WORKPLAN
FOR
BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT

MARINE CORPS BASE
CAMP LEJEUNE, NORTH CAROLINA

November 22, 2006

NCDENR Incident No.: Pending
Navy Contract No.: N62470-05-D-6200
Delivery Order No.: 0016
CATLIN Project No.: 205-077

Prepared by:

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WORKPLAN
FOR
BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT

CATLIN PROJECT NO.: 205-077

November 22, 2005

1.0 INTRODUCTION

1.1 PURPOSE OF INVESTIGATION

The purpose of this Workplan is to serve as a procedural manual for performing tasks necessary to conduct a Phase I Limited Site Assessment (LSA) at the Building AS-3504 project site. The Building AS-3504 project site is located aboard the Marine Corps Air Station (MCAS), Camp Lejeune, North Carolina. Please refer to Figure 1 for a site vicinity map.

The Phase I LSA will provide a preliminary assessment of soil and groundwater contamination in the vicinity of the former fuel dispenser island at the Building AS-3504 project site. The former fuel dispenser island was located approximately 30-feet to the east of the southern portion of Building AS-3504 (see Figure 2). On August 27, 2006, Shaw E&I collected eight (8) soil samples for laboratory analysis in the vicinity of the former fuel dispenser island. Each soil sample was analyzed per EPA Methods 3550, 5030, and 8015. Analytical results indicated two samples in the middle of the former fuel dispenser island with TPH-GRO concentrations ranging from 36.4 mg/L to 68.6 mg/L and TPH-DRO concentrations ranging from 126 mg/L to 157 mg/L. Therefore, a Phase I LSA was requested. The Phase I LSA will help assess the likely factors that could pose an imminent danger to the public or environment and will also collect necessary information to assign land use classifications for the Building AS-3504 project site.

1.2 SCOPE OF WORK

1.2.1 Groundwater Monitoring Wells

CATLIN will install one shallow (Type II) monitoring well in the middle of the former fuel dispenser island at the Building AS-3504 project site. Please refer to Figure 2 for the proposed location of the Type II monitoring well.

1.2.2 Groundwater Sampling

One groundwater sample will be obtained for laboratory analysis from the proposed Type II monitoring well and will be analyzed per EPA Methods 602 + Xylenes, 625 + TICS, and MADEP VPH/EPH. The groundwater sample will be collected in general accordance with CATLIN Standard Methods of Investigation (Appendix A).

1.2.3 Soil Sampling

One soil sample will collected for laboratory analysis during the monitoring well installation activities The soil sample will be analyzed per EPA Methods 8260 with 5035 Prep, 8270 + TICS and MADEP VPH/EPH. The soil sample will be collected in general accordance with CATLIN Standard Methods of Investigation (Appendix A).

1.2.4 Receptor Survey

A receptor survey will be performed in order to obtain necessary information for the North Carolina Department of Environment and Natural Resources (NCDENR) to assign a land use classification to the Building AS-3504 project site and to classify the release as high, intermediate or low risk.

1.2.5 Phase I LSA Report

A draft and final Phase I LSA Report will be completed and prepared in a format in general agreement with the NCDENR "Guidelines for Assessment and Corrective Action" dated April 2001.

2.0 PREVIOUS INVESTIGATIONS, REMEDIATION AND/OR CLOSURE

According to previous reports, five former underground storage tanks (USTs) used to store diesel fuel were removed from the Building AS-3504 project site in August/September 1992. The age or condition of the USTs when removed is unknown.

After each UST was removed, soil samples were collected from the UST pit areas and analyzed for the presence of total petroleum hydrocarbon (TPH) by EPA Methods 3550 and 5030. Soil samples collected immediately to the east of Building AS-3504 indicated TPH-as-diesel concentrations of 206 ppm and 32.5 ppm. Therefore, three (3) 20-foot monitoring wells were installed in the area east of Building AS-3504 in March 1993. Groundwater samples were subsequently collected and analyzed for benzene, toluene, ethylbenzene and total xylenes. The groundwater sample results indicated all analytes were below North Carolina Groundwater Quality Standards. All monitoring wells have been abandoned at the Building AS-3504 project site.

On August 27, 2006 Shaw E&I collected eight (8) soil samples in the vicinity of the former fuel dispenser island at the Building AS-3504 project site. Each soil sample was analyzed per EPA Methods 3550 and 5030. As previously stated, two soil samples within the former fuel dispenser island indicated contamination and therefore, a LSA Phase I was requested.

3.0 SITE DESCRIPTION

The Building AS-3504 project site is located along Perimeter Street abroad MCAS New River, Camp Lejeune, North Carolina. Please refer to Figure 1 for the vicinity map of the subject site.

3.1 AREA OF INVESTIGATION

The area of investigation is located in the vicinity of the former fuel dispenser island located approximately 30-feet to the east of the southern portion of Building AS-3504. Please refer to Figure 2.

3.2 CONTAMINANT SOURCE INVENTORY

Refer to Table 1 for UST system information.

4.0 SITE INVESTIGATION

All field activities will be conducted in general accordance with the CATLIN Standard Methods of Investigation (Appendix A) and the Site Specific Health and Safety Plan (Appendix B). A list of tasks to be completed during this LSA investigation has been provided in Table 3.

4.1 UTILITY LOCATION

A private utility locator will provide on-site utility location prior to the commencement of drilling activities.

4.2 MONITORING WELL INSTALLATION

The proposed Type II monitoring well will be installed by a North Carolina Certified well contractor. CATLIN personnel will also confirm the top of casing and location survey for the newly installed monitoring well using a combination of Global Positioning System (GPS) and traditional surveying techniques. The proposed monitoring well construction data is provided in Table 4. Please note that the well construction details are subject to change based field investigation (depth to surficial water table, subsurface confining layers, etc.). Please refer to Figure 2 for the proposed location of the Type II monitoring well.

4.3 GROUNDWATER GAUGING

The newly installed Type II monitoring well will be gauged for depth to groundwater and free-phase product (if present).

4.4 GROUNDWATER SAMPLING

A representative groundwater sample will be collected for laboratory analysis from the newly installed Type II monitoring well. However, if free-phase product is present with a thickness greater than 0.01 feet, a groundwater sample will not be collected for laboratory analysis. Provided that no measurable amount of free-phase product is present, the groundwater sample will be collected. Groundwater samples will be analyzed for Purgeable Aromatics + Xylenes per EPA Method 602, Base/Neutrals and Acid Extractable per EPA Method 625 + TIC and MADEP. Refer to Table 5 for a sample analysis summary.

Please note that if groundwater contaminant concentrations exceed the 2L GWQS by a factor of ten, up to three additional shallow Type II monitoring wells and one deep Type III monitoring well will be required. Also, a Phase II LSA report will be prepared in lieu of a Phase I LSA report.

4.5 SOIL SAMPLING

Soil samples will be collected in five-foot increments until termination of the monitoring well boring. Each five-foot increment of soil will be analyzed in the field by use of a Photo Ionization Detector (PID). One soil sample will be collected for laboratory analysis at the interval with the highest PID result above the saturated zone. In the event that elevated PID results are not identified, one soil sample will be collected from the interval just above the capillary fringe. The soil sample will be analyzed per EPA Methods 8260 with 5035 Prep, 8270 + TICS and MADEP VPH/EPH.

4.6 RECEPTOR SURVEY

A receptor survey will be conducted to examine the areas within 1,500 feet of the Building AS-3504 project site. The receptor survey will identify potable water supply wells, non-potable water supply wells, surface water bodies, wellhead protection areas, buildings, surrounding land use, and other factors that could potentially cause the release to pose an imminent danger to the public or environment.

4.7 INVESTIGATIVE DERIVED WASTE MANAGEMENT

Soil cuttings will be spread on-site as allowed by NCDENR. Well development water and purge water will be discharged onto the ground in proximity to the well as allowed by the NCDENR.

5.0 SAMPLE ANALYSIS

As required, soil and groundwater samples will be analyzed by a state certified analytical laboratory. The number and type of samples to be analyzed, sample nomenclature, and the analyses to be conducted are summarized in Table 5.

6.0 LSA REPORT

CATLIN will prepare a Phase I LSA report detailing site activities and the resulting field and laboratory data. The Phase I LSA report shall contain the following elements:

Text

- Title Page
- Executive Summary
- Site Identification and Release Information
- Limited Site Assessment Risk Classification and Land Use Form Questionnaire
- Receptor Information
- Site Geology and Hydrogeology
- Soil Sampling Results
- Groundwater Sampling Results
- Free-phase Product Data
- Conclusions and Recommendations

Tables

- Water Supply Well Information
- Monitoring Well Construction Information
- Summary of Soil Sampling Results
- Summary of Groundwater Sampling Results

Figures

- General Location Map
- Location Map with any Water Wells, Surface Water or places of Public Assembly within 1,500 feet
- Site Map with Monitoring Well Locations
- Soil Contamination Map(s)
- Groundwater Contamination Map(s)
- Free-phase Product Map (if necessary)

Appendices

- Soil boring and well logs
- Monitoring well construction records
- Groundwater sampling worksheet
- Laboratory report(s)

As previously stated, if groundwater contaminant concentrations exceed the 2L GWQS by a factor of ten and the site meets the criteria for High Risk, three additional shallow Type II monitoring wells will be required. Also, a Phase II LSA report will be prepared in lieu of a Phase I LSA report.

