

**Final
Draft Site-Specific Safety and Health Plan Attachment
Site Investigations at
Range 23A, Multipurpose Range
Parcel 109(7)/152Q-X
Fort McClellan
Calhoun County, Alabama**

**Prepared for:
U.S. Army Corps of Engineers, Mobile District
109 St. Joseph Street,
Mobile, Alabama 36602**

**Prepared by:

IT Corporation
312 Directors Drive
Knoxville, Tennessee 37923**

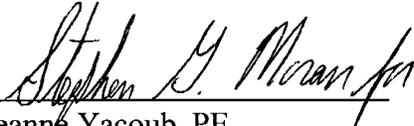
**Task Order CK05
Contract No. DACA21-96-D-0018
IT Project No. 774645**

October 2001

This Site-Specific Safety and Health Plan must be used in conjunction with the Installation-Wide Safety and Health Plan, Fort McClellan, Alabama.

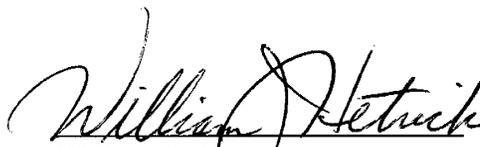
**Site-Specific Safety and Health Plan Attachment Approval
Fort McClellan, Calhoun County, Alabama**

I have read and approve this site-specific safety and health plan attachment for the Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X, Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation procedures.

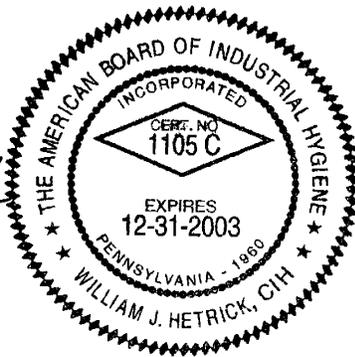


Jeane Yacoub, PE
Project Manager

10/10/01
Date



William J. Hetrick
Health & Safety Manager



10/05/01
Date

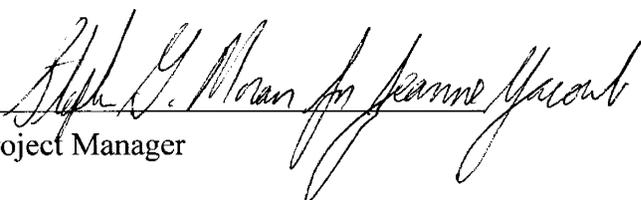


Jeff Tarr
Site Coordinator

10/10/01
Date

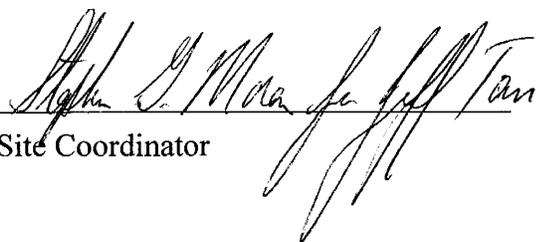
Acknowledgements

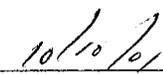
The approved version of this site-specific safety and health plan (SSHP) attachment for the Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X, Fort McClellan, Calhoun County, Alabama has been provided to the site coordinator. I acknowledge my responsibility to provide the site coordinator with the equipment, materials, and qualified personnel to implement fully all safety requirements in this SSHP attachment. I will formally review this plan with the health and safety staff every 6 months until project completion.


Project Manager


Date

I acknowledge receipt of this SSHP attachment from the project manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that might affect worker safety requires me to notify the project manager and the health and safety manager.


Site Coordinator


Date

Fort McClellan Gate Hours

Baltzell Gate	Baltzell Road. Open 24 hours daily, 7 days a week.
Galloway Gate	Galloway Road. Open 6 am to 6 pm Monday trough Friday

Pelham Range Access Requirements

Pelham Range	IT personnel will contact the Range Control Office each day access is required to receive an access permit and available areas of entry. See Attachment 1 for Range Control contact for Pelham Range.
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Fort McClellan Project Emergency Contacts

Range Control Office (Main Post).....	(256) 848-6772
Fire Department (off post)	911
Ambulance (off post)	911
Regional Medical Center	(256) 235-5121
Military Police (SSG Busch)	(256) 848-5680, 848-4824
DOD Guard Force (Mr. Bolton)	(256) 848-5680, 848-4732
Anniston Police Department	(256) 238-1800
Chemical Agent Emergencies.....	(256) 895-1598
(Jimmy Walker, CEHNC).....	cell phone (256) 759-3931
UXO Emergencies	(256) 895-1598
(Jimmy Walker, CEHNC).....	cell phone (256) 759-3931
UXO Non emergencies/Reporting Only (Ronald Levy)	(256) 848-3758
Baltzell Gate Guard Shack.....	(256) 848-5693, 848-3821
National Response Center & Terrorist Hotline.....	(800) 424-8802
Poison Control Center.....	(800) 462-0800
EPA Region IV	(404) 562-8725
Ronald Levy, Chief, FTMC Environmental Management	(256) 848-3758
Ellis Pope, U.S. Army Corps of Engineers	(334) 690-3077
Jeanne Yacoub, IT Project Manager	(770) 663-1429
Bill Hetrick, IT H&S Manager	(865) 690-3211, and pager (888) 655-9529
Jeff Tarr, IT Site Manager.....	(256) 848-3482
Mike Moore, Fort McClellan Safety Office.....	(256) 848-5433
Dr. Jerry H. Berke, Health Resources Occupational Physician	(800) 350-4511
Sergeant Tim Lane, National Guard Security Operations	(256) 848-6176

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Attachment 1 – Pelham Range Emergency Route and Range Control Contact

Attachment 2 - Material Safety Data Sheets

Attachment 3 - OE/UXO/CWM Hazards Evaluation Form

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List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, contained in the Site-Specific Field Sampling Plan in this binder.

1.0 Site Work Plan Summary

Project Objective. The objective of this site investigation at Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X, is to install groundwater monitoring wells, collect surface soil samples, subsurface soil samples, groundwater samples, surface water and sediment samples. These samples will be collected to determine whether potential site-specific chemicals are present and provide data for further characterization of the site to determine the environmental conditions and determine if any further action is to be conducted at the site. Additionally, samples will be collected from environmental media in locations that will assist in the assessment of potential ecological impacts resulting from previous activities at the site.

Project Tasks

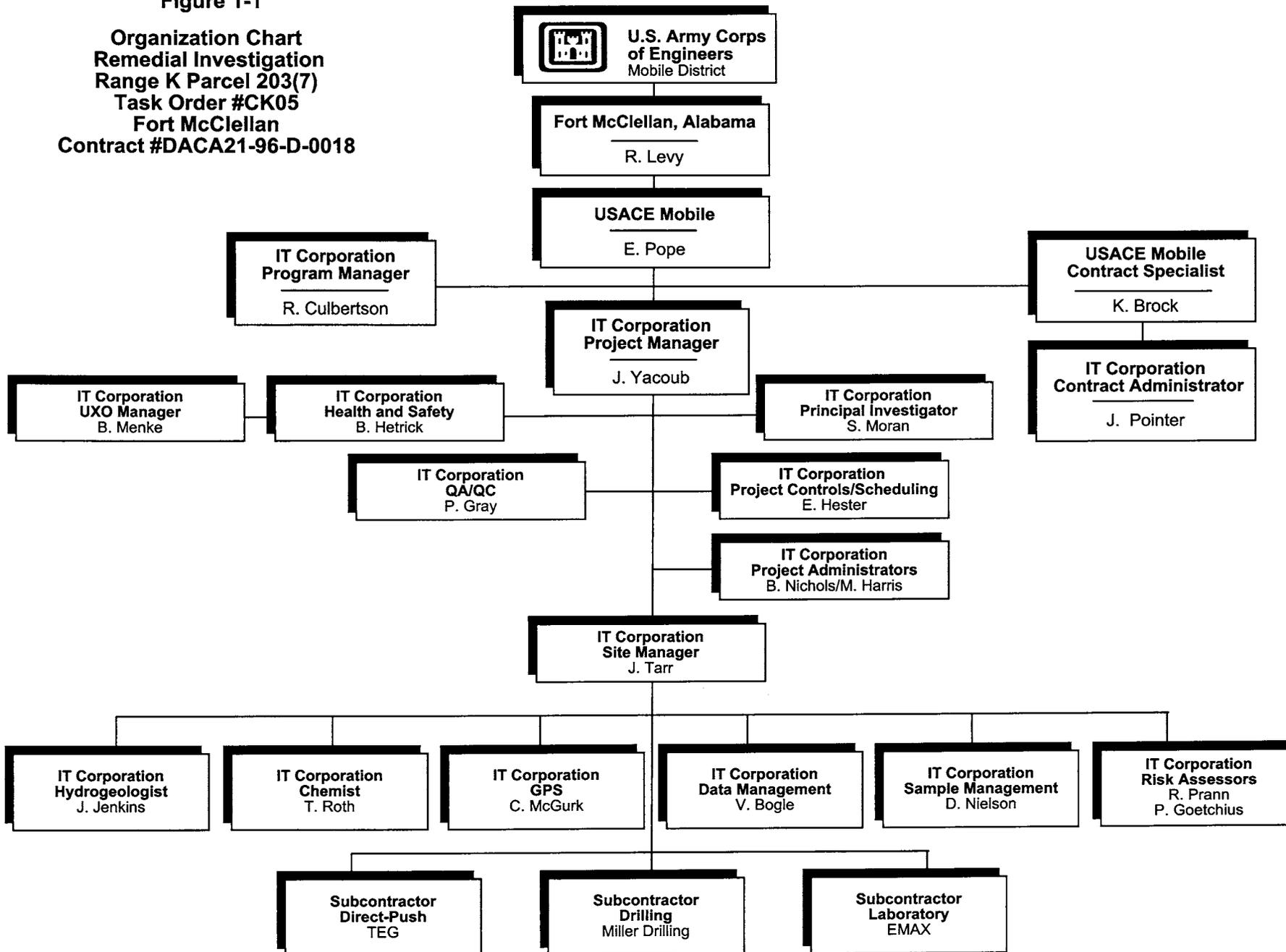
- Access area surface and down hole unexploded ordnance (UXO) avoidance survey
- Utility clearances
- Surface and subsurface soil sampling
- Surface water and sediment sampling
- Installation monitoring wells
- Groundwater sampling
- Surveying.

Personnel Requirements. Up to 15 employees are anticipated for this scope of work. See Figure 1-1 for an organization chart.

Note: All personnel on this site shall have received training, informational programs, and medical surveillance as outlined in the installation-wide safety and health plan for site investigations at Fort McClellan (FTMC), and be familiar with the requirements of this site-specific safety and health plan (SSHP).

This SSHP must be used in conjunction with the installation-wide SHP and the installation-wide Ordnance and Explosives Management Plan, FTMC, Alabama.

Figure 1-1
Organization Chart
Remedial Investigation
Range K Parcel 203(7)
Task Order #CK05
Fort McClellan
Contract #DACA21-96-D-0018



2.0 Site Characterization and Analysis

2.1 Anticipated Hazards

The activity hazard analysis in Chapter 5.0 contains project-specific practices utilized to reduce or eliminate anticipated site hazards. The activity hazard analysis indicates specific chemical and physical hazards that may be present and encountered during each task from on-site operations. Below each task is a list of hazards and specific actions that will be taken to control the respective hazards. These control measures may include work practice controls, engineering controls, and/or use of appropriate personal protective equipment (PPE). Site control with the use of specific work zones (support zone, contamination reduction zone, and exclusion zone) is addressed in Chapter 7.0 of Appendix A of the IT Corporation (IT), August 2000a, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*.

The Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X, formerly was used for Flame Field Expedient (FFE) training and explosives training. Therefore, UXO surface sweeps and downhole surveys of soil borings will be required to support field activities for these site investigations. The surface sweeps and downhole surveys will be performed to identify anomalies for the purpose of UXO avoidance.

The flame range site consists of one small metal building used for classroom instruction, a vehicle parking area, fuel tanker parking area, observation bleachers, fuel mixing area and the open detonation field. The detonation field was further divided into the following types of explosives training.

- Hasty mine field training
- Directional training
- Non-directional training
- Former wall of flame training
- Former nuke-simulator training
- Electric training
- Non-electric training
- Modernized Demolition Initiators (MDI) training.

The hasty mine field area training exercises consist of detonating approximately 50 small plastic containers simultaneously. FFE hasty mine field training occurred approximately 40 times per year. The small explosives include a fuel mixture typically placed in common plastic household containers that hold two or more liters. The fuel mixture consists of approximately 50 gallons of raw gasoline combined with M4 thickener. M4 thickener is mixed at a rate of about 3 ounces

gallon of gasoline. After the detonation the fire is allowed to cool and plastic fragments collected and disposed.

The directional training area is located adjacent to the hasty mine field. FFE directional training occurred approximately 40 times per year. During the directional training exercise, one 55 gallon drum containing gasoline and M4 thickener (3 ounces per gallon) is positioned with sandbags so the flame can be directed outward in a controlled manner.

The non-directional training area is located on a hillside above a former wall of flame training site. FFE non-directional training occurred approximately 40 times per year. Five to ten 55 gallon drums were filled with 400 to 500 gallons of a 1:1 mixture of mogas and fog oil. One drum contains M4 thickener. The drums are positioned upright, wired together and detonated.

The former wall of flame training site is located below the non-directional training area. In early 1966 flame testing was discontinued in at this range. The former wall of flame practices consisted of detonating approximately 300 gallons of a 1:1 mixture of mogas and fog oil in a unlined trench. The trench was approximately 2 to 3 feet wide, 2 feet deep, and 30 feet long. The earthen ditch is no longer visible. Wall of flame training also occurred in at least one other area but this pit location is also no longer visible. FFE training occurred at this range approximately 20 times a year before this training activity was discontinued.

The nuke-simulator training area was also located at this range. The former nuke-simulator site was located near the intermittent stream that crosses the range below the non-directional training area. Nuke-simulator training was similar to the wall of flame training except the earthen ditch was circular. Approximately 200 gallons of a 1:1 mixture of mogas and fog oil were detonated in this circular ditch during each training exercise. This area of training is no longer visibly present.

According to the *Environmental Baseline Survey* performed by Environmental Science and Engineering, Inc. (1998), ordnance used at Range 23A includes C-4, trinitrotoluene (TNT), M-4 bursters, blasting caps, simulators, trip flares, detonation cord, and smoke producing munitions and equipment. White phosphorus may have been used at this range historically. This range is located outside the two established impact areas and no projectiles have been reported to have been fired at this range. The three areas associated with explosives training are the Non-Electric, Electric and Modernized Demolition Initiator Training Areas.

Explosives have been used at the Modernized Demolition Initiator Training Area since August 1987 and include blasting caps (lead azide, C-4, and PETN), TNT, C-4, PETN, tetryl bursting charges, and thermite (magnesium oxide) trip flares. Explosives have been used at the Non-electric Training Area since 1992 and included blasting caps (lead azide, lead styphenate, and PETN), TNT, C-4, and PETN. The activities conducted at the Non-electric Training Area previously were held at the Hasty Mine Site from 1987 through 1992.

Procedures contained in the Site Specific UXO Safety Plan shall be followed for all site activities associated with this investigation.

Table 2-1 contains the toxicological properties of chemicals anticipated or to be used at Range 23A, Multipurpose Range, FTMC, Calhoun County, Alabama. Attachment 2 contains the Material Safety Data Sheets for materials for potential contact at the site.

