



**Appendix J**  
Quality Assurance Project Plan

## APPENDIX J

### QUALITY ASSURANCE PROJECT PLAN

Trailer Disposal and Former Debris Areas  
Rancho Corral de Tierra  
Moss Beach, San Mateo, County, California

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## 1.0 INTRODUCTION

This Quality Assurance Project Plan (“QAPP”) addresses the Trailer Disposal and Former Debris Areas at Moss Beach Ranch of the Rancho Corral de Tierra property, located in Moss Beach, San Mateo County, California (these areas are referred to as the “Site”; see Figure J-1). Erler & Kalinowski, Inc. (“EKI”) has prepared this Plan for our client, the Peninsula Open Space Trust (“POST”) to standardize quality assurance (“QA”) and quality control (“QC”) procedures that will be used by EKI and the selected analytical laboratory to assure that chemical data reported by the analytical laboratory are of known and acceptable quality and are representative of environmental conditions during implementation of the *Removal Action Workplan* (“RAW”) (EKI, 2012) for the Site.

## 2.0 FIELD QA/QC PROCEDURES

QA/QC field procedures for equipment decontamination, sampling containers, handling and transport, field documentation, and chain-of-custody are described in detail in the Soil Sampling and Analysis Plan (“SAP”) (Appendix I of the RAW).

## 3.0 QA/QC SAMPLES

### 3.1 Laboratory QA/QC Sample Types

The QA/QC program will evaluate chemical analyses based on four types of quality control samples (spikes, duplicates, lab control samples, and blanks) for soil samples analyzed utilizing U.S. EPA methods. The definitions of these types of samples are as follows:

1. Spikes: Matrix spike analyses are intended to evaluate the accuracy of laboratory analyses for site-specific matrices. Matrix spike analyses are applied to entire batches of data. Surrogate spike analyses are intended to evaluate sample-specific extraction efficiency and accuracy for analyses performed on a gas chromatograph. Performance of the analytical method will be assessed for accuracy by evaluating percent recoveries of the spiked compounds. Percent recoveries will be assessed against established lab- and compound-specific data control limits.
2. Duplicates: Matrix spike duplicate and laboratory duplicate analyses are intended to evaluate the precision of laboratory analyses of site-specific matrices. Laboratory control sample duplicates are intended to monitor analytical precision whenever there is insufficient sample available for matrix spiking. In all cases, performance of the analytical method will be assessed for precision by evaluating the relative percent difference (“RPD”) between duplicates. RPDs will be assessed against established lab-specific data control limits.

3. Laboratory Control Samples: Laboratory control samples (“LCS”) are intended to evaluate the performance of the analytical system without any potential matrix interferences. If sample matrix effects produce out-of-control matrix spike or matrix spike duplicate results, then the lab control sample recoveries are used to validate the analytical batch. In this case, performance of the analytical method will be assessed for accuracy by evaluating percent recoveries of the lab control sample compounds. Percent recoveries will be assessed against established lab- and compound-specific data control limits.
4. Blanks: Blanks are intended to evaluate the potential for external contamination of samples due to laboratory or field procedures.

### **3.2 Field QA/QC Samples**

The types of field QA/QC samples are described below. Field QA/QC sampling will be collected and analyzed in accordance with requirements as described in the SAP (Appendix I of the RAW) and defined below.

#### **3.2.1 Field Duplicates**

Field Duplicates are a second sample collected at the same time as the original sample using identical sampling techniques. Field Duplicate sample results are used to assess the precision of the sample collection process and to help determine the representativeness of the sample. Due to the heterogeneous nature of soil properties and matrix effects, a true soil duplicate sample also is difficult to properly subsample. Therefore, no soil duplicates will be collected.

#### **3.2.2 Trip Blanks**

Trip blanks are prepared by the analytical laboratory and consist of volatile organic analysis (“VOA”) vials filled with laboratory water in the laboratory. The trip blanks are sent to the sampling site with the sample containers, kept with samples during sample collection, and shipped back to the laboratory for analysis with the collected samples. Trip blanks are used to assess the potential introduction of contaminants resulting from sample handling or shipment. Trip blanks will not be used during Site cleanup activities as the chemicals of concern (i.e., Total Petroleum Hydrocarbons (“TPH”) as diesel, TPH as motor oil, endrin, and zinc) are not volatile.

#### **3.2.3 Temperature Blanks**

For each cooler that is shipped or transported to an analytical laboratory a 40 milliliter (“mL”) VOA vial will be included that is marked “temperature blank.” This blank will be used by the sample custodian to check the temperature of samples upon receipt.

### 3.2.4 Equipment Blanks

Equipment blank results will be used to assess the effectiveness of equipment decontamination and the introduction of contaminants from disposable or reusable sampling equipment. An equipment blank consists of distilled water poured over or pumped through the sampling equipment and into sample containers. Equipment blanks for soil sampling equipment will be collected and analyzed in accordance with procedures described in the SAP (Appendix I of the RAW).

### **3.3 Laboratory QA/QC Checks**

Laboratory QC samples will be analyzed at each laboratory for all samples analyzed. Laboratory quality control checks will be performed by the laboratory in adherence to method-specific laboratory QC procedures. The QC procedures listed in Revision 1 of Chapter 1 (dated July 1992) of SW-846 (U.S. EPA, 1986), Update III (U.S. EPA, 1997), will be followed for each laboratory method for chemical analysis of soil samples. Laboratory QC procedures include the following:

1. One internal method blank will be analyzed for every 20 samples analyzed or one per batch for each method, whichever is more frequent.
2. One matrix spike/matrix spike duplicate (“MS/MSD”) will be analyzed for every 20 samples analyzed or one per batch for each method, whichever is more frequent. The MS/MSD will be performed using standard spike compounds on a sample from the Site for each method specified under SW-846.
3. One laboratory control sample (“LCS”) will be analyzed for every 20 samples analyzed or one per batch for each method, whichever is more frequent.
4. All sample analyses will be performed within the holding time specified for each individual analysis. Holding times for analyses are presented in Table I-1.

### **4.0 QA/QC EVALUATION PARAMETERS**

Data quality will be measured and evaluated in terms of sensitivity, precision, and accuracy, representativeness, completeness and comparability (“SPARCC”) parameters. A discussion of these measurement parameters and how they will be used to evaluate the project analytical data follows.

#### **4.1 Sensitivity**

To reduce the possibility of making false rejection decision errors, the reporting limits of the methods used should be below remedial goals although matrix interferences may

elevate reporting limits. To reduce the possibility of making false acceptance errors, blank samples (i.e. equipment blanks, trip blanks, and laboratory blanks) associated with projects ideally should be nearly free of detectable contamination. Consequently, under normal conditions, the concentration of chemicals in any blank associated with project samples should not exceed the laboratory's reporting limit to be considered valid for project use (Table I-2), unless a higher number is considered valid to reflect actual field and laboratory conditions.

## 4.2 Accuracy

MS/MSD and LCS sample results will be evaluated to determine laboratory accuracy for soil samples as follows:

1. Tabulate spike sample data and calculate the percent recovery as shown below for each spiked compound:

$$\text{Percent recovery} = \frac{(T - X)}{A} \times 100$$

Where:

- T = total concentration of compound detected in spiked sample
- X = original concentration of compound reported in sample prior to spiking for MS/MSD samples
- X = 0 for LCS samples
- A = actual spike concentration of compound added to MS/MSD or LCS sample

2. Compare recoveries to lab- and compound-specific control limits and qualitatively evaluate the significance of the data points that fall outside of the control limits. The lower control limit ("LCL") and the upper control limit ("UCL") for the spiked compounds are lab-specific accuracy goals, and are a function of each laboratory.
3. If the UCL or LCL is exceeded, the laboratory will notify the EKI Project Manager. The data from that period of time for the matrix of interest, soil, will be evaluated for the analyte that exceeds the limits. Corrective action will be taken, as appropriate, by the laboratory and reported as required by relevant guidance documents.

If the data do not meet these laboratory accuracy goals, then the data will be evaluated and corrective action will be taken as outlined in Section 5.0.

### 4.3 Precision

MS/MSD, LCS duplicate, or laboratory duplicate sample results will be evaluated to determine laboratory precision for soil samples as follows:

1. Calculate the Relative Percentage Difference (“RPD”) as shown below for each compound of each duplicate pair:

$$RPD = \frac{[(X1-X2)]}{X} \times 100$$

Where:

X1	=	concentration of analyte for sample 1 of duplicate
X2	=	concentration of analyte for sample 2 of duplicate
X	=	average of samples 1 and 2

2. Calculate the average for the RPDs for all duplicate pairs.

The RPDs calculated for all MS/MSD, LCS duplicate, or laboratory duplicate sample analytes will be compared with the laboratory-specific precision goals for soil. If the data do not meet the precision goals, then the data will be evaluated and corrective action will be taken as outlined in Section 5.0.

### 4.4 Representativeness

Representativeness is a qualitative expression of the degree to which sample data accurately and precisely represent a characteristic of a population, parameter variations at a sampling point, or an environmental condition. Representativeness of data will be promoted by consistently applying established field and laboratory procedures presented in this QAPP and the SAP (Appendix I of the RAW). To help evaluate the representativeness of the data, equipment blanks, trip blanks, and laboratory blank will be analyzed for the presence of contaminants. Data deemed nonrepresentative, by comparison with existing data, will be used only if accompanied by appropriate qualifiers and limits of uncertainty.

### 4.5 Completeness

Completeness is defined as the percentage of data that is judged to be valid to achieve the objectives of the investigation compared to the total amount of data. Deficiencies in the data may be due to sampling techniques, inadequate accuracy, precision, or laboratory error. While the deficiencies may affect certain aspects of the data, usable data may still be extracted from applicable samples. An evaluation of completeness necessarily involves an evaluation of the impact of missing data on the ability of the project to achieve its goals.

The overall completeness goal will be 100 percent. The equation used for completeness is presented below:

$$C (\%) = \frac{D}{P \times n} \times 100$$

Where:

D	=	number of confident quantifications
P	=	number of analytical parameters per sample requested for analysis
n	=	number of samples requested for analysis

As indicated previously, assessment of completeness alone does not provide a comprehensive evaluation of data quality. Therefore, the percentage of usable and unusable data will also be calculated through use of the project database by the following equations:

$$\% \text{ Usable Data} = (\# \text{ Usable Results}) / \text{Total Number of Results}$$

$$\% \text{ Unusable Data} = (\# \text{ Unusable Results}) / \text{Total Number of Results}$$

#### **4.6 Comparability**

The comparability objective determines whether analytical conditions are sufficiently uniform for each analytical run such that all of the reported data from multiple runs are consistent. Comparability is promoted by using similar analytical protocols from one sampling event to the next.

#### **5.0 CORRECTIVE ACTIONS**

If a batch of soil data does not meet the accuracy or precision goals described in Sections 4.2 and 4.3, then an evaluation and explanation will be sought from the laboratory. Qualitative criteria to be considered include the following:

1. Comparison with historical data;
2. Comparison with regional data trends;
3. Evaluation of the possible influence on data of recent Site activities;
4. Review of sampling procedures; and
5. Review of other data obtained from samples collected on the same date.

If no reasonable explanation can be established that would validate the represented data and allow use of the data for the project, then the following corrective action(s) may be used:

1. Have the laboratory check sample documentation, calculations, and transcription steps for errors.
2. If possible, repeat the measurement; for example, re-extract and re-analyze.
3. Check instrument calibration and repeat measurement if possible.
4. Check adjustments for ambient conditions such as temperature.
5. Check presence of laboratory background contaminants, such as zinc or methylene chloride.
6. Replace or repair measuring device as necessary.
7. Resample if possible.

Corrective actions will be handled by the contract laboratory on a case-by-case basis with specific actions communicated to the EKI QA/QC Officer as a written corrective action memorandum, where appropriate.

## **6.0 REFERENCES**

EKI, 2012. *Draft Removal Action Workplan, Trailer Disposal and Former Debris Areas Rancho Corral de Tierra, Montara, San Mateo, County, California*, Erler & Kalinowski, Inc., October 2012.

**TABLE J-1**  
**SAMPLE CONTAINERS, PRESERVATIVES, AND HOLD TIMES FOR SOIL SAMPLES**

Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra  
Moss Beach, San Mateo, County, California

Analyte	Analytical Method	Sample Container/Preservative	No. of Sample Containers Needed	Hold Time
TPH-d and TPH-mo	EPA Method 8015M with silica gel cleanup	6-inch long, 2-inch diameter pre-cleaned stainless steel or butyrate liner or 12-ounce glass jar/ Chill to 4°C	1	48-hours for extraction 14-days from extraction to analysis
Organochlorine Pesticides	EPA Method 8081A			14-days for extraction 40-days from extraction to analysis
Title 22 Metals	EPA Method 6020/7471			28-days for mercury 6-months for other metals
Percent Moisture	ASTM Method D2216			Not Applicable
WET	CCR Title 22, Division 4.5, Chapter 11, Appendix II	12-inch long, 2-inch diameter pre-cleaned stainless steel or butyrate liner or 12-ounce glass jar/ Chill to 4°C	1	28-days for mercury 6-months for other metals
TCLP	EPA Method 1311			28-days for mercury 6-months for other metals

**Abbreviations:**

ASTM = American Society for Testing and Materials Standards

EPA = U.S. Environmental Protection Agency

No. = number

PCBs = Polychlorinated Biphenyls

SVOCs = Semi-Volatile Organic Compounds

TCLP = Toxicity Characteristic Leaching Procedure

TPH-d = Total Petroleum Hydrocarbons diesel range organics

TPH-g = Total Petroleum Hydrocarbons gasoline range organics

TPH-mo = Total Petroleum Hydrocarbons motor oil range organics

VOCs = Volatile Organic Compounds

WET = Waste Extraction Test

**TABLE J-2**  
**SUMMARY OF EXPECTED ANALYTICAL LABORATORY**  
**REPORTING LIMITS FOR SOIL ANALYSES**

Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra  
Moss Beach, San Mateo, County, California

Category/Analytical Method (a)	Analyte	Soil (b,c)	
		RL	
TPH (EPA Method 8015M)	TPH-d	5	mg/kg
	TPH-mo	5	mg/kg
Organochlorine Pesticides (EPA Method 8081A)	4,4'-DDD	5	ug/kg
	4,4'-DDE	5	ug/kg
	4,4'-DDT	5	ug/kg
	Aldrin	5	ug/kg
	Alpha-BHC	5	ug/kg
	Beta-BHC	5	ug/kg
	Chlordane	50	ug/kg
	Delta-BHC	5	ug/kg
	Dieldrin	5	ug/kg
	Endosulfan I	5	ug/kg
	Endosulfan II	5	ug/kg
	Endosulfan Sulfate	5	ug/kg
	Endrin	4	ug/kg
	Endrin Aldehyde	5	ug/kg
	Endrin Ketone	5	ug/kg
	Gamma-BHC	5	ug/kg
	Heptachlor	5	ug/kg
	Heptachlor Epoxide	5	ug/kg
Methoxychlor	5	ug/kg	
Toxaphene	100	ug/kg	
Title 22 Metals (EPA Method 6020)	Antimony	0.5	mg/kg
	Arsenic	0.2	mg/kg
	Barium	0.1	mg/kg
	Beryllium	0.1	mg/kg
	Cadmium	0.1	mg/kg
	Chromium	0.1	mg/kg
	Cobalt	0.1	mg/kg
	Copper	0.1	mg/kg
	Lead	0.1	mg/kg
	Molybdenum	0.1	mg/kg
	Nickel	0.1	mg/kg
	Selenium	0.5	mg/kg
	Silver	0.1	mg/kg
	Thallium	0.1	mg/kg
	Vanadium	0.1	mg/kg
	Zinc	1	mg/kg
(EPA Method 7471)	Mercury	0.0835	mg/kg

**Abbreviations:**

EPA = U.S. Environmental Protection Agency  
mg/kg = milligrams per kilogram  
PCBs = Polychlorinated Biphenyls  
RL = Reporting Limit  
SVOCs = Semi-Volatile Organic Compounds  
TPH-d = Total Petroleum Hydrocarbons diesel range organics  
TPH-g = Total Petroleum Hydrocarbons gasoline range organics  
TPH-mo = Total Petroleum Hydrocarbons motor oil range organics  
ug/kg = micrograms per kilogram  
VOCs = Volatile Organic Compounds

**Notes:**

- (a) Analyte lists for VOCs, SVOCs, and organochlorine pesticides may vary between analytical laboratories.
- (b) Expected analytical laboratory RLs may vary between analytical laboratories.
- (c) Dilution of matrix interferences may result in higher reporting limits than the listed expected analytical laboratory reporting limits.



