URS

REPORT
ADDITIONAL SITE ASSESSMENT
AND 2002 FIRST QUARTER
GROUNDWATER MONITORING
HEATING OIL UNDERGROUND
STORAGE TANK
FORMER SEARS RETAIL CENTER
2633 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
CASE I.D. # [redacted]
FOR SEARS, ROEBUCK AND CO.

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CASE I.D. # STID 1082
URS JOB NO. 22-00000139.02
FOR SEARS, ROEBUCK AND CO.

1.0 INTRODUCTION

This Report has been prepared by URS Corporation (URS) on behalf of Sears, Roebuck and Co. (Sears). It presents the methods utilized for further assessment of subsurface soil and groundwater conditions in the vicinity of a former slurry-filled 10,000-gallon heating oil underground storage tank (UST) located at the former Sears retail center at 2633 Telegraph Avenue, Oakland, California (Figure 1). The purpose of the additional assessment was to further characterize the nature and extent of petroleum hydrocarbon impacted soil and groundwater and to evaluate the site for closure under the City of Oakland Urban Land Redevelopment (ULR) Program. The work was being performed under the regulatory oversight of Alameda County Environmental Health Services (ACEHS).

2.0 SITE DESCRIPTION

The Site is bounded by 27th Street to the north, Telegraph Avenue to the east, Sycamore Street to the south, and Northgate Avenue to the west (Figure 2). The property is occupied by a vacant Sears retail store (currently undergoing redevelopment) that was constructed in 1930, and an above-grade parking garage that was constructed in the 1960's. Prior to the construction of the store, single and multi-family residences dating to the turn of the century occupied the Site. The former Sears retail center is three stories tall (approximately 120,000 square feet) with a basement. Sears no longer owns the Site but maintains responsibility for environmental issues related to the slurry-filled 10,000 gallon heating oil UST. The Site elevation is approximately 30 feet above mean sea level (MSL), which slopes gently to the south towards San Francisco Bay.

The slurry-filled 10,000-gallon UST formerly used to store heating oil is located at the northern end of the retail center along 27th Street. It is constructed of single-walled steel with product piping that extends into a nearby basement (former boiler room) of the retail center. The top of the UST is located beneath the former loading dock of the store approximately 25 to 30 feet below ground surface (bgs). The loading dock was demolished during 2001, and the area has been repaved with

asphalt. The UST is contained in a concrete vault estimated to be about 10 feet high and 30 feet long. The product piping was sealed and capped when the UST was taken out of commission sometime during the 1960's. The UST was filled with slurry in the fourth quarter of 1998 under regulatory oversight of the City of Oakland Fire Prevention Bureau.

3.0 REGIONAL GEOLOGY AND HYDROGEOLOGY

The Site is approximately 1.5 miles east of the San Francisco Bay and three miles west of the Diablo Range in Oakland, California. The Site is located on the eastern flank of The San Francisco Basin, a broad Franciscan depression. The basement rock of the basin is respectively overlain by the Santa Clara Formation, the Alameda Formation, and the Temescal Formation. These formations consist of unconsolidated sediments ranging in total thickness to approximately 1,000 feet. The Pleistocene Santa Clara Formation consists primarily of alluvial fan deposits that are interspersed with lake, swamp, river channel, and flood plain deposits. The overlying Alameda Formation was deposited in an estuary environment and consists of organic clays and alluvial fan deposits of sands, gravels and silts. The uppermost Holocene Temescal Formation is an alluvial deposit ranging in thickness from 1 to 50 feet and consists primarily of silts and clays with a basal gravel unit. (CRWQCB, San Francisco Bay Region, June 1999).

The Site is located within the Oakland sub-area of the East Bay Plain groundwater basin. The East Bay Plain groundwater basin encompasses approximately 115 square miles and is bounded by San Pablo Bay to the north, Alameda County to the south, the Hayward Fault to the east, and San Francisco Bay to the west. Groundwater flow direction in the basin typically follows surface topography. Historical high production wells in the Oakland sub-area were screened at depths greater than 200 feet bgs beneath the Yerba Buena Mud Member of the Alameda Formation. The Yerba Buena Mud is a black organic clay with an average thickness of 25 to 50 feet that forms an aquitard between upper and lower groundwater bearing units. From the 1860's until water importation programs were initiated in the 1930's, groundwater in the East Bay Plain was utilized as the primary municipal water source. Current beneficial uses of groundwater in the basin are minimal (CRWQCB, San Francisco Bay Region, June 1999).

4.0 BACKGROUND

Lowney Associates (Lowney) performed a "Phase I Environmental Site Assessment (ESA), a Soil and Groundwater Quality Evaluation" in April 1998, and a "Phase II Soil and Groundwater Evaluation," in July 1998. The first assessment included advancing five exploratory borings in three areas of recognized environmental concerns for collection of soil samples and groundwater grab

samples (Figure 2). Borings EB-1, EB-2, and EB-3 were driven in an area between the boiler room and a suspect pipe in the 27th Street sidewalk. Two borings were drilled within 10-feet of an adjacent dry cleaners (EB-4) and in the vicinity of a possible former tire and oil shop at the southwest corner of the retail store (EB-5). Detectable concentrations of total petroleum hydrocarbons (TPH) as bunker C ranging from 79 milligrams per kilogram (mg/kg) to 9,500 mg/kg were present in soil samples collected from borings EB-1, EB-2, EB-3 and EB-5. TPH as gasoline (TPHg) and/or stoddard solvent was detected in soil samples collected from boring EB-5 at concentrations ranging from 2.5 mg/kg to 280 mg/kg. Benzene was not detected in any of the soil samples submitted for chemical analysis.

During the second assessment conducted by Lowney, seven additional borings were advanced down gradient of the anticipated groundwater flow direction to collect selected soil and groundwater grab samples (Figure 2). The investigation also confirmed the location and existence of the 10,000-gallon heating oil UST beneath the loading dock of the retail center and identified the piping beneath the sidewalk of 27th Street as the UST fill line. Soil samples collected from borings EB-6 through EB-12 contained non-detectable (ND) concentrations of TPH as diesel fuel (TPHd), TPH-bunker C, TPH as fuel oil, TPH as stoddard solvent and benzene, toluene, ethylbenzene, total xylenes (BTEX). A summary of the analytical results for soil samples collected by Lowney is provided in Appendix A.

Groundwater grab samples were collected by Lowney during the two assessments from borings EB-1 through EB-6, EB-10, EB-11, and EB-12. Groundwater grab samples collected from borings EB-1, EB-2, EB-3, and EB-5 contained detectable concentrations of TPH-bunker C ranging from 38,000 micrograms per liter (µg/L) to 480,000 µg/L. A groundwater grab sample collected from boring EB-4 contained 9,100 µg/L TPH-stoddard solvent. Groundwater grab samples collected from borings EB-2 and EB-4 contained detectable concentrations of benzene at 4.8 µg/L and 4.3 µg/L, respectively. The remaining groundwater grab samples contained ND concentrations of TPH-bunker C, TPH-stoddard solvent and BTEX. A summary of the analytical results for the groundwater grab samples collected by Lowney is provided in Appendix B.

SECOR International Incorporated (SECOR) subsequently performed an additional soil and groundwater investigation during November 1998 to further assess subsurface soils and groundwater near the southeastern corner of the property (SECOR, Dec. 1998). The scope of work was approved by the ACEHS and included the advancement of nine soil borings (EB-13 through EB-21) for the collection of soil and groundwater grab samples (Figure 2). Soil samples collected from borings EB-19, EB-20, and EB-21 contained detectable concentrations of TPHd ranging from 4 mg/kg to 160 mg/kg. All soil samples, excluding EB-20-7, analyzed during the investigation contained ND concentrations of BTEX. Soil sample EB-20-7 contained 0.044 mg/kg of ethylbenzene and ND

concentrations of benzene, toluene and total xylenes. A summary of the analytical results for soil samples collected by SECOR is provided in Appendix A.

Groundwater grab samples collected by SECOR from borings EB-13, EB-15 and EB-18 contained ND concentrations of TPH-stoddard solvent and BTEX. The groundwater grab sample from boring EB-14 contained 2,300 µg/L TPH-stoddard solvent. Groundwater grab sample EB-14 contained ND concentrations of benzene and toluene, 3.2 µg/L ethylbenzene, and 6.1 µg/L total xylenes. A summary of the analytical results for the groundwater grab samples collected by SECOR is provided in Appendix B.

From October 19 to December 2, 1998, URS and subcontractor, Foss Environmental, conducted in-place closure activities for the heating-oil UST in accordance with City of Oakland Fire Prevention Bureau, Closure Permit #94-98 (URS, Jan, 2001). The closure activities were conducted after obtaining a closure permit and preparing a site-specific health and safety plan. During the UST closure activities the UST was accessed, evacuated, cleaned, and filled with concrete slurry. URS submitted a letter report to the City of Oakland Fire Prevention Bureau dated February 22, 1999 that documents the in-place closure activities. Approximately 2 ½ cubic yards of oily soil was removed from the access shaft, transported offsite, and disposed at an approved facility. Approximately 500 gallons of oily water pumped from the access shaft and vault, and 10,000 gallons of oily water pumped from the UST was transported offsite and disposed at an approved facility.

The City of Oakland Fire Prevention Bureau forwarded the UST closure report to the ACEHS. The ACEHS issued a letter on October 29, 1999 to Sears requesting a site assessment work plan and a list of responsible parties. In the letter, ACEHS requested the installation of three groundwater monitoring wells to assess subsurface conditions related to the closed UST and dry cleaning facility onsite. Resolution of property ownership issues resulted in Sears assuming the responsibility of assessing conditions solely related to the slurry-filled, heating oil UST.

URS installed three groundwater monitoring wells (FOMW-1, FOMW-2, FOMW-3) on the Site in May 2000 (URS, Jan. 2001). The monitoring wells were located adjacent to, and south of the slurry-filled UST (Figure 2). Soil samples collected from the borings contained concentrations TPHd or TPH-bunker C ranging from ND to 3,200 mg/kg. BTEX and methyl tertiary butyl ether (MTBE) were not detected in any of the soil samples analyzed. A summary of the soil sample analyses results for the previous investigations conducted by URS is provided in Appendix A. Groundwater samples have been collected from the wells on a quarterly basis since June 2000. Field parameter and chemical analytical results for previous quarterly sampling events are provided as Appendices C and D.

5.0 PURPOSE OF ADDITIONAL ASSESSMENT

The purpose of the additional assessment was to further characterize the nature and extent of petroleum hydrocarbon impacted soil and groundwater at the site. Specifically, the extent of heating oil impacted soil to the north and west of the UST, the lateral extent of separate phase product, and the downgradient extent of impacted groundwater were assessed. Results of the additional assessment were used to evaluate the site for closure under the City of ULR Program guidelines (January 2000).

6.0 ADDITIONAL ASSESSMENT METHODS

The scope of work completed for the additional assessment consisted of: drilling two 30-foot depth continuous core borings; drilling one 30 foot depth boring and collecting soil samples at discrete intervals; and installing two 30-foot depth groundwater monitoring wells. The boring and monitoring well locations are shown on Figure 2. The additional assessment methods are presented below.

6.1 PERMITS

Prior to initiating field activities, required well permits were obtained from the Alameda County Public Works Agency, Water Resources Section. Copies of the permits are provided in Appendix E.

6.2 HEALTH AND SAFETY PLAN

Prior to initiating the field activities, URS prepared a site-specific Health & Safety (H&S) plan to:

- Identify and describe potentially hazardous substances which may be encountered during field operations;
- Specify protective equipment and clothing for on-site activities; and
- Outline measures to be implemented in the event of an emergency.

URS field personnel and URS subcontractors reviewed the H&S Plan prior to commencing the field procedures. Field monitoring activities were recorded in the H&S Plan are maintained in the project files at URS' Santa Ana office. A copy of the H&S Plan remained onsite during field operations.

6.3 UTILITY CLEARANCE

In accordance with California Assembly Bill AB 73, Underground Services Alert (USA) was notified of our intent to conduct subsurface borings at least 48 hours prior to initiation of intrusive field tasks. The proposed locations of subsurface borings were clearly marked with white paint as required by California Code 4216. USA contacted utility owners of record within the vicinity and notified them of our intention to conduct subsurface borings in proximity to buried utilities. The utility owners of record, or their designated agents, clearly marked the position of their utilities on the ground surface throughout the area designated for investigation. The boring locations were moved if conflicts with any buried utilities were determined.

For boring areas where the presence of underground services or utilities was unclear or unknown, surface geophysics was used in an effort to identify subsurface lines and obstructions. Geophysical methods included: magnetics, electromagnetics, and electromagnetic line location. Magnetics and electromagnetics are used to identify underground tanks, drums, and conduits. These features are detected due to the ferrous and electrically conductive material of their construction.

6.4 SOIL AND WELL BORINGS

Soil borings EB-22, EB-23, and well boring FOMW-5 were drilled with a D-14 limited access drill rig equipped with 6 and 8-inch diameter hollow-stem augers. Soil boring EB-24, and well boring FOMW-4 were drilled with a Mobile B-61 drill rig equipped with 8-inch diameter hollow-stem augers. The first 5 to 6 feet of each boring was hand-augered to assess the potential presence of subsurface utilities or other structures. Continuous core samples were collected from borings EB-22 and EB-23. Discrete depth soil samples were collected from borings EB-24, FOMW-4 and FOMW-5. The borings were drilled during February 12 and 13, 2002 by Gregg Drilling and Testing, Inc. of Martinez, CA (C-57 License #485165). The following sections provide a description of each drilling method.

6.4.1 Continuous Core Borings

Borings EB-22 and EB-23 were sampled continuously to assess the extent of separate phase product in the immediate vicinity of the UST. The continuous core borings were drilled to a depth of 30 feet bgs. Soil cores were collected through the hollow stem of the auger using 1.75-inch diameter, three-foot length continuous core sampler fitted with clear acetate sleeves. The soil cores were screened for volatile organic compounds (VOCs) using a Photo Ionization Detector (PID). PID readings were taken from the ends of each soil core. Soils were classified in accordance with the Unified Soil Classification System (USCS). A description of the subsurface materials and PID readings is provided in the boring logs (Appendix F).

Following PID screening, the soil core ends were covered with Teflon™ film and fitted with snug-fitting plastic end caps, which were then sealed with Parafilm™ (a volatile-organics-free laboratory film). The cores were labeled with the following information: boring designation, sample number, sample depth, date, collector initials, owner, sample location, and time of collection. The sealed and labeled samples were then transferred to an ice chest containing blue ice and transported to PTS Laboratories Inc. for analysis. The samples were logged onto Chain of Custody forms which were maintained through delivery to the laboratory (Appendix G).

6.4.2 Discreetly Sampled Borings

Soil borings EB-24 and well borings FOMW-4 and FOMW-5 were sampled discreetly at 5-foot intervals to a depth of 30 feet bgs. Soil samples were collected through the hollow stem of the auger using a 1.75-inch inside diameter split-spoon sampler equipped with stainless steel sleeves. The sampler was driven 18 inches with a standard 30-inch drop of a 140-pound hammer. Hammer blow counts were recorded on the boring logs (Appendix F). Upon retrieval of the sampler at each sampling interval, the sample sleeves were separated and observed for possible staining. Samples were screened for organic gases using the PID as described in Section 6.4.1 and recorded on the boring logs. Soils were classified in accordance with the USCS and recorded on the boring logs (Appendix F).

Following PID screening, the sample tubes were packaged and labeled according to methods detailed in Section 6.4.1. The sealed and labeled samples were then transferred to an ice chest containing blue ice and transported to Severn Trent Laboratories (STL) for analysis. The samples were logged onto Chain of Custody forms which were maintained through delivery to the laboratory (Appendix G).

6.4.3 Groundwater Grab Samples

Groundwater grab samples were collected from borings EB-22 and EB-23 at a depth of approximately 30 feet bgs. The samples were collected through the hollow-stem auger using a 1-inch diameter stainless steel bailer. A blind duplicate grab sample was collected from EB-22 and labeled DUP-1. An equipment blank (EB-1) was collected by pouring deionized water over the sample bailer following equipment decontamination procedures detailed in Section 9.0.

Following collection, the samples were contained in 40 milliliter VOA vials. Sample labels were affixed to the samples with the following information:, sample name, date, collector initials, owner, sample location, and time of collection. The sealed and labeled samples were then transferred to an

ice chest containing blue ice and transported to STL laboratories for analysis. The samples were logged onto Chain of Custody forms which were maintained through delivery to the laboratory (Appendix H).

6.5 LABORATORY ANALYSIS PROGRAM FOR SOIL AND GROUNDWATER GRAB SAMPLES

Selected soil samples and the soil cores were submitted to physical testing and chemical analytical laboratories. Samples chosen for laboratory analysis were based on field observations and sample depth. Soil samples collected from borings EB-24, FOMW-4, and FOMW-5 were submitted to (STL), a California DHS-accredited laboratory, located in Pleasanton, CA. The soil samples submitted to STL were analyzed for TPHd and TPH-bunker C by EPA method 8015M, and for BTEX and MTBE by EPA method 8260B. The groundwater grab samples were also submitted to STL and analyzed for TPHd and TPH-bunker C by EPA method 8015M, and for BTEX and MTBE by EPA method 8260B.

Soil core sections from borings EB-22 and EB-23, and split soil samples from borings EB-24, FOMW-4 and FOMW-5 were submitted to PTS Laboratories in Santa Fe Spring, CA. The soil cores were photographed under white light and observed under ultraviolet light. Sections of the core EB-22 were selected for physical properties analysis including: moisture content by American Society for Testing and Materials (ASTM) method D2216; bulk density, grain density, effective porosity, air-filled porosity, and pore fluid saturations by American Petroleum Institute (API) method RP40; specific permeability to air, vertical and horizontal effective permeability to water, and vertical and horizontal effective hydraulic conductivity by Environmental Protection Agency (EPA) method 9100; grain size distribution by ASTM method D4464M and ASTM D442; capillary pressure by ASTM method D425M. Eleven samples were collected from the EB-22 and EB-23 cores at PTS laboratory and submitted to Positive Lab Service of Los Angeles, a California DHS-accredited laboratory, for analysis. The soil samples were analyzed for TPH in the C5-C10 hydrocarbon chain range, TPH in the C10-C20 hydrocarbon chain range, and TPH in the C20-C30 hydrocarbon range by EPA method 8015M, and for BTEX and MTBE by EPA method 8021B.

6.6 GROUNDWATER MONITORING WELL INSTALLATION

Well borings FOMW-4 and FOMW-5 were completed as groundwater monitoring wells (Figure 2). The wells were installed through the hollow stem of the 8-inch diameter augers. The wells were constructed of blank 2-inch diameter, flush-threaded, schedule 40 PVC casing from the ground surface to 10 feet bgs, and 2-inch diameter flush-threaded schedule 40 PVC, 0.01-inch slotted casing

from 10 feet bgs to 30 feet bgs. The bottom of the slotted casing was fitted with a threaded bottom cap. The top of blank casing was secured with a locking, air-tight, PVC cap.

The annular space between slotted casing (well screen) and the borehole was filled with #2/12 sand filter-pack to approximately one foot above the top of the well screen (9 feet bgs). The well was surged following sand pack installation and the sand pack checked for settlement. A two-foot bentonite chip seal (7 feet to 9 feet bgs) was placed above the filter pack and hydrated with deionized water. The remainder of the well boring was sealed with concrete. A concrete vaulted, traffic-rated, flush-mount well box was installed at the ground surface to secure the well head. Well construction details are included in the boring logs (Appendix F).

6.7 WELL DEVELOPMENT

The monitoring wells FOMW-4 and FOMW-5 were developed February 19, 2002 by surging, bailing and pumping. Well development proceeded until the produced water was relatively free of sediment, and temperature, pH, and conductivity had stabilized. Approximately 50 gallons of water was removed from each well during development. Copies of the well development logs are provided in Appendix I.

6.8 SURVEY ACTIVITIES

The groundwater monitoring wells were surveyed by Mariscal and Associates, a licensed California Land Surveyor on May 13, 2002. The wells were surveyed with respect to the California State Plane Coordinate System horizontal (NAD27) and vertical (NGVD29) datums. Well survey data is provided in Appendix J.

7.0 QUARTERLY GROUNDWATER MONITORING

The 2002 First Quarter Groundwater Monitoring was performed on March 6, 2001. The monitoring was performed on five groundwater wells (FOMW-1, FOMW-2, FOMW-3, FOMW-4, and FOMW-5). The monitoring consisted of groundwater gauging of all wells, purging and sampling of wells FOMW-3, FOMW-4, and FOMW-5. Well FOMW-1 contained measurable product and was not sampled. Well FOMW- 2 was damaged during recent construction activities and was not accessible for sampling. A description of the monitoring procedures is presented below.

7.1 GROUNDWATER GAUGING

Prior to sampling, the groundwater monitoring wells were checked for the presence of separate phase product using a Solinst™ product interface probe. Water levels were measured relative to the surveyed top of the monitoring well casings using a Solinst™ water level indicator. Water level and separate phase product data was recorded to the nearest 0.01 foot. Separate phase product was observed in well FOMW- 1 at a measured thickness of 0.01 foot. Groundwater depths and elevations for the 2002 first quarter are listed in Table 3.

7.2 PURGING AND SAMPLING METHODS

Prior to sample collection, wells FOMW-3, FOMW-4, and FOMW-5 were purged of approximately three well casing volumes at a purge rates varying from 0.5 to 1 gallon per minute (gpm) using a using a Grundfos™ RediFlo 2 submersible well pump. Water purged from the well was monitored for field parameters, including temperature, pH, electrical conductivity, turbidity, dissolved oxygen (D.O.), and oxygen reduction potential (O.R.P.) using a YSI™ multi-parameter meter equipped with a flow-through cell. Ferrous iron (Fe^{++}) was measured in the field using a Hach™ field testing kit. Measured field parameters are listed in Table 3.

The purging of wells FOMW-3, FOMW-4, and FOMW-5 was terminated when temperature, pH, and conductivity measurements stabilized. Following the purging and well recovery to at least 80% of original static water levels (or after two hours of recovery), groundwater samples were collected for laboratory analysis from the discharge tubing of the well pump. A blind duplicate was also collected from well FOMW-4 and labeled DUP-1. The down-hole pump was cleaned prior to use, and between wells by washing in a solution of Alconox™, rinsing with tap water, final rinsing with deionized water, and air drying. The pre-cleaned, polyethylene tubing connected to the pump was changed prior to well purging. An equipment blank, labeled EB-1, was collected by pouring de-ionized water over the pump housing into sample containers following decontamination procedures.

Sample containers and handling procedures for groundwater samples conformed to the established protocols for each specific parameter as described in EPA SW-846. The sample bottles, once filled and preserved as required, were properly labeled and logged on a chain of custody form. The label included well identification number, sample number, date and time sampled, job number, site/client name and location, and sampling personnel's initials. The sealed and labeled samples were placed in ice chests maintained at a temperature of 4 to 7 degrees centigrade and transported to STL laboratories for analysis. A trip blank prepared with deionized water by the laboratory remained in

the cooler during field sampling and sample transport. Chain-of-custody records were maintained throughout the sampling program (Appendix K).

7.3 LABORATORY ANALYSIS PROGRAM FOR GROUNDWATER

Groundwater samples, duplicates, equipment blanks, and trip blanks were submitted were submitted to STL, a DHS-certified laboratory, located in Pleasanton, CA. All samples submitted to STL were analyzed for TPHg, TPHd, TPH-motor oil by modified EPA method 8015, and for BTEX and MTBE by EPA method 8021B. As part of the attenuation monitoring program, the groundwater samples were also analyzed for total alkalinity by EPA method 310.1, nitrate and sulfate by EPA method 9056, hydrocarbon degraders by ASTM G-22, and heterotrophic plate count by SM 9215A.

8.0 SEPARATE PHASE PRODUCT REMOVAL

Due to the presence of separate phase product in well FOMW-1, removal of the separate phase product was initiated at the site during the first quarter 2002. The separate phase product and water within the well casing was removed from the well using a using a vacuum truck fitted with a dedicated PVC stinger. Product was removed from the well on January 30, 2002, February 26, 2002 and March 26, 2002. Product thickness measurements were attempted prior to each removal event using a Solinst™ product interface probe and water level indicator. However, the separate phase product was observed to be highly viscous and the accuracy of the product thickness measurements is questionable because the product would adhere to the interface probe. The measured thickness of the separate phase product was 0.05 foot on January 30, 2002, 0.1 foot on February 26, 2002, and 0.02 foot on March 26, 2002.

Approximately 10 gallons of water and negligible amounts of separate phase product were removed during each event. The removed product and water was transferred into 55-gallon Department of Transportation (DOT)-approved drums and temporarily stored onsite pending disposal by Sears (Section 10.0). No measurable amount of separate phase product was observed in the drum following removal. Based on the measured thickness of the product in the wells prior to each evacuation, the total volume of separate phase product removed was 0.1 gallons.

9.0 EQUIPMENT DECONTAMINATION

Equipment used during the field investigation and groundwater sampling was decontaminated prior to use at each sampling point to reduce the potential for the introduction of contamination and cross-contamination in accordance with the guidelines and procedures discussed below. These procedures are necessary to ensure quality control in decontamination of field equipment and to serve as a means to identify and correct potential errors in the sample collection and sample handling procedures.

Decontamination of all drilling and field sampling equipment was conducted in a thorough and step-wise manner and documented in the field logs. All drilling equipment was cleaned thoroughly (inside and outside) using a steam cleaner. Downhole equipment was cleaned prior to drilling each boring. Downhole sampling equipment was cleaned prior to each sampling event using a dilute Alconox solution followed by double rinsing with fresh water, followed by a distilled water rinse.

10.0 WASTE MANAGEMENT

Soil cuttings and liquid wastes (decontamination water, well development and purge water) were collected and stored in 55-gallon Department of Transportation (DOT)-approved drums. Containers were labeled to identify the source of the wastes. The containers were stored onsite in a designated area and properly disposed by Sears following review of the chemical analysis data.

11.0 FINDINGS

11.1 ADDITIONAL ASSESSMENT

The scope of work completed for the additional assessment consisted of: drilling two 30-foot depth continuous core borings; drilling one 30 foot depth boring and collecting soil samples at discrete intervals; and installing two 30-foot depth groundwater monitoring wells. A summary of the results is provided below.

11.1.1 Soil Cores

Borings EB-22 and EB-23 were sampled continuously to a depth of 30 feet bgs to assess the extent of separate phase product in the immediate vicinity of the UST. No separate phase product was observed in the cores. However, elevated PID readings were noted from the 10 to 15 foot core sections of EB-22. Soil saturated with hydrocarbons typically appears luminous under ultraviolet (UV) light. PTS laboratories observed the cores under UV light and indicated that no sections of the

cores appeared luminous. Therefore UV light photographs of the cores were not taken. White light photographs of the cores taken by PTS are provided as Appendix L.

Soil types observed in the cores consisted of silty sand, sandy silt, and gravelly sand. A detailed description of the soil types observed is provided in the boring logs (Appendix F). A cross-section of the site based on the lithology observed in the soil cores, soil borings, and well borings drilled during this assessment is provided a Figure 3.

11.1.2 Soil Sample Analysis Results

Chemical analysis data for soil samples collected from the soil cores, soil borings, and well borings is summarized in Table 1. Copies of the laboratory reports and chain of custody documents are provided in Appendix G. All soil samples analyzed from borings EB-23, EB-24, FOMW-4 and FOWM-5 contained ND concentrations of BTEX and MTBE. Soil samples analyzed from boring EB-22 contained concentrations of toluene ranging from ND to 20 micrograms per kilogram (µg/kg), concentrations of xylenes ranging from ND to 71 µg/kg, and ND concentrations of benzene, ethylbenzene, and MTBE.

Soil samples analyzed from boring EB-24, FOMW-4, and FOWM-5 contained ND concentrations of TPH-bunker C. Soil samples analyzed from boring EB-24, FOMW-4, and FOWM-5 contained concentrations of TPHd ranging from ND to 5.8 mg/kg. Soil samples analyzed from boring EB-22 contained TPH C5-C10 hydrocarbon chain concentrations ranging from ND to 2.3 mg/kg; TPH C10-C20 hydrocarbon chain concentrations ranging from ND to 340 mg/kg; and TPH C20-C30 hydrocarbon chain concentrations ranging from ND to 580 mg/kg.

Physical properties were evaluated for the 10 to12 foot section and the 18 to 20 foot section of the EB-22 core. The physical properties data is provided in Appendix G. Results indicate the soil types were classified as fine sand at 10 to 12 feet bgs, and coarse sand with approximately 25% gravel at 18 to 20 feet bgs. The moisture content was 20.6% at 10 to 12 feet bgs and 14.7% at 18 to 20 feet bgs. The corresponding effective porosity (n_e) values were 38.5% to 31.2%. The vertical and horizontal hydraulic conductivity (K) values ranged from 1.23×10^{-5} to 2.45×10^{-6} centimeters per second (cm/s).

URS conducted a check of data completeness for the chemical analytical laboratory reports for soil samples collected during this project. Results indicate that "these data are usable, as qualified, for their intended purpose." URS's Data Validation Reports are included as Appendix M.

11.1.3 Groundwater Grab Sample Results

Chemical analysis data for the groundwater grab samples collected from borings EB-22 and EB-23 are summarized in Table 2. Copies of the laboratory reports and chain of custody documents are provided in Appendix H. The samples contained ND concentrations of BTEX and MTBE. The "grab" sample collected from boring EB-22 contained 4600 µg/L of TPHd and ND concentrations of TPH-bunker C. The "grab" sample collected from boring EB-23 contained 150 µg/L of TPHd and ND concentrations of TPH-bunker C.

11.2 GROUNDWATER MONITORING RESULTS

11.2.1 Groundwater Elevations, Contours, and Gradient

Historical groundwater measurements collected since June 2000 indicate that the potentiometric surface beneath the Site has fluctuated from approximately 9 to 12 feet bgs (15 to 18 feet MSL). The water bearing zones are moderately confined, as water levels ascended within drill rods after penetration into the coarser-grained water bearing units during well installation. Current groundwater elevations beneath the Site have decreased about 1 foot since the last monitoring event conducted in December 2001. Groundwater elevations are presented in Table 3 and Appendix C.

Groundwater elevation contours for the site were generated by Kriging (a geostatistical gridding method) using SURFER™, a graphical, contouring software program. Resultant groundwater elevation contours and flow direction are shown on Figure 4. Water level contours generated from the March 6, 2002 water level measurements indicate shallow groundwater flow is to the south with an approximate gradient of 0.015 foot per foot. The groundwater flow direction and gradient are consistent with results from previous quarterly monitoring events.

11.2.2 Laboratory Analytical Results for Groundwater

Chemical analyses results for the groundwater samples collected during this monitoring event are presented in Table 4. Historical chemical analyses results are provided in Appendix D. The California DHS-accredited laboratory report and chain-of-custody forms for the groundwater samples are provided in Appendix K.

The groundwater samples collected from monitoring wells FOMW-3, FOMW-4, and FOMW-5 contained ND concentrations of TPHg, TPH-motor oil, BTEX, and MTBE. The groundwater sample

collected from monitoring well FOMW-3 contained 53 µg/L TPHd. The groundwater samples collected from wells FOMW-4 and FOMW-5 contained ND concentrations of TPHd. The duplicate sample (DUP-1) collected from well FOMW-4 contained 52 µg/L TPHd. URS conducted a check of data completeness for the analytical laboratory reports of the groundwater samples collected during this project. Results indicate that "these data are usable, as qualified, for their intended purpose." URS's Data Validation Reports are included as Appendix M.

12.0 SITE CLOSURE ANALYSIS

To date 23 soil borings have been drilled and five groundwater monitoring wells installed onsite to characterize soil and groundwater affected with petroleum hydrocarbons related to the slurry-filled, fuel oil UST. It appears that a separate area of petroleum hydrocarbon impacts in the vicinity of monitoring well FOMW-3 may be related to a potential historical tire and oil shop operation identified by Lowney (1998).

The highest concentration of petroleum hydrocarbons detected in soil samples collected from the borings was 9,500 mg/kg of TPH-bunker C. This concentration was detected at a depth of 20 feet bgs in boring EB-2, located on the north side of the slurry-filled, fuel oil UST. An isoconcentration map showing the highest concentrations of TPH detected in soil at all depths is provided as Figure 5. The figure shows that subsurface soils are affected with petroleum hydrocarbons in two separate areas onsite. One area is centered on the slurry filled UST and the second area is located near well FOMW-3 in the area of the possible former tire and oil shop.

Benzene or MTBE have not been detected in soil samples collected during the current and previous site investigations. Trace concentrations of toluene, xylenes and ethylbenzene have been detected in several soil samples (Appendix A and Table 1). The highest concentration of toluene detected in soil is 0.020 mg/kg. The highest concentration of xylenes detected in soil is 0.071 mg/kg. The highest concentration of ethylbenzene detected in soil is 0.044 mg/kg.

Monitoring wells installed onsite were used to determine that groundwater in the area of the slurry filled fuel oil UST is impacted with petroleum hydrocarbons. Separated phase product, with an approximate thickness of 0.01 foot, is present in well FOMW-1. Well FOMW-1 is located on the north side of the slurry filled fuel oil UST. Dissolved phase hydrocarbons with concentrations ranging to 53 µg/L were present in groundwater samples collected from the monitoring wells onsite during the First Quarter 2002. BTEX and MTBE were not detected in any of the groundwater samples. An isoconcentration map for the TPH detected in groundwater during the 2002 first quarter

sampling event and groundwater "grab" samples collected during the February 13, 2002 drilling investigation is provided as Figure 6.

A sample of the separate phase project was collected from well FOMW-3 during the third quarter of 2001 for chemical analysis. The product was observed to be highly viscous (like syrup) during collection. Analyses results show the product is primarily comprised of long-chain hydrocarbons in the diesel and oil range. BTEX and MTBE were not detected in the product sample. A summary of the product sample analyses results is provided as Table 5. A second sample of separate phase product was collected from the well during July 11, 2002 for viscosity analysis. The analysis results are provided as Appendix O.

12.1 SEPARATE PHASE PRODUCT MOBILITY

URS has evaluated the site for closure using the Oakland Urban Land Redevelopment (ULR) Program. A copy of the Oakland Risk-Based Corrective Action (RBCA) Eligibility Checklist for completed for the site is provided in Appendix N. When evaluating the site in response to criteria question #2, the separate phase product present in the vicinity of well FOMW-1 should not be considered "mobile or potentially mobile". The mobility of the product was evaluated using a variation of Darcy's Law for Light Non-Aqueous Phase Liquids (LNAPL) published by the Environmental Protection Agency (EPA, 1995). The equation to evaluate the one-dimensional migration of the separate phase product is:

$$v = -(k\rho g/\mu)\ (dh/dl)$$

where

v = Darcy velocity (L/T)
k = intrinsic permeability (L^2)
ρ = density of LNAPL (M/L^3)
g = force of gravity (L/T^2)
μ = dynamic viscosity of LNAPL (M/L*T)
dh/dl = hydraulic gradient of LNAPL mass (L/L)

The equation was solved using the horizontal permeability values obtained from the soil core EB-22 at 12 and 20 feet bgs. Density of the LNAPL was assumed to be similar to #6 fuel oil (0.95 grams/centimeter^3). The dynamic viscosity of the LNAPL was determined from the separate phase product sample collected from the well during July and submitted to PTS laboratories for testing

(Appendix O). Due to the minimal thickness of the separate phase product observed in well FOMW-1, the hydraulic gradient of the LNAPL mass is assumed to be equivalent to that of the groundwater gradient beneath the site. Solving the equation using the horizontal intrinsic permeability at 12 feet bgs yields a Darcy velocity of 4×10^{-11} centimeter per second (cm/s), or 0.00126 cm/year. Solving the equation using the horizontal intrinsic permeability at 20 feet bgs yields a Darcy velocity of 2.4×10^{-11} cm/s, or 0.0007 cm/year.

Additional site specific data which indicates the separate phase product is immobile includes the following points:

- The last date of potential release occurred approximately 35 years ago, and product mobility decreases with time;
- Stable or decreasing dissolved phase TPH concentrations in monitoring wells reveal an immobile or shrinking separate phase product plume;
- Product thickness has remained stable at less than 0.1 foot in well FOMW-1;
- The lateral extent of separate phase product over the time span since release is estimated to be approximately 15 feet;
- The hydraulic conductivity values (K) of soil in which product is present are low.
- The "apparent thickness" of the LNAPL product measured in monitoring wells typically exceeds the LNAPL thickness in the saturated formation by a factor of 2 to 10 (Mercer and Cohen, 1990).

In addition, the attempted removal of the separate phase product during the 2002 first quarter resulted in the removal of approximately 0.1 gallons of product which demonstrated the "technical inpractibility" of product removal at the site.

12.2 TIER 1 CLOSURE ANALYSIS

The Oakland ULR Program is a collaborative effort between the City of Oakland and environmental regulatory agencies including the Department of Toxic Substances Control (DTSC), the Regional Water Quality Control Board (RWQCB), and the ACEHS to "facilitate cleanup and redevelopment of contaminated properties" within the City of Oakland. Sites can be evaluated using the Tier 1, Tier 2, or Tier 3 processes described in the Oakland ULR Program. The Tier 1 and Tier 2 evaluation process consists of comparing existing concentrations of Chemicals of Concern (COCs) in site soil and groundwater to Tier 1 Risk-Based Screening Levels (RBSLs) or Tier 2 Site Specific Target Levels (SSTLs) provided in look-up tables included in the Oakland ULR Program Guidance Document. Copies of the Tier 1 RBSLs and Tier 2 SSTLs, last updated in January 2000, are

provided in Appendix P. If COCs present on a site exceed the Tier 1 RBSLs, then the site may be evaluated under Tier 2 SSTLs.

Petroleum hydrocarbons are not listed in the Tier 1 RBSLs or Tier 2 SSTLs and therefore are not considered COCs at the site. BTEX concentrations present in soil and groundwater at the site were evaluated under the Tier 1 RBSLs for commercial/industrial sites. Benzene has not been detected in any soil samples collected from the site. Benzene has not been detected in any groundwater samples collected from monitoring wells at the site, excluding on sample collected during September 2001 from well FOMW-3 with a concentration of 0.72 µg/L. Benzene, at concentrations ranging to 4.8 µg/L was detected in groundwater "grab" samples collected from the site by Lowney during April 1998. However, groundwater "grab" samples are often "cross-contaminated" with the overlying soil column and are not representative of actual groundwater conditions. In addition, groundwater data collected in 1998 are not representative of current groundwater conditions. Historic soil concentrations of benzene and current groundwater concentrations of benzene are below Tier 1 RBSLs for all exposure pathways. Benzene has not detected in groundwater at concentrations above Tier 1 RBSLs since April 1998.

The highest concentration of toluene historically detected in soil is 0.020 mg/kg, which is below Tier 1 RBSLs for all exposure pathways. The highest concentration of toluene historically detected in groundwater is 1 µg/L, which is below Tier 1 RBSLs for all exposure pathways. The highest concentration of ethylbenzene historically detected in soil is 0.044 mg/kg, which is below Tier 1 RBSLs for all exposure pathways. The highest concentration of ethylbenzene historically detected in groundwater "grab" samples is 3.2 µg/L, which is below Tier 1 RBSLs for all exposure pathways. Ethylbenzene has never been detected in groundwater samples collected from monitoring wells onsite. The highest concentration of xylenes historically detected in soil is 0.071 mg/kg, which is below Tier 1 RBSLs for all exposure pathways. The highest concentration of xylenes historically detected in groundwater "grab" samples is 6.1 µg/L, which is below Tier 1 RBSLs for all exposure pathways. Xylenes have never been detected in groundwater samples collected from monitoring wells onsite. MTBE has never been detected in soil or groundwater samples collected from the site.

13.0 DISCUSSION

The recent investigation completed definition of the soil and groundwater affected with petroleum hydrocarbons onsite. Analysis of the separate phase product in well FOMW-1, conducted during the 2001 third quarter groundwater monitoring event determined that the separate phase product present onsite does not contain BTEX. Evaluation of the separate phase product indicates it is not mobile or potentially mobile. Based on the data collected during this and previous investigations, the site

is eligible for closure under the Oakland ULR Program, Tier 1 RBSL analysis.

URS recommends that four consecutive quarters of groundwater monitoring be conducted which includes recently installed wells FOMW-4 and FOMW-5 to further confirm the stability of the dissolved phase plume and immobility of the separate phase product onsite. Site closure will be requested following the 2002 Fourth Quarter monitoring event if BTEX concentrations in groundwater do not exceed Tier 1 RBSLs, separate phase product thickness in well FOMW-1 does not significantly increase, and separate phase product is not detected in well FOWM-4.

14.0 SCHEDULE

This report represents the eight submittal for quarterly groundwater monitoring at the site. Field work for the 2002 Second quarter monitoring event was conducted during the first week of June. A monitoring report is currently being prepared for the submittal to the ACEHS. The next groundwater monitoring event is scheduled to be conducted during September 2002. As indicated in previous groundwater monitoring reports submitted to the ACEHS, permanent closure of the UST vault, by filling with slurry, will be conducted following approval by the ACEHS. URS will continue to notify ACEHS personnel of upcoming field activities.

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Should you have any questions or comments, please do not hesitate to contact us.

Respectfully submitted,
URS CORPORATION

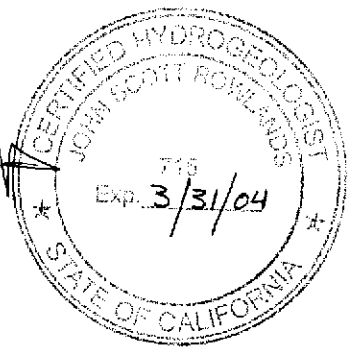

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TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Sample Number and Depth	Date of Sample	TPH Diesel (mg/kg)	TPH Bunker C (mg/kg)	TPH C5-C10 (mg/kg)	TPH C10-C20 (mg/kg)	TPH C20-C30 (mg/kg)	Benzene (µg/kg)	Toluene (µg/kg)	Ethylbenzene (µg/kg)	Xylenes (µg/kg)	MTBE (µg/kg)
FOMW 4 @ 5'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 4 @ 10'	2/13/02	**4.3***	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 4 @ 15'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 4 @ 20'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 4 @ 25'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 4 @ 30'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW5 @ 5'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 5 @ 10'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 5 @ 15'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 5 @ 20'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 5 @ 25'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
FOMW 5 @ 30'	2/12/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB-22-6'-8'	2/13/02	NA	NA	< 0.1	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-22-10'-12'	2/13/02	NA	NA	**0.45**	**340**	**580**	< 5	< 5	< 5	**17**	< 5
EB-22-14'-16'	2/13/02	NA	NA	**2.3**	**130**	**260**	< 20	**20**	< 20	**71**	< 20
EB-22-18'-20'	2/13/02	NA	NA	**0.84**	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-22-22'-24'	2/13/02	NA	NA	**0.18**	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-22-26'-28'	2/13/02	NA	NA	**0.12**	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-23-10'-12'	2/13/02	NA	NA	< 0.1	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-23-16'-18'	2/13/02	NA	NA	< 0.1	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-23-20'-22'	2/13/02	NA	NA	< 0.1	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB-23-24'-26'	2/13/02	NA	NA	< 0.1	< 10	< 100	< 5	< 5	< 5	< 15	< 5
EB 24 @ 5'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB 24 @ 10'	2/13/02	**5.8***	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB 24 @ 15'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB 24 @ 20'	2/13/02	**2.4***	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB 24 @ 25'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5
EB 24 @ 30'	2/13/02	< 1	< 50	NA	NA	NA	< 5	< 5	< 5	< 5	< 5

Notes:
* Hydrocarbon reported does not match Diesel standard
µg/kg = micrograms per kilogram
mg/kg = milligrams per kilogram
< = Not Detected at or above indicated detection limit
TPH = Total Petroleum Hydrocarbons
MTBE = Methyl tertiary-butyl ether

TABLE 2
GROUNDWATER GRAB SAMPLE ANALYTICAL RESULTS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Sample Number	Date of Sample	TPH-Diesel (µg/L)	TPH-Bunker C (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Xylenes (µg/L)	MTBE (µg/L)
EB 22	2/12/02	**4600**	< 79	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
DUP-1	2/12/02	**4200**	< 76	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
EB 23	2/12/02	**150**	< 88	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0
EB 1	2/12/02	**86**	< 50	< 1.0	< 1.0	< 1.0	< 1.0	< 5.0

Notes:
µg/L = micrograms per liter
< = Not Detected at or above indicated detection limit
TPH = Total Petroleum Hydrocarbons
MTBE = Methyl tertiary-butyl ether

TABLE 3
2002 1ST QUARTER GROUNDWATER LEVELS AND FIELD PARAMETERS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Date Collected	Notes	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS					
			Product Thickness (ft)	Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temp. (Celcius)	pH	Cond (µS/cm)	O.R.P. (mV)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)
FOMW-1	3/6/02	SP	0.01	8.70	26.21	17.51	NA	NA	NA	NA	NA	NA
FOMW-2	3/6/02	4,5	0.00	11.25	26.65	15.40	NA	NA	NA	NA	NA	NA
FOMW-3	3/6/02	--	0.00	10.59	26.70	16.11	16.30	6.76	471	45.6	0.30	0.11
FOMW-4	3/6/02	5	0.00	10.08	26.20	16.12	15.90	6.75	376	78.2	0.18	0.47
FOMW-5	3/6/02	5	0.00	12.91	26.23	13.32	16.63	6.62	386	77.9	0.09	0.34

Notes:
MSL - Mean Sea Level
BGS - Below ground surface
Groundwater Elevation reference to MSL
Groundwater Elevation = Top of casing elevation - Depth to Water.
1 Sheen observed on water surface.
2 Petroleum odor in groundwater
3 Well covered by demolition debris. Could not be accessed.
4 Well casing damaged
5 Reference point for DTW measurement has not been surveyed
SP - Separate phase product in well
NA - Not analyzed/Not available.

µS/cm - microSiemens per centimeter
mV - millivolt
mg/L - milligrams per liter

TABLE 4
2002 1ST QUARTER GROUNDWATER ANALYTICAL RESULTS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS								PHYSICAL PARAMETERS						
			TPH by 8015M			Volatile Organics by 8021											
			TPHg (µg/L)	TPHd (µg/L)	TPHo (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Total Alkalinity (mg/L)	Dissolved Methane (µg/ML)	Hydrocarbon Degraders (CFU/ML)	Heterotrophic Plate Count (CFU/ML)
FOMW-1	3/6/2002	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-2	3/6/2002	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-3	3/6/2002	--	< 50	53	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	6.8	84	NA	140	NA	60	200
FOMW-4	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	9.7	53	NA	100	NA	3,000	10,000
FOMW-4	3/6/2002	1	< 50	52	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	9.7	53	NA	110	NA	300	2,000
FOMW-5	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	15	41	NA	120	NA	700	2,000

Notes:

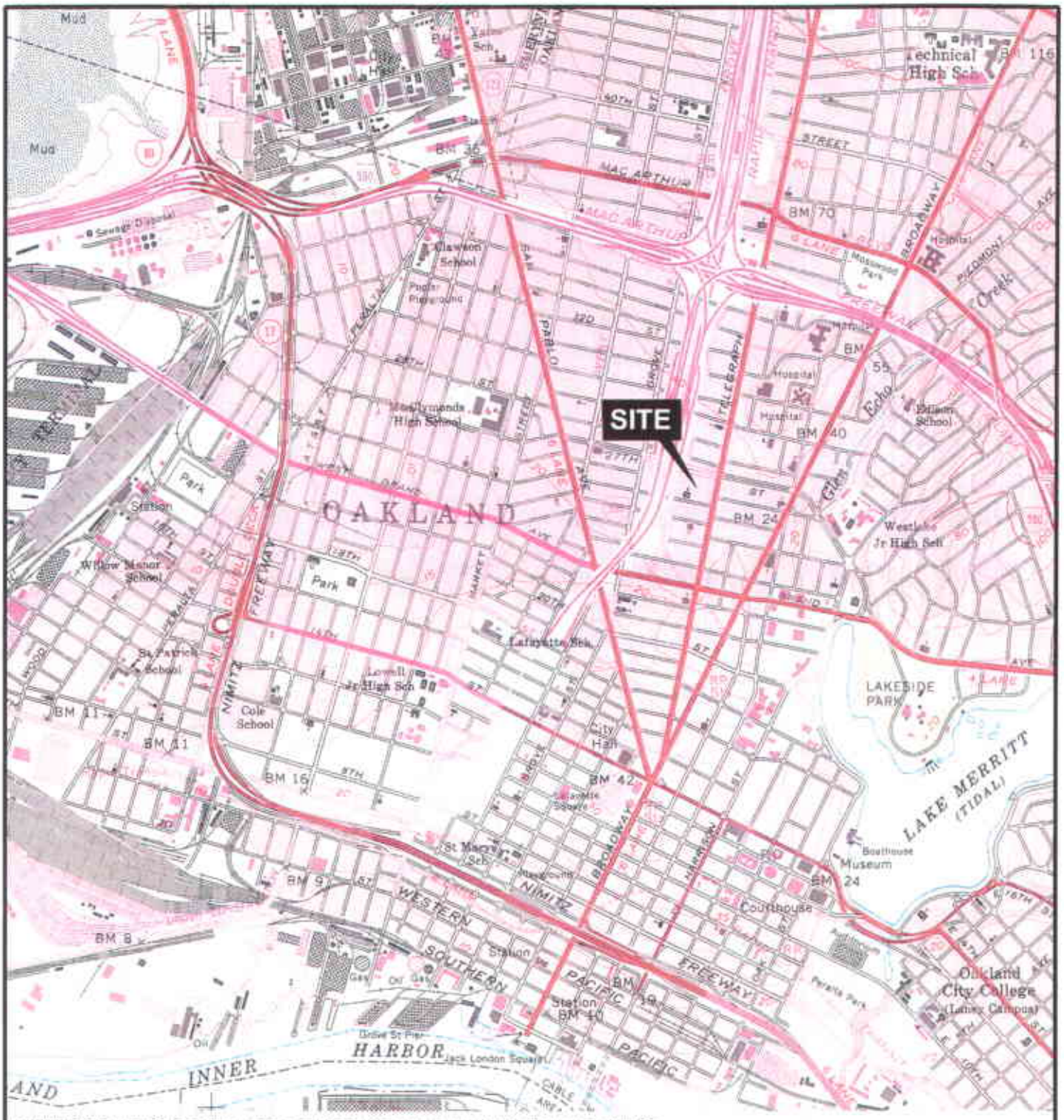
1: Duplicate sample
2: Well blocked by demolition debris. Could not be accessed.
3: Well casing is damaged
J - Bunker-C detections were quatitated against the diesel standard and flagged as estimated concentrations
< - Analyte not detected above indicated method detection limit
NA: Not analyzed/Not available.
SP: Separate Phase Product

TPHg = Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified)
TPHd = Total Petroleum Hydrocarbonsas diesel range hydrocarbons by EPA Method 8015 (modified).
TRPo = Total Petroleum Hydrocarbons as oil range by EPA Method 8015 (modified)
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
TDS = Toal Dissolved Soilds
µg/L - micrograms per liter
mg/L - milligrams per liter
(CFU/ML)- colony forming unit per millliliter

TABLE 5
SEPARATE PHASE PRODUCT ANALYTICAL RESULTS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS							
			Volatile Organics by GC/MS 8021B					TPH by 8015M		
			B (mg/kg)	T (mg/kg)	E (mg/kg)	X (mg/kg)	MTBE (mg/kg)	C8-C12 (mg/kg)	C13-C23 (mg/kg)	C24-C40 (mg/kg)
FOMW-1	9/26/01	SP	< 0.002	< 0.002	< 0.002	< 0.004	< 0.005	46,000	393,000	385,000

Notes:
TPH - Total Petroleum Hydrocarbons
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
< - Analyte not detected above indicated method detection limit
mg/kg : milligram per kilogram
SP: Separate Phase Product



REFERENCE: USGS 7.5 Minute Series Oakland West, CA Quad, 1959, Photorevised 1980

FIGURE 1

VICINITY MAP

FORMER SEARS RETAIL CENTER #1058
2633 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA
For Sears, Roebuck & Co.

