FOR CONTRACT NO.: 10-0A0104

INFORMATION HANDOUT

AGREEMENTS

UNITED STATES FISH AND WILDLIFE SERVICE
SERVICE FILE NO. 1-1-96 F-0156

MATERIALS INFORMATION

SITE INVESTIGATION REPORT
NATURALLY OCCURING ASBESTOS

ROUTE: 10-Cal-4-14.5/14.8

OA0100

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In reply refer to:
1-1-05-F-0171

JUN 29 2005

Gene K. Fong
Division Administrator
Federal Highway Administration
U.S. Department of Transportation
650 Capitol Mall, Suite 4-100
Sacramento, California 95814

Subject: Review of the Pool Station Road Intersection Improvement Project (10-CAL-4-KP 23.7), Calaveras County, California, for Inclusion with the Valley Elderberry Longhorn Beetle Programmatic Consultation (Service File Number 1-1-96-F-0156)

Dear Mr. Fong:

This letter responds to your December 22, 2004, request for initiation of formal consultation with the U.S. Fish and Wildlife Service (Service) on the proposed Pool Station Road Intersection Improvement Project, Calaveras County, California. Your letter was received on December 27, 2004. The Service has reviewed the biological information submitted by your office describing the effects of the proposed project on the threatened valley elderberry longhorn beetle (*Desmocerus californicus dimorphus*). You requested that this proposed project be appended to the March 11, 1997, Programmatic Biological Opinion *Formal Programmatic Consultation Permitting Projects with Relatively Small Effects on the Valley Elderberry Longhorn Beetle Within the Jurisdiction of the Sacramento Field Office* (Programmatic Consultation) (Service file number 1-1-96-F-0156). Our primary concern and mandate is the protection of federally-listed species pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*) (Act). The findings and recommendations in this formal consultation are based on: (1) your December 22, 2004, letter requesting formal consultation; (2) the November 2004 *Pool Station Road Intersection Improvement Project Biological Assessment*; and (3) information available to the Service.

Project Description

The proposed project is located in the Sierra Nevada Mountain Range foothills, between Copperopolis and Angels Camp, in Calaveras County. It is our understanding the proposed project consists of the realignment of Pool Station Road at its intersection with Route 4. The road would be realigned to connect perpendicular to the highway. Left turn channelization would

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be constructed at the intersection to provide a storage lane and acceleration lane. A section of the knoll located to the northeast of Pool Station Road would be removed. The existing curves of the highway would be realigned to current standards.

There are three elderberry shrubs (*Sambucus* spp.) that occur within 100 feet of the action area. Elderberry shrubs are the sole host plant for the federally-listed beetle, and stems greater than one inch in diameter at ground level are required for the beetle to complete its life cycle. Adults feed on elderberry pollen and are present from March through early June. During this period, the adults mate. Females lay their eggs in bark crevices or at the junction of stem/trunk or leaf petiole/stem. After hatching, the larva burrows into the stem, where it feeds on the live wood. Prior to entering its pupal stage, it chews an exit hole and a pupal chamber. It then transforms into an adult and after a few weeks emerges from the shrub. Often these exit holes are the only evidence of the beetle.

All three elderberry shrubs would be directly affected by the proposed project, and would be transplanted prior to ground disturbing activities to a Service-approved site. In total, 65 stems with a diameter greater than one inch at ground level would be adversely affected. The proposed project includes the following conservation measures:

1. Caltrans would follow the Service's 1999 *Conservation Guidelines for the Valley Elderberry Longhorn Beetle* (Guidelines).

2. All construction work would occur between June 1 and October 15 to avoid the prime activity period of the beetle.

3. All three shrubs would be transplanted to a Service-approved site. Elderberry seedlings and associated native plants would also be established at the site, according to the ratios outlined in the Guidelines.

4. Within three months prior to construction, Caltrans would perform an elderberry shrub survey to verify the number of stems that would be affected by the proposed project. If the stem count is different from the amount specified in this opinion, Caltrans would contact the Service to adjust the number of plantings required for compensation.

Appending to the Programmatic Biological Opinion

The Service has determined that it is appropriate to append the proposed Pool Station Road Intersection Improvement project to the Programmatic Consultation. This letter is an agreement by the Service to append the proposed project to the Programmatic Consultation and represents the Service's biological opinion on the effects of the proposed action. Compensation for projects appended to the Programmatic Consultation involves adhering to the Service's Guidelines, except as approved by the Service. Compensation implemented through the Guidelines should lead to the development of protected habitat areas distributed across the landscape. These protected areas can then be used as foundations for future habitat conservation plans by local

communities. A copy of these Guidelines is found as an appendix to the Programmatic Consultation.

The Service is tracking losses of beetle habitat permitted under the Programmatic Consultation. The Service reevaluates the effectiveness of this Programmatic Consultation at least every six (6) months to ensure continued implementation will not result in unacceptable effects to the beetle or the habitats upon which it depends.

In accordance with the Programmatic Consultation, projects that are appended to that biological opinion will be compensated according to these Guidelines unless otherwise approved by the Service. The compensation identified in the Programmatic Consultation includes transplantation of affected elderberry plants to a compensation area(s), and planting of additional elderberry seedlings/cuttings and associated native species at the compensation area(s).

The proposed project will adversely affect three elderberry shrubs with 65 stems one inch in diameter or greater at ground level that are suitable habitat for the beetle. Caltrans will compensate for the potential adverse effects of the proposed project on the beetle by transplanting the elderberry shrubs and planting an additional 130 elderberry seedlings and 180 associated native plants (see Table 1). Plantings will occur on a Service-approved site that meets the requirements documented in the Service's *Draft Selected Review Criteria for Conservation Banks and Section 7 Off Site Compensation.*

TABLE 1. Elderberry stems directly affected and proposed compensation for the Pool Station Road Intersection Improvement Project.

Stem Size	# of Stems	Exit Holes	Riparian Habitat	Elderberry Seedling Ratio	# Elderberry Seedlings	Associated Native Ratio	# Associated Natives
1-3"	36	No	No	1:1	36	1:1	36
1-3"	2	Yes	Yes	4:1	8	2:1	16
3-5"	19	No	No	2:1	38	1:1	38
3-5"	3	Yes	Yes	6:1	18	2:1	36
5" +	2	No	No	3:1	6	1:1	6
5" +	3	Yes	Yes	8:1	24	2:1	48
Total	**65**				**130**		**180**

This concludes the Service's review of the proposed Pool Station Road Intersection Improvement Project outlined in your request. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been maintained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the

agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this opinion; or, (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

If you have any questions regarding the Pool Station Road Intersection Improvement Project, please contact Amy Welsh or Susan Jones (San Joaquin Valley Branch Chief) at (916) 414-6630.

Sincerely,

For Peter Cross
Deputy Assistant Field Supervisor
Endangered Species Program

Enclosure:
Draft Selected Review Criteria for Conservation Banks and Section 7 Off Site Compensation

cc:
Richard Levy, Caltrans, Stockton, California

Enclosure
1-1-05-F-0171

Selected Review Criteria for Conservation Banks and Section 7 Off Site Compensation

This list is not a comprehensive list, but gives a substantial number of the basic considerations and requirements necessary to establish protection for properties designated as compensation for project impacts.

In many instances, 'Service-approval,' as stated below, may be replaced with 'Agency-approval,' where other government agencies are involved, such as in Conservation Banking (eg. USACE, CDFG, EPA).

Property Assurances and Conservation Easement

Title Report (Preliminary at proposal, and Final Title Insurance at recordation)

1. Who holds fee title to property (Bank Owner)?
2. Is the property owner also the Bank Owner/responsible party as compensation site owner?
3. Are there any liens or encumbrances (existing debts or easements) on the property?
4. Could any of these liens or encumbrances potentially interfere with either biological/habitat values or ownership?
    a. Review necessary supporting instruments to evaluate liens and encumbrances
5. A Subordination Agreement is necessary if there is any outstanding debt on the property. Review Subordination Agreement for adequacy - bank must agree to fully subordinate to each CE.
6. If existing easements can potentially interfere with the conservation values of the property, those portions of the land should be removed from the CE, and deducted from any credits or acres attributed to the compensation

Legal Description and Parcel Map

1. Ensure accuracy of map, location and acreage protected under CE.
2. Both the map and the legal description should explain the boundaries of the Bank and/or boundaries of each individual Bank phase or individual project compensation sites.

Conservation Easement (CE)

1. Should use USFWS CE template, dated November 2003;
2. Who will hold the easement?
    a. Must have third-party oversight by a qualified non-profit or government agency. Qualifications include:
        i. Organized under IRC 501(c)(3),
        ii. Qualifying under CA Civil Code § 815
        iii. Bylaws, Articles of Incorporation, and biographies of Board of Directors on file at, and approved by, USFWS
        iv. Meet requirements of USFWS, including 51% disinterested parties on the Board of Directors

3. If not using the USFWS template, applicant should submit a justification as to why another template is being substituted, and what specific objections they have to the template as provided, and may substantially delay processing if they require Solicitor review. Alternate CE's must be approved by the USFWS prior to recording.
4. Other (non-template) CE's should include, at a minimum, language to:
    a. Assure USFWS rights to enforce inspect and approve any and all uses and/or changes under the CE prior to occurrence (including land use, biological management or ownership).
    b. Reserve all mineral, air and water rights under CE as necessary to maintain and operate the Bank in perpetuity [USFWS § 2(D)]
    c. At a minimum, include USFWS as a third-party beneficiary with all rights of enforcement.
    d. Ensure all future development rights are forfeited.
    e. Ensure all prohibited uses contained in USFWS CE template are addressed.
5. There are probably many more specific concerns – should compare the content of each of the sections of the November 2003 USFWS CE to see where discrepancies lie, and to insert necessary language, particularly, but not exclusively, per:
    a. Rights of Grantee
    b. Remedies
    c. Injunctive Relief
    d. Enforcement Discretion
    e. Costs and Liabilities
    f. Taxes
    g. Hold Harmless
    h. No Hazardous Materials Liability
    i. Assignment and Transfer
    j. Amendment
    k. Funding
    l. Warranty
    m. Additional Interests

<u>Property Assessment and Acknowledgement</u>

1. A summary of all exceptions remaining on the title must be included, with a statement that the owner/Grantor accepts responsibility for all lands being placed under this CE, and assures that these lands have a free and clear title and are available to be placed under the CE.
2. USFWS will sign an acknowledgement of the receipt of this statement

Environmental Site Assessment – Phase I

1. Check for clear report
2. If there are issues – a proposal to address the issues should be included

Service Area

1. Service Area for a Conservation Bank is based upon biological criteria, and must be approved by USFWS.
2. Documents should then include a map designating the proposed/approved Service Area, and a text description of the same.

Restoration or Development Plan

1. Full plans for any habitat construction must be USFWS-approved, including all permits in place, prior to the start of construction.

Management Plan

1. Must be reviewed and approved by the USFWS for each individual Bank, or individual mitigation project, for target species baseline, adequacy of management and monitoring, and reporting requirements and schedules in perpetuity, etc.
2. Management Plan should also describe funding mechanisms for the long term funding of the property
3. Appendices should include biological surveys, wetland delineation and USACE verification letter, and any required permitting information
4. A copy of the final Management Plan should be recorded with the CE

Economic Analysis

1. Must be based upon the final, approved management plan.
2. Must include provision to adjust for CPI annually.
3. Must be based on appropriate, attainable, long-term interest rate.
4. Must address/account for all of the required funds (as below).

Performance Security, Contingency Security and Endowment Fund

All funds must be held, managed, accessed, expended and released according to agency-approved methods and procedures. There are a variety of requirements for each fund. Following is a general overview:

1. All funds must be held by qualified, Service-approved, non-profit organization or government agency [see requirements under CE, §2(a), above]
2. A full description of the trust account and investment methods must be agency-approved. All funds must be held according to minimum standards for assuring maximum success in earning potential, and with assurances for no loss of principal
3. Disbursements or releases from each of the funds must be for documented expenditures, as they occur
4. A full economic analysis must be included to demonstrate how each of the required funding amounts was determined. This analysis must be approved by the agencies as being full, complete and adequate
5. A schedule and plan (including target date and full amount on that date) for funding each of the accounts must be submitted for approval

Agreement Contract

This would include a "Conservation Bank Agreement," "Bank Enabling Instrument," "Operator Assurance," or other consolidating agreement that ties all of the associated documents together. Some general, basic (certainly not all-inclusive) concerns to include are:

1. Conservation Easement must be approved by any agencies involved prior to recording, and a recorded copy must be submitted to the agencies prior to the compensation taking effect in any way.
2. If not a Conservation Bank, individual project compensation should be addressed fully (within or by each document) as individual projects
3. Responsible party (property owner) must be identified (and a valid party to the contract) as responsible for all funding, management, monitoring, and reporting of Bank or Compensation Site, in perpetuity.
4. Transfer and Assignment of property should be according to §9.0 of USFWS Bank Agreement template, or approved by USFWS
5. Any agreement must include remedies for any disputes per §10.0 of the USFWS Conservation Bank Agreement.
6. Applications for individual compensation sites must not include any "leftover" pre-approved acreages for future projects. Any future projects must be addressed individually.

PRELIMINARY SITE INVESTIGATION OF NATURALLY OCCURRING ASBESTOS

STATE ROUTE 4 AND POOLE STATION ROAD CALAVERAS COUNTY, CALIFORNIA

July 9, 2001

Prepared for:

California Department of Transportation
1976 East Charter Way
Stockton, California 95205

Prepared by:

IT Corporation
1326 North Market Boulevard
Sacramento, California 95834

Task Order No. 10-0A0100-NG
Caltrans Contract No.: 43A0012

IT Project No.: 820534

Donald P. Bransford, R.G.
Project Manager

Ed Simonis, R.G.
Project Geologist

Executive Summary

IT Corporation (IT) conducted a naturally occurring asbestos investigation along State Route (SR) 4 in Calaveras County, California. Work was conducted within the unpaved shoulder of SR 4 at its intersection with Poole Station Road: approximately 250 meters (750 feet) westbound of the intersection, 200 meters (600 feet) east, and 150 meters (450 feet) north. The investigation was conducted to evaluate the presence and concentration of naturally occurring asbestos, and concentration of heavy metals in soil and bedrock from grade to 2 feet below grade.

Asbestos (chrysotile) at concentrations above 0.25 percent (0.5 – 2.5%) was detected in only four rock samples. Three of these samples were collected from locations within lithologies recognized as serpentine during sampling. The Final Regulation Order for the Asbestos Airborne Toxic Control Measure for Asbestos-Containing Serpentine (California Code of Regulations, Title 17, Section 93106), states that serpentine material may not be used for surfacing in California unless the asbestos content is less than 5.0% as determined by analysis using ARB Method 435. There does not appear to be a current ARB restriction on use of the material within the shoulders included in the investigation for surfacing material. However, proposed changes to the ARB regulations will not allow the use of serpentine or serpentine materials, ultramafic rock, or asbestos-containing materials (collectively referred to in this report as potential asbestos-containing materials) as surfacing material if the asbestos content is greater than 0.25% (proposed regulation order with amendments to 17 CCR 93106). Statistical analysis of the asbestos data has generated a 95% Upper Confidence Level (UCL) value for asbestos of 0.57%. This exceeds the 0.25% level within the proposed regulation amendment.

The proposed regulation amendment contains several exemptions for use of potential asbestos-containing materials for surfacing material. These include use of potential asbestos-containing materials at remote locations and use of these materials for non-surfacing applications. Caltrans should consider consulting with ARB staff regarding possible exemptions for use of the potential asbestos-containing materials and/or segregation of the potential asbestos-containing materials from the altered mafic rock. Prior to construction activities, Caltrans should review and implement ARB required mitigation measures to minimize the release of asbestos fibers to the environment.

Samples collected from the site were reported to contain arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, selenium, vanadium, and zinc. Heavy metal concentrations were compared to Total Threshold Limit Concentration (TTLC) and Soluble Threshold Limit

Concentration (STLC) values to evaluate whether the material would, should it become a waste, be considered a California-hazardous waste. Only nickel was reported at concentrations in excess of its TTLC and STLC values in samples from two locations. Nickel concentrations reported in the soil samples from these two locations exceeded criteria of 2,000 mg/kg listed in California Health and Safety Code Section 25157.8 as requiring disposal in a Class I waste disposal facility. Waste materials from these two locations would be considered a California hazardous waste based on the total and soluble concentrations of nickel reported in the samples analyzed. The reported total and soluble chromium concentrations did not exceed the TTLC or STLC values, respectively, for chromium.

Statistical analyses were performed on the nickel data. The mean concentration and 95% UCL values for total nickel data were less than the TTLC for nickel. The predicted soluble nickel concentration is less than the STLC. This suggests that the material, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered a hazardous waste based on the total or soluble metal concentrations within the waste.

IT CORPORATION
A Member of The IT Group

PRELIMINARY SITE INVESTIGATION OF NATURALLY OCCURRING ASBESTOS

STATE ROUTE 4 AND POOLE STATION ROAD CALAVERAS COUNTY, CALIFORNIA

July 9, 2001

Prepared for:

California Department of Transportation
1976 East Charter Way
Stockton, California 95205

Prepared by:

IT Corporation
1326 North Market Boulevard
Sacramento, California 95834

Task Order No. 10-0A0100-NG
Caltrans Contract No. 43A0012

IT Project No. 820534

PRELIMINARY SITE INVESTIGATION OF NATURALLY OCCURRING ASBESTOS

STATE ROUTE 4 AND POOLE STATION ROAD CALAVERAS COUNTY, CALIFORNIA

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Executive Summary

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Concentration (STLC) values to evaluate whether the material would, should it become a waste, be considered a California-hazardous waste. Only nickel was reported at concentrations in excess of its TTLC and STLC values in samples from two locations. Nickel concentrations reported in the soil samples from these two locations exceeded criteria of 2,000 mg/kg listed in California Health and Safety Code Section 25157.8 as requiring disposal in a Class I waste disposal facility. Waste materials from these two locations would be considered a California hazardous waste based on the total and soluble concentrations of nickel reported in the samples analyzed. The reported total and soluble chromium concentrations did not exceed the TTLC or STLC values, respectively, for chromium.

Statistical analyses were performed on the nickel data. The mean concentration and 95% UCL values for total nickel data were less than the TTLC for nickel. The predicted soluble nickel concentration is less than the STLC. This suggests that the material, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered a hazardous waste based on the total or soluble metal concentrations within the waste.

1.0 Introduction

This report presents the results of the soil and bedrock investigation conducted along State Route (SR) 4 and Poole Station Road intersection in Calaveras County, California (Figure 1). The investigation was conducted by IT Corporation (IT) in late November 2000 through January 2001. This investigation was conducted at the request and authorization of Mr. Michael Robinson of the California Department of Transportation (Caltrans) under Task Order No. 10-0A0100-NG, Contract 43A0012. The investigation was conducted to evaluate the percentage and/or concentrations of asbestos within naturally occurring serpentine upon and within the right-of-way of SR 4 in Calaveras County. Caltrans later asked that IT evaluate the concentration of heavy metals within the serpentine materials.

1.1 Project Description

The site comprises the unpaved portions of SR 4 and Poole Station Road at the following distances from their intersection: 600 feet east, 750 feet west, and 450 feet north.

IT is not aware of any previous environmental investigative work conducted within the project area.

1.2 Project Objectives

The objectives of this investigation were to evaluate the presence and concentration of naturally occurring asbestos and concentration of heavy metals in shallow soil and bedrock in unpaved areas of the site.

2.0 Scope of Work

The scope of work for the investigation was presented in IT's workplan dated November 27, 2000, which was approved for implementation by Caltrans (IT, 2000b). The following scope of work was conducted:

1. Permitting and Mobilization
2. Field Investigation
3. Laboratory Analyses
4. Site Investigation Report Preparation

2.1 Planning and Permitting

Planning and permitting included a pre-work site visit, preparation of a workplan and health and safety plan, and acquisition of required permits.

A pre-work site visit was conducted at the site on November 8, 2000, by Mr. Ed Simonis of IT and Mr. Michael Robinson of Caltrans. Locations for soil borings were observed, and the scope of work and objectives were discussed.

A site-specific health and safety plan (IT, 2000a) was prepared for the site in general accordance with 29 CFR 1910.120 and Title 8, California Code of Regulations, Section 5192. The health and safety plan included safety procedures for work to be performed at the site, chemical hazard information, site safety officers, and preferred medical emergency locations.

An encroachment permit was obtained from Caltrans for this project. A copy of the permit is presented in Appendix A.

2.2 Field Investigation

The field investigation included evaluation of the presence of serpentine lithologies based on field observations, and systematic collection of soil/rock samples. During conduct of the field investigation an asbestos negative exposure assessment was conducted. This assessment was a requirement of the health and safety plan.

2.2.1 Soil/Rock Sampling

This task included the advancement of 26 soil borings on November 30, 2000, for collection of soil and/or bedrock samples along aforementioned locations along SR 4 and Poole Station Road.

Boring locations were selected by Caltrans to provide data for systematic evaluation of subsurface conditions. IT conducted shoulder closures for work along the shoulders.

The soil borings were located at distances from the intersection provided by Caltrans (2000) and described below. Location map of the project area is shown as Figure 1. Work was conducted in the unpaved portion of the shoulders approximately every 50 meters (150 feet). The borings were located approximately 1 meter (3 feet) in from the edge of the pavement. Boring locations are shown in Figure 2.

Sampling was conducted along transect lines parallel to the pavement and within the fence line, and were located at least two feet away from the imported road base. Transects originated from the Poole Station Intersection, and ran 200 meters east, 250 meters west, and 150 meters north. The distance, wherever the line intercepted any serpentine-bearing rock, was recorded. At fixed 50-meter (150-foot) intervals along the line, a 0.50-meter by 0.50-meter plot was laid down and the soil and rock scraped to a 2.5-cm (1-inch) depth and collected for analysis. The center of the plot was drilled by hand auger for 0.6 meters (2 feet), with a sample collected from 0.6 meters (2 feet). With either refusal or a rock substrate, a sample was collected using a rock hammer. Once collection was completed, the sample plots were raked over to approximate their original elevation. Sampling procedures are summarized in Appendix B.

All drilling equipment was washed prior to drilling. In addition, to minimize cross-contamination between borings, all appropriate drilling and sampling equipment was cleaned between borings. The borings were backfilled with the soil cuttings. Liquid or soil wastes were not generated. Decontamination solutions were poured onto shoulder areas and allowed to soak into the soil.

2.2.2 *Bedrock Transect Lines*

On January 6, 2001, distances from the intersection to bedrock outcrops along the shoulder transects were measured using a Rolatape. All observed bedrock exposures along the transect lines are plotted on Figure 3. The outcrops were visually inspected, and selected samples were examined using a 10-power hand lens. Outcrops identified as serpentine and serpentine-bearing bedrock are plotted on Figure 3 as double-line pattern. A solid/dashed double line indicates low confidence in the identification of serpentine.

As shown on Figure 3 and sample descriptions in Table 1, the main serpentine outcrops in this area extend from the intersection 360 feet southward (westbound on Highway 4).

2.2.3 Asbestos Negative Exposure Assessment

The health and safety plan (IT, 2000a) required the performance of a negative exposure assessment to evaluate whether this sample collection activity might expose sampling personnel to asbestos fibers. During the collection of the samples, the sampler wore a personal Gillian high-flow personal air monitoring pump and collected an "excursion" personal air sample (30 minutes during first boring) and a full shift personal air sample (480 minutes). These samples were sent to Micro Analytical Laboratories, Inc. of Emeryville, California, for asbestos content analysis. Both air samples were analyzed by Phase Contrast Microscopy (PCM-NIOSH 7400A Method).

Laboratory analysis of the personal air samples detected less than 0.045 asbestos fibers per cubic centimeter (cc) in the "excursion" sample and less than 0.003 fibers per cc in the full shift sample. Both results were below the 0.1 fibers per cc Permissible Exposure Limit (PEL), established by the California Occupational Safety and Health Administration.

Evaluation of the air monitoring data confirmed that worker exposure to asbestos fibers during this sampling activity in asbestos containing soil/bedrock did not exceed the PEL for asbestos. For the purpose of this report, is concluded that the data collected meets the definition of "initial monitoring" as defined in CCR 8, GISO 5208 (d) and a "negative exposure assessment" as defined in CCR 8, Section 1529 (f) Asbestos in Construction Standard. A copy of the negative exposure assessment in included in Appendix C.

2.3 Laboratory Analysis

The soil and rock samples collected and retained for analysis were submitted to Sparger Technology, Inc. (Sparger), of Sacramento, California, a California-certified analytical laboratory. Chain-of-custody procedures, including the use of chain-of-custody forms, were used to document sample handling and transport from the time of collection to delivery to the laboratory for analysis. The chain-of-custody forms and laboratory analytical reports are included in Appendix D.

Sparger coordinated sample crushing by Sierra Testing Laboratories, Inc., and testing for asbestos by EMSL Analytical, Inc. In general accordance with the California Air Resources Board (ARB) Method 435, a quantitative analysis of asbestos content was conducted by point counts of 400 points using Polarized Light Microscopy (PLM). Subsequent to submittal of the samples to the laboratory, Caltrans requested that the samples be also analyzed for confirmation of asbestos using Transmission Electron Microscopy (TEM) and for the concentration of heavy

metals. Heavy metal analyses were conducted by Sparger in general accordance with U.S. Environmental Protection Agency (EPA) numbers 6010 and 7471.

Certain samples reported to contain heavy metal concentrations in excess of ten-times their Soluble Threshold Limit Concentrations (STLCs) were selected by Caltrans for further analysis for the soluble concentration of those heavy metals. Selected soil samples were analyzed for soluble heavy metal concentrations using the Waste Extraction Test (WET). Soluble heavy metal analyses were variously conducted for chromium and nickel. The samples and analyses were selected by Caltrans personnel. The soluble heavy metal analyses were conducted on 11 samples.

