Environmental Compliance Division

To: Barney Chan
Alameda County Health Care Services Agency
Environmental Protection
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502-6577

Date: Oct. 6, 2000

From: Janie Layton, Environmental Compliance Manager

Subject: Health and Safety Plan for Parking Lot Improvements on BART Fruitvale Station Area Property

Mr. Chan:

Attached is a copy of the subject plan we discussed by telephone. Gary Jensen of my staff is currently reviewing it and will be contacting you to coordinate a time next week to discuss the plan and any potential concerns you may have. I have passed on to him the periods next week where you expect to have some time available.

We appreciate your quick turnaround on this and making yourself available to us on short notice. I will be out of the office next week but Gary can be reached at 650-689-8439. Thanks again for your assistance.

Janie Layton

Health and Safety Plan

Parking Lot Improvements

Oakland, California

Prepared for

O. C. Jones & Sons
1520 4th Street
Berkeley, California 94710
(510) 526-3424

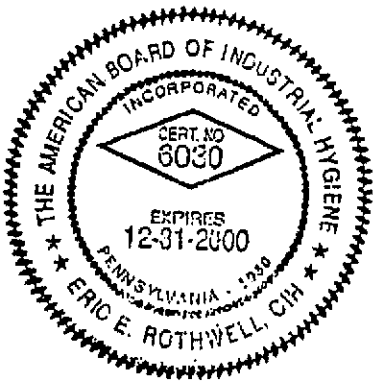
Prepared by

Rothwell Consulting, Inc.
1500 Park Avenue, Suite 308
Emeryville, California 94608
(510) 985-1045

October 3, 2000

CIH Statement

This plan has been prepared according to California Title 8 CCR Section 5192, Hazardous Waste Site Operations and Emergency Response, California Title 8 CCR Section 1532.1 - Inorganic Lead, Section 5214 - Inorganic Arsenic as well as the applicable provisions of the Construction Industry Standard. It is written as a guide to performing work activities in a manner that reduces the probability of employee overexposure to lead hazards found at the site. Any changes to this plan must be made by or at the consent of the Certified Industrial Hygienist.



Eric Rothwell, CIH

Signature Page

I have read, understand, accept and will abide by all provisions of this Health and Safety Plan. I also agree to inform my supervisor of any conditions that are or appear to be unsafe.

Name (Printed)	Signature	Company	Date

Table of Contents

1. Introduction

This Health and Safety Plan (HASP) was developed for O. C. Jones & Sons by Rothwell Consulting, Inc. (RCG) for the Bay Area Rapid Transit (BART) Fruitvale Transit Village development project. The site is located on the former Union Pacific Railroad along East 10th Street between Derby Avenue and Fruitvale Avenue in Oakland, California. This HASP is prepared subsurface construction activities to be performed by O.C. Jones & Sons and their subcontractors at the project location in areas that are contaminated with lead and arsenic.

This HASP establishes the policies and procedures that protect the workers and the general public from potential health and safety hazards posed at this site. All remedial activities will be conducted in a manner that minimizes the probability of injury, illness, property damage, or damage to the environment and will be performed in accordance with the contractor's Injury and Illness Prevention Program. This HASP is prepared in accordance with and in reference to the following regulations, guidelines, and documents:

- United States Department of Labor, OSHA standards, specifically:
  - Title 29 CFR Part 1910.120 - Hazardous Waste Site Operations and Emergency Response
  - Title 29 CFR Part 1926 - Health and Safety Regulations for Construction
- California Occupational Health and Safety Regulations, specifically:
  - Title 8 CCR §5192 - Hazardous Waste Site Operations and Emergency Response
  - Title 8 CCR §5094 - Hazard Communication
  - Title 8 CCR §5095-5100 - Hearing Conservation
  - Title 8 CCR Chapter 4, Subchapter 4 - Construction Safety Orders
  - Title 8 CCR §3203 - Injury and Illness Prevention Program
  - Title 8 CCR §1532.1 - Inorganic Lead
  - Title 8 CCR §5214 - Inorganic Arsenic
- United States Environmental Protection Agency's Standard Operating Safety Guides, July 1988.
- NIOSH/OSHA/USCG/EPA Occupational Health and Safety Guidance Manual for Hazardous Waste Activities, October 1985.

Since site conditions are subject to change and unforeseen conditions may arise, amendments or additions may need to be made to this HASP during the course of work. Modifications to this plan can only be made by the Contractor with the assistance of the Certified Industrial Hygienist.

2. Description of Site

Just the northern parcel

The project site is located along the former Union Pacific Railroad right of way adjacent to East 10th Street between Darby Avenue and Fruitvale Avenue in Oakland, California. The work performed by O.C. Jones & Sons and their subcontractors will include installation of wood light poles, some shallow underground installations (<3

feet deep), and subgrade preparation on the northern half of the project site. No remedial action or site cleanup is intended and no soil will leave the site. North half

A site investigation was performed by Applied Remedial Services, Inc. (ARS) in July 1999 for the owners of the property, Fruitvale Development Corporation, Inc. Subsurface soil samples were collected along the centerline of the property and were analyzed for several common contaminants including lead and arsenic.

2.1 Site Conditions

Total lead concentrations in the samples collected in the intended work area ranged from 18 mg/kg to 41 mg/kg. The mean lead concentration was well below the Cal/EPA OSA human health risk designation concentration of 130 mg/kg. Total arsenic concentrations in the samples ranged from 12 mg/kg to 54 mg/kg. The mean arsenic concentration was well below the EPA Region 9 Preliminary Remediation Goal (PRG) for industrial soils of 440 mg/kg. None of the Title 22 metals exceeded their respective TTLC limits.

2.2 Risk Assessment

Based on the results of the investigative report, it appears that no soil contamination exists that could pose a significant health threat to workers performing the aforementioned tasks at the site. However, since work conditions are subject to change, and unforeseen circumstances and substance encounters may arise, amendments or additions to this HASP may be needed during the course of work.

2.3 Pathways for Hazardous Substance Dispersion

Hazardous substances may have been and could possibly be dispersed from the source by air. Further dispersion by air will be controlled using dust control measures, work zones, and perimeter fencing.

2.4 Health and Safety Plan Availability

This Health and Safety Plan will be made available to any contractor or subcontractor or their representative who will be involved with the work operation. It will also be made available to employees, to employee designated representatives, to Division representatives, and to personnel of other federal, state, or local agencies with regulatory authority over the site.