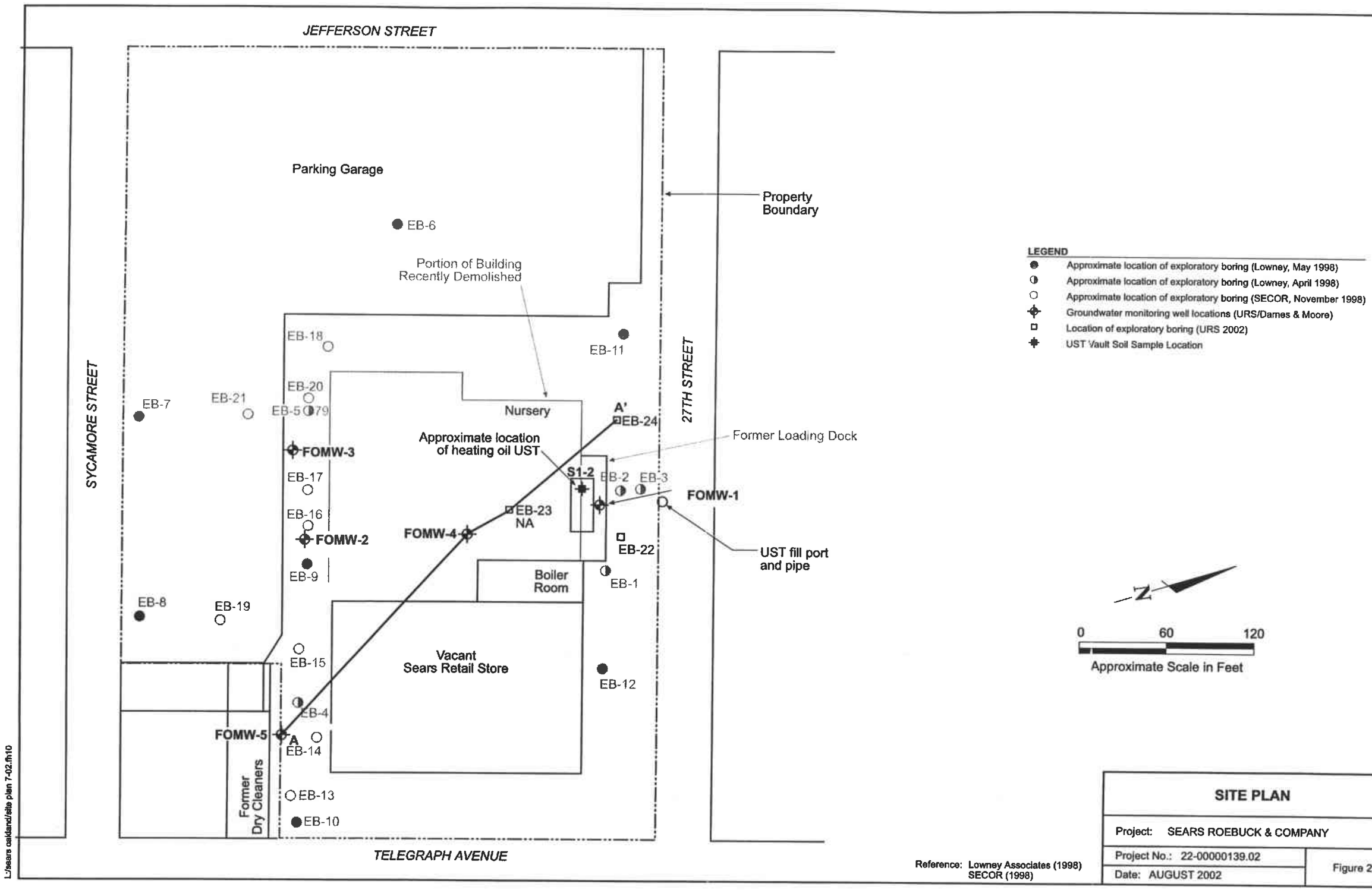
N

0 1/2 1

Scale in Miles

URS

L:\sears\topo #1058a fn10 4/02



L:\sears oakland\site plan 7-02.fh10

Reference: Lowney Associates (1998)
SECOR (1998)

SITE PLAN

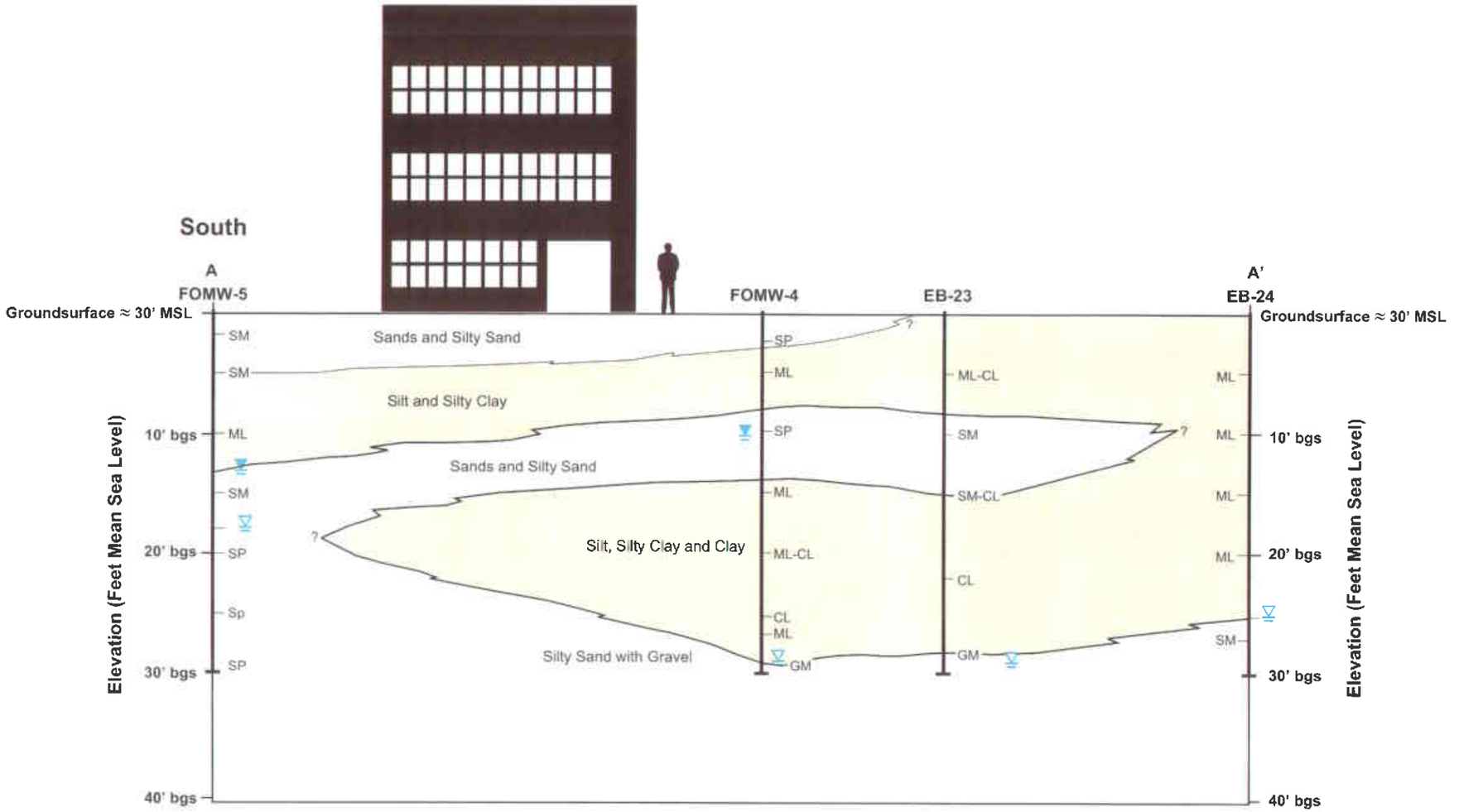
Project: SEARS ROEBUCK & COMPANY

Project No.: 22-00000139.02

Date: AUGUST 2002

Figure 2

URS



LEGEND

Horizontal Scale 1" = 40'
Vertical Scale 1" = 10'

bgs = below ground surface

▽ = Groundwater Potentrometric Surface

▽ = Groundwater Encountered in Borehole

SP USCS Soil Classification

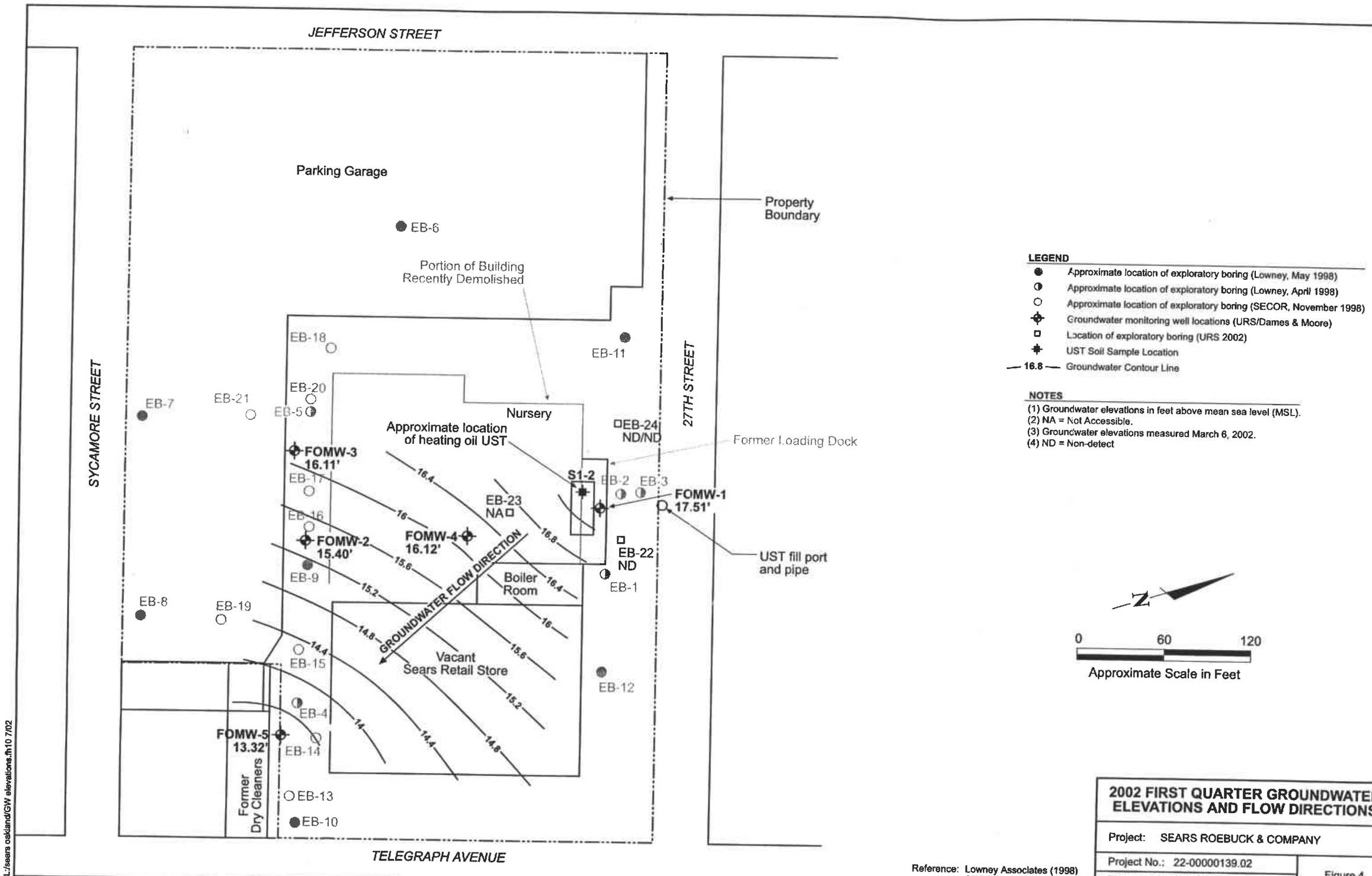
FIGURE 3

GEOLOGIC CROSS SECTION A-A'

SEARS AUTO CENTER #1058
OAKLAND, CALIFORNIA

URS

L:/Sears/cross section #1058.fh10 6/02



LEGEND

- Approximate location of exploratory boring (Lowney, May 1998)
- Approximate location of exploratory boring (Lowney, April 1998)
- Approximate location of exploratory boring (SECOR, November 1998)
- Groundwater monitoring well locations (URS/Dames & Moore)
- Location of exploratory boring (URS 2002)
- UST Soil Sample Location
- 16.8 — Groundwater Contour Line

NOTES

(1) Groundwater elevations in feet above mean sea level (MSL).
(2) NA = Not Accessible.
(3) Groundwater elevations measured March 6, 2002.
(4) ND = Non-detect

Reference: Lowney Associates (1998)
SECOR (1998)

2002 FIRST QUARTER GROUNDWATER ELEVATIONS AND FLOW DIRECTIONS

Project: SEARS ROEBUCK & COMPANY

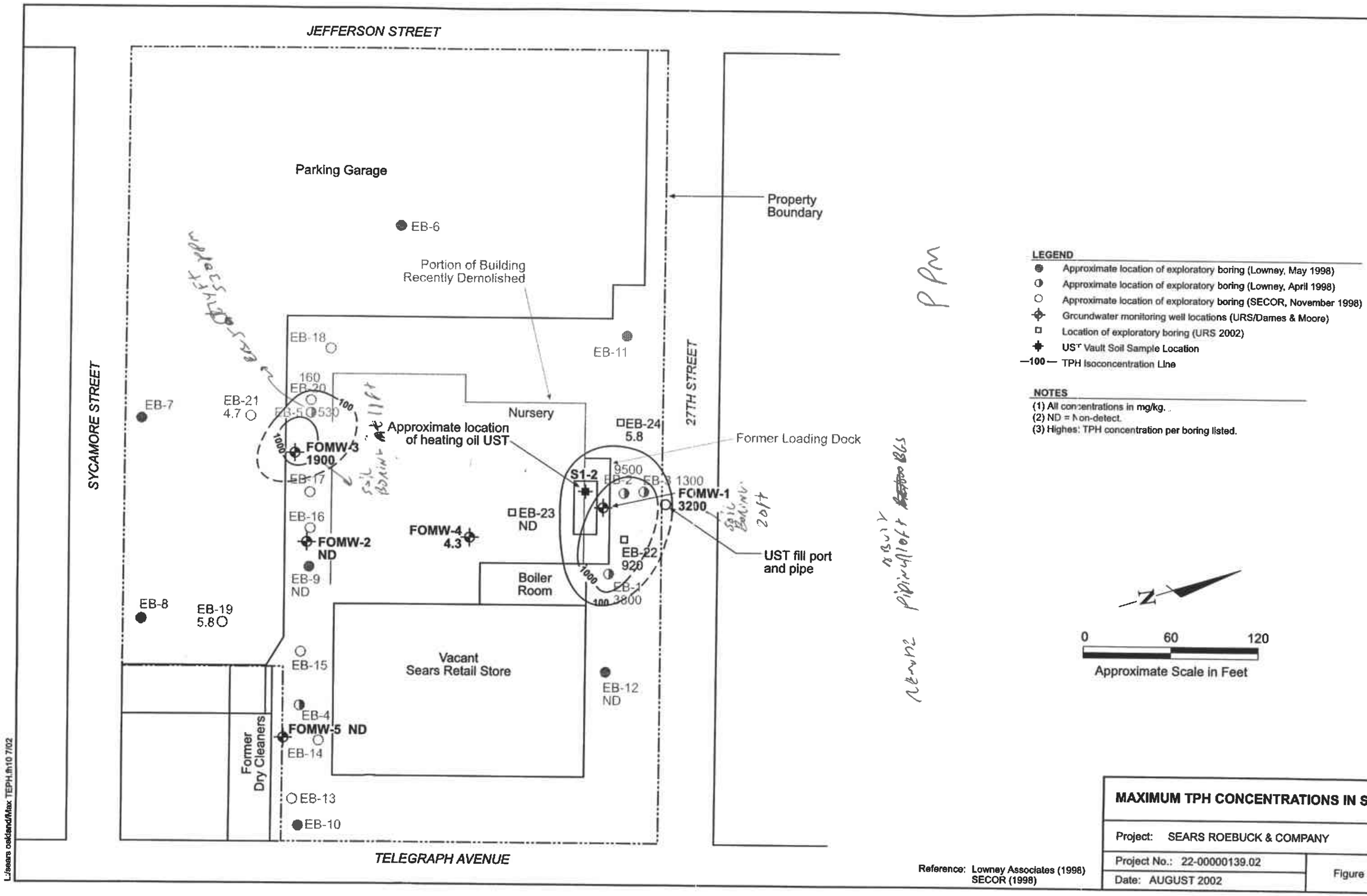
Project No.: 22-00000139.02

Date: AUGUST 2002

Figure 4

URS

L:/sears oakland/GW elevations.fh10 7/02



LEGEND

- Approximate location of exploratory boring (Lowney, May 1998)
- Approximate location of exploratory boring (Lowney, April 1998)
- Approximate location of exploratory boring (SECOR, November 1998)
- Groundwater monitoring well locations (URS/Dames & Moore)
- Location of exploratory boring (URS 2002)
- UST Vault Soil Sample Location
- —100— TPH Isoconcentration Line

NOTES

(1) All concentrations in mg/kg.
(2) ND = Non-detect.
(3) Highest TPH concentration per boring listed.

Reference: Lowney Associates (1998)
SECOR (1998)

MAXIMUM TPH CONCENTRATIONS IN SOIL

Project: SEARS ROEBUCK & COMPANY

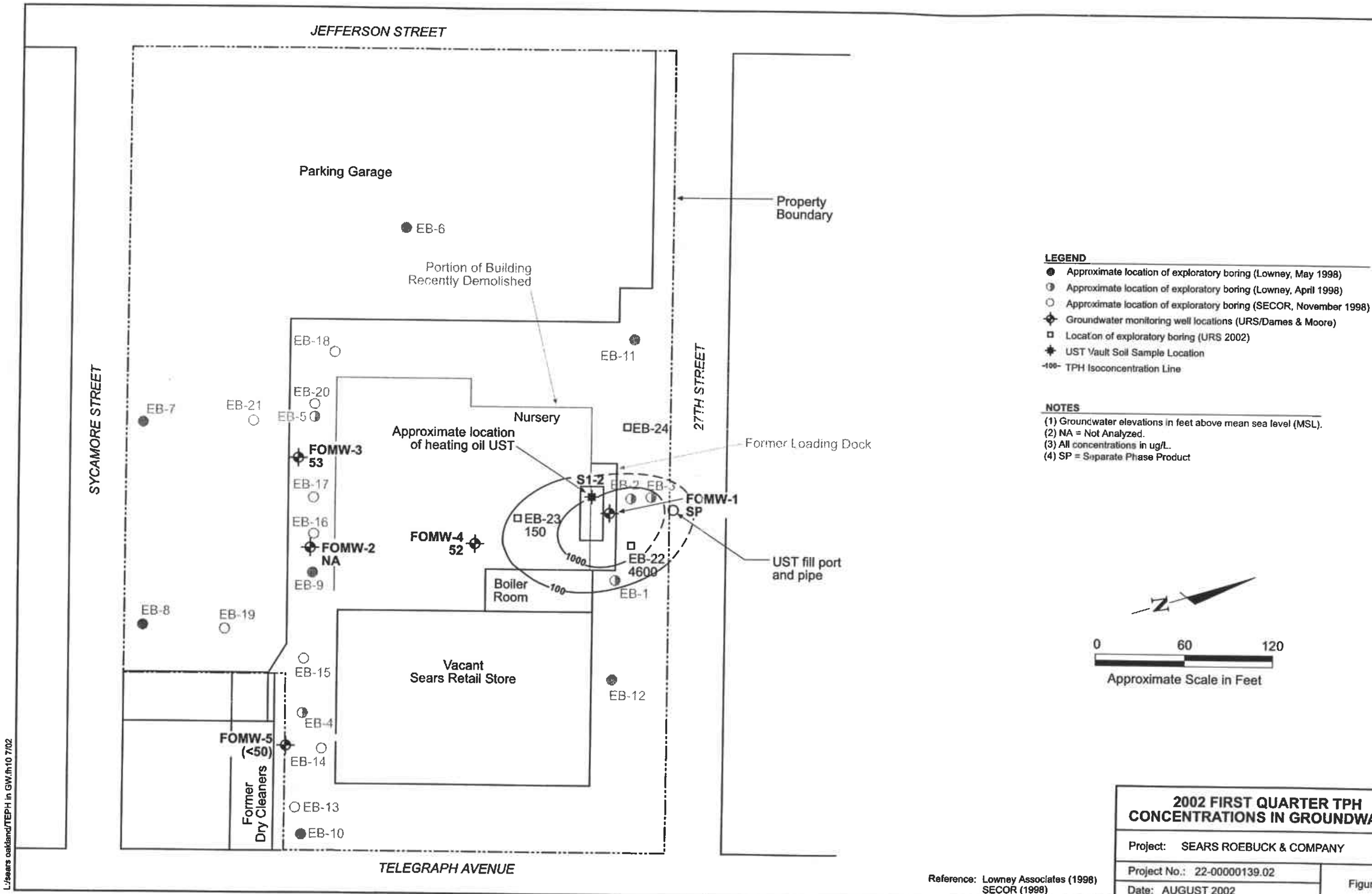
Project No.: 22-00000139.02

Date: AUGUST 2002

Figure 5

URS

L:\sears oakland\Max TEPH.fh10 7/02



L:\sears oakland\TEPH in GW.fh10 7/02

Reference: Lowney Associates (1998)
SECOR (1998)

2002 FIRST QUARTER TPH CONCENTRATIONS IN GROUNDWATER

Project: SEARS ROEBUCK & COMPANY

Project No.: 22-00000139.02

Date: AUGUST 2002

Figure 6

URS

APPENDIX A
HISTORICAL SUMMARY OF SOIL ANALYTICAL RESULTS

APPENDIX A
HISTORICAL SOIL SAMPLE ANALYTICAL RESULTS
FORMER SEARS PROPERTY #1058
2633 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA

Sample Number and Depth	Date of Sample	TPH-Diesel	TPH-Bunker C	TPH-Fuel Oil	TPH-Motor Oil	TPH-Gasoline	TPH- Stoddard Solvent	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE	VOCs
Sampling performed by Lowney, 1998													
EB-1-12'	4/7/1998	ND	ND	ND	-	-	-	ND	ND	ND	ND	-	-
EB-1-16'	4/7/1998	ND	**3,800**	ND	-	-	-	ND	ND	ND	ND	-	-
EB-2-16'	4/7/1998	ND	ND	ND	-	-	-	ND	ND	ND	ND	-	-
EB-2-20'	4/7/1998	ND	**9,500**	ND	-	-	-	ND	ND	ND	ND	-	-
EB-3-13'	4/7/1998	ND	ND	ND	-	-	-	ND	ND	ND	ND	-	-
EB-3-17'	4/7/1998	ND	**1,300**	ND	-	-	-	ND	ND	ND	ND	-	-
EB-4-8'	4/7/1998	-	-	-	-	-	-	-	-	-	-	-	ND
EB-4-12'	4/7/1998	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	ND
EB-5-6'	4/7/1998	ND	**79**	ND	ND	**2.5**	ND	ND	ND	ND	ND	-	ND
EB-5-14'	4/7/1998	**530**	ND	ND	ND	**240***	**280**	ND	ND	ND	**0.41**	-	ND
EB-6-11'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-6-17'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-7-10'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-7-14'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-8-9'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-8-11'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-9-11'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-9-15'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-10-11'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-10-16'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-11-9'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-11-13'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-12-9'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
EB-12-13'	5/12/1998	ND	ND	ND	-	-	ND	ND	ND	ND	ND	-	-
Sampling performed by Secor, 1998													
EB-13-7'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	**0.0191**
EB-13-16'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-14-4'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-14-7'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-15-6'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-15-13'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-16-7'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-16-13'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-18-4'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-18-16'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-18-22'	11/9/1998	-	-	-	-	-	ND	ND	ND	ND	ND	-	-
EB-19-22'	11/10/1998	**5.8**	ND	-	ND	-	ND	ND	ND	ND	ND	-	ND
EB-20-7'	11/10/1998	**160**	ND	-	**70**	-	ND	ND	ND	**0.044**	ND	-	**0.0452**
EB-20-13'	11/10/1998	**140**	ND	-	ND	-	ND	ND	ND	ND	ND	-	ND
EB-20-22'	11/10/1998	**4**	ND	-	ND	-	ND	ND	ND	ND	ND	-	ND
EB-21-22'	11/10/1998	**4.7**	ND	-	ND	-	ND	ND	ND	ND	ND	-	ND
Sampling performed by URS, 2000													
FOMW-1-11'	5/18/2000	ND	ND	-	-	-	-	ND	ND	ND	ND	ND	
FOMW-1-16'	5/18/2000	ND	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-1-20'	5/18/2000	ND	**3200**	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-2-6'	5/19/2000	ND	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-2-11'	5/19/2000	ND	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-2-16'	5/19/2000	ND	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-3-6'	5/19/2000	**51**	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-3-11'	5/19/2000	**1900**	ND	-	-	-	-	ND	ND	ND	ND	ND	-
FOMW-3-16'	5/19/2000	**19**	ND	-	-	-	-	ND	ND	ND	ND	ND	-

Notes:
All concentrations in mg/kg
ND = Not Detected at or above the state laboratory reporting limit
- = Not Analyzed
* TPH-Gas chromatogram, although within reporting limits, does not match typical Gas pattern.
[1] Tetrachloroethene
[2] Isopropyl-benzene

APPENDIX B
HISTORICAL SUMMARY OF GROUNDWATER GRAB SAMPLE ANALYTICAL RESULTS

APPENDIX B
HISTORICAL SUMMARY OF GROUNDWATER GRAB SAMPLE ANALYSES
FORMER SEARS PROPERTY #1058
2633 TELEGRAPH AVENUE
OAKLAND, CALIFORNIA

Sample Number	Date of Sample	TPH-Diesel	TPH-Bunker Oil	TPH-Fuel Oil	TPH-Motor Oil	TPH-Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes	TPH-Stoddard Solvent	VOCs -8010
Sampling performed by Lowney, 1998												
EB-1	4/7/98	ND	**38,000**	ND	-	-	ND	ND	ND	ND	-	-
EB-2	4/7/98	ND	**480,000**	ND	-	-	**4.8**	**1.8**	**1.4**	**5.2**	-	-
EB-3	4/7/98	ND	**150,000**	ND	-	-	ND	ND	ND	ND	-	-
EB-4	4/7/98	ND	ND	ND	ND	**1,600**	**4.3**	**3.7**	ND	ND	**9,100**	ND
EB-5	4/7/98	ND	**330,000**	ND	ND	**100***	ND	ND	ND	ND	ND	**1**
EB-6	5/12/98	ND	ND	-	-	-	ND	ND	ND	ND	ND	-
EB-10	5/12/98	ND	ND	-	-	-	ND	ND	ND	ND	ND	-
EB-11	5/12/98	ND	ND	-	-	-	ND	ND	ND	ND	ND	-
EB-12	5/12/98	ND	ND	-	-	-	ND	ND	ND	ND	ND	-
Sampling performed by Secor, 1998												
EB-13	11/9/98	-	-	-	-	-	ND	ND	ND	ND	ND	-
EB-14	11/9/98	-	-	-	-	-	ND	ND	**3.2**	**6.1**	**2,300**	**2,3,4**
EB-15	11/9/98	-	-	-	-	-	ND	ND	ND	ND	ND	-
EB-18	11/9/98	-	-	-	-	-	ND	ND	ND	ND	ND	-

Notes:
Results in µg/L
ND = Not Detected at or above laboratory reporting limits
- = Not Analyzed
* TPH-Gas chromatogram, although within reporting limits, does not match typical Gas pattern; see laboratory results
[1] Tetrachloroethene detected at 0.6 µg/L.
[2] Naphthalene detected at 11 µg/L.
[3] Trichloroethene detected at 5.7 µg/L.
[4] Isopropylbenzene detected at 62 µg/L.

APPENDIX C
HISTORICAL GROUNDWATER LEVELS AND FIELD PARAMETERS

APPENDIX C
HISTORICAL GROUNDWATER LEVELS AND FIELD PARAMETERS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Date Collected	Notes	GROUNDWATER LEVELS				GROUNDWATER SAMPLING FIELD PARAMETERS					
			Product Thickness (ft)	Depth to Groundwater (feet bgs)	Casing Elevation (MSL)	Groundwater Elevation (MSL)	Temp. (Celcius)	pH	Cond (µS/cm)	O.R.P. (mV)	Dissolved Oxygen (mg/L)	Ferrous Iron (mg/L)
FOMW-1	6/8/2000	1,2	0.00	9.59	27.81	18.22	18.3	6.72	659	13.00	0.28	NA
	10/10/2000	SP	0.01	9.91	27.81	17.90	NA	NA	NA	NA	NA	NA
	12/15/2000	SP	0.01	9.44	27.81	18.37	NA	NA	NA	NA	NA	NA
	3/27/2001	SP	0.01	9.00	27.81	18.81	NA	NA	NA	NA	NA	NA
	6/22/2001	SP	NA	NA	27.81	NA	NA	NA	NA	NA	NA	NA
	9/26/2001	SP	0.01	10.85	27.81	16.96	NA	NA	NA	NA	NA	NA
	12/7/2001	3	NA	NA	27.81	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	SP	0.01	8.70	26.21	17.51	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/2000	--	0.00	11.14	26.65	15.51	14.7	7.00	673	10.00	2.92	NA
	10/10/2000	--	0.00	12.34	26.65	14.31	15.8	7.58	420	0.01	NA	NA
	12/15/2000	--	0.00	11.05	26.65	15.60	14.0	7.09	1210	NA	0.15	NA
	3/27/2001	--	0.00	10.91	26.65	15.74	15.4	7.62	305	92.00	0.61	NA
	6/22/2001	--	0.00	11.30	26.65	15.35	15.3	5.33	340	0.20	0.25	NA
	9/26/2001	3	NA	NA	26.65	NA	NA	NA	NA	NA	NA	NA
	12/7/2001	4	NA	NA	26.65	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	4,5	NA	11.25	26.65	15.40	NA	NA	NA	NA	NA	NA
FOMW-3	6/8/2000	2	0.00	10.48	26.80	16.32	15.0	6.87	689	23.00	0.22	NA
	10/10/2000	--	0.00	11.15	26.80	15.65	15.6	7.66	430	39.00	NA	NA
	12/15/2000	--	0.00	10.36	26.80	16.44	14.1	7.31	1400	45.00	0.15	NA
	3/27/2001	--	0.00	10.12	26.80	16.68	NA	NA	NA	NA	NA	NA
	6/22/2001	--	0.00	10.65	26.80	16.15	15.7	5.11	330	0.09	0.50	NA
	9/26/2001	--	0.00	11.74	26.80	15.06	17.5	6.81	528	23.80	0.78	NA
	12/7/2001	--	0.00	9.59	26.80	17.21	16.8	6.71	432	34.2	0.18	0.32
	3/6/2002	--	0.00	10.59	26.70	16.11	16.30	6.76	471	45.6	0.30	0.11
FOMW-4	3/6/2002	5	0.00	10.08	26.20	16.12	15.90	6.75	376	78.2	0.18	0.47
FOMW-5	3/6/2002	5	0.00	12.91	26.23	13.32	16.63	6.62	386	77.9	0.09	0.34

Notes:
MSL - Mean Sea Level
BGS - Below ground surface
Groundwater Elevation reference to MSL
Groundwater Elevation = Top of casing elevation - Depth to Water.
1 Sheen observed on water surface.
2 Petroleum odor in groundwater
3 Well covered by demolition debris. Could not be accessed.
4 Well casing damaged
5 Reference point for DTW measurement has not been surveyed
SP - Separate phase product in well
NA - Not analyzed/Not available.

µS/cm - microSiemens per centimeter
mV - millivolt
mg/L - milligrams per liter

APPENDIX D
HISTORICAL GROUNDWATER MONITORING ANALYTICAL RESULTS

APPENDIX D
HISTORICAL SUMMARY OF GROUNDWATER MONITORING RESULTS
FORMER SEARS PROPERTY #1058
OAKLAND, CALIFORNIA

Monitoring Well No.	Sample Date	Notes	LABORATORY ANALYTICAL RESULTS								PHYSICAL PARAMETERS						
			TPH by 8015M			Volatile Organics by 8021											
			TPHg (µg/L)	TPHd (µg/L)	TPHo (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	MTBE (µg/L)	Nitrate (mg/L)	Sulfate (mg/L)	TDS (mg/L)	Total Alkalinity (mg/L)	Dissolved Methane (µg/ML)	Hydrocarbon Degraders (CFU/ML)	Heterotrophic Plate Count (CFU/ML)
FOMW-1	6/8/2000	--	NA	< 50	J 1200	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	360	230	< 0.01	390	4000
	10/10/2000	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	SP	NA	260	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	NA	NA	NA	NA	NA
	12/15/2000	1	NA	370	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	NA	NA	NA	NA	NA
	3/27/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	6/22/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	9/26/2001	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/7/2001	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	SP	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-2	6/8/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	250	150	< 0.01	1	110
	10/10/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	260	140	< 0.01	170	1600
	12/15/2000	--	NA	< 50	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	7.8	30	210	190	< 0.01	550	1000
	3/27/2001	--	NA	< 50	NA	< 0.5	< 0.5	< 0.5	< 1	< 5	8.4	47	290	130	< 0.01	30	170
	3/27/2001	1	NA	< 50	NA	< 0.5	< 0.5	< 0.5	< 1	< 5	9.1	47	320	130	< 0.01	40	70
	6/22/2001	--	NA	< 250	< 250	< 1	< 1	< 1	< 1	< 5	NA	NA	220	110	< 0.01	4000	400000
	9/26/2001	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	12/7/2001	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	3/6/2002	3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
FOMW-3	6/8/2000	--	NA	< 50	J 1200	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	330	190	< 0.01	440	110000
	6/8/2000	1	NA	< 50	J 1100	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	330	180	< 0.01	50	8000
	10/10/2000	--	NA	230	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	NA	NA	300	170	< 0.01	800	4000
	12/15/2000	--	NA	100	< 50	< 0.5	< 0.5	< 0.5	< 1	< 5	3.2	30	290	190	< 0.01	1200	1800
	3/27/2001	--	NA	170	NA	< 0.5	< 0.5	< 0.5	< 1	< 5	3.3	51	420	130	< 0.01	400	300
	6/22/2001	--	NA	260	< 250	< 1	< 1	< 1	< 1	< 5	NA	NA	250	150	< 0.01	4000	350000
	9/26/2001	--	NA	95	< 500	0.72	1	< 0.5	< 0.5	< 5	5.0	55	NA	150	0.011	30	170
	12/7/2001	--	NA	110	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	7.1	66	NA	130	NA	260	1000
	3/6/2002	--	< 50	53	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	6.8	84	NA	140	NA	60	200
FOMW-4	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	9.7	53	NA	100	NA	3000	10000
	3/6/2002	1	< 50	52	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	9.7	53	NA	110	NA	300	2000
FOMW-5	3/6/2002	--	< 50	< 50	< 500	< 0.5	< 0.5	< 0.5	< 0.5	< 5	15	41	NA	120	NA	700	2000

Notes:
1: Duplicate sample
2: Well blocked by demolition debris. Could not be accessed.
3: Well casing is damaged
J - Bunker-C detections were quatitated against the diesel standard and flagged as estimated concentrations
< - Analyte not detected above indicated method detection limit
NA: Not analyzed/Not available.
SP: Separate Phase Product

TPHg = Total Petroleum Hydrocarbons as gasoline range hydrocarbons by EPA Method 8015 (modified)
TPHd = Total Petroleum Hydrocarbonsas diesel range hydrocarbons by EPA Method 8015 (modified).
TRPo = Total Petroleum Hydrocarbons as oil range by EPA Method 8015 (modified)
B T E X - Benzene, Toluene, Ethylbenzene, Total Xylenes
MTBE - Methyl tertiary-butyl ether
TDS = Toal Dissolved Soilds
µg/L - micrograms per liter
mg/L - milligrams per liter
(CFU/ML)- colony forming unit per milliliter

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT: former Sears Retail Center
Sears Auto Center #1058
2633 Telegraph Ave
Oakland, CA

CLIENT
Name Sears Department 766 x 1 Bx-262
Address 3333 Beverly Rd Phone (847) 286-2500
City Hoffman Il Zip 60179

APPLICANT
Name Brian Graham - URS Corporation
Fax 510 874-[redacted]3268
Address 500 12th St. Suite 200 Phone 510 874-3249
City Oakland, CA Zip 94607-4014

TYPE OF PROJECT

Well Construction	Geotechnical Investigation
Cathodic Protection	General
Water Supply	Contamination
✓ Monitoring Well Construction	Well Destruction

PROPOSED WATER SUPPLY WELL USE

New Domestic	( )	Replacement Domestic	( )
Municipal	( )	Irrigation	( )
Industrial	( )	Other Monitoring	✓

DRILLING METHOD:

Mud Rotary	( )	Air Rotary	( )	Auger	✓
Cable	( )	Other			

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. CA 485165

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 4 in. Depth 50 ft.
Surface Seal Depth 10 ft. Owner's Well Number SOMW-4

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 2/12/02 Will be completed the same
ESTIMATED COMPLETION DATE 2/15/02 day it is started

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ DATE 1/31/02

PLEASE PRINT NAME Brian J. Graham

Rev.5-13-00

FOR OFFICE USE
PERMIT NUMBER W02-0145
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS
Attached

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 2-4-02

ALAMEDA COUNTY PUBLIC WORKS AGENCY

WATER RESOURCES SECTION
399 ELMHURST ST. HAYWARD CA. 94544-1395
PHONE (510) 670-5554
FAX (510)782-1939

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT
Farmer Sears Retail Center
Sears Auto Center #1054
2633 Telegraph Ave
Oakland, CA

CLIENT
Name Sears Department 766 + 1 Bx-762
Address 3333 Beverly Rd Phone 847 286-2500
City Hoffman Est. Zip 60179

APPLICANT
Name Brian Graham - URS Corporation Fax 510 874 3268
Address 500 12th St. Suite 200 Phone 510 874-3249
City Oakland, CA Zip 94607-4014

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	
✓ Monitoring (Well Construction)	:	Well Destruction	:

PROPOSED WATER SUPPLY WELL USE

New Domestic		Replacement Domestic	
Municipal		Irrigation	
Industrial		Other Monitoring	✓

DRILLING METHOD:

Mud Rotary		Air Rotary	Auger ✓
Cable		Other	

DRILLER'S NAME Gregg Drilling
DRILLER'S LICENSE NO. CA 485165

WELL PROJECTS
Drill Hole Diameter 8 in. Maximum
Casing Diameter 4 in. Depth 50 ft.
Surface Seal Depth 10 ft. Owner's Well Number Form-5

GEOTECHNICAL PROJECTS
Number of Borings ____ Maximum
Hole Diameter ____ in. Depth ____ ft.

ESTIMATED STARTING DATE 2/12/02 Will be completed the same
ESTIMATED COMPLETION DATE 2/15/02 day it is started

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE _____ DATE 1/31/02
PLEASE PRINT NAME Brian J. Graham

Rev.5-13-00

FOR OFFICE USE
PERMIT NUMBER W02-0146
WELL NUMBER
APN

PERMIT CONDITIONS
Circled Permit Requirements Apply

A. GENERAL
1. A permit application should be submitted so as to arrive at the ACPWA office five days prior to proposed starting date.
2. Submit to ACPWA within 60 days after completion of permitted original Department of Water Resources-Well Completion Report.
3. Permit is void if project not begun within 90 days of approval date.

B. WATER SUPPLY WELLS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved.

C. GROUNDWATER MONITORING WELLS INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

D. GEOTECHNICAL
Backfill bore hole by tremie with cement grout or cement grout/sand mixture. Upper two-three feet replaced in kind or with compacted cuttings.

E. CATHODIC
Fill hole anode zone with concrete placed by tremie.

F. WELL DESTRUCTION
Send a map of work site. A separate permit is required for wells deeper than 45 feet.

G. SPECIAL CONDITIONS Attached

NOTE: One application must be submitted for each well or well destruction. Multiple borings on one application are acceptable for geotechnical and contamination investigations.

APPROVED _____ DATE 2-4-02

JAN-31-2002 16:06 URS P.03/04

Sep 04 02 01:30p Janis Brower 530 5425278 p.6

APPENDIX F
SOIL BORING/WELLCONSTRUCTION LOGS

Project: SEARS Project Location: Oakland Project Number: 22-00000139.02	**Log of FOMW-4** Sheet 1 of 1

Date(s) Drilled	2/13/2002			Logged By	Robert Kovacs	Checked By	
Drilling Method	Hollow Stem Auger			Drilling Contractor	Gregg Drilling	Total Depth of Borehole	30.0 feet
Drill Rig Type	B-61			Drill Bit Size/Type	8" Hollow Stem Auger	Surface Elevation (ft-msl)	
Groundwater Level (feet bgs)	29			Sampling Method(s)		Top of PVC Elevation	
Diameter of Hole (inches)	8"	Diameter of Well (inches)	2"	Type of Well Casing	2" PVC	Screen Perforation	0.010 inch screen
Type of Sand Pack	#2/12			Type/Thickness of Seal(s)	Bentonite chips 9.0-7.0; Cement/Bentonite grout 7.0-1.0; Cement 1.0-0.0		
Comments							

Depth, feet	SAMPLES Type	SAMPLES Number	Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Drilling Rate (time)	REMARKS
0					Asphaltic concrete 3 inches Crushed rock base 6 inches Very dark brown gravelly fine to medium **SAND (SP)** with trace silt and clay, moist		0.0	0.0	700	Hand auger to 6 feet
5			10		Light orange-brown, fine sandy **SILT (ML)** medium dense, moist				750	
10			25		Becomes trace gravelly				755	
15			29		Becomes light brown with trace clay, no gravel		0.0	0.0	800	
20			53		Light brown with orange limonite stains, clayey **SILT (ML)** with trace fine sand, very dense, wet				810	
25			43		Becomes silty **CLAY (CL)** very stiff				820	
					Gravelly **SAND (GM)** very dense, wet					Groundwater encounter at 29 ft bgs
30			46		End of boring at 30 feet		0.0	0.0	830	
35										

Report: ENV_1W_SNA; File: SEARS--1.GPJ; 7/24/2002 FOMW-4

URS

Project: SEARS
Project Location: Oakland
Project Number: 22-00000139.02

Log of FOMW-5

Sheet 1 of 1

Date(s) Drilled	2/12/2002	Logged By	Robert Kovacs	Checked By	
Drilling Method	Hollow Stem Auger	Drilling Contractor	Gregg Drilling	Total Depth of Borehole	30.0 feet
Drill Rig Type	D-14 Limited Access Rig	Drill Bit Size/Type	8" Hollow Stem Auger	Surface Elevation (ft-msl)	
Groundwater Level (feet bgs)	18	Sampling Method(s)		Top of PVC Elevation	
Diameter of Hole (inches)	8" / Diameter of Well (inches) 2"	Type of Well Casing	2" PVC	Screen Perforation	0.010 inch screen
Type of Sand Pack	#2/12	Type/Thickness of Seal(s)	Bentonite chips 9.0-7.0; Cement/Bentonite grout 7.0-1.0; Cement 1.0-0.0		
Comments					

Depth, feet	SAMPLES Type	SAMPLES Number	Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Drilling Rate (time)	REMARKS
0					Concrete 2.5 inches Crushed rock base 4.5 inches Mottled light brown to red-brown and yellow-brown, silty fine **SAND (SM)** moist		0.0	0.0	1230	Hand auger to 6 feet
5					Becomes light orange-brown				1320	
10					Light orange-brown fine sandy **SILT (ML)** with trace clay, moist				1325	
15					Mottled orange-brown and gray-brown silty fine **SAND (SM)** with trace medium sand, moist to wet		0.0	0.0	1330	Groundwater encountered at 18 ft bgs
20					Dark brown gravelly coarse **SAND (SP)** with trace silt, wet				1340	
25							0.0	0.0	1345	
30					End of boring at 30 feet				1350	
35										

Report: ENV_1W_SNA; File: SEARS--1.GPJ; 7/24/2002 FOMW-5

URS

Project: SEARS
Project Location: Oakland
Project Number: 22-00000139.02

Log of EB-22

Sheet 1 of 1

Date(s) Drilled	2/12/2002	Logged By	Robert Kovacs	Checked By	
Drilling Method	Geoprobe/Hollow Stem Auger	Drilling Contractor	Gregg Drilling	Total Depth of Borehole	30.0 feet
Drill Rig Type	D-14 Limited Access Rig	Drill Bit Size/Type	1 3/4" sampler/ 6" Hollow Stem Auger	Surface Elevation (ft-msl)	
Groundwater Level (feet bgs)	29.5	Sampling Method(s)	Macrocore	Top of PVC Elevation	
Diameter of Hole (inches)	6" / Diameter of Well (inches)	Type of Well Casing		Screen Perforation	
Type of Sand Pack		Type/Thickness of Seal(s)			
Comments	Continuous Core				

Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Drilling Rate (time)	REMARKS
0					Light red-brown silty **SAND (SM)** moist		0.0	0.0	1015	Hand auger to 6 feet
5									1017	
10					Light reddish-brown interlayered sandy **SILT (ML)** and **CLAY (CL)** moist		158	2.0	1025	
					Becomes coarse sand					
15					Light brown silty coarse-grained **SAND (SM)**with some gravel, moist		292	11.0	1038	
20					Brown coarse-grained gravelly **SAND (GM)** moist				1040	
					Becomes medium brown with trace silt		0.0	0.0	1045	
25										
					No Recovery ▽		0.0	0.0	1100	Groundwater encountered at 29.5 ft bgs Collected groundwater sample EB-22, DUP-1
30					End of boring at 30 feet					
35										

URS

Report: ENV_1W_SNA; File: SEARS-1.GPJ; 7/24/2002 EB-22

Project: SEARS
Project Location: Oakland
Project Number: 22-00000139.02

Log of EB-23

Sheet 1 of 1

Date(s) Drilled	2/12/2002	Logged By	Robert Kovacs	Checked By	
Drilling Method	Geoprobe/Hollow Stem Auger	Drilling Contractor	Gregg Drilling	Total Depth of Borehole	30.0 feet
Drill Rig Type	D-14 Limited Access Rig	Drill Bit Size/Type	1 3/4" sampler/ 6" Hollow Stem Auger	Surface Elevation (ft-msl)	
Groundwater Level (feet bgs)	29.5	Sampling Method(s)	Continuous core	Top of PVC Elevation	
Diameter of Hole (inches)	6" / Diameter of Well (inches)	Type of Well Casing		Screen Perforation	
Type of Sand Pack		Type/Thickness of Seal(s)			
Comments					

Depth, feet	SAMPLES Type	SAMPLES Number	SAMPLES Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Drilling Rate (time)	REMARKS
0					Asphaltic concrete 6 inches Base rock 4 inches Mottled red to light brown **SILT (ML)** with trace clay, moist				0825	Hand auger to 6 feet
5							0.0	0.0	0828	
					Red-brown fine sandy **SILT (ML)** moist					
10					Becomes mottled with light brown				0835	
15					Red-brown to dark orange-brown alternating layers of sandy and clayey **SILT (ML)** moist		0.0	0.0	0845	
20									0848	
					Dark orange-brown silty **CLAY (CL)** moist				0850	
25										
					Dark orange-brown alternating layers of silty **CLAY (CL)** to clayey **SILT (ML)** moist Coarse sandy **GRAVEL (GM)** at 29 ft bgs					
					▽		0.0	0.0	0900	Groundwater encountered at 29 ft bgs
30					End of boring at 30 feet					
35										

URS

Report: ENV_1W_SNA; File: SEARS-1.GPJ; 7/24/2002 EB-23

Project: SEARS
Project Location: Oakland
Project Number: 22-00000139.02

Log of EB-24

Sheet 1 of 1

Date(s) Drilled	2/13/2002	Logged By	Robert Kovacs	Checked By	
Drilling Method	Hollow Stem Auger	Drilling Contractor	Gregg Drilling	Total Depth of Borehole	30.0 feet
Drill Rig Type	B-61	Drill Bit Size/Type	8" Hollow Stem Auger	Surface Elevation (ft-msl)	
Groundwater Level (feet bgs)	25	Sampling Method(s)	Mod. Cal Split Spoon	Top of PVC Elevation	
Diameter of Hole (inches)	8" Diameter of Well (inches)	Type of Well Casing		Screen Perforation	
Type of Sand Pack		Type/Thickness of Seal(s)			
Comments					

Depth, feet	SAMPLES Type	SAMPLES Number	Blows/foot	Graphic Log	MATERIAL DESCRIPTION	Well Completion Log	OVA Headspace (ppm)	OVA Background (ppm)	Drilling Rate (time)	REMARKS
0					Asphaltic concrete 2 inches Rock base 4 inches Mottled dark gray-brown and brown, fine sandy **SILT (ML)** with trace clay, moist				1055	Hand auger to 6 feet
5			12		Becomes medium, light brown with some limonite stains, open root tubes, medium dense				1120	
10			25		Becomes, mottled light gray-brown to light brown with trace fine gravel				1125	
15			24		Becomes, mottled light gray in a light brown matrix				1135	
20			34		Becomes mottled orange-brown with limonite stains with trace clay and medium gravel, dense				1145	
25			24		Becomes mottled light and medium brown, medium dense ▽				1150	Groundwater encountered at 25 ft bgs
30			24		Light brown silty fine to medium **SAND (SM)** medium dense, wet End of boring at 30 feet				1200	
35										

URS

Report: ENV_1W_SNA; File: SEARS--1.GPJ; 7/24/2002 EB-24

APPENDIX G
LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTS FOR SOIL

REVISED

Submission #: 2002-02-0242

Date: February 26, 2002

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com
CA DHS ELAP#1094

URS-Santa Ana
2020 East 1st St Suite 400
Santa Ana, CA 92705

Attn: Scott Rowlands

Attached is our report for your samples received on Wednesday February 13, 2002
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after March 30, 2002 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.
You can also contact me via email. My email address is: asalimpour@chromalab.com

Sincerely,

Afsaneh Salimpour
Project Manager

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

MTBE+BTEX by 8260B

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW 4 @20`	Soil	02/13/2002 08:10	14
FOMW 4 @25`	Soil	02/13/2002 08:20	15
FOMW 4 @30`	Soil	02/13/2002 08:30	16
EB 24 @5`	Soil	02/13/2002 11:20	17
EB 24 @15`	Soil	02/13/2002 11:35	18
EB 24 @20`	Soil	02/13/2002 11:45	19
EB 24 @25`	Soil	02/13/2002 11:50	20
EB 24 @30`	Soil	02/13/2002 12:00	21
EB 24 @10`	Soil	02/13/2002 11:25	23

Submission #: 2002-02-0242

REVISED

MTBE+BTEX by 8260B

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 4 @20`**
Project:

Sampled: 02/13/2002 08:10
Matrix: Soil

Lab Sample ID: 2002-02-0242-014
Received: 02/13/2002 15:38
Extracted: 02/15/2002 14:25
QC-Batch: 2002/02/15-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 14:25	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:25	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 14:25	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:25	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 14:25	
Surrogate(s)						
4-Bromofluorobenzene	112.0	74-121	%	1.00	02/15/2002 14:25	
1,2-Dichloroethane-d4	131.4	70-121	%	1.00	02/15/2002 14:25	sh
Toluene-d8	118.4	81-117	%	1.00	02/15/2002 14:25	sh

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

Sample ID:	**FOMW 4 @25`**	Lab Sample ID:	2002-02-0242-015
Project:		Received:	02/13/2002 15:38
		Extracted:	02/14/2002 18:28
Sampled:	02/13/2002 08:20	QC-Batch:	2002/02/14-01.09
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 18:28	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 18:28	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 18:28	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 18:28	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 18:28	
Surrogate(s)						
4-Bromofluorobenzene	106.5	74-121	%	1.00	02/14/2002 18:28	
1,2-Dichloroethane-d4	118.1	70-121	%	1.00	02/14/2002 18:28	
Toluene-d8	115.6	81-117	%	1.00	02/14/2002 18:28	

Submission #: 2002-02-0242

REVISED

MTBE+BTEX by 8260B

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 4 @30`**
Project:

Sampled: 02/13/2002 08:30
Matrix: Soil

Lab Sample ID: 2002-02-0242-016
Received: 02/13/2002 15:38
Extracted: 02/14/2002 18:54
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 18:54	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 18:54	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 18:54	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 18:54	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 18:54	
Surrogate(s)						
4-Bromofluorobenzene	110.4	74-121	%	1.00	02/14/2002 18:54	
1,2-Dichloroethane-d4	120.8	70-121	%	1.00	02/14/2002 18:54	
Toluene-d8	117.7	81-117	%	1.00	02/14/2002 18:54	sh

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

Sample ID: **EB 24 @5`**
Project:

Sampled: 02/13/2002 11:20
Matrix: Soil

Lab Sample ID: 2002-02-0242-017
Received: 02/13/2002 15:38
Extracted: 02/14/2002 19:19
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 19:19	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 19:19	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 19:19	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 19:19	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 19:19	
Surrogate(s)						
4-Bromofluorobenzene	112.0	74-121	%	1.00	02/14/2002 19:19	
1,2-Dichloroethane-d4	116.0	70-121	%	1.00	02/14/2002 19:19	
Toluene-d8	115.8	81-117	%	1.00	02/14/2002 19:19	

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **EB 24 @15`**
Project:

Sampled: 02/13/2002 11:35
Matrix: Soil

Lab Sample ID: 2002-02-0242-018
Received: 02/13/2002 15:38
Extracted: 02/14/2002 19:45
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 19:45	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 19:45	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 19:45	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 19:45	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 19:45	
Surrogate(s)						
4-Bromofluorobenzene	110.2	74-121	%	1.00	02/14/2002 19:45	
1,2-Dichloroethane-d4	117.1	70-121	%	1.00	02/14/2002 19:45	
Toluene-d8	115.4	81-117	%	1.00	02/14/2002 19:45	

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **EB 24 @20`**
Project:

Sampled: 02/13/2002 11:45
Matrix: Soil

Lab Sample ID: 2002-02-0242-019
Received: 02/13/2002 15:38
Extracted: 02/15/2002 14:51
QC-Batch: 2002/02/15-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 14:51	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:51	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 14:51	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:51	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 14:51	
Surrogate(s)						
4-Bromofluorobenzene	114.5	74-121	%	1.00	02/15/2002 14:51	
1,2-Dichloroethane-d4	121.2	70-121	%	1.00	02/15/2002 14:51	sh
Toluene-d8	111.5	81-117	%	1.00	02/15/2002 14:51	

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Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

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CA DHS ELAP#2496

Sample ID:	**EB 24 @25'**	Lab Sample ID:	2002-02-0242-020
Project:		Received:	02/13/2002 15:38
		Extracted:	02/15/2002 15:17
Sampled:	02/13/2002 11:50	QC-Batch:	2002/02/15-01.09
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 15:17	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 15:17	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 15:17	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 15:17	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 15:17	
Surrogate(s)						
4-Bromofluorobenzene	106.5	74-121	%	1.00	02/15/2002 15:17	
1,2-Dichloroethane-d4	121.6	70-121	%	1.00	02/15/2002 15:17	sh
Toluene-d8	112.6	81-117	%	1.00	02/15/2002 15:17	

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Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

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CA DHS ELAP#2496

Sample ID:	**EB 24 @30`**	Lab Sample ID:	2002-02-0242-021
Project:		Received:	02/13/2002 15:38
		Extracted:	02/14/2002 21:01
Sampled:	02/13/2002 12:00	QC-Batch:	2002/02/14-01.09
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 21:01	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 21:01	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 21:01	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 21:01	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 21:01	
Surrogate(s)						
4-Bromofluorobenzene	107.8	74-121	%	1.00	02/14/2002 21:01	
1,2-Dichloroethane-d4	117.8	70-121	%	1.00	02/14/2002 21:01	
Toluene-d8	115.6	81-117	%	1.00	02/14/2002 21:01	

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Test Method: 8260B
Prep Method: 5035

Sample ID: **EB 24 @10`**
Project:

Sampled: 02/13/2002 11:25
Matrix: Soil

Lab Sample ID: 2002-02-0242-023
Received: 02/13/2002 15:38
Extracted: 02/14/2002 21:27
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 21:27	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 21:27	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 21:27	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 21:27	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 21:27	
Surrogate(s)						
4-Bromofluorobenzene	112.0	74-121	%	1.00	02/14/2002 21:27	
1,2-Dichloroethane-d4	126.4	70-121	%	1.00	02/14/2002 21:27	sh
Toluene-d8	115.4	81-117	%	1.00	02/14/2002 21:27	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Method Blank	**Soil**	**QC Batch # 2002/02/14-01.09**
MB: 2002/02/14-01.09-007		Date Extracted: 02/14/2002 12:42

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	02/14/2002 12:42	
Benzene	ND	5.0	ug/Kg	02/14/2002 12:42	
Toluene	ND	5.0	ug/Kg	02/14/2002 12:42	
Ethylbenzene	ND	5.0	ug/Kg	02/14/2002 12:42	
Total xylenes	ND	5.0	ug/Kg	02/14/2002 12:42	
Surrogate(s)					
4-Bromofluorobenzene	105.8	74-121	%	02/14/2002 12:42	
1,2-Dichloroethane-d4	110.0	70-121	%	02/14/2002 12:42	
Toluene-d8	109.8	81-117	%	02/14/2002 12:42	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Method Blank	**Soil**	**QC Batch # 2002/02/15-01.09**
MB: 2002/02/15-01.09-005		Date Extracted: 02/15/2002 11:02

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	02/15/2002 11:02	
Benzene	ND	5.0	ug/Kg	02/15/2002 11:02	
Ethylbenzene	ND	5.0	ug/Kg	02/15/2002 11:02	
Toluene	ND	5.0	ug/Kg	02/15/2002 11:02	
Total xylenes	ND	5.0	ug/Kg	02/15/2002 11:02	
Surrogate(s)					
4-Bromofluorobenzene	100.5	74-121	%	02/15/2002 11:02	
1,2-Dichloroethane-d4	107.1	70-121	%	02/15/2002 11:02	
Toluene-d8	109.9	81-117	%	02/15/2002 11:02	

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/14-01.09**

LCS: 2002/02/14-01.09-008 Extracted: 02/14/2002 13:08 Analyzed: 02/14/2002 13:08

LCSD: 2002/02/14-01.09-009 Extracted: 02/14/2002 13:38 Analyzed: 02/14/2002 13:38

Compound	Conc. [ug/Kg]		Exp.Conc. [ug/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	92.5	94.0	100.0	100.0	92.5	94.0	1.6	69-129	20		
Toluene	100	99.5	100.0	100.0	100.0	99.5	0.5	70-130	20		
Surrogate(s)											
4-Bromofluorobenzene	569	570	500	500	113.8	114.0		74-121			
1,2-Dichloroethane-d4	586	572	500	500	117.2	114.4		70-121			
Toluene-d8	573	560	500	500	114.6	112.0		81-117			

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/15-01.09**

LCS: 2002/02/15-01.09-002 Extracted: 02/15/2002 09:39 Analyzed: 02/15/2002 09:39

LCSD: 2002/02/15-01.09-003 Extracted: 02/15/2002 10:10 Analyzed: 02/15/2002 10:10

Compound	Conc. [ug/Kg]		Exp.Conc. [ug/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	95.3	93.5	100.0	100.0	95.3	93.5	1.9	69-129	20		
Toluene	106	101	100.0	100.0	106.0	101.0	4.8	70-130	20		
Surrogate(s)											
4-Bromofluorobenzene	576	581	500	500	115.2	116.2		74-121			
1,2-Dichloroethane-d4	589	595	500	500	117.8	119.0		70-121			
Toluene-d8	570	573	500	500	114.0	114.6		81-117			

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Legend & Notes

Test Method: 8260B

Prep Method: 5035

Analyte Flags

sh

Surrogate recovery was higher than QC limit due to matrix interference.

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CA DHS ELAP#2496

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW 5 @ 5`	Soil	02/12/2002 13:20	5
FOMW 5 @ 10`	Soil	02/12/2002 13:25	6
FOMW 5 @ 15`	Soil	02/12/2002 13:30	7
FOMW 5@ 20`	Soil	02/12/2002 13:40	8
FOMW 5 @ 25`	Soil	02/12/2002 13:45	9
FOMW 5 @ 30`	Soil	02/12/2002 13:50	10
FOMW 4 @5`	Soil	02/13/2002 07:50	11
FOMW 4 @10`	Soil	02/13/2002 07:55	12
FOMW 4 @15`	Soil	02/13/2002 08:00	13

Submission #: 2002-02-0242 REVISED

MTBE+BTEX by 8260B

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CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID:	**FOMW 5 @ 5'**	Lab Sample ID:	2002-02-0242-005
Project:		Received:	02/13/2002 15:38
		Extracted:	02/15/2002 13:08
Sampled:	02/12/2002 13:20	QC-Batch:	2002/02/15-01.09
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 13:08	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 13:08	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 13:08	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 13:08	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 13:08	
Surrogate(s)						
4-Bromofluorobenzene	110.4	74-121	%	1.00	02/15/2002 13:08	
1,2-Dichloroethane-d4	127.8	70-121	%	1.00	02/15/2002 13:08	sh
Toluene-d8	115.7	81-117	%	1.00	02/15/2002 13:08	

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MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 5 @ 10`**
Project:

Sampled: 02/12/2002 13:25
Matrix: Soil

Lab Sample ID: 2002-02-0242-006
Received: 02/13/2002 15:38
Extracted: 02/14/2002 14:36
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 14:36	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 14:36	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 14:36	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 14:36	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 14:36	
Surrogate(s)						
4-Bromofluorobenzene	111.6	74-121	%	1.00	02/14/2002 14:36	
1,2-Dichloroethane-d4	115.5	70-121	%	1.00	02/14/2002 14:36	
Toluene-d8	113.8	81-117	%	1.00	02/14/2002 14:36	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

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CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 5 @ 15`**
Project:

Sampled: 02/12/2002 13:30
Matrix: Soil

Lab Sample ID: 2002-02-0242-007
Received: 02/13/2002 15:38
Extracted: 02/15/2002 18:16
QC-Batch: 2002/02/15-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 18:16	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 18:16	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 18:16	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 18:16	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 18:16	
Surrogate(s)						
4-Bromofluorobenzene	104.6	74-121	%	1.00	02/15/2002 18:16	
1,2-Dichloroethane-d4	118.5	70-121	%	1.00	02/15/2002 18:16	
Toluene-d8	116.5	81-117	%	1.00	02/15/2002 18:16	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 5@ 20'**
Project:

Sampled: 02/12/2002 13:40
Matrix: Soil

Lab Sample ID: 2002-02-0242-008
Received: 02/13/2002 15:38
Extracted: 02/14/2002 15:28
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 15:28	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 15:28	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 15:28	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 15:28	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 15:28	
Surrogate(s)						
4-Bromofluorobenzene	111.7	74-121	%	1.00	02/14/2002 15:28	
1,2-Dichloroethane-d4	114.8	70-121	%	1.00	02/14/2002 15:28	
Toluene-d8	113.4	81-117	%	1.00	02/14/2002 15:28	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

URS-Santa Ana
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Test Method: 8260B
Prep Method: 5035

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 25`**	Lab Sample ID:	2002-02-0242-009
Project:		Received:	02/13/2002 15:38
		Extracted:	02/14/2002 15:54
Sampled:	02/12/2002 13:45	QC-Batch:	2002/02/14-01.09
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 15:54	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 15:54	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 15:54	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 15:54	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 15:54	
Surrogate(s)						
4-Bromofluorobenzene	108.8	74-121	%	1.00	02/14/2002 15:54	
1,2-Dichloroethane-d4	111.5	70-121	%	1.00	02/14/2002 15:54	
Toluene-d8	112.2	81-117	%	1.00	02/14/2002 15:54	

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CA DHS ELAP#2496

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 5 @ 30`**
Project:

Sampled: 02/12/2002 13:50
Matrix: Soil

Lab Sample ID: 2002-02-0242-010
Received: 02/13/2002 15:38
Extracted: 02/14/2002 16:20
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 16:20	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 16:20	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 16:20	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 16:20	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 16:20	
Surrogate(s)						
4-Bromofluorobenzene	107.1	74-121	%	1.00	02/14/2002 16:20	
1,2-Dichloroethane-d4	121.0	70-121	%	1.00	02/14/2002 16:20	
Toluene-d8	116.2	81-117	%	1.00	02/14/2002 16:20	

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Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 4 @5'**
Project:

Sampled: 02/13/2002 07:50
Matrix: Soil

Lab Sample ID: 2002-02-0242-011
Received: 02/13/2002 15:38
Extracted: 02/15/2002 13:34
QC-Batch: 2002/02/15-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 13:34	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 13:34	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 13:34	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 13:34	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 13:34	
Surrogate(s)						
4-Bromofluorobenzene	115.1	74-121	%	1.00	02/15/2002 13:34	
1,2-Dichloroethane-d4	127.9	70-121	%	1.00	02/15/2002 13:34	sh
Toluene-d8	113.7	81-117	%	1.00	02/15/2002 13:34	

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Test Method: 8260B
Prep Method: 5035

Sample ID: **FOMW 4 @10'**
Project:

Sampled: 02/13/2002 07:55
Matrix: Soil

Lab Sample ID: 2002-02-0242-012
Received: 02/13/2002 15:38
Extracted: 02/14/2002 17:11
QC-Batch: 2002/02/14-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/14/2002 17:11	
Benzene	ND	5.0	ug/Kg	1.00	02/14/2002 17:11	
Toluene	ND	5.0	ug/Kg	1.00	02/14/2002 17:11	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/14/2002 17:11	
Total xylenes	ND	5.0	ug/Kg	1.00	02/14/2002 17:11	
Surrogate(s)						
4-Bromofluorobenzene	113.7	74-121	%	1.00	02/14/2002 17:11	
1,2-Dichloroethane-d4	112.4	70-121	%	1.00	02/14/2002 17:11	
Toluene-d8	115.2	81-117	%	1.00	02/14/2002 17:11	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5035

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CA DHS ELAP#2496

Sample ID: **FOMW 4 @15`**
Project:

Sampled: 02/13/2002 08:00
Matrix: Soil

Lab Sample ID: 2002-02-0242-013
Received: 02/13/2002 15:38
Extracted: 02/15/2002 14:00
QC-Batch: 2002/02/15-01.09

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	1.00	02/15/2002 14:00	
Benzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:00	
Toluene	ND	5.0	ug/Kg	1.00	02/15/2002 14:00	
Ethylbenzene	ND	5.0	ug/Kg	1.00	02/15/2002 14:00	
Total xylenes	ND	5.0	ug/Kg	1.00	02/15/2002 14:00	
Surrogate(s)						
4-Bromofluorobenzene	116.3	74-121	%	1.00	02/15/2002 14:00	
1,2-Dichloroethane-d4	129.9	70-121	%	1.00	02/15/2002 14:00	sh
Toluene-d8	115.6	81-117	%	1.00	02/15/2002 14:00	

Submission #: 2002-02-0242

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CA DHS ELAP#2496

MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Method Blank	**Soil**	**QC Batch # 2002/02/14-01.09**
MB: 2002/02/14-01.09-007		Date Extracted: 02/14/2002 12:42

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	02/14/2002 12:42	
Benzene	ND	5.0	ug/Kg	02/14/2002 12:42	
Toluene	ND	5.0	ug/Kg	02/14/2002 12:42	
Ethylbenzene	ND	5.0	ug/Kg	02/14/2002 12:42	
Total xylenes	ND	5.0	ug/Kg	02/14/2002 12:42	
Surrogate(s)					
4-Bromofluorobenzene	105.8	74-121	%	02/14/2002 12:42	
1,2-Dichloroethane-d4	110.0	70-121	%	02/14/2002 12:42	
Toluene-d8	109.8	81-117	%	02/14/2002 12:42	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Method Blank **Soil** **QC Batch # 2002/02/15-01.09**

MB: 2002/02/15-01.09-005 Date Extracted: 02/15/2002 11:02

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
MTBE	ND	5.0	ug/Kg	02/15/2002 11:02	
Benzene	ND	5.0	ug/Kg	02/15/2002 11:02	
Ethylbenzene	ND	5.0	ug/Kg	02/15/2002 11:02	
Toluene	ND	5.0	ug/Kg	02/15/2002 11:02	
Total xylenes	ND	5.0	ug/Kg	02/15/2002 11:02	
Surrogate(s)					
4-Bromofluorobenzene	100.5	74-121	%	02/15/2002 11:02	
1,2-Dichloroethane-d4	107.1	70-121	%	02/15/2002 11:02	
Toluene-d8	109.9	81-117	%	02/15/2002 11:02	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/14-01.09**

LCS: 2002/02/14-01.09-008 Extracted: 02/14/2002 13:08 Analyzed: 02/14/2002 13:08

LCSD: 2002/02/14-01.09-009 Extracted: 02/14/2002 13:38 Analyzed: 02/14/2002 13:38

Compound	Conc. [ug/Kg]		Exp.Conc. [ug/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	92.5	94.0	100.0	100.0	92.5	94.0	1.6	69-129	20		
Toluene	100	99.5	100.0	100.0	100.0	99.5	0.5	70-130	20		
Surrogate(s)											
4-Bromofluorobenzene	569	570	500	500	113.8	114.0		74-121			
1,2-Dichloroethane-d4	586	572	500	500	117.2	114.4		70-121			
Toluene-d8	573	560	500	500	114.6	112.0		81-117			

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5035

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/15-01.09**

LCS: 2002/02/15-01.09-002 Extracted: 02/15/2002 09:39 Analyzed: 02/15/2002 09:39

LCSD: 2002/02/15-01.09-003 Extracted: 02/15/2002 10:10 Analyzed: 02/15/2002 10:10

Compound	Conc. [ug/Kg]		Exp.Conc. [ug/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	95.3	93.5	100.0	100.0	95.3	93.5	1.9	69-129	20		
Toluene	106	101	100.0	100.0	106.0	101.0	4.8	70-130	20		
Surrogate(s)											
4-Bromofluorobenzene	576	581	500	500	115.2	116.2		74-121			
1,2-Dichloroethane-d4	589	595	500	500	117.8	119.0		70-121			
Toluene-d8	570	573	500	500	114.0	114.6		81-117			

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MTBE+BTEX by 8260B

Batch QC Report

Test Method: 8260B Prep Method: 5035

Matrix Spike (MS / MSD)	**Soil**	**QC Batch # 2002/02/15-01.09**
Sample ID: **BH-E-12` >> MS**		Lab ID: 2002-02-0257-002
MS: 2002/02/15-01.09-015	Extracted: 02/15/2002 16:08	Analyzed: 02/15/2002 16:08
		Dilution: 1
MSD: 2002/02/15-01.09-016	Extracted: 02/15/2002 16:34	Analyzed: 02/15/2002 16:34
		Dilution: 1

Compound	Conc. [ug/Kg]			Exp.Conc.		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Benzene	89.1	93.1	ND	95.2	97.5	93.6	95.5	2.0	69-129	20		
Toluene	96.8	97.1	ND	95.2	97.5	101.	99.6	2.1	70-130	20		
Surrogate(s)												
4-Bromofluoroben	579	531		500	500	115.	106.3		74-121			
1,2-Dichloroethan	600	585		500	500	120.	117.0		70-121			
Toluene-d8	573	567		500	500	114.	113.3		81-117			

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MTBE+BTEX by 8260B

Legend & Notes

Test Method: 8260B Prep Method: 5035

Analyte Flags

sh

Surrogate recovery was higher than QC limit due to matrix interference.

