB-3-MW28-SG3	DANGB-3-MW29-SG1
		Lab Sample No.:	88082148	88082102	88082103	88082104	88082158	88082159	88082160	88082196
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#58	#19	#19	#19	#23	#23	#23	#60
1,3-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
1,4-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
Hexachloroethane	330		U!	U!	U!	U!	U!	U!	U!	U
Bis(2-chloroethyl)ether	330		U!	U!	U!	U!	U!	U!	U!	U
1,2-Dichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
N-Nitrosodimethylamine	330		U!	U!	U!	U!	U!	U!	U!	U
Bis(2-chloroisopropyl)ether	330		U!	U!	U!	U!	U!	U!	U!	U
N-Nitrosodi-n-propylamine	330		U!	U!	U!	U!	U!	U!	U!	U
Hexachlorobutadiene	330		U!	U!	U!	U!	U!	U!	U!	U
1,2,4-Trichlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
Nitrobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
Isophorone	330		U!	U!	U!	U!	U!	U!	U!	U
Naphthalene	330		U!	U!	U!	U!	U!	U!	U!	U
Bis(2-chloroethoxy)methane	330		U!	U!	U!	U!	U!	U!	U!	U
2-Chloronaphthalene	330		U!	U!	U!	U!	U!	U!	U!	U
Hexachlorocyclopentadiene	330		U!	U!	U!	U!	U!	U!	U!	U
Acenaphthylene	330		U!	U!	U!	U!	U!	U!	U!	U
Acenaphthene	330		U!	U!	U!	U!	U!	U!	U!	U
Dimethyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U
2,6-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!	U!	U
Fluorene	330		U!	U!	U!	U!	U!	U!	U!	U
2,4-Dinitrotoluene	330		U!	U!	U!	U!	U!	U!	U!	U
Diethyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U
N-Nitrosodiphenylamine	330		U!	U!	U!	U!	U!	U!	U!	U
Hexachlorobenzene	330		U!	U!	U!	U!	U!	U!	U!	U
Phenanthrene	330		U!	U!	U!	U!	U!	U!	U!	U
Anthracene	330		U!	U!	U!	U!	U!	U!	U!	U
Dibutyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U
Fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U
4-Chlorophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!	U!	U
Pyrene	330		U!	U!	U!	U!	U!	U!	U!	U
Butyl Benzyl Phthalate	330		U!	U!	U!	U!	U!	U!	U!	U
Bis(2-ethylhexyl)phthalate	330		U!	530	U!	430	U!	U!	U!	U
Chrysene	330		U!	U!	U!	U!	U!	U!	U!	U
4-Bromophenyl Phenyl Ether	330		U!	U!	U!	U!	U!	U!	U!	U
Benzo(a)anthracene	330		U!	U!	U!	U!	U!	U!	U!	U
Di-n-octylphthalate	330		U!	U!	U!	U!	U!	U!	U!	U
Benzo(b)fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U
Benzo(k)fluoranthene	330		U!	U!	U!	U!	U!	U!	U!	U
Benzidine	2000		U!	U!	U!	U!	U!	U!	U!	U
3,3'-Dichlorobenzidine	660		U!	U!	U!	U!	U!	U!	U!	U
Benzo(a)pyrene	330		U!	U!	U!	U!	U!	U!	U!	U
Indeno(1,2,3-cd)pyrene	330		U!	U!	U!	U!	U!	U!	U!	U
Dibenzo(a,h)anthracene	330		U!	U!	U!	U!	U!	U!	U!	U
Benzo(ghi)perylene	330		U!	U!	U!	U!	U!	U!	U!	U

Table L-11
Site 3 Soil
Page 3G

	Method Detection Limit	Location/QC No:	MW29-SS2	MW29-SS3	MW29-SS3 DUP	MW30-SS1	MW30-SS1 DUP	MW30-SS2	MW30-SS3	MW31-SS1
		Sample Depth, (ft):	3-4	14-15	14-15	0-1	0-1	9-11	14-15	0-1
		Sample Date:	8-30-88	8-30-88	8-30 88	8-30-88	8-30-88	8-30-88	8-30-88	8-27-88
		Field Sample No.:	DANGB-3-MW29-SG2	DANGB-3-MW29-SG3	DANGB-3-MW29-SG3A	DANGB-3-MW30-SG1	DANGB-3-MW30-SG1A	DANGB-3-MW30-SG2	DANGB-3-MW30-SG3	DANGB-3-MW31-SG1
Parameter and Analysis Method		Lab Sample No.:	88082197	88082198	88082199	88082192	88082193	88082194	88082195	88082156
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#60	#60	#60	#60	#60	#60	#60	#23
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 311

	Method Detection Limit	Location/QC No:	MW31-SS2	MW33-SS1	MW33-SS2	MW33-SS3	MW35-SS1	MW35-SS2	MW35-SS3	MW35-SS3 DUP
		Sample Depth, (ft):	9-10	0-1	11-12	20-21	0-1	2-3	10-11.5	10-11.5
		Sample Date:	8-27-88	8-27-88	8-27-88	8-27-88	8-25-88	8-25-88	8-25-88	8-25-88
		Field Sample No.:	DANGB-3-MW31-SG2	DANGB-3-MW33-SG1	DANGB-3-MW33-SG2	DANGB-3-MW33-SG3	DANGB-3-MW35-SG1	DANGB-3-MW35-SG2	DANGB-3-MW35-SG3	DANGB-3-MW35-SG3A
Parameter and Analysis Method		Lab Sample No.:	88082157	88082161	88082162	88082163		88082131	88082133	88082130
SEMI-VOLATILE ORGANICS (SW 8270) Page 1										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
1,3-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,4-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachloroethane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Dichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodimethylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroisopropyl)ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodi-n-propylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobutadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4-Trichlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Nitrobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Isophorone	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Naphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-chloroethoxy)methane	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chloronaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorocyclopentadiene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acenaphthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dimethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluorene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrotoluene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diethyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosodiphenylamine	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Hexachlorobenzene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenanthrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibutyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chlorophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Butyl Benzyl Phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Bis(2-ethylhexyl)phthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chrysene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Bromophenyl Phenyl Ether	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Di-n-octylphthalate	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(b)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(k)fluoranthene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzidine	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3,3'-Dichlorobenzidine	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(a)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Indeno(1,2,3-cd)pyrene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzo(a,h)anthracene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzo(ghi)perylene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4A

	Method	Location/QC No:	SGA0	SGA1	SGA2	SGA3	SGA4	SGA4 DUP	SGA5	SGB1
	Detection	Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
	Limit	Sample Date:	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-16-88
		Field Sample No.:	DANGB-3-SG-A0	DANGB-3-SG-A1	DANGB-3-SG-A2	DANGB-3-SG-A3	DANGB-3-SG-A4	DANGB-3-SG-A4	DANGB-3-SG-A1	DANGB-3-SG-B1
Parameter and Analysis Method		Lab Sample No.:	88081902/88081960	88081955	88081959	88081954	88081904	88081945	88081946	88081903/88081961
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		U	U!	U!	U!	U	U	U!	U!
Acetophenone	-		U	U!	U!	U!	U	U	U!	U!
Aniline	-		U	U!	U!	U!	U	U	U!	U!
4-Aminobyphenyl	-		U	U!	U!	U!	U	U	U!	U!
4-Chloroaniline	660		U	U!	U!	U!	U	U	U!	U!
1-Chloronapththalene	-		U	U!	U!	U!	U	U	U!	U!
Dibenzofuran	330		U	U!	U!	U!	U	U	U!	U!
p-Dimethylaminoazobenzene	-		U	U!	U!	U!	U	U	U!	U!
7,12-Dimethylbenz(a)anthracene	-		U	U!	U!	U!	U	U	U!	U!
a-,a-Dimethylphenethylamine	-		U	U!	U!	U!	U	U	U!	U!
Diphenylamine	-		U	U!	U!	U!	U	U	U!	U!
1,2-Diphenylhydrazine	-		U	U!	U!	U!	U	U	U!	U!
Ethylmethanesulfonate	-		U	U!	U!	U!	U	U	U!	U!
3-Methylcholanthrene	-		U	U!	U!	U!	U	U	U!	U!
Methylmethanesulfonate	-		U	U!	U!	U!	U	U	U!	U!
2-Methylnaphthalene	330		U	U!	U!	U!	U	U	U!	U!
1-Naphthylamine	-		U	U!	U!	U!	U	U	U!	U!
2-Naphthylamine	-		U	U!	U!	U!	U	U	U!	U!
2-Nitroaniline	1600		U	U!	U!	U!	U	U	U!	U!
3-Nitroaniline	1600		U	U!	U!	U!	U	U	U!	U!
4-Nitroaniline	1600		U	U!	U!	U!	U	U	U!	U!
N-Nitroso-di-n-butylamine	-		U	U!	U!	U!	U	U	U!	U!
N-Nitrosopiperidiene	-		U	U!	U!	U!	U	U	U!	U!
Pentachlorobenzene	-		U	U!	U!	U!	U	U	U!	U!
Pentachloronitrobenzene	-		U	U!	U!	U!	U	U	U!	U!
Phenacetin	-		U	U!	U!	U!	U	U	U!	U!
2-Picoline	-		U	U!	U!	U!	U	U	U!	U!
Pronamide	-		U	U!	U!	U!	U	U	U!	U!
1,2,4,5-Tetrachlorobenzene	-		U	U!	U!	U!	U	U	U!	U!
Alpha-BHC	-		U	U!	U!	U!	U	U	U!	U!
Gamma-BHC	-		U	U!	U!	U!	U	U	U!	U!
Beta-BHC	660		U	U!	U!	U!	U	U	U!	U!
Heptachlor	330		U	U!	U!	U!	U	U	U!	U!
Delta-BHC	500		U	U!	U!	U!	U	U	U!	U!
Aldrin	330		U	U!	U!	U!	U	U	U!	U!
Heptachlor Epoxide	330		U	U!	U!	U!	U	U	U!	U!
Endosulfan I	-		U	U!	U!	U!	U	U	U!	U!
Dieldrin	500		U	U!	U!	U!	U	U	U!	U!
4,4'-DDE	1000		U	U!	U!	U!	U	U	U!	U!
Endrin	-		U	U!	U!	U!	U	U	U!	U!
Endosulfan II	-		U	U!	U!	U!	U	U	U!	U!
4,4'-DDD	500		U	U!	U!	U!	U	U	U!	U!
4,4'-DDT	830		U	U!	U!	U!	U	U	U!	U!
Endosulfan Sulfate	1000		U	U!	U!	U!	U	U	U!	U!
Endrin Aldehyde	-		U	U!	U!	U!	U	U	U!	U!

Table L-11
Site 3 Soil
Page 4B

	Method	Location/QC No:	SGB2	SGB3	SGC0	SGC1	SGC2	SGC3	SGC4	SGC4 R
	Detection	Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	
	Limit	Sample Date:	8-17-88	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-31-88	9-27-88
		Field Sample No.:	DANGB-3-SG-B2	DANGB-3-SG-B3	DANGB-3-SG-C0	DANGB-3-SG-C1	DANGB-3-SG-C2	DANGB-3-SG-C3	DANGB-3-SGC4-SG1	DANGB-3-SGC4-SG1R
Parameter and Analysis Method		Lab Sample No.:	88081949	88081905	88081956	88081957	88081901/8808196	88081958	88092247	88092782
SEMI-VOLATILE ORGANICS (SW 8270) *Continued page 2*										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4C

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	SGC4 R DUP 9-27-88 DANGB-3-SGC4-SS2R 88092783	SGC5 0-2 8-17-88 DANGB-3-SG-C5 88081944	SGD0 0-2 8-18-88 DANGB-3-SG-D0 88081973	SGD1 0-2 8-18-88 DANGB-3-SG-D1 88081975	SGD2 0-2 8-17-88 DANGB-3-SG-D2 88081952	SGD3 0-2 8-30-88 DANGB-3-SGD3-SG1 88102200	SGD3 DUP 0-2 8-30-88 DANGB-3-SGD3-SG1A 88102201	SGD4 0-2 8-17-88 DANGB-3-SG-D4 88081953
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	540	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4D

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	SGD5	SGE0	SGE1	SGE2	SGE3	SGE3 DUP	SGE4	SGE4 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-18-88	8-18-88	8-18-88	8-30-88	8-30-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-3-SG-D5	DANGB-3-SG-E0	DANGB-3-SG-E1	DANGB-3-SG-E2	DANGB-3-SGE3-SG1	DANGB-3-SGE3-SG1A	DANGB-3-SGE4-SG2	DANGB-3-SGE4-SG1
		Lab Sample No.:	88081943	88081976	88081977	88081972	88082202	88082203	88092248	88092249
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	1500	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No.:	DANGB-3-SG-49	DANGB-3-SG-Z2	DANGB-3-SG-A3.5	DANGB-3-SG-A3.5	DANGB-3-SG-A2.5	DANGB-3-SG-Y2	DANGB-3-MW25-SG1	DANGB-3-MW25-SG2
		Lab Sample No.:	89081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
		Sample Depth, (ft):	14-15	0-1	5-6	14-15	0-1	2-3	14-15	0-1
		Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No:	DANGB-3-MW25-SG3	DANGB-3-MW27-SG1	DANGB-3-MW27-SG2	DANGB-3-MW27-SG3	DANGB-3-MW28-SG1	DANGB-3-MW28-SG2	DANGB-3-MW28-SG3	DANGB-3-MW29-SG1
		Lab Sample No:	88082148	88082102	88082103	88082104	88082158	88082159	88082160	88082196
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U

Table L-11
Site 3 Soil
Page 4G

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW29-SS2	MW29-SS3	MW29-SS3 DUP	MW30-SS1	MW30-SS1 DUP	MW30-SS2	MW30-SS3	MW31-SS1
		Sample Depth, (ft):	3-4	14-15	14-15	0-1	0-1	9-11	14-15	0-1
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-27-88
		Field Sample No.:	DANGB-3-MW29-SG2	DANGB-3-MW29-SG3	DANGB-3-MW29-SG3A	DANGB-3-MW30-SG1	DANGB-3-MW30-SG1A	DANGB-3-MW30-SG2	DANGB-3-MW30-SG3	DANGB-3-MW31-SG1
		Lab Sample No.:	88082197	88082198	88082199	88082192	88082193	88082194	88082195	88082156
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 4II

	Method Detection Limit	Location/QC No:	MW31-SS2	MW33-SS1	MW33-SS2	MW33-SS3	MW35-SS1	MW35-SS2	MW35-SS3	MW35-SS3 DUP
		Sample Depth, (ft):	9-10	0-1	11-12	20-21	0-1	2-3	10-11.5	10-11.5
		Sample Date:	8-27-88	8-27-88	8-27-88	8-27-88	8-25-88	8-25-88	8-25-88	8-25-88
		Field Sample No.:	DANGB-3-MW31-SG2	DANGB-3-MW33-SG1	DANGB-3-MW33-SG2	DANGB-3-MW33-SG3	DANGB-3-MW35-SG1	DANGB-3-MW35-SG2	DANGB-3-MW35-SG3	DANGB-3-MW35-SG3A
Parameter and Analysis Method		Lab Sample No.:	88082157	88082161	88082162	88082163	88082132	88082131	88082133	88082130
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Acetophenone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloroaniline	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dibenzofuran	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylnaphthalene	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitroaniline	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aldrin	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	500		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	830		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	1000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 5A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGA0 0-2 8-16-88 DANGB-3-SS-A0 88081902/88081960	SGA1 0-2 8-16-88 DANGB-3-SS-A1 88081955	SGA2 0-2 8-16-88 DANGB-3-SS-A2 88081959	SGA3 0-2 8-16-88 DANGB-3-SS-A3 88081954	SGA4 0-2 8-16-88 DANGB-3-SS-A4 88081901	SGA4 DUP 0-2 8-17-88 DANGB-3-SS-A4 88081945	SGA5 0-2 8-17-88 DANGB-3-SS-A1 88081946	SGB1 0-2 8-16-88 DANGB-3-SS-B1 88081903/88081961
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		U	UJ	UJ	UJ	U	U	UJ	UJ
Chlordane	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Methoxychlor	-		U	UJ	UJ	UJ	U	U	UJ	UJ
Toxaphene	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1016	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1221	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1232	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1242	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1248	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1254	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
Aroclor-1260	2000		U	UJ	UJ	UJ	U	U	UJ	UJ
2-Chlorophenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2-Nitrophenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
Phenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4-Dimethylphenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4-Dichlorophenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4,6-Trichlorophenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
4-Chloro-3-methylphenol	660		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4-Dinitrophenol	1600		U	UJ	UJ	UJ	U	U	UJ	UJ
2,6-Dichlorophenol	-		U	UJ	UJ	UJ	U	U	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		U	UJ	UJ	UJ	U	U	UJ	UJ
Pentachlorophenol	1600		U	UJ	UJ	UJ	U	U	UJ	UJ
4-Nitrophenol	1600		U	UJ	UJ	UJ	U	U	UJ	UJ
Benzoic Acid	1600		U	UJ	UJ	UJ	U	U	UJ	UJ
2-Methylphenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
3&4-Methylphenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		U	UJ	UJ	UJ	U	U	UJ	UJ
2,4,5-Trichlorophenol	330		U	UJ	UJ	UJ	U	U	UJ	UJ

Table L-11
Site 3 Soil
Page 5B

	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGB2 0-2 8-17-88 DANGB-3-SS-B2 88081949	SGB3 0-2 8-16-88 DANGB-3-SS-B3 88081905	SGC0 0-2 8-16-88 DANGB-3-SS-C0 88081956	SGC1 0-2 8-16-88 DANGB-3-SS-C1 88081957	SGC2 0-2 8-16-88 DANGB-3-SS C2 88081901/88081962	SGC3 0-2 8-16-88 DANGB-3-SS-C3 88081958	SGC4 0-2 8-31-88 DANGB-3-SGC4-SG1 88092247	SGC4 R 0-2 9-27-88 DANGB-3-SGC4-SS1R 88092782
Parameter and Analysis Method										
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		U!	U!	U!	U!	U!	U!	U!	U!
Chlordane	2000		U!	U!	U!	U!	U!	U!	U!	U!
Methoxychlor	-		U!	U!	U!	U!	U!	U!	U!	U!
Toxaphene	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1016	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1221	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1232	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1242	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1248	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1254	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1260	2000		U!	U!	U!	U!	U!	U!	U!	U!
2-Chlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2-Nitrophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
Phenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dimethylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4,6-Trichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
4-Chloro-3-methylphenol	660		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dinitrophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
2,6-Dichlorophenol	-		U!	U!	U!	U!	U!	U!	U!	U!
2-Methyl-4,6-dinitrophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
Pentachlorophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
4-Nitrophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
Benzoic Acid	1600		U!	U!	U!	U!	U!	U!	U!	U!
2-Methylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
3&4-Methylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,3,4,6-Tetrachlorophenol	-		U!	U!	U!	U!	U!	U!	U!	U!
2,4,5-Trichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!

Table L-11
Site 3 Soil
Page 5C

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGC4 R DUP 0-2 9-27-88 DANGB-3-SGC4-SS2R 88092783	SGC5 0-2 8-17-88 DANGB-3-SS-C5 88081944	SGD0 0-2 8-18-88 DANGB-3-SS-D0 88081973	SGD1 0-2 8-18-88 DANGB-3-SS-D1 88081975	SGD2 0-2 8-17-88 DANGB-3-SS-D2 88081952	SGD3 0-2 8-30-88 DANGB-3-SGD3-SS1 88102200	SGD3 DUP 0-2 8-30-88 DANGB-3-SGD3-SS1A 88107201	SGD4 0-2 8-17-88 DANGB-3-SS-D4 88081953
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		U!	U!	U!	U!	U!	U!	U!	U!
Chlordane	2000		U!	U!	U!	U!	U!	U!	U!	U!
Methoxychlor	-		U!	U!	U!	U!	U!	U!	U!	U!
Toxaphene	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1016	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1221	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1232	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1242	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1248	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1254	2000		U!	U!	U!	U!	U!	U!	U!	U!
Aroclor-1260	2000		U!	U!	U!	U!	U!	U!	U!	U!
2-Chlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2-Nitrophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
Phenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dimethylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,4,6-Trichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!
4-Chloro-3-methylphenol	660		U!	U!	U!	U!	U!	U!	U!	U!
2,4-Dinitrophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
2,6-Dichlorophenol	-		U!	U!	U!	U!	U!	U!	U!	U!
2-Methyl-4,6-dinitrophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
Pentachlorophenol	1600		U!	U!	U!	U!	U!	U!	U!	U!
4-Nitrophenol	1600		U!	U!	U!	U!	U!	U!	540	U!
Benzoic Acid	1600		U!	U!	U!	U!	U!	U!	U!	U!
2-Methylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
3&4-Methylphenol	330		U!	U!	U!	U!	U!	U!	U!	U!
2,3,4,6-Tetrachlorophenol	-		U!	U!	U!	U!	U!	U!	U!	U!
2,4,5-Trichlorophenol	330		U!	U!	U!	U!	U!	U!	U!	U!

Table L-11
Site 3 Soil
Page 5D

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SGD5 0-2 8-17-88 DANGB-3-SS-D5 88081943	SGE0 0-2 8-18-88 DANGB-3-SS-E0 88081976	SGE1 0-2 8-18-88 DANGB-3-SS-E1 88081977	SGE2 0-2 8-18-88 DANGB-3-SS-E2 88081972	SGE3 0-2 8-30-88 DANGB-3-SGE3-SS1 88082202	SGE3 DUP 0-2 8-30-88 DANGB-3-SGE3-SS1A 88082203	SGE4 0-2 8-31-88 DANGB-3-SGE4-SS2 88092248	SGE4 DUP 0-2 8-31-88 DANGB-3-SGE4-SS1 88092249
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	1500	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 5E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No.:	DANGB-3-SS-49	DANGB-3-SS-Z2	DANGB-3-SS-A3.5	DANGB-3-SS-A3.5	DANGB-3-SS-A2.5	DANGB-3-SS-Y2	DANGB-3-MW25-SS1	DANGB-3-MW25-SS2
		Lab Sample No.:	88081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 5F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
		Sample Depth, (ft):	14-15	0-1	5-6	14-15	0-1	2-3	14-15	0-1
		Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No:	DANGB-3-MW25-SS3	DANGB-3-MW27-SS1	DANGB-3-MW27-SS2	DANGB-3-MW27-SS3	DANGB-3-MW28-SS1	DANGB-3-MW28-SS2	DANGB-3-MW28-SS3	DANGB-3-MW29-SS1
		Lab Sample No:	88082148	88082102	88082103	88082104	88082158	88082159	88082160	88082196
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	U

Table L-11
Site 3 Soil
Page 5G

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW29-SS2 3-4 8-30-88 DANGB-3-MW29-SS2 88082197	MW29-SS3 14-15 8-30 88 DANGB-3-MW29-SS3 88082198	MW29-SS3 DUP 14-15 8-30-88 DANGB-3-MW29-SS3A 88082199	MW30-SS1 0-1 8-30-88 DANGB-3-MW30-SS1 88082192	MW30-SS1 DUP 0-1 8-30 88 DANGB-3-MW30-SS1A 88082193	MW30-SS2 9-11 8-30-88 DANGB-3-MW30-SS2 88082194	MW30-SS3 14-15 8-30-88 DANGB-3-MW30-SS3 88082195	MW31-SS1 0-1 8-27-88 DANGB-3-MW31-SS1 88082156
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 511

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	MW31-SS2 9-10 8-27-88 DANGB-3-MW31-SS2 88082157	MW33-SS1 0-1 8-27-88 DANGB-3-MW33-SS1 88082161	MW33-SS2 11-12 8-27-88 DANGB-3-MW33-SS2 88082162	MW33-SS3 20-21 8-27-88 DANGB-3-MW33-SS3 88082163	MW35-SS1 0-1 8-25-88 DANGB-3-MW35-SS1 88082132	MW35-SS2 2-3 8-25-88 DANGB-3-MW35-SS2 88082131	MW35-SS3 10-11.5 8-25-88 DANGB-3-MW35-SS3 88082133	MW35-SS3 DUP 10-11.5 8-25-88 DANGB-3-MW35-SS3A 88082130
SEMI-VOLATILE ORGANICS (SW 8270) Continued page 3										
Endrin Ketone	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1016	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1221	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1232	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1242	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1248	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1254	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Aroclor-1260	2000		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Chlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Nitrophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Phenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dimethylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,6-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Chloro-3-methylphenol	660		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4-Dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Pentachlorophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4-Nitrophenol	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Benzoic Acid	1600		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
3&4-Methylphenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
2,4,5-Trichlorophenol	330		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ

Table L-11
Site 3 Soil
Page 6A

	Method Detection Limit	Location/QC No:	SGA0	SGA1	SGA2	SGA3	SGA4	SGA4 DUP	SGA5	SGB1
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-17-88	8-17-88	8-16-88
		Field Sample No.:	DANGB-3-SG-A0	DANGB-3-SG-A1	DANGB-3-SG-A2	DANGB-3-SG-A3	DANGB-3-SG-A4	DANGB-3-SG-A4	DANGB-3-SG-A1	DANGB-3-SG-B1
Parameter and Analysis Method		Lab Sample No.:	88081902/88081960	88081955	88081959	88081954	88081904	88081945	88081946	88081903/8808196
PESTICIDES AND PCB's (SW 8080)										
Data Package			#18	#54	#54	#54	#18	#54	#54	#18
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	33	U	U	U
4,4'-DDT	0.10		U	U	U	U	75	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#18	#54	#54	#54	#18	#54	#54	#18
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#18	#54	#54	#54	#18	#54	#54	#18
Units: Weight Percent			15	14.2	17.7	14.4	18.3	11.2	56.1	22.2
METALS (Units: mg/kg)										
Data Package			#18	#54	#54	#54	#18	#54	#54	#18
Arsenic (SW 7060)	200		<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E
Barium (SW 6010)	5		78.4	73.7	79	69.4	76.6	70.3	114	96.3
Cadmium (SW 7131)	10		10.4 * N	12.9 N	12.3 N	12.5 N	11.0 * N	7.8 N	6.2 N	14.7 * N
Chromium (SW 7191)	5		28.7	38.1	26.9	30.5	30.7	24.4	22.8	42.9
Lead (SW 7421)	0.2		12.0 S N	7.7	3.8	12.7 S	8.7 S N	8.2	30.3	8.7 S N
Mercury (SW 7471)	10		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-11
Site 3 Soil
Page 6B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGB2	SGB3	SGC0	SGC1	SGC2	SGC3	SGC4	SGC4 R
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-16-88	8-16-88	8-16-88	8-16-88	8-16-88	8-31-88	9-27-88
		Field Sample No.:	DANGB-3-SG-B2	DANGB-3-SG-B3	DANGB-3-SG-C0	DANGB-3-SG-C1	DANGB-3-SG-C2	DANGB-3-SG-C3	DANGB-3-SGC4-SG1	DANGB-SGC4-SG1R
		Lab Sample No.:	88081949	88081905	88081956	88081957	88081901/88081962	88081958	88092247	88092782
PESTICIDES AND PCB's (SW 8080)										
Data Package			#54	#18	#54	#54	#18	#54	#46	#25
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	110	U	U	U
4,4'-DDE	0.10		U	U	U	37	61	U	U	U
4,4'-DDT	0.10		28	U	U	63	500	U	42	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	300	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#54	#18	#54	#54	#18	#54	#46	#25
Units: mg/kg	100		<100	<100	<100	75	130	<100	Note 1	100
MOISTURE										
Data Package			#54	#18	#54	#54	#18	#54	#46	#25
Units: Weight Percent			24.9	19.4	14.5	21.1	16.2	11.3	Note 1	7.0 *
METALS (Units: mg/kg)										
Data Package			#54	#18	#54	#54	#18	#54	#46	#25
Arsenic (SW 7060)	200		<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	Note 1	1.4 B
Barium (SW 6010)	5		85.1	69.9	73.7	73.8	62.9	50.8		37.8
Cadmium (SW 7131)	10		12.5 N	10.4 * N	9.7 N	16.4 N	12.3 * N	10.3 N		2.5
Chromium (SW 7191)	5		26.8	29.7	24.6	31.4	43.9	30.1		17.7 N
Lead (SW 7421)	0.2		13.4	12.2 N	7.7	12.6	10.2 S N	10.8 S		22.4
Mercury (SW 7471)	10		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1		< 0.11

Table L-11
Site 3 Soil
Page 6C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGC4 R DUP	SGC5	SGD0	SGD1	SGD2	SGD3	SGD3 DUP	SGD4
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	9-27-88	8-17-88	8-18-88	8-18-88	8-17-88	8-30-88	8-30-88	8-17-88
		Field Sample No.:	DANGB-SGC4-SG2R	DANGB-3-SG-C5	DANGB-3-SG-D0	DANGB-3-SG-D1	DANGB-3-SG-D2	DANGB-3-SGD3-SG1	DANGB-3-SGD3-SG1A	DANGB-3-SG-D4
		Lab Sample No.:	88092783	88081944	88081973	88081975	88081952	88102200	88102201	88081953
PESTICIDES AND PCB's (SW 8080)										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	62	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		U	U	U	51	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Units: mg/kg	100		<100	150	<100	<100	<100	<100	<100	83
MOISTURE										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Units: Weight Percent			7.5 *	28.7	16.3	8.3	5.9	8.1	7.9	12
METALS (Units: mg/kg)										
Data Package			#25	#54	#39	#39	#54	#51	#51	#54
Arsenic (SW 7060)			1.2 B	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 N E	<5.0 N E	<5.0 E
Barium (SW 6010)			39.5	109	104 *	43.1 *	38	55.8	58.8	44.8
Cadmium (SW 7131)			3.4	5.6 N	11.9 * N	10.4 * N	10.6 N	7.4 N	9.2 N	12.0 N
Chromium (SW 7191)			15.6 N	18.9	38	27.5	20.2	31.8	42.8	30.2
Lead (SW 7421)			41.2 S	9.9 S	6.0 * N	4.0 * N	17.8	4.1 N	5.0 N	9.1 S
Mercury (SW 7471)			< 0.11	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-11
Site 3 Soil
Page 6D