3. Team Composition

The organizational structure part of this plan establishes the specific chain of command and specifies the overall responsibilities of supervisors and employees. The organizational structure will be reviewed and updated as necessary to reflect the current status of site operations. The key project personnel are shown below in Table 1.

Table 1 – Key Project Personnel

Diane Schotka	Project Manager *O. C. Jones & Sons*	Office: (510) 526-3424
Eric Rothwell, CIH	Certified Industrial Hygienist *Rothwell Consulting, Inc.*	Office: (510) 985-1045 Mobile:(510) 693-8093

4. Comprehensive Work Plan

4.1 Objectives

This Work Plan outlines the activities involved in the excavation and placement of soil with very minor lead impacts. It is noted that variations in the extent and degree of contamination may occur within the project limits beyond the points explored. It is acknowledged that the contractor will notify the Engineer immediately of any variation uncovered by the work as soon as any such variation becomes known.

4.2 Expected Site Activities

The work activities involving soil contaminated with aerially-deposited lead will consist of the following:

- Establishing site security and fencing as necessary;
- Performing surface and subsurface excavation;
- Installing wooden light poles;
- Performing paving operations;
- Conducting air monitoring, as necessary.

4.3 Work Plan Procedures

4.3.1 Safety Meetings

Prior to beginning contaminated soil excavation activities at the site, a safety meeting will be conducted. This initial site safety meeting will address the hazards of the site and provisions for reducing the hazards as presented in this plan. The meeting will also be used for planning the various stages of the work and to disseminate relevant information contained in this plan to subcontractors working in the vicinity of the remedial activities discussed herein.

Tailgate safety meetings will occur weekly and will be recorded on a tailgate safety meeting form. Topics will include but will not be limited to the following:

- The previous week's work activities
- Safety concerns brought about by these activities
- Anticipated stages of work for the week
- Changes in scope or original work

- Introduction and orientation of new employees (if any)
- Review of previous week's sampling or analytical results
- Lines of communication
- Evacuation routes
- Changes in protection levels

4.3.2 Perimeter Establishment

Perimeter for heavy equipment activity?

Due to the relatively low soil contaminant levels, no perimeter or work zones are required during work operations at the site. Should any suspected or known soil contamination be found during the course of work, a secure perimeter will be established around the impacted area until modifications can be made to the Health and Safety Plan.

4.3.3 Clearing and Grubbing

At areas where clearing and grubbing of vegetation must occur, reasonable effort will be made to separate soil from vegetation. The clearing of these areas will take place in such a way as to prevent the creation of visible dust.

any spraying w/ water?

Excess soil will be removed from roots prior to removal of the vegetation from the site. This soil will remain in place and will not be handled or disturbed (beyond clear and grub operations) by workers or personnel other than those trained and certified as per described in this plan.

Yes
Section 4.4

4.3.4 Demolition and Offhaul of Concrete and Asphalt

Unless specifically identified, any broken concrete or asphalt generated at this site by excavation activities will not be considered contaminated. However, concrete demolition and removal activities will occur in such a way as to minimize dust generation.

4.3.5 Excavation Procedures

All soil excavation, transportation, and placement operations will result in no visible dust. The material will either be loaded into trucks for on-site placement or will be placed in a stockpile for future management.

All excavation will occur according to the procedures outlined in the safe practices listed below. The contractor has acquired an annual trenching permit as required by the California Division of Occupational Safety & Health for work in excavations. The California Division of Occupational Safety & Health will also be notified of all trenching activities that require notification. While not anticipated, excavations requiring shoring will be designed and approved by a Registered Civil Engineer prior to entry by site personnel.

All personnel who may be required to enter an excavation must have received training in excavation safety procedures prior to entry. An excavation Competent Person will

be present at the site whenever employees enter excavations requiring such a person.

4.3.6 Characterization and Stockpiling Procedures

Soil sampling results from the site investigation report may be used to determine the re-use criteria for the soil. At locations where testing was not performed to the full depth of excavation (or boring), soil will be handled as contaminated unless further soil sampling is performed and the material has been characterized.

reuse criteria?

4.3.7 Loading of Soils

When transporting excavated soils, all material will be wetted as necessary prior to loading to suppress dust. The loader operator will signal when each driver's truck is in position and ready to load. After the loading is completed, the loader operator will again signal indicating that the truck may to proceed to the next station. Vehicles will be loaded carefully to minimize spillage onto the sides of the trailer.

4.3.8 Site Cleanup

Site cleanup will be accomplished, when necessary, by means that will eliminate exposures to dust and other potentially harmful substances. Examples of such cleanup are as follows:

Material will be removed from the exteriors of transportation vehicles prior to the vehicle leaving the site. Material removed from the exteriors of vehicles will be placed either into the vehicle for transport or will be placed back into the stockpile from which it came. No material will be deposited on public roadways.

Stockpile areas placed on asphalt or concrete will be moist broomed following removal of the stockpile and the accompanying barrier.

4.4 Safe Work Practices for Working with Contaminated Soils

The following work practices will be adopted for work at this site that involves handling, moving, transporting, testing, or coming into contact with soils containing elevated levels of contaminants.

- Keep blowing dust to an absolute minimum with water or other approved dust reducing agents.
- Minimize contamination by using protective/sacrificial clothing and footwear (rubber boots/jobsite only boots) that is used on jobsite only. Store this clothing on the jobsite or in a manner that will prevent contamination. Clean boots before leaving jobsite.
- Prevent soil ingestion by not eating, smoking, or drinking near work operations. Wash hands and face before eating, drinking, smoking, or using bathroom. This requires an adequate supply of wash water, soap, and towels on site.) Store food and water so it will not be contaminated.

- Read and review the Health and Safety Plan.

5. Personnel Training Requirements

All employees working on site during the removal of contaminated soils who may be exposed to hazardous substances, health hazards, or safety hazards, and their supervisors responsible for the hazardous substance removal at the site will receive training meeting the requirements of this section before they are permitted to engage in hazardous waste operations that could expose them to hazardous substances, safety, or health hazards. They will also receive annual refresher training as specified in this section.

Employees will not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

5.1 Hazard Communication Training

Information concerning potential soil contaminants will be communicated to all employees according to the requirements of OSHA's Hazard Communication Standard for the construction industry, Title 29 CFR 1926.59, including signs and labels, material safety data sheets (MSDS), and employee information and training. In addition, the following requirements will be followed:

- A training program in accordance with this section will be provided for all employees working in areas with hazardous levels of lead and arsenic.
- The training program will be provided to all affected employees prior to the time of job assignment.

