Work Plan for Initial Soil and Groundwater Remediation at:

2896 Castro Valley Blvd.
Castro Valley, CA

For:

Diversified Loan Services
Campbell, CA

Prepared by:

Gen Tech Environmental, Inc.
1936 Camden Avenue, Suite 1
San Jose, CA 95124

September 29, 1993

September 29, 1993
Project No. 9375-R

Mr. Jerry Breeden
Diversified Loan Services
257 E. Campbell Ave., Suite 3
Campbell, CA 95008

Attention: Mr. Breeden

Re: Work Plan for Initial Site Remediation
2896 Castro Valley Blvd., Castro Valley, CA

Dear Mr. Breeden,

Gen Tech Environmental, Inc. has prepared this workplan for the above site. If you have questions please feel free to call.

Sincerely,

Gen Tech Environmental, Inc.

Stuart G. Solomon, REA No. 4468
Christopher M. Palmer, C. E. G. 1262

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SECTION 1

INTRODUCTION

This work plan describes a phase program for interim soil and ground water remediation at 2896 Castro Valley Blvd., Castro Valley, California. Previous subsurface investigations by others have indicated that both soil and ground water beneath the site have been contaminated by fuel constituents in the vicinity of former underground storage tanks (UST).

SCOPE OF WORK FOR SITE REMEDIATION

Interim cleanup activities will consist of excavation, removal and bioremediation of contaminated soils; installation and operation of a ground water treatment system; disposal of treated ground water; routine sampling and monitoring to verify effectiveness of remedial activities; and reporting of results. The work plan is to be executed by a licensed hazardous materials contractor in accordance with: (1) Alameda County Department of Environmental Health (ACDEH) UST Local Oversight Program; and (2) all applicable federal, state and local regulations.

OBJECTIVES OF REMEDIATION PROGRAM

The general objective of the interim remediation program is to control migration of contaminants. Specific objectives are to ensure that:

- The majority of the contaminant mass be removed (to Standards acceptable to the ACDEH and other permitting agencies), given the remediation methods to be employed and specific site constraints. Note that the ACDEH has not set cleanup standards for interim remediation.
- Any residual contamination be confined to the property boundaries.

If interim remediation activates prove to be successful, Community Properties, Inc. will petition the ACDEH for concurrence and formal site closure.

SITE LOCATION AND DESCRIPTION

The subject site is located at 2896 Castro Valley Blvd, near Anita Ave., in Castro Valley (refer to Figure 1-1). The site is used as a retail gasoline sales and auto repair facility, and consists of single building with parking. A site plan is provided in Figure 1-2.

SITE HISTORY

Tank Removal and Soil/Ground Water Sampling

Significant Events related to the investigation of soil/ground water contamination are as follows:

● June, 1987	UST's removed
● September 1990	Installation of three groundwater wells and four borings with related soil and groundwater sampling. Aqua Science
● April 1992	Quarterly Report. C-Rem
● October 1992	Quarterly Report C-Rem

Locations of ground water monitoring wells and exploratory borings are shown in Figure 1-2. Historic results of ground water and soil sampling are provided.

Ground Water Gradient

A groundwater gradient study on March 30, 1992 showed groundwater moving in a southwestern direction at an approximate slope of 1.5 ft. per 100 ft..

Summary

The results of soil sampling performed by Geonomics of Campbell, Ca. on June 16, 1987 during the tank removal indicated TPH/g levels at or below 100 ppm below all of the gasoline tanks. The one soil sample recovered from below the waste oil tank indicated total oil and grease at 16000 ppm and motor oil at 5300 ppm with elevated levels of BTEX.

The results of soil sampling performed by ASE in September of 1990 indicated TPH/g at 790 ppm and Oil and Grease at 730 ppm at 11 foot depth in boring B1 (Figure 1.2). Groundwater samples from wells MW1 through MW3 indicated non detectable levels of TPH/g.

The results of groundwater samples recovered by C-Rem Engineers on March 30, 1992 indicated TPH/g at 310 ppb in MW1 and 1600 ppb in MW3.

HYDROGEOLOGIC SETTING

Site Geology

Soils encountered during drilling by Aqua Science Engineers in September of 1990 indicated silt with 30-40% clays and 10-20% fine sands from 3 feet below grade to 14 feet below grade.

Regional Conditions

The site rests on Quaternary alluvial deposits. The surrounding area is comprised of northwesterly trending folded and faulted rocks of the Panoche Formation. The concealed trace of the northwest trending East Chabot Fault lies within hundreds of feet of the site. Groundwater occurs between 10 ft. and 20 ft. BGS

SECTION 2

PROPOSED WORK PLAN

OVERVIEW

General Methodology

The interim remediation program at the subject site will consist of the following general steps:

- Removal of the pump island canopy
- Excavation of approximately 300 yards of clean overburden soil.
- Excavation of approximately 150 yards of gasoline contaminated soil.
- Bio-remediation of contaminated soil and groundwater.
- Backfill and resurfacing of excavation and post remedial groundwater monitoring.

Permits

The Contractor will be responsible for securing all necessary permits including (but not limited to) the following:

- Bay Area Air Qualify Management District (AQMD) permits. Reference: AQMD Regulation 8, Rules 40 and 34
- National Pollutant Discharge Elimination System (NPDES) Permit, or waiver from NPDES requirements. The permit authority is the RWQCB.

Health and Safety

Physical hazards such as the presence of an open excavation, heavy equipment use, etc. will require special safety considerations. In addition, fuel constituents in the excavated soils and exposed ground water will volatilize when exposed to atmosphere (either outdoors or in the semi-confined warehouse space). Instantaneous and/or prolonged exposure to the fuel constituents may pose a threat to worker health and safety (H&S).

To ensure that remedial activities do not pose hazards to the public or remediation contractor personnel, precautionary measures are warranted. Appendix A of this document provides H&S Performance Standards for the remedial work. The H&S Appendix describes potential hazards and outlines site-specific protection, monitoring and record keeping standards. The remediation contractor will be responsible for implementing H&S provisions that meet or exceed the given performance standards.

SPECIFIC REMEDIATION MEASURES

Site Remediation

The scope of work entails the following:

Soil Excavation -

1. Provide temporary fencing to secure the project area. Demolish and dispose of the canopy, pump islands, and asphalt in the affected area. Dispose of the materials at a Class III dump facility.

2. Excavate up to 550 cu. yards of affected soil from the affected area to a total depth of no greater than 12 ft. BGS. Use the GTE Field Test Kits to assist in determining the areas necessary to excavate. Stockpile the contaminated soil on plastic sheeting on site, and cover.

3. Obtain extremity soil samples from the excavation area and send to a State Certified Lab for analytical testing. Test each of the extremity samples for the presence of Diesel, Gasoline, BTEX constituents, and Oil and Grease.

   metals, 8270, too

Soil Treatment -

1. Fertilize the soil with nitrogen and phosphates. Inoculate the contaminated soil (approximately 350 yds) with Solmar L-104 microbes. Spread the soil on-site.

2. Till the soil periodically until field test methodology has determined that degradation has removed all detectable contamination. Obtain one soil sample from every 20 cubic yards of the treated soil and test at a State Certified Lab for Gasoline, Diesel, BTEX, and Oil and Grease. Determine that the soil contains less than 10 PPM of TPH and less than 1 PPM of BTEX.
and metals, 8270

Ground Water Treatment-

1. Inoculate the exposed groundwater with Solmar L-104 Microorganisms. Provide bio-culture (disodium phosphate) enhancers to balance the nutrient base in the groundwater and to speed microbial digestion of the contaminates.

2. Install a sprinkler aeration system within the pond to provide aeration and oxygenation. Operate the system until water is successfully decontaminated to non-detect. Provide lab testing of the water to prove decontamination (meet or exceed RWQCB drinking water standards).

3. Pump the cleaned water into water trucks and use for beneficial purposes such as irrigation, or dust control. (The above will be sanctioned and approved by waiver from the RWQCB).

4. Allow the pit to recharge with groundwater - effectively pulling into the pit remaining hydrocarbon affected water from the surrounding area. Repeat the decontamination process for two or three cycles until the groundwater appears consistently clean.

Site Restoration -

1. Backfill and compact the excavation with the clean overburden and the decontaminated native soil to 90% + relative compaction.

SECTION 3

VERIFICATION MONITORING

Monitoring of soil and ground water will be performed during the interim remediation program to verify the effectiveness of those clean-up activities. Field sampling, documentation and analytical procedures will generally be performed in accordance with State guidelines for investigation/remediation at fuel leak sites.

SOIL EXCAVATION/REMEDIATION

Soil Excavation

The excavations will generally continue until there is no evidence of soil contamination (based on field screening). Confirmation soil samples will be collected from the pit sidewalls approximately 1-2 ft above ground water level. Sample locations will be spaced along the sidewall at approximate intervals of every 20 lineal ft.

Soil samples will be analyzed for the following:

- TPHd and Oil and Grease via EPA Method 8015 and ~~503 D&E~~ 5520
- TPHg and BTEX via EPA Methods 8015 and 8020
- metals and 8270

Soil Remediation

Soils deemed to be contaminated via field observation/testing will be screened, dried and stockpiled on-site. Up to 200 cubic yards of contaminated soil will be cycled through the remediation bed at any one time. It is proposed that one composite sample per 50 cubic yards of treatment materials be collected on a bi-monthly basis to assess treatment effectiveness. The composite will consist of four discreet samples that will be composited in the laboratory. Each composite sample will be analyzed for TPHG, Oil and Grease, and BTEX via the methods above. metals + 8270

GROUND WATER TREATMENT/DISPOSAL

Grab samples will be collected from the exposed ground water pond during the excavation phase. It is proposed that samples be collected during each remedial cycle to assess treatment effectiveness (i.e. at the onset, and at approximate one-week intervals thereafter). Up to three grab samples will be collected on a given sampling event. The samples will be analyzed for volatile aromatic hydrocarbon, benzene toluene ethylbenzene and xylenes via EPA Method 602.

Prior to remediation activities, it is recommended that all existing monitoring wells be sampled for the above fuel constituents. This will establish baseline conditions for the project.

During the interim remediation period, the client will continue to perform routine ground water monitoring in accordance with ACDEH requirements. Ground water samples will be obtained and analyzed for TPHG, Oil and Grease, and BTEX via methods 8015 and 602/8020. metals and 8270

REPORTING/DOCUMENTATION

Corrective Action Implementation

Progress reports will be submitted to the ACDEH on a quarterly basis. Each report will summarize key project activities, results of analyses of soil and ground water samples, and a general assessment of how the remedial program is operating. Progress reports will be in letter format.

Remediation Effectiveness Evaluation

In accordance with ACDEH guidelines, a technical report will be prepared at the conclusion of the remedial program. The report will provide an overall assessment of the effectiveness of the program, and if appropriate, a recommendation for case closure.

