SITE INVESTIGATION

HEALTH & SAFETY PLAN

ALERT FIRE COMPANY
GREAT NECK, NEW YORK

NYSDEC SITE NO. V00522-1

JANUARY 2004

Prepared For:

ALERT FIRE COMPANY

555 Middle Neck Road
Great Neck, NY 11021

HEALTH AND SAFETY PLAN

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1.0 PURPOSE

The purpose of this Health and Safety Plan (HASP) is to establish protocols for protecting H2M and other on-site and off-site personnel from incidents that may arise while performing field activities during the Site Investigation to be conducted at the Alert Fire Company site located at 140 Steamboat Road, in Great Neck, New York. This HASP has been prepared in accordance with the United States Environmental Protection Agency (US EPA) document, "Emergency and Remedial Response Division's Standard Operating Safety Guides", November 1984. The plan establishes personnel protection standards, mandatory operations procedures, and provides contingencies for situations that may arise while field work is being conducted at the site. All H2M field personnel will be required to abide by the procedures set forth in this HASP.

Personnel performing the environmental field work involving chemical substances may encounter conditions that are unsafe or potentially unsafe. In addition to the potential risks associated with the physical, chemical, biological and toxicological properties of the material(s) which may be encountered, other types of hazards (i.e., electricity, water, temperature, heavy equipment, falling objects, loss of balance, tripping, etc.) can have an adverse effect on the health and safety of personnel. It is important that personnel protective equipment (PPE) and safety requirements be appropriate to protect against potential and/or

known hazards. PPE will be selected based on the type(s), concentration(s), and routes of personnel exposure from hazardous substances at a site. In situations where the type of materials and possibilities of contact are unknown or the potential hazards are not clearly identifiable, a more subjective (but conservative) determination will be made of the PPE required for initial safety.

Adherence to this HASP will minimize the possibility that personnel at the site or the surrounding community will be injured or exposed to site-related contaminants during field activities.

2.0 SITE CONDITIONS

The Alert Fire Company site is located within the Town of North Hempstead, in Nassau County. At present, the site consists of an open lot approximately 50 feet wide (fronting Steamboat Road) by 150 feet deep. A 750 square foot, concrete block building is located in the rear (south side) of the property and is used by Alert Fire Company for storage purposes. An emergency generator is located on a concrete pad immediately north of the storage building. The Alert Fire Company stationhouse is located immediately west of the subject site. The property immediately east of the site is presently being developed. Residential properties are located to the south. On the north side of Steamboat Road is a mix of commercial and residential properties. The topography of the site is generally level with grade varying less that two to three feet across the site.

Prior to the Alert Fire Company acquiring the property in the mid-1990s, the site included a single story building of approximately 3,000 square feet that was used to house a dry cleaning business. Based on a Phase I Environmental Site Assessment conducted in 1993, the dry cleaning business is believed to have operated on the property from the early 1950s until it shut down sometime in the late 1980s. The building that housed the dry cleaning business was demolished in 1998. Soil borings conducted during Phase II Environmental Site Assessments (ESAs) in 1998, revealed potential impacts to the subsurface soil. During the

initial Phase II ESA, four borings were conducted on the property. Although no volatile organic compounds (VOCs) were detected in the soils, semi-volatile organic compounds (SVOCs) were detected at concentrations ranging from 77 to 6,600 micrograms per kilogram (ug/kg) or parts per billion (ppb). During a second Phase II ESA, three additional soil borings were conducted in the area where SVOCs were previously detected. No SVOCs were detected in the second round of borings. However, VOCs, specifically tetrachloroethene (PCE) was detected in the subsurface soils at concentrations ranging from 0.145 ug/kg to 280,000 ug/kg. Based on the prior investigations, the site is suspected of containing soils impacted with PCE from the former dry cleaning business and SVOCs that may be associated with a former heating oil tank on the property. To date, no groundwater sampling has been conducted at the site.

Alert Fire Company has entered into a Voluntary Cleanup Agreement (Index No. D1-0002-04-02) with the NYSDEC. The Agreement requires that Alert Fire Company conduct a site investigation to determine the nature and extent of contamination suspected to exist in the soils and underlying groundwater as a result of prior activities (dry cleaning) on the property. H2M has been retained by Alert Fire Company to conduct the site investigation in accordance with a July 2003 NYSDEC-approved Work Plan.

2.1 Proposed Field Activities

The field work to be conducted as part of the site investigation will include a soil gas survey, the drilling of soil borings and installation of monitoring wells, developing and sampling of these monitoring wells, and surveying of well locations and elevations. The primary site related contaminants of concern, based on the history of the site and prior sampling results, are volatile organic compounds (VOCs) specifically tetrachloroethene (PCE) and SVOCs associated with heating oil. Drilling and sampling procedures can cause field personnel to come into contact with the identified contaminants. The routes of potential exposure include inhalation, ingestion and adsorption through dermal contact. The most probable route of exposure at the site, if any, will be via the inhalation of VOCs from

impacted soils or groundwater and via adsorption through dermal contact. As proposed, all field work activities will be conducted using Level D personal protective equipment (PPE). Ambient air will be monitored using a photoionization detector (PID) during all intrusive field activities. If total VOC concentrations of 5.0 parts per million (ppm) or more as measured on the PID, work will be stopped, and upgrading to Level C PPE (air purifying respirators) will be considered.

3.0 PERSONAL SAFETY

Personnel involved in field operations must often make complex decisions regarding safety. To make these decisions correctly requires more than elementary knowledge. For example, selecting the most effective PPE requires not only expertise in the technical areas of respirators, protective clothing, air monitoring, physical stress, etc., but also experience and professional judgment. Only competent, qualified personnel having the technical judgment to evaluate a particular situation and determine the appropriate safety requirements will perform field investigation activities at the site. These individuals, through a combination of professional education, on-the-job experience, specialized training, and continual study, have the expertise to make sound decisions. Each individual must sign an appendix to the Health and Safety Plan, indicating they have read and understood its contents (included in Appendix A).

3.1 Health and Safety Manager

The Health and Safety Manager shall be responsible for overall implementation and coordination of the Health and Safety Program for field personnel at the site. Responsibilities include providing adequate staffing, materials, equipment, and time needed to safely accomplish the tasks under the site investigation. The Health and Safety Manager is also responsible for taking appropriate corrective actions when unsafe acts or practices arise. The Health and Safety Manager for this project is Gary J. Miller, P.E. of H2M.

3.2 Site Health and Safety Officer

A designated individual will perform the function of the project Site Health and Safety Officer. Rocky Wenskus will serve as the Site Health and Safety Officer during the site work. The Site Health and Safety Officer will report directly to the Health and Safety Manager. As a minimum, the Site Health and Safety Officer will be responsible for the following:

1. Conducting daily site safety briefings for field personnel.

2. Assuring that personnel protective equipment is available and properly utilized by field personnel at the site.

3. Assuring that all personnel are familiar with standard safety procedures and additional instructions contained in the Health and Safety Plan.

4. Assuring that all personnel are aware of the hazards associated with the field operations.

5. Inspecting and documenting the site for hazards before field operations commence.

6. Conducting daily work area inspections to determine the effectiveness of the site HASP and identify and correct unsafe conditions in the responsible work area.

7. Determining personal protection levels including clothing and equipment for personnel and periodic inspection of protective clothing and equipment.

8. Monitoring of site conditions prior to initiation of field activities, and at various intervals during on-going operations as deemed necessary for any changes in site hazard conditions. (Monitoring parameters include, but are not limited to, volatile organic contaminant levels in the atmosphere, chemical hazard information, and weather conditions.)

9. Executing decontamination procedures.

10. Monitoring the work parties for signs of stress such as cold exposure, heat stress, or fatigue.

11. Prepare reports pertaining to incidents resulting in physical injuries or exposure to hazardous materials.

4.0 LEVELS OF PROTECTION

Anyone entering the investigation site must be protected against potential hazards. The purpose of the personal protection clothing and equipment is to minimize exposure to hazards while working on site. Careful selection and use of appropriate PPE should protect the respiratory system, skin, eyes, face, hands, feet, head, body and hearing of all personnel.

The appropriate level of protection is determined prior to the initial entry on site based on available information and preliminary monitoring of the site. Subsequent information may warrant changes in the original level selected. Appropriate equipment to protect personnel against exposure to known or anticipated chemical hazards has been divided into four categories according to the degree of protection afforded.

4.1 Level A Protection

The highest degree of protection is used in a Level A situation. It should be worn when the highest available level of respiratory, skin and eye protection is needed. This level of protection is placed in effect when there is no historic information about the site and it is assumed that the worst possible conditions exist.

4.1.1 Level A Personal Protective Equipment

a. Pressure demand, self-contained breathing apparatus, approved by the Occupational Safety and Health Administration (OSHA) and National Institute of Occupational Safety and Health (NIOSH).

b. Fully encapsulating chemical-resistant suit.

c. Coveralls*.

d. Long cotton underwear*.

e. Gloves (inner and outer), chemical-resistant.

f. Boots, chemical-resistant, steel toe and shank. (Depending on suit construction, worn over or under suit boot.)

g. Hard hat* (under suit).

h. Disposable protective suit, gloves and boots* (worn over fully-encapsulating suit).

i. Two-way radio communications (intrinsically safe).