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SGD5	SGE0	SGE1	SGE2	SGE3	SGE3 DUP	SGE4	SGE4 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	8-17-88	8-18-88	8-18-88	8-18-88	8-30-88	8-30-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-3-SG-D5	DANGB-3-SG-E0	DANGB-3-SG-E1	DANGB-3-SG-E2	DANGB-3-SGE3-SG1	DANGB-3-SGE3-SG1A	DANGB-3-SGE4-SG2	DANGB-3-SGE4-SG1
		Lab Sample No.:	88081943	88081976	88081977	88081972	88082202	88082203	88092248	88092249
PESTICIDES AND PCB's (SW 8080)										
Data Package			#54	#39	#39	#39	#51	#51	#46	#46
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		U	25	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide.	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418 1)										
Data Package			#54	#39	#39	#39	#51	#51	#46	#46
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#54	#39	#39	#39	#51	#51	#46	#46
Units: Weight Percent			16.9	8.1	17.3	9.8	9.5	9.3	5.7	10 0
METALS (Units: mg/kg)										
Data Package			#54	#39	#39	#39	#51	#51	#46	#46
Arsenic (SW 7060)			<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5 0 N E	<5.0 N E	<5.0 E	<5.0
Barium (SW 6010)			56.4	57.6 *	98.7 *	60.5 *	55.7	68	39.7	44.0
Cadmium (SW 7131)			10.9 N	11.5 * N	9.43 * N	11.0 * N	9.9 N	10.7 N	5.7 N	6.0 N
Chromium (SW 7191)			19.2	28.9	36.2	31.8	31	27.9	25.9	26 6
Lead (SW 7421)			9.3	5.7 * N	10.2 * N	6.5 * N	4.2 N	4.1 N	4.5	4.5
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-11
Site 3 Soil
Page 6E

Parameter and Analysis Method	Method Detection Limit	Location/OC No:	SG49	SG54	SG55	SG56	SG57	SG58	MW25-SS1	MW25-SS2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-1	2-3
		Sample Date:	8-18-88	8-17-88	8-17-88	8-16-88	8-17-88	8-17-88	8-26-88	8-26-88
		Field Sample No:	DANGB-3-SG-49	DANGB-3-SG-Z2	DANGB-3-SG-A35	DANGB-3-SG-A35	DANGB-3-SG-A25	DANGB-3-SG-Y2	DANGB-3-MW25-SG1	DANGB-3-MW25-SG2
		Lab Sample No:	88081974	88081947	88081951	88081906	88081950	88081948	88082146	88082147
PESTICIDES AND PCB's (SW 8080)										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		190	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		45	U	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Units: mg/kg	100		2700	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Units: Weight Percent			10.6	13.1	13.8	16.8	14.3	21.2	11.7	13.4
METALS (Units: mg/kg)										
Data Package			#39	#54	#54	#18	#54	#54	#58	#58
Arsenic (SW 7060)			<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 W E	<5.0 E
Barium (SW 6010)			64.0 *	62.5	63.9	59.6	69	110	62.5	55.4
Cadmium (SW 7131)			11.2 * N	13.5 N	11.6 N	8.9 * N	10.9 N	19.4 N	11.9 N	9.7 N
Chromium (SW 7191)			44.3	36.2	34.8	28.5	28.5	44.2	40.7	27.3
Lead (SW 7421)			16.8 * N	9	8.5	7.8 S N	8	12.6	3.9 *	6.5 S *
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-11
Site 3 Soil
Page 6F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW25-SS3	MW27-SS1	MW27-SS2	MW27-SS3	MW28-SS1	MW28-SS2	MW28-SS3	MW29-SS1
		Sample Depth, (ft):	14-15	0-1	5-6	14-15	0-1	2-3	14-15	0-1
		Sample Date:	8-26-88	8-24-88	8-24-88	8-24-88	8-27-88	8-27-88	8-27-88	8-30-88
		Field Sample No.:	DANGB-3-MW25-SG3	DANGB-3-MW27-SG1	DANGB-3-MW27-SG2	DANGB-3-MW27-SG3	DANGB-3-MW28-SG1	DANGB-3-MW28-SG2	DANGB-3-MW28-SG3	DANGB-3-MW29-SG1
		Lab Sample No.:	88082148	88082102	88082103	88082104	88082158	88082159	88082160	88082196
PESTICIDES AND PCB's (SW 8080)										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		U	U	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Units: Weight Percent			13.2	17.3	9.4	8.5	34.6	12.8	8	9.6
METALS (Units: mg/kg):										
Data Package			#58	#19	#19	#19	#23	#23	#23	#51
Arsenic (SW 7060)			<5.0 E	<5.0 E	<5.0 E	<5.0 E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E
Barium (SW 6010)			41.4	77.8	47.5	46.9	121	66.6	45.8	58.6
Cadmium (SW 7131)			11.1 N	10.2 N	10.8 N	10.6 N	11.0 N	7.3 N	8.7 N	7.5 N
Chromium (SW 7191)			34	31	31.5	30.7	40.1	31.9	28.6	36.2
Lead (SW 7421)			3.1 *	16.2 S *	3.3 *	3.2 *	9.5 N	6.2 N	3.8 N	5.8 N
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	0.28	<0.1	<0.1	<0.1

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW29-SS2	MW29-SS3	MW29-SS3 DUP	MW30-SS1	MW30-SS1 DUP	MW30-SS2	MW30-SS3	MW31-SS1
		Sample Depth, (ft):	3-4	14-15	14-15	0-1	0-1	9-11	14-15	0-1
		Sample Date:	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-30-88	8-27-88
		Field Sample No.:	DANGB-3-MW29-SG2	DANGB-3-MW29-SG3	DANGB-3-MW29-SG3A	DANGB-3-MW30-SG1	DANGB-3-MW30-SG1A	DANGB-3-MW30-SG2	DANGB-3-MW30-SG3	DANGB-3-MW31-SG1
		Lab Sample No.:	88082197	88082198	88082199	88082192	88082193	88082194	88082195	88082156
PESTICIDES AND PCB's (SW 8080)										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Aldrin	0.05		U	U	U	U	U	U	U	U
Alpha-BHC	0.05		U	U	U	U	U	U	U	U
Beta-BHC	0.05		U	U	U	U	U	U	U	U
Delta-BHC	0.05		U	U	U	U	U	U	U	U
Gamma-BHC	0.05		U	U	U	U	U	U	U	U
Chlordane	0.5		U	U	U	U	U	U	U	U
4,4'-DDD	0.10		U	U	U	U	U	U	U	U
4,4'-DDE	0.10		U	U	U	U	U	U	U	U
4,4'-DDT	0.10		22	U	U	U	U	U	U	U
Dieldrin	0.10		U	U	U	U	U	U	U	U
Endosulfan I	0.05		U	U	U	U	U	U	U	U
Endosulfan II	0.10		U	U	U	U	U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U	U	U	U	U
Endrin	0.10		U	U	U	U	U	U	U	U
Heptachlor	0.05		U	U	U	U	U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U	U	U	U	U
Methoxychlor	0.5		U	U	U	U	U	U	U	U
Toxaphene	1.0		U	U	U	U	U	U	U	U
PCB-1016	0.5		U	U	U	U	U	U	U	U
PCB-1221	0.5		U	U	U	U	U	U	U	U
PCB-1232	0.5		U	U	U	U	U	U	U	U
PCB-1242	0.5		U	U	U	U	U	U	U	U
PCB-1248	0.5		U	U	U	U	U	U	U	U
PCB-1254	1.0		U	U	U	U	U	U	U	U
PCB-1260	1.0		U	U	U	U	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Units: Weight Percent			9.8	11.4	12.7	7.8	7.7	8.3	10.5	19
METALS (Units: mg/kg)										
Data Package			#51	#51	#51	#51	#51	#51	#51	#23
Arsenic (SW 7060)			<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E
Barium (SW 6010)			43.2	31.8	34.7	64	58.3	45.1	32.2	69.5
Cadmium (SW 7131)			7.4 N	7.6 N	7.1 N	7.2 N	10.8 N	9.4 N	6.1 N	7.5 N
Chromium (SW 7191)			27.6	25.3	26	30.4	41	34.1	21.5	38.3
Lead (SW 7421)			8.2 N	4.3 N	3.4 N	4.5 N	5.3 N	7.1 N	3.5 N	6.4 N
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

Table L-11
Site 3 Soil
Page 611

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW31-SS2	MW33-SS1	MW33-SS2	MW33-SS3	MW35-SS1	MW35-SS2	MW35-SS3	MW35-SS3 DUP
		Sample Depth, (ft):	9-10	0-1	11-12	20-21	0-1	2-3	10-11.5	10-11.5
		Sample Date:	8-27-88	8-27-88	8-27-88	8-27-88	8-25-88	8-25-88	8-25-88	8-25-88
		Field Sample No:	DANGB-3-MW31-SG2	DANGB-3-MW33-SG1	DANGB-3-MW33-SG2	DANGB-3-MW33-SG3	DANGB-3-MW35-SG1	DANGB-3-MW35-SG2	DANGB-3-MW35-SG3	DANGB-3-MW35-SG3A
		Lab Sample No:	88082157	88082161	88082162	88082163	88082132	88082131	88082133	88082130
PESTICIDES AND PCB's (SW 8080)										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Aldrin	0.05		U	U	UJ	UJ	U	U	U	U
Alpha-BHC	0.05		U	U	UJ	UJ	U	U	U	U
Beta-BHC	0.05		U	U	UJ	UJ	U	U	U	U
Delta-BHC	0.05		U	U	UJ	UJ	U	U	U	U
Gamma-BHC	0.05		U	U	UJ	UJ	U	U	U	U
Chlordane	0.5		U	U	UJ	UJ	U	U	U	U
4,4'-DDD	0.10		U	U	UJ	UJ	U	U	U	U
4,4'-DDE	0.10		U	U	UJ	UJ	U	U	U	U
4,4'-DDT	0.10		U	U	UJ	UJ	U	U	U	U
Dieldrin	0.10		U	U	UJ	UJ	U	U	U	U
Endosulfan I	0.05		U	U	UJ	UJ	U	U	U	U
Endosulfan II	0.10		U	U	UJ	UJ	U	U	U	U
Endosulfan Sulfate	0.10		U	U	UJ	UJ	U	U	U	U
Endrin	0.10		U	U	UJ	UJ	U	U	U	U
Heptachlor	0.05		U	U	UJ	UJ	U	U	U	U
Heptachlor Epoxide	0.05		U	U	UJ	UJ	U	U	U	U
Methoxychlor	0.5		U	U	UJ	UJ	U	U	U	U
Toxaphene	1.0		U	U	UJ	UJ	U	U	U	U
PCB-1016	0.5		U	U	UJ	UJ	U	U	U	U
PCB-1221	0.5		U	U	UJ	UJ	U	U	U	U
PCB-1232	0.5		U	U	UJ	UJ	U	U	U	U
PCB-1242	0.5		U	U	UJ	UJ	U	U	U	U
PCB-1248	0.5		U	U	UJ	UJ	U	U	U	U
PCB-1254	1.0		U	U	UJ	UJ	U	U	U	U
PCB-1260	1.0		U	U	UJ	UJ	U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Units: mg/kg	100		<100	<100	<100	<100	130	<100	600	<100
MOISTURE										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Units: Weight Percent			10.2	25.6	8.8	9.9	7.5	10.4	7.8	8.4
METALS (Units: mg/kg)										
Data Package			#23	#23	#23	#23	#55	#55	#55	#55
Arsenic (SW 7060)			<5.0 N E	<5.0 N E	<5.0 N E	<5.0 N E	<5.0 E	<5.0 W E	<5.0 E	<5.0 E
Barium (SW 6010)			47.7	102	44.5	30.4	54.8	50.1	43.7	40.4
Cadmium (SW 7131)			8.9 N	8.7 N	8.8 N	8.1 N	14.3 N	9.7 N	10.7 N	10.9 N
Chromium (SW 7191)			29.8	39.7	27.7	27.3	43.7	35.4	27.3	26.5
Lead (SW 7421)			4.5 N	12.9	4.3 N	3.9 N	22.5 S *	5.0 *	2.8 *	6.0 N
Mercury (SW 7471)			<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1

DUP	Duplicate
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
E	The value is estimated due to interference.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
W	The analyses spike, a spike added to the sample digestate had a percent recovery out of control limits (85-115 percent), and the sample absorbance is less than 50 percent of the spike.
*	Duplicate not within control limits.
!	The holding time was missed for this analysis. See Appendix N.
<	Less than.
-	The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-12
SITE 3
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

	Method Detection Limit	Well/QC No.:	GW 3-A	GW 3-B	GW 3-B DUP	GW 3-C	GW 3-C FB	GW 3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No.:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#9	#9	#9	#9	#9	#9	#20
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	1.8	2.8 B	14	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U.	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	250	220	U	U	20	4.8
1,2-Dichloroethane	0.03		U	4.4	4.4	U	U	U	1.9
1,1-Dichloroethene	0.13		U	26	26	U	U	58	5.4
Trans-1,2-Dichloroethene	0.10		U	50	24	U	U	450	100
Dichloromethane	0.25		U	0.50 B	0.45 B	U	1.2 B	0.29 B	1.6 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		4.4	440	470	280	U	540	U
1,1,1-Trichloroethane	0.03		0.34	3100	3000	28	U	1300	3.5
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	6.4	6.7	5.1	U	39	790
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	2.8	4.5	U	U	3.5	U

Table L-12
Site 3 - Ground Water
Page 1B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW26	MW26 DUP	MW27	MW28	MW29	MW29 FB	MW30
		Date Sampled:	9-14-88	9-14-88	9-15-88	9-19-88	9-15-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW26-GW-1	DANGB-3-MW53-GW-1	DANGB-3-MW27-GW-1	DANGB-3-MW28-GW-1	DANGB-3-MW29-GW-1	DANGB-FB10	DANGB-3-MW30-GW-1
		Lab Sample No.:	88092426	88092427	88092487/88092508	88092525	88082490/88092355	88092491	88092494
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#20	#20	#21	#22	#37	#21	#8
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	1.2	0.33 B	0.26 B	U	1.3
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	1.3	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	0.71	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	1.7	U	U
Dichloromethane	0.25		0.93 B	0.35 B	0.50 B	U	0.32 B	U	U
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	3.1	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	11	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		0.76	0.91	U	U	13	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 1C

	Method Detection Limit	Well/QC No.:	MW31	MW33	MW34	MW35	MW35 FB	TB1	TB2
		Date Sampled:	9-19-88	9-15-88	9-16-88	9-19-88	9-19-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW31-GW-1	DANGB-3-MW33-GW-1	DANGB-3-MW34-GW-1	DANGB-3-MW35-GW-1	DANGB-FB12	DANGB-TB7	DANGB-TB8
Parameter and Analysis Method		Lab Sample No.:	88092526	88092488	88092495	88092527	88092531	88092489	88092493
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#22	#21	#8	#22	#22	#21	#8
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		0.33 B	0.25	1.4	U	14	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	8.9	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	1	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		U	0.50 B	0.51 B	U	3.7 B	0.80 B	2.6 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	0.88	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 1D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	TB3	TB4	BR1	BR2	BR3
		Date Sampled:	9-19-88	9-12-88	9-16-88	9-19-88	9-14-88
		Field Sample No.:	DANGB-TB9	DANGB-TB5	DANGB-BR7	DANGB-BR8	DANGB-BR6
		Lab Sample No.:	88092532	88092356	88092492	88092528	88092425
HALOGENATED VOLATILE ORGANICS (SW 8010)							
Data Package			#22	#37	#8	#22	#20
Benzyl Chloride	0.50		U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U
Bromoform	0.20		U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U
Chloral	50.0		U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U
Chloroform	0.05		U	U	11	12 B	0.87
1-Chlorohexane	0.50		U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U
Dichloromethane	0.25		1.2 B	0.88 B	0.69 B	U	1.7 B
1,2-Dichloropropane	0.04		U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 2A

Parameter and Analysis Method	Method Detection Limit								
		Well/QC No.:	GW 3-A	GW 3-B	GW 3-B DUP	GW 3-C	GW 3 C FB	GW 3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No.:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
		Lab Sample No.:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#9	#9	#9	#9	#9	#9	#20
Benzene	0.2		U	1.1	2.8	U	U	0.74	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	21	20	U	U	2.9	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 2B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW26 9-14-88 DANGB-3-MW26-GW-1 88092426	MW26 DUP 9-14-88 DANGB-3-MW53-GW-1 88092427	MW27 9-15-88 DANGB-3-MW27-GW-1 88092487/88092508	MW28 9-19-88 DANGB-3-MW28-GW-1 88092525	MW29 9-15-88 DANGB-3-MW29-GW-1 88082490/88092355	MW29 FB 9-15-88 DANGB-FB10 88092491	MW30 9-16-88 DANGB-3-MW30-GW-1 88092494
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#20	#20	#21	#22	#37	#21	#8
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	0.91	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 2C

	Method Detection Limit	Well/QC No.:	MW31	MW33	MW34	MW35	MW35 FB	TB1	TB2
		Date Sampled:	9-19-88	9-15 88	9-16-88	9-19-88	9-19-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW31-GW-1	DANGB-3-MW33-GW-1	DANGB-3-MW34-GW-1	DANGB-3-MW35-GW-1	DANGB-FB12	DANGB-TB7	DANGB-TB8
Parameter and Analysis Method		Lab Sample No.:	88092526	88092488	88092495	88092527	88092531	88092489	88092493
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#22	#21	#8	#22	#22	#21	#8
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 2D

Parameter and Analysis Method	Method Detection Limit	TB3 9-19-88 DANGB-TB9 88092532	TB4 9-12-88 DANGB-TB5 88092356	BR1 9-16-88 DANGB-BR7 88092492	BR2 9-19-88 DANGB-BR8 88092528	BR3 9-14-88 DANGB-BR6 88092425
AROMATIC VOLATILE ORGANICS (SW 8020)						
Data Package		#22	#37	#8	#22	#20
Benzene	0.2	U	U	U	U	U
Chlorobenzene	0.2	U	U	U	U	U
1,2-Dichlorobenzene	0.4	U	U	U	U	U
1,3-Dichlorobenzene	0.4	U	U	U	U	U
1,4-Dichlorobenzene	0.3	U	U	U	U	U
Ethyl Benzene	0.2	U	U	U	U	U
Toluene	0.2	U	U	U	U	U
Total Xylenes	0.4	U	U	U	U	U

Table L-12
Site 3 - Ground Water
Page 3A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	GW 3-A	GW 3-B	GW 3-B DUP	GW 3-C	GW 3-C FB	GW 3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No.:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
		Lab Sample No.:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#9	#9	#9	#9		#9	#20
1,3-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
1,4-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Hexachloroethane	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Bis(2-chloroethyl)ether	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
1,2-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
N-Nitrosodimethylamine	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Bis(2-chloroisopropyl)ether	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
N-Nitrosodi-n-propylamine	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Hexachlorobutadiene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
1,2,4-Trichlorobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Nitrobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Isophorone	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Naphthalene	10		UJ	22	10	UJ	NR	UJ	UJ
Bis(2-chloroethoxy)methane	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Chloronaphthalene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Hexachlorocyclopentadiene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Acenaphthylene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Acenaphthene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Dimethyl Phthalate	10		UJ	UJ	UJ	UJ	NR	18	UJ
2,6-Dinitrotoluene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Fluorene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4-Dinitrotoluene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Diethyl Phthalate	10		UJ	UJ	UJ	16	NR	UJ	UJ
N-Nitrosodiphenylamine	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Hexachlorobenzene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Phenanthrene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Anthracene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Dibutyl Phthalate	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Fluoranthene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Chlorophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Pyrene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Butyl Benzyl Phthalate	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Bis(2-ethylhexyl)phthalate	10		UJ	17 B	19 B	UJ	NR	UJ	UJ
Chrysene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Bromophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzo(a)anthracene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Di-n-octylphthalate	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzo(b)fluoranthene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzo(k)fluoranthene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzidine	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
3,3'-Dichlorobenzidine	20		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzo(a)pyrene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Indeno(1,2,3-cd)pyrene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Dibenzo(a,h)anthracene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzo(ghi)perylene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzyl Alcohol	20		UJ	UJ	UJ	UJ	NR	UJ	UJ

Table L-12
Site 3 - Ground Water
Page 3B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW26	MW26 DUP	MW27	MW28	MW29	MW29 FB	MW30
		Date Sampled:	9-14-88	9-14-88	9-15-88	9-19-88	9-15-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW26-GW-1	DANGB-3-MW53-GW-1	DANGB-3-MW27-GW-1	DANGB-3-MW28-GW-1	DANGB-3-MW29-GW-1	DANGB-FB10	DANGB-3-MW30-GW-1
		Lab Sample No.:	88092426	88092427	88092487/88092508	88092525	88082490/88092355	88092491	88092494
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#20	#20	#38	#22	#21		#8
1,3-Dichlorobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
1,4-Dichlorobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Hexachloroethane	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Bis(2-chloroethyl)ether	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
1,2-Dichlorobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
N-Nitrosodimethylamine	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Bis(2-chloroisopropyl)ether	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
N-Nitrosodi-n-propylamine	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Hexachlorobutadiene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
1,2,4-Trichlorobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Nitrobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Isophorone	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Naphthalene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Bis(2-chloroethoxy)methane	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Chloronaphthalene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Hexachlorocyclopentadiene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Acenaphthylene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Acenaphthene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Dimethyl Phthalate	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,6-Dinitrotoluene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Fluorene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dinitrotoluene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Diethyl Phthalate	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
N-Nitrosodiphenylamine	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Hexachlorobenzene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Phenanthrene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Anthracene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Dibutyl Phthalate	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Fluoranthene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Chlorophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Pyrene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Butyl Benzyl Phthalate	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Bis(2-ethylhexyl)phthalate	10		UJ	UJ	42 B	23 B	UJ	NR	UJ
Chrysene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Bromophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzo(a)anthracene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Di-n-octylphthalate	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzo(b)fluoranthene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzo(k)fluoranthene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzidine	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
3,3'-Dichlorobenzidine	20		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzo(a)pyrene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Indeno(1,2,3-cd)pyrene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Dibenzo(a,h)anthracene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzo(ghi)perylene	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzyl Alcohol	20		UJ	UJ	UJ	UJ	UJ	NR	UJ

Table L-12
Site 3 - Ground Water
Page 3C

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW31 9-19-88 DANGB-3-MW31-GW-1 88092526	MW33 9-15-88 DANGB-3-MW33-GW-1 88092488	MW34 9-16-88 DANGB-3-MW34-GW-1 88092495	MW35 9-19-88 DANGB-3-MW35-GW-1 88092527	MW35 FB 9-19-88 DANGB-FB12 88092531	TB1 9-15-88 DANGB-TB7 88092489	TB2 9-16-88 DANGB-TB8 88092493
SEMI-VOLATILE ORGANICS (EPA 625)									
Data Package			#22	#21	#8	#22			
1,3-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
1,4-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Hexachloroethane	10		UJ	UJ	UJ	UJ	NR	NR	NR
Bis(2-chloroethyl)ether	10		UJ	UJ	UJ	UJ	NR	NR	NR
1,2-Dichlorobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
N-Nitrosodimethylamine	10		UJ	UJ	UJ	UJ	NR	NR	NR
Bis(2-chloroisopropyl)ether	10		UJ	UJ	UJ	UJ	NR	NR	NR
N-Nitrosodi-n-propylamine	10		UJ	UJ	UJ	UJ	NR	NR	NR
Hexachlorobutadiene	10		UJ	UJ	UJ	UJ	NR	NR	NR
1,2,4-Trichlorobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Nitrobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Isophorone	10		UJ	UJ	UJ	UJ	NR	NR	NR
Naphthalene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Bis(2-chloroethoxy)methane	10		UJ	UJ	UJ	UJ	NR	NR	NR
2-Chloronaphthalene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Hexachlorocyclopentadiene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Acenaphthylene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Acenaphthene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Dimethyl Phthalate	10		UJ	UJ	UJ	UJ	NR	NR	NR
2,6-Dinitrotoluene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Fluorene	10		UJ	UJ	UJ	UJ	NR	NR	NR
2,4-Dinitrotoluene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Diethyl Phthalate	10		UJ	UJ	UJ	UJ	NR	NR	NR
N-Nitrosodiphenylamine	10		UJ	UJ	UJ	UJ	NR	NR	NR
Hexachlorobenzene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Phenanthrene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Anthracene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Dibutyl Phthalate	10		UJ	UJ	UJ	UJ	NR	NR	NR
Fluoranthene	10		UJ	UJ	UJ	UJ	NR	NR	NR
4-Chlorophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	NR	NR	NR
Pyrene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Butyl Benzyl Phthalate	10		UJ	UJ	UJ	UJ	NR	NR	NR
Bis(2-ethylhexyl)phthalate	10		62 B	UJ	UJ	UJ	NR	NR	NR
Chrysene	10		UJ	UJ	UJ	UJ	NR	NR	NR
4-Bromophenyl Phenyl Ether	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzo(a)anthracene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Di-n-octylphthalate	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzo(b)fluoranthene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzo(k)fluoranthene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzidine	60		UJ	UJ	UJ	UJ	NR	NR	NR
3,3'-Dichlorobenzidine	20		UJ	UJ	UJ	UJ	NR	NR	NR
Benzo(a)pyrene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Indeno(1,2,3-cd)pyrene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Dibenzo(a,h)anthracene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzo(ghi)perylene	10		UJ	UJ	UJ	UJ	NR	NR	NR
Benzyl Alcohol	20		UJ	UJ	UJ	UJ	NR	NR	NR

Table L-12
Site 3 - Ground Water
Page 3D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	TB3 9-19-88 DANGB-TB9 88092532	TB4 9-12-88 DANGB-TB5 88092356	BR1 9-16-88 DANGB-BR7 88092492	BR2 9-19-88 DANGB-BR8 88092528	BR3 9-14-88 DANGB-BR6 88092425
SEMI-VOLATILE ORGANICS (EPA 625)							
Data Package						#22	#20
1,3-Dichlorobenzene	10		NR	NR	NR	UJ	UJ
1,4-Dichlorobenzene	10		NR	NR	NR	UJ	UJ
Hexachloroethane	10		NR	NR	NR	UJ	UJ
Bis(2-chloroethyl)ether	10		NR	NR	NR	UJ	UJ
1,2-Dichlorobenzene	10		NR	NR	NR	UJ	UJ
N-Nitrosodimethylamine	10		NR	NR	NR	UJ	UJ
Bis(2-chloroisopropyl)ether	10		NR	NR	NR	UJ	UJ
N-Nitrosodi-n-propylamine	10		NR	NR	NR	UJ	UJ
Hexachlorobutadiene	10		NR	NR	NR	UJ	UJ
1,2,4-Trichlorobenzene	10		NR	NR	NR	UJ	UJ
Nitrobenzene	10		NR	NR	NR	UJ	UJ
Isophorone	10		NR	NR	NR	UJ	UJ
Naphthalene	10		NR	NR	NR	UJ	UJ
Bis(2-chloroethoxy)methane	10		NR	NR	NR	UJ	UJ
2-Chloronaphthalene	10		NR	NR	NR	UJ	UJ
Hexachlorocyclopentadiene	10		NR	NR	NR	UJ	UJ
Acenaphthylene	10		NR	NR	NR	UJ	UJ
Acenaphthene	10		NR	NR	NR	UJ	UJ
Dimethyl Phthalate	10		NR	NR	NR	UJ	UJ
2,6-Dinitrotoluene	10		NR	NR	NR	UJ	UJ
Fluorene	10		NR	NR	NR	UJ	UJ
2,4-Dinitrotoluene	10		NR	NR	NR	UJ	UJ
Diethyl Phthalate	10		NR	NR	NR	UJ	UJ
N-Nitrosodiphenlyamine	10		NR	NR	NR	UJ	UJ
Hexachlorobenzene	10		NR	NR	NR	UJ	UJ
Phenanthrene	10		NR	NR	NR	UJ	UJ
Anthracene	10		NR	NR	NR	UJ	UJ
Dibutyl Phthalate	10		NR	NR	NR	UJ	UJ
Fluoranthene	10		NR	NR	NR	UJ	UJ
4-Chlorophenyl Phenyl Ether	10		NR	NR	NR	UJ	UJ
Pyrene	10		NR	NR	NR	UJ	UJ
Butyl Benzyl Phthalate	10		NR	NR	NR	UJ	UJ
Bis(2-ethylhexyl)phthalate	10		NR	NR	NR	28 B	UJ
Chrysene	10		NR	NR	NR	UJ	UJ
4-Bromophenyl Phenyl Ether	10		NR	NR	NR	UJ	UJ
Benzo(a)anthracene	10		NR	NR	NR	UJ	UJ
Di-n-octylphthalate	10		NR	NR	NR	UJ	UJ
Benzo(b)fluoranthene	10		NR	NR	NR	UJ	UJ
Benzo(k)fluoranthene	10		NR	NR	NR	UJ	UJ
Benzidine	60		NR	NR	NR	UJ	UJ
3,3'-Dichlorobenzidine	20		NR	NR	NR	UJ	UJ
Benzo(a)pyrene	10		NR	NR	NR	UJ	UJ
Indeno(1,2,3-cd)pyrene	10		NR	NR	NR	UJ	UJ
Dibenzo(a,h)anthracene	10		NR	NR	NR	UJ	UJ
Benzo(ghi)perylene	10		NR	NR	NR	UJ	UJ
Benzyl Alcohol	20		NR	NR	NR	UJ	UJ

Parameter and Analysis Method	Method Detection Limit		GW3-A	GW3-B	GW3-B DUP	GW3-C	GW3-C FB	GW3-D	MW25
		Well/QC No:	GW3-A	GW3-B	GW3-B DUP	GW3-C	GW3-C FB	GW3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
		Lab Sample No:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aniline	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Chloroaniline	20		UJ	UJ	UJ	UJ	NR	UJ	UJ
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Dibenzofuran	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
a-,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Diphenylamine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Methylnaphthalene	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
1-Naphthylamine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Naphthylamine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
3-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Phenacetin	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Picoline	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Pronamide	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Alpha-BHC *	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Gamma-BHC	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Beta-BHC	20		UJ	UJ	UJ	UJ	NR	UJ	UJ
Heptachlor	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Delta-BHC	15		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aldrin	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Heptachlor Epoxide	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endosulfan I	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Dieldrin	15		UJ	UJ	UJ	UJ	NR	UJ	UJ
4,4'-DDE	30		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endrin	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endosulfan II	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
4,4'-DDD	15		UJ	UJ	UJ	UJ	NR	UJ	UJ
4,4-DDT	25		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endosulfan Sulfate	30		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Endrin Ketone	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Chlordane	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Methoxychlor	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
Toxaphene	60		UJ	UJ	UJ	UJ	NR	UJ	UJ

Table L-12
Site 3 - Ground Water
Page 4B

	Method Detection Limit	Well/QC No.:	MW26	MW26 DUP	MW27	MW28	MW29	MW29 FB	MW30
		Date Sampled:	9-14-88	9-14-88	9-15-88	9-19-88	9-15-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW26-GW-1	DANGB-3-MW53-GW-1	DANGB-3-MW27-GW-1	DANGB-3-MW28-GW-1	DANGB-3-MW29-GW-1	DANGB-FB10	DANGB-3-MW30-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092426	88092427	88092487/88092508	88092525	88082490/88092355	88092491	88092494
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		U!	U!	U!	U!	U!	NR	U!
Aniline	-		U!	U!	U!	U!	U!	NR	U!
4-Aminobyphenyl	-		U!	U!	U!	U!	U!	NR	U!
4-Chloroaniline	20		U!	U!	U!	U!	U!	NR	U!
1-Chloronapththalene	-		U!	U!	U!	U!	U!	NR	U!
Dibenzofuran	10		U!	U!	U!	U!	U!	NR	U!
p-Dimethylaminoazobenzene	-		U!	U!	U!	U!	U!	NR	U!
7,12-Dimethylbenz(a)anthracene	-		U!	U!	U!	U!	U!	NR	U!
a-,a-Dimethylphenethylamine	-		U!	U!	U!	U!	U!	NR	U!
Diphenylamine	-		U!	U!	U!	U!	U!	NR	U!
1,2-Diphenylhydrazine	-		U!	U!	U!	U!	U!	NR	U!
Ethylmethanesulfonate	-		U!	U!	U!	U!	U!	NR	U!
3-Methylcholanthrene	-		U!	U!	U!	U!	U!	NR	U!
Methylmethanesulfonate	-		U!	U!	U!	U!	U!	NR	U!
2-Methylnaphthalene	10		U!	U!	U!	U!	U!	NR	U!
1-Naphthylamine	-		U!	U!	U!	U!	U!	NR	U!
2-Naphthylamine	-		U!	U!	U!	U!	U!	NR	U!
2-Nitroaniline	50		U!	U!	U!	U!	U!	NR	U!
3-Nitroaniline	50		U!	U!	U!	U!	U!	NR	U!
4-Nitroaniline	50		U!	U!	U!	U!	U!	NR	U!
N-Nitroso-di-n-butylamine	-		U!	U!	U!	U!	U!	NR	U!
N-Nitrosopiperidiene	-		U!	U!	U!	U!	U!	NR	U!
Pentachlorobenzene	-		U!	U!	U!	U!	U!	NR	U!
Pentachloronitrobenzene	-		U!	U!	U!	U!	U!	NR	U!
Phenacetin	-		U!	U!	U!	U!	U!	NR	U!
2-Picoline	-		U!	U!	U!	U!	U!	NR	U!
Pronamide	-		U!	U!	U!	U!	U!	NR	U!
1,2,4,5-Tetrachlorobenzene	-		U!	U!	U!	U!	U!	NR	U!
Alpha-BHC	-		U!	U!	U!	U!	U!	NR	U!
Gamma-BHC	-		U!	U!	U!	U!	U!	NR	U!
Beta-BHC	20		U!	U!	U!	U!	U!	NR	U!
Heptachlor	10		U!	U!	U!	U!	U!	NR	U!
Delta-BHC	15		U!	U!	U!	U!	U!	NR	U!
Aldrin	10		U!	U!	U!	U!	U!	NR	U!
Heptachlor Epoxide	10		U!	U!	U!	U!	U!	NR	U!
Endosulfan I	-		U!	U!	U!	U!	U!	NR	U!
Dieldrin	15		U!	U!	U!	U!	U!	NR	U!
4,4'-DDE	30		U!	U!	U!	U!	U!	NR	U!
Endrin	-		U!	U!	U!	U!	U!	NR	U!
Endosulfan II	-		U!	U!	U!	U!	U!	NR	U!
4,4'-DDD	15		U!	U!	U!	U!	U!	NR	U!
4,4-DDT	25		U!	U!	U!	U!	U!	NR	U!
Endosulfan Sulfate	30		U!	U!	U!	U!	U!	NR	U!
Endrin Aldehyde	-		U!	U!	U!	U!	U!	NR	U!
Endrin Ketone	-		U!	U!	U!	U!	U!	NR	U!
Chlordane	60		U!	U!	U!	U!	U!	NR	U!
Methoxychlor	-		U!	U!	U!	U!	U!	NR	U!
Toxaphene	60		U!	U!	U!	U!	U!	NR	U!