SECTION 4

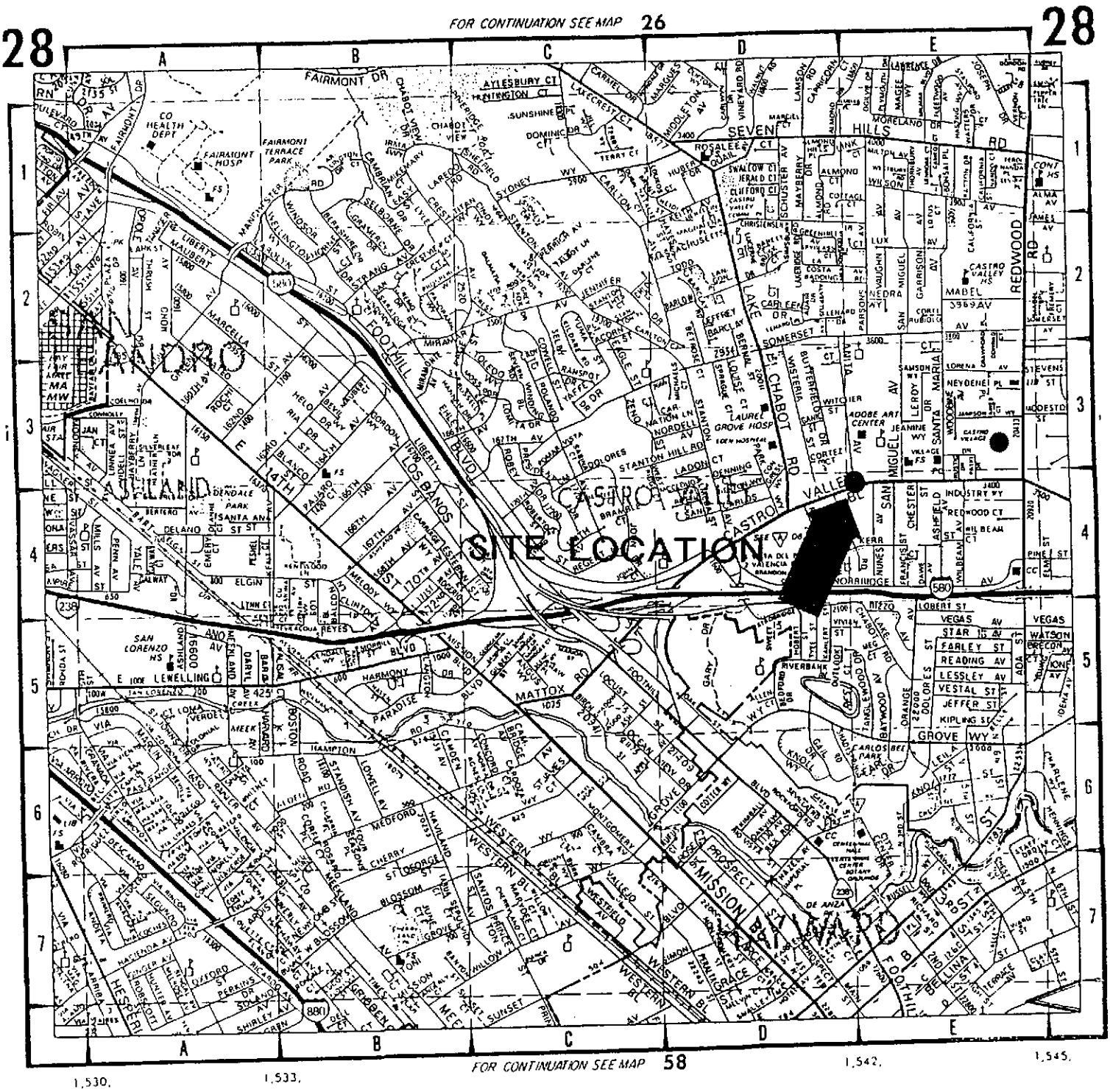
SCHEDULE

the following provides a proposed schedule for the interim remediation program at the subject site. Key project activities include:

9-30 to 10-15-93	Secure necessary permits
10-15 to 12-15-93	Conduct remedial activities as described in Section 2 of this Work Plan.
9-30 to 12-15-93	Oversight of remedial/construction activities and ongoing soil/ground water monitoring to verify effectiveness of those activities. These activities are described in Section 3 of this Work Plan.
12-15 to 1-15-94	Reporting results to the oversight agencies. Progress reports will be forwarded to the ACDEH on a quarterly basis.

The schedule also allows for confirmatory ground water monitoring following completion of interim remediation measures. Quarterly monitoring is proposed. This is consistent with past requirement for the site.

Overall, it is envisioned that interim remediation activities can be completed within 13 weeks. This is subject to change pending actual subsurface conditions encountered, weather, and other factors.



SITE VICINITY MAP

FIGURE 1-1
Project No: 9375-R

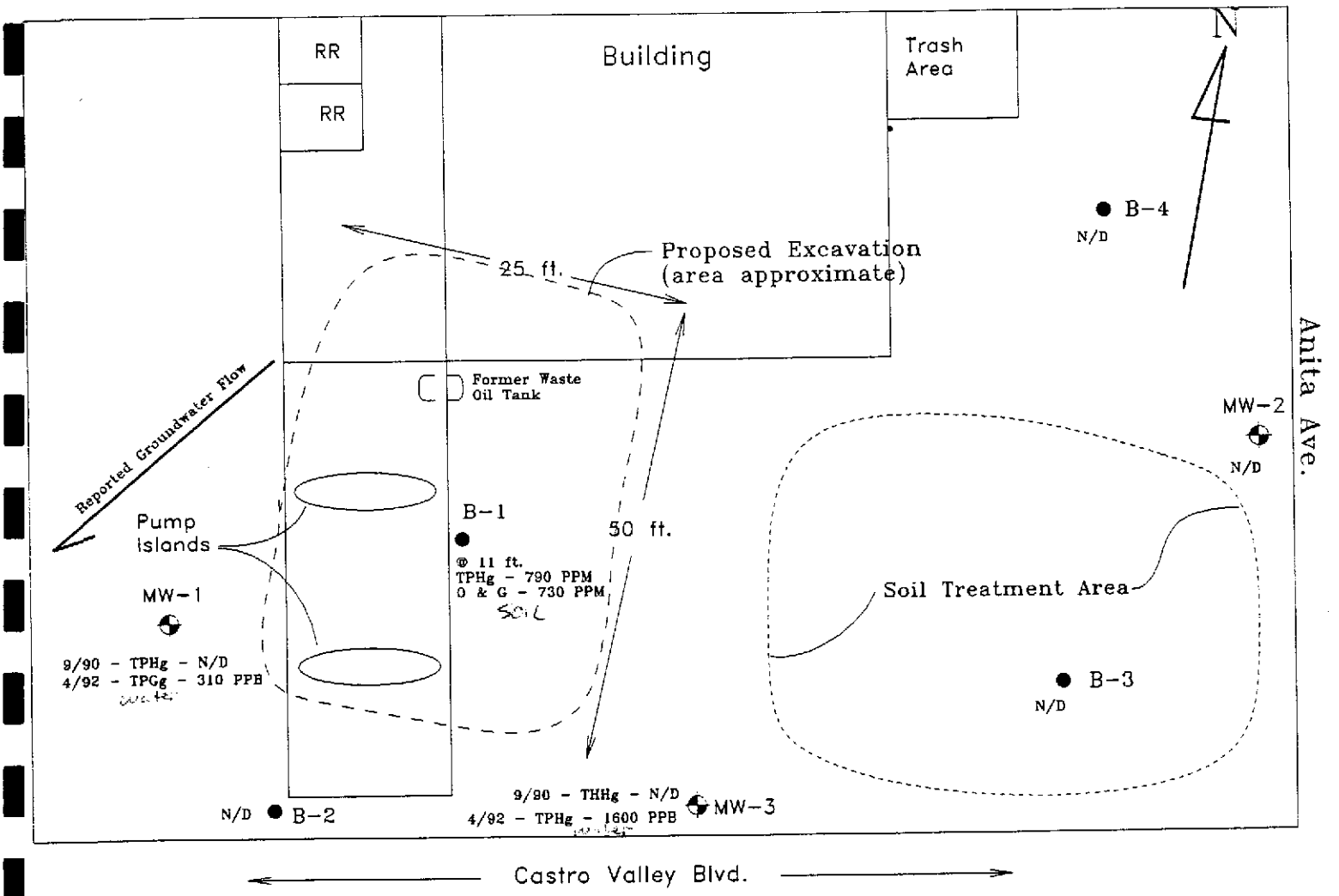
2896 Castro Valley Blvd
Castro Valley, CA

September 1993

GEN TECH ENVIRONMENTAL, SAN JOSE, CA

Diversified Loan Services
257 E. Campbell Ave. #3
Campbell, CA 95008

DEMOLITION, EXCAVATION, AND SOIL TREATMENT PLAN
2896 CASTRO VALLEY BLVD., CASTRO VALLEY, CA.



NOTES:

1. Pump islands, canopy, and asphalt in the excavation area will be demolished and removed.
2. Excavation area will be backfilled and compacted – but not resurfaced.
3. Utilities encountered will be capped and marked.
4. Affected soil will be treated on-site.
5. The site will be temporarily fenced during the remediation project.

SITE PLAN w/Chemical Concen.	FIGURE 1-2 Project: 9375R
2896 Castro Valley Blvd. Castro Valley, CA	September 1993

Gen-Tech Environmental, San Jose, CA

HEALTH AND SAFETY PERFORMANCE STANDARDS FOR SITE REMEDIATION NAME

Prepared For:

DIVERSIFIED LOAN SERVICES
SITE: 2896 CASTRO VALLEY BLVD.
CASTRO VALLEY, CA

Prepared By:

Gen-Tech Environmental
1936 Camden Avenue, Suite 1
San Jose, California 95124
408-559-1248

September 29, 1993

GEN-TECH ENVIRONMENTAL
HEALTH AND SAFETY PERFORMANCE STANDARDS

GTE Project Number:	9375-R
Project Name:	Diversified Loan Services
Site Location:	2896 Castro Valley Blvd., Castro Valley, CA
GTE Project Director (PD):	Stuart G. Solomon
GTE Project Manager (PM):	Ben Halsted
GTE Health and Safety Officer (HSO):	Ben Halsted
H&S Document Preparer:	Stuart G. Solomon
Preparation Date:	September 29, 1993

Plan Approvals:

GTE Health and Safety Officer	GTE Project Manager
_____	_____
Other Authorized GTE Personnel	GTE Field Supervisor
Eric Lissol	Ben Halsted
_____	
_____	
Non GTE Authorized Personnel	Company
Bob Smith	Tank Excavators
Shannon Robinson	Tank Excavators
Scott Naro	Tank Excavators
_____	_____

LISTING OF TOPICS

PART 1 - GENERAL INFORMATION

PART 1A - BACKGROUND

INTRODUCTION

Gen-Tech Environmental (GTE) presents the following health and safety (H&S) performance standards for the interim site remedial activities at the Diversified Loan Services Project, located at 2896 Castro Valley Blvd, Castro Valley, CA. A general background of site conditions is presented, followed by site-specific health and safety issues.

APPLICABILITY

This document sets forth the performance standard regarding health and safety issues for the project. The provisions of this H&S document are mandatory for all on-site personnel involved with the NAME project. Any other H&S plan(s) used on this project by contractors or any other personnel must meet or exceed the standards set forth herein. All associated personnel involved in site work at NAME have the responsibility to: (1) read and fully understand the content and purpose of the aspects of this document; and (2) comply with the provisions herein. All persons assigned to the project must complete the acknowledgement forms attached as Appendix A-1.