**Notes:**

1. All locations are approximate.
2. Basemap source: The Thomas Guide Digital Edition, State of California, 2003/2004.

**Erler & Kalinowski, Inc.**

Site Location  
Moss Beach Ranch

Rancho Corral de Tierra  
Moss Beach, CA

October 2012  
EKI B10014.01

Figure J-1



0 1500 3000



(Approximate Scale in Feet)



**Appendix K**  
EKI Site-specific Health and Safety Plan



# **SITE HEALTH AND SAFETY PLAN**

at

Trailer Disposal and Former Debris Areas  
Rancho Corral de Tierra  
Moss Beach, San Mateo County, California

for

ERLER & KALINOWSKI, INC.  
(EKI B10014.01)

October 2012

**Erler & Kalinowski, Inc.  
Consulting Engineers and Scientists**

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### SITE HEALTH AND SAFETY PLAN SUMMARY

SITE NAME: Trailer Disposal and Former Debris Areas, Moss Beach Ranch

ADDRESS: 1862 Etheldore Street, Moss Beach, CA

SITE TELEPHONE: EKI Mobile Telephone (650) 207-6185 (LOH)

WORK DATES: 2013

EKI JOB NUMBER: EKI B10014.01

SITE SAFETY OFFICER: Logan O. Hansen, PG

PROJECT MANAGER: Michelle King, Ph.D.

#### TYPE OF ACTIVITY

#### POTENTIAL HAZARDS

<input checked="" type="checkbox"/> Soils Sampling	<input checked="" type="checkbox"/> Organics	<input type="checkbox"/> Acids
<input type="checkbox"/> Groundwater Sampling	<input checked="" type="checkbox"/> Inorganics	<input type="checkbox"/> Bases
<input type="checkbox"/> Site Inspection	<input checked="" type="checkbox"/> Heavy Metals	<input type="checkbox"/> Fire
<input checked="" type="checkbox"/> Remedial Activities	<input type="checkbox"/> Solvents	
<input checked="" type="checkbox"/> Contractor Supervision	<input checked="" type="checkbox"/> Pesticides	
<input checked="" type="checkbox"/> Other: Contractor Observation	<input checked="" type="checkbox"/> Other: Petroleum Hydrocarbons	

#### PERSONAL PROTECTIVE EQUIPMENT Level: A B C D

<input checked="" type="checkbox"/> Hard Hat	<input checked="" type="checkbox"/> Ear Plugs/Muffs
<input checked="" type="checkbox"/> Boots	<input checked="" type="checkbox"/> Coveralls
<input checked="" type="checkbox"/> Steel toed	<input checked="" type="checkbox"/> Cotton
<input type="checkbox"/> Chemical resistant	<input checked="" type="checkbox"/> Tyvek (have available)
<input checked="" type="checkbox"/> Safety Goggles or Glasses	<input checked="" type="checkbox"/> First Aid Kit
<input checked="" type="checkbox"/> Respirator (have available)	<input checked="" type="checkbox"/> Gloves
<input checked="" type="checkbox"/> Organic vapor cartridges	<input checked="" type="checkbox"/> Disposable inner PVC
<input checked="" type="checkbox"/> Particulate filters	<input type="checkbox"/> Disposable outer PCB
<input type="checkbox"/> Other:	resistant (i.e., North Viton)
<input checked="" type="checkbox"/> Organic Vapor Meter	<input type="checkbox"/> Other:
<input type="checkbox"/> Drager Tubes	

## 1.0 INTRODUCTION

This Site Health and Safety Plan (“HSP”) establishes Site and activity-specific health and safety protocols for Erler & Kalinowski, Inc. (“EKI”) employees performing field activities at the Trailer Disposal and Former Debris Areas of Moss Beach Ranch, located in Moss Beach, San Mateo County, California (“Site”; see Figure 1). This HSP was developed in accordance with Federal and California Occupational Safety and Health Administration (“OSHA”) standards for hazardous waste operations (29 CFR 1910.120 and 8 CCR 5192).

The following additional reference sources and guidance documents published by the National Institute for Occupational Safety and Health (“NIOSH”) and the American Conference of Governmental Industrial Hygienists (“ACGIH”) were used to develop this HSP:

- ACGIH, 2011. *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices*.
- NIOSH, 2007. *Pocket Guide to Chemical Hazards*. September 2007.

A remediation contractor (“Contractor”) will be retained by the Peninsula Open Space Trust (“POST”), to perform construction activities related to Site remediation. For informational purposes only, this HSP shall be provided to the Contractor and any subcontractors of EKI involved in Site activities. Entities and personnel other than EKI employees shall be solely responsible for their own health and safety and shall independently assess on-Site conditions and develop their own health and safety protocols. Other entities or personnel that anticipate using health and safety measures in the work zone that are less stringent than EKI’s measures must immediately contact EKI’s Site Safety Officer.

EKI has developed a Corporate Health and Safety Plan (“CHSP”) for EKI employees. The CHSP complies with current health and safety regulations, including OSHA 29 CFR 1910.120 and 8 CCR 5192, Hazardous Waste Operations and Emergency Response. Many of the protocols of the CHSP are conducted on a routine basis (general training, respirator fit testing, general medical record keeping, etc.) and are not repeated herein. Questions regarding the EKI CHSP are referred to Thomas W. Kalinowski, Sc.D.

A copy of this HSP, along with any addenda containing activity-specific health and safety information, will be kept in a conspicuous location on Site at all times while work is being conducted by EKI personnel.

## 2.0 MULTI-EMPLOYER WORKSITE PROCEDURES

In light of the Cal-OSHA Multi-Employer Worksite Rule, EKI is explicitly stating that all site employers are specifically responsible for the health and safety of their respective employees. EKI has no contractual responsibility, control or authority over the health and safety of

contractors at the site. EKI has no authority to correct site hazards created by other site personnel. EKI personnel will not assume such responsibility in the field.

The following procedures must be followed by EKI personnel:

- Maintain the procedures outlined in this plan for the sake of EKI personnel. In the event that EKI personnel observe that an EKI subcontractor within EKI work areas are not following the minimum activities as defined in this HSP, EKI will advise the subcontractor(s) of such apparent non-compliance. Any such notifications will be documented in the project field logs. If the non-compliance creates a potential health or safety hazard or exposure situation for EKI personnel and the subcontractor(s) responsible for the hazard does not correct the situation, EKI personnel shall remove themselves from the work area or any zone of potential exposure. EKI personnel shall not return to the work area until the situation is safe for their return as judged by the SSO or Field Site Safety Officer (“FSSO”).
- EKI personnel shall not create potentially unsafe working conditions that may endanger other Site contractors or personnel.
- The EKI SSO or his/her representative will conduct appropriate air monitoring within EKI work areas in the form of a personal organic vapor meter (“OVM”). As a matter of convenience and coordination, such air monitoring information may be provided to others at the Site, including EKI’s subcontractors. However, EKI’s subcontractors and all other contractors, subcontractors, or other third parties are responsible for obtaining, and responding to, as appropriate, any air monitoring information at the Site consistent with their corporate policies and Site-specific health and safety plans. EKI will not assume responsibility for air monitoring and for determination of protection levels for other contractors and Site personnel.

### **3.0 KEY HEALTH AND SAFETY PERSONNEL**

The EKI Corporate Safety Officer is Thomas W. Kalinowski, Sc.D. The SSO will be Logan Hansen, P.G. during work at the Site. The SSO may designate a FSSO. The SSO or FSSO is to be present during field activities at all times. The SSO or FSSO is responsible for the following:

- Observing field activities for compliance with this Site Health and Safety Plan, applicable addenda, and EKI's CHSP.
- Modifying health and safety protocols or terminating field work when unsafe work conditions exist.
- Familiarizing EKI personnel with health and safety protocols.
- Ensuring that EKI field personnel wear appropriate personal protective equipment.
- Recording data from direct reading instruments and evaluating potential hazards to EKI personnel.
- Monitoring decontamination procedures.
- Recording the occurrence of any Site injury or illness.

The SSO and FSSO have the authority to suspend the operations of EKI employees and EKI subcontractors if it is determined that Site conditions have become unsafe. The SSO and FSSO will also be members of the Site characterization team and will have project responsibilities in observing and participating in characterization activities. Conflicts, if any, between the multiple responsibilities of the SSO and FSSO will be resolved with the participation of the Project Manager or Corporate Health and Safety Officer.

#### **4.0 TASK / OPERATION SAFETY AND HEALTH PLAN**

This section provides a brief description and history of the Site and discusses the proposed Site activities, associated health hazards, and appropriate protective actions.

##### 4.1 Site Description and History

The Trailer Disposal and Former Debris Areas are located on the Moss Beach Ranch portion of the Rancho Corral de Tierra property in Moss Beach, San Mateo County, California. Moss Beach Ranch is a working equestrian facility, located approximately half a mile down an unpaved driveway off of Etheldore Street. The areas are situated approximately 150 feet apart, on either side of San Vicente Creek. The Trailer Disposal area is located behind a trailer home, approximately 40 feet west of San Vicente Creek. The Former Debris Area is located approximately 110 feet east of San Vicente Creek in an open field used for parking and equestrian activities. Although the sources of chemical impact at the Site are not specifically known, they are likely associated with the debris at the Site and disposal of containers and wastes from maintenance activities at Moss Beach Ranch.

##### 4.3 Proposed Field Activities

POST is now planning soil excavation activities at the Site. The primary planned field activities for summer 2012, on behalf of POST, include the following:

1. Observing soil excavation, waste loading, truck decontamination, and soil off-hauling activities as part of the implementation of the Removal Action Workplan dated May 2012;
2. Collecting environmental soil and air samples and preparing environmental samples for submittal to an analytical laboratory.

##### 4.4 Potential Physical Hazards

Potential physical hazards for EKI personnel, associated with operation of equipment by Contractor, include hazards associated with use of heavy equipment and electrical equipment, excessive noise associated with heavy machinery and falling debris. Excessive heat can lead to heat stress or heat stroke, which are discussed below.

### Operating Equipment

Field personnel should be aware of potential physical hazards associated with use of heavy equipment and electrical equipment during field operations. Appropriate precautions include the following:

- Hard-hat, steel-toe boots, and safety goggles or glasses will be worn during all field activities involving heavy equipment operation;
- Heavy work gloves will be worn when handling heavy equipment. Chemical resistant gloves will be worn when taking samples or handling sampling reagents;
- High visibility safety vests will be worn when working in areas where heavy equipment is operating;
- Personnel who operate machinery or are within 10 feet of operating gasoline or diesel powered equipment will wear approved hearing protection; and
- A first aid kit and cellular phone will be available at the Site.

Potential physical hazards associated with operation of heavy equipment such as excavators, backhoes, and trucks by the Contractor or sub-contractors include:

- Noise;
- Moving parts of the equipment which may catch clothing or hair;
- High-pressure hydraulic lines that may be hazardous when incorrectly assembled or in ill-repair;
- Underground utilities and pipelines which can be ruptured or damaged;
- Moving the equipment over uneven terrain which may cause the vehicle to become unstable and roll or become stuck;
- Lifting or moving heavy items such as buckets or drums; and
- Injury due to falling or tripping.

Personnel will be made aware of this equipment and the hazards of working around such equipment. All personnel operating such equipment will be made aware of the presence of other site personnel. Whenever appropriate, warning devices (e.g., cones, caution tape) will be placed to alert site personnel to the location of specific hazards or to areas where personnel should use special caution.

The hazards related to the use of the specific heavy equipment during on-Site activities will be reviewed during the health and safety meeting to be held at the start of the field activities.

### Noise

Work around heavy equipment always includes the possibility of excessive noise. Where excessive noise may be encountered, employees will be provided with hearing protection such as earplugs or earmuffs. Excessive noise can be readily indicated to the workers on-Site by difficulty in hearing verbal communication at approximately an arm's length away. If such conditions exist, hearing protection will be instituted as appropriate (see also the EKI CHSP).

*Vehicular Traffic*

All work is anticipated to be performed off roadways. Thus, there are no concerns related to vehicular traffic.

*Heat Stress and Heat Stroke*

Adverse climatic conditions, primarily heat, are important considerations in planning and conducting Site operations. Heat stroke and stress are an associated concern. All on-Site personnel must be familiar with the symptoms of heat stress, and the conditions during which it may occur. The use of protective clothing greatly enhances the likelihood of heat stress. Preventative measures include the following:

- Frequent rest periods in the shade when heat and/or humidity is high.
- Drinking of non-alcoholic fluids will be encouraged, but will be done outside of any designated exclusion zones.
- Suitable acclimation periods will be provided for workers to gradually establish their resistance to heat stress.

Heat stress symptoms may include:

- Nausea, headache, lightheadedness, cramps, dizziness, clammy skin, lack of coordination, or slurred speech.

Heat stroke symptoms may include:

- Hot, dry skin;
- Mental confusion; and
- Unconsciousness.

**HEAT STROKE IS LIFE THREATENING AND A MEDICAL EMERGENCY.  
SEEK EMERGENCY MEDICAL TREATMENT IMMEDIATELY (See Section 5.0).**

Where Site conditions warrant, the SSO or FSSO will monitor for heat stress and implement work/rest regimens, if necessary. Potable water and/or an electrolyte replacement fluid such as Gatorade will be available on-Site at all times.

Personnel exhibiting symptoms of heat stress will be removed from the work area, and cooled. Fluids will be administered, and the personnel will be observed. Personnel exhibit symptoms of heat stroke will be immediately cooled and transported to the nearest hospital (see Figure 1).

At all times, EKI employees shall be provided access to potable drinking water, either from an available and easily accessible continuous source or a portable supply of at least one quart of water per employee per hour for the entirety of the shift. The EKI Site Safety Officer shall encourage the frequent drinking of water by EKI employees at the daily health and safety meeting conducted on Site.

Further, EKI shall provide access to a shaded area to EKI employees suffering from heat illness or believing a preventative recovery period (a period of time to recover from the heat in order to prevent the onset of heat illness) is needed. A shaded area is defined as a canopy, umbrella, or other temporary structure designed to provide shade. The shaded area shall be open to air or provided with a cooling ventilation system. Any employee needing access to a shaded area shall remain in that area for a period of at least 5 minutes, or until the employee feels adequately prepared to resume work and the EKI Site Safety Officer or Corporate Safety Officer agree that the employee is able to resume work activities.

At any time, an EKI employee can indicate to the Site Safety Officer that he or she requires a recovery period. The Site Safety Officer may also direct an EKI employee to take a recovery period if he or she deems such an action necessary. Any employee requiring a recovery period shall be escorted to the designated shaded recovery area. The designated shaded area shall be within visual range of the site so that the employee's condition may be continually monitored. An employee may be referred for medical attention if the symptoms of heat illness persist for longer than 15 minutes or if an employee requires more than two recovery breaks in one 8-hour shift. Preventative recovery periods will not count towards the two recovery breaks that may lead to a referral for medical attention.