Asbestos results reported for the samples analyzed are presented on Table 1. Heavy metal analytical results are presented on Tables 2 and 3.

3.0 Site Investigation Results

3.1 Geologic Setting

The intersection of Poole Station Road and SR 4 is located in the Sierra Nevada Foothills, which are made up of accreted sea floor rocks and sedimentary and volcanic strata that range in age from Paleozoic to Jurassic. Various geologists have subdivided the different rock units into formations, structural blocks or belts, and terranes with a complicated array of names. The study area lies in the complex Bear Mountain fault zone which trends north-northwest and separates the "Melange Belt" on the east from the "Western Belt" (Copper Hill Volcanics) on the west (Duffield and Sharp, 1975). The strata dip steeply to the east-northeast. Some tectonic blocks in the melange and in the Bear Mountain fault zone form elongated, elliptical outcrops, but generally bedrock exposures are poor, and contact between adjacent rock units is obscure. In the study area, the contact between the western part of the Melange Belt and the Bear Mountain fault zone was not recognized during this phase of work. Both "belts" contain tectonic blocks of serpentine, and jointly may constitute the Bear Mountains Ophiolite (Behrman, 1978).

Schweickert (1978) states that from an area north of the Stanislaus River and extending southward, "the melange terrain acquires a serpentine-matrix". Some fingers of this serpentine-matrix melange may extend into the study area; however, most of the rocks interpreted to be melange matrix during this study are argillaceous and tuffaceous.

3.2 Analytical Data

3.2.1 Asbestos Results

Table 1 lists the 26 soil/rock samples collected, the PLM and TEM results, and a brief sample description. Asbestos (chrysotile) was detected using the PLM method in eight samples at concentrations ranging from less than 0.25 percent to 2.5 percent. Using TEM, asbestos was detected in the same eight samples, plus in sample W-35. Asbestos in two of the samples examined via TEM (W-35 and E-25) was identified as tremolite. Chrysotile was reported in the other seven TEM samples and all eight PLM samples.

3.2.2 Heavy Metal Results

Heavy metal analyses were conducted on 26 samples. The samples were reported to contain arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, vanadium, and zinc (Table 2). The following heavy metals and concentration ranges were reported in milligrams per kilogram (mg/kg).

arsenic	<8.0 to 31	barium	3.7 to 112
chromium	3.3 to 782	cobalt	6.4 to 115
copper	7.8 to 103	lead	<1.0 to 25
mercury	<0.010 to 0.117	nickel	<4.0 to 2,300
vanadium	<5.0 to 131	zinc	27 to 144

A summary of heavy metal results compared to the TTLC and 10 times STLC values is presented below (mg/l = milligrams per liter).

Heavy Metal	10 Times STLC (mg/l)	Number Samples at or Exceeding 10 Times STLC	TTLC (mg/kg)	Number Samples Exceeding TTLC	Total Concentration Range (mg/kg)
chromium	50	20	2,500	0	3.3 to 782
nickel	200	10	2,000	1	<4.0 to 2,300

Selected soil samples were analyzed for soluble concentrations by the WET. A summary of soluble heavy metal results compared to STLC values is presented below and on Table 3.

Heavy Metal	STLC Value (mg/l)	No. Samples Exceeding STLC Value	WET Concentration Range (mg/l)
chromium	5.0	0 of 8	0.274 to 0.992
nickel	20	2 of 10	1.84 to 29.1

4.0 Discussion

4.1 Asbestos

Chrysotile asbestos was reported in four samples at concentrations above the ARB Method 435 detection limit of 0.25 percent (15% of the 26 samples collected). The reported concentrations ranged from 0.5% to 2.5% (Table 1). Three of these samples were collected from locations within lithologies recognized with confidence as serpentine during sampling, W1N, W2S, and W1S (Figure 3). This serpentine material was mapped from the intersection of SR 4 with Poole Station Road extending south approximately 100 meters (325 feet). Four additional samples were reported to contain chrysotile, but at concentrations less than 0.25%. These samples were collected from non-serpentine lithologies.

Tremolite was reported in two samples. In evaluating health risks, tremolite has a higher potency factor than chrysotile. For health risk assessment, the ARB considers exposure to chrysotile asbestos to carry the same degree of health risk as exposure to tremolite asbestos.

The Final Regulation Order for the Asbestos Airborne Toxic Control Measure for Asbestos-Containing Serpentine (California Code of Regulations, Title 17, Section 93106), states that serpentine material may not be used for surfacing in California unless the asbestos content is less than 5.0% as determined by analysis using ARB Method 435. The highest asbestos concentration detected was 2.5%. Therefore, there does not appear to be a current ARB restriction on use of the material within the shoulders included in the investigation for surfacing material. This regulation applies to serpentine containing the asbestiforms including chrysotile and tremolite which were reported present by the laboratory in the samples tested.

However, proposed changes to the ARB regulations will not allow the use of serpentine or serpentine materials, ultramafic rock, or asbestos-containing materials (collectively referred to in this report as potential asbestos-containing materials) as surfacing material if the asbestos content is greater than 0.25% (proposed regulation order with amendments to 17 CCR 93106). Statistical analysis of the asbestos data in general accordance with guidance provided in SW-846, "Test Methods for Evaluating Solid Waste, Volume II: Field Manual, Physical/Chemical Methods" (EPA, 1986) has generated a 95% Upper Confidence Level (UCL) value for asbestos of 0.57% (Appendix E). This exceeds the 0.25% level within the proposed regulation amendment.

The proposed regulation amendment contains several exemptions for use of potential asbestos-containing materials for surfacing material:

- An exemption can apply to remote locations, those that are greater than one mile from potential receptors. If the Poole Station Road/SR 4 intersection is one mile or more from potential receptors and Caltrans can demonstrate that no other reasonably available aggregate is available, Caltrans may be granted an exemption by the ARB for use of the material for surfacing.
- Potential asbestos-containing materials may be used for non-surfacing applications. This might include incorporation of the potential asbestos-containing materials into the road design beneath asphalt or fill cover. There are noticing, record keeping, and/or reporting requirements that may apply.

The proposed ARB regulations will not allow road surfaces (including shoulders) to be constructed with potential asbestos-containing materials. However, other than the serpentinite and serpentinized rocks mapped by IT, the remaining rock has been mapped by IT as altered mafic rock. This rock is not included under the ARB regulations. Further, samples collected from this material have been reported by the laboratory to contain less than 0.25% asbestos. This material may be able to be segregated from the potential asbestos-containing materials, thus minimizing the volume of material that may require special management procedures under the proposed ARB regulations.

As the proposed ARB regulations become finalized, Caltrans should consider consulting with ARB staff regarding possible exemptions for use of the potential asbestos-containing materials and/or segregation of the potential asbestos-containing materials from the altered mafic rock. Prior to construction activities, Caltrans should review and implement ARB required mitigation measures to minimize the release of asbestos fibers to the environment.

4.2 Heavy Metals

Samples collected from the site were reported to contain arsenic, barium, chromium, cobalt, copper, lead, mercury, nickel, selenium, vanadium, and zinc (Table 2). Heavy metal concentrations were compared to Total Threshold Limit Concentration (TTLC) and STLC values to evaluate whether the material would, should it become a waste, be considered a California-hazardous waste. Generally, TTLC and STLC values for heavy metals are used to judge whether a waste is a California-hazardous waste based on the total and soluble concentrations of the heavy metals within the waste. However, Class III landfill maximum allowable concentrations may be less than TTLC and STLC values, as they are site specific and set by local Regional Water Quality Control Boards. Toxicity Characteristic Leaching Procedure (TCLP) values are

used to judge whether a waste is a Federal RCRA-hazardous waste based on the soluble concentration of heavy metals within the waste. No TCLP analyses were conducted. There are no TCLP values promulgated for nickel.

Chromium and nickel were reported at total metal concentrations that exceeded ten-times their respective STLCs. Soluble chromium concentrations were not reported to exceed the chromium STLC.

Nickel was reported at concentrations in excess of its TTLC and STLC values in samples from two locations, W1N and W2S. Nickel concentrations reported in the soil samples from these two locations exceeded criteria of 2,000 mg/kg listed in California Health and Safety Code Section 25157.8 as requiring disposal in a Class I waste disposal facility. Waste materials from these two locations would be considered a California hazardous waste based on the total and soluble concentrations of nickel reported in the samples analyzed.

A statistical evaluation was conducted to further evaluate the concentration of nickel at the site. The statistical evaluation was conducted in general accordance with guidance provided in SW-846, "Test Methods for Evaluating Solid Waste, Volume II: Field Manual, Physical/Chemical Methods" (EPA, 1986). Results of the statistical calculations are provided in Appendix E.

The 95% UCL was calculated for total nickel data and are presented below and in Appendix E.

Sample Population	Mean Concentration (mg/kg)	95% UCL (mg/kg)
All Samples	338	532

Pearson (product moment) correlation coefficients (Pearson values) were obtained from regression analysis for regression lines forced through the origin (Appendix E). Correlation coefficients for total/WET nickel data was 0.97.

An expected soluble nickel concentration was obtained from regression analysis (model forced through the origin) developed from the total/WET soluble nickel data. The coefficient for the dependant variable (slope of regression lines) used in the regression analysis and the total lead versus soluble nickel concentration plot is presented in Appendix E. The soluble nickel concentration for WET data corresponding to the total nickel 95% UCL is 6.26 mg/l.

The reported total and soluble chromium concentrations did not exceed the TTLC or STLC values, respectively, for chromium. The mean concentration and 95% UCL values for total

nickel data were less than the TTLC for nickel. This suggests that the material, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered a hazardous waste based on the total metal concentrations within the waste.

The excavated material may require soluble nickel analysis by the WET as the mean and 95% UCL are greater than 200 mg/kg, a level that triggers the WET analysis when considering soil disposal options. Even if WET analyses are conducted it is not likely that composite soil samples would contain soluble nickel at concentrations greater than the STLC as the predicted soluble nickel concentration is less than 20 mg/l. The waste material will therefore unlikely be considered a hazardous waste based on the soluble concentration of nickel within the waste.

5.0 Conclusions

Soil/rock samples collected from the site were reported to contain asbestos. There does not appear to be a current ARB restriction on use of the soil/rock material within the shoulders for surfacing material. However, proposed changes to the ARB regulations will not allow the use of potential asbestos-containing materials as surfacing material based on the 95% UCL of 0.57% calculated for the sample results. Potentially applicable exemptions to this restriction include exemptions for remote locations and use of the material for non-surfacing applications. Further, Caltrans may be able to segregate the altered mafic materials present at the site from the potential asbestos-containing materials, thus minimizing the volume of material that may require special management procedures under the proposed ARB regulations.

Caltrans should consider consulting with ARB staff regarding possible exemptions for use of the potential asbestos-containing materials and/or segregation of the potential asbestos-containing materials from the altered mafic rock. Prior to construction activities, Caltrans should review and implement ARB required mitigation measures to minimize the release of asbestos fibers to the environment.

The reported total and soluble chromium concentrations did not exceed the TTLC or STLC values, respectively, for chromium. The mean concentration and 95% UCL values for total nickel data were less than the TTLC for nickel. The predicted soluble nickel concentration is less than the STLC. This suggests that the material, if treated as a whole and sampled on a composite basis from stockpiles generated during construction activities, may not be considered a hazardous waste based on the total or soluble metal concentrations within the waste.

6.0 References

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Schweickert, R. A. 1978. *Triassic and Jurassic Paleogeography of the Sierra Nevada and Adjacent Regions,* in Howell, D.G., and McDougall, K.A., eds., *Mesozoic Paleogeography of the Western United States:* Society of Economic Paleontologists and Mineralogists, Pacific Coast Paleogeography Symposium 2, p. 261-384.

TABLE 1

ASBESTOS TEST RESULTS
Caltrans - Poole Station Road Investigation
Task Order 10-0A0100-NG

Sample No.	PLM Results	TEM Results	Field Sample Description
W1N 0.5-1.5'	2% Chrysotile	Chrysotile	Crushed rock to ~0.5 ft; refusal at 1.5 ft on serpentine: weathered, pale olive with fibrous xls and brown sandy soil
W2N 0-0.2'	ND	ND	Phyllite/slate: light green-grey at surface
W3N 1-2'	<0.25% Chrysotile (4)	Chrysotile	Brown soil and fragments of phyllite/slate below 1'; non-native material (?)
W4N 0.5-1'	<0.25% Chrysotile (4)	Chrysotile	Red-brown sandy soil with fragments of greenstone (?) and slate
W5N 0.5-1'	<0.25% Chrysotile (4)	Chrysotile	Brown soil and metagraywacke (?) fragements
W5S 0-0.2'	ND	ND	Pale brown-green weathered metagraywacke (?) or metatuff (?)
W4S 0-0.2'	ND	ND	Light green metatuff (?)
W3S 0-0.2'	ND	Tremolite	Light green, soft, weathered phyllite (?)
W2S 0-0.2'	1.5% Chrysotile	Chrysotile	Weathered serpentine; no obvious fibrous material
W1S 0-0.2'	2.5% Chrysotile	Chrysotile	Weathered serpentine; no obvious fibrous material
OS 0-2'	ND	ND	Red-brown soil grading down to v. pale green, v. weathered metatuff (?)
E1S 0.5-1.5'	0.5% Chrysotile	Chrysotile	Soil grading down to fractured bedrock
E2S 0.5-1.5'	<0.25% Chrysotile (4)	Tremolite	Soil grading down to weathered bedrock
E3S 0.5-2'	ND	ND	Red-brown soil grading down to v. weathered bedrock (melange matrix?)
E4S 0.5-2'	ND	ND	Red-brown soil grading down to fractured serpentine (??)
E4N 0-0.2'	ND	ND	Hard gray meta mudstone (?) (melange "knocker"?)
E3N 0-0.2'	ND	ND	Light gray, v. hard, chert-like rock finely fractured w/fine pyrite filling fractures and darker meta mudstone (?)
E2N 0-0.2'	ND	ND	Partly sheared greenstone (?) (block in melange)
E1N 0.5-2'	ND	ND	Gray, highly weathered slate/phyllite
N1E 0.5-2'	ND	ND	Red-brown soil grading to v. weathered, fine pale metatuff (?)
N2E 0-0.2'	ND	ND	Greenstone in melange
N3E 0-0.2'	ND	ND	Greenstone in melange
N3W 0.5-2'	ND	ND	Soil grading to highly weathered argillaceous melange matrix (?)
N2W 0.5-2'	ND	ND	Soil grading to highly weathered argillaceous melange matrix (?)
N1W 0.1-1'	ND	ND	Soil as above; hit hard rock at 1'
ON 0-0.2'	ND	ND	Metatuff (?) and serpentine (?) in melange

Notes:
1. PLM = polarized light microscopy. Analysis conducted in general accordance with Air Resources Board Method 435, which included crushing sample, point count of 400 points using U.S. Environmental Protection Agency Method 600/R-93/116.
2. TEM = transmission electron microscopy.
3. ND = none detected.
4. Chrysotile asbestos present, but did not fall under any point during point count.

TABLE 2

TOTAL METAL RESULTS

Caltrans - Poole Station Road Investigation, California

Task Order 10-0A0100-NG

Sample Number	Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
W1N 0.5 1.5	ND	14	15	ND	ND	**490**	96	21	6.6	0.0329	ND	***2,100***	ND	ND	ND	5.4	32
W2N 0 0.2'	ND	14	45	ND	ND	**55**	19	73	16	0.117	ND	59	ND	ND	ND	35	125
W3N 1 2'	ND	14	43	ND	ND	**253**	47	56	6.7	0.0312	ND	**535**	ND	ND	ND	34	97
W4N 0.5-1'	ND	12	62	ND	ND	**185**	33	65	6.6	0.0323	ND	**314**	ND	ND	ND	65	66
W5N 0.5-1'	ND	ND	42	ND	ND	**139**	29	47	16	0.0401	ND	**416**	ND	ND	ND	33	80
W5S 0.0.2'	ND	ND	57	ND	ND	22	28	82	ND	ND	ND	**228**	ND	ND	ND	54	81
W4S 0.0.2'	ND	ND	49	ND	ND	50	24	39	12	0.0273	ND	157	ND	ND	ND	34	74
W3S 0-0.2'	ND	ND	18	ND	ND	**782**	51	51	ND	0.0565	ND	**760**	ND	ND	ND	13	49
W2S 0.0.2'	ND	ND	3.8	ND	ND	**521**	85	7.8	2.1	0.0140	ND	***2,300***	ND	ND	ND	ND	41
W1S 0.0.2'	ND	8.1	13	ND	ND	**357**	115	29	2.4	0.0226	ND	ND	ND	ND	ND	21	52
OS-0-2'	ND	ND	76	ND	ND	**116**	24	70	1.7	0.0160	ND	**242**	ND	ND	ND	89	44
E1S-0.5-15'	ND	8.2	30	ND	ND	**98**	15	77	25	0.0236	ND	198	ND	ND	ND	26	68
E2S-0.5-1.5'	ND	20	68	ND	ND	**182**	38	76	6.1	0.0337	ND	**499**	ND	ND	ND	50	144
E3S-0.5-2'	ND	ND	93	ND	ND	**78**	21	80	1.8	0.0259	ND	172	ND	ND	ND	61	39
E4S-0.5-2'	ND	ND	82	ND	ND	**100**	22	67	5.5	0.0421	ND	132	ND	ND	ND	66	92
E4N-0.0.2'	ND	ND	9.5	ND	ND	3.3	20	31	ND	ND	ND	43	ND	ND	ND	42	27
E3N-0.0.2'	ND	ND	3.7	ND	ND	15	6.4	100	1.9	ND	ND	32	ND	ND	ND	23	40
E2N-0.0.2'	ND	ND	36	ND	ND	25	29	73	2.2	ND	ND	35	ND	ND	ND	20	44
E1N-0.0.2'	ND	29	150	ND	ND	**85**	10	45	4.1	0.0298	ND	44	ND	ND	ND	87	44
N1E-0.5-2'	ND	31	111	ND	ND	**77**	24	72	2.4	0.0210	ND	38	ND	ND	ND	131	51
N2E 0-0.2'	ND	ND	84	ND	ND	**72**	13	103	4.7	0.0143	ND	30	ND	ND	ND	80	35
N3E 0-0.2'	ND	ND	81	ND	ND	**77**	30	65	2.6	0.0232	ND	34	ND	ND	ND	81	44
N3W 0.5-2'	ND	ND	95	ND	ND	15	34	50	ND	0.0186	ND	ND	ND	ND	ND	99	84
N2W 0.5-2'	ND	ND	94	ND	ND	**63**	20	62	3.8	0.0171	ND	31	ND	ND	ND	104	58
N1W 0.1-1'	ND	ND	112	ND	ND	**90**	27	61	5.6	0.0341	ND	73	ND	ND	ND	98	69
ON 0.0.2'	ND	ND	56	ND	ND	**124**	38	55	2.4	0.0107	ND	**304**	ND	ND	ND	67	48
TTLC	500	500	10,000	75	100	2,500	8,000	2,500	1,000	20	3,500	2,000	100	500	700	2,400	5,000
10X STLC	150	50	1,000	7.5	10	50	800	250	50	2	3,500	200	10	50	70	240	2,500
Reporting Limit	6.0	8.0	2.0	0.30	0.50	1.0	5.0	2.0	1.0	0.010	5.0	4.0	10	1.0	10	5.0	1.5

Notes:

1. Metals analyses conducted in general accordance with U.S. Environmental Protection Agency (EPA) Methods 6010 and 7471.
2. Composite of samples collected from depths of 0, 0.3, 0.6, 0.9, and 1.2 meters (0, 1, 2, 3, 4, feet) below the ground surface.
3. Concentrations reported in milligrams per kilogram.
4. ND = not detected in concentrations exceeding the listed reporting limit.
5. TTLC = Total Threshold Limit Concentration.
6. 10X STLC = 10 times the Soluble Threshold Limit Concentration. Values listed in milligrams per liter.
7. Bold results equal or exceed 10X STLC values. Bold and italics results equal or exceed the TTLC.

TABLE 3

SOLUBLE METAL RESULTS

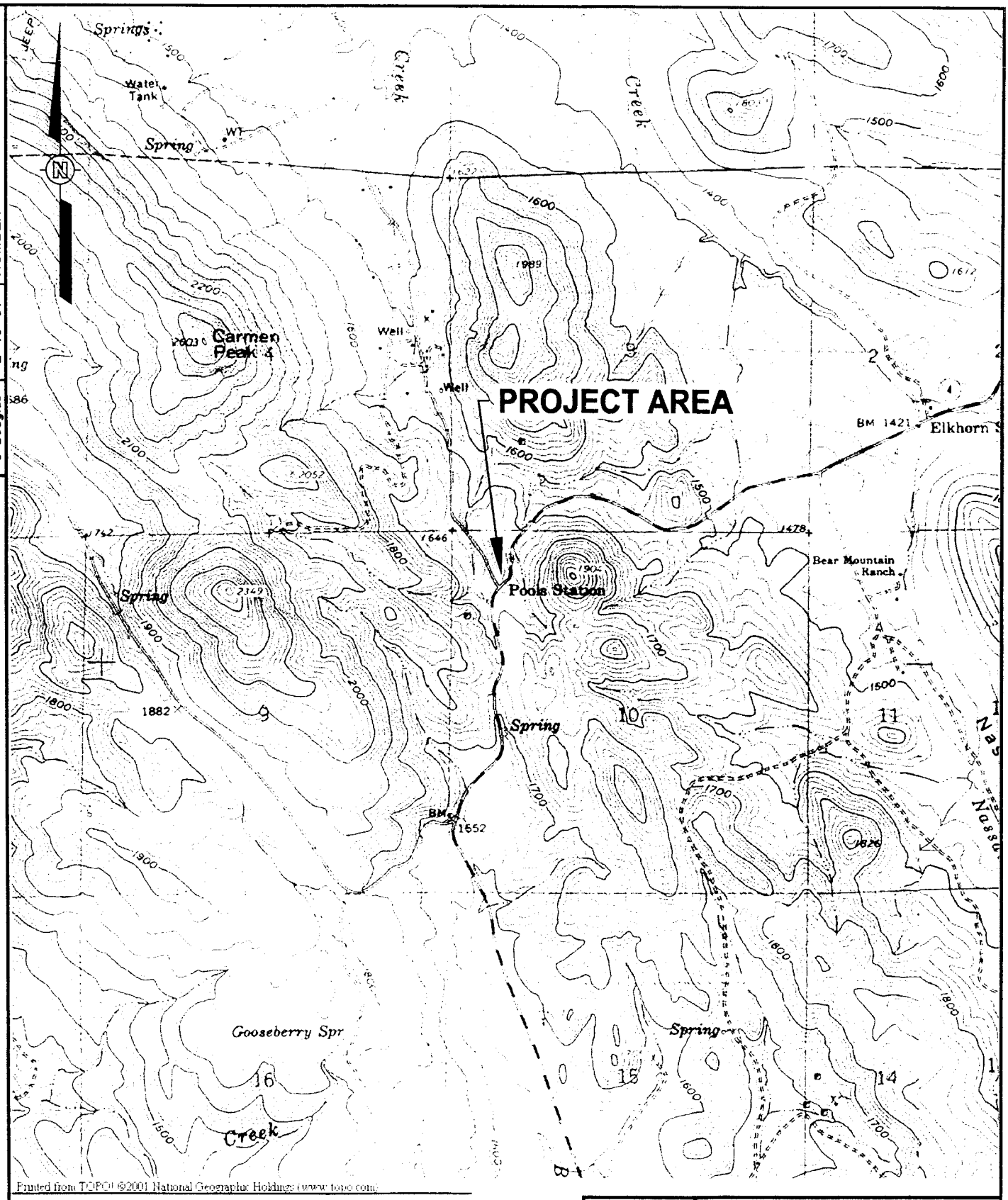
Caltrans - Poole Station Road Investigation
Task Order 10-0A0100-NG

Sample Number	Chromium		Nickel	
	Total	WET	Total	WET
W1N 0.5 1.5	490	0.943	**2,100**	**29.1**
W3N 1 2'	253	0.616	535	3.25
W4N 0.5-1'	185	0.372	314	3.78
W5N 0.5-1'	139	0.742	416	8.17
W5S 0.0.2'	22		228	1.84
W3S 0-0.2'	782	0.944	760	4.25
W2S 0.0.2'	521		**2,300**	**24.4**
W1S 0.0.2'	357	0.992	ND	
OS-0-2'	116	0.285	242	2.67
E2S-0.5-1.5'	182	0.417	499	7.09
ON 0.0.2'	124	0.274	304	3.58
TTLC	2,500		2,000	
STLC		5.0		20
Reporting Limit	1.0		4.0	

Notes:

1. TTLC = total threshold limit concentration. STLC = soluble threshold limit concentration. WET = waste extraction test.
2. Sample depths reported in approximate meters (m) / feet (ft) below the ground surface.
3. WET conducted in general accordance with California Title 22 procedures.
4. Total metal results reported in milligrams per kilogram. WET results reported in milligrams per liter.
5. Bold values exceed the TTLC or STLC.