7.0 REFERENCES

Groundwater Technology Government Services, "Three Well Site Check Report, Building AS-3504, MCAS, New River, NC". July 23, 1993.

North Carolina Department of Environment and Natural Resources, Underground Storage Tank Section, "Guidelines for Assessment and Corrective Action", effective July 1, 2001.

TABLES

TABLE 1

UST SYSTEM INFORMATION

BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT
MCSA, NEW RIVER, NORTH CAROLINA

UST ID Number	Product	Capacity (gallons)	Date Installed	Date Permanently Closed
93162	Diesel	550	Unknown	9/19/1992
93193	Diesel	550	Unknown	9/19/1992
93164	Diesel	550	Unknown	10/7/1992
92307	Diesel	2,500	Unknown	9/19/1992
92314	Diesel	2,500	Unknown	9/19/1992

TABLE 2

UST OWNER/OPERATOR INFORMATION

BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT
MCSA, NEW RIVER, NORTH CAROLINA

Dates of Ownership/Operation	UST ID Number	Name of Owner/ Operator	Address	Telephone Number
Unknown - August 1993	93162	Commanding General Attn: Director I&E/EMD/EQB (owner/operator)	PSC Box 20004 Marine Corps Base Camp Lejeune, NC 28542-0004	(910) 451-5068
Unknown - August 1993	93193	Commanding General Attn: Director I&E/EMD/EQB (owner/operator)	PSC Box 20004 Marine Corps Base Camp Lejeune, NC 28542-0004	(910) 451-5068
Unknown - September 1993	93164	Commanding General Attn: Director I&E/EMD/EQB (owner/operator)	PSC Box 20004 Marine Corps Base Camp Lejeune, NC 28542-0004	(910) 451-5068
Unknown - August 1993	92307	Commanding General Attn: Director I&E/EMD/EQB (owner/operator)	PSC Box 20004 Marine Corps Base Camp Lejeune, NC 28542-0004	(910) 451-5068
Unknown - August 1993	92314	Commanding General Attn: Director I&E/EMD/EQB (owner/operator)	PSC Box 20004 Marine Corps Base Camp Lejeune, NC 28542-0004	(910) 451-5068

TABLE 3

PROJECT TASKS

BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT
MCSA, NEW RIVER, NORTH CAROLINA

Task to be Completed	Task
X	Utility Locate
X	Drilling
X	Soil Sampling
X	Groundwater Sampling
X	Site Survey
X	Receptor Survey
X	Well Gauging
X	Investigative Dervived Waste Mgt.
X	Data Analysis
X	Report Preparation

TABLE 4

WELL CONSTRUCTION DATA

BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT
MCAS, NEW RIVER, NORTH CAROLINA

Sample Location I.D.	Boring Type & Diameter	Total Depth (Feet BLS)	2" Inner Casing (Feet BLS)	Screen Interval (Feet BLS)	Soil Sample Interval *(Soil Description & OVA Required)*		No. Soil Lab Samples Per Well/Boring	GW Sample Required
					Starting	Interval		
USTAS3504-MW04	8 inch	± 20	± 20	± 10 - 20	0 - 15 feet	5 feet	1	1

TABLE 5

SAMPLE ANALYSIS SUMMARY

BUILDING AS-3504
PHASE I LIMITED SITE ASSESSMENT
MCAS, NEW RIVER, NORTH CAROLINA

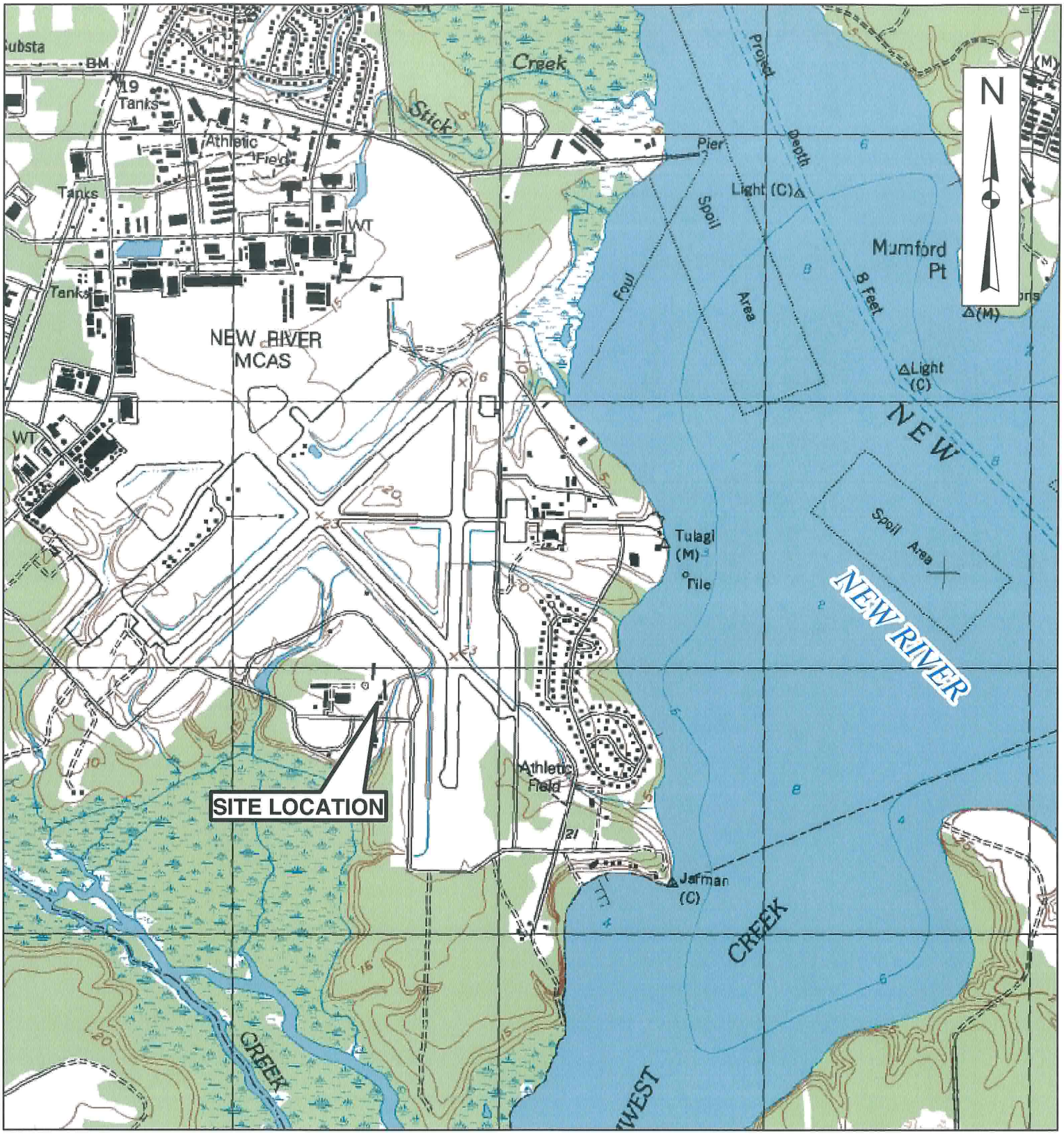
GROUNDWATER

Sample Location	EPA 602 + Xylenes	EPA 625 + TICS	MADEP VPH/EPH
USTAS3504-MW04	1	1	1
Total Samples	1	1	1

SOIL

Sample Location	EPA 8260 w/ 5035 Prep.	EPA 8270 + TICS	MADEP VPH/EPH
USTAS3504-MW04	1	1	1
Total Samples	1	1	1

FIGURES



500 250 0 500 Feet

SCALE

From: USGS Jacksonville South, NC. Topographic Quadrangle (Dated 1997)