EKI shall provide site specific training regarding heat illness to all supervisory and non-supervisory employees working on site. The training will include but not be limited to the following the areas:

- The environmental and personal risk factors for heat illness.
- Procedures for complying with the requirements of the heat stress standard.
- The importance of frequent consumption of small quantities of water, up to 4 cups per hours, under extreme conditions of work and heat.
- The importance of acclimatization.
- The different types of heat illness and the common signs and symptoms of heat illness.
- The importance of immediately reporting to one's supervisor symptoms or signs of heat illness in themselves or in co-workers.
- The site procedures for providing first aid to respond to a heat illness, and the emergency procedures in place for contacting medical service providers.

### Confined Spaces

EKI field personnel will not enter any tanks, trenches, or excavations that are not properly shored, braced, or sloped. In addition, EKI personnel will not enter any confined space.

No confined space entry is envisioned in the possible range of activities that may be conducted at the Site. If confined space entry becomes necessary, a specific health and safety plan for that activity will be prepared.

### Open Excavations

The Contractor will be removing shallow soil using standard excavation techniques to an anticipated depth of 1 to 2.5 feet below ground surface. Groundwater is not anticipated to be encountered during remedial work. The potential hazard of an excavation area collapsing or personnel falling into an open excavation exists during or after digging at any point prior to backfilling of an excavation. When working near excavations, EKI personnel will remain at least 2 feet away from sidewalls of excavations greater than 4 feet in depth. EKI personnel will not approach any area where the face of an open excavation is not appropriately sloped or shored for the on-Site soil conditions.

EKI field personnel will not enter trenches or excavations that are greater than 4 feet in depth that may qualify as a confined space or any excavation that appears to present an indication of potential cave-in as determined by competent EKI field personnel. EKI personnel will obtain assistance from the contractor to acquire needed soil samples, e.g., from backhoe bucket, without entering these excavations.

### Fire Protection

The SSO or designated representative will verify that construction vehicles within work area will contain fire extinguishers as required by OSHA regulations. Additionally, 10-pound type ABC fire extinguishers will be located within the immediate work area so that the maximum distance to a fire extinguisher does not exceed 75 feet.

## 4.5 Potential Chemical Hazards

EKI conducted focused environmental investigations at the Site in 2011 and 2012 (EKI, 2011; EKI, 2012). The attached Tables K-1 through K-6 summarize the results of sampling performed by EKI in April 2011 and February 2012. As indicated in the tables, metals (i.e., antimony, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, vanadium, and zinc), organochlorine pesticides, volatile organic compounds (“VOCs”), and diesel and motor oil range total petroleum hydrocarbons (“TPH”) are present in soil at the Site. *Escherichia coli* (“*E. coli*”) was detected in surface water. Chemical hazard information for these chemicals of concern is included below.

Table K-7 lists chemical compounds in soil that may be encountered at the Site during the sampling activities, their respective Exposure Symptoms, their OSHA Permissible Exposure Limits (“PELs”), and symptoms of potential exposure to the compounds. The PEL is the maximum permitted 8-hour time-weighted average concentration of an airborne contaminant in a work environment.

### Chemicals of Concern

Note that the State of California has determined that several compounds listed in Tables K-1 through K-7 are human carcinogens or reproductive toxicants. The following notice is presented

to personnel who may have access to the Site as a result of the planned subsurface investigation activities and who are required to read and acknowledge this health and safety plan.

**WARNING:** This area contains chemicals known to the State of California to cause cancer and/or reproductive harm.

As discussed in above, *E. coli* was detected in surface water samples from Martini Creek at Ocean View Farms. Fecal coliform, *E. coli*, and *Enterococci* bacteria may be present in surface water on the Site. Precautions will be implemented to minimize exposure to bacterial agents that may be present in surface water, e.g., use of gloves during sampling, proper decontamination, washing of hands prior to eating, and other personal hygiene practices. These are the same precautions being used to minimize exposure to chemicals in soil.

### Potential Exposure Routes

The primary modes of possible exposure of Site personnel to hazardous chemicals during this project are through inhalation of vapors, skin contact with contaminated soil and ingestion of contaminated soil. The primary modes of possible exposures to petroleum hydrocarbons, VOCs, metals, and pesticides are discussed below.

Petroleum Hydrocarbon Compounds: The primary modes of possible exposure to petroleum hydrocarbons during this project are through the inhalation of vapors, through skin contact with contaminated soil, and ingestion of contaminated soil. Ingestion is usually minimized through personal hygiene practices. Common symptoms of exposure to petroleum hydrocarbons at elevated concentrations include irritation of eyes and the respiratory system, headaches, nausea, dizziness, and fatigue (source - NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, dated September 2007).

VOCs/Benzene, Toluene, Ethylbenzene, and xylenes (“BTEX”): The primary modes of possible exposure to VOCs/BTEX during this project are through inhalation of vapors, absorption through the skin resulting from contact with contaminated soils, through eye contact with vapors or contaminated soil, and ingestion of contaminated soil. Ingestion is usually minimized through personal hygiene practices. Common symptoms of exposure to VOCs/BTEX at elevated concentrations include irritation of the eyes, skin, nose and respiratory system, headache, nausea, dizziness, and fatigue. Certain VOCs may be carcinogenic (e.g., benzene) (source - NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, September 2007).

Metals: The primary modes of possible exposure to metals during this project are through skin contact/absorption due to contact with contaminated soil, inhalation of airborne particulates containing metals, and ingestion of contaminated soil. Ingestion is usually minimized through personal hygiene practices. Common symptoms of exposure to metals at elevated concentrations include irritation of eyes and respiratory system, headaches, nausea, dizziness, and fatigue (source - NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, dated September 2007).

Organochlorine Pesticides: The primary modes of possible exposure to organic pesticides during this project are through skin contact/absorption due to contact with contaminated soil, inhalation of airborne particulates containing organic pesticides, through eye contact with airborne particulates containing organic pesticides, and ingestion of contaminated soil. Ingestion is usually minimized through personal hygiene practices. Common symptoms of exposure to organic pesticides at elevated concentrations include headache, dizziness, weakness, nausea, vomiting. Certain organic pesticides may be carcinogenic (e.g., 4,4'-DDT) (source: NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, dated September 2007).

#### 4.6 Minimization of Potential Chemical Exposure

Field personnel will minimize potential exposure to chemical hazards by avoiding direct contact with soil through the use of protective equipment.

Safe work practices, including the restriction of eating, drinking, or smoking in the work areas will also be enforced at the work site to minimize potential contact and ingestion of soil and water. Workers will wash thoroughly after removal of their personal protective equipment. Respiratory protective measures are discussed below in Section 4.8.

#### 4.7 Community Hazard Analysis

Insignificant particulate and vapor emissions are expected to be generated during the planned surface soil sampling activities. On-Site worker exposure to chemicals at airborne concentrations of concern, i.e., above the PELs listed in Table K-7, is not expected. Potential exposure to the surrounding community will likely be much less than potential on-Site worker exposure and, therefore, is also not expected to be of concern. Adherence to the criteria as described in Section 4.8 below is designed to protect human health through administrative controls and safe working practices.

#### 4.8 Protective Actions

##### Personal Protective Equipment

EKI field personnel will wear equipment to protect against the potential physical and chemical hazards that have been identified herein and those that become apparent in the field. Level D personal protection will be required, at a minimum, by the SSO or FSSO for all field activities at the Site. Level D personal protective equipment includes:

- Hard hat;
- Chemical resistant disposable gloves (vinyl);
- Boots, steel toe and shank; and
- Safety glasses (and earplugs near operating equipment).

The level of protection employed for general Site activities by EKI personnel may be upgraded, as deemed necessary by the SSO or FSSO. If significant dust generation occurs, the SSO or

FSSO may require modified Level C protection (i.e., donning of air purifying respirators and use of Tyvek coveralls). In addition to the Level D protection described above, modified Level C protection includes:

- Respiratory protection consisting of a half-face or full-face air purifying respirator with organic vapor filter cartridges, and
- Use of Tyvek coveralls.

EKI utilizes standardized procedures for respirator fit testing and equipment calibration. These procedures are described in the EKI Corporate Health and Safety Plan.

If air-purifying respirators are required, organic vapor filter cartridges will be changed at least once daily. This cartridge changeout schedule is appropriate for this Site, on the basis of the concentrations of chemicals detected in soil and groundwater at the Site and anticipated concentrations of VOCs in air.<sup>1</sup>

### Work Zones

No specific exclusion and decontamination zones will be established for the planned construction observation activities at the Site. All visitors to the Site who enter the sampling areas will be requested to sign the daily log maintained by EKI and will be advised of the potential health hazards associated with the environmental investigations. Non-essential and non-certified individuals will be directed away from the sampling areas.

If required, specified work zones, including designation of an exclusion zone (“EZ”), a contamination reduction zone (“CRZ”), and a support zone will be established by the SSO or FSSO for any field activity which requires Level C personal protection. Unauthorized and unprotected individuals will not be permitted within the EZ or CRZ. All Health and Safety protocols outlined in this plan shall be observed within the EZ and CRZ, as appropriate. The SSO or FSSO will direct all non-essential and non-certified personnel to remain in the support zone.

Communications will generally be oral, given the small size of the work zones.

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<sup>1</sup> The estimated service life of the vapor filter cartridges was assessed for the primary chemicals detected in soil and groundwater at the Site (i.e., those chemicals present at the highest concentrations that are likely to control the cartridge lifetime) using the North Safety Products “esLife™ EZ Service Life Estimation Table” and the 3M Service Life Software, Version 1.1. The service life was evaluated for a presumed continuous vapor concentration of 10 ppm.

### Monitoring

Volatile Organic Compounds: Field personnel will perform air monitoring routinely with a direct reading OVM in the breathing zone at each work location during the planned investigation activities. The SSO or FSSO will verify that all instruments are operating correctly before they are brought to the Site and are calibrated in the office or at the Site before work starts at the Site each day. All calibration readings (i.e., zero and span measurements, and calibration gas and its concentration) and field readings shall be recorded in the field log. Background OVM measurements shall be made at the start of the work period and at least once later each day at a nearby location, preferably up wind from the work area. Work area measurements will be made when a new work area is entered and periodically throughout the workday.

If detectable organic vapors (i.e., consistent readings greater than 5 parts per million by volume (“ppmv”) over background) are measured by the OVM or significant dust is observed in the breathing zone of a particular work area, field activities will be suspended, and personnel will withdraw from the work area. During this time, any exposed soil will be covered with visqueen and open boreholes will be covered with visqueen, plugged with core material, or filled with grout, to minimize further volatilization. Field activities will remain suspended until the source of the emission is identified and the source is controlled.

If organic vapor concentrations measured on the OVM cannot be effectively reduced to below 5 ppm using engineering controls discussed above, then Level C protection (half-face or full-face respirators fitted with organic and particulate filter cartridges) will be required for EKI personnel within the work area. Arrangements will be made by the SSO or FSSO for personal breathing zone air samples to be collected to document VOC concentrations if Level C protection is required. The respirator cartridge changeout frequency will also be re-assessed based upon the results of the air samples.

If OVM readings continuously exceed 10 ppmv above background in the breathing zone while workers are in Level C protection, then work will cease, and the source of the emission will be identified and controlled before work continues. During this time, any exposed soil will be covered with visqueen and open boreholes will be covered with visqueen, plugged with core material, or filled with grout, to minimize further volatilization.

### Decontamination

Personal Level D decontamination procedures to be used by EKI personnel and EKI subcontractors will include:

- Removal of personal protective equipment, such as gloves, coveralls;
- Washing of sampling equipment with deionized water and Alconox solution; and
- Brushing, vacuuming, steam-cleaning, or high-pressure washing drilling equipment. All steam-cleaning or high-pressure washing will be conducted in an area where steam-cleaning water will be contained in 55-gallon drums for subsequent characterization and disposal.

If Modified Level C personal protection is required for EKI personnel, minimum decontamination procedures associated with Level C protection will be established and followed within the CRZ. These procedures are the same for Level D, but also include the following:

- Removal of proper personal protection equipment followed by removal of the air purifying respirator;
- Decontamination procedures (as described above) and preliminary respirator cleaning using “wipes”;
- Washing of boots and equipment prior to leaving the CRZ; and
- Bagging and disposal of respirator cartridges and personal protection equipment at the end of each day.

If Level C personal protection is required, reusable personal protective equipment and sampling equipment will be decontaminated by washing the equipment with a trisodium phosphate solution and rinsing with deionized water. A decontamination area will be set up within the CRZ, and visqueen will be put down beneath the area to contain any fluids generated during decontamination activities. All fluids and disposable equipment will be properly contained in labeled drums and disposed after appropriate characterization.

If an injury occurs to personnel who are in Level C protection, decontamination procedures will be followed to the extent reasonable based upon the nature of the injury.

The decontamination process, to be implemented by the Contractor, will include the removal of accumulated dirt and other contamination from the vehicles and equipment while said vehicles and equipment remain in the established decontamination zones and before exiting to support zones or public streets. In accordance with the Decontamination Plan in the RAW, a decontamination pad will be provided by the Contractor for its vehicle and equipment cleaning, and decontamination methods for vehicles and equipment will, at a minimum, consist of brushing, vacuuming, steam cleaning, and/or high-pressure washing. Vehicles operated by EKI or EKI subcontractors within any established EZ or CRZ at the Site will be decontaminated, as needed, consistent with the requirements of the Contractor.

### Spill Containment

Planned excavation at the Site is limited to shallow soil (i.e., approximately 1 to 2.5 feet below ground surface); therefore, groundwater is not anticipated to be encountered during remedial work. Water to be used or handled on-Site includes decontamination water and water used for dust suppression purposes. The quantities of water to be handled are low, i.e., a maximum of 55-gallons in any one container. If a spill were to occur, the water would be contained with absorbent materials. After containment, the fluids and absorbent materials would be recovered and put in 55-gallon drums for appropriate disposal. PPE requirements are expected to be the same as those required for the work activities. Due to the limited potential for spills and the nature of materials likely to spill, the 40-hour basic and annual 8-hour refresher hazardous waste operations (“HAZWOPER”) training specified in 8 CCR Section 5192 are considered adequate for the Site conditions.

### Waste Management

Equipment decontamination wastewater may be generated by EKI. The wastewater will be contained in metal 55-gallon drums that will be sealed, labeled, and left on Site for subsequent off-Site disposal by the Client, with assistance from EKI.

For materials that are encountered during exploratory trenching that cannot be returned to the excavation, e.g., oily soil, drums, will be placed on plastic sheeting and covered and secured with plastic sheeting. Client will be responsible for removal of such materials from the Site, as appropriate.

### Training

EKI personnel participating in investigation activities at the Site and all on-Site personnel working within the demarcated work area, or exclusion zone, will have completed the Hazardous Waste Operations and Emergency Response 40-Hour Health and Safety training course in compliance with 29 CFR 1910.120 and 8 CCR 5192.

On-Site tailgate meetings, conducted by the SSO or FSSO, will be held before each work day to familiarize personnel with health and safety issues, protective equipment, emergency information and supplies, and to discuss special topics. This training will be documented as part of the daily documentation for the Site and participants in the daily meeting will sign a log acknowledging their attendance.

### Medical Monitoring

EKI personnel participating in field activities are included in a medical monitoring program. The program meets the requirements of 29 CFR 1910.120 and CCR Title 8, 5192 f(3)A. The primary elements of the program are that exams are given:

- Prior to assignment
- Annually
- On a periodic basis as determined necessary by the examining physician
- At termination of employment
- As soon as possible following a high exposure episode, injury or illness or when an employee experiences symptoms which are suspected to be attributable to a work exposure.