Each employee requiring training will be trained in the following:

- The specific nature of the operations which could result in exposure to soil contaminants.
- The purpose and a description of the medical surveillance program, and the medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant).
- Information concerning the adverse health effects associated with excessive exposure to arsenic (with particular attention to its carcinogenicity).
- The engineering controls and work practices associated with the employee's job.
- The employee's right of access to records under Title 29 CFR 1910.20.

6. Medical Surveillance Program

While not required initially, a medical surveillance program may be required if hazardous substances are encountered at concentration exceeding the permissible exposure limits (or action level for lead). A medical surveillance program will be instituted for the following employees:

- Any employee who is or may be exposed to hazardous substances or health hazards at or above the Permissible Exposure Limits or, if there is no Permissible Exposure Limit above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.
- Any employee who wears a respirator during any part of a day for a period of 30 days or more in a year, or as required by 8 CCR 5144.
- Employees exhibiting symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation.

6.1 Frequency of Medical Examinations and Consultations

The employer will also make medical examinations and consultations available to each employee covered under Section 5.0 on the following schedules:

- Prior to assignment.
- At least once every twelve months for each employee covered, unless the attending physician believes a longer interval (not greater than biennially) is appropriate.
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months.
- As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards or that the employee has been injured or exposed above the Permissible Exposure Limits or published exposure levels in an emergency situation.
- At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary.

For employees who may have been injured, received a health impairment, developed signs or symptoms which may have resulted from exposure to hazardous substances resulting from an emergency incident, or who have been exposed during an emergency incident to hazardous substances at concentrations above the Permissible Exposure Limits or the published exposure levels without the necessary personal protective equipment being used will undergo a medical examination:

- As soon as possible following the emergency incident or development of signs or symptoms;
- At additional times, if the examining physician determines that follow-up examinations or consultations are medically necessary.

6.2 Content of Medical Examinations or Consultations

If necessary, the content of initial medical examinations will contain, at a minimum, the following:

1. A work and comprehensive medical history, including smoking history;
2. A physical examination with special attention to skin, nose, respiratory tract, lymph nodes, nervous system, and liver;
3. Posterior-anterior chest X-ray (14-inch x 17-inch);
4. Blood lead and ZPP;
5. A sputum cytology examination and;
6. Other examinations which the physician believes appropriate because of the employee's exposure to inorganic arsenic or because of required respirator use.

6.3 Examination by a Physician

All medical examinations and procedures will be performed by or under the supervision of a licensed physician certified in occupational medicine by the American Board of Preventative Medicine.

6.4 Information Provided to the Physician

The employer will provide one copy of this standard and its appendices to the attending physician, and in addition, the following for each employee:

- A description of each employee's duties as they relate to the employee's exposures.
- Each employee's exposure levels or anticipated exposure levels.
- A description of any PPE used or to be used by each employee.
- Information from previous medical examinations of each employee which is not readily available to the examining physician.
- Information required by 8 CCR 5144 for each employee.

6.5 Physician's Written Opinion

The written opinion obtained by the employer will not reveal specific findings or diagnoses unrelated to occupational exposures. The physician will provide the results of the medical examination and tests to the employee if requested. The employer will obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

- The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use.
- The physician's recommended limitations upon the employee's assigned work.
- A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions which require further examination or treatment.

6.6 Medical Surveillance Recordkeeping

An accurate record of the medical surveillance will be retained. This record will be retained for the period specified and meet the criteria of 8 CCR 3204. The record will include at least the following information:

- The name and social security number of the employee.
- Physician's written opinions, recommended limitations, and results of examinations and tests.
- Any employee medical complaints related to exposure to hazardous substances.
- A copy of the information provided to the examining physician by the employer, with the exception of the standard and its appendices.

7. Site Safety Meetings

Tailgate safety meetings will be held prior to the start of work and weekly thereafter. Topics to be discussed will include health and safety hazards associated with the day's activities and any safety-related issues from the previous week's work.

Pre-job briefings will be held prior to initiating any site activities, and at such other times as necessary to ensure that employees are apprised of the site Health and Safety Plan and that this plan is being followed.

For operations defined as hazardous substance removal work, a pre-job health and safety conference will be held before the start of actual work. The conference will include representatives of the owner, the contractor, the employer, employees, and employee representatives. The conference will include a discussion of the employer's health and safety program and the means, methods, devices, processes, practices, conditions, or operations which the employer intends to use in providing a safe and healthy place of employment.

Visitors who are find it necessary to enter the site must receive a short orientation covering the relevant safety information contained in this plan.

7.1 Documentation of Site Safety Meetings

A detailed record of each safety meeting and health and safety conference will be made on the Safety Meeting Form. Visitor training will also be recorded on this form.

8. Site Characterization and Hazard Evaluation

The site was previously characterized by the owner to identify any environmental contaminant and evaluate their human health risks. This information was evaluated to determine the appropriate health and safety control procedures needed to protect employees from the identified hazards during remedial activities.

8.1 Chemical Hazards

The substances listed below have been identified in the soil in the construction area. Also shown are the physical properties and health effects of each of the contaminants.

8.1.1 Arsenic

Elevated levels of arsenic were found at various locations in the Shellmound Properties and the Barbary Coast site. Arsenic is found in nature at low levels. It's mostly in compounds with oxygen, chlorine, and sulfur. These are called inorganic arsenic compounds. Most arsenic compounds have no smell or special taste. Inorganic arsenic compounds are mainly used to preserve wood. They are also used to make insecticides and weed killers. Copper and lead ores contain small amounts of arsenic. High levels of inorganic arsenic (60 ppm) in food or water can be fatal. Arsenic damages many tissues including nerves, stomach and intestines, and skin. Breathing high levels can give you a sore throat and irritated lungs. Lower levels of exposure to inorganic arsenic may cause nausea, vomiting, decreased production of red and white blood, abnormal heart rhythm, blood vessel damage, and a "pins and needles" sensation in hands and feet. Long term exposure to inorganic arsenic may lead to a darkening of the skin and the appearance of small "corns" or "warts" on the palms, soles, and torso. Direct skin contact may cause redness and swelling. The Department of Health and Human Services (DHHS) has determined that arsenic is a known carcinogen. Breathing inorganic arsenic increases the risk of lung cancer. Ingesting inorganic arsenic increases the risk of skin cancer and tumors of the bladder, kidney, liver, and lung.