2.2 General Site Information

Location of Site. FTMC is located in the foothills of the Appalachian Mountains of northeastern Alabama near the cities of Anniston and Weaver in Calhoun County. FTMC is approximately 60 miles northeast of Birmingham, 75 miles northwest of Auburn and 95 miles west of Atlanta, Georgia. FTMC consists of three main areas of government-owned and leased properties: Main Post, Pelham Range and Choccolocco Corridor (lease terminated in May 1998). The area of study for this site investigation is Range 23A at FTMC's Pelham Range located approximately 2 miles north of Anniston Alabama.

Duration of Planned Employee Activity. Employee activity duration is anticipated to be less than two months.

Site Topography and Size. Range 23A consists of 22,245 acres. Approximately 10 of the acres are associated with the FFE training. The terrain in the Range 23A, FFE area is mostly hilly with elevations ranging from approximately 582 to 650 feet mean sea level.

Pathways for Hazardous Substance Dispersion. Possible pathways for hazardous substances in the area are soils and groundwater.

Table 2-1

**Toxicological Properties of Chemicals
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 3)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Acetone [67-64-1]	9.7	13-100	Inh Ing Con	Irritated eyes, nose, and throat; headache, dizziness; dermatitis.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	750 ppm 750 ppm 250 ppm	1,000 ppm 1,000 ppm	PEL TLV REL	20,000 ppm
Fuel oil (diesel oil, medium)	?	?	Ing Inh Con	Ingestion causes nausea, vomiting, and cramps; depressed central nervous system, headache, coma, death; pulmonary irritation; kidney and liver damage; aspiration causes severe lung irritation, coughing, gagging, dyspnea, substernal stress, pulmonary edema; bronchopneumonia; excited, then depressed, central nervous system.	Eye: Irrigate promptly Skin: Soap wash Breath: Respiratory support Swallow: Immediate medical attention Aspiration: Immediate medical attention			PEL TLV REL	
Gasoline [8006-61-9]	?	0.3	Inh Ing Con	Intoxication, headaches, blurred vision, dizziness, nausea; eye, nose throat irritation; potential kidney and other cancers. Carcinogenic.	Eye: Irrigate immediately (15 min) Skin: Soap wash promptly Breath: Respiratory support Swallow: Immediate medical attention	300 ppm 300 ppm Ca, lowest feasible conc. (LOQ 15 ppm)	500 ppm 500 ppm	PEL TLV REL	1400 ppm (10% LEL)
Lead {7439-92-1}	N/A	N/A	Inh Ing Con	Lightheadedness; nausea, headache; numbness of the extremities, muscular weakness; irritation of the eyes and nose; dermatitis; chemical pneumonia; giddiness.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	0.050 mg/m ³ 0.050 mg/m ³ 0.100 mg/m ³		PEL TLV REL	100 mg/m ³

Table 2-1

**Toxicological Properties of Chemicals
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 3)

Substance [CAS]	IP ^a (eV)	Odor Threshold (ppm)	Route ^b	Symptoms of Exposure	Treatment	TWA ^c	STEL ^d	Source ^e	IDLH (NIOSH) ^f
Isopropyl alcohol (isopropanol) [67-63-0]	10.16	43-200	Inh Ing Con	Mild irritation of the eyes, nose, and throat; drowsiness, dizziness, headache; dry, cracked skin.	Eye: Irrigate immediately Skin: Water flush Breath: Respiratory support Swallow: Immediate medical attention	400 ppm 400 ppm 400 ppm	500 ppm 500 ppm 500 ppm	PEL TLV REL	2,000 ppm
Motor Oil [NA]	?	?	Inh Ing	Irritated eyes, skin, respiratory system; usually only a problem if misted or ingested.	Eye: Irrigate immediately (15 min) Skin: Soap wash immediately Swallow: Immediate medical attention			PEL TLV REL	
Nitric acid [7697-37-2]	11.95	0.3-1	Inh Ing Con	Irritated eyes, mucous membranes, and skin; delayed pulmonary edema, pneumonitis, bronchitis; dental erosion.	Eye: Irrigate immediately Skin: Water flush promptly Breath: Respiratory support Swallow: Immediate medical attention	2 ppm 2 ppm 2 ppm	4 ppm 4 ppm 4 ppm	PEL TLV REL	25ppm
Portland cement [65997-15-1]	NA	NA	Inh	Fine gray powder that can be irritating if inhaled or in eyes.	Eye: Irrigate immediately Skin: Soap wash immediately Breath: Respiratory support Swallow: Immediate medical attention	5 mg/m ³ respirable fraction 15 mg/m ³ total dust 10 mg/m ³ 10 mg/m ³ / total dust		PEL TLV REL	5000 mg/m ³
Sodium hydroxide [1310-73-2]	NA	NA	Inh Ing Con	Irritated nose; pneumonitis; burns eyes, and skin; temporary loss of hair.	Eye: Irrigate immediately Skin: Water flush immediately Breath: Respiratory support Swallow: Immediate medical attention	2 mg/m ³ C 2 mg/m ³ C 2 mg/m ³		PEL TLV REL	10 mg/m ³

Table 2-1

Toxicological Properties of Chemicals Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X Fort McClellan, Calhoun County, Alabama

(Page 3 of 3)

^aIP = Ionization potential (electron volts).

^bRoute = Inh, Inhalation; Abs, Skin absorption; Ing, Ingestion; Con, Skin and/or eye contact.

^cTWA = Time-weighted average. The TWA concentration for a normal work day (usually 8 or 10 hours) and a 40-hour work week, to which nearly all workers may be repeatedly exposed, day after day without adverse effect.

^dSTEL = Short-term exposure limit. A 15-minute TWA exposure that should not be exceeded at any time during a workday, even if the TWA is not exceeded.

^ePEL = Occupational Safety and Health Administration (OSHA) permissible exposure limit (29 CFR 1910.1000, Table Z).

AEL = Airborne Exposure Limit.

TLV = American Conference of Governmental Industrial Hygiene (ACGIH) threshold limit value—TWA.

REL = National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit.

^fIDLH (NIOSH)—Immediately dangerous to life or health (NIOSH). Represents the maximum concentration from which, in the event of respirator failure, one could escape within 30 minutes without a respirator and without experiencing any escape-impairing or irreversible health effects.

NE = No evidence could be found for the existence of an IDLH (NIOSH Pocket Guide to Chemical Hazards, Pub. 1998).

C = Ceiling limit value which should not be exceeded at any time.

Ca = Carcinogen.

NA = Not applicable.

? = Unknown.

LEL = Lower explosive limits.

LC₅₀ = Lethal concentration for 50 percent of population tested.

LD₅₀ = Lethal dose for 50 percent of population tested.

NIC = Notice of intended change (ACGIH).

References:

American Conference of Governmental Industrial Hygienists Guide to Occupational Exposure Values, 1998, compiled by the American Conference of Governmental Industrial Hygienists.

Amoore, J. E. Hautula, "Odor as an Aid to Chemical Safety," Journal of Applied Toxicology, 1983.

Clayton, George D., Clayton, F. E., Patty's Industrial Hygiene and Toxicology, 3rd ed., John Wiley & Sons, New York.

Documentation of TLVs and BEIs, American Conference of Governmental Industrial Hygienists, 6th ed., 1998.

Fazzuluri, F. A., Compilation of Odor and Taste Threshold Values Data, American Society for Testing and Materials, 1978.

Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, CIVO, Netherlands, 1977.

Gemet, L. J. Van, Compilation of Odor Threshold Values in Air and Water, Supplement IV, CIVO, Netherlands, 1977.

Lewis, Richard J., Sr., 1992, Sax's Dangerous Properties of Industrial Materials, 8th ed., Van Nostrand Reinhold, New York.

Micromedex Tomes Plus (R) System, 1992, Micromedex, Inc.

National Institute for Occupational Safety and Health Pocket Guide to Chemicals, Pub. 1998, National Institute for Occupational Safety and Health.

Odor Threshold for Chemicals with Established Occupational Health Standards, American Industrial Hygiene Association, 1989.

Respirator Selection Guide, 3M Occupational Health and Safety Division, 1993.

Verschueren, K., Handbook of Environmental Data on Organic Chemicals, Van Nostrand and Reinhold, 1977.

Warning Properties of Industrial Chemicals—Occupational Health Resource Center, Oregon Lung Association.

Workplace Environmental Exposure Levels, American Industrial Hygiene Association, 1992.

3.0 Personal Protective Equipment

The work activities will begin in the following levels of protection. Also, a completed description of Level D, Modified Level D, and Level C PPE is provided.

Task	Initial Level of PPE
Initial UXO avoidance sweep and equipment staging	Level D
Utility clearance	Level D
Surface water, sediment and surface soil sampling	Level D
Subsurface soil and groundwater sampling	Modified Level D*
Monitoring well installation	Modified Level D*
Surveying	Level D

* Initial level will be raised to Level C or higher if air monitoring results in the breathing zone (BZ) are greater than action levels.

Level D. The minimal level of protection that will be required of IT personnel at the site will be Level D. The following equipment will be used for Level D protection:

- Coveralls or work clothing
- Leather work gloves (when necessary)
- Steel-toed safety boots
- Safety glasses
- Hardhat
- Wear hearing protection (when working near/adjacent to operating equipment).

Modified Level D. The following equipment will be used for Level D-Modified protection:

- Permeable Tyvek, Kleenguard, or its equivalent
- Latex boot covers
- Nitrile, heavy work, or latex gloves
- Steel-toed safety boots
- Safety glasses
- Hardhat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Modified Level D PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for protection of the legs and feet and a face shield for protection from splashes.

Level C. Level C protection will not be used unless air-monitoring data indicate the need for upgrade; however, the equipment shall be readily available on site. The following equipment will be used for Level C protection:

- National Institute of Occupational Safety and Health/Mine Safety and Health Administration-approved full-face, air-purifying respirators equipped with organic vapor/acid gas cartridge in combination with high-efficiency particulate air filter
- Hooded, Saran-coated Tyvek, taped at gloves, boots, and respirator
- Nitrile gloves (outer)
- Latex or lightweight nitrile gloves (inner)
- Neoprene steel-toed boots or polyvinyl chloride overbooties/steel-toed safety boots
- Hardhat
- Hearing protection (when working near/adjacent to operating equipment).

Note: In addition to Level C PPE, the operator of high-pressure water jetting equipment shall wear metatarsal guards for protection of the legs and feet and a face shield for protection from splashes.

4.0 Site Monitoring

The environmental contaminants of concern resulting from activities at the Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X and from review of previous investigations indicate volatile organic compounds, inorganics, semivolatile organic compounds and explosives.

Table 4-1 contains action levels for site monitoring at Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X.

Chemical. The site safety and health officer or task geologist shall perform air monitoring during the performance of site activities and ground intrusive operations. A calibrated photo ionization detector (e.g., HNu DL-101 or equivalent) organic vapor analyzer will be utilized to monitor the sampling locations and BZs to determine if any organic material may be present that would necessitate upgrading of the protection level. A calibrated combustible gas/oxygen indicator will be utilized to monitor the borehole, work areas and BZs to determine if any combustible/flammable levels may be present that would necessitate evacuation of the work area. A Miniram PDM-3 or equivalent aerosol monitor shall be used to periodically monitor airborne dust when visible since metals and lead are of potential concern. Table 4-2 contains the air monitoring frequency and location for site monitoring for Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X.

Unexploded Ordnance. UXO support for sampling activities are specified in the site-specific UXO safety plan developed for the Range 23A, Multipurpose Range, Parcels 109(7)/152Q-X. The UXO specialists will perform UXO avoidance sweeps prior to moving the heavy equipment onto the site. During this operation, UXO on the surface will be detected and marked for avoidance during field operations. Additionally, downhole magnetometer surveys will be performed to detect metal objects in the path of sampling equipment or boring apparatus. The sampling/boring location will be moved to avoid subsurface metal objects. The practice of UXO avoidance shall be implemented for all intrusive activities associated with well construction and completion.

If UXO is encountered, personnel will contact the site manager and UXO specialist immediately. Personnel will evacuate the immediate area and secure it.

Table 4-1

**Action Levels
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 2)

When in Level C PPE

Analyte	Action Level	Required Action ^a
VOCs (volatile organic compound)	≥ 10 ppm above background in breathing zone (BZ)	Stop work, evacuate work area, upgrade to Level B; Notify CIH
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area; Notify CIH
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs: Notify CIH
Dust	≥ 0.5 mg/m ³ above background in BZ	Normal operations, initiate dust control.

When in Level D Modified/D PPE

Analyte	Action Level	Required Action ^b
VOCs	≥ 1 ppm above background in BZ	Stop activities, suspend work activities for 15 to 30 minutes, if readings are sustained then upgrade to Level C PPE; Notify CIH
Oxygen	≥ 20%, ≤23% < 20%, >23%	Normal operations. Stop work, evacuate work area.
Flammable vapors	≥ 10% LEL < 10% LEL	Stop work, evacuate work area. Continue operations, monitor for VOCs.
Dust	> 0.5 mg/m ³ above background in BZ	Stop work, Initiate dust control, upgrade to Level C PPE if dust control is not effective; Notify CIH

Table 4-1

Action Levels Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X Fort McClellan, Calhoun County, Alabama

(Page 2 of 2)

When in Support Zone

Analyte	Action Level	Required Action
VOCs	≥ 1 ppm above background in BZ	Evacuate support zone and re-establish perimeter of exclusion zone.
Dust	> 0.5 mg/m ³ above background in BZ	Stop work, Initiate dust control

^a Four instantaneous peaks in any 15-minute period or a sustained reading for 5 minutes in excess of the action level will trigger a response.

^b Contact with the H&S manager must be made prior to continuance of work. The H&S manager may then initiate perimeter/integrated air sampling along with additional engineering controls..

No one is permitted to downgrade levels of PPE without authorization from the H&S manager.

Table 4-2

**Air Monitoring Frequency and Location
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

Work Activity	Instrument	Frequency	Location
Staging equipment	OV Monitor Miniram	Initially for area Periodically	Breathing zone (BZ) of employees
Sampling (groundwater, subsurface soil and sediment)	OV Monitor Miniram	Periodically Periodically	BZ of employees BZ of employees
Surveying	OV Monitor Miniram	Periodically Periodically	BZ of employees BZ of employees
Installing monitoring wells	OV Monitor LEL/O ₂ Monitor Miniram	Continuously Continuously Periodically	BZ of employees Over bore hole BZ of employees

OV = Organic vapor.

LEL/O₂ = Lower explosive level/oxygen.

Miniram = Aerosol (dust) monitor

5.0 Activity Hazard Analysis

The attached activity hazard analysis (Table 5-1) is provided for the following activities:

- Initial UXO avoidance sweep and equipment staging
- Installation of monitoring wells
- Subsurface soil, groundwater, surface water and sediment sampling
- Surveying
- Moving and shipping collected samples
- Disposal of investigative derived waste (forklift operations)
- High-pressure water jetting operations.

All injuries and illnesses must be immediately reported to the site manager or the site safety and health officer, who will then notify off-site personnel and organizations as necessary.