*Optional

4.1.2 Criteria for Level A PPE Selection

Meeting any of the criteria listed below warrants use of Level A protection:

a. The chemical substance(s) has been identified and requires the highest level of protection for skin, eyes and the respiratory system based on:

(1) Measured (or potential for) high concentrations of atmospheric vapors, gases, or particulates; or

(2) Site operations and work functions involving high potential for splash, immersion, or exposure to unexpected vapors, gases, or particulates.

b. Extremely hazardous substances are known or suspected to be present and skin contact is possible.

c. The potential exists for contact with substances that destroy skin.

d. Operations must be conducted in confined, poorly ventilated areas until the absence of hazards requiring Level A protection is demonstrated.

e. An oxygen deficient atmosphere where the oxygen level is less than 19.5 percent (%) by volume as measured with an oxygen meter. This condition, existing alone, could result in a down grade to EPA Level B PPE.

f. Total atmospheric readings on photoionization detector indicate readings above 500 parts per million (ppm) of calibration gas equivalents (cge) of unidentified substances.

4.1.3 Limiting Criteria for Level A PPE

a. Fully encapsulating suit material must be compatible with the substances involved.

4.1.4 Minimum Decontamination Procedure for Level A PPE

Station 1: Segregated equipment drop.
Station 2: Outer garment, boots and gloves wash and rinse.
Station 3: Outer boot and glove removal.

Station 4: Tank change.
Station 5: Boots, gloves and outer garment removal.
Station 6: SCBA removal.
Station 7: Field wash.

4.2 Level B Protection

Level B protection will be used by all personnel entering confined spaces and/or if the conditions outlined in Section 4.2.2 are encountered.

4.2.1 Level B Personal Protective Equipment

a. Pressure-demand, self-contained breathing apparatus or cascade supplied air system (OSHA/NIOSH approved).

b. Chemical-resistant clothing (coveralls and long-sleeved jacket; coveralls, hooded, one or two-piece chemical-splash suit; disposable chemical-resistant coveralls).

c. Coveralls.*

d. Gloves (outer), chemical-resistant.

e. Gloves (inner), chemical-resistant.

f. Boots, chemical-resistant, steel toe and shank.

g. Boots (outer), chemical resistant (disposable*).

h. Hard hat (face shield*).

i. Two-way radio communications (intrinsically safe).

*Optional

4.2.2 Criteria for Level B PPE Selection

Meeting any one of these criteria warrants use of Level B protection:

a. The type(s) and atmospheric concentration(s) of toxic substances have been identified and require the highest level of respiratory protection, but a lower level of skin and eye protection than is required with Level A. These would be atmospheres:

   (1) With concentrations immediately dangerous-to life and health (IDLH); or

   (2) Exceeding limits of protection afforded by a full-face, air-purifying mask; or

   (3) Containing substances for which air-purifying canisters do not exist or have low removal efficiency; and/or

   (4) Containing substances requiring air-supplied equipment, but substances and/or concentrations do not represent a serious skin hazard.

b. The atmosphere contains less than 19.5 percent oxygen.

c. Site operations make it highly unlikely that the small, unprotected area of the head or neck will be contacted by splashes of extremely hazardous substances.

d. Total atmospheric concentrations in the breathing zone of unidentified vapors or gases range from 50 ppm to 500 ppm (calibration gas equivalence units) on monitoring instruments, and vapors are not suspected of containing high levels of chemicals toxic to skin.

4.2.3 Limiting Criteria for Level B PPE

a. Use only when the vapor or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through skin contact.

b. Use only when it is highly unlikely that the work being done will generate high concentrations of vapors, gases, or particulates or splashes of material that will affect exposed skin.

4.2.4 Minimum Decontamination Procedures for Level B PPE

Station 1: Equipment drop.
Station 2: Outer garment, boots and gloves wash and rinse.
Station 3: Outer boot and glove removal.
Station 4: Tank change.
Station 5: Boot, gloves and outer glove removal.
Station 6: SCBA removal.
Station 7: Field wash.

4.3 Level C Protection

Level C protection will be used by all personnel if the conditions outlined in Section 4.3.2 are encountered.

4.3.1 Level C Personal Protective Equipment

a. Full-face, air purifying, canister-equipped respirator (Mine Safety and Health Administration (MSHA) and National Institute of Occupational Safety and Health (NIOSH) approved).

b. Chemical-resistant clothing (coveralls; hooded, two-piece chemical splash suits; chemical-resistant hood and apron; disposable chemical-resistant coveralls).

c. Coveralls.*

d. Gloves (outer), chemical-resistant.

e. Gloves (inner), chemical resistant

f. Boots, steel toe and shank.

g. Boots cover (outer), chemical-resistant (disposable*).

h. Hard hat (face shield*).

i. Escape mask*.

j. Two-way radio communications (intrinsically safe).

*Optional

4.3.2 Criteria for Level C PPE Selection

Meeting all of these criteria permits use of Level C Protection:

a. Measured air concentrations of identified substances will be reduced by the respirator to, at or below the substance's exposure limit, and the concentration is within the service limit of the canister.

b. Atmospheric contaminant concentrations do not exceed IDLH levels.

c. Atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect the small area of skin left unprotected by chemical-resistant clothing.

d. Job functions have been determined not to require self-contained breathing apparatus.

e. Total vapor readings register between 5 ppm cge and 50 ppm cge above background on instruments.

f. Air will be monitored periodically.

g. Cartridges are available and are approved by NIOSH and MSHA for the specific chemical(s) encountered.

4.3.3 Limiting Criteria for Level C PPE

a. Atmospheric concentration of chemicals must not exceed IDLH levels.

b. The atmosphere must contain at least 19.5 percent oxygen.

c. Must have sufficient information available regarding specific compounds, and their concentrations, likely to be encountered.

4.3.4 Minimum Decontamination Procedures for Level C PPE

Station 1: Equipment drop.
Station 2: Outer boot and glove removal.
Station 3: Canister or mask change.
Station 4: Boots, gloves and outer garment removal.
Station 5: Face piece removal.
Station 6: Field wash.

4.4 Level D Protection

Level D protection has been selected for personnel for this project. Should conditions change, the level of personnel protection will be re-evaluated.

4.4.1 Level D Personal Protective Equipment

a. General work clothes or coveralls.

b. Gloves*.

c. Boots/shoes, leather or chemical-resistant, steel toe and shank.

d. Boots (outer), chemical/resistant (disposable)*.

e. Safety glasses or chemical splash goggles*.

f. Hard hat (face shield*).

g. Escape mask*.

*Optional

4.4.2 Criteria for Level D PPE Selection

Meeting any of these criteria allows use of Level D protection:

a. No hazardous air pollutants have been measured.

b. Work functions preclude splashes, immersion, or potential for unexpected inhalation of any chemicals.

c. Extensive information on suspected hazards/risks are known.

4.4.3 Limiting Criteria for Level D PPE

a. The atmosphere must contain at least 19.5 percent oxygen.

4.4.4 Minimum Decontamination Procedure for Level D PPE

Station 1: Equipment drop.
Station 2: Hand and face wash.

4.5 Duration of Work Period

The anticipated duration of the work period will be established prior to daily activities. The work will only be performed during daylight hours. Other factors that affect the length of time personnel may work include:

a. Suit/ensemble, air purifying chemical cartridge, permeation and penetration by chemical contaminants; and

b. Ambient temperature and weather conditions.

5.0 DETERMINATION OF THE SITE-SPECIAL LEVEL OF HAZARD

Categories of personnel protection required depend on the degree of hazard and probability of exposure by a route of entry into the body. For this site, the most probable potential route of entry is via inhalation of VOCs, and potentially by dermal adsorption of contaminates released from field activities. The site-specific chemical contaminants of greatest concern are volatile organic compounds, specifically tetrachloroethene (PCE), and SVOCs associated with heating oil.

Based upon information obtained from previous investigations and sampling results, and the examination of the hazardous substance data sheets (Appendix B) for the contaminants alleged or reported to be present at the Alert Fire Company site, it has been determined that the appropriate level of protection for the site is Level D, the minimal level of protection. Synthetic gloves with low permeability to liquids and Tyvek suits will be used by all personnel in contact with on-site soil or water to prevent dermal contact.

The determination of Level D protection is based on the fact that field work will be performed in open, well-ventilated areas and that the potential for accidents and injuries due to obstructions caused by and/or magnified by the use of level A, B, or C protection (i.e.,

slip/trip hazards) is greater than the potential for problems associated with potential exposure from contaminants using level D protection. Level C protection will be used if ambient air monitoring results warrant a protective equipment upgrade (above Level D conditions). The Site Health and Safety Officer will be responsible for requesting an upgrade in the level of personnel protection. The final decision will be made by the Health and Safety Manager in conjunction with the Project Manager and the appropriate regulatory authorities.