Routes of Exposure
Inhalation
Ingestion
Skin contact hazard (local effects)

Occupational Exposure Limits
0.01 mg/m^3 (PEL)

8.1.2 Lead

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. It has no special taste or smell. Lead can be found in all parts of our environment. Most of it came from human activities like mining, manufacturing, and the burning of fossil fuels. Lead has many different uses, most importantly in the production of batteries. Lead is also in ammunition, metal products (solder and pipes), roofing, and devices to shield x-rays. Because of health concerns, lead from gasoline, paints and ceramic products, caulking, and pipe solder has been dramatically reduced in recent years.

When lead enters the environment it does not break down, but sunlight, air, and water change lead compounds. When released to the air from industry or burning of fossil

fuels or waste, it stays in air about 10 days. Most of the lead in soil comes from particles falling out of the air. City soils also contain lead from landfills and leaded paint. Lead sticks to soil particles. It does not move from soil to underground water or drinking water unless the water is acidic or "soft". It stays a long time in both soil and water.

Lead can affect almost every organ and system in your body. The most sensitive is the central nervous system, particularly in children. Lead also damages kidneys and the immune system. The effects are the same whether it is breathed or swallowed. Exposure to lead is more dangerous for young and unborn children. Unborn children can be exposed to lead through their mothers. Harmful effects include premature births, smaller babies, decreased mental ability in the infant, learning difficulties, and reduced growth in young children. These effects are more common after exposure to high levels of lead. In adults, lead may decrease reaction time, cause weakness in fingers, wrists, or ankles, and possibly affect the memory. Lead may cause anemia, a disorder of the blood. It can cause abortion and damage the male reproductive system. The connection between these effects and exposure to low levels of lead is uncertain.

Routes of Exposure
Inhalation
Ingestion

Occupational Exposure Limits
0.05 mg/m^3 (PEL)
0.03 mg/m^3 (AL)

PEL: Permissible Exposure Limit as an 8-hour time-weighted average.
C: Ceiling Limit that should never be exceeded during any part of the workday.
AL: Action Level that requires specific training, PPE, and medical surveillance.
†† This indicates the most likely route of occupational exposure. While ingestion can be a route of exposure in nearly every instance, it is unlikely in the occupational setting when using effective decontamination procedures and good work practices.

8.2 Physical Hazards

O. C. Jones & Sons has developed an Injury and Illness Prevention Program with standard operating procedures to minimize physical hazards. Hard hats and safety shoes are required in all areas of the site. The following are physical hazards that may be present at the site:

- Tripping, Slipping, and Falling Hazards
- Head, Eye, and Back Injuries
- Falling Objects
- Heavy Equipment and Traffic
- Electrical Hazards
- Noise
- Biting, Stinging Insects

- Weather and Heat Stress
- Excavations
- Trenches

Refer to the company Injury and Illness Prevention Program for the control measures to be implemented for each type of physical hazard.

9. Site Control Program

Due to the relatively low lead concentrations on the soil, no perimeter or work zones are required during work operations at the site. Should any suspected or known soil contamination be found during the course of work, a secure perimeter will be established around the impacted area until modifications can be made to the Health and Safety Plan.

10. Personal Protective Equipment

Hard hats and safety vests are required at the site at all times. Due to the relatively low lead concentrations on the soil, no special personal protective equipment is required during work operations at the site. Should any suspected or known soil contamination be found during the course of work, a secure perimeter will be established around the impacted area until modifications can be made to the Health and Safety Plan.

11. Air Monitoring

Air monitoring will be performed to quantify airborne levels of airborne lead and arsenic to verify the absence of atmospheric hazards at the site and to evaluate engineering controls and work practices. Employee air monitoring will be performed during the first day of excavation. Perimeter monitoring will also be conducted during the first day of excavation upwind and downwind of each construction area during operations to monitor and protect unprotected individuals.

11.1 Employee Air Monitoring

After the actual work operation commences and when soils are disturbed, air monitoring for lead and arsenic will be performed on employees of each job task. Air monitoring for lead will be performed using calibrated air sampling pumps equipped with 37-mm MCE filter cassettes.

If the employees are found to have exposures exceeding the established Permissible Exposure Limits for lead and arsenic, then PPE will be upgraded until operations and techniques can be modified to bring airborne concentrations below the Action Level. Employees will be notified of air monitoring results within 5 days of receipt.

11.2 Perimeter Air Monitoring

Perimeter air monitoring will be conducted at locations upwind and downwind of the site using calibrated air sampling pumps equipped with 37-mm MCE filter cassettes. Locations of the perimeter monitoring will be established depending upon prevailing wind conditions on the day of monitoring. If monitoring indicates that downwind contamination concentrations are greater than upwind levels, engineering controls and work practices will be changed to further minimize the off-site migration. If monitoring shows downwind lead levels exceeding 110% of the upwind levels, work in the area will cease until additional control measures can be implemented.

Table 2 - Employee Monitoring Requirements

Contaminant	Monitoring Device	Frequency and Location	Calibration Schedule
Lead	Air sampling pump equipped with 37-mm MCE filter cassettes.	During the first day of soil disturbance on employees of each job task.	Twice daily using primary standard calibration device.
Arsenic	Air sampling pump equipped with 37-mm MCE filter cassettes.	During the first day of soil disturbance on employees of each job task.	Twice daily using primary standard calibration device.

Table 3 - Perimeter Monitoring Requirements

Contaminant and Method	Monitoring Device	Frequency and Location	Calibration Schedule
Lead	Air sampling pump equipped with 37-mm MCE filter cassettes.	During the first day of soil disturbance.	Twice daily using primary standard calibration device.
Arsenic	Air sampling pump equipped with 37-mm MCE filter cassettes.	During the first day of soil disturbance.	Twice daily using primary standard calibration device.

11.3 Training Requirements of Monitoring Personnel

Personnel conducting air monitoring will have the training and experience necessary to properly perform the air monitoring and equipment calibration. The air monitoring will be performed under direct supervision of a Certified Industrial Hygienist.

11.4 Documentation of Monitoring

Records of monitoring results will be maintained at the site. Records will include the date, time, contaminants or hazards monitored, person conducting monitoring,

calibration date and method, operations and location of monitoring, and results. An air monitoring data sheet will be completed for each sample.

12. Informational Programs

The company's Injury and Illness Prevention and Hazard Communication Programs will be available in the job trailer. Employees, contractors, and subcontractors will also be informed and will share information on chemical hazards at the site, as required by the Hazard Communication standard. MSDS for all hazardous materials used on site will be made readily available to site personnel. Employees, contractors, and subcontractors working outside of the operations part of a site will only be notified of chemical hazards as required by the Hazard Communication standard.