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Total Extractable Petroleum Hydrocarbons (TEPH)

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CA DHS ELAP#2496

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW 4 @15`	Soil	02/13/2002 08:00	13
FOMW 4 @20`	Soil	02/13/2002 08:10	14
FOMW 4 @25`	Soil	02/13/2002 08:20	15
FOMW 4 @30`	Soil	02/13/2002 08:30	16
EB 24 @5`	Soil	02/13/2002 11:20	17
EB 24 @15`	Soil	02/13/2002 11:35	18

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CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

Sample ID:	**FOMW 4 @15`**	Lab Sample ID:	2002-02-0242-013
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 08:00	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 05:46	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 05:46	
Surrogate(s)						
o-Terphenyl	88.1	60-130	%	1.00	02/21/2002 05:46	

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 4 @20'**	Lab Sample ID:	2002-02-0242-014
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 08:10	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 21:15	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 21:15	
Surrogate(s)						
o-Terphenyl	91.5	60-130	%	1.00	02/19/2002 21:15	

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 4 @25'**	Lab Sample ID:	2002-02-0242-015
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 08:20	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/20/2002 11:31	
Bunker-C	ND	50	mg/Kg	1.00	02/20/2002 11:31	
Surrogate(s)						
o-Terphenyl	90.6	60-130	%	1.00	02/20/2002 11:31	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID: **FOMW 4 @30'**
Project:

Sampled: 02/13/2002 08:30
Matrix: Soil

Lab Sample ID: 2002-02-0242-016
Received: 02/13/2002 15:38
Extracted: 02/18/2002 11:44
QC-Batch: 2002/02/18-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 23:14	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 23:14	
Surrogate(s)						
o-Terphenyl	85.5	60-130	%	1.00	02/19/2002 23:14	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**EB 24 @5'**	Lab Sample ID:	2002-02-0242-017
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 11:20	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 14:37	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 14:37	
Surrogate(s)						
o-Terphenyl	87.0	60-130	%	1.00	02/19/2002 14:37	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

Sample ID:	**EB 24 @15`**	Lab Sample ID:	2002-02-0242-018
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 11:35	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 23:54	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 23:54	
Surrogate(s)						
o-Terphenyl	94.4	60-130	%	1.00	02/19/2002 23:54	

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Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3550/8015 M

Method Blank **Soil** **QC Batch # 2002/02/18-03.10**

MB: 2002/02/18-03.10-003 Date Extracted: 02/18/2002 11:44

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	1	mg/Kg	02/20/2002 08:52	
Bunker-C	ND	50	mg/Kg	02/20/2002 08:52	
Surrogate(s)					
o-Terphenyl	105.4	60-130	%	02/20/2002 08:52	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3550/8015M

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/18-03.10**

LCS: 2002/02/18-03.10-001 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:17

LCSD: 2002/02/18-03.10-002 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:56

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	39.9	42.9	41.7	41.7	95.7	102.9	7.3	60-130	25		
Surrogate(s)											
o-Terphenyl	21.7	22.9	20.0	20.0	108.7	114.7		60-130	0		

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Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC Report

Test Method: 8015M Prep Method: 3550/8015M

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2002/02/18-03.10**

Sample ID: **FOMW @ 5` >> MS** Lab ID: 2002-02-0242-005

MS: 2002/02/18-03.10-004 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 22:47
Dilution: 1

MSD: 2002/02/18-03.10-005 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 23:26
Dilution: 1

Compound	Conc. [mg/Kg]			Exp.Conc.		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Diesel	43.6	36.5	ND	40.9	41.3	106.	88.4	18.7	60-130	25		
Surrogate(s)												
o-Terphenyl	21.6	20.7		20.0	20.0	107.	103.4		60-130	0		

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URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
EB 23	Water	02/12/2002 09:15	1
EB 22	Water	02/12/2002 11:10	2
EB 1	Water	02/12/2002 11:00	3
DUP 1	Water	02/12/2002 11:20	4
FOMW 5 @ 5`	Soil	02/12/2002 13:20	5
FOMW 5 @ 10`	Soil	02/12/2002 13:25	6

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **EB 23**
Project:

Sampled: 02/12/2002 09:15
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-001
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	150	88	ug/L	1.80	02/21/2002 07:05	ndp
Bunker-C	ND	88	ug/L	1.80	02/21/2002 07:05	
Surrogate(s)						
o-Terphenyl	107.8	60-130	%	1.80	02/21/2002 07:05	

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **EB 22**
Project:

Sampled: 02/12/2002 11:10
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-002
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	4600	79	ug/L	1.60	02/19/2002 04:56	ndp
Bunker-C	ND	79	ug/L	1.60	02/19/2002 04:56	
Surrogate(s)						
o-Terphenyl	62.7	60-130	%	1.60	02/19/2002 04:56	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **EB 1**
Project:

Sampled: 02/12/2002 11:00
Matrix: Water

Lab Sample ID: 2002-02-0242-003
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	86	50	ug/L	1.00	02/21/2002 13:00	ndp
Bunker-C	ND	50	ug/L	1.00	02/21/2002 13:00	
Surrogate(s)						
o-Terphenyl	63.1	60-130	%	1.00	02/21/2002 13:00	

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **DUP 1**
Project:

Sampled: 02/12/2002 11:20
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-004
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	4200	76	ug/L	1.50	02/19/2002 07:47	ndp
Bunker-C	ND	76	ug/L	1.50	02/19/2002 07:47	
Surrogate(s)						
o-Terphenyl	54.3	60-130	%	1.50	02/19/2002 07:47	sl

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 5'**	Lab Sample ID:	2002-02-0242-005
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:20	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 04:14	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 04:14	
Surrogate(s)						
o-Terphenyl	95.8	60-130	%	1.00	02/21/2002 04:14	

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 10`**	Lab Sample ID:	2002-02-0242-006
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:25	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 03:36	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 03:36	
Surrogate(s)						
o-Terphenyl	96.6	60-130	%	1.00	02/21/2002 03:36	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015 M

Method Blank **Water** **QC Batch # 2002/02/15-01.10**

MB: 2002/02/15-01.10-001

Date Extracted: 02/15/2002 08:43

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	02/18/2002 17:55	
Bunker-C	ND	50	ug/L	02/18/2002 17:55	
Surrogate(s)					
o-Terphenyl	95.1	60-130	%	02/18/2002 17:55	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3550/8015 M

Method Blank | **Soil** | **QC Batch # 2002/02/18-03.10**

MB: 2002/02/18-03.10-003 | Date Extracted: 02/18/2002 11:44

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	1	mg/Kg	02/20/2002 08:52	
Bunker-C	ND	50	mg/Kg	02/20/2002 08:52	
Surrogate(s)					
o-Terphenyl	105.4	60-130	%	02/20/2002 08:52	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3550/8015M

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/18-03.10**

LCS: 2002/02/18-03.10-001 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:17

LCSD: 2002/02/18-03.10-002 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:56

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	39.9	42.9	41.7	41.7	95.7	102.9	7.3	60-130	25		
Surrogate(s)											
o-Terphenyl	21.7	22.9	20.0	20.0	108.7	114.7		60-130	0		

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3510/8015M

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/02/15-01.10**

LCS: 2002/02/15-01.10-002 Extracted: 02/15/2002 08:43 Analyzed: 02/19/2002 09:19

LCSD: 2002/02/15-01.10-003 Extracted: 02/15/2002 08:43 Analyzed: 02/19/2002 09:59

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	1140	1090	1250	1250	91.2	87.2	4.5	60-130	25		
Surrogate(s)											
o-Terphenyl	19.6	19.3	20.0	20.0	98.1	96.4		60-130	0		

Submission #: 2002-02-0242

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC Report

Test Method: 8015M Prep Method: 3550/8015M

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2002/02/18-03.10**

Sample ID: **FOMW @ 5' >> MS** Lab ID: 2002-02-0242-005

MS: 2002/02/18-03.10-004 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 22:47
Dilution: 1

MSD: 2002/02/18-03.10-005 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 23:26
Dilution: 1

Compound	Conc. [mg/Kg]			Exp.Conc.		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Diesel	43.6	36.5	ND	40.9	41.3	106.	88.4	18.7	60-130	25		
Surrogate(s)												
o-Terphenyl	21.6	20.7		20.0	20.0	107.	103.4		60-130	0		

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Total Extractable Petroleum Hydrocarbons (TEPH)

Legend & Notes

Test Method: 8015M

Prep Method: 3550/8015M
3510/8015M

Analysis Flags

rl

Reporting limits raised due to reduced sample size.

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Analyte Flags

sl

Surrogate recoveries were lower than QC limit due to matrix interference, confirmed by reanalysis.

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Submission #: 2002-02-0242

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana

Attn.: Scott Rowlands
2020 East 1st St Suite 400
Santa Ana, CA 92705
Phone: (714) 648-2793 Fax: (714) 667-7147

Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Samples Reported

Sample Name	Date Sampled	Matrix	Lab #
EB 24 @20`	02/13/2002 11:45	Soil	19
EB 24 @25`	02/13/2002 11:50	Soil	20
EB 24 @30`	02/13/2002 12:00	Soil	21
EB 24 @10`	02/13/2002 11:25	Soil	23

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

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Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Prep(s): 3550/8015M
Test(s): 8015M
Sample ID: **EB 24 @20'**
Lab ID: 2002-02-0242 - 19
Sampled: 02/13/2002 11:45
Extracted: 2/18/2002 11:44
Matrix: Soil
QC Batch#: 2002/02/18-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	2.4	1.0	mg/Kg	1.00	02/19/2002 23:54	ndp
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 23:54	
Surrogates(s)						
o-Terphenyl	91.0	60-130	%	1.00	02/19/2002 23:54	

Submission #: 2002-02-0242

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Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Prep(s): 3550/8015M
Sample ID: **EB 24 @25'**
Sampled: 02/13/2002 11:50
Matrix: Soil

Test(s): 8015M
Lab ID: 2002-02-0242 - 20
Extracted: 2/18/2002 11:44
QC Batch#: 2002/02/18-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 22:35	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 22:35	
Surrogates(s)						
o-Terphenyl	90.0	60-130	%	1.00	02/19/2002 22:35	

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Project:

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CA DHS ELAP# 2496

Prep(s): 3550/8015M
Test(s): 8015M
Sample ID: **EB 24 @30'**
Lab ID: 2002-02-0242 - 21
Sampled: 02/13/2002 12:00
Extracted: 2/18/2002 11:44
Matrix: Soil
QC Batch#: 2002/02/18-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 21:55	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 21:55	
Surrogates(s)						
o-Terphenyl	88.6	60-130	%	1.00	02/19/2002 21:55	

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Total Extractable Petroleum Hydrocarbons (TEPH)

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Santa Ana, CA 92705
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Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Prep(s): 3550/8015M
Sample ID: **EB 24 @10`**
Sampled: 02/13/2002 11:25
Matrix: Soil

Test(s): 8015M
Lab ID: 2002-02-0242 - 23
Extracted: 2/18/2002 11:44
QC Batch#: 2002/02/18-03.10

Compound	Conc.	RL	Unit	Dilution	Analyzed	Flag
Diesel	5.8	1.0	mg/Kg	1.00	02/21/2002 08:24	ndp
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 08:24	
Surrogates(s)						
o-Terphenyl	94.6	60-130	%	1.00	02/21/2002 08:24	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn.: Scott Rowlands
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Phone: (714) 648-2793 Fax: (714) 667-7147

Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 3550/8015M
Test(s): 8015M

Method Blank | **Soil** | **QC Batch # 2002/02/18-03.10**

MB: 2002/02/18-03.10-003

Date Extracted: 02/18/2002 11:44

Compound	Conc.	RL	Unit	Analyzed	Flag
Diesel	ND	1	mg/Kg	02/20/2002 08:52	
Bunker-C	ND	50	mg/Kg	02/20/2002 08:52	
Surrogates(s)					
o-Terphenyl	105.4	60-130	%	02/20/2002 08:52	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
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Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 3550/8015M

Test(s): 8015M

Laboratory Control Spike **Soil** **QC Batch # 2002/02/18-03.10**

LCS 2002/02/18-03.10-001 Extracted: 02/18/2002 Analyzed: 02/18/2002 22:17

LCSD 2002/02/18-03.10-002 Extracted: 02/18/2002 Analyzed: 02/18/2002 22:56

Compound	Conc. mg/Kg		Exp.Conc.	Recovery		RPD	Ctrl.Limits %		Flags	
	LCS	LCSD		LCS	LCSD	%	Rec.	RPD	LCS	LCSD
Diesel	39.9	42.9	41.7	95.7	102.9	7.3	60-130	25		
Surrogates(s)										
o-Terphenyl	21.7	22.9	20.0	108.7	114.7		60-130	0		

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Total Extractable Petroleum Hydrocarbons (TEPH)

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Project:

Received: 02/13/2002 15:38

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CA DHS ELAP# 2496

Batch QC Report

Prep(s): 3550/8015M

Test(s): 8015M

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2002/02/18-03.10**

FOMW @ 5` >> MS

Lab ID: 2002-02-0242 - 005

MS: 2002/02/18-03.10-004 Extracted: 02/18/2002 Analized: 02/20/2002 22:47

Dilution: 1.00

MSD: 2002/02/18-03.10-005 Extracted: 02/18/2002 Analized: 02/20/2002 23:26

Dilution: 1.00

Compound	Conc. mg/Kg			Spk.Level	Recovery			Limits %		Flags	
	MS	MSD	Sample	mg/Kg	MS	MSD	RPD	Rec.	RPD	MS	MSD
Diesel	43.6	36.5	ND	40.9	106.6	88.4	18.7	60-130	25		
Surrogate(s)											
o-Terphenyl	21.6	20.7		20.0	107.8	103.4		60-130	0		

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Total Extractable Petroleum Hydrocarbons (TEPH)

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Project:

Received: 02/13/2002 15:38

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Legend and Notes

Result Flag

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

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Total Extractable Petroleum Hydrocarbons (TEPH)

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URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
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	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW 5 @ 15`	Soil	02/12/2002 13:30	7
FOMW 5@ 20`	Soil	02/12/2002 13:40	8
FOMW 5 @ 25`	Soil	02/12/2002 13:45	9
FOMW 5 @ 30`	Soil	02/12/2002 13:50	10
FOMW 4 @5`	Soil	02/13/2002 07:50	11
FOMW 4 @10`	Soil	02/13/2002 07:55	12

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Submission #: 2002-02-0242

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 15`**	Lab Sample ID:	2002-02-0242-007
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:30	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 19:56	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 19:56	
Surrogate(s)						
o-Terphenyl	87.6	60-130	%	1.00	02/19/2002 19:56	

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5@ 20`**	Lab Sample ID:	2002-02-0242-008
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:40	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 07:45	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 07:45	
Surrogate(s)						
o-Terphenyl	93.9	60-130	%	1.00	02/21/2002 07:45	

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 25'**	Lab Sample ID:	2002-02-0242-009
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:45	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/19/2002 20:35	
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 20:35	
Surrogate(s)						
o-Terphenyl	89.9	60-130	%	1.00	02/19/2002 20:35	

REVISED

Submission #: 2002-02-0242

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

Sample ID: **FOMW 5 @ 30'**
Project:

Sampled: 02/12/2002 13:50
Matrix: Soil

Lab Sample ID: 2002-02-0242-010
Received: 02/13/2002 15:38
Extracted: 02/18/2002 11:44
QC-Batch: 2002/02/18-03.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 02:20	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 02:20	
Surrogate(s)						
o-Terphenyl	95.0	60-130	%	1.00	02/21/2002 02:20	

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 4 @5'**	Lab Sample ID:	2002-02-0242-011
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 07:50	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/20/2002 00:34	
Bunker-C	ND	50	mg/Kg	1.00	02/20/2002 00:34	
Surrogate(s)						
o-Terphenyl	89.5	60-130	%	1.00	02/20/2002 00:34	

Submission #: 2002-02-0242

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Total Extractable Petroleum Hydrocarbons (TEPH)

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CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3550/8015M

Sample ID:	**FOMW 4 @10'**	Lab Sample ID:	2002-02-0242-012
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/13/2002 07:55	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	4.3	1.0	mg/Kg	1.00	02/19/2002 15:57	ndp
Bunker-C	ND	50	mg/Kg	1.00	02/19/2002 15:57	
Surrogate(s)						
o-Terphenyl	89.3	60-130	%	1.00	02/19/2002 15:57	

Submission #: 2002-02-0242

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3550/8015 M

Method Blank | **Soil** | **QC Batch # 2002/02/18-03.10**

MB: 2002/02/18-03.10-003 | Date Extracted: 02/18/2002 11:44

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	1	mg/Kg	02/20/2002 08:52	
Bunker-C	ND	50	mg/Kg	02/20/2002 08:52	
Surrogate(s)					
o-Terphenyl	105.4	60-130	%	02/20/2002 08:52	

Submission #: 2002-02-0242

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3550/8015M

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/18-03.10**

LCS: 2002/02/18-03.10-001 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:17

LCSD: 2002/02/18-03.10-002 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:56

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	39.9	42.9	41.7	41.7	95.7	102.9	7.3	60-130	25		
Surrogate(s)											
o-Terphenyl	21.7	22.9	20.0	20.0	108.7	114.7		60-130	0		

Submission #: 2002-02-0242 REVISED

SEVERN TRENT SERVICES

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC Report

Test Method: 8015M Prep Method: 3550/8015M

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2002/02/18-03.10**

Sample ID: **FOMW @ 5` >> MS** Lab ID: 2002-02-0242-005

MS: 2002/02/18-03.10-004 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 22:47
Dilution: 1

MSD: 2002/02/18-03.10-005 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 23:26
Dilution: 1

Compound	Conc. [mg/Kg]			Exp.Conc.		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Diesel	43.6	36.5	ND	40.9	41.3	106.	88.4	18.7	60-130	25		
Surrogate(s)												
o-Terphenyl	21.6	20.7		20.0	20.0	107.	103.4		60-130	0		

Submission #: 2002-02-0242 REVISED

SEVERN TRENT SERVICES

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Legend & Notes

Test Method: 8015M Prep Method: 3550/8015M

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

SEVERN TRENT SERVICES

STL San Francisco

Chain of Custody

1220 Quarry Lane • Pleasanton CA 94566-4756
Phone: (925) 484-1919 • Fax: (925) 484-1096
Email: info@chromalab.com

Reference #: [illegible] 020SC

Date 02.12.02 Page 2 of 4

2002-02-0242

Report To

Attn. Scott Rowlands
Company URS Corporation
Address 2020 E. 1st St. Santa Ana
Phone (714) 835-6886 Email
Bill To URS Corp.
Sampled By: RK
Attn: Scott Rowlands
Phone (714) 835-6886

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TEPH (EPA 8015M) ☐ Silica Gel ☒ Diesel ☐ Motor Oil ☒ Other Bunker	Fuel Oxygenates (8260B): ☐ DCA, EDB ☐ Full Oxygenate List ☒ MTBE ☒ BTEX	Number of Containers
FOMW5 @ 5'	2.12	1320	Soil	None	X	X	2
FOMW5 @ 10'	↓	1325	↓	↓	X	X	2
FOMW5 @ 15'	↓	1330	↓	↓	X	X	2
FOMW5 @ 20'	↓	1340	↓	↓	X	X	2
FOMW5 @ 25'	↓	1345	↓	↓	X	X	2
FOMW5 @ 30'	↓	1350	↓	↓	X	X	2

Other analyses listed on form (not marked): TPH (EPA 8015, 8020/8021) ☐ Gas w/ ☐ BTEX ☐ MTBE; Purgeable Aromatics BTEX (EPA 8020/8021); Purgeable Halocarbons (HVOCs) (EPA 8010/8021); Volatile Organics GC/MS (VOCs) (EPA 8260A/8260B); Semivolatiles GC/MS (EPA 8270); Oil and Grease ☐ Petroleum ☐ Total (EPA 1664); Pesticides (EPA 8081) PCBs (EPA 8082); PNAs by ☐ 8270 ☐ 8310; CAM17 Metals (EPA 6010/7470/7471); Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other; W.E.T (STLC) TCLP; Hexavalent Chromium pH (24h hold time for H_2O); Spec Cond. ☐ Alkalinity TSS ☐ TDS; Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4

Project Info.
Project Name:
Project#:
PO#:
Credit Card#:

Sample Receipt
# of Containers:
Head Space:
Temp:
Conforms to record:

TAT: Std 5 Day | 72h | 48h | 24h | Other

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD
Special Instructions / Comments:

1) Relinquished by: Robert Kovacs (Signature) Time 1302
Printed Name: ROBERT KOVACS Date 02.13.02
Company: URS CORP.

2) Relinquished by:
Signature / Time
Printed Name / Date
Company

3) Relinquished by: [signature] Time 1538
Printed Name: B Moran Date 2/13/02
Company: STL-SF

1) Received by: [signature] Time 1301
Printed Name: B Moran Date 2/13/02
Company: STL-SF

2) Received by:
Signature / Time
Printed Name / Date
Company

3) Received by: N. Kh[illegible] Time 15:38
Printed Name: N Khammundy Date 2/13/02
Company: STL SF

Rev 01/02

SEVERN TRENT SERVICES

STL San Francisco

Chain of Custody

1220 Quarry Lane ● Pleasanton CA 94566-4756
Phone: (925) 484-1919 ● Fax: (925) 484-1096
Email: info@chromalab.com

2002-02-0242

Reference #: 22-00000139.00 / 020SC

Date 02.13.02 Page 3 of 4

Report To

Attn. Scott Rowlands
Company URS Corp
Address 2020 E. 1st St Santa Ana
Phone (714) 835-6886 Email
Bill To URS — Sampled By: RK
Attn: Scott Rowlands — Phone: (714) 835 6886

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH (EPA 8015, 8020/8021) ☐ Gas w/ ☐ BTEX ☐ MTBE	Purgeable Aromatics BTEX (EPA 8020/8021)	TEPH (EPA 8015M) ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☐ Other	Fuel Oxygenates (8260B): ☐ DCA, EDB ☐ Full Oxygenate List ☐ MTBE ☐ BTEX	Purgeable Halocarbons (HVOCs) (EPA 8010/8021)	Volatile Organics GC/MS (VOCs) (EPA 8260A/8260B)	Semivolatiles GC/MS (EPA 8270)	Oil and Grease ☐ Petroleum ☐ Total (EPA 1664)	☐ Pesticides (EPA 8081) ☐ PCBs (EPA 8082)	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other:	☐ W.E.T (STLC) ☐ TCLP	Hexavalent Chromium ☐ pH (24h hold time for H_2O)	Spec Cond. ☐ Alkalinity ☐ TSS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4					Number of Containers
FOMW4 @ 5	2.13	750	Soil	None			X	X																			2
FOMW4 @ 10	↓	755	↓	↓			X	X																			2
FOMW4 @ 15		800					X	X																			2
FOMW4 @ 20		810					X	X																			2
FOMW4 @ 25		820					X	X																			2
FOMW4 @ 30	↓	830	↓	↓			X	X																			2

Project Info.

Project Name:
Project#:
PO#:
Credit Card#:

Sample Receipt

of Containers:
Head Space:
Temp:
Conforms to record:

TAT: Std 5 Day | 72h | 48h | 24h | Other

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD
Special Instructions / Comments:

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Signature: Robert Kovacs — Time: 1302	Signature: — Time:	Signature: — Time: 1528
Printed Name: ROBERT KOVACS — Date: 02.13.02	Printed Name: — Date:	Printed Name: — Date: 2/13/02
Company: URS CORP.	Company:	Company: STL-SF

1) Received by:	2) Received by:	3) Received by:
Signature: — Time: 1304	Signature: — Time:	Signature: — Time: 15:38
Printed Name: — Date: 2/13/02	Printed Name: — Date:	Printed Name: N. Khammanivong — Date: 2/13/02
Company: STL SF	Company:	Company: STL SF

Rev 0

[redacted] TRENT SERVICES

STL San Francisco

Chain of Custody

[redacted] 20 [redacted]ry L[redacted] • P[redacted]anto[redacted]A 94[redacted]475[redacted]

Phone: (925) 484-1919 • Fax: (925) 484-1096

Email: info@chromalab.com

Reference #: 22[redacted] 020SC

Date 02.13.02 Page 4 of 4

2002 02-0242

Report To

Attn. Scott Rowlands

Company URS Corporation

Address 2020 E 1st St, Santa Ana

Phone (714) 855-6886 Email

Bill To URS

Sampled By: RK

Attn: Scott Rowlands Phone (714) 835-2886

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH (EPA 8015, 8020/8021) ☐ Gas w/ ☐ BTEX ☐ MTBE	Purgeable Aromatics BTEX (EPA 8020/8021)	TEPH (EPA 8015M) ☐ Silica Gel ☐ Diesel ☐ Motor Oil ☒ Other Bunker	Fuel Oxygenates (8260B): ☐ DCA, EDB ☐ Full Oxygenate List ☐ MTBE ☐ BTEX	Purgeable Halocarbons (HVOCs) (EPA 8010/8021)	Volatile Organics GC/MS (VOCs) (EPA 8260A/8260B)	Semivolatiles GC/MS (EPA 8270)	Oil and Grease ☐ Petroleum ☐ Total (EPA 1664)	☐ Pesticides (EPA 8081) ☐ PCBs (EPA 8082)	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other:	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec Cond. ☐ TSS ☐ Alkalinity ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4					Number of Containers
EB24 @ 5	2-13	1120	Soil	None			X	X																				2
EB24 @ 10		1125					X	X																				2
EB24 @ 15		1135					X	X																				2
EB24 @ 20		1145					X	X																				2
EB24 @ 25		1150					X	X																				2
EB24 @ 30		1200					X	X																				2

Project Info.

Project Name:

Project#:

PO#:

Credit Card#:

Sample Receipt

of Containers:

Head Space:

Temp:

Conforms to record:

TAT: Std 5 Day | 72h | 48h | 24h

Other

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD

Special Instructions / Comments:

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Robert Kovacs 1302		B Morton 1530
Signature Time	Signature Time	Signature Time
ROBERT KOVACS 02.13.02		B Morton 2/13/02
Printed Name Date	Printed Name Date	Printed Name Date
URS CORP.		STL-SF
Company	Company	Company
1) Received by:	**2) Received by:**	**3) Received by:**
1301		15:38
Signature Time	Signature Time	Signature Time
B Morton 2/13/02		N Khammouneh 2/13/02
Printed Name Date	Printed Name Date	Printed Name Date
STL-SF		STL SF
Company	Company	Company

Rev 01/02

POSITIVE LAB SERVICE

781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **06/14/02 Revised**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**
Attn: Larry Kunkel
Phone: (562) 907-3607 Fax: (562) 907-3610

Sample#: 20020661-001 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-6-8

Parameter	Prep/Test Method		Result	Unit	PQL
Prep Date:	**03/14/2002**	**Analysis Date:**	**03/14/2002**		
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
MTBE	EPA 5030B	EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	76	Percent	
Prep Date:	**03/14/2002**	**Analysis Date:**	**03/14/2002**		
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	96	Percent	
Prep Date:	**03/14/2002**	**Analysis Date:**	**03/16/2002**		
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	99	Percent	

Sample#: 20020661-002 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-10-12

Parameter	Prep/Test Method		Result	Unit	PQL
Prep Date:	**03/14/2002**	**Analysis Date:**	**03/14/2002**		
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	17	ug/kg	15
MTBE	EPA 5030B	EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	61	Percent	
Prep Date:	**03/14/2002**	**Analysis Date:**	**03/14/2002**		
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	0.45	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	78	Percent	

POSITIVE LAB SERVICE

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **06/14/02 Revised**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**
Attn: Larry Kunkel
Phone: (562) 907-3607 Fax: (562) 907-3610

	Prep Date: 03/14/2002	Analysis Date: 03/16/2002			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	340	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	580	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	107	Percent	

Sample#: 20020661-003 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-14-16

Parameter	Prep/Test Method		Result	Unit	POL
	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	20
Toluene	EPA 5030B	EPA 8021B	20	ug/kg	20
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	20
Xylene (Total)	EPA 5030B	EPA 8021B	71	ug/kg	60
MTBE	EPA 5030B	EPA 8021B	ND	ug/kg	20
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	71	Percent	
	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	2.3	mg/kg	0.4
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	87	Percent	
	Prep Date: 03/14/2002	**Analysis Date: 03/16/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	130	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	260	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	103	Percent	

Sample#: 20020661-004 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-18-20

Parameter	Prep/Test Method		Result	Unit	POL
	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
MTBE	EPA 5030B	EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B	EPA 8021B	*		

POSITIVE LAB SERVICE
781 East Washington Blvd., Los Angeles, CA 90021
(213) 745-5312 FAX (213) 745-6372

CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **06/14/02 Revised**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**

Attn: Larry Kunkel
Phone: (562) 907-3607 Fax: (562) 907-3610

Trifluorotoluene	EPA 5030B	EPA 8021B	87	Percent	
Prep Date: 03/14/2002		**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	0.84	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	175	Percent	
Prep Date: 03/14/2002		**Analysis Date: 03/16/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	101	Percent	

Sample#: 20020661-005 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-22-24

Parameter	Prep/Test Method		Result	Unit	PQL
Prep Date: 03/14/2002		**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
MTBE	EPA 5030B	EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	71	Percent	
Prep Date: 03/14/2002		**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	0.18	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	93	Percent	
Prep Date: 03/14/2002		**Analysis Date: 03/16/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	109	Percent	

POSITIVE LAB SERVICE

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **06/14/02 Revised**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**

Attn: Larry Kunkel
Phone: (562) 907-3607 **Fax: (562) 907-3610**

Sample#: 20020661-006 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-22-26-28

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B EPA 8021B	ND	ug/kg	15
MTBE	EPA 5030B EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B EPA 8021B	*		
Trifluorotoluene	EPA 5030B EPA 8021B	71	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B EPA 8015B	*		
C5 - C10	EPA 5030B EPA 8015B	0.12	mg/kg	0.1
Surrogates	EPA 5030B EPA 8015B	*		
Trifluorotoluene	EPA 5030B EPA 8015B	93	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/16/2002**			
TPH-Extractables	EPA 3550B EPA 8015B	*		
C10 - C20	EPA 3550B EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B EPA 8015B	*		
N-Tetracosane	EPA 3550B EPA 8015B	100	Percent	

Sample#: 20020661-007 **Collector:** **Method:**
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: Method Blank

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B EPA 8021B	ND	ug/kg	15
MTBE	EPA 5030B EPA 8021B	ND	ug/kg	5
Surrogates	EPA 5030B EPA 8021B	*		
Trifluorotoluene	EPA 5030B EPA 8021B	78	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B EPA 8015B	*		
C5 - C10	EPA 5030B EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B EPA 8015B	*		
Trifluorotoluene	EPA 5030B EPA 8015B	99	Percent	

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LAB SERVICE

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **06/14/02 Revised**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**

Attn: Larry Kunkel
Phone: (562) 907-3607 Fax: (562) 907-3610

	Prep Date: 03/14/2002	Analysis Date: 03/15/2002			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	104	Percent	

ND = Not Detected
NA = Not Applicable
PQL = Practical Quantitation Limit

Authorized Signature(s)

Environmental Laboratory Accreditation Program Certificate No. 1131, LACSD No. 10138
Any remaining sample(s) for testing will be disposed of 30 days from receipt date unless notified.

DATE **PTS FILE#** 32061 **CHAIN OF CUSTODY RECORD** [illegible handwriting] **PAGE** **OF**

COMPANY: PTS

ADDRESS:

PROJECT MANAGER: RICK YOUNG

PROJECT NAME:

PHONE NUMBER: 562-907-3607

PROJECT NUMBER:

FAX NUMBER: 562-907-3610

SITE LOCATION:

SAMPLER SIGNATURE:

PO# 02-026

SPECIAL HANDLING: 24 HOURS; 72 HOURS; 5 DAYS; NORMAL (circled); OTHER

SAMPLE CONDITIONS: 34°F

RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	GRAIN SIZE: DRY; 400 MESH	GRAIN SIZE: SIEVE & LASER	GRAIN SIZE: LASER; 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	8015 TPH RANGE 8020 BTEX	MTBE			NUMBER OF SAMPLES	COMMENTS
EB-22-6-8																					X	X			1	
-10-12																					X	X			1	
-14-16																					X	X			1	
-18-20																					X	X			1	
-22-24																					X	X			1	
26-28																					X	X			1	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
[signature]	[signature]	[signature]	[signature]
COMPANY: PTS LABS	COMPANY: PLS	COMPANY: PLS	COMPANY: P.L.S.
DATE: 13MAR02 TIME: 0730	DATE: 3-13-02 TIME: 0730	DATE: 3-13-02 TIME: 0800	DATE: 3-13-02 TIME: 800

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DATE

PTS FILE# 32061

CHAIN OF CUSTODY RECORD

2002060

PAGE 1 OF 1

COMPANY: PTS

ADDRESS:

PROJECT MANAGER: RICK YOUNG

PROJECT NAME:

PHONE NUMBER: 562-907-3607

PROJECT NUMBER:

FAX NUMBER: 562-907-3610

SITE LOCATION:

SAMPLER SIGNATURE:

ANALYSIS REQUEST

PO# 02-026

SPECIAL HANDLING

24 HOURS / 5 DAYS

72 HOURS / NORMAL

OTHER

SAMPLE CONDITIONS 3+9

RECEIVED ON ICE YES/NO

SEALED YES/NO

OTHER YES/NO

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT
EB-23-4-6			
-10-12			
-16-18			
-20-22			
-24-26			

PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	GRAIN SIZE, DRY, 400 MESH	GRAIN SIZE: SIEVE & LASER	GRAIN SIZE: LASER, 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC, WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	8015 TPH/BTEX 8020 BTEX MTBE	NUMBER OF SAMPLES
																	X X	1
																	X X	1
																	X X	1
																	X X	1
																	X X	1

COMMENTS

N/A NSM

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
COMPANY: PTS LABS	COMPANY: PTS	COMPANY: PTS	COMPANY: PTS
DATE: 3/14/02 TIME: 0730	DATE: 3-13-02 TIME: 0730	DATE: 3-13-02 TIME: 0800	DATE: 3/13/02 TIME: 800

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POSITIVE LAB SERVICE

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **03/19/2002**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**

Attn: Rick Young
Phone: (562) 907-3607 Fax: (562) 907-3610

Sample#: 20020660-001 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-23-10-12

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B EPA 8021B	ND	ug/kg	15
Surrogates	EPA 5030B EPA 8021B	*		
Trifluorotoluene	EPA 5030B EPA 8021B	65	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B EPA 8015B	*		
C5 - C10	EPA 5030B EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B EPA 8015B	*		
Trifluorotoluene	EPA 5030B EPA 8015B	83	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/15/2002**			
TPH-Extractables	EPA 3550B EPA 8015B	*		
C10 - C20	EPA 3550B EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B EPA 8015B	*		
N-Tetracosane	EPA 3550B EPA 8015B	107	Percent	

Sample#: 20020660-002 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-23-16-18

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B EPA 8021B	ND	ug/kg	15
Surrogates	EPA 5030B EPA 8021B	*		
Trifluorotoluene	EPA 5030B EPA 8021B	79	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B EPA 8015B	*		
C5 - C10	EPA 5030B EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B EPA 8015B	*		
Trifluorotoluene	EPA 5030B EPA 8015B	100	Percent	

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **03/19/2002**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**
Attn: Rick Young
Phone: (562) 907-3607 Fax: (562) 907-3610

	Prep Date: 03/14/2002	**Analysis Date: 03/15/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	99	Percent	

Sample#: 20020660-003 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-23-20-22

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	77	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	98	Percent	
Prep Date: 03/14/2002	**Analysis Date: 03/15/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	102	Percent	

Sample#: 20020660-004 **Collector:** Client **Method:** Picked up by PLS
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: EB-23-24-26

Parameter	Prep/Test Method	Result	Unit	PQL
Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	74	Percent	

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **03/19/2002**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**
Attn: Rick Young
Phone: (562) 907-3607 Fax: (562) 907-3610

	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	95	Percent	
	Prep Date: 03/14/2002	**Analysis Date: 03/15/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	98	Percent	

Sample#: 20020660-005 **Collector:** **Method:**
Received: 03/13/2002 **Sampling Date/Time:**
Type: Soil
I.D.: Method Blank

Parameter	Prep/Test Method		Result	Unit	PQL
	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
Benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Toluene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Ethyl benzene	EPA 5030B	EPA 8021B	ND	ug/kg	5
Xylene (Total)	EPA 5030B	EPA 8021B	ND	ug/kg	15
Surrogates	EPA 5030B	EPA 8021B	*		
Trifluorotoluene	EPA 5030B	EPA 8021B	78	Percent	
	Prep Date: 03/14/2002	**Analysis Date: 03/14/2002**			
TPH-Volatiles	EPA 5030B	EPA 8015B	*		
C5 - C10	EPA 5030B	EPA 8015B	ND	mg/kg	0.1
Surrogates	EPA 5030B	EPA 8015B	*		
Trifluorotoluene	EPA 5030B	EPA 8015B	99	Percent	
	Prep Date: 03/14/2002	**Analysis Date: 03/15/2002**			
TPH-Extractables	EPA 3550B	EPA 8015B	*		
C10 - C20	EPA 3550B	EPA 8015B	ND	mg/kg	10
C20 - C30	EPA 3550B	EPA 8015B	ND	mg/kg	100
Surrogates	EPA 3550B	EPA 8015B	*		
N-Tetracosane	EPA 3550B	EPA 8015B	104	Percent	

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CERTIFICATE OF ANALYSIS

PTS Laboratories, Inc. **03/19/2002**
File# 72905
8100 Secura Way
Santa Fe Springs, CA 90670 **PTS File# 32061**
Attn: Rick Young
Phone: (562) 907-3607 Fax: (562) 907-3610

ND = Not Detected
NA = Not Applicable
PQL = Practical Quantitation Limit

Authorized Signature(s)

Environmental Laboratory Accreditation Program Certificate No. 1131, LACSD No. 10138
Any remaining sample(s) for testing will be disposed of 30 days from receipt date unless notified.

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3/15/02

QUALITY CONTROL DATA

CLIENT:	PTS Laboratories	**BATCH No:**	20738015/8021
REPORT NO:	20020660	**DATE EXTRACTED:**	03/14/02
MATRIX:	SOIL	**DATE ANALYZED:**	03/14/02
METHOD:	EPA 8021B/8015B	**BTEX QC SAMPLE:**	20020660-001

PARAMETER		SAMPLE RESULTS UG/KG	AMT SPIKED UG/KG	AMT REC. UG/KG	% REC	SPK REC ACCEPT RANGE (%)	RPD
BENZENE	S	0	100	81.6	82%		
	DS	0	100	82.4	82%	53-120	1%
	LCS		100	81	81%	72-124	
TOLUENE	S	0	100	75.0	75%		
	DS	0	100	72.3	72%	50-125	4%
	LCS		100	78	78%	76-124	
ETHYLBENZENE	S	0	100	73.9	74%		
	DS	0	100	68.2	68%	42-147	8%
	LCS		100	79	79%	73-125	
XYLENES	S	0	300	218	73%		
	DS	0	300	201	67%	48-130	8%
	LCS		300	236	79%	68-127	
GASOLINE(C5-C10)							
	LCS		910	819	90%	70-122	

S = Spike
DS = Duplicate Spike
LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
RPD = Relative Percent Difference
ND = None Detected

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3/19/02

QUALITY CONTROL DATA

CLIENT:	PTS Laboratories, Inc.	BATCH No:	20738015
REPORT NO:	20020660	DATE EXTRACTED:	03/14/02
MATRIX:	SOIL	DATE ANALYZED:	03/15/02
METHOD:	EPA 8015B	QC SAMPLE:	20020661-001

PARAMETER		SAMPLE RESULTS MG/KG	AMT SPIKED MG/KG	AMT REC. MG/KG	% REC	SPK REC ACCEPT RANGE (%)	RPD
DIESEL	S	0	111	97.5	88%		
	DS	0	111	96.6	87%	61-163	1%
	LCS		555	580.2	105%	87-143	
n-TETRACOSANE (SURROGATE)	S	0	20.83	23.50	113%		
	DS	0	20.83	21.62	104%	63-149	8%
	LCS		20.83	22.09	106%	60-130	

S = Spike
DS = Duplicate Spike
LCS = Laboratory Control Sample
LCSD = Laboratory Control Sample Duplicate
RPD = Relative Percent Difference
ND = None Detected

DATE [redacted] PTS FILE# 3200/ [redacted] CHAIN OF CUSTODY RECORD [redacted] 20020600 [redacted] PAGE 1 [redacted] OF 1 [redacted]

COMPANY	PTS
ADDRESS	
PROJECT MANAGER	RICK YOUNG
PROJECT NAME	PHONE NUMBER 562-907-3607
PROJECT NUMBER	FAX NUMBER 562-907-3610
SITE LOCATION	
SAMPLER SIGNATURE	

PO# 02-026

SPECIAL HANDLING

24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER

SAMPLE CONDITIONS 349

RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	GRAIN SIZE: DRY; 400 MESH	GRAIN SIZE: SIEVE & LASER	GRAIN SIZE: LASER; 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	8015TPH RANGE 8020BTEX				NUMBER OF SAMPLES	COMMENTS
~~EB-23-4-6~~																					X				1	N/A NSM
-10-12																					X				1	
-16-18																					X				1	
-20-22																					X				1	
-24-26																					X				1	

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
[signature]	[signature]	[signature]	[signature]
COMPANY PTS LABS	COMPANY PLS	COMPANY PLS	COMPANY PLS
DATE 13MAR02 TIME 0730	DATE 3-13-02 TIME 0730	DATE 3-13-02 TIME 0800	DATE 3/13/02 TIME 800

PTS Laboratories
Geotechnical Services
6100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

July 10, 2002

Scott Rowlands
URS Corporation
2020 E. First St., Ste. 400
Santa Ana, CA 92705

Re: Sears; Oakland, CA
PTS File: 32061

Dear Mr. Rowlands:

Core submitted from the Sears Oakland, CA site, URS Project 22-00000139.02, for color (white light) and ultraviolet (UV) photography was visually logged under UV as a screening process prior to photographing. There was no UV response throughout the core section and subsequently only white light photography was performed for this project

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please feel free to call me at (562) 907-3607 should you have any questions or require additional information.

Sincerely,

PTS Laboratories, Inc.

Larry Kunkel
District Manager

LK/vk

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

April 24, 2002

Scott Rowlands
URS Corporation
2020 E. First St., Ste. 400
Santa Ana, CA 92705

Re: Sears; Oakland, CA
PTS File: 32061

Dear Mr. Rowlands:

Enclosed are final petrophysical data and core photography for your Sears Oakland, CA site, URS Project 22-00000139.02. All analyses were performed by applicable ASTM, EPA or API methodology. Samples will be retained for 30 days before storage charges start unless other arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please feel free to call me at (562) 907-3607 should you have any questions or require additional information.

Sincerely,

PTS Laboratories, Inc.

Larry Kunkel
District Manager

LK/vk

encl.

PHYSICAL PROPERTIES DATA

(METHODOLOGY: ASTM D2216, API RP40, EPA 9100)

PROJECT NAME: SEARS, OAKLAND
PROJECT NO: 22-00000139.02

SAMPLE ID.	DEPTH, ft.	SAMPLE ORIENT. (1)	MOISTURE CONTENT (% wt)	DENSITY BULK (g/cc)	DENSITY GRAIN (g/cc)	POROSITY, %Vb (2) EFFECTIVE	POROSITY, %Vb (2) AIR FILLED	PORE FLUID SATURATIONS, % Pv (3) WATER	PORE FLUID SATURATIONS, % Pv (3) NAPL	25.0 PSI CONFINING STRESS SPECIFIC PERMEABILITY TO AIR (mD)	25.0 PSI CONFINING STRESS NATIVE STATE EFFECTIVE PERMEABILITY TO WATER (5) (millidarcy)	25.0 PSI CONFINING STRESS NATIVE STATE EFFECTIVE HYDRAULIC CONDUCTIVITY (5) (cm/s)
EB-22-10-12	10 - 12	V	20.6	1.63	2.65	38.5	5.5	85.7	ND<.01	143	13.3	1.23E-05
		H									4.36	4.06E-06
EB-22-18 - 20	18 - 20	V	14.7	1.82	2.65	31.2	4.9	84.3	ND<.01	147	5.94	5.46E-06
		H									2.63	2.45E-06

(1) Sample Orientation: H = horizontal; V = vertical (2) Effective Porosity = no pore fluids in place; all interconnected pore channels; Air Filled = pore channels not occupied by pore fluids (3) Water = 0.9981 g/cc; Hydrocarbon = 0.7500 g/cc (4) Specific = no pore fluids present (5) Permeability to water and conductivity measured at saturated conditions
Vb = Bulk Volume, cc; Pv = Pore Volume, cc; ND = Not Detected

PTS Laboratories

URS Corporation
PTS File: 32061

EPA 8015B / 8021B SUMMARY

PROJECT NAME: SEARS, OAKLAND
PROJECT NO: 22-00000139.02

PARAMETER	UNIT	EPA METHOD		BORING	EB-22-6-8					
		PREP	TEST	DEPTH, ft	6-8	10 - 12	14 - 16	18 - 20	22 - 24	26 - 28
Benzene	ug/kg	5030B	8021B		ND	ND	ND	ND	ND	ND
Toluene	ug/kg	5030B	8021B		ND	ND	20	ND	ND	ND
Xylene (Total)	ug/kg	5030B	8021B		ND	ND	ND	ND	ND	ND
TPH - Volatiles										
C5 - C10	mg/kg	5030B	8015B		ND	0.45	2.3	0.84	0.18	0.12
TPH - Extractables										
C10 - C20	mg/kg	3550B	8015B		ND	340	130	ND	ND	ND
C20 - C30	mg/kg	3550B	8015B		ND	580	260	ND	ND	ND

Analysis performed by Positive Lab Service, ELAP Cert. No. 1131, LACSD No. 10138

PTS Laboratories, Inc.

URS Corporation
PTS File No: 32061

PARTICLE SIZE SUMMARY

(METHODOLOGY: ASTM D4464M)

PROJECT NAME: Sears, Oakland
PROJECT NO: 22-00000139.02

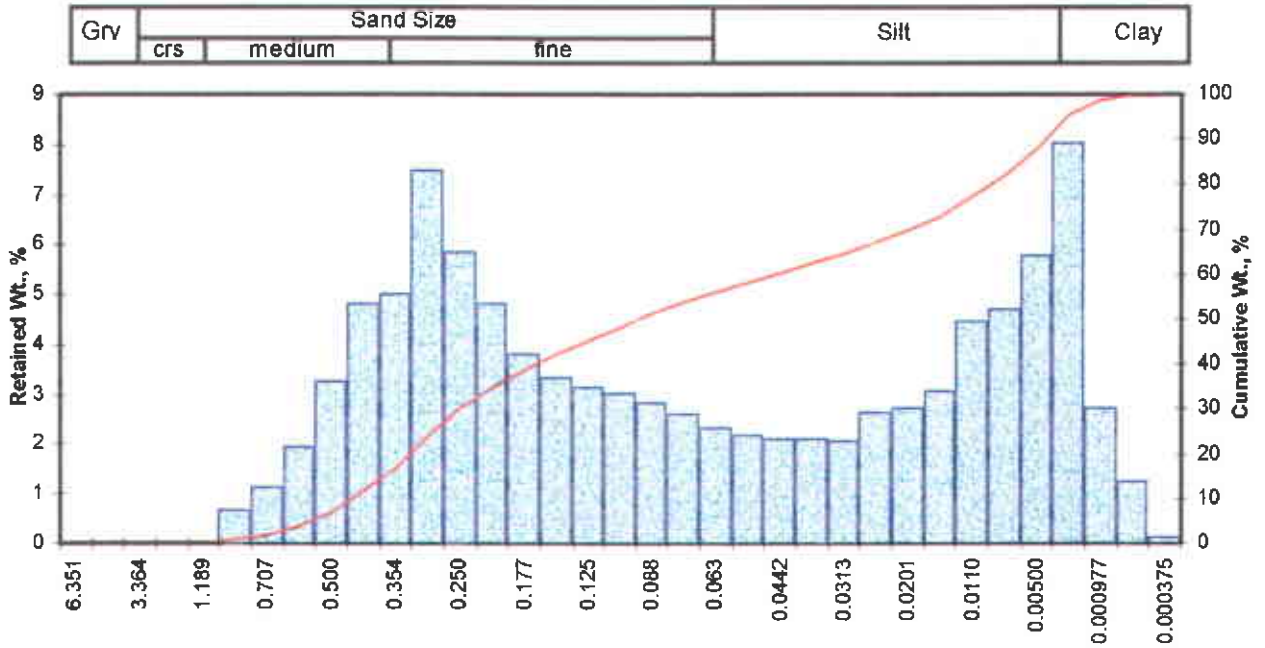
Sample ID	Depth, ft.	Description USCS/ASTM (1)	Median Grain Size mm	Particle Size Distribution, wt. percent						Silt & Clay
				Gravel	Sand Size			Silt	Clay	
					Coarse	Medium	Fine			
EB-22-10-12	10.00-12.00	Fine sand	0.095	0.00	0.00	11.81	41.88	34.19	12.13	46.32
EB-22 18-20	18.00-20.00	Coarse sand	1.699	24.74	22.83	18.82	22.70	(2)	(2)	10.92

(1) based on Mean from Trask
(2) ASTM D422: dry sieve does not differentiate silt/clay fraction

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D4464M

Client:	URS Corporation	**PTS File No:**	32061
Project:	Sears, Oakland	**Sample ID:**	EB-22-10-12
Project No:	22-00000139.02	**Depth, ft:**	10.00-12.00



Particle Size, mm

Opening		Phi of	U.S.	Sample	Increment	Cumulative
Inches	Millimeters	Screen	No.	Weight, grams	Weight, percent	Weight, percent
0.2500	6.351	-2.67	1/4	0.00	0.00	0.00
0.1873	4.757	-2.25	4	0.00	0.00	0.00
0.1324	3.364	-1.75	6	0.00	0.00	0.00
0.0787	2.000	-1.00	10	0.00	0.00	0.00
0.0468	1.189	-0.25	16	0.01	0.01	0.01
0.0331	0.841	0.25	20	0.65	0.65	0.66
0.0278	0.707	0.50	25	1.12	1.12	1.78
0.0234	0.595	0.75	30	1.95	1.95	3.73
0.0197	0.500	1.00	35	3.27	3.27	7.00
0.0166	0.420	1.25	40	4.81	4.81	11.81
0.0139	0.354	1.50	45	4.99	4.99	16.80
0.0117	0.297	1.75	50	7.47	7.47	24.26
0.0098	0.250	2.00	60	5.85	5.85	30.11
0.0083	0.210	2.25	70	4.80	4.80	34.91
0.0070	0.177	2.50	80	3.82	3.82	38.73
0.0059	0.149	2.75	100	3.34	3.34	42.07
0.0049	0.125	3.00	120	3.16	3.16	45.23
0.0041	0.105	3.25	140	3.04	3.04	48.27
0.0035	0.088	3.50	170	2.83	2.83	51.10
0.0029	0.074	3.75	200	2.58	2.58	53.68
0.0025	0.063	4.00	230	2.34	2.34	56.02
0.0021	0.053	4.25	270	2.18	2.18	58.20
0.00174	0.0442	4.50	325	2.11	2.11	60.31
0.00146	0.0372	4.75	400	2.08	2.08	62.39
0.00123	0.0313	5.00	450	2.06	2.06	64.45
0.000986	0.0250	5.32	500	2.65	2.65	67.10
0.000790	0.0201	5.64	635	2.73	2.73	69.83
0.000615	0.0156	6.00		3.08	3.08	72.91
0.000435	0.0110	6.50		4.48	4.48	77.39
0.000308	0.00781	7.00		4.71	4.71	82.10
0.000197	0.00500	7.65		5.77	5.77	87.87
0.000077	0.00195	9.00		8.02	8.02	95.89
0.000038	0.000977	10.00		2.73	2.73	98.62
0.000019	0.000488	11.00		1.26	1.26	99.88
0.000015	0.000375	11.38		0.12	0.12	100.00
TOTALS				100.00	100.00	100.00

Cumulative Weight Percent greater than			
Weight percent	Phi Value	Particle Size Inches	Particle Size Millimeters
5	0.85	0.0219	0.556
10	1.16	0.0177	0.449
16	1.46	0.0143	0.363
25	1.78	0.0115	0.291
40	2.59	0.0065	0.166
50	3.40	0.0037	0.095
60	4.46	0.0018	0.045
75	6.23	0.0005	0.013
84	7.21	0.0003	0.007
90	8.00	0.0002	0.004
95	8.85	0.0001	0.002

Measure	Trask	Inman	Folk-Ward
Median, phi	3.40	3.40	3.40
Median, in.	0.0037	0.0037	0.0037
Median, mm	0.095	0.095	0.095
Mean, phi	2.72	4.34	4.02
Mean, in.	0.0060	0.0019	0.0024
Mean, mm	0.152	0.050	0.061
Sorting	4.678	2.876	2.650
Skewness	0.658	0.325	0.343
Kurtosis	0.312	0.391	0.737
Grain Size Description (ASTM-USCS Scale)		Fine sand (based on Mean from Trask)	

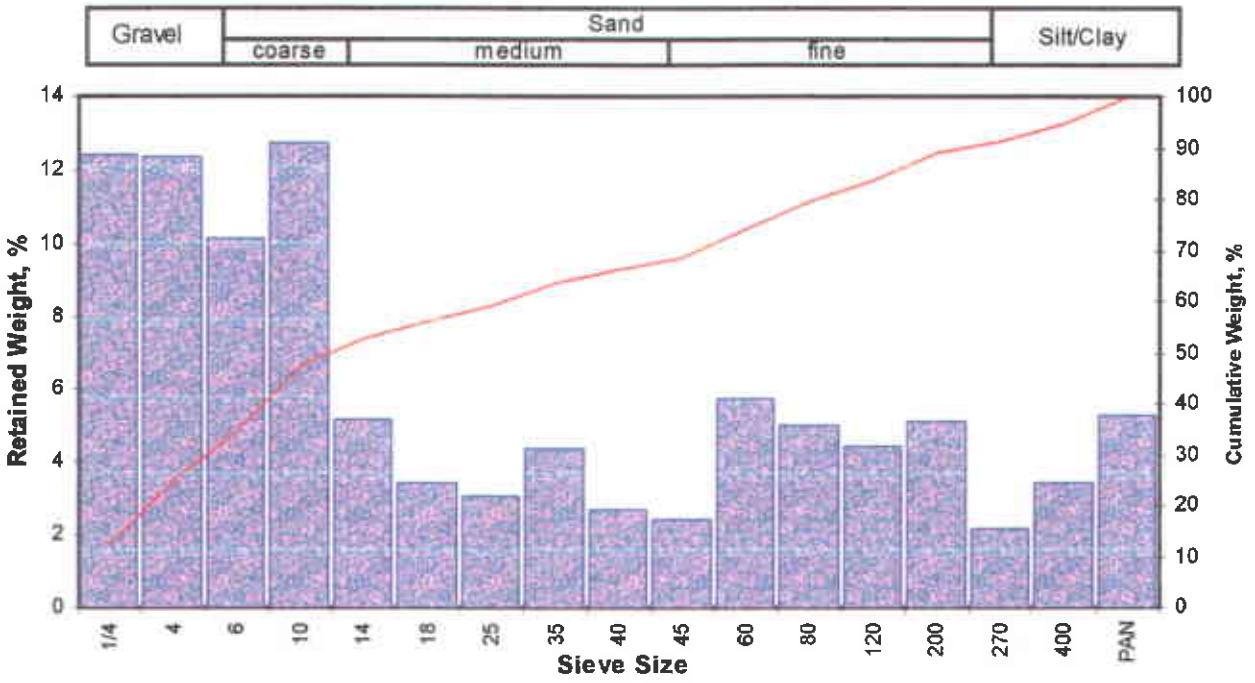
Description	Retained on Sieve #	Weight Percent
Gravel	4	0.00
Coarse Sand	10	0.00
Medium Sand	40	11.81
Fine Sand	200	41.88
Silt	>0.005 mm	34.19
Clay	<0.005 mm	12.13
	Total	100

Phone: (562) 907-3607 Fax: (562) 907-3610

PTS Laboratories, Inc.

Particle Size Analysis - ASTM D422

Client:	URS Corporation	**PTS File No:**	32061
Project:	Sears Oakland	**Sample ID:**	EB-22 18-20
Project No:	22-00000139.02	**Depth, ft:**	18.0-20.0



Opening		Phi of	U.S. Sieve	Sample Weight	Incremental Weight,	Cumulative Weight,
Inches	Millimeters	Screen	No.	grams	percent	percent
0.2500	6.351	-2.67	1/4	2.01	12.40	12.40
0.1873	4.757	-2.25	4	2.00	12.34	24.74
0.1324	3.364	-1.75	6	1.64	10.12	34.86
0.0787	2.000	-1.00	10	2.06	12.71	47.56
0.0557	1.414	-0.50	14	0.84	5.18	52.75
0.0394	1.000	0.00	18	0.56	3.45	56.20
0.0278	0.707	0.50	25	0.50	3.08	59.28
0.0197	0.500	1.00	35	0.71	4.38	63.66
0.0166	0.420	1.25	40	0.44	2.71	66.38
0.0139	0.354	1.50	45	0.39	2.41	68.78
0.0098	0.250	2.00	60	0.93	5.74	74.52
0.0070	0.177	2.50	80	0.81	5.00	79.52
0.0049	0.125	3.00	120	0.72	4.44	83.96
0.0029	0.074	3.75	200	0.83	5.12	89.08
0.0021	0.053	4.25	270	0.35	2.16	91.24
0.0015	0.037	4.75	400	0.56	3.45	94.69
			PAN	0.86	5.31	100.00
TOTALS				16.21	100.00	100.00

Cumulative Weight Percent greater than			
Weight	Phi	Particle Size	
percent	Value	Inches	Millimeters
5			
10			
16	-2.55	0.2298	5.837
25	-2.24	0.1856	4.714
40	-1.45	0.1073	2.725
50	-0.76	0.0669	1.699
60	0.58	0.0263	0.668
75	2.05	0.0095	0.242
84	3.01	0.0049	0.124
90	3.96	0.0025	0.064
95	4.48	0.0018	0.045

Measure	Trask	Inman	Folk-Ward
Median, phi	-0.76	-0.76	-0.76
Median, in.	0.0669	0.0669	0.0669
Median, mm	1.699	1.699	1.699
Mean, phi	-1.31	0.23	-0.10
Mean, in.	0.0976	0.0336	0.0422
Mean, mm	2.478	0.852	1.073
Sorting	4.415	2.776	
Skewness	0.628	0.359	
Kurtosis			

Grain Size Description (ASTM-USCS Scale)	Coarse sand (based on Mean from Trask)

Description	Retained on Sieve #	Weight Percent
Gravel	4	24.74
Coarse Sand	10	22.83
Medium Sand	40	18.82
Fine Sand	200	22.70
Silt/Clay	<200	10.92
	Total	100

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PTS Laboratories, Inc.