A PID will be used to monitor air quality throughout the course of field work. If necessary (based upon field equipment readings), the work zone will be evacuated and consideration will be given to upgrading the level of protection. An upgrade to the appropriate level of protection for field personnel will be required before re-entering the work zone if hazardous conditions persist.

In addition to potential chemical hazards, there also exists potentially greater physical hazards associated with the activities at the site. Due to the nature of the site investigation activities, heavy equipment including drilling rigs will be utilized on the job site. Therefore, all personnel should always be aware of vehicular traffic while working at the facility. Further, hard hats and steel-toed safety boots must be worn at all times around heavy equipment. All work must be performed in strict accordance with OSHA regulations.

5.1 Community Air Monitoring Plan

Due to the proximity of nearby residences, real time air monitoring for volatile organic compounds (VOCs) at the perimeter of the work area is necessary. A Community Air Monitoring Plan will be implemented with the following provisions:

5.1.1 Frequency of Monitoring

Volatile organic compounds (VOCs) will be monitored at the downwind perimeter of the work area daily at 2 hour intervals. If total organic vapor levels exceed 5 ppm above background, work activities will be halted and monitoring continued under the provisions of a

Vapor Emission Response Plan. All readings must be recorded and be available for NYSDEC and NYSDOH personnel to review.

5.1.2 Vapor Emission Response Plan

If the ambient air concentration of VOCs exceeds 5 ppm above background at the perimeter of the work area, all work activities will be halted and monitoring continued. If the VOC concentration decreases below 5 ppm above background, work activities can resume but more frequent intervals of monitoring, as directed by the Site Health and Safety Officer must be conducted. If the VOC concentrations are greater than 5 ppm over background but less than 25 ppm over background at the perimeter of the work area, activities can resume provided:

- the VOC concentration 200 feet downwind of the work area or half the distance to the nearest residential or commercial structure, whichever is less, is below 5 ppm over background, and

- more frequent intervals of monitoring, as directed by the Site Health and Safety Officer, are conducted.

If VOC concentrations are above 25 ppm at the perimeter of the work area, all work activities must be shutdown. When work shutdown occurs, downwind air monitoring as directed by the Site Health and Safety Officer will be implemented to ensure that vapor emission does not impact the nearest residential or commercial structure at levels exceeding those specified in the Major Vapor Emission section.

5.1.3 Major Vapor Emission

If VOC concentrations greater than 5 ppm over background are identified 200 feet downwind from the work area or half the distance to the nearest residential or commercial property, whichever is less, all work activities shall be halted.

If, following the cessation of the work activities, or as the result of an emergency, VOC levels persist above 5 ppm above background 200 feet downwind or half the distance to the nearest residential or commercial property from the work area, then the air quality must be monitored within 20 feet of the perimeter of the nearest residential or commercial structures (20 Foot Zone).

If efforts to abate the emission source are unsuccessful and if the following levels persist for more than 30 minutes in the 20 Foot Zone, then the Major Vapor Emission Response Plan shall automatically be placed into effect;

- if VOC levels are approaching 5 ppm above background.

However, the Major Vapor Emission Response Plan shall be immediately placed into effect if organic vapor levels are greater than 10 ppm above background.

5.1.4 Major Vapor Emission Response Plan

Upon activation, the following activities will be undertaken:

1. All Emergency Response Contacts, as listed in the Health and Safety Plan of the Work Plan, will go into effect.

2. The local police authorities will immediately be contacted by the Site Health and Safety Officer and advised of the situation.

3. Frequent air monitoring will be conducted at 30-minute intervals within the 20 Foot Zone. If two successive readings below action levels are measured, air monitoring may be halted or modified by the Safety Officer.

6.0 DESIGNATED WORK ZONES

Work zones will be determined prior to commencement of a specific field activity. An area large enough to encompass the activity will be delineated as the work zone. Given the relatively small nature of the Alert Fire Company site, it is likely that the entire site will be

considered as the work zone. Only qualified field personnel involved in the field activity, with the proper PPE, will be allowed into the designated work zone. Within the work zone, ambient air quality will be periodically monitored using a PID to determine any changes from background air quality. If subsequent measurements suggest a significant change in air quality (greater than 5 ppm), the work area will be immediately evacuated. An upgrade to the appropriate level of PPE for field personnel will be required before re-entering the work zone.

7.0 DECONTAMINATION STATIONS

Decontamination stations will be located in fixed areas to be used for the cleaning of all heavy equipment, vehicles, tools and supplies required for the completion of field operations. Personnel decontamination procedures for the appropriate levels of protection are described in Section 4.0.

All drilling equipment (rigs, augers, etc.) will be steam cleaned between each soil boring and well installation. The staged decontamination area will be located at the southwest corner of the property. All decontamination procedures will take place in this area.

8.0 SITE ACCESS CONTROL

Appropriate traffic controls and barricades will be used in areas of vehicular and pedestrian traffic. Local requirements for traffic control will be adhered to (e.g., obtaining appropriate permits, and provisions for a flagman), as may be warranted.

9.0 PERSONAL HYGIENE

The following personal hygiene rules must be followed while performing work at the site:

1. Eating, drinking, chewing gum or tobacco, smoking, or any other practice that increases the probability of hand-to-mouth transfer and ingestion of material is prohibited in the work area.

2. Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking, or any other activities.

3. Whenever decontamination procedures for outer garments are in effect, the entire body should be thoroughly washed as soon as possible after the protective garment is removed.

4. No excessive facial hair (i.e., beards), which interferes with a satisfactory fit of the mask-to-face seal, is allowed on personnel required to wear respiratory protective equipment.

5. Contact with contaminated or suspected contaminated surfaces will be avoided. Whenever possible, walking through puddles, mud and discolored surfaces; kneeling on ground; leaning, sitting, or placing equipment on drums, containers, vehicles, or the ground will be avoided.

6. Medicine and alcohol can increase the effects from exposure to toxic chemicals. Prescribed drugs will not be taken by personnel on site where the potential for absorption, inhalation, or ingestion of toxic substances exists unless specifically approved by a qualified physician. Alcoholic beverage intake will be prohibited during all on-site field operations.

10.0 CONTINGENCY PLAN

Section 10.0 shall serve as the site investigation Contingency Plan. It has been developed to identify precautionary measures, possible emergency conditions, and emergency procedures. The Contingency Plan shall be implemented by the Site Health and Safety Officer.

10.1 Emergency Medical Care and Treatment

This section addresses emergency medical care and treatment of field personnel, resulting from possible exposures to toxic substances and injuries due to accidents. The following items will be included in emergency care provisions:

a. Name, address and telephone number of the nearest medical treatment facility will be conspicuously posted. Directions for locating the facility, plus the travel time, will be readily available (see Appendix C).

b. Names and telephone numbers of ambulance service, police and fire departments, and procedures for obtaining these services will be conspicuously posted (see Appendix C).

c. Procedure for prompt notification of the H2M Site Health and Safety Officer.

d. Emergency eyewash fountains and first aid equipment will be readily available on site and located in an area known to all personnel.

e. Specific procedures for handling personnel with excessive exposure to chemicals or contaminated soil or water.

f. Readily available dry-chemical fire extinguisher.

10.2 Off-Site Emergency Medical Care

The Site Health and Safety Officer shall pre-arrange for access to emergency medical care services at a convenient and readily accessible medical facility and establish emergency routes. The Site Health and Safety Officer shall establish emergency communications with emergency response services.

10.3 Personnel Accidents

Bodily injuries which occur as a result of an accident during the site investigation will be handled in the following manner:

a. First aid equipment will be available on site for minor injuries. If the injuries are not considered minor, proceed to the next step.

b. The local first aid squad rescue unit, a paramedic unit, the local hospital and the Site Health and Safety Officer shall be notified of the nature of the emergency.

c. The injured employee shall be transported the local hospital by the local emergency vehicle to.

d. A written report shall be prepared by the Site Health and Safety Officer detailing the events and actions taken during the emergency within 24 hours of the accident.

10.4 Personnel Exposure

In the event that any person is splashed or otherwise excessively contaminated by chemicals, the following procedure will be undertaken:

a. Disposable clothing contaminated with observable amounts of chemical residue is to be removed and replaced immediately.

b. In the event of direct skin contact in Level D, the affected area is to be washed immediately with soap and water, or other solutions as directed by medical personnel.

c. The Site Health and Safety Officer or other individuals who hold a current first aid certificate will determine the immediate course of action to be undertaken. This may involve using the first aid kit and/or eyewash stations.