DRAWN BY	PROJECT NUMBER
C Douglas 2-13-01	820534



IT CORPORATION

NATURALLY OCCURRING
ASBESTOS STUDY
CALAVERAS COUNTY, CA

SCALE

0 2000 4000 FEET

FIGURE 1

PROJECT AREA
LOCATION MAP

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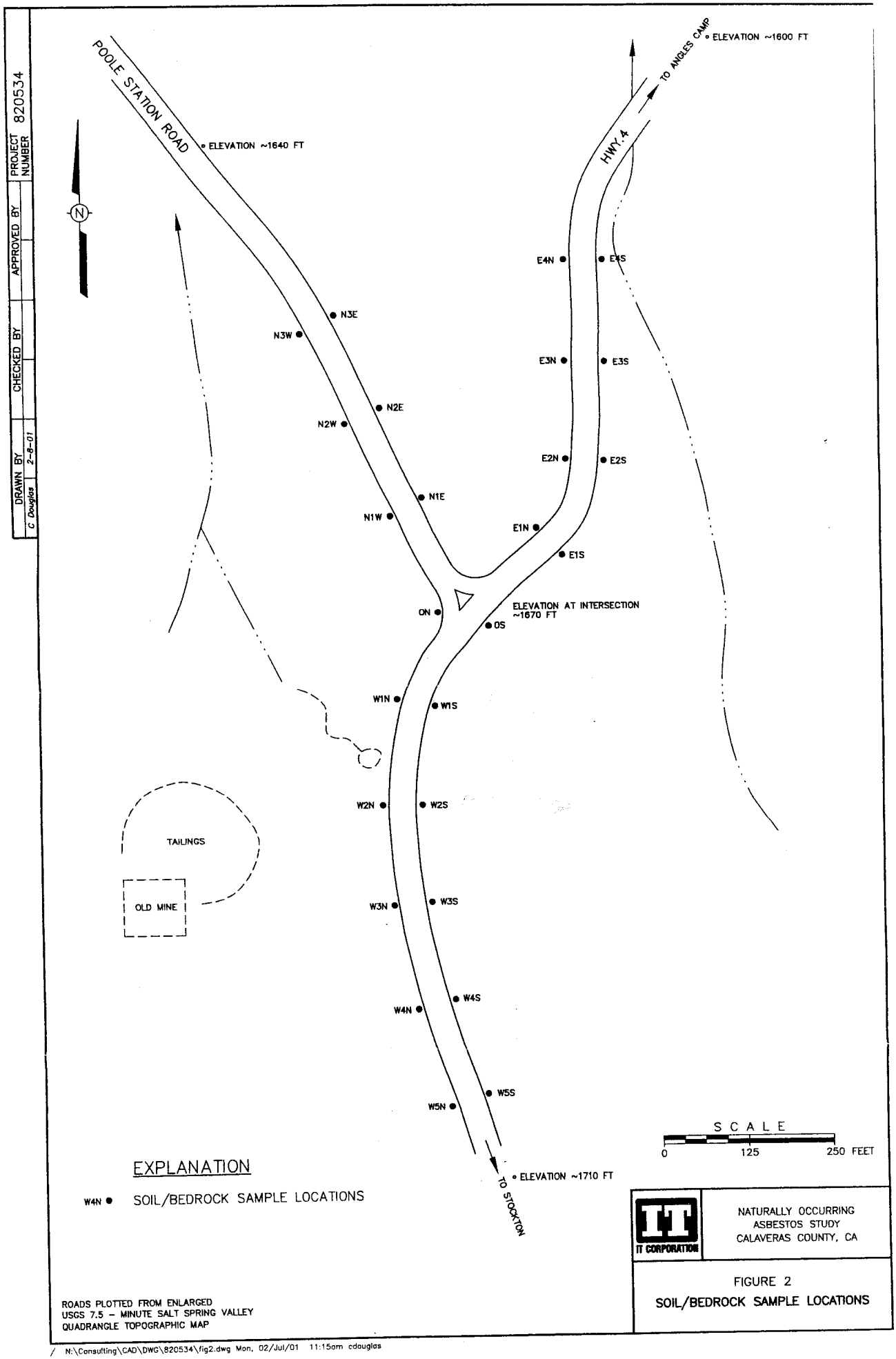
POOLE STATION ROAD
ELEVATION ~1640 FT
HWY 4
TO ANGLES CAMP
ELEVATION ~1600 FT
N
N3E
N3W
N2E
N2W
N1E
N1W
E4N
E4S
E3N
E3S
E2N
E2S
E1N
E1S
ON
OS
ELEVATION AT INTERSECTION ~1670 FT
W1N
W1S
W2N
W2S
W3N
W3S
W4N
W4S
W5N
W5S
TAILINGS
OLD MINE
ELEVATION ~1710 FT
TO STOCKTON
SCALE
0
125
250 FEET
EXPLANATION
W4N SOIL/BEDROCK SAMPLE LOCATIONS
ROADS PLOTTED FROM ENLARGED USGS 7.5 - MINUTE SALT SPRING VALLEY QUADRANGLE TOPOGRAPHIC MAP
IT CORPORATION
NATURALLY OCCURRING ASBESTOS STUDY CALAVERAS COUNTY, CA
FIGURE 2
SOIL/BEDROCK SAMPLE LOCATIONS
PROJECT NUMBER 820534
APPROVED BY
CHECKED BY
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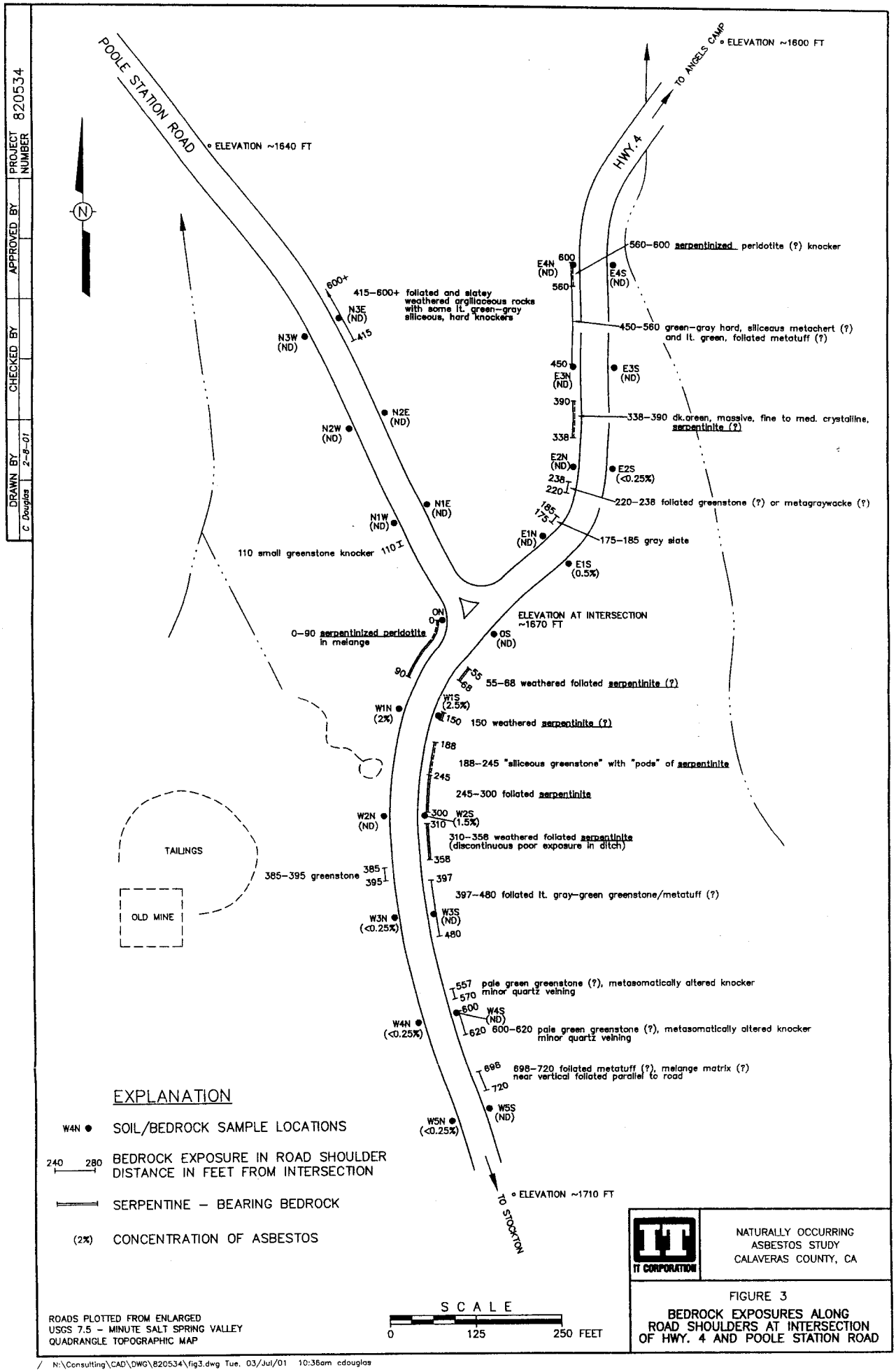

PROJECT NUMBER	APPROVED BY	CHECKED BY	DRAWN BY
820534			C. Douglas 2-8-01

IT CORPORATION

NATURALLY OCCURRING ASBESTOS STUDY
CALAVERAS COUNTY, CA

FIGURE 3

BEDROCK EXPOSURES ALONG ROAD SHOULDERS AT INTERSECTION OF HWY. 4 AND POOLE STATION ROAD

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APPENDIX A
PERMITS

STATE OF CALIFORNIA • DEPARTMENT OF TRANSPORTATION

ENCROACHMENT PERMIT

TR-0120 (REV. 2/98)

In order to better serve you, please fill out and return the Customer Service Questionnaire attached to this permit.

Permit No.	**1000-NSV-1051**
Dist/Co/Rte/PM	**10-CAL-4-14.72**
Date	**NOVEMBER 20, 2000**
Fee Paid	**$ EXEMPT**
Deposit	$
Performance Bond Amount (1)	$
Payment Bond Amount (2)	$
Bond Company	
Bond Number (1)	
Bond Number (2)	

In compliance with (Check one):

- [x] Your application of **NOVEMBER 14, 2000**
- [ ] Utility Notice No. _____ of _____
- [ ] Agreement No. _____ of _____
- [ ] R/W Contract No. _____ of _____

TO:

IT CORPORATION
1433 NORTH MARKET BOULEVARD, SUITE #1
SACRAMENTO, CA 95834

ATTN: ED SIMONIS
TEL : (916) 928-3300

, PERMITTEE

and subject to the following, PERMISSION IS HEREBY GRANTED to:

Hand auger upto 28 borings, collect soil or rock samples and backfill borings on State Route 4 right of way in Calaveras County as shown in the attached Location Map/ Vicinity Map. This work shall be done in accordance with Caltrans Contract Number 43A0012 and Task Order Number 10-10-0A0100-NG for hazardous waste site assessments. All work shall be done without interference to public traffic. A traffic control plan shall be submitted to the State representative before doing any work. The purpose of this survey is to evaluate the presence/concentration of naturally occurring asbestos within the shallow unpaved portions of State Route 4 right of way.

In accordance with General Provision No. 6, **TWO WORKING DAYS PRIOR** to the start of this work, permittee shall notify the State representative **ALAN ROBERTS**, P.O. Box 606, Angels Camp, CA 95221, (209) 736-0253. All work under this permit must meet with the approval of the State representative.

Failure on the permittee's part to comply with any provision will be cause for revocation of this permit.

The following attachments are also included as part of this permit (Check applicable):

[x] Yes	[ ] No	General Provisions
[ ] Yes	[x] No	Utility Maintenance Provisions
[x] Yes	[ ] No	Special Provisions T
[ ] Yes	[x] No	A Cal-OSHA permit required prior to beginning work; #

In addition to fee, the permittee will be billed actual costs for:

[ ] Yes	[x] No	Review
[ ] Yes	[x] No	Inspection
[x] Yes	[ ] No	Field Work

(If any Caltrans effort expended)

[ ] Yes [x] No The information in the environmental documentation has been reviewed and is considered prior to approval of this permit.

This permit is void unless the work is complete before **May 31, 2001.**

This permit is to be strictly construed and no other work other than specifically mentioned is hereby authorized.

No project work shall be commenced until all other necessary permits and environmental clearances have been obtained.

1 - Permittee
1 - File
3 - A. ROBERTS

APPROVED:

MARK LEJA, District Director

BY: P.S. Venkatanarayana

For FRANKLIN L. WEISHAAR, JR., District Permit Engineer

PS.VENKAT

FM 91 1436

IMMEDIATELY FOLLOWING COMPLETION OF WORK PERMITTED HEREIN, PERMITTEE SHALL FILL OUT AND MAIL NOTICE OF COMPLETION PROVIDED BY GRANTOR.

Permittee's attention is directed to Section 6, "CONTROL OF MATERIALS", of the State Standard Specifications Reference to Engineer in the State Standard Specifications shall include State Representative.

Permittee is directed to Standard Specification section 7-1.11 Preservation of Property, and Business and Professions Code, Section 8771. Permittee shall physically inspect the work site and locate survey monuments prior to work commencement. Monuments shall be referenced or reset in accordance with Business and Professions Code.

A **pre-job conference** with the permittee, contractor, and State representative is required prior to start of work. Permittee shall contact the State representative and arrange the meeting. This meeting may be waived at the direction of the State representative.

Permittee shall, prior to commencement of any work, provide the State representative with the **name and phone number** of the **person in responsible charge** of the work to be performed under this permit.

Traffic control shall be done in conformance with Caltrans Manual of Traffic Controls 1996.

In addition to General Provision 35, "Notification of department and TMC", the permittee shall notify the Department's representative AND THE TRANSPORTATION MANAGEMENT CENTER (TMC) immediately prior to initiating any traffic control and immediately upon the removal of any traffic controls. The telephone number for Caltrans District 10 TMC is (209) 948-7556.

Except when necessary, as determined by the State representative, no installation, construction equipment, or personal vehicles shall operate or park within the traveled way.

No cutting of pavement or improved shoulder is authorized under this permit.

In addition to the attached General Provisions, the following special provisions are also applicable:

1. Unless specifically authorized elsewhere in this permit, survey work shall not be performed:

    A. On holiday(s) and a day preceeding holiday(s)

    B. In medians.

    C. When work requires traffic control on lanes.

2. Permittee shall furnish, place, and maintain required signs, safety equipment, and traffic control and warning devices in accordance with the Manual of Traffic Controls published by the Department of Transportation.

3. All personnel shall wear hard hats and orange vests, shirts or jackets as appropriate.

4. Unless specifically authorized in this permit, survey markings within the right of way shall be temporary. Paint used for markings shall be water-soluble and other markers shall be removed upon completion of survey.

5. Any collected survey data requested by Caltrans shall be furnished to Caltrans without charge.

6. Measurements across traffic lanes shall be made through the use of an electronic distance-measuring device utilizing non-visible light or other optical means.

7. Electromagnetic and radioactive equipment must be operated by certified personnel and shall not interfere with radio communications or be directed toward the traveling public.

8. Vehicles necessary for survey work may be parked in Sate Highway right of way off paved shoulders. Auxiliary support and employee vehicles shall remain outside the right of way.

9. Detonating explosive charges within State right of way is prohibited.

10. Permittee shall provide for the safe passage of pedestrians.

11. Information pertaining to Caltrans survey monumentation may be obtained upon request to: Survey Section, Department of Transportation, P.O. Box 2048, Stockton, CA 95201. Telephone, (209) 948-3983.

Before commencing work, permittee must obtain written concurrence from the State Highway Resident Engineer on the scheduling of the proposed work.

Permittee shall fully conform to the requirements of the Caltrans statewide **NPDES Storm Water Permit, Order No. 99-06-DWQ, NPDES No. CAS000003, adopted by the State Water Resources Control Board on July 15, 1999.** The permittee shall also conform to the requirements of the General NPDES Permit for construction Activities and any subsequent General Permit in effect at the time of issuance of this Encroachment Permit. These permits regulate storm water discharges associated with year-round construction or special event encroachment activities.

For all projects of 5 acres or more the permittee shall develop, implement, and maintain a **Storm Water Pollution Plan (SWPPP)** and for projects less than 5 acres a **Water Pollution Control Program (WPCP).** Either the Plan or Program shall also conform to the requirements of the Caltrans Storm Water Quality Handbook, Construction Contractor's Guide and Specifications and Caltrans Specification Section 7-1-.01G and subsequent revisions.

The State of California, Department of Transportation makes no assurance or expressed warranty that the plans are complete or that the planned construction fits field conditions. Should additional work or modifications of the work be required in order to meet established Department Standards or in order to fit field conditions, the work shall be performed by Permittee as directed by the State's Inspector.

APPENDIX B
DRILLING AND SAMPLING PROCEDURES

Appendix B
Drilling and Sampling Procedures

The procedures used for drilling the borings and collecting soil samples are presented below.

- An encroachment permit for the field investigation was obtained from the California Department of Transportation prior to the fieldwork.

Drilling and Soil / Rock Sample Collection

- Twenty-six borings were advanced up to depths of 0.6 meter (2 feet) below the ground surface (bgs) by a hand held auger and/or rock hammer
- The drilling/sampling equipment was washed prior to drilling.
- Soil samples were collected from 0 to 0.6 meters bgs using re-sealable plastic bags as receptacles for soil/rock directly from the hand-auger or chipped using a rock hammer.
- The hand augers were washed between borings using a bristle brush with Alconox® solution followed by two tap water rinses and a deionized water rinse. The equipment was dried by air or with paper towels prior to sampling.
- Following collection of a sample in the re-sealable plastic bags, the sample was labeled with the sample number.
- Soil from the hand auger drilling operations was used to backfill the hand-auger soil borings.

Sample Retention and Analysis

- Chain-of-custody procedures, including the use of chain-of-custody forms, were used to document sample handling and transport from collection to delivery to the laboratory for analysis.
- The samples were delivered to the laboratory by IT personnel. The samples were transported to the laboratory in a motor vehicle.
- Soil samples were labeled with the boring number and approximate sample collection depth. For example, W3N 1-2, where W3N is the boring number, and 1-2 is the sample collection depth at approximately 1 to 2 feet bgs.
- The soil/bedrock samples were crushed, and then quantitatively analyzed using Polarized Light Microscopy (PLM). Four hundred randomly chosen particles per sample were optically examined as specified in Air Resources Board Method 435.
- The samples were also examined using Transmission Electron Microscopy (TEM) to confirm the PLM asbestos mineral identification.

APPENDIX B

HEALTH AND SAFETY PLAN

List of Tables

Table	Title
1	Chemicals of Concern and Occupational Hazard Characteristics
2	Calibration and Maintenance of Field Sampling Equipment
3	Airborne Contaminant Action Levels

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Figure	Title
1	Site Location Map
2	Hospital Location Map

List of Appendices

Appendix	Title
A	Proposition 65 Warning and Notification
B	Job Safety Analysis Worksheet
C	Incident Reporting Flow Chart and Report Forms

1.0 General Information

IT Project No.: 820534 **Date:** November 22, 2000

Project Name: State Route 4 Naturally Occurring Asbestos

Project Site Location: Calaveras, California

Client Contact: Michael Robinson **Phone:** (209) 948-7399

1.1 Task Order Manager: Ed Simonis, R.G.

The Task Order Manager is responsible for all onsite activities, including having all appropriate plans prepared and distributing the plans to IT Corporation (IT) field personnel and to authorized representatives of each subcontractor employed to perform work on site. The Task Order Manager is also responsible for ensuring that the provisions of the Health and Safety Plan (HSP) are carried out. This includes ensuring that all IT field personnel have received adequate training, that an adequate supply of safety and emergency equipment is available, and that the required safety reports are submitted to the area Health and Safety Manager/Project CIH.

1.2 Site Safety Officer: Ed Simonis

The Site Safety Officer is responsible for implementing the site HSP and shall be knowledgeable in various state and federal regulations. This includes ensuring that field personnel have read and signed the HSP, and that a Tailgate Safety Meeting is conducted on site each day prior to initiating field activities. In addition, the Site Safety Officer will be responsible for auditing the site operations for compliance with the health and safety plan and any applicable federal, state or local requirements. Any violations, unsafe conditions, and changes to the HSP shall be discussed by Site Safety Officer with the area Health and Safety Manager/Project CIH. The Site Safety Officer shall stop work due to violations and unsafe conditions until appropriate action is taken to correct these deficiencies and the HSP shall be amended by the Site Safety Officer to include necessary changes. The Site Safety Officer is required to be on site at all times. In the Site Safety Officer's absence, a designated alternate will assume the duties and responsibilities.

1.3 Certified Industrial Hygienist: Paul Lawless, CIH

The Project Certified Industrial Hygienist (CIH) is responsible for approval of the final version of this HSP and that a copy of it has been provided to the Site Safety Officer.

1.4 Work Objectives/Scope:

The scope of work for this project includes the advancement of approximately 28 boreholes at locations within 250 meters of the intersection between State Route 4 and Poole Station Road in Calaveras County, California. Each boring will be advanced to a depth of approximately 0.67 meters (2 feet) below ground surface (BGS) using hand-held auger equipment. Work will be conducted in shoulder and median areas along selected locations of State Route 4 and Poole Station Road. The borings will be located approximately every 50 meters (150 feet) along the length of the project limits where enough room is available for safe stopping of sampling and safety vehicles. Soil samples will be collected from the top 0.1 meters (0.3 feet) and 0.6 (2 feet) below ground surface (BGS). Following sample collection, the borings will be backfilled with soil cuttings.

All samples will be analyzed for asbestos in general accordance with California Environmental Protection Agency, Air Resources Board's Test Method 435 (ARB Test Method 435).

Activities Planned (Check those that are applicable):

	underground storage tank removal
	oversight of soil excavation with backhoe or other equipment
	confirmation soil sampling during soil excavation and removal
X	soil boring and soil sampling with hand held auger equipment
	soil boring and soil sampling with Geoprobe® equipment
	groundwater grab sampling from temporarily open boreholes
	groundwater sampling of onsite wells
	other:

Overall Hazard Level:	☐ Serious	☐ Moderate	■ Low	☐ Unknown

Onsite Monitoring Required ? ☐ Yes ■ No

If yes, specify equipment: None required.

Noise Monitoring: Noise hazards are not expected as the work will be conducted by hand auger. However, vehicle traffic may cause high noise levels. Hearing protection shall be available during work.

2.4 First Aid

Inhalation: At first signs of headache or dizziness, remove victim from work area and give fresh air. If breathing has stopped, administer artificial respiration. Get medical attention immediately.

Skin and Eye Contact: Flush eyes immediately with water for at least 15 minutes, occasionally lifting the eyelids. Remove contaminated clothing. Wash affected body areas with large amounts of soap and water. Get medical attention if irritation persists after washing.

Ingestion: Do not induce vomiting. Keep victim warm and at rest. Get medical attention.

2.5 Physical Hazards

These hazards are primarily associated with traffic on the highway, onsite equipment, and the general nature of construction work. IT personnel will follow all safety rules established in IT's training program. Job safety analysis worksheets (Appendix B) will be reviewed with all workers prior to initiating work and periodically thereafter to ensure on-going prevention of safety incidents.

	Heat	X	Slip, Trip, Fall		Excavations/Trenches
X	Cold		Noise		Moving Equipment
X	Rain	X	Underground Hazards	X	Traffic
X	Fog		Overhead Hazards		Other: above-ground work

2.6 Site Control Measures

Site controls/security measures will include scheduled use of shoulder closures, and signage and cones, and may include caution tape. IT shall provide traffic control measures to ensure safe and proper execution of the work described below.

Work zones will include exclusion zones, and if necessary, contamination reduction zones, a support zone, and decontamination areas. The exclusion zone will be the area immediately surrounding the borehole location. The contamination reduction zone will be designated as an approximate 20-foot by 20-foot area immediately adjacent to the exclusion zone off the highway pavement. This zone will also serve as the decontamination area for personnel and drilling equipment. The area of the site outside the exclusion and contamination reduction zones will be designated as the support zone. The exclusion zone will be secured from the public by flagging. Drinking or smoking is not permitted in the exclusion zone and contamination reduction zone. The Site Safety Officer shall enforce these measures and the buddy system, PPE and training requirements for all on site personnel. Spills are not expected to be a concern on the project.

A daily tailgate safety meeting will be held by the Site Safety Officer for all site personnel. The safety discussion will include, in addition to other items in this HSP, the following issues:

- Site personnel will execute proper lifting techniques for heavy items. The maximum weight to be lifted by any site personnel should not exceed 60 lbs.
- An exclusion zone can be secured around the work area.
- Fire extinguisher, first aid kit, eye wash, and hospital route map shall be staged for easy access during drilling activities.
- Onsite personnel shall contact the Site Safety Officer with any health and safety issues.

Personal Decontamination Procedures: Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of ingestion of material is prohibited in the exclusion zone. Wash hands and face prior to eating, drinking or smoking and before leaving the site. Remove contaminated clothing as soon as possible when leaving the exclusion zone. Contaminated clothing shall be disposed of with drill cuttings or other potentially impacted material. Kneeling, sitting, leaning, or general contact with potentially impacted surfaces, or with surfaces suspected of being potentially impacted by hazardous materials (i.e., puddles, mud, leachate, etc.) should be avoided.

Medicine and alcohol can potentiate the effects of exposure to toxic chemicals. Prescribed drugs should not be taken by personnel if the likelihood of such potentiation effects exists. Ingestion of alcohol is prohibited.

Equipment Decontamination Procedures: All drilling equipment will be washed prior to arrival at the site. To avoid cross-contamination, all appropriate downhole drilling and sampling equipment will be washed between samples/borings by washing the equipment with an Alconox solution followed by a double rinse with deionized water.

Sanitation Facilities: Restrooms for both men and women are not readily available. However, a vehicle will be made available to travel to the nearest public restroom.

2.7 Personal Protective Equipment

Level of Protection:	☐ A	☐ B	☐ C	■ D*

D* = level D or modified level D if use of Tyvek coveralls is deemed necessary

Modifications: Modifications to levels of protection shall be made by the CIH.