Details of the medical program are included in EKI's CHSP.

### Site Facilities

The Contractor will be providing a portable restroom and hygiene / decontamination facilities at the Site. EKI personnel and subcontractors engaged in field activities at the Site shall not exit the active work areas of the Site unless proper decontamination has occurred. EKI will furnish drinking water for its personnel as discussed above in Section 4.4 above.

### Safety Briefings

At the beginning of each day of work, the SSO or FSSO will brief all field staff as to the work conditions and hazards associated with the planned subsurface investigation activities. The nearest telephone will be identified, and the route to the nearest medical facility will be reviewed. Daily Site-specific training is detailed above. The SSO or FSSO will ensure that all EKI personnel have reviewed this Health and Safety Plan. A signed log of attendees at safety meetings and acknowledgment of review of the health and safety plan will be maintained by EKI.

## **5.0 EMERGENCY RESPONSE PLAN**

The nature of work at the job Site makes fire and medical emergencies a continual possibility. The EKI SSO and FSSO will be familiar with emergency procedures and evacuation routes (Figure 1). A first aid kit and emergency wash water will be readily available.

In the event of a fire not readily extinguishable through the use of fire extinguishers, the area will be evacuated and the local fire department will be notified.

No significant chemical emissions resulting in acute exposure are anticipated at the Site. If an injury occurs due to an accident, the SSO or FSSO will be immediately notified so appropriate first aid can begin and medical attention arranged, if necessary. The SSO or FSSO will investigate the nature and cause of the accident so that work procedures can be modified to minimize the likelihood of the incident's recurrence. The SSO or FSSO will assist in preparation of required reports of injury or illness as required by regulations and the EKI Injury and Illness Prevention Program (“IIPP”).

Routine and emergency communication will be provided through the EKI mobile telephone. Emergency telephone numbers are given in Table K-8. For emergencies not requiring an ambulance, injured personnel will be transported to Seton Medical Center Coastside (see Figure 1). Directions to the Seton Medical Center Coastside and standard procedures for reporting emergencies are also included in Table K-8.

## **6.0 GENERAL WORK RULES**

- Do not eat, drink, or smoke in any work area.
- Wash hands and face before eating, drinking, or smoking.
- Minimize skin contact with soil and groundwater.
- Chemical protective gloves must be worn when handling contaminated or potentially contaminated materials.
- If any electrically powered equipment is used on-Site, it must be explosion-proof where explosion hazard exists and utilize a ground-fault interrupter approved for outdoor use.

- Eye protection is required when engaged in or observing mechanical work.
- Used personal protective clothing, e.g., gloves and Tyvek, shall be disposed of by placing them in a designated container.
- Wash contaminated equipment before removing it from the Site or place contaminated equipment in plastic bags for later decontamination.



## 7.0 SIGNATURES

Site Safety Officer \_\_\_\_\_ Date \_\_\_\_\_

Project Manager \_\_\_\_\_ Date \_\_\_\_\_

Corporate Safety Supervisor \_\_\_\_\_ Date \_\_\_\_\_

**TABLE K-1**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR METALS**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)																
					Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
<b>Moss Beach Ranch</b>																					
TRA-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60.0	
TRA-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	68.4	
TRA-4.5	Trailer Disposal Site	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	33.4	
TRB-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	76.4	
TRB-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	47.8	
TRB-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	29.9	
TRC-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	90.9	
TRD-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	54.1	
TRD-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	59.4	
TRE-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	145	
TRE-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	18.8	--	--	--	--	--	--	--	86.7	
TRE-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	24.3	
TRF-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	10.1	--	--	--	--	--	--	--	94.6	
TRF-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	3.71	--	--	--	--	--	--	--	42.5	
TRG-0.75	Trailer Disposal Site	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	87.7	
TRG-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25.2	
TRH-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	94.4	
TRH-4.5	Trailer Disposal Site	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37.1	

**TABLE K-1**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR METALS**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)																
					Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
TRI-0.75	Trailer Disposal Site	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	85.1
TRI-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	69.9
TRI-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	43.4
TRJ-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	239
TRJ-3.5	Trailer Disposal Site	Discrete	2/22/2012	3.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	22.3
TRK-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	56.9
TRK-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21.9
CREEK A	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	60.8
CREEK B	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61.9
CREEK C	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	88.8
CREEK D	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	92.3
CREEK E	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	61.7
MS1-1	Trailer Disposal Site	Discrete	2/24/2012	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MS1-2	Trailer Disposal Site	Discrete	2/24/2012	2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MS2-1	Trailer Disposal Site	Discrete	2/24/2012	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MS2-2.5	Trailer Disposal Site	Discrete	2/24/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
MBSTR1-1.5	Trailer Disposal Site	Discrete	4/19/2011	1.5	<0.34	<b>4.7</b>	89.1	0.39	0.52	8.5	6	26.4	24.5	0.076	11.2	7	0.59	<0.34	<0.34	<b>25.3</b>	<b>1,130</b>
MBRTR1-5	Trailer Disposal Site	Discrete	4/19/2011	5	<0.32	<b>1.6</b>	86.3	0.55	<0.32	7.3	5.7	3.7	4.6	<0.051	2.4	4.5	0.69	<0.32	<0.32	<b>30</b>	44.7

**TABLE K-1**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR METALS**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)																	
					Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc	
MBRTRS	Trailer Disposal Site - Shallow Fill	MIS	4/18/2011	surface	0.925	<b>2.41</b>	161	<0.0621	<0.0802	24.4	6.3	13.3	21	0.0605	0.489	18.6	0.556	0.623	<0.0297	<b>34</b>	79.5	
MBRSHS	Mechanical Shed	Discrete	4/19/2011	surface	0.31	<b>3.1</b>	369	0.27	2	71.1	10.9	50.8	6.9	0.36	5.6	76.3	2.5	<0.26	<0.26	<b>151</b>	185	
MBR1S	Location 1 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	39.7	--	--	--	--	--	--	--	--	
MBR2S	Location 2 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	32.7	--	--	--	--	--	--	--	--	
MBR3S	Location 3 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	20.3	--	--	--	--	--	--	--	--	
MBR4S	Location 4 - Soil at base of	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	54.7	--	--	--	--	--	--	--	--	
MBR4S-DUP	at base of	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	25.7	--	--	--	--	--	--	--	--	
MBR4D	Location 4 - Soil at base of structures	MIS	4/19/2011	1	--	--	--	--	--	--	--	--	11	--	--	--	--	--	--	--	--	
MBR4L	Location 4 - Soil at base of	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	7.78	--	--	--	--	--	--	--	--	
MBR5S	Location 5 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	5.01	--	--	--	--	--	--	--	--	
MBR6S	Location 6 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	13.4	--	--	--	--	--	--	--	--	
MBR7S	Location 7 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	8.94	--	--	--	--	--	--	--	--	
MBR8S	Location 8 - Soil at base of structures	MIS	4/19/2011	surface	--	--	--	--	--	--	--	--	9.45	--	--	--	--	--	--	--	--	
FDA-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37.8	
FDG-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	36.7
FDH-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	29.4

**TABLE K-1**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR METALS**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)																
					Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
FDI-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	55.8
FDM-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	44.3
MBR9S	Location 9 - Former Debris Pile	MIS	4/18/2011	surface	0.958	<b>4.87</b>	214	0.465	<0.0804	35	11	48.5	17	0.0956	0.507	40.9	0.711	1.11	<0.0298	<b>40.6</b>	213
<i>RWQCB ESL for Residential Shallow Soil (&lt;3 meters) (d)</i>					<i>6.3</i>	<i>0.39</i>	<i>750</i>	<i>4</i>	<i>1.7</i>	<i>1,000</i>	<i>40</i>	<i>230</i>	<i>200(f)</i>	<i>1.3</i>	<i>40</i>	<i>150</i>	<i>10</i>	<i>20</i>	<i>1.3</i>	<i>16</i>	<i>600</i>
<i>Background Metals: Northern Santa Clara County (e)</i>					<i>na</i>	<i>0.5-20</i>	<i>1.7-490</i>	<i>0.25-3.2</i>	<i>0.4-14</i>	<i>9.5-170</i>	<i>0.92-29</i>	<i>4.6-67</i>	<i>3.4-54</i>	<i>0.02-1.3</i>	<i>0.26-14</i>	<i>6-145</i>	<i>0.12-4</i>	<i>0.3-4.8</i>	<i>0.2-3.8</i>	<i>0.79-120</i>	<i>7.8-120</i>

**Abbreviations:**

- "--" - not analyzed for this compound
- <0.50 - Compound not detected at or above indicated laboratory detection limit
- ft bgs - Feet below ground surface
- J - Estimated value. Analyte detected at a level less than the Reporting Limit and greater than or equal to the Method Limit.
- mg/kg - Milligrams per kilogram
- na - Cleanup goal not available
- MIS - Multi-Increment Sample

**Notes:**

- (a) Prior to analysis, all MIS samples were prepared in accordance with the State of Hawai'i Department of Health Office of Hazard Evaluation and Emergency Response's Technical Guidance Manual for the Implementation of the Hawai'i State Contingency Plan (2009 Edition), Laboratory Preparation of Multi-Increment Samples. All MIS samples were analyzed for metals using EPA Method 6010/7471 by TestAmerica Laboratories, Inc., Aiea, HI. Discrete samples were analyzed for metals using EPA Method 6020A/7471 by Accutest laboratories, San Jose, CA.
- (b) Analytical results reported on a dry-weight basis. Analytical results include estimated values that were detected at a level less than the reporting limit and greater than or equal to the method detection limit as shown in attached laboratory analytical reports.
- (c) Concentrations indicated in **bold** exceed the risk-based screening criteria.
- (d) RWQCB ESL - Table A-1, Shallow Soil Screening Levels (≤3m bgs), Residential Land Use, Groundwater is a current or potential drinking water resource, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008).
- (e) Scott, C.M. 1995. Background Metal Concentrations in Soils in Northern Santa Clara County, California in: Recent Geological Studies in the San Francisco Bay Area, Pacific Section of the Society of Economic Paleontologists and Mineralogists, Volume 76. Barium, cobalt, molybdenum, and vanadium were not included in the background study by Scott (1995). Therefore, background levels from *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*, dated June 2002, revised April, 2009, are used.
- (f) The California Human Health Screening Level for lead is 80 mg/kg. This value is more current than the ESL of 200 mg/kg. However, EKI understands that the Presidio cleanup levels for lead of 400 mg/kg (not-to-exceed value) and 370 mg/kg (maximum value) are generally used within the Golden Gate National Recreation Area.

**TABLE K-2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR VOCs and TPH**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)								
					VOCs							TPH	
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Naphthalene	n-Butylbenzene	Xylenes, Total	Other VOCs	TPH Diesel	TPH Motor Oil
<b>Moss Beach Ranch</b>													
TRA-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	<b>133</b>	124
TRA-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<12	<12
TRA-4.5	Trailer Disposal Site	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	<11.2	<11.2
TRB-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	<b>242</b>	121
TRB-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<11.8	<11.8
TRB-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	<11.2	<11.2
TRC-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	<11.7	<11.7
TRD-0.5	Trailer Disposal Site	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	<b>96 (d)</b>	106
TRD-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<13	<13
TRE-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	<b>145 (d)</b>	223
TRE-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	<13.7	<13.7
TRE-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	<11.6	<11.6
TRF-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	<13.2	<13.2
TRF-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	<12.3	<12.3
TRG-0.75	Trailer Disposal Site	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	<b>102 (d)</b>	119
TRG-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<12.1	<12.1
TRH-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<13	<13
TRH-4.5	Trailer Disposal Site	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	<10.9	<10.9
TRI-0.75	Trailer Disposal Site	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	<b>140 (d)</b>	165
TRI-2	Trailer Disposal Site	Discrete	2/22/2012	2	--	--	--	--	--	--	--	<12	<12
TRI-4	Trailer Disposal Site	Discrete	2/22/2012	4	--	--	--	--	--	--	--	<12.4	<12.4
TRJ-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	<11.6	<11.6
TRJ-3.5	Trailer Disposal Site	Discrete	2/22/2012	3.5	--	--	--	--	--	--	--	<10.8	<10.8
TRK-1	Trailer Disposal Site	Discrete	2/22/2012	1	--	--	--	--	--	--	--	<11.7	<11.7
TRK-3	Trailer Disposal Site	Discrete	2/22/2012	3	--	--	--	--	--	--	--	<10.8	<10.8
CREEK A	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	<13.8	<13.8

**TABLE K-2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR VOCs and TPH**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)								
					VOCs							TPH	
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Naphthalene	n-Butylbenzene	Xylenes, Total	Other VOCs	TPH Diesel	TPH Motor Oil
CREEK B	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	<13.2	<13.2
CREEK C	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	<12.7	<12.7
CREEK D	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	<b>139 (e)</b>	90.4 (e)
CREEK E	Trailer Disposal Site	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	<b>95.3 (f)</b>	<14.9
MS1-1	Trailer Disposal Site	Discrete	2/24/2012	1	--	--	--	--	--	--	--	<b>93.9 (f)</b>	81.6 (e)
MS1-2	Trailer Disposal Site	Discrete	2/24/2012	2	--	--	--	--	--	--	--	68.3 (f)	78.4 (e)
MS2-1	Trailer Disposal Site	Discrete	2/24/2012	1	--	--	--	--	--	--	--	64.2 (f)	66.8 (e)
MS2-2.5	Trailer Disposal Site	Discrete	2/24/2012	2.5	--	--	--	--	--	--	--	<13	<13
MBSTR1-1.5	Trailer Disposal Site	Discrete	4/19/2011	1.5	1.27	1.94	3.25	0.651	0.497	0.711	ND	<b>42,500</b>	<b>60,300</b>
MBRTR1-5	Trailer Disposal Site	Discrete	4/19/2011	5	<0.0061	<0.0061	<0.12	<0.0061	<0.0061	<0.012	ND	<13	<26
MBRTRS	Trailer Disposal Site - Shallow Fill	MIS	4/18/2011	surface	--	--	--	--	--	--	--	<b>248</b>	<b>1,260</b>
MBRSHS	Mechanical Shed	Discrete	4/19/2011	surface	--	--	--	--	--	--	--	<b>144</b>	<b>296</b>
FDA-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.3	<12.3
FDB-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.3	<12.3
FDB-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.8	<11.8
FDC-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12	<12
FDC-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<12.2	<12.2
FDD-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<11.4	<11.4
FDD-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.5	<11.5
FDE-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<11.3	<11.3
FDE-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.6	<11.6
FDI-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	70.9 (f)	81.6 (e)
FDI-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<12.9	<12.9
FDG-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<11.6	<11.6
FDH-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12	<12
FDI-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12	<12

**TABLE K-2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR VOCs and TPH**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)								
					VOCs							TPH	
					1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	Acetone	Naphthalene	n-Butylbenzene	Xylenes, Total	Other VOCs	TPH Diesel	TPH Motor Oil
FDJ-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.3	<12.3
FDK-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<11.7	<11.7
FDK-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.7	<11.7
FDL-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.4	<12.4
FDL-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.6	<11.6
FDM-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.6	<12.6
FDN-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.2	<12.2
FDN-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<12	<12
FDO-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<12.4	<12.4
FDO-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<11.6	<11.6
FDP-1	Former Debris Area	Discrete	2/23/2012	1	--	--	--	--	--	--	--	<11.2	<11.2
FDP-2.5	Former Debris Area	Discrete	2/23/2012	2.5	--	--	--	--	--	--	--	<12.3	<12.3
MBR9S	Location 9 - Former Debris Pile	MIS	4/18/2011	surface	--	--	--	--	--	--	--	<b>1,880</b>	<b>3,060</b>
<b>RWQCB ESL for Residential Shallow Soil (&lt;3 meters) (g)</b>					<b>na</b>	<b>na</b>	<b>0.5</b>	<b>1.3</b>	<b>na</b>	<b>2.3</b>	<b>na</b>	<b>83</b>	<b>370</b>