Table L-12
Site 3 - Ground Water
Page 4C

Parameter and Analysis Method	Method Detection Limit								
		Well/QC No:	MW31	MW33	MW34	MW35	MW35 FB	TB1	TB2
		Date Sampled:	9-19-88	9-15 88	9-16-88	9-19-88	9-19-88	9-15-88	9-16-88
		Field Sample No:	DANGB-3-MW31-GW-1	DANGB-3-MW33-GW-1	DANGB-3-MW34-GW-1	DANGB-3-MW35-GW-1	DANGB-FB12	DANGB-TB7	DANGB-TB8
		Lab Sample No:	88092526	88092488	88092495	88092527	88092531	88092489	88092493
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone	-		UJ	UJ	UJ	UJ	NR	NR	NR
Aniline	-		UJ	UJ	UJ	UJ	NR	NR	NR
4-Aminobyphenyl	-		UJ	UJ	UJ	UJ	NR	NR	NR
4-Chloroaniline	20		UJ	UJ	UJ	UJ	NR	NR	NR
1-Chloronapththalene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Dibenzofuran	10		UJ	UJ	UJ	UJ	NR	NR	NR
p-Dimethylaminoazobenzene	-		UJ	UJ	UJ	UJ	NR	NR	NR
7,12-Dimethylbenz(a)anthracene	-		UJ	UJ	UJ	UJ	NR	NR	NR
a,a-Dimethylphenethylamine	-		UJ	UJ	UJ	UJ	NR	NR	NR
Diphenylamine	-		UJ	UJ	UJ	UJ	NR	NR	NR
1,2-Diphenylhydrazine	-		UJ	UJ	UJ	UJ	NR	NR	NR
Ethylmethanesulfonate	-		UJ	UJ	UJ	UJ	NR	NR	NR
3-Methylcholanthrene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Methylmethanesulfonate	-		UJ	UJ	UJ	UJ	NR	NR	NR
2-Methylnaphthalene	10		UJ	UJ	UJ	UJ	NR	NR	NR
1-Naphthylamine	-		UJ	UJ	UJ	UJ	NR	NR	NR
2-Naphthylamine	-		UJ	UJ	UJ	UJ	NR	NR	NR
2-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	NR	NR
3-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	NR	NR
4-Nitroaniline	50		UJ	UJ	UJ	UJ	NR	NR	NR
N-Nitroso-di-n-butylamine	-		UJ	UJ	UJ	UJ	NR	NR	NR
N-Nitrosopiperidiene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Pentachlorobenzene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Pentachloronitrobenzene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Phenacetin	-		UJ	UJ	UJ	UJ	NR	NR	NR
2-Picoline	-		UJ	UJ	UJ	UJ	NR	NR	NR
Pronamide	-		UJ	UJ	UJ	UJ	NR	NR	NR
1,2,4,5-Tetrachlorobenzene	-		UJ	UJ	UJ	UJ	NR	NR	NR
Alpha-BHC	-		UJ	UJ	UJ	UJ	NR	NR	NR
Gamma-BHC	-		UJ	UJ	UJ	UJ	NR	NR	NR
Beta-BHC	20		UJ	UJ	UJ	UJ	NR	NR	NR
Heptachlor	10		UJ	UJ	UJ	UJ	NR	NR	NR
Delta-BHC	15		UJ	UJ	UJ	UJ	NR	NR	NR
Aldrin	10		UJ	UJ	UJ	UJ	NR	NR	NR
Heptachlor Epoxide	10		UJ	UJ	UJ	UJ	NR	NR	NR
Endosulfan I	-		UJ	UJ	UJ	UJ	NR	NR	NR
Dieldrin	15		UJ	UJ	UJ	UJ	NR	NR	NR
4,4'-DDE	30		UJ	UJ	UJ	UJ	NR	NR	NR
Endrin	-		UJ	UJ	UJ	UJ	NR	NR	NR
Endosulfan II	-		UJ	UJ	UJ	UJ	NR	NR	NR
4,4'-DDD	15		UJ	UJ	UJ	UJ	NR	NR	NR
4,4-DDT	25		UJ	UJ	UJ	UJ	NR	NR	NR
Endosulfan Sulfate	30		UJ	UJ	UJ	UJ	NR	NR	NR
Endrin Aldehyde	-		UJ	UJ	UJ	UJ	NR	NR	NR
Endrin Ketone	-		UJ	UJ	UJ	UJ	NR	NR	NR
Chlordane	60		UJ	UJ	UJ	UJ	NR	NR	NR
Methoxychlor	-		UJ	UJ	UJ	UJ	NR	NR	NR
Toxaphene	60		UJ	UJ	UJ	UJ	NR	NR	NR

Table L-12
Site 3 - Ground Water
Page 4D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	TB3 9-19-88 DANGB-TB9 88092532	TB4 9-12-88 DANGB-TB5 88092356	BR1 9-16-88 DANGB-BR7 88092492	BR2 9-19-88 DANGB-BR8 88092528	BR3 9-14-88 DANGB-BR6 88092425
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2							
Acetophenone	-		NR	NR	NR	UJ	UJ
Aniline	-		NR	NR	NR	UJ	UJ
4-Aminobyphenyl	-		NR	NR	NR	UJ	UJ
4-Chloroaniline	20		NR	NR	NR	UJ	UJ
1-Chloronapththalene	-		NR	NR	NR	UJ	UJ
Dibenzofuran	10		NR	NR	NR	UJ	UJ
p-Dimethylaminoazobenzene	-		NR	NR	NR	UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		NR	NR	NR	UJ	UJ
a-,a-Dimethylphenethylamine	-		NR	NR	NR	UJ	UJ
Diphenylamine	-		NR	NR	NR	UJ	UJ
1,2-Diphenylhydrazine	-		NR	NR	NR	UJ	UJ
Ethylmethanesulfonate	-		NR	NR	NR	UJ	UJ
3-Methylcholanthrene	-		NR	NR	NR	UJ	UJ
Methylmethanesulfonate	-		NR	NR	NR	UJ	UJ
2-Methylnaphthalene	10		NR	NR	NR	UJ	UJ
1-Naphthylamine	-		NR	NR	NR	UJ	UJ
2-Naphthylamine	-		NR	NR	NR	UJ	UJ
2-Nitroaniline	50		NR	NR	NR	UJ	UJ
3-Nitroaniline	50		NR	NR	NR	UJ	UJ
4-Nitroaniline	50		NR	NR	NR	UJ	UJ
N-Nitroso-di-n-butylamine	-		NR	NR	NR	UJ	UJ
N-Nitrosopiperidiene	-		NR	NR	NR	UJ	UJ
Pentachlorobenzene	-		NR	NR	NR	UJ	UJ
Pentachloronitrobenzene	-		NR	NR	NR	UJ	UJ
Phenacetin	-		NR	NR	NR	UJ	UJ
2-Picoline	-		NR	NR	NR	UJ	UJ
Pronamide	-		NR	NR	NR	UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		NR	NR	NR	UJ	UJ
Alpha-BHC	-		NR	NR	NR	UJ	UJ
Gamma-BHC	-		NR	NR	NR	UJ	UJ
Beta-BHC	20		NR	NR	NR	UJ	UJ
Heptachlor	10		NR	NR	NR	UJ	UJ
Delta-BHC	15		NR	NR	NR	UJ	UJ
Aldrin	10		NR	NR	NR	[illegible]	UJ
Heptachlor Epoxide	10		NR	NR	NR	UJ	UJ
Endosulfan I	-		NR	NR	NR	UJ	UJ
Dieldrin	15		NR	NR	NR	UJ	UJ
4,4'-DDE	30		NR	NR	NR	UJ	UJ
Endrin	-		NR	NR	NR	UJ	UJ
Endosulfan II	-		NR	NR	NR	UJ	UJ
4,4'-DDD	15		NR	NR	NR	UJ	UJ
4,4-DDT	25		NR	NR	NR	UJ	UJ
Endosulfan Sulfate	30		NR	NR	NR	UJ	UJ
Endrin Aldehyde	-		NR	NR	NR	UJ	UJ
Endrin Ketone	-		NR	NR	NR	UJ	UJ
Chlordane	60		NR	NR	NR	UJ	UJ
Methoxychlor	-		NR	NR	NR	UJ	UJ
Toxaphene	60		NR	NR	NR	UJ	UJ

Table L-12
Site 3 - Ground Water
Page 5A

	Method Detection Limit	Well/QC No.:	GW 3-A	GW 3-B	GW 3-B DUP	GW 3-C	GW 3-C FB	GW 3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No.:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1221	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1232	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1242	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1248	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1254	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
Aroclor-1260	60		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Chlorophenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Nitrophenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
Phenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4-Dimethylphenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4-Dichlorophenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4-Dinitrophenol	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
Pentachlorophenol	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
4-Nitrophenol	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
Benzoic Acid	50		UJ	UJ	UJ	UJ	NR	UJ	UJ
2-Methylphenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
3&4-Methylphenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	NR	UJ	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	UJ	UJ	NR	UJ	UJ

Table L-12
Site 3 - Ground Water
Page 5B

	Method Detection Limit	Well/QC No.:	MW26	MW26 DUP	MW27	MW28	MW29	MW29 FB	MW30
		Date Sampled:	9-14-88	9-14-88	9-15-88	9-19-88	9-15-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW26-GW-1	DANGB-3-MW53-GW-1	DANGB-3-MW27-GW-1	DANGB-3-MW28-GW-1	DANGB-3-MW29-GW-1	DANGB-FB10	DANGB-3-MW30-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092426	88092427	88092187/88092508	88092525	88082490/88092355	88092491	88092494
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1221	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1232	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1242	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1248	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1254	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1260	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Chlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Nitrophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Phenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dimethylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
Pentachlorophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Nitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzoic Acid	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
3&4-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ

Table L-12
Site 3 - Ground Water
Page 5C

	Method	Well/QC No.:	MW31	MW33	MW34	MW35	MW35 FB	TB1	TB2
	Detection	Date Sampled:	9-19-88	9-15-88	9-16-88	9-19-88	9-19-88	9-15-88	9-16-88
	Limit	Field Sample No.:	DANGB-3-MW31-GW-1	DANGB-3-MW33-GW-1	DANGB-3-MW34-GW-1	DANGB-3-MW35-GW-1	DANGB-FB12	DANGB-TB7	DANGB-TB8
Parameter and Analysis Method		Lab Sample No.:	88092526	88092488	88092495	88092527	88092531	88092489	88092493
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1221	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1232	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1242	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1248	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1254	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1260	60		U	UJ	UJ	UJ	NR	NR	NR
2-Chlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
2-Nitrophenol	10		U	UJ	UJ	UJ	NR	NR	NR
Phenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dimethylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4,6-Trichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
4-Chloro-3-methylphenol	20		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dinitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
2,6-Dichlorophenol	-		U	UJ	UJ	UJ	NR	NR	NR
2-Methyl-4,6-dinitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
Pentachlorophenol	50		U	UJ	UJ	UJ	NR	NR	NR
4-Nitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
Benzoic Acid	50		U	UJ	UJ	UJ	NR	NR	NR
2-Methylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
3&4-Methylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,3,4,6-Tetrachlorophenol	-		U	UJ	UJ	UJ	NR	NR	NR
2,4,5-Trichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR

Table L-12
Site 3 - Ground Water
Page 5D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	TB3	TB4	BR1	BR2	BR3
		Date Sampled:	9-19-88	9-12-88	9-16-88	9-19-88	9-14-88
		Field Sample No.:	DANGB-TB9	DANGB-TB5	DANGB-BR7	DANGB-BR8	DANGB-BR6
		Lab Sample No.:	88092532	88092356	88092492	88092528	88092425
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3							
Aroclor-1016	60		NR	NR	NR	UJ	UJ
Aroclor-1221	60		NR	NR	NR	UJ	UJ
Aroclor-1232	60		NR	NR	NR	UJ	UJ
Aroclor-1242	60		NR	NR	NR	UJ	UJ
Aroclor-1248	60		NR	NR	NR	UJ	UJ
Aroclor-1254	60		NR	NR	NR	UJ	UJ
Aroclor-1260	60		NR	NR	NR	UJ	UJ
2-Chlorophenol	10		NR	NR	NR	UJ	UJ
2-Nitrophenol	10		NR	NR	NR	UJ	UJ
Phenol	10		NR	NR	NR	UJ	UJ
2,4-Dimethylphenol	10		NR	NR	NR	UJ	UJ
2,4-Dichlorophenol	10		NR	NR	NR	UJ	UJ
2,4,6-Trichlorophenol	10		NR	NR	NR	UJ	UJ
4-Chloro-3-methylphenol	20		NR	NR	NR	UJ	UJ
2,4-Dinitrophenol	50		NR	NR	NR	UJ	UJ
2,6-Dichlorophenol	-		NR	NR	NR	UJ	UJ
2-Methyl-4,6-dinitrophenol	50		NR	NR	NR	UJ	UJ
Pentachlorophenol	50		NR	NR	NR	UJ	UJ
4-Nitrophenol	50		NR	NR	NR	UJ	UJ
Benzoic Acid	50		NR	NR	NR	UJ	UJ
2-Methylphenol	10		NR	NR	NR	UJ	UJ
3&4-Methylphenol	10		NR	NR	NR	UJ	UJ
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR	UJ	UJ
2,4,5-Trichlorophenol	10		NR	NR	NR	UJ	UJ

Table L-12
Site 3 - Ground Water
Page 5A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	GW 3-A 9-17-88 DANGB-3-GW3A-GW-1 88092515	GW 3-B 9-17-88 DANGB-3-GW3B-GW-1 88092513	GW 3-B DUP 9-17-88 DANGB-3-MW54-GW-1 88092514	GW 3-C 9-17-88 DANGB-3-GW3C-GW-1 88092511	GW 3-C FB 9-17-88 DANGB-FB11 88092512	GW 3-D 9-17-88 DANGB-3-GW3D-GW-1 88092516	MW25 9-14-88 DANGB-3-MW25-GW-1 88092423
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1221	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1232	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1242	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1248	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1254	60		U!	U!	U!	U!	NR	U!	U!
Aroclor-1260	60		U!	U!	U!	U!	NR	U!	U!
2-Chlorophenol	10		U!	U!	U!	U!	NR	U!	U!
2-Nitrophenol	10		U!	U!	U!	U!	NR	U!	U!
Phenol	10		U!	U!	U!	U!	NR	U!	U!
2,4-Dimethylphenol	10		U!	U!	U!	U!	NR	U!	U!
2,4-Dichlorophenol	10		U!	U!	U!	U!	NR	U!	U!
2,4,6-Trichlorophenol	10		U!	U!	U!	U!	NR	U!	U!
4-Chloro-3-methylphenol	20		U!	U!	U!	U!	NR	U!	U!
2,4-Dinitrophenol	50		U!	U!	U!	U!	NR	U!	U!
2,6-Dichlorophenol	-		U!	U!	U!	U!	NR	U!	U!
2-Methyl-4,6-dinitrophenol	50		U!	U!	U!	U!	NR	U!	U!
Pentachlorophenol	50		U!	U!	U!	U!	NR	U!	U!
4-Nitrophenol	50		U!	U!	U!	U!	NR	U!	U!
Benzoic Acid	50		U!	U!	U!	U!	NR	U!	U!
2-Methylphenol	10		U!	U!	U!	U!	NR	U!	U!
3&4-Methylphenol	10		U!	U!	U!	U!	NR	U!	U!
2,3,4,6-Tetrachlorophenol	-		U!	U!	U!	U!	NR	U!	U!
2,4,5-Trichlorophenol	10		U!	U!	U!	U!	NR	U!	U!

Table L-12
Site 3 - Ground Water
Page 5B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW26 9-14-88 DANGB-3-MW26-GW-1 88092426	MW26 DUP 9-14-88 DANGB-3-MW53-GW-1 88092427	MW27 9-15-88 DANGB-3-MW27-GW-1 88092487/88092508	MW28 9-19-88 DANGB-3-MW28-GW-1 88092525	MW29 9-15-88 DANGB-3-MW29-GW-1 88082490/88092355	MW29 FB 9-15-88 DANGB-FB10 88092491	MW30 9-16-88 DANGB-3-MW30-GW-1 88092494
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1221	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1232	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1242	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1248	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1254	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
Aroclor-1260	60		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Chlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Nitrophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
Phenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dimethylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4,6-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Chloro-3-methylphenol	20		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4-Dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,6-Dichlorophenol	-		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Methyl-4,6-dinitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
Pentachlorophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
4-Nitrophenol	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
Benzoic Acid	50		UJ	UJ	UJ	UJ	UJ	NR	UJ
2-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
3&4-Methylphenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,3,4,6-Tetrachlorophenol	-		UJ	UJ	UJ	UJ	UJ	NR	UJ
2,4,5-Trichlorophenol	10		UJ	UJ	UJ	UJ	UJ	NR	UJ

Table L-12
Site 3 - Ground Water
Page 5C

Parameter and Analysis Method	Method Detection Limit								
		Well/QC No.:	MW31	MW33	MW34	MW35	MW35 FB	TB1	TB2
		Date Sampled:	9-19-88	9-15-88	9-16-88	9-19-88	9-19-88	9-15-88	9-16-88
		Field Sample No.:	DANGB-3-MW31-GW-1	DANGB-3-MW33-GW-1	DANGB-3-MW34-GW-1	DANGB-3-MW35-GW-1	DANGB-FB12	DANGB-TB7	DANGB-TB8
		Lab Sample No.:	88092526	88092488	88092495	88092527	88092531	88092489	88092493
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1221	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1232	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1242	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1248	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1254	60		U	UJ	UJ	UJ	NR	NR	NR
Aroclor-1260	60		U	UJ	UJ	UJ	NR	NR	NR
2-Chlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
2-Nitrophenol	10		U	UJ	UJ	UJ	NR	NR	NR
Phenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dimethylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,4,6-Trichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR
4-Chloro-3-methylphenol	20		U	UJ	UJ	UJ	NR	NR	NR
2,4-Dinitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
2,6-Dichlorophenol	-		U	UJ	UJ	UJ	NR	NR	NR
2-Methyl-4,6-dinitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
Pentachlorophenol	50		U	UJ	UJ	UJ	NR	NR	NR
4-Nitrophenol	50		U	UJ	UJ	UJ	NR	NR	NR
Benzoic Acid	50		U	UJ	UJ	UJ	NR	NR	NR
2-Methylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
3&4-Methylphenol	10		U	UJ	UJ	UJ	NR	NR	NR
2,3,4,6-Tetrachlorophenol	-		U	UJ	UJ	UJ	NR	NR	NR
2,4,5-Trichlorophenol	10		U	UJ	UJ	UJ	NR	NR	NR

Table L-12
Site 3 - Ground Water
Page 5D

	Method Detection Limit	Well/QC No.:	TB3	TB4	BR1	BR2	BR3
		Date Sampled:	9-19-88	9-12-88	9-16-88	9-19-88	9-14-88
		Field Sample No.:	DANGB-TB9	DANGB-TB5	DANGB-BR7	DANGB-BR8	DANGB-BR6
Parameter and Analysis Method		Lab Sample No.:	88092532	88092356	88092492	88092528	88092425
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3							
Aroclor-1016	60		NR	NR	NR	U!	U!
Aroclor-1221	60		NR	NR	NR	U!	U!
Aroclor-1232	60		NR	NR	NR	U!	U!
Aroclor-1242	60		NR	NR	NR	U!	U!
Aroclor-1248	60		NR	NR	NR	U!	U!
Aroclor-1254	60		NR	NR	NR	U!	U!
Aroclor-1260	60		NR	NR	NR	U!	U!
2-Chlorophenol	10		NR	NR	NR	U!	U!
2-Nitrophenol	10		NR	NR	NR	U!	U!
Phenol	10		NR	NR	NR	U!	U!
2,4-Dimethylphenol	10		NR	NR	NR	U!	U!
2,4-Dichlorophenol	10		NR	NR	NR	U!	U!
2,4,6-Trichlorophenol	10		NR	NR	NR	U!	U!
4-Chloro-3-methylphenol	20		NR	NR	NR	U!	U!
2,4-Dinitrophenol	50		NR	NR	NR	U!	U!
2,6-Dichlorophenol	-		NR	NR	NR	U!	U!
2-Methyl-4,6-dinitrophenol	50		NR	NR	NR	U!	U!
Pentachlorophenol	50		NR	NR	NR	U!	U!
4-Nitrophenol	50		NR	NR	NR	U!	U!
Benzoic Acid	50		NR	NR	NR	U!	U!
2-Methylphenol	10		NR	NR	NR	U!	U!
3&4-Methylphenol	10		NR	NR	NR	U!	U!
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR	U!	U!
2,4,5-Trichlorophenol	10		NR	NR	NR	U!	U!

Table L-12
Site 3 - Ground Water
Page 6A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	GW 3-A	GW 3-B	GW 3-B DUP	GW 3-C	GW 3-C FB	GW 3-D	MW25
		Date Sampled:	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-17-88	9-14-88
		Field Sample No.:	DANGB-3-GW3A-GW-1	DANGB-3-GW3B-GW-1	DANGB-3-MW54-GW-1	DANGB-3-GW3C-GW-1	DANGB-FB11	DANGB-3-GW3D-GW-1	DANGB-3-MW25-GW-1
		Lab Sample No.:	88092515	88092513	88092514	88092511	88092512	88092516	88092423
PESTICIDES AND PCB's (EPA 608)									
Data Package			#9	#9	#9	#9		#9	#20
Aldrin	0.05		U	U	U	U	NR	U	U
Alpha-BHC	0.05		U	U	U	U	NR	U	U
Beta-BHC	0.05		U	U	U	U	NR	U	U
Delta-BHC	0.05		U	U	U	U	NR	U	U
Gamma-BHC	0.05		U	U	U	U	NR	U	U
Chlorodane	0.5		U	U	U	U	NR	U	U
4,4'-DDD	0.10		U	U	U	U	NR	U	U
4,4'-DDE	0.10		U	U	U	U	NR	U	U
4,4'-DDT	0.10		U	U	U	U	NR	U	U
Dieldrin	0.10		U	U	U	U	NR	U	U
Endosulfan I	0.05		U	U	U	U	NR	U	U
Endosulfan II	0.10		U	U	U	U	NR	U	U
Endosulfan Sulfate	0.10		U	U	U	U	NR	U	U
Endrin	0.10		U	U	U	U	NR	U	U
Heptachlor	0.05		U	U	U	U	NR	U	U
Heptachlor Epoxide	0.05		U	U	U	U	NR	U	U
Kepone	0.10		U	U	U	U	NR	U	U
Methoxychlor	0.5		U	U	U	U	NR	U	U
Toxaphene	1.0		U	U	U	U	NR	U	U
PCB-1016	0.5		U	U	U	U	NR	U	U
PCB-1221	0.5		U	U	U	U	NR	U	U
PCB-1232	0.5		U	U	U	U	NR	U	U
PCB-1242	0.5		24	34	44	45	NR	26	U
PCB-1248	0.5		U	U	U	U	NR	U	U
PCB-1254	1.0		U	U	U	U	NR	U	U
PCB-1260	1.0		U	U	U	U	NR	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#9	#9	#9	#9		#9	#20
Units: mg/L			U	U	U	U	NR	U	U
METALS (Units: mg/L)									
Data Package			#9	#9	#9	#9		#9	#20
Arsenic(SW 7060)	0.01		< 0.01	< 0.01	< 0.01	< 0.01	NR	NT	< 0.01
Barium(SW 6010)	0.2		< 0.2	< 0.2	< 0.2	< 0.2	NR	< 0.2	< 0.2
Cadmium(SW 7131)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	NR	< 0.005	< 0.005
Chromium (SW 7191)	0.01		< 0.01	< 0.01	< 0.01	< 0.01	NR	< 0.01	< 0.01
Lead(SW 7421)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	NR	< 0.005	< 0.005
Mercury(SW 7470)	0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	NR	NT	< 0.0002
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			0.550	1.042	1.042	0.228	NR	0.942	0.863
TEMPERATURE (EPA 170.1) Units:°C			9.5	9.9	9.9	9.2	NR	9.6	12.8
pH (EPA 150.1) Units: pH Units			7.18	7.48	7.48	7.73	NR	7.49	7.81

Table L-12
Site 3 - Ground Water
Page 6B

	Method Detection Limit	Well/QC No:	MW26	MW26 DUP	MW27	MW28	MW29	MW29 FB	MW30
		Date Sampled:	9-14-88	9-14-88	9-15 88	9-19-88	9-15-88	9-15-88	9-16-88
		Field Sample No:	DANGB-3-MW26-GW-1	DANGB-3-MW53 GW-1	DANGB-3-MW27-GW-1	DANGB-3-MW28-GW-1	DANGB-3-MW29 GW-1	DANGB-FB10	DANGB-3-MW30-GW-1
Parameter and Analysis Method		Lab Sample No:	88092426	88092427	88092487/88092508/ 88092517	88092525	88082490/88092355	88092491	88092494
PESTICIDES AND PCB's (EPA 608)									
Data Package			#20	#20	#9	#22	#21		#8
Aldrin	0.05		U	U	U	U	U	NR	U
Alpha-BHC	0.05		U	U	U	U	U	NR	U
Beta-BHC	0.05		U	U	U	U	U	NR	U
Delta-BHC	0.05		U	U	U	U	U	NR	U
Gamma-BHC	0.05		U	U	U	U	U	NR	U
Chlorodane	0.5		U	U	U	U	U	NR	U
4,4'-DDD	0.10		U	U	U	U	U	NR	U
4,4'-DDE	0.10		U	U	U	U	U	NR	U
4,4'-DDT	0.10		U	U	U	U	U	NR	U
Dieldrin	0.10		U	U	U	U	U	NR	U
Endosulfan I	0.05		U	U	U	U	U	NR	U
Endosulfan II	0.10		U	U	U	U	U	NR	U
Endosulfan Sulfate	0.10		U	U	U	U	U	NR	U
Endrin	0.10		U	U	U	U	U	NR	U
Heptachlor	0.05		U	U	U	U	U	NR	U
Heptachlor Epoxide	0.05		U	U	U	U	U	NR	U
Kepone	0.10		U	U	U	U	U	NR	U
Methoxychlor	0.5		U	U	U	U	U	NR	U
Toxaphene	1.0		U	U	U	U	U	NR	U
PCB-1016	0.5		U	U	U	U	U	NR	U
PCB-1221	0.5		U	U	U	U	U	NR	U
PCB-1232	0.5		U	U	U	U	U	NR	U
PCB-1242	0.5		U	U	U	U	U	NR	U
PCB-1248	0.5		U	U	U	U	U	NR	U
PCB-1254	1.0		U	U	U	U	U	NR	U
PCB-1260	1.0		U	U	U	U	U	NR	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#20	#20	#22	#22	#37		#8
Units: mg/L			U	U	U	U	NR	NR	U
METALS (Units: mg/L)									
Data Package			#20	#20	#21	#22	#37		#8
Arsenic(SW 7060)			< 0.01	< 0.01	< 0.01	< 0.01	<0.005 N	NR	< 0.01
Barium(SW 6010)			< 0.2	< 0.2	< 0 2	< 0.2	<0 05	NR	< 0.2
Cadmium(SW 7131)			< 0.005	< 0.005	< 0.005	< 0.005	<0 001	NR	< 0.005
Chromium (SW 7191)			< 0.01	< 0.01	< 0.01	< 0.01	0.0027 B	NR	< 0.01
Lead(SW 7421)			< 0.005	< 0.005	< 0.005	< 0.005	NT	NR	< 0.005
Mercury(SW 7470)			< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0 005 W	NR	< 0.0002
SPECIFIC CONDUCTANCE (EPA 120.1)									
Units: mS/cm @ 25°C			0.528	0.528	0.862	0.696	0.979	NR	0.690
TEMPERATURE (EPA 170.1)									
Units: °C			14.3	14.3	11.8	11.5	15.3	NR	9.2
pH (EPA 150.1)									
Units: pH Units			6.80	6.80	7.05	8.17	7.24	NR	7.38