X	Hard Hat	X	Safety Eyewear
X	Safety Toed Boots		Respirator (Type): Standby full-face APR
X	Orange Vest		Filter Type: HEPA
	Hearing Protection	X	Gloves (Type): Latex or nitrile, leather
X	Tyvek Coveralls (if needed)		Other:
	5 Minute Escape Respirator		

Other Emergency/Safety Equipment:

X	15 Minute Eyewash	X	Fire Extinguisher		Barricades
X	First Aid Kit	X	Potable Water	X	Traffic Cones

Additional emergency/safety equipment includes pagers and cellular telephones.

2.8 Training

All personnel on site will have completed a minimum of 40 hours of training, and an 8-hour refresher as required by 29 CFR 1910.120 and 8 CCR 5192. This includes, but shall not be limited to, first aid/CPR, hearing conservation, respiratory protection, HWS training, Qualified Equipment Operator, Bloodborne Pathogen (BBP), personnel protective equipment, decontamination, hazard recognition, and safe operating procedures.

2.9 Medical Surveillance Requirements

The IT Medical Surveillance Program (MSP) requires all personnel on site to successfully complete a pre-placement and annual physical examination. The physical examination typically includes: medical and occupational history questionnaire, physical examination, complete blood count with differential, liver enzyme profile, chest X-ray (one every three years for nonasbestos workers), pulmonary function test, audiogram, electrocardiogram for persons older than 35 years of age, illegal drug screening, and visual acuity. The MSP will at a minimum meet the requirements of the OSHA regulation 29 CFR 1910.120 (f), medical surveillance programs for hazardous waste operations and emergency response (29CFR1910.134 Respiratory Protection and 29CFR1910.95 Hearing Conservation). The program shall also comply with Title 8 CCR 5192.

2.10 Emergency Response Plan

IT's Emergency Response/Contingency Plan (ER/CP) is designed to define and communicate procedures to be followed in case of an emergency. The ER/CP is consistent with the regulations under 29 CFR 1910.120 (l) (1). Due to the nature of this work, it is not anticipated that a catastrophe (e.g., explosion, fire, etc.) will occur. However, in case of an emergency, the Site Safety Officer shall ensure that all personnel working at the site shall know at a minimum the following evacuation procedures:

1. If evacuation is necessary, all personnel will proceed to a predetermined location in the support zone, upwind and upslope (as necessary) of the work zone.
   THE SIGNAL FOR EVACUATION WILL BE 3 SHORT BLASTS IN SUCCESSION ON AN AIR OR CAR HORN.
2. Site-specific evacuation incident procedures will be discussed and documented by the Site Safety Officer.

3. Any person requiring medical attention shall be evacuated promptly from any contaminated area. For personnel requiring medical attention, the emergency information guidelines in Section 3.0 shall be followed.

3.0 Emergency Information

If injuries occur on site, take the following action:

1. Stop work, prevent further damage and initiate first aid.
2. Initiate first aid and get medical attention for the injured person immediately, if necessary, from the emergency medical facility. Site Supervisor will notify ***Health Resources at 1-800-350-4511*** for any injury/illness requiring medical attention beyond first aid.
3. Contact the Site Supervisor or Task Order Manager. The Site Supervisor shall complete a Supervisors Employee Injury Report (SEIR) and forward it to the Area Health and Safety Manager/Project CIH within 24 hours. The Project CIH will be notified immediately.
4. Site Safety Officer must complete an IT Accident Investigation Report (Appendix C) and submit it to the Area Health & Safety Manager and the Task Order Manager within 24 hours.
5. Follow reporting guidelines in the flow charts and checklist included in Appendix C.
6. The Task Order Manager shall notify the Caltrans contract manager.

3.1 Nearby Hospital/Clinic along Route Limits

Hospital: Angels Camp Medical Clinic
Phone: (209) 736-0813
Address: 222 S. Main, Angels Towne Center
Angels Camp, California

3.2 Emergency Route

Angels Camp Medical Clinic: Travel east 6.5 miles on State Route 4 from the project site to center of Angels Camp, California.

3.3 Fire Department:

Fire Department **Phone:** 911

3.4 Police Department:

County Sheriff Department **Phone:** 911

4.0 Health and Safety Plan Approvals and Acknowledgment

4.1 Approvals

I have read and approved this HSP with respect to project hazards, regulatory requirements, and IT procedures.

Project Name: State Route 4 Naturally Occurring Asbestos Study
Project Number: 820534

Ed Simonis, Task Order Manager

Paul Lawless, Project Certified Industrial Hygienist (CIH)

4.2 Acknowledgments

The final approved version of this HSP has been provided to the Site Safety Officer. I acknowledge my responsibility to provide the Site Safety Officer with the equipment, materials, and qualified personnel to implement fully all safety requirements in this HASP. I will formally review this plan with the health and safety staff every six months until project completion.

Task Order Manager:

I acknowledge receipt of this HSP from the Task Order Manager, and that it is my responsibility to explain its contents to all site personnel and cause these requirements to be fully implemented. Any change in conditions, scope of work, or other change that may affect worker safety requires me to notify the Task Order Manager and/or the Health and Safety Representative.

Site Safety Officer:

5.0 Health and Safety Plan Acknowledgment

I have read this site-specific health and safety plan, or its contents have been presented to me, and I understand the contents, and I agree to abide by its requirements.

Name (Print)	Signature	Representing	Date
Ed Simonis	[illegible]	IT Corp	11-30-00

TABLE 1

Chemicals of Concern and Occupational Characteristics (1)

Chemical	OSHA PEL[2]	ACGIH TLV[3]	IDLH[4]	Comments
Asbestos	?	?	?	Carcinogen

Notes:

1. Source: National Institute for Occupational Safety and Health (NIOSH), Guide to Chemical Hazards, 1990. Ppm = parts per million. mg/m^3 = milligrams per cubic meter.
2. OSHA PEL = 29 CFR 1910, Subpart Z, General Industry Standards for Toxic and Hazardous Substances, Permissible Exposure Limit.
3. ACGIH TLV = American Conference of Governmental Industrial Hygienists, Threshold Limit Value.
4. IDLH = Immediately dangerous to life and health.

TABLE 2

Calibration and Maintenance of Field Sampling Equipment

Monitor Type	Calibration Method	Calibration Frequency	Maintenance Schedule
Combustible gas indicator/oxygen meter	CGI sensor calibrated against known concentration of hexane (demonstration bottle). Zero setting checked in non-contaminated air. Oxygen sensor calibrated daily to 20.9 percent fresh, non-contaminated air.	CGI span calibrated once per month. CGI zero checked daily. Oxygen sensor calibrated daily.	Instrument cleaned as needed and no less than annually. Oxygen sensor changed annually and changes if necessary.
Photoionization detector (PID)	PID zeroed in clean air. Span calibrated using known concentration of isobutylene (demonstration bottle).	PID zeroed and span checked daily at start of work day.	Annual cleaning by qualified technician. Annual calibration of electronics by qualified technician. Clean lamp if sensitivity drops or if used in very dusty environment.
Draeger tube sampling system	Check air tightness of pump, time for one minute, chain should remain slack. If chain taut, then maintenance required.	Check daily prior to start of work day.	Maintenance required whenever pump fails to pass leak test. Replace seals and/or lubricate per instruction manual.
Air sampling pump	Verify airflow using primary standard (bubble meter) or precalibrated rotameter.	Verify airflow prior to and after use with sampling head in place. Spot check flow rate throughout sampling period.	Minimum of annual cleaning. Clean whenever pump unable to hold flow rate. Maintenance required if pump will not hold charge or flow rate is erratic.
Sound level meter	Calibrate using known noise source (manufacturer-supplied acoustic calibrator). Check battery level within recommended limits.	Calibrate meter and check battery daily prior to use.	Annual cleaning by qualified technician. Maintenance required if meter fails to calibrate.

TABLE 3
Airborne Contaminant Action Levels

When in Level D PPE:

Parameter	Action Level[1]	Required Action[2]
Dust	≥0.5 mg/m^3 above background	Upgrade to Level C
Unknown VOCs	>5 ppm above background	Detector tube for benzene, continue to work if no benzene detected
Benzene	>1 ppm ≤5 ppm >5 ppm	Upgrade to Level C Stop work; contact CIH[3]
O_2	≥23.5% or≤20%	Stop work; determine cause[3]
LEL	≥10% of LEL	Stop work; determine cause[3]

When in Level C PPE:

Parameter	Action Level[1]	Required Action[2]
Dust	≥5 mg/m^3 above background	Stop work; initiate dust suppression[3]
Unknown VOCs	>50 ppm above background	Stop work; detector tube for benzene; if no benzene, continue in Level C[3]
Benzene	>0.5 ppm ≤10 ppm	Stop work; contact CIH[3]
O_2	≥23.5% or ≤20%	Stop work; determine cause[3]
LEL	≥10% of LEL	Stop work; determine cause[3]

When in Level B PPE:

Parameter	Action Level[1]	Required Action[2]
Unknown VOCs	>100 ppm above background	Stop work; detector tube for benzene; contact CIH[3]
O_2	≥23.5% or ≤20%	Stop work; determine cause[3]
LEL	≥10% of LEL	Stop work; determine cause[3]

Notes:

ppm = parts per million.
LEL = lower explosive limit.

1. Five excursions above the action level in any 15 minute period or a sustained reading in excess of the action levels for 5 minutes will trigger a response.
2. Frequency of air monitoring may be adjusted by the CIH after sufficient characterization of site contaminants has been completed, tasks are modified or site controls have proven effective.
3. Contact with the Project CIH must be made prior to continuance of work. The Program CIH may then initiate integrated air sampling along with additional engineering controls.

APPENDIX A

Proposition 65 Warning and Notification

Proposition 65 Warning and Notification

As required under the Safe Drinking Water and Toxic Enforcement Act of 1986 (also known as Proposition 65), on February 27, 1987, the Governor published a listing of those chemicals determined by the State of California to cause cancer, birth defects, or other reproductive harm. Proposition 65 requires that businesses that handle any of the listed chemicals notify people in the affected area of that fact. IT Corporation may handle the following Prop 65 chemicals at the Route 4 project site:

The chemicals potentially present on site that have been determined to cause cancer include:

- Asbestos

APPENDIX B

Job Safety Analysis Worksheet

APPENDIX C

Incident Reporting Flow Charts and Forms

APPENDIX C

LABORATORY AIR ANALYSIS REPORTS

EMSL ANALYTICAL, INC
382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle
Ste 112
Sacramento, CA 95827

Date: 1/12/2001
Reference #: CA01125 p1

Project: 820534(Soil/Rock Samples)

Asbestos Bulk Sample Analysis
by Transmission Electron Microcopy (TEM)
Qualitative Analysis (P/A)

Sample ID	Sample Desciption	Sample Location	Asbestos Detected	Quantifiable (>1 %)?	Asbestos Type
WIN 0.5-1.5	N/A	N/A	Yes	N/A	Chrysotile
W2N 0-0.2	N/A	N/A	No	N/A	N/A
W3N 1-2"	N/A	N/A	Yes	N/A	Chrysotile
W4N 0.5-1'	N/A	N/A	Yes	N/A	Chrysotile
W5N 0.5-1'	N/A	N/A	Yes	N/A	Chrysotile
W5S 0-0.2'	N/A	N/A	No	N/A	N/A
W4S 0-0.2'	N/A	N/A	No	N/A	N/A
W3S-0-0.2'	N/A	N/A	Yes	N/A	Tremolite
W2S 0-0.2'	N/A	N/A	Yes	N/A	Chrysotile
W1S 0-0.2'	N/A	N/A	Yes	N/A	Chrysotile
OS 0-2'	N/A	N/A	No	N/A	N/A
E1S 0.5-.5'	N/A	N/A	Yes	N/A	Chrysotile
E2S 0.5-1.5'	N/A	N/A	Yes	N/A	Tremolite
E3S 0.5-2'	N/A	N/A	No	N/A	N/A
E4S 0.5-2'	N/A	N/A	No	N/A	N/A
E4N 0-0.2"	N/A	N/A	No	N/A	N/A
E3N 0-0.2'	N/A	N/A	No	N/A	N/A
E2N 0-0.2'	N/A	N/A	No	N/A	N/A

Laura F. Stayer
Analyst

Approved Signature

EMSL ANALYTICAL, INC
382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle
Ste 112
Sacramento, CA 95827

Date: 1/12/2001
Reference #: CA01125 p2

Project: 820534(Soil/Rock Samples)

Asbestos Bulk Sample Analysis
by Transmission Electron Microcopy (TEM)
Qualitative Analysis (P/A)

Sample ID	Sample Desciption	Sample Location	Asbestos Detected	Quantifiable (>1 %)?	Asbestos Type
EIN 0.5-2'	N/A	N/A	No	N/A	N/A
N1E 0.5-2'	N/A	N/A	No	N/A	N/A
N2E 0-0.2'	N/A	N/A	No	N/A	N/A
N3E 0-0.2'	N/A	N/A	No	N/A	N/A
N3W 0.5-2'	N/A	N/A	No	N/A	N/A
N2W 0.5-2'	N/A	N/A	No	N/A	N/A
NIW 0.1-1'	N/A	N/A	No	N/A	N/A
ON 0-0.2'	N/A	N/A	No	N/A	N/A

Laura F. Stayn
Analyst

Approved Signature

EMSL ANALYTICAL, INC.

ENVIRONMENTAL CHEMISTRY
3 Cooper Street
Westmont, NJ 08108
(856) 858-4800

ASBESTOS and MATERIALS
107 Haddon Avenue
Westmont, NJ 08108
(856) 858-4800

http://www.emsl.com

INVOICE NO.	PAGE
9010124	1
INVOICE DATE	
01/20/01	

SHIP TO

Sparger Technology
3050 Fite Circle
Suite 112
Sacramento, CA 95827

Sparger Technology
3050 Fite Circle
Suite 112
Sacramento, CA 95827

DER DATE	ORDER NO.	PURCHASE ORDER NUMBER	SLSM.	SHIP VIA	TERMS	CUST. NO.
/19/01	9010124	813941	JDM	Normal	Net 30 Days	SPAR50

DERED	TEST CODE	TEST DESCRIPTION	UNIT	UNIT PRICE	AMOUNT
8	PLMEPAPC72H	PLM EPA POINT COUNT 400 Pt 72 HOURS TAT PROJECT:820534 PROJECT MGR:N/A REPORT:CA01124	EA	25.00	200.00

SUB TOTAL	FREIGHT	MISCELLANEOUS	INVOICE TOTAL	
200.00	.00	.00		200.00

A 1.5% finance charge will be added to invoices over 30 days.

'lease detach and return with payment.

/20/01 CUST. # SPAR50 INV. # 9010124 200.00

DEPT.: 009

se
t to: EMSL ANALYTICAL, INC.
107 HADDON AVENUE
WESTMONT, NJ 08108

PAYMENT IN U.S. FUNDS ONLY

EMSL Analytical, Inc.

382 South Abbott Avenue
Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015

Attn.:
Sparger Technology, Inc.
3050 Fite Circle
Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT
Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
N 0.5-1.5		Brown Non-Fibrous Homogeneous	Crushed	2.%	Chrysotile			98.%	Other
N 0-0.2		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
3N 1"2'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
4N 0.5-1'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
5N 0.5-1'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
S 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

nments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately.
), "# of Layers" refers to number of separable subsamples.
/ samples analyzed by ELAP 198.1 Method.

e: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Analysis performed by EMSL Milpitas (NVLAP Air and Bulk #101048-3, ELAP #1620)

EMSL Analytical, Inc.

382 South Abbott Avenue
Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015

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POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
S 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
S 0-0.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
S-0-0.2'		Grey Non-Fibrous Homogeneous	Crushed	1.5%	Chrysotile			98.5%	Other
S-0-0.2'		Grey Non-Fibrous Homogeneous	Crushed	2.5%	Chrysotile			97.5%	Other
0-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
S 0.5-1.5'		Brown Non-Fibrous Homogeneous	Crushed	0.5%	Chrysotile			99.5%	Other

nments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately.
, "# of Layers" refers to number of separable subsamples.
Y samples analyzed by ELAP 198.1 Method.
e: 400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

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Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
0.5-1.5'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			15.%	Ca Carbonate
								85.%	Other
0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			15.%	Ca Carbonate
								85.%	Other
0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

nents: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. "# of Layers" refers to number of separable subsamples.

samples analyzed by ELAP 198.1 Method.

*400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

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Analyst

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Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
0.5-2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0-.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0-.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
V 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
V 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

ments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately.
, "# of Layers" refers to number of separable subsamples.
samples analyzed by ELAP 198.1 Method.
: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

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3050 Fite Circle
Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
N 0.1-1'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

ments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately.
, "# of Layers" refers to number of separable subsamples.
samples analyzed by ELAP 198.1 Method.
: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

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Analysis performed by EMSL Milpitas (NVLAP Air and Bulk #101048-3, ELAP #1620)

CHAIN OF CUSTODY
and Analysis Request Form

Company:
IT Corporation
1433 N. Market Boulevard, Suite 1
Sacramento, CA 95834
Phone: (916) 928-3300 Fax: (916) 928-3341

Laboratory:
Sparger Technology, Inc.
3050 Fite Circle, Suite 112, Sacramento, CA 95827
Phone: (916) 362-8947
Fax: (916) 362-0947

Send Results To:
Ed Simonis
IT Corporation
1433 N. Market Boulevard, Suite 1
Sacramento, CA 95834

Project:
Caltrans Rte.4 Asbestos
Location: Rte4 & Pool Station Rd., Calaveras County
Project #: 820534
Contract: 43A0012 EA#:10-0A0100-NG

Sample ID:	Comments	Date	Time	Container	Total	Preservative Used	Matrix	Analysis: 6010: Lead Only	Analysis: Asbestos See Notes Below	TAT
W1N 0.5-1.5		11-30-00	10:25	1			soil/rock		✓	std
W2N 0-0.2'			10:45	1					✓	std
W3N 1-2'			10:55	1					✓	std
W4N 0.5-1'			11:30	1					✓	std
W5N 0.5-1'			11:50	1					✓	std
W5S 0-0.2'			11:55	1					✓	std
W4S 0-0.2'			12:05	1					✓	std
W3S 0-0.2'			12:15	1					✓	std
W2S 0-0.2'			12:25	1					✓	std
W1S 0-0.2'			12:30	1					✓	std
0S 0-2'			12:40	1					✓	std
E1S 0.5-1.5'			12:50	1					✓	std
E2S 0.5-1.5'			1300	1					✓	std
E3S 0.5-2'			1310	1					✓	std
E4S 0.5-2'			1320	1					✓	std
E4N 0-0.2'			1335	1					✓	std
E3N 0-0.2'			1340	1					✓	std
E2N 0-0.2'			1345	1					✓	std
E1N 0.5-2'			1355	1					✓	std
N1E 0.5-2'			1405	1					✓	std
N2E 0-0.2'			1415	1					✓	std
N3E 0-0.2'			1420	1					✓	std
N3W 0.5-2'			1440	1					✓	std
N2W 0.5-2'			1445	1					✓	std
N1W 0.1-1'			1455	1					✓	std
0N 0-0.2'			1500	1					✓	std
										std
										std
										std
										std

Notes: Asbestos by ARB Method 435. Rock/aggregate samples to be crushed by Sierra Testing Laboratories, Inc., and tested for asbestos by ESML Analytical, Inc.

Relinquished By: Ed Simonis
Print Name: Ed Simonis
Date: 12-1-00
Time: 15:30

Received By: Dirk Burton
Print Name: Dirk Burton
Date: 12/01/00
Time: 15:30

Relinquished By:
Print Name:
Date:
Time:

Received By:
Print Name:
Date:
Time:

Page of

Ed Simonis, R.G.
Senior Project Geologist

Office 916.928.3300 ext 351
Fax 916.928.3341
Email esimonis@theitgroup.com

'T Corporation
433 North Market Boulevard, Suite 1
'acramento, CA 95834-1943

Member of The IT Group

PHONE: 916/928-3300
FAX: 916/928-3341

FAX TRANSMITTAL

To:	Company	Fax No.	Telephone No.
Evan McKinney	Sparger	362-0947	362-8947

From: Ed Simonis

Project (Vision) No.: 820534
Cost Code No.:

Date: 12-13-00

Total No. of Pages: 2

Subject:

☐ URGENT ☐ FOR REVIEW ☐ PLEASE REPLY ☐ PLEASE RECYCLE

Notes/Comments:

Request for additional analysis.
For the crushed-rock/soil samples listed in the attached Chain of Custody, please have ESMC Analytical (in addition to the asbestos testing by ARB Method 435) analyze the 26 samples using transmission electron microscopy (TEM) to characterize the type of asbestos minerals.

Ed Simonis 916 928-3300

NOTE: Unless otherwise indicated or obvious from the nature of the transmittal, the information contained in this facsimile message is confidential information intended for the use of the individual or entity named above. If the reader of this message is not the intended recipient, or the employee or agent responsible to deliver it to the intended recipient, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us at the telephone number listed above.

APPENDIX D

LABORATORY SOIL ANALYSIS REPORTS

MICRO ANALYTICAL LABORATORIES, INC.
PHASE CONTRAST MICROSCOPY

1032
The I.T. Group
4005 Port Chicago Highway
Concord, CA 94520

PROJECT:
CALTRANS HIGHWAY 4
ASBESTOS
PROJECT NO. 820534

Micro Log In 18635
Total Samples 3
Date Sampled 12/01/200
Date Received 12/04/200
Date Analyzed 12/05/200

Sample ID	Field Data	Lab Data	Fibers / cc	Limits
Client: 820534-1201-01 Micro: 18635-01 12/1/2000 EXCURSION SAMPLE DURING 1ST BORING	Time 30 Rate 2.0 Liters 60	Fibers 2 Fields 100 F/mm² < 7.0	< 0.045	LCL 0.000 UCL 0.098 LOD 0.045 LOQ 0.642 CV 0.60
Client: 820534-1201-02 Micro: 18635-02 FPR 12/1/2000 PERSONAL SAMPLE DURING BORING / SAMPLING	Time 480 Rate 2.0 Liters 960	Fibers 4 Fields 100 F/mm² < 7.0	< 0.003	LCL 0.000 UCL 0.006 LOD 0.003 LOQ 0.040 CV 0.60
Client: 820534-1201-03 Micro: 18635-03 12/1/2000 BLANK	Time Rate Liters	Fibers 0 Fields 100 F/mm² 0.0		LCL UCL LOD LOQ CV 0.60

Technical Supervisor: _____ 12/5/2000 Analyst: FPR
Frank Raviola, M.S. Date Reported

AIHA IHLAP Laboratory Accreditation / PAT ID No. 101768. Samples are analyzed using the NIOSH 7400 Method (NIOSH Manual of Analytical Methods, 4th Ed., Issue 2 of Rev. 3, 8/15/1994). The "A" Rules are used, unless otherwise noted. The limit of detection (LOD) is 7 fibers/mm². Limits of quantification for optimal precision and accuracy are 100 (LOQ) and 1300 fibers/mm². The 95% UCL and LCL (Upper and Lower Confidence Limits of the Two-sided 95% Confidence Interval) represent the highest and lowest expected concentrations (in fibers/cc) for a given fiber count, based on the reported concentration. Intralaboratory coefficients of variation (CV) for various fiber loadings are reported. Limits for compliance testing may be calculated by the client, using the CV and an appropriate regulatory standard, e.g. UCL = (Concentration + (1.645 x CV x Standard)). Concentrations are field blank-corrected. Time is in minutes, flow rate is in liters per minute. 8 Hour TWA: calculated time weighted average concentration (in fibers/cc) based on 8 hours. Note: due to method variability, 95% LCL and UCL for the TWA may vary significantly from reported TWA values. The 8 hour TWA may not be statistically accurate for actual total times less than 8 hours; zero concentration is assumed for remaining time if no information is given. Micro Analytical Laboratories, Inc. assumes no responsibility for clients' interpretation of any requested TWA data or calculations in this report. This report must not be reproduced except in full, with the approval of Micro Analytical Laboratories. This report pertains only to the listed samples, as submitted to and analyzed by Micro Analytical Laboratories, Inc. Micro Analytical Laboratories, Inc. shall not be responsible for clients' deviations from any prescribed sampling parameters. Air volumes are based on client data. The lab's verifiability of results is limited to fibers per mm². N/A = not applicable.

5900 HOLLIS STREET, SUITE M, EMERYVILLE, CALIFORNIA 94608 - (510) 653-0824

Chain of Custody Form
1022

MICRO ANALYTICAL LABORATORIES, INC.

5900 Hollis Street, Suite M, Emeryville, California 94608
(510) 653-0824 - (510) 653-1361 - FAX

Log in # 18635

Name / Client / Address:
Marlin Bryant
The LT Group
4005 Port Chicago Highway
Concord, CA 94520

Tel. (925) 288-2126
Fax (925) 288-0888

Project: Caltrans Hwy 4 Asbestos

Job No. 820534

Asbestos (TEM): AHERA Yamate II (Mod.) Other (Specify)
Asbestos: PLM PCM ✓
Lead Only: Total Lead STLC TCLP
Metals (Specify): Total Metals STLC TCLP
Other

Number of Samples 3

Turn-Around Time No rush

Matrix Type: Bulk Dust ✓ Paint Soil Wipe Air ✓ Water Other

Micro ID # (For Lab Use Only)	Client Sample ID#	Description	Date Sampled	Time Sampled Start / Stop / Total Minutes	Average LPM	Total Liters	Filter
18635-01	-1	Excursion Sample during 1st boring		9:30 10:00 30	2	60	
02	-2	personal sampling during boring/sampling		10:00 6:00 480	2	960	
03	-3	Blank		: :	0		
				: :			
				: :			
				: :			
				: :			
				: :			
				: :			
				: :			

Instructions / Comments:

Sample Return: YES (NO) If "YES" is checked, samples will be returned to the client or archived at Micro Analytical if required.
If "NO" is checked, solid samples may be disposed of within three months (one week for liquid samples, lab suspensions, and digestates).