If hospital care must be provided, the victim shall be treated at Northeast Regional Medical Center. Directions to the hospital are provided in Figure 5-1. Attachment 3 contains the OE/USO/CWM Hazards Evaluation Form.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 1 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Determine best access route before transporting equipment. • Practice good housekeeping; keep work area picked up and clean as feasible. • Continually inspect the work area for slip, trip, and fall hazards. • Look before you step; ensure safe and secure footing.
	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment.
	Falling objects	<ul style="list-style-type: none"> • Stay alert and clear of materials suspended overhead; wear hard hat and steel-toed boots.
	Flying debris, dirt, dust, etc.	<ul style="list-style-type: none"> • Wear safety glasses/goggles; ensure that eye wash is in proper working condition.
	Pinch points	<ul style="list-style-type: none"> • Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cuts/bruises	<ul style="list-style-type: none"> • Use cotton or leather work gloves for material handling.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> • Inspect work area carefully and avoid placing hands and feet into concealed areas.
	Ticks	<ul style="list-style-type: none"> • Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellent. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Fire	<ul style="list-style-type: none"> • Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Hazard communication	<ul style="list-style-type: none"> • Label all containers as to contents and dispose of properly. • Ensure Material Safety Data Sheets (MSDS) are available for hazardous chemicals used on site.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 2 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Noise	<ul style="list-style-type: none"> • Sound levels above 85 decibels (dBA) mandates hearing protection.
	Lighting	<ul style="list-style-type: none"> • Adequate lighting will be provided to ensure a safe working environment.
	Cold stress	<ul style="list-style-type: none"> • Workers should wear insulated clothing when temperatures drop below 40 degrees Fahrenheit (°F). • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Heat rash	<ul style="list-style-type: none"> • Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.
	Heat cramps	<ul style="list-style-type: none"> • Drink plenty of cool fluids even when not thirsty. • Provide cool fluid for work crews. • Move victim to shaded, cool area.
	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the "buddy system." • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 3 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Contact with moving equipment/vehicles	<ul style="list-style-type: none"> • Work area will be barricaded/demarcated. • Equipment will be laid out in an area free of traffic flow. • Barricades shall be used on or around work areas when it is necessary to prevent the inadvertent intrusion of pedestrian traffic. • Barriers shall be used to protect workers from vehicular traffic. • Barriers shall be used to guard excavations adjacent to streets or roadways. • Flagging shall be used for the short term (less than 24 hours) to identify hazards until proper barricades or barriers are provided. • Heavy equipment shall have backup alarms.
	Forklift operations	<ul style="list-style-type: none"> • Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Portable electric tools	<ul style="list-style-type: none"> • Portable electric tools that are unsafe due to faulty plugs, damaged cords, or other reasons, shall be tagged (do not use) and removed from service. • Portable electric tools and all cord and plug connected equipment shall be protected by a ground-fault circuit interrupter (GFCI) device. • Electrical tools shall be inspected daily prior to use.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 4 of 13)

Activity	Potential Hazards	Recommended Controls
Initial UXO avoidance sweep and equipment staging (continued)	Extension cords	<ul style="list-style-type: none"> • Extension cords that have faulty plugs, damaged insulation, or are unsafe in any way shall be removed from service. • Cords shall be protected from damage from sharp edges, projections, pinch points (doorways), and vehicular traffic. • Cords shall be suspended with a nonconductive support (rope, plastic ties, etc.). • Cords shall be designed for hard duty. • Cords shall be inspected daily.
	Lightning strikes	<ul style="list-style-type: none"> • Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one. • Keep all body parts in contact with the ground as close as possible. • Remain 6 feet away from tree trunk if seeking shelter beneath tree(s). • If in a group, keep 6 feet of distance between people.
	Thunderstorms, tornados	<ul style="list-style-type: none"> • Listen to radio or TV announcements for pending weather information. • Cease field activities during thunderstorm or tornado warnings. • Seek shelter. Do not try to outrun a tornado.
Surveying	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe boots when working in the field. • Provide adequate lighting in all work areas. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls. • Work areas will be kept clean and orderly. • Garbage and trash will be disposed of daily in approved refuse containers. • Tools and accessories will be properly maintained and stored. • Work areas and floors will be kept free of dirt, grease, and slippery materials.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 5 of 13)

Activity	Potential Hazards	Recommended Controls
Surveying (continued)	Traffic accidents	<ul style="list-style-type: none"> • Place physical barrier (i.e., barricades, fencing) around work areas regularly occupied by pedestrians. • If working adjacent to roadways, have workers wear fluorescent orange vests. • Use warning signs or lights to alert oncoming traffic. • Assign flag person(s) if necessary to direct local traffic. • Set up temporary parking locations outside the immediate work area. • Motor vehicle operators shall obey all posted traffic signs, signals, and speed limits. • Pedestrians have the right-of-way. • Wear seat belts when vehicles are in motion.
	Wildlife hazards	<ul style="list-style-type: none"> • Workers should be cautious when driving through the site in order to avoid encounters with passing animals.
	Biological hazards	<ul style="list-style-type: none"> • Walking through overgrown grass areas, watch for snakes (rattlesnakes, moccasins, copperheads).
	Ticks	<ul style="list-style-type: none"> • Wear light colored clothing (can see ticks better). • Mow vegetated and small brush areas. • Wear insect repellent. • Wear long sleeves and long pants. • Visually check oneself promptly and frequently after exiting the work area.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	UXO	<ul style="list-style-type: none"> • UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 6 of 13)

Activity	Potential Hazards	Recommended Controls
Groundwater Sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Avoid skin contact with water. • Handle samples with care. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> • Use care when handling glassware. • Wear adequate hand protection.
	Hazard communication	<ul style="list-style-type: none"> • MSDSs shall be obtained for chemicals brought on site. • Label all containers as to contents.
	Strains/sprains	<ul style="list-style-type: none"> • Use the proper tool for the job being performed. • Get assistance if needed. • Avoid twisting/turning while pulling on tools, moving equipment, etc.
	Spills/residual materials	<ul style="list-style-type: none"> • Absorbent material and containers will be kept available where leaks or spills may occur.
	Lighting	<ul style="list-style-type: none"> • Adequate lighting will be provided to ensure a safe working environment.
	Unattended worker	<ul style="list-style-type: none"> • Use "buddy system" - visual contact will be maintained with the sampling technician during sampling activities.
Soil Boring and Surface/Subsurface Sampling	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> • Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 7 of 13)

Activity	Potential Hazards	Recommended Controls
Soil Boring and Surface/Subsurface Sampling (continued)	Cut hazards	<ul style="list-style-type: none"> • Use care when handling glassware. • Wear adequate hand protection.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Site workers will be required to wear hard hat, safety glasses with side shields, work gloves, and steel-toe/shank boots when working in the field. • Whenever possible, avoid routing cords and hoses across walking pathways. • Flag or cover inconspicuous holes to protect against falls.
	Bees, spiders, and snakes	<ul style="list-style-type: none"> • Workers shall inspect the work area carefully and avoid placing hands and feet into concealed areas. • Evaluate need for sensitive workers to have prescribed antibiotic or medicine to combat onset of symptoms.
	Poison ivy/oak/sumac	<ul style="list-style-type: none"> • Avoid plant areas if possible. • Wear long sleeves and long pants. • Promptly wash clothing that has contacted poisonous plants. • Wash affected areas immediately with soap and water.
	Cold stress	<ul style="list-style-type: none"> • Workers should wear insulated clothing when temperatures drop below 40°F. • Drink warm beverages on breaks. Refrain from drinking caffeinated beverages. • Remove wet clothing promptly. • Take breaks in warm areas. • Reduce work periods as necessary. • Layer work clothing.
	Access/egress hazards	<ul style="list-style-type: none"> • Use qualified and trained bushhog operator. • Keep employees out of the bushhog work area. • Utilize good housekeeping practices. • Keep aisleways, pathways, and work areas free of obstruction. • Clean ice or snow off of walkways or work stations. • Use appropriate footwear for the task assigned.
	Heat rash	<ul style="list-style-type: none"> • Keep the skin clean and dry. • Change perspiration-soaked clothing, as necessary. • Bathe at end of work shift or day. • Apply powder to affected area.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 8 of 13)

Activity	Potential Hazards	Recommended Controls
Soil Boring and Surface/Subsurface Sampling (continued)	Heat exhaustion	<ul style="list-style-type: none"> • Conduct physiological worker monitoring as needed (i.e., heart rate, oral temperature). • Set up work/rest periods. • Use the buddy system. • Allow workers time to acclimate. • Have ice packs available for use. • Take frequent breaks.
	Heat stroke	<ul style="list-style-type: none"> • Evaluate possibility of night work. • Perform physiological monitoring on workers during breaks. • Wear body cooling devices.
	Lightning strikes	<ul style="list-style-type: none"> • Whenever possible, halt activities and take cover. • If outdoors, stay low to the ground. • Limit the body surface area that is in contact with the ground (i.e., kneeling on one knee is better than laying on the ground). • Seek shelter in a building if possible. • Stay away from windows. • If available, crouch under a group of trees instead of one single tree. • Keep all body parts in contact with the ground as close as possible. • If in a group, keep 6 feet of distance between people.
	UXO	<ul style="list-style-type: none"> • UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities. • If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO specialist.
Moving and Shipping Collected Samples	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Pinch points	<ul style="list-style-type: none"> • Keep hands, fingers, and feet clear of moving/suspended materials and equipment. • Beware of contact points. • Stay alert at all times!
	Cut hazards	<ul style="list-style-type: none"> • Wear adequate hand protection. Use care when handling glassware.
	Hazard communication	<ul style="list-style-type: none"> • Label all containers as to contents and associated hazards.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 9 of 13)

Activity	Potential Hazards	Recommended Controls
Moving and Shipping Collected Samples (continued)	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
Material Storage	Flammable and combustible liquids	<ul style="list-style-type: none"> • Store in NO SMOKING AREA. • Fire extinguisher readily available. • Transfer only when properly grounded and bonded.
Disposal of Investigation-Derived Waste (IDW) (Forklift Operation)	Personnel injury, property damage, and/or equipment damage	<ul style="list-style-type: none"> • Use qualified and trained forklift operators. • The operator shall not exceed the load capacity rating for the forklift. • The load capacity shall be clearly visible on the forklift. • Forklift operators shall inform their supervisor of any prescribed medication that they are taking that would impair their judgement.
	Cross-contamination and contact with potentially contaminated materials	<ul style="list-style-type: none"> • Stop immediately at any sign of obstruction. • Sampling technicians will wear proper protective clothing and equipment to safeguard against potential contamination. • Only essential personnel will be in the work area. • Real-time air monitoring will take place before and during sampling activities. • All personnel will follow good hygiene practices. • Proper decontamination procedures will be followed. • All liquids and materials used for decontamination will be contained and disposed of in accordance with federal, state, and local regulations.
	Cut hazards	<ul style="list-style-type: none"> • Use care when handling glassware. • Wear adequate hand protection.
High-Pressure Water Jetting Operations	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. • Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Good housekeeping shall be implemented. • The work area shall be kept clean as feasible. • Inspect the work area for slip, trip, and fall hazards.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 10 of 13)

Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (continued)	Fueling	<ul style="list-style-type: none"> • Only approved safety cans shall be used to store fuel. • Do not refuel equipment while it is operating. • Fire extinguishers shall be suitably placed, distinctly marked, readily accessible, and maintained in a fully charged and operable condition.
	Faulty or damaged equipment	<ul style="list-style-type: none"> • Equipment shall be inspected before being placed into service and at the beginning of each shift. • Preventive maintenance procedures recommended by the manufacturer shall be followed. • A lockout/tagout procedure shall be used for equipment found to be faulty or undergoing maintenance.
	High-pressure water	<ul style="list-style-type: none"> • Jetting gun operator must wear appropriate PPE including hard hat, impact-resistant safety glasses with side shields, water-resistant clothing, metatarsal guards for feet and legs, and hearing protection (if appropriate). • One standby person shall be available within the vicinity of the pump during jetting operation. • The work area shall be isolated and adequate barriers will be used to warn other site personnel.
	Unqualified operators	<ul style="list-style-type: none"> • Only qualified and trained personnel are permitted to operate machinery and mechanized equipment associated with water jet cutting and cleaning.
	Out of control equipment	<ul style="list-style-type: none"> • No machinery or equipment is permitted to run unattended. • Machinery or equipment will not be operated in a manner that will endanger persons or property nor will the safe operating speeds or loads be exceeded.
	Noise	<ul style="list-style-type: none"> • Sound levels above 85 dBA mandates hearing protection by nearby site personnel.
	Activation during repairs	<ul style="list-style-type: none"> • All machinery or equipment will be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being done.
	Pinch points	<ul style="list-style-type: none"> • Keep feet and hands clear of moving/suspended materials and equipment. • Stay alert and clear of materials suspended .
	Falling objects	<ul style="list-style-type: none"> • Hard hats are required by site personnel. • Stay alert and clear of material suspended overhead.
	Flying debris	<ul style="list-style-type: none"> • Impact-resistant safety glasses with side shields are required.

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 11 of 13)

Activity	Potential Hazards	Recommended Controls
High-Pressure Water Jetting Operations (continued)	Contact with potentially contaminated materials	<ul style="list-style-type: none"> All site personnel will wear the appropriate PPE.
Drilling and Installation of Monitoring Wells	Overhead hazards	<ul style="list-style-type: none"> Make sure no obstacles are within radius of boom. Always stay a safe distance from power lines.
	Faulty or damaged equipment being utilized to perform work	<ul style="list-style-type: none"> All machinery or mechanized equipment will be inspected by a competent mechanic and be certified to be in safe operating condition. Equipment will be inspected before being put to use and at the beginning of each shift. Faulty/unsafe equipment will be tagged and if possible locked out. Drill rigs shall be equipped with reverse signal alarm, backup warning lights, or the vehicle is backed up only when an observer signals it is safe to do so.
	Uneven terrain, poor ground support, inadequate clearances, contact with utilities	<ul style="list-style-type: none"> Inspections or determinations of road conditions and structures shall be made in advance to ensure that clearances and load capacities are safe for the passage or placing of any machinery or equipment. All mobile equipment and areas in which they are operated shall be adequately illuminated. Aboveground and belowground utilities will be located prior to staging equipment. Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines will have the wheels chocked. Inspect brakes and tire pressure on drill rig before staging for work.
	Inexperienced operator	<ul style="list-style-type: none"> Machinery and mechanized equipment shall be operated only by designated personnel. Operators shall inform their supervisor(s) of any prescribed medication that they are taking that would impair their judgment.
	Jacks/outriggers	<ul style="list-style-type: none"> Ensure proper footing and cribbing.
	Falling objects	<ul style="list-style-type: none"> Remove unsecured tools and materials before raising or lowering the derrick. Stay alert and clear of materials suspended overhead.
	Pinch points	<ul style="list-style-type: none"> Keep feet and hands clear of moving/suspended materials and equipment. Stay alert at all times!

Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 12 of 13)

Activity	Potential Hazards	Recommended Controls
Drilling and Installation of Monitoring Wells (continued)	Fire	<ul style="list-style-type: none"> • Mechanized equipment shall be shut down prior to and during fueling operations. • Have fire extinguishers inspected and readily available.
	Fall hazards	<ul style="list-style-type: none"> • Personnel are not allowed to work off of machinery or use them as ladders. • Use fall protection when working above 6 feet.
	Contact with rotating or reciprocating machine parts	<ul style="list-style-type: none"> • Use machine guards; use long-handled shovels to remove auger cuttings. • Safe lockout procedures for maintenance work.
	Heavy lifting	<ul style="list-style-type: none"> • Use proper lifting techniques. Lifts greater than 60 pounds require assistance or mechanical equipment; size up the lift.
	Slip, trip, and fall hazards	<ul style="list-style-type: none"> • Practice good housekeeping, keep work area picked up and clean as feasible. • Continually inspect the work area for slip, trip, and fall hazards.
	Contact with potentially contaminated materials	<ul style="list-style-type: none"> • Real-time air monitoring will take place. If necessary, proper personal protective clothing and equipment will be utilized. • Stop immediately at any sign of obstruction. • Do not breathe air surrounding the boring unless necessary. • Upgrade to respirator if necessary. • Avoid skin contact with soil cuttings. Wear gloves. • Stay clear of moving parts of drill rig.
	Drum handling	<ul style="list-style-type: none"> • Be careful not to breathe air from around open drum any more than necessary. Monitor with photoionization detector/flame ionization detector (PID/FID) equipment and upgrade to respirator if necessary. • When filling a drum (with either soil or water), be careful not to make contact with the contained waste. Wear appropriate gloves. Make sure lid or bung of drum is secure. • If moving a drum unassisted, be sure to leverage properly, use proper lifting techniques, and wear safety glasses and steel-toed boots. • When using a drum dolly, make sure straps and lid catch are securely attached. Leverage properly when tilting drum. Be sure toes stay away from drum.