Table L-12
Site 3 - Ground Water
Page 6C

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW31 9-19-88 DANGB-3-MW31-GW-1 88092526	MW33 9-15-88 DANGB-3-MW33-GW-1 88092488	MW34 9-16-88 DANGB-3-MW34-GW-1 88092495	MW35 9-19-88 DANGB-3-MW35-GW-1 88092527	MW35 FB 9-19-88 DANGB-FB12 88092531	TB1 9-15-88 DANGB-TB7 88092489	TB2 9-16-88 DANGB-TB8 88092493
PESTICIDES AND PCB's (EPA 608)									
Data Package			#22	#21	#8	#22			
Aldrin	0.05		U	U	U	U	NR	NR	NR
Alpha-BHC	0.05		U	U	U	U	NR	NR	NR
Beta-BHC	0.05		U	U	U	U	NR	NR	NR
Delta-BHC	0.05		U	U	U	U	NR	NR	NR
Gamma-BHC	0.05		U	U	U	U	NR	NR	NR
Chlorodane	0.5		U	U	U	U	NR	NR	NR
4,4'-DDD	0.10		U	U	U	U	NR	NR	NR
4,4'-DDE	0.10		U	U	U	U	NR	NR	NR
4,4'-DDT	0.10		U	U	U	U	NR	NR	NR
Dieldrin	0.10		U	U	U	U	NR	NR	NR
Endosulfan I	0.05		U	U	U	U	NR	NR	NR
Endosulfan II	0.10		U	U	U	U	NR	NR	NR
Endosulfan Sulfate	0.10		U	U	U	U	NR	NR	NR
Endrin	0.10		U	U	U	U	NR	NR	NR
Heptachlor	0.05		U	U	U	U	NR	NR	NR
Heptachlor Epoxide	0.05		U	U	U	U	NR	NR	NR
Kepone	0.10		U	U	U	U	NR	NR	NR
Methoxychlor	0.5		U	U	U	U	NR	NR	NR
Toxaphene	1.0		U	U	U	U	NR	NR	NR
PCB-1016	0.5		U	U	U	U	NR	NR	NR
PCB-1221	0.5		U	U	U	U	NR	NR	NR
PCB-1232	0.5		U	U	U	U	NR	NR	NR
PCB-1242	0.5		U	U	U	U	NR	NR	NR
PCB-1248	0.5		U	U	U	U	NR	NR	NR
PCB-1254	1.0		U	U	U	U	NR	NR	NR
PCB-1260	1.0		U	U	U	U	NR	NR	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#22		#8	#22			
Units: mg/L			U	NT	U	U	NR	NR	NR
METALS (Units: mg/L)									
Data Package			#22	#21	#8	#22			
Arsenic(SW 7060)	0.01		< 0.01	< 0.01	< 0.01	< 0.01	NR	NR	NR
Barium(SW 6010)	0.2		< 0.2	< 0.2	< 0.2	< 0.2	NR	NR	NR
Cadmium(SW 7131)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	NR	NR	NR
Chromium (SW 7191)	0.01		< 0.01	< 0.01	< 0.01	< 0.01	NR	NR	NR
Lead(SW 7421)	0.005		< 0.005	< 0.005	< 0.005	< 0.005	NR	NR	NR
Mercury(SW 7470)	0.0002		< 0.0002	< 0.0002	< 0.0002	< 0.0002	NR	NR	NR
SPECIFIC CONDUCTANCE (EPA 120.1)									
Units: mS/cm @ 25°C			1.162	1.822	1.013	0.283	NR	NR	NR
TEMPERATURE (EPA 170.1)									
Units: °C			10.0	8.1	9.8	15.1	NR	NR	NR
pH (EPA 150.1)									
Units: pH Units			7.82	7.49	7.48	7.67	NR	NR	NR

Table L-12
Site 3 - Ground Water
Page 6D

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	TB3	TB4	BR1	BR2	BR3
		Date Sampled:	9-19-88	9-12-88	9-16-88	9-19-88	9-14-88
		Field Sample No.:	DANGB-TB9	DANGB-TB5	DANGB-BR7	DANGB-BR8	DANGB-BR6
		Lab Sample No.:	88092532	88092356	88092492	88092528	88092425
PESTICIDES AND PCB's (EPA 608)							
Data Package						#22	#20
Aldrin	0.05		NR	NR	NR	U	U
Alpha-BHC	0.05		NR	NR	NR	U	U
Beta-BHC	0.05		NR	NR	NR	U	U
Delta-BHC	0.05		NR	NR	NR	U	U
Gamma-BHC	0.05		NR	NR	NR	U	U
Chlorodane	0.5		NR	NR	NR	U	U
4,4'-DDD	0.10		NR	NR	NR	U	U
4,4'-DDE	0.10		NR	NR	NR	U	U
4,4'-DDT	0.10		NR	NR	NR	U	U
Dieldrin	0.10		NR	NR	NR	U	U
Endosulfan I	0.05		NR	NR	NR	U	U
Endosulfan II	0.10		NR	NR	NR	U	U
Endosulfan Sulfate	0.10		NR	NR	NR	U	U
Endrin	0.10		NR	NR	NR	U	U
Heptachlor	0.05		NR	NR	NR	U	U
Heptachlor Epoxide	0.05		NR	NR	NR	U	U
Kepone	0.10		NR	NR	NR	U	U
Methoxychlor	0.5		NR	NR	NR	U	U
Toxaphene	1.0		NR	NR	NR	U	U
PCB-1016	0.5		NR	NR	NR	U	U
PCB-1221	0.5		NR	NR	NR	U	U
PCB-1232	0.5		NR	NR	NR	U	U
PCB-1242	0.5		NR	NR	NR	U	U
PCB-1248	0.5		NR	NR	NR	U	U
PCB-1254	1.0		NR	NR	NR	U	U
PCB-1260	1.0		NR	NR	NR	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)							
Data Package					#22	#22	#20
Units: mg/L			NR	NR	U	U	U
METALS (Units: mg/L)							
Data Package					#8	#22	#20
Arsenic(SW 7060)			NR	NR	< 0.01	< 0.01	< 0.01
Barium(SW 6010)			NR	NR	< 0.2	< 0.2	< 0.2
Cadmium(SW 7131)			NR	NR	< 0.005	< 0.005	< 0.005
Chromium (SW 7191)			NR	NR	< 0.01	< 0.01	< 0.01
Lead(SW 7421)			NR	NR	< 0.005	< 0.005	< 0.005
Mercury(SW 7470)			NR	NR	< 0.0002	< 0.0002	< 0.0002
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			NR	NR	NR	NR	NR
TEMPERATURE (EPA 170.1) Units: °C			NR	NR	NR	NR	NR
pH (EPA 150.1) Units: pH Units			NR	NR	NR	NR	NR

Data Package #	Numbers refer to Data Packages in Appendix M.
DUP	Duplicate.
BR	Bailer rinsate.
FB	Field blank.
TB	Trip blank.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample.
NR	The analysis was not requested.
NT	Not tested.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
W	The analysis spike, a spike added to the sample digestate had a percent recovery out of control limits (85-115 percent), and the sample absorbance is less than 50 percent of the spike.
!	The holding time was missed for this analysis. See Appendix N.
-	The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-13
SITE 4
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SURFACE WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL14 FB	SL15
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-4-SL11-SW-1	DANGB-4-SL12-SW-1	DANGB-4-SL13-SW-1	DANGB-4-SL26-SW-1	DANGB-4-SL14-SW-1	DANGB-FB17	DANGB-4-SL15-SW-1
		Lab Sample No.:	88092680	88092679	88092719	88092720	88092723	88092728	88092722
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#1	#1	#13	#13	#14	#14	#13
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	3
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	1.9
Dichloromethane	0.25		1.0 B	1.0 B	45 B	28 B	1.6 B	6.8 B	36 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	0.23	0.98	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-13
Site 4 - Surface Water
Page 1B

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL16 9-27-88 DANGB-4-SL16-SW-1 88092777	TB1 9-27-88 DANGB-TB16 88092776
HALOGENATED VOLATILE ORGANICS (SW 8010)				
Data Package			#2	#2
Benzyl Chloride	0.50		U	U
Bis(2-chloroethoxy)methane	5.0		U	U
Bis(2-chloroisopropyl)ether	5.0		U	U
Bromobenzene	0.50		U	U
Bromodichloromethane	0.10		U	U
Bromoform	0.20		U	.17
Bromoethane	1.2		U	U
Carbon Tetrachloride	0.12		U	U
Chloracetaldehyde	50.0		U	U
Chloral	50.0		U	U
Chlorobenzene	0.25		U	U
Chloroethane	0.52		U	U
Chloroform	0.05		U	0.2
1-Chlorohexane	0.50		U	U
2-Chloroethyl Vinyl Ether	0.13		U	U
Chloromethane	0.08		U	U
Chloromethyl Methyl Ether	5.0		U	U
Chlorotoluene	0.50		U	U
Dibromochloromethane	0.09		U	2.6
Dibromoethane	0.50		U	U
1,2-Dichlorobenzene	0.15		U	U
1,3-Dichlorobenzene	0.32		U	U
1,4-Dichlorobenzene	0.24		U	U
Dichlorodifluoromethane	1.8		U	U
1,1-Dichloroethane	0.07		U	U
1,2-Dichloroethane	0.03		U	U
1,1-Dichloroethene	0.13		U	U
Trans-1,2-Dichloroethene	0.10		5.3	U
Dichloromethane	0.25		0.5 B	4.5 B
1,2-Dichloropropane	0.04		U	U
1,3-Dichloropropylene	0.34		U	U
1,1,2,2-Tetrachloroethane	0.03		U	U
1,1,1,2-Tetrachloroethane	0.50		U	U
Tetrachloroethene	0.03		U	U
1,1,1-Trichloroethane	0.03		U	U
1,1,2-Trichloroethane	0.02		U	U
Trichloroethene	0.12		0.59	U
Trichlorofluoromethane	0.50		U	U
Trichloropropane	0.50		U	U
Vinyl Chloride	0.18		U	U

	Method Detection Limit	Location/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL14 FB	SL15
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-4-SL11-SW-1	DANGB-4-SL12-SW-1	DANGB-4-SL13-SW-1	DANGB-4-SL26-SW-1	DANGB-4-SL14-SW-1	DANGB-FB17	DANGB-4-SL15-SW-1
Parameter and Analysis Method		Lab Sample No.:	88092680	88092679	88092719	88092720	88092723	88092728	88092722
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#1	#1	#13	#13	#13	#13	#13
Benzene	0.2		14	U	930	650	U	U	80
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		6.2	U	74	150	U	U	6.2
Toluene	0.2		4.3	U	U	23	U	U	U
Total Xylenes	0.4		20.7	U	1020	940	U	U	103

Table L-13
Site 4 Surface Water
Page 2B

	Method	Location/QC No.:	SL16	TB1
	Detection	Date Sampled:	9-27-88	9-27-88
	Limit	Field Sample No.:	DANGB-4-SL16-SW-1	DANGB-TB16
Parameter and Analysis Method		Lab Sample No.:	88092777	88092776
AROMATIC VOLATILE ORGANICS (SW 8020)				
Data Package			#2	#2
Benzene	0.2		1.2	U
Chlorobenzene	0.2		U	U
1,2-Dichlorobenzene	0.4		U	U
1,3-Dichlorobenzene	0.4		U	U
1,4-Dichlorobenzene	0.3		U	U
Ethyl Benzene	0.2		U	U
Toluene	0.2		U	U
Total Xylenes	0.4		U	U

Table L-13
Site 4 Surface Water
Page 3A

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL14 FB	SL15
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-4-SL11-SW-1	DANGB-4-SL12-SW-1	DANGB-4-SL13-SW-1	DANGB-4-SL26-SW-1	DANGB-4-SL14-SW-1	DANGB-FB17	DANGB-4-SL15-SW-1
		Lab Sample No.:	88092680	88092679	88092719	88092720	88092723	88092728	88092722
SEMI-VOLATILE ORGANICS (EPA 625) Page 1									
Data Package									
1,3-Dichlorobenzene			NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene			NR	NR	NR	NR	NR	NR	NR
Hexachloroethane			NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethyl)ether			NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene			NR	NR	NR	NR	NR	NR	NR
N-Nitrosodimethylamine			NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether			NR	NR	NR	NR	NR	NR	NR
N-Nitrosodi-n-propylamine			NR	NR	NR	NR	NR	NR	NR
Hexachlorobutadiene			NR	NR	NR	NR	NR	NR	NR
1,2,4-Trichlorobenzene			NR	NR	NR	NR	NR	NR	NR
Nitrobenzene			NR	NR	NR	NR	NR	NR	NR
Isophorone			NR	NR	NR	NR	NR	NR	NR
Naphthalene			NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane			NR	NR	NR	NR	NR	NR	NR
2-Chloronaphthalene			NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclopentadiene			NR	NR	NR	NR	NR	NR	NR
Acenaphthylene			NR	NR	NR	NR	NR	NR	NR
Acenaphthene			NR	NR	NR	NR	NR	NR	NR
Dimethyl Phthalate			NR	NR	NR	NR	NR	NR	NR
2,6-Dinitrotoluene			NR	NR	NR	NR	NR	NR	NR
Fluorene			NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrotoluene			NR	NR	NR	NR	NR	NR	NR
Diethyl Phthalate			NR	NR	NR	NR	NR	NR	NR
N-Nitrosodiphenylamine			NR	NR	NR	NR	NR	NR	NR
Hexachlorobenzene			NR	NR	NR	NR	NR	NR	NR
Phenanthrene			NR	NR	NR	NR	NR	NR	NR
Anthracene			NR	NR	NR	NR	NR	NR	NR
Dibutyl Phthalate			NR	NR	NR	NR	NR	NR	NR
Fluoranthene			NR	NR	NR	NR	NR	NR	NR
4-Chlorophenyl Phenyl Ether			NR	NR	NR	NR	NR	NR	NR
Pyrene			NR	NR	NR	NR	NR	NR	NR
Butyl Benzyl Phthalate			NR	NR	NR	NR	NR	NR	NR
Bis(2-ethylhexyl)phthalate			NR	NR	NR	NR	NR	NR	NR
Chrysene			NR	NR	NR	NR	NR	NR	NR
4-Bromophenyl Phenyl Ether			NR	NR	NR	NR	NR	NR	NR
Benzo(a)anthracene			NR	NR	NR	NR	NR	NR	NR
Di-n-octylphthalate			NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene			NR	NR	NR	NR	NR	NR	NR
Benzo(k)fluoranthene			NR	NR	NR	NR	NR	NR	NR
Benzidine			NR	NR	NR	NR	NR	NR	NR
3,3'-Dichlorobenzidine			NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene			NR	NR	NR	NR	NR	NR	NR
Indeno(1,2,3-cd)pyrene			NR	NR	NR	NR	NR	NR	NR
Dibenzo(a,h)anthracene			NR	NR	NR	NR	NR	NR	NR
Benzo(ghi)perylene			NR	NR	NR	NR	NR	NR	NR
Benzyl Alcohol			NR	NR	NR	NR	NR	NR	NR

Table L-13
Site 4 Surface Water
Page 3B

	Method	Location/QC No.:	SL16	TB1
	Detection	Date Sampled:	9-27-88	9-27-88
	Limit	Field Sample No.:	DANGB-4-SL16-SW-1	DANGB-TB16
Parameter and Analysis Method		Lab Sample No.:	88092777	88092776
SEMI-VOLATILE ORGANICS (EPA 625) Page 1				
Data Package			#2	
1,3-Dichlorobenzene			U!	NR
1,4-Dichlorobenzene			U!	NR
Hexachloroethane			U!	NR
Bis(2-chloroethyl)ether			U!	NR
1,2-Dichlorobenzene			U!	NR
N-Nitrosodimethylamine			U!	NR
Bis(2-chloroisopropyl)ether			U!	NR
N-Nitrosodi-n-propylamine			U!	NR
Hexachlorobutadiene			U!	NR
1,2,4-Trichlorobenzene			U!	NR
Nitrobenzene			U!	NR
Isophorone			U!	NR
Naphthalene			U!	NR
Bis(2-chloroethoxy)methane			U!	NR
2-Chloronaphthalene			U!	NR
Hexachlorocyclopentadiene			U!	NR
Acenaphthylene			U!	NR
Acenaphthene			U!	NR
Dimethyl Phthalate			U!	NR
2,6-Dinitrotoluene			U!	NR
Fluorene			U!	NR
2,4-Dinitrotoluene			U!	NR
Diethyl Phthalate			U!	NR
N-Nitrosodiphenylamine			U!	NR
Hexachlorobenzene			U!	NR
Phenanthrene			U!	NR
Anthracene			U!	NR
Dibutyl Phthalate			U!	NR
Fluoranthene			U!	NR
4-Chlorophenyl Phenyl Ether			U!	NR
Pyrene			U!	NR
Butyl Benzyl Phthalate			19	NR
Bis(2-ethylhexyl)phthalate			12 B	NR
Chrysene			U!	NR
4-Bromophenyl Phenyl Ether			U!	NR
Benzo(a)anthracene			U!	NR
Di-n-octylphthalate			14	NR
Benzo(b)fluoranthene			U!	NR
Benzo(k)fluoranthene			U!	NR
Benzidine			U!	NR
3,3'-Dichlorobenzidine			U!	NR
Benzo(a)pyrene			U!	NR
Indeno(1,2,3-cd)pyrene			U!	NR
Dibenzo(a,h)anthracene			U!	NR
Benzo(ghi)perylene			U!	NR
Benzyl Alcohol			U!	NR

Table L-13
Site 4 Surface Water
Page 4A

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL14 FB	SL15
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-4-SL11-SW-1	DANGB-4-SL12-SW-1	DANGB-4-SL13-SW-1	DANGB-4-SL26-SW-1	DANGB-4-SL14-SW-1	DANGB-FB17	DANGB-4-SL15-SW-1
		Lab Sample No.:	88092680	88092679	88092719	88092720	88092723	88092728	88092722
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2									
Acetophenone			NR	NR	NR	NR	NR	NR	NR
Aniline			NR	NR	NR	NR	NR	NR	NR
4-Aminobyphenyl			NR	NR	NR	NR	NR	NR	NR
4-Chloroaniline			NR	NR	NR	NR	NR	NR	NR
1-Chloronapththalene			NR	NR	NR	NR	NR	NR	NR
Dibenzofuran			NR	NR	NR	NR	NR	NR	NR
p-Dimethylaminoazobenzene			NR	NR	NR	NR	NR	NR	NR
7,12-Dimethylbenz(a)anthracene			NR	NR	NR	NR	NR	NR	NR
a-,a-Dimethylphenethylamine			NR	NR	NR	NR	NR	NR	NR
Diphenylamine			NR	NR	NR	NR	NR	NR	NR
1,2-Diphenylhydrazine			NR	NR	NR	NR	NR	NR	NR
Ethylmethanesulfonate			NR	NR	NR	NR	NR	NR	NR
3-Methylcholanthrene			NR	NR	NR	NR	NR	NR	NR
Methylmethanesulfonate			NR	NR	NR	NR	NR	NR	NR
2-Methylnaphthalene			NR	NR	NR	NR	NR	NR	NR
1-Naphthylamine			NR	NR	NR	NR	NR	NR	NR
2-Naphthylamine			NR	NR	NR	NR	NR	NR	NR
2-Nitroaniline			NR	NR	NR	NR	NR	NR	NR
3-Nitroaniline			NR	NR	NR	NR	NR	NR	NR
4-Nitroaniline			NR	NR	NR	NR	NR	NR	NR
N-Nitroso-di-n-butylamine			NR	NR	NR	NR	NR	NR	NR
N-Nitrosopiperidiene			NR	NR	NR	NR	NR	NR	NR
Pentachlorobenzene			NR	NR	NR	NR	NR	NR	NR
Pentachloronitrobenzene			NR	NR	NR	NR	NR	NR	NR
Phenacetin			NR	NR	NR	NR	NR	NR	NR
2-Picoline			NR	NR	NR	NR	NR	NR	NR
Pronamide			NR	NR	NR	NR	NR	NR	NR
1,2,4,5-Tetrachlorobenzene			NR	NR	NR	NR	NR	NR	NR
Alpha-BHC			NR	NR	NR	NR	NR	NR	NR
Gamma-BHC			NR	NR	NR	NR	NR	NR	NR
Beta-BHC			NR	NR	NR	NR	NR	NR	NR
Heptachlor			NR	NR	NR	NR	NR	NR	NR
Delta-BHC			NR	NR	NR	NR	NR	NR	NR
Aldrin			NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide			NR	NR	NR	NR	NR	NR	NR
Endosulfan I			NR	NR	NR	NR	NR	NR	NR
Dieldrin			NR	NR	NR	NR	NR	NR	NR
4,4'-DDE			NR	NR	NR	NR	NR	NR	NR
Endrin			NR	NR	NR	NR	NR	NR	NR
Endosulfan II			NR	NR	NR	NR	NR	NR	NR
4,4'-DDD			NR	NR	NR	NR	NR	NR	NR
4,4-DDT			NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate			NR	NR	NR	NR	NR	NR	NR
Endrin Aldehyde			NR	NR	NR	NR	NR	NR	NR
Endrin Ketone			NR	NR	NR	NR	NR	NR	NR
Chlordane			NR	NR	NR	NR	NR	NR	NR
Methoxychlor			NR	NR	NR	NR	NR	NR	NR
Toxaphene			NR	NR	NR	NR	NR	NR	NR

Table L-13
Site 4 Surface Water
Page 4B

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL16 9-27-88 DANGB-4-SL16-SW-1 88092777	TB1 9-27-88 DANGB-TB16 88092776
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 2				
Acetophenone			U!	NR
Aniline			U!	NR
4-Aminobyphenyl			U!	NR
4-Chloroaniline			U!	NR
1-Chloronapththalene			U!	NR
Dibenzofuran			U!	NR
p-Dimethylaminoazobenzene			U!	NR
7,12-Dimethylbenz(a)anthracene			U!	NR
a-,a-Dimethylphenethylamine			U!	NR
Diphenylamine			U!	NR
1,2-Diphenylhydrazine			U!	NR
Ethylmethanesulfonate			U!	NR
3-Methylcholanthrene			U!	NR
Methylmethanesulfonate			U!	NR
2-Methylnaphthalene			U!	NR
1-Naphthylamine			U!	NR
2-Naphthylamine			U!	NR
2-Nitroaniline			U!	NR
3-Nitroaniline			U!	NR
4-Nitroaniline			U!	NR
N-Nitroso-di-n-butylamine			U!	NR
N-Nitrosopiperidiene			U!	NR
Pentachlorobenzene			U!	NR
Pentachloronitrobenzene			U!	NR
Phenacetin			U!	NR
2-Picoline			U!	NR
Pronamide			U!	NR
1,2,4,5-Tetrachlorobenzene			U!	NR
Alpha-BHC			U!	NR
Gamma-BHC			U!	NR
Beta-BHC			U!	NR
Heptachlor			U!	NR
Delta-BHC			U!	NR
Aldrin			U!	NR
Heptachlor Epoxide			U!	NR
Endosulfan I			U!	NR
Dieldrin			U!	NR
4,4'-DDE			U!	NR
Endrin			U!	NR
Endosulfan II			U!	NR
4,4'-DDD			U!	NR
4,4-DDT			U!	NR
Endosulfan Sulfate			U!	NR
Endrin Aldehyde			U!	NR
Endrin Ketone			U!	NR
Chlordane			U!	NR
Methoxychlor			U!	NR
Toxaphene			U!	NR

Table L-13
Site 4 Surface Water
Page 5A

Parameter and Analysis Method	Method Detection Limit	Location/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL11 9-23-88 DANGB-4-SL11-SW-1 88092680	SL12 9-23-88 DANGB 4-SL12-SW-1 88092679	SL13 9-24-88 DANGB-4-SL13-SW-1 88092719	SL13 DUP 9-24-88 DANGB-4-SL26-SW-1 88092720	SL14 9-24-88 DANGB-4-SL14-SW-1 88092723	SL14 FB 9-24-88 DANGB-FB17 88092728	SL15 9-24-88 DANGB-4-SL15-SW-1 88092722
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3									
Aroclor-1016			NR	NR	NR	NR	NR	NR	NR
Aroclor-1221			NR	NR	NR	NR	NR	NR	NR
Aroclor-1232			NR	NR	NR	NR	NR	NR	NR
Aroclor-1242			NR	NR	NR	NR	NR	NR	NR
Aroclor-1248			NR	NR	NR	NR	NR	NR	NR
Aroclor-1254			NR	NR	NR	NR	NR	NR	NR
Aroclor-1260			NR	NR	NR	NR	NR	NR	NR
2-Chlorophenol			NR	NR	NR	NR	NR	NR	NR
2-Nitrophenol			NR	NR	NR	NR	NR	NR	NR
Phenol			NR	NR	NR	NR	NR	NR	NR
2,4-Dimethylphenol			NR	NR	NR	NR	NR	NR	NR
2,4-Dichlorophenol			NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol			NR	NR	NR	NR	NR	NR	NR
4-Chloro-3-methylphenol			NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrophenol			NR	NR	NR	NR	NR	NR	NR
2,6-Dichlorophenol			NR	NR	NR	NR	NR	NR	NR
2-Methyl-4,6-dinitrophenol			NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol			NR	NR	NR	NR	NR	NR	NR
4-Nitrophenol			NR	NR	NR	NR	NR	NR	NR
Benzoic Acid			NR	NR	NR	NR	NR	NR	NR
2-Methylphenol			NR	NR	NR	NR	NR	NR	NR
3&4-Methylphenol			NR	NR	NR	NR	NR	NR	NR
2,3,4,6-Tetrachlorophenol			NR	NR	NR	NR	NR	NR	NR
2,4,5-Trichlorophenol			NR	NR	NR	NR	NR	NR	NR

Table L-13
Site 4 Surface Water
Page 5B

Parameter and Analysis Method	Method Detection Limit			
		Location/QC No.:	SL16	TB1
		Date Sampled:	9-27-88	9-27-88
		Field Sample No.:	DANGB-4-SL16-SW-1	DANGB-TB16
		Lab Sample No.:	88092777	88092776
SEMI-VOLATILE ORGANICS (EPA 625) Continued page 3				
Aroclor-1016			UI	NR
Aroclor-1221			UI	NR
Aroclor-1232			UI	NR
Aroclor-1242			UI	NR
Aroclor-1248			UI	NR
Aroclor-1254			UI	NR
Aroclor-1260			UI	NR
2-Chlorophenol			UI	NR
2-Nitrophenol			UI	NR
Phenol			UI	NR
2,4-Dimethylphenol			UI	NR
2,4-Dichlorophenol			UI	NR
2,4,6-Trichlorophenol			UI	NR
4-Chloro-3-methylphenol			UI	NR
2,4-Dinitrophenol			UI	NR
2,6-Dichlorophenol			UI	NR
2-Methyl-4,6-dinitrophenol			UI	NR
Pentachlorophenol			UI	NR
4-Nitrophenol			UI	NR
Benzoic Acid			UI	NR
2-Methylphenol			UI	NR
3&4-Methylphenol			UI	NR
2,3,4,6-Tetrachlorophenol			UI	NR
2,4,5-Trichlorophenol			UI	NR

Table L-13
Site 4 Surface Water
Page 6A

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SL11	SL12	SL13	SL13 DUP	SL14	SL14 FB	SL15
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No:	DANGB-4-SL11-SW-1	DANGB-4-SL12-SW-1	DANGB-4-SL13-SW-1	DANGB-4-SL26-SW-1	DANGB-4-SL14-SW-1	DANGB-FB17	DANGB-4-SL15-SW-1
		Lab Sample No:	88092680	88092679	88092719	88092720	88092723	88092728	88092722
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#1	#1	#13	#13	#13		#13
Units: mg/L	1		< 1	< 1	U	2.5	U	NR	U
METALS (Units mg/L)									
Data Package			#1	#1	#13	#13	#3		#13
Barium (SW 6010)	0.2		<0.2	<0.2	<0.2	<0.2	<0.2	NR	<0.2
Cadmium (SW 7131)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	NR	<0.005
Chromium (SW 7191)	0.01		<0.01	<0.01	<0.01	<0.01	<0.01	NR	<0.01
Lead (SW 7421)	0.005		<0.005	<0.005	<0.005	<0.005	<0.005	NR	<0.005
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			0.508	0.492	0.766	0.766	0.439	NR	0.743
TEMPERATURE (EPA 170.1) Units: °C			11.6	12.9	10.3	10.3	11.9	NR	19.3
pH (EPA 150.1) Units: pH Units			6.96	7.01	6.63	6.63	6.94	NR	7.23

Table L-13
Site 4 Surface Water
Page 6ll

	Method Detection *Limit*	Location/QC No.: Date Sampled: *Field Sample No.:* Lab Sample No.:	SL16 9-27-88 DANGB-4-SL16-SW-1 88092777	TB1 9-27-88 DANGB-TB16 88092776
Parameter and Analysis Method				
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)				
Data Package			#2	
Units: mg/L			U	NR
METALS (Units mg/L)				
Data Package			#2	
Barium (SW 6010)			<0 2	NR
Cadmium (SW 7131)			<0.005	NR
Chromium (SW 7191)			<0.01	NR
Lead (SW 7421)·			<0.005	NR
SPECIFIC CONDUCTANCE (EPA 120.1)				
Units: mS/cm @ 25°C			0.583	NR
TEMPERATURE (EPA 170.1)				
Units:°C			10.9	NR
pH (EPA 150.1)				
Units: ph Units			6.78	NR

DUP Duplicate
Data Package # Numbers refer to Data Packages in Appendix M.
FB Field blank.
TB Trip blank.
B *For organic analyses, the parameter was detected in the laboratory blank as well as the sample.*
NR The analysis was not requested.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
! The holding time was missed for this analysis. *See Appendix N.*
< Less than.
- The EPA has not yet reported on a method detection limit for this parameter.