13. Material Handling

Hazardous substances and contaminated soils, liquids, and other residues will be handled, transported, labeled, and disposed of in accordance with this section.

13.1 Drums and Containers

If unlabeled drums and containers are encountered during excavation, they will be considered to contain hazardous substances, work will stop, and the Engineer will be notified of the discovery.

Drums and containers used during the clean-up will meet the appropriate U.S. Department of Transportation (DOT), OSHA, and EPA regulations for the wastes that they contain. When practical, drums and containers will be inspected and their integrity will be assured prior to being moved. Drums or containers that cannot be inspected before being moved because of storage conditions (i.e., buried beneath the earth, stacked behind other drums, stacked several tiers high in a pile, etc.) will be moved to an accessible location and inspected prior to further handling. All drums and containers will be properly labeled as to their contents and hazards.

Site operations will be organized to minimize the amount of drum or container movement. Prior to movement of drums or containers, all employees exposed to the transfer operation will be warned of the potential hazards associated with the contents of the drums or containers. Drums and containers that cannot be moved without rupture, leakage, or spillage will be emptied into a sound container using a device classified for the material being transferred. Drums and containers under pressure, as evidenced by bulging or swelling, will not be moved until such time as the cause for excess pressure is determined and appropriate containment procedures have been implemented to protect employees from explosive relief of the drum.

13.2 Shipping and Transport of Drums and Containers

Drums and containers will be identified and classified prior to packaging for shipment. Drum or container staging areas will be kept to the minimum number

necessary to safely identify and classify materials and prepare them for transport. Staging areas will be provided with adequate access and egress routes.

14. Decontamination Procedures

Due to the relatively low lead concentrations on the soil, no perimeter or work zones are required during work operations at the site. Should any suspected or known soil contamination be found during the course of work, a secure perimeter will be established around the impacted area until modifications can be made to the Health and Safety Plan.

15. Emergency Response Plan

This emergency response plan explains how to handle anticipated emergencies prior to the commencement of hazardous waste operations.

15.1 Emergency Procedures

Employees may respond to low danger emergencies, such as administration of first aid, fighting small fires (with fire extinguishers), and clean-ups of small chemical spills (of less than 55 gallons or 500 pounds). All employees will evacuate from the danger area when an emergency not listed above occurs, and will not assist in handling the emergency. Should outside medical or other emergency assistance be required, personnel will notify the job trailer of the nature of the emergency and a call will be to 9-1-1. If the injury or illness appears to be minor, the affected person appears to be minor, the person may be driven to the emergency room of the nearest hospital.

15.2 Site Communications and Alerting Means for Emergencies

Temporary radio and telephone communications will be established at the job trailer and at the site. Emergency alerts will be made using two-way radios from the job trailer to the site, or vice versa. Personnel working on the site will be alerted by air horns using the following alerts:

3 short blasts in sequence.....Exit the work area
1 long blast..... All clear

15.3 Places of Refuge

All personnel, when alerted during emergencies, will exit the Exclusion Zone through the Contamination Reduction Zone and muster in the Support Zone. Personnel are to remain in the staging area and await further instructions.

15.4 Status and Capabilities of Emergency Response Providers

Local emergency responders (fire department, medical providers and transporters) are on full time alert and have the capabilities to respond to any anticipated site emergency.

15.5 Pre-emergency Planning

The types of emergencies anticipated include personal injuries, fire, and small chemical spills. An OSHA-approved first aid kit will be made available at the site. Also, two employees trained and currently certified in first aid and CPR will be on site at all times. A charged and inspected fire extinguisher will be available on each piece of equipment. Spill containment equipment will be made available if hazardous materials are stored on site.

15.6 Personnel Roles, Lines of Authority, and Communication

The Project Manager will act as the incident commander during an emergency response. He will coordinate and direct emergency response procedures to all site personnel. An emergency will be communicated to all persons on site by radio and/or verbal communications.

15.7 Emergency Recognition and Prevention

All site personnel will be trained to recognize when an emergency situation has arisen and will know how to notify the Safety Manager of the incident. Site personnel will use safe work practices to minimize the potential for an incident. Regular safety meeting will be held to identify and communicate problem areas at the site.

15.8 Site Security and Control

During an emergency situation, all personnel are responsible for assuring the public's safety and will keep all bystanders and unauthorized personnel from entering the site. All no time will personnel give statements regarding an emergency to persons not associated with emergency response or management.

15.9 Decontamination of Injured Workers

Due to the relatively low levels of contamination at the site, decontamination procedures for injured workers may be limited to removal of outer coveralls and boots so long as such action will not aggravate the injury. If the injury is minor, and does not require immediate medical attention, workers may decontaminate as usual.

15.10 Accident Reporting and Follow-Up

All incident scenes will be preserved so that a thorough incident investigation may be performed. All causes of the incident will be investigated and the findings presented to site personnel to prevent future incidents.

16. Spill Containment

It is not anticipated that large volumes of hazardous materials will be stored on site. However, if large volumes of hazardous or potentially-hazardous liquids are stored on site, adequate secondary containment will be provided around the storage area. In addition, spill containment equipment (absorbent socks, clay, and shovels, and a

salvage drum) will be kept at the site to respond to small spills of hazardous liquids or solids. Should a spill occur, immediate steps to contain the spill must be taken. Such steps include shutting of valves, closing doors or vents, protecting sanitary sewers and surface waters, or shutting off pumps. At no time will a spill be contained if such action presents a hazard. The Safety Manager must then be notified of the situation so that he may direct the clean-up.

17. Confined Space Entry

It is not anticipated that the work activities will include confined space entry, therefore this section has been omitted. For any other confined space entry operations that may be performed as a part of the construction activities, please refer to the Injury and Illness Prevention Program.

18. Site Excavations

Site excavations created during initial site preparation or during hazardous waste operations will be shored or sloped as appropriate to prevent accidental collapse in accordance with 8 CCR, Chapter 4, Subchapter 4, Article 6.

19. Safety Inspections

Inspections will be conducted by the Project Manager or, in the absence of that individual, another individual who is knowledgeable in occupational health and safety, acting on behalf of the employer as necessary to determine the effectiveness of the site Health and Safety Plan. The employer will correct any deficiencies in the effectiveness of the site Health and Safety Plan.

Appendix A
Site Investigation Report

ARS INC.