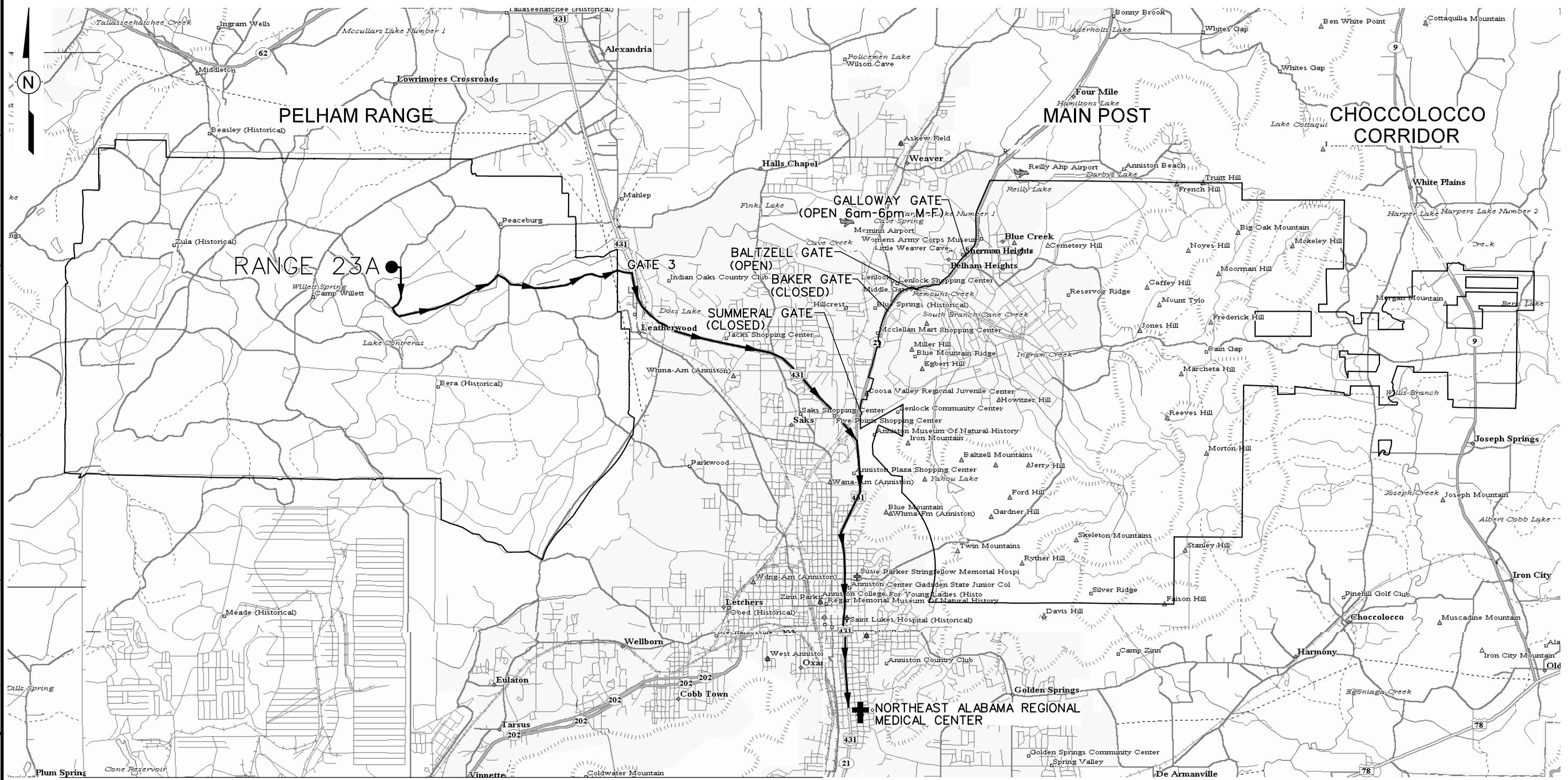
Table 5-1

**Activity Hazard Analysis
Range 23A, Multipurpose Range, Parcel 109(7)/152Q-X
Fort McClellan, Calhoun County, Alabama**

(Page 13 of 13)

Activity	Potential Hazards	Recommended Controls
Drilling and Installation of Monitoring Wells (continued)	UXO	<ul style="list-style-type: none">• UXO avoidance monitoring will be conducted by a UXO specialist prior to beginning activities.• UXO avoidance monitoring shall apply to all intrusive activities associated with well construction completion.• If UXO is encountered, cease all activities, mark the location, and notify the site manager and UXO specialist immediately.
	Accidental Exposure to Chemical Agents	<ul style="list-style-type: none">• During the first 30 feet depth of each monitoring well or direct push activity, downhole geophysics will be performed.• Engineering controls and PPE will be utilized as appropriate.• Personnel will review the site specific evacuation procedure.• 10% standard Clorox bleach solution will be added to the decontamination procedure if chemical agents are suspected.

DWG. NO.: 774645es.810
 PROJ. NO.: 774645
 DRAFT. CHK. BY: S. MORAN
 ENGR. CHK. BY: S. MORAN
 DATE LAST REV.:
 DRAWN BY:
 STARTING DATE: 10/04/01
 DRAWN BY: D. BOWAR
 02:56:36 PM
 DBILLING
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LEGEND:

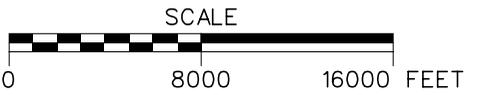
- ROUTE TO NORTHEAST ALABAMA REGIONAL MEDICAL CENTER
- U.S. HIGHWAY
- HOSPITALS
- INVESTIGATION SITE

DRIVING DIRECTIONS FROM PELHAM RANGE GATE 3 TO THE NORTHEAST ALABAMA MEDICAL CENTER

- EXIT PELHAM RANGE AT GATE NO. 3 AND TURN RIGHT ON U.S. HWY 431
- CONTINUE TO WHERE AL HWY 21 MERGES WITH U.S. HWY 431 AND CONTINUE SOUTH
- CONTINUE SOUTH ON AL21/US431 FOR ~ 2.7 MILES
- TURN LEFT ONTO EAST 10th STREET
- GO ~ 0.2 MILE TO MEDICAL CENTER ON RIGHT
- NORTHEAST ALABAMA REGIONAL MEDICAL CENTER, 400 EAST 10 TH STREET
- PHONE NUMBER : (256) 235-5121

**FIGURE 5-1
HOSPITAL EMERGENCY ROUTE**

U. S. ARMY CORPS OF ENGINEERS
 MOBILE DISTRICT
 FORT McCLELLAN
 CALHOUN COUNTY, ALABAMA
 Contract No. DACA21-96-D-0018



ATTACHMENT 1

**PELHAM RANGE EMERGENCY ROUTE AND RANGE CONTROL
CONTACT**

Pelham Range Emergency Routes

- Range Control will determine depending on the wind direction the best egress route.
- Range Control will advise over the radio which route to take.
- 4 routes have been indicated on the enclosed map.

Medical Emergency

- Exit gate Number 3 at Pelham Range,
- Turn right onto Route 431,
- Turn right onto Highway 21 (Quintard),
- Turn left onto 10th Street,
- Hospital is 1-1/2 blocks ahead,
 - Northeast Alabama Regional Medical Center
 - 400 East 10th Street
 - Anniston, Alabama

Range Control- Pelham Range

- Building 1120, Ft McClellan
Phone No. 848-6772
Fax No. 848-4412

All access permits are issued by range control, daily.

FORT MCCLELLAN ALERT AND NOTIFICATION SYSTEM

An outdoor electronic alert and notification system is operational on Fort McClellan and Pelham Range. The purpose of this system is to provide warning(s) of an emergency situation that poses a threat to the safety and health of personnel on Fort McClellan and Pelham Range. The system has the capability of providing digital voice, electronic tone alerts and live voice loudspeaker warnings of emergency situations. The following is a list of the digital voice and associate tone alerts for the various hazards that could threaten personnel on both portions of the installation:

1. **THIS IS A TEST!** This is a test of the Fort McClellan emergency warning system. **THIS IS A TEST AND ONLY A TEST!** **WAIL TONE**

This message is used for the monthly test on the first Tuesday at 1600 hrs.

2. **WARNING! TORNADO WARNING!** A tornado warning has been issued for this area. Seek shelter immediately. Tune to a local radio station. Seek shelter immediately. **TORNADO WARNING!** **SOLID TONE**

3. **WARNING! SEVERE WEATHER WARNING!** A severe weather warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **SEVERE WEATHER WARNING!** **SOLID TONE**

4. **WARNING! THUNDERSTORM WARNING!** A thunderstorm warning has been issued for this area. Standby for further instructions. Tune to a local radio station. **THUNDERSTORM WARNING!** **SOLID TONE**

5. **WARNING! HAZARDOUS MATERIALS ACCIDENT!** There has been a hazardous materials accident. Standby for further instructions. Tune to a local radio station. **HAZARDOUS MATERIALS ACCIDENT!** **HI-LO TONE**

6. **WARNING!** Anniston Army Depot has announced a chemical agent release. Standby for further instructions. Tune to FM 100 radio station. **CHEMICAL AGENT RELEASE!** **WHOO TONE**

7. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** The emergency situation is over. **ALL CLEAR!** **NO TONE**

8. **CHEMICAL ALERT!** Initiate evacuation procedures immediately. A chemical agent release has occurred at Anniston Army Depot. **EVACUATE IMMEDIATELY! CHEMICAL ALERT!** **WHOO TONE**

This voice message was specifically designed for Pelham Range.

Sequence of initial alert and notification is:

VOICE MESSAGE--TONE--VOICE MESSAGE--TONE

repeated twice, again as the situation warrants.

ATTACHMENT 2
(MATERIAL SAFETY DATA SHEETS)

PACIFIC SCIENTIFIC ENERGY SYSTEMS DIV -- 30903802 CARTRIDGE-PRESSURE F-15
MATERIAL SAFETY DATA SHEET
NSN: 1377002800272
Manufacturer's CAGE: 54181
Part No. Indicator: A
Part Number/Trade Name: 30903802 CARTRIDGE-PRESSURE F-15

=====
General Information
=====

Company's Name: PACIFIC SCIENTIFIC - ENERGY SYSTEMS DIV
Company's Street: 7073 W WILLIS DR
Company's P. O. Box: 5002
Company's City: CHANDLER
Company's State: AZ
Company's Country: US
Company's Zip Code: 85226-5111
Company's Emerg Ph #: 602-796-1100
Company's Info Ph #: 602-796-1100
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 002
Status: SE
Date MSDS Prepared: 08DEC95
Safety Data Review Date: 08OCT96
MSDS Preparer's Name: JOEL GEVING
Preparer's Company: PACIFIC SCIENTIFIC - ENERGY SYSTEMS DIV
Preparer's St Or P. O. Box: 7073 W WILLIS DR
Preparer's City: CHANDLER
Preparer's State: AZ
Preparer's Zip Code: 85226-5111
MSDS Serial Number: CCGDY

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: LEAD AZIDE
Ingredient Sequence Number: 01
Percent: <1
NIOSH (RTECS) Number: OF8650000
CAS Number: 13424-46-9
OSHA PEL: 0.05 MG/CUM
ACGIH TLV: 0.15 MG/CUM

Proprietary: NO
Ingredient: HEXANITROSTILBENE
Ingredient Sequence Number: 02
Percent: <1
NIOSH (RTECS) Number: 1014681HE
CAS Number: 20062-22-0
ACGIH TLV: 5 MG/CUM

Proprietary: NO
Ingredient: ZIRCONIUM
Ingredient Sequence Number: 03
Percent: <1
NIOSH (RTECS) Number: ZH7070000
CAS Number: 7440-67-7
OSHA PEL: 10 MG/CUM
ACGIH TLV: 5 MG/CUM

Proprietary: NO
Ingredient: POTASSIUM PERCHLORATE
Ingredient Sequence Number: 04
Percent: <1
NIOSH (RTECS) Number: SC9700000
CAS Number: 7778-74-7
ACGIH TLV: 15 MG/CUM

Proprietary: NO
Ingredient: GRAPHITE
Ingredient Sequence Number: 05
Percent: <0.1
NIOSH (RTECS) Number: MD9659600
CAS Number: 7782-42-5
OSHA PEL: 2.5 MG/CUM
ACGIH TLV: 2.5 MG/CUM
Other Recommended Limit: 2.5MG/CUM

Proprietary: NO
Ingredient: 1,1-DIFLUOROETHENE, TETRAFLUOROETHENE, 1,1,2,3,3,3-HEXAFLUORO-1-PROPANE POLYMER
Ingredient Sequence Number: 06
Percent: <0.1
NIOSH (RTECS) Number: 1012542DT
CAS Number: 25190-89-0
OSHA PEL: 15 MG/CUM

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: SOLID METALLIC ORDNANCE HARDWARE; ODORLESS
Specific Gravity: >1
Decomposition Temperature: 400F
Solubility In Water: NEGLIGIBLE

=====
Fire and Explosion Hazard Data
=====

Extinguishing Media: AUTOMATIC WATER SPRINKLER/DELUGE SYSTEM IS RECOMMENDED.
Special Fire Fighting Proc: DON'T ATTEMPT TO MANUALLY FIGHT FIRES. IN CASE OF FIRE, EVACUATE AREA. USE PROTECTIVE COVER AS POSSIBLE, ACTIVATE DELUGE & ALARM SYSTEMS. EXPLOSIVE PRODUCT.
Unusual Fire And Expl Hazrds: EXPLOSIVE PRODUCT, MAY BE SENSITIVE TO ALL OTHER IGNITION SOURCES. DON'T CONFINED IF BURNING, MAY DEFLAGRATE/DETONATE IF EXPOSED. AUTOIGNITION TEMP: >500F.

=====
Reactivity Data
=====

Stability: YES
Cond To Avoid (Stability): SHOCK, IMPACT, FRICTION, ELECTROSTATIC DISCHARGE, HIGH PRESSURE, HIGH TEMPS, OPEN FLAME, CHEMICAL/PHYSICAL CONTAMINATION
Materials To Avoid: LEAD, ZIRCONIUM & FLUORINE COMPOUNDS.
Hazardous Decomp Products: EXTREME HEAT & TOXIC GASES, NITROGEN OXIDES, HYDROGEN FLUORIDE GAS & POTASSIUM CHLORIDE DUST.
Hazardous Poly Occur: NO

=====
Health Hazard Data
=====

Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO

Route Of Entry - Ingestion: YES
 RESPIRATORY IRRITATION. INGESTION: HIGHLY POISONOUS. LEAD AZIDE: HUMAN HEALTH EFFECTS BY INHALATION, INGESTION, SKIN/EYES. LEAD AZIDE IS HIGHLY TOXIC, OVEREXPOSURE TO LEAD MAY CAUSE ADVERSE EFFECTS TO THE BLOOD FORMING, NERVOUS, URINARY & REPRODUCTIVE SYSTEMS, EMBRYOTOXIC EFFECTS. (SUP
 Carcinogenicity - NTP: NO
 Carcinogenicity - IARC: NO
 Carcinogenicity - OSHA: NO
 Explanation Carcinogenicity: NONE
 Signs/Symptoms Of Overexp: IRRITATION. LEAD AZIDE: DISCOMFORT, NAUSEA, HEADACHE, WEAKNESS, HYPOTENSION, LOSS OF APPETITE, ANEMIA, DISTURBANCES OF SLEEP, FATIGUE.
 Med Cond Aggravated By Exp: PRE-EXISTING PULMONARY DISEASES, EMPHYSEMA, ASTHMA.
 Emergency/First Aid Proc: EYES: REMOVE CONTACT LENSES, FLUSH W/WATER FOR 15 MINS. SKIN: WASH OFF RESIDUE W/SOAP & WARM WATER. INHALATION: REMOVE TO FRESH AIR. GIVE CPR/OXYGEN IF NEEDED. OBTAIN MEDICAL ATTENTION IN ALL CASES. NOTE TO PHYS: SUPPORTIVE CARE. PRODUCT IGNITION PRODUCES LEAD/ZIRCONIUM & FLUORINE COMPOUNDS/NITROGEN OXIDES/HYDROGEN FLUORIDE GAS/POTASSIUM CHLORIDE DUST. TREATMENT BASED ON JUDGEMENT OF PHYSICIAN.