**Abbreviations:**

"--" - not analyzed for this compound

<0.50 - Compound not detected at or above indicated laboratory detection limit

ft bgs - Feet below ground surface

mg/kg - Milligrams per kilogram

MIS - Multi-Increment Sample

na - Cleanup goal not available

TPH - Total Petroleum Hydrocarbons

VOC - Volatile Organic Compounds

C10-C28 - Carbon Range

**TABLE K-2**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR VOCs and TPH**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

**Notes:**

- (a) Prior to analysis, all MIS samples were prepared in accordance with the State of Hawai'i Department of Health Office of Hazard Evaluation and Emergency Response's Technical Guidance Manual for the Implementation of the Hawai'i State Contingency Plan (2009 Edition), Laboratory Preparation of Multi-Increment Samples. All MIS samples were analyzed for TPH using EPA Method 8015M with silica gel cleanup by TestAmerica Laboratories, Inc., Aiea, HI. Discrete samples were analyzed for VOCs using EPA Method 8260B and TPH using EPA Method 8015M with silica gel cleanup by Accutest Laboratories, San Jose, CA.
- (b) Analytical results reported on a dry-weight basis. Analytical results include estimated values that were detected at a level less than in attached laboratory analytical reports.
- (c) Concentrations indicated in **bold** exceed one or more of the risk-based screening criteria.
- (d) The analytical laboratory noted that heavier hydrocarbons were contributing to the diesel range quantitation.
- (e) The analytical laboratory noted that the chromatogram indicated an unknown hydrocarbon with a single peak, rather than a pattern indicative of diesel. EKI requested that K-Prime review the results for this sample to evaluate whether the detected hydrocarbon was likely of natural origins. After reviewing the chromatogram for sample Creek D, K-Prime determined that the hydrocarbons detected within the diesel range did not resemble typical synthetic hydrocarbons and were most likely of natural origins.
- (f) The analytical laboratory noted that the chromatogram indicated an unknown hydrocarbon with a several peaks, rather than a pattern indicative of heavy-range organics or motor oil.
- (g) RWQCB ESL - Table A-1, Shallow Soil Screening Levels ( $\leq 3$ m bgs), Residential Land Use, Groundwater is a current or potential drinking water resource, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008).

**TABLE K-3**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR PESTICIDES**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)											
					Delta-BHC	Chlordane	DDD	DDE	DDT	Dieldrin	Endosulfan I	Endosulfan Sulfate	Endrin	Alpha-Chlordane	Gamma-Chlordane	
<b>Moss Beach Ranch</b>																
TRA-0.5	Trailer Disposal Area	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	<0.00218	--	--
TRA-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.00241	--	--
TRA-4.5	Trailer Disposal Area	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	--	--	<0.00223	--	--
TRB-0.5	Trailer Disposal Area	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	<0.0024	--	--
TRB-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.00236	--	--
TRB-4	Trailer Disposal Area	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	<0.00223	--	--
TRC-0.5	Trailer Disposal Area	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	<0.00235	--	--
TRD-0.5	Trailer Disposal Area	Discrete	2/22/2012	0.5	--	--	--	--	--	--	--	--	--	<0.00237	--	--
TRD-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.00259	--	--
TRE-1	Trailer Disposal Area	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	<0.00255	--	--
TRE-3	Trailer Disposal Area	Discrete	2/22/2012	3	--	--	--	--	--	--	--	--	--	<0.00274	--	--
TRE-4	Trailer Disposal Area	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	<0.00233	--	--
TRF-1	Trailer Disposal Area	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	<0.00264	--	--
TRF-3	Trailer Disposal Area	Discrete	2/22/2012	3	--	--	--	--	--	--	--	--	--	<0.00247	--	--
TRG-0.75	Trailer Disposal Area	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	--	--	<0.00235	--	--
TRG-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.00243	--	--
TRH-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.0026	--	--
TRH-4.5	Trailer Disposal Area	Discrete	2/22/2012	4.5	--	--	--	--	--	--	--	--	--	<0.00218	--	--
TRI-0.75	Trailer Disposal Area	Discrete	2/22/2012	0.75	--	--	--	--	--	--	--	--	--	<0.00231	--	--
TRI-2	Trailer Disposal Area	Discrete	2/22/2012	2	--	--	--	--	--	--	--	--	--	<0.0024	--	--
TRI-4	Trailer Disposal Area	Discrete	2/22/2012	4	--	--	--	--	--	--	--	--	--	<0.00249	--	--
TRJ-1	Trailer Disposal Area	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	<0.00232	--	--
TRJ-3.5	Trailer Disposal Area	Discrete	2/22/2012	3.5	--	--	--	--	--	--	--	--	--	<0.00216	--	--
TRK-1	Trailer Disposal Area	Discrete	2/22/2012	1	--	--	--	--	--	--	--	--	--	<0.00233	--	--
TRK-3	Trailer Disposal Area	Discrete	2/22/2012	3	--	--	--	--	--	--	--	--	--	<0.00216	--	--
CREEK A	Trailer Disposal Area	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	<0.00277	--	--
CREEK B	Trailer Disposal Area	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	<0.00263	--	--
CREEK C	Trailer Disposal Area	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	<0.00254	--	--
CREEK D	Trailer Disposal Area	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	<0.00263	--	--
CREEK E	Trailer Disposal Area	Discrete	2/24/2012	surface	--	--	--	--	--	--	--	--	--	<0.00298	--	--
MBSTR1-1.5	Trailer Disposal Site	Discrete	4/19/2011	1.5	<0.95	<27	<0.95	<0.81	<0.81	<0.81	<0.95	<2.2	<0.81	--	--	--

**TABLE K-3**  
**SUMMARY OF SOIL SAMPLE ANALYTICAL RESULTS FOR PESTICIDES**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Type (a)	Sample Date	Sample Depth (ft bgs)	Analytical Results (mg/kg dry weight) (b) (c)										
					Delta-BHC	Chlordane	DDD	DDE	DDT	Dieldrin	Endosulfan I	Endosulfan Sulfate	Endrin	Alpha-Chlordane	Gamma-Chlordane
MBRTR1-5	Trailer Disposal Site	Discrete	4/19/2011	5	<0.0045	<0.13	<0.0045	<0.0038	<0.0038	<0.0038	<0.0045	<0.01	<0.0038	--	--
MBRTRS	Trailer Disposal Site - Shallow Fill	MIS	4/18/2011	surface	<0.00411	0.112 (f)	<0.00411	0.0049	0.00528 (f)	<0.00411	<0.00411	<0.00411	<b>0.00511 (f)</b>	0.0237	0.0106
MBRSHS	Mechanical Shed	Discrete	4/19/2011	surface	<0.037	<1	<0.037	<0.031	<0.031	<0.031	<0.037	<0.083	<0.031	--	--
MBR9S	Location 9 - Former	MIS	4/18/2011	surface	<0.00399	0.0503	<0.00399	<0.00399	0.00818 (f)	<0.00399	<0.00399	<0.00399	<0.00399	0.00475	<0.00399
<b>RWQCB ESL for Residential Direct Exposure (d)</b>					<i>na</i>	<b>0.44</b>	<b>2.4</b>	<b>1.7</b>	<b>1.7</b>	<b>0.034</b>	<b>82</b>	<i>na</i>	<b>4.1</b>	<i>na</i>	<i>na</i>
<b>RWQCB ESL for Residential Shallow Soil (&lt;3 meters) (e)</b>					<i>na</i>	<b>0.44</b>	<b>2.4</b>	<b>1.7</b>	<b>1.7</b>	<b>0.0023</b>	<i>na</i>	<i>na</i>	<b>0.0065</b>	<i>na</i>	<i>na</i>

**Abbreviations:**

"--" - not analyzed for this compound

<0.004 - Compound not detected at or above indicated laboratory reporting limit. Values shown in *italics* indicate that the reporting limit exceeds the lesser of the two screening criteria shown at the bottom of the table.

ft bgs - Feet below ground surface

mg/kg - Milligrams per kilogram

na - Cleanup goal not available

MIS - Multi-Increment Sample

**Notes:**

- (a) Prior to analysis, all MIS samples were prepared in accordance with the State of Hawai'i Department of Health Office of Hazard Evaluation and Emergency Response's Technical Guidance Manual for the Implementation of the Hawai'i State Contingency Plan (2009 Edition), Laboratory Preparation of Multi-Increment Samples. All MIS samples were analyzed for pesticides using EPA Method 8081A by TestAmerica Laboratories, Inc., Aiea, HI. Discrete samples were analyzed for pesticides using EPA Method 8081A by Accutest laboratories, San Jose, CA.
- (b) Analytical results reported on a dry-weight basis.
- (c) Reported sample concentrations indicated in **bold** exceed the lesser of the two applicable risk-based screening criteria.
- (d) RWQCB ESL - Table K-1, Direct Exposure Soil Screening Levels, Residential Exposure Scenario, from Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, *Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008). California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008).
- (e) RWQCB ESL - Table A-1, Shallow Soil Screening Levels (≤3m bgs), Residential Land Use, Groundwater is a current or potential drinking water resource, from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008).
- (f) Laboratory reported that the relative percent difference between the primary and confirmatory analysis exceeded 40% and the lower value was reported by the laboratory.

**TABLE K-4**  
**SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES**  
**FOR E. COLI AND ENTEROCOCCUS SCREENING**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Date	Matrix	Analytical Results (MPN/mL)	
				(a)	(b)
				E. coli	Enterococcus
MBR-M1	Moss Beach Ranch, Midstream	4/19/2011	Surface Water	<10	<10
MBR-D1	Moss Beach Ranch, Downstream	4/19/2011	Surface Water	<b>10</b>	<10
<i>U.S. EPA Bacteriological Criteria for Water Contact Recreation (c)</i>					
<i>Steady-state (all areas)</i>				<b>1.26</b>	<b>0.33</b>
<i>Maximum, designated beach:</i>				<b>2.35</b>	<b>0.61</b>
<i>Maximum, moderately-used area:</i>				<b>2.98</b>	<b>0.89</b>
<i>Maximum, lightly-used area:</i>				<b>4.06</b>	<b>1.08</b>
<i>Maximum, infrequently-used area:</i>				<b>5.76</b>	<b>1.51</b>

**Abbreviations:**

MPN/mL - Most probable number of colonies per milliliter

**Notes:**

- (a) Surface water samples were analyzed for E. coli and enterococcus using Method C420 (membrane filter method) by EMLab P&K, LLC in San Bruno, CA.
- (b) Concentrations indicated in **bold** exceed one or more of the applicable screening criteria.
- (c) Federal Register, Vol. 51, No. 45, Friday, March 7, 1986, pp. 8012-8016 and The Regional Water Quality Control Board's San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), dated 18 Jan 2007.

**TABLE K-5**  
**SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES**  
**FOR GENERAL WATER CHEMISTRY PARAMETERS AND PESTICIDES**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Date	Field-Determined Parameters (a)			Selected Analytical Results (mg/L) (b) (c)						
			Temperature (deg C)	pH	Electrical Conductivity (uS/cm)	Alkalinity, Total as CaCO <sub>3</sub>	Nitrogen, Nitrate	Nitrogen, Nitrite	Phosphate, Ortho	Solids, Total Suspended	Biochemical Oxygen Demand	Organochlorine Pesticides (a)
MBR-M1	Moss Beach Ranch, Midstream	4/19/2011	12.4	7.42	202	52	0.2	<0.10	0.021	45	<5.0	ND
MBR-D1	Moss Beach Ranch, Downstream	4/19/2011	12.7	7.67	201	52	0.19	<0.10	0.026	37	<5.0	ND
<i>Applicable Water Quality Goal for Beneficial Use (d):</i>												
<i>Basin Plan (Surface Waters) (e)</i>			--	<b>6.5-8.5</b>	--	--	--	--	--	--	--	--
<i>MUN (Primary &amp; Secondary MCLs)</i>			--	--	<b>900</b>	--	<b>10</b>	<b>1</b>	--	--	--	--
<i>AGR (Agricultural Use)</i>			--	<b>4.5-8.3</b>	<b>200 - 3,000</b>	--	<b>5 (f)</b>	<b>5 (f)</b>	--	--	--	--

**Abbreviations:**

- mg/L - Milligrams per liter
- deg C - Degrees Celsius
- uS/cm - Microsiemens per centimeter
- <5.0 - Compound not detected at or above indicated laboratory detection limit

**Notes:**

- (a) Temperature, pH, and electrical conductivity were measured in the field using a calibrated meter during sample collection.
- (b) Surface water samples were analyzed for the following by Accutest Laboratories in San Jose, CA:
  - Total Alkalinity (as CaCO<sub>3</sub>) using Standard Method 2320B
  - Nitrate and Nitrite Nitrogen using EPA Method 300.0
  - Ortho-phosphate using Standard Method 4500
  - Total Suspended Solids using Standard Method 2540D
  - Biochemical Oxygen Demand using Standard Method 5210B
  - Pesticides using EPA Method 8081A
- (c) Concentrations indicated in **bold** exceed one or more of the applicable screening criteria.
- (d) The Regional Water Quality Control Board's San Francisco Bay Basin (Region 2) Water Quality Control Plan (Basin Plan), dated 18 Jan 2007, lists San Vicente and Denniston Creeks as San Mateo Coastal Basin surface water bodies with existing and potential beneficial uses. The beneficial uses for these water bodies include AGR, MUN, COLD, MIGR, RAR, SPWN, WILD, REC1 and REC2. Denniston Creek also has WARM as a beneficial use.
- (e) Several of these parameters have narrative statements in the Basin Plan so that water quality is not adversely impacted with respect to the given parameter.
- (f) Sum of nitrate and nitrite as nitrogen.

**TABLE K-6**  
**SUMMARY OF ANALYTICAL RESULTS FOR DOMESTIC WELL GROUNDWATER SAMPLES**  
**BTEX COMPOUNDS AND PETROLEUM HYDROCARBONS**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

Sample ID	Decision Unit Description	Sample Date	Matrix	Analytical Results (ug/L) (a)							
				Benzene	Toluene	Ethyl benzene	Xylenes (total)	TPH Gas (C6-C10)	TPH Diesel (C10-C28)	TPH Motor Oil (>C28-C40)	Organochlorine Pesticides (a)
MBR-W1	Moss Beach Ranch, Domestic Well	4/18/2011	Groundwater	<0.30	<0.50	<0.30	<0.70	<25	<48	<95	ND
<b>RWQCB ESLs for Groundwater (current or potential drinking water source)(b)</b>				<b>1.0</b>	<b>40</b>	<b>30</b>	<b>20</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>--</b>

**Abbreviations:**

- ug/L - Micrograms per liter
- <0.50 - Compound not detected at or above indicated laboratory detection limit
- TPH - Total Petroleum Hydrocarbons
- C10-C28 - Carbon Range

**Notes:**

- (a) Groundwater samples were analyzed for the following by Accutest Laboratories in San Jose, CA:  
Benzene, toluene, ethyl benzene, xylenes, and TPH Gas using EPA Method 8260  
TPH Diesel and TPH Motor Oil using EPA Method 8015M with silica gel cleanup  
Pesticides using EPA Method 8081A
- (b) RWQCB ESL - Table F-1a, Groundwater Screening Levels, Groundwater is a current or potential drinking water source from *Screening for Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final*, California Regional Water Quality Control Board, San Francisco Bay Region ("RWQCB"), November 2007 (revised May 2008).