Limited Phase II Environmental Site Assessment Report
Union Pacific Railroad Site
Derby Avenue to 37th Avenue, Oakland, California

Prepared for:
FUITVALE DEVELOPMENT CORPORATION, INC.
1900 Fruitvale Avenue, Suite 2A
Oakland, CA 94601

Prepared by:
APPLIED REMEDIAL SERVICES, INC.

Elias A. Rashmawi, REA
Project Manager and Principal Hydrogeologist
Cal EPA - Class I REA Registration # 07321

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Manager, Remedial Services
Cal EPA - Class I REA Registration # 07137

Samir K. Abudayeh, P.E.
Principal Engineer
C.E. Professional Registration No. 36032

REGISTERED PROFESSIONAL ENGINEER
SAMIR K. ABUDAYEH
36032
EXP 6/2000
CIVIL
STATE OF CALIFORNIA

July 8, 1999

This is particularly true since the potential presence of on-site contaminants is limited mostly to heavy metals constituents that are highly insoluble in water at normal conditions and are not likely to migrate within the process of mass transport.

3.3.2 Overview of Field Investigative Activities

As a result of previous Site use as a railroad track, surface soil at the Site may have undergone extensive grading (cut and fill) as well as exposure to surficial contaminants resulting from the historical activities associated with railroad tracks. Shallow surficial soils (between 1 - 2 feet bgs) were expected to consist of fill material that may have been imported from off-site locations.

Accordingly, ARS excavated 21 Test Pits ("TP") to a depth of 2 to 3 feet below ground surface utilizing conventional construction equipment in the form of a Case 580 backhoe. Test pits excavating activities were conducted by SEMCO/HK2, a State-licensed general engineering contractor with Hazardous Materials Certification and earth-work license. All field activities were completed under the immediate supervision of ARS field engineers in accordance with ARS' standard operating procedure, terms of the HSP, and the scope of work prescribed by the Client.

The TPs were excavated along the extent of the area of the subject Site in a manner that would reflect Site conditions as well as particular areas of interest within the Site. The depth of 2 to 3 feet was selected for investigation because the proposed development of the parking lot area would involve grading activities that may infringe upon the upper 2 feet of soil at the Site.

One to two composite soil samples were collected from each TP. The samples were collected in accordance with applicable protocols and in accordance with ARS' SOP under a strict chain of custody. The samples were subsequently delivered to State certified laboratories for analysis. Several samples were obtained from the clay layer that underlies the loose fill material that appears to have been emplaced in the past. These clay samples were identified by ARS with a "B" notation (Pit 2-B, Pit 3-B, and Pit 4-B).

Soil samples obtained for organic analysis were collected in brass tubes that were sealed with pre-cut Teflon tape, capped with plastic end caps, and sealed with inert tape at each end. All soil samples were placed on dry ice and sent to a state certified laboratory for analysis. Samples obtained for heavy metal analysis only were collected in plastic zip-lock bags, clearly identified and placed in a chilled cooler pending delivery to a State-certified laboratory.

As the soil samples were collected, ARS field engineers documented the presence of soil conditions and signs of visible or odorous potential contamination. The samples were also screened in-situ for volatile organic compound contamination using a set of organic vapor analyzer (OVA) instruments equipped with a Photo Ionization Detector and a Flame Ionization Detector. TP Locations are presented on Figure 2.

The soil samples were analyzed for selected chemicals in order to provide a better understanding of chemical constituents that may be present and quantify potential costs associated with transport and disposal of the exported fill in accordance with Federal, State, local regulations and the requirements of landfill disposal facilities. Soil samples were also obtained at depths where a change in lithology was observed, or when field observations and/or field detectors indicated the potential for environmental concerns. All pits were backfilled and appropriately compacted following termination of sample collection.

3.4 Laboratory Analytical Results

As previously indicated, the collected samples were analyzed at off-site State-certified analytical laboratories for a variety of suspected contaminants.
The analytical methods utilized are as follows:

1. Total Extractable Petroleum Hydrocarbon via EPA method 8015 modified – for identification of turpentine, paint thinner, mineral spirit, diesel, motor oil, and kerosene.
2. Title 22 CAM 17 heavy metals via EPA Method 6010/7470/7471
3. Herbicides via EPA method 8150
4. Semi volatile organic compounds via EPA method 8270A
5. Selective heavy metal analysis (lead and arsenic) via EPA Method 6010/7420
6. CAM 17 heavy metal analysis via EPA Method 6010/7420
7. CAL WET Extraction on lead and arsenic via EPA Method 6010/7420

The following tables present the methods of analysis and their respective laboratory analytical findings:

ARS INC.

Table 1

CONCENTRATIONS OF LEAD & ARSENIC IN SOIL SAMPLES
(Concentrations expressed in mg/Kg)

Sample ID	Lead	Arsenic
Pit 1	41	50
Pit 2-A	34	54
Pit 2-B	18	12
Pit 3-A	341	194
Pit 3-B	19	8.9
Pit 4-A	111	240
Pit 4-B	15	115
Pit 5	687	127
Pit 6	66	57
Pit 7	1,495	198
Pit 8	144	100
Pit 9	41	199
Pit 10	66	70
Pit 11	43	28
Pit 12	145	195
Pit 13	105	167
Pit 14	59	57
Pit 15	339	127
Pit 16	250	12
Pit 17&18	980	71
Pit 19	630	NA
Pit 21	443	<2.5
Sample Size	22	21
Maximum Value	1,495	240
Mean	276	99
Standard Deviation	376	75
95% Confidence Interval	157	32
95% UCL	433	131

N/A

NA: *Not analyzed*

Table 2

SOLUBLE LEAD & ARSENIC CONCENTRATIONS IN SOIL SAMPLES
(Concentrations expressed in mg/L)

Composite Sample	Lead	Arsenic
Pit 3-A,5,15,21	24	NA
Pit 10,12,13,14	6.8	NA
Pit 3-A,4-A,5,7,9,17&18	NA	71

NA: *Not analyzed*

ARS INC.