TABLE L-14
SITE 4
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SEDIMENT SAMPLES
(Results in micrograms per kilogram unless otherwise noted.)

	Method Detection Limit	Well/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL15	SL16
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-27-88
		Field Sample No.:	DANGB-4-SL11-SD-1	DANGB-4-SL12-SD-1	DANGB-4-SL13-SD-1	DANGB-4-SL26-SD-1	DANGB-4-SL14-SD-1	DANGB-4-SL15-SD-1	DANGB-4-SL16-SD-1
Parameter and Analysis Method		Lab Sample No.:	88092675	88092676	88092738	88092741	88092740	88092739	88092781
LATILE ORGANICS (SW 8010)									
Data Package			#26	#26	#56	#56	#56	#56	#25
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	0.54	14 B	7.3 B	U	U	16
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		60 B	27 B	46 B	62 B	59 B	40 B	50 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-14
Site 4 - Sediment
Page 2

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL15	SL16
		Date Sampled:	9-23-88	9-23-88	9-24-88	9-24-88	9-24-88	9-24-88	9-27-88
		Field Sample No.:	DANGB-4-SL11-SD-1	DANGB-4-SL12-SD-1	DANGB-4-SL13-SD-1	DANGB-4-SL26-SD-1	DANGB-4-SL14-SD-1	DANGB-4-SL15-SD-1	DANGB-4-SL16-SD-1
		Lab Sample No.:	88092675	88092676	88092738	88092741	88092740	88092739	88092781
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#26	#26	#56	#56	#56	#56	#25
Benzene	0.2		240	U	U	U	U	2.3	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		550	760	44000	55000	U	U	U
Toluene	0.2		979	360	54000	26000	U	5.5	U
Total Xylenes	0.4		3400	3000	690000	250000	U	2.8	U

Table L-14
Site 4 - Sediment
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL11	SL12	SL13	SL13 DUP	SL14	SL15	SL16
		Date Sampled:	9-23-88	9-23 88	9-24-88	9-24-88	9-24-88	9-24-88	9-27-88
		Field Sample No.:	DANGB-4-SL11-SD-1	DANGB-4-SL12-SD-1	DANGB-4-SL13-SD-1	DANGB-4-SL26-SD-1	DANGB-4-SL14-SD-1	DANGB-4-SL15-SD-1	DANGB-4-SL16-SD-1
		Lab Sample No.:	88092675	88092676	88092738	88092741	88092740	88092739	88092781
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#26	#26	#56	#56	#56	#56	#25
Units: mg/kg	100		210	1600	7000	12000	190	640	160
MOISTURE									
Data Package			#25	#26	#56	#56	#56	#56	#25
Units: Weight Percent			21.4	13.0	32.6	27.2	33.2	NT	56.2 *
METALS (Units: mg/kg)									
Data Package			#26	#26	#56	#56	#56	#56	#25
Barium (SW 6010)	0.2		57.8	42.1	62.3	83.7	48.0	74.1	199
Cadmium (SW 7131)	0.005		< 0.61	13	< 0.89	< 1.1	< 0.82	< 1.6	< 0.78
Chromium (SW 7191)	0.01		16.9 N	8.7 N	15.6 S N	15.1	5.9 N	23.4	21.3 N
Lead (SW 7421)	0.005		6.1	13.8	15.8	14.9	12.9	23.1	9.6

DUP Duplicate.
Data Package # Numbers refer to Data Packages in Appendix M.
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metal analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N For metals the percentage recovery of the spiked sample was not within the control limits.
NT Not tested.
S For metals the reported value was determined by the method of standard additions.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
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TABLE L-15
SITE 4
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANANLYSES FOR SOIL SAMPLES
(Results in micrograms per kilogram unless noted otherwise.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW21-SS1	MW21-SS2	MW21-SS2 DUP	MW21-SS3	MW22-SS1	MW22-SS2	MW22-SS3	MW23-SS1
		Sample Depth, (ft):	0-1	5-7	5-7	18-19	0-1	5-7	30-31	0-1
		Sample Date:	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-19-88
		Field Sample No.:	DANGB-4-MW21-SS1	DANGB-4-MW21-SS2	DANGB-4-MP21-SS2	DANGB-4-MW21-SS3	DANGB-4-MW22-SS1	DANGB-4-MW22-SS2	DANGB-4-MW22-SS3	DANGB-4-MW23-SS1
		Lab Sample No.:	88082046	88082047	88082049	88082048	88082043	88082044	88082045	88082000
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#45	#45	#45	#45	#45	#45	#45	#49
Benzyl Chloride			U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	1.1	0.56	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		6.7 B	3.5 B	2.7 B	2.8 B	17 B	4.6 B	6.0 B	8.4 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-15
Site 4 - Soil
Page 1B

	Method Detection Limit	Location/QC No:	MW23-SS2	MW23-SS3	MW24-SS1	MW24-SS1 R	MW24-SS1 R DUP	MW24-SS2	MW24-SS3
		Sample Depth, (ft):	8-9	30-31	0-2	0-2	0-2	3-4	32-34
		Sample Date:	8-19-88	8-19-88	8-24-88	8-31-88	8-31-88	8-24-88	8-24-88
		Field Sample No.:	DANGB-4-MW23-SS2	DANGB-4-MW23-SS3	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1A	DANGB-4-MW24-SS2	DANGB-4-MW24-SS3
Parameter and Analysis Method		Lab Sample No.:	88082001	88082002	88082099	88092254	88092255	88082100	88082101
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#49	#49	#50	#48	#48	#50	#50
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		0.40 B	0.08 B	U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		3.2 B	5.4 B	2.9 B	2.2 B	4.0 B	4.3 B	3.6 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-15
Site 4 - Soil
Page 2A

	Method Detection Limit	Location/QC No:	MW21-SS1	MW21-SS2	MW21-SS2 DUP	MW21-SS3	MW22-SS1	MW22-SS2	MW22-SS3	MW23-SS1
		Sample Depth, (ft):	0-1	5-7	5-7	18-19	0-1	5-7	30-31	0-1
		Sample Date:	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-20-88	8-19-88
		Field Sample No.:	DANGB-4-MW21-SS1	DANGB-4-MW21-SS2	DANGB-4-MP21-SS2	DANGB-4-MW21-SS3	DANGB-4-MW22-SS1	DANGB-4-MW22-SS2	DANGB-4-MW22-SS3	DANGB-4-MW23-SS1
Parameter and Analysis Method		Lab Sample No.:	88082046	88082047	88082049	88082048	88082043	88082044	88082045	88082000
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#45	#45	#45	#45	#45	#45	#45	#49
Benzene	0.2		U	11	10	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		330	120	32	53	120	100	830	1.2
Xylenes	0.4		U	U	4.1	U	U	U	U	U

Table L-15
Site 4 - Soil
Page 2B

Parameter and Analysis Method	Method Detection Limit								
		Location/QC No:	MW23-SS2	MW23-SS3	MW24-SS1	MW24-SS1 R	MW24-SS1 R DUP	MW24-SS2	MW24-SS3
		Sample Depth. (ft):	8-9	30-31	0-2	0-2	0-2	3-4	32-34
		Sample Date:	8-19-88	8-19-88	8-24-88	8-31-88	8-31-88	8-24-88	8-24-88
		Field Sample No.:	DANGB-4-MW23-SS2	DANGB-4-MW23-SS3	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1A	DANGB-4-MW24-SS2	DANGB-4-MW24-SS3
		Lab Sample No.:	88082001	88082002	88082099	88092254	88092255	88082100	88082101
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#49	#49	#50	#48	#48	#50	#50
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		25	13	39	U	U	150	950
Xylenes	0.4		U	U	U	U	U	U	U

Table L-15
Site 4 - Soil
Page 3A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW21-SS1 0-1 8-20-88 DANGB-4-MW21-SS1 88082046	MW21-SS2 5-7 8-20-88 DANGB-4-MW21-SS2 88082047	MW21-SS2 DUP 5-7 8-20-88 DANGB-4-MP21-SS2 88082049	MW21-SS3 18-19 8-20-88 DANGB-4-MW21-SS3 88082048	MW22-SS1 0-1 8-20-88 DANGB-4-MW22-SS1 88082043	MW22-SS2 5-7 8-20-88 DANGB-4-MW22-SS2 88082044	MW22-SS3 30-31 8-20-88 DANGB-4-MW22-SS3 88082045	MW23-SS1 0-1 8-19-88 DANGB-4-MW23-SS1 88082000
PESTICIDES AND PCB's (SW 8080)										
Data Package			#45	#45	#45	#45	#45	#45	#45	
Aldrin	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Alpha-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Beta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Delta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Gamma-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Chlordane	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
4,4'-DDD	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
4,4'-DDE	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
4,4'-DDT	0.10		19	UJ	UJ	UJ	UJ	UJ	UJ	NR
Dieldrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Endosulfan I	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Endosulfan II	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Endosulfan Sulfate	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Endrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Heptachlor	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Heptachlor Epoxide	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Methoxychlor	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
Toxaphene	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1016	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1221	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1232	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1242	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1248	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1254	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR
PCB-1260	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	NR

Table L-15
Site 4 - Soil
Page 3B

	Method Detection Limit	Location/QC No:	MW23-SS2	MW23-SS3	MW24-SS1	MW24-SS1 R	MW24-SS1 R DUP	MW24-SS2	MW24-SS3
		Sample Depth, (ft):	8-9	30-31	0-2	0-2	0-2	3-4	32-34
		Sample Date:	8-19-88	8-19-88	8-24-88	8-31-88	8-31-88	8-24-88	8-24-88
		Field Sample No.:	DANGB-4-MW23-SS2	DANGB-4-MW23-SS3	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1A	DANGB-4-MW24-SS2	DANGB-4-MW24-SS3
Parameter and Analysis Method		Lab Sample No.:	88082001	88082002	88082099	88092254	88092255	88082100	88082101
PESTICIDES AND PCB's (SW 8080)									
Data Package									
Aldrin	0.05		NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	0.05		NR	NR	NR	NR	NR	NR	NR
Beta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR
Delta-BHC	0.05		NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	0.05		NR	NR	NR	NR	NR	NR	NR
Chlordane	0.5		NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	0.10		NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	0.10		NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	0.10		NR	NR	NR	NR	NR	NR	NR
Dieldrin	0.10		NR	NR	NR	NR	NR	NR	NR
Endosulfan I	0.05		NR	NR	NR	NR	NR	NR	NR
Endosulfan II	0.10		NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	0.10		NR	NR	NR	NR	NR	NR	NR
Endrin	0.10		NR	NR	NR	NR	NR	NR	NR
Heptachlor	0.05		NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	0.05		NR	NR	NR	NR	NR	NR	NR
Methoxychlor	1.0		NR	NR	NR	NR	NR	NR	NR
Toxaphene	0.5		NR	NR	NR	NR	NR	NR	NR
PCB-1016	0.5		NR	NR	NR	NR	NR	NR	NR
PCB-1221	0.5		NR	NR	NR	NR	NR	NR	NR
PCB-1232	0.5		NR	NR	NR	NR	NR	NR	NR
PCB-1242	0.5		NR	NR	NR	NR	NR	NR	NR
PCB-1248	1.0		NR	NR	NR	NR	NR	NR	NR
PCB-1254	1.0		NR	NR	NR	NR	NR	NR	NR
PCB-1260	1.0		NR	NR	NR	NR	NR	NR	NR

Table L-15
Site 4 - Soil
Page 4A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	MW21-SS1 0-1 8-20-88 DANGB-4-MW21-SS1 88082046	MW21-SS2 5-7 8-20-88 DANGB-4-MW21-SS2 88082047	MW21-SS2 DUP 5-7 8-20-88 DANGB-4-MP21-SS2 88082049	MW21-SS3 18-19 8-20-88 DANGB-4-MW21-SS3 88082048	MW22-SS1 0-1 8-20-88 DANGB-4-MW22-SS1 88082043	MW22-SS2 5-7 8-20-88 DANGB-4-MW22-SS2 88082044	MW22-SS3 30-31 8-20-88 DANGB-4-MW22-SS3 88082045	MW23-SS1 0-1 8-19-88 DANGB-4-MW23-SS1 88082000
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#45	#45	#45	#45	#45	#45	#45	#49
Units: mg/kg	100		<100	<100	<100	<100	530	<100	370	370
MOISTURE										
Data Package			#45	#45	#45	#45	#45	#45	#45	#49
Units: Weight Percent			11.7	19.3	19.2	7.2	73.6	21.8	10.5	11.7
METALS (Units mg/kg)										
Data Package			#45	#45	#45	#45	#45	#45	#45	#49
Barium (SW 6010)			58.3	67.8 *	61.0 *	49.1 *	91.7 *	85.6 *	39.1 *	51.3
Cadmium (SW 7131)			10.8 * N	10.9 * N	10.4 * N	10.7 * N	0.32 B	11.0 * N	9.7 * N	10.6 * N
Chromium (SW 7191)			30.1	33.1	34.3	39.4	11.0	36.8	26.7	23.6
Lead (SW 7421)			5.4 *	7.3 * S	3.8 *	3.2 *	6.5 * S	5.9 *	2.9 *	3.2 N S

Table L-15
Site 4 - Soil
Page 4B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW23-SS2	MW23-SS3	MW24-SS1	MW24-SS1 R	MW24-SS1 R DUP	MW24-SS2	MW24-SS3
		Sample Depth, (ft):	8-9	30-31	0-2	0-2	0-2	3-4	32-34
		Sample Date:	8-19-88	8-19 88	8-24-88	8-31-88	8-31-88	8-24-88	8-24-88
		Field Sample No.:	DANGB-4-MW23-SS2	DANGB-4-MW23-SS3	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1	DANGB-4-MW24-SS1A	DANGB-4-MW24-SS2	DANGB-4-MW24-SS3
		Lab Sample No.:	88082001	88082002	88082099	88092254	88092255	88082100	88082101
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#49	#49	#50	#48	#48	#50	#50
Units: mg/L	100		<100	<100	150	51	24	<100	<100
MOISTURE									
Data Package			#49	#49	#50	#48	#48	#50	#50
Units: Weight Percent			16.1	12.3	12.8	9.6	8.4	14.7	9.3
METALS (Units mg/kg)									
Data Package			#49	#49	#50	#48	#48	#50	#50
Barium (SW 6010)			51.4	27.9	49	42.7	81.1	40.2	45.9
Cadmium (SW 7131)			8.5 * N	9.8 * N	11.4 N	8.0 N	15.7 N	8.8 N	11.5 N
Chromium (SW 7191)			23.7	20.4	32.6	27.3	49.7	25.6	49.3
Lead (SW 7421)			4.2 N	2.6 N	6.4 N	4.9	21.6	2.8 *	4.1 N

DUP	Duplicate
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratoyr blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
NR	The analysis was not requested.
S	For metals the reported value was determined by the method of standard additions.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
*	Duplicate not within control limits.
!	The holding time was missed for this analysis. See Appendix N.
<	Less than.

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TABLE L-16
SITE 4
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 8 9-13-88 DANGB-4-MW8-GW-1 88092390	MW 9 9-12-88 DANGB-4-MW9-GW-1 88092348	MW 9 FB 9-12-88 DANGB-FB8 88092353	MW 10 9-14-88 DANGB-4-MW10-GW-1 88092422	MW 11 9-14-88 DANGB-4-MW11-GW-1 88092424	GW 4-A 9-13-88 DANGB-4-GW4A-GW-1 88092388	GW 4-B 9-12-88 DANGB-4-GW4B-GW-1 88092[illegible]
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#36	#44	#44	#20	#20	#36	#44
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	15	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		0.67 B	0.37 B	2.1 B	0.04 B	0.37 B	0.31 B	0.50 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 1B

	Method Detection Limit	Well/QC No.:	GW 4-C	GW 4-C DUP	GW 4-C FB	GW 4-D	MW21	MW22	MW22 FB
		Date Sampled:	9-12-88	9-12-88	9-12-88	9-13-88	9-10-88	9-10-88	9-10-88
		Field Sample No.:	DANGB-4-GW4C-GW-1	DANGB-4-MW52-GW-1	DANGB-FB7	DANGB-4-GW4D GW-1	DANGB-4-MW21-GW-1	DANGB-4-MW22-GW-1	DANGB-FB6
Parameter and Analysis Method		Lab Sample No.:	88092509	88092510	88092352	88092389	88092321	88092325	88092328
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#57	#57	#44	#36	#33	#33	#63
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	15	U	U	0.23 B	16
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		U	U	1.6 B	0.49 B	2.6 B	0.69 B	1.4 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 1C

	Method Detection Limit	Well/QC No.:	MW23	MW24	TB1	TB2	BR1	BR2
		Date Sampled:	9-10-88	9-10-88	9-12-88	9-13-88	9-12-88	9-12-88
		Field Sample No.:	DANGB-4-MW23-GW-1	DANGB-4-MW24-GW-1	DANGB-TB4	DANGB-TB6	DANGB-BR4	DANGB-BR5
Parameter and Analysis Method		Lab Sample No.:	88092312	88092322	88092351	88092391	88092350	88092354
HALOGENATED VOLATILE ORGANICS (SW 8010)								
Data Package			#34	#33	#44	#36	#44	#37
Benzyl Chloride	0.50		U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U
Chloroform	0.05		U	0.18	U	U	15	13 B
1-Chlorohexane	0.50		U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U
Dichloromethane	0.25		5.3 B	4.1 B	2.0 B	0.69 B	1.6 B	0.93 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 2A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW 8 9-13-88 DANGB-4-MW8-GW-1 88092390	MW 9 9-12-88 DANGB-4-MW9-GW-1 88092348	MW 9 FB 9-12-88 DANGB-FB8 88092353	MW 10 9-14-88 DANGB-4-MW10-GW-1 88092422	MW 11 9-14-88 DANGB-4-MW11-GW-1 88092424	GW 4-A 9-13-88 DANGB-4-GW4A-GW-1 88092388	GW 4-B 9-12-88 DANGB-4-GW4B-GW-1 88092349
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#36	#44	#44	#20	#20	#36	#44
Benzene	0.2		U	3.2	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	2.7	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 2B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	GW 4-C 9-12-88 DANGB-4-GW4C-GW-1 88092509	GW 4-C DUP 9-12-88 DANGB-4-MW52-GW-1 88092510	GW 4-C FB 9-12-88 DANGB-FB7 88092352	GW 4-D 9-13-88 DANGB-4-GW4D-GW-1 88092389	MW21 9-10-88 DANGB-4-MW21-GW-1 88092321	MW22 9-10-88 DANGB-4-MW22-GW-1 88092325	MW22 FB 9-10-88 DANGB-FB6 88092328
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#57	#57	#44	#36	#33	#33	#63
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	22	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 2C

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	MW23 9-10-88 DANGB-4-MW23-GW-1 88092312	MW24 9-10-88 DANGB-4-MW24-GW-1 88092322	TB1 9-12-88 DANGB-TB4 88092351	TB2 9-13-88 DANGB-TB6 88092391	BR1 9-12-88 DANGB-BR4 88092350	BR2 9-12-88 DANGB-BR5 88092354
AROMATIC VOLATILE ORGANICS (SW 8020)								
Data Package			#34	#33	#44	#36	#44	#37
Benzene	0.2		U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U

Table L-16
Site 4 - Ground Water
Page 3A

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW 8	MW 9	MW 9 FB	MW 10	MW 11	GW 4-A	GW 4-B
		Date Sampled:	9-13-88	9-12-88	9-12-88	9-14-88	9-14-88	9-13-88	9-12-88
		Field Sample No.:	DANGB-4-MW8-GW-1	DANGB-4-MW9-GW-1	DANGB-FB8	DANGB-4-MW10-GW-1	DANGB-4-MW11-GW-1	DANGB-4-GW4A-GW-1	DANGB-4-GW4B-GW-1
		Lab Sample No.:	88092389/88092390	88092348	88092353	88092422	88092424	88092388	88092349
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#12 and #36	#44		#20	#20	#36	#44
Units: mg/L	1.5		U	< 1.5	NR	U	U	3.24	< 1.5
METALS (Units: mg/L)									
Data Package			#36	#44		#20	#20	#36	#44
Barium (SW 6010)			<0.05	0.09 B	NR	<0.05	<0.05	0.17 B	<0.05
Cadmium (SW 7131)			<0.001	0.0025 B W	NR	<0.001	<0.001	<0.001	0.0031 B
Chromium (SW 7191)			<0.002 W	<0.002	NR	0.0022	<0.002	0.0039 S B	0.0022 B
Lead (SW 7421)			<0.005	<0.005	NR	<0.005	<0.005	<0.005	<0.005
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			0.679	1.037	NR	0.521	0.874	0.883	0.559
TEMPERATURE (EPA 170.1) Units: °C			14.2	13.5	NR	17.2	11.7	10.1	9.8
pH (EPA 150.1) Units: pH Units			6.49	6.74	NR	6.96	6.90	6.74	7.77

Table L-16
Site 4 - Ground Water
Page 3B

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	GW 4-C	GW 4-C DUP	GW 4-C FB	GW 4-D	MW 21	MW 22	MW 22 FB
		Date Sampled:	9-12-88	9-12-88	9-12-88	9-13-88	9-10-88	9-10-88	9-10-88
		Field Sample No.:	DANGB-4-GW4C-GW-1	DANGB-4-MW52-GW-1	DANGB-FB7	DANGB-4-GW4D-GW-1	DANGB-4-MW21-GW-1	DANGB-4-MW22-GW-1	DANGB-FB6
		Lab Sample No.:	88092509	88092510	88092352	88092389	88092321	88092325	
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#57	#57		#36	#33	#33	
Units: mg/L	1.5		U	U	NR	U	U	U	NR
METALS (Units: mg/L)									
Data Package			#57	#57		#36	#33	#33	
Barium (SW 6010)			<0.2	0.17 B	NR	0.17 B	0.06 B N	0.11 B N	NR
Cadmium (SW 7131)			<0.005	<0.001	NR	<0.001	<0.001	<0.001	NR
Chromium (SW 7191)			<0.01	0.0028 B	NR	0.0028 B	<0.002	0.0029 B	NR
Lead (SW 7421)			<0.005	<0.005	NR	<0.005	<0.005	<0.005	NR
SPECIFIC CONDUCTANCE (EPA 120.1)									
Units: mS/cm @ 25°C			1.559	1.559	NR	1.407	0.922	1.653	NR
TEMPERATURE (EPA 170.1)									
Units: °C			9.6	9.6	NR	9.0	12.1	9.4	NR
pH (EPA 150.1)									
Units: pH Units			7.60	7.60	NR	6.45	7.01	7.39	NR

Table L-16
Site 4 - Ground Water
Page 3C

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	MW23	MW24	TB1	TB2	BR1	BR2
		Date Sampled:	9-10-88	9-10-88	9-12-88	9-13-88	9-12-88	9-12-88
		Field Sample No.:	DANGB-4-MW23-GW-1	DANGB-4-MW24-GW-1	DANGB-TB4	DANGB-TB6	DANGB-BR4	DANGB-BR5
		Lab Sample No.:	88092312	88092322	88092351	88092391	88092350	88092354
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)								
Data Package			#34	#33			#44	#37
Units: mg/L	1.5		U	U	NR	NR	< 1.5	U
METALS (Units: mg/L)								
Data Package			#34	#33			#41	#37
Barium (SW 6010)	0.2		0.14	<0.05 N	NR	NR	<0.05	<0.05
Cadmium (SW 7131)	0.005		<0.001	<0.001	NR	NR	<0.001	<0.001
Chromium (SW 7191)	0.01		0.0024 B	<0.0024 B	NR	NR	<0.002	<0.002
Lead (SW 7421)	0.005		<0.005	<0.005	NR	NR	<0.005	<0.005
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C			1.638	0.97	NR	NR	NR	NR
TEMPERATURE (EPA 170.1) Units: °C			12.0	8.8	NR	NR	NR NR	NR NR
pH (EPA 150.1) Units: pH units			7.78	8.8	NR	NR	NR	NR

DUP Duplicate
BR Boiler rinsate.
FB Field blank.
TB Trip blank.
Data Package # Numbers refer to Data Packages in Appendix M.
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample.
NR The analysis was not requested.
S For metals the reported value was determined by the method of standard additions.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
W The analysis spike, a spike added to the sample digestate had a percent recovery out of control limits (85-115 percent), and the sample absorbance is less than 50 percent of the spike.
< Less than.

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TABLE L-17
SITE 8
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SURFACE WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL17	SL19	SL19 FB	SL19 DUP	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-8-SL17-SW-1	DANGB-8-SL19-SW-1	DANGB-FB18	DANGB-8-SL27-SW-1	DANGB-TB13
		Lab Sample No.:	88092721	88092726	88092729	88092727	88092730
HALOGENATED VOLATILE ORGANICS (SW 8010)							
Data Package			#13	#13	#13	#13	#13
Benzyl Chloride	0.50		U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	0.27
Bromoform	0.20		U	U	U	U	30
Bromoethane	1.2		U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U
Chloral	50.0		U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U
Chloroform	0.05		U	U	U	U	U
1-Chlorohexane	0.50		U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	3.1
1,2-Dichlorobenzene	0.15		U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U
Dichloromethane	0.25		1.7 B	1.9 B	1.5 B	0.61 B	2.4 B
1,2-Dichloropropane	0.04		U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U

Table L-17
Site 8 - Surface Water
Page 2

	Method Detection Limit						
		Location/QC No.:	SL17	SL19	SL19 FB	SL19 DUP	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-8-SL17-SW-1	DANGB-8-SL19-SW-1	DANGB-FB18	DANGB-8-SL27-SW-1	DANGB-TB13
Parameter and Analysis Method		Lab Sample No.:	88092721	88092726	88092729	88092727	88092730
AROMATIC VOLATILE ORGANICS (SW 8020)							
Data Package			#13	#13	#13	#13	#13
Benzene	0.2		U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U
Toluene	0.2		U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U

Table L-17
Site 8 - Surface Water
Page 3

Parameter and Analysis Method	Method Detection Limit	Location/QC No.:	SL17	SL19	SL19 FB	SL19 DUP	TB1
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-8-SL17-SW-1	DANGB-8-SL19-SW-1	DANGB-FB18	DANGB-8 SL27-SW-1	DANGB-TB13
		Lab Sample No.:	88092721	88092726	88092729	88092727	88092730
PESTICIDES AND PCB's (EPA 608)							
Data Package			#13	#13		#13	
Aldrin	0.05		U	U	NR	U	NR
Alpha-BHC	0.05		U	U	NR	U	NR
Beta-BHC	0.05		U	U	NR	U	NR
Delta-BHC	0.05		U	U	NR	U	NR
Gamma-BHC	0.05		U	U	NR	U	NR
Chlorodane	0.5		U	U	NR	U	NR
4,4'-DDD	0.10		U	U	NR	U	NR
4,4'-DDE	0.10		U	U	NR	U	NR
4,4'-DDT	0.10		U	U	NR	U	NR
Dieldrin	0.10		U	U	NR	U	NR
Endosulfan I	0.05		U	U	NR	U	NR
Endosulfan II	0.10		U	U	NR	U	NR
Endosulfan Sulfate	0.10		U	U	NR	U	NR
Endrin	0.10		U	U	NR	U	NR
Heptachlor	0.05		U	U	NR	U	NR
Heptachlor Epoxide	0.05		U	U	NR	U	NR
Methoxychlor	0.5		U	U	NR	U	NR
Toxaphene	1.0		U	U	NR	U	NR
PCB-1016	0.5		U	U	NR	U	NR
PCB-1221	0.5		U	U	NR	U	NR
PCB-1232	0.5		U	U	NR	U	NR
PCB-1242	0.5		U	U	NR	U	NR
PCB-1248	0.5		U	U	NR	U	NR
PCB-1254	1.0		U	U	NR	U	NR
PCB-1260	1.0		U	U	NR	U	NR
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)							
Data Package			#13	#13		#13	
Units: mg/L			U	U	NR	U	NR
METALS (Units: mg/L)							
Data Package			#13				
Barium (SW 6010)	0.2		<0.2	NR	NR	NR	NR
Cadmium (SW 7131)	0.005		<0.005	NR	NR	NR	NR
Chromium (SW 7191)	0.01		<0.01	NR	NR	NR	NR
Lead (SW 7421)	0.005		<0.005	NR	NR	NR	NR
SPECIFIC CONDUCTANCE (EPA 120.1)							
Units: mS/cm @ 25°C			0.553	0.318	NR	0.318	NR
TEMPERATURE (EPA 170.1)							
Units: °C			14.8	18.4	NR	18.4	NR
pH (EPA 150.1)							
Units: pH Units			6.98	6.37	NR	6.37	NR

DUP	Duplicate
FB	Field blank.
TB	Trip blank.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
NR	The analysis was not requested.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
<	Less than.

TABLE L-18
SITE 8
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SEDIMENT SAMPLES
(Results in micrograms per kilogram unless otherwise noted.)