**TABLE K-7  
ALLOWABLE CHEMICAL EXPOSURE LIMITS AND EXPOSURE SYMPTOMS**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

CHEMICAL	PEL (a) (ppmv)	STEL (b) (ppmv)	TLV (c) (ppmv)	ROUTE OF ENTRY	ACUTE EXPOSURE SYMPTOMS	TARGET ORGANS
<b>Volatile Organic Compounds</b>						
Benzene	1	2.5	0.5	Inhalation, absorption, ingestion contact	Irritation of eyes, skin, nose, respiratory system; giddiness, headache, nausea, staggered gait; fatigue, anorexia, lassitude; dermatitis; bone marrow depression; (potential occupational carcinogen)	Eyes, skin, respiratory system, blood, central nervous system, bone marrow, (leukemia)
Ethylbenzene	100	125	100	Inhalation, ingestion, contact	Irritation of eyes, skin, mucous membranes; headache; dermatitis; narcosis, coma	Eyes, skin, respiratory system, central nervous system
Toluene	50	NL	50	Inhalation, absorption, ingestion, contact	Irritated eyes, nose; fatigue, weakness, confusion, euphoria, dizziness, headache; dilated pupils, lacrimation; nervousness, muscle fatigue, insomnia; paresthesia; dermatitis; liver, kidney damage	Eyes, skin, respiratory system, central nervous system, liver, kidneys,
Xylenes	100	150	100	Inhalation, absorption, ingestion, contact	Irritation eyes, skin, nose, throat; dizziness, excitement, drowsiness, incoherence, staggering gait; corneal vacuolization; anorexia, nausea, vomiting, abdominal pain; dermatitis	Eyes, skin, respiratory system, central nervous system, gastrointestinal tract, blood, liver, kidneys
<b>Metals</b>						
Antimony	0.5 mg/m <sup>3</sup>	NL	0.5 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Irritation eyes, skin, nose, throat, mouth; cough; dizziness; headache; nausea; vomiting; diarrhea; stomach cramps; insomnia; anorexia; unable to smell properly	Eyes, skin, respiratory system, central nervous system
Arsenic (inorganic compounds, as As)	0.01 mg/m <sup>3</sup>	NL	0.01 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Ulceration of nasal septum, dermatitis, gastrointestinal disturbances, peripheral neuropathy, respiratory irritation, hyperpigmentation of skin; (potential occupational carcinogen)	Liver, kidneys, skin, lungs, lymphatic system, (lung and lymphatic cancer)
Arsenic (organic compounds, as As)	0.2 mg/m <sup>3</sup>	NL	NL	Inhalation, ingestion, contact	In animals: irritation of skin, possible dermatitis; respiratory distress; diarrhea; kidney damage; muscle tremor, seizure; possible gastrointestinal tract, teratogenic, reproductive effects; possible liver damage	Skin, respiratory system, kidneys, central nervous system, liver, gastrointestinal tract, reproductive system
Cadmium, metal dust, soluble salts, as Cd	0.005 mg/m <sup>3</sup>	NL	0.002 mg/m <sup>3</sup>	Inhalation, ingestion	Pulmonary edema, dyspnea, cough, chest tightness, substernal pain; headache, chills, muscle aches; nausea, vomiting, diarrhea; anosmia, emphysema, proteinuria, mild anemia; (potential occupational carcinogen)	Respiratory system, kidneys, prostate, blood, prostate and lung cancer
Copper salts, dusts, and mists, as Cu	1 mg/m <sup>3</sup>	NL	1 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Irritation eyes, nose, pharynx; nasal perforation; metallic taste; dermatitis; in animals: lung, liver, kidney damage; anemia	Eyes, skin, respiratory system, liver, kidneys, (increased risk with Wilson's disease)
Lead, elemental and inorganic compounds, dust and fume, as Pb	0.05 mg/m <sup>3</sup>	NL	0.05 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Weakness, lassitude, insomnia; facial pallor; pal eye, anorexia, low weight, malnutrition; constipation, pain, colic; anemia; gingival lead line; tremor; paralysis wrist, ankles; encephalopathy; kidney disease; irritation eyes; hypertension	Eyes, gastrointestinal tract, central abdominal nervous system, kidneys, blood, gingival tissue
Mercury, inorganic forms including metallic Hg	0.10 mg/m <sup>3</sup>	NL	0.025 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Irritation eyes, skin; coughing, chest pain, dyspnea, bronchitis pneumonitis; tremors, insomnia, irritability, indecision, headache, fatigue, weakness; stomatitis, salivation; gastrointestinal disturbance, anorexia, low weight; proteinuria	Eyes, skin, respiratory system, central nervous system, kidneys
Mercury (organo) alkyl compounds, as Hg	0.01 mg/m <sup>3</sup>	0.03 mg/m <sup>3</sup>	0.01 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Paresthesia; ataxia, dysarthria; vision, hearing disturbance; spasticity, jerking limbs; dizziness, salivation; lacrimation; nausea, vomiting, diarrhea, constipation; skin burns; emotional disturbance; kidney injury; possible teratogenic	Eyes, skin, central nervous system, peripheral nervous system, kidneys

**TABLE K-7**  
**ALLOWABLE CHEMICAL EXPOSURE LIMITS AND EXPOSURE SYMPTOMS**  
Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

CHEMICAL	PEL (a) (ppmv)	STEL (b) (ppmv)	TLV (c) (ppmv)	ROUTE OF ENTRY	ACUTE EXPOSURE SYMPTOMS	TARGET ORGANS
<b>Metals</b>						
Nickel metal, as Ni	1 mg/m <sup>3</sup>	NL	1 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Sensitive skin, allergic asthma, pneumonitis; (potential occupational carcinogen)	Nasal cavities, lungs, skin, (lung and nasal cancer)
Nickel, insoluble compounds, as Ni	1 mg/m <sup>3</sup>	NL	1 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Sensitization dermatitis, allergic asthma, pneuitis; (potential occupational carcinogen)	Nasal cavities, lungs, skin, (lung and nasal cancer)
Nickel, soluble compounds, as Ni	0.1 mg/m <sup>3</sup>	NL	0.1 mg/m <sup>3</sup>	Inhalation, ingestion, contact	Sensitization dermatitis, allergic asthma, pneuitis; (potential occupational carcinogen)	Nasal cavities, lungs, skin, (lung and nasal cancer)
Zinc oxide dust (as total nuisance dust)	10 mg/m <sup>3</sup>	NL	10 mg/m <sup>3</sup>	Inhalation	Metal fume fever; chills, muscle ache, nausea, fever, dry throat, coughing, weakness, lassitude; metallic taste; headache; blurred vision; low back pain; vomiting; fatigue; malaise; tight chest, dyspnea, rales, decreased pulmonary function	Respiratory system
<b>Pesticides</b>						
Aldrin	0.25 mg/m <sup>3</sup>	NL	0.25 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Headache, dizziness, nausea, vomiting, malaise, ; myoclonic jerks of limbs; clonic, tonic, convulsions; coma; hematuria, azotemia; (potential occupational carcinogen)	Cancer, central nervous system, liver, kidneys, skin
Chlordane	0.5 mg/m <sup>3</sup>	NL	0.5 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Blurred vision; confusion; ataxia, delirium; cough; abdominal pain, nausea, vomiting, diarrhea; irritability, tremor, convulsions; anuria	Central nervous system, eyes, lungs, liver, kidneys
BHC (Lindane)	0.5 mg/m <sup>3</sup>	NL	0.5 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Irritation eyes, skin, nose, throat; headache; nausea; clonic convulsions; respiratory difficulty; cyanosis; aplastic anemia, muscle spasm	Eyes, skin, respiratory system, central nervous system, blood, liver, kidneys
4,4'-DDD	NL	NL	NL	NL	NL	NL
4,4'-DDE	NL	NL	NL	NL	NL	NL
4,4'-DDT	1 mg/m <sup>3</sup>	NL	1 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Irritation eyes, skin; paresthesia, tongue, lips, face; tremor; apprehension, dizziness, confusion, malaise, headache, fatigue; convulsions, paresis hands; vomiting; (potential occupational carcinogen)	Eyes, skin, central nervous system, kidneys, liver, peripheral nervous system
Dieldrin	0.25 mg/m <sup>3</sup>	NL	0.25 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Headache, dizziness, nausea, vomiting, malaise, sweating; myoclonic limb jerks; clonic, tonic convulsions; coma; potential occupational carcinogen	Central nervous system, liver, kidneys, skin
Endrin	0.1 mg/m <sup>3</sup>	NL	0.1 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Epileptiform convulsions; stupor, headache, dizziness; abdominal discomfort, nausea, vomiting; insomnia; aggressiveness, confusion; lethargy, weakness; anorexia	Central nervous system, liver,
Heptachlor	0.5 mg/m <sup>3</sup>	NL	0.05 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	In animals: tremor; convulsions; liver damage	Central nervous system, liver, (in animals: liver cancer)
Methoxychlor	10 mg/m <sup>3</sup>	NL	10 mg/m <sup>3</sup>	Inhalation, ingestion	Trembling, convulsions, kidney, liver damage	Central nervous system, kidneys

**TABLE K-7  
ALLOWABLE CHEMICAL EXPOSURE LIMITS AND EXPOSURE SYMPTOMS**

Moss Beach Ranch, Rancho Corral de Tierra, Moss Beach, California

CHEMICAL	PEL (a) (ppmv)	STEL (b) (ppmv)	TLV (c) (ppmv)	ROUTE OF ENTRY	ACUTE EXPOSURE SYMPTOMS	TARGET ORGANS
<b>Petroleum Hydrocarbon Compounds</b>						
Diesel	NL	NL	100 mg/m <sup>3</sup>	Inhalation, absorption, ingestion, contact	Dermatitis	NL
Gasoline	300	500	300	Inhalation, absorption, ingestion, contact	Irritation eyes, skin, mucous membranes; dermatitis; headache, fatigue, blurred vision, dizziness, slurred speech, confusion, convulsions; chemical pneumonia (aspiration); possible liver, kidney damage; (potential occupational carcinogen)	Eyes, skin, respiratory system, central nervous system, liver, kidneys, (in animals: liver and kidney cancer)

Notes:

(a) PEL = Permissible Exposure Limit, Cal-OSHA; 8hr/day, 40 hr/week (Title 8 CCR Section 5155)

(b) STEL = Short Term Exposure Limit, Cal-OSHA or ACGIH; 15-minute period (ACGIH, 2011)

(c) TLV = Threshold Limit Value, ACGIH ; 8hr/day, 40 hr/week (ACGIH, 2011)

Cal-OSHA = California Occupational Health and Safety Administration

ACGIH = American Conference of Governmental Industrial Hygienists

NL = not listed

References:

ACGIH, 2011 . *Threshold Limit Values for Chemical Substances and Physical Agents and Biological Exposure Indices* .

NIOSH, 2007. *Pocket Guide to Chemical Hazards* , September 2007.



**TABLE K-8  
EMERGENCY INFORMATION**

**EMERGENCY TELEPHONE NUMBERS**

In emergency, ambulance:	911
Hospital:	Seton Medical Center Coastside 600 Marine Boulevard Moss Beach, CA (650) 563-7100
Police and Fire Departments:	911
San Mateo County Sheriff's Department	(650) 573-2801
Poison Control Center (24-hour):	(800) 876-4766
Toxline:	(301) 496-1131
CHEMTREC (24-hour, emergency only)	(800) 424-9300
EKI Field Phone	(650) 207-6185 (Logan Hansen)
Erler & Kalinowski, Inc.:	(650) 292-9100 (Office)
Corporate Safety Supervisor: (Tom Kalinowski)	(415) 661-7300 (Home)

**DIRECTIONS TO EMERGENCY HOSPITAL** (see Figure 1):

From Ocean View Farms, turn left (south) onto Highway 1. Turn left onto Marine Boulevard and proceed to Seton Medical Center.

From Renegade Ranch, turn left onto Sunshine Valley Road. Turn left onto Etheldore Street. Turn left onto Marine Boulevard and proceed to Seton Medical Center.

From Moss Beach Ranch and Ember Ridge Ranch, go south on driveway. Turn right onto Etheldore Street. Turn right onto Marine Boulevard and proceed to Seton Medical Center.

From Denniston Creek Valley (Cabrillo Farms) proceed south on driveway to Highway 1. Turn right (north) onto Highway 1. Turn right onto Etheldore Street. Turn right onto Marine Boulevard and proceed to Seton Medical Center.

Seton Medical Center Coastside  
600 Marine Boulevard  
Moss Beach, CA  
650-563-7100

**TABLE K-8**  
**EMERGENCY INFORMATION (continued)**

STANDARD PROCEDURE FOR REPORTING EMERGENCIES

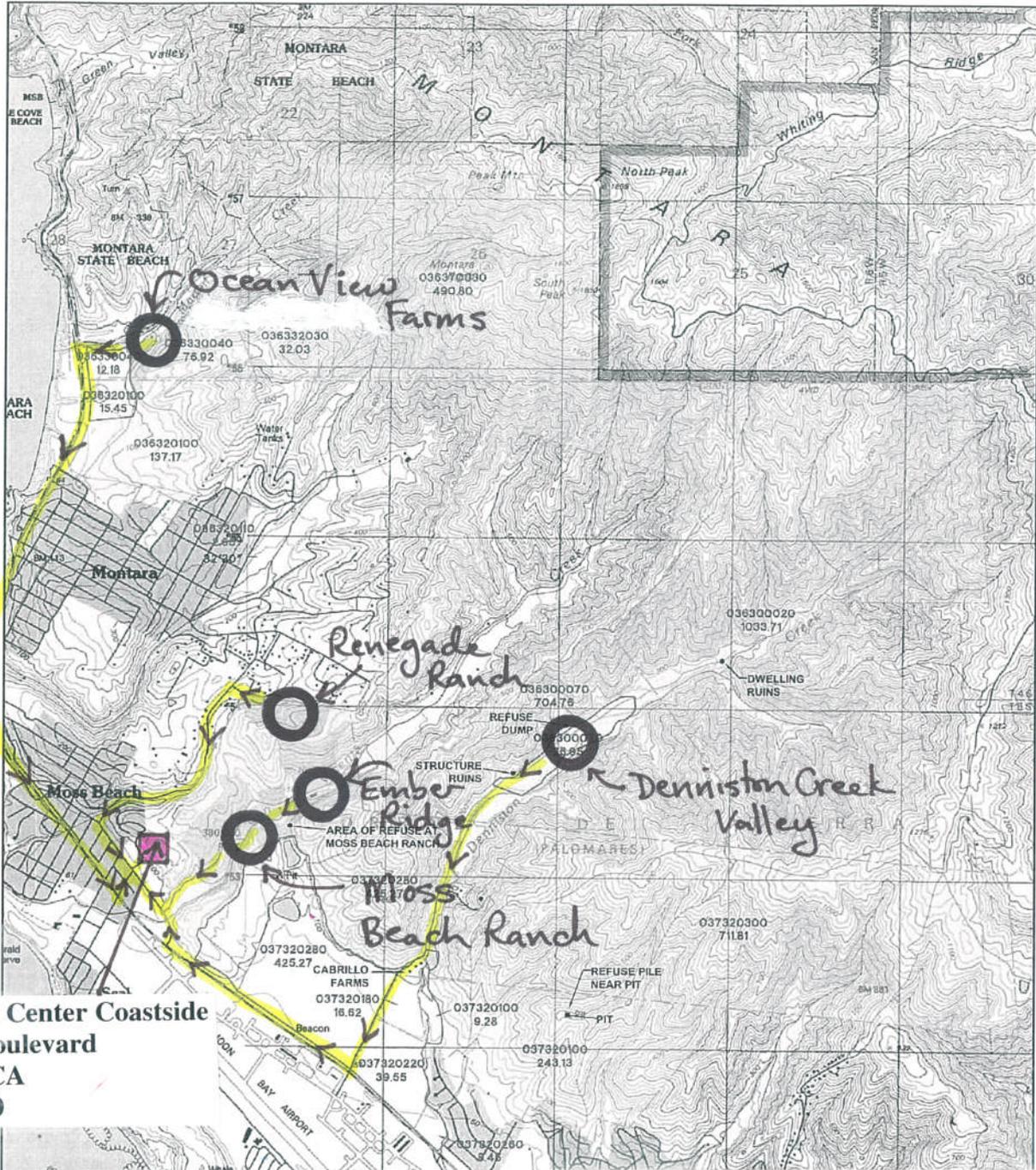
When calling for assistance in an emergency situation, provide the following:

- o Name of person making call.
- o Telephone number and location of person making call.
- o Name(s) of person (s) exposed or injured and their location.
- o Nature of emergency and type of exposure, when appropriate.
- o Actions already taken.