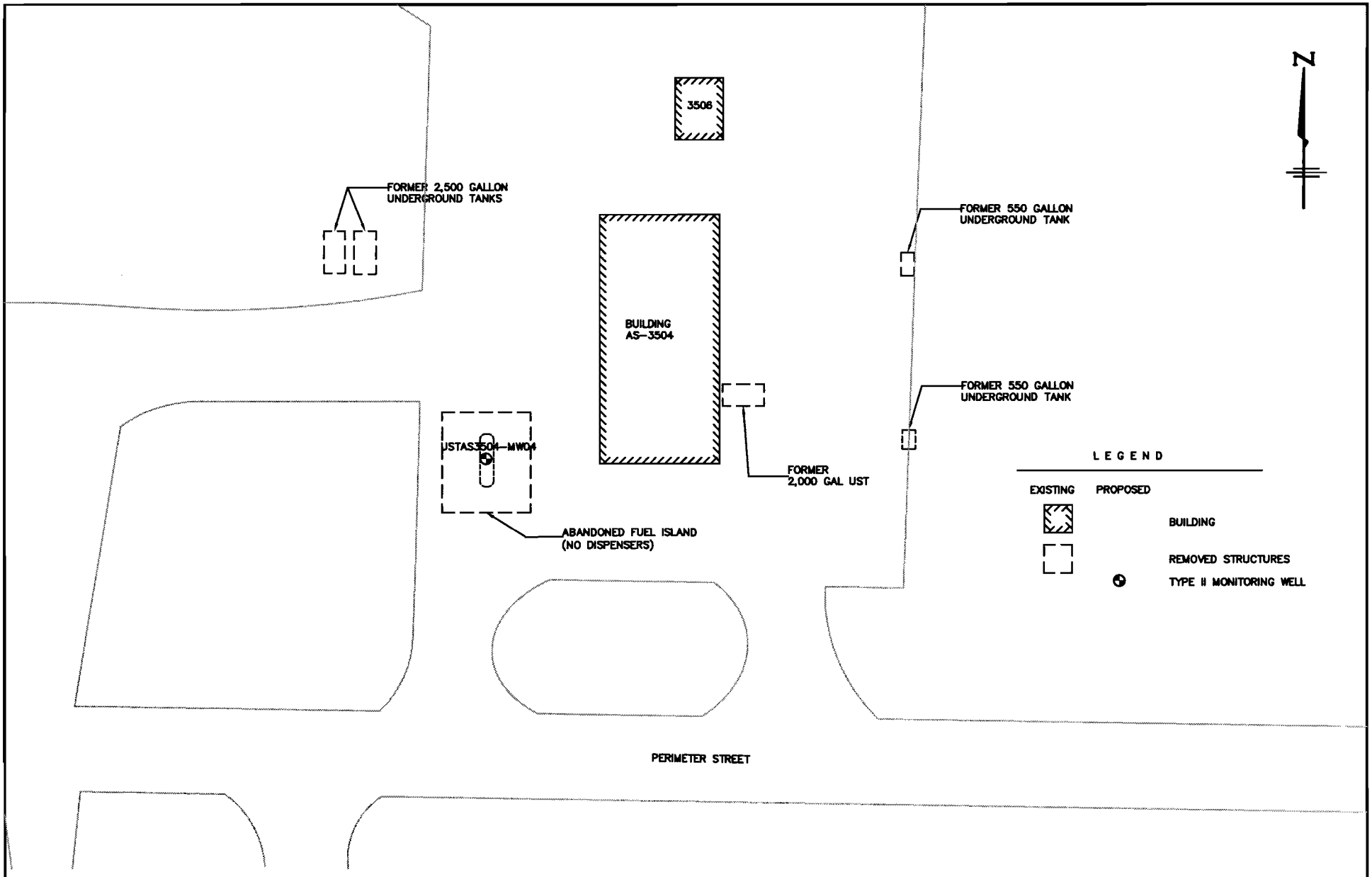
CATLIN ENGINEERS and SCIENTISTS

PROJECT
BUILDING AS-3504
LSA WORKPLAN
MARINE CORPS BASE
CAMP LEJEUNE, N.C.

TITLE
SITE VICINITY MAP

FIGURE
1

JOB NO.	DATE	SCALE	DRAWN BY	CHECKED BY
205-077	NOV 2006	1"=500'	SAC	MEM



SCALE (FEET)

40 0 20 40

CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

PROJECT	TITLE	FIGURE
BUILDING AS-3504 LSA WORKPLAN MARINE CORPS BASE CAMP LEJEUNE, NC	SITE PLAN WITH TYPE II MONITORING WELL LOCATION	2

JOB NO:	DATE:	SCALE:	DRAWN BY:	CHECKED BY:
205-077	NOV 2006	AS SHOWN	KAWS	JPC

205-077-LAS-AS3504

APPENDICES

APPENDIX A

CATLIN STANDARD METHODS OF INVESTIGATION

1.0 DATA COLLECTION

1.1 BACKGROUND DATA

Background data and history information relevant to the site investigation is generated through numerous sources. These sources may include, but are not limited to, the following:

- Conversations with the client and regulatory officials involved with the incident.
- Review of pertinent regulatory correspondence.
- Review of previous and existing reports and other technical data.
- Review of available historical records.

1.2 SURVEYS AND POTENTIAL RECEPTOR DATA

Physical survey and potential receptor data is collected in accordance with the intended level of investigation. In general, the purpose is to collect sufficient information for site assessment and corrective action planning.

Individual receptors are identified and evaluated in the context of their potential for contaminant impact. Potential receptors of contamination can include surface water bodies, groundwater supply wells, wellhead protection areas, and subsurface building structures.

1.2.1 Horizontal Survey

Horizontal survey data is generated using either accepted general field surveying techniques, or existing survey maps; or by using a combination of existing data and field generated information. The survey area generally extends to a point at least 50 feet beyond suspected plume boundaries. A receptor scale survey of a larger area surrounding a site will be made if appropriate and necessary.

1.2.2 Vertical Survey

A vertical survey is conducted at the site typically within an accuracy of 0.01 foot. The datum plane is generally assumed unless otherwise noted. Assumed temporary benchmarks (TBM) are selected near ground level. The vertical survey includes such points as top of all well casings, selected ground shots, important utility inverts, utility fluid levels, important surface water levels, and other items determined to be significant.

1.3 DRILLING AND MONITORING WELL/PIEZOMETER INSTALLATION

Necessary permits are applied for and obtained in accordance with federal, state, and local requirements prior to drilling or well construction activities. Additionally, the well locations are scanned for underground utilities prior to conducting intrusive subsurface activities. Wells are installed under applicable licensing requirements, and are designed and constructed in accordance with accepted standards and practices. Any wells purposely installed at off-site locations are permitted through appropriate right-of-entry agreements with all necessary property owners and/or their agents.

1.3.1 Drilling Methods and Subsurface Data Collection

Drilling is accomplished utilizing one or more of the following methods:

Auger Drilling

Auger drilling is the preferred, most often used method of subsurface investigation and is accomplished using a vehicle or trailer mounted drill rig. Continuous flight auger types used vary upon the site and situation; ranging from the 4-inch outside diameter solid stem to the 12-inch outside diameter hollow stem. Auger type is selected based upon appropriateness and/or site-specific requirements.

Hand Augering

Hand augering is utilized when economically and scientifically feasible, or when no other method is suitable. Hand augers typically produce three-inch diameter holes and are generally limited to depths of less than 15 feet.

Direct Push

Direct push methods of subsurface investigation are used generally for soil screening purposes or collection of groundwater samples where permanent wells are not viable.

Other Methods

Other drilling methods, such as mud and air rotary, rock coring, cable tool, and large bucket augering are used when site conditions or project requirements dictate.

Regardless of the drilling method used, the drill rig(s) and all drilling tools are thoroughly cleaned between boreholes to prevent cross introduction of contaminants. Split spoon samples are collected and field-described at intervals of five feet or less, and cuttings are continuously monitored for organic vapors. Drill cuttings are containerized for off-site disposal or are spread on the ground surface in proximity to the well or boring in accordance with North Carolina Department of Environment and Natural Resources (NCDENR) requirements. A geologist or engineer, trained in using visual/manual techniques, is always present during drilling and is responsible for subsurface contaminant and geologic data collection. Soils are classified in general agreement with the Unified Soils Classification System (USCS).

1.3.2 Hydropunch Installation

Hydropunch penetrometers (Hydropunches) are used to delineate the spatial extent of dissolved and free phase plumes. Soil borings are advanced to the appropriate depth and then the Hydropunch is advanced through the soil boring into undisturbed material. Groundwater samples are collected by pulling back on the body of the Hydropunch and allowing the groundwater to enter the screened portion of the sample chamber. Samples are retrieved using a decontaminated Teflon bailer or peristaltic pump.

1.3.3 Well Installation

Wells are typically constructed of threaded PVC casing and screen. No glues or cements are used in joining PVC components. Well diameter, slot sizes, and protective covers vary depending upon site-specific conditions or situation-specific requirements.

1.3.4 Well Development

Wells are developed by over-pumping or surging using appropriate pumps, blocks, or bailers. Through development, unwanted fine materials are removed from the natural formation surrounding the well. Well development will be performed no sooner than 24-hours after grouting is completed for the Type III wells. Water generated during development is containerized and properly disposed or is discharged onto the ground in proximity of the well in accordance with NCDENR requirements.

1.4 HYDROGEOLOGIC DATA COLLECTION

Data used to help characterize hydrogeologic conditions at a site are obtained through various procedures including, but not necessarily limited to, those described below:

1.4.1 Regional Geology

Information pertaining to the regional geologic framework is compiled from existing publications, maps, and scientific papers.

1.4.2 Site Geology

Shallow site geology is generally determined from field descriptions and borehole samples. Interpretations with regard to hydrogeologically important contacts, zones, fractures, faults, cleavage, and face changes are made when possible.