	Method	Well/QC No.:	SL17	SL18-8	SL19-8	SL19-8 DUP
	Detection	Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88
	Limit	Field Sample No.:	DANGB-8-SL17-SD-1	DANGB-8-SL18-SD-1	DANGB-8-SL19-SD-1	DANGB-8-SL27-SD-1
Parameter and Analysis Method		Lab Sample No.:	88092735	88092736	88092737	88092734
HALOGENATED VOLATILE ORGANICS (EPA SW 8010)						
Data Package			#56	#56	#56	#56
Benzyl Chloride	0.50		U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U
Bromobenzene	0.50		U	U	U	U
Bromodichloromethane	0.10		U	U	U	U
Bromoform	0.20		U	U	U	U
Bromoethane	1.2		U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U
Chloral	50.0		U	U	U	U
Chlorobenzene	0.25		U	U	U	U
Chloroethane	0.52		U	U	U	U
Chloroform	0.05		14 B	14 B	27 B	U
1-Chlorohexane	0.50		U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U
Chloromethane	0.08		U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U
Chlorotoluene	0.50		U	U	U	U
Dibromochloromethane	0.09		U	U	U	U
Dibromoethane	0.50		U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U
Dichloromethane	0.25		36 B	34 B	98 B	84 B
1,2-Dichloropropane	0.04		U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U
Tetrachloroethene	0.03		U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U
Trichloroethene	0.12		U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U
Trichloropropane	0.50		U	U	U	U
Vinyl Chloride	0.18		U	U	U	U

Table L-18
Site - 8 Sediment
Page 2

Parameter and Analysis Method	Method Detection Limit	Well/QC No.:	SL17	SL18-8	SL19-8	SL19-8 DUP
		Date Sampled:	9-24-88	9-24-88	9-24-88	9-24-88
		Field Sample No.:	DANGB-8-SL17-SD-1	DANGB-8-SL18-SD-1	DANGB-8-SL19-SD-1	DANGB-8-SL27-SD-1
		Lab Sample No.:	88092735	88092736	88092737	88092734
AROMATIC VOLATILE ORGANICS (EPA SW 8020)						
Data Package			#56	#56	#56	#56
Benzene	0.2		U	U	U	U
Chlorobenzene	0.2		U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U
Ethyl Benzene	0.2		U	U	U	U
Toluene	0.2		U	U	U	U
Total Xylenes	0.4		U	U	U	U

Table L-18
Site - 8 Sediment
Page 3

Parameter and Analysis Method	Method Detection Limit	Well/QC No.: Date Sampled: Field Sample No.: Lab Sample No.:	SL17 9-24-88 DANGB-8-SL17-SD-1 88092735	SL18-8 9-24-88 DANGB-8-SL18-SD-1 88092736	SL19-8 9-24-88 DANGB-8-SL19-SD-1 88092737	SL19-8 DUP 9-24-88 DANGB-8-SL27-SD-1 88092734
PESTICIDES AND PCB's (EPA SW 8080)						
Data Package			#56	#56	#56	#56
Aldrin	0.05		U	U	U	U
Alpha-BHC	0.05		U	U	U	U
Beta-BHC	0.05		U	U	U	U
Delta-BHC	0.05		U	U	U	U
Gamma-BHC	0.05		U	U	U	U
Chlorodane	0.5		U	U	U	U
4,4'-DDD	0.10		U	U	U	U
4,4'-DDE	0.10		U	U	U	U
4,4'-DDT	0.10		U	U	U	U
Dieldrin	0.10		U	U	U	U
Endosulfan I	0.05		U	U	U	U
Endosulfan II	0.10		U	U	U	U
Endosulfan Sulfate	0.10		U	U	U	U
Endrin	0.10		U	U	U	U
Heptachlor	0.05		U	U	U	U
Heptachlor Epoxide	0.05		U	U	U	U
Methoxychlor	0.5		U	U	U	U
Toxaphene	1.0		U	U	U	U
PCB-1016	0.5		U	U	U	U
PCB-1221	0.5		U	U	U	U
PCB-1232	0.5		U	U	U	U
PCB-1242	0.5		U	U	U	U
PCB-1248	0.5		U	U	U	U
PCB-1254	1.0		U	U	U	U
PCB-1260	1.0		U	U	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)						
Data Package			#56	#56	#56	#56
Units: mg/kg	100		< 100	< 100	200	3300
PERCENT MOISTURE						
Data Package			#56	#56	#56	#56
Units: Weight percent			21.9	11.6	63.1	72.5
METALS (Units mg/kg)						
Data Package			#56	#56	#56	#56
Barium (EPA SW 6010)	20		75.3	45.5	84.8 B	83.6
Cadmium (EPA SW 7131)	0.5		< 0.92	<0.61	< 2.5	< 2.1
Chromium (EPA SW 7191)	0.5		14.8 N	26.8 N	13.2 * S	14.2 S N
Lead (EPA SW 7421)	0.5		6.5	5.7	11.5	19.4

Table D-18
Site 8 - Sediment
Page 4

DUP	Duplicate
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
S	For metals the reported value was determined by the method of standard additions.
U	Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
*	Duplicate *not within control limits.*
<	Less than.

TABLE L-19
SITE 8
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR SOIL SAMPLES
(Results in microgram per kilogram unless noted otherwise.)

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSA0	SSA0 DUP	SSA1	SSA2	SSA3	SSB0	SSB1	SSB2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-12-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No:	DANGB-8-SS-A0	DANGB 8-SS-G0	DANGB-8-SS-A1	DANGB-8-SS-A2	DANGB 8-SS-A3	DANGB-8-SS-B0	DANGB-8-SS-B1	DANGB-8-SS-B2
		Lab Sample No:	88071404	88071394	88071399	88071387	88071384	88071397	88071403	88071385
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package										
Benzyl Chloride	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bromobenzene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Bromoform	0.20		NR	NR	NR	NR	NR	NR	NR	NR
Bromoethane	1.2		NR	NR	NR	NR	NR	NR	NR	NR
Carbon Tetrachloride	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Chloracetaldehyde	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chloral	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.25		NR	NR	NR	NR	NR	NR	NR	NR
Chloroethane	0.52		NR	NR	NR	NR	NR	NR	NR	NR
Chloroform	0.05		NR	NR	NR	NR	NR	NR	NR	NR
1-Chlorohexane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloroethyl Vinyl Ether	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethane	0.08		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethyl Methyl Ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorotoluene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Dibromochloromethane	0.09		NR	NR	NR	NR	NR	NR	NR	NR
Dibromomethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.15		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.32		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.24		NR	NR	NR	NR	NR	NR	NR	NR
Dichlorodifluoromethane	1.8		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethane	0.07		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Trans-1,2-Dichloroethene	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dichloromethane	0.25		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloropropane	0.04		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichloropropylene	0.34		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-Trichloroethane	0.02		NR	NR	NR	NR	NR	NR	NR	NR
Trichloroethene	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Trichloropropane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Vinyl Chloride	0.18		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 1B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSB3	SSC0	SSC1	SSC2	SSC3	SSD0	SSD1	SSD2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-10-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No.:	DANGB-8-SS-B3	DANGB-8-SS-C0	DANGB-8-SS-C1	DANGB-8-SS-C2	DANGB-8-SS-C3	DANGB-8-SS-D0	DANGB-8-SS-D1	DANGB-8-SS-D2
		Lab Sample No.:	88071381	88071395	88071396	88071390	88071389	88071405	88071391	88071382
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package										
Benzyl Chloride	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bromobenzene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Bromoform	0.20		NR	NR	NR	NR	NR	NR	NR	NR
Bromoethane	1.2		NR	NR	NR	NR	NR	NR	NR	NR
Carbon Tetrachloride	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Chloracetaldehyde	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chloral	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.25		NR	NR	NR	NR	NR	NR	NR	NR
Chloroethane	0.52		NR	NR	NR	NR	NR	NR	NR	NR
Chloroform	0.05		NR	NR	NR	NR	NR	NR	NR	NR
1-Chlorohexane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloroethyl Vinyl Ether	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethane	0.08		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethyl Methyl Ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorotoluene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Dibromochloromethane	0.09		NR	NR	NR	NR	NR	NR	NR	NR
Dibromomethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.15		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.32		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.24		NR	NR	NR	NR	NR	NR	NR	NR
Dichlorodifluoromethane	1.8		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethane	0.07		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Trans-1,2-Dichloroethene	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dichloromethane	0.25		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloropropane	0.04		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichloropropylene	0.34		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-Trichloroethane	0.02		NR	NR	NR	NR	NR	NR	NR	NR
Trichloroethene	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Trichloropropane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Vinyl Chloride	0.18		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 1C

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSD2 DUP	SSD3	SSE0	SSE1	SSE2	SSE3	SSF0	SSF1
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-11-88	7-11-88	7-12-88	7-12-88	7-12-88	7-11-88	7-12-88	7-12-88
		Field Sample No.:	DANGB-8-SS-G2	DANGB-8-SS-D3	DANGB-8-SS-E0	DANGB-8-SS-E1	DANGB-8-SS-E2	DANGB-8-SS-E3	DANGB-8-SS-F0	DANGB-8-SS-F1
		Lab Sample No.:	88071388	88071383	88071406	88071400	88071393	88071386	88071401	88071398
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package										
Benzyl Chloride	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Bromobenzene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Bromodichloromethane	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Bromoform	0.20		NR	NR	NR	NR	NR	NR	NR	NR
Bromoethane	1.2		NR	NR	NR	NR	NR	NR	NR	NR
Carbon Tetrachloride	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Chloracetaldehyde	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chloral	50.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.25		NR	NR	NR	NR	NR	NR	NR	NR
Chloroethane	0.52		NR	NR	NR	NR	NR	NR	NR	NR
Chloroform	0.05		NR	NR	NR	NR	NR	NR	NR	NR
1-Chlorohexane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloroethyl Vinyl Ether	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethane	0.08		NR	NR	NR	NR	NR	NR	NR	NR
Chloromethyl Methyl Ether	5.0		NR	NR	NR	NR	NR	NR	NR	NR
Chlorotoluene	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Dibromochloromethane	0.09		NR	NR	NR	NR	NR	NR	NR	NR
Dibromomethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.15		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.32		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.24		NR	NR	NR	NR	NR	NR	NR	NR
Dichlorodifluoromethane	1.8		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethane	0.07		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1-Dichloroethene	0.13		NR	NR	NR	NR	NR	NR	NR	NR
Trans-1,2-Dichloroethene	0.10		NR	NR	NR	NR	NR	NR	NR	NR
Dichloromethane	0.25		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichloropropane	0.04		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichloropropylene	0.34		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2,2-Tetrachloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1,2-Tetrachloroethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Tetrachloroethene	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,1-Trichloroethane	0.03		NR	NR	NR	NR	NR	NR	NR	NR
1,1,2-Trichloroethane	0.02		NR	NR	NR	NR	NR	NR	NR	NR
Trichloroethene	0.12		NR	NR	NR	NR	NR	NR	NR	NR
Trichlorofluoromethane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Trichloropropane	0.50		NR	NR	NR	NR	NR	NR	NR	NR
Vinyl Chloride	0.18		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 1D

	Method Detection Limit	Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7-12-88	7-12-88	7-11-88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
Parameter and Analysis Method		Lab Sample No.:	88071392	88071402	88071380	88081706	88081707	88081709	88092250	88092251
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package						#30	#30 Note 2	#30 Note 3	#29	#29
Benzyl Chloride	0.50		NR	NR	NR	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		NR	NR	NR	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		NR	NR	NR	U	U	U	U	U
Bromobenzene	0.50		NR	NR	NR	U	U	U	U	U
Bromodichloromethane	0.10		NR	NR	NR	U	U	U	U	U
Bromoform	0.20		NR	NR	NR	U	U	U	U	U
Bromoethane	1.2		NR	NR	NR	U	U	U	U	U
Carbon Tetrachloride	0.12		NR	NR	NR	U	U	U	U	U
Chloracetaldehyde	50.0		NR	NR	NR	U	U	U	U	U
Chloral	50.0		NR	NR	NR	U	U	U	U	U
Chlorobenzene	0.25		NR	NR	NR	U	U	U	U	U
Chloroethane	0.52		NR	NR	NR	U	U	U	U	U
Chloroform	0.05		NR	NR	NR	U	U	U	120	U
1-Chlorohexane	0.50		NR	NR	NR	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		NR	NR	NR	U	U	U	U	U
Chloromethane	0.08		NR	NR	NR	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		NR	NR	NR	U	U	U	U	U
Chlorotoluene	0.50		NR	NR	NR	U	U	U	U	U
Dibromochloromethane	0.09		NR	NR	NR	U	U	U	U	U
Dibromomethane	0.50		NR	NR	NR	U	U	U	U	U
1,2-Dichlorobenzene	0.15		NR	NR	NR	U	U	U	U	U
1,3-Dichlorobenzene	0.32		NR	NR	NR	U	U	U	U	U
1,4-Dichlorobenzene	0.24		NR	NR	NR	U	U	U	U	U
Dichlorodifluoromethane	1.8		NR	NR	NR	U	U	U	U	U
1,1-Dichloroethane	0.07		NR	NR	NR	U	U	U	U	U
1,2-Dichloroethane	0.03		NR	NR	NR	U	U	U	U	U
1,1-Dichloroethene	0.13		NR	NR	NR	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		NR	NR	NR	U	U	U	U	U
Dichloromethane	0.25		NR	NR	NR	13 B	3.0 B	3.0 B	1400 B	4.6 B
1,2-Dichloropropane	0.04		NR	NR	NR	U	U	U	U	U
1,3-Dichloropropylene	0.34		NR	NR	NR	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		NR	NR	NR	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		NR	NR	NR	U	U	U	U	U
Tetrachloroethene	0.03		NR	NR	NR	U	U	U	U	U
1,1,1-Trichloroethane	0.03		NR	NR	NR	U	U	U	U	U
1,1,2-Trichloroethane	0.02		NR	NR	NR	U	U	U	U	U
Trichloroethene	0.12		NR	NR	NR	U	U	U	U	U
Trichlorofluoromethane	0.50		NR	NR	NR	U	U	U	U	U
Trichloropropane	0.50		NR	NR	NR	U	U	U	U	U
Vinyl Chloride	0.18		NR	NR	NR	U	U	U	U	U

Table L-19
Site 8 - Soil
Page 1E

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	MW14-SS8	MW16-SS1	MW16-SS2	MW16-SS6	MW18-SS1	MW18-SS2	MW18-SS3	MW19-SS1
		Sample Depth, (ft):	38-40	0-1	4-5	29-30	0-2	8-11	14-15	0-2
		Sample Date:	8-8-88	8-10 88	8-10-88	8-10-88	8-5-88	8-5-88	8-5-88	8-10-88
		Field Sample No.:	DANGB-8-MW14-SS8	DANGB-8-MW16-SS1	DANGB-8-MW16-SS2	DANGB-8-MW16-SS6	DANGB-8-MW18-SS1	DANGB-8-MW18-SS2	DANGB-8-MW18-SS3	DANGB-8-MW19-SS1
		Lab Sample No.:	88081708	88081752	88081753	88081754	88081695	88081696	88081697	88081749
HALOGENATED VOLATILE ORGANICS (SW 8010)										
Data Package			#30	#27	#27	#27	#31	#31	#31	#27
Benzyl Chloride	0.50		U	U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	U	U	0.5 B
1-Chlorohexane	0.50		U	U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U	U
Dichloromethane	0.25		4.3 B	5.1 B	10 B	4.1 B	3.3 B	5.1 B	4.4 B	10 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U	U

Table L-19
Site 8 - Soil
Page 1F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW19-SS2	MW19-SS3	MW20-SS1	MW20 R-SS1	MW20 R-SS1 DUP	MW20-SS2	MW20-SS4
		Sample Depth, (ft):	6.5-7.5	9-10	0-2	0-2	0-2	6-8	15-20.5
		Sample Date:	8-10-88	8-10-88	8-5-88	8-31-88	8-31-88	8-5-88	8-5-88
		Field Sample No:	DANGB-8-MW19-SS2	DANGB-8-MW19-SS3	DANGB-8-MW20-SS1	DANGB-8-MW20-SS1	DANGB-8-MW20-SS5	DANGB-8-MW20-SS2	DANGB-8-MW20-SS4
		Lab Sample No:	88081750	88081751	88081698	88092253	88092252	88081699	88081700
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#27	#27	#31	#29 Note 4	#29	#31	#31
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		0.05 B	0.04 B	U	0.53	0.74	U	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromomethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		3.2 B	3.2 B	3.4 B	0.35 B	0.48 B	7.6 B	3.6 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-19
Site 8 - Soil
Page 2A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SSA0 0-2 7-12-88 DANGB-8-SS-A0 88071404	SSA0 DUP 0-2 7-12-88 DANGB 8-SS-G0 88071394	SSA1 0-2 7-12-88 DANGB-8-SS-A1 880713999	SSA2 0-2 7-11-88 DANGB-8-SS-A2 88071387	SSA3 0-2 7-11-88 DANGB-8-SS-A3 88071384	SSB0 0-2 7-12-88 DANGB-8-SS-B0 88071397	SSB1 0-2 7-12-88 DANGB-8-SS-B1 88071403	SSB2 0-2 7-11-88 DANGB-8-SS-B2 88071385
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package										
Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.3		NR	NR	NR	NR	NR	NR	NR	NR
Ethyl Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Toluene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Xylene	0.4		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 2B

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SSB3 0-2 7-10-88 DANGB-8-SS-B3 88071381	SSC0 0-2 7-12-88 DANGB-8-SS-C0 88071395	SSC1 0-2 7-12-88 DANGB-8-SS-C1 88071396	SSC2 0-2 7-11-88 DANGB-8-SS-C2 88071390	SSC3 0-2 7-11-88 DANGB-8-SS-C3 88071389	SSD0 0-2 7-12-88 DANGB-8-SS-D0 88071405	SSD1 0-2 7-12-88 DANGB-8-SS-D1 88071391	SSD2 0-2 7-11-88 DANGB-8-SS-D2 88071382
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package										
Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.3		NR	NR	NR	NR	NR	NR	NR	NR
Ethyl Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Toluene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Xylene	0.4		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 2C

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SSD2 DUP 0-2 7-11-88 DANGB-8-SS-G2 88071388	SSD3 0-2 7-11-88 DANGB-8-SS-D3 88071383	SSE0 0-2 7-12-88 DANGB-8-SS-E0 88071406	SSE1 0-2 7-12-88 DANGB-8-SS-E1 88071400	SSE2 0-2 7-12-88 DANGB-8-SS-E2 88071393	SSE3 0-2 7-11-88 DANGB-8-SS-E3 88071386	SSF0 0-2 7-12-88 DANGB-8-SS-F0 88071401	SSF1 0-2 7-12-88 DANGB-8-SS-F1 88071398
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package										
Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Chlorobenzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,3-Dichlorobenzene	0.4		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	0.3		NR	NR	NR	NR	NR	NR	NR	NR
Ethyl Benzene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Toluene	0.2		NR	NR	NR	NR	NR	NR	NR	NR
Xylene	0.4		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 2D

	Method Detection Limit	Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7-12-88	7-12-88	7-12-88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
Parameter and Analytis Method		Lab Sample No.:	89071392	88071402	88071380	88081706	88081707	88081709	08092250	88092251
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package						#30	#30 Note 2	#30 Note 3	#29	#29
Benzene	0.2		NR	NR	NR	U	U	U	U	U
Chlorobenzene	0.2		NR	NR	NR	U	U	U	U	U
1,2-Dichlorobenzene	0.4		NR	NR	NR	U	U	U	U	U
1,3-Dichlorobenzene	0.4		NR	NR	NR	U	U	U	U	U
1,4-Dichlorobenzene	0.3		NR	NR	NR	U	U	U	U	U
Ethyl Benzene	0.2		NR	NR	NR	U	U	U	U	U
Toluene	0.2		NR	NR	NR	1400	9.4	9.9	220	U
Xylene	0.4		NR	NR	NR	U	U	U	U	U

Table L-19
Site 8 - Soil
Page 2E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW14-SS8	MW16-SS1	MW16-SS2	MW16-SS6	MW18-SS1	MW18-SS2	MW18-SS3	MW19-SS1
		Sample Depth, (ft):	38-40	0-1	4-5	29-30	0-2	8-11	14-15	0-2
		Sample Date:	8-8-88	8-10-88	8-10-88	8-10-88	8-5-88	8-5-88	8-5-88	8-10-88
		Field Sample No.:	DANGB-8-MW14-SS8	DANGB-8-MW16-SS1	DANGB-8-MW16-SS2	DANGB-8-MW16-SS6	DANGB-8-MW18-SS1	DANGB-8-MW18-SS2	DANGB-8-MW18-SS3	DANGB-8-MW19-SS1
		Lab Sample No.:	88081708	88081752	88081753	88081754	88081695	88081696	88081697	88081749
AROMATIC VOLATILE ORGANICS (SW 8020)										
Data Package			#30	#27	#27	#27	#31	#31	#31	#27
Benzene	0.2		U	U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U	U
Toluene	0.2		23	15	41	7.5	2	84	81	10
Xylene	0.4		U	U	5.6	U	U	U	U	U

Table L-19
Site 8 - Soil
Page 2F

	Method	Location/OC No:	MW19-SS2	MW19-SS3	MW20-SS1	MW20 R-SS1	MW20 R-SS1 DUP	MW20-SS2	MW20-SS4
	Detection	Sample Depth, (ft):	6.5-7.5	9-10	0-2	0-2	0-2	6-8	15-20.5
	Limit	Sample Date:	8-10-88	8-10-88	8-5-88	8-31-88	8-31-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-8-MW19-SS2	DANGB-8-MW19-SS3	DANGB-8-MW20-SS1	DANGB-8-MW20-SS1	DANGB-8-MW20-SS5	DANGB-8-MW20-SS2	DANGB-8-MW20-SS4
Parameter and Analysis Method		Lab Sample No.:	88081750	88081751	88081698	88092253	88092252	88081699	88081700
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#27	#27	#31	#29	#29	#31	#31
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		1.7	4.4	15	160	390	120	720
Xylene	0.4		U	U	U	U	U	U	U

	Method Detection Limit	Location/QC No:	SSA0	SSA0 DUP	SSA1	SSA2	SSA3	SSB0	SSB1	SSB2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-12-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No.:	DANGB-8-SS-A0	DANGB-8-SS-G0	DANGB-8-SS-A1	DANGB-8-SS-A2	DANGB-8-SS-A3	DANGB-8-SS-B0	DANGB-8-SS-B1	DANGB-8-SS-B2
Parameter and Analysis Method		Lab Sample No.:	88071404	88071394	880713999	88071387	88071384	88071397	88071403	88071385
SEMIVOLATILE ORGANICS (SW 8270)										
Data Package										
1,3-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachloroethane	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodimethylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodi-n-propylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobutadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Nitrobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Isophorone	330		NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloronaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclopentadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthylene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dimethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluorene	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Diethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodiphenylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenanthrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibutyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chlorophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Butyl Benzyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-ethylhexyl)phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Bromophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Di-n-octylphthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(k)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzidine	2000		NR	NR	NR	NR	NR	NR	NR	NR
3,3'-Dichlorobenzidine	660		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Indeno(1,2,3-cd)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzo(a,h)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(ghi)perylene	330		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 3B

	Method Detection Limit	Location/QC No:	SSB3	SSC0	SSC1	SSC2	SSC3	SSD0	SSD1	SSD2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-10-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No:	DANGB-8-SS-B3	DANGB-8-SS-C0	DANGB-8-SS-C1	DANGB-8-SS-C2	DANGB-8-SS-C3	DANGB-8-SS-D0	DANGB-8-SS-D1	DANGB-8-SS-D2
Parameter and Analysis Method		Lab Sample No:	88071381	88071395	88071396	88071390	88071389	88071405	88071391	88071382
SEMIVOLATILE ORGANICS (SW 8270)										
Data Package										
1,3-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachloroethane	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodimethylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodi-n-propylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobutadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Nitrobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Isophorone	330		NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloronaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclopentadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthylene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dimethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluorene	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Diethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodiphenylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenanthrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibutyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chlorophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Butyl Benzyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-ethylhexyl)phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Bromophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Di-n octylphthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(k)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzidine	2000		NR	NR	NR	NR	NR	NR	NR	NR
3,3-Dichlorobenzidine	660		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Indeno(1,2,3-cd)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzo(a,h)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(ghi)perylene	330		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 3C

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	SSD2 DUP 0-2 7-11-88 DANGB-8-SS-G2 88071388	SSD3 0-2 7-11-88 DANGB-8-SS-D3 88071383	SSE0 0-2 7-12-88 DANGB-8-SS-E0 88071406	SSE1 0-2 7-12-88 DANGB-8-SS-E1 88071400	SSE2 0-2 7-12-88 DANGB-8-SS-E2 88071393	SSE3 0-2 7-11-88 DANGB-8-SS-E3 88071386	SSF0 0-2 7-12-88 DANGB-8-SS-F0 88071401	SSF1 0-2 7-12-88 DANGB-8-SS-F1 88071398
SEMIVOLATILE ORGANICS (SW 8270)										
Data Package										
1,3-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,4-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachloroethane	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Dichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodimethylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroisopropyl)ether	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodi-n-propylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobutadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4-Trichlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Nitrobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Isophorone	330		NR	NR	NR	NR	NR	NR	NR	NR
Naphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-chloroethoxy)methane	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Chloronaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorocyclopentadiene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthylene	330		NR	NR	NR	NR	NR	NR	NR	NR
Acenaphthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dimethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluorene	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrotoluene	330		NR	NR	NR	NR	NR	NR	NR	NR
Diethyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosodiphenylamine	330		NR	NR	NR	NR	NR	NR	NR	NR
Hexachlorobenzene	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenanthrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibutyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chlorophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Butyl Benzyl Phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Bis(2-ethylhexyl)phthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Chrysene	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Bromophenyl Phenyl Ether	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Di-n-octylphthalate	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(b)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(k)fluoranthene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzidine	2000		NR	NR	NR	NR	NR	NR	NR	NR
3,3'-Dichlorobenzidine	660		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(a)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Indeno(1,2,3-cd)pyrene	330		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzo(a,h)anthracene	330		NR	NR	NR	NR	NR	NR	NR	NR
Benzo(ghi)perylene	330		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 3D

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7-12-88	7-12-88	7-11-88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
		Lab Sample No.:	88071392	88071402	88071380	88081706	88081707	88081709	88092250	88092251
SEMIVOLATILE ORGANICS (SW 8270)										
Data Package									#29 Note 5	#29 Note 5
1,3-Dichlorobenzene	330		NR	NR	NR				UJ	UJ
1,4-Dichlorobenzene	330		NR	NR	NR				UJ	UJ
Hexachloroethane	330		NR	NR	NR				UJ	UJ
Bis(2-chloroethyl)ether	330		NR	NR	NR				UJ	UJ
1,2-Dichlorobenzene	330		NR	NR	NR				UJ	UJ
N-Nitrosodimethylamine	330		NR	NR	NR				UJ	UJ
Bis(2-chloroisopropyl)ether	330		NR	NR	NR				UJ	UJ
N-Nitrosodi-n-propylamine	330		NR	NR	NR				UJ	UJ
Hexachlorobutadiene	330		NR	NR	NR				UJ	UJ
1,2,4-Trichlorobenzene	330		NR	NR	NR				UJ	UJ
Nitrobenzene	330		NR	NR	NR				UJ	UJ
Isophorone	330		NR	NR	NR				UJ	UJ
Naphthalene	330		NR	NR	NR				UJ	UJ
Bis(2-chloroethoxy)methane	330		NR	NR	NR				UJ	UJ
2-Chloronaphthalene	330		NR	NR	NR				UJ	UJ
Hexachlorocyclopentadiene	330		NR	NR	NR				UJ	UJ
Acenaphthylene	330		NR	NR	NR	Note 1.	Note 1.	Note 1.	UJ	UJ
Acenaphthene	330		NR	NR	NR				UJ	UJ
Dimethyl Phthalate	330		NR	NR	NR				UJ	UJ
2,6-Dinitrotoluene	330		NR	NR	NR				UJ	UJ
Fluorene	330		NR	NR	NR				UJ	UJ
2,4-Dinitrotoluene	330		NR	NR	NR				UJ	UJ
Diethyl Phthalate	330		NR	NR	NR				UJ	UJ
N-Nitrosodiphenylamine	330		NR	NR	NR				UJ	UJ
Hexachlorobenzene	330		NR	NR	NR				UJ	UJ
Phenanthrene	330		NR	NR	NR				UJ	UJ
Anthracene	330		NR	NR	NR				UJ	UJ
Dibutyl Phthalate	330		NR	NR	NR				UJ	UJ
Fluoranthene	330		NR	NR	NR				UJ	UJ
4-Chlorophenyl Phenyl Ether	330		NR	NR	NR				UJ	UJ
Pyrene	330		NR	NR	NR				UJ	UJ
Butyl Benzyl Phthalate	330		NR	NR	NR				UJ	UJ
Bis(2-ethylhexyl)phthalate	330		NR	NR	NR				UJ	UJ
Chrysene	330		NR	NR	NR				UJ	UJ
4-Bromophenyl Phenyl Ether	330		NR	NR	NR				UJ	UJ
Benzo(a)anthracene	330		NR	NR	NR				UJ	UJ
Di-n-octylphthalate	330		NR	NR	NR				UJ	UJ
Benzo(b)fluoranthene	330		NR	NR	NR				UJ	UJ
Benzo(k)fluoranthene	330		NR	NR	NR				UJ	UJ
Benzidine	2000		NR	NR	NR				UJ	UJ
3,3'-Dichlorobenzidine	660		NR	NR	NR				UJ	UJ
Benzo(a)pyrene	330		NR	NR	NR				UJ	UJ
Indeno(1,2,3-cd)pyrene	330		NR	NR	NR				UJ	UJ
Dibenzo(a,h)anthracene	330		NR	NR	NR				UJ	UJ
Benzo(ghi)perylene	330		NR	NR	NR				UJ	UJ

Table L-19
Site 8 - Soil
Page 3E

	Method Detection Limit	Location/QC No:	MW14-SS8	MW16-SS1	MW16-SS2	MW16-SS6	MW18-SS1	MW18-SS2	MW18-SS3	MW19-SS1
		Sample Depth, (ft):	38-40	0-1	4-5	29-30	0-2	8-11	14-115	0-2
		Sample Date:	8-8-88	8-10-88	8-10-88	8-10-88	8-5-88	8-5-88	8-5-88	8-10-88
		Field Sample No.:	DANGB-8-MW14-SS8	DANGB-8-MW16-SS1	DANGB-8-MW16-SS2	DANGB-8-MW16-SS6	DANGB-8-MW18-SS1	DANGB-8-MW18-SS2	DANGB-8-MW18-SS3	DANGB-8-MW19-SS1
Parameter and Analysis Method		Lab Sample No.:	88081708	88081752	88081753	88081754	88081695	88081696	88081697	88081749
SEMIVOLATILE ORGANICS (SW 8270)										
Data Package										
1,3-Dichlorobenzene	330									
1,4-Dichlorobenzene	330									
Hexachloroethane	330									
Bis(2-chloroethyl)ether	330									
1,2-Dichlorobenzene	330									
N-Nitrosodimethylamine	330									
Bis(2-chloroisopropyl)ether	330									
N-Nitrosodi-n-propylamine	330									
Hexachlorobutadiene	330									
1,2,4-Trichlorobenzene	330									
Nitrobenzene	330									
Isophorone	330									
Naphthalene	330									
Bis(2-chloroethoxy)methane	330									
2-Chloronaphthalene	330									
Hexachlorocyclopentadiene	330									
Acenaphthylene	330		Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.
Acenaphthene	330									
Dimethyl Phthalate	330									
2,6-Dinitrotoluene	330									
Fluorene	330									
2,4-Dinitrotoluene	330									
Diethyl Phthalate	330									
N-Nitrosodiphenylamine	330									
Hexachlorobenzene	330									
Phenanthrene	330									
Anthracene	330									
Dibutyl Phthalate	330									
Fluoranthene	330									
4-Chlorophenyl Phenyl Ether	330									
Pyrene	330									
Butyl Benzyl Phthalate	330									
Bis(2-ethylhexyl)phthalate	330									
Chrysene	330									
4-Bromophenyl Phenyl Ether	330									
Benzo(a)anthracene	330									
Di-n-octylphthalate	330									
Benzo(b)fluoranthene	330									
Benzo(k)fluoranthene	330									
Benzidine	2000									
3,3'-Dichlorobenzidine	660									
Benzo(a)pyrene	330									
Indeno(1,2,3-cd)pyrene	330									
Dibenzo(a,h)anthracene	330									
Benzo(ghi)perylene	330									

Table L-19
Site 8 - Soil
Page 35

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW19-SS2	MW19-SS3	MW20-SS1	MW20 R-SS1	MW20 R-SS1 DUP	MW20-SS2	MW20-SS4
		Sample Depth, (ft):	6.5-7.5	9-10	0-2	0-2	0-2	6-8	15-20.5
		Sample Date:	8-10-88	8-10-88	8-5-88	8-31-88	8-31-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-8-MW19-SS2	DANGB-8-MW19-SS3	DANGB-8-MW20-SS1	DANGB-8-MW20-SS1	DANGB-8-MW20-SS5	DANGB-8-MW20-SS2	DANGB-8-MW20-SS4
		Lab Sample No.:	88081750	88081751	88081698	88092253	88092252	88081699	88081700
SEMIVOLATILE ORGANICS (SW 8270)									
Data Package						#29	#29 Note 5		
1,3-Dichlorobenzene	330						U!		
1,4-Dichlorobenzene	330						U!		
Hexachloroethane	330						U!		
Bis(2-chloroethyl)ether	330						U!		
1,2-Dichlorobenzene	330						U!		
N-Nitrosodimethylamine	330						U!		
Bis(2-chloroisopropyl)ether	330						U!		
N-Nitrosodi-n-propylamine	330						U!		
Hexachlorobutadiene	330						U!		
1,2,4-Trichlorobenzene	330						U!		
Nitrobenzene	330						U!		
Isophorone	330						U!		
Naphthalene	330						U!		
Bis(2-chloroethoxy)methane	330						U!		
2-Chloronaphthalene	330						U!		
Hexachlorocyclopentadiene	330						U!		
Acenaphthylene	330		Note 1.	Note 1.	Note 1.	Note 1.	U!	Note 1.	Note 1.
Acenaphthene	330						U!		
Dimethyl Phthalate	330						U!		
2,6-Dinitrotoluene	330						U!		
Fluorene	330						U!		
2,4-Dinitrotoluene	330						U!		
Diethyl Phthalate	330						U!		
N-Nitrosodiphenylamine	330						U!		
Hexachlorobenzene	330						U!		
Phenanthrene	330						U!		
Anthracene	330						U!		
Dibutyl Phthalate	330						U!		
Fluoranthene	330						U!		
4-Chlorophenyl Phenyl Ether	330						U!		
Pyrene	330						U!		
Butyl Benzyl Phthalate	330						U!		
Bis(2-ethylhexyl)phthalate	330						U!		
Chrysene	330						U!		
4-Bromophenyl Phenyl Ether	330						U!		
Benzo(a)anthracene	330						U!		
Di-n-octylphthalate	330						U!		
Benzo(b)fluoranthene	330						U!		
Benzo(k)fluoranthene	330						U!		
Benzidine	2000						U!		
3,3'-Dichlorobenzidine	660						U!		
Benzo(a)pyrene	330						U!		
Indeno(1,2,3-cd)pyrene	330						U!		
Dibenzo(a,h)anthracene	330						U!		
Benzo(ghi)perylene	330						U!		