=====
 Precautions for Safe Handling and Use
 =====

Steps If Matl Released/Spill: SMALL: BARRICADE AREA, ELIMINATE IGNITION SOURCES, USE A SOFT BRISTLE BRUSH & A CONDUCTIVE RUBBER PAN/SHOVEL TO CLEANUP. USE CONDUCTIVE CONTAINERS & GROUND WHEN TRANSFERRING MATERIAL. SOIL: REMOVE/DISPOSE OF CONTAMINATED SOIL AS HAZARDOUS WASTE. (SUPP
 Neutralizing Agent: 5%/WT AQUEOUS SOLUTION OF CERIC AMMONIUM NITRATE/10%/WT SODIUM HYDROXIDE.
 Waste Disposal Method: DESTROY BY OPEN BURNING/OPEN DETONATION IN APPROVED INCINERATOR/BY ANOTHER APPROVED METHOD SUCH AS CHEMICAL TREATMENT/DESTRUCTION IAW/FEDERAL, STATE & LOCAL REGULATIONS. UN0323, D003-REACTIVE CHARACTERISTIC, D008-LEAD.
 Precautions-Handling/Storing: STORE IN APPROVED STORAGE MAGAZINES ONLY. KEEP PRODUCT COOL & DRY IN STORAGE.
 Other Precautions: STORAGE & HANDLING MUST CONFORM TO APPROPRIATE QUANTITY/DISTANCE REQUIREMENTS, BARRICADING, GROUNDING & PERSONNEL MATERIAL LIMITS.

=====
 Control Measures
 =====

Respiratory Protection: USE A NIOSH/MSHA APPROVED RESPIRATOR IF EXPOSED TO PARTICULATE MATTER. IN ADDITION, USE A NIOSH/MSHA APPROVED RESPIRATOR FOR PROTECTION AGAINST TOXIC GASEOUS IGNITION BY PRODUCTS.
 Ventilation: EXPLOSION PROOF EQUIPMENT IS REQUIRED. GENERAL-COVERAGE, MODERATE FLOW IS RECOMMENDED FOR PARTICULATE & IGNITION REMOVAL
 Protective Gloves: IMPERVIOUS/STATIC DISSIPATING
 Eye Protection: INDUSTRIAL SAFETY GLASSES/GOGGLES
 Other Protective Equipment: 100% COTTON UNDERWEAR & FLAME RESISTANT/FULL BODY COVERALLS & SHOES/SAFETY SHOWER, EYE WASH & LAUNDRY FACILITIES.
 Suppl. Safety & Health Data: HLTH HZRDS: POTASSIUM PERCHLORATE-IMPLICATED IN A PLASTIC ANEMIA. ABSORPTION CAN CAUSE METHEMOGLOBINEMIA & KIDNEY INJURY. SPILLS: WATER-FLUSH W/COPIOUS AMOUNTS OF WATER. COLLECT WATER TO DISPOSE OF AS HAZARDOUS WASTE. OCCUPATIONAL: IF PRODUCT SEAL RUPTURES, BARRICADE AREA & ELIMINATE IGNITION SOURCES.

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 Transportation Data
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 Disposal Data
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Label Data
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ENSIGN-BICKFORD THE -- A305-A993 AM382-AM990 PRIMACORD,DETONATING CORD,
MATERIAL SAFETY DATA SHEET
NSN: 137500F048178
Manufacturer's CAGE: 96336
Part No. Indicator: A
Part Number/Trade Name: A305-A993 AM382-AM990 PRIMACORD,DETONATING CORD,
PRIMALINE

=====
General Information
=====

Company's Name: ENSIGN-BICKFORD CO THE
Company's Street: 660 HOPMEADOW ST
Company's P. O. Box: 427
Company's City: SIMSBURY
Company's State: CT
Company's Country: US
Company's Zip Code: 06070-2420
Company's Emerg Ph #: 203-651-2626
Company's Info Ph #: 203-651-2626
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SE
Date MSDS Prepared: 30OCT95
Safety Data Review Date: 13JUN96
MSDS Preparer's Name: EDWIN J ZALEWSKI
Preparer's Company: ENSIGN-BICKFORD CO THE
Preparer's St Or P. O. Box: 660 HOPMEADOW ST
Preparer's City: SIMSBURY
Preparer's State: CT
Preparer's Zip Code: 06070-2420
MSDS Serial Number: BZFBM

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: PENTAERYTHRITOL TETRANITRATE
Ingredient Sequence Number: 01
NIOSH (RTECS) Number: RZ6200000
CAS Number: 78-11-5

Proprietary: NO
Ingredient: CYCLONITE; S-TRIAZINE; HEXAHYDRO 1,3,5-TRINITRO;
CYCLOTRIMETHYLENETRINITRAMINE (RDX)
Ingredient Sequence Number: 02
NIOSH (RTECS) Number: XY9450000
CAS Number: 121-82-4
ACGIH TLV: 1.5 MG/CUM (SKIN)

Proprietary: NO
Ingredient: CYCLOTETRAMETHYLENETETTRANITRAMINE (HMX)
Ingredient Sequence Number: 03
NIOSH (RTECS) Number: XF7450000
CAS Number: 2691-41-0

Proprietary: NO
Ingredient: 2,6-PYRIDINEDIAMINE, 3,5-DINITRO-N,N'-BIS(2,4,6-
TRINITROPHENYL)-, 2,6-BIS(PICRYLAMINO)-3,5-DINITROPYRIDINE, PYX, *96-1*
Ingredient Sequence Number: 04
NIOSH (RTECS) Number: US7546500

CAS Number: 38082-89-2

Proprietary: NO
Ingredient: AMMONIUM HYDROXIDE, AQUA AMMONIA *96-1*
Ingredient Sequence Number: 05
NIOSH (RTECS) Number: BQ9625000
CAS Number: 1336-21-6
ACGIH TLV: 25 PPM
Other Recommended Limit: 25 PPM

Proprietary: NO
Ingredient: CELLULOSE
Ingredient Sequence Number: 06
NIOSH (RTECS) Number: FJ5691460
CAS Number: 9004-34-6
OSHA PEL: 5 MG/CUM
ACGIH TLV: 10 MG/CUM (DUST)

Proprietary: NO
Ingredient: TRIBUTYL PHOSPHATE
Ingredient Sequence Number: 07
NIOSH (RTECS) Number: TC7700000
CAS Number: 126-73-8
OSHA PEL: 5 MG/CUM
ACGIH TLV: 2.2 MG/CUM
Other Recommended Limit: 0.2 PPM

Proprietary: NO
Ingredient: POLYETHYLENE, POLYETHYLENE RESIN (HOMOPOLYMER); POLYWAX 1000
(CARCINOGEN BY IARC GROUP 3) *96-2*
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: TQ3325000
CAS Number: 9002-88-4

Proprietary: NO
Ingredient: COTTON
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 1007752CO

Proprietary: NO
Ingredient: POLYPROPYLENE
Ingredient Sequence Number: 10
NIOSH (RTECS) Number: 1011757PP

Proprietary: NO
Ingredient: WAX,
Ingredient Sequence Number: 11
NIOSH (RTECS) Number: 1009996WX

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: THE CORE OF HIGH EXPLOSIVE IS WRAPPED IN PLASTIC
YARN. (SEE SUPP)
Solubility In Water: INSOLUBLE
=====

Fire and Explosion Hazard Data
=====

Special Fire Fighting Proc: APPLY WATER THROUGH A FIXED EXTINGUISHING
SYSTEM (SPRINKLERS), PEOPLE NEED NOT BE PRESENT FOR SYSTEM TO OPERATE.
DON'T FIGHT FIRES INVOLVING EXPLOSIVES.

Unusual Fire And Expl Hazrds: MAY DETONATE IF EXPOSED TO SHOCK, HEAT, IMPACT, SPARKS/FRICTION. AUTOIGNITION TEMP: 374F (PENTAERYTHRITOL TETRANITRATE).

Reactivity Data

Stability: YES
Cond To Avoid (Stability): HEAT, SHOCK, FRICTION, IMPACT, STATIC CHARGE, SPARKS & OTHER IGNITION SOURCES.
Materials To Avoid: ACIDS, ALKALIS
Hazardous Decomp Products: DETONATION & BURNING: NITROGEN OXIDES.
Hazardous Poly Occur: NO

Health Hazard Data

Route Of Entry - Inhalation: NO
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: EYES: IRRITATION. INHALATION: CARDIOVASCULAR COLLAPSE, NASAL & RESPIRATORY IRRITATION. INGESTION: POISONOUS, DEATH.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NONE
Signs/Symptoms Of Overexp: IRRITATION, LOWER BLOOD PRESSURE, VASODILATOR, SPASMS.
WASH THOROUGHLY W/SOAP & WATER. INHALATION: REMOVE TO FRESH AIR. GIVE CPR IF NEEDED. INGESTION: TREAT W/GASTRIC WASH. OBTAIN MEDICAL ATTENTION IN ALL CASES.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: USE PROTECTIVE EQUIPMENT DURING CLEAN-UP. ISOLATE AREA. REMOVE IGNITION SOURCES. CAREFULLY COLLECT MATERIAL & PLACE IN A CONDUCTIVE BAG. CONTAMINATION OF MATERIAL W/SAND, GRIT, DIRT WILL RENDER MATERIAL SENSITIVE TO DETONATION. (SEE SUPP)
Waste Disposal Method: EPA HAZARDOUS NUMBER: D003. DISPOSE OF IAW/ FEDERAL, STATE & LOCAL REGULATIONS. ENSURE THAT DETONATING CORD CONTAINS NO KNOTS/KINKS. KNOTS/KINKS IN CORD CAN CAUSE A DETONATION WHEN SUBJECT TO HEAT/FLAME. DESTRUCTION: USE ONLY QUALIFIED PERSONNEL.
Precautions-Handling/Storing: STORE AWAY FROM SPARKS/OTHER IGNITION SOURCES. AVOID HEAT, SHOCK & IMPACT.

Control Measures

Respiratory Protection: WEAR OSHA/NIOSH APPROVED DUST, MIST & FUME FILTER RESPIRATOR.
Ventilation: REQUIRED IF USED IN UNDERGROUND MINES/SPECIAL TESTING IS TO BE PERFORMED INDOOR.
Protective Gloves: RUBBER/NEOPRENE
Eye Protection: SAFETY GLASSES
Suppl. Safety & Health Data: APPEARANCE CONT'D: CORE WILL CONTAIN 4 TO 400 GR/FT OF LISTED EXPLOSIVES. BRIGHTLY COLORED ROPE LIKE LINEAR PRODUCT W/JACKET OF BRAIDED PLASTIC YARN. SPILLS CONT'D: SEPARATE MATERIAL THAT ISN'T CONTAMINATED FROM CONTAMINATED MATERIAL. WET DOWN & CLEAN (LOOSE POWDER), USING A DAMP RAG/SPONGE. STORE IN SECURE AREA.

Transportation Data

Disposal Data

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Label Data

=====

Label Required: YES
Label Status: G
Common Name: A305-A993 AM382-AM990 PRIMACORD,DETONATING CORD,
PRIMALINE
Special Hazard Precautions: EYES: IRRITATION. INHALATION: CARDIOVASCULAR
COLLAPSE, NASAL & RESPIRATORY IRRITATION. INGESTION: POISONOUS, DEATH.
IRRITATION, LOWER BLOOD PRESSURE, VASODILATOR, SPASMS.
Label Name: ENSIGN-BICKFORD CO THE
Label Street: 660 HOPMEADOW ST
Label P.O. Box: 427
Label City: SIMSBURY
Label State: CT
Label Zip Code: 06070-2420
Label Country: US
Label Emergency Number: 203-651-2626

HERCULES -- TRINITROTOLUENE (TNT) TYPE 1 FLAKE FORM
MATERIAL SAFETY DATA SHEET
NSN: 137600N018210
Manufacturer's CAGE: 2D881
Part No. Indicator: A
Part Number/Trade Name: TRINITROTOLUENE (TNT) TYPE 1 FLAKE FORM

=====
General Information
=====

Company's Name: HERCULES INCORPORATED
Company's Street: RADFORD ARMY AMMUNITION PLANT
Company's City: RADFORD
Company's State: VA
Company's Country: US
Company's Zip Code: 24141
Company's Emerg Ph #: 703-639-7294
Company's Info Ph #: 703-639-7294
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 02JUL91
Safety Data Review Date: 10SEP91
MSDS Serial Number: BKZPP
Hazard Characteristic Code: E1

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: 2,4,6-TRINITROTOLUENE (TNT)
Ingredient Sequence Number: 01
Percent: 99
NIOSH (RTECS) Number: XU0175000
CAS Number: 118-96-7
OSHA PEL: S, 1.5 MG/M3
ACGIH TLV: S, 0.5 MG/M3; 9293

=====
Physical/Chemical Characteristics
=====

Appearance And Odor: FLAKES, PALE YELLOW IN COLOR.
Boiling Point: 464F,240C
Vapor Density (Air=1): N/A
Specific Gravity: 1.5-1.6
Evaporation Rate And Ref: NOT APPLICABLE
Solubility In Water: 0.01% @ 25C
Percent Volatiles By Volume: <0.1

=====
Fire and Explosion Hazard Data
=====

Flash Point: EXPLODES
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Extinguishing Media: DELUGE WITH WATER-USE LARGE QUANTITIES.
Special Fire Fighting Proc: WEAR NIOSH/MSHA APPROVED SCBA AND FULL
PROTECTIVE EQUIPMENT (FP N). EVACUATE THE AREA.
Unusual Fire And Expl Hazrds: HIGHLY DANGEROUS-SHOCK WILL EXPLODE IT. WILL
DETONATE IF CONFINED AND EXPOSED TO EXTRME HEAT.

=====
Reactivity Data
=====

Stability: YES

Cond To Avoid (Stability): AVOID CONTACT WITH ALKALINE MATERIALS. WILL DETONATE IF CONFINED AND EXPOSED TO EXTREME HEAT.

Materials To Avoid: SODIUM HYDROXIDE, POTASSIUM HYDROXIDE AND OTHER HIGHLY ALKALINE MATERIALS.

Hazardous Decomp Products: NOX.

Hazardous Poly Occur: NO

Conditions To Avoid (Poly): NOT RELEVANT.

=====
Health Hazard Data
=====

LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.

Route Of Entry - Inhalation: YES

Route Of Entry - Skin: NO

Route Of Entry - Ingestion: NO

Health Haz Acute And Chronic: ALLERGENIC, CAN CAUSE DERMATITIS. DISCOLOR SKIN AND HAIR PALE YELLOW. CAUSES NAUSEA, VOMITING AND ANOREXIA ALSO LIVER AND BLOOD DAMAGE, AND APLASTIC ANEMIA.