URS Corporation
File No: 32061

CAPILLARY PRESSURE DATA

(ASTM D425M: Centrifugal Method: air displacing water)

PROJECT NAME: SEARS, OAKLAND
PROJECT NO: 22-00000139.02

Capillary Pressure		Height Above Water Table,	Sample ID			
			EB-22-10-12		EB-22-18-20	
psi	cm water	ft	Saturation,% Pore Volume	Moisture, % dry weight	Saturation,% Pore Volume	Moisture, % dry weight
0.000	0.00	0.000	100.0	20.7	100.0	14.5
0.083	5.80	0.191	100.0	20.7	100.0	14.5
0.186	13.1	0.430	100.0	20.7	100.0	14.5
0.330	23.2	0.764	100.0	20.7	100.0	14.5
0.516	36.3	1.19	100.0	20.7	98.4	14.3
0.743	52.2	1.72	97.7	20.2	94.2	13.6
1.01	71.1	2.34	97.4	20.1	92.0	13.3
1.32	92.8	3.06	96.9	20.0	90.2	13.1
2.06	145	4.77	95.8	19.8	87.1	12.6
2.97	209	6.88	93.9	19.4	84.4	12.2
4.04	284	9.36	91.7	18.9	81.9	11.9
5.28	371	12.2	88.9	18.4	79.9	11.6
6.68	470	15.5	86.1	17.8	77.5	11.2
8.25	580	19.1	83.5	17.3	75.4	10.9
18.57	1306	43.0	69.7	14.4	66.5	9.6

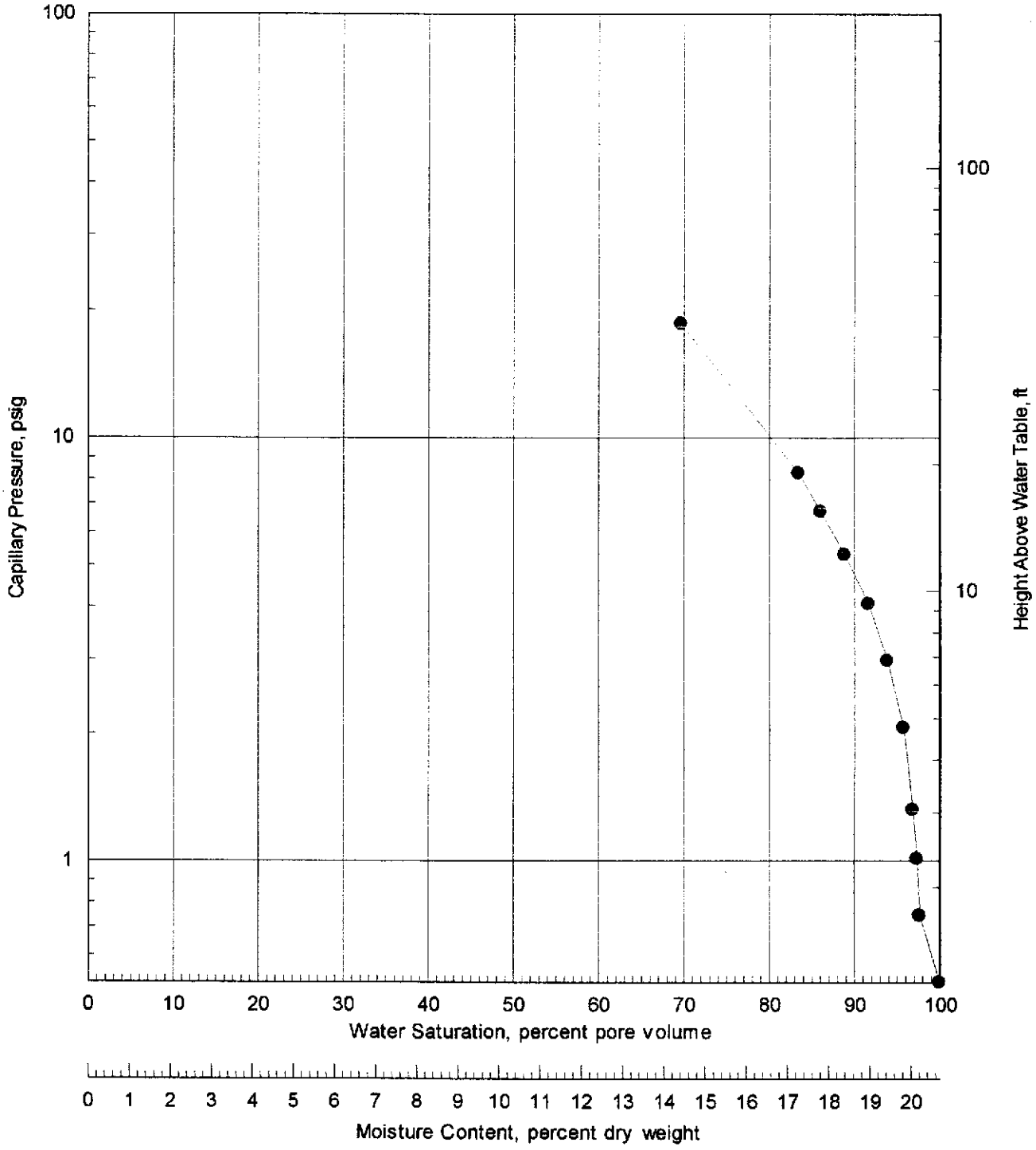
PTS Laboratories, Inc.

URS Corporation
File No.: 32061

CAPILLARY PRESSURE
Centrifugal Method
Air Displacing Water System - ASTM D425M

Project Name: SEARS, OAKLAND
Project Number: 22-00000139.02

Sample ID: EB-22-10-12
Depth, ft.: 10-12



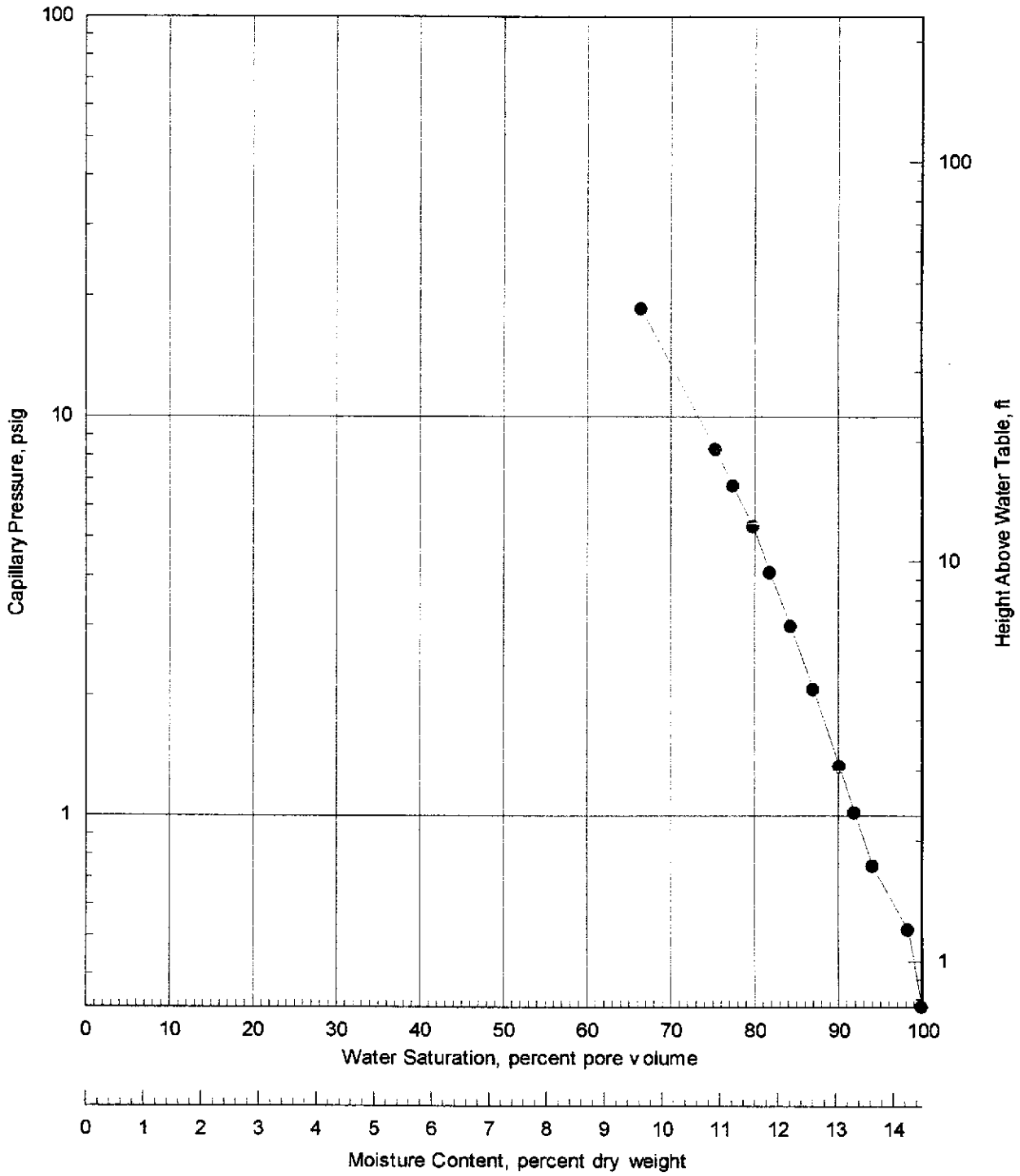
PTS Laboratories, Inc.

URS Corporation
File No.: 32061

CAPILLARY PRESSURE
Centrifugal Method
Air Displacing Water System - ASTM D425M

Project Name: SEARS, OAKLAND
Project Number: 22-00000139.02

Sample ID: EB-22-18-20
Depth, ft.: 18-20



DATE PTS FILE# 32061 CHAIN OF CUSTODY RECORD

COMPANY: URS CORPORATION

ADDRESS: 2020 E 1st ST. SANTA ANA CA 92705

PROJECT MANAGER: SCOTT ROWLANDS

PROJECT NAME: SEARS, OAKLAND — PHONE NUMBER: (714) 835-6886

PROJECT NUMBER: 22-00000139.02 — FAX NUMBER: (714) 667-7147

SITE LOCATION: OAKLAND, CA

SAMPLER SIGNATURE: Robert Kovacs

PO#:

SPECIAL HANDLING: 24 HOURS / 72 HOURS / 5 DAYS / NORMAL / OTHER: HOLD

SAMPLE CONDITIONS:
RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CATION EXCHANGE CAPACITY EPA 9080	SOIL pH, EPA 9045	GRAIN SIZE: DRY, 400 MESH	GRAIN SIZE: SIEVE & LASER	GRAIN SIZE: LASER, 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC: WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	Photo Log FS - C+4V	8015 TPH Gas 8020 BTEX	Capillarity PI Package	Horizontal K	NUMBER OF SAMPLES	COMMENTS
EB-22	02.12.02		[illegible]																		X					
		1015	2-4																		X					
		1017	4-6																		X				0	CORE MISSING
		1017	6-8																		X	X				
		1025	8-10																		X					
		1025	10-12											X							X	X	X	X		
		1038	12-14																		X					
		1038	14-16																		X	X				
		1040	16-18																		X					
		1040	18-20											X							X	X	X	X		
		1045	20-22																		X					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Robert Kovacs	Rey Gaulla		
COMPANY: URS	COMPANY: PTS	COMPANY:	COMPANY:
DATE: 02.15.02 TIME: 1415	DATE: 2-15-02 TIME: 14:15	DATE: TIME:	DATE: TIME:

DATE | PTS FILE# 32061 | CHAIN OF CUSTODY RECORD | PAGE 2 OF 4 5

COMPANY: URS CORPORATION

ADDRESS: 2020 E 1st St, SANTA ANA CA 92705

PROJECT MANAGER: SCOTT ROWLANDS

PROJECT NAME: SEARS OAKLAND | PHONE NUMBER: (714) 835-6886

PROJECT NUMBER: 22-00000139.02 | FAX NUMBER: (714) 667-7147

SITE LOCATION: OAKLAND, CA

SAMPLER SIGNATURE: Robert Kovacs

PO#

SPECIAL HANDLING

24 HOURS 5 DAYS
72 HOURS NORMAL
OTHER HOLD

SAMPLE CONDITIONS

RECEIVED ON ICE YES/NO
SEALED YES/NO
OTHER YES/NO

COMMENTS

ANALYSIS REQUEST

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CATION EXCHANGE CAPACITY EPA 9080	SOIL pH, EPA 9045	GRAIN SIZE, DRY 400 MESH	GRAIN SIZE, SIEVE & LASER	GRAIN SIZE, LASER, 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC, WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	Photo Log FS-CHV	8015 TPH range, 8020 BTEX	NUMBER OF SAMPLES
EB-22	02.12.02	1045	22-24																	X	X		
		1051	24-26																	X			
		1100	26-28																	X	X		
EB-23	02.12.02	828	02-04																	X			
		835	4-6																	X	X		
		835	6-8																	X			
		838	8-10																	X			
		838	10-12																	X	X		
		845	12-14																	X			
		845	14-16																	X			
		848	16-18																	X	X		

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Robert Kovacs	Ray Guillen		
COMPANY: URS	COMPANY: P.T.S	COMPANY	COMPANY
DATE: 02.15.02 TIME: 1415	DATE: 2-15-02 TIME: 14:15	DATE TIME	DATE TIME

PTS GeoLabs, Inc. • 8100 Secura Way • Santa Fe Springs, CA 90670 • Phone (562) 907-3607 • Fax (562) 907-3610
PTS GeoLabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-9467 • Fax (713) 680-0763

DATE PTS FILE# 32067 **CHAIN OF CUSTODY RECORD** PAGE 5 OF 5

COMPANY: URS CORP.

ADDRESS: 2020 E 1st St, Santa Ana

PROJECT MANAGER: Scott Rowlands

PROJECT NAME: Sears — PHONE NUMBER:

PROJECT NUMBER: 22-00000139.02 — FAX NUMBER:

SITE LOCATION: Oakland, CA

SAMPLER SIGNATURE: Robert Kovacs

ANALYSIS REQUEST

PO#:

SPECIAL HANDLING: 24 HOURS / 5 DAYS / 72 HOURS / NORMAL / OTHER: HOLD

SAMPLE CONDITIONS: RECEIVED ON ICE YES/NO; SEALED YES/NO; OTHER YES/NO

SAMPLE ID NUMBER	DATE	TIME	DEPTH, FT	PHYSICAL PROPERTIES PACKAGE, API RP40	MOISTURE CONTENT, ASTM D2216	POROSITY, API RP40	GRAIN DENSITY, API RP40	BULK DENSITY, API RP40	AIR PERMEABILITY, API RP40	SPECIFIC RETENTION/YIELD ASTM D425	CAPILLARY PRESSURE, ASTM D425M	SOIL pH, EPA 9045	GRAIN SIZE, DRY, 400 MESH	GRAIN SIZE, SIEVE & LASER	GRAIN SIZE, LASER, 1 MICRON	HYDRAULIC CONDUCTIVITY, EPA 9100, API RP40	TOC, WALKLEY-BLACK	HYDRAULIC CONDUCTIVITY PACKAGE	ATTERBERG LIMITS, ASTM D4318	TNRCC PROPERTIES PACKAGE	Photo log FS-C+UV	8015 TPH range 8020 BTEX	NUMBER OF SAMPLES	COMMENTS
EB 23	02.12.02	848	18-20																		X			
		850	20-22																		X	X		
		850	22-24																		X			
		900	24-26																		X	X		
		900	26-28																		X			
~~EB 24~~	02.13.02	1170	5																					
		1125	10																					
		1135	15																					
		1145	20																					
		1150	25																					
		1200	30																					

1. RELINQUISHED BY	2. RECEIVED BY	3. RELINQUISHED BY	4. RECEIVED BY
Robert Kovacs	Roy Guilli		
COMPANY: URS	COMPANY: P.T.S	COMPANY	COMPANY
DATE: 02.15.02 TIME: 1415	DATE: 2-15-02 TIME: 14:15	DATE TIME	DATE TIME

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PTS GeoLabs, Inc. • 4342 W. 12th St. • Houston, TX 77055 • Phone (713) 680-2291 • Fax (713) 680-0763

APPENDIX H
LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTS FOR GROUNDWATER GRAB SAMPLES

Submission #: 2002-02-0242

REVISED

MTBE+BTEX by 8260B

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#2496

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
EB 23	Water	02/12/2002 09:15	1
EB 22	Water	02/12/2002 11:10	2
EB 1	Water	02/12/2002 11:00	3
DUP 1	Water	02/12/2002 11:20	4

Submission #: 2002-02-0242 REVISED

SEVERN TRENT SERVICES

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5030B

STL San Francisco
1220 Quarry Lane
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CA DHS ELAP#2496

Sample ID: **EB 23**
Project:
Sampled: 02/12/2002 09:15
Matrix: Water

Lab Sample ID: 2002-02-0242-001
Received: 02/13/2002 15:38
Extracted: 02/16/2002 16:37
QC-Batch: 2002/02/16-01.27

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	02/16/2002 16:37	
Benzene	ND	1.0	ug/L	1.00	02/16/2002 16:37	
Toluene	ND	1.0	ug/L	1.00	02/16/2002 16:37	
Ethylbenzene	ND	1.0	ug/L	1.00	02/16/2002 16:37	
Total xylenes	ND	1.0	ug/L	1.00	02/16/2002 16:37	
Surrogate(s)						
4-Bromofluorobenzene	90.6	86-115	%	1.00	02/16/2002 16:37	
1,2-Dichloroethane-d4	116.1	76-114	%	1.00	02/16/2002 16:37	sh
Toluene-d8	99.9	88-110	%	1.00	02/16/2002 16:37	

Submission #: 2002-02-0242

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SEVERN TRENT SERVICES

MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5030B

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CA DHS ELAP#2496

Sample ID:	**EB 22**	Lab Sample ID:	2002-02-0242-002
Project:		Received:	02/13/2002 15:38
		Extracted:	02/16/2002 17:01
Sampled:	02/12/2002 11:10	QC-Batch:	2002/02/16-01.27
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	02/16/2002 17:01	
Benzene	ND	1.0	ug/L	1.00	02/16/2002 17:01	
Toluene	ND	1.0	ug/L	1.00	02/16/2002 17:01	
Ethylbenzene	ND	1.0	ug/L	1.00	02/16/2002 17:01	
Total xylenes	ND	1.0	ug/L	1.00	02/16/2002 17:01	
Surrogate(s)						
4-Bromofluorobenzene	96.1	86-115	%	1.00	02/16/2002 17:01	
1,2-Dichloroethane-d4	108.6	76-114	%	1.00	02/16/2002 17:01	
Toluene-d8	102.7	88-110	%	1.00	02/16/2002 17:01	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5030B

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CA DHS ELAP#2496

Sample ID: **EB 1**
Project:

Sampled: 02/12/2002 11:00
Matrix: Water

Lab Sample ID: 2002-02-0242-003
Received: 02/13/2002 15:38
Extracted: 02/16/2002 17:25
QC-Batch: 2002/02/16-01.27

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	02/16/2002 17:25	
Benzene	ND	1.0	ug/L	1.00	02/16/2002 17:25	
Toluene	ND	1.0	ug/L	1.00	02/16/2002 17:25	
Ethylbenzene	ND	1.0	ug/L	1.00	02/16/2002 17:25	
Total xylenes	ND	1.0	ug/L	1.00	02/16/2002 17:25	
Surrogate(s)						
4-Bromofluorobenzene	92.2	86-115	%	1.00	02/16/2002 17:25	
1,2-Dichloroethane-d4	111.4	76-114	%	1.00	02/16/2002 17:25	
Toluene-d8	97.9	88-110	%	1.00	02/16/2002 17:25	

Submission #: 2002-02-0242

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MTBE+BTEX by 8260B

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CA DHS ELAP#2496

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8260B
Prep Method: 5030B

Sample ID: **DUP 1**
Project:

Sampled: 02/12/2002 11:20
Matrix: Water

Lab Sample ID: 2002-02-0242-004
Received: 02/13/2002 15:38
Extracted: 02/16/2002 17:49
QC-Batch: 2002/02/16-01.27

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
MTBE	ND	5.0	ug/L	1.00	02/16/2002 17:49	
Benzene	ND	1.0	ug/L	1.00	02/16/2002 17:49	
Toluene	ND	1.0	ug/L	1.00	02/16/2002 17:49	
Ethylbenzene	ND	1.0	ug/L	1.00	02/16/2002 17:49	
Total xylenes	ND	1.0	ug/L	1.00	02/16/2002 17:49	
Surrogate(s)						
4-Bromofluorobenzene	94.4	86-115	%	1.00	02/16/2002 17:49	
1,2-Dichloroethane-d4	112.8	76-114	%	1.00	02/16/2002 17:49	
Toluene-d8	100.5	88-110	%	1.00	02/16/2002 17:49	

Submission #: 2002-02-0242

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CA DHS ELAP#2496

MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260B Prep Method: 5030B

Method Blank **Water** **QC Batch # 2002/02/16-01.27**

MB: 2002/02/16-01.27-013 Date Extracted: 02/16/2002 13:51

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
MTBE	ND	5.0	ug/L	02/16/2002 13:51	
Benzene	ND	1.0	ug/L	02/16/2002 13:51	
Toluene	ND	1.0	ug/L	02/16/2002 13:51	
Ethylbenzene	ND	1.0	ug/L	02/16/2002 13:51	
Total xylenes	ND	1.0	ug/L	02/16/2002 13:51	
Surrogate(s)					
4-Bromofluorobenzene	89.8	86-115	%	02/16/2002 13:51	
1,2-Dichloroethane-d4	112.4	76-114	%	02/16/2002 13:51	
Toluene-d8	99.2	88-110	%	02/16/2002 13:51	

Submission #: 2002-02-0242

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CA DHS ELAP#2496

MTBE+BTEX by 8260B

Batch QC report

Test Method: 8260FAB Prep Method: 5030B

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/02/16-01.27**

LCS: 2002/02/16-01.27-003 Extracted: 02/16/2002 11:35 Analyzed: 02/16/2002 11:35

LCSD: 2002/02/16-01.27-004 Extracted: 02/16/2002 12:00 Analyzed: 02/16/2002 12:00

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	18.3	18.8	25.0	25.0	73.2	75.2	2.7	69-129	20		
Toluene	20.5	21.4	25.0	25.0	82.0	85.6	4.3	70-130	20		
Methyl tert-butyl ether	22.8	22.4	25.0	25.0	91.2	89.6	1.8	65-165	20		
Surrogate(s)											
1,2-Dichloroethane-d4	559	561	500	500	111.8	112.2		76-114			
Toluene-d8	501	504	500	500	100.2	100.8		88-110			

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CA DHS ELAP#2496

MTBE+BTEX by 8260B

Legend & Notes

Test Method: 8260B Prep Method: 5030B

Analyte Flags

sh

Surrogate recovery was higher than QC limit due to matrix interference.

Submission #: 2002-02-0242

Total Extractable Petroleum Hydrocarbons (TEPH)

SEVERN TRENT SERVICES

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CA DHS ELAP#2496

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
	Project:

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
EB 23	Water	02/12/2002 09:15	1
EB 22	Water	02/12/2002 11:10	2
EB 1	Water	02/12/2002 11:00	3
DUP 1	Water	02/12/2002 11:20	4
FOMW 5 @ 5`	Soil	02/12/2002 13:20	5
FOMW 5 @ 10`	Soil	02/12/2002 13:25	6

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **EB 23**
Project:
Sampled: 02/12/2002 09:15
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-001
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	150	88	ug/L	1.80	02/21/2002 07:05	ndp
Bunker-C	ND	88	ug/L	1.80	02/21/2002 07:05	
Surrogate(s)						
o-Terphenyl	107.8	60-130	%	1.80	02/21/2002 07:05	

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **EB 22**
Project:
Sampled: 02/12/2002 11:10
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-002
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	4600	79	ug/L	1.60	02/19/2002 04:56	ndp
Bunker-C	ND	79	ug/L	1.60	02/19/2002 04:56	
Surrogate(s)						
o-Terphenyl	62.7	60-130	%	1.60	02/19/2002 04:56	

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID:	**EB 1**	Lab Sample ID:	2002-02-0242-003
Project:		Received:	02/13/2002 15:38
		Extracted:	02/15/2002 08:43
Sampled:	02/12/2002 11:00	QC-Batch:	2002/02/15-01.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	86	50	ug/L	1.00	02/21/2002 13:00	ndp
Bunker-C	ND	50	ug/L	1.00	02/21/2002 13:00	
Surrogate(s)						
o-Terphenyl	63.1	60-130	%	1.00	02/21/2002 13:00	

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID: **DUP 1**
Project:

Sampled: 02/12/2002 11:20
Matrix: Water
Sample/Analysis Flag: rl (See Legend & Note section)

Lab Sample ID: 2002-02-0242-004
Received: 02/13/2002 15:38
Extracted: 02/15/2002 08:43
QC-Batch: 2002/02/15-01.10

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	4200	76	ug/L	1.50	02/19/2002 07:47	ndp
Bunker-C	ND	76	ug/L	1.50	02/19/2002 07:47	
Surrogate(s)						
o-Terphenyl	54.3	60-130	%	1.50	02/19/2002 07:47	sl

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 5`**	Lab Sample ID:	2002-02-0242-005
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:20	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 04:14	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 04:14	
Surrogate(s)						
o-Terphenyl	95.8	60-130	%	1.00	02/21/2002 04:14	

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M
3550/8015M

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CA DHS ELAP#2496

Sample ID:	**FOMW 5 @ 10`**	Lab Sample ID:	2002-02-0242-006
Project:		Received:	02/13/2002 15:38
		Extracted:	02/18/2002 11:44
Sampled:	02/12/2002 13:25	QC-Batch:	2002/02/18-03.10
Matrix:	Soil		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	1.0	mg/Kg	1.00	02/21/2002 03:36	
Bunker-C	ND	50	mg/Kg	1.00	02/21/2002 03:36	
Surrogate(s)						
o-Terphenyl	96.6	60-130	%	1.00	02/21/2002 03:36	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015 M

Method Blank | **Water** | **QC Batch # 2002/02/15-01.10**

MB: 2002/02/15-01.10-001

Date Extracted: 02/15/2002 08:43

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	02/18/2002 17:55	
Bunker-C	ND	50	ug/L	02/18/2002 17:55	
Surrogate(s)					
o-Terphenyl	95.1	60-130	%	02/18/2002 17:55	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3550/8015 M

Method Blank **Soil** **QC Batch # 2002/02/18-03.10**

MB: 2002/02/18-03.10-003 Date Extracted: 02/18/2002 11:44

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	1	mg/Kg	02/20/2002 08:52	
Bunker-C	ND	50	mg/Kg	02/20/2002 08:52	
Surrogate(s)					
o-Terphenyl	105.4	60-130	%	02/20/2002 08:52	

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3550/8015M

Laboratory Control Spike (LCS/LCSD) **Soil** **QC Batch # 2002/02/18-03.10**

LCS: 2002/02/18-03.10-001 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:17

LCSD: 2002/02/18-03.10-002 Extracted: 02/18/2002 11:44 Analyzed: 02/18/2002 22:56

Compound	Conc. [mg/Kg]		Exp.Conc. [mg/Kg]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	39.9	42.9	41.7	41.7	95.7	102.9	7.3	60-130	25		
Surrogate(s)											
o-Terphenyl	21.7	22.9	20.0	20.0	108.7	114.7		60-130	0		

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3510/8015M

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/02/15-01.10**

LCS: 2002/02/15-01.10-002 Extracted: 02/15/2002 08:43 Analyzed: 02/19/2002 09:19

LCSD: 2002/02/15-01.10-003 Extracted: 02/15/2002 08:43 Analyzed: 02/19/2002 09:59

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	1140	1090	1250	1250	91.2	87.2	4.5	60-130	25		
Surrogate(s)											
o-Terphenyl	19.6	19.3	20.0	20.0	98.1	96.4		60-130	0		

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC Report

Test Method: 8015M Prep Method: 3550/8015M

Matrix Spike (MS / MSD) **Soil** **QC Batch # 2002/02/18-03.10**

Sample ID: **FOMW @ 5` >> MS** Lab ID: 2002-02-0242-005

MS: 2002/02/18-03.10-004 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 22:47
Dilution: 1

MSD: 2002/02/18-03.10-005 Extracted: 02/18/2002 11:44 Analyzed: 02/20/2002 23:26
Dilution: 1

Compound	Conc. [mg/Kg]			Exp.Conc.		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Diesel	43.6	36.5	ND	40.9	41.3	106.	88.4	18.7	60-130	25		
Surrogate(s)												
o-Terphenyl	21.6	20.7		20.0	20.0	107.	103.4		60-130	0		

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CA DHS ELAP#2496

Total Extractable Petroleum Hydrocarbons (TEPH)

Legend & Notes

Test Method: 8015M

Prep Method: 3550/8015M
3510/8015M

Analysis Flags

rl

Reporting limits raised due to reduced sample size.

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Analyte Flags

sl

Surrogate recoveries were lower than QC limit due to matrix interference, confirmed by reanalysis.

SEVERN TRENT SERVICES

STL San Francisco

Chain of Custody

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Phone: (925) 484-1919 • Fax: (925) 484-1096
Email: info@chromalab.com

Reference #: 22-00000159-01
020SC

Date 02.12.02 Page 1 of 1

2002-02-0242

Report To

Attn. Scott Rowlands
Company URS Corp
Address 2020 E. 1st st. Santa Ana
Phone (714) 835 6886 Email
Bill To URS
Sampled By: RK
Attn: Scott Rowlands
Phone: (714) 835-6886

Analysis Request

Sample ID	Date	Time	Matrix	Preserv.	TPH (EPA 8015, 8020/8021) ☐ Gas w/ ☐ BTEX ☐ MTBE	Purgeable Aromatics BTEX (EPA 8020/8021)	TEPH (EPA 8015M) ☐ Silica Gel ☒ Diesel ☐ Motor Oil ☒ Other Bunker	Fuel Oxygenates (8260B): ☐ DCA, EDB ☐ Full Oxygenate List ☒ MTBE ☒ BTEX	Purgeable Halocarbons (HVOCs) (EPA 8010/8021)	Volatile Organics GC/MS (VOCs) (EPA 8260A/8260B)	Semivolatiles GC/MS (EPA 8270)	Oil and Grease ☐ Petroleum ☐ Total (EPA 1664)	☐ Pesticides (EPA 8081) ☐ PCBs (EPA 8082)	PNAs by ☐ 8270 ☐ 8310	CAM17 Metals (EPA 6010/7470/7471)	Metals: ☐ Lead ☐ LUFT ☐ RCRA ☐ Other:	☐ W.E.T (STLC) ☐ TCLP	☐ Hexavalent Chromium ☐ pH (24h hold time for H_2O)	☐ Spec Cond. ☐ TSS ☐ Alkalinity ☐ TDS	Anions: ☐ Cl ☐ SO_4 ☐ NO_3 ☐ F ☐ Br ☐ NO_2 ☐ PO_4	Number of Containers
EB 23	02.12	9:15	H_2O	HCl				X														6
EB 23	02.12	910	H_2O	None			X															2
EB 22	02.12	1110	H_2O	HCl				X														6
EB 22	02.12	1110	H_2O	None			X															2
B-1	02.12	1100	H_2O	HCl				X														6
B-1	02.12	1100	H_2O	None			X															2
DUP-1	02.12	1120	H_2O	HCl				X														6
DUP-1	02.12	1120	H_2O	None			X															2

Project Info.

Project Name:
Project#:
PO#:
Credit Card#:

Sample Receipt

of Containers:
Head Space:
Temp: 6.0°C
Conforms to record:

TAT: Std 5 Day | 72h | 48h | 24h | Other

Report: ☐ Routine ☐ Level 3 ☐ Level 4 ☐ EDD
Special Instructions / Comments:

1) Relinquished by:	2) Relinquished by:	3) Relinquished by:
Robert Kovacs 1302		1538
Signature Time	Signature Time	Signature Time
ROBERT KOVACS 02.13.02		2/13/02
Printed Name Date	Printed Name Date	Printed Name Date
URS CORP.		STL - SF
Company	Company	Company

1) Received by:	2) Received by:	3) Received by:
1301		15:38
Signature Time	Signature Time	Signature Time
2/13/02		2/13/02
Printed Name Date	Printed Name Date	Printed Name Date
STL - SF		STL SF
Company	Company	Company

Rev 01/02

APPENDIX I
WELL DEVELOPMENT LOGS

URS 500 12th Street, Suite 200
Oakland, CA 94607-4014

WELL DEVELOPMENT AND SAMPLING LOG

Well: Fomw-4
Date: 2/19/02
T.D.: 24-25
Project: Sears - OAK
Project No.: 22-00900139.01 00001
H_2O Column: 14.7
Method of Purging: Well Development w/surge block & Bailer
Method of Sampling: NO samples
1 casing vol. = 2.5 **3 casing vol.** 7.5 **5 casing vol.**

Depth to Water	Time	Purged (gallons)	pH (units)	Conductivity (mS/cm)	Temperature (°C)	Turbidity (NTUs)	Remarks
10.30	0850	–	–	–	–	–	
	1013	20	–	–	–	–	silty, brown, w/sand, cloudy
	1026	30	5.93	0.911	15.2	916	" "
16.15		32	–	–	–	–	" "
	1043	35	6.58	0.724	14.8	850	less sand
	1052	45	6.58	0.504	14.9	980	" "
	1107	50	6.95	0.514	15.1	135	Becomes less cloudy, Sand/silt content ↓
	1111	53	6.69	0.409	15.0	120	↓ ~~wat~~
	1124	60	6.79	0.471	15.2	110	
	1130	65	7.19	0.413	13.9	41	clear, slightly cloudy

Sample Label: –
Sampler: BG
Well Diameter: 2"
Duplicate: –
Rinsate: –

Oakland, CA 94607-4014

WELL DEVELOPMENT AND SAMPLING LOG

Well: Fomw-5	Project: Sears - OAK	Method of Purging: Well Development w/surge block & Bailer
Date: 2/19/02	Project No.: 22-00000 / 39.01 / 00001	Method of Sampling: No samples
T.D.: 28.4	H_2O Column: 15.25	1 casing vol. = 2.6 3 casing vol. 7.8 5 casing vol.

Depth to Water	Time	Purged (gallons)	pH (units)	Conductivity (ms/cm)	Temperature (°C)	Turbidity (NTUs)	Remarks
13.15	approx 3 hrs spent on well	10	–	–	–	999	silty, brown, w/sand, cloudy
		20	–	–	–	999	
		35	6.43	0.397	15.4	999	less sand content
		40	6.69	0.424	15.6	150	Blowes more clear
		50	6.70	0.400	15.6	8	clear, slightly cloudy.

Sample Label: –

Sampler: B.G

Well Diameter: 2"

Duplicate: – Rinsate: –

Gregg offsite at 3:45 p.m.

APPENDIX J
WELL SURVEY DATA

Survey of Monitoring Wells
@ Sears Dites 1039 1058A/B

As of: 5/13/02

Sears Site 1039: 1901-1911 Telegraph Ave, Oakland CA

Point No	Northing	Easting	Elevation	Description
101	1487786.801	481200.941	20.99	MW-1
102	1487693.732	481216.401	20.50	MW-2
103	1487669.271	481239.480	18.76	MW-5
104	1487651.582	481208.840	18.61	MW-4
105	1487631.316	481157.159	18.91	MW-6
106	1487668.797	481107.571	20.39	MW-7
107	1487644.315	481031.898	21.12	MW-8
108	1487551.956	481053.739	19.20	MW-9
109	1487769.502	481117.450	22.29	MW-3

Sears Sites 1058A & 1058B: 2633 & 2600 Telegraph Ave, Oakland CA

Point No	Northing	Easting	Elevation	Description
201	1489464.255	483863.897	24.84	MW-7
202	1489476.585	483911.498	26.00	MW-8
203	1489432.880	483932.503	26.39	EW-1
204	1489428.707	483932.826	26.23	MW-3
205	1489460.220	483972.719	26.07	MW-4
206	1489446.092	483994.032	26.41	MW-2
207	1489477.117	484042.032	26.91	MW-5
208	1489396.894	483835.394	24.67	MW-9
210	1489608.409	483785.761	26.23	FOMW-5
211	1489812.541	483756.546	26.70	FOMW-3
212	1489334.979	483888.054	24.29	MW-6
213	1489374.377	484009.693	26.19	MW-1
214	1489783.229	483863.805	26.20	FOMW-4
215	1489828.977	483933.968	26.21	FOMW-1

APPENDIX K
LABORATORY REPORTS AND CHAIN OF CUSTODY DOCUMENTS FOR GROUNDWATER SAMPLES

Submission #: 2002-03-0147

Date: March 18, 2002

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com
CA DHS ELAP#1094

URS-Santa Ana

2020 East 1st St Suite 400
Santa Ana, CA 92705

Attn: Scott Rowlands

Project: 22-00000139.02
Sears - Oakland

Attached is our report for your samples received on Wednesday March 6, 2002
This report has been reviewed and approved for release. Reproduction of this report is permitted only in its entirety.

Please note that any unused portion of the samples will be discarded after April 20, 2002 unless you have requested otherwise.
We appreciate the opportunity to be of service to you. If you have any questions, please call me at (925) 484-1919.
You can also contact me via email. My email address is: asalimpour@chromalab.com

Sincerely,

Afsaneh Salimpour
Project Manager

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Alkalinity (Total)

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
22-00000139.02	Project: Sears - Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-3	Water	03/06/2002 08:30	1
FOMW-5	Water	03/06/2002 10:10	2
FOMW-4	Water	03/06/2002 11:15	3
DUP-1	Water	03/06/2002 12:00	4

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Alkalinity (Total)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 310.1
Prep Method: 310.1

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-3**	Lab Sample ID:	2002-03-0147-001
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/11/2002 08:00
Sampled:	03/06/2002 08:30	QC-Batch:	2002/03/12-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	140	5.0	mg/L	1.00	03/11/2002 08:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Alkalinity (Total)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 310.1
Prep Method: 310.1

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-5**	Lab Sample ID:	2002-03-0147-002
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/11/2002 08:00
Sampled:	03/06/2002 10:10	QC-Batch:	2002/03/12-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	120	5.0	mg/L	1.00	03/11/2002 08:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Alkalinity (Total)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 310.1
Prep Method: 310.1

STL San Francisco
1220 Quarry Lane
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www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-4**	Lab Sample ID:	2002-03-0147-003
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/11/2002 08:00
Sampled:	03/06/2002 11:15	QC-Batch:	2002/03/12-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	100	5.0	mg/L	1.00	03/11/2002 08:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Alkalinity (Total)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 310.1
Prep Method: 310.1

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Pleasanton, CA 94566

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www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**DUP-1**	Lab Sample ID:	2002-03-0147-004
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/11/2002 08:00
Sampled:	03/06/2002 12:00	QC-Batch:	2002/03/12-01.58
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Alkalinity (Total)	110	5.0	mg/L	1.00	03/11/2002 08:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

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1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
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www.chromalab.com

CA DHS ELAP#1094

Alkalinity (Total)

Batch QC report

Test Method: 310.1 Prep Method: 310.1

Method Blank	**Water**	**QC Batch # 2002/03/12-01.58**
MB: 2002/03/12-01.58-001		Date Extracted: 03/11/2002 08:00

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Alkalinity (Total)	ND	5.0	mg/L	03/11/2002 08:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
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www.chromalab.com

CA DHS ELAP#1094

Alkalinity (Total)

Batch QC report

Test Method: 310.1 Prep Method: 310.1

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/12-01.58**

LCS: 2002/03/12-01.58-002 Extracted: 03/11/2002 08:00 Analyzed: 03/11/2002 08:00

LCSD: 2002/03/12-01.58-003 Extracted: 03/11/2002 08:00 Analyzed: 03/11/2002 08:00

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Alkalinity (Total)	2250	2270	2500	2500	90.0	90.8	0.9	80-120	20		

Submission #: 2002-03-0147

Gas/BTEX Compounds by 8015M/8021

SEVERN TRENT SERVICES

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1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
22-00000139.02	Project: Sears - Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-3	Water	03/06/2002 08:30	1
FOMW-5	Water	03/06/2002 10:10	2
FOMW-4	Water	03/06/2002 11:15	3
DUP-1	Water	03/06/2002 12:00	4
EB-1	Water	03/06/2002 12:05	5
TB-1	Water	03/06/2002	6

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

Test Method: 8015M 8021B

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-3**	Lab Sample ID:	2002-03-0147-001
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/12/2002 20:22
Sampled:	03/06/2002 08:30	QC-Batch:	2002/03/12-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/12/2002 20:22	
Benzene	ND	0.50	ug/L	1.00	03/12/2002 20:22	
Toluene	ND	0.50	ug/L	1.00	03/12/2002 20:22	
Ethyl benzene	ND	0.50	ug/L	1.00	03/12/2002 20:22	
Xylene(s)	ND	0.50	ug/L	1.00	03/12/2002 20:22	
MTBE	ND	5.0	ug/L	1.00	03/12/2002 20:22	
Surrogate(s)						
Trifluorotoluene	77.6	58-124	%	1.00	03/12/2002 20:22	
4-Bromofluorobenzene-FID	91.7	50-150	%	1.00	03/12/2002 20:22	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

Test Method: 8015M 8021B

Prep Method: 5030

STL San Francisco
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Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-5**	Lab Sample ID:	2002-03-0147-002
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/12/2002 23:00
Sampled:	03/06/2002 10:10	QC-Batch:	2002/03/12-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/12/2002 23:00	
Benzene	ND	0.50	ug/L	1.00	03/12/2002 23:00	
Toluene	ND	0.50	ug/L	1.00	03/12/2002 23:00	
Ethyl benzene	ND	0.50	ug/L	1.00	03/12/2002 23:00	
Xylene(s)	ND	0.50	ug/L	1.00	03/12/2002 23:00	
MTBE	ND	5.0	ug/L	1.00	03/12/2002 23:00	
Surrogate(s)						
Trifluorotoluene	77.9	58-124	%	1.00	03/12/2002 23:00	
4-Bromofluorobenzene-FID	85.5	50-150	%	1.00	03/12/2002 23:00	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

Test Method: 8015M 8021B

Prep Method: 5030

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Pleasanton, CA 94566

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www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**FOMW-4**	Lab Sample ID:	2002-03-0147-003
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/12/2002 23:32
Sampled:	03/06/2002 11:15	QC-Batch:	2002/03/12-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/12/2002 23:32	
Benzene	ND	0.50	ug/L	1.00	03/12/2002 23:32	
Toluene	ND	0.50	ug/L	1.00	03/12/2002 23:32	
Ethyl benzene	ND	0.50	ug/L	1.00	03/12/2002 23:32	
Xylene(s)	ND	0.50	ug/L	1.00	03/12/2002 23:32	
MTBE	ND	5.0	ug/L	1.00	03/12/2002 23:32	
Surrogate(s)						
Trifluorotoluene	78.4	58-124	%	1.00	03/12/2002 23:32	
4-Bromofluorobenzene-FID	87.4	50-150	%	1.00	03/12/2002 23:32	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

Test Method: 8015M 8021B

Prep Method: 5030

STL San Francisco
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Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**DUP-1**	Lab Sample ID:	2002-03-0147-004
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/13/2002 00:03
Sampled:	03/06/2002 12:00	QC-Batch:	2002/03/12-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/13/2002 00:03	
Benzene	ND	0.50	ug/L	1.00	03/13/2002 00:03	
Toluene	ND	0.50	ug/L	1.00	03/13/2002 00:03	
Ethyl benzene	ND	0.50	ug/L	1.00	03/13/2002 00:03	
Xylene(s)	ND	0.50	ug/L	1.00	03/13/2002 00:03	
MTBE	ND	5.0	ug/L	1.00	03/13/2002 00:03	
Surrogate(s)						
Trifluorotoluene	83.9	58-124	%	1.00	03/13/2002 00:03	
4-Bromofluorobenzene-FID	96.4	50-150	%	1.00	03/13/2002 00:03	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

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1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
www.stl-inc.com
www.chromalab.com

CA DHS ELAP#1094

Test Method: 8015M
8021B

Prep Method: 5030

Sample ID:	**EB-1**	Lab Sample ID:	2002-03-0147-005
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/13/2002 14:07
Sampled:	03/06/2002 12:05	QC-Batch:	2002/03/13-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/13/2002 14:07	
Benzene	ND	0.50	ug/L	1.00	03/13/2002 14:07	
Toluene	ND	0.50	ug/L	1.00	03/13/2002 14:07	
Ethyl benzene	ND	0.50	ug/L	1.00	03/13/2002 14:07	
Xylene(s)	ND	0.50	ug/L	1.00	03/13/2002 14:07	
MTBE	ND	5.0	ug/L	1.00	03/13/2002 14:07	
Surrogate(s)						
Trifluorotoluene	86.9	58-124	%	1.00	03/13/2002 14:07	
4-Bromofluorobenzene-FID	105.3	50-150	%	1.00	03/13/2002 14:07	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Gas/BTEX Compounds by 8015M/8021

URS-Santa Ana

Attn: Scott Rowlands

Test Method: 8015M
8021B

Prep Method: 5030

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

Tel 925 484 1919
Fax 925 484 1096
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www.chromalab.com

CA DHS ELAP#1094

Sample ID:	**TB-1**	Lab Sample ID:	2002-03-0147-006
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/13/2002 14:39
Sampled:	03/06/2002	QC-Batch:	2002/03/13-01.02
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Gasoline	ND	50	ug/L	1.00	03/13/2002 14:39	
Benzene	ND	0.50	ug/L	1.00	03/13/2002 14:39	
Toluene	ND	0.50	ug/L	1.00	03/13/2002 14:39	
Ethyl benzene	ND	0.50	ug/L	1.00	03/13/2002 14:39	
Xylene(s)	ND	0.50	ug/L	1.00	03/13/2002 14:39	
MTBE	ND	5.0	ug/L	1.00	03/13/2002 14:39	
Surrogate(s)						
Trifluorotoluene	90.6	58-124	%	1.00	03/13/2002 14:39	
4-Bromofluorobenzene-FID	107.7	50-150	%	1.00	03/13/2002 14:39	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

STL San Francisco
1220 Quarry Lane
Pleasanton, CA 94566

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www.chromalab.com

CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M
8021B

Prep Method: 5030

Method Blank **Water** **QC Batch # 2002/03/12-01.02**

MB: 2002/03/12-01.02-003 Date Extracted: 03/12/2002 08:48

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/12/2002 08:48	
Benzene	ND	0.5	ug/L	03/12/2002 08:48	
Toluene	ND	0.5	ug/L	03/12/2002 08:48	
Ethyl benzene	ND	0.5	ug/L	03/12/2002 08:48	
Xylene(s)	ND	0.5	ug/L	03/12/2002 08:48	
MTBE	ND	5.0	ug/L	03/12/2002 08:48	
Surrogate(s)					
Trifluorotoluene	86.4	58-124	%	03/12/2002 08:48	
4-Bromofluorobenzene-FID	95.9	50-150	%	03/12/2002 08:48	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

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Pleasanton, CA 94566

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www.chromalab.com

CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M
8021B

Prep Method: 5030

Method Blank **Water** **QC Batch # 2002/03/13-01.02**

MB: 2002/03/13-01.02-003 Date Extracted: 03/13/2002 08:22

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Gasoline	ND	50	ug/L	03/13/2002 08:22	
Benzene	ND	0.5	ug/L	03/13/2002 08:22	
Toluene	ND	0.5	ug/L	03/13/2002 08:22	
Ethyl benzene	ND	0.5	ug/L	03/13/2002 08:22	
Xylene(s)	ND	0.5	ug/L	03/13/2002 08:22	
MTBE	ND	5.0	ug/L	03/13/2002 08:22	
Surrogate(s)					
Trifluorotoluene	97.8	58-124	%	03/13/2002 08:22	
4-Bromofluorobenzene-FID	105.2	50-150	%	03/13/2002 08:22	

Submission #: 2002-03-0147

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CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/12-01.02**

LCS: 2002/03/12-01.02-004 Extracted: 03/12/2002 09:20 Analyzed: 03/12/2002 09:20

LCSD: 2002/03/12-01.02-005 Extracted: 03/12/2002 09:52 Analyzed: 03/12/2002 09:52

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	97.1	96.3	100.0	100.0	97.1	96.3	0.8	77-123	20		
Toluene	95.2	92.8	100.0	100.0	95.2	92.8	2.6	78-122	20		
Ethyl benzene	101	101	100.0	100.0	101.0	101.0	0.0	70-130	20		
Xylene(s)	300	299	300	300	100.0	99.7	0.3	75-125	20		
Surrogate(s)											
Trifluorotoluene	446	438	500	500	89.2	87.6		58-124			

Submission #: 2002-03-0147

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CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/12-01.02**

LCS: 2002/03/12-01.02-006 Extracted: 03/12/2002 10:23 Analyzed: 03/12/2002 10:23

LCSD: 2002/03/12-01.02-007 Extracted: 03/12/2002 10:55 Analyzed: 03/12/2002 10:55

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	560	562	500	500	112.0	112.4	0.4	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	533	547	500	500	106.6	109.4		50-150			

Submission #: 2002-03-0147

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CA DHS ELAP#1094

Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8021B Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/13-01.02**

LCS: 2002/03/13-01.02-004 Extracted: 03/13/2002 08:54 Analyzed: 03/13/2002 08:54

LCSD: 2002/03/13-01.02-005 Extracted: 03/13/2002 09:26 Analyzed: 03/13/2002 09:26

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Benzene	96.6	95.0	100.0	100.0	96.6	95.0	1.7	77-123	20		
Toluene	95.5	93.9	100.0	100.0	95.5	93.9	1.7	78-122	20		
Ethyl benzene	104	102	100.0	100.0	104.0	102.0	1.9	70-130	20		
Xylene(s)	306	301	300	300	102.0	100.3	1.7	75-125	20		
Surrogate(s)											
Trifluorotoluene	480	459	500	500	96.0	91.8		58-124			

Submission #: 2002-03-0147

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Gas/BTEX Compounds by 8015M/8021

Batch QC report

Test Method: 8015M Prep Method: 5030

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/13-01.02**

LCS: 2002/03/13-01.02-006 Extracted: 03/13/2002 09:57 Analyzed: 03/13/2002 09:57

LCSD: 2002/03/13-01.02-007 Extracted: 03/13/2002 10:29 Analyzed: 03/13/2002 10:29

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Gasoline	549	545	500	500	109.8	109.0	0.7	75-125	20		
Surrogate(s)											
4-Bromofluorobenzene	554	550	500	500	110.8	110.0		50-150			

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Gas/BTEX Compounds by 8015M/8021

Batch QC Report

Test Method: 8021B Prep Method: 5030

Matrix Spike (MS / MSD) **Water** **QC Batch # 2002/03/12-01.02**

Sample ID: **FOMW-3 >> MS** Lab ID: 2002-03-0147-001

MS: 2002/03/12-01.02-025 Extracted: 03/12/2002 20:53 Analyzed: 03/12/2002 20:53
Dilution: 1

MSD: 2002/03/12-01.02-026 Extracted: 03/12/2002 21:25 Analyzed: 03/12/2002 21:25
Dilution: 1

Compound	Conc. [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Benzene	80.9	73.6	ND	100.0	100.0	80.9	73.6	9.4	65-135	20		
Toluene	77.3	70.4	ND	100.0	100.0	77.3	70.4	9.3	65-135	20		
Ethyl benzene	83.4	74.6	ND	100.0	100.0	83.4	74.6	11.1	65-135	20		
Xylene(s)	245	221	ND	300	300	81.7	73.7	10.3	65-135	20		
Surrogate(s)												
Trifluorotoluene	405	419		500	500	81.0	83.8		58-124			

Submission #: 2002-03-0147

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Gas/BTEX Compounds by 8015M/8021

Batch QC Report

Test Method: 8015M Prep Method: 5030

Matrix Spike (MS / MSD)	**Water**		**QC Batch # 2002/03/12-01.02**
Sample ID: **FOMW-3 >> MS**		Lab ID:	2002-03-0147-001
MS: 2002/03/12-01.02-027	Extracted: 03/12/2002 21:56	Analyzed:	03/12/2002 21:56
		Dilution:	1
MSD: 2002/03/12-01.02-028	Extracted: 03/12/2002 22:28	Analyzed:	03/12/2002 22:28
		Dilution:	1

Compound	Conc. [ug/L]			Exp.Conc. [ug/L]		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Gasoline	493	495	ND	500	500	98.6	99.0	0.4	65-135	20		
Surrogate(s)												
4-Bromofluoroben	485	488		500	500	97.0	97.6		50-150			

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

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CA DHS ELAP#1094

URS-Santa Ana	✉ 2020 East 1st St Suite 400 Santa Ana, CA 92705
Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
22-00000139.02	Project: Sears - Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-3	Water	03/06/2002 08:30	1
FOMW-5	Water	03/06/2002 10:10	2
FOMW-4	Water	03/06/2002 11:15	3
DUP-1	Water	03/06/2002 12:00	4

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**FOMW-3**	Lab Sample ID:	2002-03-0147-001
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/08/2002 09:39
Sampled:	03/06/2002 08:30	QC-Batch:	2002/03/08-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	53	50	ug/L	1.00	03/08/2002 21:13	ndp
Motor Oil	ND	500	ug/L	1.00	03/08/2002 21:13	
Surrogate(s)						
o-Terphenyl	82.8	60-130	%	1.00	03/08/2002 21:13	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**FOMW-5**	Lab Sample ID:	2002-03-0147-002
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/08/2002 09:39
Sampled:	03/06/2002 10:10	QC-Batch:	2002/03/08-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/08/2002 20:34	
Motor Oil	ND	500	ug/L	1.00	03/08/2002 20:34	
Surrogate(s)						
o-Terphenyl	79.8	60-130	%	1.00	03/08/2002 20:34	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**FOMW-4**	Lab Sample ID:	2002-03-0147-003
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/08/2002 09:39
Sampled:	03/06/2002 11:15	QC-Batch:	2002/03/08-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	ND	50	ug/L	1.00	03/11/2002 06:27	
Motor Oil	ND	500	ug/L	1.00	03/11/2002 06:27	
Surrogate(s)						
o-Terphenyl	88.9	60-130	%	1.00	03/11/2002 06:27	

Submission #: 2002-03-0147

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Total Extractable Petroleum Hydrocarbons (TEPH)

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 8015M
Prep Method: 3510/8015M

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CA DHS ELAP#1094

Sample ID:	**DUP-1**	Lab Sample ID:	2002-03-0147-004
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/08/2002 09:39
Sampled:	03/06/2002 12:00	QC-Batch:	2002/03/08-02.10
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Diesel	52	50	ug/L	1.00	03/08/2002 19:54	ndp
Motor Oil	ND	500	ug/L	1.00	03/08/2002 19:54	
Surrogate(s)						
o-Terphenyl	83.2	60-130	%	1.00	03/08/2002 19:54	

Submission #: 2002-03-0147

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CA DHS ELAP#1094

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M

Prep Method: 3510/8015 M

Method Blank **Water** **QC Batch # 2002/03/08-02.10**

MB: 2002/03/08-02.10-001

Date Extracted: 03/08/2002 09:39

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Diesel	ND	50	ug/L	03/11/2002 06:22	
Motor Oil	ND	500	ug/L	03/11/2002 06:22	
Surrogate(s)					
o-Terphenyl	96.9	60-130	%	03/11/2002 06:22	

Submission #: 2002-03-0147

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CA DHS ELAP#1094

Total Extractable Petroleum Hydrocarbons (TEPH)

Batch QC report

Test Method: 8015M Prep Method: 3510/8015M

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/08-02.10**

LCS: 2002/03/08-02.10-002 Extracted: 03/08/2002 09:39 Analyzed: 03/11/2002 23:04

LCSD: 2002/03/08-02.10-003 Extracted: 03/08/2002 09:39 Analyzed: 03/11/2002 23:41

Compound	Conc. [ug/L]		Exp.Conc. [ug/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Diesel	1070	1070	1250	1250	85.6	85.6	0.0	60-130	25		
Surrogate(s)											
o-Terphenyl	20.8	19.1	20.0	20.0	104.2	95.7		60-130	0		

Submission #: 2002-03-0147

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Total Extractable Petroleum Hydrocarbons (TEPH)

Legend & Notes

Test Method: 8015M Prep Method: 3510/8015M

Analyte Flags

ndp

Hydrocarbon reported does not match the pattern of our Diesel standard

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Misc Anions by Ion Chromatograph

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CA DHS ELAP#1094

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Attn: Scott Rowlands	Phone: (714) 648-2793 Fax: (714) 667-7147
22-00000139.02	Project: Sears - Oakland

Samples Reported

Sample ID	Matrix	Date Sampled	Lab #
FOMW-3	Water	03/06/2002 08:30	1
FOMW-5	Water	03/06/2002 10:10	2
FOMW-4	Water	03/06/2002 11:15	3
DUP-1	Water	03/06/2002 12:00	4

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Misc Anions by Ion Chromatograph

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 9056
Prep Method: 9056

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CA DHS ELAP#1094

Sample ID:	**FOMW-3**	Lab Sample ID:	2002-03-0147-001
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/07/2002
Sampled:	03/06/2002 08:30	QC-Batch:	2002/03/07-02.41
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Nitrate	6.8	1.0	mg/L	1.00	03/07/2002	
Sulfate	84	2.0	mg/L	2.00	03/08/2002	

Submission #: 2002-03-0147

SEVERN TRENT SERVICES

Misc Anions by Ion Chromatograph

URS-Santa Ana
Attn: Scott Rowlands

Test Method: 9056
Prep Method: 9056

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CA DHS ELAP#1094

Sample ID:	**FOMW-5**	Lab Sample ID:	2002-03-0147-002
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/07/2002
Sampled:	03/06/2002 10:10	QC-Batch:	2002/03/07-02.41
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Nitrate	15	1.0	mg/L	1.00	03/07/2002	
Sulfate	41	1.0	mg/L	1.00	03/07/2002	

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Misc Anions by Ion Chromatograph

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Test Method: 9056
Prep Method: 9056

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CA DHS ELAP#1094

Sample ID:	**FOMW-4**	Lab Sample ID:	2002-03-0147-003
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/07/2002
Sampled:	03/06/2002 11:15	QC-Batch:	2002/03/07-02.41
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Nitrate	9.7	1.0	mg/L	1.00	03/07/2002	
Sulfate	53	2.0	mg/L	2.00	03/08/2002	

Submission #: 2002-03-0147

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Misc Anions by Ion Chromatograph

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Test Method: 9056
Prep Method: 9056

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CA DHS ELAP#1094

Sample ID:	**DUP-1**	Lab Sample ID:	2002-03-0147-004
Project:	22-00000139.02 Sears - Oakland	Received:	03/06/2002 17:53
		Extracted:	03/07/2002
Sampled:	03/06/2002 12:00	QC-Batch:	2002/03/07-02.41
Matrix:	Water		

Compound	Result	Rep.Limit	Units	Dilution	Analyzed	Flag
Nitrate	9.7	1.0	mg/L	1.00	03/07/2002	
Sulfate	53	2.0	mg/L	2.00	03/08/2002	

Submission #: 2002-03-0147

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Misc Anions by Ion Chromatograph

Batch QC report

Test Method: 9056 Prep Method: 9056

Method Blank **Water** **QC Batch # 2002/03/07-02.41**
MB: 2002/03/07-02.41-001 Date Extracted: 03/07/2002

Compound	Result	Rep.Limit	Unit	Analyzed	Flag
Nitrate	ND	1.0	mg/L	03/07/2002	
Sulfate	ND	1.0	mg/L	03/07/2002	

Submission #: 2002-03-0147

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Misc Anions by Ion Chromatograph

Batch QC report

Test Method: 9056 Prep Method: 9056

Laboratory Control Spike (LCS/LCSD) **Water** **QC Batch # 2002/03/07-02.41**

LCS: 2002/03/07-02.41-002 Extracted: 03/07/2002 Analyzed: 03/07/2002

LCSD: 2002/03/07-02.41-003 Extracted: 03/07/2002 Analyzed: 03/07/2002

Compound	Conc. [mg/L]		Exp.Conc. [mg/L]		Recovery		RPD	Ctrl.Limits [%]		Flags	
	LCS	LCSD	LCS	LCSD	LCS	LCSD	[%]	Recover	RPD	LCS	LCSD
Nitrate	21.2	21.6	20.0	20.0	106.0	108.0	1.9	80-120	20		
Sulfate	20.7	20.7	20.0	20.0	103.5	103.5	0.0	80-120	20		

Submission #: 2002-03-0147

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Misc Anions by Ion Chromatograph

Batch QC Report

Test Method: 9056 Prep Method: 9056

Matrix Spike (MS / MSD)	**Water**	**QC Batch # 2002/03/07-02.41**
Sample ID: **56PZ-2 >> MS**		Lab ID: 2002-03-0148-007
MS: 2002/03/07-02.41-004	Extracted: 03/07/2002	Analyzed: 03/07/2002
		Dilution: 1
MSD: 2002/03/07-02.41-005	Extracted: 03/07/2002	Analyzed: 03/07/2002
		Dilution: 1

Compound	Conc. [mg/L]			Exp.Conc. [mg/L]		Recovery [%]		RPD	Ctrl.Limits [%]		Flags	
	MS	MSD	Sample	MS	MSD	MS	MSD	[%]	Recovery	RPD	MS	MSD
Nitrate	71.0	71.0	27.5	40.00	40.00	108.	108.8	0.0	80-120	20		
Sulfate	152	151	102	40.00	40.00	125.	122.5	2.0	80-120	20	msl	msl

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Misc Anions by Ion Chromatograph

Legend & Notes

Test Method: 9056 Prep Method: 9056

QC Compound Flags

msl

Analyte MS/MSD recoveries were out of QC limits due to Parent sample target analyte concentration exceeding the spiked amount by greater than 4X.