Any questions regarding these H&S performance standard should be discussed with the on-site Health and Safety Officer (HSO) prior to work commencement. Any modification to the site workplan necessitating changes in these performance standards must be authorized by the Project manager (PM) and the Field Supervisor (FS) or designated prior to changes in the plan by the HSO or designate.

LIMITATIONS

The following H&S standards have been developed by Gen-Tech Environmental for the expressed use at the Diversified Loan Services Site. This Document should be used for this facility by authorized personnel only.

Any personnel using this document for work either not included with the Site or in a manner not supportive of the spirit or language of the standards herein do so at their own risk.

This H&S Performance Standards document is not intended to supplant professional judgment or common sense. The HSO or designate should be consulted prior to work commencement whenever there exists a disagreement between this document and planned activities. Signing of this H&S document indicates that the signee has read and understands this plan and agrees to comply with this plan to the best of their ability.

SITE DESCRIPTION

The site is the location of a former auto service station. Underground fuel tanks and a waste oil tank have been removed, leaving residual soil and groundwater contamination. The site is presently unoccupied. The service station building, pump islands, and island canopy still remain.

PART 1B - SITE SPECIFIC HEALTH AND SAFETY ISSUES

The interim remediation program at the Diversified Loan Services Project will consist of the following general steps (refer also to the companion work plan prepared by GTE):

- Excavation of contaminated soils which will extend into underlying ground water. The excavation area will generally be located to the south of the existing building and will include the pump island area.
- Treatment of exposed ground water via aeration and biological degradation processes.
- Bio-remediation of contaminated soils. Contaminated soils will be treated on-site.
- Backfilling, restoration and resurfacing of the affected areas.

Physical hazards such as the presence of an open excavation, heavy equipment use, etc. will require special safety considerations. In addition, fuel constituents in the excavated soils and exposed ground water will volatilize when exposed to atmosphere (either outdoors or in the semi-confined warehouse space). Instantaneous and/or prolonged exposure to fuel constituents may pose a threat to worker health and

safety. To ensure that remedial activities do not pose hazards to the remediation contractor personnel, precautionary measures are warranted.

Along with the common health and safety concerns for the Site that are discussed in subsequent sections of this H&S document, there are site-specific concerns which require special attention. These concerns are:

1. Initial Excavation Work

Soil Excavation-

- Monitoring of the breathing zone in the vicinity of the active excavation should be performed using a pid and combustible gas indicator according to the following schedule:

  - No less than once every fifteen minutes at the perimeter of the active excavation area; and

  - No less than once every hour at approximate 20 ft, 50 ft, and 100 ft intervals from the active excavation area in perceived upwind, sidewind, and downwind directions.

  The frequency of monitory can be downgraded, per the direction of the PM or HSO, pending test results. The exclusion and decontamination zone boundaries can also be modified based on monitoring results.

- If combustible has or organic vapor readings exceed the thresholds specified herein, follow-up monitoring or emergency response procedures will be necessary (reference Section 4A, 4B and 4F of this H&S Document.

Ground Water Treatment -

- An approximate 1,250 sq. ft. pit containing exposed, potentially hydrocarbon-contaminated ground water will result from the excavation. Monitoring of the breathing zone near this excavation should be conducted using a PID and combustible gas indicator no less than once every hour at approximate 20 ft, 50 ft, and 100 ft intervals from the pit in the perceived upwind, sidewind, and downwind directions.

the frequency of monitoring can be down graded, per the direction of the PM or HSO, pending test results. The exclusion and decontamination zone boundaries can also be modified based on monitoring results.

- If combustible gas or organic vapor readings exceed the thresholds specified herein, follow-up monitoring or emergency response procedures will be necessary (reference Section 4A, 4B and 4F of this H&S Document).

Soil Treatment-

- Monitoring of the breathing zone immediately adjacent to both the contaminated soil stockpile and soil treatment area whenever soils ar disturbed (i.e. initially placed, removed or turned) using a PID.

- Monitoring of the breathing zone should routinely be conducted in the vicinity of the contaminated soil stockpile and soil treatment area using a PID. Monitoring should be performed no less than once every hour at approximate 20 ft and 50 ft intervals from the soil stockpile/treatment areas in the perceived upwind, sidewind, and downwind directions.

  The frequency of monitoring can be downgraded, per the direction of the PM or HSO, pending test results. The exclusion and decontamination zone boundaries can also be modified based on monitoring results.

No an authorized personnel should be allowed within either the exclusion or decontamination zone during any phase of remedial activity. Exclusion and decontamination zones are described in Section 4C of this H&S Document. The FS, PM, or designate should maintain the integrity of these zones and require compliance with health and safety mandates for this project.

Cyclone or other fencing should be used between the supply and decontamination zones; yellow warning tape should be used to separate the decontamination zone from the exclusion zone.

3. Work Near the Public Right-of-Way

Throughout the project, soil remediation and other activities will take place near Castro Valley Blvd. and Anita Avenue. Remediation personnel should be aware of traffic hazards and exercise caution when working near the streets.

PART 2 -PROJECT BACKGROUND

PART 2A - PROJECT INFORMATION

Job No. 9375-R Project Name: Diversified Loan Services

Date: September 29, 1993 Project Mgr: Ben Halsted

Site Telephone No: None

Site Address: 2896 Castro Valley Blvd., Castro Valley, CA

Client Name: Jerry Breeden

Telephone No: (408) 379-1274

Type of Project: Soil and Groundwater Remediation

Description of Site Background, Project Scope, and Associated Field Activities:

Significant Events related to the investigation of soil/ground water contamination are as follows:

- June, 1987 — UST's removed
- September 1990 — Installation of three groundwater wells and four borings with related soil and groundwater sampling. Aqua Science
- April 1992 — Quarterly Report. C-Rem
- October 1992 — Quarterly Report C-Rem

Locations of ground water monitoring wells and exploratory borings are shown in Figure 1-2. Historic results of ground water and soil sampling are provided.

Ground Water Gradient

A groundwater gradient study on March 30, 1992 showed groundwater moving in a southwestern direction at an approximate slope of 1.5 ft. per 100 ft..

Summary

The results of soil sampling performed by Geonomics of Campbell, Ca. on June 16, 1987 during the tank removal indicated TPH/g levels at or below 100 ppm below all of the gasoline tanks. The one soil sample recovered from below the waste oil tank indicated total oil and grease at 16000 ppm and motor oil at 5300 ppm with elevated levels of BTEX.

The results of soil sampling performed by ASE in September of 1990 indicated TPH/g at 790 ppm and Oil and Grease at 730 ppm at 11 foot depth in boring B1 (Figure 1.2). Groundwater samples from wells MW1 through MW3 indicated non detectable levels of TPH/g.

The results of groundwater samples recovered by C-Rem Engineers on March 30, 1992 indicated TPH/g at 310 ppb in MW1 and 1600 ppb in MW3.

PART 2B - EMERGENCY INFORMATION*

EMERGENCY GUIDANCE**

International emergency hand signals shall be used for problems that arise. As discussed later in this H&S document, evacuation of the work area should be conducted if air monitoring indicates that appropriate action must be taken to protect both workers on the remediation project and Reliance personnel.

TELEPHONE NUMBERS

Police: 911 Fire/Rescue: 911

Poison Control: 800-523-2222 or 415-476-6600
National Response Center (NRC): 800-424-8802
Hospital (Emergency): Laurel Grove Hospital (510) 537-1234

Project Manager (PM): (408) 559-1248
Project Director (PD): (408) 559-1248

Office Telephone: (408) 559-1248

PM Home Telephone: (415) 325-3216(R)
PD Home Telephone: (408) 723-2833(R)

DIRECTIONS TO EMERGENCY CENTER *(see map on next page)*:

West on Castro Valley Blvd. to Lake Chabot Rd., north about 1 1/2 blocks to hospital on the left.

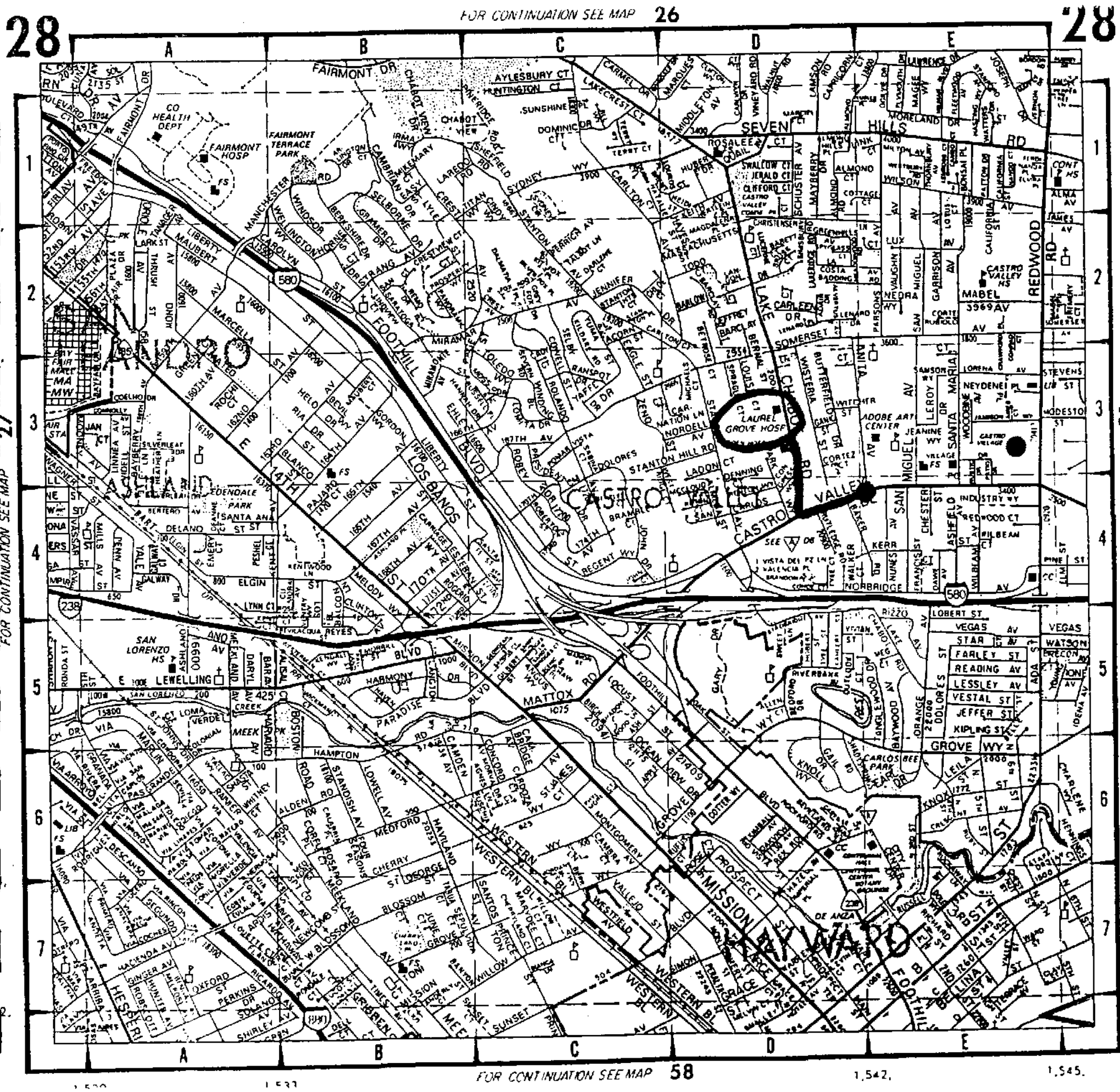
* Copy this sheet onto colored paper for convenience in emergencies!