Table 4

TOTAL EXTRACTABLE PETROLEUM HYDROCARBON LEVELS IN SOIL SAMPLES
(Concentrations expressed in mg/Kg)

Sample ID	TEPH (Diesel)	TEPH (Motor Oil)	TEPH (Crude Oil)	TEPH (Phenols)	TEPH (Phenols)
Pit-4A	ND	ND	11	ND	ND
Pit-16	ND	22,000	6,300	ND	ND
Pit-19	ND	6,000	2,800	ND	ND

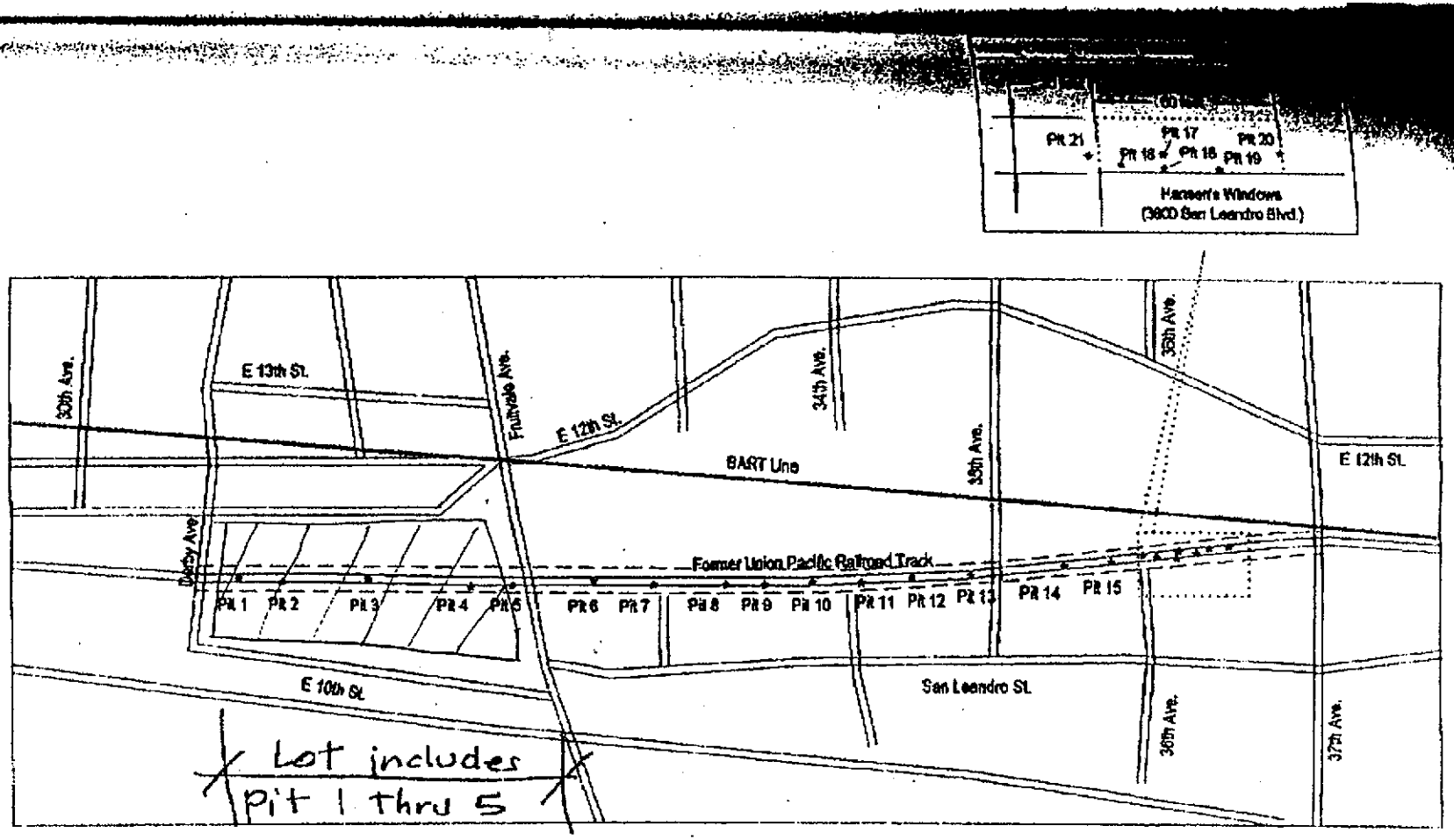
Total Extractable Petroleum Hydrocarbons (TEPH) presented in Table 4 were analyzed via 8015M preparation Method 3550/8015M. Phenols were analyzed via GC/MS 8270A and were not detected above their respective detection limits.

4.0 DISCUSSION

Based on ARS' Site inspection, investigation, and laboratory analytical results, the following issues were identified about which conclusions can be reached with the limited existing information and for which further more definitive investigative testing will be required at the time of field remedial activities. The issues of concern are as follows:

1. Chemical constituent analytical data of surficial soil samples collected at the Site indicate the presence of elevated levels of lead and arsenic. The average lead and arsenic levels detected were 276 mg/Kg and 99 mg/Kg, respectively (Table 1, Figure 3 and 4). The highest levels of lead and arsenic detected during this investigation were 1,495 mg/Kg and 240 mg/Kg respectively. The primary source of lead in this surficial soil may be from urban runoff due to deposition of lead onto surface of the soil from lead added in the past to gasoline as a lubricant, and/or from contaminants present within the imported fill material previously placed at the railroad track beneath the ballast. The primary source for arsenic in the surficial soil is likely due to previous application of sodium arsenate as a sterilant herbicide or sodium arsenite for soil treatment against termites. The application of arsenicals to soil have been superceded because of the hazards to man and animals.

2. Laboratory analytical results of soluble lead (CAL-Wet Extraction) from composite samples Pit 3A-5-15-21 and Pit 10-12-13-14 indicated the presence of lead at 24 mg/L and 6.8 mg/L respectively. Laboratory analytical results of soluble arsenic (CAL-Wet Extraction) from composite sample Pit 3-A,4-A,5,7,9,17&18 indicated the presence of arsenic at 71 mg/L. The California Code of Regulations, Title 26 Division 22, Section 66261.24 "Characteristics of Toxicity" requires that soil containing concentrations of these constituents at or above their respective STLC limits of 5 mg/l must be managed as hazardous waste if it were disturbed, excavated or moved during Site development activities. Accordingly, upon excavation of the soil in the subject Site for grading purposes, it would be necessary to appropriately characterize all soils scheduled for off-site disposal for the purposes of identifying and segregating soils into appropriate groups in preparation for off-site transport and disposal at permitted Class I Hazardous Waste or Modified Class II non-hazardous landfill facilities.



Approximate area surrounding Union Pacific Railroad Track

Approximate Test Pit Location

ARS, INC Applied Remedial Services, Inc. 701 Southampton Rd, Suite 105 Benicia, CA 94510	Figure 2 Date: July 8, 1999 Project #: ARS-99-269	**Test Pits Locations** Union Pacific Railroad - Fruitvale BART Transit Village Oakland, California

ARS INC.