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BIOTECHNOLOGY
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STL San Francisco
Project name: Sears-Oakland
Project Manager: Afsaneh Salimpour
Project Number: 65102
Address: 1220 Quarry Lane
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Email: asalimpour@chromalab.com

Reporting date: March 22, 2002
CytoCulture lab login: 02-08D
CL Submission #:

Tel: 925-484-1919 ext.: 107
Fax: 925-484-1096

Samples: Four water samples on ice were received 3/7/02. They were assayed the following business day and stored at 4°C. See attached chain of custody form.

Aerobic Hydrocarbon-Degrading and Total Heterotrophic Bacteria Enumeration Assays

Analysis Request: Bacteria enumeration for aerobic petroleum hydrocarbon-degraders (broad range petroleum derived form gasoline and diesel) and total heterotrophic plate counts plate counts by method 9215A (HPC)/ Standard Methods 9215B modified.

Carbon Source: Pasteurized Chevron gasoline No.2 and diesel were dissolved into agar plates as the sole carbon and energy source for the growth of hydrocarbon-degrading aerobic bacteria.

Protocol for Hydrocarbon Degraders: Sterile agar plates (100x 15 mm) were prepared with minimal salts medium at pH 6.8 with agar and hydrocarbons, without any other carbon sources or nutrients added. Triplicate plates were inoculated with 1.0 ml of each sample and then log dilutions of each sample: 10^{0}, 10^{-1}, 10^{-2} and 10^{-3}. Hydrocarbon plates were poured and counted after 13 days incubation at 30 degrees Celsius. The plate count data is reported as colony forming units (cfu) per milliliter (ml). Each bacteria population value represents a statistical average of the plate count data obtained with inoculations for two of the four log dilutions tested.

CytoCulture is available on a consulting basis to assist in the interpretation of this data and their application to field bioremediation protocols.

Jill Heshmati
Laboratory Technician

Randall von Wedel, Ph.D.
Principal Biochemist

C:\cytolab\lab reports\STL-SFO 02-08DWater

CHROMALAB, INC.

Environmental Services (SDB) (DOHS 1094)

Lab: Cytoculture

1220 Quarry Lane • Pleasanton, California 94566-4756
510/484-1919 • Facsimile 510/484-1096

02-08 Sub-Contract

Chain of Custody

DATE 3/7/02 PAGE 1 OF 1

PROJ MGR Afsaneh Salimpour
COMPANY STL-SF
ADDRESS
SAMPLERS (SIGNATURE) (PHONE NO.) (FAX NO.)

SAMPLE ID.	DATE	TIME	MATRIX	PRESERV.	H. DEGRADERS (ASTM G-22)	HPC (SM 9215A)	NUMBER OF CONTAINERS
FOMW-3	3/6/02	0830	H2O	—	X	X	1
FOMW-5	↓	1010	↓	—	X	X	1
FOMW-4		1115		—	X	X	1
DUP-1		1200		—	X	X	1

ANALYSIS REPORT

PROJECT INFORMATION

PROJECT NAME
PROJECT NUMBER 65102
P.O. #

SAMPLE RECEIPT

TOTAL NO OF CONTAINERS	4
HEAD SPACE	
RECD GOOD CONDITION/COLD	
CONFORMS TO RECORD	

TAT	STANDARD 5-DAY			24	48	72	OTHER

SPECIAL INSTRUCTIONS/COMMENTS.
Standard TAT

RELINQUISHED BY 1
(SIGNATURE) Denise Harrington (TIME)
(PRINTED NAME) D. Harrington (DATE)
(COMPANY) STL-SF 3/6/02

RECEIVED BY 1
(SIGNATURE) 12x (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 2
(SIGNATURE) (TIME) 8:50
(PRINTED NAME) (DATE) 3-7-02
(COMPANY)

RECEIVED BY 2
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RELINQUISHED BY 3
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(COMPANY)

RECEIVED BY (LABORATORY) 3
(SIGNATURE) (TIME)
(PRINTED NAME) (DATE)
(LAB) Cytoculture

65102

URS Greiner Woodward-Clyde

SHIPMENT NO.: _____

CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

PROJECT NAME: SEARS - OAKLAND

DATE 3/6/02

PROJECT NO.: 22-00000159.02 2002-03-0147

Sample Number	Location	Type of Sample: Material	Type of Sample: Method	Type of Container	Type of Preservation: Temp	Type of Preservation: Chemical	Analysis Required*
FOMW-3	OAKLAND	GW	PURGE	3-40mL VOA, 1-500mL PLASTIC, 3-1 LAMBER	ICED	HCl, NONE	(2)
FOMW-5	↓	↓	↓	↓	↓	↓	(2)
FOMW-4							(2)
DUP-1		↓	↓	↓		↓	(2)
EB-1	↓	H_2O	RINSE	3-40 mL VOA		HCl	(1)
TB-1	LAB	H_2O	LAB	3-40 mL VOA	↓	HCl	(1)
		END OF RECORD					

Total Number of Samples Shipped: 6 | Sampler's Signature:

Relinquished By: Signature / Printed Name: STAN GOUSKI / Company: URS / Reason: ANALYSIS	Received By: Signature / Printed Name / Company: STL-SF	Date: 3/6/02 / Time: 1605
Relinquished By: Signature / Printed Name / Company: STL-SF / Reason:	Received By: Signature: Denise Harrington / Printed Name: D. Harrington / Company: STL-SF	Date: 3/6/02 / Time: 1753
Relinquished By: Signature / Printed Name / Company / Reason	Received By: Signature / Printed Name / Company	Date: / / / Time
Relinquished By: Signature / Printed Name / Company / Reason	Received By: Signature / Printed Name / Company	Date: / / / Time

Special Shipment / Handling / Storage Requirements:

(1) BTEX & MTBE (8020B w/ 8260B CONFIRMATION)

(2) BTEX & MTBE (8020B w/ 8260B CONFIRMATION), TPH-g (8015M), TPH-d (8015M), TPH-O (8015M), NITRATE & SULFATE (9056), ALKALINITY (310.1), H. DEGRADERS (ASTM G-22), HPC (SM9215A)

4.4°C

* Note – This does not constitute authorization to proceed with analysis

APPENDIX L
SOIL CORE PHOTOGRAPHS

PTS Laboratories

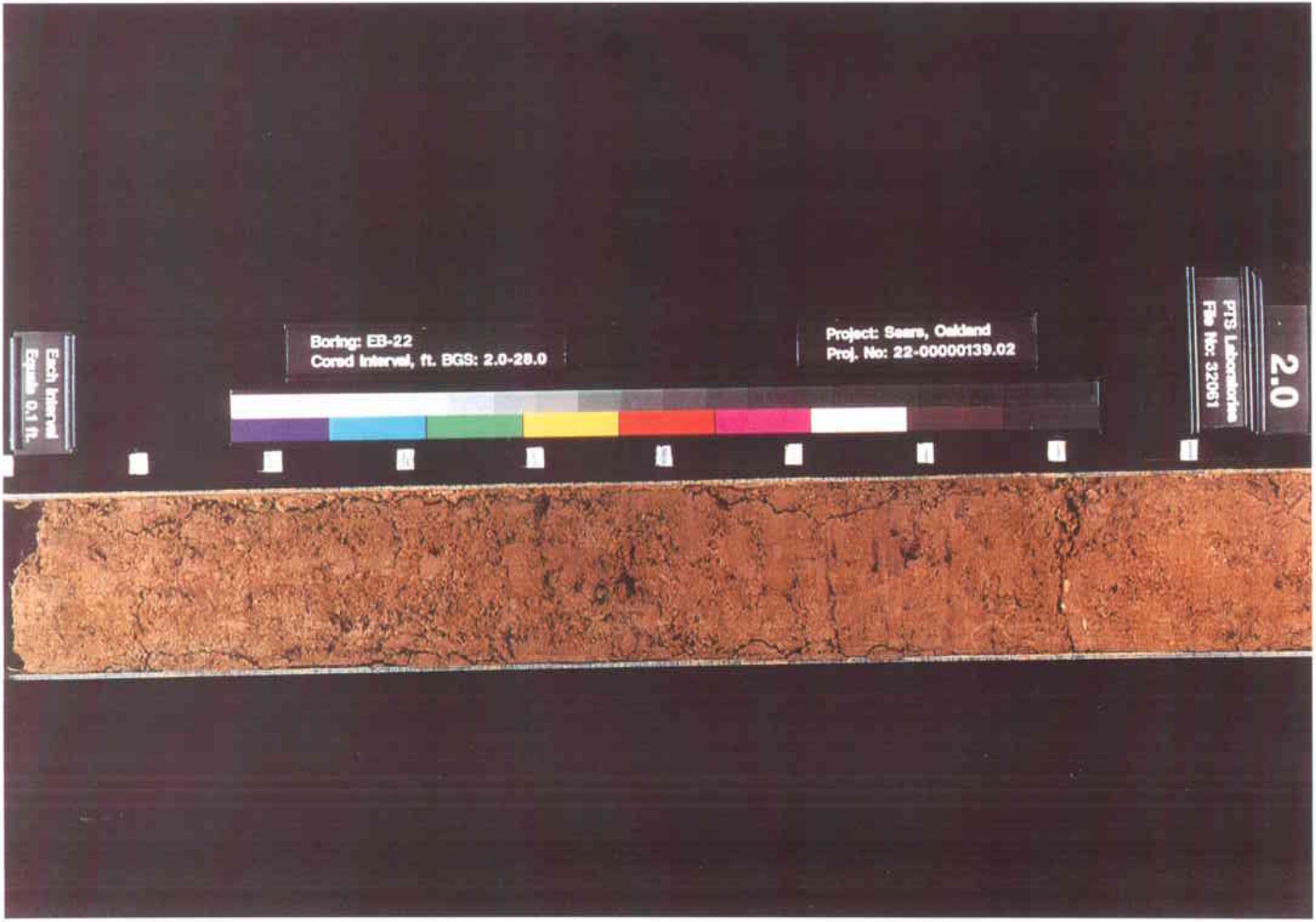
Geotechnical Services

8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

Core Photography – White Light

Site: Sears; Oakland, CA

Boring: EB-22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Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
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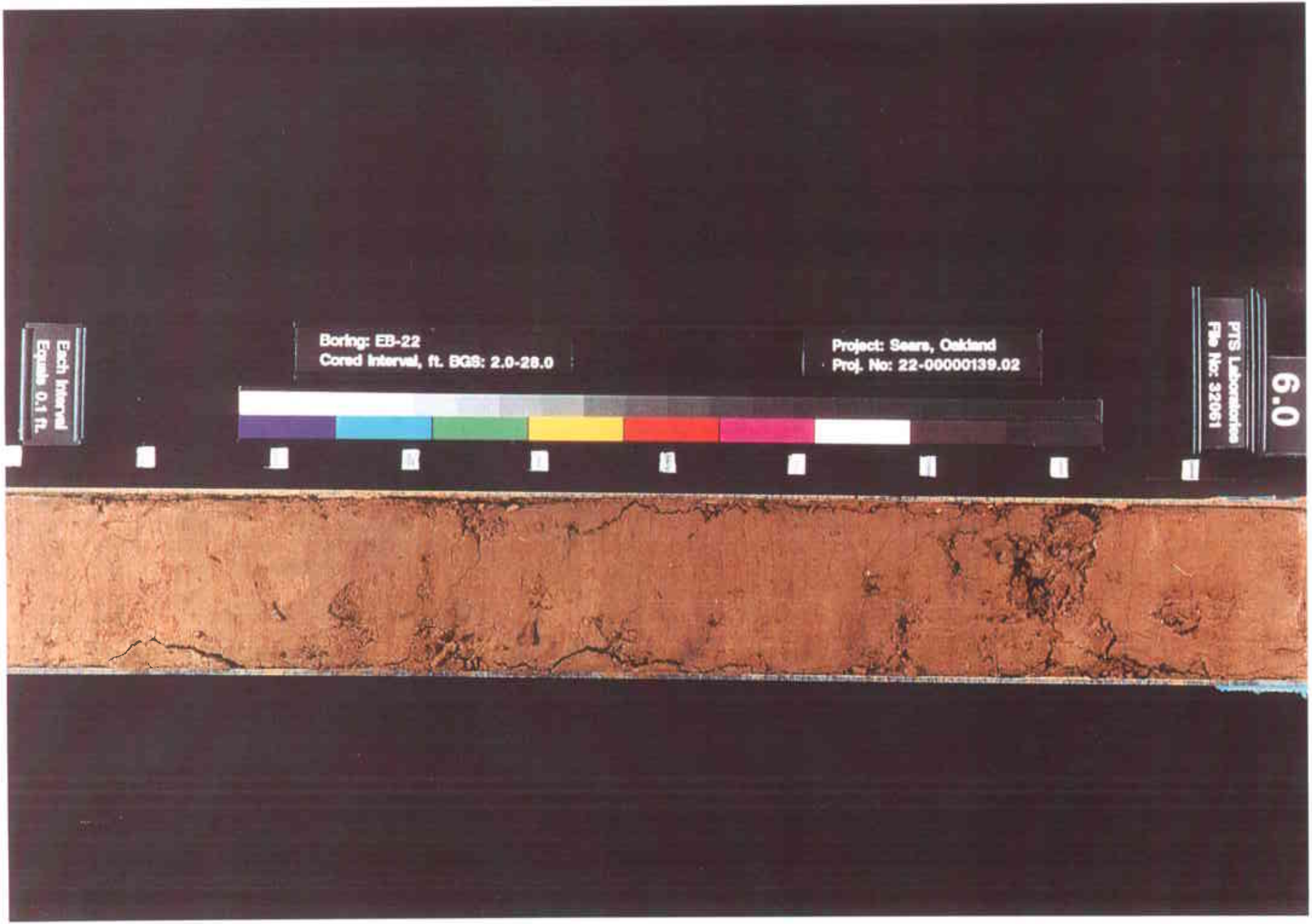
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PTS Laboratories
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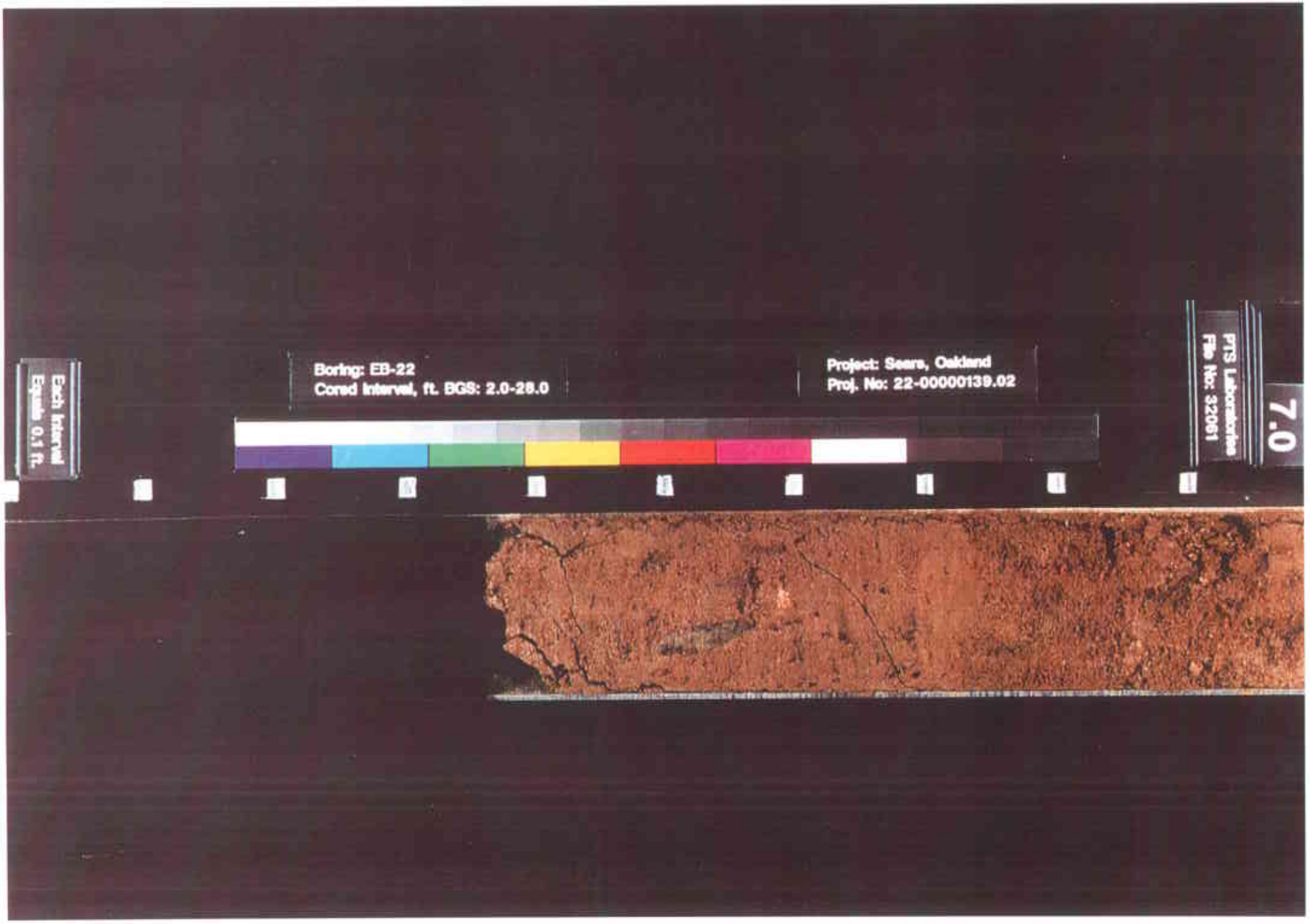
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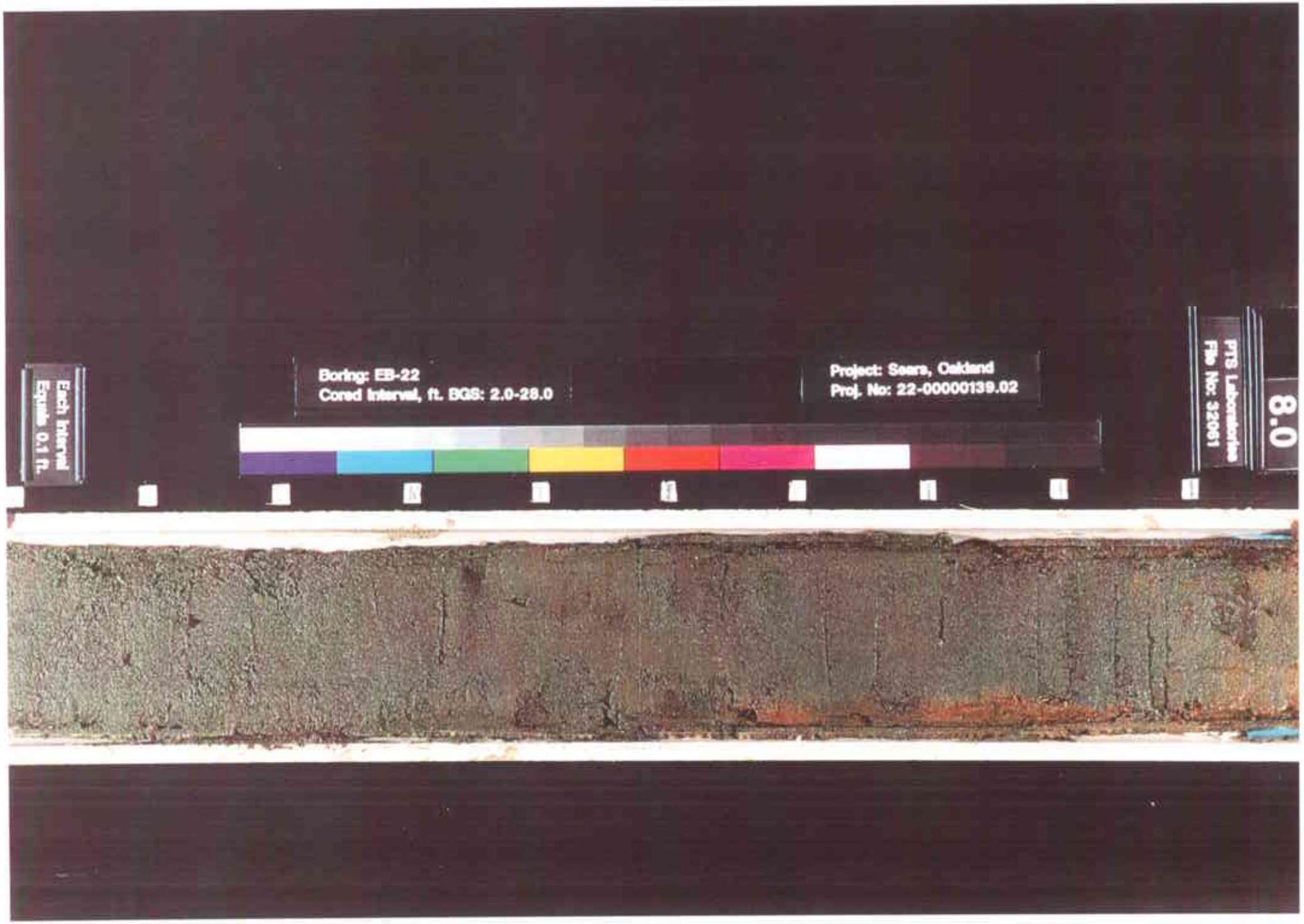
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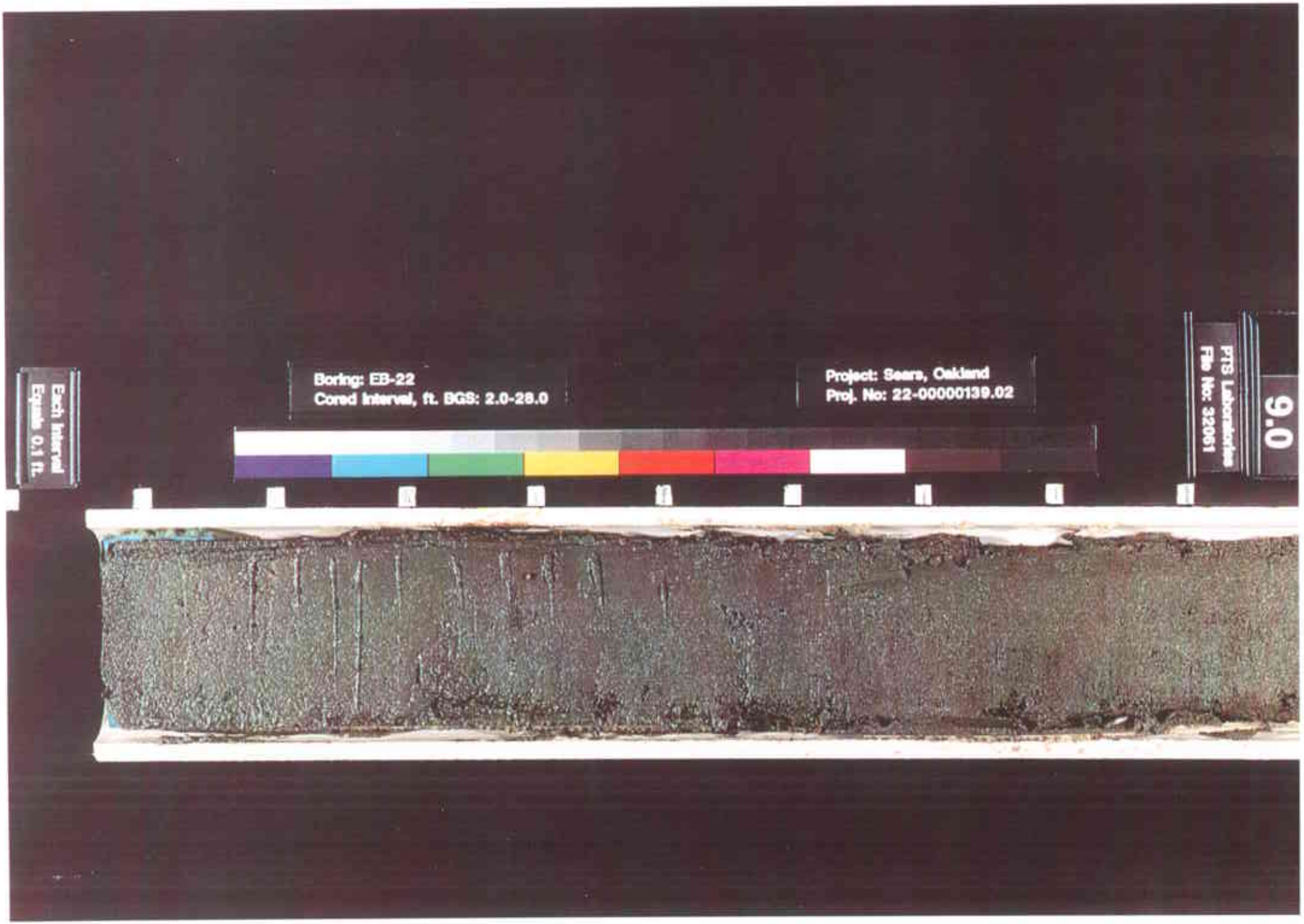
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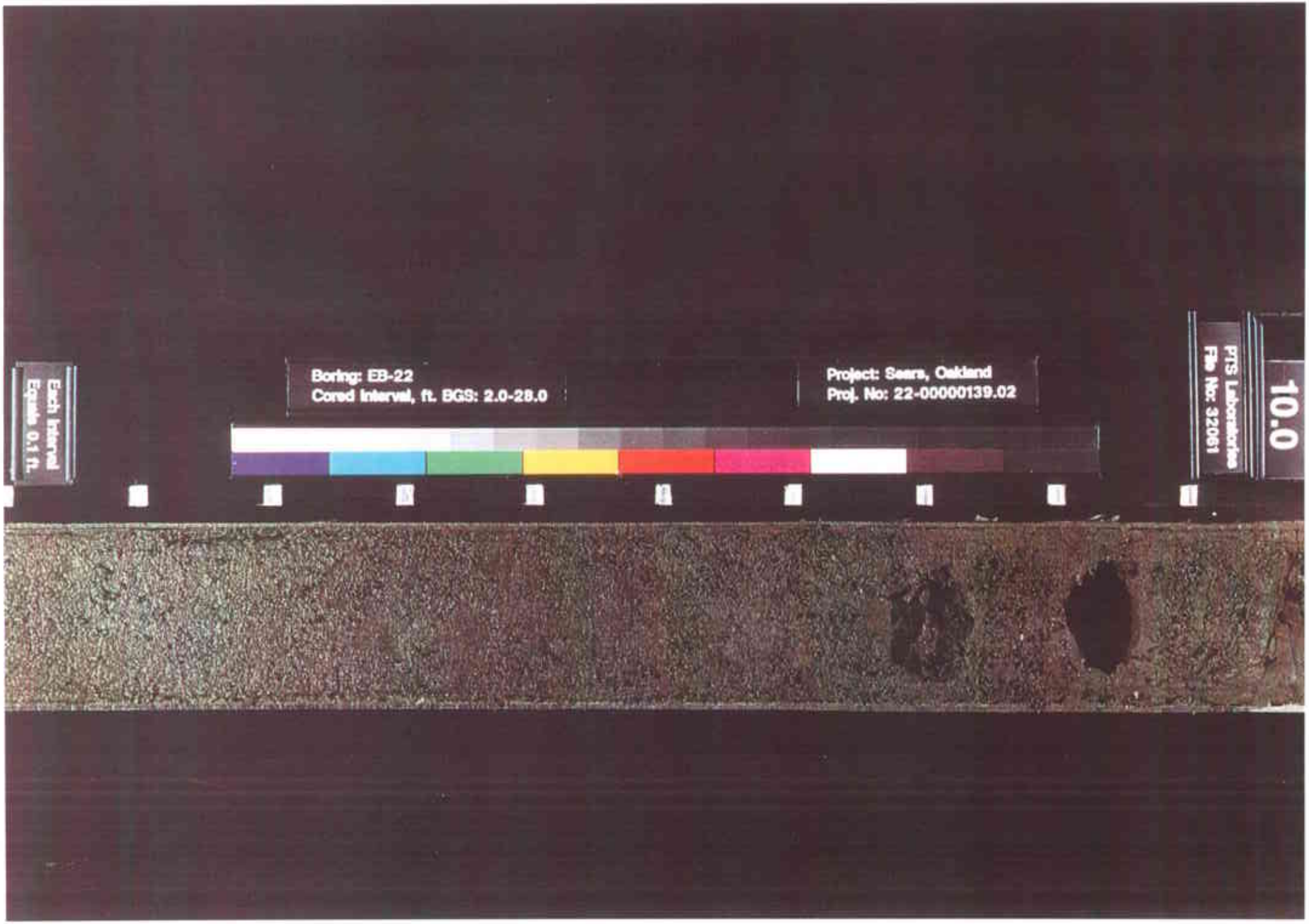
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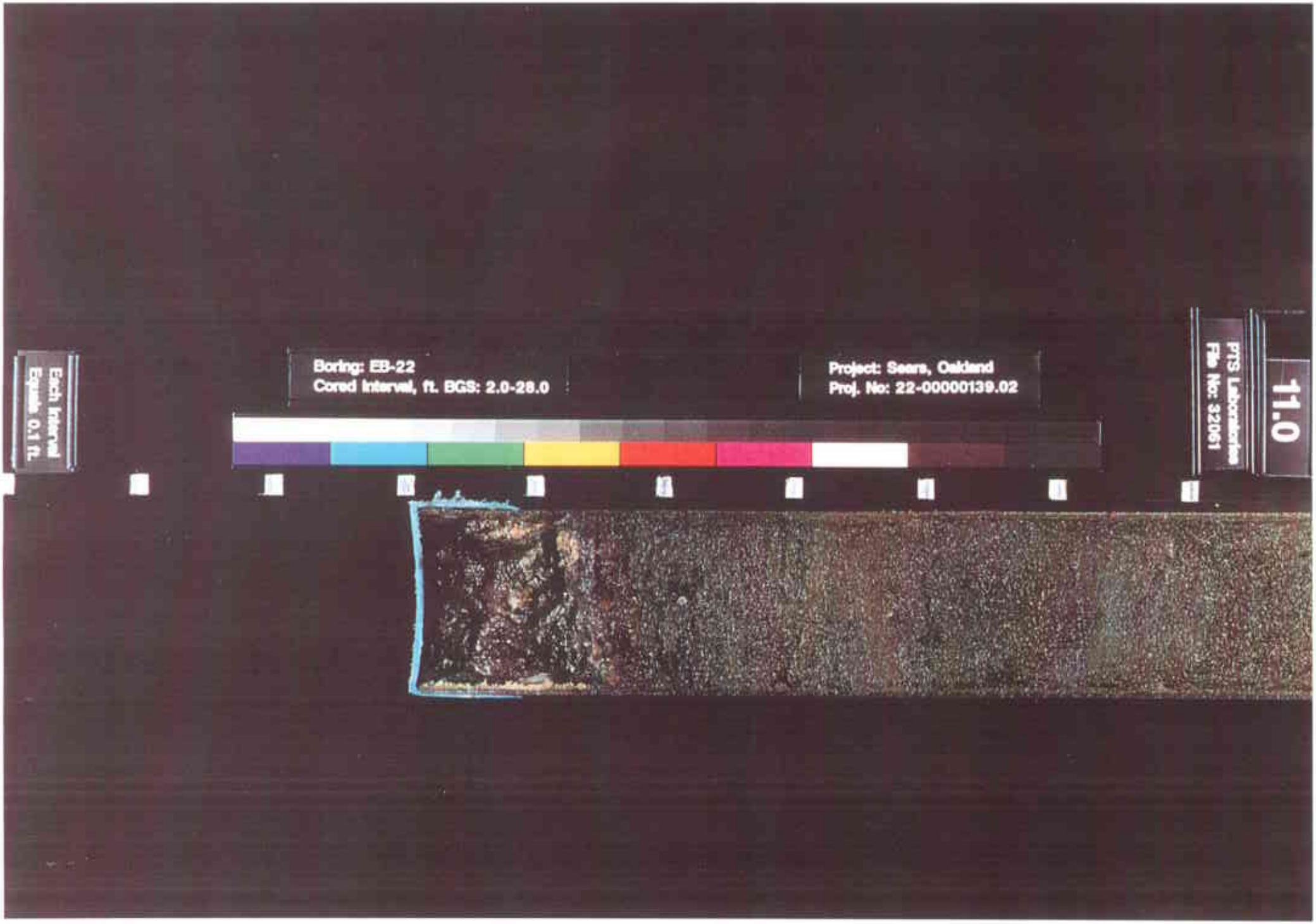
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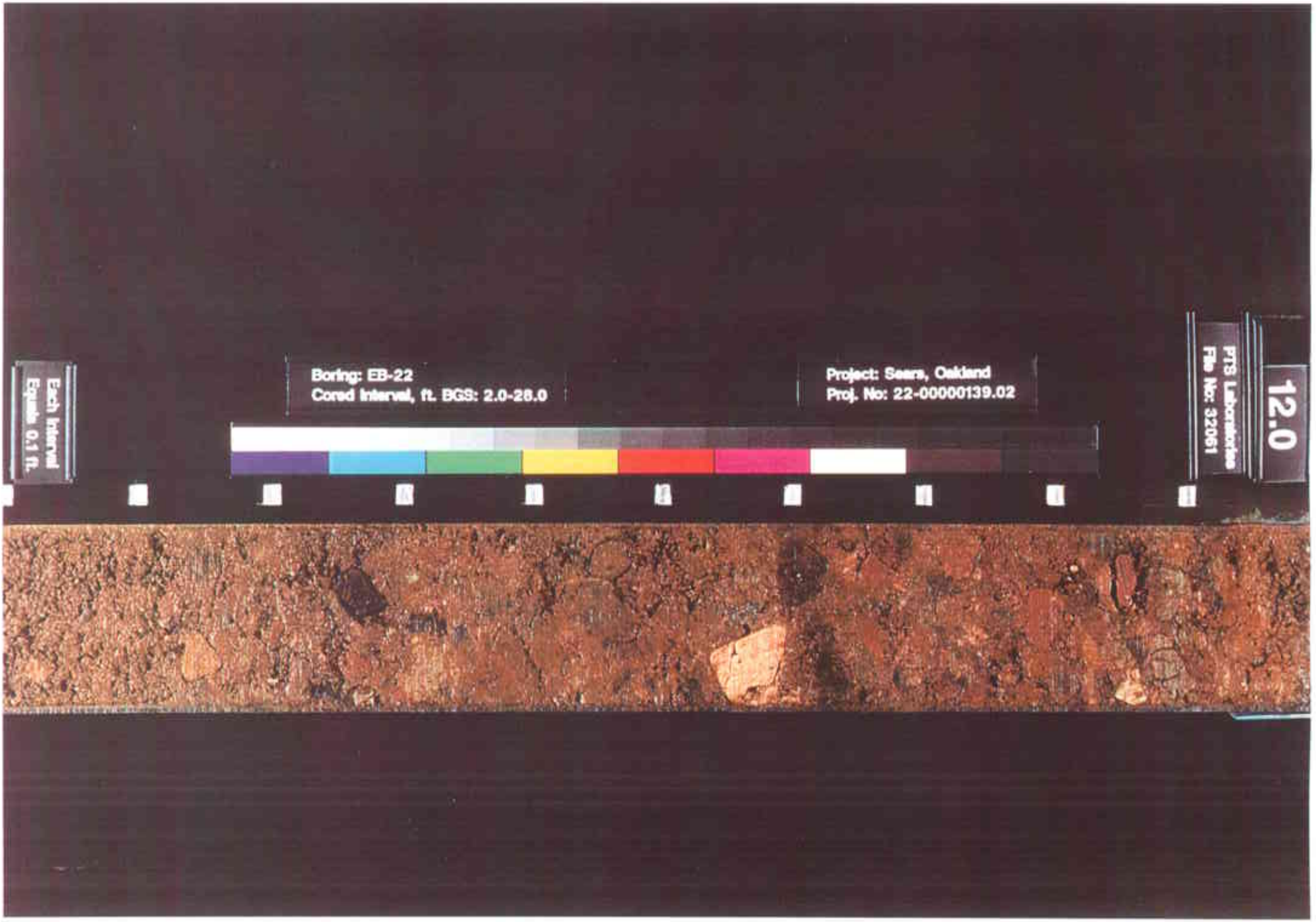
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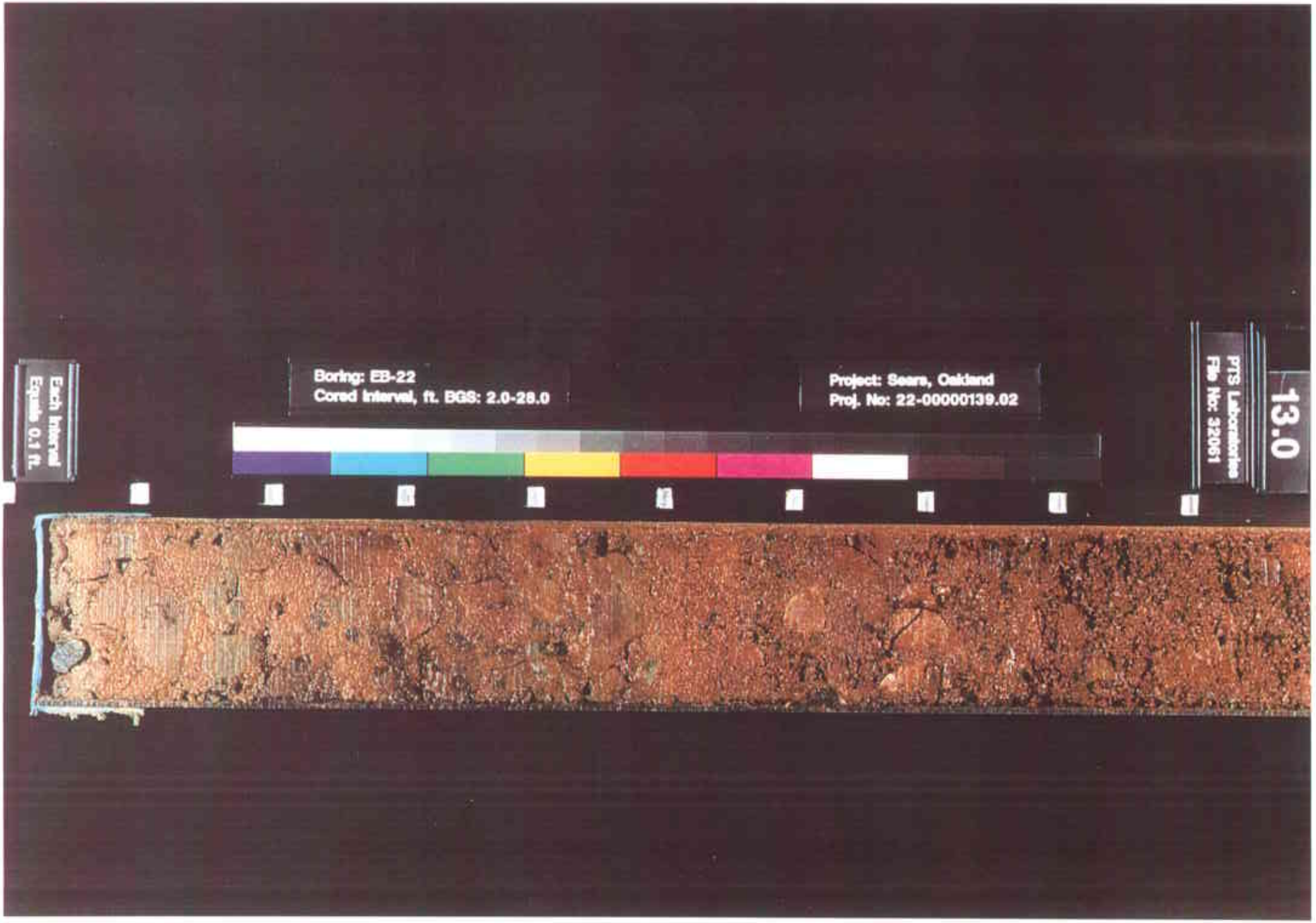
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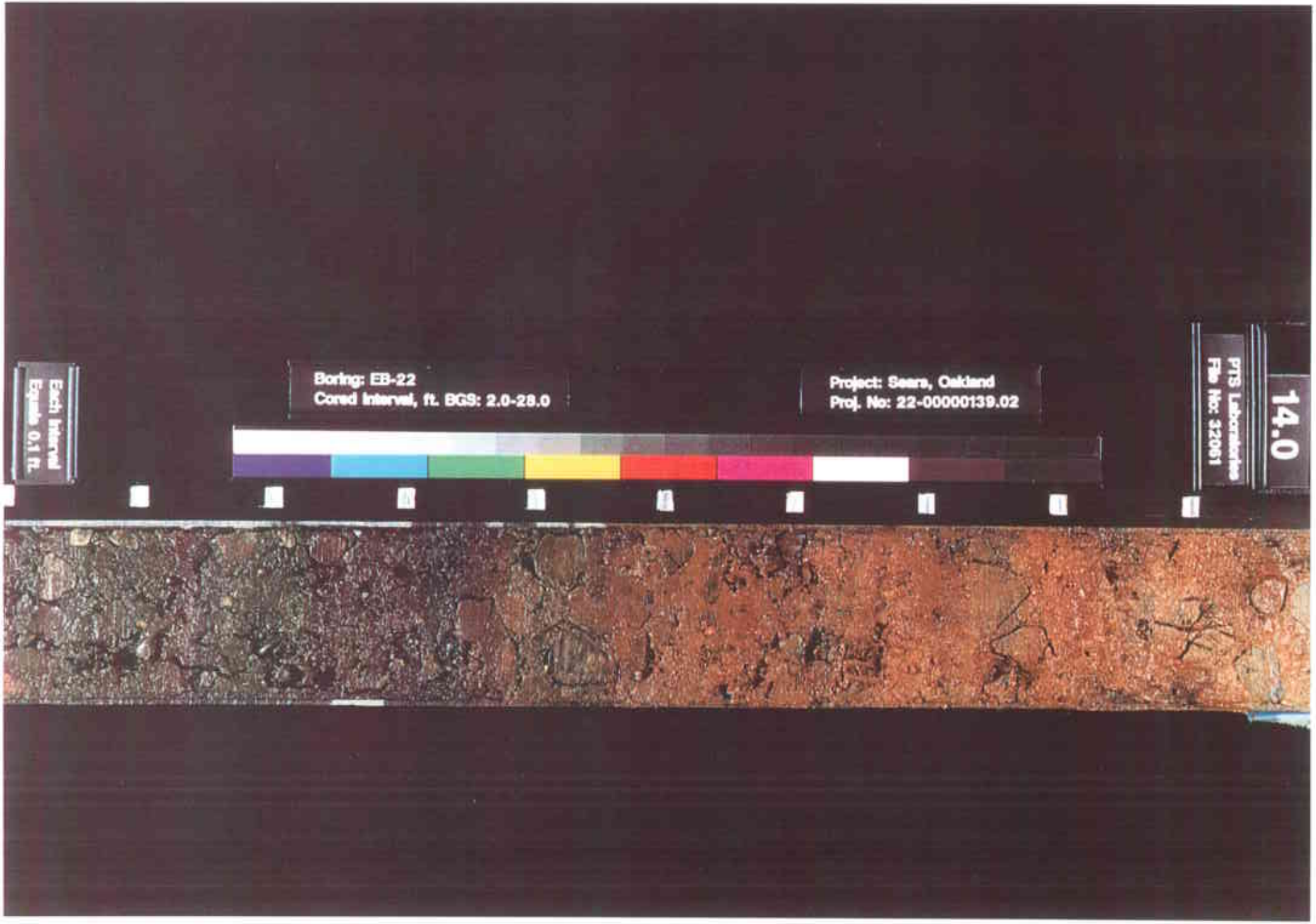
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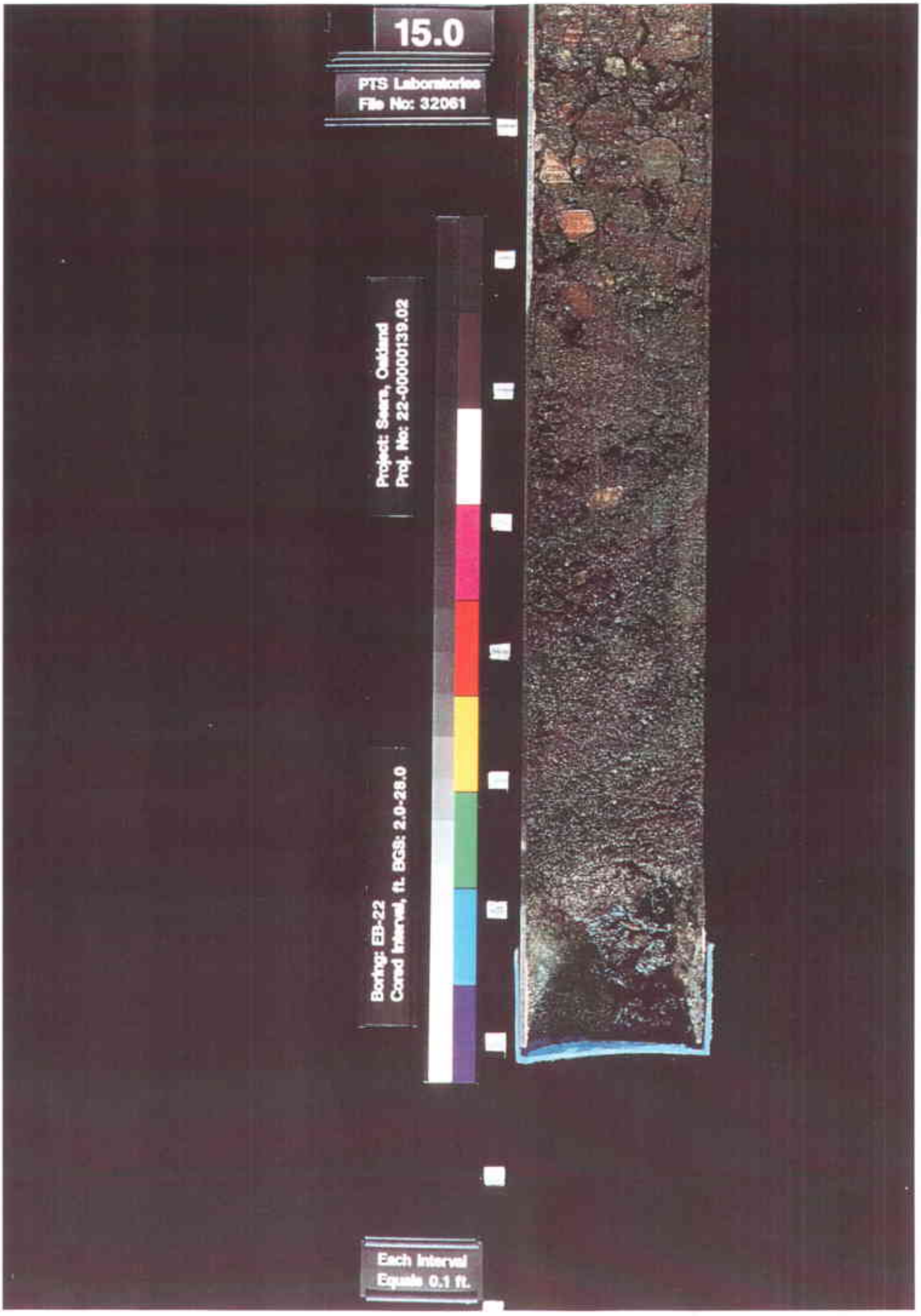
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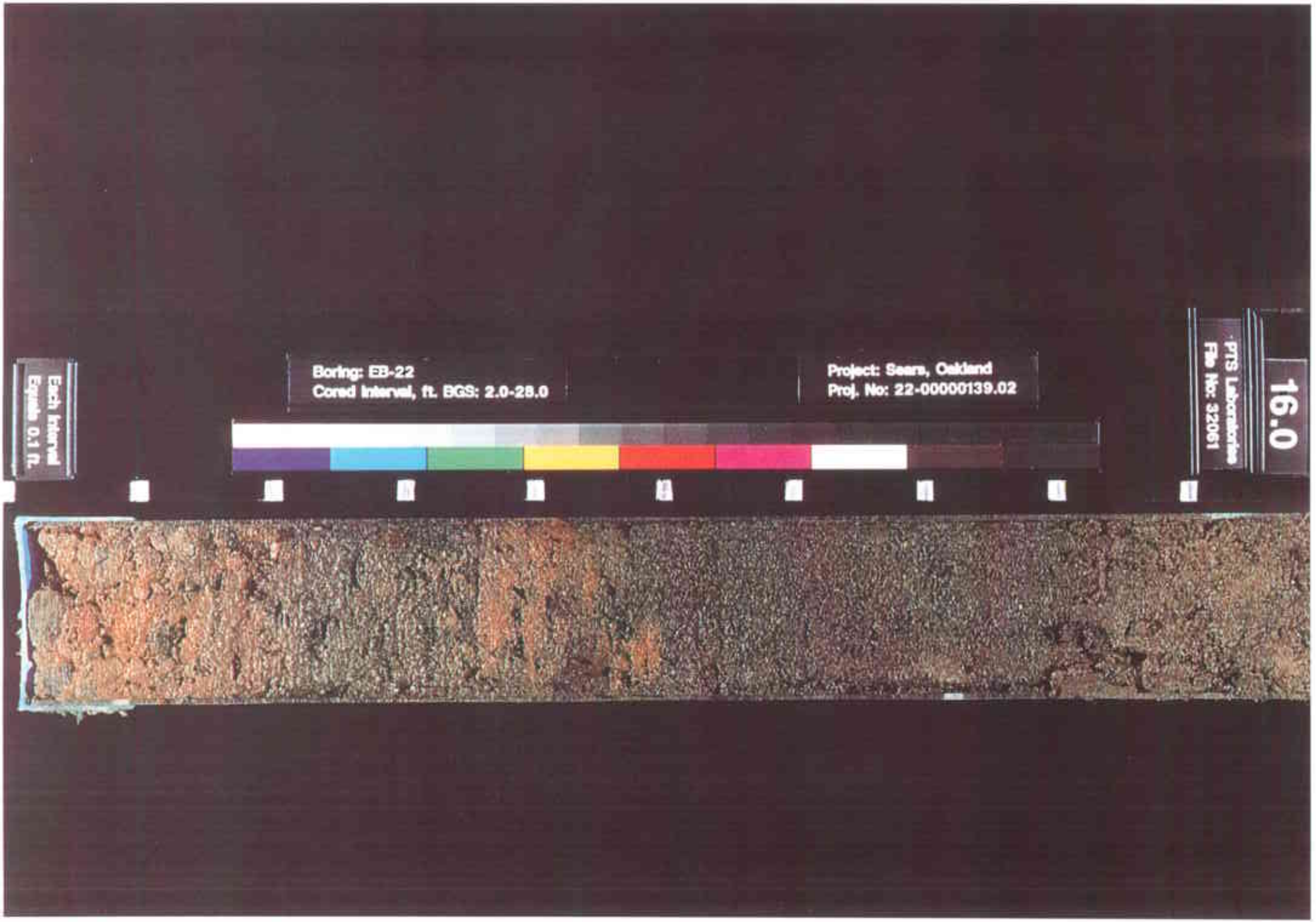
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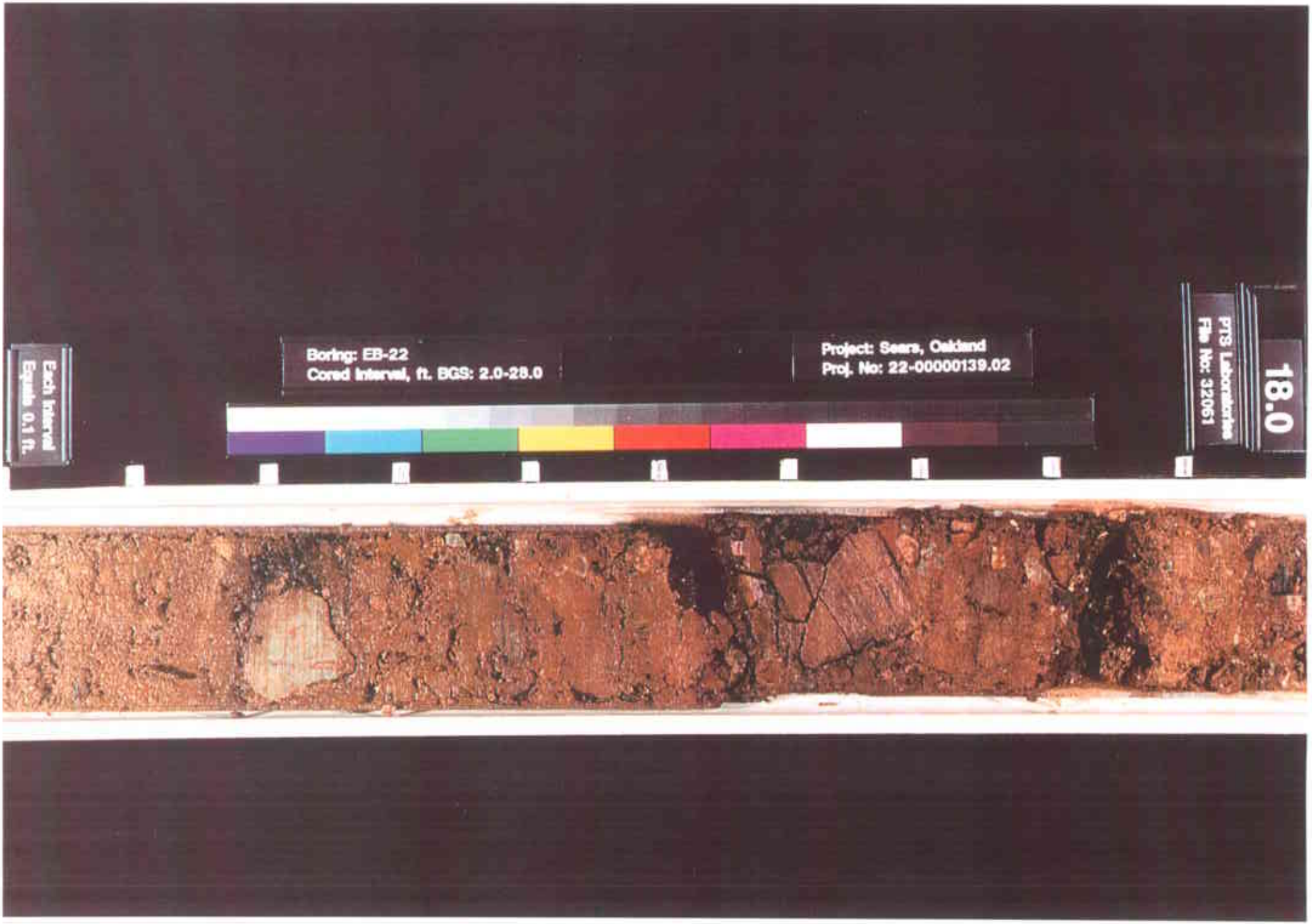
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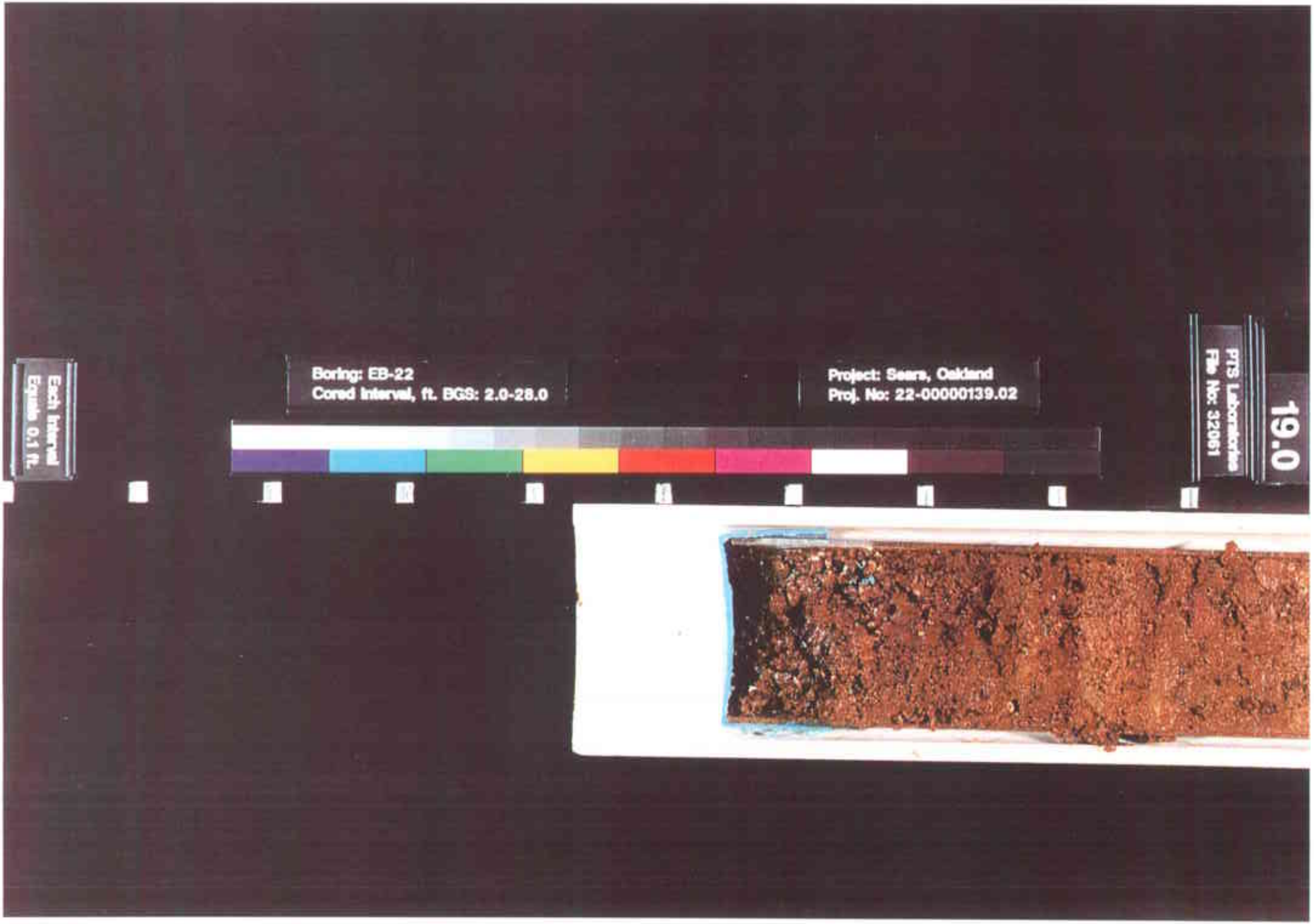
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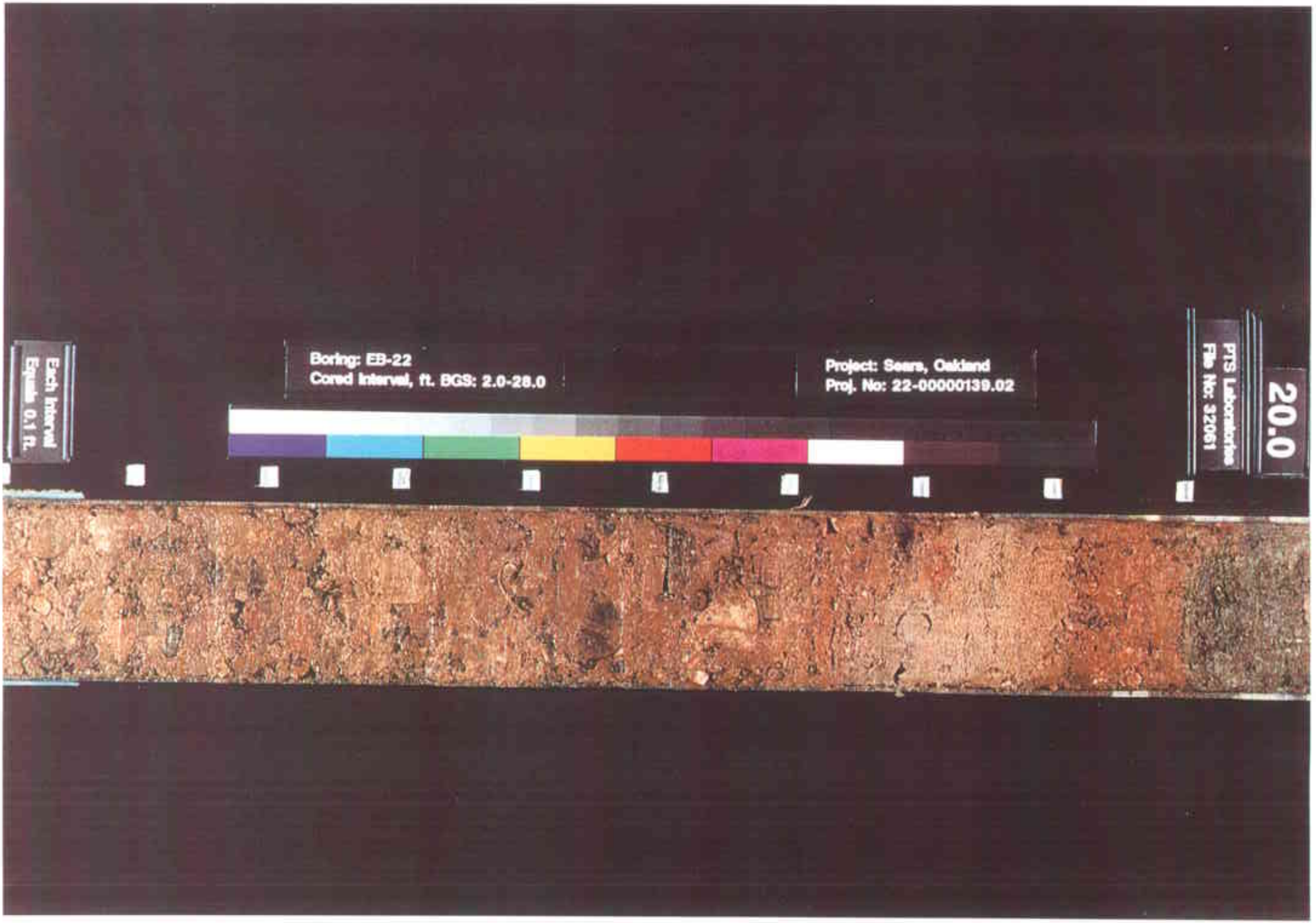
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PTS Laboratories
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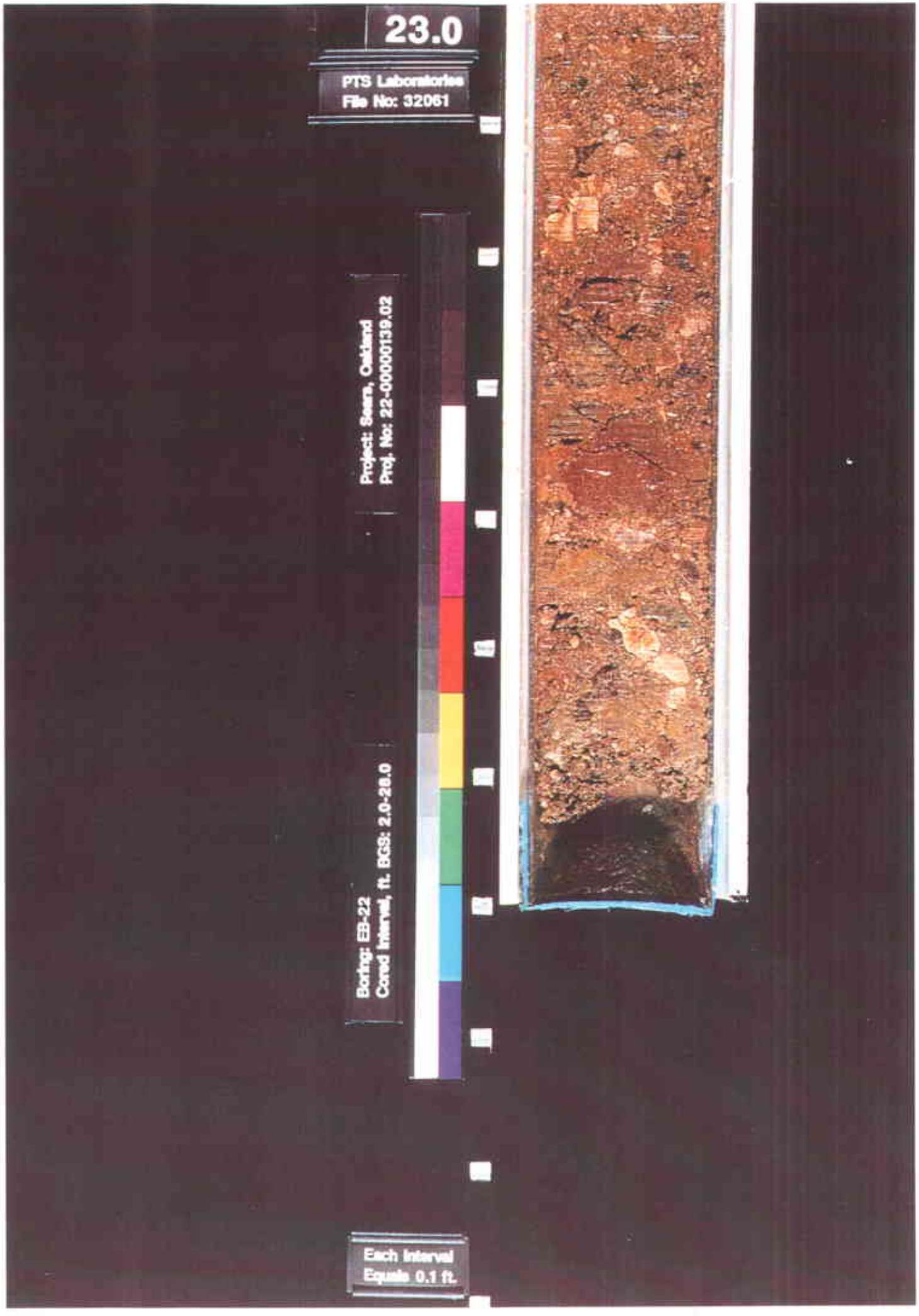
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PTS Laboratories
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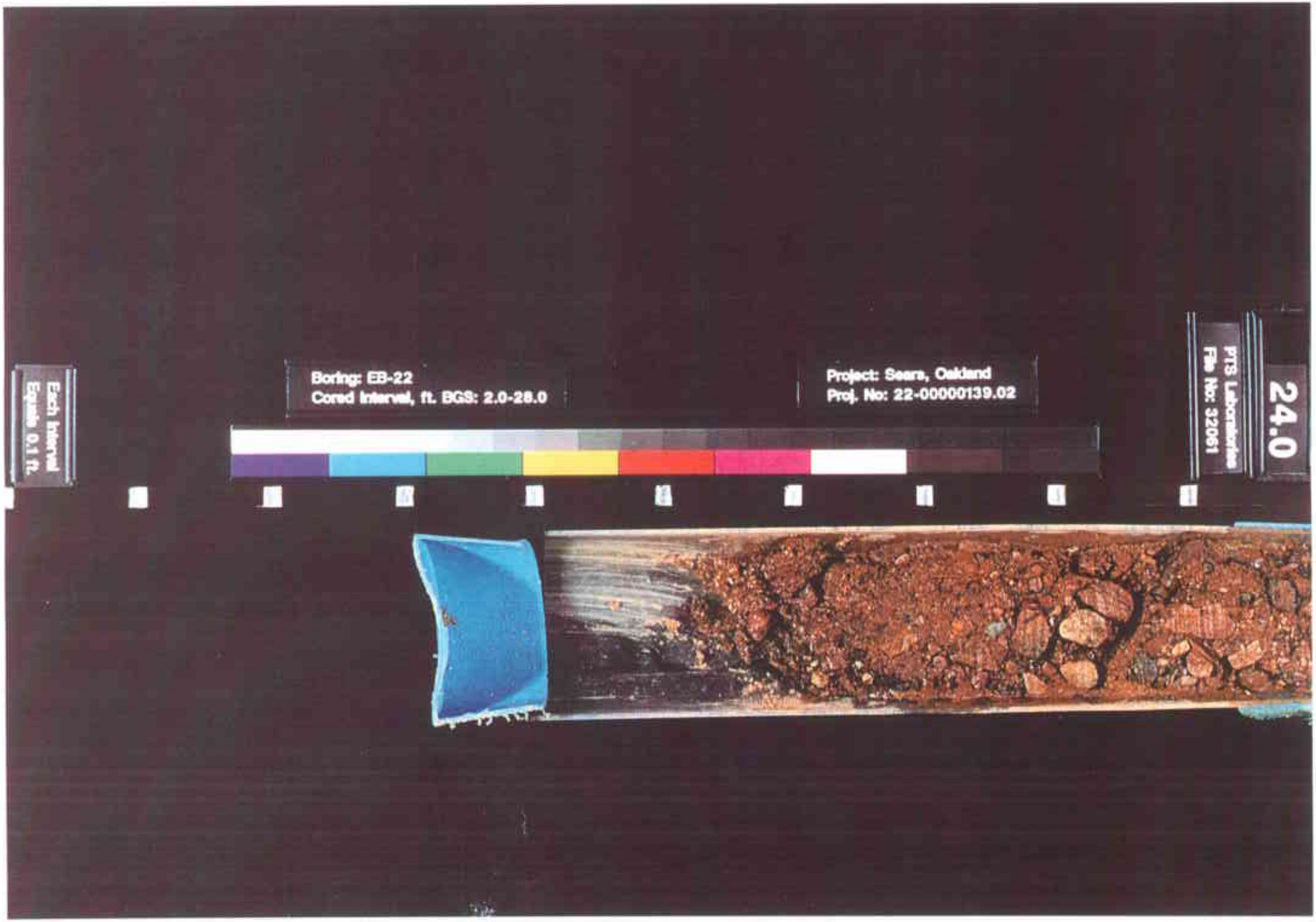
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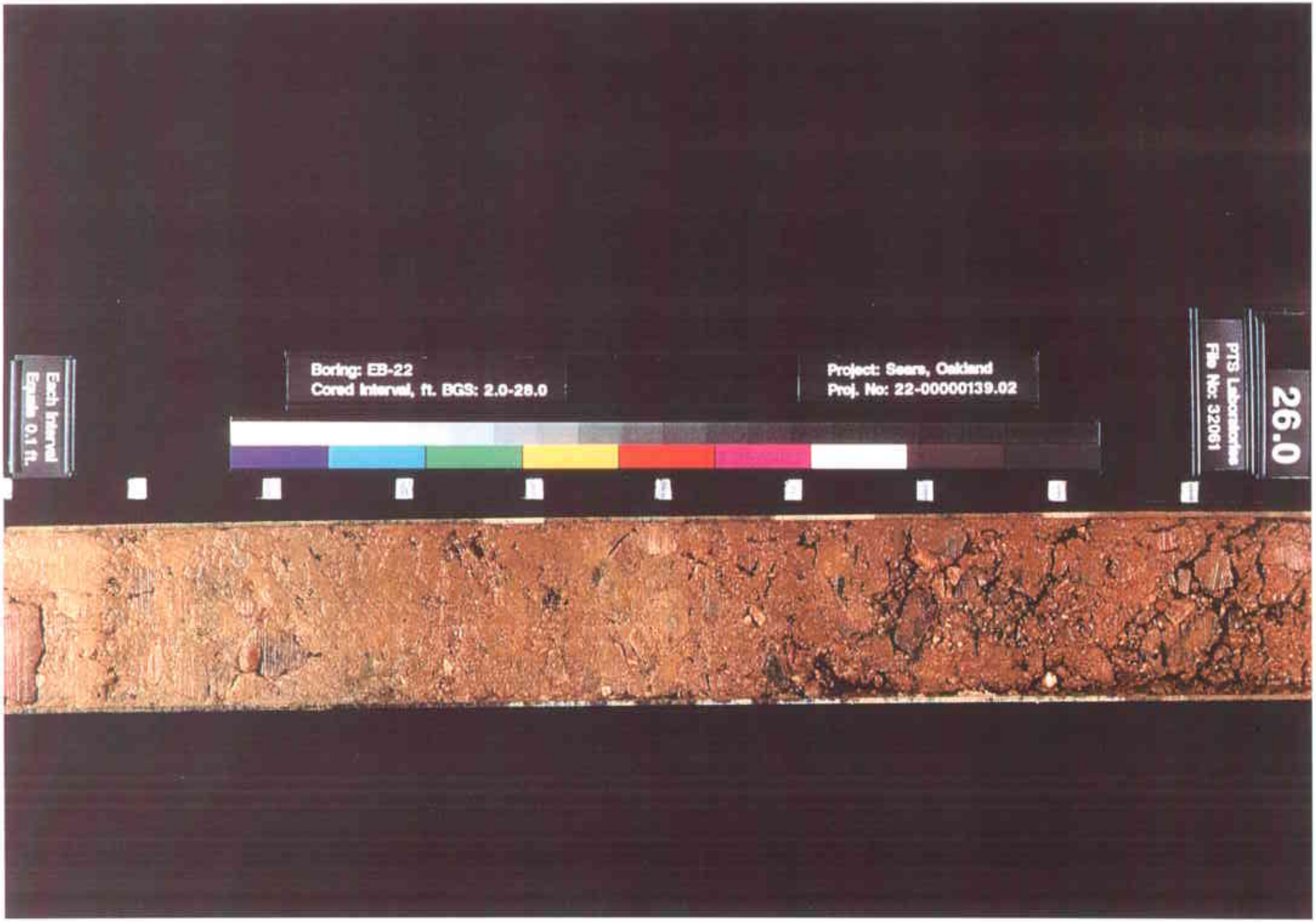
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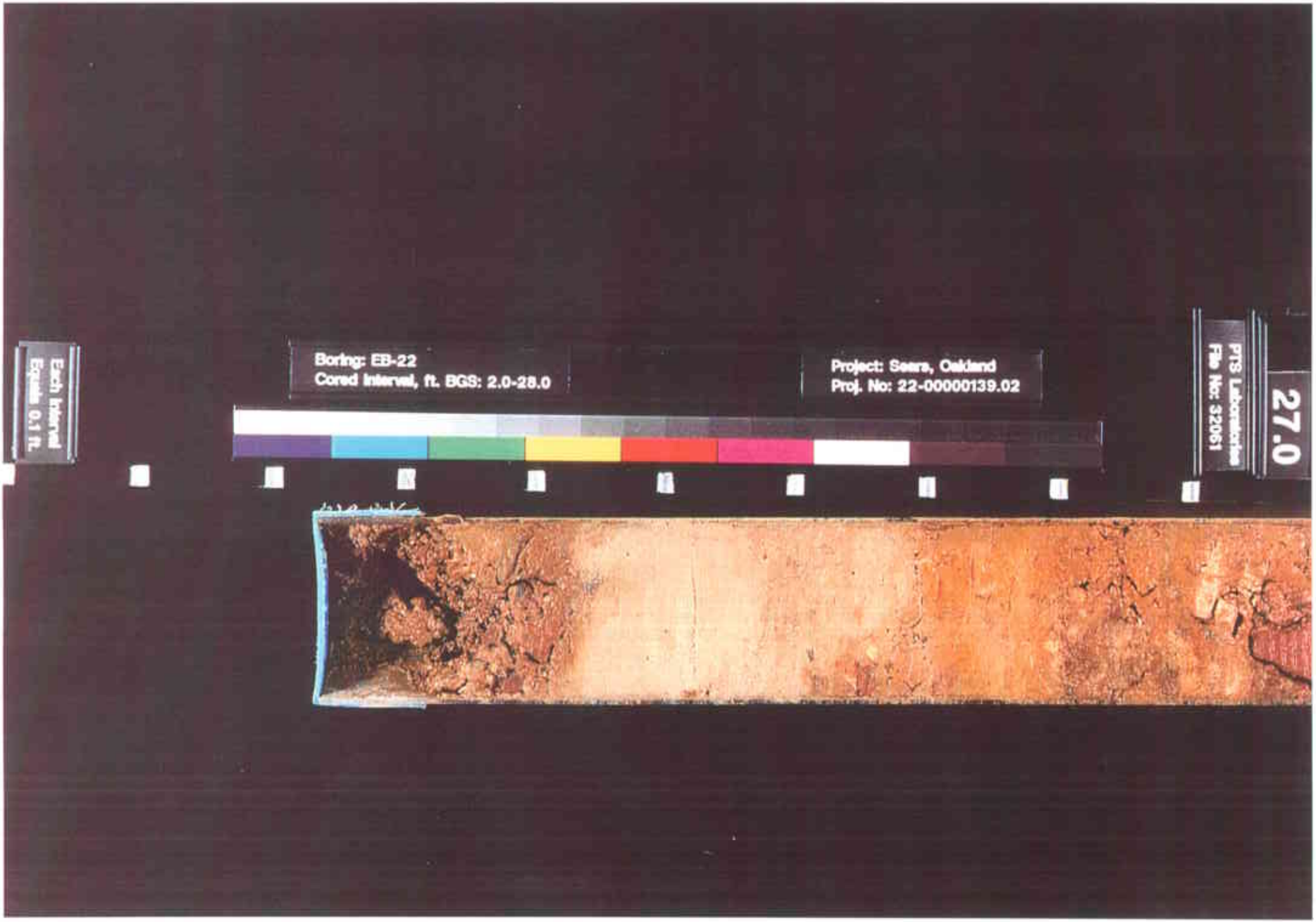
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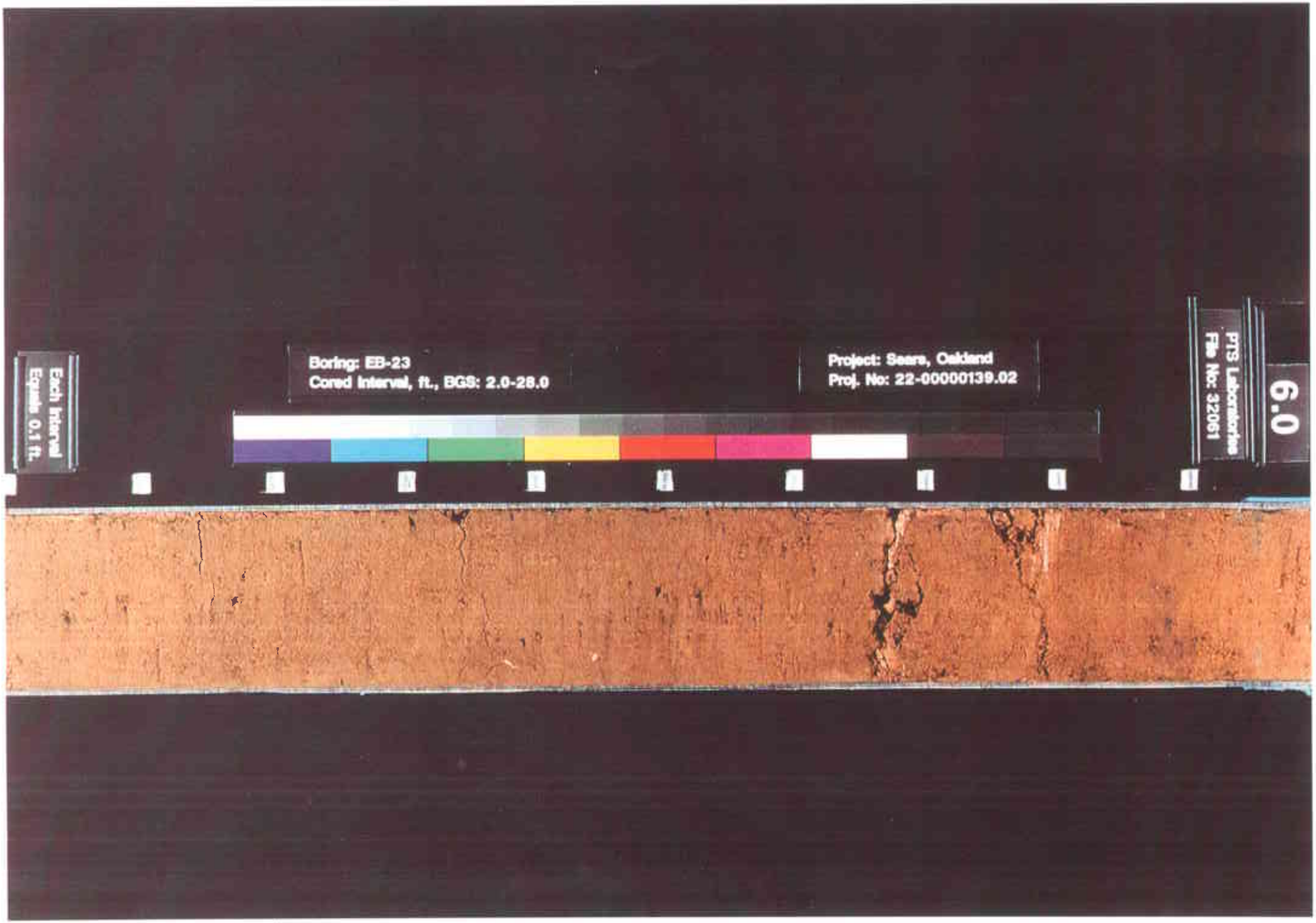
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
27.0