** Do not forget to complete an Accident Report (form is appended) as soon as practicably possible. For serious injuries, the employees immediate supervisor must report by telephone to the Office Director or Regional Vice President (who in turn will inform the Office Service manager and/or the Corporate Human Resources Manager).

PART 2B (continued)

EMERGENCY ROUTE MAP

The map below provides directions on the location of the nearest emergency facility, the Laural Grove Hospital.



PART 2C -TRAINING

DIRECTIONS: *The list below identifies project personnel, project training requirements, and training status. Upon selection of a remedial contractor, the list is to be updated with qualifications of the contractor's personnel.*

Ben Halsted - 40 hour, 8 hour Refresher, 8 hour Supervisor, SSO, FA, CPR
Eric Lissol - 40 hour, 8 hour, SSO, FA

All other Sub Employees - 40 hour, 8 hour Refresher, SSO

Key

40 Hour	-	40 hour HAZMAT course
8 Hour Refresher	-	8 hour refresher HAZMAT course
8 Hour Supervisor	-	8 hour supervisor HAZMAT course
SSO	-	Site-Specific Orientation (ALWAYS REQUIRED)
FA	-	First Aid
CPR	-	Cardiopulmonary resuscitation

ADDITIONAL DISCUSSION: All personnel entering the exclusion area of the site must have, as a minimum, the OSHA mandated 40-hour basic health and safety training, a current 8-hour refresher course, and up-to-date medical monitoring. Those using personal protective equipment greater than Level D must have passed up-to-date respirator fit testing for the equipment being used on Site.

PART 2D - STANDARD RULES OF CONDUCT

PROJECT COMMAND HIERARCHY

When questions arise regarding work in the following areas, workers should follow the command hierarchy listed below:

Project

1. PM or designate
2. FS or designate
3. HSO or designate
4. Other authorized personnel
5. Non-authorized personnel

Health and Safety

1. PM or designate
2. FS or designate
3. HSO or designate
4. Other personnel
5. Non-authorized personnel

GENERAL RULES

The following general rules should be followed while performing work at a project site:

- Before beginning work on a given project, PMs and FSs should be informed of any individual health conditions that may affect emergency treatment (e.g., allergies).
- Working while under the influence of intoxicants, narcotics, or controlled substances if prohibited.
- Smoking is prohibited within 50 ft of all excavation, soil stockpile and ground water treatment areas.

- All personnel must comply with established safety procedures. Any project personnel who do not comply with the safety policy, as established by the HSO or the PM, will be dismissed from the site immediately.
- No unapproved work cloths or equipment will be allowed on site.
- Checking in (for safety reasons) with the PM or designate is recommended at the end of the day for personnel who are performing site work alone.

RULES FOR HAZMAT WORK

These rules apply to the Diversified Loan Services Project, where personnel may be handling substances contaminated by hydrocarbon constituents of fuel products. A check mark has been placed by those directly applicable to this project.

X The work zones, including "exclusion zone", "decontamination zone", and "support zone", shall be defined in Section 4C of this H&S document.

X Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingesting of material is prohibited while sampling or in any area that may be contaminated.

X No personnel will be admitted to the work area without proper safety equipment and clearance. Personnel must wear the level of personal protective equipment required in the work zone (i.e., Level A, B, C, or D). See Part 4B of this H&S document.

X If any gear or equipment damage develops, immediately repair or replace it.

X If any personal protective equipment falls in the exclusion zone, proceed immediately to a decontamination zone or, if possible, toward the support zone (described in Part 4C of this H&S document).

X Routine safety meetings will be conducted by the HSO, PM, FS, or designate. The meeting will cover, but will not be limited to, a review of site information and a question-and-answer period. the site information will include:

- Expected hazards and special conditions;
- Sampling procedures;
- Location of decontamination areas and telephones;
- Emergency medial information;
- Level of personal protection required; and
- Equipment check for rips, tears and malfunctions.

x The buddy system will be used. Hand signals will be established by the HSO or designate. At no time should there be Site personnel within the exclusion zone without a buddy. If for any reason any Site Personnel is on site (within the decontamination zone) without a buddy, that person must assume the responsibilities of themselves and of their buddy. they are legally bound to either practice safety buddy field practices or to exit from the Site immediately.

x Buddies must leave the exclusion zone together.

___ During site operations, each worker should consider him/herself as a safety backup to his/her partner. All personnel should be aware of dangerous situations that may develop.

x Check your "buddy's" equipment and have him/her check yours.

x Use Caution - go slowly.

x Visual contact should be maintained between buddies on site whenever possible.

x Standards sampling and investigation techniques should be employed (see Work Plan, PM, or designate).

x Maximum care should be exercised while obtaining the handling samples. If the NAME site is not accessible using your gear (i.e., water too high, slippery ground, steeply sloped terrain, holes, etc.), do not take a sample. Confer with the FS about alternate sampling site.

___ Wipe off spills, dirt, and residue immediately.

— When well pumping, use both the face shield and the goggles. (The face shield is meant to break impact of liquids and solid objects, and the goggles are meant to guard against splash hazards.

x Disposable clothing will be used when appropriate to minimize the risk of cross-contamination.

x The number of personnel and amount of equipment in any affected area should be minimized, while also providing for effective site operations. The PM and HSO (or their designates) should be consulted before exclusion zone sampling takes place.

x Work areas for specific operational activities (equipment testing, decontamination) should be used as indicated in Part 4C of this H&S documents.

x Contact will affected or potentially-affected material should be avoided. Whenever possible, do not walk through puddles, mud, or any discolored ground surface. In general, do not kneel or sit on ground and do not lean or place equipment on drums, containers, vehicles, or on the ground.

— No exchange of personal protective equipment will be allowed except in emergency situations involving a threat to health or safety.

x Proper decontamination procedures must be followed before leaving the site (see Part 4C).

x Lunch eaten at the site will be consumed only at the designated areas located away from the immediate area of the site and only after proper decontamination (see Part 4D of this H&S document). these designated areas should not be in either exclusion or decontamination zones.

x If you experience any physical discomfort, abnormalities, fatigue, or light-headedness, immediately stop work, tell your buddy, and leave the area. After evacuation from work area has occurred, the HSO should be advised o any potential health issues.

x Medical emergencies supersede routine safety requirements.

_x_ On return, have "buddy" check for external contamination. Check hear for damage.

PART 2E - RECORD KEEPING

To have an effective health and safety program, keeping accurate and reproducible records is essential. For this project, the following types of records, at a minimum, must be kept in the job and personnel files as appropriate:

- H&S Performance Standards (including updates)
- H&S Performance Standards Review and Site-Specific training Acknowledgement for each project employee (including subcontractors, where applicable).
- Accident Reports (should an incident occur)

The following additional items should be kept on record:

- Individual PPE Use Acknowledgments (includes verification of physician approval, fit-testing, and PPE use training).
- Daily Activity Summaries (e.g., field log book)
- Record of hazardous substances found on the project site (e.g., presented in the resulting site characterization report)
- Equipment Maintenance Records (e.g., respirator checks, instrument calibration)
- List of Field and Supervisory Personnel

PART 2F - H&S SUPPLIES AND EQUIPMENT

BACKGROUND INFORMATION

Since accidents cannot be anticipated, all persons involved with remediation activities should maintain keep handy adequate health and safety supplies. Personnel who are performing field work should take, at a minimum, the items listed below:

- A listing of basic first aid procedures (e.g., American Red Cross Standard First Aid or other first aid medical reference).
- Local area map (or be very familiar with routes to emergency units), and
- First Aid kit (e.g., containing bandages, sterile pads, antiseptic germicide, rubbing alcohol, anesthetic/analgesic, eyewash, ice).

  NOTE: Field personnel should help maintain adequate supplies in the First Aid kit. Before beginning field investigation, it is a good idea to check the kit to see if adequate supplies are available. If a field investigation requires the use of materials in the First Aid kit, field personnel involved should notify the PM of the items that need to be replenished.

Lastly, field personnel should be familiar with first aid procedures, preferably including cardiopulmonary resuscitation (CPR). Basic first aid and CPR instruction can be obtained from Red Cross certified instructors through hospital and fire department community training programs (see requirements for First Aid Training in Part 2C of this H&S document).

H&S SUPPLY AND EQUIPMENT LIST

DIRECTIONS: *The following health and safety supplies and equipment are needed for this project.*

ITEM (provide description)	SIZE	QUANTITY
e.g., First Aid Kit	nominal	1 buddy pair
Fire extinguisher	nominal	1
Telephone	N/A	1
Water Facility	N/A	N/A
Level C PPE (refer to Part 4B)	N/A	1/person

PART 3 - HAZARDS

PART 3A - NATURAL HAZARDS

Natural hazards can include parasitic insects, poisonous plants, rabid/poisonous animals and rough terrain. These hazards are not expected to pose a problem the Diversified Loan Services site, which is in a urban area. Nonetheless, site personnel should be familiar with these basic natural hazards in the unlikely event they may be encountered during the remedial program.

PART 3B - HEAT/COLD STRESS

INTRODUCTION

Adverse weather conditions are important considerations in planning and performing on-site operations. Hot weather can cause physical discomfort, loss of efficiency, and personal injury. The following section will discuss how to recognize the symptoms and/or prevent heat stress while working on site. Treatment procedures for heat stresses are described in Section 4F of this H&S Document. Also refer to a basic first aid guide (e.g, American Red Cross Standard First Aid) for information on first aid treatment for heat stress victims.

HEAT STRESS

Heat stroke is the most sever heat-related problem. Site personnel should be familiar with identification of heat stress victims, first-aid treatment for the victim, and the prevention of heat stress casualties. This section discusses heat stress identification and prevention of heat stress casualties. this section discusses heat stress identification and prevention as well as special heat stress considerations associated with wearing PPE.

Heat Stress Identification

Heat Exhaustion -

Heat exhaustion usually is characterized by an approximately normal body temperature, pale and clammy skin, profuse perspiration, tiredness, weakness, headache, nausea, and dizziness. Cramps, vomiting, and fainting are all possible.

Heat Stroke -

Heat stroke usually is characterized by a high body temperature (e.g., 106° or higher); hot, red, dry skin since the sweating mechanism is lost; rapid, strong pulse; and possible unconsciousness or confusion.

Heat Stress Prevention

Although the potential for stress is increased by wearing personal protection equipment (PPE), heat-related problems can occur with or without the added burden of this type of clothing. The following General recommendations present techniques for reducing heat stress.

- Drink plenty of liquids. To replace body fluids (water and electrolytes) lost due to sweating, drink plenty of water, commercial drink mixes along with more heavily salted food (unless on a low-salt diet). to prevent dehydration, personnel should be encouraged to drink generous amounts of water even if not thirsty. heat-related problems can happen before the sensation of thirst occurs.