Ed K. Simonis
Sampler's Signature / Name

Note to Lab: If any samples are not acceptable, record reasons for rejection.

Ed Simonis 12/1/00 1/4 Drop Box / Courier
Relinquished By Date / Time Received By Date / Time 12/8/00

Relinquished By Date / Time Received By Date / Time

APPENDIX D
LABORATORY ANALYTICAL REPORTS AND CHAIN-OF-CUSTODY FORMS

EMSL Analytical, Inc.

382 South Abbott Avenue
Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015

Attn.:
Sparger Technology, Inc.
3050 Fite Circle
Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
WIN 0.5-1.5		Brown Non-Fibrous Homogeneous	Crushed	2.%	Chrysotile			98.%	Other
W2N 0-0.2		Grey Non-Fibrous Homogeneous	Crushed	None Detected				100.%	Other
*W3N 1"2'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
*W4N 0.5-1'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
*W5N 0.5-1'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
W5S 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed	None Detected				100.%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples analyzed by ELAP 198.1 Method.

Note: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

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Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
W4S 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
W3S 0-0.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
W2S-0-0.2'		Grey Non-Fibrous Homogeneous	Crushed	1.5%	Chrysotile			98.5%	Other
W1S-0-0.2'		Grey Non-Fibrous Homogeneous	Crushed	2.5%	Chrysotile			97.5%	Other
OS 0-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
E1S 0.5-1.5'		Brown Non-Fibrous Homogeneous	Crushed	0.5%	Chrysotile			99.5%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples analyzed by ELAP 198.1 Method.

Note: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

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EMSL Analytical, Inc.

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Suite 112
Sacramento, CA 95827

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POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
E2S 0.5-1.5'		Brown Non-Fibrous Homogeneous	Crushed	< 1%	Chrysotile			100.%	Other
E3S 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			15.% 85.%	Ca Carbonate Other
E4S 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			15.% 85.%	Ca Carbonate Other
E4N 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
E3N 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
E2N 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

NY samples analyzed by ELAP 198.1 Method.

Note: *400 pts counted. Chrysotile is present but didn't fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Analysis performed by EMSL Milpitas (NVLAP Air and Bulk #101048-3, ELAP #1620)

EMSL Analytical, Inc.

382 South Abbott Avenue
Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015

Attn.:
Sparger Technology, Inc.
3050 Fite Circle
Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
E1N 0.5-2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
N1E 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
N2E 0-.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
N3E 0-.2'		Grey Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
N3W 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
N2W 0.5-2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples analyzed by ELAP 198.1 Method.

Note: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Analysis performed by EMSL Milpitas (NVLAP Air and Bulk #101048-3, ELAP #1620)

EMSL Analytical, Inc.

382 South Abbott Avenue
Milpitas, CA 95035
Phone: (408) 934-7010 Fax: (408) 934-7015

Attn.:
Sparger Technology, Inc.
3050 Fite Circle
Suite 112
Sacramento, CA 95827

Friday, January 12, 2001

Ref Number: CA01124

POLARIZED LIGHT MICROSCOPY (PLM) - POINT COUNT

Performed by EPA 600/R-93/116 Method*

Project: 820534

Sample	Location	Appearance	Sample Treatment	ASBESTOS %	ASBESTOS Type	NON-ASBESTOS %	NON-ASBESTOS Fibrous	NON-ASBESTOS %	NON-ASBESTOS Non-Fibrous
N1W 0.1-1'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other
ON 0-0.2'		Brown Non-Fibrous Homogeneous	Crushed		None Detected			100.%	Other

Comments: For all obviously heterogeneous samples easily separated into subsamples, and for layered samples, each component is analyzed separately. Also, "# of Layers" refers to number of separable subsamples.

* NY samples analyzed by ELAP 198.1 Method.

Note: *400 pts counted. Chrysotile is present but didn"t fall in any point. Asbestos=<0.25%

Nonette Patron
Analyst

Approved
Signatory

Disclaimers: PLM has been known to miss asbestos in a small percentage of samples which contain asbestos. Thus negative PLM results cannot be guaranteed. EMSL suggests that samples reported as <1% or none detected be tested with either SEM or TEM. The above test report relates only to the items tested. This report may not be reproduced, except in full, without written approval by EMSL. The above test must not be used by the client to claim product endorsement by NVLAP nor any agency of the United States Government. Laboratory is not responsible for the accuracy of results when requested to physically separate and analyze layered samples.

Analysis performed by EMSL Milpitas (NVLAP Air and Bulk #101048-3, ELAP #1620)

EMSL ANALYTICAL, INC
382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle
Ste 112
Sacramento, CA 95827

Date: 1/12/2001
Reference #: CA01125 p1

Project: 820534(Soil/Rock Samples)

Asbestos Bulk Sample Analysis
by Transmission Electron Microcopy (TEM)
Qualitative Analysis (P/A)

Sample ID	Sample Desciption	Sample Location	Asbestos Detected	Quantifiable (>1%)?	Asbestos Type
W1N 0.5-1.5	N/A	N/A	Yes	N/A	Chrysotile
W2N 0-0.2	N/A	N/A	No	N/A	N/A
W3N 1-2"	N/A	N/A	Yes	N/A	Chrysotile
W4N 0.5-1'	N/A	N/A	Yes	N/A	Chrysotile
W5N 0.5-1'	N/A	N/A	Yes	N/A	Chrysotile
W5S 0-0.2'	N/A	N/A	No	N/A	N/A
W4S 0-0.2'	N/A	N/A	No	N/A	N/A
W3S-0-0.2'	N/A	N/A	Yes	N/A	Tremolite
W2S 0-0.2'	N/A	N/A	Yes	N/A	Chrysotile
W1S 0-0.2'	N/A	N/A	Yes	N/A	Chrysotile
OS 0-2'	N/A	N/A	No	N/A	N/A
E1S 0.5-.5'	N/A	N/A	Yes	N/A	Chrysotile
E2S 0.5-1.5'	N/A	N/A	Yes	N/A	Tremolite
E3S 0.5-2'	N/A	N/A	No	N/A	N/A
E4S 0.5-2'	N/A	N/A	No	N/A	N/A
E4N 0-0.2"	N/A	N/A	No	N/A	N/A
E3N 0-0.2'	N/A	N/A	No	N/A	N/A
E2N 0-0.2'	N/A	N/A	No	N/A	N/A

Laura F. Stayer
Analyst

Approved Signature

EMSL ANALYTICAL, INC
382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle
Ste 112
Sacramento, CA 95827

Date: 1/12/2001
Reference #: CA01125 p2

Project: 820534(Soil/Rock Samples)

Asbestos Bulk Sample Analysis
by Transmission Electron Microcopy (TEM)
Qualitative Analysis (P/A)

Sample ID	Sample Desciption	Sample Location	Asbestos Detected	Quantifiable (>1%)?	Asbestos Type
EIN 0.5-2'	N/A	N/A	No	N/A	N/A
N1E 0.5-2'	N/A	N/A	No	N/A	N/A
N2E 0-0.2'	N/A	N/A	No	N/A	N/A
N3E 0-0.2'	N/A	N/A	No	N/A	N/A
N3W 0.5-2'	N/A	N/A	No	N/A	N/A
N2W 0.5-2'	N/A	N/A	No	N/A	N/A
NIW 0.1-1'	N/A	N/A	No	N/A	N/A
ON 0-0.2'	N/A	N/A	No	N/A	N/A

Laura K. Stryn
Analyst

Approved Signature

EMSL ANALYTICAL, INC

382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle, Suite 112
Sacramento, CA 95827

Date: 12/19/2000
Billing Number: CA008227 (pg 1 of 2)

POLARIZED LIGHT MICROSCOPY (PLM)
Qualitative Analysis
Asbestos in Soil

PROJECT: 820534

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	ASBESTOS DETECTED	ASBESTOS TYPE
W1N 0.5.1.5	Soil	N/A	Yes	Chrysotile
W2N 0.0.2	Soil	N/A	No	N/A
W3N 1"2'	Soil	N/A	Yes	Chrysotile
W4N 0.5-1'	Soil	N/A	Yes	Chrysotile
W5N 0.5-1'	Soil	N/A	Yes	Chrysotile
W5S 0-0.2'	Soil	N/A	No	N/A
W4S 0-0.2'	Soil	N/A	No	N/A
W3S 0-0.2'	Soil	N/A	No	N/A
W2S 0-0.2'	Soil	N/A	Yes	Chrysotile
W1S 0-0.2'	Soil	N/A	Yes	Chrysotile
OS- 0-2'	Soil	N/A	No	N/A
E1S-0.5-15'	Soil	N/A	Yes	Chrysotile
E2S-0.5-1.5'	N/A	N/A	Yes	Chrysotile

Analyst

Approved Signature

EMSL ANALYTICAL, INC

382 South Abbott Avenue
Milpitas, CA 95035
Phone (408)934-7010 Fax (408)934-7015

Sparger Technology, Inc.
3050 Fite Circle, Suite 112
Sacramento, CA 95827

Date: 12/19/2000
Billing Number: CA008227 (pg 2 of 2)

POLARIZED LIGHT MICROSCOPY (PLM)
Qualitative Analysis
Asbestos in Soil

PROJECT: 820534

SAMPLE ID	SAMPLE DESCRIPTION	SAMPLE LOCATION	ASBESTOS DETECTED	ASBESTOS TYPE
E3S-0.5-2'	Soil	N/A	Yes	Chrysotile
E4S-0.5-2'	Soil	N/A	No	N/A
E4N-0.0.2'	Soil	N/A	No	N/A
E3N-0.0.2'	Soil	N/A	No	N/A
E2N-0.0.2'	Soil	N/A	No	N/A
E1N-0.5-2'	Soil	N/A	No	N/A
N1E-0.5-2'	Soil	N/A	No	N/A
N2E 0-0.2'	Soil	N/A	No	N/A
N3E 0-0.2'	Soil	N/A	No	N/A
N3W 0.5-2'	Soil	N/A	No	N/A
N2W 0.5-2'	Soil	N/A	No	N/A
N1W 0.1-1'	Soil	N/A	No	N/A
ON 0-0.2'	N/A	N/A	No	N/A

Analyst

Approved Signature

CHAIN OF CUSTODY
and Analysis Request Form

Company:
IT Corporation
1433 N. Market Boulevard, Suite 1
Sacramento, CA 95834
Phone: (916) 928-3300 Fax: (916) 928-3341

Laboratory:
Sparger Technology, Inc.
3050 Fite Circle, Suite 112, Sacramento, CA 95827
Phone: (916) 362-8947
Fax: (916) 362-0947

Send Results To:
Ed Simonis
IT Corporation
1433 N. Market Boulevard, Suite 1
Sacramento, CA 95834

Project:
Caltrans Rte.4 Asbestos
Location: Rte4 & Pool Station Rd., Calaveras County
Project #: 820534
Contract: 43A0012 EA#:10-0A0100-NG

Sample ID:	Comments	Date	Time	Container	Total	Preservative Used	Matrix	Analysis: 6010: Lead Only	Analysis: Asbestos See Notes Below	TAT
W1N 0.5-1.5		11-30-00	10:25	1			soil/rock		✓	std
W2N 0-0.2'			10:45	1					✓	std
W3N 1-2'			10:55	1					✓	std
W4N 0.5-1'			11:30	1					✓	std
W5N 0.5-1'			11:50	1					✓	std
W5S 0-0.2'			11:55	1					✓	std
W4S 0-0.2'			12:05	1					✓	std
W3S 0-0.2'			12:15	1					✓	std
W2S 0-0.2'			12:25	1					✓	std
W1S 0-0.2'			12:30	1					✓	std
0S 0-2'			12:40	1					✓	std
E1S 0.5-1.5'			12:50	1					✓	std
E2S 0.5-1.5'			1300	1					✓	std
E3S 0.5-2'			13:10	1					✓	std
E4S 0.5-2'			1320	1					✓	std
E4N 0-0.2'			1335	1					✓	std
E3N 0-0.2'			1340	1					✓	std
E2N 0-0.2'			1345	1					✓	std
E1N 0.5-2'			1355	1					✓	std
N1E 0.5-2'			1405	1					✓	std
N2E 0-0.2'			1415	1					✓	std
N3E 0-0.2'			1420	1					✓	std
N3W 0.5-2'			1440	1					✓	std
N2W 0.5-2'			1445	1					✓	std
N1W 0.1-1'			1455	1					✓	std
0N 0-0.2'			1500	1					✓	std
										std
										std
										std
										std

Notes: Asbestos by ARB Method 435. Rock/aggregate samples to be crushed by Sierra Testing Laboratories, Inc., and tested for asbestos by ESML Analytical, Inc.

Relinquished By: Ed Simonis
Print Name: Ed Simonis
Date: 12-1-00
Time: 15:30

Received By: Dirk Burton
Print Name: Dirk Burton
Date: 12/1/00
Time: 15:30

Relinquished By:
Print Name:
Date:
Time:

Received By:
Print Name:
Date:
Time:

Page of

S...RC...TE...INC...OGY, ..JC.

Analytical Laboratory

3050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947

FAX: (916) 362-0947

CHA... OF CUSTODY RECORD

C.O.C. No. 16100

Page 1 **of** 3

STAL Invoice Number:

Company: SAME AS ABOVE

Phone: Same As Above

Project Manager: MR. RAY JAMES

FAX: " " "

Report Address:

Billing Name & Address:

Project Name:

Project/Job#: 820534

Project Location:

P.O.#: 813941

ANALYSIS REQUEST

REMARKS:

Sampler's Name:

		All OK	None OK	Some OK
Cooler Temp.	°C			
Sample Condition				
pH				

WET(STLC)

TCLP

NO.	SAMPLE ID	Sampling Date	Sampling Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other: 2, 1 Loose bag	HCl/HNO3/ICE	None	Other:	Water	Soil 1 Loose	Air	Other:	BTEX (602/8020)503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB'S)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	Asbestos by PLM	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
	SUB TO EMSL																																		
1	W1N 0.5-1.5	11/30	10:25					X					X																X					X	
2	W2N 0-0.2		10:45																																
3	W3N 1-2'		10:55																																
4	W4N 0.5-1'		11:30																																
5	W5N 0.5-1'		11:50																																
6	W5S 0-0.2'		11:55																																
7	W4S 0-0.2'		1205																																
8	W3S 0-0.2'		1215																																
9	W2S 0-0.2'		1225																																
10	W1S 0-0.2'		1230																																

Relinquished by:	Received by:	Relinquished by:	Received by:
Date: 12/04/05 Time: 15:00	Date: Time:	Date: Time:	Date: Time:

PLEASE READ REVERSE SIDE FOR TERMS AND CONDITIONS

SPARGER TECHNOLOGY, INC.

Analytical Laboratory

050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947
FAX: (916) 362-0947

CHAIN OF CUSTODY RECORD

C.O.C. No. 16098

Page 2 **of** 3

STAL Invoice Number:

Company: Same as above
Phone: Same as above

Project Manager: Mr. Ray James
FAX: " " "

Report Address:
Billing Name & Address:

Project Name:
Project/Job#: 820534

Project Location:
P.O.#: 813941

ANALYSIS REQUEST

REMARKS:

Sampler's Name:

		All OK	None OK	Some OK
Cooler Temp.	°C			
Sample Condition				
pH				

WET(STLC)

TCLP

Total

TAT

Sub to EMSL

NO.	SAMPLE ID	Sampling Date	Sampling Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other: 2,1 Lock bag	HCl/HNO3/ICE	None	Other:	Water	Soil / Rock	Air	Other:	BTEX (602/8020)503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB'S)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	asbestos by PLM	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
1	OS - 0-2'	11/30/00	12:40					X					X																X					X	
2	E1S - 0.5-1.5'		12:50																																
3	E2S - 0.5-1.5'		13:00																																
4	E3S - 0.5-2'		13:10																																
5	E4S - 0.5-2'		13:20																																
6	E4N - 0.0.2'		1335																																
7	E3N - 0.0.2'		1340																																
8	E2N - 0.0.2'		1345																																
9	E1N - 0.5-2'		1355																																
10	N1E - 0.5-2'		1405																																

Relinquished by:	Received by:	Relinquished by:	Received by:
Neil Burton			
Date: 12/04/00 Time: 15:00	Date: Time:	Date: Time:	Date: Time:

PLEASE READ REVERSE SIDE FOR TERMS AND CONDITIONS

Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Don Bransford
IT Corporation
1433 N. Market Boulevard
Sacramento, CA 95834

Client	IT Corporation
Workorder	13335 820534
Received	02/22/01

The samples were received in EPA specified containers. The samples were transported and received under documented chain of custody and stored at four (4) degrees C until analysis was performed.

Sparger Technology, Inc. ID Suffix Keys - These descriptors will follow the Sparger Technology, Inc. ID numbers and help identify the specific sample and clarify the report.

DUP - Matrix Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
RPD - Relative Percent Difference
QC - Additional Quality Control
DIL - Results from a diluted sample

Ray James
Laboratory Director

3050 Fite Circle, Suite 112 • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Mercury
Method EPA 7471A

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutic
13335001	W1N 0.5 1.5	0.0329	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335002	W2N 0 0.2	0.117	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335003	W3N 1 2'	0.0312	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335004	W4N 0.5-1'	0.0323	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335005	W5N 0.5-1'	0.0401	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335006	W5S 0.0.2'	ND	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335007	W4S 0.0.2'	0.0273	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335008	W3S 0-0.2'	0.0565	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335009	W2S 0.0.2'	0.0140	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335010	W1S 0.0.2'	0.0226	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335011	OS-0-2'	0.0160	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335012	E1S-0.5-15'	0.0236	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335013	E2S-0.5-1.5'	0.0337	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335014	E3S-0.5-2'	0.0259	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335015	E4S-0.5-2'	0.0421	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335016	E4N-0.0.2'	ND	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335017	E3N-0.0.2'	ND	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335018	E2N-0.0.2'	ND	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335019	E1N-0.0.2'	0.0298	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335020	N1E-0.5-2'	0.0210	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335021	N2E 0-0.2'	0.0143	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335022	N3E 0-0.2'	0.0232	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335023	N3W 0.5-2'	0.0186	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335024	N2W 0.5-2'	0.0171	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335025	N1W 0.1-1'	0.0341	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1
13335026	ON 0.0.2'	0.0107	0.010	mg/Kg	11/30/00	03/02/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Zinc
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	32	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	125	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	97	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	66	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	80	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	81	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	74	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	49	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	41	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	52	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	44	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	68	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	144	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	39	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	92	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	27	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	40	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	44	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	44	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	51	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	35	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	44	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	84	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	58	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	69	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	48	1.5	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Antimony
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	6.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Mobile Laboratory Division
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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Arsenic
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	14	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	14	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	14	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	12	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	8.1	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	8.2	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	20	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	29	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	31	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	8.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Barium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	15	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	45	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	43	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	62	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	42	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	57	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	49	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	18	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	3.8	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	13	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	76	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	30	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	68	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	93	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	82	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	9.5	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	3.7	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	36	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	150	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	111	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	84	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	81	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	95	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	94	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	112	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	56	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Beryllium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	0.30	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Cadmium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	0.50	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Chromium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	490	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	55	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	253	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	185	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	139	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	22	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	50	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	782	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	521	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	357	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	116	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	98	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	182	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	78	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	100	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	3.3	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	15	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	25	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	85	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	77	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	72	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	77	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	15	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	63	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	90	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	124	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Cobalt
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	96	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	19	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	47	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	33	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	29	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	28	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	24	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	51	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	85	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	115	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	24	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	15	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	38	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	21	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	22	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	20	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	6.4	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	29	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	10	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	24	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	13	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	30	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	34	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	20	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	27	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	38	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Copper
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	21	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	73	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	56	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	65	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	47	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	82	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	39	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	51	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	7.8	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	29	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	70	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	77	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	76	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	80	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	67	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	31	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	100	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	73	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	45	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	72	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	103	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	65	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	50	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	62	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	61	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	55	2.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Lead
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	6.6	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	16	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	6.7	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	6.6	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	16	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	12	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	2.1	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	2.4	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	1.7	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	25	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	6.1	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	1.8	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	5.5	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	1.9	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	2.2	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	4.1	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	2.4	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	4.7	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	2.6	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	3.8	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	5.6	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	2.4	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335

Workorder ID 820534

Parameter Molybdenum
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335 **Workorder ID** 820534

Parameter Nickel
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	2100	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	59	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	535	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	314	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	416	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	228	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	157	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	760	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	2300	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	242	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	198	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	499	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	172	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	132	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	43	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	32	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	35	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	44	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	38	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	30	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	34	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	31	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	73	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	304	4.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335 **Workorder ID** 820534

Parameter Selenium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335 **Workorder ID** 820534

Parameter Silver
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	1.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Analytical Laboratory Division
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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335 **Workorder ID** 820534

Parameter Thallium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	ND	10	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13335 **Workorder ID** 820534

Parameter Vanadium
Method 6010B

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13335001	W1N 0.5 1.5	5.4	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335002	W2N 0 0.2	35	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335003	W3N 1 2'	34	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335004	W4N 0.5-1'	65	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335005	W5N 0.5-1'	33	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335006	W5S 0.0.2'	54	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335007	W4S 0.0.2'	34	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335008	W3S 0-0.2'	13	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335009	W2S 0.0.2'	ND	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335010	W1S 0.0.2'	21	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335011	OS-0-2'	89	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335012	E1S-0.5-15'	26	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335013	E2S-0.5-1.5'	50	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335014	E3S-0.5-2'	61	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335015	E4S-0.5-2'	66	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335016	E4N-0.0.2'	42	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335017	E3N-0.0.2'	23	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335018	E2N-0.0.2'	20	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335019	E1N-0.0.2'	87	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335020	N1E-0.5-2'	131	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335021	N2E 0-0.2'	80	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335022	N3E 0-0.2'	81	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335023	N3W 0.5-2'	99	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335024	N2W 0.5-2'	104	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335025	N1W 0.1-1'	98	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1
13335026	ON 0.0.2'	67	5.0	mg/Kg	11/30/00	03/04/01	Soil	1:1

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Sparger Technology, Inc.
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Analytical Laboratory Division
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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13737 **Workorder ID** 820534

Parameter Chromium
Method 6010B STLC

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13737001	W1N 0.5-1.5	0.943	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737002	W3N 1-2'	0.616	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737003	W4N 0.5-1'	0.372	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737004	W5N 0.5-1'	0.742	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737005	W3S 0-0.2'	0.944	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737006	OS-0-2'	0.285	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737007	E2S-0.5-1.5'	0.417	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737008	ON 0.0.2'	0.274	0.050	mg/L	11/30/00	05/31/01	Soil	1:1
13737009	W1S 0.0.2'	0.992	0.050	mg/L	11/30/00	05/31/01	Soil	1:1

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Sparger Technology, Inc.
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Analytical Laboratory Division
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Test Certificate of Analysis

Client ID IT Corporation
Workorder # 13737 **Workorder ID** 820534

Parameter Nickel
Method 6010B STLC

Lab ID	Sample ID	Result	RDL	Units	Collected	Analyzed	Matrix	Dilutio
13737001	W1N 0.5-1.5	29.1	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737002	W3N 1-2'	3.25	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737003	W4N 0.5-1'	3.78	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737004	W5N 0.5-1'	8.17	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737005	W3S 0-0.2'	4.25	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737006	OS-0-2'	2.67	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737007	E2S-0.5-1.5'	7.09	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737008	ON 0.0.2'	3.58	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737010	W5S 0.0.2'	1.84	0.20	mg/L	11/30/00	05/31/01	Soil	1:1
13737011	W2S 0.0.2'	24.4	0.20	mg/L	11/30/00	05/31/01	Soil	1:1

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SPARGER TECHNOLOGY, INC.

Analytical Laboratory

050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947
FAX: (916) 362-0947

CHAIN OF CUSTODY RECORD

C.O.C. No. 16100

Page 1 **of** 3

STAL Invoice Number: [redacted]

ompany: SAME AS ABOVE Phone: SAME AS ABOVE

roject Manager: MR. RAY JAMES FAX: " " "

eport Address: Billing Name & Address:

roject Name: Project/Job#: 520534

roject Location: P.O.#: 813941

ANALYSIS REQUEST

REMARKS:

Sampler's Name:

		All OK	None OK	Some OK
Cooler Temp.	°C			
Sample Condition				
pH				

WET(STLC)

TCLP

Total

TAT

NO.	SAMPLE ID	Date	Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other:	HCl/HNO3/ICE	None	Other:	Water	Soil	Air	Other:	BTEX (602/8020)503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB'S)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	Asbestos by PLM	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
1	W1N 0.5 1.5	11/30	10:25										X																X					X		
2	W2N 0-0.2		10:45																																	
3	W3N 1-2		10:55																																	
4	W4N 0.5 1		11:30																																	
5	W5N 0-0.2		11:50																																	
6	W6S 0-0.2		11:55																																	
7	W4S 0-0.2		12:05																																	
8	W3S 0-0.2		12:15																																	
9	W2S 0-0.2		12:25																																	
10	W1S 0-0.2		12:30																																	

Relinquished by:	Received by:	Relinquished by:	Received by:
[signature]		[signature] EMSL	
Date: 11/30/01 Time: 15:00	Date: Time:	Date: 12/5/01 Time: 4:30pm	Date: Time:

PLEASE READ REVERSE SIDE FOR TERMS AND CONDITIONS

SPARGER TECHNOLOGY, INC.