1.4.3 Groundwater Occurrence and Characteristics

Groundwater data is obtained utilizing a number of methods and procedures, not limited to the general list below:

Well Water Levels

After well development, wells are allowed to stabilize for a minimum of 24 hours prior to measuring. Water level and free product thickness (where applicable) measurements are performed using an electronic interface probe or steel tape with water/product finding pastes.

The specific gravity of any accumulated product is determined and used to calculate true hydraulic grade from measured water levels. This information is combined with vertical survey data to determine relative potentiometric surface elevations for all wells.

Aquifer Testing

Various aquifer tests may be used to make determinations of hydraulic conductivity. Slug or pumping tests are often used to characterize site hydrogeologic conditions and to develop remedial action alternatives utilizing appropriate pumping technologies.

Other Methods

Other methods may be deemed appropriate for determining various groundwater characteristics. These other methods may include nested well configurations and/or clustered piezometer installations; sieve or pipette analysis; fracture trace analysis; computer modeling; and geophysical logging.

1.5 PETROLEUM HYDROCARBON DATA COLLECTION

1.5.1 Collection Methods

Petroleum hydrocarbon data is obtained through various methods including, but not limited to, the following:

Field Analysis

- Direct thickness measurement of phase separated components using tapes and/or probes.
- Manual vapor analysis using a photoionization detector (PID) or flame ionization detector (FIS).
- Detectable odor and visual observation.

Laboratory Analysis

- Laboratory analysis of phase-separated products.
- Laboratory vapor, soil, and groundwater analysis using appropriate EPA Methods.

1.5.2 Field Sampling

Field sampling procedures are performed in accordance with recommended protocol, accepted industry standards, and under appropriate chain-of-custody procedures. Generally, sampling procedures are as follows:

Product Samples

Product samples are obtained using clean equipment and containers. Each is shipped to the analytical laboratory in protective containers.

Vapor Samples

PID/FID readings are measured from soil sample headspace using containerized samples which have been brought to ambient temperature.

Carbon tubes are utilized in conjunction with a laboratory calibrated vacuum pump to obtain vapor samples. The carbon tubes are sealed and refrigerated for shipment to the analytical laboratory (This method is known as the Carbon Adsorption Method).

Soil Samples

Soil samples are immediately packed into clean containers, and refrigerated for shipment to the analytical laboratory.

Groundwater Samples

Groundwater samples are collected in accordance with the following procedures:

- Creeks/Lakes/Etc.

  Grab samples are obtained.

- Domestic Wells

  Wells are pumped for a time sufficient to completely purge the well and any pressure or holding tanks prior to sampling.

- Monitoring Wells

  Water level measurements are made and well volumes calculated for each well.

  Three well volumes are removed from each well using a thoroughly cleaned Teflon bailer or appropriate purging pump. If it is not possible to remove three volumes, due to very low yields, a minimum of one volume is removed prior to obtaining a sample.

  Where analysis for metals is required, wells are typically sampled utilizing low flow techniques, which reduce turbidity and the potential for matrix interference.

Samples are collected and containerized in a manner which minimizes agitation and contact with the air.

Sampling records are field prepared.

Samples are labeled and proper chains of custody documents are maintained.

Samples are promptly protectively packed, refrigerated, and shipped to the analytical laboratory for analysis.

2.0 DATA EVALUATION

Data obtained as a result of the site investigation is compiled and evaluated and a report is prepared for client review and distribution to the appropriate agencies. Generally, specific data is evaluated as follows:

- Background data is evaluated in context with the suspected or confirmed problem.
- Survey data is utilized to develop site maps and to evaluate contaminant receptors.
- Well construction records are compiled and presented as part of the report. As-built information is used in combination with other data to evaluate subsurface conditions and monitoring well screen settings as they relate to the investigation.
- Subsurface drilling logs are used to develop geologic cross-sections, fence diagrams, isopachs, structure contours, or other constructions. Regional geologic data are used to obtain an overall framework.
- Hydrogeologic data is used to develop contour maps, flow nets and other constructions. The data is also used to calculate various hydrogeologic parameters which describe aquifer characteristics.
- Hydrocarbon data is utilized to develop various plume geometry and isoconcentration maps.
- All data is compiled and utilized for making specific recommendations with regard to remedial action alternatives.

APPENDIX B

SITE SPECIFIC HEALTH AND SAFETY PLAN

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SITE SPECIFIC HEALTH AND SAFETY PLAN

Sit Building AS-3504 **Project No.** 205-077

Client MCB, Camp Lejeune, NC **Project Manager (PM)** Michael E. Mason, P.E.

Client Safety & Health Contact Richard G. Catlin **Site Manager (SM)** TBD

Plan Prepared By Jason P. Cook, E.I. **Date** November 22, 2006

Reviewed By Michael E. Mason, P.E. **Date** November 22, 2006

Overall Project Objective: Prepare a Phase I LSA report detailing site activities and the resulting field and laboratory data.

A. HAZARD EVALUATION

Chemical hazards known or suspected to exist on the site.

CHEMICAL HAZARDS			
CONSTITUENT	EXPOSURE LIMITS		
	NIOSH REL	OSHA PEL	IDLH
Benzene	1 ppm (8hr TWA)	1 ppm	500 ppm
Ethylbenzene	100 ppm (TWA)	200 ppm	500 ppm
Xylenes	100 ppm (TWA)	100 ppm	900 ppm

NOTE: Hazardous substance information sheets for these constituents are provided in Section M.
PEL-Permissible Exposure Limit
REL-Recommended Exposure Limit
IDLH-Immediately Dangerous to Life and Health
NE=No evidence a standard has been established.

A. HAZARD EVALUATION (continued)

One or more of the following physical hazards may be present on the site.

PHYSICAL HAZARDS	
PHYSICAL HAZARD	**PHYSICAL HAZARD**
Overhead Utilities	Heavy Equipment Operation
Buried Utilities	Insects/Snakes/Plants
Uneven Ground	Confined Space*
Steep Slopes	Heat/Cold Stress
Slippery Conditions	Noise Hazards
Inclimate Weather	Motor Vehicle Operation

***NOTE*: IT SHOULD BE POINTED OUT THAT UNDER NO CIRCUMSTANCE SHALL ANY CATLIN EMPLOYEE ENTER A CONFINED SPACE.**

B. EMERGENCY PLANNING

B.1 HOSPITAL ROUTE (Refer to the map on the following page):

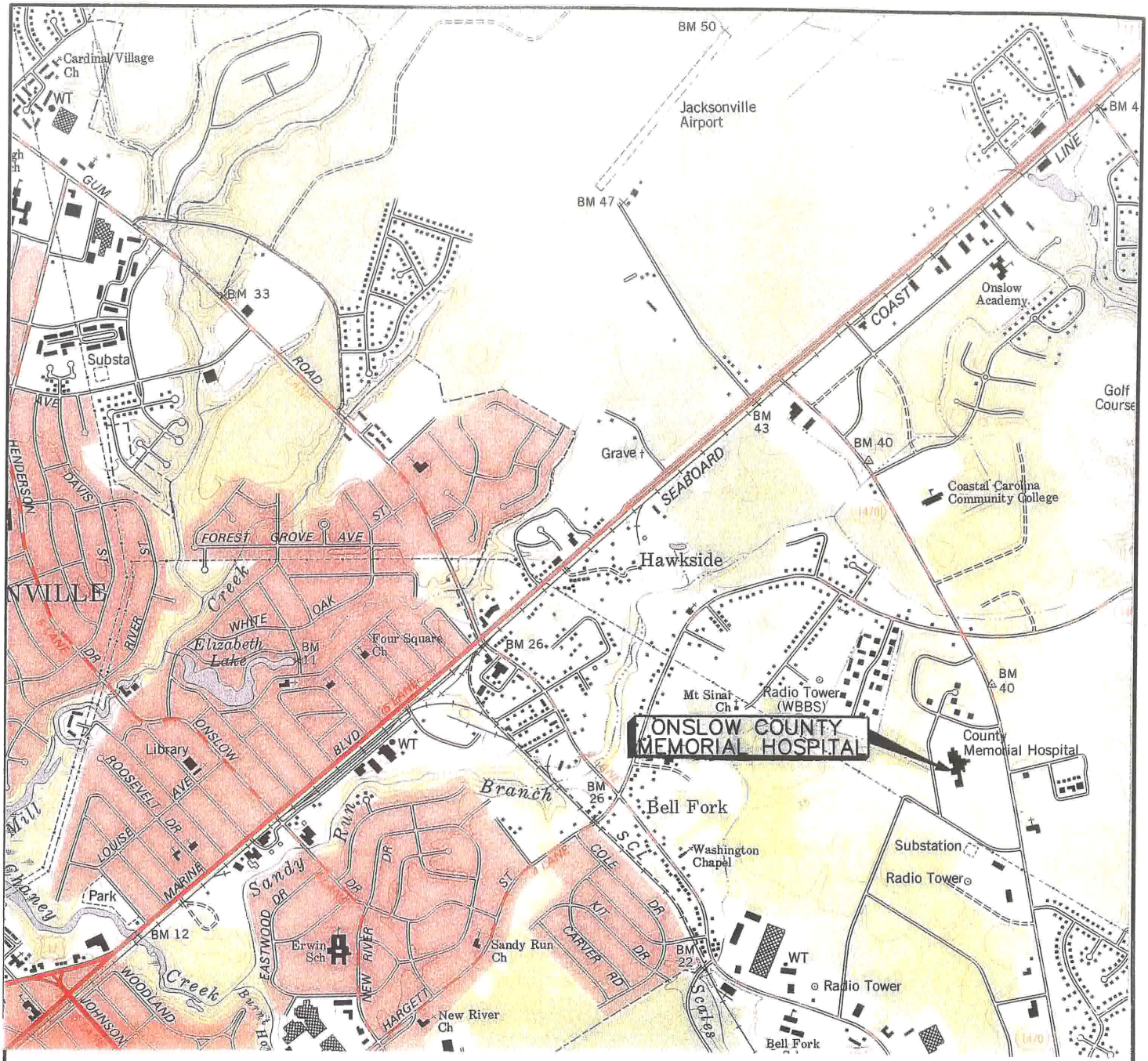
Directions from site to hospital: Refer to the map on the following page for written directions.