- Make shelter available to protect personnel against heat, cold, and rain.

- Personnel should be encouraged to maintain their physical fitness. Physically-fit personnel ar less prone to stress-related problems.

- Liquids that act as diuretics (e.g., alcohol and coffee) should be avoided or their intake minimized prior to anticipated operations. These can contribute to dehydration and subsequent heat-related problems.

- Have personnel monitor body functions (e.g., heart rate, body temperature, and body water loss) to estimate how well their body is handling the excessive heat. Briefly, heart rate should not exceed 110 beats per minute at the beginning of the rest period; temperature should not exceed 99°F; and body water loss (as measured by checking weight changes on the scale) should not exceed 1.5 percent of the total body weight. If the heart rate or temperature is above these limits, the next work period should be curtailed by 33 percent. Personnel with excessive body water loss should be instructed to drink more water as well as another commercially-prepared drink to replace electrolytes lost through sweating.

Special Considerations for Personal Protective Equipment Use and Heat Stress

Wearing certain personal protective clothing can increase the likelihood of heat stress, accident proneness, and fatigue. The major problem is caused by the interference of the protective clothing with the body's ability to cool itself. Clothing that provides a barrier against chemicals contacting the skin prevents the efficient dissipation of body heat.

Evaporation, the body's primary cooling mechanism, is reduced, since ambient air is not in contact with the skin's surface. Other heat exchange mechanisms (convection and radiation) also are impeded. Additional strain is put on the body as it attempts to maintain its heat balance. This added stress can result in health effects ringing from transient heat fatigue to serious illness or death.

The smaller the area of the body exposed to the air, the greater the probability for heat stress. Fully-encapsulating suites allow no ambient air to contact the skin's surface to aid in the evaporation of moisture. heat in these suits builds up quickly. Splash suits may allow more body surface (head, neck, and hands) to be cooled by the air, but if those areas are covered by hood, gloves, and respirators and the joints tapped, the same conditions will exist as if wearing a fully-encapsulating suite. heat-related problems become more common as the ambient temperature rises above 70°F., but can occur at much lower temperatures. Although individuals vary in their susceptibility to heat stress and their ability to withstand high temperatures.

To minimize the adverse effects of physical stress, workers wearing protective clothing need to change their normal work regimen. Personnel must acclimatize to stressful environmental factors by varying work and rest periods as needed. The intake of fluids must be maintained at adequate levels to prevent dehydration, and body electrolytes should be replaced (e.g., by drinking "Gatorade" or similar products). In addition, teams of workers wearing protective clothing and/.or performing extremely arduous tasks should be rotated. Work should be scheduled for cooler periods of the day when possible. Cooling devices (e.g., ice vest, pressurized back-pack tank of coolant) may be provided to aid natural body ventilation. The devices, however, add weight; therefore, their use should be balanced against worker fatigue. Long cotton underwear or similar type garments may act as a which to help absorb moisture and protect the skin from direct contact with heat-absorbing chemical protective clothing. In extremely hot weather, outdoor operations are best conducted in the early morning or evening.

COLD STRESS

Cold Stress is not a potential problem in the San Francisco Bay area during the period in which the NAME project will be conducted.

PART 3C - EXCAVATION AND CONFINED SPACE HAZARDS

Field remediation activities will involve the following excavation/construction activities reefer also to companion work plan):

- Removal and proper abandonment of 4 existing ground water monitoring wells.
- Excavation of contaminated soils, and creation of separate "bioponds" for ground water treatment.
- Installation of sheetpile and/or shoring as needed.
- Trenching and pipe installation (e.g., entering trench excavations).

Below, precautions are set forth for:

- General Excavating activities; these precautions are applicable to all types of excavations whether or not hazardous materials are involved.
- Specialized excavating activities; these precautions are oriented toward considerations such as ignition and oxygen deficiency which can be found in confined spaces or area of the Site with potentially hazardous materials.)
- Entry into confined spaces.

GENERAL EXCAVATING ACTIVITIES

Health and safety considerations associated with general excavating activity are presented below:

- Before beginning an excavation on public or private property, the location of underground utilities should be considered. Underground utilities that may be present include: water; storm and sanitary sewer; telephone; electric power;

natural gas and/or high pressure fuel lines; cable TV; other lines such as those containing steam, vacuum, or compressed air; or underground tanks.

To avoid damaging underground utilities and causing associated hazards, contact Underground Service (U.S.) Alert at least 48 hours in advance of the planned excavating activity so that the location of utilities i the public right-of-way can be marked. The number for U.S. Alert in the San Francisco area is 1-800-642-2444.

Similar arrangements should be made to identify the occasion of all underground utilities within private property boundaries. Arrangements should be made with representatives of the site owner, NAME, for this purpose.

- No person should enter a trench or test pit deeper than 4 to 5 feet unless the excavation has been shored. braced, sloped, or other provisions made to prevent cave in. excavation and/or confined space permits and shoring may be required for excavations deeper than 4 to 5 feet (into which workers will enter). Check state and local regulations, as standards and requirements may vary. Shoring should be engineered by a qualified and licensed civil or structural engineers or engineering geologist. Drawings, specifications, and calculations should e signed by the engineer.

- While excavations are being dug, workers should be sure to stay in view of the backhoe or heavy machine operator and maintain a safe distance from the machinery and excavation.

- No excavation, including open pits, or drilled hole greater than 12 inches deep should be left unsecured overnight; they should be secured (i.e. fencing, barriers, etc.) in a safe manner each night until work has been completed, and backfilled, where appropriate, once work has been completed, and backfilled, where appropriate, once work is finished.

- Measures for 24-hour site security (to control unauthorized Site entrance/egress) should be provided.

- Keep all non-essential personnel out of the work area.

- Loose-fitting clothing or loose long hair around moving machinery will be prohibited.

- Instruct equipment operators to report to their supervisor(s) any abnormalities such as equipment failure, oozing liquids, and unusual odors.

- Where portable electric tools and appliances can be used (i.e., where there is no potential for flammable or explosive conditions), use three-wire grounded extension cords to prevent electric shocks.

- When using alternating-current powered tools, a portable ground-fault current interrupter (GFCI) should be used.

SPECIAL EXCAVATING ACTIVITIES

Precautions presented under this category involve considerations related to the presence of hazardous materials at an excavation work site. Such materials (e.g., benzene in gasoline or diesel fuel) can create toxic and flammable conditions. the precautions for special excavating activities are presented under tow categories:

1. Excavation, Trenching, and Pipe Installation; and
2. Entry o Confined Spaces.

Safety Procedures for Excavation, Trenching, and Pipe Installation

- During construction, the HSO or designate should oversee activities, including implementation of the H&S Performance Standards or H&S Plan.

- Follow precautions related to excavations that were presented in the General Excavating Activates Section. Check state regulations as standards and requirements may vary.

- Smoking will be prohibited within 50 feet of open excavations, trenching and piping. It is preferred that smoking be prohibited in any Site work area.

- No worker should be allowed to work alone at any time in or near the excavation. Another worker should be stationed beyond the area considered to be subject to the possible effects of hazardous vapors. there should always be a sufficient number of workers present to remove an injured or endangered worker and to summon for help.

- Periodically during construction, the Site work area shall be monitored for levels of total and/or specific volatile organic or other compounds of potential concern. details on suggested monitoring provisions are included in Part 4B of this H&S Performance Standards document.

- All on-site internal combustion engines should have spark arresters that meet requirements for hazardous atmospheres. Refuelling should take place in safe areas. Do not fuel engines while a vehicle is running and prohibit ignition suldces in the fuel area.

- No welding or use of sparking equipment should be permitted in, on, or immediately near the excavation area, unless previously and continuously monitored for methane and other combustible gases and such monitoring indicates conditions are safe.

- When welding near areas where volatile gases are known or suspected, suitable procedures and precautions should be employed including:

  - Processing a "hot work" permit.
  - Designating an individual as fire watch.
  - Verifying that explosive concentrations are not present using an explosimeter.
  - Having adequate fire extinguisher (20:A-80:BC) and fire blankets on hand.
  - Sandbagging all drains.
  - Providing the appropriate purge and inert blanket on process equipment and piping.

Procedures for safe welding and purging of process equipment are available from the American Petroleum Institute (API).

- Solvent cleaning, gluing, or bonding of pipe should be performed, to the extent possible, outside the trench or excavation. An organic vapor respirator should be worn by persons using PVC solvent or glues. Personnel using solvent and cement should be familiar with the appropriate materials safety data sheets (MSDSs) for those products.

- Forced ventilation may be required for workers who must work in trenches deeper than 3 feet. Air blowers and fans may be used for positive ventilation. dilution ventilation may address either an explosive gas hazard or a hazardous chemical health hazard. the amount of air required for ventilation must be determined based on the concentrations of volatile chemical constituents, the LEL for those hazardous chemical constituents in question, the volume to be protected, ambient conditions, and an appropriate safety factor. Associated estimates should be developed by the HSO.

- All piping must be capped at the end of each working day.

- Workers should use protective clothing as need to protect them from chemicals and/or disease-causing agents.

- Keep heavy equipment that is used in the exclusion zone in that zone until the job is done. Decontaminate such equipment before moving into the clean zone.

ENTRY OF CONFINED SPACES

Confined space work at the Diversified Loan Services Site will probably not be necessary, however, there may be a need for wok within the excavated area to construct the bio-treatment system. Therefore, the following information should be read and understood with regard to work in those areas.

Various standard-making organizations in the field of industrial hygiene (e.g., the national Institute on Occupational Safety and health (NIOSH), U.S. Department of Labor Occupational Safety and Health Administration (OSHA), and the American National Standards Institute (ANSI) have developed differing definitions for a "confined space as:

> "An enclosed area that has the following characteristics: its primary function is something other than human occupancy, has restricted entry and exit, and may contain potential or known hazards."

A confined space is also defined as a space where existing ventilation is insufficient to remove dangerous air contamination and/or where there is an oxygen deficiency, and where ready access/egress to provide aid or to remove a disabled employee is difficult.

Prior to the entry of workers into an excavation, vault, or ditch deeper than 3 feet, the atmosphere of the excavation should be tested for ignitable concentrations of combustible or flammable gas. Examples of atmospheres that are Immediately Dangerous to Life and Health are ones that contain less that 19.5 percent oxygen by volume or one that contains a concentration of hazardous or toxic chemical(s) at or above the limits set by NIOSH. If flammable or toxic atmosphere are present, ventilation should be used to bring has concentrations to desirable levels. Air blowers or fans should be available for positive ventilation. Should entry be required into a dangerous atmosphere, special provisions will be required (e.g., the elimination of ignition sources).

Provided that ignitable atmospheres and/or ignition sources are not present, a pressure demand SCBA or supplied air respirator can be used to enter areas containing toxic or oxygen-deficient conditions. Air purifying respirators with chemical cartridges can be used for gaseous contaminants (except hydrogen sulfide) if the oxygen concentration is satisfactory; and if the chemical contaminants have been identified, the concentration is satisfactory; and if the chemical contaminant have been identified, the concentrations have been monitored, the cartridges are effective in removing the contaminants, and the contaminants have good warning properties.