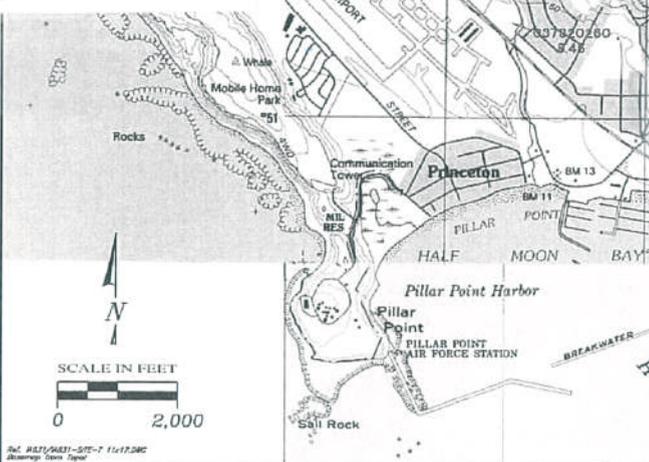
Never be the first to hang up when calling for emergency assistance.

Wait for the dispatch operator to finish all questions.

As with all wireless phones, if you are in an area where your phone is searching or scanning for a signal, it is highly probable that a call to 911 will not go through. Prior to beginning site activities, the nearest landline phone will be identified. If your wireless 911 call is not connecting, use the nearest landline phone and call for help or call the fire department directly.



Seton Medical Center Coastside  
 600 Marine Boulevard  
 Moss Beach, CA  
 (650) 563-7100



**FIGURE 1**  
**ROUTES TO HOSPITAL**



**Appendix L**  
NEPA and NHPA Compliance Documentation



**National Park Service**  
Department of the Interior

Golden Gate National Recreation Area  
Division of Planning  
Fort Mason, Building 201  
San Francisco, CA 94123  
[www.nps.gov/goga](http://www.nps.gov/goga)

---

## Memorandum

TO: General Superintendent, Golden Gate National Recreation Area

THROUGH: Deputy Superintendent

FROM: Liz Varnhagen, Environmental Protection Specialist  
Bob Holloway, Cultural Resources Section 106 Coordinator

DATE: July 18, 2012

SUBJECT: NEPA/NHPA Project Review Committee Recommendations for Approval

---

Attached are summaries, discussion, recommendations and conditions of approval for projects from the **July 11, 2012 5X/Project Review Meeting**.

The following items presented at the meeting include:

- One project as Form Review/New Business—5X/Project Review
- One project as Scoping
- One project as Informational

The signature of the General or Deputy Superintendent, indicating approval or concurrence, is required for each project within the Golden Gate National Recreation Area (GGNRA) jurisdiction.

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### **1. FORM REVIEW/NEW BUSINESS – 5X/Project Review**

#### **Remediation of Contaminated Soils at Moss Beach Ranch, Rancho Corral De Tierra, San Mateo, [PEPC 42914](#), Vika Sirova**

Vika Sirova scoped this project initially as [PEPC 38951](#) in October 2011 and is returning today for approval. Elevated levels of pesticides, zinc, and petroleum hydrocarbons were found at the "Trailer Disposal Area" and at the "Former Debris Area" at Rancho Corral de Tierra. The purchase agreement of Rancho Corral De Tierra called for the remediation of contaminated areas. NPS is planning and overseeing the preparation and implementation of the Removal Action Plan (RAW) to address this contamination as required by the California Department of Toxic Substance Control, (DTSC) for non-emergency remedial activities. RAW is prepared in accordance with DTSC guidance per CA Health and Safety Code Section 25356.1 (specifically per DTSC Memorandum "Removal Action Workplans (RAWs), September 1998) and CERCLA requirements. The Peninsula Open Space Trust (POST) will fund their contractor, EKI to perform the work.

The project includes excavating contaminated soils at the Trailer Disposal Area, and the Former Debris Area of Moss Beach Ranch, which makes up part of the Corral de Tierra acquisition. Two rounds of soil sampling have determined the scope of the required remediation action. Approximately 75 cubic yards (cys) of contaminated soil would be removed from the Trailer Disposal Area to a depth of 2.5 feet, covering approximately 900 sf.

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At the Former Debris Area, they would remove about 90 cys, to one foot deep, initially, and deeper if the next round of sampling continued to exceed the clean-up thresholds equivalent to the Presidio's remediation program. Area of excavation would be around 2600 square feet (sf). The sites would be excavated using standard construction equipment and hand tools.

The excavated areas would be sampled again to confirm level of contamination and surveyed and mapped. When confirmed below thresholds of contamination, the areas will be back-filled with clean imported material and compacted to NPS specifications. Both sites will be roughly graded and contoured to ensure storm water does not cause site erosion. The areas may be hydro-seeded to stabilize the exposed shallow new soil.

Both sites have the potential to encounter T&E species such as the California red-legged frog and the San Francisco snake. For work in zones where the listed T&E species potentially could occur, Vika expects to have a biomonitor on site during the work. The Site will remain fenced from the start of remediation phase and through site grading for safety.

Preparation and approval of a Draft RAW includes many components which are listed in PEPC and in Vika's presentation. The Final RAW with its accompanying documents, requires approval through the signature of the Superintendent.

#### Next Steps

- Provide POST with consolidated NPS/FWS comments on draft RAW
- Make NPS "Affect Determination" with respect to ESA, and complete informal Section 7 Consultation if required.
- Address Draft RAW public comments
- Publish FINAL RAW
- Begin remedial actions in Fall 2012

#### Discussion

- The RAW will need a revegetation plan. Vika invited Susie Bennet, Natural Resources Division to work with her to put together a revegetation plan for both sites.
- In addition to the RAW, Vika is working with Hilary Hobbs (Business Management) to address the solid waste area on the bank of the creek, which is overgrown with riparian vegetation (weedy) and difficult to access. The creek is not part of the remediation project because its soil is not contaminated, but debris is scattered through much of the site and should be removed.

#### **5X STIPULATIONS**

This project was certified as No Adverse Effect with one stipulation.

1. Project Manager will coordinate with Park Archeologist (Leo Barker, 289-1891) at least two weeks prior to ground disturbing activities to allow for scheduling of ground monitoring during the soil removal.

#### **PROJECT REVIEW CONDITIONS**

The Executive Committee recommended that the project be approved and found that it meets the terms of a Categorical Exclusion with the following recommendations.

1. The project manager, Vika Sirova, will work with Susie Bennet and Darren Fong from Natural Resources Division to put together and implement a revegetation plan for the site. The Plan should include a funded program to abate weeds at both remediation sites for an agreed upon period of time following completion of the project.
2. The clearing of vegetation in preparation for remediation activities should be performed during the months of August through February, outside of nesting season. Otherwise, nesting surveys should be performed to confirm the absence of nesting birds in the project area.

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3. The PM will coordinate the assessment of potential effects to listed Threatened and Endangered species with specialists from Natural Resources Division. The NPS assessment of effects, (no effect or not likely to adversely affect) will be clearly stated in the final RAW and in PEPC. If informal consultation with USFWS is required, all consultation correspondence will be uploaded to PEPC, and any conditions associated with minimizing impacts to listed species will be incorporated into the conditions of the RAW. The PM will continue to work with tenant of the property on solid waste management and removal.

Project Manager, **Vika Sirova**, will document and note the completion dates of the above required actions in PEPC and upload all pertinent project review documentation. With completion of the above conditions and stipulations, this project would not have an adverse impact on the environment and would be categorically excluded from further NEPA review {D.O. 12, Section 3.4} in conformance with the following NPS category:

**C.19** Construction or rehabilitation in previously disturbed or developed areas, required to meet health or safety regulations, or to meet requirements for making facilities accessible to the handicapped.

General Superintendent’s Comments:

Approval

**[signed by Aaron Roth on 7/24/12]**

General Superintendent	Date
------------------------	------

**2. SCOPING – 5X/Project Review**

**Rehabilitation of 600 Yard Historic Berm, Fort Barry Departmental Rifle Range, Fort Barry, PEPC 43252, John Ryan**

John Ryan presented a proposal to use some of the excess soil that is being generated from the replacement of deteriorated main water lines in the Marin Headlands (PEPC 29603) within the Bunker Road and Field Road prism. The water line project is currently underway and is generating a large volume of excellent excess soil due to displacement from the pipeline itself coupled with importation of bedding material for cover. It is preferable to re-used this clean soil within the park.

This proposal for re-use is to build and re-establish an historic berm on the Departmental Rifle Range. The Rifle Range Preliminary Cultural Landscape Report (p. 51) includes a recommendation to restore the 600 yard berm that was leveled in the early 1980s and is now a parking area. Plans are in place to create a larger parking area to the west of the rifle range that would accommodate the cars that now park where the 600-yard berm would be rebuilt. The CLR contains various pictures and diagrams showing the original range configuration. Most of the excavated material from the water lines project is native with no detectable contamination. NPS would build the 600 yard berm on the north side of Bunker Road. The staging area would be immediately adjacent to the berm location. The contractor performing the water-line excavation is obligated to haul off up to 2500 cys of excess project-generated soil, which is presently stockpiled in two staging areas in Ft. Barry. However, he is willing to consider reconstructing the berm instead in lieu of hauling the material off site. The berm site is located on a portion of the Rifle Range remediation site that is essentially clean and does not require remediation. This proposal is supported by the Earth Materials Management Team.

The following studies and reports have been performed and prepared, that led to this proposal. Essentially this is a small component of the restoration of the Departmental Rifle Range, Fort

Barry, which is an active remediation site that will be treated through the Corps of Engineers FUDS program, and is addressed in PEPC 42397. Tony Di Stefano is the NPS PM of that project.

- MAHE Draft Cultural Landscape Report, NPS
- Records Research Report and Site Inspection, Tetra Tech
- Preliminary Cultural Landscape Report. Rurik, 2010

### Discussion

- The full length of the 600-yard berm and its design and dimensions still need to be worked out. There is ample quantity of soil available.
- John is the assigned project manager for the berm although his greater focus is managing the installation of the water line. He is awaiting direction and guidance from Cultural Resources staff for historical accuracy and from Natural Resources staff about drainage issues.
- The Earth Materials Management Team had recommended this project, but identified that it needs a good berm design, compaction requirements, revegetation and erosion control plan.
- Planning for this berm should include the following: (Tamara Williams' comments)
  - Verify that the berm won't negatively affect stormwater drainage across the site, or introduce new sediments into Rodeo Creek.
  - Verify that if stockpiling of materials is needed in association with the construction of this berm, the cost of good stockpile management would be covered by the waterline project
  - Verify that the berm will not negatively affect the remediation project or the FHLP project implementation.
  - Verify that using the excess soil from the water line project for the berm is the best option available, and its timing won't result in other consequences. In other words, there will likely be other opportunities to reconstruct this berm using excess substrate from other planned projects in the future.
  - Consider what would be required for maintenance of the berm
  - Consult with NR staff about desired revegetation options in the context of restoration of the broader area of the Rifle Range.
- The Committee recommended that John check with David Dusterhoff to see whether any of the excess material from the water pipeline project is suitable for the Rodeo Valley Trail project instead.

### 5X RECOMMENDATIONS

The Cultural Assessment Team is in support of this project.

1. The Project Manager should continue to work with Park Historical Landscape Architect (Amy Hoke, 561-4753) on this project, especially in regard to berm and drainage design.

### PROJECT REVIEW RECOMMENDATIONS

The Executive Committee made the following scoping recommendations. The Project Manager will return to Project Review for final approval.

1. The PM will assemble an Interdisciplinary Team (IDT) consisting of Cultural Resources (Amy Hoke - HLA), Natural Resources (Tamara Williams – hydrologist); and Tony Di Stefano (Remediation) to complete the planning of this potential project. The IDT will address the following planning/design issues:

- a) Determine what level of design is necessary to implement the project (e.g. does the project require construction drawings, separate drainage/grading plan, etc...). Should construction drawings be necessary, the PM will recommend the pathway for funding/developing the drawings.
- b) Design team will ensure the project incorporates site drainage into the design. Hydrologist Tamara Williams will make sure the berm design allows for adequate drainage, as this area has drainage issues. Also, the drainage design should minimize discharge of sediment to Rodeo Creek.
- c) Ensure the berm design resembles the historic berm.
- d) Consider vegetation cover, maintenance and erosion control of the berm itself, as well as future use of the site as a staging area.
- e) Prepare a cost-benefit analysis comparing the full cost of stockpiling and then re-using the excess soil material from the water line project to reconstruct this berm, versus exporting the material off site, or for another use recommended by the Earth Materials Management Team within the Headlands. This analysis should be evaluated by the EMMT to reconfirm and validate this project.

General Superintendent's Comments:

Concurrence:

**[signed by Aaron Roth on 7/24/12]**

---

General Superintendent

---

Date

### **3. Informational Update – 5X/Project Review**

#### **Fort Cronkhite Quarry Project [PEPC 42401](#), David Dusterhoff**

David presented the results from the test pits dug by backhoe on the bench of the Fort Cronkhite Quarry on July 9, 2012. The nine test pits averaged 4 feet deep and most yielded good quality chert, with the exception of the area to the southeast end of the bench. He indicated that, without disturbing the portion of the quarry bench where there is buried debris from the Army, the contractor estimates the bench area may yield between 400 and 650 cys of suitable chert material. This would likely necessitate continuing to excavate beyond the four-foot depth that was tested, to a depth of 10 feet or more. Also discussed was the option to excavate a portion of the quarry cliff face if more quality substrate is still needed after the bench area has been exhausted. Quarry restoration after the project would restore contours to agreed-upon quarry restoration appearance.

The estimated quantity of material in existing stockpiles (not including the Quarry material) is somewhat broad, from 800 to 1100 cys. The Project Review Minutes of May 30, 2012, indicate approximately 1,000 cys of trail-grade chert were approved for quarry extraction. David advocated that it was worth using the quarry as a source of the remaining needed material although there is still some uncertainty as to whether there will be sufficient quantity for the desired treatment. Some areas of the trail may receive a thinner application of chert surfacing than prescribed in the plans.