Carcinogenicity - NTP: NO

Carcinogenicity - IARC: NO

Carcinogenicity - OSHA: NO

Explanation Carcinogenicity: NOT RELEVANT.

Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.

Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.

Emergency/First Aid Proc: EYE:IMMEDIATELY FLUSH THOROUGHLY WITH LARGE AMOUNTS OF LOW PRESSURE WATER FOR AT LEAST 25 MINUTES. REMOVE CONTACT LENSES TO ASSURE THOROUGH FLUSHING. CALL MD. SKIN:WASH WITH TNT INDICATOR SOAP AND RUNNING WATER. INHAL:REMOVE TO FRESH AIR. TREAT ANY IRRITATION SYMPTOMATICALLY. CALL MD. INGEST:CALL MD IMMEDIATELY (FP N).

=====
Precautions for Safe Handling and Use
=====

Steps If Matl Released/Spill: CLEAN UP SPILL IMMEDIATELY USING A SOFT BRISTLE BRUSH AND A CONDUCTIVE RUBBER OR PLASTIC SHOVEL.

Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.

Waste Disposal Method: BURN ON OPEN BURNING GROUND IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS. MAY ALSO BE BURNED IN AN INCINERATOR APPROVED FOR EXPLOSIVES. DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REGULATIONS (FP N).

Precautions-Handling/Storing: NONE SPECIFIED BY MANUFACTURER.

Other Precautions: NONE SPECIFIED BY MANUFACTURER.

=====
Control Measures
=====

Respiratory Protection: NIOSH/MSHA APPROVED RESPIRATOR FOR DUSTS.

Ventilation: MECHANICAL (GENERAL) VENTILATION.

Protective Gloves: COTTON OR LEATHER GLOVES.

Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).

Other Protective Equipment: FLAME-PROOF COVERALLS AND CONDUCTIVE SHOES.

Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.

Suppl. Safety & Health Data: NONE SPECIFIED BY MANUFACTURER.

=====
Transportation Data
=====

Trans Data Review Date: 91294

DOT PSN Code: EEL

DOT Proper Shipping Name: CYCLOTETRAMETHYLENETETRANITRAMINE, WETTED OR HMX, WETTED OR OCTOGEN, WETTED

DOT Class: 1.1D

DOT ID Number: UN0226

DOT Pack Group: II
DOT Label: EXPLOSIVE 1.1D
IMO PSN Code: PBV
IMO Proper Shipping Name: TRINITROTOLUENE
IMO Regulations Page Number: 1144
IMO UN Number: 0209
IMO UN Class: 1.1 D
IMO Subsidiary Risk Label: -
IATA PSN Code: YYG
IATA UN ID Number: 0209
IATA UN Class: 1.1D
AFI PSN Code: XSI
AFI Prop. Shipping Name: TETRAHYDROFURAN
AFI Class: 3
AFI ID Number: UN2056
AFI Pack Group: II
AFI Basic Pac Ref: 7-7

=====
Disposal Data
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Label Data
=====

Label Required: YES
Technical Review Date: 10SEP91
Label Date: 10SEP91
Label Status: G
Common Name: TRINITROTOLUENE (TNT) TYPE 1 FLAKE FORM
Chronic Hazard: YES
Signal Word: DANGER!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-Severe: X
Reactivity Hazard-Severe: X
Special Hazard Precautions: ACUTE:CAUSES NAUSEA, VOMITING, AND ANOREXIA.
DO NOT BREATHE VAPORS OR SWALLOW MATERIAL. USE WITH ADEQUATE VENTILATION.
CAN CAUSE SKIN IRRITATION. AVOID CONTACT WITH EYES, SKIN, AND CLOTHING.
TARGET ORGANS:CAN CAUSE DERMATITIS, LIVER AND BLOOD DAMAGE. AN ALLERGEN.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: HERCULES INCORPORATED
Label Street: RADFORD ARMY AMMUNITION PLANT
Label City: RADFORD
Label State: VA
Label Zip Code: 24141
Label Country: US
Label Emergency Number: 703-639-7294

ENSIGN-BICKFORD -- TETRYL
MATERIAL SAFETY DATA SHEET
NSN: 137500N026374
Manufacturer's CAGE: 0B2N1
Part No. Indicator: A
Part Number/Trade Name: TETRYL

=====
General Information
=====

Company's Name: ENSIGN-BICKFORD CO
Company's Street: 660 HOPMEADOW ST
Company's City: SIMSBURY
Company's State: CT
Company's Country: US
Company's Zip Code: 06070
Company's Emerg Ph #: 203-658-4411;203-843-2276
Company's Info Ph #: 203-658-4411;203-843-2276
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 30APR91
Safety Data Review Date: 14FEB92
MSDS Preparer's Name: T.A. SHREVE
Preparer's Company: SAME
MSDS Serial Number: BMRQS
Hazard Characteristic Code: E2

=====
Ingredients/Identity Information
=====

Proprietary: NO
Ingredient: ANILINE, N-METHYL-N,2,4,6-TETRANITRO-; (TRINITRO-2,4,6-PHENYLMETHYLMITRAMINE)
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: BY6300000
CAS Number: 479-45-8
OSHA PEL: S, 1.5 MG/M3
ACGIH TLV: 1.5 MG/M3; 9293

Proprietary: NO
Ingredient: SUPP DATA:IT DOES NOT DETONATE, IT WILL BURN VIGOROUSLY.
DEFLAGRATION TEMPERATURE IS 185C (365F).
Ingredient Sequence Number: 02
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: SPILL PROC:FRICITION/IMPACT. PLACE MATL IN VELOSTAT BAG. CONTAM
OF MATL W/SAND/DIRT/OTHER GRIT WILL RENDER IT MORE(ING 4)
Ingredient Sequence Number: 03
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 3:SENSITIVE TO DETONATION. IF POSS, SEPARATE ANY MATL THAT
APPEARS TO BE UNCONTAMD FROM MATL THAT APPEARS TO (ING 5)
Ingredient Sequence Number: 04

NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 4:BE GRIT CONTAMD. STORE COLLECTED MATL FOR PROPER DISP.
Ingredient Sequence Number: 05
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: WASTE DISP METH:LBLG/PACKAGING/STOR & TRANSPORTATION) MUST BE
PERFORMED I/A/W ALL APPLIC LOC/ST/FED LAWS & REGS. (ING 7)
Ingredient Sequence Number: 06
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 6:RECOM MET OF DISP OF WASTE EXPLO IS BY OPEN BURN/OPEN
DETONATION. TETRYL MAY BE DESTROYED BY BOIL IN SOLN (ING 8)
Ingredient Sequence Number: 07
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 7:OF SODIUM CARBONATE. BY-PROD & SPECIFICS OF RXN ARE NOT
AVAILABLE.
Ingredient Sequence Number: 08
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: VENT:STRONGLY RECOMMENDED TO MINIMIZE EMPLOYEE EXPOSURE.
Ingredient Sequence Number: 09
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

=====
Physical/Chemical Characteristics
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Appearance And Odor: LIGHT YELLOW CRYSTALS.
Boiling Point: N/A
Melting Point: 265F,129C
Vapor Pressure (MM Hg/70 F): N/A
Vapor Density (Air=1): N/A
Evaporation Rate And Ref: NOT APPLICABLE
Solubility In Water: INSOLUBLE
Percent Volatiles By Volume: 100%

=====
Fire and Explosion Hazard Data
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Extinguishing Media: MEDIA SUITABLE FOR SURROUNDING FIRE (FP N).
Special Fire Fighting Proc: NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP(FP
N). DO NOT FIGHT FIRES INVOLVING TETRYL! PROD IS PRIMARY (INITIATING) EXPLO
& MAY DETONATE WHEN EXPOS TO (SUPP DATA)
Unusual Fire And Expl Hazrds: TETRYL IS PRIMARY(INITIATING) EXPLO. PROD IS

LIKELY TO DETONATE WHEN EXPOS TO SHOCK/HEAT/IMPACT/SPARKS/FRICTION. PROD SHOULD BE HNDLD ONLY BY (SUPP DATA)

=====
 Reactivity Data
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Stability: YES
 Cond To Avoid (Stability): EXPOSURE TO SHOCK, SPARKS, PRESSURE, OR IMPACT MAY RESULT IN DETONATION.
 Materials To Avoid: CARBON STEEL IS EASILY CORRODE BY TETRYL A SLIGHT CORROSION IS FOUND WITH ZINC AND ZINC PLATED STEEL.
 Hazardous Decomp Products: THERMAL DECOMPOSITION MAY PRODUCE OXIDES OF CARBON & NITROGEN.
 Hazardous Poly Occur: NO
 Conditions To Avoid (Poly): NOT RELEVANT.

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 Health Hazard Data
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LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
 Route Of Entry - Inhalation: YES
 Route Of Entry - Skin: NO
 Route Of Entry - Ingestion: YES
 Health Haz Acute And Chronic: EYE:MAY CAUSE IRRITATION, POSSIBLE EYE IRRITATION TO UPPER RESPIRATORY TRACT & POSSIBLE DEATH. INGEST:POISONING IS ACCOMPAINED BY FOLLOWING SYMPTOMS:LACK OF APPETITE, INSOMNIA, & GIDDINESS. SYMPTOMS USUALLY BEGIN AFTER 2-3 WEEKS OF BEING EXPOS TO TETRYL.
 Carcinogenicity - NTP: NO
 Carcinogenicity - IARC: NO
 Carcinogenicity - OSHA: NO
 Explanation Carcinogenicity: NOT RELEVANT.
 Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
 Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
 Emergency/First Aid Proc: EYE:FLUSH IMMED UNDER RUNNING WATER FOR AT LEAST 15 MIN, SEEK MED ATTN IMMED. SKIN:FLUSH IMMED UNDER RUNNING WATER FOR AT LEAST 15 MIN, SEEK MED ATTN IMMED. INHAL:GET VICTIM TO FRESH AIR. GIVE ARTF RESP IF BRTHG HAS STOPPED.SEEK MED ATTN IMMED. INGEST:INDUCE VOMIT IMMED BY STICKING FINGER DOWN THROAT. SEEK MED ATTN IMMED.

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 Precautions for Safe Handling and Use
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Steps If Matl Released/Spill: ISOLATE SPILL AREA, KEEP ALL SOURCES OF IGNIT AWAY FROM SPILL & EVACUATE ALL NONESSENTIAL PERS TO SAFE DISTANT LOCATION. REMOVE ALL EXPLO THAT WERE NOT INVOLVED IN SPILL FROM SPILL AREA. CAREFULLY COLLECT SPILLED MATL, AVOID ANY EXCESS (ING 3)
 Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
 Waste Disposal Method: WASTE TETRYL IS HAZ WASTE AS DEFINED UNDER RESOURCE CONSERVATION & RECOVERY ACT (RCRA) REGS, & MUST BE DISP OF @ PROPERLY PERMITTED TRTMT/STOR/DISP FACILITY (TSD). WASTE TETRYL DISP & ALL RELATED, REGULATED ACTIVITIES (INCL BUT NOT LIM TO (ING 6)
 Precautions-Handling/Storing: HNDLE & STORE I/A/W ALL APPLICABLE FED, ST & LOCAL REGULATIONS AND INDUSTRY PRACTICES GOVERNING CLASS A PRIMARY (INITIATING) EXPLOSIVES.
 Other Precautions: NONE.

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 Control Measures
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Respiratory Protection: NIOSH/MSHA APPROVED DUST RESPIRATOR SHOULD BE WORN WHEN HANDLING TETRYL.
 Ventilation: LOC EXHAUST:STRONGLY RECOM TO MINIMIZE EMPLOYEE EXPOS. SPECIAL:TETRYL DUST IS POISONOUS. MECH:EXHAUST VENT (ING 9)
 Protective Gloves: BUTYL RUBBER GLOVES.

Eye Protection: CHEMICAL WORKERS GOGGLES (FP N).
 Other Protective Equipment: COTTON COVERALLS (ANTISTATIC) WHICH WILL PROTECT AGAINST POWDER SPLASHES; SHOULD BE REPLACED WHEN CONTAMINATED.
 Work Hygienic Practices: NONE SPECIFIED BY MANUFACTURER.
 Suppl. Safety & Health Data: FIRE FIGHT PROC:HEAT/FLAMES.DO NOT ATTEMPT TO FIGHT TETRYL FIRES!ISOLATE AFFECTED AREA & EVACUATE ALL PERS TO DISTANT, SAFE AREA.EXPLO HAZ:QUALIFIED INDIVIDUALS WHO ARE THORO FAMILIAR W/PROPER EXPLO HNDLG PROC.HAZ GASES (NITROGEN OXIDES, NO*X'S)MAY BE REL WHEN TETRYL BURNS/DETONATES.IF TETRYL IS EXPOS TO FIRE & (ING 2)

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 Transportation Data
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Trans Data Review Date: 92134
 DOT PSN Code: EEL
 DOT Proper Shipping Name: CYCLOTETRAMETHYLENETETRAMINE, WETTED OR HMX, WETTED OR OCTOGEN, WETTED
 DOT Class: 1.1D
 DOT ID Number: UN0226
 DOT Pack Group: II
 DOT Label: EXPLOSIVE 1.1D
 IMO PSN Code: ONJ
 IMO Proper Shipping Name: TETRYL
 IMO Regulations Page Number: 1112
 IMO UN Number: 0208
 IMO UN Class: 1.1 D
 IMO Subsidiary Risk Label: -
 IATA PSN Code: YXR
 IATA UN ID Number: 0208
 IATA UN Class: 1.1D
 AFI PSN Code: YXR
 AFI Prop. Shipping Name: TRINITROPHENYLMETHYLNITRAMINE OR TETRYL
 AFI Class: 1.1D
 AFI ID Number: UN0208
 AFI Pack Group: II
 AFI Basic Pac Ref: 5-116

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 Disposal Data
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 Label Data
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Label Required: YES
 Technical Review Date: 14FEB92
 Label Date: 11FEB92
 Label Status: G
 Common Name: TETRYL
 Chronic Hazard: NO
 Signal Word: DANGER!
 Acute Health Hazard-Moderate: X
 Contact Hazard-Moderate: X
 Fire Hazard-None: X
 Reactivity Hazard-Severe: X
 Special Hazard Precautions: ACUTE: INHALATION CAN CAUSE IRRITATION TO UPPER RESPIRATORY TRACT AND POSSIBLE DEATH. SWALLOWING CAN CAUSE LACK OF APPETITE, INSOMNIA, AND GIDDINESS. MAY CAUSE EYE IRRITATION, POSSIBLE EYE DAMAGE. SKIN MAY TURN YELLOW AND DERMATITIS MAY DEVELOP UPON CONTACT.
 CHRONIC: NONE LISTED BY MANUFACTURER.
 Protect Eye: Y
 Protect Skin: Y
 Protect Respiratory: Y

Label Name: ENSIGN-BICKFORD CO
Label Street: 660 HOPMEADOW ST
Label City: SIMSBURY
Label State: CT
Label Zip Code: 06070
Label Country: US
Label Emergency Number: 203-658-4411;203-843-2276

BELMONT METALS -- CALCIUM FLUX (CORED WIRE), CALCIUM-SILICON- (SUP
MATERIAL SAFETY DATA SHEET
NSN: 343900N045110
Manufacturer's CAGE: 70774
Part No. Indicator: A
Part Number/Trade Name: CALCIUM FLUX (CORED WIRE), CALCIUM-SILICON/ (SUP
DAT)