PART 3D - CHEMICAL HAZARDS

The table below is provided to assist in identifying potential chemical hazards that may be encountered during the remediation effort at the NAME Site. Refer also to Materials Safety Data Sheets (MSDSs) attached as Appendix A-2 for guidance on specific chemical hazards and handling procedures.

Chemical Name	Where Found or Thought To Exist	Key Physical Properties	Modes of Exposure	Exposure Symptoms & Target Organs	Exposure Limits
BENZENE	SL, SD, GW	LW, ODOR FLAM	INH, ING ABS, CON	CARC, BM CNS, SK, EY, RS	PEL-1PPM; IDLH-3000 PPM (CA)
TOLUENE	SL, SD, GW	LW, FLAM EXPL	INH, ING ABS, CON	SK, CNS, LV LI	PEL-200 PPM; IDLH-2000 PPM

ETHYL-BENZENE	SL, SD, GW	LW, FLAM EXPL	INH, ING ABS, CON	EY, RS, SK CNS	PEL-100 PPM; IDLH-2000 PPM
XYLENE	SL, SD, GW	LW, FLAM EXPL	INH, ING ABS, CON	CNS, EY, BL LI, KI, SK	PEL-100 PMM; IDLH-1000 PPM

CODES:

SL = Soil
SD = Sediment
GW = Ground Water
LW = Lighter than water
ODOR = Odor
FLAM = Falmmable
EXPL = Expolsive
INH = Inhalation
ING = Ingestion
ABS = Absorption
CON = Contact

EY = Eyes
RS = Respiratory System
SK = Skin
BL = Blood
CNS = Central Nervous System

BM = Bone Marrow
KI = Kidney
LI = Liver
CARC = Carcinogenic

PART 3E - FIRE AND EXPLOSION HAZARDS

BACKGROUND INFORMATION

Fire and explosion hazards are common concerns for fuel leak project sites. Workers should be made aware of potential fire and/or explosion hazards and instructed in standard for proper conduct when working an areas with these hazards.

One of the more common fire and explosion hazards involves volatile substances such as methane, benzene, gasoline constituents, as well as other explosive chemicals that may exist on site. Each volatile substance has an explosion and flammability range which consists of a lower explosive limit (LEL) and an upper explosive limit (UEL). The LEL of a substance is the minimum concentration of gas or vapor in air below which the substance will not burn when exposed to a source of ignition. This concentration, is usually expressed in percent by volume. Below this concentration, the mixture is too "lean" to burn or explode. The UEL of a substance is the maximum concentration of gas or vapor above which the substance will not burn when exposed to a source of ignition. Above this concentration, the mixture is too "rich" to burn or explode.

Thus, the flammable range is the range of concentrations between the LEL and UEL where the gas-air mixture will support combustion, thereby presenting a hazardous situation. The flashpoint of a substance is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air just above the surface of the substance. Ignition of a substance at the flashpoint is not continuous. the ignition temperature or autoignition temperature is the minimum temperature required to initiate or cause self-sustained combustion without an ignition source.

All equipment used for remedial or other activities at the NAME Site should be intrinsically safe or explosion-proof. Where flammable or explosive atmospheres are detected, ventilation may dilute the measure to below the LEL. However, ventilation is generally not recommended if concentrations exceed the UEL, since the mixture will pass through the flammable/explosive range as it is diluted. Note that combustible gas indicator readings may not be accurate when oxygen concentrations are less than 19.5 percent (except taken from the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities document by NOISH/OSHA/USCG/EPA). Refer to the NIOSH Pocket Guide to Chemical Hazards for guidance on determining the LEL and UEL for the chemicals or volatile substances thought to exist on this Project Site.

Outlined below ar other general provisions relating to remediation of hazardous waste sites. These general provisions are applicable to the remedial work at the NAME Site.

HAZARDOUS WASTE SITES

There are many potential causes of explosions and fire at hazardous waste sites:

- Chemical reactions that produce explosion, fire, or heat;
- Ignition of explosive or flammable chemicals;
- Ignition of materials due to oxygen enrichment;
- Agitation of shock or friction-sensitive compounds; and
- Sudden release of materials under pressure (e.g., drums).

Expositions and fires may arise spontaneously. However, more commonly, they result from site activates, such as moving drums, accidentally mixing incompatible chemicals, or introducing an ignition source (such as a spark from equipment) into an explosive or flammable environment. At fuel leak sites, explosions and fires not only pose the obvious hazards of intense heat, open flame, smoke inhalation, and flying objects, but also may cause the release of toxic chemicals into the environment. Such releases can threaten both personnel on site and members of the general public living or working nearby (excerpt from the 1985 Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities by NIOSH/OSHA/USCG/EPA).

SPECIFIC SITE FIRE AND EXPLOSION HAZARDS

The following list indicates which explosion/fire hazards exist at the NAME Site. Applicable items are designated by a check mark at the lst of each hazard.

x Combustible gases (e.g., BTEX and other gasoline/diesel fuel constituents)

___ Incompatible chemicals (describe the potential reactions that could result if they are mixed).

___ Shock or friction-sensitive compounds (list where found)

___ Drums or other containers on site which contain known or unknown chemicals (list their contents, if known and location)

___ Other (please explain)

Gasoline/diesel fuel free product and other identified petroleum compounds (BTEX) pose an explosive and fire risk.

Potential ignition sources (and general descriptions of ways to eliminate these sources are provided below.

POTENTIAL SOURCES	PREVENTATIVE ACTIONS
Sparking Equipment	Prohibited within 50 feet of open excavation
Cigarette Smoking	No smoking warehouse area or within 50 feet of open excavation
Impact with machinery	Use caution to avoid

PART 3F - NOISE HAZARDS

Work around heavy equipment often creates excessive noise. Negative effects of noise include:

- Workers being startled, annoyed, or distracted;
- Physical damage to the ear, pain, and temporary and/or permanent hearing loss; and
- Communication interference that may increase potential hazards due to the inability to warn of danger and the proper safety precautions to be taken.

Protection against the effects of noise exposure should be provided when the sound levels exceed those shown in the table below (from 29 CFR Part 1910.95) when measured on the A-scale of a standard sound level meter at slow response.

PERMISSIBLE NOISE EXPOSURES

Duration, per day, hours	Sound Level dBA Slow Response
8	90
6	92

4	95
3	97
2	100
1.5	102
1	105
0.5	110
0.25 of less	115

Thus if employees are subjected to noise exceeding an 8-hour time-weighted-average sound level of 90 dBA (decibels on A-weighted scale) of other levels outlined in the above table, feasible administrative or engineering controls must be used.

In addition, whenever employee noise exposures equal or exceed an 8-hour time-weighted-average sound level of 85 dBA, employers must administer a continuing, effective hearing conservation program as described in OSHA regulation 29 CFR regulation 29 CFR Part 1910.95.

HAZARD IDENTIFICATION

Potentia noise hazards associated with remedial activities at the NAME Site include:

- Use of excavation equipment, especially within the warehouse footprint.
- Remedial construction (concrete removal, sawcutting, etc.).

PERSONAL PROTECTION

Will special protection be required to prevent noise from interfering with the work?
(Highlight in BOLD)

YES NO

Ear inserts or headphones are recommended for remedial workers/site employees subject to hearing equipment noise. Further details are described in Section 4B of this document.

COMMUNICATION

Will the noise be prolonged and continuous, thereby causing problems with communications? (Highlight in BOLD)

YES **NO**

PART 3G - ELECTRICAL HAZARDS

Overhead power lines, downed electrical wires, and buried cables can all pose a threat of shock or electrocution if workers contact or sever them during Site operations. To avoid downing or contacting power lines, equipment such as cranes, derricks and power shovels should not be operated within 10 feet of these electrical wires. Buried cables can be avoided during excavations and other site operations by contacting U.S. Alert at least 48 hours in advance to determine exactly if and where the electrical cables are buried. **The number for U.S. Alert is 1-800-642-2444.**

In addition to electrical wires and cables, electrical equipment used on site, lighting and capacitors that may retain a charge also may pose significant danger to site workers. To help minimize the danger of electrical equipment, low-voltage equipment with ground-fault interrupters and water-tight, corrosion-resistant connecting cables should be used. Lighting, a significant danger during outdoor operations can be particularly hazardous for workers handling metal containers or equipment. To protect workers from lightening, weather conditions should be monitored; and work should be suspended during electrical storms. Finally, all capacitors that may remain a charge should be properly grounded before handling.

SITE SPECIFIC ELECTRICAL HAZARDS

Potential electrical hazards that may be encountered at the site include:

- Electrical shock from static electricity buildup between personnel and/or equipment.
- Contact with buried or above ground utilities.

Measures that will be used to protect workers from the above-listed electrical hazards:

- Electrical equipment should be non-sparking.
- Attention should be paid to potential for static electricity buildup where possible.
- All utilities within the work area should be identified prior to work commencement.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Will Protective clothing or equipment be necessary to protect against these electrical hazards? (Highlight in BOLD)

YES **NO**

PART 3H - BIOLOGICAL HAZARDS

For the purposes of this H&S Performance Standard document, biological hazards ar defined as bacteria and viruses which may cause human diseases. Other biological hazards that may be present at almost any site include poisonous plants, insects, and animals (see Natural Hazards, Part 3A).

If a person incurs a cut or abrasion, it should be treated immediately by a qualified health practitioner, as the chance of infection is high when working outside. a tetanus shot is recommended at prescribed intervals for all personnel involved in certain field activates.

At a minimum, reusable PPE should be decontaminated with peroxide solution. Before going to lunch or leaving the work site for the day, workers should be sure to wash their hands and face thoroughly with warm water and an antibacterial soap.

SITE BIOLOGICAL HAZARDS

No potential biological hazards are expected, given the industrialized area where the Diversified Loan Services Site is located.

PART 3I - OTHER HAZARDS

Other hazards that may be encountered at the project site that were not covered previously under Part 3 include, but may not be limited to:

- Traffic, especially on Castro Valley Blvd.

PART 4 - PROTECTION

PART 4A - MONITORING

Previous investigative findings at the Diversified Loan Services Site are described below, including identification of hazardous substances and known or suspected "hot spots".

None in Particular

DESCRIPTION OF PLANNED H&S MONITORING

Planned H&S monitoring that will be conducted for the Diversified Loan Services Site remediation project are described below and in the accompanying tables.

In the table below, the types of monitoring equipment that will be used during the remediation project are described. Where applicable, chemicals of interest, environmental media (e.g., soil gas), and sample location ID are specified.

Method/ Instrument	Chemicals(s) of Interest	Capabilities/ Limitations	Environmental Media	Sample Location ID
PID	BTEX	Volatiles	ambient vapors	refer to sampling protocol text (Section 1A this H&S document)
Draeger Tubes	Benzene	chemical-specific	ambient vapors	specified in field
Draeger Tubes	Benzene	chemical-specific	ambient vapors	specified in field
Draeger Tubes	Benzene	chemical-specific	ambient vapors	specified in field

Draeger Tubes	Benzene	chemical-specific	ambient vapors	specified in field
CGI/Oxy	Methane Fuel Vapors Oxygen	Calibrate to specific gases	confined space	refer to sampling protocol text (Section 1A this H&S document)

MONITORING EQUIPMENT KEY:

CGI = Combustible Gas Indicator
PID = Photoionization Detector
OVA = Organic Vapor Analyzer
OXY = Oxygen Meter

DESCRIPTION OF PLANNED WORKER EXPOSURE MONITORING PROGRAM

The table below describes the type(s) of equipment that will be used for monitoring worker exposure to specified contaminants. The table includes chemicals of interest, relevant instrument capabilities and limitations, sampling points (e.g., breathing zone, type of environmental media), and relevant worker exposure limits.