Analytical Laboratory

050 Fite Circle, #112 Sacramento, CA 95827

Phone: (916) 362-8947
FAX: (916) 362-0947

CHAIN OF CUSTODY RECORD

C.O.C. No. 16038

Page 2 of 3

STAL Invoice Number: 13335

Company: Same as above
Phone: Same as above

Project Manager: Mr. Ray James
FAX:

Report Address:
Billing Name & Address:

Project Name:
Project/Job#: 820534

Project Location:
P.O.#: 813941

ANALYSIS REQUEST

REMARKS:

Sampler's Name:

		All OK	None OK	Some OK
Cooler Temp.	°C			
Sample Condition				
pH				

WET(STLC)

TCLP

Total

O.	SAMPLE ID	Sampling Date	Sampling Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other: 2 / Ziploc bag	HCl/HNO3/ICE	None	Other:	Water	Soil / Glass	Air	Other:	BTEX (602/8020)503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB'S)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	Composite Per Plan	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
	Sub to EMSL																																			
1	OS - 0-2'	7/30/00	12:40					X					X																X					X		
2	E1S - 0.5-1.5'		12:50																																	
3	E2S - 0.5-1.5'		13:00																																	
4	E3S - 0.5-2'		1310																																	
5	E4S - 0.5-2'		13:20																																	
6	E4N - 0.0.2'		1335				--																													
7	E3N - 0.0.2'		1340																																	
8	E2N - 0.0.2'		1345																																	
9	E1N - 0.5-2'		1355																																	
10	N1S - 0.5-2'		1405																																	

Relinquished by:	Received by:	Relinquished by:	Received by:
Scott Burton		Adrienne Cole EMSL	
Date: 7/31/00 Time: 15:00	Date: Time:	Date: 7/15/01 Time: 1:30 pm	Date: Time:

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P...GE...EC...OL..., I...

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CHAIN OF CUSTODY RECORD

C.O.C. No. 16099

Page 3 of 3

STAL Invoice Number: 13335

mpany: Same as above

Phone: Same as above

ject Manager: Mr. Ray James

FAX: "

port Address:

Billing Name & Address:

ject Name:

Project/Job#: 5205 [illegible]

ject Location:

P.O.#: 81344

ANALYSIS REQUEST

REMARKS:

Sampler's Name:

		All OK	None OK	Some OK
Cooler Temp.	°C			
Sample Condition				
pH				

WET(STLC)

TCLP

Total

TAT

SAMPLE ID	Date	Time	40 mL VOA	Brass Sleeve	1 L amber bottle	250 mL Plastic	Other:	HCl/HNO3/ICE	None	Other:	Water	Soil	Air	Other:	BTEX (602/8020)503.1	BTEX/TPHgas (602/8020/8015)	TPHdiesel/TPHmotor oil/kerosene(8015)	EPA 601/8010/502.2/504	EPA 602/8020	EPA 608/8080 (Pesticides)/505/508	EPA 608/8080 (PCB'S)	EPA 624/8240/524.2	EPA 625/8270/525	Total Oil & Grease (5520)	Non-Polar O & G/TRPH (418.1)	Organic Lead	RCI	Asbestos by PLM	CAM-17 Metals	CAM-5 Metals (Cd, Cr, Pb, Ni, Zn)	Lead	Standard	Rush Services (72hr / 48hr / 24hr / 12hr)	Holiday/Weekend Rush
Substitutes																																			
N2E 0-0.2'	1/30/01	1415					X					X																X					X		
N3E 0-0.2'		1420																																	
N3W 0.5-2'		1440																																	
N2W 0.5-2'		1445																																	
N1W 0.1-1'		1455																																	
0 N 0-0.2'		1500					X																												

Relinquished by: [illegible]

Date: 12/14/00 Time: 15:00

Received by:

Date: Time:

Relinquished by: EMSL Catherine Cobb

Date: 2/15/01 Time: 4:30 pm

Received by:

Date: Time:

PLEASE READ REVERSE SIDE FOR TERMS AND CONDITIONS

Sparger Technology, Inc.
Environmental Laboratories

Analytical Laboratory Division
Mobile Laboratory Division
Scientific Division

Don Bransford
IT Corporation
1326 N. Market Blvd.
Sacramento, CA 95838

Client	IT Corporation
Workorder	13737 820534
Received	05/22/01

The samples were received in EPA specified containers. The samples were transported and received under documented chain of custody and stored at four (4) degrees C until analysis was performed.

Sparger Technology, Inc. ID Suffix Keys - These descriptors will follow the Sparger Technology, Inc. ID numbers and help identify the specific sample and clarify the report.

DUP - Matrix Duplicate
MS - Matrix Spike
MSD - Matrix Spike Duplicate
LCS - Lab Control Sample
LCSD - Lab Control Sample Duplicate
RPD - Relative Percent Difference
QC - Additional Quality Control
DIL - Results from a diluted sample
ND - None Detected
RDL - Reporting Detection Limit

Ray James
Laboratory Director

3050 Fite Circle, Suite 112 • Sacramento, California 95827 • (916) 362-8947 • FAX (916) 362-0947

RECEIVING
5/22/01 @ 11:15AM

To: Dawn
From: Don Bransford
Date: 5/22/01
No. Pages: 1

Please run the following analyses:

Sparger ID	IT ID	
13335-001	W1N 0.5 1.5	Run WET for chromium and nickel on these 8 samples
13335-003	W3N 1 2'	
13335-004	W4N 0.5-1'	
13335-005	W5N 0.5-1'	
13335-008	W3S 0-0.2'	
13335-011	OS-0-2'	
13335-013	E2S-0.5-1.5'	
13335-026	ON 0.0.2'	
13335-010	W1S 0.0.2'	Run WET for chromium on this sample
13335-006	W5S 0.0.2'	Run WET for nickel on these 2 samples
13335-009	W2S 0.0.2'	

APPENDIX C
NEGATIVE EXPOSURE ASSESSMENT

NEGATIVE EXPOSURE ASSESSMENT
ASBESTOS AIR MONITORING
DURING
ENVIRONMENTAL SITE INVESTIGATION

STATE ROUTE 4 AND POOLE STATION ROAD INTERSECTION
CALAVERAS COUNTY, CALIFORNIA

Prepared for

California Department of Transportation
District 10
1976 Charter Way
Stockton, California 95201

Prepared by

The IT Corporation
4005 Port Chicago Highway
Concord, California 94520-1120

Task Order No. OA0100-NG
EA No. 2A5000
Contract No. 43A0012

IT Project No. 820534

November 22, 2000

NEGATIVE EXPOSURE
ASBESTOS AIR MONITORING
DURING
ENVIRONMENTAL SITE INVESTIGATION

State Route 4 And Poole Station Road Intersection

The material and data in this report were prepared under the supervision and direction of the undersigned. This report was prepared consistent with current construction industry standards and environmental consulting principles and practices that are within the limitations provided herein.

The I.T. Corporation

Marlin V. Bryant
Environmental Specialist
Certified Asbestos Consultant
(Certification # 92-0596)

Barbara Marks, CIH
Project Industrial Hygienist

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EXECUTIVE SUMMARY

On December 1, 2000, Mr. Ed Simonis, a registered geologist of The IT Group, used a hand auger to collected 26 borehole soil samples in suspected asbestos containing soil/bedrock. The author of the IT Health & Safety plan for this work, Mr. Paul Lawless, C.I.H., expressed concern that this work activity might expose Mr. Simonis to asbestos fibers. In the absence of a negative exposure assessment based on previous air monitoring data for similar work, Mr. Lawless directed that personal air monitoring samples be collected while Mr. Simonis completed the planned work activity. Marlin Bryant, a Cal-OSHA Certified Asbestos Consultant, assisted Mr. Simonis in securing the air sampling equipment, planning the air sampling protocol and securing lab analysis of the air samples. None of the participants in this project expected the work activity to expose any workers to asbestos fibers in excess of the Permissible Exposure Level (PEL) of 0.1 f/cc.

During the collection of the borehole soil samples, the registered geologist wore a personal Gillian high-flow personal air monitoring pump and collected an "excursion" personal air sample (30 minutes during first boring) and a full shift personal air sample (480 minutes). These samples were sent to Micro Analytical Laboratories, Inc. of Emeryville, CA for asbestos content analysis.

Laboratory analysis of the personal air samples detected < 0.045 asbestos fibers per cc in the "excursion" sample and < 0.003 fibers per cc in the full shift sample. Both results were below the 0.1 fibers per cc Permissible Exposure Limit (PEL), established by CalOSHA. Both air samples were analyzed by Phase Contrast Microscopy (PCM-NIOSH 7400A Method).

Laboratory analysis of the soil samples detected from < 1% to 2.5% naturally occurring chrysotile or tremolite asbestos in 8 of the 26 samples submitted and analyzed by polarized light microscopy (PLM – Point Counting EPA 600/R-93/116 Method).

Evaluation of the air and soil sampling data confirms that worker exposure to asbestos fibers during this hand-auger, borehole soil sampling activity in asbestos containing soil/bedrock did not exceed the PEL for asbestos. For the purpose of this report, is concluded that the data collected meets the definition of "initial monitoring" as defined in CCR 8, GISO 5208 (d) and a "negative exposure assessment" as defined in CCR 8, Section 1529 (f) Asbestos in Construction Standard. No additional personal air sampling will be required for similar work activities.

2 AIR SAMPLING, ANALYSIS METHODS, AND RESULTS

Cal/OSHA Permissible Exposure Limits (PELs) indicate average airborne contaminant levels to which it is believed nearly all workers may be exposed without significant adverse health effect. Compliance with Cal/OSHA PELs, including monitoring of worker exposures, is mandated in Title 8 Code of California Regulations Section 5155 (8 CCR 5155), "Airborne Contaminants." PEL values are typically expressed as an 8-hour time-weighted average (TWA), that is, average airborne concentration for an 8-hour workday. For some contaminants, an Action Level (i.e., level above which certain "actions" are required) or an Excursion Limit (short-term exposure limit) has also been established.

For asbestos the PELs are:

0.1 f/cc* Permissible Exposure Limit (PEL) full shift TWA*
1.0 f/cc* Excursion Limit (30-minute TWA*)

- fibers per cubic centimeter of air
- TWA= time weighted average

On of the day the soil samples were collected, Mr. Simonis wore a personal Gillian air sampling pump calibrated to collect an average of 2 liters of air per minute through a 0.8 mixed cellulose ester filter (MCEF) cassette attached in his "breathing zone." He collected a 30-minute "excursion" sample during the first boring/auguring and an eight-hour, full shift air sample during the remaining soil sample collection activities. Both samples were sent to a certified laboratory and analyzed by Phase Contrast Microscopy (PCM-NIOSH 7400A Method). The PCM sample results are compared to the current OSHA PEL of 0.1 fibers per cubic centimeter of air (f/cc) and the current EPA guideline for non-industrial settings (including occupied school buildings) set at 0.01 f/cc for full shift air sampling. The sample analysis results were:

A. Excursion Sample (30 minutes) < 0.045 fibers/cc

B. Full Shift Sample (480 minutes) < 0.003 fibers/cc

Both sample results were below the OSHA PEL guideline and the EPA guideline.

washed prior to eating, drinking, or smoking and before leaving the site. Contaminated clothing was removed as soon as possible before leaving the exclusion zone. Contaminated clothing was disposed of with other potentially impacted material. Kneeling, sitting, leaning, or general contact with potentially impacted surfaces and with surfaces suspected of being potentially impacted by hazardous materials (i.e., puddles, mud, leachate, etc.) was avoided.

Equipment Decontamination Procedures: All hand auger equipment was washed prior to arrival at the site. To avoid cross-contamination, all appropriate downhole and sampling equipment was washed between sampling/boring by washing equipment will an Alconox solution followed by a double rinse of deionized water.

1.3 Personal Protective Equipment

The designated level of personal protection for this project was Level D and included a hard hat, safety boots, an orange vest, safety eyewear, and latex or nitrile gloves. Tyvek coveralls were optional.

1.4 Training

The IT Registered Geologist performing the work completed a minimum of 40 hours of training, and an 8-hour refresher as required by 29 CFR 1910.120 and 8 CCR 5192. This includes, but not limited to, first air/CPR, hearing conservation, respiratory protection, HWS training, Qualified Equipment Operator, Bloodborne Pathogen (BBP), personnel protective equipment, decontamination, hazard recognition, and safe operating procedures.

Eight (8) of 26 soil samples contained asbestos, as determined by polarized light microscopy – point count, at concentrations up to 2.5 percent. The results of the air monitoring suggests that the hand auger operation does not release asbestos fiber at a magnitude to pose an inhalation hazard.

This initial investigation has generated objective data that hand auguring to collect soil samples in naturally occurring asbestos soils does not result in measurable air concentrations of asbestos. The monitoring conducted met the requirement of 8CCR 5208. Unless there is a change in hand auguring equipment or procedure from those used in the study, these results will be relied upon to satisfy monitoring results in subsequent events.

LIMITATIONS

The services described in this report were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, nor the use of segregated portions of this report.

REFERENCES

Note: The text of the referenced regulations should be consulted for detailed requirements.

Asbestos-Containing Materials

For the purpose of general worker protection, the California Division of Occupational Safety and Health Administration (Cal/OSHA) defines an "asbestos-containing material" as material that contains greater than 1- percent asbestos. For the purpose of employer and contractor registration and notification and consultant certification, Cal/OSHA defines an "asbestos-containing construction material" as any manufactured construction material, including structural, mechanical, and building material, that contains greater than 0.1 percent asbestos. The Bay Area Air Quality Management District (BAAQMD) defines a "regulated asbestos-containing material" as a material that contains greater than 1 percent asbestos and is friable or may become friable during renovation and demolition activities.

Warnings and Notifications

The Safe Drinking Water and Toxic Enforcement Act of 1986, also know as "Proposition 65," requires in CHSC section 25349.2 that warnings be given to any person who may be exposed to chemicals known to cause cancer (including asbestos and crystalline silica) or reproductive effects (including lead) unless the person causing the exposure can demonstrate that the exposure poses "no significant risk." The "no significant risk level" for asbestos exposure is 100 fibers per day (by inhalation). Due to limitations in the sampling and analytical methods specified for detection of asbestos, it is not possible to establish that exposures are below the specified exposure limits. The conservative approach is to provide warnings to any person who may be exposed to asbestos.

Airborne Limitations

Cal/OSHA Permissible Exposure Limits (PELs) indicate average airborne contaminant levels to which it is believed nearly all workers may be exposed without significant adverse health effect. Compliance with Cal/OSHA PELs, including monitoring of worker exposures, is mandated in Title 8 Code of California Regulations Section 5155 (8 CCR 5155), "Airborne Contaminants." PEL values are typically expressed as an 8-hour time-weighted average (TWA), that is, average airborne concentration for an 8-hour

workday. For some contaminants, an Action Level (i.e., level above which certain "actions" are required) or an Excursion Limit (short-term exposure limit) has also been established.

Asbestos	PEL = 0.1 f/cc*, Excursion Limit (30-minute TWA) = 1 f/cc

* fibers per cubic centimeter of air

Worker Protection

In general, employers must utilize engineering and administrative controls to the extent feasible to control worker exposures to levels at or below the Cal/OSHA PELs. If engineering and administrative controls are not adequate to control exposures, personal protective equipment (i.e., respirators) must be utilized.

For some contaminants, including asbestos, comprehensive (detailed) regulatory standards have been established. In addition to PELs, the regulations specify required methods for monitoring and controlling worker exposures, and providing medical surveillance and training for workers.

Worker protection during asbestos-related construction activities is regulated under Title 8 California Code of Regulations (8 CCR) Sections 1529 (construction) and 5208 (general industry).

Also, special standards have been established for general requirements such as hazard communication and respiratory protection. Title 8 CCR 5194 "Hazard Communication" specifies training for workers who may be exposed to asbestos, lead, or other hazardous substances. Title 8 CCR 1531 and 5144 "Respiratory Protection" specifies the requirements for selection and use of respirators.

Additional References

American Conference of Governmental Industrial Hygienists, Documentation of the Threshold Limit Values.

California Administrative Code, Title 8, Article 4, Section 1529, Occupational Safety and Health Regulations, General, Construction Industry Safety Order for Asbestos.

California Administrative Code, Title 8, Article 10, Section 5208, Occupational Safety and Health Regulations, General, Construction Industry Safety Order for Asbestos.

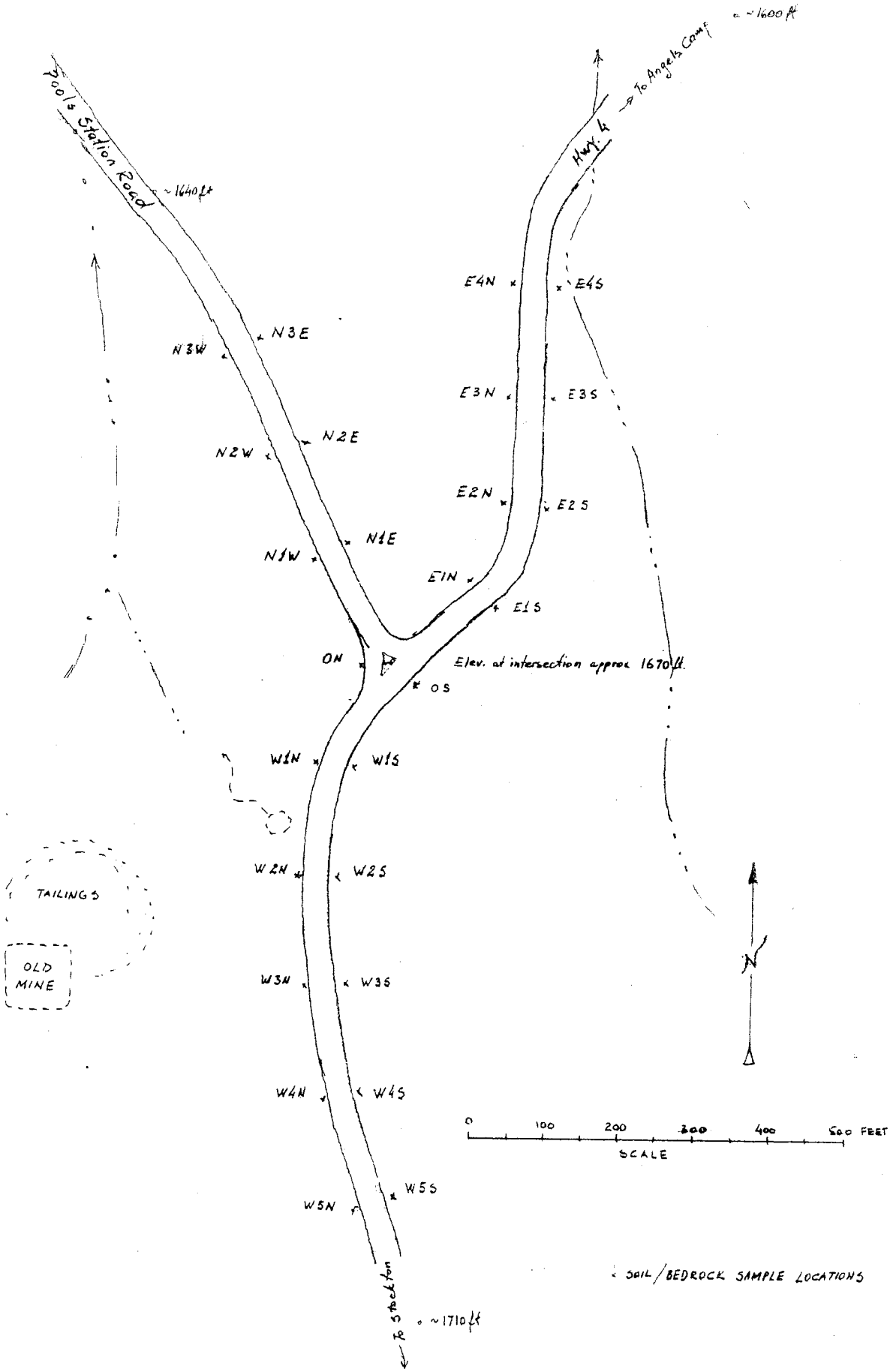
Environmental Protection Agency, Guidance for Controlling Asbestos Containing Materials in Buildings, 560/5-85-024, June 1985.

Environmental Protection Agency, National Emission Standard for Hazardous Air Pollutants 40 CFR Parts 61, Subpart M.

Environmental Protection Agency, Asbestos-Containing Materials in Schools 40 CFR Part 763

Occupational Safety and Health Administration, General Industry Standard, Asbestos, 29 CFR 1926.1101.

Occupational Safety and Health Administration, General Industry Standard, Asbestos, 29CFR1910.1001.


~1600 ft
To Angels Camp
Hwy 4
Pool's Station Road
~1640 ft
E4N
E4S
N3E
N3W
E3N
E3S
N2E
N2W
E2N
E2S
N1E
N1W
E1N
E1S
0N
Elev. at intersection approx 1670 ft.
0S
W1N
W1S
W2N
W2S
TAILINGS
OLD MINE
W3N
W3S
W4N
W4S
W5S
W5N
0 100 200 300 400 500 FEET
SCALE
N
SOIL/BEDROCK SAMPLE LOCATIONS
To Stockton
~1710 ft

APPENDIX A

REGULATIONS CCR 5208 AND 1529

urine samples. However, it does protect the analytical column. The results of this creatinine in urine procedure are unaffected by the pH of the urine sample under the conditions tested by this procedure. Therefore, no special measure are required for creatinine analysis whether the urine sample has been stabilized with 10% nitric acid for the Cd analysis or brought to a pH of 7 with 0.11 NaOH for the B2M analysis.

5. References

5.1. Clark, L.C.; Thompson, H.L. Anal. Chem. 1949, 21, 1218.

5.2. Peters, J.H; J. Biol. Chem. 1942, 146, 176.

5.3. Hausen, V.A.; Fuchs, D; Wachter, H.;J. Clin. Chem. Clin. Biochem. 1981, 19,373–378.

5.4. Clark, P.M.S.; Kricka, L.J.; Patel, A.; J. Liq. Chrom. 1980, 3(7), 1031–1046.

5.5. Ballerini, R.; Chimol, M.; Cambi, A; J. Chrom. 1979, 179, 365–369.

5.6. Ogata, M.; Taguchi, T.; Industrial Health 1987, 25, 225–228.

5.7. "Merck Index", 11th ed.; Windholz, Martha Ed.; Merck: Rahway, N.J., 1989; p. 403.

5.8. Kimberly, M.; "Determination of Cadmium in Urineby Graphite Furance Atomic Absorption Spectrometry with Zeeman Background Correction." Centers for Disease Control, Atlanta, Georgia, unpublished, update 1990.

NOTE: Authority cited: Sections 142.3, 9020, 9030 and 9040, Labor Code. Reference: Sections 142.3, 9004(d), 9009, 9020, 9030, 9031 and 9040, Labor Code.

HISTORY

1. New section filed 4–30–93; operative 6–14–93 (Register 93, No. 18). For prior history, see Register 87, No. 51.
2. Editorial correction of Appendix F, subsections 4.2, 5.1.1, 5.1.7.2, 5.2.7.1, and 6.0, and Storage Data Table (Register 97, No. 1).
3. Repealer of subsection (f)(4), amendment of subsections (g)(2)(A) (Table), (l)(3)(A)2., (l)(4)(D)–(l)(4)(D)2., (l)(6)(D), (l)(11)(D), (l)(16) and (m)(4)(C)8., and amendment of Appendix C adding new subsection B.4–B.4.(b)(11) filed 1–2–97; operative 1–2–97 pursuant to Government Code section 11343.4(d). Submitted to OAL for printing only pursuant to Labor Code section 142.3(a)(3) (Register 97, No. 1).

§ 5208. Asbestos.

(a) Scope and application —

(1) This section applies to all occupational exposures to asbestos in all industries covered by the California Occupational Safety and Health Act, except as provided in subsection (a)(2) and (3) of this section.

(2) This section does not apply to construction work as defined in Section 1502, except for the spraying of asbestos containing material in subsection 5208(f)(1)(J). (Exposure to asbestos in construction work other than spraying is covered by Section 1529).

(3) This section does not apply to ship repairing, shipbuilding and shipbreaking employments and related employments as defined in Section 8354: Definitions. (Exposure to asbestos in these employments is covered by Section 8358).

(4) Whenever employee exposure to asbestos as defined in subsection (b) of this section consists only of exposure to tremolite, anthophyllite, and actinolite in the non–asbestiform mineral habit, the provisions of section 5208.1 shall apply and supersede the provisions of this section.

(5) The provisions of this section are subject to the requirements of the Occupational Carcinogen Control Act of 1976 (Labor Code, Division 5, Part 10).

(b) Definitions —

"Asbestos" includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

"Asbestos–containing material (ACM)" means any material containing more than 1% asbestos.

"Chief" means the Chief of the Division of Occupational Safety and Health, California Department of Industrial Relations.

"Authorized person" means any person authorized by the employer and required by work duties to be present in regulated areas.

"Building/facility owner" is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

"Certified Industrial Hygienist (CIH)" means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

"Director" means the Director of the National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Employee exposure" means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

"Fiber" means a particulate form of asbestos 5 micrometers or longer, with a length–to–diameter ratio of at least 3 to 1.

"High–efficiency particulate air (HEPA) filter" means a filter capable of trapping and retaining at least 99.97 percent of 0.3 micrometer diameter monodisperse particles.

"Homogeneous area" means an area of surfacing material or thermal system insulation that is uniform in color and texture.

"Incident" means any unanticipated event which causes, or is immediately likely to cause, an exposure of an employee, unprotected by an appropriate respirator, to asbestos fibers in excess of the permissible exposure limit.

"Industrial hygienist" means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

"PACM" means "presumed asbestos containing material".

"Presumed Asbestos Containing Material" means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to subsection (j)(8) of this section.

"Regulated area" means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

"Surfacing ACM" means surfacing material which contains more than 1% asbestos.