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General Information
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Company's Name: BELMONT METALS INC
Company's Street: 330 BELMONT AVENUE
Company's City: BROOKLYN
Company's State: NY
Company's Country: US
Company's Zip Code: 11207
Company's Emerg Ph #: 718-342-4900
Company's Info Ph #: 718-342-4900
Record No. For Safety Entry: 001
Tot Safety Entries This Stk#: 001
Status: SMJ
Date MSDS Prepared: 02DEC92
Safety Data Review Date: 15SEP95
MSDS Serial Number: BTWXR
Hazard Characteristic Code: N1

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Ingredients/Identity Information
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Proprietary: NO
Ingredient: ALUMINUM (SARA III)
Ingredient Sequence Number: 01
Percent: 0-60
NIOSH (RTECS) Number: BD0330000
CAS Number: 7429-90-5
OSHA PEL: 15 MG/M3 DUST;5 FUME
ACGIH TLV: 10 MG/M3 DUST

Proprietary: NO
Ingredient: BARIUM (SARA III)
Ingredient Sequence Number: 02
Percent: 0-18.0
NIOSH (RTECS) Number: CQ8370000
CAS Number: 7440-39-3
OSHA PEL: 0.5 MG/M3
ACGIH TLV: 0.5 MG/M3

Proprietary: NO
Ingredient: CALCIUM
Ingredient Sequence Number: 03
Percent: 14-90
NIOSH (RTECS) Number: EV8040000
CAS Number: 7440-70-2
OSHA PEL: N/K (FP N)
ACGIH TLV: N/K (FP N)

Proprietary: NO
Ingredient: CERIUM
Ingredient Sequence Number: 04
Percent: 0-10

NIOSH (RTECS) Number: FK4850000
 CAS Number: 7440-45-1
 OSHA PEL: N/K (FP N)
 ACGIH TLV: N/K (FP N)

 Proprietary: NO
 Ingredient: IRON
 Ingredient Sequence Number: 05
 Percent: 0-35
 NIOSH (RTECS) Number: NO4565500
 CAS Number: 7439-89-6
 OSHA PEL: 10 MG/M3 (FE)
 ACGIH TLV: N/K (FP N)

 Proprietary: NO
 Ingredient: MAGNESIUM
 Ingredient Sequence Number: 06
 Percent: 0-15
 NIOSH (RTECS) Number: OM2100000
 CAS Number: 7439-95-4
 OSHA PEL: 10 MG/M3 (MGO) FUME
 ACGIH TLV: 10 MG/M3 (MGO) FUME

 Proprietary: NO
 Ingredient: MANGANESE (SARA III)
 Ingredient Sequence Number: 07
 Percent: 0-18
 NIOSH (RTECS) Number: OO9275000
 CAS Number: 7439-96-5
 OSHA PEL: 1 MG/M3; 5 MG/M3, C
 ACGIH TLV: 5 MG/M3 DUST; 1 FUME

 Proprietary: NO
 Ingredient: SILICON
 Ingredient Sequence Number: 08
 Percent: 35-65
 NIOSH (RTECS) Number: VW0400000
 CAS Number: 7440-21-3
 OSHA PEL: 10 MG/M3 DUST;5 RESP
 ACGIH TLV: 10 MG/M3

 Proprietary: NO
 Ingredient: ZIRCONIUM
 Ingredient Sequence Number: 09
 Percent: 0-30.0
 NIOSH (RTECS) Number: ZH7070000
 CAS Number: 7440-67-7
 OSHA PEL: 5 MG/M3; 10 STEL
 ACGIH TLV: 5 MG/M3; 10 STEL

 Proprietary: NO
 Ingredient: SUPP DATA:SMOTHER COMBUST W/PULVERIZED DRY INERT MATL, SUCH AS SAND, DOLOMITE, MAGNESIA, LIME, FLUORSPAR.
 Ingredient Sequence Number: 10
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

 Proprietary: NO
 Ingredient: HAZ DECOMP:REACTION WITH ACIDS MAY PRODUCE SILANES WHICH CAN

IGNITE SPONTANEOUSLY.
 Ingredient Sequence Number: 11
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: HNDLG/STOR:MATERIAL CONTACTS WATER OR ACIDS.
 Ingredient Sequence Number: 12
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: OTHER PREC:ANY SOURCE OF SPARKING OF ELEC, STATIC OR MECH
 ORIGIN, SUCH AS CIRCUIT BREAKERS, ARCS, GRINDING, (ING 14)
 Ingredient Sequence Number: 13
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: ING 13:THERMITE WELDING... AVOID PRESENCE OF INCANDESCENT
 FILAMENTS, DROPS OF MOLTEN METAL, OR NAKED FLAMES. DO (ING 15)
 Ingredient Sequence Number: 14
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: ING 14:NOT SMOKE. ALL PNEUMATIC TRANSPORTATION SHOULD BE
 PERFORMED USING INERT GAS, OR AT LEAST NO MORE THAN 9% (ING 16)
 Ingredient Sequence Number: 15
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: ING 15:OXYGEN.IT IS RECOMMENDED THAT EMPTY CONTAINERS BE
 STOCKED IN OPEN AIR BEFORE RE-USED OR MELTED FOR SCRAP.(ING 17)
 Ingredient Sequence Number: 16
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: ING 16:VERY IMPORTANT:NEVER CREATE DUST CLOUD OF POWDER WHICH
 WOULD CAUSE A RISK OF INSTANTANEOUS COMBUST IN (ING 18)
 Ingredient Sequence Number: 17
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
 Ingredient: ING 17:CONTACT W/SOURCE OF HEAT (SPARKS, FLAMES, CIGARETTES,
 ETC). NEVER ATTEMPT TO EXTING W/WATER UNDER PRESS (ING 19)
 Ingredient Sequence Number: 18
 NIOSH (RTECS) Number: 9999999ZZ
 OSHA PEL: NOT APPLICABLE
 ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 18:(FIRE HOSE) IN CASE OF FIRE. NEVER WELD IN PRESENCE OF
A DUST CLOUD OR ON A CNTNR HOLDING POWDERS. NEVER (ING 20)
Ingredient Sequence Number: 19
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

Proprietary: NO
Ingredient: ING 19:SCRAPE THE CONTAINERS WITH METALLIC OBJECTS (WOOD
RECOMMENDED).
Ingredient Sequence Number: 20
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE
Other Recommended Limit: NONE RECOMMENDED

Proprietary: NO
Ingredient: EXPLO HAZ:READILY GENERATES CONSIDERABLE PRESSURE AND OR
EXPLODE.
Ingredient Sequence Number: 21
NIOSH (RTECS) Number: 9999999ZZ
OSHA PEL: NOT APPLICABLE
ACGIH TLV: NOT APPLICABLE

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Physical/Chemical Characteristics
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Appearance And Odor: GRAY METALLIC SOLID, SLIGHT ODOR.
Boiling Point: SUPP DATA
Melting Point: N/A
Vapor Pressure (MM Hg/70 F): N/A
Vapor Density (Air=1): N/A
Specific Gravity: 2.5-3.0
Evaporation Rate And Ref: NOT APPLICABLE
Solubility In Water: REACTS W/MOIST/WATER
Percent Volatiles By Volume: N/A
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Fire and Explosion Hazard Data
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Flash Point: NOT APPLICABLE
Lower Explosive Limit: N/A
Upper Explosive Limit: N/A
Extinguishing Media: DRY POWDER OR SAND.
Special Fire Fighting Proc: FIRE/EXPLO MAY BE INITIATED BY EXPOSING ANY
CONC DUST SUSPENSION IN AN ENCLOSED INDUSTRIAL AREA TO SPARK/FLAME
REGARDLESS OF CHEM NATURE/DUST. WEAR (SUPP DATA)
Unusual Fire And Expl Hazrds: FINE MATL-BASED ON COMBUST TESTS, FINE MATLS
IS CONSIDERED VERY ACTIVE. CONC OF METALLIC DUST, WHEN SUSPENDED IN AIR,
CAN BE IGNITED. PROPOGATE FLAME (ING 21)
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Reactivity Data
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Stability: YES
Cond To Avoid (Stability): AVOID CONTACT WITH MOISTURE DURING STORAGE.
Materials To Avoid: AVOID MOISTURE AND ACIDS. CONTACT WITH STRONG
OXIDIZERS, STRONG BASES AND MOISTURE SHOULD BE AVOIDED.
Hazardous Decomp Products: SMALL AMTS OF HYDROGEN &/OR PHOSPHINE MAY
EVOLVE IF MOIST IS PRESENT.PHOSPHINE IS TOX & BOTH GASES ARE EXPLOS. (ING
11)

Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT RELEVANT

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Health Hazard Data
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LD50-LC50 Mixture: NONE SPECIFIED BY MANUFACTURER.
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: NO
Route Of Entry - Ingestion: NO
Health Haz Acute And Chronic: HIGH CONCENTRATIONS OF DUST MAY CAUSE SOME IRRITATION TO EYES, NOSE, AND THROAT. ALLOYS ARE NON-TOXIC IN LUMP FORM AND NO RESIDUAL INJURY IS EXPECTED.
Carcinogenicity - NTP: NO
Carcinogenicity - IARC: NO
Carcinogenicity - OSHA: NO
Explanation Carcinogenicity: NOT RELEVANT
Signs/Symptoms Of Overexp: SEE HEALTH HAZARDS.
Med Cond Aggravated By Exp: NONE SPECIFIED BY MANUFACTURER.
Emergency/First Aid Proc: INHAL:REMOVE TO FRESH AIR. CONSULT PHYSICIAN. SKIN:WASH SKIN. CONSULT PHYSICIAN. EYES:FLUSH WITH WATER FOR AT LEAST 15 MINUTES. CONSULT PHYSICIAN. INGEST:CALL MD IMMEDIATELY (FP N).

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Precautions for Safe Handling and Use
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Steps If Matl Released/Spill: SHOULD SPILLAGE OCCUR, PROHIBIT ANY SOURCE OF SPARKING OF ELECTRICAL, STATIC, OR MECHANICAL ORIGIN, SUCH AS CIRCUIT BREAKERS, ARCS, GRINDING, THERMITE WELDING.
Neutralizing Agent: NONE SPECIFIED BY MANUFACTURER.
Waste Disposal Method: AVOID REPACKING MATERIAL WHICH IS WET IN CLOSED OR SEALED CONTAINERS. DISPOSE OF IN ACCORDANCE WITH FEDERAL, STATE, AND LOCAL REGULATIONS.
Precautions-Handling/Storing: USE OF INERT ATMOSPHERE SHOULD BE USED WHEN SIZING TO FINE SIZES. MIN & CONTROL OPERATIONS PRODUCING DUST. HAVE GOOD VENT IF (ING 12)
Other Precautions: KEEP SURROUNDINGS WHERE POWDERS ARE USED OR STORED COMPLETELY AND SCRUPULOUSLY CLEAN AND AVOID ALL SPILLAGES OF POWDERS. IN THESE AREAS AVOID FORM OF DUST CLOUDS. IN ALL CASES, IF DUST CLOUDS DOES FORM, IF IS NECESSARY TO PROHIBIT:(ING 13)

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Control Measures
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Respiratory Protection: RESPIRATOR REQUIRED IN DUSTY AREAS (USE NIOSH/MSHA APPROVED SCHEDULE 21-C RESPIRATOR).
Ventilation: LOCAL EXHAUST:RECOMMENDED WHERE DUSTING MAY OCCUR. MECH:USE FOR GENERAL AREA CONTROL.
Protective Gloves: IMPERVIOUS GLOVES (FP N).
Eye Protection: ANSI APPROVED SAFETY GLASSES (FP N).
Other Protective Equipment: NONE SPECIFIED BY MANUFACTURER.
Work Hygienic Practices: AVOID CONTAMINATION OF CLOTHING.
Suppl. Safety & Health Data: PART#/TRADE NAME:CALCIUM-ALUMINUM ALLOYS. FIRE FIGHT PROC:NIOSH/MSHA APPRVD SCBA & FULL PROT EQUIP (FP N). POWDERS IN MASS ARE VERY DFCLT TO BURN. IF IT DOES CATCH FIRE, COMBUST IS SLOW & SPREADS BY DEGREES. DO NOT USE EXTING USING COMPRESSED FLUIDS, SUCH AS CO*2 FOAM, ETC., WHICH CAN CREATE DUST CLOUDS. (ING 10)

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Transportation Data
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Disposal Data
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Label Data
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Label Required: YES
Technical Review Date: 10NOV93
Label Status: G
Common Name: CALCIUM FLUX (CORED WIRE), CALCIUM-SILICON/ (SUP
DAT)
Chronic Hazard: NO
Signal Word: WARNING!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-None: X
Reactivity Hazard-Moderate: X
Special Hazard Precautions: MAY FORM EXPLOSIVE DUST CLOUDS AND HAZARDOUS
DECOMPOSITION PRODUCTS. ACUTE: ALLOYS ARE NON-TOXIC IN LUMP FORM AND NO
RESIDUAL INJURY IS EXPECTED. HIGH CONCENTRATIONS OF DUST MAY CAUSE SOME
IRRITATION TO EYES, NOSE, AND THROAT. CHRONIC:NONE SPECIFIED BY
MANUFACTURER.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: BELMONT METALS INC
Label Street: 330 BELMONT AVENUE
Label City: BROOKLYN
Label State: NY
Label Zip Code: 11207
Label Country: US
Label Emergency Number: 718-342-4900

PHILLIPS 66 -- GASOLINES (ALL GRADES) - GASOLINE,AUTOMOTIVE,SPECIAL GRADE MOGAS UNL
MATERIAL SAFETY DATA SHEET
NSN: 9130010550816
Manufacturer's CAGE: 6Y142
Part No. Indicator: A
Part Number/Trade Name: GASOLINES (ALL GRADES)

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General Information
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Item Name: GASOLINE,AUTOMOTIVE,SPECIAL GRADE MOGAS UNLEADED
Company's Name: PHILLIPS 66 CO.
Company's Street: 346 HOME SAVINGS AND LOAN BLDG
Company's City: BARTLESVILLE
Company's State: OK
Company's Country: US
Company's Zip Code: 74004
Company's Emerg Ph #: 918-661-3865 OR 918-661-8118
Company's Info Ph #: 918-661-8327
Record No. For Safety Entry: 037
Tot Safety Entries This Stk#: 044
Status: SM
Date MSDS Prepared: 31MAR90
Safety Data Review Date: 02AUG93
Supply Item Manager: KY
MSDS Serial Number: BRGZK
Specification Number: VV-G-1690
Spec Type, Grade, Class: SPECIAL GRADE
Hazard Characteristic Code: F2
Unit Of Issue: GL
Unit Of Issue Container Qty: 55 GALLONS
Type Of Container: 18 GA DRUM
Net Unit Weight: 366.4 LBS
NRC/State License Number: NONE
Net Propellant Weight-Ammo: NONE

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Ingredients/Identity Information
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Proprietary: NO
Ingredient: GASOLINE
Ingredient Sequence Number: 01
Percent: 100
NIOSH (RTECS) Number: LX3300000
CAS Number: 8006-61-9
OSHA PEL: 300 PPM/500 STEL
ACGIH TLV: 300 PPM/500STEL;9192
Other Recommended Limit: NONE SPECIFIED

Proprietary: NO
Ingredient: BENZENE (SARA III)
Ingredient Sequence Number: 02
Percent: <5
NIOSH (RTECS) Number: CY1400000
CAS Number: 71-43-2
OSHA PEL: 1PPM/5STEL;1910.1028
ACGIH TLV: 10 PPM; A2; 9192
Other Recommended Limit: NONE SPECIFIED

Proprietary: NO
Ingredient: TOLUENE (SARA III)