#### **Options for obtaining the desired volume of substrate**

- Phase excavation at Parade Ground Quarry site
- 10' excavation will yield 650 cys ideally
  - Excavate deeper, if possible, as the preferred alternative to gain more chert

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- Excavate the cut slope as "Plan B"
- Import additional material from Mark West Quarry
  - Costs (\$100/cy for material and trucking)
  - Environmental impacts to air quality, wear and tear on roads, fuel consumption from hauling
- Phase trail work- 2nd lift of chert using Alex/Danes material
  - Schedule for delivery - FY 13/14
  - Availability uncertain due to other commitments for material

#### Discussion

- Don Mannel, Chief of Maintenance commented that it was important not to compromise the intended design of the trail resurfacing. NPS must make sure the desired 4-inches of chert surface rock is applied as designed. If the quantity of suitable substrate from the quarry (including digging deeper than 10 feet and excavating the cliff face) is not sufficient to complete the trail rehabilitation, then the management team should be informed and other options for obtaining the desired material, pursued.
- As David is aware, the project may not commence until the Superintendent signs the compliance package and accompanying memo that confirms the local quarry directive.

#### **5X RECOMMENDATIONS**

The Cultural Assessment Team approves of the Project Manager excavating within the Quarry Site, if needed, to a depth of 10 feet and along the cut slope of the peak

#### **PROJECT REVIEW RECOMMENDATIONS**

The Executive Committee team supports David's recommendations and best professional judgment in selecting options for obtaining chert material from the quarry bench and exposed slope. The committee made the following recommendation:

1. The prescribed Rodeo Valley Trail improvements should be implemented to the fullest extent feasible; the intended 4-inches of chert surface material for the Rodeo Valley Trail should be applied as specified and not compromised because of insufficient volume availability. If after exploiting the options of a deeper pit along with some slope excavation, still fail to produce a sufficient quantity of quality chert material, PM will weigh the option of acquiring supplementary material off site in consultation with park managers, and proceed as directed.
2. As directed in the May 30, 2012 Project Review approval notes, PM will prepare an excavation plan for the quarry site that estimated profiles and plan views, and describes how the material will be extracted and handled.

General Superintendent's Comments:

Concurrence:

**[signed by Aaron Roth on 7/24/12]**

---

General Superintendent

---

Date



## Letter of NHPA Section 106 Compliance Completion

H4217 (GOGA-CRMM)

JUL 24 2012

### Memorandum

To: Viktoriya Sirova

From: General Superintendent

Subject: NHPA Clearance: Remediation of Contaminated Soils at Moss Beach Ranch, Rancho Corral de Tierra (PEPC 42914)

The Cultural Assessment Team has reviewed the proposed project/action and completed its certification for compliance with the National Historic Preservation Act through our Park Programmatic Agreement. We have determined that there will be No Adverse Effect on historical, cultural, or archeological resources, provided you meet all stipulations identified below.

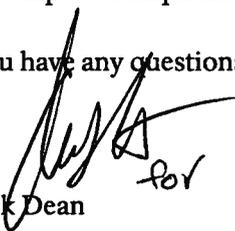
The subject proposed project/action(s), therefore, is/are now cleared for all NHPA compliance requirements as presented. Project plans and specifications are approved and construction and/or project implementation can commence once you have met any NEPA requirements identified through Project Review, as well as all stipulations identified below.

For the proposed project actions to be within compliance requirements during construction and/or project implementation, the following cultural resource stipulations must be adhered to:

- Project Manager will coordinate with Park Archeologist (Leo Barker, 289-1891) at least two weeks prior to ground disturbing activities to allow for scheduling of ground monitoring during soil removal.

For complete compliance information see PEPC Project 42914.

If you have any questions, please contact CRM Specialist (Curator) Bob Holloway at 415-561-4976.

  
for  
Frank Dean

Attachment



# ASSESSMENT OF ACTIONS HAVING AN EFFECT ON CULTURAL RESOURCES

## A. DESCRIPTION OF UNDERTAKING

### 1. Park: Golden Gate National Recreation Area

### 2. Project Description:

**Project Name:** Remediation of Contaminated Soils at Moss Beach Ranch, Rancho Corral de Tierra

**Prepared by:** Bob Holloway    **Date Prepared:** 07/10/2012    **Telephone:** 415-561-4976

**PEPC Project Number:** 42914

**Locations:**

**Describe project:**

This project involves removal of contaminated soils at two sites at Moss Beach Ranch in San Mateo County. Public Space Open Trust is responsible for the removal of contaminated areas at this location as part of the purchase agreement. Previous investigations revealed elevated levels of contaminants such as pesticides, zinc, and petroleum hydrocarbons are present at "Trailer Disposal Area" and "Former Debris Area" (see attached maps). Soil impacts in the Trailer Disposal Area are limited to three locations: (1) the area east of the trailer including soils in the vicinity of the buried oil container, (2) on the floor of a mechanical shed, and (3) in soil generally south of the mechanical shed. Proposed excavation extents for the Trailer Disposal Area are shown on Figure 4 (see attached). Approximately 75 cubic yards of soils is planned for removal. The proposed excavation extent for the Former Debris Area is shown on Figure 6 (see attached). The estimated volume of soil to be removed is approximately 90 bcy.

Confirmation soil samples will be collected once the initial lateral and vertical extents of the excavation have been reached. After excavation activities are completed, the excavation areas will be surveyed. Excavations will be backfilled with clean import fill that complies with NPS requirements and compacted to specifications to be provided by NPS. Final grading of the backfill will be accomplished in accordance with specifications provided by NPS. Analytical data of potential backfill materials will be reviewed by NPS. The Site will be roughly graded such that drainage velocities do not result in soil erosion. Hydroseeding may also be used to stabilize shallow soil. The Site will remain fenced from the start of remediation phase and through site grading. The Contractor will comply with the Construction Activities Storm Water General Permit (State Water Resources Control Board ("SWRCB") Order No. 2009-0009-DWQ), and as such will prepare a SWPPP for the Site. The following plans are included in this RAW: A Transportation Plan (see Appendix E); A Decontamination Plan (see Appendix F); A Dust Control Plan (see Appendix G); A Storm Water Pollution Prevention Plan or SWPPP (see Appendix H); A Soil Sampling and Analysis Plan or SAP (see Appendix I); A Quality Assurance Project Plan or QAPP (see Appendix K); and An EKI Site-Specific Health and Safety Plan or HSP (see Appendix K).

**Area of potential effects (as defined in 36 CFR 800.16[d])**

Archeological resources within the Trailer Disposal Area and the Former Debris Area of Rancho Corral de Tierra.

**3. Has the area of potential effects been surveyed to identify cultural resources?**

No

Yes

**Source or reference:** Some archeological surveying has occurred within Rancho Corral de Tierra.

**Check here if no known cultural resources will be affected. (If this is because area has been disturbed, please explain or attach additional information to show the disturbance was so extensive as to preclude intact cultural deposits.)**

**4. Potentially Affected Resource(s):**

**Archeological Resources Notes:** Archeological resources within the Trailer Disposal Area and the Former Debris Area of Rancho Corral de Tierra.

**5. The proposed action will: (check as many as apply)**

**Destroy, remove, or alter features/elements from a historic structure**

**Replace historic features/elements in kind**

**Add non-historic features/elements to a historic structure**

**Alter or remove features/elements of a historic setting or environment (inc. terrain)**

**Add non-historic features/elements (inc. visual, audible, or atmospheric) to a historic setting or cultural landscape**

**Disturb, destroy, or make archeological resources inaccessible**

**Disturb, destroy, or make ethnographic resources inaccessible**

**Potentially affect presently unidentified cultural resources**

**Begin or contribute to deterioration of historic features, terrain, setting, landscape elements, or archeological or ethnographic resources**

**Involve a real property transaction (exchange, sale, or lease of land or structures)**

**Other (please specify):**

**6. Supporting Study Data:**

(Attach if feasible; if action is in a plan, EA or EIS, give name and project or page number.)

**B. REVIEWS BY CULTURAL RESOURCE SPECIALISTS**

The park 106 coordinator requested review by the park's cultural resource specialist/advisors as indicated by check-off boxes or as follows:

[ X ] Curator  
Name: Abby sue Fisher  
Date: 07/11/2012



Check if project does not involve ground disturbance [ ]  
Assessment of Effect:  No Historic Properties Affected  No Adverse Effect  Adverse Effect  Streamlined Review  
Recommendations for conditions or stipulations:

---

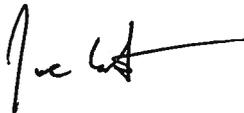
[ X ] Archeologist  
Name: Leo Barker  
Date: 07/11/2012



Check if project does not involve ground disturbance [ ]  
Assessment of Effect:  No Historic Properties Affected  No Adverse Effect  Adverse Effect  Streamlined Review  
Recommendations for conditions or stipulations:  
*monitoring during construction - schedule notification*

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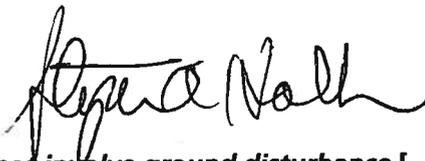
[ X ] Historical Architect  
Name: Joe Costa  
Date: 07/11/2012



Check if project does not involve ground disturbance [ ]  
Assessment of Effect:  No Historic Properties Affected  No Adverse Effect  Adverse Effect  Streamlined Review  
Recommendations for conditions or stipulations:

---

[ X ] Historian  
Name: Stephen Haller  
Date: 07/11/2012



Check if project does not involve ground disturbance [  ]  
Assessment of Effect:  No Historic Properties Affected  No Adverse Effect  Adverse Effect  Streamlined Review  
Recommendations for conditions or stipulations:

---

[ X ] Historical Landscape Architect  
Name: Amy Hoke  
Date: 07/11/2012



Check if project does not involve ground disturbance [ ]  
Assessment of Effect:  No Historic Properties Affected  No Adverse Effect  Adverse

Effect  Streamlined Review

Recommendations for conditions or stipulations:

---

No Reviews From: 106 Advisor, Other Advisor, Anthropologist

---

### C. PARK SECTION 106 COORDINATOR'S REVIEW AND RECOMMENDATIONS

#### 1. Assessment of Effect:

No Historic Properties Affected  No Adverse Effect  Adverse Effect

#### 2. Documentation Method:

A. STANDARD 36 CFR PART 800 CONSULTATION  
Further consultation under 36 CFR Part 800 is needed.

B. STREAMLINED REVIEW UNDER THE 2008 SERVICEWIDE PROGRAMMATIC AGREEMENT (PA)

The above action meets all conditions for a streamlined review under section III of the 2008 Servicewide PA for Section 106 compliance.

APPLICABLE STREAMLINED REVIEW Criteria  
(Specify 1-16 of the list of streamlined review criteria.)

C. PLAN-RELATED UNDERTAKING

Consultation and review of the proposed undertaking were completed in the context of a plan review process, in accordance with the 2008 Servicewide PA and 36 CFR Part 800.  
Specify plan/EA/EIS:

D. UNDERTAKING RELATED TO ANOTHER AGREEMENT

The proposed undertaking is covered for Section 106 purposes under another document such as a statewide agreement established in accord with 36 CFR 800.7 or counterpart regulations.  
Specify: Golden Gate P.A., II., j. Health and safety activities such as radon testing and mitigation, asbestos testing and removal of asbestos, lead paint, lead pipes, buried fuel tanks, and hazardous chemicals and materials.

E. COMBINED NEPA/NHPA Document

Documentation is required for the preparation of an EA/FONSI or an EIS/ROD has been developed and used so as also to meet the requirements of 36 CFR 800.3 through 800.6

F. No Potential to Cause Effects [800.3(a)(1)]

G. Memo to SHPO/THPO

[ ] H. Memo to ACHP

**3. Additional Consulting Parties Information:**

Additional Consulting Parties: No

**4. Stipulations and Conditions:**

Following are listed any stipulations or conditions necessary to ensure that the assessment of effect above is consistent with 36 CFR Part 800 criteria of effect or to avoid or reduce potential adverse effects.

Reviewed at 5x/Project Review 7/11/12. See Specialist Comments for stipulations, if any.

**5. Mitigations/Treatment Measures:**

Measures to prevent or minimize loss or impairment of historic/prehistoric properties:  
(Remember that setting, location, and use may be relevant.)

No Assessment of Effect mitigations identified.

**D. RECOMMENDED BY PARK SECTION 106 COORDINATOR:**

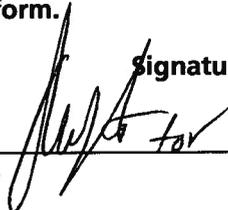
**Compliance Specialist:**

**NHPA Specialist**

Bob Holloway CRM Specialist (Curator) Date: 7/11/12

**E. SUPERINTENDENT'S APPROVAL**

The proposed work conforms to the NPS *Management Policies and Cultural Resource Management Guideline*, and I have reviewed and approve the recommendations, stipulations, or conditions noted in Section C of this form.

Superintendent:  <sup>Signature</sup> Date: 7/24/12

**Appendix M**  
Administrative Record Index

## APPENDIX M

### ADMINISTRATIVE RECORD INDEX FOR REMOVAL ACTION

#### **Trailer Disposal and Former Debris Areas Rancho Corral de Tierra Moss Beach, San Mateo County, California**

Acumen, 2011. *Asbestos and Lead Investigation, Peninsula Open Space Trust Properties, Moss Beach/Montara, California*, Acumen Industrial Hygiene, Inc., June 2011.

EKI, 2006. *Development of Presidio-Wide Cleanup Levels for Soil, Sediment, Groundwater, and Surface Water, Presidio of San Francisco, California*, Erler & Kalinowski, Inc., dated 30 October 2002 and revised May 2006.

EKI, 2011a. *Result of Sampling Investigations, Rancho Corral de Tierra, Montara, San Mateo County, California*, Erler & Kalinowski, Inc., 21 September 2011.

EKI, 2011b. Memorandum: Opinion of Estimated Costs for Recognized Environmental and Disposal Liabilities Associated with Selected Areas at Rancho Corral de Tierra, Montara, California, 21 September 2011.

EKI, 2012a. Memorandum: Results of Additional Sampling at Trailer Disposal and Former Debris Areas, Moss Beach Ranch Rancho Corral de Tierra, San Mateo County, California, 19 October 2012.

EKI, 2012b. Memorandum: Moss Beach Ranch Background Zinc in Soil, Rancho Corral de Tierra, San Mateo County, California, 19 October 2012.

EKI, 2012c. *Draft Removal Action Workplan, Trailer Disposal and Former Debris Areas, Rancho Corral de Tierra, Moss Beach, San Mateo, County, California*, October 2012.

Go Native, 2001. *Rancho Corral de Tierra – Palomares, Biological Report & Study Compilation*, Go Native, LLC, dated July 2001.

Krazan, 2001. *Phase I Environmental Site Assessment, Rancho Corral De Tierra, San Mateo County, California*, prepared by Krazan & Associates, Inc, dated 30 March 2001.

NPS and POST, 2011. *First Amendment to Corporate Offer to Purchase Real Property (NPS Contract Number CX 8074-11-014)*, Peninsula Open Space Trust and United States Department of Interior, National Park Service, effective 19 October 2011.

NPS, 2012a. NPS Letter to Moss Beach Ranch Tenant Requesting Review of the Draft RAW, dated July 2012.

NPS, 2012b. Memorandum: NEPA/NHPA Project Review Committee Recommendations for Approval, from Liz Varnhagen and Bob Holloway (NPS) to General Superintendent, Golden Gate National Recreation Area, dated 18 July 2012.

NPS, 2012c. NPS DRAFT RAW Public Comment Cover Letter, dated 23 October 2012.

RRM, 2011. *Phase I Environmental Site Assessment, Ranch Corral de Tierra, San Mateo County, California*, prepared by RRM, Inc., dated 10 January 2011.

USFWS, 2012. Email from Toby McBride, Environmental Contaminants Division of U.S. Fish and Wildlife Service, to Viktorya Sirova, National Park Service re: Consultation on Hazardous Materials Remediation – NPS Rancho Corral de Tierra, 27 July 2012.