10.4.1 Weather

Adverse weather conditions are an important consideration in planning and conducting site operations. Hot or cold weather can cause physical discomfort, loss of efficiency, and personal injury. Of particular importance is heat stress resulting when protective clothing decreases natural body ventilation. One or more of the following will help reduce heat stress:

a. Provide plenty of liquids. To replace body fluids (water and electrolytes) lost because of sweating, use a 0.1 percent salt water solution, more heavily salted foods, or commercial mixes. The commercial mixes may be preferable for those employees on a low sodium diet.

b. Provide cooling devices to aid natural body ventilation. These devices, however, add weight, and their use should be balanced against worker efficiency. Long cotton underwear help absorb moisture and protect the skin from direct contact with heat absorbing protective clothing.

c. Install mobile showers and/or hose down facilities to reduce body temperature and cool protective clothing.

d. In extremely hot weather, conduct operations in the early morning or evening.

e. Ensure that adequate shelter is available to protect personnel against heat, cold, rain, snow, etc.

f. In hot weather, rotate shifts of workers wearing impervious clothing.

10.4.2 Heat Stress

If field operations are conducted in the warm summer months, heat related fatigue will be closely monitored. Monitoring of personnel wearing impervious clothing should

commence when the ambient temperature is 70 degrees Fahrenheit or above. Frequency of monitoring should increase as the ambient temperature increases or as slow recovery rates are indicated. When temperatures exceed 85 degrees Fahrenheit, workers should be monitored for heat stress after every work period. The following screening mechanism will be used to monitor for heat stress:

> Heart rate (HR) will be periodically measured by the radial pulse for 30 seconds during a resting period. The HR should not exceed 110 beats per minute. If the HR is higher, the next work period should be shortened by 33 percent. If the pulse rate is 100 beats per minute at the beginning of the next rest period, the following work cycle should be shortened by 33 percent.

Heat-related illnesses range from heat fatigue to heat stroke, the most serious. Heat stroke requires prompt treatment to prevent irreversible damage or death. Protective clothing may have to be cut off. Less serious forms of heat stress require prompt attention or they may lead to a heat stroke. Unless the victim is obviously contaminated, decontamination should be omitted or minimized and treatment begun immediately. Heat-related problems can be categorized into:

Heat Rash:	Caused by continuous exposure to hot and humid air and aggravated by chafing clothes. Decreases ability to tolerate heat as well as being a nuisance.
Heat Cramps:	Caused by profuse perspiration with inadequate fluid intake and chemical replacement (especially salts). Signs: muscle spasm and pain in the extremities and abdomen.
Heat Exhaustion:	Caused by increased stress on various organs to meet increased demands to cool the body. Signs: shallow breathing; pale, cool, moist skin; profuse sweating; dizziness and lassitude.
Heat Stroke:	The most severe form of heat stress. The body must be cooled immediately to prevent severe injury and/or death. Signs and

symptoms are: red, hot, dry skin; no perspiration; nausea; dizziness and confusion; strong, rapid pulse; coma.

Some of the symptoms of heat stress are: hot dry skin, fever, nausea, cramps, red or spotted skin, confusion, lightheadedness, delirium, rapid pulse, convulsions and unconsciousness. For workers suffering from heat stress, the following actions should be taken:

1. Remove the victim to a cool area
2. Loosen clothing
3. Thoroughly soak the victim in cool water or apply cold compresses
4. Call for medical assistance.

10.4.3 Cold Stress

If field operations are conducted in the cold winter months, as will likely be the case at the Alert Fire Company site, cold stress will be monitored. Two factors influence the development of a cold injury: ambient temperature and the velocity of the wind. Wind chill is used to describe the chilling effect of moving air in combination with low temperature. For instance, 10 degrees Fahrenheit air with a wind of 15 miles per hour (mph) is equivalent in chilling effect to still air at -18 degrees Fahrenheit.

As a general rule, the greatest incremental increase in wind chill occurs when a wind of 5 mph increases to 10 mph. Additionally, water conducts heat 240 times faster than air. Thus, the body cools suddenly when chemical-protective equipment is removed if the clothing underneath is perspiration soaked.

Local injury resulting from cold is included in the generic term frostbite. There are several degrees of damage. Frostbite of the extremities can be categorized into:

Incipient Frostbite: Characterized by suddenly blanching or whitening of skin.

Superficial Frostbite: Skin has a waxy or white appearance and is firm to the touch, but tissue beneath is resilient.

Deep Frostbite: Tissues are cold, pale and solid; extremely serious injury.

Hypothermia: Systemic hypothermia is caused by exposure to freezing or rapidly dropping temperatures. Its symptoms are usually exhibited in five stages: (1) shivering; (2) apathy, listlessness, sleepiness, and (sometimes) rapid cooling of the body temperature to less than 95 degrees Fahrenheit; (3) unconsciousness, glassy stare, slow pulse and slow respiratory rate; (4) freezing of the extremities; and finally, (5) death.

10.5 Fire

The local fire department, Alert Fire Company is located immediately adjacent to the site. A telephone number Alert Fire Company will be posted along with other emergency numbers conspicuously on-site at all times. (see Appendix C). In the event of a fire occurring at the site, the following actions will be undertaken by the Site Health and Safety Officer and the designated fire control personnel:

a. Evacuate all unnecessary personnel from the area of the fire and site, if necessary.

b. Contact the local fire and police departments informing them of the fire and any injuries if they have occurred.

c. Contact the local hospital of the possibility of fire victims.

d. Contact the Site Health and Safety Officer, Health and Safety Manager, and the H2M Project Manager.

11.0 SUMMARY

The Health and Safety Plan establishes practices and procedures to be followed so that the welfare and safety of workers and the public are protected. It is important that personal equipment and safety requirements be appropriate to protect against the potential or known hazards at a site. Protective equipment will be based upon the type(s), concentration(s), and

routes of personal exposure from substances at the site, as well as the potential for hazards due to heavy equipment use, vision impairment, weather, etc. All site operation planning incorporates an analysis of the hazards involved and procedures for preventing or minimizing the risk to personnel. The following summarizes the rules, which must be obeyed:

a. The Health and Safety Plan will be made available to all personnel doing field work on site. All personnel must sign this plan, indicating they have read and understood its terms.

b. All personnel will be familiar with standard operating safety procedures and additional instructions contained in the Health and Safety Plan.

c. All personnel going on site will be adequately trained and thoroughly briefed on anticipated hazards, equipment to be worn, safety practices to be followed, emergency procedures and communications.

d. Any required respiratory protective devices and protective clothing will be worn by all personnel going into work areas.

e. Prior to commencement of work activities, notification to local police, fire and potential rescue personnel will be made.

APPENDIX A

HEALTH AND SAFETY ACKNOWLEDGMENT AND STATEMENT FORMS

SITE WORKER

HEALTH AND SAFETY STATEMENT FORM

I have read the Health and Safety Plan (HASP) for the Field Investigation at the Alert Fire Company site and I have reviewed and understand the potential hazards and the precautions/contingencies of each potential hazard.

I agree to abide by the stipulations of this HASP and further agree to hold H2M Group harmless from, and indemnify against, any accidents which may occur as a result of activities in the site regardless of whether or not they were covered in the HASP.

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

I acknowledge that I have read and understand the provisions of this Health and Safety Plan, and that I will, to the best of my ability, abide by the terms of this plan:

Print Name	Signature	Date

I acknowledge that I have read and understand the provisions of this Health and Safety Plan, and that I will, to the best of my ability, abide by the terms of this plan:

Print Name	Signature	Date

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

Name: _____

Representing: _____

Print Name: _____

Sign: _____

Date: _____

APPENDIX B

HAZARDOUS SUBSTANCE DATA SHEETS

Material Safety Data Sheet

Revision Issued: 9/07/2000 Supercedes: 7/10/95 First Issued: 6/24/87

Section I - Chemical Product And Company Identification

Product Name: Perchloroethylene

CAS Number: 127-18-4 HBCC MSDS No. CP05000

HILL BROTHERS Chemical Co.
1675 NORTH MAIN STREET • ORANGE, CALIFORNIA 92867-3499
(714) 998-8800 • FAX: (714) 998-6310
http://hillbrothers.com

1675 No. Main Street, Orange, California 92867
Telephone No: 714-998-8800 | Chemtrec: 800-424-9300

Section II - Composition/Information On Ingredients

			Exposure Limits (TWAs) in Air		
Chemical Name	CAS Number	%	ACGIH TLV	OSHA PEL	STEL
Perchloroethylene	127-18-4	100	50 ppm	50 ppm	N/A

Section III - Hazard Identification

Routes of Exposure: Perchloroethylene can affect the body either through ingestion, inhalation, or contact with the eyes and/or skin.

Summary of Acute Health Hazards

Ingestion: May cause irritation of the gastrointestinal tract with vomiting. If vomiting results in aspiration, chemical pneumonia could follow. Absorption through the gastrointestinal tract may produce symptoms of central nervous system depression ranging from light-headedness to unconsciousness.

Inhalation: Excessive inhalation may produce symptoms of central nervous system depression, ranging from light-headedness, nausea and vomiting, to unconsciousness and death.

Skin: Mildly irritating to the skin. Skin contact may produce a burning sensation. Prolonged or repeated contact may cause skin to become reddened, rough, and dry due to the removal of natural oils and may result in dermatitis.

Eyes: An irritant to the eyes, causing pain, lacrimation, and general inflammation.