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

Core Photography – White Light

Site: Sears; Oakland, CA

Boring: EB-23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PTS Laboratories
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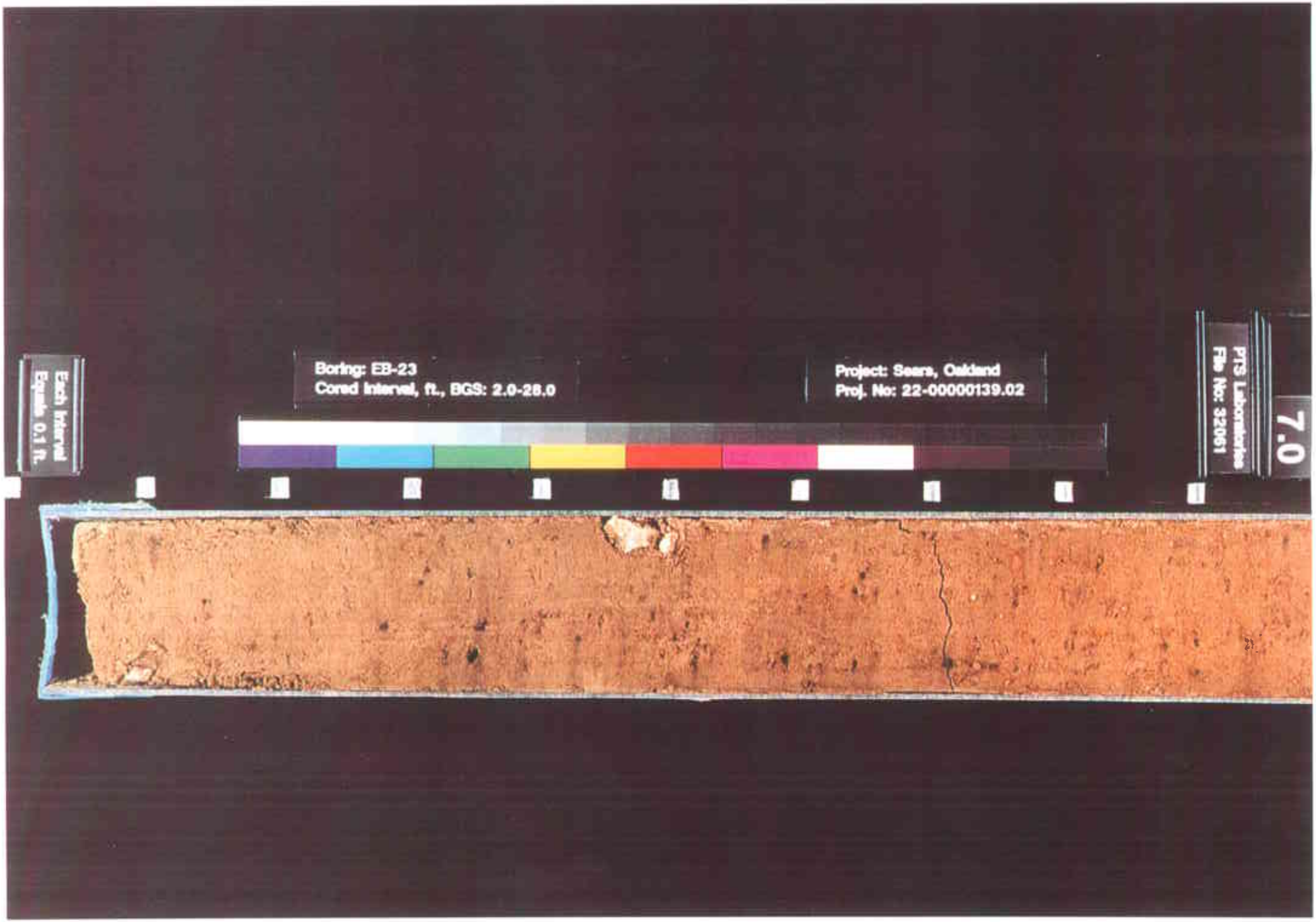
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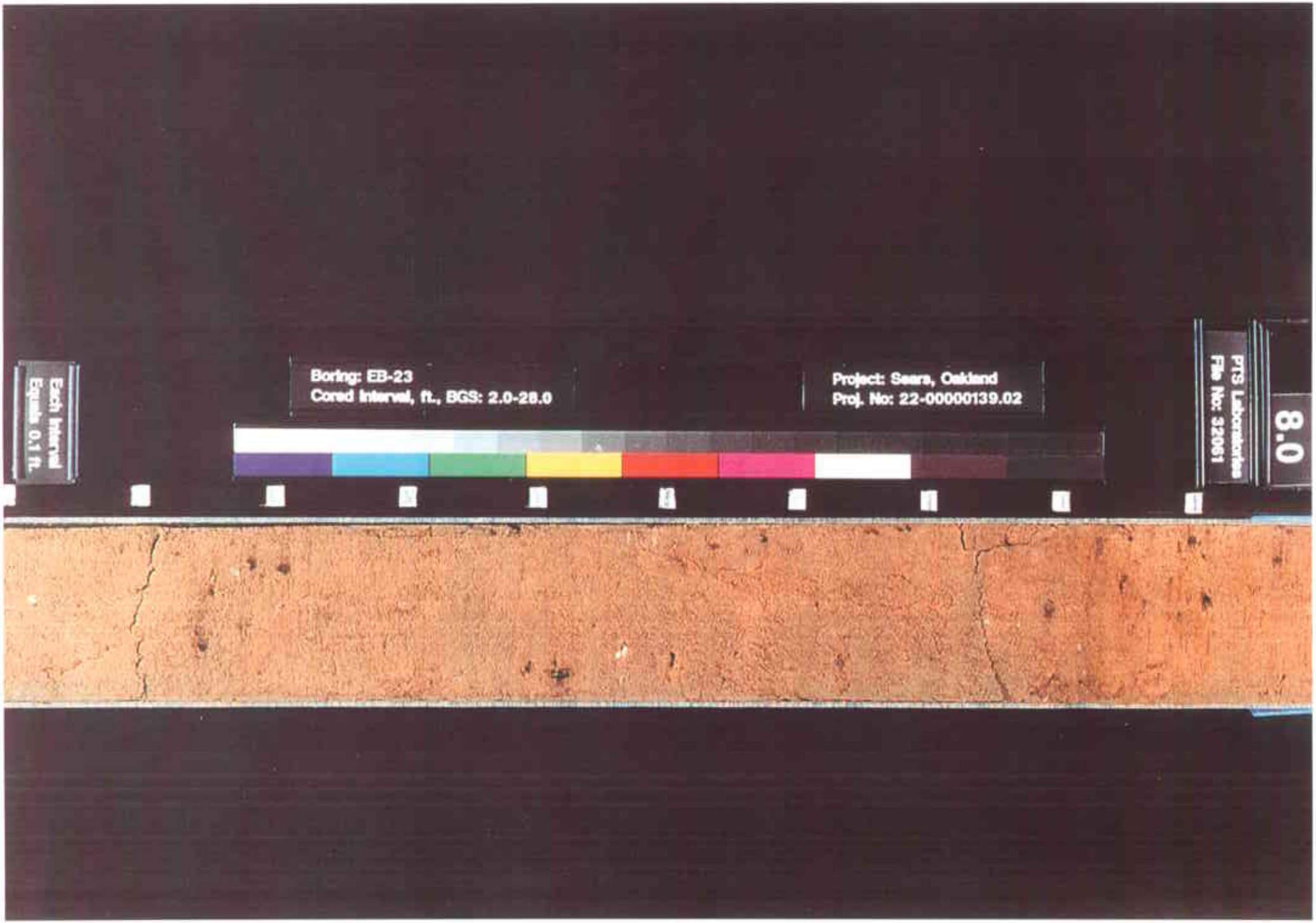
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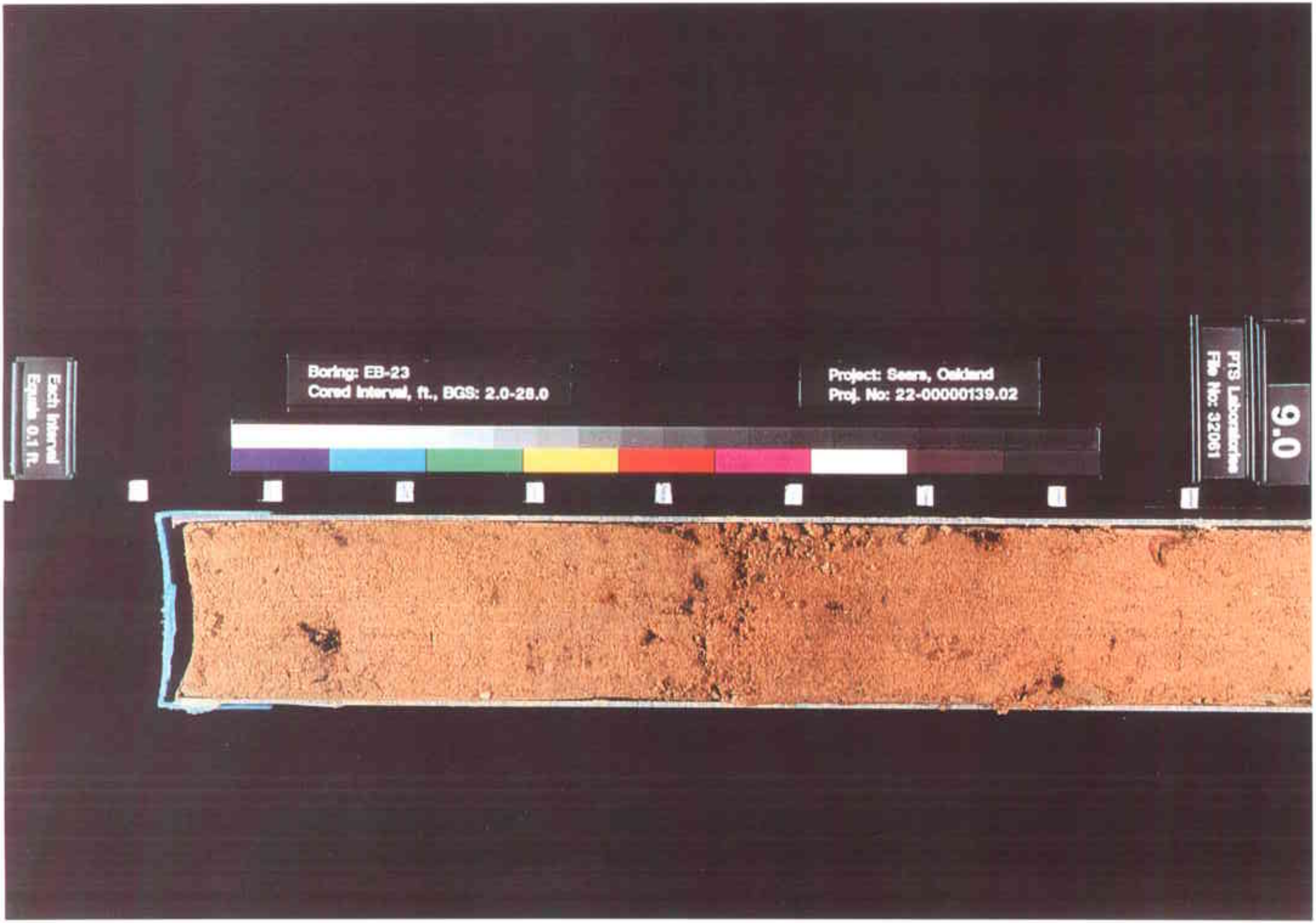
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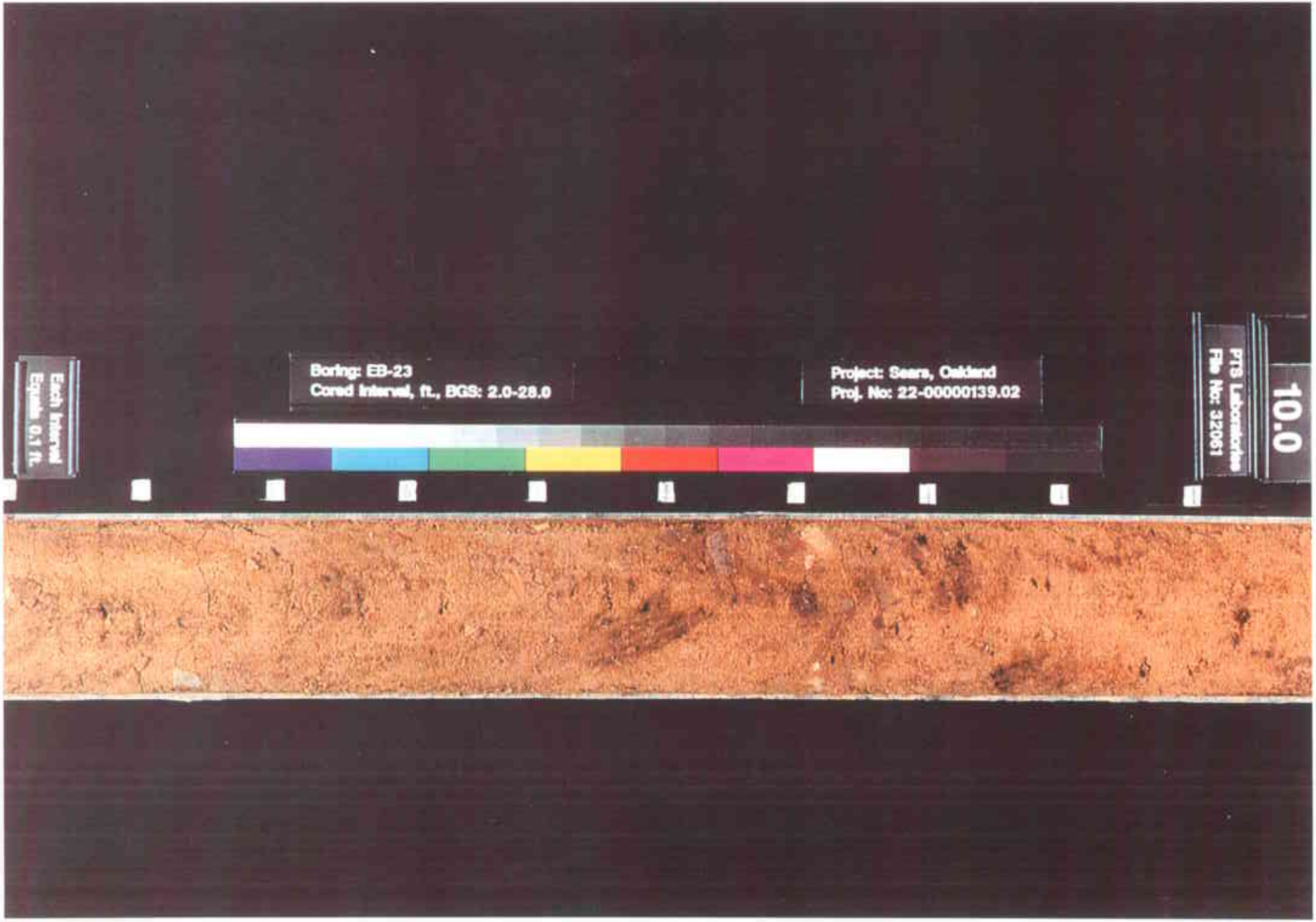
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PTS Laboratories
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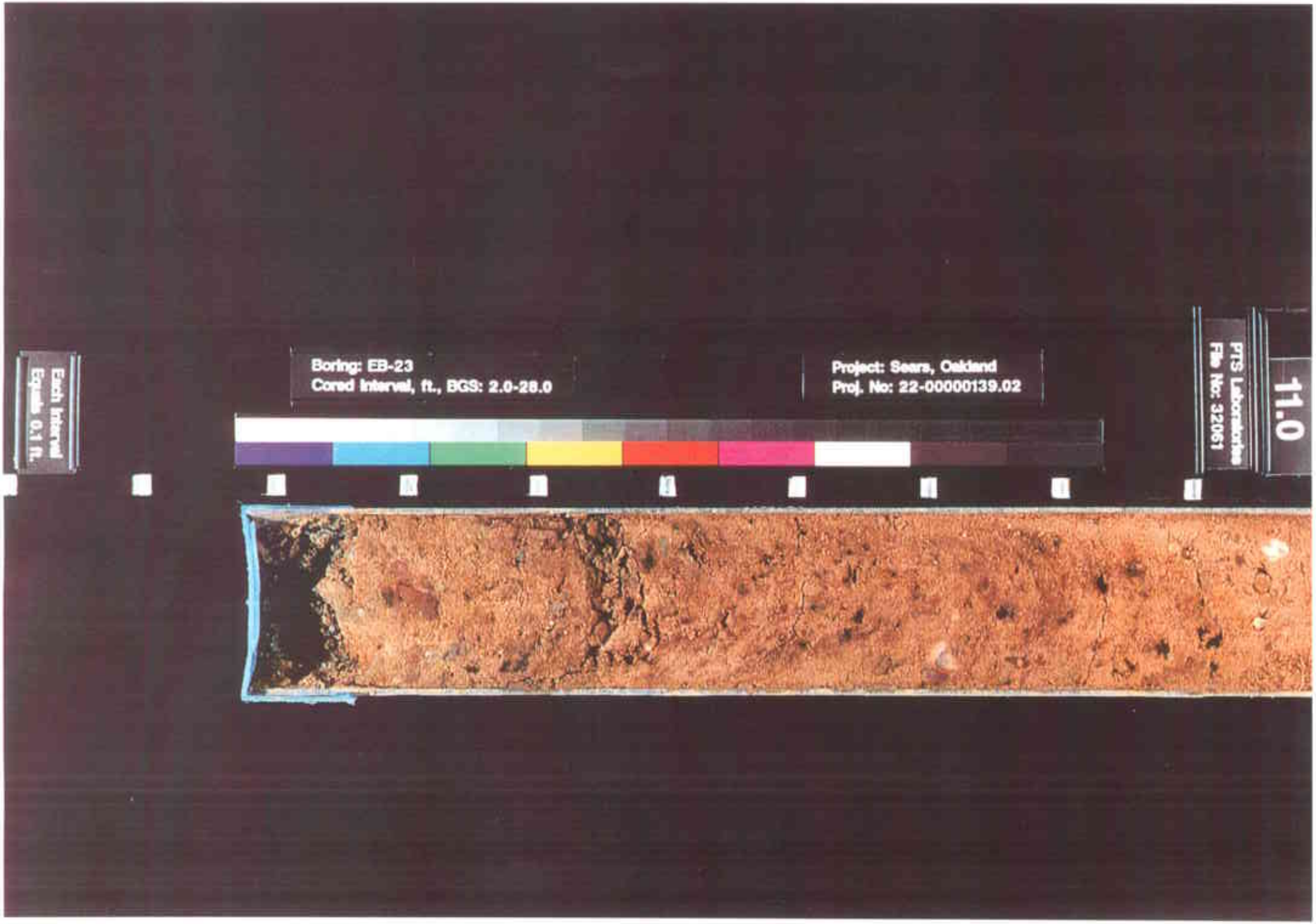
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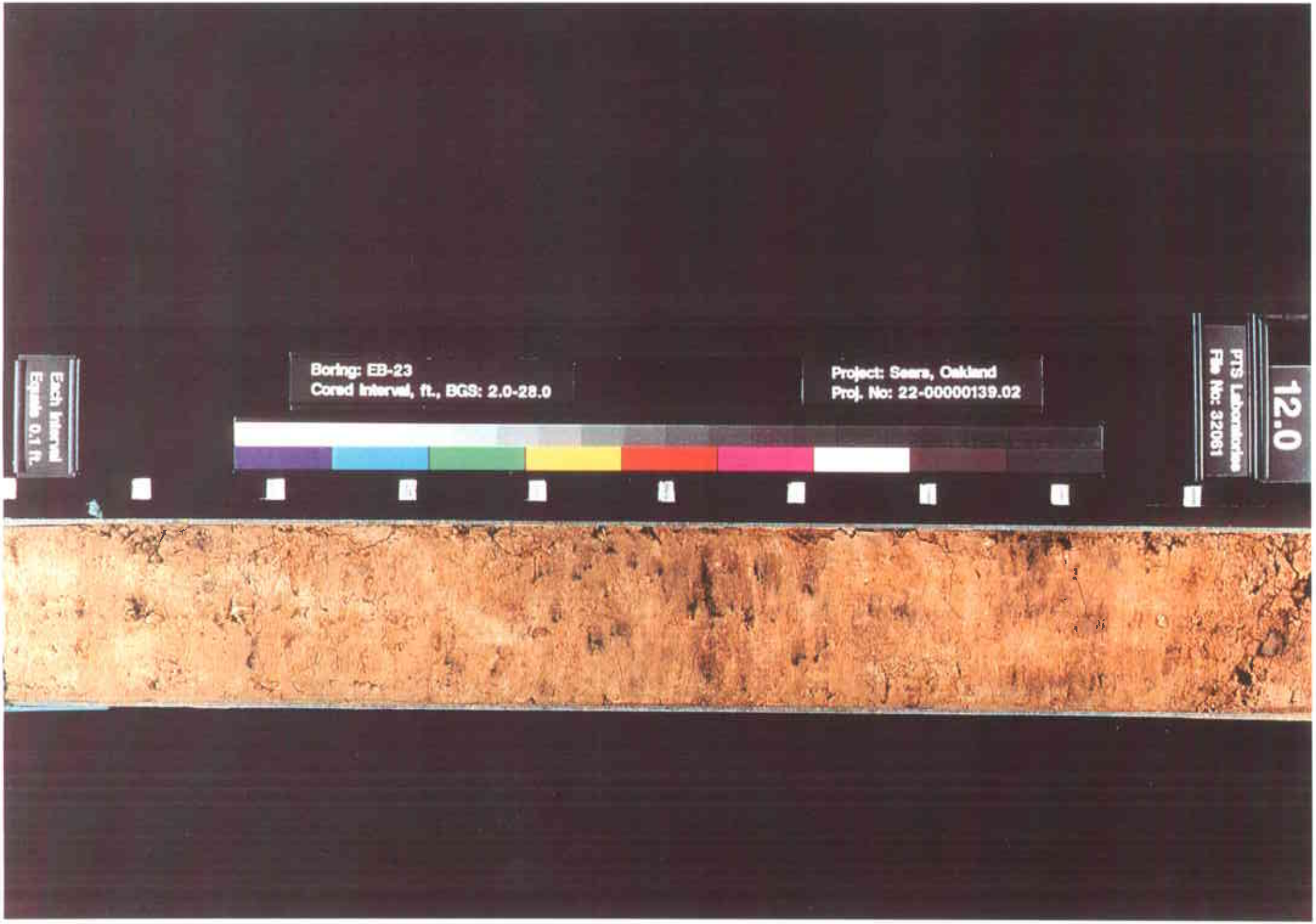
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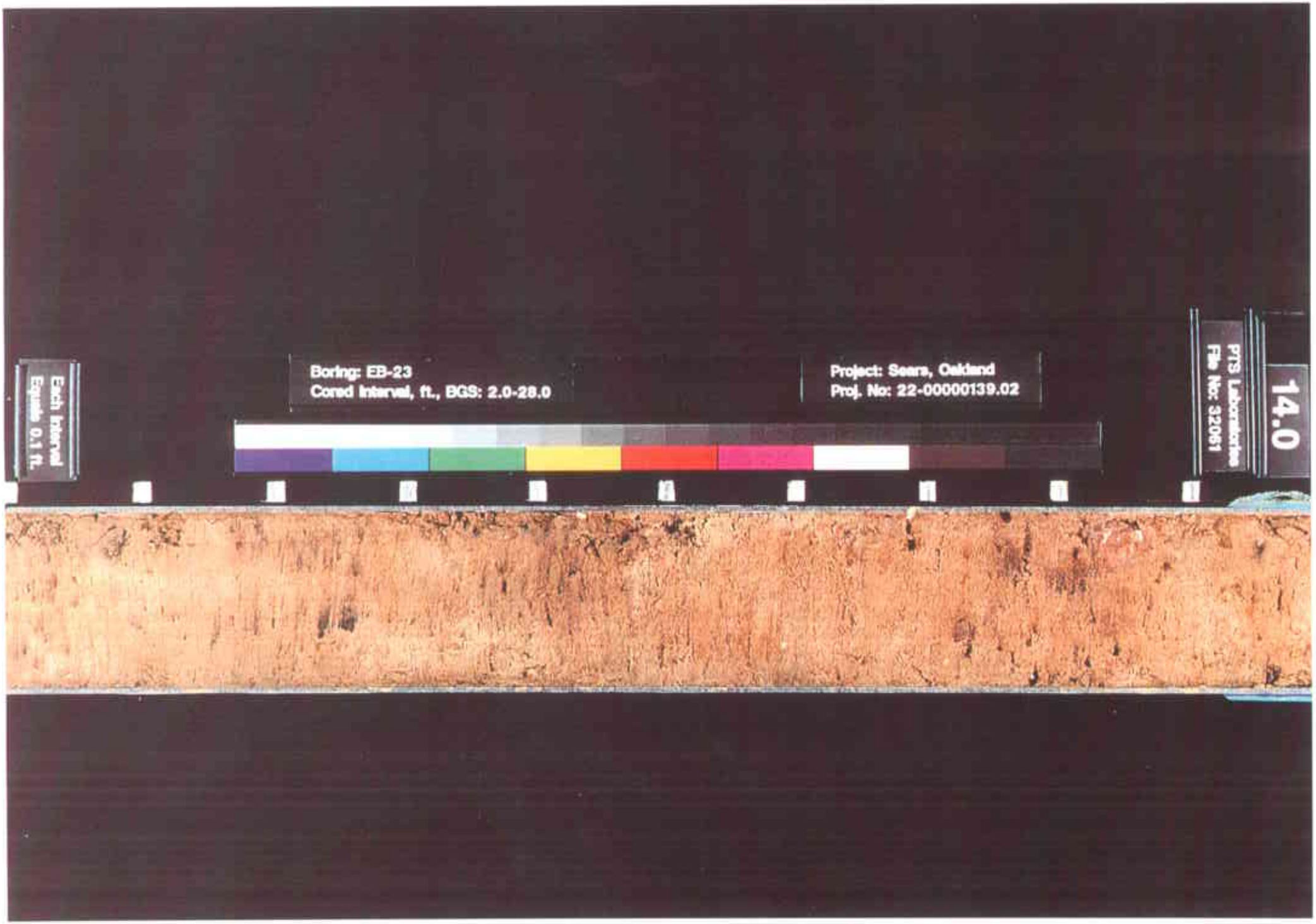
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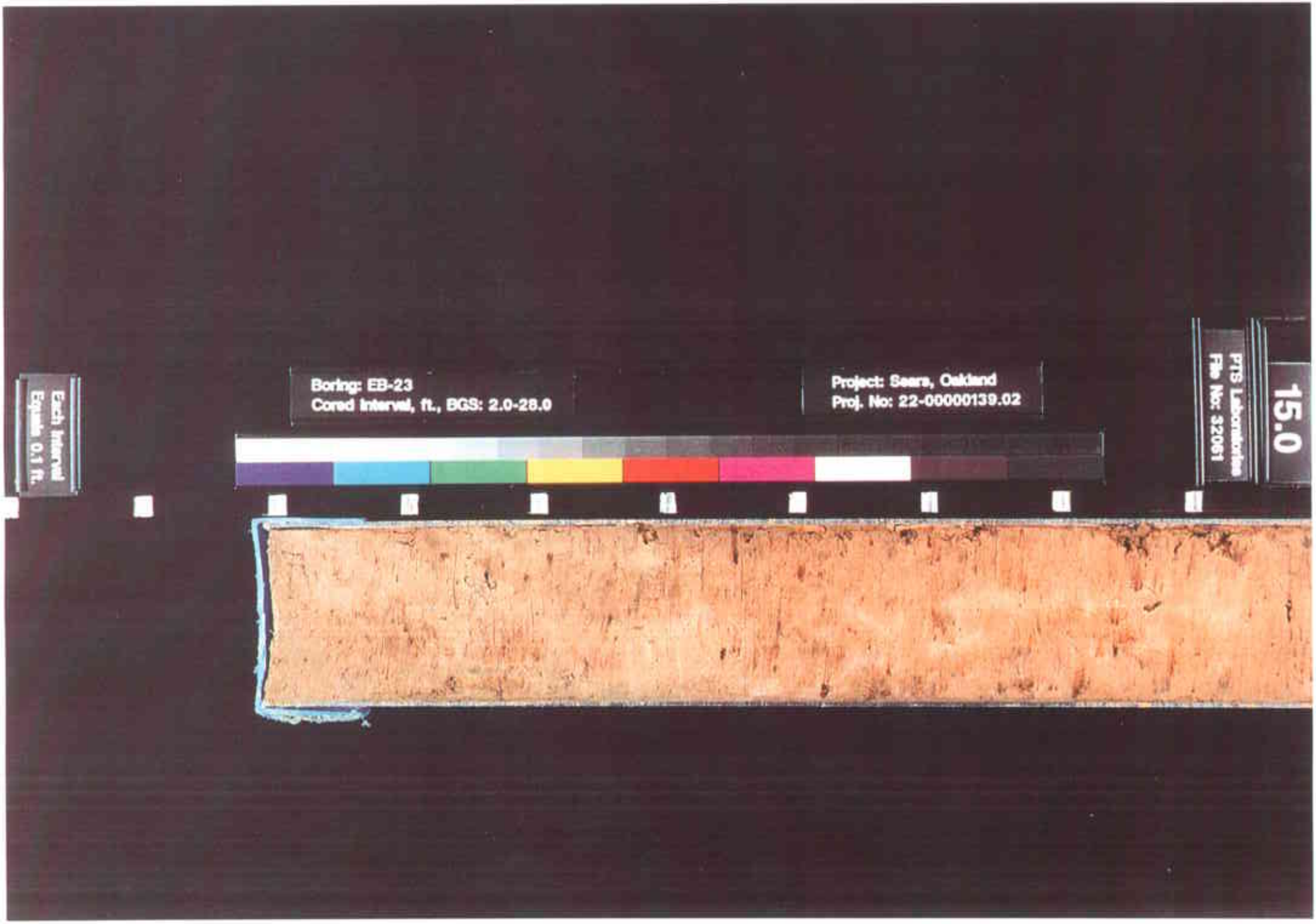
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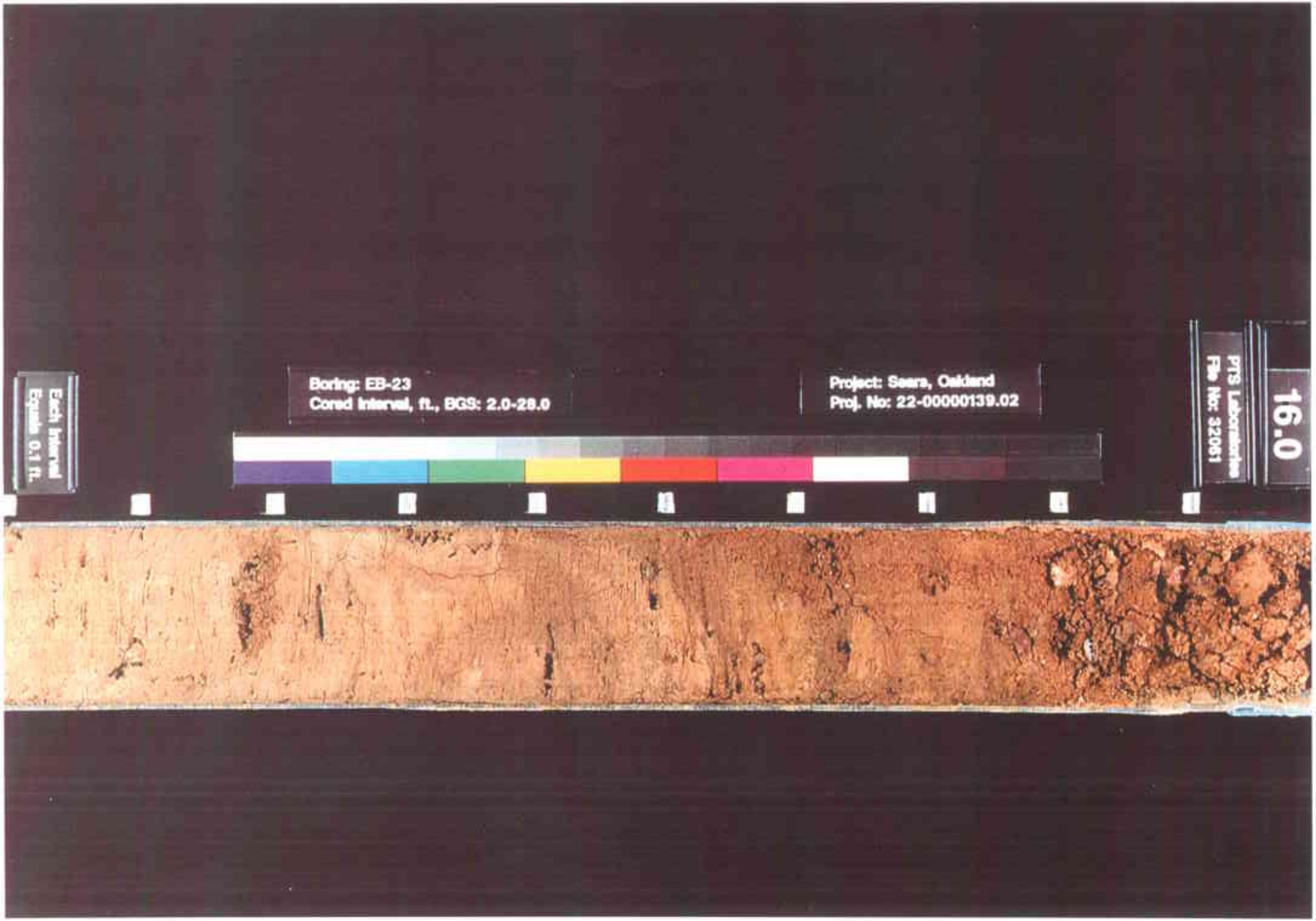
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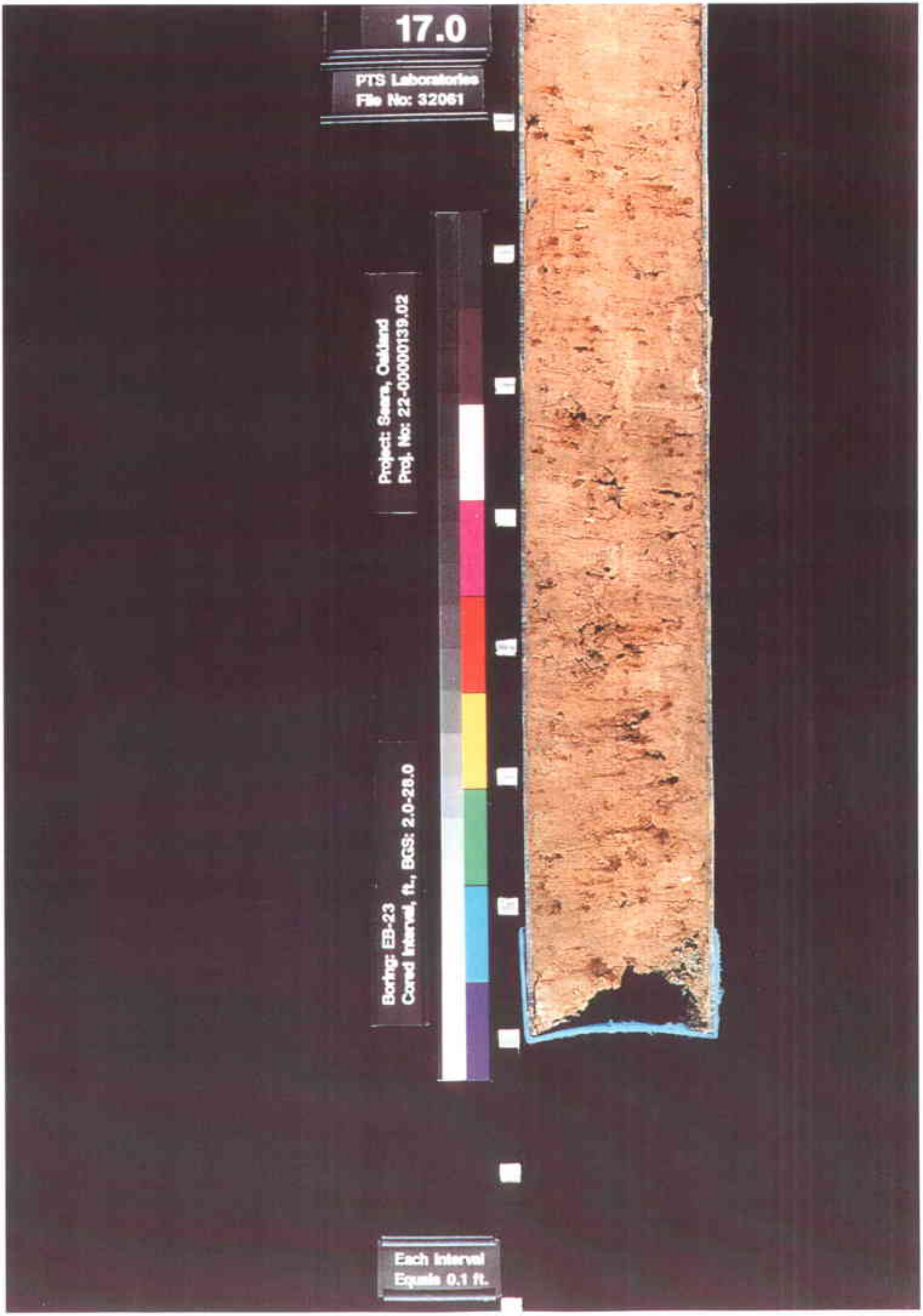
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PTS Laboratories
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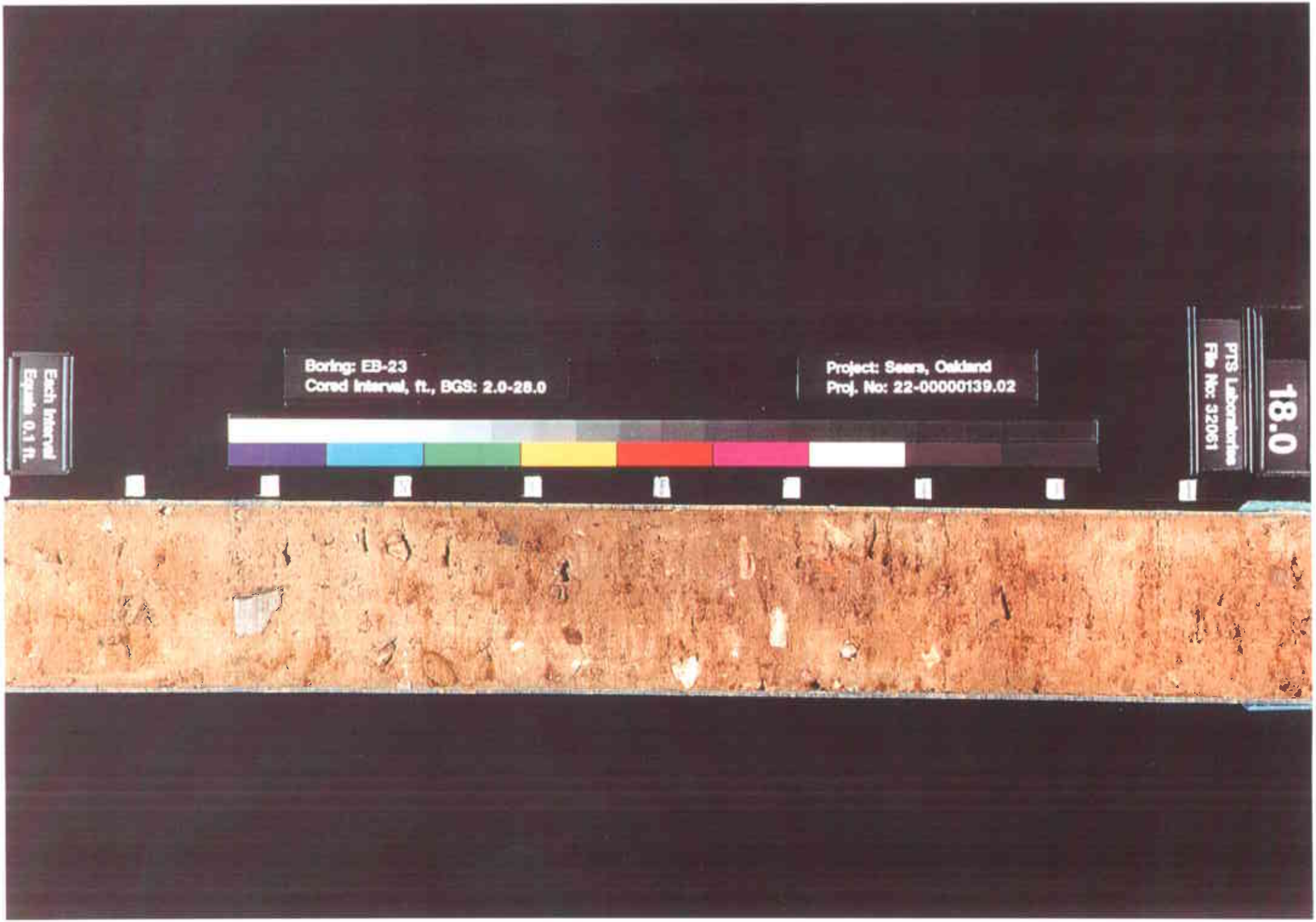
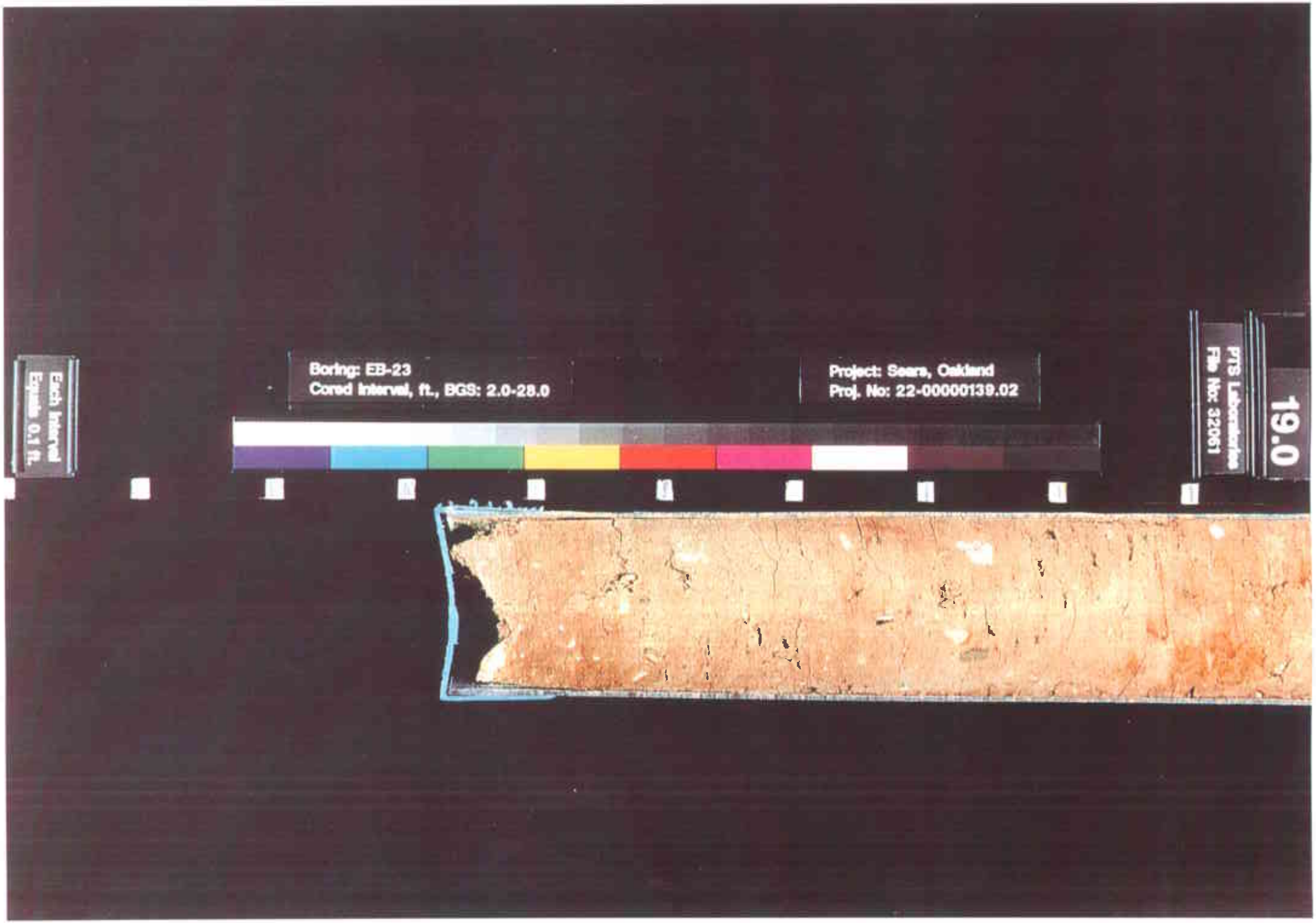
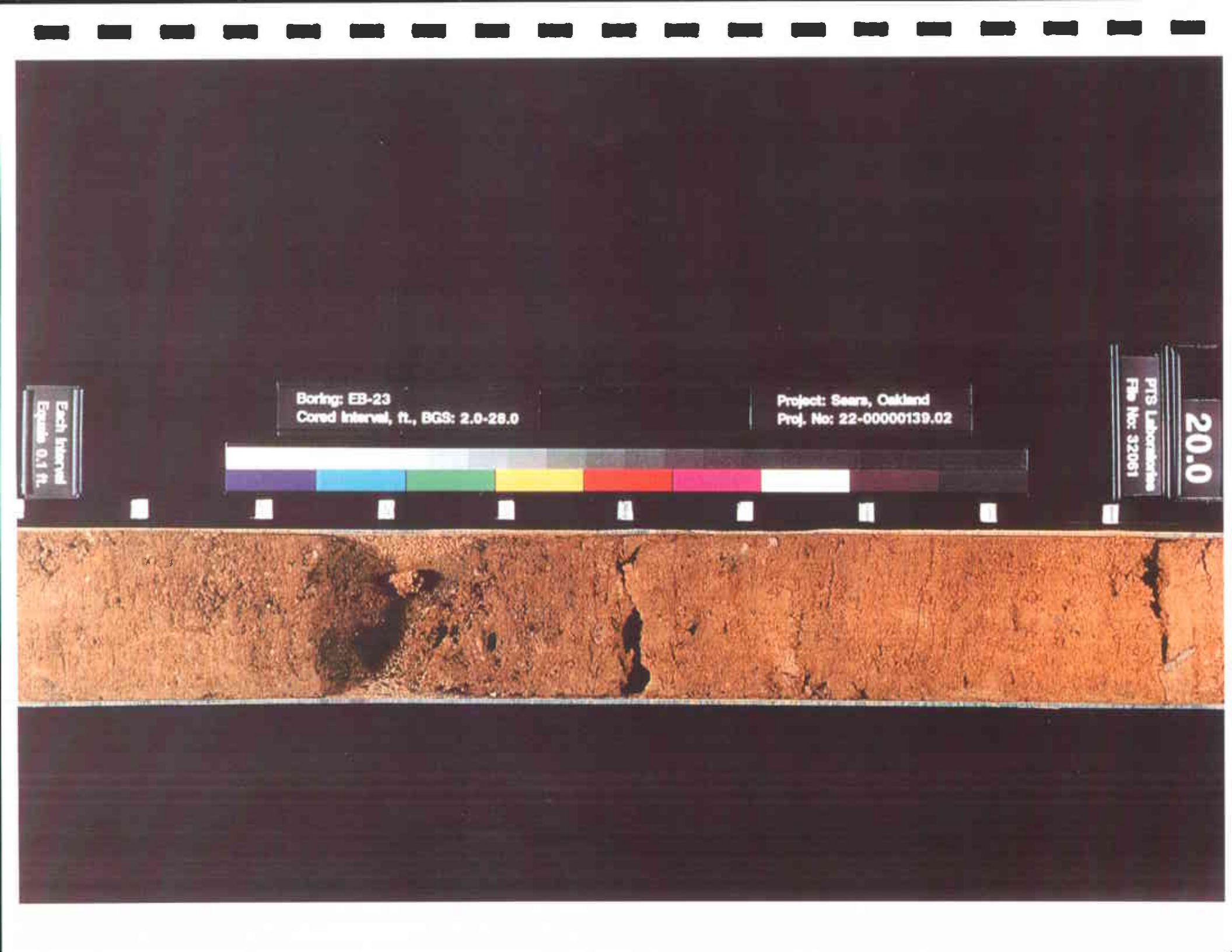
Each Interval
Equals 0.1 ft.