Table 1-19
Site 8 - Soil
Page 4A

	Method Detection Limit	Location/QC No:	SSA0	SSA0 DUP	SSA1	SSA2	SSA3	SSB0	SSB1	SSB2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-12-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No.:	DANGB-8 SS-A0	DANGB-8-SS-GC	DANGB-8 SS-A1	DANGB-8-SS-A2	DANGB-8-SS-A3	DANGB-8-SS-B0	DANGB-8-SS-B1	DANGB-8-SS-B2
Parameter and Analysis Method		Lab Sample No.:	88071404	88071394	880713999	88071387	88071381	88071397	88071403	88071385
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		NR	NR	NR	NR	NR	NR	NR	NR
Acetophenone	-		NR	NR	NR	NR	NR	NR	NR	NR
Aniline	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Aminobyphenyl	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloroaniline	660		NR	NR	NR	NR	NR	NR	NR	NR
1-Chloronapththalene	-		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzofuran	330		NR	NR	NR	NR	NR	NR	NR	NR
p-Dimethylaminoazobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
7,12-Dimethylbenz(a)anthracene	-		NR	NR	NR	NR	NR	NR	NR	NR
a-,a-Dimethylphenethylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
Diphenylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Diphenylhydrazine	-		NR	NR	NR	NR	NR	NR	NR	NR
Ethylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
3-Methylcholanthrene	-		NR	NR	NR	NR	NR	NR	NR	NR
Methylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylnaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
1-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
3-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitroso-di-n-butylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosopiperidiene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachloronitrobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Phenacetin	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Picoline	-		NR	NR	NR	NR	NR	NR	NR	NR
Pronamide	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4,5-Tetrachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Aldrin	-		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	-		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	660		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	330		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	500		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	-		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	500		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	1000		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	500		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	830		NR	NR	NR	NR	NR	NR	NR	NR
Endrin Aldehyde	1000		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 4B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSB3	SSC0	SSC1	SSC2	SSC3	SSD0	SSD1	SSD2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-10-88	7-12 88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No:	DANGB-8-SS-B3	DANGB 8-SS-C0	DANGB-8-SS-C1	DANGB-8-SS-C2	DANGB-8-SS-C3	DANGB-8-SS-D0	DANGB-8-SS-D1	DANGB-8-SS-D2
		Lab Sample No:	88071381	88071395	88071396	88071390	88071389	88071405	88071391	88071382
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		NR	NR	NR	NR	NR	NR	NR	NR
Acetophenone	-		NR	NR	NR	NR	NR	NR	NR	NR
Aniline	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Aminobyphenyl	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloroaniline	660		NR	NR	NR	NR	NR	NR	NR	NR
1-Chloronaphthalene	-		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzofuran	330		NR	NR	NR	NR	NR	NR	NR	NR
p-Dimethylaminoazobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
7,12-Dimethylbenz(a)anthracene	-		NR	NR	NR	NR	NR	NR	NR	NR
a-,a-Dimethylphenethylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
Diphenylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Diphenylhydrazine	-		NR	NR	NR	NR	NR	NR	NR	NR
Ethylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
3-Methylcholanthrene	-		NR	NR	NR	NR	NR	NR	NR	NR
Methylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylnaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
1-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
3-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitroso-di-n-butylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosopiperidiene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachloronitrobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Phenacetin	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Picoline	-		NR	NR	NR	NR	NR	NR	NR	NR
Pronamide	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4,5-Tetrachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Aldrin	-		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	-		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	660		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	330		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	500		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	-		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	500		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	1000		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	500		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	830		NR	NR	NR	NR	NR	NR	NR	NR
Endrin Aldehyde	1000		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 4C

	Method	Location/QC No:	SSD2 DUP	SSD3	SSE0	SSE1	SSE2	SSE3	SSF0	SSF1
	Detection	Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
	Limit	Sample Date:	7-11-88	7-11-88	7-12-88	7-12-88	7-12-88	7-11-88	7-12-88	7-12-88
		Field Sample No.:	DANGB-8-SS-G2	DANGB-8-SS-D3	DANGB-8-SS-E0	DANGB-8-SS-E1	DANGB-8-SS-E2	DANGB-8-SS-E3	DANGB-8-SS-F0	DANGB-8-SS-F1
Parameter and Analysis Method		Lab Sample No.:	88071385	88071383	88071406	88071400	88071393	88071386	88071401	88071398
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		NR	NR	NR	NR	NR	NR	NR	NR
Acetophenone	-		NR	NR	NR	NR	NR	NR	NR	NR
Aniline	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Aminobiphenyl	-		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloroaniline	660		NR	NR	NR	NR	NR	NR	NR	NR
1-Chloronapththalene	-		NR	NR	NR	NR	NR	NR	NR	NR
Dibenzofuran	330		NR	NR	NR	NR	NR	NR	NR	NR
p-Dimethylaminoazobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
7,12-Dimethylbenz(a)anthracene	-		NR	NR	NR	NR	NR	NR	NR	NR
a-,a-Dimethylphenethylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
Diphenylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2-Diphenylhydrazine	-		NR	NR	NR	NR	NR	NR	NR	NR
Ethylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
3-Methylcholanthrene	-		NR	NR	NR	NR	NR	NR	NR	NR
Methylmethanesulfonate	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylnaphthalene	330		NR	NR	NR	NR	NR	NR	NR	NR
1-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Naphthylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
3-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitroaniline	1600		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitroso-di-n-butylamine	-		NR	NR	NR	NR	NR	NR	NR	NR
N-Nitrosopiperidiene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Pentachloronitrobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Phenacetin	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Picoline	-		NR	NR	NR	NR	NR	NR	NR	NR
Pronamide	-		NR	NR	NR	NR	NR	NR	NR	NR
1,2,4,5-Tetrachlorobenzene	-		NR	NR	NR	NR	NR	NR	NR	NR
Aldrin	-		NR	NR	NR	NR	NR	NR	NR	NR
Alpha-BHC	-		NR	NR	NR	NR	NR	NR	NR	NR
Beta-BHC	660		NR	NR	NR	NR	NR	NR	NR	NR
Delta-BHC	330		NR	NR	NR	NR	NR	NR	NR	NR
Gamma-BHC	500		NR	NR	NR	NR	NR	NR	NR	NR
Chlordane	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDD	330		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDE	-		NR	NR	NR	NR	NR	NR	NR	NR
4,4'-DDT	500		NR	NR	NR	NR	NR	NR	NR	NR
Dieldrin	1000		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan I	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan II	-		NR	NR	NR	NR	NR	NR	NR	NR
Endosulfan Sulfate	500		NR	NR	NR	NR	NR	NR	NR	NR
Endrin	830		NR	NR	NR	NR	NR	NR	NR	NR
Endrin Aldehyde	1000		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 4D

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0 2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7-12-88	7-12-88	7-11-88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
		Lab Sample No:	88071392	88071402	88071380	88081706	88081707	88081709	88092250	88092251
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660		NR	NR	NR				UJ	UJ
Acetophenone	-		NR	NR	NR				UJ	UJ
Aniline	-		NR	NR	NR				UJ	UJ
4-Aminobiphenyl	-		NR	NR	NR				UJ	UJ
4-Chloroaniline	660		NR	NR	NR				UJ	UJ
1-Chloronapththalene	-		NR	NR	NR				UJ	UJ
Dibenzofuran	330		NR	NR	NR				UJ	UJ
p-Dimethylaminoazobenzene	-		NR	NR	NR				UJ	UJ
7,12-Dimethylbenz(a)anthracene	-		NR	NR	NR				UJ	UJ
a-,a-Dimethylphenethylamine	-		NR	NR	NR				UJ	UJ
Diphenylamine	-		NR	NR	NR				UJ	UJ
1,2-Diphenylhydrazine	-		NR	NR	NR				UJ	UJ
Ethylmethanesulfonate	-		NR	NR	NR				UJ	UJ
3-Methylcholanthrene	-		NR	NR	NR				UJ	UJ
Methylmethanesulfonate	-		NR	NR	NR				UJ	UJ
2-Methylnaphthalene	330		NR	NR	NR	Note 1.	Note 1.	Note 1.	UJ	UJ
1-Naphthylamine	-		NR	NR	NR				UJ	UJ
2-Naphthylamine	-		NR	NR	NR				UJ	UJ
2-Nitroaniline	1600		NR	NR	NR				UJ	UJ
3-Nitroaniline	1600		NR	NR	NR				UJ	UJ
4-Nitroaniline	1600		NR	NR	NR				UJ	UJ
N-Nitroso-di-n-butylamine	-		NR	NR	NR				UJ	UJ
N-Nitrosopiperidene	-		NR	NR	NR				UJ	UJ
Pentachlorobenzene	-		NR	NR	NR				UJ	UJ
Pentachloronitrobenzene	-		NR	NR	NR				UJ	UJ
Phenacetin	-		NR	NR	NR				UJ	UJ
2-Picoline	-		NR	NR	NR				UJ	UJ
Pronamide	-		NR	NR	NR				UJ	UJ
1,2,4,5-Tetrachlorobenzene	-		NR	NR	NR				UJ	UJ
Aldrin	-		NR	NR	NR				UJ	UJ
Alpha-BHC	-		NR	NR	NR				UJ	UJ
Beta-BHC	660		NR	NR	NR				UJ	UJ
Delta-BHC	330		NR	NR	NR				UJ	UJ
Gamma-BHC	500		NR	NR	NR				UJ	UJ
Chlordane	330		NR	NR	NR				UJ	UJ
4,4'-DDD	330		NR	NR	NR				UJ	UJ
4,4'-DDE	-		NR	NR	NR				UJ	UJ
4,4'-DDT	500		NR	NR	NR				UJ	UJ
Dieldrin	1000		NR	NR	NR				UJ	UJ
Endosulfan I	-		NR	NR	NR				UJ	UJ
Endosulfan II	-		NR	NR	NR				UJ	UJ
Endosulfan Sulfate	500		NR	NR	NR				UJ	UJ
Endrin	330		NR	NR	NR				UJ	UJ
Endrin Aldehyde	1000		NR	NR	NR				UJ	UJ

Table I-19
Site 8 Soil
Page 4E

	Method Detection Limit	Location/QC No:	MW14-SS8	MW16-SS1	MW16-SS2	MW16-SS6	MW18-SS1	MW18-SS2	MW18-SS3	MW19-SS1
		Sample Depth, (ft):	38-40	0-1	4-5	29-30	0-2	8-11	14-15	0-2
		Sample Date:	8-8-88	8-10 88	8-10-88	8-10-88	8-5-88	8-5-88	8-5-88	8-10-88
		Field Sample No:	DANGB-8-MW14-SS8	DANGB-8-MW16-SS1	DANGB-8-MW16-SS2	DANGB-8-MW16-SS6	DANGB-8-MW18-SS1	DANGB-8-MW18-SS2	DANGB-8-MW18-SS3	DANGB-8-MW19-SS1
Parameter and Analysis Method		Lab Sample No:	88081708	88081752	88081753	88081754	88081695	88081696	88081697	88081749
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2										
Benzyl Alcohol	660									
Acetophenone	-									
Aniline	-									
4-Aminobyphenyl	-									
4-Chloroaniline	660									
1-Chloronapththalene	-									
Dibenzofuran	330									
p-Dimethylaminoazobenzene	-									
7,12-Dimethylbenz(a)anthracene	-									
a-,a-Dimethylphenethylamine	-									
Diphenylamine	-									
1,2-Diphenylhydrazine	-									
Ethylmethanesulfonate	-									
3-Methylcholanthrene	-									
Methylmethanesulfonate	-									
2-Methylnaphthalene	330		Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.
1-Naphthylamine	-									
2-Naphthylamine	-									
2-Nitroaniline	1600									
3-Nitroaniline	1600									
4-Nitroaniline	1600									
N-Nitroso-di-n-butylamine	-									
N-Nitrosopiperidiene	-									
Pentachlorobenzene	-									
Pentachloronitrobenzene	-									
Phenacetin	-									
2-Picoline	-									
Pronamide	-									
1,2,4,5-Tetrachlorobenzene	-									
Aldrin	-									
Alpha-BHC	-									
Beta-BHC	660									
Delta-BHC	330									
Gamma-BHC*	500									
Chlordane	330									
4,4'-DDD	330									
4,4'-DDE	-									
4,4'-DDT	500									
Dieldrin	1000									
Endosulfan I	-									
Endosulfan II	-									
Endosulfan Sulfate	500									
Endrin	830									
Endrin Aldehyde	1000									

Table L-19
Site 8 - Soil
Page 4F

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW19-SS2	MW19-SS3	MW20-SS1	MW20 R-SS1	MW20 R-SS1 DUP	MW20-SS2	MW20-SS4
		Sample Depth, (ft):	6.5-7.5	9-10	0-2	0-2	0-2	6-8	15-20.5
		Sample Date:	8-10-88	8-10-88	8-5-88	8-31-88	8-31-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-8-MW19-SS2	DANGB-8-MW19-SS3	DANGB-8-MW20-SS1	DANGB-8-MW20-SS1	DANGB-8-MW20-SS5	DANGB-8-MW20-SS2	DANGB-8-MW20-SS4
		Lab Sample No.:	88081750	88081751	88081698	88092253	88092252	88081699	88081700
SEMIVOLATILE ORGANICS (SW 8270) Continued page 2									
Benzyl Alcohol	660						UJ		
Acetophenone	-						UJ		
Aniline	-						UJ		
4-Aminobyphenyl	-						UJ		
4-Chloroaniline	660						UJ		
1-Chloronapththalene	-						UJ		
Dibenzofuran	330						UJ		
p-Dimethylaminoazobenzene	-						UJ		
7,12-Dimethylbenz(a)anthracene	-						UJ		
a-,a-Dimethylphenethylamine	-						UJ		
Diphenylamine	-						UJ		
1,2-Diphenylhydrazine	-						UJ		
Ethylmethanesulfonate	-						UJ		
3-Methylcholanthrene	-						UJ		
Methylmethanesulfonate	-						UJ		
2-Methylnaphthalene	330		Note 1.	Note 1.	Note 1.	Note 1.	UJ	Note 1.	Note 1.
1-Naphthylamine	-						UJ		
2-Naphthylamine	-						UJ		
2-Nitroaniline	1600						UJ		
3-Nitroaniline	1600						UJ		
4-Nitroaniline	1600						UJ		
N-Nitroso-di-n-butylamine	-						UJ		
N-Nitrosopiperidiene	-						UJ		
Pentachlorobenzene	-						UJ		
Pentachloronitrobenzene	-						UJ		
Phenacetin	-						UJ		
2-Picoline	-						UJ		
Pronamide	-						UJ		
1,2,4,5-Tetrachlorobenzene	-						UJ		
Aldrin	-						UJ		
Alpha-BHC	-						UJ		
Beta-BHC	660						UJ		
Delta-BHC	330						UJ		
Gamma-BHC	500						UJ		
Chlordane	330						UJ		
4,4'-DDD	330						UJ		
4,4'-DDE	-						UJ		
4,4'-DDT	500						UJ		
Dieldrin	1000						UJ		
Endosulfan I	-						UJ		
Endosulfan II	-						UJ		
Endosulfan Sulfate	500						UJ		
Endrin	830						UJ		
Endrin Aldehyde	1000						UJ		

Table L-19
Site 8 - Soil
Page 5A

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSA0	SSA0 DUP	SSA1	SSA2	SSA3	SSB0	SSB1	SSB2
		Sample Depth. (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-12-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No:	DANGB-8-SS-A0	DANGB-8-SS-G0	DANGB-8-SS-A1	DANGB-8-SS-A2	DANGB-8-SS-A3	DANGB-8-SS-B0	DANGB-8-SS-B1	DANGB-8-SS-B2
		Lab Sample No:	88071404	88071394	880713999	88071387	88071384	88071397	88071403	88071385
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Heptachlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	-		NR	NR	NR	NR	NR	NR	NR	NR
Kepone	2000		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1016	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1221	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1232	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1242	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1248	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1254	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1260	2000		NR	NR	NR	NR	NR	NR	NR	NR
2-Chlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitrophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dimethylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloro-3-methylphenol	660		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dichlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methyl-4,6-dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Benzoic Acid	1600		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
3&4-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2,4,5-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 5B

	Method	Location/QC No:	SSB3	SSC0	SSC1	SSC2	SSC3	SSD0	SSD1	SSD2
	Detection	Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
	Limit	Sample Date:	7-10-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No.:	DANGB-8-SS-B3	DANGB 8-SS-C0	DANGB-8-SS-C1	DANGB-8-SS-C2	DANGB-8-SS-C3	DANGB-8-SS-D0	DANGB-8-SS-D1	DANGB-8-SS-D2
Parameter and Analysis Method		Lab Sample No.:	88071381	88071395	88071396	88071390	88071389	88071405	88071391	88071382
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Heptachlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	-		NR	NR	NR	NR	NR	NR	NR	NR
Kepone	2000		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1016	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1221	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1232	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1242	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1248	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1254	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1260	2000		NR	NR	NR	NR	NR	NR	NR	NR
2-Chlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitrophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dimethylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloro-3-methylphenol	660		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dichlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methyl-4,6-dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Benzoic Acid	1600		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
3&4-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2,4,5-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR

Table 1-19
Site 8 - Soil
Page 5C

	Method	Location/QC No:	SS-D2 DUP	SSD3	SSE0	SSE1	SSE2	SSE3	SSF0	SSF1
	Detection	Sample Depth. (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
	Limit	Sample Date:	7-11-88	7-11-88	7-12-88	7-12-88	7-12-88	7-11-88	7-12-88	7-12-88
		Field Sample No:	DANGB-8-SS-G2	DANGB-8-SS-D3	DANGB-8-SS-E0	DANGB-8-SS-E1	DANGB-8-SS-E2	DANGB-8-SS-E3	DANGB-8-SS-F0	DANGB-8-SS-F1
Parameter and Analysis Method		Lab Sample No:	88071388	88071383	88071406	88071400	88071393	88071386	88071401	88071398
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Heptachlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Heptachlor Epoxide	-		NR	NR	NR	NR	NR	NR	NR	NR
Kepone	2000		NR	NR	NR	NR	NR	NR	NR	NR
Methoxychlor	-		NR	NR	NR	NR	NR	NR	NR	NR
Toxaphene	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1016	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1221	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1232	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1242	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1248	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1254	2000		NR	NR	NR	NR	NR	NR	NR	NR
Aroclor-1260	2000		NR	NR	NR	NR	NR	NR	NR	NR
2-Chlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2-Nitrophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
Phenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dimethylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,4,6-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR
4-Chloro-3-methylphenol	660		NR	NR	NR	NR	NR	NR	NR	NR
2,4-Dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
2,6-Dichlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2-Methyl-4,6-dinitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Pentachlorophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
4-Nitrophenol	1600		NR	NR	NR	NR	NR	NR	NR	NR
Benzoic Acid	1600		NR	NR	NR	NR	NR	NR	NR	NR
2-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
3&4-Methylphenol	330		NR	NR	NR	NR	NR	NR	NR	NR
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR	NR	NR	NR	NR	NR
2,4,5-Trichlorophenol	330		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 5D

Parameter and Analysis Method	Method Detection Limit									
		Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7-12-88	7-12-88	7-11-88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
		Lab Sample No:	88071392	88071402	88071380	88081706	88081707	88081709	88092250	88092251
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Heptachlor	-		NR	NR	NR				UJ	UJ
Heptachlor Epoxide	-		NR	NR	NR				UJ	UJ
Kepone	2000		NR	NR	NR				UJ	UJ
Methoxychlor	-		NR	NR	NR				UJ	UJ
Toxaphene	2000		NR	NR	NR				UJ	UJ
Aroclor-1016	2000		NR	NR	NR				UJ	UJ
Aroclor-1221	2000		NR	NR	NR				UJ	UJ
Aroclor-1232	2000		NR	NR	NR				UJ	UJ
Aroclor-1242	2000		NR	NR	NR				UJ	UJ
Aroclor-1248	2000		NR	NR	NR				UJ	UJ
Aroclor-1254	2000		NR	NR	NR				UJ	UJ
Aroclor-1260	2000		NR	NR	NR				UJ	UJ
2-Chlorophenol	330		NR	NR	NR	Note 1.	Note 1.	Note 1.	UJ	UJ
2-Nitrophenol	330		NR	NR	NR				UJ	UJ
Phenol	330		NR	NR	NR				UJ	UJ
2,4-Dimethylphenol	330		NR	NR	NR				UJ	UJ
2,4-Dichlorophenol	330		NR	NR	NR				UJ	UJ
2,4,6-Trichlorophenol	330		NR	NR	NR				UJ	UJ
4-Chloro-3-methylphenol	660		NR	NR	NR				UJ	UJ
2,4-Dinitrophenol	1600		NR	NR	NR				UJ	UJ
2,6-Dichlorophenol	-		NR	NR	NR				UJ	UJ
2-Methyl-4,6-dinitrophenol	1600		NR	NR	NR				UJ	UJ
Pentachlorophenol	1600		NR	NR	NR				UJ	UJ
4-Nitrophenol	1600		NR	NR	NR				UJ	UJ
Benzoic Acid	1600		NR	NR	NR				UJ	UJ
2-Methylphenol	330		NR	NR	NR				UJ	UJ
3&4-Methylphenol	330		NR	NR	NR				UJ	UJ
2,3,4,6-Tetrachlorophenol	-		NR	NR	NR				UJ	UJ
2,4,5-Trichlorophenol	330		NR	NR	NR				UJ	UJ

Table L-19
Site 8 - Soil
Page 5E

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	MW14-SS8	MW16-SS1	MW16-SS2	MW16-SS6	MW18-SS1	MW18-SS2	MW18-SS3	MW19-SS1
		Sample Depth, (ft):	38-40	0-1	4-5	29-30	0-2	8-11	14-15	0-2
		Sample Date:	8-8-88	8-10-88	8-10-88	8-10-88	8-5-88	8-5-88	8-5-88	8-10-88
		Field Sample No:	DANGB-8-MW14-SS8	DANGB-8-MW16-SS1	DANGB-8-MW16-SS2	DANGB-8-MW16-SS6	DANGB-8-MW18-SS1	DANGB-8-MW18-SS2	DANGB-8-MW18-SS3	DANGB-8-MW19-SS1
		Lab Sample No:	88081708	88081752	88081753	88081754	88081695	88081696	88081697	88081749
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3										
Heptachlor	-									
Heptachlor Epoxide	-									
Kepone	2000									
Methoxychlor	-									
Toxaphene	2000									
Aroclor-1016	2000									
Aroclor-1221	2000									
Aroclor-1232	2000									
Aroclor-1242	2000									
Aroclor-1248	2000									
Aroclor-1254	2000									
Aroclor-1260	2000									
2-Chlorophenol	330		Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.	Note 1.
2-Nitrophenol	330									
Phenol	330									
2,4-Dimethylphenol	330									
2,4-Dichlorophenol	330									
2,4,6-Trichlorophenol	330									
4-Chloro-3-methylphenol	660									
2,4-Dinitrophenol	1600									
2,6-Dichlorophenol	-									
2-Methyl-4,6-dinitrophenol	1600									
Pentachlorophenol	1600									
4-Nitrophenol	1600									
Benzoic Acid	1600									
2-Methylphenol	330									
3&4-Methylphenol	330									
2,3,4,6-Tetrachlorophenol	-									
2,4,5-Trichlorophenol	330									

Table L-19
Site 8 - Soil
Page 5F

Parameter and Analysis Method	Method Detection Limit								
		Location/QC No:	MW19-SS2	MW19-SS3	MW20-SS1	MW20 R-SS1	MW20 R-SS1 DUP	MW20-SS2	MW20-SS4
		Sample Depth, (ft):	6.5-7.5	9-10	0-2	0-2	0-2	6-8	15-20.5
		Sample Date:	8-10-88	8-10 88	8-5-88	8-31-88	8-31-88	8-5-88	8-5-88
		Field Sample No.:	DANGB-8-MW19-SS2	DANGB-8-MW19-SS3	DANGB-8-MW20-SS1	DANGB-8-MW20-SS1	DANGB-8-MW20-SS5	DANGB-8-MW20-SS2	DANGB-8-MW20-SS4
		Lab Sample No.:	88081750	88081751	88081698	88092253	88092252	88081699	88081700
SEMIVOLATILE ORGANICS (SW 8270) Continued page 3									
Heptachlor	-						UJ		
Heptachlor Epoxide	-						UJ		
Kepone	2000						UJ		
Methoxychlor	-						UJ		
Toxaphene	2000						UJ		
Aroclor-1016	2000						UJ		
Aroclor-1221	2000						UJ		
Aroclor-1232	2000						UJ		
Aroclor-1242	2000						UJ		
Aroclor-1248	2000						UJ		
Aroclor-1254	2000						UJ		
Aroclor-1260	2000						UJ		
2-Chlorophenol	330		Note 1.	Note 1.	Note 1.	Note 1.	UJ	Note 1.	Note 1.
2-Nitrophenol	330						UJ		
Phenol	330						UJ		
2,4-Dimethylphenol	330						UJ		
2,4-Dichlorophenol	330						UJ		
2,4,6-Trichlorophenol	330						UJ		
4-Chloro-3-methylphenol	660						UJ		
2,4-Dinitrophenol	1600						UJ		
2,6-Dichlorophenol	-						UJ		
2-Methyl-4,6-dinitrophenol	1600						UJ		
Pentachlorophenol	1600						UJ		
4-Nitrophenol	1600						UJ		
Benzoic Acid	1600						UJ		
2-Methylphenol	330						UJ		
3&4-Methylphenol	330						UJ		
2,3,4,6-Tetrachlorophenol	-						UJ		
2,4,5-Trichlorophenol	330						UJ		