Summary of Chronic Health Hazards: Can cause headache, mental confusion, depression, fatigue, loss of appetite, nausea, vomiting, coughing, loss of sense of balance, and visual disturbances. Prolonged or repeated skin contact may cause dermatitis.

Signs and Symptoms of Exposure: N/A

Effects of Overexposure: N/A

Medical Conditions Generally Aggravated by Exposure: Persons with pre-existing skin disorders, impaired liver function, or impaired renal function might have increased health risks working with perchloroethylene.

Note to Physicians: Do not administer adrenaline or epinephrine to a victim of chlorinated solvent poisoning.

Section IV - First Aid Measures

Ingestion: NEVER give anything by mouth to an unconsciousness person. Have the conscious victim

drink 2 glasses of water to dilute. DO NOT INDUCE VOMITING. Keep the airway clear. GET MEDICAL ATTENTION IMMEDIATELY.
Inhalation: Remove the victim to fresh air immediately. If breathing is difficult, administer oxygen; if breathing has stopped, perform artificial respiration. GET MEDICAL ATTENTION IMMEDIATELY.
Skin: Wash the contaminated skin with plenty of soap and water for at least 15 minutes. A soothing ointment may be applied to irritated skin after thorough cleansing. If irritation persists after washing, get medical attention.
Eyes: Wash the eyes immediately with large amounts of water for at least 15 minutes, lifting the upper and lower lids. If irritation persists after washing, GET MEDICAL ATTENTION. Contact lenses should not worn with this product.

Section V - Fire Fighting Measures

Flash Point: Not Flammable **Autoignition Temperature:** Not Flammable

Lower Explosive Limit: N/A **Upper Explosive Limit:** N/A

Unusual Fire and Explosion Hazards: Perchloroethylene is nonflammable and nonexplosive under normal conditions of use. At high temperatures PCE decomposes to give off hydrochloric acid as gas plus other toxic and irritating vapors such as phosgene.

Extinguishing Media: Water spray, dry chemical, carbon dioxide, or foam may be used where perchloroethylene is stored.

Special Firefighting Procedures: Storage containers exposed to fire should be kept cool with a water spray in order to prevent pressure build-up.

Section VI - Accidental Release Measures

Ventilate the area of the leak or spill. Persons performing clean-up work should wear adequate personal protective equipment and clothing. Keep material out of water sources and sewers. Build dikes to contain flow as necessary. Collect for reclamation or absorb in vermiculite, dry sand, earth or a similar material, and place in non-leaking containers for proper disposal. Flush area with water to remove trace residue, and dispose of the flush solution.

Section VII - Handling and Storage

Do not get in eyes, on skin, or on clothing, and avoid breathing the mist. Keep containers closed, and use with adequate ventilation. Wash thoroughly after handling. Under normal conditions, perchloroethylene may be stored satisfactorily in galvanized iron, black iron or steel. Aluminum is not generally recommended for storage or handling. Store drums in a cool place (bungs up and closed tightly). Ventilation should be provided at the floor level.

Section VIII - Exposure Controls/Personal Protection

Respiratory Protection: Use only a MSHA/NIOSH-approved respirator to prevent overexposure if vapor levels may or do exceed the exposure limits. See SUPPLEMENTAL INFORMATION.
Ventilation: This product should be confined within closed equipment, in which case general (mechanical) room ventilation should be suitable. Special, local ventilation is needed at points where vapors are expected to be vented to the workplace air.
Protective Clothing: Wear chemical goggles if there is the likelihood of contact with the eyes. Wear appropriate impervious gloves and protective clothing to prevent skin contact. Wear face shields and impervious aprons when splashing is likely. Remove contaminated clothing promptly and launder before reuse.
Eye Protection: Employees should be provided with and required to use splash-proof safety goggles where there is any possibility of PERCHLOROETHYLENE contacting the eyes.
Other Protective Clothing or Equipment: Have eye baths and safety showers immediately available where eye contact and skin contact can occur.

Work/Hygienic Practices: All employees who handle perchloroethylene should wash their hands before eating, smoking, or using the toilet facilities.

Section IX - Physical and Chemical Properties

Physical State: Liquid
pH: N/A
Melting Point/Range: -19°C (-2°F)
Boiling Point/Range: 121°C (250°°F)
Appearance/Color/Odor: Clear, colorless liquid with an odor like chloroform or ether
Solubility in Water: 0.015 g/100 g H2O
Vapor Pressure(mmHg): 18 @ 25°C (77°F)
Specific Gravity(Water=1): 1.62
Molecular Weight: 165.85
Vapor Density(Air=1): 5.7
% Volatiles: 100
Evaporation Rate (BuAc=1): 0.33 (trichloroethylene=1)

How to detect this compound : In air, adsorption on charcoal, workup with CS2, analysis by gas chromatography. In water, inert gas purge followed by gas chromatography with halide specific detection (EPA Method 601) or gas chromatography plus mass spectrometry (EPA Method 624).

Section X - Stability and Reactivity

Stability: Stable under ordinary conditions of use and storage. Slowly decomposed by light. Deteriorates rapidly in warm, moist climates.

Hazardous Polymerization: Will Not Occur

Conditions to Avoid: High Temperatures

Materials to Avoid: Pure oxygen, strong oxidizers, alkali metals, open flames, and electrical arcs. PCE reacts violently with concentrated nitric acid to give carbon dioxide as a primary product.

Hazardous Decomposition Products: At high temperatures, PCE decomposes to give off hydrogen chloride gas and small quantities of other toxic and irritating vapors such as phosgene.

Section XI - Toxicological Information

N/A

Section XII - Ecological Information

N/A

Section XIII - Disposal Considerations

Dispose of in accordance with applicable local, county, state and federal regulations.

Section XIV - Transport Information

DOT Proper Shipping Name: Tetrachloroethylene
DOT Hazard Class/ I.D. No.: 6.1, UN1897, III

Section XV - Regulatory Information

CALIFORNIA PROPOSITION 65: WARNING
This product contains Tetrachloroethylene (Perchloroethylene), a substance known to the State of California to cause cancer.
Reportable Quantity: 100 Pounds (45.4 Kilograms)
NFPA Rating: Health - 2; Fire - 0; Reactivity - 0
0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme
Carcinogenicity Lists: YES, Perchloroethylene has been found to be carcinogenic. **NTP:** Yes **IARC Monograph:** Yes **OSHA Regulated:** Yes

Section 313 Supplier Notification: This product contains the following toxic chemcial(s) subject to

the reporting requirements of SARA TITLE III Section 313 of the Emergency Planning and Community Right-To Know Act of 1986 and of 40 CFR 372:

CAS #	Chemical Name	% By Weight
127-18-4	Tetrachloroethylene (Perchloroethylene)	100

Section XVI - Other Information

Synonyms/Common Names: Tetrachloroethylene, Perclene, Carbon Dichloride, PCE
Chemical Family/Type: N/A
Sections changed since last revision: III, IV, IX, X

IMPORTANT! Read this MSDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This MSDS has been prepared according to the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The MSDS information is based on sources believed to be reliable. However, since data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, **Hill Brothers Chemical Company** makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Also, additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks prior to use, and then to exercise appropriate precautions for protection of employees and others.

HOME PAGE

MATERIAL SAFETY DATA SHEET

PRODUCT NAME: MAPLLC NO. 2 FUEL OIL DYED (0.05% SULFUR MAX)
MARATHON MSDS NO: 0117MAR019

MARATHON ASHLAND
Petroleum LLC

1. CHEMICAL PRODUCT AND COMPANY INFORMATION

PRODUCT NAME:
MAPLLC NO. 2 FUEL OIL DYED (0.05% SULFUR MAX)

SYNONYMS:
D-GRADE DYED NO. 2 DIESEL FUEL; DIESEL #2 DYED (0.05 SULFUR MAX); LOW SULFUR NO. 2 DIESEL FUEL DYED; LOW SULFUR NO. 2 FUEL OIL DYED; MAPLLC NO. 2 FUEL OIL DYED (0.05% SULFUR MAX); NO. 2 DIESEL FUEL DYED 0.05 SULFUR MAX; NO. 2 FUEL OIL DYED 0.05 SULFUR MAX

CHEM FAMILY: PETROLEUM HYDROCARBON
CHEM FORMULA: MIXTURE
PRODUCT CODE: NONE

INFORMATION SUPPLIED BY: CRAIG M. PARKER
MANAGER, TOXICOLOGY AND PRODUCT SAFETY

MANUFACTURER / DISTRIBUTOR:
MARATHON ASHLAND PETROLEUM LLC
539 SOUTH MAIN STREET
FINDLAY OH 45840

EMERGENCY PHONE NUMBERS:
(877)627-5463
(800)424-9300

MSDS INFORMATION: (419)421-3070

MSDS REVISION DATE: 07/28/1998

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2. COMPOSITION / INFORMATION ON INGREDIENTS

PRODUCT INFORMATION:

MAPLLC NO. 2 FUEL OIL DYED (0.05% SULFUR MAX) (CAS # 68476-30-2) IS A/AN COMPLEX MIXTURE OF PARAFFINS, CYCLOPARAFFINS, OLEFINS AND AROMATIC HYDROCARBONS HAVING HYDROCARBON CHAIN LENGTHS PREDOMINANTLY IN THE RANGE OF C11 THROUGH C20. CONTAINS MINOR AMOUNTS OF SULFUR (<0.05%). MAY CONTAIN A TRACE AMOUNT OF BENZENE (<0.01%).