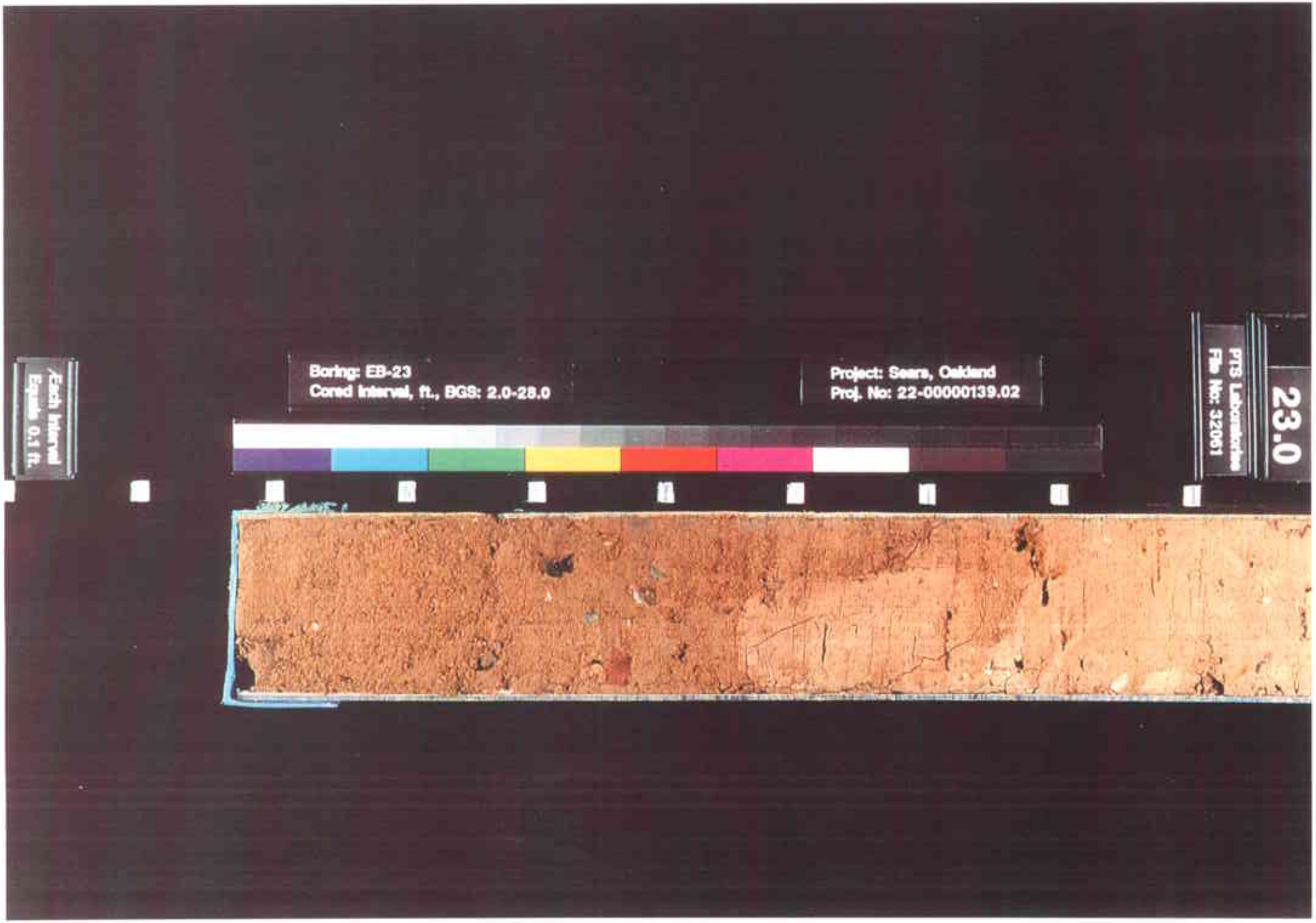

Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
18.0

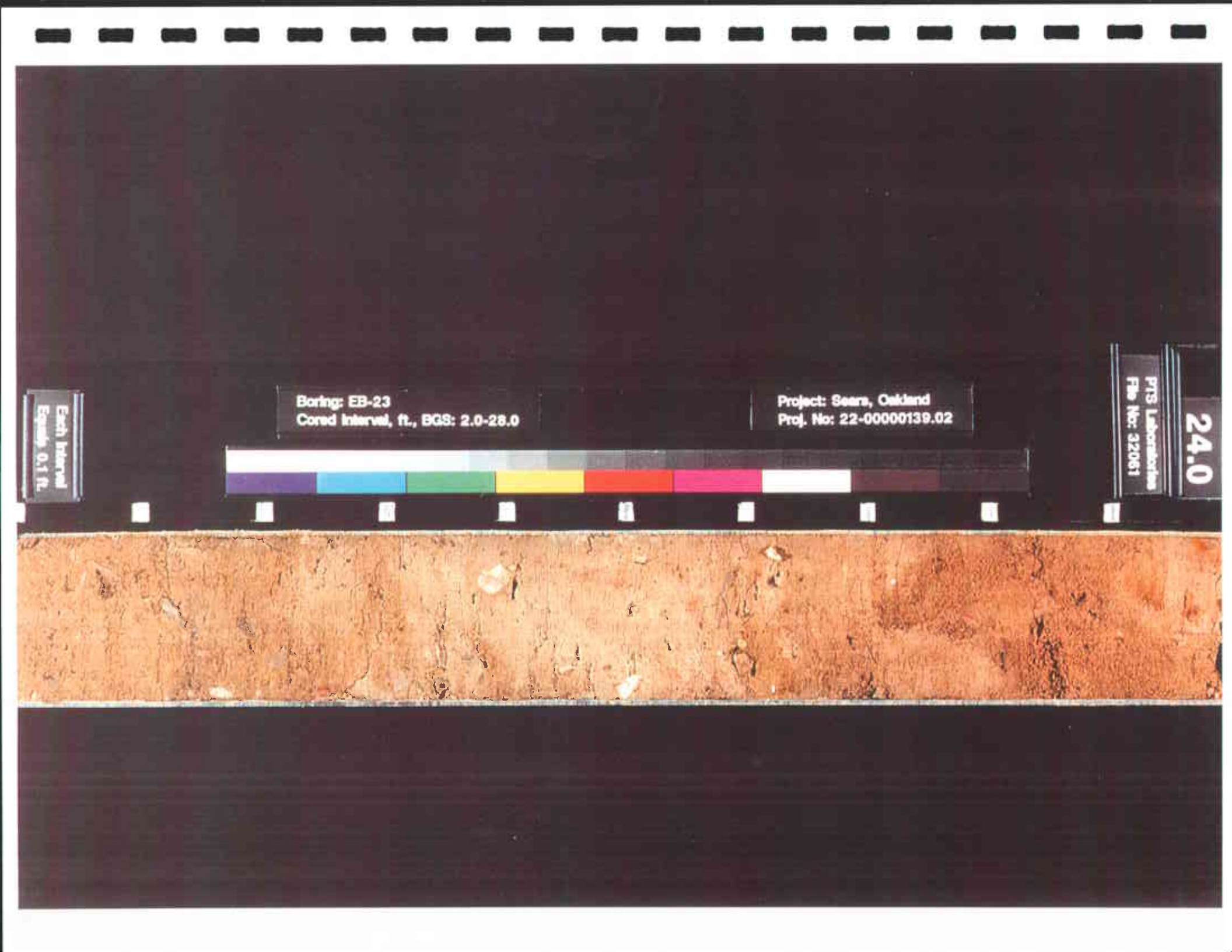

Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
19.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories File No: 32061
20.0

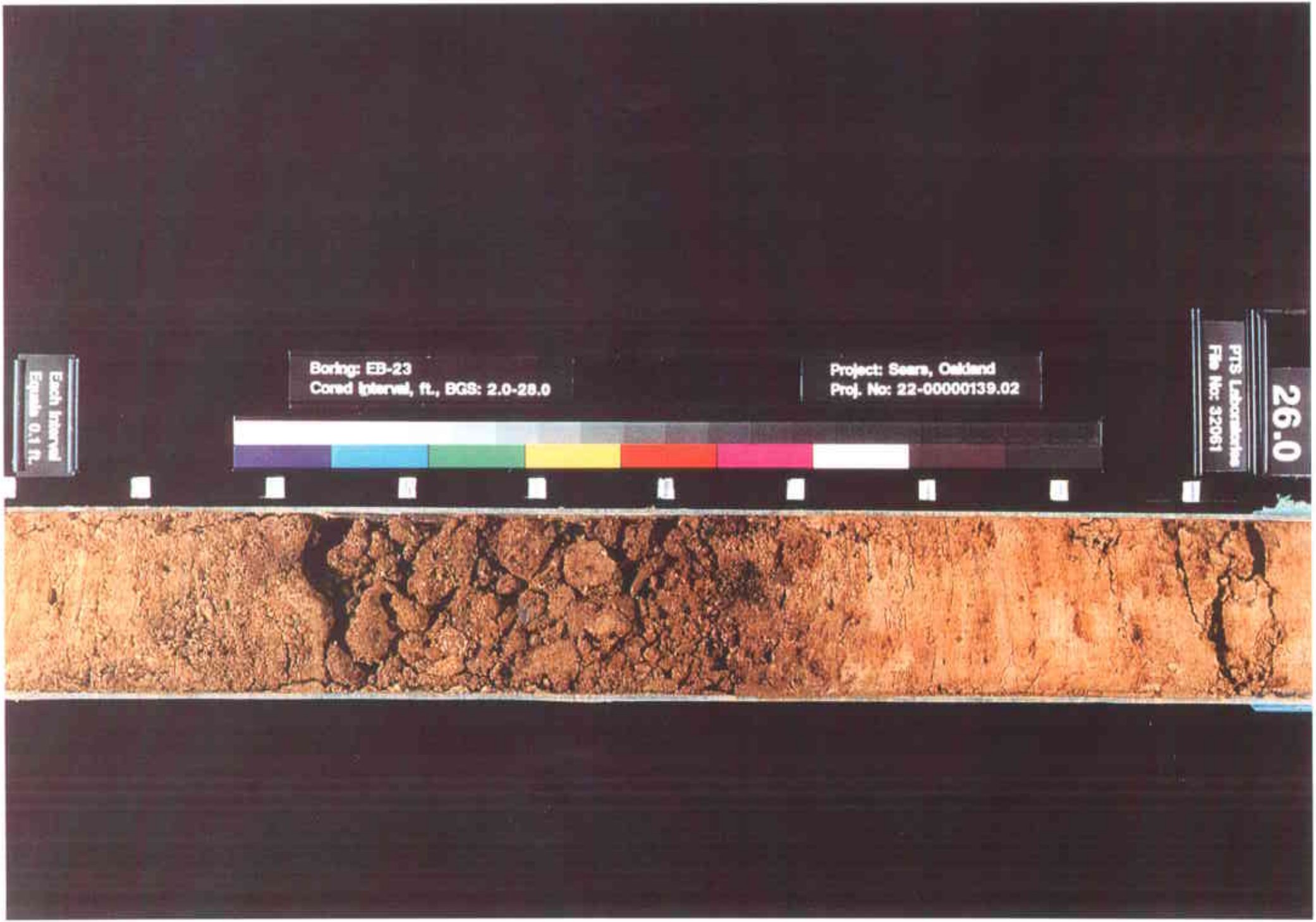

Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
21.0


Each Interval
Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
22.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories File No: 32061
23.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories File No: 32061
24.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories
File No: 32061
25.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories File No: 32061
26.0


Each Interval Equals 0.1 ft.
Boring: EB-23
Cored Interval, ft., BGS: 2.0-28.0
Project: Sears, Oakland
Proj. No: 22-00000139.02
PTS Laboratories File No: 32061
27.0

APPENDIX M
URS DATA VALIDATION REPORTS

Level III Data Validation Summary

PROJECT: Sears Oakland
LABORATORY: Severn Trent Laboratories, Inc. (STL – San Francisco)
MATRIX: Soil / Water
LAB PROJECT #: 2002-02-0242
SAMPLES: See table below

Field ID	QC Designations	Lab ID	TEPH-Diesel, and TEPH-Bunker C	BTEX, and MTBE
EB 23		2002-02-0242-1	X	X
EB 22		2002-02-0242-2	X	X
EB-1	Equipment blank	2002-02-0242-3	X	X
Dup-1	Field duplicate of EB 22	2002-02-0242-4	X	X
FOMW5@5'		2002-02-0242-5	X	X
FOMW5@10'		2002-02-0242-6	X	X
FOMW5@15'		2002-02-0242-7	X	X
FOMW5@20'		2002-02-0242-8	X	X
FOMW5@25'		2002-02-0242-9	X	X
FOMW5@30'		2002-02-0242-10	X	X
FOMW4@5'		2002-02-0242-11	X	X
FOMW4@10'		2002-02-0242-12	X	X
FOMW4@15'		2002-02-0242-13	X	X
FOMW4@20'		2002-02-0242-14	X	X
FOMW4@25'		2002-02-0242-15	X	X
FOMW4@30'		2002-02-0242-16	X	X
EB 24@5'		2002-02-0242-17	X	X
EB 24@10'		2002-02-0242-23	X	X
EB 24@15'		2002-02-0242-18	X	X
EB 24@20'		2002-02-0242-19	X	X
EB 24@25'		2002-02-0242-20	X	X
EB 24@30'		2002-02-0242-21	X	X

Date Sampled: 2/12,13/02 BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes. MTBE = Methyl tertiary butyl ether.
STL – San Francisco is certified by California Department of Health Services (Certificate Number 1094)

DATA REVIEW MATRIX

QC Parameter	TEPH-Diesel, and TEPH-Bunker C 3550/3510/8015M	BTEX, and MTBE EPA 5030B/5035/8260B
Chain-of-custody (COC)	✓ (1)	✓
Sample Receipt	✓	✓
Holding Times	✓	✓
Method Blank	✓	✓
Surrogate Recovery	(2)	(5)
Laboratory Control Sample	✓	✓
Matrix Spike	✓ (3)	(6)
Duplicate or Spike Duplicate	✓ (3)	(6)
Field Duplicate	✓	✓
Equipment Blank	(4)	✓

✓ = Quality control evaluation criteria met.
Laboratory control samples were prepared in duplicate.
NA = Not Applicable or Not Analyzed NR = None Reported or Not Requested NP = Not Provided NC = Not Collected

Notes:

1. The case narrative indicated that the hydrocarbon reported in the diesel range for seven samples did not match the pattern of laboratories' diesel standard.
2. The surrogate recovery results for Diesel, and Bunker C was outside of laboratory acceptance criterion for sample Dup-1. Consequently, the results for diesel, and bunker C were qualified as estimated (J/UJ) for this sample.
3. MS/MSD for diesel was conducted on sample FOMW5@5'. The results were within acceptance criterion.
4. Diesel was detected in the equipment blank. Consequently, low-level results for diesel for one sample (EB 23) were qualified as anomalous (U) due to equipment blank contamination.
5. The surrogate recovery results for BTEX/MTBE were high for eight samples. Data qualification was not considered necessary because the BTEX/MTBE results for these samples were all reported as non-detect.
6. MS/MSD was conducted on a non-site related sample; therefore, the MS/MSD results obtained may not be fully representative of the accuracy and precision of the analysis on the site-specific sample matrix.

Summary: Based on this Level III validation covering the QC parameters listed in the table above, these data are considered to be useable for meeting project objectives. However, the data user must evaluate the ultimate usability of the data based on the reporting limits obtained. The table below lists the detection limits obtained for undiluted samples.

Analyte	Detection Limits Obtained Soil (mg/kg)	Detection Limits Obtained Water (µg/L)
TEPH-Diesel	1.0	50
TEPH-Bunker C	50	50
MTBE	0.005	5
Benzene	0.005	1.0
Toluene	0.005	1.0
Ethylbenzene	0.005	1.0
Xylenes	0.005	1.0

Level III Data Validation Summary

PROJECT: Sears Oakland
LABORATORY: Severn Trent Laboratories, Inc. (STL – San Francisco)
MATRIX: Groundwater
LAB PROJECT #: 2002-03-0147
SAMPLES: See table below

Field ID	QC Designations	Lab ID	TPH-Gasoline, BTEX, and MTBE	Nitrate and Sulfate	TEPH-Diesel, TEPH-Motor Oil	H-Degraders and HPC	Alkalinity
FOMW-3		2002-03-0147-1	X	X	X	X	X
FOMW-5		2002-03-0147-2	X	X	X	X	X
FOMW-4		2002-03-0147-3	X	X	X	X	X
Dup-1	Field duplicate of FOMW-4	2002-03-0147-4	X	X	X	X	X
EB-1	Equipment Blank	2002-03-0147-5	X				
TB-1	Trip Blank	2002-03-0147-6	X				

Date Sampled: 3/6/02
BTEX = Benzene, Toluene, Ethylbenzene, and Xylenes.
MTBE = Methyl tertiary butyl ether.
H-Degraders = Hydrocarbon degraders.
HPC = Heterotrophic plate count.
STL – San Francisco is certified by California Department of Health Services (Certificate Number 1094)

DATA REVIEW MATRIX

QC Parameter	TPH-Gasoline, BTEX, and MTBE EPA 5030/8015M/ 8021B	Nitrate, Sulfate EPA 9056	TEPH-Diesel, TEPH-Motor Oil 3510/8015M	H-Degraders and HPC SM9215A/SM9215B	Alkalinity EPA 310.1
Chain-of-custody (COC)	✓	✓	✓(1)	✓(2)	✓
Sample Receipt	✓	✓	✓	✓	✓
Holding Times	✓	✓	✓	✓	✓
Method Blank	✓	✓	✓	✓	✓
Surrogate Recovery	✓	NA	NA	NA	NA
Laboratory Control Sample	✓	✓	✓	✓	✓
Matrix Spike	✓ (3)	✓	NA	NA	(5)
Duplicate or Spike Duplicate	✓	✓	NA	NA	NA
Field Duplicate	✓	✓	(4)	✓	✓
Trip Blank/Equipment Blank	✓/✓	NC/NC	NC/NC	NC/NC	NC/NC

✓ = Quality control evaluation criteria met.
Laboratory control samples were prepared in duplicate.
NA = Not Applicable or Not Analyzed NC = Not Collected

Notes:

1. The case narrative indicated that the hydrocarbon reported in the diesel range in two samples (FOMW-3, and Dup-1) did not match the pattern of laboratories' diesel standard.
2. Analyses subcontracted to Cyto Culture International, Inc.
3. MS/MSD for Gas/BTEX/MTBE was conducted on sample FOMW-3. The results were within acceptance criterion.
4. The H-degraders, and heterotrophic plate count results in field duplicate pair FOMW-4/Dup-1 exhibited imprecision between the primary and field duplicate samples; resulting in qualification of the data as estimated (J). The higher of the two reported concentrations should be used in further evaluation of the data.

5. MS/MSD was conducted on a non-site related sample matrix; therefore, the MS/MSD results obtained may not be fully representative of the accuracy and precision of the analysis on the site-specific sample matrix.

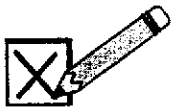
Summary: Based on this Level III validation covering the QC parameters listed in the table above, these data are considered to be useable for meeting project objectives without qualification. However, the data user must evaluate the ultimate usability of the data obtained based on the reporting limits obtained. The table below lists the detection limits obtained for undiluted samples.

Analyte	Detection Limits Obtained
TPH-Gasoline	50
TEPH-Diesel	50
TEPH-Motor Oil	500
Benzene	0.5
Toluene	0.5
Ethylbenzene	0.5
Xylenes	0.5
MTBE	5
Nitrate	1000
Sulfate	1000
Alkalinity	5000

Aqueous units are micrograms per liter (µg/L).

APPENDIX N
OAKLAND ULR ELIGIBILITY CHECKLIST

2.2 Qualifying for the Oakland RBCA Levels



The Oakland Tier 1 RBSLs and Tier 2 SSTLs are intended to address human health concerns at the majority of sites in Oakland where commonly-found contaminants are present. Complicated sites—especially those with continuing releases, ecological concerns or unusual subsurface conditions—will likely require a Tier 3 analysis. The checklist that comprises Table 1 is designed to assist you in determining your site's eligibility for the Oakland RBCA levels.[6]

Table 1. Oakland RBCA Eligibility Checklist

CRITERIA	YES	NO
1. Is there a continuing, *primary* source of a chemical of concern, such as a leaking container, tank or pipe? (This does *not* include residual sources.)	☐	☒
2. Is there any mobile or potentially-mobile free product?	☐	☒
3. Are there more than five chemicals of concern at the site at a concentration greater than the lowest applicable Oakland RBCA level?	☐	☒
4. Is there a preferential vapor migration pathway—such as a gravel channel or a utility corridor—that is less than 1 meter from *both* of the following? (a) A source area containing a volatile chemical of concern (b) A structure where inhalation of indoor air vapors is of concern	☐	☒
5. Do *both* of the following conditions exist? (a) Groundwater is at depths less than 300 cm (10 feet) (b) Inhalation of volatilized chemicals of concern from groundwater in indoor or outdoor air is a pathway of concern but groundwater ingestion is *not**	☐	☒
6. Are there any existing on-site or off-site structures intended for future use where inhalation of indoor air vapors from either soil or groundwater is of concern *and* one or more of the following four conditions is present? (a) Chemicals of concern located less than one meter below the structure (b) A slab-on-grade foundation less than 15 cm (6 inches) thick (c) An enclosed, below-grade space (e.g., a basement) that has floors or walls less than 15 cm (6 inches) thick (d) A crawl space that is not ventilated	☐	☒
7. Are there any immediate, acute health risks to humans associated with contamination at the site, including explosive levels of a chemical?	☐	☒
8. Are there any existing or potential exposure pathways to nearby ecological receptors, such as endangered species, wildlife refuge areas, wetlands, surface water bodies or other protected areas?	☐	☒

*If groundwater ingestion *is* a pathway of concern, the associated Oakland RBCA levels will be more stringent than those for any groundwater-related inhalation scenario, rendering depth to groundwater irrelevant in the risk analysis.

If the answer to all questions is "no", your site is eligible for both the Oakland Tier 1 RBSLs and Tier 2 SSTLs. Proceed to Section 2.3 for guidance on meeting the minimum Tier 1 and Tier 2 site characterization requirements.

APPENDIX O
SEPARATE PHASE PRODUCT VISCOSITY TESTING RESULTS

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

August 1, 2002

Scott Rowlands
URS Corporation
2020 E. First St., Ste. 400
Santa Ana, CA 92705

Re: Sears - Oakland
PTS File: 32279

Dear Mr. Rowlands:

Enclosed are final viscosity/density data for one (1) sample submitted from the Sears Oakland site, Project 22-00000139.02-02056. A chromatographic analysis of the sample estimates the composition to be ~20-30% diesel, ~30-50% lube oil and the balance a heavy fuel oil or Bunker C. An interpretation is included. All analyses were performed by applicable ASTM, EPA or API methodology. Samples will be retained for 30 days before disposal unless other arrangements are made.

We appreciate the opportunity to be of service and trust these data will prove beneficial in the development of this project. Please feel free to call me at (562) 907-3607 should you have any questions or require additional information.

Sincerely,

PTS Laboratories, Inc.

Larry Kunkel
District Manager

LK/vk

encl.

PTS Laboratories
Geotechnical Services
8100 Secura Way • Santa Fe Springs • CA 90670
Phone (562) 907-3607 • Fax (562) 907-3610

Client: URS Corporation

PTS File No: 32279
Date: August 1, 2002

Hydrocarbon Analysis

Introduction

A NAPL sample identified as FOMW-1-FP-001 from the Sears, Oakland site was received for viscosity measurements and identification of its hydrocarbon composition. It was suggested that the sample might consist of degraded diesel fuel and "heating oil" since tanks of the latter were present at the site.

Conclusions

The sample contains hydrocarbons from gasoline to heavy fuel oil fractions (C_6-C_{34}). The gasoline fraction (C_2-C_9) amounts to only a trace and is probably part of the diesel oil, which normally has components from C_2-C_{23} with the main portion made up of C_{10}-C_{18} molecular weight range compounds. There is also a definite lube oil fraction (C_{14}-C_{20}) present and also fuel oil (C_{19} thru C_{34}). Actual percentages of these fractions are difficult to determine without specific reference samples because they all overlap one another. Our best estimate is 20-30% diesel, 30-50% lube oil and the remainder fuel oil or Bunker C, which is a heavy fuel oil.

The lack of normal paraffins in any of the fractions indicated either a "feed stock" that was missing the paraffins or is related to bacterial degradation occurring after the NAPL accumulated in the near surface sediments where fresh water and oxygen would be easily available to support such degradation.

Analyses and Discussion

The viscosity/density data are presented in Table 1 and Figure 1. The limited volume of sample allowed for a single measurement at 73°F. Results for 50, 60 and 80°F were extrapolated using data from similar fuels.

Compositional analysis of the NAPL was done by OILPRINT™, which is a chromatographic method (IP 318/75M) that provides detailed information of the C_2-C_{34} fractions. Figure 2 is a reduced version of the chromatogram with a number of peak identifications. The lack of normal paraffins is obvious. The very large pristane and phytane peaks may be indicative of a feed stock typical of many California generated oils that have been degraded in the reservoir, but can also reflect refining processes that remove normal paraffins.

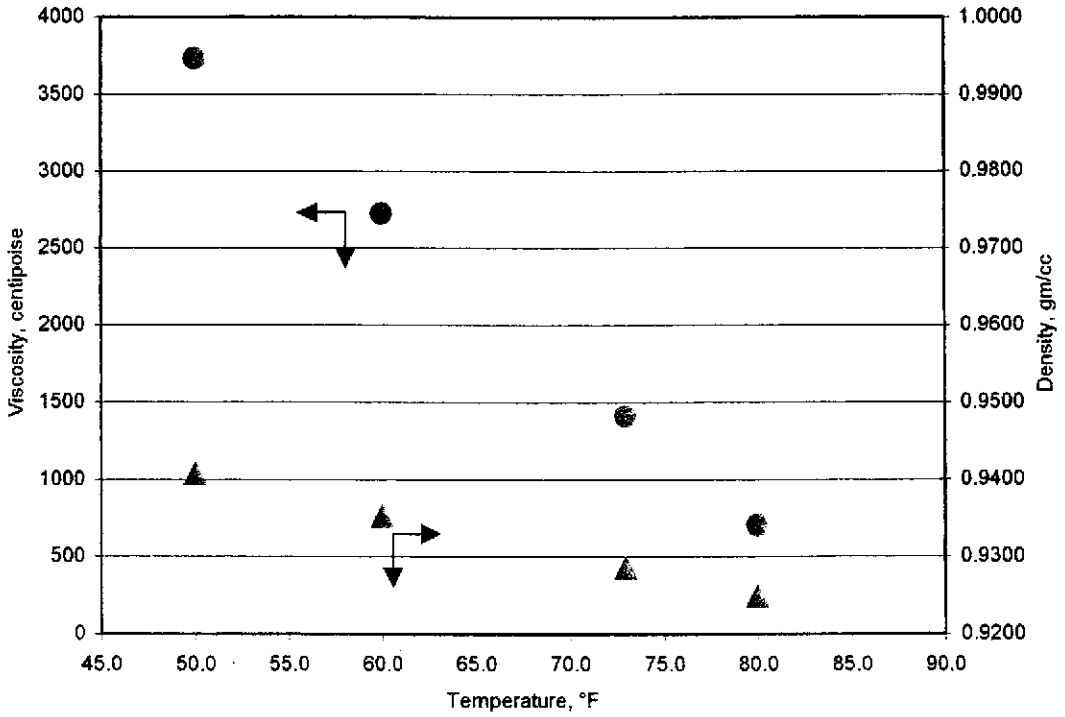
L.W. Slentz, Ph.D.

Table 1
VISCOSITY, SPECIFIC GRAVITY and DENSITY
Methods - ASTM D445, API RP40

PROJECT NAME: Sears Oakland
PROJECT NO: 22-00000139.02-02056

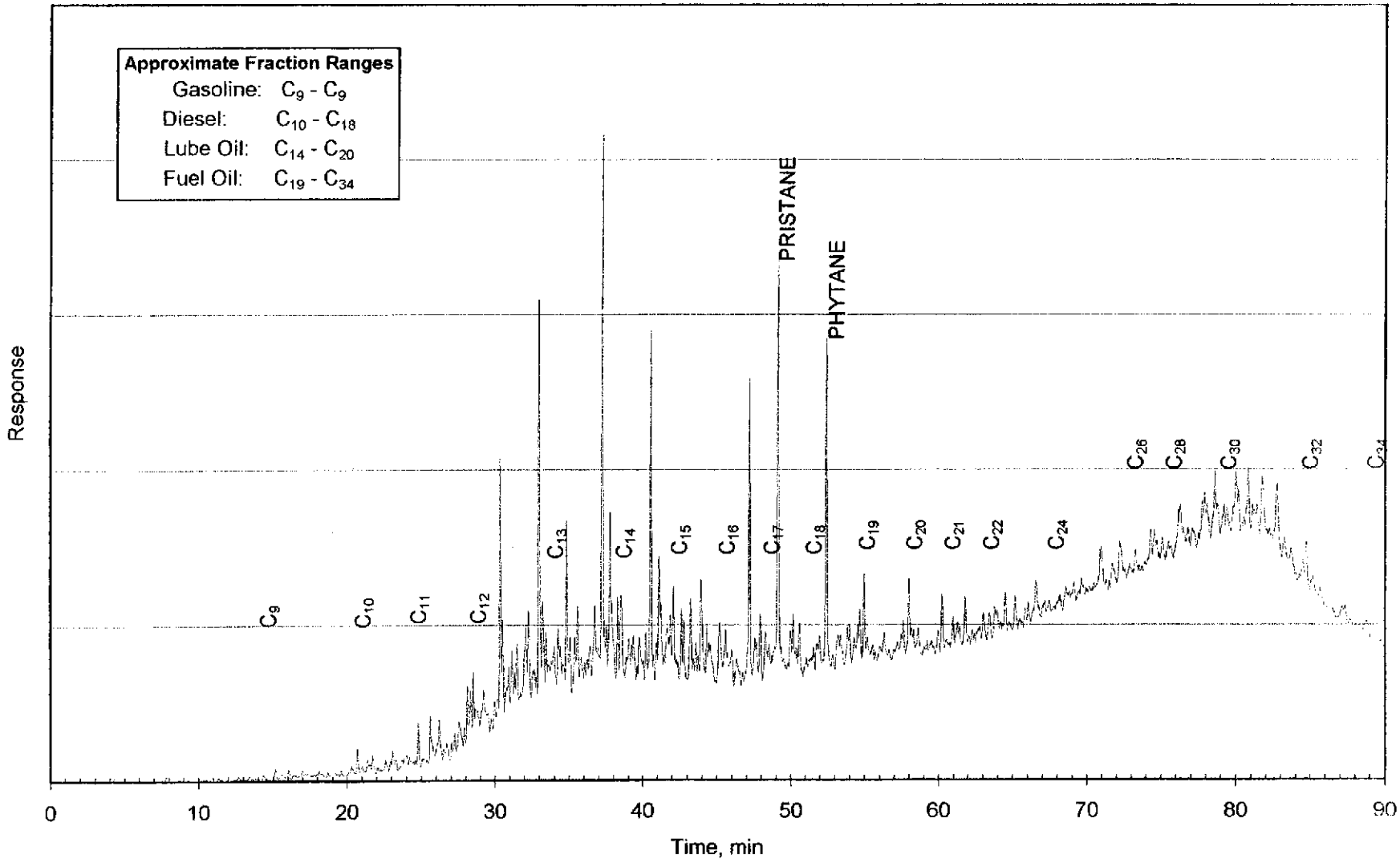
SAMPLE ID.	Temperature, °F	Temperature, °C	Specific Gravity	Density, g/cc	Viscosity, (1) centistokes	Viscosity, (1) centipoise
FOMW-1-FP-001	80.0	26.7	0.9282	0.9249	759	702
	73.0	22.8	0.9308	0.9286	1518	1410
	60.0	15.6	0.9361	0.9352	2911	2723
	50.0	10.0	0.9437	0.9407	3969	3734

Figure 1
Viscosity / Density vs Temperature



(1) Due to limited sample volume data at 50, 60, 80°F were extrapolated using viscosity and density data for similar bunker fuels

Figure 2
Sample ID: FOMW-1-FP-001



URS

500 12th Street, Suite 200
Oakland, CA 94607-4014
(510) 893-3600

Chain of Custody Record

PROJECT NO.
22-00000139.02 - 0205C

SAMPLERS: (Signature)
JEFF LIEN

DATE	TIME	SAMPLE NUMBER	Sample Matrix (S)oil, (W)ater, (A)ir	EPA Method	EPA Method	EPA Method	EPA Method	VISCOSITY TEST	Number of Containers
7/3/02	1230	FOMW-1-FP-001	FP					X	1

ANALYSES

REMARKS (Sample preservation, handling procedures, etc.)

STANDARD TAT

PLEASE CONTACT SCOTT ROWLANDS @ 714-648-2793 W/ RESULTS OR QUESTIONS ABOUT ANALYSIS

SEARS - OAKLAND SITE (EDF #10SEA)
FREE PRODUCT SAMPLE

TOTAL NUMBER OF CONTAINERS: 1

RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)
	7/3/02 1645			7/4/02 0930	

METHOD OF SHIPMENT:	SHIPPED BY: (Signature)	COURIER: (Signature)	RECEIVED FOR LAB BY (Signature)	DATE/TIME

APPENDIX P
OAKLAND ULR TIER 1 RBSLs AND TIER 2 SSTLs

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)anthracene	Benzene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.2E-01		2.5E-01	2.7E+00
			Hazard	3.1E+03	3.1E+03	4.8E+03	1.6E+04	2.0E+01	5.2E+03		8.1E+01
		Commercial/ Industrial	Carcinogenic					1.5E+00		7.9E-01	8.5E+00
			Hazard	2.0E+04	2.0E+04	3.0E+04	1.0E+05	2.5E+02	9.4E+04		5.1E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	6.9E-02
			Hazard	SAT	SAT	1.5E+03	SAT				2.3E+00
		Commercial/ Industrial	Carcinogenic							SAT	1.1E+00
			Hazard	SAT	SAT	4.4E+04	SAT				6.6E+01
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	1.9E-01
			Hazard	SAT	SAT	5.0E+03	SAT				7.6E+00
		Commercial/ Industrial	Carcinogenic							SAT	7.3E-01
			Hazard	SAT	SAT	2.9E+04	SAT				4.4E+01
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*4.4E+00*	*1.2E+02*	6.8E-01	*2.1E-03*
			Hazard	2.0E+02	1.4E+02	3.6E-01	SAT	*4.4E+00*	*1.2E+02*		*2.1E-03*
		Commercial/ Industrial	Carcinogenic					*4.4E+00*	*1.2E+02*	2.9E+00	*2.1E-03*
			Hazard	SAT	SAT	2.4E+00	SAT	*4.4E+00*	*1.2E+02*		*2.1E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	1.1E-01
			Hazard	>SOL	>SOL	2.0E+04	>SOL				3.7E+00
		Commercial/ Industrial	Carcinogenic							>SOL	1.8E+00
			Hazard	>SOL	>SOL	5.8E+05	>SOL				1.1E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	5.6E+00
			Hazard	>SOL	>SOL	2.1E+05	>SOL				2.2E+02
		Commercial/ Industrial	Carcinogenic							>SOL	2.1E+01
			Hazard	>SOL	>SOL	>SOL	>SOL				1.3E+03
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-05	*1.0E-03*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-04	*1.0E-03*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-03		1.6E-05	6.3E-03
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E-02	2.5E-01		2.5E-01	4.5E+03	3.6E+01	
			Hazard			2.1E+02		3.7E+02	1.0E+03	1.0E+04
		Commercial/ Industrial	Carcinogenic	7.9E-02	7.9E-01		7.9E-01	1.7E+04	1.1E+02	
			Hazard			1.4E+03		6.8E+03	6.8E+03	6.8E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*6.2E+00*	2.1E+00		2.1E+00	9.6E+00	3.7E+03	
			Hazard	*6.2E+00*		SAT		9.6E+00	SAT	SAT
		Commercial/ Industrial	Carcinogenic	*6.2E+00*	8.9E+00		8.9E+00	9.6E+00	1.6E+04	
			Hazard	*6.2E+00*		SAT		9.6E+00	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-04*	5.6E-05		5.6E-05	4.0E-03	8.0E-03	
			Hazard	*2.0E-04*		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	*2.0E-04*	2.4E-04		2.4E-04	4.0E-03	3.4E-02	
			Hazard	*2.0E-04*		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-06	1.1E-05		1.2E-05		5.1E-02	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+03		1.8E+00		9.1E+00		1.3E+00
			Hazard	3.7E+01	1.2E+03	3.3E+01	7.9E+02	4.8E+02	7.4E+04	3.7E+02
		Commercial/ Industrial	Carcinogenic	7.9E+03		5.6E+00		2.9E+01		8.7E+00
			Hazard	6.8E+02	6.4E+03	2.1E+02	4.7E+03	3.0E+03	1.4E+06	6.8E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			2.7E-02		3.3E-01		
			Hazard		1.1E+00	4.6E-01	6.2E-01	1.2E+01		
		Commercial/ Industrial	Carcinogenic			4.3E-01		5.2E+00		
			Hazard		3.3E+01	1.3E+01	1.8E+01	3.5E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			7.6E-02		9.2E-01		
			Hazard		3.8E+00	1.5E+00	2.1E+00	4.1E+01		
		Commercial/ Industrial	Carcinogenic			2.9E-01		3.5E+00		
			Hazard		2.2E+01	8.8E+00	1.2E+01	2.4E+02		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.1E+00*		*3.0E-03*	*6.6E-02*	*1.5E-01*		2.9E+00
			Hazard	*1.1E+00*	2.9E+00	*3.0E-03*	*6.6E-02*	*1.5E-01*	8.5E+07	2.9E+00
		Commercial/ Industrial	Carcinogenic	*1.1E+00*		*3.0E-03*	*6.6E-02*	*1.5E-01*		2.9E+00
			Hazard	*1.1E+00*	1.9E+01	*3.0E-03*	*6.6E-02*	*1.5E-01*	5.6E+08	2.9E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.6E-02		7.5E-01		
			Hazard		2.1E+00	2.7E-01	2.4E+00	2.8E+01		
		Commercial/ Industrial	Carcinogenic			2.6E-01		1.2E+01		
			Hazard		6.2E+01	7.8E+00	6.9E+01	8.0E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.1E+00		3.4E+01		
			Hazard		1.7E+02	2.2E+01	2.0E+02	1.5E+03		
		Commercial/ Industrial	Carcinogenic			4.2E+00		1.3E+02		
			Hazard		9.6E+02	1.3E+02	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.6E+00	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.0E+01	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-03		3.9E-02		6.8E-03
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	o-Cresol(-m)	p-Cresol(-o)	m-Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E+00						7.4E-02
			Hazard		2.8E+03	2.6E+03	2.6E+03	2.6E+02	3.0E+03	
		Commercial/ Industrial	Carcinogenic	7.9E+00						2.3E-01
			Hazard		5.0E+04	1.7E+04	1.7E+04	1.7E+03	5.5E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	*2.8E-01*				6.0E+00	1.9E+00
			Hazard		*2.8E-01*	2.2E+00	2.3E+00	2.1E-01	6.0E+00	
		Commercial/ Industrial	Carcinogenic	SAT	*2.8E-01*				6.0E+00	8.0E+00
			Hazard		*2.8E-01*	1.5E+01	1.5E+01	1.4E+00	6.0E+00	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	5.6E-04	*1.3E+00*				2.0E-01	1.6E-05
			Hazard		*1.3E+00*	7.8E-01	7.8E-01	7.8E-02	2.0E-01	
		Commercial/ Industrial	Carcinogenic	>SOL	*1.3E+00*				2.0E-01	7.0E-05
			Hazard		*1.3E+00*	5.1E+00	5.1E+00	5.1E-01	2.0E-01	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.6E-04						1.4E-06
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00	

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloro-ethane (1,1-)	Dichloro-ethane (1,2-) (EDC)	Dichloro-ethylene (1,1-)	Dichloro-ethylene (cis 1,2-)	Dichloro-ethene (trans 1,2)	Dimethylbenza-(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	4.7E+01	3.9E+00	4.9E-01			
			Hazard	4.9E+03	1.4E+02	4.3E+02	4.8E+02	9.5E+02	1.6E+03
		Commercial/ Industrial	Carcinogenic	1.5E+02	1.2E+01	1.5E+00			
			Hazard	3.1E+04	8.8E+02	2.7E+03	3.0E+03	6.1E+03	1.0E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	8.6E-01	1.7E-01	9.4E-03			
			Hazard	1.3E+02	6.8E+00	3.0E+00	1.4E+01	1.9E+01	
		Commercial/ Industrial	Carcinogenic	1.4E+01	2.7E+00	1.5E-01			
			Hazard	SAT	2.0E+02	8.7E+01	4.1E+02	5.4E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.4E+00	4.8E-01	2.6E-02			
			Hazard	4.5E+02	2.3E+01	9.9E+00	4.7E+01	6.2E+01	
		Commercial/ Industrial	Carcinogenic	9.1E+00	1.8E+00	1.0E-01			
			Hazard	SAT	1.3E+02	5.8E+01	2.8E+02	3.6E+02	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*	
			Hazard	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*	SAT
		Commercial/ Industrial	Carcinogenic	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*	
			Hazard	6.4E-03	*3.8E-04*	*1.5E-02*	*8.2E-03*	*2.0E-02*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.3E+00	7.2E-01	1.4E-02			
			Hazard	3.6E+02	2.9E+01	4.3E+00	3.5E+01	3.2E+01	
		Commercial/ Industrial	Carcinogenic	3.6E+01	1.1E+01	2.2E-01			
			Hazard	>SOL	8.3E+02	1.2E+02	1.0E+03	9.4E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	1.1E+02	1.8E+01	9.3E-01			
			Hazard	>SOL	8.6E+02	3.5E+02	1.6E+03	2.0E+03	
		Commercial/ Industrial	Carcinogenic	4.0E+02	6.9E+01	3.5E+00			
			Hazard	>SOL	5.0E+03	2.0E+03	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E-01	2.4E-02	1.3E-03			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl-phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				9.7E-01	1.0E+01		8.4E-02	
			Hazard	1.0E+03	5.2E+03	1.0E+03			5.1E+03	2.7E+00	2.1E+03
		Commercial/ Industrial	Carcinogenic				3.0E+00	3.1E+01		2.6E-01	
			Hazard	6.7E+03	3.4E+04	6.8E+03			3.3E+04	1.7E+01	1.4E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		2.8E-01	
			Hazard	SAT	SAT	SAT			SAT	7.8E-01	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		4.5E+00	
			Hazard	SAT	SAT	SAT			SAT	2.3E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		7.9E-01	
			Hazard	SAT	SAT	SAT			SAT	2.6E+00	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		3.0E+00	
			Hazard	SAT	SAT	SAT			SAT	1.5E+01	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				6.7E-04	1.8E-03	*8.0E+00*	*7.8E-05*	
			Hazard	2.0E+00	3.9E+06	SAT			*8.0E+00*	*7.8E-05*	SAT
		Commercial/ Industrial	Carcinogenic				2.9E-03	SAT	*8.0E+00*	*7.8E-05*	
			Hazard	1.3E+01	SAT	SAT			*8.0E+00*	*7.8E-05*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		5.7E-01	
			Hazard	>SOL	>SOL	>SOL			>SOL	1.6E+00	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		9.0E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	4.6E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		8.7E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.9E+01	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		3.3E+01	
			Hazard	>SOL	>SOL	>SOL			>SOL	1.7E+02	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-04	2.5E-03	*7.0E-01*	*5.0E-05*	
			Hazard	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic				9.2E-04	1.1E-02	*7.0E-01*	*5.0E-05*	
			Hazard	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-03	>SOL		5.9E-04	
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno (1,2,3-CD) pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-napthalene (2-)	MTBE
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		2.5E-01				2.1E+01		
			Hazard	2.1E+03		4.7E+00	2.4E+04	2.6E+04	3.1E+03	2.0E+03	2.6E+02
		Commercial/ Industrial	Carcinogenic		7.9E-01				6.6E+01		
			Hazard	1.4E+04		3.0E+01	1.5E+05	1.6E+05	2.0E+04	1.3E+04	1.7E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				1.3E+00		
			Hazard	SAT		1.2E+01	4.5E+04	6.9E+03	7.4E+02	SAT	4.4E+03
		Commercial/ Industrial	Carcinogenic		SAT				2.0E+01		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				3.5E+00		
			Hazard	SAT		4.0E+01	SAT	2.3E+04	2.5E+03	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				1.3E+01		
			Hazard	SAT		2.3E+02	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*3.2E-01*			3.1E-03		*7.6E-03*
			Hazard	2.6E+02		*3.2E-01*	1.7E+00	3.3E+00	3.1E-03	1.6E+02	*7.6E-03*
		Commercial/ Industrial	Carcinogenic		SAT	*3.2E-01*			3.1E-03		*7.6E-03*
			Hazard	SAT		*3.2E-01*	1.1E+01	2.2E+01	3.1E-03	1.1E+03	*7.6E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				6.7E+00		
			Hazard	>SOL		2.6E-01	6.5E+05	6.0E+04	4.0E+03	>SOL	2.4E+04
		Commercial/ Industrial	Carcinogenic		>SOL				1.1E+02		
			Hazard	>SOL		7.6E+00	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				2.3E+02		
			Hazard	>SOL		1.6E+01	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				8.7E+02		
			Hazard	>SOL		9.5E+01	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		7.0E-06				1.3E-01		
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitro-benzene	PCBs	Phenan-threne	Phenol	Pyrene	Pyridine	Selenium
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+04	5.5E+02	5.0E-02				2.8E+02	
			Hazard	2.0E+03	1.5E+03		1.2E+00	1.6E+04	3.1E+04	1.6E+03		3.7E+02
		Commercial/ Industrial	Carcinogenic		1.3E+05	1.7E+03	1.8E-01				8.9E+02	
			Hazard	1.3E+04	2.7E+04		1.0E+01	1.0E+05	2.0E+05	1.0E+04		6.8E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	6.9E+01				2.9E+03	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	1.1E+03				4.6E+04	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	1.9E+02				8.1E+03	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	7.3E+02				3.1E+04	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.2E+00*	*2.0E+01*	2.9E-01	*4.7E+00*				1.2E-01	*7.7E-01*
			Hazard	*1.2E+00*	*2.0E+01*		*4.7E+00*	SAT	1.0E+01	SAT		*7.7E-01*
		Commercial/ Industrial	Carcinogenic	*1.2E+00*	*2.0E+01*	1.2E+00	*4.7E+00*				5.3E-01	*7.7E-01*
			Hazard	*1.2E+00*	*2.0E+01*		*4.7E+00*	SAT	6.7E+01	SAT		*7.7E-01*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.3E-02				4.8E+03	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	3.6E-01				7.7E+04	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	3.2E-01				4.1E+04	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				1.5E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-02*	*1.0E-01*	1.3E-01	*5.0E-04*				6.7E-02	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*
		Commercial/ Industrial	Carcinogenic	*2.0E-02*	*1.0E-01*	5.7E-01	*5.0E-04*				2.9E-01	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+00	1.6E-06				2.6E+00	
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Styrene	Tetrachloroethane (1,1,2,2-)	Tetrachloroethylene (PCE)	Tetraethyl Lead	Toluene	Trichloroethane (1,1,1-)	Trichloroethane (1,1,2-)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			1.0E+00	5.7E+00				3.8E+00
			Hazard	3.7E+02	9.8E+03	1.2E+03	4.8E+02	5.2E-03	9.0E+03	1.8E+03	1.9E+02
		Commercial/ Industrial	Carcinogenic			3.1E+00	1.8E+01				1.2E+01
			Hazard	6.8E+03	6.3E+04	7.9E+03	3.0E+03	3.4E-02	5.6E+04	1.2E+04	1.2E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.4E-01	3.0E-01				5.4E-01
			Hazard		SAT	1.0E+03	1.2E+01		3.6E+02	2.6E+02	3.1E+01
		Commercial/ Industrial	Carcinogenic			1.2E+01	4.8E+00				8.7E+00
			Hazard		SAT	SAT	SAT		SAT	SAT	8.9E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			2.1E+00	8.4E-01				1.5E+00
			Hazard		SAT	SAT	4.1E+01		SAT	8.7E+02	1.0E+02
		Commercial/ Industrial	Carcinogenic			7.8E+00	3.2E+00				5.8E+00
			Hazard		SAT	SAT	2.4E+02		SAT	SAT	5.9E+02
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.5E+00*	*2.4E+00*	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*
			Hazard	*2.5E+00*	*2.4E+00*	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*
		Commercial/ Industrial	Carcinogenic	*2.5E+00*	*2.4E+00*	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*
			Hazard	*2.5E+00*	*2.4E+00*	3.0E-03	*2.6E-02*	*2.4E+00*	*8.8E-01*	*7.8E-01*	*8.8E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.5E-01	2.0E-01				9.9E-01
			Hazard		>SOL	1.0E+03	8.4E+00		2.1E+02	2.4E+02	5.6E+01
		Commercial/ Industrial	Carcinogenic			1.2E+01	3.3E+00				1.6E+01
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	1.6E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.1E+01	1.3E+01				2.2E+01
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	1.5E+03
		Commercial/ Industrial	Carcinogenic			4.1E+01	5.1E+01				8.4E+01
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-03	6.0E-03				1.8E-02
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 5. Oakland Tier 1 RBSLs

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.9E+01		5.0E-01		
			Hazard	2.9E+02	5.2E+02		5.4E+04	2.2E+04
		Commercial/ Industrial	Carcinogenic	5.9E+01		1.6E+00		
			Hazard	1.8E+03	9.5E+03		3.0E+05	4.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.1E+00		1.3E-03		
			Hazard	1.3E+01			SAT	
		Commercial/ Industrial	Carcinogenic	1.7E+01		2.1E-02		
			Hazard	3.6E+02			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.0E+00		3.7E-03		
			Hazard	4.2E+01			SAT	
		Commercial/ Industrial	Carcinogenic	1.1E+01		1.4E-02		
			Hazard	2.4E+02			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.7E-02*		*6.5E-04*	*1.3E+01*	
			Hazard	*2.7E-02*	3.3E+02	*6.5E-04*	*1.3E+01*	8.8E+02
		Commercial/ Industrial	Carcinogenic	*2.7E-02*		*6.5E-04*	*1.3E+01*	
			Hazard	2.7E-02	2.2E+03	*6.5E-04*	*1.3E+01*	5.8E+03
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	6.9E-01		3.7E-03		
			Hazard	8.1E+00			>SOL	
		Commercial/ Industrial	Carcinogenic	1.1E+01		5.9E-02		
			Hazard	2.3E+02			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	4.1E+01		2.5E-01		
			Hazard	5.7E+02			>SOL	
		Commercial/ Industrial	Carcinogenic	1.5E+02		9.6E-01		
			Hazard	>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	1.1E-01	*5.0E-04*	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	7.2E-01	*5.0E-04*	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-03		2.6E-03		
			Hazard	7.2E-02	2.8E+00		6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

APPENDIX F: TIER 2 SITE-SPECIFIC TARGET LEVELS

This appendix contains the complete set of Oakland Tier 2 SSTLs for Merritt sands, sandy silts and clayey silts. The Oakland Tier 2 SSTLs may be applied only at sites that meet the eligibility criteria specified in Section 2.2 *and* where one or more of the three soil types has been shown to prevail (see Section 2.3.4).