B.2 EMERGENCY PHONE NUMBERS

Local Sources of Assistance:

FACILITY	PHONE NUMBER	CONTACT
Provost Marshall's Office (PMO) Military Police	911 or (910) 449-6111	MCAS, New River, Military Police Dispatch
Crash/Fire/Rescue (On-Base)	911 or (910) 449-6629	Base Crash, Fire & Rescue
Hospital (On-Base)	(910) 450-4300	Naval Hospital Camp Lejeune 100 Brewster Boulevard
MCB Camp Lejeune I&E/EMD/EQB	(910) 451-5068 (910) 451-6017 direct	Andrew Smith
CATLIN Engineers and Scientists	1-800-346-7360 (910) 452-5861	Michael E. Mason, PE
Police (Off-Base)	911 or (910) 455-4000	Jacksonville Police Department
Sheriff	911 or (910) 455-3113	Onslow County Sheriff's Department
EMS (Off-Base)	911 or (910) 455-3113	Onslow County Rescue Squad
Hospital (Off-Base)	(910) 577-2345	Onslow Memorial Hospital

HOSPITAL ROUTE MAP



SCALE 1:24 000

1/2 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET

NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN GN

6° 107 MILS 1°23' 25 MILS

UTM GRID AND 1978 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

JACKSONVILLE NORTH, N. C.

N3445—W7722.5/7.5

1978

N.C.

QUADRANGLE LOCATION

CATLIN ENGINEERS and SCIENTISTS

WILMINGTON, NORTH CAROLINA

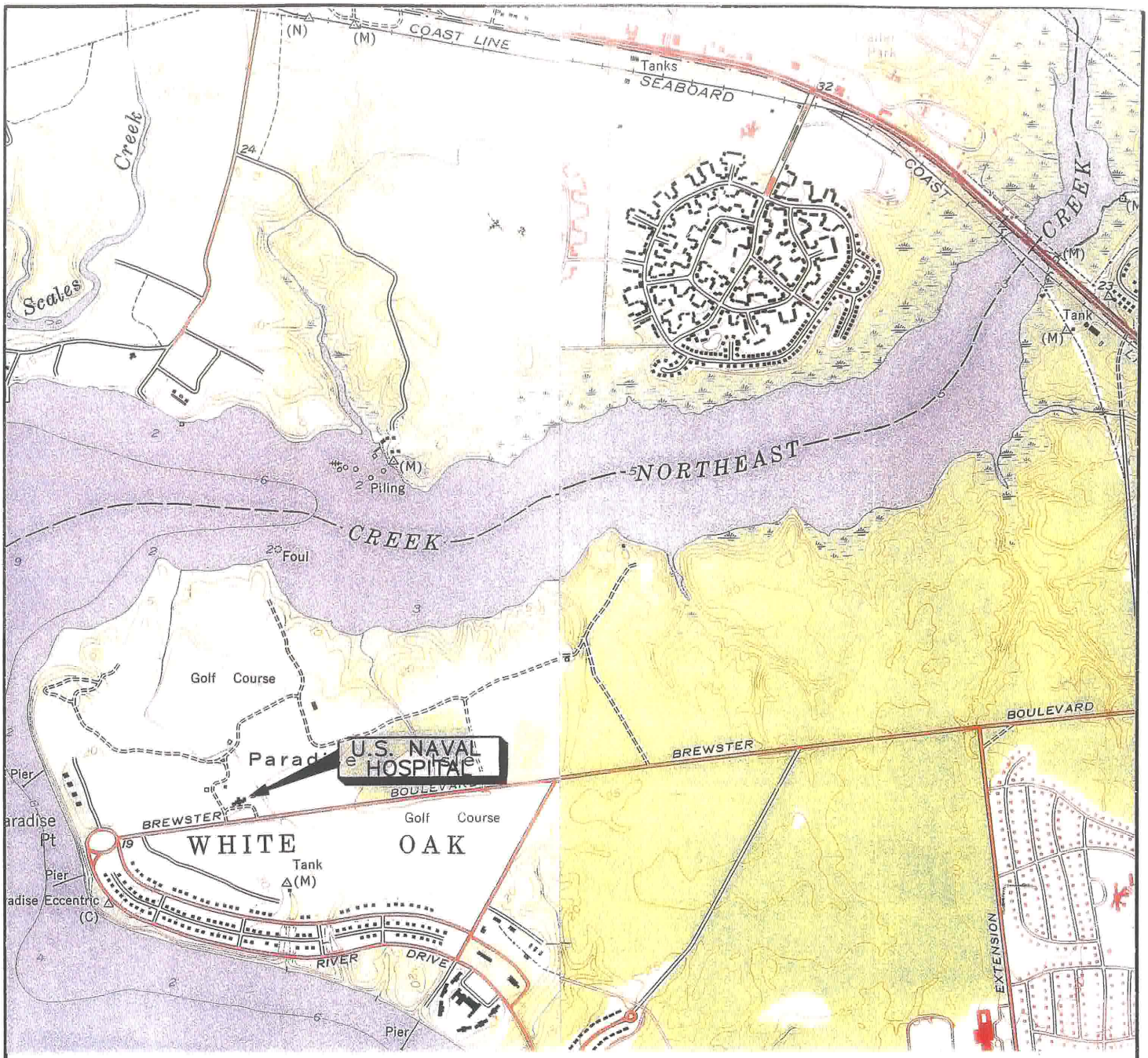
PROJECT: USMC BASE CAMP LEJEUNE NEW RIVER AIR STATION CAMP LEJEUNE, N.C.

TITLE: HOSPITAL ROUTE MAP

FIGURE 1

JOB NO: 201123-01 DATE: MAY 2002 SCALE: AS SHOWN DRAWN BY: HCS CHECKED BY: TWL

201123-01-01



SCALE 1:24 000

1 0 1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 .5 0 1 KILOMETER

CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

MN GN
4° 71 MILS
1°23' 25 MILS

UTM GRID AND 1952 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

JACKSONVILLE SOUTH, N. C.

NW/4 NEW RIVER 15' QUADRANGLE
34077-F4-TF-024

1952
PHOTOINSPECTED 1988

N.C
QUADRANGLE LOCATION

CATLIN ENGINEERS and SCIENTISTS
WILMINGTON, NORTH CAROLINA

PROJECT	TITLE	FIGURE
USMC BASE CAMP LEJEUNE NEW RIVER AIR STATION CAMP LEJEUNE, N.C.	HOSPITAL ROUTE MAP	1A

JOB NO:	DATE:	SCALE:	DRAWN BY:	CHECKED BY:
201123-01	MAY 2002	AS SHOWN	HCS	TWL

201123-01-1A

National or Regional Sources of Assistance:

CATLIN Engineers and Scientists	1-910-452-5861 or 1-800-346-7360
EPA RCRA/Superfund Hotline	1-800-424-9346
Chemtrec (24 Hours)	1-800-424-9300
Bureau of Explosives (24 Hours) (Association of American Railroads)	1-202-293-4048
Communicative Disease Center (Biological Agents)	1-404-633-5313
National Response Center, NRC (Oil/Hazardous Substances)	1-800-424-8802
US DOT, Office of Hazardous Operations US DOT, (Regulatory Matters)	1-202-426-0656 1-202-426-9280
US Coast Guard (Major Incidents)	1-804-441-3516 1-800-424-8802
Poison Control Center	1-800-672-1697 or 1-800-684-8111
National Agricultural Chemical Association	1-513-961-4300

B.3 FIRST AID AND EMERGENCY EQUIPMENT

The following equipment is located in CATLIN field vehicles.