***
CAN CONTAIN SMALL AMOUNTS OF RED DYE AND OTHER ADDITIVES (>0.15%)
WHICH ARE NOT CONSIDERED HAZARDOUS AT THE CONCENTRATIONS USED.

	PERCENT RANGE	CAS NUMBER
COMPONENTS:		
SATURATED HYDROCARBONS (PARAFFINS AND CYCLOPARAFFINS)	54.00- 85.00	MIXTURE
AROMATIC HYDROCARBONS	15.00- 45.00	MIXTURE
UNSATURATED HYDROCARBONS (OLEFINS)	1.00- 6.00	MIXTURE

EXPOSURE GUIDELINES

	LIMIT	TYPE	SOURCE
PRODUCT:			
MAPLLC NO. 2 FUEL OIL DYED (0.05%-SULFUR MAX)	NONE ESTABLISHED		
COMPONENTS:			
SATURATED HYDROCARBONS	NONE ESTABLISHED		
AROMATIC HYDROCARBONS	NONE ESTABLISHED		
UNSATURATED HYDROCARBONS	NONE ESTABLISHED		

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3. HAZARDS IDENTIFICATION

********** EMERGENCY OVERVIEW **********

NO. 2 FUEL OIL DYED IS A RED COLORED LIQUID. NO. 2 FUEL OIL IS CONSIDERED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE KEPT AWAY FROM HEAT, FLAME AND SOURCES OF IGNITION. NEVER SIPHON THIS PRODUCT BY MOUTH. IF SWALLOWED, FUEL OIL MAY GET SUCKED INTO THE LUNGS (ASPIRATED) AND CAUSE LUNG DAMAGE OR EVEN DEATH. PROLONGED OR REPEATED SKIN CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN WHICH MAY PRODUCE SEVERE IRRITATION OR DERMATITIS.

OSHA WARNING LABEL:

WARNING!
COMBUSTIBLE LIQUID.
ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS CAN PRODUCE CHEMICAL PNEUMONIA OR EVEN DEATH.
PRODUCES SKIN IRRITATION UPON PROLONGED OR REPEATED CONTACT.

****

POTENTIAL HEALTH EFFECTS

EYE:

PRODUCES LITTLE OR NO IRRITATION ON DIRECT CONTACT WITH THE EYE.

SKIN:

PROLONGED AND REPEATED LIQUID CONTACT CAN CAUSE DEFATTING AND DRYING OF THE SKIN WHICH MAY PRODUCE SEVERE IRRITATION OR DERMATITIS.

INHALATION:

HIGH VAPOR CONCENTRATIONS MAY PRODUCE HEADACHE, GIDDINESS, VERTIGO, AND ANESTHETIC STUPOR.

INGESTION:

INGESTION MAY RESULT IN NAUSEA, VOMITING, DIARRHEA AND RESTLESSNESS. ASPIRATION (INADVERTENT SUCTION) OF LIQUID INTO THE LUNGS MUST BE AVOIDED AS EVEN SMALL QUANTITIES IN THE LUNGS CAN PRODUCE CHEMICAL PNEUMONITIS, PULMONARY EDEMA/HEMORRHAGE AND EVEN DEATH.

CARCINOGEN LISTING:

THE INTERNATIONAL AGENCY FOR RESEARCH ON CANCER (IARC) HAS DETERMINED THAT THERE IS INADEQUATE EVIDENCE FOR THE CARCINOGENICITY OF FUEL OIL IN HUMANS.

IARC HAS DETERMINED THAT THERE IS SUFFICIENT EVIDENCE FOR THE CARCINOGENICITY IN EXPERIMENTAL ANIMALS OF WHOLE ENGINE EXHAUST AND EXTRACTS OF DIESEL ENGINE EXHAUST PARTICLES. IARC DETERMINED THAT THERE IS ONLY LIMITED EVIDENCE FOR THE CARCINOGENICITY IN HUMANS OF DIESEL ENGINE EXHAUST. HOWEVER, IARC'S OVERALL EVALUATION HAS RESULTED IN THE IARC DESIGNATION OF DIESEL ENGINE EXHAUST AS PROBABLY CARCINOGENIC TO HUMANS (GROUP 2A) BECAUSE OF THE PRESENCE OF CERTAIN ENGINE EXHAUST COMPONENTS.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

PREEXISTING SKIN CONDITIONS AND RESPIRATORY DISORDERS MAY BE AGGRAVATED BY EXPOSURE TO COMPONENTS OF FUEL OILS.

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4. FIRST AID MEASURES

EYE:

FLUSH EYES WITH LARGE AMOUNTS OF WATER FOR AT LEAST 15 MINUTES. IF SYMPTOMS OR IRRITATION OCCUR, CALL A PHYSICIAN.

SKIN:

WASH WITH SOAP AND LARGE AMOUNTS OF WATER. REMOVE CONTAMINATED CLOTHING. IF SYMPTOMS OF IRRITATION OCCUR, CALL A PHYSICIAN.

INHALATION:

IF AFFECTED, MOVE PERSON TO FRESH AIR. IF BREATHING IS DIFFICULT, ADMINISTER OXYGEN. IF NOT BREATHING OR NO HEARTBEAT, GIVE ARTIFICIAL RESPIRATION OR CARDIOPULMONARY RESUSCITATION (CPR). IMMEDIATELY CALL A PHYSICIAN.

INGESTION:

DO NOT INDUCE VOMITING. DO NOT GIVE LIQUIDS. IMMEDIATELY CALL A PHYSICIAN.

NOTES TO PHYSICIAN:

NO DATA AVAILABLE.

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5. FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

FLASH POINT:	130-190 F
AUTOIGNITION TEMP:	637 F
EXPLOSIVE LIMITS (% BY VOLUME IN AIR)	
LOWER:	0.7
UPPER:	5.0

FIRE AND EXPLOSION HAZARDS:

THIS PRODUCT HAS BEEN DETERMINED TO BE A COMBUSTIBLE LIQUID PER THE OSHA HAZARD COMMUNICATION STANDARD AND SHOULD BE HANDLED ACCORDINGLY. FOR ADDITIONAL FIRE RELATED INFORMATION, SEE NFPA 30 OR THE NORTH AMERICAN EMERGENCY RESPONSE GUIDE 128.

EXTINGUISHING MEDIA:

FOR SMALL FIRES, CLASS B FIRE EXTINGUISHING MEDIA SUCH AS CO2, DRY CHEMICAL, FOAM (AFFF/ATC) OR WATER SPRAY CAN BE USED. FOR LARGE FIRES, WATER SPRAY, FOG OR FOAM (AFFF/ATC) CAN BE USED. FIRE FIGHTING SHOULD BE ATTEMPTED ONLY BY THOSE WHO ARE ADEQUATELY TRAINED AND EQUIPPED WITH PROPER PROTECTIVE EQUIPMENT.

SPECIAL FIRE FIGHTING INSTRUCTIONS:

AVOID USE OF STRAIGHT WATER STREAMS. WATER SPRAY AND FOAM (AFFF/ATC) MUST BE APPLIED CAREFULLY TO AVOID FROTHING. AVOID EXCESSIVE APPLICATION. USE WATER SPRAY TO COOL EXPOSED SURFACES FROM AS FAR A DISTANCE AS POSSIBLE. KEEP RUN-OFF WATER OUT OF SEWERS AND WATER SOURCES.

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6. ACCIDENTAL RELEASE MEASURES

ISOLATE AND EVACUATE AREA. SHUT OFF SOURCE IF SAFE TO DO SO. ELIMINATE ALL IGNITION SOURCES. ADVISE NATIONAL RESPONSE CENTER (800-424-8802) IF SUBSTANCE HAS ENTERED A WATERWAY. NOTIFY LOCAL HEALTH AND POLLUTION CONTROL AGENCIES, IF APPROPRIATE. CONTAIN LIQUID WITH SAND OR SOIL. RECOVER AND RETURN FREE LIQUID TO PROPER CONTAINERS. USE SUITABLE ABSORBENT MATERIALS SUCH AS VERMICULITE, SAND, OR CLAY TO CLEAN UP RESIDUAL LIQUIDS.