Method/ Instruments	Chemicals of Interest	Capabilities/ Limitations	Types of Sampling Points	Sample Duration	Relevant Exposure Limit*
PID	BTEX	total volatiles	soil level and breathing zone	refer to sampling protocols	100 ppm = initial action level

MONITORING EQUIPMENT KEY:

CGI = Combustible Gas indicator
PID = Photoionization Detector
OVA = Organic Vapor Analyzer
OXY = Oxygen Meter
DOS = Dosimeter
CYAN = Cyanide Meter
SULF = Sulfide Meter

EXPOSURE LIMIT KEY:

OSHA

PEL = Permissible exposure limit (usually is a time-weighted average for an 8-hour day/40-hour week)

NOISH

REL = Recommended Exposure Limit
TWA = Time-Weighted Average (usually 10-hr. day/40-hr. week)
STEL = Short-Term Exposure Limit (usually 15 mins. exposure)
C = Ceiling concentration which should not be exceeded at any time.

ACGIH

TLV = Threshold Limit Value (usually 8-hour TWA)
IDLH = Immediately Dangerous to Live and Health (maximum concentration from which, in the event of respirator failure, one could escape within 30 mins. w/o a respirator and w/o experiencing escape-impairing or irreversible health effects).

NOTE: ACGH also sets STEL's and Ceilings.

PART 4B - PERSONAL PROTECTION EQUIPMENT (PPE)

BACKGROUND INFORMATION

Personal protective clothing and equipment (PPE) is used to shield workers from hazards. Depending on site conditions, PPE selection may be simple or complex. In choosing PPE, the PM must examine how the various hazards and PPE interrelate. For example, the following items must be considered:

- Compatibility of equipment with chemicals on the site (e.g., permeation, degradation, penetration, and heat transfer characteristics).
- Appropriateness of PPE for given hazard (i.e., over and under protection should be guarded against as either can negatively impact worker health and/or safety).
- Compatibility of PPE with other job hazards (e.g., some protective suits may preclude hard hat use in a hard hat area).
- Advantages and disadvantages of each piece of PPE should be considered as PPE can cause a decrease in mobility and dexterity, reduce visual and audio acuity, and increase physical exertion; for example, the equipment should be examined in terms of comfort, safety, durability, flexibility, sensitivity to the effects of changing temperatures, ease of use and decontamination, as well as the anticipated duration of use.

Useful information related to PPE selection can be found in Section 8 of the Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities which was developed by NIOSH, OSHA, USCG, and EPA. PPE requirements applicable to the NAME project are as defined below (reference: EPA).

PROTECTION LEVEL	EQUIPMENT
EPA Level D	Hard hat Foot protection (steel-toed boots) Hand protection (gloves) Body protection (Tyvek coveralls, if necessary)

PROTECTION LEVEL	EQUIPMENT
	Eye protection (safety glasses)
EPA Level C	Hard hat Body protection (Tyvek coveralls) Foot protection (rubber boots or over-boots with steel toe) Hand protection (Playtex or comparable Argus gloves) Face Protection (hard hat with face shield) Respiratory protection (organic vapors) Eye protection (safety glasses or safety goggles)

Once PPE has been selected, workers must be fit-tested and made will-acquainted with its proper use, maintenance, and decontamination on a project-specific basis. When use of air purifying respirators (APRs) is required, it is recommended that written documentation be prepared describing the standard operating procedures for respirator selection and use; requirements for medical examinations that determine an individual's fitness for respirator use; as well as requirements for fit testing, respirator inspection, cleaning and disinfection, repair and storage of the APRs.

ON-SITE HAZARDS THAT REQUIRE PPE

In the list below, a check mark has been placed beside the potential hazard categories that may be encountered on site which re-quire PPE. All of the PPE needs for the project are listed to allow a quick reference check (i.e. to ensure that appropriate PPE (chemical and non-chemical) is available before work is initiated on site).

_x_ Non-chemical Hazards

___ Natural Hazards
_x_ Heat/Cold Stress
_x_ Excavation/confined Space hazards, if PID levels mandate
_x_ Noise Hazards
_x_ Fire/Explosion Hazards
_x_ Electrical Hazards
___ Biological Hazards

___ Other Hazards
_x_ Chemical Hazards

RECORD KEEPING

As appropriate, designated record keeping forms will be used to document medical approval for respirator use, respirator fit-testing, and Site-specific PPE training for each individual that is perform field work on the project.

PPE FOR NON-CHEMICAL HAZARDS

The table below describes the required PPE for each non-chemical hazard.

General Hazard Category	*Required PPE*	*Special PPE Use Considerations*
Excavation	Level D, with upgrade to level C as conditions prescribe	Refer to ALRT tables, pp 38-39
Noise	Hearing protection, including ear inserts or headphones	None
Fire/explosive	Level D. Use protective equipment if monitoring indicates combustible gas concentrations approaching 20% of LEL for methane or other combustible gases.	Refer to ALRT tables, pp 38-39
Electrical	Use insulated, non-sparking equipment	None
Heat Stress	As specified in Part 3B of this H&S Document	Identify signs of problem and react accordingly

PPE FOR CHEMICAL HAZARDS

Background Information

To prescribe PPE requirements, guideline ranges of chemical concentrations are established to set lower and upper limits for required PPE use. More specifically, corresponding with each level of PPE (A, B, C, and D), "trigger levels" and "upper limits" should be developed for each chemical and combination of chemicals (as appropriate) that are thought to exist on site and pose a significant danger to the health or safety of the workers. A "trigger level" is the chemical concentration at or near which a higher level of PPE must be donned for effective protection.

Realistic trigger levels and upper limits have been developed to provide adequate protection to workers, based on the following:

- Existing regulatory limits (see NIOSH pocket guide),
- Sample point locations,
- Available monitoring technologies,
- The perceived degree of hazard at the site,
- Practicable feasibility, and
- Cost-effectiveness.

MONITORING WORKER EXPOSURE

In accordance with 29CRF 1910.120 (h)(1)(i), GTE recommends air monitoring when "...there may be a question of employee exposure to elevated concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices and personal protective equipment so that employees ar not exposed to levels which exceed permissible exposure limits or published exposure levels for hazardous substances."

CLEARANCES FOR PPE USE

Not only must personnel be trained (e.g., OHSA 40-hour course and refresher) improper PPE use, they also must have received medical clearance from a physician to use respiratory protection.

In addition, each worker involved in projects requiring respirator use should be assigned his/her own respirator. Individualized fit-testing of respirators is an essential part of a respiratory protection program. Prior to initiation of site work PMs should see that any needed fit-testing is done by a qualified individual (e.g, the HSO for the NAME project) in accordance with the procedures set forth in Appendix C of OSHA's 29 CFR 1926.58.

Training status for personnel involved with the NAME project are provided in Section 2C of this H&S document.

The tables below indicate the level of PPE required and the specific protective equipment that will be used within a certain concentration range for each hazardous chemical suspected at the reliance site.

ACTION LEVEL RESPONSE TABLE (ALRT) INITIAL MONITORING

Chemical or Material	Safe Range	Monitoring Methods	Action Level	Protective Measures
Total Volatiles (non-methane hydro-carbons)	<100 ppm	PID	>100 ppm (sustained for 10 sec.)	If levels >100 ppm, use draeger tubes for chemical delineation. All non-essential personnel should remain away work area.
Combustibles	<20% LEL	CGI	>20% LEL (sustained)	Remove all ignition sources. Ventilate work area. All non-essential personnel should remain outside building footprint until conditions deemed safe.

ACTION LEVEL RESPONSE TABLE (ALRT)
CHEMICAL-SPECIFIC MONITORING

Chemical or Material	Safe Range	Monitoring Methods	Action Level	Protective Measures
Benzene	<1 ppm	Draeger Tube	<1 ppm (confirmed at least two times)	Ventilate and evacuate work area for at least 15 minutes, then re-sample. If levels still >1 ppm, upgrade to level C PPE. If level >50 ppm for 15 minutes, implement emergency response (see Part 4F).
Toluene	<200 ppm	Draeger Tube	>200 ppm (confirmed)	Ventilate and evacuate work area for at least 15 minutes, then re-sample. If levels still >1 ppm, upgrade to level C PPE. If level >50 ppm for 15 minutes, implement emergency response (see Part 4F).
Ethylbenzene	<100 ppm	Draeger Tube	>100 ppm (confirmed)	Ventilate and evacuate work area for at least 15 minutes, then resample. If levels still >100 ppm, upgrade to level C PPE. If level >200 ppm, implement emergency response (Part 4F).
Xylene	<100 ppm	Draeger Tube	>100 ppm (confirmed)	Ventilate and evacuate work area for at least 15 minutes, then resample. If levels still >100 ppm, upgrade to level C PPE. If level >200 ppm, implement emergency response (Part 4F).

PART 4C - WORK ZONES

WORK ZONE CRITERIA

The space provided below describes the criteria used to determine the boundaries between the different work zones (e.g., physical and topographical features; air dispersion calculations; and potential for fire, explosion, and/or flying debris; etc.) at the Project Site. Refer also to work zone map on page 42 of this H&S Document.

Initial work areas zones are set up for work commencement. The boundaries for these zones will be modified by the PM based upon air monitoring data collected upon project start-up.

1. EXCLUSION ZONE - The zone of all active remedial activity and/or areas with air monitoring indicates organic vapors or combustible gas levels in the detectable range. The exclusion zone is expected to run from: the area of active excavation for both Phases 1 and 2 to concentric circle roughly 10 feet outward of the excavation in all directions; the concentric circle roughly 10 feet in all directions from the contaminated soil stockpile area and the remediation bed.

2. DECONTAMINATION ZONE - The zone of decontamination is that where no heightened organic vapor/combustible gas levels are detected on the instrument used for air screening. This zone is to be used for mandatory cleaning of field equipment and of personnel, if necessary. The decontamination zone is defined at project outset as an area roughly 20 feet outward in a concentric circle from its boundary with the exclusion zone, to the extent that this zone does not encroach into the public right-of-way on Roberts Avenue.

3. SUPPORT ZONE - The zone where neither active remedial activity nor decontamination is taking place is defined as the support zone. This area is to be used for all administrative and communication functions, along with reliance employee and pedestrian passage.

The following chart summarizes the work zone criteria on the proceeding page.

WORK ZONE CHART

Zone	Describe Zone Location	Describe Zone Operation	Describe Monitoring/ Sampling Program
Exclusion Zone	Refer to map on following page.	All excavation, soil and ground water remedial activity	Refer to ALRT Table of this H&S Document
Decontam-ination Zone	Refer to map on following page.	Decontamination emergency response	Refer to ALRT Table of this H&S Document
Support	Refer to map on following page.	All administrative, communication activities	N/A
Others			

PART 4D - SANITATION, DECONTAMINATION, AND DISPOSAL

SANITATION

Rest room and water facilities are located **INSERT INFORMATION.**

DECONTAMINATION OPERATIONS

Decontamination stations, equipment and procedures will be determined by the PM or the onsite HSO based on the specific phase and remediation activity.