- First Aid Kit
- Eye Wash Kit
- Fire Extinguisher
- Mobile Phone

B.4 ACCIDENT PROCEDURES

All accidents and injuries should be reported immediately to the SM. The SM will:

- Stop the Job.
- Determine the severity of the situation.
- If needed:
  - Clear the work area.
  - Call or instruct someone to call emergency personnel (fire, ambulance, etc.)
  - Ensure that non-emergency medical attention is obtained if needed.
- Determine the cause and correct it to prevent reoccurrence.
- Call the Project Manager and report the situation.
- Resume work.

Provide basic first aid procedures as required and note time and circumstances of injuries. In the event of injury, the injured person should be transported to the closest hospital (see Figure 3). Notify CATLIN Project Manager.

B.5 EMERGENCY COMMUNICATION

The SM will be the Emergency Coordinator, and will be responsible for the entry and exit of response personnel, contacting emergency personnel, and reporting to the project manager. The following commands are commonly used for communication when verbal commands can not be used:

Hand gripping throat	Out of air, cannot breathe.
Grip partner's wrist or place both arms around the waist	Leave area immediately, no debate.
Hands on top of head	Need assistance.
Thumbs up	OK, all right, I understand.
Thumbs down	No, negative.

C. PROJECT TASKS/MINIMUM PERSONAL PROTECTIVE EQUIPMENT (PPE) REQUIRED

One or more of the following tasks may be performed.

TYPE	Minimum Level of PPE	TYPE	Minimum Level of PPE
Soil Sampling	D	Geophysical Survey	D
Groundwater Sampling	D	Site Visit	D
Surface-Water Sampling	D	Drum Sampling	D
Sediment Sampling	D	Surveying	D
Air Sampling/Monitoring	D	Excavation	D
Drilling/DPT	D	Field Measurements	D
Pilot Testing	D		

NOTE: Changing site conditions may require a higher level of PPE.

Description of Site Operations:

Environmental assessment of site soils and groundwater for potential contamination.

D. ORGANIZATION & RESPONSIBILITIES

The following personnel are designated to carry out job functions on the site. Their responsibilities and the tasks they will be carrying out on the site are listed below.

NAME	RESPONSIBILITY & TASKS
Program Manager Michael E. Mason, P.E.	CATLIN Engineers and Scientists point of contact
Project Manager Michael E. Mason, P.E.	Project oversight and point of contact
Site Manager To Be Determined	Responsible for all onsite activities and field safety
Technicians To Be Determined	Performance of field activities

One or more of the following subcontractor work parties may be used to complete the investigation.

SUBCONTRACTOR WORK PARTY	RESPONSIBILITY
Surveyor	Conduct field survey
Waste Disposal Operators	Collect and Dispose of investigative derived waste (IDW)
Utility Locator	Locate utilities
Equipment Operators	Operate earthmoving equipment

E. SITE CONTROL

The SM will coordinate access and control security at the site.

F. AIR MONITORING EQUIPMENT

This section specifies the air monitoring equipment to be used on site and the action levels to upgrade to higher levels of personal protection.

AIR MONITORING INSTRUMENT	AIR MONITORING INTERVAL	ACTION LEVEL	
		Level D PPE Required (ppm)	Stop Work (ppm)
OVA	Periodic	<10	≥10

Comments: Petroleum products ONLY. Refer to Section M.

LEL = Lower Explosive Limit

G. PERSONAL PROTECTIVE EQUIPMENT (PPE)

This section lists the equipment that must be present on the site while performing tasks which require Level D PPE. Subcontractors must have the same equipment listed here as a minimum.

- Hard Hat
- Safety Glasses
- Work Gloves
- Steel-Toe Safety Boots

H. DECONTAMINATION PROCEDURES

Personnel and equipment leaving an exclusion zone shall be decontaminated. Level D decontamination protocol shall be used with the following decontamination procedures:

LEVEL D DECONTAMINATION STEPS	
1	Gather contaminated equipment.
2	Decontaminate equipment.
3	Wash and rinse boots and gloves.
4	Remove disposable garments and gloves.
5	Containerize disposable PPE.

The following equipment is typically required for decontamination.

- Scrub Brushes
- Waste Containers
- Soap
- Plastic Tubs
- Plastic Drop Cloths
- Garbage Bags
- Paper Towels
- Isopropyl Alcohol
- Pump Spray Bottles
- Pump Spray Bottles (water)
- Steam Cleaner

I. GENERAL SAFETY RULES

1. Report all work injuries and illnesses immediately.

2. Report all Unsafe Acts or Unsafe Conditions to your Supervisor.

3. Use seat belts when on Company business in any vehicles.

4. Firearms, weapons, or explosives are not permitted on Company Property.

5. Use, possession, sale or being under the influence of illegal drugs, misuse of prescription drugs and/or alcohol is not permitted on Company Property or while "on duty".

6. **Under no circumstance** shall any CATLIN employee enter a confined space.

7. Keep work areas clean and aisles clear. Do not block emergency equipment or exits.

8. Wear and use the prescribed Personal Protective Safety Equipment. This includes foot protection, head protection, eye protection, gloves, warning vests, etc.

9. No smoking, eating, drinking or chewing of gum or tobacco products while on the site. Avoid hand to mouth contact. A designated smoking and break area may be established off-site.

10. In event of potential or actual fire or explosion, evacuate the area immediately. Assemble in the pre-designated area and conduct a head count of all personnel. Notify the fire department. **DO NOT** attempt to fight the fire. Notify CATLIN Project Manager.

J. MEDICAL MONITORING

CATLIN's Medical Monitoring Program provides medical surveillance of employees who may be exposed to hazardous substances or health hazards, or which may be required to wear respiratory protection. The physical examinations may be performed:

- At least every 12 months;
- At more frequent intervals if determined medically necessary;
- If an employee is injured, becomes ill or develops symptoms due to overexposure involving hazardous substances or health hazards;
- And at termination of employment.

K. EDUCATION AND TRAINING

CATLIN employees are provided with initial indoctrination and continuing training to enable them to perform their work in a safe manner (as required by OSHA and 29 CFR 1910.120). Training requirements are based on the specific job/tasks that the employee is responsible for performing. Types of training provided to employees include, but may not be limited to:

- 40 Hour Hazardous Waste Operations and Emergency Response (HAZWOPER)
- 8 Hour annual HAZWOPER Refresher
- HAZWOPER Management/Supervisor
- Confined Space Awareness/Entry
- North Carolina Asbestos Hazard Management Branch (NCAHMB) Asbestos Inspector/ Management Planner
- First Aid/CPR
- General Construction Safety

L. ACTION LEVELS

The 10 ppm "Action Level" was derived using the following discussion and calculations, which were prepared by former LAW Industrial Hygienist, Mr. Michael L. Kalar, during 1998. Review of the American Conference of Governmental Industrial Hygienist (ACGIH) Threshold Limit Values for the constituents listed as present at the sites, benzene is listed as the constituent with the greatest toxicity and is listed as a *known human carcinogen*. Therefore, the following criteria were used to develop the 10 ppm "Action Level". CATLIN intends to use the 10 ppm action level for sites which have involved both gasoline and diesel fuel petroleum fuels.

The benzene, ethylbenzene, and total xylenes concentrations identified at the project sites are typically found in gasoline. Review of current data indicates that the TLV for gasoline to be 300 ppm (action level of 150 ppm) and a 15 minute Short Term Exposure Limit ($STEL_{15}$) is 500 ppm. Since benzene is a *known human carcinogen*, we have utilized the current OSHA PEL for benzene (1 ppm) for calculations utilized to determine our action level of 10 ppm.

Based upon experience with previous leaking storage tanks involving gasoline and other petroleum hydrocarbons, benzene (in most instances) comprises approximately 5% of the total mixture in gasoline. Therefore, the 10 ppm action level utilized in this HASP is based upon the following calculation:

	PEL/TLV	=	Action Level
Benzene – OSHA PEL/Action Level =	1.0 ppm	=	0.5 ppm
Gasoline – ACGIH TLV/Action Level =	300 ppm	=	150 ppm
	300 x 0.05	=	15 ppm

The following ratio indicates an approximate ten to one ratio of gasoline vapors to benzene in air:

$$\frac{150 \text{ ppm}}{15 \text{ ppm}} = 10 \text{ ppm}$$

Therefore, it can be assumed that for every 10 ppm of gasoline, there is approximately 1.0 ppm of benzene in the air.

Should airborne concentrations exceed 10 ppm in the breathing zone (sustained for 1 to 2 minutes), all site work will cease and the site will be evacuated pending guidance from CATLIN's Project Manager. Should airborne concentrations continue to exceed the 10 ppm "Action Level" additional personal protective equipment (PPE) maybe required. However, prior to any upgrades in PPE, CATLIN's Project Manager should be notified to assure proper selection and donning information.

M. HAZARDOUS SUBSTANCES INFORMATION SHEETS

The following pages contain information on any hazardous substances which may be present during this investigation.

MATERIAL SAFETY DATA SHEET

Gasoline, All Grades **MSDS No. 9950**

EMERGENCY OVERVIEW

DANGER!