"Surfacing materials" means material that is sprayed, troweled–on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

"Thermal System Insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

"Thermal System Insulation ACM" means thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limit (PELS) —

(1) Time–weighted average limit (TWA): The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter (0.1 f/cc) of air as an eight (8)–hour time–weighted average (TWA) as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(2) Excursion limit: The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(d) Exposure monitoring —

(1) General.

(A) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8–hour TWA and 30–minute short–term exposures of each employee.

(B) Representative 8–hour TWA employee exposures shall be determined on the basis of one or more samples representing full– shift exposures for each shift for each employee in each job classification in each work area. Representative 30–minute short– term employee exposures shall be determined on the basis of one or more samples representing 30

minute exposures associated with operations that are most likely to produce exposures above the excursion limit for each shift for each job classification in each work area.

(2) Initial monitoring.

(A) Each employer who has a workplace or work operation covered by this standard, except as provided for in subsections (d)(2)(B) and (d)(2)(C) of this section, shall perform initial monitoring of employees who are, or may reasonably be expected to be exposed to airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit.

(B) Where the employer has monitored after March 31, 1992, for the TWA permissible exposure limit and/or the excursion limit, and the monitoring satisfies all other requirements of this section, the employer may rely on such earlier monitoring results to satisfy the requirements of subsection (d)(2)(A) of this section.

(C) Where the employer has relied upon objective data that demonstrate that asbestos is not capable of being released in airborne concentrations at or above the TWA permissible exposure limit and/or excursion limit under the expected conditions of processing, use, or handling, then no initial monitoring is required.

(3) Monitoring frequency (periodic monitoring) and patterns: After the initial determinations required by subsection (d)(2)(A) of this section, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees. In no case shall sampling be at intervals greater than six months for employees whose exposures may reasonably be foreseen to exceed the TWA permissible exposure limit and/or excursion limit.

(4) Changes in monitoring frequency: If either the initial or the periodic monitoring required by subsection (d)(2) and (d)(3) of this section statistically indicates that employee exposures are below the TWA permissible exposure limit and/or excursion limit, the employer may discontinue the monitoring for those employees whose exposures are represented by such monitoring.

(5) Additional monitoring: Notwithstanding the provisions of subsections (d)(2)(B) and (d)(4) of this section, the employer shall institute the exposure monitoring required under subsections (d)(2)(A) and (d)(3) of this section whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures above the TWA permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the PEL and/or excursion limit.

(6) Method of monitoring.

(A) All samples taken to satisfy the monitoring requirements of subsection (d) of this section shall be personal samples collected following the procedures specified in Appendix A.

(B) All samples taken to satisfy the monitoring requirements of subsection (d) of this section shall be evaluated using the OSHA Reference Method (ORM) specified in Appendix A of this section, or an equivalent counting method.

(C) If an equivalent method to the ORM is used, the employer shall ensure that the method meets the following criteria:

1. Replicate exposure data used to establish equivalency are collected in side–by–side field and laboratory comparisons; and

2. The comparison indicates that 90% of the samples collected in the range 0.5 to 2.0 times the permissible limit have an accuracy range of plus or minus 25 percent of the ORM results at a 95% confidence level as demonstrated by a statistically valid protocol; and

3. The equivalent method is documented and the results of the comparison testing are maintained.

(D) To satisfy the monitoring requirements of subsection (d) of this section, employers must use the results of monitoring analysis performed by laboratories which have instituted quality assurance programs that include the elements as prescribed in Appendix A of this section.

(7) Employee notification of monitoring results.

(A) The employer shall, within 15 working days after the receipt of the results of any monitoring performed under the standard, notify the affected employees of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees.

(B) The written notification required by subsection (d)(7)(A) of this section shall contain the corrective action being taken by the employer to reduce employee exposure to or below the TWA and/or excursion limit, wherever monitoring results indicated that the TWA and/or excursion limit had been exceeded.

(e) Regulated Areas —

(1) Establishment: The employer shall establish regulated areas wherever airborne concentrations of asbestos and/or PACM are in excess of the TWA and/or excursion limit prescribed in subsection (c) of this section.

(2) Demarcation: Regulated areas shall be demarcated from the rest of the workplace in any manner that minimizes the number of persons who will be exposed to asbestos.

(3) Access: Access to regulated areas shall be limited to authorized persons or to persons authorized by the Chief or the Director.

(4) Provision of respirators: Each person entering a regulated area shall be supplied with and required to use a respirator, selected in accordance with subsection (g)(2) of this section.

(5) Prohibited activities: The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated areas.

(f) Methods of compliance —

(1) Engineering controls and work practices.

(A) The employer shall institute engineering controls and practices to reduce and maintain employee exposure to or below the TWA and/or excursion limit prescribed in subsection (c) of this section, except to the extent that such controls are not feasible.

(B) Wherever the feasible engineering controls and work practices that can be instituted are not sufficient to reduce employee exposure to or below the TWA and/or excursion limit prescribed in subsection (c) of this section, the employer shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection that complies with the requirements of subsection (g) of this section.

(C) Particular tools: All hand–operated and power–operated tools which would produce or release fibers of asbestos, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems which comply with subsection (f)(1)(E) of this section.

(D) For the following operations, wherever feasible engineering controls and work practices that can be instituted are not sufficient to reduce the employee exposure to or below the TWA and/or excursion limit prescribed in subsection (c) of this section, the employer shall use them to reduce employee exposure to or below 0.5 fiber per cubic centimeter of air (as an eight–hour time–weighted average) or 2.5 fibers/cc for 30 minutes (short–term exposure) and shall supplement them by the use of any combination of respiratory protection that complies with the requirements of subsection (g) of this section, work practices and feasible engineering controls that will reduce employee exposure to or below the TWA and to or below the excursion limit permissible prescribed in subsection (c) of this section:

Coupling cutoff in primary asbestos cement pipe manufacturing; sanding in primary and secondary asbestos cement sheet manufacturing; grinding in primary and secondary friction product manufacturing; carding and spinning in dry textile processes; and grinding and sanding in primary plastics manufacturing.

[The next page is 845.]

ASBESTOS IN CONSTRUCTION

Section 1529
Title 8
California Code of Regulations

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§1529. Asbestos.

(a) Scope and application.

(1) This section regulates asbestos exposure in all construction work as defined in Section 1502 including but not limited to the following:

(A) Demolition or salvage of structures where asbestos is present;

(B) Removal or encapsulation of materials containing asbestos;

(C) Construction, alteration, repair, maintenance, or renovation of structures, substrates, or portions thereof, that contain asbestos;

(D) Installation of products containing asbestos;

(E) Asbestos spill/emergency cleanup;

(F) Transportation, disposal, storage, containment of and housekeeping activities involving asbestos or products containing asbestos, on the site or location at which construction activities are performed;

(G) Excavation which may involve exposure to asbestos as a natural constituent which is not related to asbestos mining and milling activities;

(H) Routine facility maintenance; and

(I) Erection of new electric transmission and distribution lines and equipment, and alteration, conversion and improvement of the existing transmission and distribution lines and equipment.

(2) Whenever employee exposures to asbestos, as defined in subsection (b) of this section consist only of exposure to tremolite, anthophyllite, and actinolite in the non-asbestiform mineral habit, the provisions of Section 5208.1 shall apply.

(3) The provisions of this section are subject to the requirements of the Occupational Carcinogen Control Act of 1976 (Labor Code, Division 5, Part 10).

(4) Coverage under this Section shall be based on the nature of the work operation involving asbestos exposure.

(b) Definitions.

"Aggressive method" means removal or disturbance of building material by sanding, abrading, grinding or other method that breaks, crumbles, or disintegrates intact ACM.

"Amended water" means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.

"Asbestos" includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that has been chemically treated and/or altered. For purposes of this standard, "asbestos" includes PACM, as defined below.

"Asbestos-containing material (ACM)", means any material containing more than one percent asbestos.

"Assistant Secretary" means the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, or designee.

"Authorized person" means any person authorized by the employer and required by work duties to be present in regulated areas.

"Building/facility owner" is the legal entity, including a lessee, which exercises control over management and record keeping functions relating to a building and/or facility in which activities covered by this standard take place.

"Certified Industrial Hygienist (CIH)" means one certified in the practice of industrial hygiene by the American Board of Industrial Hygiene.

"Chief" means the Chief of the Division of Occupational Safety and Health, P.O. Box 420603, San Francisco, CA 94142.

"Class I asbestos work" means activities involving the removal of TSI and surfacing ACM and PACM.

"Class II asbestos work" means activities involving the removal of ACM which is not thermal system insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastics.

"Class III asbestos work" means repair and maintenance operations, where "ACM", including TSI and surfacing ACM and PACM, is likely to be disturbed.

"Class IV asbestos work" means maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities.

"Clean room" means an uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.

"Closely resemble" means that the major workplace conditions which have contributed to the levels of historic asbestos exposure, are no more protective than conditions of the current workplace.

"Competent person" means, in addition to one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them, one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them: in addition, for Class I and Class II work who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR part 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2). Note: For operations involving more than 100 square feet of asbestos containing construction material as defined in subsection (r) of this section the competent person may fulfill the requirement contained in Section 341.9 to specify a certified supervisor for asbestos related work.

"Critical barrier" means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

"Decontamination area" means an enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment that are contaminated with asbestos.

"Demolition" means the wrecking or taking out of any load-supporting structural member and any related razing, removing, or stripping of asbestos products.

"Director" means the Director, National Institute for Occupational Safety and Health, U.S. Department of Health and Human Services, or designee.

"Disturbance" means activities that disrupt the matrix of ACM or PACM, crumble or pulverize ACM or PACM, or generate visible debris from ACM or PACM. Disturbance includes cutting away small amounts of ACM and PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.

"Employee exposure" means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

"Equipment room (change room)" means a contaminated room located within the decontamination area that is supplied with impermeable bags or containers for the disposal of contaminated protective clothing and equipment.

"Fiber" means a particulate form of asbestos, 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

"Glovebag" means an impervious plastic bag-like enclosure affixed around not more than a 60 x 60 inch asbestos-containing material, with glove-like appendages through which material and tools may be handled.

"High-efficiency particulate air (HEPA) filter" means a filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter.

"Homogeneous area" means an area of surfacing material or thermal system insulation that is uniform in color and texture.

"Industrial hygienist" means a professional qualified by education, training, and experience to anticipate, recognize, evaluate and develop controls for occupational health hazards.

"Intact" means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that the asbestos is no longer likely to be bound with its matrix.

"Modification" for purposes of subsection (g)(6), means a changed or altered procedure, material or component of a control system, which replaces a procedure, material or component of a required system. Omitting a procedure or component, or reducing or diminishing the stringency or strength of a material or component of the control system is not a "modification" for purposes of subsection (g)(6) of this section.

"Negative Initial Exposure Assessment" means a demonstration by the employer, which complies with the criteria in subsection (f)(2)(C) of this section, that employee exposure during an operation is expected to be consistently below the PELs.

"PACM" means "presumed asbestos containing material".

"Presumed Asbestos Containing Material" means thermal system insulation and surfacing material found in buildings constructed no later than 1980. The designation of a material as "PACM" may be rebutted pursuant to subsection (k)(5) of this section.

"Project Designer" means a person who has successfully completed the training requirements for an abatement project designer established by 40 U.S.C. Sec. 763.90(g).

"Regulated area" means: an area established by the employer to demarcate areas where Class I, II, and III asbestos work is conducted, and any adjoining area where debris and waste from such asbestos work accumulate; and a work area within which airborne concentrations of asbestos, exceed or there is a reasonable possibility they may exceed the permissible exposure limit. Requirements for regulated areas are set out in subsection (e) of this section.

"Removal" means all operations where ACM and/or PACM is taken out or stripped from structures or substrates, and includes demolition operations.

"Renovation" means the modifying of any existing structure, or portion thereof.

"Repair" means overhauling, rebuilding, reconstructing, or reconditioning of structures or substrates, including encapsulation or other repair of ACM or PACM attached to structures or substrates.

"Surfacing material" means material that is sprayed, troweled-on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).

"Surfacing ACM" means surfacing material which contains more than 1% asbestos.

"Thermal system insulation (TSI)" means ACM applied to pipes, fittings, boilers, breeching, tanks, ducts or other structural components to prevent heat loss or gain.

"Thermal system insulation ACM" is thermal system insulation which contains more than 1% asbestos.

(c) Permissible exposure limits (PELS).

(1) Time-weighted average limit (TWA). The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8) hour time-weighted average (TWA), as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(2) Excursion limit. The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of thirty (30) minutes, as determined by the method prescribed in Appendix A to this section, or by an equivalent method.

(d) Multi-employer worksites.

(1) On multi-employer worksites, an employer performing work requiring the establishment of a regulated area shall inform other employers on the site of the nature of the employer's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

(2) Asbestos hazards at a multi-employer work site shall be abated by the contractor who created or controls the source of asbestos contamination. For example, if there is a significant breach of an enclosure containing Class I work, the employer responsible for erecting the enclosure shall repair the breach immediately.

(3) In addition, all employers of employees exposed to asbestos hazards shall comply with applicable protective provisions to protect their employees. For example, if employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, their employer shall either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to subsection (f) of this section.

(4) All employers of employees working adjacent to regulated areas established by another employer on a multi-employer work-site, shall take steps on a daily basis to ascertain the integrity of the enclosure and/or the effectiveness of the control method relied on by the primary asbestos contractor to assure that asbestos fibers do not migrate to such adjacent areas.

(5) All general contractors on a construction project which includes work covered by this standard shall be deemed to exercise general supervisory authority over the work covered by this standard, even though the general contractor is not qualified to serve as the asbestos "competent person" as defined by subsection (b) of this section. As supervisor of the entire project, the general contractor shall ascertain whether the asbestos contractor is in compliance with this standard, and shall require such contractor to come into compliance with this standard when necessary.

(e) Regulated areas.

(1) All Class I, II and III asbestos work shall be conducted within regulated areas. All other operations covered by this standard shall be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL. Regulated areas shall comply with the requirements of subsections (2),(3),(4), and (5) of this subsection.

(2) Demarcation. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. Where critical barriers or negative pressure enclosures are used, they may demarcate the regulated area. Signs shall be provided and displayed pursuant to the requirements of subsection (k)(7) of this section.

(3) Access. Access to regulated areas shall be limited to authorized persons and to persons authorized by the Chief or Director.

(4) Respirators. All persons entering a regulated area where employees are required pursuant to subsection (h)(1) of this section to wear respirators shall be supplied with a respirator selected in accordance with subsection (h)(2) of this section.

(5) Prohibited activities. The employer shall ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.

(6) Competent Persons. The employer shall ensure that all asbestos work performed within regulated areas is supervised by a competent person, as defined in subsection (b) of this section. The duties of the competent person are set out in subsection (o) of this section.

(f) **Exposure assessments and monitoring.**

(1) General monitoring criteria.

(A) Each employer who has a workplace or work operation where exposure monitoring is required under this section shall perform monitoring to determine accurately the airborne concentrations of asbestos to which employees may be exposed.

(B) Determinations of employee exposure shall be made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposures of each employee.

(C) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area.

(2) Initial Exposure Assessment.

(A) Each employer who has a workplace or work operation covered by this standard shall ensure that a "competent person" conducts an exposure assessment immediately before or at the initiation of the operation to ascertain expected exposures during that operation or workplace. The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a "negative exposure assessment," and to provide information necessary to assure that all control systems planned are appropriate for that operation and will work properly.

(B) Basis of Initial Exposure Assessment: Unless a negative exposure assessment has been made pursuant to subsection (f)(2)(C) of this section, the initial exposure assessment shall, if feasible, be based on monitoring conducted pursuant to subsection (f)(l)(C) of this section. The assessment shall take into consideration both the monitoring results and all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the employer which indicate the levels of airborne asbestos likely to be encountered on the job. For Class I asbestos work, until the employer conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment pursuant to subsection (f)(2)(C) of this section, the employer shall presume that employees are exposed in excess of the TWA and excursion limit.

(C) Negative Exposure Assessment: For any one specific asbestos job which will be performed by employees who have been trained in compliance with the standard, the employer may demonstrate that employee exposures will be below the PELs by data which conform to the following criteria;

1. Objective data demonstrating that the product or material containing asbestos minerals or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limit under those work conditions having the greatest potential for releasing asbestos; or

2. Where the employer has monitored prior asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect; and the data were obtained during work operations conducted under workplace conditions "closely resembling" the processes, type of material, control methods, work practices, and environmental conditions used and prevailing in the employer's current operations, the operations were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed the TWA and excursion limit; or

3. The results of initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term

exposures of each employee covering operations which are most likely during the performance of the entire asbestos job to result in exposures over the PELs.

(3) Periodic monitoring.

(A) Class I and II operations. The employer shall conduct daily monitoring that is representative of the exposure of each employee who is assigned to work within a regulated area who is performing Class I or II work, unless the employer pursuant to subsection (f)(2)(C) of this section, has made a negative exposure assessment for the entire operation.

(B) All operations under the standard other than Class I and II operations. The employer shall conduct periodic monitoring of all work where exposures are expected to exceed a PEL, at intervals sufficient to document the validity of the exposure prediction.

(C) Exception: When all employees required to be monitored daily are equipped with supplied-air respirators operated in the pressure demand mode, or other positive pressure mode respirator, the employer may dispense with the daily monitoring required by this subsection. However, employees performing Class I work using a control method which is not listed in subsection (g)(4)(A), (B), or (C) of this section or using a modification of a listed control method, shall continue to be monitored daily even if they are equipped with supplied-air respirators.

(4) Termination of monitoring. (A) If the periodic monitoring required by subsection (f)(3) of this section reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the employer may discontinue monitoring for those employees whose exposures are represented by such monitoring.

(B) Additional monitoring. Notwithstanding the provisions of subsections (f)(2), (f)(3), and (f)(4) of this section, the employer shall institute the exposure monitoring required under subsection (f)(3) of this section whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

(5) Employee Notification of Monitoring Results.

(A) As soon as possible following receipt of monitoring results required by this section, the employer shall notify affected employees of the monitoring results.

(B) The employer shall notify affected employees of the results of monitoring representing the employee's exposure in writing either individually or by posting at a centrally located place that is accessible to affected employees.

(C) The written notification required by subsection (f)(5)(A) of this section shall include the corrective action being taken by the employer to reduce employee exposure to or below the PEL and/or excursion limit wherever monitoring results have indicated that the PEL and/or excursion limit has been exceeded.

(6) Observation of monitoring.

(A) The employer shall provide affected employees and their designated representatives an opportunity to observe any monitoring of employee exposure to asbestos conducted in accordance with this section.

(B) When observation of the monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and be required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

(g) Methods of compliance.

(1) Engineering controls and work practices for all operations covered by this section. The employer shall use the following engineering controls and work practices in all operations covered by this section, regardless of the levels of exposure:

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Fax # 925 288-0888	Fax # 3341	

HEALTH AND SAFETY PLAN

DRAFT

Environmental Site Investigation
State Route 4 Naturally Occurring Asbestos

State Route 4 and Poole Station Road Intersection
Calaveras County, California

Prepared For:
California Department of Transportation
District 10
1976 Charter Way
Stockton, California 95201

Prepared By:
IT Corporation
1433 North Market Boulevard, Suite 1
Sacramento, California 95834

Task Order No. OA0100-NG
EA No. 2A5000
Contract No. 43A0012

IT Project No. 820534
November 22, 2000

APPENDIX E
STATISTICAL DATA ANALYSES

Appendix E
Statistical Data Analyses Procedures

The statistical evaluations were conducted to further evaluate the concentration of asbestos and nickel at the site.

The statistical evaluation addressed the following items:

- Calculation of mean;
- Determination of the distribution of the sample data; and
- Calculation of the 90% Confidence Interval (CI) which provides a corresponding 95% Upper Confidence Level (UCL), interpreted as a 0.95 probability that the true mean for a given population is no higher than the calculated UCL.

Histograms of the laboratory results were constructed to evaluate the distribution of the reported concentrations of asbestos and nickel within the data sets. The data were found to be heavily skewed to lower concentrations.

For samples concentrations reported as non-detect above the analytical method reporting limit, a value of one-half of the reporting limit was used in the statistical evaluation. Calculations were performed within Statistix 7. The 90% UCL was calculated using the following equation from Gilbert (1987) (modified from SW-846 to provide the upper one-sided confidence limit):

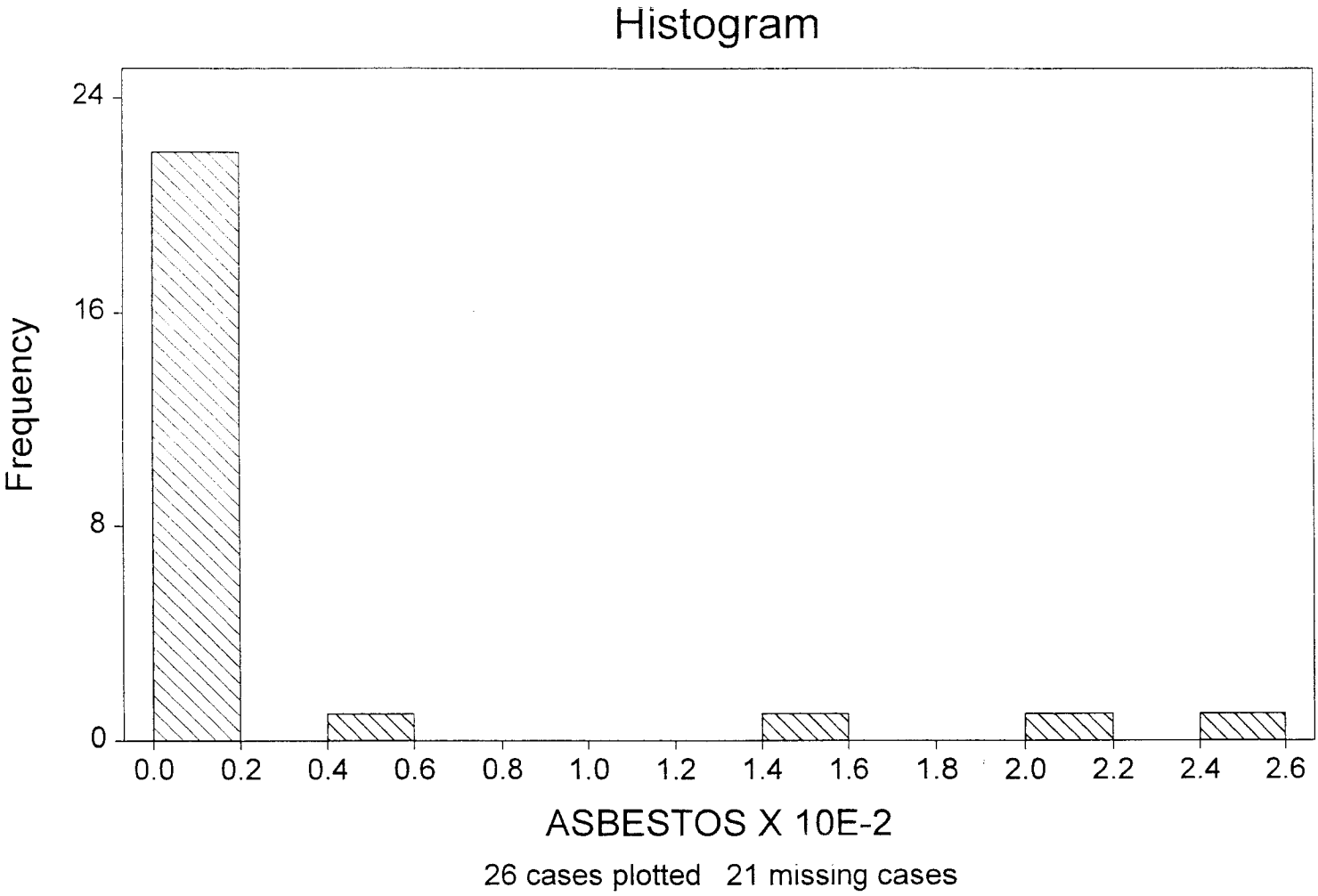
$$95\% \text{ UCL} = x + (t0.95)(s/n1/2)$$

where x = mean of the data

$t0.95$ = the quantile for the "t" distribution for the 95% UCL

s = standard deviation of the data

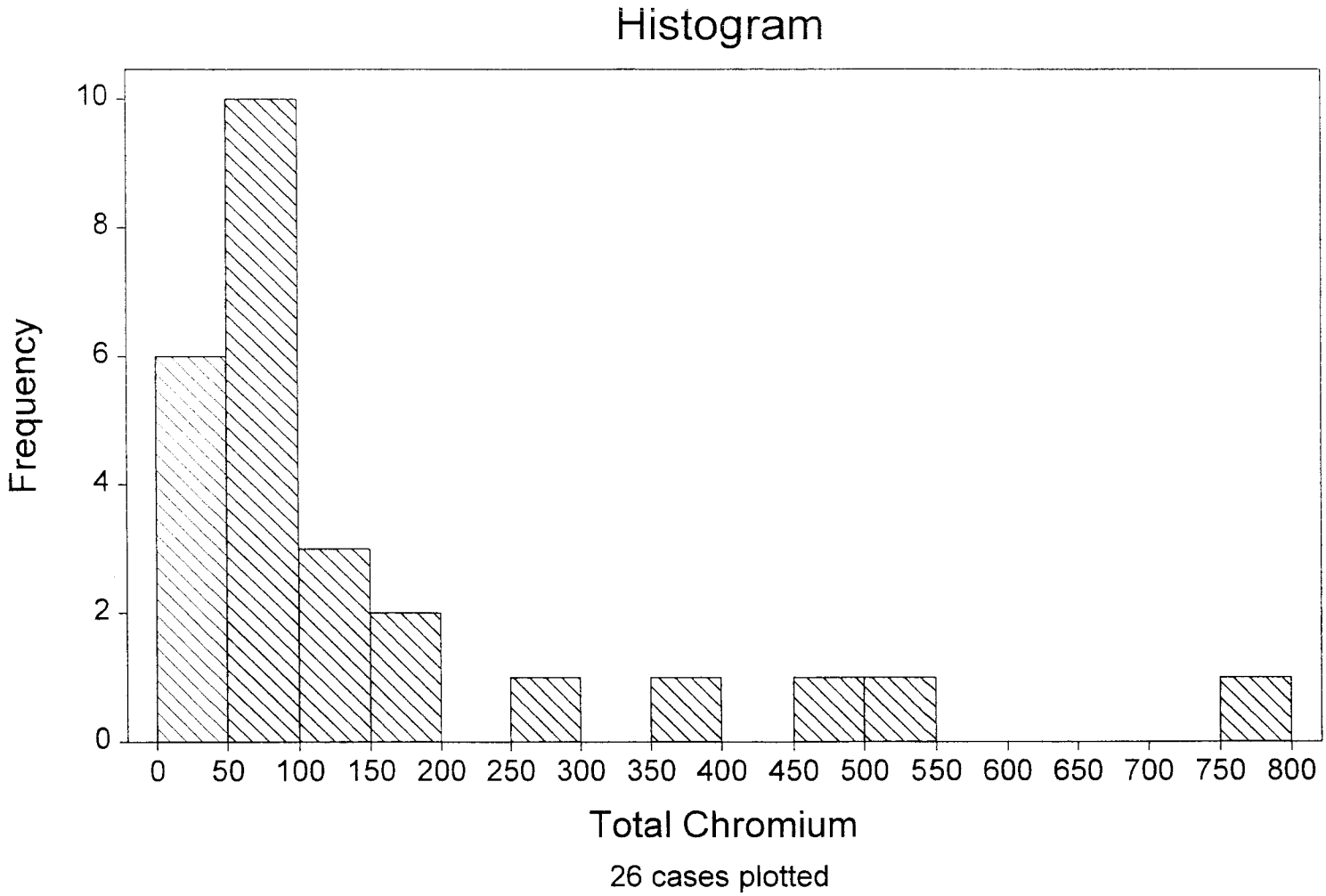
n = number of samples


Histogram
Frequency
24
16
8
0
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
ASBESTOS X 10E-2
26 cases plotted 21 missing cases