Please note that the Oakland RBCA look-up tables will be updated whenever new or better information becomes available. It is recommended that you consult the ULR Program web page at www.oaklandpw.com to make sure that you have the latest version of the look-up tables before applying the Oakland Tier 2 SSTLs at your site.

For step-by-step assistance in reading the look-up tables, refer back to Section 2.4.

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.8E+00		3.7E+00	3.7E+01
			Hazard	3.9E+03	3.9E+03	5.8E+03	1.9E+04	2.2E+01	5.3E+03		9.9E+01
		Commercial/ Industrial	Carcinogenic					2.4E+01		1.6E+01	1.5E+02
			Hazard	4.0E+04	4.0E+04	5.4E+04	2.0E+05	3.8E+02	1.2E+05		9.2E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	7.0E-01
			Hazard	SAT	SAT	1.8E+03	SAT				2.3E+00
		Commercial/ Industrial	Carcinogenic							SAT	1.1E+01
			Hazard	SAT	SAT	5.3E+04	SAT				6.7E+01
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	3.9E+00
			Hazard	SAT	SAT	1.2E+04	SAT				1.6E+01
		Commercial/ Industrial	Carcinogenic							SAT	1.5E+01
			Hazard	SAT	SAT	7.0E+04	SAT				9.1E+01
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*2.1E+01*	*6.0E+02*	3.2E+01	*1.0E-02*
			Hazard	SAT	SAT	2.1E+00	SAT	*2.1E+01*	*6.0E+02*		*1.0E-02*
		Commercial/ Industrial	Carcinogenic					*2.1E+01*	*6.0E+02*	SAT	*1.0E-02*
			Hazard	SAT	SAT	1.4E+01	SAT	*2.1E+01*	*6.0E+02*		*1.0E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	1.4E+00
			Hazard	>SOL	>SOL	2.0E+04	>SOL				4.7E+00
		Commercial/ Industrial	Carcinogenic							>SOL	2.2E+01
			Hazard	>SOL	>SOL	5.9E+05	>SOL				1.4E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	1.8E+02
			Hazard	>SOL	>SOL	4.2E+05	>SOL				7.2E+02
		Commercial/ Industrial	Carcinogenic							>SOL	6.9E+02
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-04	*1.0E-03*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-03	*1.0E-03*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.7E-01	3.7E+00		3.7E+00	4.5E+04	5.3E+02	
			Hazard			2.6E+02		3.8E+02	1.3E+03	1.3E+04
		Commercial/ Industrial	Carcinogenic	1.6E+00	1.6E+01		1.6E+01	1.7E+05	2.3E+03	
			Hazard			2.7E+03		8.5E+03	1.4E+04	1.4E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*SAT*	SAT		SAT	4.6E+01	SAT	
			Hazard	*SAT*		SAT		4.6E+01	SAT	SAT
		Commercial/ Industrial	Carcinogenic	*SAT*	SAT		SAT	4.6E+01	SAT	
			Hazard	*SAT*		SAT		4.6E+01	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-04*	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	*2.0E-04*		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	*2.0E-04*	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	*2.0E-04*		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Target Risk Level	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		2.5E+01		1.3E+02		1.4E+01
			Hazard	3.8E+01	1.3E+03	4.0E+01	9.2E+02	5.8E+02	7.7E+04	3.8E+02
		Commercial/ Industrial	Carcinogenic	7.9E+04		1.0E+02		5.3E+02		1.1E+02
			Hazard	8.5E+02	7.0E+03	3.6E+02	7.2E+03	5.4E+03	1.7E+06	8.5E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			2.7E-01		3.4E+00		
			Hazard		1.1E+00	4.5E-01	6.5E-01	1.3E+01		
		Commercial/ Industrial	Carcinogenic			4.3E+00		5.4E+01		
			Hazard		3.3E+01	1.3E+01	1.9E+01	3.7E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.5E+00		1.9E+01		
			Hazard		7.6E+00	3.0E+00	4.4E+00	8.5E+01		
		Commercial/ Industrial	Carcinogenic			5.8E+00		7.2E+01		
			Hazard		4.4E+01	1.8E+01	2.5E+01	4.9E+02		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*5.5E+00*		*1.4E-02*	*3.3E-01*	*7.3E-01*		1.4E+01
			Hazard	*5.5E+00*	1.4E+01	*1.4E-02*	*3.3E-01*	*7.3E-01*	4.1E+08	1.4E+01
		Commercial/ Industrial	Carcinogenic	*5.5E+00*		*1.4E-02*	*3.3E-01*	*7.3E-01*		1.4E+01
			Hazard	*5.5E+00*	9.1E+01	*1.4E-02*	*3.3E-01*	*7.3E-01*	2.7E+09	1.4E+01
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			2.7E-01		9.1E+00		
			Hazard		3.3E+00	4.5E-01	4.0E+00	3.4E+01		
		Commercial/ Industrial	Carcinogenic			4.3E+00		1.4E+02		
			Hazard		9.5E+01	1.3E+01	1.2E+02	9.8E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			5.6E+01		1.0E+03		
			Hazard		7.3E+02	1.1E+02	>SOL	4.5E+03		
		Commercial/ Industrial	Carcinogenic			2.1E+02		3.9E+03		
			Hazard		>SOL	6.5E+02	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.6E+00	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.0E+01	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	Cresol(-m)	Cresol(-o)	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.7E+01						1.1E+00
			Hazard		2.8E+03	3.2E+03	3.2E+03	3.2E+02	3.1E+03	
		Commercial/ Industrial	Carcinogenic	1.6E+02						4.7E+00
			Hazard		6.3E+04	3.3E+04	3.3E+04	3.3E+03	6.8E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	*1.7E+00*				2.9E+01	9.1E+01
			Hazard		*1.7E+00*	1.1E+01	1.1E+01	1.0E+00	2.9E+01	
		Commercial/ Industrial	Carcinogenic	SAT	*1.7E+00*				2.9E+01	SAT
			Hazard		*1.7E+00*	7.1E+01	7.4E+01	6.7E+00	2.9E+01	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	*1.3E+00*				2.0E-01	1.6E-04
			Hazard		*1.3E+00*	7.8E-01	7.8E-01	7.8E-02	2.0E-01	
		Commercial/ Industrial	Carcinogenic	>SOL	*1.3E+00*				2.0E-01	7.0E-04
			Hazard		*1.3E+00*	5.1E+00	5.1E+00	5.1E-01	2.0E-01	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL						1.4E-05
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00	

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloroethane (1,1-)	Dichloroethane (1,2-) (EDC)	Dichloroethylene (1,1-)	Dichloroethylene (cis 1,2-)	Dichloroethene (trans 1,2)	Dimethylbenza-(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	6.6E+02	5.3E+01	7.0E+00			
			Hazard	6.0E+03	1.7E+02	5.2E+02	5.8E+02	1.2E+03	2.0E+03
		Commercial/ Industrial	Carcinogenic	2.7E+03	2.2E+02	3.0E+01			
			Hazard	5.8E+04	1.6E+03	4.9E+03	5.4E+03	1.1E+04	2.0E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	8.8E+00	1.8E+00	9.2E-02			
			Hazard	1.4E+02	7.2E+00	2.9E+00	1.5E+01	1.9E+01	
		Commercial/ Industrial	Carcinogenic	1.4E+02	2.9E+01	1.5E+00			
			Hazard	SAT	2.1E+02	8.5E+01	4.3E+02	5.5E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	5.0E+01	1.0E+01	5.2E-01			
			Hazard	9.3E+02	4.8E+01	2.0E+01	9.9E+01	1.3E+02	
		Commercial/ Industrial	Carcinogenic	1.9E+02	3.9E+01	2.0E+00			
			Hazard	SAT	2.8E+02	1.1E+02	5.7E+02	7.4E+02	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	3.1E-02	*1.9E-03*	*7.0E-02*	*4.0E-02*	*9.6E-02*	
			Hazard	3.1E-02	*1.9E-03*	*7.0E-02*	*4.0E-02*	*9.6E-02*	SAT
		Commercial/ Industrial	Carcinogenic	3.1E-02	*1.9E-03*	*7.0E-02*	*4.0E-02*	*9.6E-02*	
			Hazard	3.1E-02	*1.9E-03*	*7.0E-02*	*4.0E-02*	*9.6E-02*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.8E+01	7.7E+00	2.2E-01			
			Hazard	4.3E+02	3.1E+01	7.0E+00	4.0E+01	4.2E+01	
		Commercial/ Industrial	Carcinogenic	4.4E+02	1.2E+02	3.5E+00			
			Hazard	>SOL	8.9E+02	2.0E+02	1.2E+03	1.2E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.2E+03	4.1E+02	4.5E+01			
			Hazard	>SOL	2.0E+03	1.7E+03	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	1.6E+03	1.7E+02			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl phenol (2,4)	di-n-Butyl phthalate	di-n-octyl phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				1.4E+01	1.4E+02		1.2E+00	
			Hazard	1.3E+03	6.5E+03	1.3E+03			6.3E+03	3.3E+00	2.6E+03
		Commercial/ Industrial	Carcinogenic				6.0E+01	5.6E+02		5.2E+00	
			Hazard	1.3E+04	6.8E+04	1.4E+04			6.3E+04	3.1E+01	2.7E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		2.9E+00	
			Hazard	SAT	SAT	SAT			SAT	8.1E-01	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		4.6E+01	
			Hazard	SAT	SAT	SAT			SAT	2.4E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		1.6E+01	
			Hazard	SAT	SAT	SAT			SAT	5.4E+00	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		6.2E+01	
			Hazard	SAT	SAT	SAT			SAT	3.2E+01	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				3.3E-02	SAT	*3.8E+01*	*3.8E-04*	
			Hazard	9.9E+00	SAT	SAT			*3.8E+01*	*3.8E-04*	SAT
		Commercial/ Industrial	Carcinogenic				1.4E-01	SAT	*3.8E+01*	*3.8E-04*	
			Hazard	6.5E+01	SAT	SAT			*3.8E+01*	*3.8E-04*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		5.9E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	1.6E+00	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		9.3E+01	
			Hazard	>SOL	>SOL	>SOL			>SOL	4.8E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		1.8E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	6.0E+01	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		6.9E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	3.5E+02	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03	
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Fluorene	Indeno-(1,2,3-CD)-pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-napthalene (2-)	MTBE
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.7E+00				3.0E+02		
			Hazard	2.6E+03		5.8E+00	2.9E+04	3.1E+04	3.9E+03	2.5E+03	3.3E+02
		Commercial/ Industrial	Carcinogenic		1.6E+01				1.3E+03		
			Hazard	2.7E+04		5.5E+01	2.7E+05	2.7E+05	4.0E+04	2.6E+04	3.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				1.3E+01		
			Hazard	SAT		1.2E+01	5.6E+04	7.9E+03	8.0E+02	SAT	4.8E+03
		Commercial/ Industrial	Carcinogenic		SAT				2.1E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				7.6E+01		
			Hazard	SAT		8.2E+01	SAT	SAT	SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				2.9E+02		
			Hazard	SAT		4.7E+02	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*1.5E+00*			1.6E-02		*4.0E-02*
			Hazard	SAT		*1.5E+00*	9.9E+00	1.8E+01	1.6E-02	7.7E+02	*4.0E-02*
		Commercial/ Industrial	Carcinogenic		SAT	*1.5E+00*			1.6E-02		*4.0E-02*
			Hazard	SAT		*1.5E+00*	6.5E+01	1.2E+02	1.6E-02	SAT	*4.0E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				7.6E+01		
			Hazard	>SOL		3.4E-01	6.6E+05	6.2E+04	4.5E+03	>SOL	2.5E+04
		Commercial/ Industrial	Carcinogenic		>SOL				1.2E+03		
			Hazard	>SOL		9.8E+00	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				5.8E+03		
			Hazard	>SOL		5.4E+01	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				>SOL		
			Hazard	>SOL		3.1E+02	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		>SOL				1.3E+00		
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitro-benzene	PCBs	Phenan-threne	Phenol	Pyrene	Pyridine	Selenium
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	7.8E+03	6.5E-01				4.1E+03	
			Hazard	2.5E+03	1.5E+03		1.4E+00	1.9E+04	3.8E+04	2.0E+03		3.8E+02
		Commercial/ Industrial	Carcinogenic		1.3E+06	3.3E+04	3.3E+00				1.7E+04	
			Hazard	2.5E+04	3.4E+04		1.8E+01	2.0E+05	3.9E+05	2.0E+04		8.5E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	6.9E+02				3.0E+04	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				4.8E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	SAT				1.6E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				6.1E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*5.8E+00*	*9.5E+01*	1.4E+01	*2.2E+01*				6.1E+00	*3.7E+00*
			Hazard	*5.8E+00*	*9.5E+01*		*2.2E+01*	SAT	5.1E+01	SAT		*3.7E+00*
		Commercial/ Industrial	Carcinogenic	*5.8E+00*	*9.5E+01*	6.1E+01	*2.2E+01*				2.6E+01	*3.7E+00*
			Hazard	*5.8E+00*	*9.5E+01*		*2.2E+01*	SAT	3.3E+02	SAT		*3.7E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.4E-01				4.9E+04	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				7.8E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL				7.7E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-02*	*1.0E-01*	1.3E+00	*5.0E-04*				6.7E-01	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*
		Commercial/ Industrial	Carcinogenic	*2.0E-02*	*1.0E-01*	5.7E+00	*5.0E-04*				2.9E+00	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05				2.6E+01	
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Styrene	Tetrachloro-ethane (1,1,2,2-)	Tetrachloro-ethylene (PCE)	Tetraethyl Lead	Toluene	Trichloro-ethane (1,1,1-)	Trichloro-ethane (1,1,2-)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			1.4E+01	8.1E+01				5.2E+01
			Hazard	3.8E+02	1.2E+04	1.5E+03	5.8E+02	6.5E-03	1.1E+04	2.2E+03	2.3E+02
		Commercial/ Industrial	Carcinogenic			5.6E+01	3.4E+02				2.1E+02
			Hazard	8.5E+03	1.2E+05	1.4E+04	5.4E+03	6.8E-02	9.4E+04	2.3E+04	2.2E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.5E+00	3.0E+00				5.6E+00
			Hazard		SAT	1.0E+03	1.2E+01		3.7E+02	2.6E+02	3.2E+01
		Commercial/ Industrial	Carcinogenic			1.2E+02	4.8E+01				9.0E+01
			Hazard		SAT	SAT	SAT		SAT	SAT	9.2E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			4.3E+01	1.7E+01				3.2E+01
			Hazard		SAT	SAT	8.3E+01		SAT	SAT	2.1E+02
		Commercial/ Industrial	Carcinogenic			1.6E+02	6.5E+01				1.2E+02
			Hazard		SAT	SAT	SAT		SAT	SAT	1.2E+03
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.2E+01*	*1.1E+01*	1.5E-02	*1.3E-01*	*SAT*	*4.2E+00*	*3.7E+00*	*4.3E-02*
			Hazard	*1.2E+01*	*1.1E+01*	1.5E-02	*1.3E-01*	*SAT*	*4.2E+00*	*3.7E+00*	*4.3E-02*
		Commercial/ Industrial	Carcinogenic	*1.2E+01*	*1.1E+01*	1.5E-02	*1.3E-01*	*SAT*	*4.2E+00*	*3.7E+00*	*4.3E-02*
			Hazard	*1.2E+01*	*1.1E+01*	1.5E-02	*1.3E-01*	*SAT*	*4.2E+00*	*3.7E+00*	*4.3E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			7.8E+00	3.1E+00				1.1E+01
			Hazard		>SOL	1.1E+03	1.3E+01		2.8E+02	3.7E+02	5.9E+01
		Commercial/ Industrial	Carcinogenic			1.2E+02	5.0E+01				1.7E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	1.7E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			2.2E+02	>SOL				4.9E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	3.3E+03
		Commercial/ Industrial	Carcinogenic			8.5E+02	>SOL				1.9E+03
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-02	6.0E-02				1.8E-01
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 6. Oakland Tier 2 SSTLs for Merritt Sands

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.6E+02		6.9E+00		
			Hazard	3.5E+02	5.4E+02		6.0E+04	2.3E+04
		Commercial/ Industrial	Carcinogenic	1.1E+03		2.8E+01		
			Hazard	3.3E+03	1.2E+04		3.8E+05	5.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.1E+01		1.3E-02		
			Hazard	1.3E+01			SAT	
		Commercial/ Industrial	Carcinogenic	1.7E+02		2.0E-01		
			Hazard	3.7E+02			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	6.1E+01		7.1E-02		
			Hazard	8.5E+01			SAT	
		Commercial/ Industrial	Carcinogenic	2.3E+02		2.7E-01		
			Hazard	4.9E+02			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.3E-01*		*2.9E-03*	*6.4E+01*	
			Hazard	*1.3E-01*	1.6E+03	*2.9E-03*	*6.4E+01*	4.2E+03
		Commercial/ Industrial	Carcinogenic	*1.3E-01*		*2.9E-03*	*6.4E+01*	
			Hazard	*1.3E-01*	1.0E+04	*2.9E-03*	*6.4E+01*	2.8E+04
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	9.6E+00		6.0E-02		
			Hazard	1.1E+01			>SOL	
		Commercial/ Industrial	Carcinogenic	1.5E+02		9.6E-01		
			Hazard	3.3E+02			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		1.2E+01		
			Hazard	>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL		4.7E+01		
			Hazard	>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	1.1E-01	*5.0E-04*	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	7.2E-01	*5.0E-04*	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.6E-02		
			Hazard	7.2E-02	2.8E+00		6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					3.2E+00		2.5E+00	2.7E+01
			Hazard	3.1E+03	3.1E+03	4.8E+03	1.6E+04	2.0E+01	5.2E+03		8.2E+01
		Commercial/ Industrial	Carcinogenic					1.5E+01		7.9E+00	8.5E+01
			Hazard	2.0E+04	2.0E+04	3.0E+04	1.0E+05	2.5E+02	9.4E+04		5.2E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	1.1E+00
			Hazard	SAT	SAT	3.3E+03	SAT				3.6E+00
		Commercial/ Industrial	Carcinogenic							SAT	1.7E+01
			Hazard	SAT	SAT	9.7E+04	SAT				1.1E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	2.0E+01
			Hazard	SAT	SAT	5.7E+04	SAT				8.0E+01
		Commercial/ Industrial	Carcinogenic							SAT	7.7E+01
			Hazard	SAT	SAT	SAT	SAT				4.7E+02
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*8.9E+00*	*2.5E+02*	2.0E+01	*6.5E-03*
			Hazard	SAT	SAT	1.6E+00	SAT	*8.9E+00*	*2.5E+02*		*6.5E-03*
		Commercial/ Industrial	Carcinogenic					*8.9E+00*	*2.5E+02*	SAT	*6.5E-03*
			Hazard	SAT	SAT	1.0E+01	SAT	*8.9E+00*	*2.5E+02*		*6.5E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	3.4E+00
			Hazard	>SOL	>SOL	2.2E+04	>SOL				1.1E+01
		Commercial/ Industrial	Carcinogenic							>SOL	5.3E+01
			Hazard	>SOL	>SOL	6.2E+05	>SOL				3.2E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	1.0E+03
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic							>SOL	>SOL
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-04	*1.0E-03*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-03	*1.0E-03*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E-01	2.5E+00		2.5E+00	4.5E+04	3.6E+02	
			Hazard			2.1E+02		3.7E+02	1.0E+03	1.0E+04
		Commercial/ Industrial	Carcinogenic	7.9E-01	7.9E+00		7.9E+00	1.7E+05	1.1E+03	
			Hazard			1.4E+03		6.8E+03	6.8E+03	6.8E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.9E+01*	SAT		SAT	1.9E+01	SAT	
			Hazard	*1.9E+01*		SAT		1.9E+01	SAT	SAT
		Commercial/ Industrial	Carcinogenic	*1.9E+01*	SAT		SAT	1.9E+01	SAT	
			Hazard	*1.9E+01*		SAT		1.9E+01	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-04*	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	*2.0E-04*		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	*2.0E-04*	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	*2.0E-04*		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	1,2-Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		1.8E+01		9.1E+01		1.3E+01
			Hazard	3.7E+01	1.3E+03	3.3E+01	8.0E+02	4.8E+02	7.4E+04	3.7E+02
		Commercial/ Industrial	Carcinogenic	7.9E+04		5.7E+01		2.9E+02		8.7E+01
			Hazard	6.8E+02	6.7E+03	2.1E+02	4.8E+03	3.0E+03	1.4E+06	6.8E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			4.1E-01		5.3E+00		
			Hazard		1.7E+00	6.8E-01	1.0E+00	2.0E+01		
		Commercial/ Industrial	Carcinogenic			6.5E+00		8.5E+01		
			Hazard		5.0E+01	2.0E+01	3.0E+01	5.8E+02		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			7.6E+00		9.9E+01		
			Hazard		3.8E+01	1.5E+01	2.3E+01	4.4E+02		
		Commercial/ Industrial	Carcinogenic			2.9E+01		3.8E+02		
			Hazard		2.2E+02	8.8E+01	1.3E+02	2.5E+03		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.3E+00*		*8.8E-03*	*2.1E-01*	*4.7E-01*		5.8E+00
			Hazard	*2.3E+00*	8.5E+00	*8.8E-03*	*2.1E-01*	*4.7E-01*	1.7E+08	5.8E+00
		Commercial/ Industrial	Carcinogenic	*2.3E+00*		*8.8E-03*	*2.1E-01*	*4.7E-01*		5.8E+00
			Hazard	*2.3E+00*	5.6E+01	*8.8E-03*	*2.1E-01*	*4.7E-01*	1.1E+09	5.8E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.3E+00		1.9E+01		
			Hazard		1.2E+01	2.2E+00	2.1E+01	7.2E+01		
		Commercial/ Industrial	Carcinogenic			2.1E+01		3.1E+02		
			Hazard		3.6E+02	6.4E+01	>SOL	2.1E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			5.0E+02		5.4E+03		
			Hazard		>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.6E+00	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.0E+01	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Copper	Cresol(-m)	Cresol(-o)	Cresol(-p)	Cyanide	Dibenz(a,h)-anthracene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.5E+01						7.4E-01
			Hazard		2.8E+03	2.6E+03	2.6E+03	2.6E+02	3.0E+03	
		Commercial/ Industrial	Carcinogenic	7.9E+01						2.3E+00
			Hazard		5.0E+04	1.7E+04	1.7E+04	1.7E+03	5.5E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT						SAT
			Hazard			SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	*1.2E+00*				1.2E+01	5.7E+01
			Hazard		*1.2E+00*	7.0E+00	7.3E+00	6.5E-01	1.2E+01	
		Commercial/ Industrial	Carcinogenic	SAT	*1.2E+00*				1.2E+01	SAT
			Hazard		*1.2E+00*	4.5E+01	4.7E+01	4.3E+00	1.2E+01	
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic	>SOL						>SOL
			Hazard			>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	*1.3E+00*				2.0E-01	1.6E-04
			Hazard		*1.3E+00*	7.8E-01	7.8E-01	7.8E-02	2.0E-01	
		Commercial/ Industrial	Carcinogenic	>SOL	*1.3E+00*				2.0E-01	7.0E-04
			Hazard		*1.3E+00*	5.1E+00	5.1E+00	5.1E-01	2.0E-01	
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL						1.4E-05
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00	

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloroethane (1,1-)	Dichloroethane (1,2) (EDC)	Dichloroethylene (1,1-)	Dichloroethylene (cis 1,2-)	Dichloroethene (trans 1,2)	Dimethylbenza-(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	4.8E+02	3.9E+01	4.9E+00			
			Hazard	4.9E+03	1.4E+02	4.3E+02	4.8E+02	9.6E+02	1.6E+03
		Commercial/ Industrial	Carcinogenic	1.5E+03	1.2E+02	1.5E+01			
			Hazard	3.1E+04	8.8E+02	2.7E+03	3.0E+03	6.1E+03	1.0E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.4E+01	3.0E+00	1.4E-01			
			Hazard	2.2E+02	1.2E+01	4.3E+00	2.3E+01	2.9E+01	
		Commercial/ Industrial	Carcinogenic	2.2E+02	4.7E+01	2.2E+00			
			Hazard	SAT	3.4E+02	1.2E+02	6.7E+02	8.4E+02	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.6E+02	5.5E+01	2.5E+00			
			Hazard	SAT	2.6E+02	9.5E+01	5.1E+02	6.4E+02	
		Commercial/ Industrial	Carcinogenic	9.7E+02	2.1E+02	9.6E+00			
			Hazard	SAT	1.5E+03	5.5E+02	SAT	3.7E+03	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	2.0E-02	*1.3E-03*	*4.2E-02*	*2.6E-02*	*6.0E-02*	
			Hazard	2.0E-02	*1.3E-03*	*4.2E-02*	*2.6E-02*	*6.0E-02*	SAT
		Commercial/ Industrial	Carcinogenic	2.0E-02	*1.3E-03*	*4.2E-02*	*2.6E-02*	*6.0E-02*	
			Hazard	2.0E-02	*1.3E-03*	*4.2E-02*	*2.6E-02*	*6.0E-02*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	6.0E+01	1.1E+01	1.0E+00			
			Hazard	9.4E+02	4.4E+01	3.2E+01	7.5E+01	1.0E+02	
		Commercial/ Industrial	Carcinogenic	9.6E+02	1.7E+02	1.6E+01			
			Hazard	>SOL	1.3E+03	9.2E+02	2.2E+03	3.0E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	1.8E+03	3.7E+02			
			Hazard	>SOL	8.4E+03	>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	6.7E+03	1.4E+03			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl-phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				9.6E+00	1.0E+02		8.4E-01	
			Hazard	1.0E+03	5.2E+03	1.0E+03			5.1E+03	2.7E+00	2.1E+03
		Commercial/ Industrial	Carcinogenic				3.0E+01	3.2E+02		2.6E+00	
			Hazard	6.7E+03	3.4E+04	6.8E+03			3.3E+04	1.7E+01	1.4E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		4.6E+00	
			Hazard	SAT	SAT	SAT			SAT	1.3E+00	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		7.4E+01	
			Hazard	SAT	SAT	SAT			SAT	3.8E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		8.4E+01	
			Hazard	SAT	SAT	SAT			SAT	2.8E+01	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		3.2E+02	
			Hazard	SAT	SAT	SAT			SAT	1.6E+02	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				2.1E-02	SAT	*2.4E+01*	*2.5E-04*	
			Hazard	6.3E+00	1.2E+07	SAT			*2.4E+01*	*2.5E-04*	SAT
		Commercial/ Industrial	Carcinogenic				8.9E-02	SAT	*2.4E+01*	*2.5E-04*	
			Hazard	4.1E+01	SAT	SAT			*2.4E+01*	*2.5E-04*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		7.0E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.0E+00	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		1.1E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	5.7E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		6.8E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.2E+02	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		2.6E+03	
			Hazard	>SOL	>SOL	>SOL			>SOL	1.3E+03	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03	
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Basis	Fluoranthene	Indeno (1,2,3-CD) pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-napthalene (2-)	MTBE
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		2.5E+00				2.1E+02		
			Hazard	2.1E+03		5.0E+00	2.4E+04	2.7E+04	3.1E+03	2.1E+03	2.6E+02
		Commercial/ Industrial	Carcinogenic		7.9E+00				6.6E+02		
			Hazard	1.4E+04		3.2E+01	1.6E+05	1.7E+05	2.0E+04	1.3E+04	1.7E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				2.2E+01		
			Hazard	SAT		1.3E+01	1.0E+05	1.4E+04	1.3E+03	SAT	8.1E+03
		Commercial/ Industrial	Carcinogenic		SAT				3.5E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				4.1E+02		
			Hazard	SAT		2.8E+02	SAT	SAT	SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				1.6E+03		
			Hazard	SAT		1.6E+03	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*6.3E-01*			1.0E-02		*2.7E-02*
			Hazard	SAT		*6.3E-01*	7.5E+00	1.3E+01	1.0E-02	4.9E+02	*2.7E-02*
		Commercial/ Industrial	Carcinogenic		SAT	*6.3E-01*			1.0E-02		*2.7E-02*
			Hazard	SAT		*6.3E-01*	4.9E+01	8.4E+01	1.0E-02	SAT	*2.7E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				1.3E+02		
			Hazard	>SOL		8.4E-01	6.6E+05	6.6E+04	7.5E+03	>SOL	3.0E+04
		Commercial/ Industrial	Carcinogenic		>SOL				2.0E+03		
			Hazard	>SOL		2.4E+01	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				>SOL		
			Hazard	>SOL		3.1E+02	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				>SOL		
			Hazard	>SOL		1.8E+03	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		>SOL				1.3E+00		
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitro-benzene	PCBs	Phenan-threne	Phenol	Pyrene	Pyridine	Selenium
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	5.6E+03	5.0E-01				2.9E+03	
			Hazard	2.1E+03	1.5E+03		1.2E+00	1.6E+04	3.1E+04	1.6E+03		3.7E+02
		Commercial/ Industrial	Carcinogenic		1.3E+06	1.8E+04	1.9E+00				9.3E+03	
			Hazard	1.3E+04	2.7E+04		1.0E+01	1.0E+05	2.0E+05	1.0E+04		6.8E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	1.1E+03				4.7E+04	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				7.4E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	SAT				4.5E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				SAT	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*3.7E+00*	*4.0E+01*	9.2E+00	*1.4E+01*				3.9E+00	*1.6E+00*
			Hazard	*3.7E+00*	*4.0E+01*		*1.4E+01*	SAT	3.4E+01	SAT		*1.6E+00*
		Commercial/ Industrial	Carcinogenic	*3.7E+00*	*4.0E+01*	3.9E+01	*1.4E+01*				1.7E+01	*1.6E+00*
			Hazard	*3.7E+00*	*4.0E+01*		*1.4E+01*	SAT	2.2E+02	SAT		*1.6E+00*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	2.8E-01				5.0E+04	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				8.0E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-02*	*1.0E-01*	1.3E+00	*5.0E-04*				6.7E-01	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*
		Commercial/ Industrial	Carcinogenic	*2.0E-02*	*1.0E-01*	5.7E+00	*5.0E-04*				2.9E+00	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05				2.6E+01	
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Exposure Unit	Target Risk	Styrene	Tetrachloroethene (1,1,2,2-)	Tetrachloroethylene (PCE)	Tetraethyl Lead	Toluene	Trichloroethane (1,1,1-)	Trichloroethane (1,1,2-)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		1.0E+01	5.7E+01				3.8E+01
			Hazard	1.0E+04	1.3E+03	4.8E+02	5.2E-03	9.0E+03	1.8E+03	1.9E+02
		Commercial/ Industrial	Carcinogenic		3.3E+01	1.8E+02				1.2E+02
			Hazard	6.4E+04	8.2E+03	3.0E+03	3.4E-02	5.6E+04	1.2E+04	1.2E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		1.2E+01	4.6E+00				8.9E+00
			Hazard	SAT	1.6E+03	1.9E+01		5.7E+02	4.0E+02	5.0E+01
		Commercial/ Industrial	Carcinogenic		1.9E+02	7.3E+01				1.4E+02
			Hazard	SAT	SAT	SAT		SAT	SAT	1.5E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		2.1E+02	8.6E+01				1.6E+02
			Hazard	SAT	SAT	4.2E+02		SAT	SAT	1.1E+03
		Commercial/ Industrial	Carcinogenic		8.0E+02	3.3E+02				6.2E+02
			Hazard	SAT	SAT	SAT		SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*7.2E+00*	9.5E-03	*7.8E-02*	*6.9E+00*	*2.7E+00*	*2.3E+00*	*2.8E-02*
			Hazard	*7.2E+00*	9.5E-03	*7.8E-02*	*6.9E+00*	*2.7E+00*	*2.3E+00*	*2.8E-02*
		Commercial/ Industrial	Carcinogenic	*7.2E+00*	9.5E-03	*7.8E-02*	*6.9E+00*	*2.7E+00*	*2.3E+00*	*2.8E-02*
			Hazard	*7.2E+00*	9.5E-03	*7.8E-02*	*6.9E+00*	*2.7E+00*	*2.3E+00*	*2.8E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		9.2E+00	1.2E+01				1.4E+01
			Hazard	>SOL	1.3E+03	5.1E+01		>SOL	>SOL	8.0E+01
		Commercial/ Industrial	Carcinogenic		1.5E+02	2.0E+02				2.3E+02
			Hazard	>SOL	>SOL	>SOL		>SOL	>SOL	2.3E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		8.1E+02	>SOL				2.0E+03
			Hazard	>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL	>SOL				>SOL
			Hazard	>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		4.5E-02	6.0E-02				1.8E-01
			Hazard	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 7. Oakland Tier 2 SSTLs for Sandy Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloroethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.9E+02		5.0E+00		
			Hazard	2.9E+02	5.2E+02		5.6E+04	2.2E+04
		Commercial/ Industrial	Carcinogenic	5.9E+02		1.6E+01		
			Hazard	1.8E+03	9.5E+03		3.1E+05	4.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	1.7E+01		1.8E-02		
			Hazard	2.0E+01			SAT	
		Commercial/ Industrial	Carcinogenic	2.6E+02		2.8E-01		
			Hazard	5.7E+02			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	3.1E+02		3.3E-01		
			Hazard	4.3E+02			SAT	
		Commercial/ Industrial	Carcinogenic	1.2E+03		1.2E+00		
			Hazard	2.5E+03			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*8.2E-02*		*1.6E-03*	*4.0E+01*	
			Hazard	*8.2E-02*	6.7E+02	*1.6E-03*	*4.0E+01*	1.8E+03
		Commercial/ Industrial	Carcinogenic	*8.2E-02*		*1.6E-03*	*4.0E+01*	
			Hazard	*8.2E-02*	4.4E+03	*1.6E-03*	*4.0E+01*	1.2E+04
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.9E+01		2.8E-01		
			Hazard	3.4E+01			>SOL	
		Commercial/ Industrial	Carcinogenic	4.6E+02		4.4E+00		
			Hazard	9.9E+02			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		1.0E+02		
			Hazard	>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL		3.9E+02		
			Hazard	>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	1.1E-01	*5.0E-04*	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	7.2E-01	*5.0E-04*	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.6E-02		
			Hazard	7.2E-02	2.8E+00		6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Acenaphthene	Acenaphthylene	Acetone	Anthracene	Arsenic	Barium	Benz(a)-anthracene	Benzene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic					2.6E+00		1.7E+00	1.9E+01
			Hazard	2.3E+03	2.3E+03	3.7E+03	1.2E+04	1.8E+01	5.0E+03		6.3E+01
		Commercial/ Industrial	Carcinogenic					9.5E+00		4.3E+00	4.9E+01
			Hazard	1.1E+04	1.1E+04	1.8E+04	5.6E+04	1.5E+02	7.1E+04		3.0E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							SAT	1.9E+00
			Hazard	SAT	SAT	6.3E+03	SAT				6.2E+00
		Commercial/ Industrial	Carcinogenic							SAT	3.0E+01
			Hazard	SAT	SAT	1.8E+05	SAT				1.8E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							SAT	1.6E+02
			Hazard	SAT	SAT	1.2E+05	SAT				6.5E+02
		Commercial/ Industrial	Carcinogenic							SAT	6.2E+02
			Hazard	SAT	SAT	SAT	SAT				SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic					*4.4E+00*	*1.3E+02*	1.4E+01	*4.5E-03*
			Hazard	4.0E+02	2.7E+02	1.5E+00	SAT	*4.4E+00*	*1.3E+02*		*4.5E-03*
		Commercial/ Industrial	Carcinogenic					*4.4E+00*	*1.3E+02*	5.8E+01	*4.5E-03*
			Hazard	SAT	SAT	9.7E+00	SAT	*4.4E+00*	*1.3E+02*		*4.5E-03*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic							>SOL	5.6E+00
			Hazard	>SOL	>SOL	2.1E+04	>SOL				1.9E+01
		Commercial/ Industrial	Carcinogenic							>SOL	8.9E+01
			Hazard	>SOL	>SOL	6.2E+05	>SOL				5.4E+02
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic							>SOL	>SOL
			Hazard	>SOL	>SOL	9.5E+05	>SOL				>SOL
		Commercial/ Industrial	Carcinogenic							>SOL	>SOL
			Hazard	>SOL	>SOL	>SOL	>SOL				>SOL
	Ingestion of Groundwater	Residential	Carcinogenic					*5.0E-02*	*1.0E+00*	5.6E-04	*1.0E-03*
			Hazard	9.4E-01	9.4E-01	1.6E+00	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
		Commercial/ Industrial	Carcinogenic					*5.0E-02*	*1.0E+00*	2.4E-03	*1.0E-03*
			Hazard	>SOL	>SOL	1.0E+01	>SOL	*5.0E-02*	*1.0E+00*		*1.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic					2.0E-02		1.6E-04	6.3E-02
			Hazard	1.1E+00	1.7E+00	4.2E+01	>SOL	1.2E-01	2.8E+01		1.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Benzo(a)-pyrene	Benzo(b)-fluoranthene	Benzo(g,h,i)-perylene	Benzo(k)-fluoranthene	Beryllium	Bis (2-ethylhexyl) phthalate	Butyl benzyl phthalate
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.7E-01	1.7E+00		1.7E+00	4.5E+04	2.4E+02	
			Hazard			1.6E+02		3.6E+02	7.8E+02	7.8E+03
		Commercial/ Industrial	Carcinogenic	4.3E-01	4.3E+00		4.3E+00	1.7E+05	6.2E+02	
			Hazard			7.4E+02		5.1E+03	3.7E+03	3.7E+04
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
		Commercial/ Industrial	Carcinogenic	SAT	SAT		SAT		SAT	
			Hazard			SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.2E+01*	SAT		SAT	9.6E+00	7.3E+04	
			Hazard	*1.2E+01*		SAT		9.6E+00	SAT	SAT
		Commercial/ Industrial	Carcinogenic	*1.2E+01*	SAT		SAT	9.6E+00	SAT	
			Hazard	*1.2E+01*		SAT		9.6E+00	SAT	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL		>SOL		>SOL	
			Hazard			>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-04*	5.6E-04		5.6E-04	4.0E-03	8.0E-02	
			Hazard	*2.0E-04*		>SOL		4.0E-03	3.1E-01	>SOL
		Commercial/ Industrial	Carcinogenic	*2.0E-04*	>SOL		>SOL	4.0E-03	>SOL	
			Hazard	*2.0E-04*		>SOL		4.0E-03	>SOL	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	1.1E-05	1.1E-04		1.2E-04		>SOL	
			Hazard			>SOL		2.0E+00	>SOL	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Cadmium	Carbon Disulfide	Carbon Tetrachloride	Chloro-benzene	Chloroform	Chromium (III)	Chromium (VI)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	2.1E+04		1.2E+01		6.2E+01		1.2E+01
			Hazard	3.6E+01	1.4E+03	2.6E+01	6.6E+02	3.7E+02	7.1E+04	3.6E+02
		Commercial/ Industrial	Carcinogenic	7.9E+04		3.3E+01		1.6E+02		6.6E+01
			Hazard	5.1E+02	6.5E+03	1.2E+02	3.1E+03	1.8E+03	1.0E+06	5.1E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			6.7E-01		9.3E+00		
			Hazard		2.9E+00	1.1E+00	1.9E+00	3.5E+01		
		Commercial/ Industrial	Carcinogenic			1.1E+01		1.5E+02		
			Hazard		8.4E+01	3.2E+01	5.5E+01	1.0E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			6.1E+01		8.1E+02		
			Hazard		3.1E+02	1.2E+02	2.1E+02	3.6E+03		
		Commercial/ Industrial	Carcinogenic			2.3E+02		3.1E+03		
			Hazard		SAT	7.0E+02	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*1.1E+00*		*5.9E-03*	*1.6E-01*	*3.4E-01*		2.9E+00
			Hazard	*1.1E+00*	6.0E+00	*5.9E-03*	*1.6E-01*	*3.4E-01*	8.5E+07	2.9E+00
		Commercial/ Industrial	Carcinogenic	*1.1E+00*		*5.9E-03*	*1.6E-01*	*3.4E-01*		2.9E+00
			Hazard	*1.1E+00*	3.9E+01	*5.9E-03*	*1.6E-01*	*3.4E-01*	5.6E+08	2.9E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			3.3E+00		3.1E+01		
			Hazard		2.6E+01	5.5E+00	5.5E+01	1.2E+02		
		Commercial/ Industrial	Carcinogenic			5.2E+01		5.0E+02		
			Hazard		7.5E+02	1.6E+02	>SOL	3.4E+03		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL		>SOL		
			Hazard		>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.6E+00	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.6E+01	5.0E-02
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*7.0E-02*	*1.0E-01*		5.0E-02
			Hazard	*5.0E-03*	1.0E+01	*5.0E-04*	*7.0E-02*	*1.0E-01*	1.0E+02	5.0E-02
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.1E-02		3.9E-01		6.8E-02
			Hazard	2.0E-01	9.4E+00	7.1E-02	1.2E+00	1.9E+00	3.8E+02	1.9E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Chrysene	Cresol(m)	Cresol(o)	Cresol(p)	Cyanide	Dibenz(a,h)-anthracene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.7E+01					4.9E-01
			Hazard		1.9E+03	1.9E+03	1.9E+02	2.8E+03	
		Commercial/ Industrial	Carcinogenic	4.3E+01					1.3E+00
			Hazard		9.2E+03	9.2E+03	9.2E+02	4.1E+04	
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	SAT					SAT
			Hazard		SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic	SAT					SAT
			Hazard		SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	SAT					SAT
			Hazard		SAT	SAT	5.1E+04		
		Commercial/ Industrial	Carcinogenic	SAT					SAT
			Hazard		SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	SAT	*1.2E+00*			6.2E+00	3.8E+01
			Hazard		*1.2E+00*	4.8E+00	5.0E+00	4.6E-01	6.2E+00
		Commercial/ Industrial	Carcinogenic	SAT	*1.2E+00*			6.2E+00	1.6E+02
			Hazard		*1.2E+00*	3.2E+01	3.3E+01	3.0E+00	6.2E+00
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	>SOL					>SOL
			Hazard			>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL					>SOL
			Hazard			>SOL	>SOL	>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL					>SOL
			Hazard			>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL					>SOL
			Hazard			>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	>SOL	*1.3E+00*			2.0E-01	1.6E-04
			Hazard		*1.3E+00*	7.8E-01	7.8E-01	7.8E-02	2.0E-01
		Commercial/ Industrial	Carcinogenic	>SOL	*1.3E+00*			2.0E-01	7.0E-04
			Hazard		*1.3E+00*	5.1E+00	5.1E+00	5.1E-01	2.0E-01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	>SOL					1.4E-05
			Hazard		1.5E+01	6.7E+00	6.4E+00	5.9E-01	7.0E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dichloroethane (1,1-)	Dichloroethane (1,2-) (EDC)	Dichloroethylene (1,1-)	Dichloroethylene (cis 1,2-)	Dichloroethene (trans 1,2)	Dimethylbenza-(a)anthracene (7,12)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	3.3E+02	2.7E+01	3.3E+00			
			Hazard	3.8E+03	1.1E+02	3.3E+02	3.7E+02	7.4E+02	1.2E+03
		Commercial/ Industrial	Carcinogenic	8.7E+02	7.1E+01	8.5E+00			
			Hazard	1.8E+04	5.1E+02	1.6E+03	1.8E+03	3.5E+03	5.6E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.4E+01	5.4E+00	2.3E-01			
			Hazard	3.8E+02	2.1E+01	7.2E+00	4.0E+01	4.9E+01	
		Commercial/ Industrial	Carcinogenic	3.9E+02	8.6E+01	3.6E+00			
			Hazard	SAT	6.2E+02	2.1E+02	1.2E+03	1.4E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.1E+03	4.2E+02	2.1E+01			
			Hazard	SAT	2.0E+03	7.8E+02	SAT	5.2E+03	
		Commercial/ Industrial	Carcinogenic	SAT	1.6E+03	7.8E+01			
			Hazard	SAT	SAT	SAT	SAT	SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*	
			Hazard	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*	SAT
		Commercial/ Industrial	Carcinogenic	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*	
			Hazard	1.4E-02	*9.9E-04*	*2.8E-02*	*1.9E-02*	*4.2E-02*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	9.8E+01	1.5E+01	2.3E+00			
			Hazard	1.5E+03	6.0E+01	7.5E+01	1.2E+02	1.8E+02	
		Commercial/ Industrial	Carcinogenic	1.6E+03	2.4E+02	3.7E+01			
			Hazard	>SOL	1.7E+03	2.2E+03	3.4E+03	5.1E+03	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL	3.5E+03	9.4E+02			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL	>SOL	>SOL			
			Hazard	>SOL	>SOL	>SOL	>SOL	>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
		Commercial/ Industrial	Carcinogenic	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	
			Hazard	5.0E-03	*5.0E-04*	*6.0E-03*	*6.0E-03*	*1.0E-02*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	2.1E+00	2.4E-01	1.3E-02			
			Hazard	1.9E+01	7.2E-01	1.2E+00	1.8E+00	3.5E+00	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Dimethyl-phenol (2,4)	di-n-Butyl-phthalate	di-n-octyl-phthalate	Dinitro-toluene (2,4)	Dioxane (1,4)	Ethyl-benzene	Ethylene Dibromide	Flouran-thene
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic				6.3E+00	7.0E+01		5.5E-01	
			Hazard	7.7E+02	3.9E+03	7.8E+02			3.9E+03	2.2E+00	1.6E+03
		Commercial/ Industrial	Carcinogenic				1.7E+01	1.8E+02		1.4E+00	
			Hazard	3.7E+03	1.9E+04	3.7E+03			1.8E+04	1.0E+01	7.4E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				SAT	SAT		7.5E+00	
			Hazard	SAT	SAT	SAT			SAT	2.1E+00	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		1.2E+02	
			Hazard	SAT	SAT	SAT			SAT	6.1E+01	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				SAT	SAT		4.5E+02	
			Hazard	SAT	SAT	SAT			SAT	1.5E+02	SAT
		Commercial/ Industrial	Carcinogenic				SAT	SAT		1.7E+03	
			Hazard	SAT	SAT	SAT			SAT	8.7E+02	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic				1.5E-02	SAT	*1.6E+01*	*1.8E-04*	
			Hazard	4.3E+00	7.9E+06	SAT			*1.6E+01*	*1.8E-04*	SAT
		Commercial/ Industrial	Carcinogenic				6.2E-02	SAT	*1.6E+01*	*1.8E-04*	
			Hazard	2.8E+01	SAT	SAT			*1.6E+01*	*1.8E-04*	SAT
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		8.5E+00	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.4E+00	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		1.4E+02	
			Hazard	>SOL	>SOL	>SOL			>SOL	6.9E+01	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic				>SOL	>SOL		1.3E+03	
			Hazard	>SOL	>SOL	>SOL			>SOL	4.3E+02	>SOL
		Commercial/ Industrial	Carcinogenic				>SOL	>SOL		>SOL	
			Hazard	>SOL	>SOL	>SOL			>SOL	2.5E+03	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic				2.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	3.1E-01	1.6E+00	>SOL			*7.0E-01*	*5.0E-05*	>SOL
		Commercial/ Industrial	Carcinogenic				9.2E-03	>SOL	*7.0E-01*	*5.0E-05*	
			Hazard	2.0E+00	1.0E+01	>SOL			*7.0E-01*	*5.0E-05*	>SOL
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic				6.4E-02	>SOL		5.9E-03	
			Hazard	2.7E+00	7.3E+00	2.1E-03			3.6E+00	1.7E-02	>SOL

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Scenario	Target Risk Level	Fluorene	Indeno (1,2,3-CD) pyrene	Mercury	Methanol	Methyl ethyl ketone	Methylene Chloride	Methyl-napthalene (2-)	MTBE
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		1.7E+00				1.4E+02		
			Hazard	1.6E+03		3.9E+00	1.9E+04	2.2E+04	2.3E+03	1.6E+03	2.0E+02
		Commercial/ Industrial	Carcinogenic		4.3E+00				3.7E+02		
			Hazard	7.4E+03		1.8E+01	8.9E+04	1.0E+05	1.1E+04	7.4E+03	9.3E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		SAT				4.2E+01		
			Hazard	SAT		1.5E+01	1.9E+05	2.4E+04	2.5E+03	SAT	1.4E+04
		Commercial/ Industrial	Carcinogenic		SAT				6.7E+02		
			Hazard	SAT			SAT	SAT	SAT	SAT	SAT
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		SAT				3.5E+03		
			Hazard	SAT		1.6E+03	SAT	SAT	SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic		SAT				SAT		
			Hazard	SAT		9.4E+03	SAT	SAT	SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic		SAT	*3.2E-01*			8.2E-03		*2.1E-02*
			Hazard	5.2E+02		*3.2E-01*	7.1E+00	1.1E+01	8.2E-03	3.2E+02	*2.1E-02*
		Commercial/ Industrial	Carcinogenic		SAT	*3.2E-01*			8.2E-03		*2.1E-02*
			Hazard	SAT		*3.2E-01*	4.7E+01	7.3E+01	8.2E-03	2.1E+03	*2.1E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic		>SOL				1.9E+02		
			Hazard	>SOL		1.4E+00	6.4E+05	6.5E+04	1.1E+04	>SOL	3.6E+04
		Commercial/ Industrial	Carcinogenic		>SOL				3.0E+03		
			Hazard	>SOL		4.1E+01	>SOL	>SOL	>SOL	>SOL	>SOL
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic		>SOL				>SOL		
			Hazard	>SOL		6.0E+02	>SOL	>SOL	>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic		>SOL				>SOL		
			Hazard	>SOL		3.5E+03	>SOL	>SOL	>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	6.3E-01		*2.0E-03*	7.8E+00	9.4E+00	5.0E-03	6.3E-01	*1.3E-02*
		Commercial/ Industrial	Carcinogenic		>SOL	*2.0E-03*			5.0E-03		*1.3E-02*
			Hazard	>SOL		*2.0E-03*	5.1E+01	6.1E+01	5.0E-03	4.1E+00	*1.3E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic		>SOL				1.3E+00		
			Hazard	3.1E-01		3.6E-02	2.2E+02	1.5E+02	1.6E+01	6.1E-01	1.5E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Naphthalene	Nickel	Nitro-benzene	PCBs	Phenan-threne	Phenol	Pyrene	Pyridine	Selenium
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic		3.4E+05	3.7E+03	3.6E-01				2.0E+03	
			Hazard	1.6E+03	1.4E+03		9.8E-01	1.2E+04	2.3E+04	1.2E+03		3.6E+02
		Commercial/ Industrial	Carcinogenic		1.3E+06	9.9E+03	1.1E+00				5.1E+03	
			Hazard	7.4E+03	2.0E+04		5.8E+00	5.6E+04	1.1E+05	5.6E+03		5.1E+03
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			SAT	1.6E+03				6.6E+04	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				1.1E+06	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			SAT	SAT				3.9E+05	
			Hazard	SAT			SAT	SAT	SAT	SAT		
		Commercial/ Industrial	Carcinogenic			SAT	SAT				SAT	
			Hazard	SAT			SAT	SAT	SAT	SAT		
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.4E+00*	*2.0E+01*	6.5E+00	*9.4E+00*				2.8E+00	*8.0E-01*
			Hazard	*2.4E+00*	*2.0E+01*		*9.4E+00*	SAT	2.5E+01	SAT		*8.0E-01*
		Commercial/ Industrial	Carcinogenic	*2.4E+00*	*2.0E+01*	2.8E+01	*9.4E+00*				1.2E+01	*8.0E-01*
			Hazard	*2.4E+00*	*2.0E+01*		*9.4E+00*	SAT	1.6E+02	SAT		*8.0E-01*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			>SOL	3.2E-01				4.9E+04	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				7.8E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			>SOL	>SOL				6.6E+05	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL	
			Hazard	>SOL			>SOL	>SOL	>SOL	>SOL		
	Ingestion of Groundwater	Residential	Carcinogenic	*2.0E-02*	*1.0E-01*	1.3E+00	*5.0E-04*				6.7E-01	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	9.4E+00	>SOL		*5.0E-02*
		Commercial/ Industrial	Carcinogenic	*2.0E-02*	*1.0E-01*	5.7E+00	*5.0E-04*				2.9E+00	*5.0E-02*
			Hazard	*2.0E-02*	*1.0E-01*		*5.0E-04*	>SOL	6.1E+01	>SOL		*5.0E-02*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			2.8E+01	1.6E-05				2.6E+01	
			Hazard	1.5E+00	7.9E+00		4.4E-05	>SOL	1.5E+02	>SOL		2.0E+00

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Silver	Styrene	Tetrachloroethane (1,1,2,2-)	Tetrachloroethylene (PCE)	Tetraethyl Lead	Toluene	Trichloroethane (1,1,1-)	Trichloroethane (1,1,2-)
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic			7.2E+00	3.8E+01				2.7E+01
			Hazard	3.6E+02	7.7E+03	1.0E+03	3.7E+02	3.9E-03	7.1E+03	1.4E+03	1.5E+02
		Commercial/ Industrial	Carcinogenic			1.9E+01	1.0E+02				7.0E+01
			Hazard	5.1E+03	3.7E+04	4.7E+03	1.8E+03	1.9E-02	3.4E+04	6.5E+03	7.2E+02
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.8E+01	7.6E+00				1.5E+01
			Hazard		SAT	2.5E+03	3.1E+01		9.3E+02	6.6E+02	8.4E+01
		Commercial/ Industrial	Carcinogenic			2.9E+02	1.2E+02				2.4E+02
			Hazard		SAT	SAT	SAT		SAT	SAT	2.4E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.0E+03	6.9E+02				1.1E+03
			Hazard		SAT	SAT	SAT		SAT	SAT	SAT
		Commercial/ Industrial	Carcinogenic			3.9E+03	SAT				4.2E+03
			Hazard		SAT	SAT	SAT		SAT	SAT	SAT
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*2.6E+00*	*4.8E+00*	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*
			Hazard	*2.6E+00*	*4.8E+00*	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*
		Commercial/ Industrial	Carcinogenic	*2.6E+00*	*4.8E+00*	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*
			Hazard	*2.6E+00*	*4.8E+00*	6.6E-03	*5.2E-02*	*4.6E+00*	*1.8E+00*	*1.5E+00*	*2.0E-02*
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic			1.1E+01	2.6E+01				1.9E+01
			Hazard		>SOL	1.5E+03	1.1E+02		>SOL	>SOL	1.1E+02
		Commercial/ Industrial	Carcinogenic			1.7E+02	>SOL				3.0E+02
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	3.1E+03
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic			1.5E+03	>SOL				4.0E+03
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
		Commercial/ Industrial	Carcinogenic			>SOL	>SOL				>SOL
			Hazard		>SOL	>SOL	>SOL		>SOL	>SOL	>SOL
	Ingestion of Groundwater	Residential	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
		Commercial/ Industrial	Carcinogenic	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
			Hazard	*1.0E-01*	*1.0E-01*	1.0E-03	*5.0E-03*	*1.5E-02*	*1.5E-01*	*2.0E-01*	*5.0E-03*
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic			4.5E-02	6.0E-02				1.8E-01
			Hazard	2.1E+00	9.3E+00	4.9E+00	5.3E-01	6.7E-06	1.1E+01	4.3E+00	7.8E-01

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water

Table 8. Oakland Tier 2 SSTLs for Clayey Silts

Medium	Exposure Pathway	Land Use	Type of Risk	Trichloro-ethylene (TCE)	Vanadium	Vinyl Chloride	Xylenes	Zinc
Surficial Soil [mg/kg]	Ingestion/ Dermal/ Inhalation	Residential	Carcinogenic	1.3E+02		3.5E+00		
			Hazard	2.2E+02	5.0E+02		5.3E+04	2.1E+04
		Commercial/ Industrial	Carcinogenic	3.3E+02		9.1E+00		
			Hazard	1.1E+03	7.2E+03		2.6E+05	3.1E+05
Subsurface Soil [mg/kg]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	2.7E+01		3.0E-02		
			Hazard	3.2E+01			SAT	
		Commercial/ Industrial	Carcinogenic	4.4E+02		4.8E-01		
			Hazard	9.3E+02			SAT	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	2.5E+03		2.7E+00		
			Hazard	3.4E+03			SAT	
		Commercial/ Industrial	Carcinogenic	SAT		1.0E+01		
			Hazard	SAT			SAT	
	Ingestion of Groundwater Impacted by Leachate	Residential	Carcinogenic	*5.5E-02*		*1.1E-03*	*2.7E+01*	
			Hazard	*5.5E-02*	3.3E+02	*1.1E-03*	*2.7E+01*	8.9E+02
		Commercial/ Industrial	Carcinogenic	*5.5E-02*		*1.1E-03*	*2.7E+01*	
			Hazard	*5.5E-02*	2.2E+03	*1.1E-03*	*2.7E+01*	5.8E+03
Groundwater [mg/l]	Inhalation of Indoor Air Vapors	Residential	Carcinogenic	5.4E+01		6.6E-01		
			Hazard	6.3E+01			>SOL	
		Commercial/ Industrial	Carcinogenic	8.6E+02		1.0E+01		
			Hazard	>SOL			>SOL	
	Inhalation of Outdoor Air Vapors	Residential	Carcinogenic	>SOL		2.7E+02		
			Hazard	>SOL			>SOL	
		Commercial/ Industrial	Carcinogenic	>SOL		1.0E+03		
			Hazard	>SOL			>SOL	
	Ingestion of Groundwater	Residential	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	1.1E-01	*5.0E-04*	*1.8E+00*	4.7E+00
		Commercial/ Industrial	Carcinogenic	*5.0E-03*		*5.0E-04*	*1.8E+00*	
			Hazard	*5.0E-03*	7.2E-01	*5.0E-04*	*1.8E+00*	3.1E+01
Water Used for Recreation [mg/l]	Ingestion/ Dermal	Residential	Carcinogenic	4.6E-02		2.6E-02		
			Hazard	7.2E-02	2.8E+00		6.6E+01	1.2E+02

*Italicized concentrations based on California MCLs

SAT = RBSL exceeds saturated soil concentration of chemical

>SOL = RBSL exceeds solubility of chemical in water