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7. HANDLING AND STORAGE

COMPLY WITH ALL APPLICABLE OSHA, NFPA AND CONSISTENT LOCAL REQUIREMENTS. USE APPROPRIATE GROUNDING AND BONDING PRACTICES. STORE IN PROPERLY CLOSED CONTAINERS THAT ARE APPROPRIATELY LABELED AND IN A COOL, WELL-VENTILATED AREA. DO NOT EXPOSE TO HEAT, OPEN FLAME, STRONG OXIDIZERS OR OTHER SOURCES OF IGNITION. DO NOT CUT, DRILL, GRIND OR WELD ON EMPTY CONTAINERS SINCE THEY MAY CONTAIN EXPLOSIVE RESIDUES. AVOID REPEATED AND PROLONGED SKIN CONTACT. EXERCISE GOOD PERSONAL HYGIENE INCLUDING REMOVAL OF SOILED CLOTHING AND PROMPT WASHING WITH SOAP AND WATER. NEVER SIPHON THIS PRODUCT BY MOUTH.

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8. EXPOSURE CONTROL / PERSONAL PROTECTION

ENGINEERING CONTROLS:

LOCAL OR GENERAL EXHAUST REQUIRED WHEN SPRAYING OR USING AT ELEVATED TEMPERATURES.

PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION:

USE APPROVED ORGANIC VAPOR CHEMICAL CARTRIDGE OR SUPPLIED AIR RESPIRATORS WHEN MATERIAL PRODUCES VAPORS THAT EXCEED PERMISSIBLE LIMITS OR EXCESSIVE VAPORS ARE GENERATED. OBSERVE RESPIRATOR PROTECTION FACTOR CRITERIA CITED IN ANSI Z88.2. SELF-CONTAINED BREATHING APPARATUS SHOULD BE USED FOR FIRE FIGHTING.

SKIN PROTECTION:

NEOPRENE, NITRILE, POLYVINYL ALCOHOL (PVA), POLYVINYL CHLORIDE AND POLYURETHANE GLOVES TO PREVENT SKIN CONTACT.

EYE PROTECTION:

NO SPECIAL EYE PROTECTION IS NORMALLY REQUIRED. WHERE SPLASHING IS POSSIBLE, WEAR SAFETY GLASSES WITH SIDE SHIELDS.

OTHER PROTECTIVE EQUIPMENT:

NO SPECIAL PROTECTIVE CLOTHING IS NORMALLY REQUIRED. SELECT PROTECTIVE CLOTHING DEPENDING ON INDUSTRIAL OPERATIONS.

USE MECHANICAL VENTILATION EQUIPMENT THAT IS EXPLOSION-PROOF.

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9. PHYSICAL AND CHEMICAL PROPERTIES

BOILING POINT:	400-640 F
MELTING POINT:	NO DATA AVAILABLE
SPECIFIC GRAVITY (H20=1):	C.A. 0.8
PACKING DENSITY (KG/M3):	NO DATA AVAILABLE
% SOLUBILITY IN WATER:	NEGLIGIBLE
VAPOR DENSITY (AIR=1):	4-5

VAPOR PRESSURE:	1-10 MMHG @ 100 F
PH INFORMATION:	NO DATA AVAILABLE
% VOLATILES BY VOL:	NO DATA AVAILABLE
EVAPORATION RATE:	NO DATA AVAILABLE
APPEARANCE:	RED LIQUID
ODOR:	SLIGHT HYDROCARBON
ODOR THRESHOLD (PPM):	NO DATA AVAILABLE

ADDITIONAL PROPERTIES:

DENSITY: 6.76 LBS/GALLON
AVERAGE MOLECULAR WEIGHT: 180

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10. STABILITY AND REACTIVITY

STABILITY:

THE MATERIAL IS STABLE AT 70 F, 760MM PRESSURE.

CONDITIONS TO AVOID:

EXCESSIVE HEAT, SOURCES OF IGNITION.

HAZARDOUS DECOMPOSITION PRODUCTS:

CARBON MONOXIDE, ALDEHYDES, AROMATIC, OTHER HYDROCARBONS.

INCOMPATIBLE MATERIALS:

STRONG OXIDIZERS SUCH AS NITRATES, PERCHLORATES, CHLORINE, FLUORINE.

HAZARDOUS POLYMERIZATION:

WILL NOT OCCUR.

CONDITIONS TO AVOID:

NO DATA AVAILABLE.

ADDITIONAL COMMENTS:

NO DATA AVAILABLE.

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11. TOXICOLOGICAL INFORMATION

LIFETIME SKIN PAINTING STUDIES IN ANIMALS WITH SIMILAR DISTILLATE FUELS HAVE PRODUCED WEAK TO MODERATE CARCINOGENIC ACTIVITY FOLLOWING PROLONGED AND REPEATED EXPOSURE. SIMILAR MIDDLE DISTILLATES, WHEN TESTED AT NONIRRITATING DOSE LEVELS, DID NOT SHOW ANY SIGNIFICANT CARCINOGENIC ACTIVITY INDICATING THAT THIS TUMORIGENIC RESPONSE IS LIKELY RELATED TO CHRONIC IRRITATION AND NOT TO DOSE. REPEATED DERMAL APPLICATION HAS PRODUCED SEVERE IRRITATION AND SYSTEMIC TOXICITY IN SUBACUTE TOXICITY STUDIES. SOME COMPONENTS OF DISTILLATE FUELS, I.E., PARAFFINS AND OLEFINS, HAVE BEEN SHOWN TO PRODUCE A SPECIES SPECIFIC, SEX HORMONAL DEPENDENT KIDNEY LESION IN MALE RATS FROM REPEATED ORAL OR INHALATION EXPOSURE. SUBSEQUENT RESEARCH HAS SHOWN THAT THE KIDNEY DAMAGE DEVELOPS VIA THE FORMATION OF ALPHA-2U-GLOBULIN, A MECHANISM UNIQUE TO THE MALE RAT. HUMANS DO NOT FORM ALPHA-2U-GLOBULIN, THEREFORE, THE KIDNEY EFFECTS RESULTING FROM THIS MECHANISM ARE NOT RELEVANT IN HUMANS. KEROSENE AND NO.1 FUEL OIL WERE FOUND TO BE POSITIVE IN A FEW MUTAGENICITY TESTS WHILE NEGATIVE IN THE MAJORITY OF OTHERS. THE EXACT RELATIONSHIP BETWEEN THESE RESULTS AND HUMAN HEALTH IS NOT KNOWN.

COMBUSTION OF KEROSINE AND/OR DIESEL FUELS PRODUCES GASES AND PARTICULATES WHICH INCLUDE CARBON MONOXIDE, CARBON DIOXIDE, OXIDES OF NITROGEN AND/OR SULFUR AND HYDROCARBONS. EXPOSURE TO HIGH CONCENTRATIONS OF CARBON MONOXIDE CAN CAUSE HYPOXIA VIA THE FORMATION OF CARBOXYHEMOGLOBIN. CHRONIC INHALATION STUDIES OF WHOLE DIESEL ENGINE EXHAUST IN MICE AND RATS PRODUCED A SIGNIFICANT INCREASE IN LUNG TUMORS.

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12. ECOLOGICAL INFORMATION

LIQUID CAN BE TOXIC TO AQUATIC LIFE AND CAUSE FOULING OF THE SHORELINE AT HIGH CONCENTRATIONS. THE AQUATIC 24 HOUR TLM IS 2,990 PPM IN FRESHWATER BLUEGILL FISH. HOWEVER, KEROSENE AND FUEL OILS DO NOT BIOCONCENTRATE IN THE FOOD CHAIN. IF PRODUCT IS RELEASED TO SOIL OR WATER, IT IS EXPECTED TO BIODEGRADE UNDER BOTH AEROBIC AND ANAEROBIC CONDITIONS.

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13. DISPOSAL CONSIDERATIONS

THIS PRODUCT AS PRODUCED IS NOT SPECIFICALLY LISTED AS AN EPA RCRA HAZARDOUS WASTE ACCORDING TO FEDERAL REGULATIONS (40 CFR 260-271). HOWEVER, WHEN DISCARDED OR DISPOSED OF, IT MAY MEET THE CRITERIA OF AN "IGNITABLE" HAZARDOUS WASTE. THIS MATERIAL COULD ALSO BECOME A HAZARDOUS WASTE IF MIXED OR CONTAMINATED WITH A LISTED HAZARDOUS WASTE. IT IS THE RESPONSIBILITY OF THE USER TO DETERMINE IF DISPOSAL MATERIAL IS HAZARDOUS ACCORDING TO FEDERAL, STATE AND LOCAL REGULATIONS.

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14. TRANSPORTATION INFORMATION

49 CFR 172.101:

PROPER SHIPPING NAME:	FUEL OIL, NO. 2
DOT CLASSIFICATION:	3
DOT IDENTIFICATION NUMBER:	NA 1993
PACKING GROUP:	PG III

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15. REGULATORY INFORMATION

THE FOLLOWING REGULATIONS APPLY TO THIS PRODUCT:

OSHA HAZARD COMMUNICATION STANDARD (29 CFR 1910.1200):

THIS PRODUCT HAS BEEN EVALUATED AND DETERMINED TO BE HAZARDOUS AS DEFINED IN OSHA'S HAZARD COMMUNICATION STANDARD.

EPA TOXIC SUBSTANCES CONTROL ACT (40 CFR PART 710):

THIS PRODUCT AND/OR ITS COMPONENTS ARE LISTED ON THE TSCA CHEMICAL INVENTORY.