EXTREMELY FLAMMABLE - EYE AND MUCOUS MEMBRANE IRRITANT - EFFECTS CENTRAL NERVOUS SYSTEM - HARMFUL OR FATAL IF SWALLOWED - ASPIRATION HAZARD

NFPA 704 (Section 16)

High fire hazard. Keep away from heat, spark, open flame, and other ignition sources.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs). Contact may cause eye, skin and mucous membrane irritation. Harmful if absorbed through the skin. Avoid prolonged breathing of vapors or mists. Inhalation may cause irritation, anesthetic effects (dizziness, nausea, headache, intoxication), and respiratory system effects.

Long-term exposure may cause effects to specific organs, such as to the liver, kidneys, blood, nervous system, and skin. Contains benzene, which can cause blood disease, including anemia and leukemia.

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):	**CHEMTREC (800)424-9300**
COMPANY CONTACT (business hours):	Corporate Safety (732)750-6000
MSDS (Environment, Health, Safety) Internet Website	www.hess.com

SYNONYMS: Hess Conventional (Oxygenated and Non-oxygenated) Gasoline; Reformulated Gasoline (RFG); Reformulated Gasoline Blendstock for Oxygenate Blending (RBOB); Unleaded Motor or Automotive Gasoline

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS *

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Gasoline (86290-81-5)	100
Benzene (71-43-2)	0.1 - 4.9 (0.1 - 1.3 reformulated gasoline)
n-Butane (106-97-8)	< 10
Ethyl Alcohol (Ethanol) (64-17-5)	0 - 10
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Naphthalene (91-20-3)	0.444
Tertiary-amyl methyl ether (TAME) (994-05-8)	0 to 17.2
Toluene (108-88-3)	1 - 25
1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 - 15

A complex blend of petroleum-derived normal and branched-chain alkane, cycloalkane, alkene, and aromatic hydrocarbons. May contain antioxidant and multifunctional additives. Non-oxygenated Conventional Gasoline and RBOB do not have oxygenates (Ethanol or MTBE and/or TAME). Oxygenated Conventional and Reformulated Gasoline will have oxygenates for octane enhancement or as legally required.

3. HAZARDS IDENTIFICATION

EYES
Moderate irritant. Contact with liquid or vapor may cause irritation.

SKIN
Practically non-toxic if absorbed following acute (single) exposure. May cause skin irritation with prolonged or repeated contact. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are exposed repeatedly.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Contains benzene, a regulated human carcinogen. Benzene has the potential to cause anemia and other blood diseases, including leukemia, after repeated and prolonged exposure. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with systemic toxicity. See also Section 11 – Toxicological Information.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash). Chronic respiratory disease, liver or kidney dysfunction, or pre-existing central nervous system disorders may be aggravated by exposure.

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing, ensure an open airway and provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	-45 °F (-43°C)
AUTOIGNITION TEMPERATURE:	highly variable; > 530 °F (>280 °C)
OSHA/NFPA FLAMMABILITY CLASS:	1A (flammable liquid)
LOWER EXPLOSIVE LIMIT (%):	1.4%
UPPER EXPLOSIVE LIMIT (%):	7.6%

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. Flowing product may be ignited by self-generated static electricity. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA
SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

During certain times of the year and/or in certain geographical locations, gasoline may contain MTBE and/or TAME. Firefighting foam suitable for polar solvents is recommended for fuel with greater than 10% oxygenate concentration – refer to NFPA 11 "Low Expansion Foam – 1994 Edition."

FIRE FIGHTING INSTRUCTIONS
Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY SPILL CONTINGENCY or EMERGENCY PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal – caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

******USE ONLY AS A MOTOR FUEL******
******DO NOT SIPHON BY MOUTH******

Handle as a flammable liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) – see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
Gasoline (86290-81-5)	ACGIH	300	500	A3
Benzene (71-43-2)	OSHA	1	5	Carcinogen
	ACGIH	0.5	2.5	A1, skin
	USCG	1	5	

Component (CAS No.)	Exposure Limits			
	Source	TWA (ppm)	STEL (ppm)	Note
n-Butane (106-97-8)	ACGIH	1000	–	Aliphatic Hydrocarbon Gases Alkane (C1-C4)
Ethyl Alcohol (ethanol) (64-17-5)	OSHA	1000	–	
	ACGIH	1000	–	A4
Ethyl benzene (100-41-4)	OSHA	100	–	
	ACGIH	100	125	A3
n-Hexane (110-54-3)	OSHA	500	–	
	ACGIH	50	–	skin
Methyl-tertiary butyl ether [MTBE] (1634-04-4)	ACGIH	50		A3
Napthalene	OSHA	10		
	ACGIH	10	15	A4, skin
Tertiary-amyl methyl ether [TAME] (994-05-8)				None established
Toluene (108-88-3)	OSHA	200		Ceiling: 300 ppm; Peak: 500 ppm (10 min.)
	ACGIH	50	–	A4 (skin) Note: 2006 NOIC 20 ppm (TWA)
1,2,4- Trimethylbenzene (95-63-6)	ACGIH	25	–	
Xylene, mixed isomers (1330-20-7)	OSHA	100	–	
	ACGIH	100	150	A4

ENGINEERING CONTROLS
Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION
Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION
Gloves constructed of nitrile or neoprene are recommended. Chemical protective clothing such as that made of of E.I. DuPont Tychem ®, products or equivalent is recommended based on degree of exposure.

Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION
A NIOSH-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection and limitations.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE
A translucent, straw-colored or light yellow liquid

ODOR
A strong, characteristic aromatic hydrocarbon odor. Oxygenated gasoline with MTBE and/or TAME may have a sweet, ether-like odor and is detectable at a lower concentration than non-oxygenated gasoline.

ODOR THRESHOLD

	Odor Detection	Odor Recognition
Non-oxygenated gasoline:	0.5 - 0.6 ppm	0.8 - 1.1 ppm
Gasoline with 15% MTBE:	0.2 - 0.3 ppm	0.4 - 0.7 ppm

	Odor Detection	Odor Recognition
Gasoline with 15% TAME:	0.1 ppm	0.2 ppm

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	85 to 437 °F (39 to 200 °C)
VAPOR PRESSURE:	6.4 - 15 RVP @ 100 °F (38 °C) (275-475 mm Hg @ 68 °F (20 °C)
VAPOR DENSITY (air = 1):	AP 3 to 4
SPECIFIC GRAVITY (H_2O = 1):	0.70 – 0.78
EVAPORATION RATE:	10-11 (n-butyl acetate = 1)
PERCENT VOLATILES:	100 %
SOLUBILITY (H_2O):	Non-oxygenated gasoline - negligible (< 0.1% @ 77 °F). Gasoline with 15% MTBE - slight (0.1 - 3% @ 77 °F); ethanol is readily soluble in water

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources

INCOMPATIBLE MATERIALS

Keep away from strong oxidizers.

HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke). Contact with nitric and sulfuric acids will form nitrocresols that can decompose violently.

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY

Acute Dermal LD50 (rabbits): > 5 ml/kg
Acute Oral LD50 (rat): 18.75 ml/kg
Primary dermal irritation (rabbits): slightly irritating
Draize eye irritation (rabbits): non-irritating
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenicity: OSHA: NO IARC: YES - 2B NTP: NO ACGIH: YES (A3)

IARC has determined that gasoline and gasoline exhaust are possibly carcinogenic in humans. Inhalation exposure to completely vaporized unleaded gasoline caused kidney cancers in male rats and liver tumors in female mice. The U.S. EPA has determined that the male kidney tumors are species-specific and are irrelevant for human health risk assessment. The significance of the tumors seen in female mice is not known. Exposure to light hydrocarbons in the same boiling range as this product has been associated in animal studies with effects to the central and peripheral nervous systems, liver, and kidneys. The significance of these animal models to predict similar human response to gasoline is uncertain.

This product contains benzene. Human health studies indicate that prolonged and/or repeated overexposure to benzene may cause damage to the blood-forming system (particularly bone marrow), and serious blood disorders such as aplastic anemia and leukemia. Benzene is listed as a human carcinogen by the NTP, IARC, OSHA and ACGIH.