Appendix A

Laboratory Certificates of Analysis

MICRO ANALYTICAL LABORATORIES, INC.

CALIFORNIA WASTE EXTRACTION TEST - LEAD

[illegible]
[illegible] Inc.
[illegible] Southampton, Suite 105
[illegible]cia, CA 94510

PROJECT:
UNION PACIFIC
FRUITVALE
TRANSITE VILLAGE
OAKLAND, CA

Micro Log In: 70635
Total Samples: 2
Date Sampled: 6/24/99
Date Received: 6/29/1999
Date Analyzed: 7/1/1999

STLC LEAD CONCENTRATION

SAMPLE ID / DESCRIPTION	Regulatory Limit (mg/L)	Result (mg/L)	Detection Limit (mg/L)
Client ID: PIT 3-A, 5, 15, 21 Micro ID: 70635-01 ABANDONED RAILROAD TRACK PITS COMPOSITE	5.0	24	2.0
Client ID: PIT 10, 12, 13, 14 Micro ID: 70635-02 ABANDONED RAILROAD TRACK PITS COMPOSITE	5.0	6.8	1.0

Technical Supervisor: _____ 7/1/1999 Analyst: JS/FF

Farid Ramezanzadeh, M.S.

Explanation: STLC = Soluble Threshold Limit Concentration; TTLC = Total Threshold Limit Concentration; mg = milligrams; kg = kilograms; ND = None Detected (below detection limit); NA = Not Applicable, Extraction Test: California Waste Extraction Test (WET), CCR Title 22, 66261.126, Appendix II. Analytical reference (SW-846, 3rd Edition): EPA 7420 (Flame AA Analysis). This report must not be reproduced except in full, with the approval of Micro Analytical Laboratories, Inc., and pertains only to the samples analyzed.

MICRO ANALYTICAL LABORATORIES, INC.

METALS IN SOLID SAMPLES - EPA 6010

1116
ARS, Inc.
701 Southampton, Suite 105
Benicia, CA 94510

PROJECT:
UNION PACIFIC
FRUITVALE
TRANSITE VILLAGE
OAKLAND, CA

Micro Log In 70446
Total Samples 20
Date Sampled 6/24/99
Date Received 6/24/1999
Date Analyzed 6/24/1999

Client Sample No. FIT 1 — ABANDONED RAILROAD TRACK PITS.

Micro Sample No. 70446-01

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	50	2.5	
Lead (Pb)	41	2.5	

Client Sample No. PIT 2-A — ABANDONED RAILROAD TRACK PITS.

Micro Sample No. 70446-02

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	54	2.5	
Lead (Pb)	34	2.5	

Client Sample No. PIT 2-B — ABANDONED RAILROAD TRACK PITS.

Micro Sample No. 70446-03

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	12	2.5	
Lead (Pb)	18	2.5	

Technical Supervisor: _____ 6/28/1999 Analyst: FR

Farid Remezanzadeh, M.S.

Metals are analyzed by Inductively Coupled Plasma Atomic Emission Spectrometry. Explanation: $\mu g / m^3$ = micrograms per cubic meter of air. ND = None Detected (concentration is less than detection limit). Analytical references: NIOSH Method 7300 , 1994· EPA SW-846, 3rd Edition, 1986, . This report must not be reproduced except in full, with the approval of Micro Analytical Laboratories, Inc. This report pertains only to the listed samples, as submitted to and analyzed by Micro Analytical Laboratories, Inc. Air volumes are reported as given by the client.

MICRO ANALYTICAL LABORATORIES, INC.

METALS IN SOLID SAMPLES - EPA 6010

1116
ARS, Inc.
701 Southampton, Suite 105
Benicia, CA 94510

PROJECT:
UNION PACIFIC
FRUITVALE
TRANSITE VILLAGE
OAKLAND, CA

Micro Log In 70446
Total Samples 20
Date Sampled 6/24/99
Date Received 6/24/1999
Date Analyzed 6/24/1999

Client Sample No. FIT 3-A — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-04

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	194	2.5	
Lead (Pb)	341	2.5	

Client Sample No. FIT 3-B — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-05

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	8.9	2.5	
Lead (Pb)	19	2.5	

Client Sample No. FIT 4-A — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-06

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	240	2.5	
Lead (Pb)	111	2.5	

Technical Supervisor: _____ 6/28/1999 Analyst: FR
Farid Ramezanzadeh, M.S.

Metals are analyzed by Inductively Coupled Plasma Atomic Emission Spectrometry. Explanation: µg / m³ = micrograms per cubic meter of air. ND = None Detected (concentration is less than detection limit). Analytical references: NIOSH Method 7300 , 1994; EPA SW-846, 3rd Edition, 1986, . This report must not be reproduced except in full, with the approval of Micro Analytical Laboratories, Inc. This report pertains only to the listed samples, as submitted to and analyzed by Micro Analytical Laboratories, Inc. Air volumes are reported as given by the client.

MICRO ANALYTICAL LABORATORIES, INC.

METALS IN SOLID SAMPLES - EPA 6010

1116
ARS, Inc.
701 Southampton, Suite 105
Benicia, CA 94510

PROJECT:
UNION PACIFIC
FRUITVALE
TRANSITE VILLAGE
OAKLAND, CA

Micro Log In 70446
Total Samples 20
Date Sampled 6/24/99
Date Received 6/24/1999
Date Analyzed 6/24/1999

Client Sample No. PIT 4-B — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-07

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	115	2.5	
Lead (Pb)	15	2.5	

Client Sample No. PIT 5 — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-08

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	127	2.5	
Lead (Pb)	687	2.5	

Client Sample No. PIT 6 — ABANDONED RAILROAD TRACK PITS.
Micro Sample No. 70446-09

Analyte	Concentration (mg / Kg)	Detection Limit (mg / Kg)	Comments
Arsenic (As)	57	2.5	
Lead (Pb)	66	2.5	

Technical Supervisor: _____ 6/28/1999 Analyst: FR
Farid Rameznazadeh, MS

Metals are analyzed by Inductively Coupled Plasma Atomic Emission Spectrometry. Explanation: µg / m³ = micrograms per cubic meter of air. ND = None detected (concentration is less than detection limit). Analytical references: NIOSH Method 7300 , 1994; EPA SW-846, 3rd Edition, 1986, . This report must not be reproduced except in full, with the approval of Micro Analytical Laboratories, Inc. This report pertains only to the listed samples, as submitted to and analyzed by Micro Analytical Laboratories, Inc. Air volumes are reported as given by the client.