> ***At the NAME site, personnel and equipment may come into contact with soil or water contaminated by fuel constituents. Recommended decontamination operations are outlined in the chart below. During the course of the project, if a need arises to update the decontamination procedures due to identification of new level of hazard, this chart will be revised as necessary.***

DECON STATION (Specify station number and purpose)	**DECON PROCEDURES** (associated with the station)	**EQUIPMENT NEEDED** (specify kind, size, and qty.)
1. Decontamination Zone	to be determined by PM for specific phase and activity of remediation	to be determined by PM
Contaminant removal - personnel	remove contaminated clothing and protective gear	Soap/water solution or water rinse
Contaminant removal - equipment	steam clean/rinse	Steam cleaner and containment basin

NOTES: To prevent contact with contaminated soil or ground water, standard work practices should include:

- Minimize direct contact with areas of obvious fuel contamination.
- Use remote sampling and handling techniques.
- Wear disposable outer garments and use disposable equipment where appropriate.
- Protect monitoring and sampling equipment with plastic covers.

DISPOSAL PROCEDURES

Generally, contaminated materials generated through decontamination are left at the site and are the responsibility of the site owner and/or the remediation contractor. Recommended disposal procedures are as follows:

- Disposal materials used for PPE and sampling should be discarded in closed plastic bags to avoid cross-contamination of soils.
- Owner and/or remediation contractor will assume responsibility for proper handling, transport, manifests and disposal of all hazardous and non-hazardous waste materials, including but not limited to : free product skimmed from the open excavation; treatment or purged ground water; and excavated soils/debris not suitable for backfill.

Refer also to the companion Project Work Plan for protocols on testing and treatment of excavated soils.

PART 4E - MEDICAL EXAMINATIONS

The chart below outlines the general class(es) of testing/medical examinations to which project personnel may be subject as a result of working on this project. Applicable items are checked as appropriate. these examples were obtained from the NIOSH/OSHA/USCG/EPA Occupational Safety and Health guidance Manual for Hazardous Waste Site Activates (1985). The specific content of a medical examination will largely depend on the target organs of the hazardous substance, the likely longevity of the material in the body, and the cumulative HAZMAT exposures of particular individual.

_x_ aromatic hydrocarbon screening (e.g., medical exam with focus on liver, kidney, nervous system, and skin; complete blood count [CBC]; platelet count, measurement of kidney and liver function)

___ Halogenated aliphatic hydrocarbon screening (e.g., medical exam with focus on liver, kidney, nervous system, and skin; testing of liver and kidney function; carboxyhemoglobin)

___ Asbestos screening (e.g., medica exam with focus on lungs and gastrointestinal system; stool test for occult blood; pulmonary function test; chest X-ray)

___ Heavy metals screening (e.g., medical exam with focus on possible symptom clusters; metals screening in blood, urine, and/or tissues; CBC; measurement of kidney and liver function; chest X-ray or pulmonary function testing)

___ Herbicide screening (e.g., medical exam with focus on skin and nervous system; measurement of kidney and liver function; urinalysis)

___ Organo-phosphate and carbamate insecticide screening (e.g., physical exam focusing on the nervous system, cholinesterase screening, measurement of delayed neurotoxicity and other effects)

___ Organochlorine insecticide screening (e.g., medical exam with focus on the nervous system; measurement of kidney and liver function; CBC for exposure to chlorocyclohexanes)

___ PCB screening (e.g., skin and liver exam, serum PCB levels, triglycerides, liver function measurement)

___ Other _____

Project employees should note the above information and have it in mind during their physical examinations. the should discuss their known or suspected chemical exposures from various projects with the physician.

PART 4F - EMERGENCY RESPONSE PROCEDURES

EMERGENCY COMMUNICATIONS

Emergency communications equipment will be available or provided at the Diversified Loan Services Site to notify field personnel and local authorities of an emergency. At lease one cellular telephone will be kept on site during all facets of the project.

Other methods of communication include:

- Routine safety meetings or updates will clearly specific emergency notification procedures and employee actions.
- Use of air horns, vehicle horn and/or lights, or colored flags as the preferred on-site emergency notification of Reliance or remedial contractor employees.

- The PM of HSO will immediately report emergencies by notifying appropriate local authorities, including police, medical, fire and outside emergency response (HAZMAT) teams, if needed. **The local emergency response telephone number is 911.**

In an emergency situation, the PM, FS, or HSO, if present, or other designated management personnel, will be in charge of controlling and managing site and emergency response operations (reference Part 2D of this H&S Document). Only one official shall be in charge; this person will be so designated in the start of the work day.

An incident command center shall be established outside the area of emergency response operations, and all actions and communications shall be coordinated through this person, or as delegated by him/her. A staging area for personnel will be established in the parking area.

RESPONSE TO ELEVATED COMBUSTIBLE GAS CONCENTRATIONS

Monitoring for combustible gas accumulation (methane or gasoline vapors) will be performed in accordance with the provisions outlined in Sections 1A, 3C, and 4B of this H&S Document.

If results of monitoring indicate combustible gas concentrations approaching 20% of the LEL for methane or other combustible gases (measure with CGI calibrated to hexane), the following steps will be taken:

- All ignition sources will be removed from the work area.
- Steps will be taken to ventilate the work area. Air blowers or fans (explosion proof motors will be used for this purpose.
- If access to the work area is needed to isolate or contain the combustible gas source, workers will be fitted with appropriate respiratory/protective hear and monitoring equipment (reference Section 4B of this H&S Document).
- Other remediation personnel will not return to the work area until conditions are deemed safe.

If combustible gas concentrations within the explosive range are detected, as defined in Part 3E of this H&S Document, the following steps will be taken:

- All remediation contractor personnel will be evacuated from the work zone to an upwind location.
- Call for assistance from the City Fire Department (911).
- The work area will be secured to isolate the hazard and deny entry.

Ventilation is not recommended if combustible has concentrations exceed the UEL, since the mixture will pass through the flammable/explosion range as diluted.

RESPONSE TO ELEVATED CONCENTRATIONS OF HYDROCARBON VAPORS

Monitoring for volatile organic vapors (non-methane hydrocarbons, as measured with a PID) will be performed in accordance with the provisions outlined in Sections 1A, 3C and 4B of this H&S Document. If results of monitoring indicate sustained hydrocarbon readings above 100 ppm, the following steps will be taken:

- All non-essential remediation contractor personnel will be evacuated form the work zone, to an upwind location as deemed necessary by the PM, FS, HSO, or designate.
- Chemical-specific sampling for benzene, toluene, ethylbenzene and xylene will be performed using draeger tubes or comparable field sampling equipment. Refer to Part 4B of this H&S Document.
- Steps will be taken to ventilate the work area as described above. Air blowers or fans (explosion proof motors) will be used for this purpose.
- Pending results of chemical-specific sampling, workers will upgrade to appropriate PPE levels as specified in the ALRT Table in Section 4B of this H&S document.
- Other remediation personnel will not return to the work area or warehouse until conditions are deemed safe by the PM, FS, HSO or designate.

FIRE

In the event of a fire, the procedures are to:

- Maintain the safety of remediation or Site personnel in the immediate vicinity of the fire.
- Call for assistance from the City Fire Department (911).
- If it can be dine safely, proceed to extinguish the blaze with portable fire fighting equipment.

ACCIDENT OR INJURY

Depending on the severity of the injury, treatment may be given at the site by trained personnel (additional assistance from an emergency medical technician may be required). The victim may have to be transported to the hospital. The location of the nearest hospital is provided in section 2B of this H&S Document.

SPILL CONTAINMENT

Provisions for the control and containment of accidentally spilled hazardous materials are necessary in order to prevent undue exposure of the public to health hazards. Such incidence could occur during:

- Excavation and transport of saturated, contaminated soils.
- Removal of free product from ponded ground water (skimming).
- Leaching of saturated soils in the soil drying area.

Traditional methods of containment shall be employed by the remediation contractor. Examples of effective techniques including dikeing or ditching to surround a spill, or the application of adsorbents such as sawdust or diatomaceous earth. In addition, soil stockpile areas shall be appropriately berried and/or lined to prevent leaching or spills.

Workers should avoid intimate contact with any spilled hazardous materials. Specially trained emergency response crews should be called in any time: (1) a large volume of material is spilled; (2) spills cannot be readily contained or threaten natural waterways: (3) or spilled materials or hazardous or reactive.

SITE EVACUATION

The PM, HSO or designated person will be responsible for determining if circumstances exist which require evacuation of the Site work area or vicinity, and should always assume worst-case conditions until proven otherwise. Specific evacuation procedures will be addressed in the H&S training session prior to the beginning of work, and are generally summarized below.

Three stages of evacuation are as follows:

- Withdraw from immediate work zones.
- Withdraw from site.
- Withdraw from area.

Withdraw from Immediate Work Zones

Withdrawal to a safe upwind location will be required if any of the following occur:

- Concentrations of volatile organics are detected above safe levels for the protection employed. Criteria for monitoring are specified above and in Part 4B of this document.
- Occurrence of a minor accident. Field operations will resume after first id and/or decontamination procedures have been administered.
- Equipment (including protective clothing) or respirator malfunctions.

Withdraw from Site

The site will be evacuated in the following circumstances:

- Potentially explosive levels of combustible gases exceeding 20 percent of the LEL are detected during routine monitoring.
- Air screening with a PID indicates concentrations of total organic compounds in excess of 100 ppm at distances of 20 ft or more from an open excavation.
- A major accident or injury occurs.
- A fire and/or explosion occurs.

Withdraw from Area

The PM, HSO or other designated person is responsible from determining if circumstances exist for an area-wide evacuation, and should always assume worst-case until proven other wise. Fire and police departments must be notified immediately.

HEAT STRESS

Hazards associated with heat stress and methods of prevention are identified in Section 3B of this H&S Document. First aid measures are as follows:

- **Heat stroke.** First aid should be directed toward immediate measures to cool the body quickly. Take care, however, to prevent over-chilling of the victim once body temperature reaches 102 degrees F. the following measures ar applicable whenever the body temperature reaches 105 degrees F:

  - Undress the victim and, using a small bath towel to maintain modesty, repeatedly sponge the bare skin with cool water or rubbing alcohol; or apply cold packs continuously; or place the victim in cold water (do not add ice) until the victim's temperature is lowered sufficiently. sufficiently. Dry the victim off when the body temperature is sufficiently reduced.

  - Use fans or air conditioners, if available, to promote cooling.

  - If the victim's temperature begins to rise again, repeat the above steps.

  - Do not give the victim stimulants.

- **Heat cramps.** Exert firm pressure on the cramped muscles, or gently massage them to help relieve the spasm. Give the victim sips of salt water (one teaspoon per glass), half a glass every 15 minutes, over a period of an hour.

- **Heat exhaustion.** Give the victim salt water as described above. Have the victim lie down and raise his/her feet from 8 to 12 inches. Loosen the victim's clothing and apply cool, wet cloth, fan the victim, or remove him/her to an air conditioned room.

- **Heat rash.** Decrease the amount of time in protective hear, and provide power to help absorb moisture and decrease chafing.