Table L-19
Site 8 - Soil
Page 6A

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	SSA0 0-2 7-12-88 DANGB-8-SS-A0 88071404	SSA0 DUP 0-2 7-12-88 DANGB-8-SS-G0 88071394	SSA1 0-2 7-12-88 DANGB-8-SS-A1 880713999	SSA2 0-2 7-11-88 DANGB-8-SS-A2 88071387	SSA3 0-2 7-11-88 DANGB-8-SS-A3 88071384	SSB0 0-2 7-12-88 DANGB-8-SS-B0 88071397	SSB1 0-2 7-12-88 DANGB-8-SS-B1 88071403	SSB2 0-2 7-11-88 DANGB-8-SS-B2 88071385
PESTICIDES AND PCB's (SW 8080)										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Aldrin	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	0.10		UJ	UJ	25	UJ	180	21	31	UJ
4,4'-DDE	0.10		UJ	UJ	27	UJ	130	18	UJ	UJ
4,4'-DDT	0.20		UJ	UJ	110	74	1500	UJ	71	UJ
Dieldrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1016	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1221	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1232	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1242	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1248	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1254	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1260	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: mg/kg	100		1540	3040	740	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: Weight percent			17.7	19.1	5.5	5.6	8.5	6	5.7	14.3
METALS (Units: mg/kg)										
Data Package										
Barium (SW 6010)	5		NR	NR	NR	NR	NR	NR	NR	NR
Cadmium (SW 7131)	10		NR	NR	NR	NR	NR	NR	NR	NR
Chromium (SW 7191)	5		NR	NR	NR	NR	NR	NR	NR	NR
Lead(SW 7421)	0.2		NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 6B

Parameter and Analysis Method	Method Detection Limit	Location/QC No:	SSB3	SSC0	SSC1	SSC2	SSC3	SSD0	SSD1	SSD2
		Sample Depth, (ft):	0-2	0-2	0-2	0-2	0-2	0-2	0-2	0-2
		Sample Date:	7-10-88	7-12-88	7-12-88	7-11-88	7-11-88	7-12-88	7-12-88	7-11-88
		Field Sample No.:	DANGB-8-SS-B3	DANGB 8-SS-C0	DANGB-8-SS-C1	DANGB-8-SS-C2	DANGB-8-SS-C3	DANGB-8-SS-D0	DANGB-8-SS-D1	DANGB-8-SS-D2
		Lab Sample No.:	88071381	88071395	88071396	88071390	88071389	88071405	88071391	88071382
PESTICIDES AND PCB's (SW 8080)										
Data Package*			#59	#59	#59	#59	#59	#59	#59	#59
Aldrin	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	0.10		UJ	UJ	33	UJ	UJ	UJ	UJ	UJ
Endosulfan I	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1016	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1221	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1232	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1242	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1248	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1254	1.0		UJ	UJ	UJ	UJ	UJ	UJ	330	UJ
PCB-1260	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: mg/kg	100		<100	<100	<100	<100	<100	<100	<100	<100
MOISTURE										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: Weight percent			13.3	5.6	4.8	6.3	10.5	5.3	4.8	5.8
METALS (Units: mg/kg)										
Data Package										
Barium (SW 6010)			NR	NR	NR	NR	NR	NR	NR	NR
Cadmium (SW 7131)			NR	NR	NR	NR	NR	NR	NR	NR
Chromium (SW 7191)			NR	NR	NR	NR	NR	NR	NR	NR
Lead(SW 7421)			NR	NR	NR	NR	NR	NR	NR	NR

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	SSD2 DUP 0-2 7-11-88 DANGB-8-SS-G2 88071388	SSD3 0-2 7-11-88 DANGB-8-SS-D3 88071383	SSE0 0-2 7-12-88 DANGB-8-SS-E0 88071406	SSE1 0-2 7-12-88 DANGB-8-SS-E1 88071400	SSE2 0-2 7/12/88 DANGB-8-SS-E2 88071393	SSE3 0-2 7/11/88 DANGB-8-SS-E3 88071386	SSF0 0-2 7/12/88 DANGB-8-SS-F0 88071401	SSF1 0-2 7/12/88 DANGB-8-SS-F1 88071398
PESTICIDES AND PCB's (SW 8080)										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Aldrin	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	20
Dieldrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1016	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1221	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1232	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1242	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1248	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1254	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1260	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ	UJ
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: mg/kg			<100	<100	<100	<100	<100	<100	480	<100
MOISTURE										
Data Package			#59	#59	#59	#59	#59	#59	#59	#59
Units: Weight percent			5.6	7.3	4.6	3.3	3.8	38.3	8.7	4.4
METALS (Units: mg/kg)										
Data Package										
Barium (SW 6010)			NR	NR	NR	NR	NR	NR	NR	NR
Cadmium (SW 7131)			NR	NR	NR	NR	NR	NR	NR	NR
Chromium (SW 7191)			NR	NR	NR	NR	NR	NR	NR	NR
Lead(SW 7421)			NR	NR	NR	NR	NR	NR	NR	NR

Table L-19
Site 8 - Soil
Page 6D

	Method Detection Limit	Location/QC No:	SSF1 DUP	SSF2	SSF3	MW14-SS1	MW14-SS3	MW14-SS3 DUP	MW14 R-SS3	MW14 R-SS3 DUP
		Sample Depth, (ft):	0-2	0-2	0-2	0-1	10-12	10-12	10-12	10-12
		Sample Date:	7/12/88	7/12/88	7/11/88	8-8-88	8-8-88	8-8-88	8-31-88	8-31-88
		Field Sample No.:	DANGB-8-SS-G1	DANGB-8-SS-F2	DANGB-8-SS-F3	DANGB-8-MW14-SS1	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9	DANGB-8-MW14-SS3	DANGB-8-MW14-SS9
Parameter and Analysis Method		Lab Sample No.:	88071392	88071402	88071380	88081706	88081707	88081709	88092250	88092251
PESTICIDES AND PCB's (SW 8080)										
Data Package			#59	#59	#59				#29	#29
Aldrin	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Alpha-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Beta-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Delta-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Gamma-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Chlordane	0.5		U!	U!	U!	U!	U!	U!	U!	U!
4,4'-DDD	0.10		U!	U!	29	U!	U!	U!	U!	U!
4,4'-DDE	0.10		U!	U!	33	U!	U!	U!	U!	U!
4,4'-DDT	0.10		95	24	77	U!	U!	U!	U!	U!
Dieldrin	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan I	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan II	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan Sulfate	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endrin	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Heptachlor	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Heptachlor Epoxide	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Methoxychlor	0.5		U!	U!	U!	U!	U!	U!	U!	U!
Toxaphene	1.0		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1016	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1221	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1232	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1242	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1248	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1254	1.0		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1260	1.0		U!	U!	U!	U!	U!	U!	U!	U!
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#59	#59	#59	#30		#30 Note 3	#29	#29
Units: mg/kg	100		<100	<100	<100	<100	Note 2	<100	<10	<10
MOISTURE										
Data Package			#59	#59	#59	#30		#30 Note 3	#29	#29
Units: Weight percent			5	5.9	7.2	12.2	Note 2	12.2	8.7	9.1
METALS (Units: mg/kg)										
Data Package						#30		#30 Note 3	#29	#29
Barium (SW 6010)			NR	NR	NR	49.9	Note 2	39.5	56.6	61.3
Cadmium (SW 7131)			NR	NR	NR	6.7 * N	Note 2	9.2 * N	10.3 N	10.1 N
Chromium (SW 7191)			NR	NR	NR	24.6	Note 2	20.5	41	43.2
Lead(SW 7421)			NR	NR	NR	9.1S	Note 2	5.3 S	11.4 N	11.4 N

Table L-19
Site 8 - Soil
Page 6B

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No: Lab Sample No:	MW14-SS8 38-40 8-8-88 DANGB-8-MW14-SS8 88081708	MW16-SS1 0-1 8-10-88 DANGB-8-MW16-SS1 88081752	MW16-SS2 4-5 8-10-88 DANGB-8-MW16-SS2 88081753	MW16-SS6 29-30 8-10-88 DANGB-8-MW16-SS6 88081754	MW18-SS1 0-2 8-5-88 DANGB-8-MW18-SS1 88081695	MW18-SS2 8-11 8-5-88 DANGB-8-MW18-SS2 88081696	MW18-SS3 14-15 8-5-88 DANGB-8-MW18-SS3 88081697	MW19-SS1 0-2 8-10-88 DANGB-8-MW19-SS1 88081749
PESTICIDES AND PCB's (SW 8080)										
Data Package				#27	#27	#27	#31	#31	#31	#27
Aldrin	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Alpha-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Beta-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Delta-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Gamma-BHC	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Chlordane	0.5		U!	U!	U!	U!	U!	U!	U!	U!
4,4'-DDD	0.10		U!	U!	U!	U!	U!	U!	U!	U!
4,4'-DDE	0.10		U!	U!	U!	U!	U!	U!	U!	U!
4,4'-DDT	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Dieldrin	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan I	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan II	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endosulfan Sulfate	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Endrin	0.10		U!	U!	U!	U!	U!	U!	U!	U!
Heptachlor	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Heptachlor Epoxide	0.05		U!	U!	U!	U!	U!	U!	U!	U!
Methoxychlor	0.5		U!	U!	U!	U!	U!	U!	U!	U!
Toxaphene	1.0		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1016	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1221	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1232	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1242	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1248	0.5		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1254	1.0		U!	U!	U!	U!	U!	U!	U!	U!
PCB-1260	1.0		U!	U!	U!	U!	U!	U!	U!	U!
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)										
Data Package			#30	#27	#27	#27	#31	#31	#31	#27
Units: mg/kg	100		<100	<100	<100	<100	<100	160	<100	<100
MOISTURE										
Data Package			#30	#27	#27	#27	#31	#31	#31	#27
Units: Weight percent			18.1	27.9	26.3	14.8	6	12.5	12.9	17.8
METALS (Units: mg/kg)										
Data Package			#30	#27	#27	#27	#31	#31	#31	#27
Barium (SW 6010)			18.9 B	20	24.4	24.7	31.8	51.1	70.7	37.8
Cadmium (SW 7131)			13.9 * N	6.2 * N	7.3 * N	10.1 * N	10.1 N	11.5 N	10.3 N	9.9 * N
Chromium (SW 7191)			36.5	20	24.4	21.5	25.6 N	40.5 N	30.3 N	37.8
Lead(SW 7421)			3.5 S	10.6 S	8.1 S	4.7 S	3.6 S N	5.3 N	5.3 S N	7.7 S

Table L-19
Site 8 - Soil
Page 6F

Parameter and Analysis Method	Method Detection Limit	Location/QC No: Sample Depth, (ft): Sample Date: Field Sample No.: Lab Sample No.:	MW19-SS2 6.5-7.5 8-10-88 DANGB-8-MW19-SS2 88081750	MW19-SS3 9-10 8-10-88 DANGB-8-MW19-SS3 88081751	MW20-SS1 0-2 8-5-88 DANGB-8-MW20-SS1 88081698	MW20 R-SS1 0-2 8-31-88 DANGB-8-MW20-SS1 88092253	MW20 R-SS1 DUP 0-2 8-31-88 DANGB-8-MW20-SS5 88092252	MW20-SS2 6-8 8-5-88 DANGB-8-MW20-SS2 88081699	MW20-SS4 15-20.5 8-5-88 DANGB-8-MW20-SS4 88081700
PESTICIDES AND PCB's (SW 8080)									
Data Package			#27	#27	#31	#29	#29	#31	#31
Aldrin	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Alpha-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Beta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Delta-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Gamma-BHC	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Chlordane	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDD	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDE	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
4,4'-DDT	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Dieldrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan I	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan II	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endosulfan Sulfate	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Endrin	0.10		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Heptachlor Epoxide	0.05		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Methoxychlor	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
Toxaphene	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1016	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1221	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1232	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1242	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1248	0.5		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1254	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ
PCB-1260	1.0		UJ	UJ	UJ	UJ	UJ	UJ	UJ
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#27	#27		#29	#29	#31	#31
Units: mg/kg	100		<100	<100	Note 4	<10	20	<100	<100
MOISTURE									
Data Package			#27	#27		#29	#29	#31	#31
Units: Weight percent			8.4	9.2	Note 4	11.6	10.8	16.5	8.3
METALS (Units: mg/kg)									
Data Package			#27	#27		#29	#29	#31	#31
Barium (SW 6010)			43.4	25	Note 4	146	82.1	56.5	27.2
Cadmium (SW 7131)			14.4 * N	9.6 * N	Note 4	9.0 N	8.6 N	9.0 N	11.0 N
Chromium (SW 7191)			43.4	25	Note 4	38.6	37.8	30.2 N	24.9 N
Lead(SW 7421)			4.4 S	6.4 S	Note 4	12.1	10.5	4.9 N	3.2 N

Note 1. Analysis was erroneously requested on chain of custody. Error was recognized by the laboratory and analysis was not performed.

Note 2. This sample was lost before all analyses were complete. The interval was resampled, see MW 14 3R-SS3. All data are presented.

Note 3. This was a duplicate sample of MW14-SS3 which was lost before all analyses were complete, see Note 2. The interval was resampled, and a new duplicate was also obtained, see MW 14 R-SS3 DUP. The instructions on the Chain-of-Custody Data Package #29, said to discard MW 14-SS3 DUP. It was not. All results are presented.

Note 4. The sample jar for this analysis was broken in shipment. The interval was resampled, see MW20 R-SS1.

Note 5. Analysis was erroneously requested on the chain of custody form. The laboratory did not recognize the error and the analysis was performed.

DUP Duplicate
B For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N For metals the percentage recovery of the spiked sample was not within the control limits.
NR The analysis was not requested.
U Undetected. The parameter was analyzed for but was not detected. A value, if given, is the corrected sample quantitation limit.
* Duplicate not within control limits.
! The holding time was missed for this analysis. See Appendix N.
< Less than.
\- The EPA has not yet reported on a method detection limit for this parameter.

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TABLE L-20
SITE 8
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
(Results in micrograms per liter unless otherwise noted.)

	Method	Well/QC No.:	GW 8-A	GW 8-B	GW 8-C	MW14	MW14 DUP	MW14 FB	MW15
	Detection	Date Sampled:	9-10-88	9-10-88	9-9-88	9-8-88	9-8-88	9-8-88	9-9-88
	Limit	Field Sample No.:	DANGB-8-GW8A-GW-1	DANGB-8-GW8B-GW-1	DANGB-GW8C-GW-1	DANGB-8-MW14-GW-1	DANGB-8-MW51-GW-1	DANGB-FB3	DANGB-8-MW15-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092327	88092323	88092313	88092303	88092304	88092309	88092317
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#33	#33	#34	#47	#47	#47	#34
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		U	U	U	U	U	15	U
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		1.6 B	0.46 B	2.2 B	1.7 B	1.3 B	U	2.8 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-20
Site 8 - Ground Water
Page 1B

	Method	Well/QC No.:	MW15 FB	MW16	MW17	MW17 FB	TB1	BR1	BR2
	Detection	Date Sampled:	9-9-88	9-9-88	9-9-88	9-9-88	9-9-88	9-10-88	9-9-88
	Limit	Field Sample No.:	DANGB-FB4	DANGB-8-MW16-GW-1	DANGB-8-MW17-GW-1	DANGB-FB5	DANGB-TB2	DANGB-BR3	DANGB-BR2
Parameter and Analysis Method		Lab Sample No.:	88092331	88092315	88092314	88092332	88092331	88092330	88092316
HALOGENATED VOLATILE ORGANICS (SW 8010)									
Data Package			#43	#34	#34	#43	#43	#33	#34
Benzyl Chloride	0.50		U	U	U	U	U	U	U
Bis(2-chloroethoxy)methane	5.0		U	U	U	U	U	U	U
Bis(2-chloroisopropyl)ether	5.0		U	U	U	U	U	U	U
Bromobenzene	0.50		U	U	U	U	U	U	U
Bromodichloromethane	0.10		U	U	U	U	U	U	U
Bromoform	0.20		U	U	U	U	U	U	U
Bromoethane	1.2		U	U	U	U	U	U	U
Carbon Tetrachloride	0.12		U	U	U	U	U	U	U
Chloracetaldehyde	50.0		U	U	U	U	U	U	U
Chloral	50.0		U	U	U	U	U	U	U
Chlorobenzene	0.25		U	U	U	U	U	U	U
Chloroethane	0.52		U	U	U	U	U	U	U
Chloroform	0.05		13	0.14 B	0.16 B	14	13	0.59 B	0.65 B
1-Chlorohexane	0.50		U	U	U	U	U	U	U
2-Chloroethyl Vinyl Ether	0.13		U	U	U	U	U	U	U
Chloromethane	0.08		U	U	U	U	U	U	U
Chloromethyl Methyl Ether	5.0		U	U	U	U	U	U	U
Chlorotoluene	0.50		U	U	U	U	U	U	U
Dibromochloromethane	0.09		U	U	U	U	U	U	U
Dibromoethane	0.50		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.15		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.32		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.24		U	U	U	U	U	U	U
Dichlorodifluoromethane	1.8		U	U	U	U	U	U	U
1,1-Dichloroethane	0.07		U	U	U	U	U	U	U
1,2-Dichloroethane	0.03		U	U	U	U	U	U	U
1,1-Dichloroethene	0.13		U	U	U	U	U	U	U
Trans-1,2-Dichloroethene	0.10		U	U	U	U	U	U	U
Dichloromethane	0.25		2.5 B	0.12 B	0.77 B	1.4 B	1.9 B	1.7 B	6.6 B
1,2-Dichloropropane	0.04		U	U	U	U	U	U	U
1,3-Dichloropropylene	0.34		U	U	U	U	U	U	U
1,1,2,2-Tetrachloroethane	0.03		U	U	U	U	U	U	U
1,1,1,2-Tetrachloroethane	0.50		U	U	U	U	U	U	U
Tetrachloroethene	0.03		U	U	U	U	U	U	U
1,1,1-Trichloroethane	0.03		U	U	U	U	U	U	U
1,1,2-Trichloroethane	0.02		U	U	U	U	U	U	U
Trichloroethene	0.12		U	U	U	U	U	U	U
Trichlorofluoromethane	0.50		U	U	U	U	U	U	U
Trichloropropane	0.50		U	U	U	U	U	U	U
Vinyl Chloride	0.18		U	U	U	U	U	U	U

Table L-20
Site 8 - Ground Water
Page 2A

	Method Detection Limit	Well/QC No.:	GW 8-A	GW 8-B	GW 8-C	MW14	MW14 DUP	MW14 FB	MW15
		Date Sampled:	9-10-88	9-10-88	9-9-88	9-8-88	9-8-88	9-8-88	9-9-88
		Field Sample No.:	DANGB-8-GW8A-GW-1	DANGB-8-GW8B-GW-1	DANGB GW8C-GW-1	DANGB-8-MW14-GW-1	DANGB-8-MW51-GW-1	DANGB-FB3	DANGB-8-MW15-GW-1
Parameter and Analysis Method		Lab Sample No.:	88092327	88092323	88092313	88092303	88092304	88092309	88092317
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#33	#33	#34	#47	#47	#47	#34
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-20
Site 8 - Ground Water
Page 2B

	Method Detection Limit	Well/QC No.:	MW15 FB	MW16	MW17	MW17 FB	TB1	BR1	BR2
		Date Sampled:	9-9-88	9-9-88	9-9-88	9-9-88	9-9-88	9-10-88	9-9-88
		Field Sample No.:	DANGB-FB4	DANGB-8-MW16-GW-1	DANGB-8-MW17-GW-1	DANGB-FB5	DANGB-TB2	DANGB-BR3	DANGB-BR2
Parameter and Analysis Method		Lab Sample No.:	88092331	88092315	88092314	88092332	88092331	88092330	88092316
AROMATIC VOLATILE ORGANICS (SW 8020)									
Data Package			#43	#34	#34	#43	#43	#33	#34
Benzene	0.2		U	U	U	U	U	U	U
Chlorobenzene	0.2		U	U	U	U	U	U	U
1,2-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,3-Dichlorobenzene	0.4		U	U	U	U	U	U	U
1,4-Dichlorobenzene	0.3		U	U	U	U	U	U	U
Ethyl Benzene	0.2		U	U	U	U	U	U	U
Toluene	0.2		U	U	U	U	U	U	U
Total Xylenes	0.4		U	U	U	U	U	U	U

Table L-20
Site 8 - Ground Water
Page 3A

Parameter and Analysis Method	Method Detection Limit								
		Well/QC No.:	GW 8-A	GW 8-B	GW 8-C	MW14	MW14 DUP	MW14 FB	MW15
		Date Sampled:	9-10-88	9-10-88	9-9-88	9-8-88	9-8-88	9-8-88	9-9-88
		Field Sample No.:	DANGB-8-GW8A-GW-1	DANGB-8-GW8B-GW-1	DANGB-GW8C-GW-1	DANGB-8-MW14-GW-1	DANGB-8-MW51-GW-1	DANGB-FB3	DANGB-8-MW15-GW-1
		Lab Sample No.:	88092327	88092323	88092313/ 88092620	88092303	88092304	88092309	88092317
PESTICIDES AND PCB's (EPA 608)									
Data Package			#33	#33	#34	#47	#47		#34
Aldrin	0.05		U	U	U	U	U	NR	U
Alpha-BHC	0.05		U	U	U	U	U	NR	U
Beta-BHC	0.05		U	U	U	U	U	NR	U
Delta-BHC	0.05		U	U	U	U	U	NR	U
Gamma-BHC	0.05		U	U	U	U	U	NR	U
Chlorodane	0.5		U	U	U	U	U	NR	U
4,4'-DDD	0.10		U	U	U	U	U	NR	U
4,4'-DDE	0.10		U	U	U	U	U	NR	U
4,4'-DDT	0.10		U	U	U	U	U	NR	U
Dieldrin	0.10		U	U	U	U	U	NR	U
Endosulfan I	0.05		U	U	U	U	U	NR	U
Endosulfan II	0.10		U	U	U	U	U	NR	U
Endosulfan Sulfate	0.10		U	U	U	U	U	NR	U
Endrin	0.10		U	U	U	U	U	NR	U
Heptachlor	0.05		U	U	U	U	U	NR	U
Heptachlor Epoxide	0.05		U	U	U	U	U	NR	U
Methoxychlor	0.5		U	U	U	U	U	NR	U
Toxaphene	1.0		U	U	U	U	U	NR	U
PCB-1016	0.5		U	U	U	U	U	NR	U
PCB-1221	0.5		U	U	U	U	U	NR	U
PCB-1232	0.5		U	U	U	U	U	NR	U
PCB-1242	0.5		U	U	U	U	U	NR	U
PCB-1248	0.5		U	U	U	U	U	NR	U
PCB-1254	1.0		U	U	U	U	U	NR	U
PCB-1260	1.0		U	U	U	U	U	NR	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package			#33	#33	#12	#47	#47		#34
Units: mg/L	1.5		<1.5	<1.5	<1.5	<1.5	<1.5	NR	U
METALS (Units: mg/L)									
Data Package			#33	#33	#34	#47	#47		#34
Barium (SW 6010)			0.01 B N	0.05 B N	0.22 N	<0.05 N	<0.05 N	NR	<0.05 N
Cadmium (SW 7131)			<0.001	<0.001	<0.001	<0.001	<0.001	NR	<0.001 W
Chromium (SW 7191)			<0.002	<0.002	0.0027 B	0.0024 B	0.0020 B	NR	<0.002 W
Lead (SW 7421)			<0.005	<0.005	<0.005	<0.005	<0.005	NR	<0.005
SPECIFIC CONDUCTANCE (120.1)									
Units: mS/cm @ 25°C			1.281	1.633	1.168	0.339	0.339	NR	0.443
TEMPERATURE (EPA 170.1)									
Units: °C			12.2	12.2	15.4	9.8	9.8	NR	12.3
pH (EPA 150.1)									
Units: pH Units			7.01	7.45	6.69	7.07	7.07	NR	7.03

Table L-20
Site 8 - Ground Water
Page 3B

	Method Detection Limit	Well/QC No.:	MW15 FB	MW16	MW17	MW17 FB	TB1	BR1	BR2
		Date Sampled:	9-9-88	9-9-88	9-9-88	9-9-88	9-9-88	9-10-88	9-9-88
		Field Sample No.:	DANGB-FB4	DANGB-8-MW16-GW-1	DANGB-8-MW17-GW-1	DANGB-FB5	DANGB-TB2	DANGB-BR3	DANGB-BR2
Parameter and Analysis Method		Lab Sample No.:	88092331	88092315	88092314	88092332	88092331	88092339	88092316
PESTICIDES AND PCB's (EPA 608)									
Data Package				#34	#34			#33	#34
Aldrin	0.05		NR	U	U	NR	NR	U	U
Alpha-BHC	0.05		NR	U	U	NR	NR	U	U
Beta-BHC	0.05		NR	U	U	NR	NR	U	U
Delta-BHC	0.05		NR	U	U	NR	NR	U	U
Gamma-BHC	0.05		NR	U	U	NR	NR	U	U
Chlorodane	0.5		NR	U	U	NR	NR	U	U
4,4'-DDD	0.10		NR	U	U	NR	NR	U	U
4,4'-DDE	0.10		NR	U	U	NR	NR	U	U
4,4'-DDT	0.10		NR	U	U	NR	NR	U	U
Dieldrin	0.10		NR	U	U	NR	NR	U	U
Endosulfan I	0.05		NR	U	U	NR	NR	U	U
Endosulfan II	0.10		NR	U	U	NR	NR	U	U
Endosulfan Sulfate	0.10		NR	U	U	NR	NR	U	U
Endrin	0.10		NR	U	U	NR	NR	U	U
Heptachlor	0.05		NR	U	U	NR	NR	U	U
Heptachlor Epoxide	0.05		NR	U	U	NR	NR	U	U
Methoxychlor	0.5		NR	U	U	NR	NR	U	U
Toxaphene	1.0		NR	U	U	NR	NR	U	U
PCB-1016	0.5		NR	U	U	NR	NR	U	U
PCB-1221	0.5		NR	U	U	NR	NR	U	U
PCB-1232	0.5		NR	U	U	NR	NR	U	U
PCB-1242	0.5		NR	U	U	NR	NR	U	U
PCB-1248	0.5		NR	U	U	NR	NR	U	U
PCB-1254	1.0		NR	U	U	NR	NR	U	U
PCB-1260	1.0		NR	U	U	NR	NR	U	U
TOTAL PETROLEUM HYDROCARBONS (EPA 418.1)									
Data Package				#34	#34			#33	#34
Units: mg/L	1.5			<1.5	<1.5	<1.5	NR	U	U
METALS (Units: mg/L)									
Data Package				#34	#34			#33	#34
Barium (SW 6010)			NR	<0.05 N	0.15 B N	NR	NR	0.05 B N	0.05 N
Cadmium (SW 7131)			NR	<0.001	<0.001	NR	NR	<0.001	<0.001 W
Chromium (SW 7191)			NR	0.0021 B	0.0027 B	NR	NR	<0.002	<0.002
Lead (SW 7421)			NR	<0.005	<0.005	NR	NR	<0.005	<0.005
SPECIFIC CONDUCTANCE (120.1)									
Units: mS/cm @ 25°C			NR	0.508	0.872	NR	NR	NR	NR
TEMPERATURE (EPA 170.1)									
Units: °C			NR	8.8	9.9	NR	NR	NR	NR
pH (EPA 150.1)									
Units: pH Units			NR	8.62	7.23	NR	NR	NR	NR

FB	Field blank.
TB	Trip blank.
BR	Bailer rinseate.
Data Package #	Numbers refer to Data Packages in Appendix M.
B	For organic analyses, the parameter was detected in the laboratory blank as well as the sample. For metals analyses, the reported value is less than the Contract Required Detection Limit, but greater than the Instrument Detection Limit.
N	For metals the percentage recovery of the spiked sample was not within the control limits.
NR	The analysis was not requested.
W	The analysis spike, a spike added to the sample digestate had a percent recovery out of control limits (85-115 percent), and the sample absorbance is less than 50 percent of the spike.
<	Less than.

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TABLE L-21
SITE 10
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
SAMPLING ROUND 1

Parameter and Analysis				
Well/QC No.:	GW 10-A	GW 10-B	GW 10-B DUP	GW 10-C
Date Sampled:	9-23-88	9-23-88	9-23-88	9-23-88
Field Sample No.:	DANGB-10-GW10A-GW-1	DANGB-10-GW10B-GW-1	DANGB-10-GW10D-GW-1	DANGB-10-GW10C-GW-1
Lab Sample No.:	P0101428/ P0108293	P0101431/ P01P08296	P0101430/ P0108295	P0101432/ P0108297
RADIOLOGICAL PARAMETERS Units: pCi/L				
Data Package	#66	#66	#66	#66
Gross Alpha (SW 9310)	33 +/- 10	10 +/- 5	<20	7.0 +/- 3
Gross Beta (SW 9310)	150 +/- 30	78 +/- 9	34 +/- 14	11 +/- 4
Radium 226 (SW 9315)	4.4 +/- 0.6	1.4 +/- 0.3	2.4 +/- 0.4	0.3 +/- 0.2
Tritium (EPA 906.0)	< 2000	< 2000	< 2000	< 2000
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C	0.716	0.656	0.656	0.656
TEMPERATURE (EPA 170.1) Units: °C	9.9	10.7	10.7	10.5
pH (EPA 150.1) Units: pH Units	7.10	7.02	7.02	6.96

DUP Duplicate.
Data Package # Numbers refer to Data Packages in Appendix M.
< Less than.
+/- Plus or minus.

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TABLE L-22
SITE 10
MINNESOTA AIR NATIONAL GUARD BASE
DULUTH, MINNESOTA
SUMMARY OF CHEMICAL ANALYSES FOR GROUND-WATER SAMPLES
SAMPLING ROUND 2

Well/QC No:	GW 10-A	GW 10-A DUP	GW 10-B	GW 10-C
Date Sampled:	2-26-89	2-26-89	2-26-89	2-26-89
Field Sample No:	DANGB-10-GW10A-GW-2	DANGB-10-GW10D-GW-2	DANGB-10-GW10B-GW-2	DANGB-10-GW10C-GW-1
Parameter and Analysis Lab Sample No:	03	04	02	01
RADIOLOGICAL PARAMETERS Units: pCi/L				
Data Package	#67	#67	#67	#67
Gross Alpha (SW 9310)	382 +/- 154	154 +/- 65	85 +/- 50	72 +/- 41
Gross Beta (SW 9310)	253 +/- 104	155 +/- 57	211 +/- 67	92 +/- 45
Radium 226 (SW 9315)	<0.6	<0.6	<0.6	<0.6
Radium 228 (SW 9320)	<2.5	<2.5	<2.4	<2.9
Tritium (EPA 906.0)	<339	<339	<339	<339
SPECIFIC CONDUCTANCE (EPA 120.1) Units: mS/cm @ 25°C	NA	NA	NA	NT
TEMPERATURE (EPA 170.1) Units: °C	NT	NT	-0.9	-0.6
pH (EPA 150.1) Units: pH Units	7.3	7.16	9.39	8.09

DUP Duplicate.
Data Package # Numbers refer to Data Packages in Appendix M.
NT Measurement not taken.
< Less than.
+/- Plus or minus.
NA Validity of measurement suspect due to equipment malfunction because of air temperatures of -10 to +5 F.

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This is the end of Appendix L.