Ingredient Sequence Number: 03
 Percent: <10
 NIOSH (RTECS) Number: XS5250000
 CAS Number: 108-88-3
 OSHA PEL: 200 PPM/150 STEL
 ACGIH TLV: 50 PPM; 9293
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: ETHYL BENZENE (SARA III)
 Ingredient Sequence Number: 04
 Percent: <2
 NIOSH (RTECS) Number: DA0700000
 CAS Number: 100-41-4
 OSHA PEL: 100 PPM/125 STEL
 ACGIH TLV: 100 PPM/125STEL 9192
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: P-XYLENE (P-DIMETHYLBENZENE) (SARA III)
 Ingredient Sequence Number: 05
 Percent: <3
 NIOSH (RTECS) Number: ZE2625000
 CAS Number: 106-42-3
 OSHA PEL: 100 PPM/150 STEL
 ACGIH TLV: 100 PPM/150STEL;9192
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: M-XYLENE (M-DIMETHYLBENZENE) (SARA III)
 Ingredient Sequence Number: 06
 Percent: <6
 NIOSH (RTECS) Number: ZE2275000
 CAS Number: 108-38-3
 OSHA PEL: 100 PPM/150 STEL
 ACGIH TLV: 100 PPM/150STEL;9192
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: O-XYLENE (O-DIMETHYLBENZENE) (SARA III)
 Ingredient Sequence Number: 07
 Percent: <3
 NIOSH (RTECS) Number: ZE2450000
 CAS Number: 95-47-6
 OSHA PEL: 100PPM/150 STEL
 ACGIH TLV: 100 PPM/150STEL;9192
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: METHYL TERT-BUTYL ETHER (SARA III)
 Ingredient Sequence Number: 08
 Percent: <15
 NIOSH (RTECS) Number: KN5250000
 CAS Number: 1634-04-4
 OSHA PEL: NOT ESTABLISHED
 ACGIH TLV: NOT ESTABLISHED
 Other Recommended Limit: NONE SPECIFIED

 Proprietary: NO
 Ingredient: 1,2,4-TRIMETHYLBENZENE (SARA III)

Ingredient Sequence Number: 09
Percent: <3
NIOSH (RTECS) Number: DC3325000
CAS Number: 95-63-6
OSHA PEL: 25 PPM
ACGIH TLV: 25 PPM; 9192
Other Recommended Limit: NONE SPECIFIED

=====
Physical/Chemical Characteristics
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Appearance And Odor: RED-ORANGE LIQUID. PUNGENT ODOR.
Boiling Point: 80.0F,26.7C
Melting Point: UNKNOWN
Vapor Pressure (MM Hg/70 F): 350-800 MM
Vapor Density (Air=1): 3-4
Specific Gravity: 0.8
Decomposition Temperature: UNKNOWN
Evaporation Rate And Ref: >1 (BUTYL ACETATE = 1)
Solubility In Water: NEGLIGIBLE
Percent Volatiles By Volume: 100
Viscosity: UNKNOWN
Corrosion Rate (IPY): UNKNOWN

=====
Fire and Explosion Hazard Data
=====

Flash Point: <-35F,<-37C
Lower Explosive Limit: 1.5
Upper Explosive Limit: 7.6
Extinguishing Media: USE CARBON DIOXIDE, FOAM, OR DRY CHEMICAL.
Special Fire Fighting Proc: WEAR FIRE FIGHTING PROTECTIVE EQUIPMENT AND A FULL FACED SELF CONTAINED BREATHING APPARATUS. EVACUATE AREA. COOL FIRE EXPOSED CONTAINERS WITH WATER SPRAY.
Unusual Fire And Expl Hazrds: COMBUSTION OR HEAT OF FIRE MAY PRODUCE HAZARDOUS DECOMPOSITION PRODUCTS AND VAPORS. VAPORS HEAVIER THAN AIR.MAY TRAVEL ALONG GROUND AND FLASHBACK.

=====
Reactivity Data
=====

Stability: YES
Cond To Avoid (Stability): MFR: "N/A" HMIS:HIGH HEAT, OPEN FLAMES AND OTHER SOURCES OF IGNITION
Materials To Avoid: OXYGEN AND STRONG OXIDIZING AGENTS.
Hazardous Decomp Products: CARBON OXIDES, AND VARIOUS HYDROCARBONS WHEN BURNED.
Hazardous Poly Occur: NO
Conditions To Avoid (Poly): NOT APPLICABLE

=====
Health Hazard Data
=====

LD50-LC50 Mixture: LD50 ORAL RAT IS UNKNOWN
Route Of Entry - Inhalation: YES
Route Of Entry - Skin: YES
Route Of Entry - Ingestion: YES
Health Haz Acute And Chronic: ACUTE: IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS. GASOLINE IF SWALLOWED, MAY BE ASPIRATED INTO LUNGS, RESULTING IN PULMONARY EDEMA AND CHEMICAL PNEUMONITIS. CHRONIC:HAS PRODUCED KIDNEY DAMAGE IN RATS. NOT KNOWN TO OCCUR IN HUMANS.
Carcinogenicity - NTP: YES
Carcinogenicity - IARC: YES
Carcinogenicity - OSHA: YES

Explanation Carcinogenicity: UNLEADED GASOLINE HAS PRODUCED CANCER IN ANIMALS. NO COMPARABLE HEALTH HAZARD FOR CANCER IS KNOWN TO OCCUR IN HUMANS.

IRRITATION TO INTESTINES. ASPIRATION INTO LUNG AFTER INGESTION MAY RESULT IN PULMONARY EDEMA AND CHEMICAL PNEUMONITIS.

Med Cond Aggravated By Exp: NO INFORMATION GIVEN ON MSDS BY MFR.

Emergency/First Aid Proc: IF IRRITATION PERSISTS OR IS SEVERE, SEE A REMOVE CONTAMINATED CLOTHING AND LAUNDRER BEFORE REUSE.) INHALED:REMOVE TO FRESH AIR. AID/RESTORE BREATHING IF NECESSARY. INGESTED:DO NOT INDUCE VOMITING; GET IMMEDIATE MEDICAL CARE. **NOTE TO PHYSICIAN:GASTRIC LAVAGE WITH A CUFFED ENDOTRACHEAL TUBE MAY BE USED AT YOUR DISCRETION.

Precautions for Safe Handling and Use

Steps If Matl Released/Spill: EVACUATE AREA. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT. ELIMINATE IGNITION SOURCES. SHUT OFF LEAK & CONTAIN SPILL. PROTECT FROM IGNITION. KEEP OUT OF WATER SOURCES & SEWERS. ABSORB ON DRY INERT MATERIAL. TRANSFER TO DRUMS WITH NON-SPARK TOOLS.

Neutralizing Agent: NO INFORMATION GIVEN ON MSDS BY MFR.

Waste Disposal Method: INCINERATE OR OTHERWISE MANAGE IN A RERA PERMITTED WASTE MANAGEMENT FACILITY.

Precautions-Handling/Storing: STORE IN COOL,WELL VENTED AREA, AWAY FROM IGNITION SOURCES. KEEP CONTAINERS CLOSED & PROTECT FROM PHYSICAL DAMAGE. GROUND CONTAINERS DURING TRANSFER.

Other Precautions: PROVIDE MEANS TO CONTROL LEAKS. AVOID BREATHING VAPORS. AVOID EYE, SKIN, CLOTHING CONTACT. DO NOT SIPHON BY MOUTH. LAUNDRER CONTAMINATED CLOTHING BEFORE REUSE. WEAR PROTECTIVE EQUIPMENT WHEN CONDITIONS WARRENT. WASH THOROUGHLY AFTER HANDLING

Control Measures

Respiratory Protection: FOR CONCENTRATIONS EXCEEDING THE RECOMMENDED LEVEL, USE NIOSH/MSHA APPROVED AIR PUIFYING RESPIRATOR. USE SCBA FOR EXPOSURE TO UNKNOWN LEVELS.

Ventilation: USE ADEQUATE VENTILATION TO CONTROL EXPOSURE BELOW RECOMMENDED LEVELS.

Protective Gloves: VITON, NITRILE, PVA.

Eye Protection: SAFETY GLASSES WITH SIDE SHIELDS.

Other Protective Equipment: FULL BODY LONG-SLEEVED GARMENTS TO PREVENT REPEATED OR PROLONGED SKIN CONTACT. HMIS: EYE WASH STATION AND SAFETY SHOWER.

Work Hygienic Practices: MFR: ? HMIS:USE GOOD INDUSTRIAL HYGIENE PRACTICE. AVOID UNNECESSARY CONTACT. WASH THOROUGHLY BEFORE EATING OR DRINKING.

Suppl. Safety & Health Data: KEY2:KT NOTE:MFR SUPPLIED ONE MSDS FOR BOTH LEADED AND UNLEADED GASOLINES. HMIS DELETED REFERENCES TO LEAD FROM THOSE FOR "UNLEADED" GASOLINE

Transportation Data

Trans Data Review Date: 93214
DOT PSN Code: GTN
DOT Proper Shipping Name: GASOLINE
DOT Class: 3
DOT ID Number: UN1203
DOT Pack Group: II
DOT Label: FLAMMABLE LIQUID
IMO PSN Code: HRV
IMO Proper Shipping Name: GASOLINE
IMO Regulations Page Number: 3141
IMO UN Number: 1203

IMO UN Class: 3.1
IMO Subsidiary Risk Label: -
IATA PSN Code: MUC
IATA UN ID Number: 1203
IATA Proper Shipping Name: GASOLINE
IATA UN Class: 3
IATA Label: FLAMMABLE LIQUID
AFI PSN Code: MUC
AFI Prop. Shipping Name: GASOLINE
AFI Class: 3
AFI ID Number: UN1203
AFI Pack Group: II
AFI Basic Pac Ref: 7-7
Additional Trans Data: BENZENE REPORTABLE QUANTITY IS 10 POUNDS. BENZENE CONTENT IN GASOLINE IS < 5%.

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Disposal Data
=====

=====
Label Data
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Label Required: YES
Technical Review Date: 02AUG93
Label Status: F
Common Name: GASOLINES (ALL GRADES)
Chronic Hazard: YES
Signal Word: DANGER!
Acute Health Hazard-Slight: X
Contact Hazard-Slight: X
Fire Hazard-Severe: X
Reactivity Hazard-None: X
Special Hazard Precautions: ACUTE: IRRITATION, CENTRAL NERVOUS SYSTEM EFFECTS. GASOLINE IF SWALLOWED, MAY BE ASPIRATED INTO LUNGS, RESULTING IN PULMONARY EDEMA AND CHEMICAL PNEUMONITIS. CHRONIC:HAS PRODUCED KIDNEY DAMAGE IN RATS. NOT KNOWN TO OCCUR IN HUMANS. STORE IN COOL,WELL VENTED AREA, AWAY FROM IGNITION SOURCES. FIRST AID: IF IRRITATION PERSISTS OR IS SEVERE, SEE A DOCTOR. EYE:FLUSH W/WATER 15 MIN. SKIN:WASH WITH SOAP & WATER. (HMIS:REMOVE CONTAMINATED CLOTHING AND LAUNDRER BEFORE REUSE.) DO NOT INDUCE VOMITING; GET IMMEDIATE MEDICAL CARE.
Protect Eye: Y
Protect Skin: Y
Protect Respiratory: Y
Label Name: PHILLIPS 66 CO.
Label Street: 346 HOME SAVINGS AND LOAN BLDG
Label City: BARTLESVILLE
Label State: OK
Label Zip Code: 74004
Label Country: US
Label Emergency Number: 918-661-3865 OR 918-661-8118
Year Procured: 1993

ATTACHMENT 3
OE/UXO/CWM HAZARDS EVALUATION FORM

Site Name: Range 23A, Parcels 109(7)/152Q-X

Job Number: 774645

Date: 2-Oct-01

3. For sites where the manufacturing, testing, storage, or disposal of CWM is suspected:	Yes	No
Is there evidence that the CWM is/was containerized in potentially unexploded ordnance:	<input type="checkbox"/>	<input type="checkbox"/>
Is there evidence that the CWM is/was containerized in nonexplosive containers:	<input type="checkbox"/>	<input type="checkbox"/>
Is there evidence that the CWM is open to the environment (i.e., in an open container or free liquid/solid in the soil/water):	<input type="checkbox"/>	<input type="checkbox"/>
Is there evidence that the CWM hazard has been removed from the site or that the site has been decontaminated:	<input type="checkbox"/>	<input type="checkbox"/>
Has the site been previously monitored or sampled for chemical agent or agent breakdown products:	<input type="checkbox"/>	<input type="checkbox"/>
For any "YES" above, was the agent or breakdown product identified?	<input type="checkbox"/>	<input type="checkbox"/>

For any "Yes", list types of agent (mustard, lewisite, etc.) and the form (in ordnance, in drum, etc.) the CWM is expected to be found (or state "unknown"):

List agent breakdown products identified:

4. Defining the Potential for the Presence of CWM:	Agent Monitoring Requirements for Site Activities:
4a. High Presence Potential – Definition: CWM is known or highly suspected to be present at the site in a condition (within ordnance and/or nonexplosive container, or in an uncontainerized form in sufficient volume that weathering of the product has not rendered it harmless) that will cause potential harm to personnel if it is encountered.	Mandatory personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4b. Moderate Presence Potential - Definition: CWM is suspected to have been present at the site, but has been previously removed and/or decontaminated, or has been open to the environment such that it is expected to have degraded and been rendered harmless.	The need for personal and perimeter air monitoring using the DAAMS, MINICAMS, and RTAP collection/analysis methods with off-site surety laboratory confirmation of all environmental samples will be reviewed on a site-by-site basis. Specific monitoring criteria (equipment types and sampling station placement, percentage of personnel monitored, etc.) to be established in the Site Specific Safety and Health Plan (SSHP).
4c. Low Presence Potential – Definition: No indications that CWM will be present in quantity or reactivity (in munitions, projectiles, drums, etc.).	No specific personal or area monitoring for chemical agents required beyond what is specified in the SHP.

Site Name: Range 23A, Parcels 109(7)/152Q-X

Job Number: 774645

Date: 2-Oct-01

Based on the information available for this site, including information gathered during completion of this form, the potential for CWM to be present at this site, as defined above, is expected to be: **-Click Here-**
LOW (additional space for notes and explanations on page 4)
 Exceptions/Explanations:

<p>5. Based on the information provided in questions 1 through 5, above, the following guidelines will be used for establishing PPE requirements for activities to be performed at this site; Specific details are provided in the SSHP:</p>	
<p>5a. High Exposure Potential - High exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).</p>	<p>Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "High Exposure Potential" will be Level B (supplied air) or Level C (full-face respirator with HEPA/Acid Gas/OV cartridges w/ emergency egress hood) and chemically resistant coveralls. Specific PPE requirements are in the SSHP for this site.</p>
<p>5b. Moderate Exposure Potential - Moderate exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).</p>	<p>Subject to review by the IT CIH, PPE for all personnel in the exclusion zone at a site identified as having a "Moderate Exposure Potential" will be Modified Level D (disposable coveralls and emergency egress hood) carried by all personnel. Specific PPE requirements are in the SSHP for this site.</p>
<p>5c. Low Exposure Potential - Low exposure potential is determined by evaluating the potential presence of CWM in conjunction with the task(s) to be performed, as well as the specific location and duration of the task(s).</p>	<p>Subject to review by the IT CIH, no additional PPE requirements above those stated in the SSHP are needed for sites identified as having "Low Exposure Potential." Specific PPE requirements are in the SSHP for this site.</p>

Based on all available information, the exposure potential at this site is considered to be: **-Click Here-** **LOW**
 Exceptions/Explanations:

Review Signatures:

IT UXO Technical Manager



Date:

IT H&S Specialist



Date: 10/5/01

Site Name: Range 23A, Parcels 109(7)/152Q-X

Job Number: 774645

Date: 2-Oct-01

Additional Notes and Explanations:

N/A