This product may contain methyl tertiary butyl ether (MTBE): animal and human health effects studies indicate that MTBE may cause eye, skin, and respiratory tract irritation, central nervous system depression and neurotoxicity. MTBE is classified as an animal carcinogen (A3) by the ACGIH.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas and waterways. Report spills and releases, as applicable, under Federal and State regulations. If released, oxygenates such as ethers and alcohols will be expected to exhibit fairly high mobility in soil, and therefore may leach into groundwater. The API (www.api.org) provides a number of useful references addressing petroleum and oxygenate contamination of groundwater.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

DOT PROPER SHIPPING NAME:	Gasoline
DOT HAZARD CLASS and PACKING GROUP:	3, PG II
DOT IDENTIFICATION NUMBER:	UN 1203
DOT SHIPPING LABEL:	FLAMMABLE LIQUID

PLACARD:

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other federal, state, or local regulations; consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product contains the following toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION WT. PERCENT
Benzene (71-43-2)	0.1 to 4.9 (0.1 to 1.3 for reformulated gasoline)
Ethyl benzene (100-41-4)	< 3
n-Hexane (110-54-3)	0.5 to 4
Naphthalene (91-20-3)	0.444
Methyl-tertiary butyl ether (MTBE) (1634-04-4)	0 to 15.0
Toluene (108-88-3)	1 to 15

1,2,4- Trimethylbenzene (95-63-6)	< 6
Xylene, mixed isomers (1330-20-7)	1 to 15

US EPA guidance documents (www.epa.gov/tri) for reporting Persistent Bioaccumulating Toxics (PBTs) indicate this product may contain the following deminimis levels of toxic chemicals subject to Section 313 reporting:

INGREDIENT NAME (CAS NUMBER)	CONCENTRATION - Parts per million (ppm) by weight
Polycyclic aromatic compounds (PACs)	17
Benzo (g,h,i) perylene (191-24-2)	2.55
Lead (7439-92-1)	0.079

CALIFORNIA PROPOSITION 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Benzene	2/27/1987
Ethyl benzene	6/11/2004
Naphthalene	4/19/2002
Toluene	1/1/1991

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 2 (Flammable Liquid)
Class D, Division 2A (Very toxic by other means) and Class D, Division 2B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING	HEALTH:	1	Slight
	FIRE:	3	Serious
	REACTIVITY:	0	Minimal
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	3	Serious
	PHYSICAL:	0	Minimal
			* CHRONIC

SUPERSEDES MSDS DATED: 1/8/2004

ABBREVIATIONS:

AP = Approximately	< = Less than	> = Greater than
N/A = Not Applicable	N/D = Not Determined	ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists	DOT	U.S. Department of Transportation [General Info: (800)467-4922]
AIHA	American Industrial Hygiene Association	EPA	U.S. Environmental Protection Agency
ANSI	American National Standards Institute (212)642-4900	HMIS	Hazardous Materials Information System
		IARC	International Agency For Research On Cancer
API	American Petroleum Institute (202)682-8000	MSHA	Mine Safety and Health Administration
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act	NFPA	National Fire Protection Association (617)770-3000

NIOSH	National Institute of Occupational Safety and Health	SCBA	Self-Contained Breathing Apparatus
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)	SPCC	Spill Prevention, Control, and Countermeasures
NTP	National Toxicology Program	STEL	Short-Term Exposure Limit (generally 15 minutes)
OPA	Oil Pollution Act of 1990	TLV	Threshold Limit Value (ACGIH)
OSHA	U.S. Occupational Safety & Health Administration	TSCA	Toxic Substances Control Act
PEL	Permissible Exposure Limit (OSHA)	TWA	Time Weighted Average (8 hr.)
RCRA	Resource Conservation and Recovery Act	WEEL	Workplace Environmental Exposure Level (AIHA)
REL	Recommended Exposure Limit (NIOSH)	WHMIS	Workplace Hazardous Materials Information System (Canada)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III		

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.

MATERIAL SAFETY DATA SHEET

Low Sulfur Diesel Fuel **MSDS No. 9904**

EMERGENCY OVERVIEW
CAUTION!
OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT
EFFECTS CENTRAL NERVOUS SYSTEM
HARMFUL OR FATAL IF SWALLOWED

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.
If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

NFPA 704 (Section 16)

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

Hess Corporation
1 Hess Plaza
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs): **CHEMTREC (800) 424-9300**
COMPANY CONTACT (business hours): Corporate Safety (732) 750-6000
MSDS Internet Website: www.hess.com
(See Environment, Health, Safety & Social Responsibility)

SYNONYMS: Diesel Fuel #2; Hess Premium Diesel; Low Sulfur Diesel; Motor Vehicle Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and CHEMICAL INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Napthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher. Premium Diesel Fuel contains a multifunctional additive.

3. HAZARDS IDENTIFICATION

EYES
Contact with liquid or vapor may cause mild irritation.

SKIN
May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.

INGESTION
The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

INHALATION
Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

WARNING: the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

CHRONIC EFFECTS and CARCINOGENICITY
Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

4. FIRST AID MEASURES

EYES
In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

SKIN
Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

INGESTION
DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

INHALATION
Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE)
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5

FIRE AND EXPLOSION HAZARDS
Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

EXTINGUISHING MEDIA

SMALL FIRES: Any extinguisher suitable for Class B fires, dry chemical, CO2, water spray, fire fighting foam, or Halon.

LARGE FIRES: Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

FIRE FIGHTING INSTRUCTIONS

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

6. ACCIDENTAL RELEASE MEASURES

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

7. HANDLING and STORAGE

HANDLING PRECAUTIONS

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents.

STORAGE PRECAUTIONS

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

WORK/HYGIENIC PRACTICES

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

8. EXPOSURE CONTROLS and PERSONAL PROTECTION

EXPOSURE LIMITS

Components (CAS No.)	Source	Exposure Limits TWA/STEL	Note
Diesel Fuel: (68476-34-6)	OSHA	5 mg/m, as mineral oil mist	
	ACGIH	100 mg/m^3 (as totally hydrocarbon vapor) TWA	A3, skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA	
	ACGIH	10 ppm TWA / 15 ppm STEL	A4, Skin

ENGINEERING CONTROLS

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

EYE/FACE PROTECTION

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

SKIN PROTECTION

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

RESPIRATORY PROTECTION

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited. Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

9. PHYSICAL and CHEMICAL PROPERTIES

APPEARANCE
Clear, straw-yellow liquid

ODOR
Mild, petroleum distillate odor

BASIC PHYSICAL PROPERTIES

BOILING RANGE:	320 to 690 oF (160 to 366 °C)
VAPOR PRESSURE:	0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H_2O = 1):	0.83 to 0.86 @ 60 °F (16 °C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H_2O):	Negligible

10. STABILITY and REACTIVITY

STABILITY: Stable. Hazardous polymerization will not occur.

CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS
Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ® ; Fluorel ®

HAZARDOUS DECOMPOSITION PRODUCTS
Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

11. TOXICOLOGICAL PROPERTIES

ACUTE TOXICITY
Acute dermal LD50 (rabbits): > 5 ml/kg
Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)
Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative

CHRONIC EFFECTS AND CARCINOGENICITY
Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

MUTAGENICITY (genetic effects)
This material has been positive in a mutagenicity study.

12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

13. DISPOSAL CONSIDERATIONS

Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME:	Diesel Fuel	Placard (International Only):
HAZARD CLASS and PACKING GROUP:	3, PG III	
DOT IDENTIFICATION NUMBER:	NA 1993 (Domestic) UN 1202 (International)	
DOT SHIPPING LABEL:	None	

Use Combustible Placard if shipping in bulk domestically

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements. This product and/or its constituents may also be subject to other regulations at the state and/or local level. Consult those regulations applicable to your facility/operation.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law. Also contact appropriate state and local regulatory agencies as required.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

ACUTE HEALTH	CHRONIC HEALTH	FIRE	SUDDEN RELEASE OF PRESSURE	REACTIVE
X	X	X	--	--

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the *de minimis* levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372. If you may be required to report releases of chemicals listed in 40 CFR 372.28, you may contact Hess Corporate Safety if you require additional information regarding this product.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

INGREDIENT NAME (CAS NUMBER)	Date Listed
Diesel Engine Exhaust (no CAS Number listed)	10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)

16. OTHER INFORMATION

NFPA® HAZARD RATING	HEALTH:	0	Negligible
	FIRE:	2	Moderate
	REACTIVITY:	0	Negligible
HMIS® HAZARD RATING	HEALTH:	1 *	Slight
	FIRE:	2	Moderate
	PHYSICAL:	0	Negligible
			* Chronic

SUPERSEDES MSDS DATED: 02/28/2001

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

ACGIH	American Conference of Governmental Industrial Hygienists
AIHA	American Industrial Hygiene Association
ANSI	American National Standards Institute (212) 642-4900
API	American Petroleum Institute (202) 682-8000
CERCLA	Comprehensive Emergency Response, Compensation, and Liability Act
DOT	U.S. Department of Transportation [General info: (800) 467-4922]
EPA	U.S. Environmental Protection Agency
HMIS	Hazardous Materials Information System
IARC	International Agency For Research On Cancer
MSHA	Mine Safety and Health Administration
NFPA	National Fire Protection Association (617)770-3000
NIOSH	National Institute of Occupational Safety and Health
NOIC	Notice of Intended Change (proposed change to ACGIH TLV)
NTP	National Toxicology Program
OPA	Oil Pollution Act of 1990
OSHA	U.S. Occupational Safety & Health Administration
PEL	Permissible Exposure Limit (OSHA)
RCRA	Resource Conservation and Recovery Act
REL	Recommended Exposure Limit (NIOSH)
SARA	Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA	Self-Contained Breathing Apparatus
SPCC	Spill Prevention, Control, and Countermeasures
STEL	Short-Term Exposure Limit (generally 15 minutes)
TLV	Threshold Limit Value (ACGIH)
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average (8 hr.)
WEEL	Workplace Environmental Exposure Level (AIHA)
WHMIS	Canadian Workplace Hazardous Materials Information System