EPA SARA TITLE III SUPERFUND AMENDMENTS & REAUTHORIZATION ACT - EMERGENCY PLANNING & COMMUNITY RIGHT-TO-KNOW ACT OF 1986.

EXTREMELY HAZARDOUS SUBSTANCES (40 CFR PART 355):

THIS PRODUCT CONTAINS THE FOLLOWING COMPONENT(S) IDENTIFIED ON APPENDIX A AND B OF THE EXTREMELY HAZARDOUS SUBSTANCE LIST (AT A LEVEL OF 1% OR GREATER IF HAZARDOUS; 0.1% OR GREATER IF CARCINOGENIC: NONE.

EMERGENCY RELEASE NOTIFICATIONS (40 CFR PART 355):

THIS PRODUCT CONTAINS THE FOLLOWING COMPONENT(S) IDENTIFIED EITHER AS AN EXTREMELY HAZARDOUS SUBSTANCE (40 CFR 355) OR A CERCLA HAZARDOUS SUBSTANCE (40 CFR 302) WHICH IN CASE OF A SPILL OR RELEASE MAY BE SUBJECT TO EMERGENCY RELEASE REPORTING REQUIREMENTS: NONE.

MATERIAL SAFETY DATA SHEET REQUIREMENTS (40 CFR PART 370):

THE FOLLOWING EPA HAZARD CATEGORIES APPLY TO THIS PRODUCT:

IMMEDIATE (ACUTE) HEALTH HAZARD
FIRE HAZARD

MSDS'S OR A LIST OF MSDS'S AND THEIR HAZARDS (SEE EPA HAZARD CATEGORIES

ABOVE) MAY BE REQUIRED TO BE SUBMITTED TO THE STATE EMERGENCY RESPONSE COMMISSION (SERC), LOCAL EMERGENCY PLANNING COMMITTEE (LEPC) AND LOCAL FIRE DEPARTMENT (LFD).

IN ADDITION, A TIER II OR TIER I FORM MAY BE REQUIRED TO BE SUBMITTED ANNUALLY TO THE SERC, LEPC AND LFD IF APPLICABLE THRESHOLD REPORTING QUANTITIES ARE EXCEEDED. CURRENT FEDERAL THRESHOLDS ARE:

10,000 POUNDS OR MORE OF AN OSHA HAZARDOUS SUBSTANCE
OR
500 POUNDS OR THE THRESHOLD PLANNING QUANTITY, WHICHEVER IS LESS, OF AN EXTREMELY HAZARDOUS SUBSTANCE.

NOTE: THRESHOLDS MAY VARY ACCORDING TO LOCAL AND STATE REGULATIONS.

TOXIC CHEMICAL RELEASE REPORTING (40 CFR PART 372):

THIS PRODUCT CONTAINS THE FOLLOWING COMPONENT(S) (AT A LEVEL OF 1% OR GREATER IF HAZARDOUS; 0.1% OR GREATER IF CARCINOGENIC) THAT MAY BE SUBJECT TO REPORTING ON THE TOXIC RELEASE INVENTORY (TRI) FORM R: NONE.

STATE AND COMMUNITY RIGHT-TO-KNOW REGULATIONS:

THIS MATERIAL MAY BE REGULATED BY LOUISIANA'S RIGHT-TO-KNOW LAW (REGULATORY STATUTE 30:2361).

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16. OTHER INFORMATION

NFPA CLASSIFICATION		HMIS CLASSIFICATION		HAZARD RATING
HEALTH:	1	HEALTH:	1	0 - LEAST
FIRE:	2	FIRE:	2	1 - SLIGHT
REACTIVITY:	1	REACTIVITY:	1	2 - MODERATE
OTHER:	-	PERSONAL PROTECTION:	*	3 - HIGH
				4 - EXTREME

COMMENTS:

* SEE SECTION 8 FOR GUIDANCE IN SELECTION OF PERSONAL PROTECTIVE EQUIPMENT.

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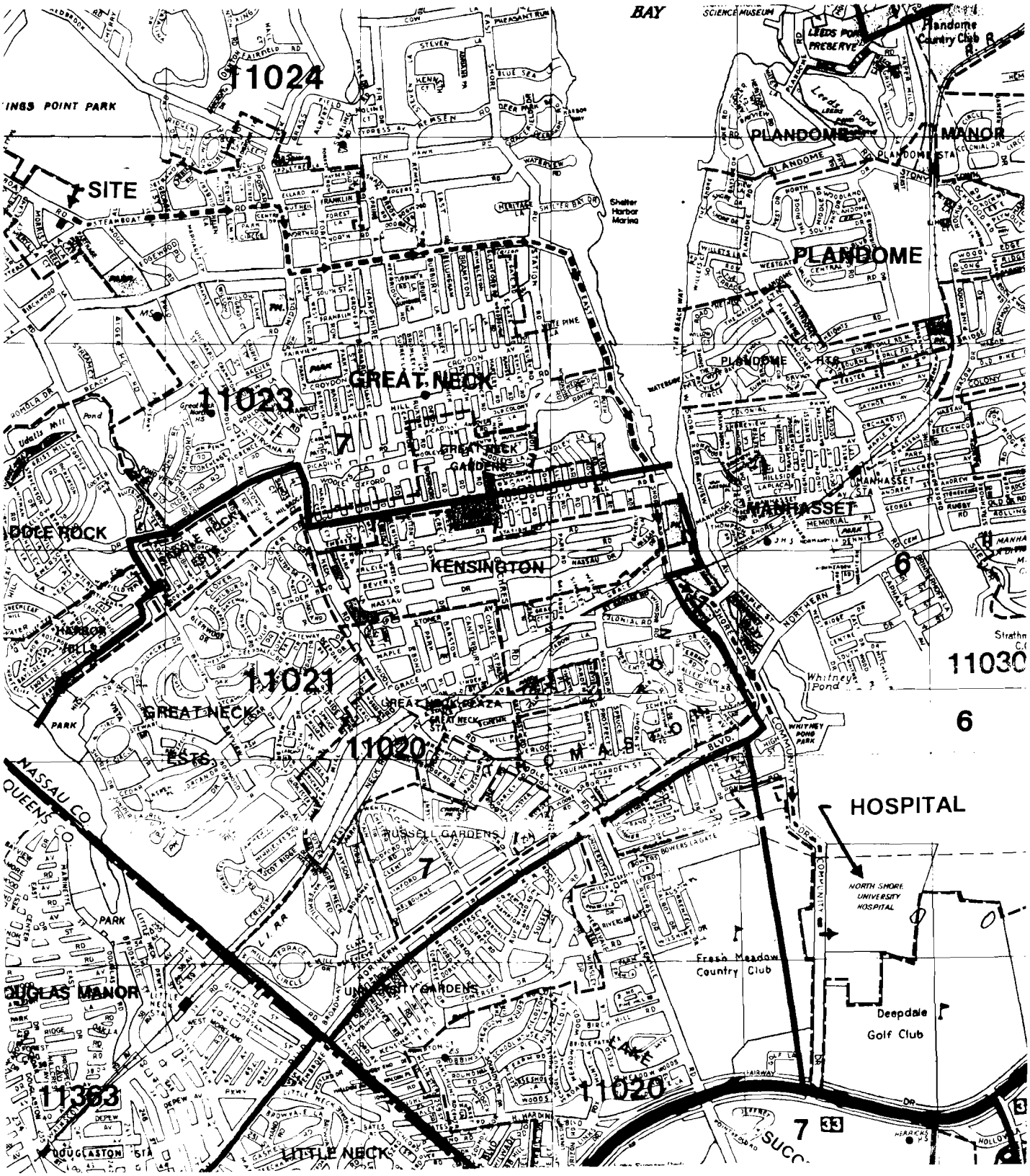
Updated: Friday, June 29, 2001

APPENDIX C

EMERGENCY RESPONSE INFORMATION

ROUTE TO NORTH SHORE UNIVERSITY HOSPITAL



EMERGENCY TELEPHONE NUMBERS

HOSPITAL

North Shore University Hospital (Emergency): (516) 562-4125
300 Community Drive
Manhasset

POLICE DEPARTMENT

Emergency	911
Non-emergency (NCPD 6TH Precinct)	(516) 573-6600 (See Note 1)

FIRE DEPARTMENT

Emergency	911
Alert Fire Company	(516) 487-7000 (See Note 2)

AMBULANCE

Emergency (Alert Fire Company):	(516) 487-7000
Non-emergency (Alert Fire Company)	(516) 487-1057

H2M GROUP	(516) 756-8000
Project Manager	Michael N. Gentils, CGWP (H2M)
Health & Safety Officer	Gary J. Miller, P.E. (H2M)
Project Geologist	Christopher J. Flynn (H2M)
Site Safety Officer	Rocky W. Wenskus (H2M)

Notes

1.) Nassau County Police Department 6th Precinct: Community Drive, Manhasset
2.) Alert Fire Company: 555 Middle Neck Road, Great Neck