STATISTIX 7.0 POOLESTATS, 7/3/01, 3:07:55 PM

DESCRIPTIVE STATISTICS

	ASBESTOS
N	26
LO 90% CI	1.460E-03
MEAN	3.558E-03
UP 90% CI	5.655E-03
SD	6.262E-03
MINIMUM	1.250E-03
MAXIMUM	0.0250


Histogram
Frequency
10
8
6
4
2
0
0
50
100
150
200
250
300
350
400
450
500
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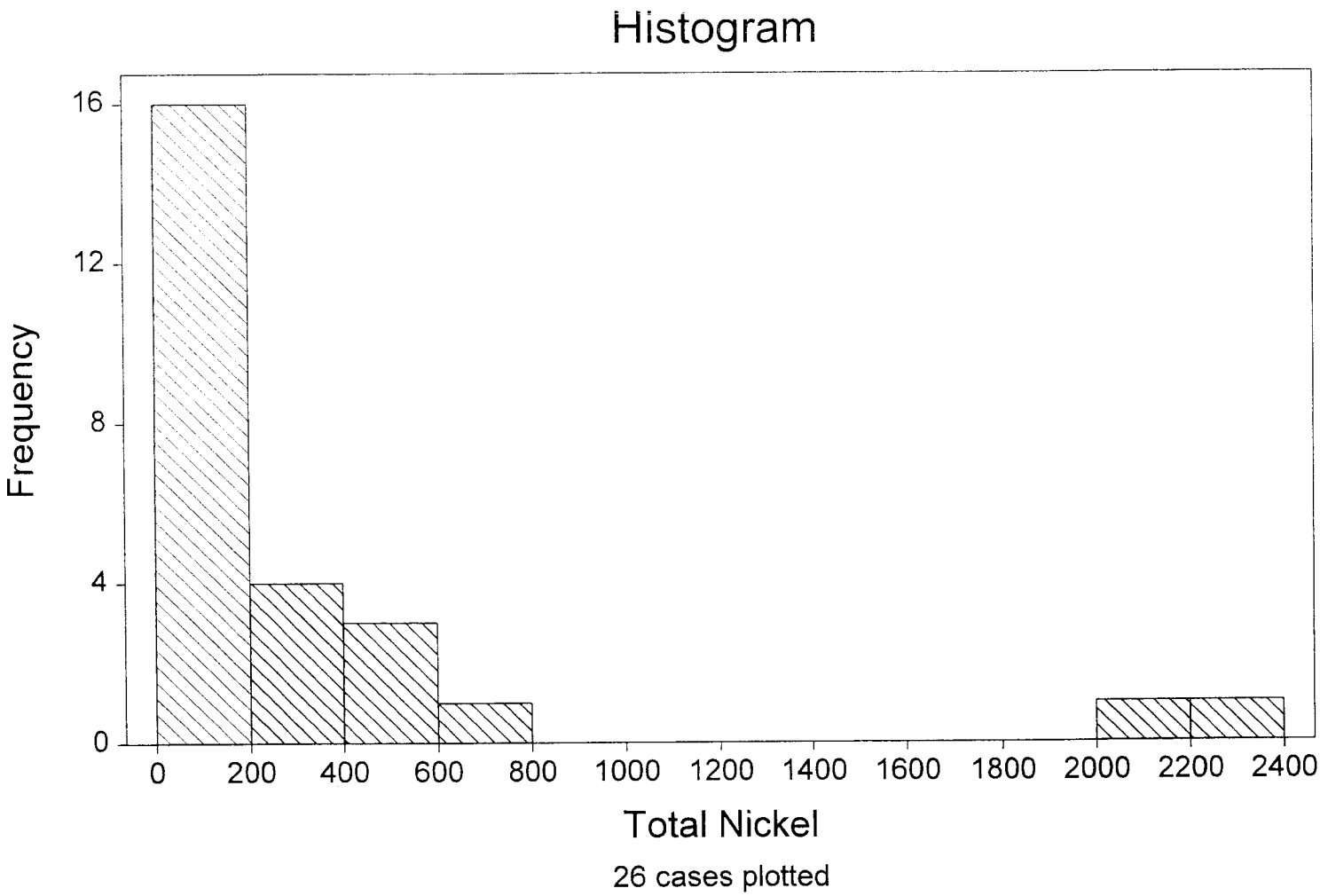
650
700
750
800
Total Chromium
26 cases plotted


Histogram
Frequency
16
12
8
4
0
0
200
400
600
800
1000
1200
1400
1600
1800
2000
2200
2400
Total Nickel
26 cases plotted

STATISTIX 7.0 POOLESTATS, 7/2/01, 6:13:14 PM

DESCRIPTIVE STATISTICS

	TOTCHROMI	TOTNICKEL
N	26	26
LO 90% CI	94.547	142.90
MEAN	156.70	337.69
UP 90% CI	218.86	532.48
SD	185.55	581.47
MINIMUM	3.3000	2.0000
MAXIMUM	782.00	2300.0

STATISTIX 7.0 POOLESTATS, 7/2/01, 6:13:58 PM

CORRELATIONS (PEARSON)
ZERO INTERCEPT OPTION SELECTED: CORRELATIONS = COSINES

	TOTCHROMI	SOLCHROMI	TOTNICKEL
SOLCHROMI	0.9230		
TOTNICKEL	0.8203	0.8771	
SOLNICKEL	0.6849	0.7986	0.9719

CASES INCLUDED 8 MISSING CASES 37

STATISTIX 7.0 POOLESTATS, 7/2/01, 6:15:15 PM

UNWEIGHTED LEAST SQUARES LINEAR REGRESSION OF SOLCHROMI

NOTE: MODEL FORCED THROUGH ORIGIN

PREDICTOR VARIABLES	COEFFICIENT	STD ERROR	STUDENT'S T	P
TOTCHROMI	0.00175	2.593E-04	6.74	0.0001

R-SQUARED	0.8503	RESID. MEAN SQUARE (MSE)	0.07789
ADJUSTED R-SQUARED	0.8316	STANDARD DEVIATION	0.27909

SOURCE	DF	SS	MS	F	P
REGRESSION	1	3.53989	3.53989	45.45	0.0001
RESIDUAL	8	0.62315	0.07789		
TOTAL	9	4.16304			

CASES INCLUDED 9 MISSING CASES 36

STATISTIX 7.0 POOLESTATS, 7/2/01, 6:16:29 PM

PREDICTED/FITTED VALUES OF SOLCHROMI

LOWER PREDICTED BOUND	-0.2740	LOWER FITTED BOUND	0.2519
PREDICTED VALUE	0.3828	FITTED VALUE	0.3828
UPPER PREDICTED BOUND	1.0396	UPPER FITTED BOUND	0.5137
SE (PREDICTED VALUE)	0.2848	SE (FITTED VALUE)	0.0568

UNUSUALNESS (LEVERAGE)	0.0414
PERCENT COVERAGE	95.0
CORRESPONDING T	2.31

PREDICTOR VALUES: TOTCHROMI = 219.00

STATISTIX 7.0 POOLESTATS, 7/2/01, 6:17:01 PM

UNWEIGHTED LEAST SQUARES LINEAR REGRESSION OF SOLNICKEL

PREDICTOR VARIABLES	COEFFICIENT	STD ERROR	STUDENT'S T	P
TOTNICKEL	0.01174	8.337E-04	14.08	0.0000

R-SQUARED	0.9566	RESID. MEAN SQUARE (MSE)	7.84546
ADJUSTED R-SQUARED	0.9517	STANDARD DEVIATION	2.80098

SOURCE	DF	SS	MS	F	P
REGRESSION	1	1554.82	1554.82	198.18	0.0000
RESIDUAL	9	70.6092	7.84546		
TOTAL	10	1625.43			

CASES INCLUDED 10 MISSING CASES 35

STATISTIX 7.0

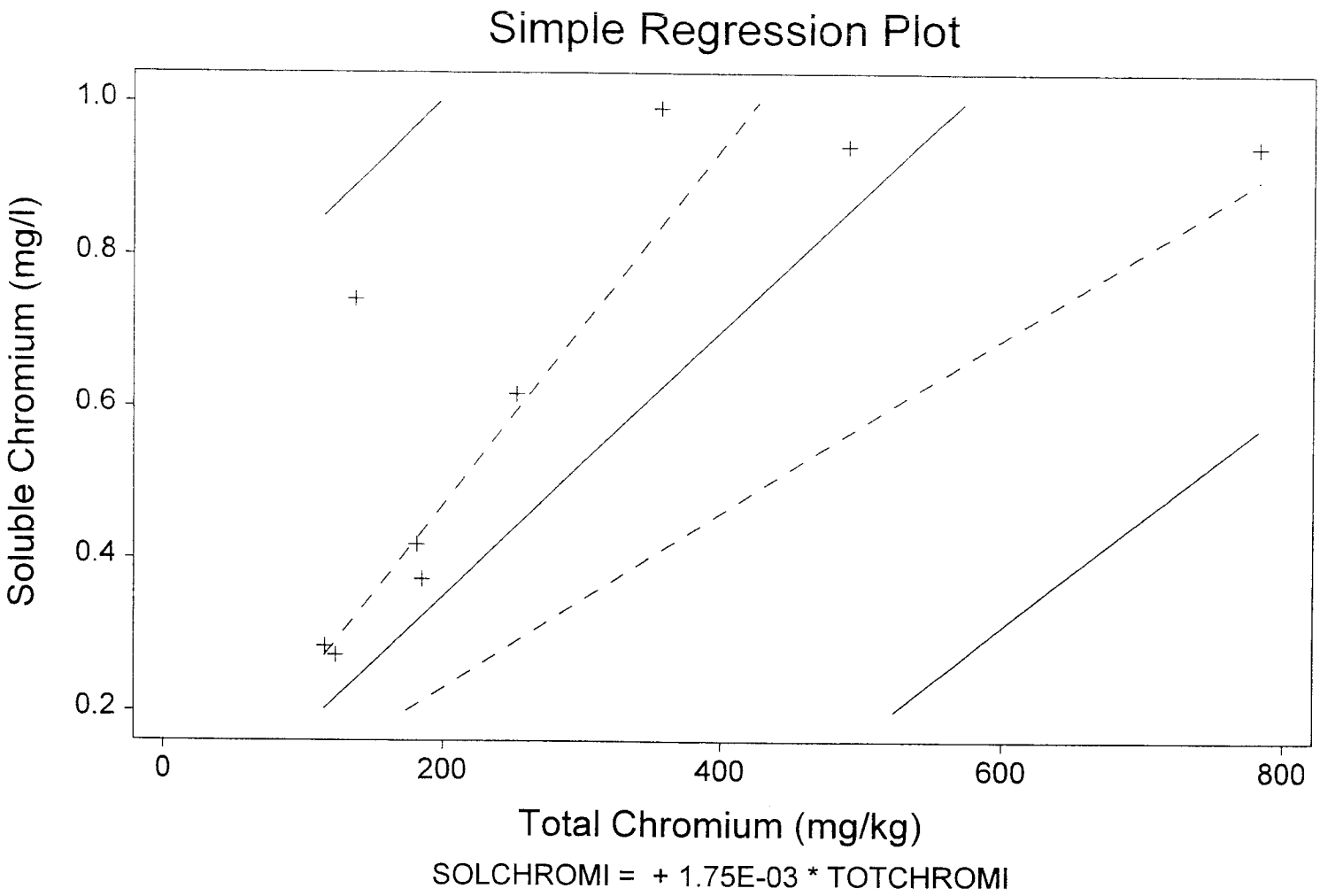
POOLESTATS, 7/2/01, 6:17:53 PM

PREDICTED/FITTED VALUES OF SOLNICKEL

LOWER PREDICTED BOUND	-0.1599	LOWER FITTED BOUND	5.2504
PREDICTED VALUE	6.2556	FITTED VALUE	6.2556
UPPER PREDICTED BOUND	12.671	UPPER FITTED BOUND	7.2608
SE (PREDICTED VALUE)	2.8360	SE (FITTED VALUE)	0.4444

UNUSUALNESS (LEVERAGE)	0.0252
PERCENT COVERAGE	95.0
CORRESPONDING T	2.26

PREDICTOR VALUES: TOTNICKEL = 533.00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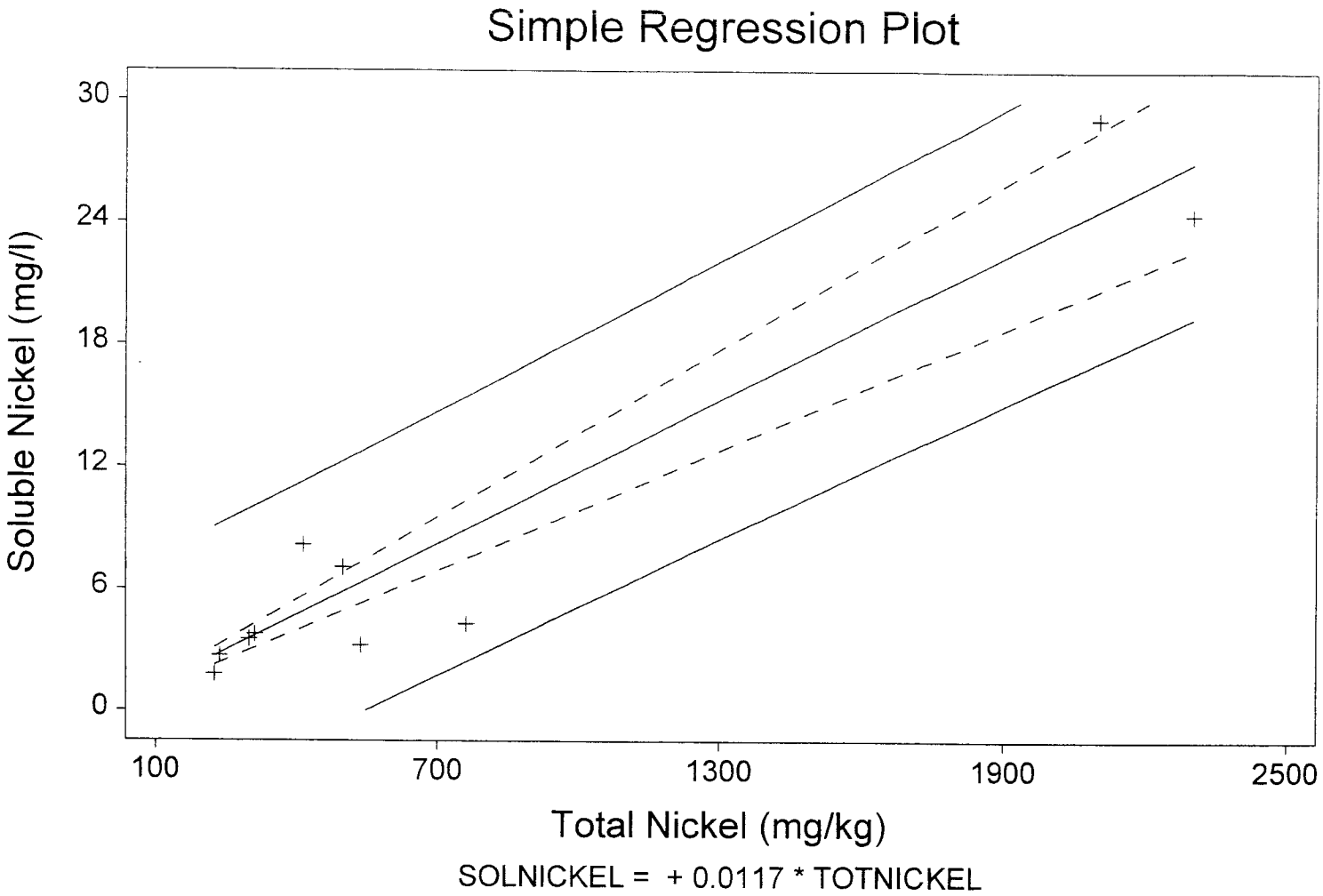
Soluble Chromium (mg/l)
1.0
0.8
0.6
0.4
0.2
0
200
400
600
800
Total Chromium (mg/kg)
SOLCHROMI = + 1.75E-03 * TOTCHROMI


Simple Regression Plot
Soluble Nickel (mg/l)
30
24
18
12
6
0
100
700
1300
1900
2500
Total Nickel (mg/kg)
SOLNICKEL = + 0.0117 * TOTNICKEL

10-1.__ MATERIAL CONTAINING NATURALLY OCCURRING ASBESTOS

This work includes specifications for handling, stockpiling, transporting, and disposing of material containing naturally occurring asbestos (NOA). The State regulates material containing NOA and material from areas where serpentine or ultramafic rock is present. Material containing NOA is material containing 0.25 percent or greater concentration of asbestos. Naturally occurring asbestos (NOA) is present within the job site limits. The tested levels of NOA range from __0.5%_____ to _2.5%_____ percent asbestos, with an average of _0.57%__ percent as analyzed by California Air Resources Board (CARB) Test Method 435.

Perform earthwork in areas containing NOA under Section 19, "Earthwork," of the Standard Specifications and these special provisions. A copy of the asbestos testing report is available as specified in "Project Information" of these special provisions.

Notify the Air Pollution Control District (APCD) at least 15 days before starting work in areas containing NOA and comply with the California Air Resources Board (CARB), Asbestos Airborne Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations (ATCM) and California Code of Regulations (CCR), Title 17, Section 93105 (d)(1)(A).

Material containing NOA exists between 150_ feet and ~~300~~ feet measured horizontally from the south east of Poole Station Road Junction and at 150 feet at south west edge of the existing pavement from Station 19+00 to Station 21+; and at station 26+00 and from a depth of 0.0_ feet to 2.0__ feet below existing grade or as shown on the plans.

Do not leave NOA surface areas exposed unless these areas are stabilized by being kept wetted or by being treated with a chemical dust palliative. Disturbed material containing NOA permanently placed during construction activities must be covered with a 3 inch minimum layer of asbestos-free material that has been certified by the Engineer. Survey the locations where material containing NOA is placed using GPS, electronic theodolite, or other methods approved by the Engineer and submit the information to the Engineer.

Material with 1 percent or higher concentration of NOA is hazardous material and for removing, managing, hauling, and disposing of the material outside the right-of-way, comply with Federal, State, and local laws and ordinances.

Material with 0.25 percent or higher of NOA must not be left exposed on the surface if disturbed.

SUBMITTALS

Submit the asbestos compliance plan (ACP) signed by a Certified Industrial Hygienist (CIH) certified in Comprehensive Practice by the American Board of Industrial Hygiene to the Engineer for acceptance at least 15 days before starting work in areas containing NOA.

ASBESTOS COMPLIANCE PLAN

Prepare and implement a job site specific asbestos compliance plan (ACP) to prevent or minimize worker exposure to asbestos. The ACP must comply with:

1. CCR, Title 8, Section 1529, (Asbestos) and Section 5192, (Hazardous Waste Operations and Emergency Response)
2. Occupational Safety and Health Guidance Manual published by the National Institute of Occupational Safety and Health (NIOSH)

3. Occupational Safety and Health Administration (OSHA), including addenda to it issued up to and including the date of advertisement of the contract

Include in the ACP:

1. Identification of personnel designated to be on site
2. Job hazard analysis for work assignments
3. Summary of potential risks
4. Worker exposure air monitoring plan
5. Description of personal protective equipment
6. Delineation of work zones on the job site
7. Decontamination procedures
8. General safe work practices
9. Site security measures
10. Emergency response plans
11. Description of worker training

Before performing work in areas with material containing NOA, personnel who have not had the worker training must complete a safety training program that meets the requirements of the ACP. The safety training program must meet the requirements of CCR, Title 8, Section 1529, (Asbestos), and Section 5192 (b)(4)(B), (Hazardous Waste Operations and Emergency Response). Provide the Engineer written certification of completion of safety training for each trainee before performing work in areas containing NOA.

Provide training, personal protective equipment, and washing facilities for 4_ Department employees.

When required by local APCD, perform daily ambient air monitoring on this job site. If daily ambient monitoring is required, submit a written air monitoring report to the Engineer every month. The report must include:

1. Air monitoring results
2. An analysis of results from the prior month
3. The name and location of the laboratory where the analysis was performed
4. An assessment of exposures of workers or the public
5. Descriptions of the type of air monitoring equipment
6. Sampling frequency

conform to the requirements of the disposal facility and the regulations of the Department of Toxic Substances Control. Sample and analyze surplus material for NOA before off-site disposal.

DUST CONTROL PLAN

Prepare and implement a job site specific dust control plan (DCP). Prevent visible dust emission during excavation, stockpiling, transportation, or placement of material containing NOA under Section 10, "Dust Control," of the Standard Specifications, these special provisions, and with the requirements in the Asbestos ATCM CCR Title 17, Section 93105(d)(1)(B).

Control dust in areas with material containing NOA using measures that include the following:

1. Stabilize unpaved areas subject to vehicular traffic by keeping adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos
2. The speed of vehicles and equipment traveling across unpaved areas must not be more than 15 mph unless the road surface and surrounding area is sufficiently stabilized to prevent vehicles and equipment going faster from causing dust that is visible from crossing job site limits
3. Stockpiles and disturbed areas not subject to vehicular traffic must be located in the plan and stabilized by being kept adequately wetted, treated with a chemical dust palliative, or covered with material that contains less than 0.25 percent asbestos
4. Conduct activities so that no dirt or mud tracking is visible on any paved roadway open to the public

MATERIAL TRANSPORTATION AND DISPOSAL

Dispose of surplus material tested to have less than 0.25 percent NOA under Section 7-1.13, "Disposal of Material Outside the Highway Right of Way," of the Standard Specifications. Excess material containing 0.25 percent or more NOA must not be disposed of in a surfacing application as defined in CCR Title 17, Section 93106, "Asbestos Airborne Toxic Control Measure for Surfacing Applications."

Transport surplus material containing NOA to a landfill facility appropriately permitted to receive the NOA material. You are responsible for identifying the appropriately permitted landfill to receive the material. When handling and disposing of surplus material obtain written authorization from the owner of the disposal facility as provided in the ATCM CCR Title 17, Section 93105 and as required by Health and Safety Code Section 25249.6, stating that the surplus material contains NOA.

Dispose of surplus material containing asbestos with concentrations equal to or greater than 1 percent as hazardous waste at a landfill facility under permit issued by the California Environmental Protection Agency.

Material containing NOA excavated from outside the limits of payment for contract items is the property of the Contractor and must be disposed of in accordance with these special provisions.

Provide the Engineer copies of manifests, landfill receipts and certified weight tickets showing the amount of disposal material containing NOA and the concentration of asbestos that was sent to the facility. Provide the Engineer a copy of additional test results if required by the owner of the landfill facility.

The Engineer obtains the Environmental Protection Agency Generator Identification Number for any disposal of Department of Toxic Substance Control regulated hazardous material and will sign all manifests. Notify the Engineer 5 days before the manifests are to be signed. Ensure that the Engineer has full access to the disposal facility during construction.

MEASUREMENT AND PAYMENT

Roadway excavation (naturally occurring asbestos) will be measured and paid for by the cubic yard in the same manner specified for roadway excavation in Section 19, "Earthwork," of the Standard Specifications. Structure excavation (naturally occurring asbestos) will be measured and paid for by the cubic yard in the same manner as structure excavation specified for the construction of foundations for structures in Section 19-3, "Structure Excavation and Backfill."

Surveying locations where material containing NOA is placed as directed by the Engineer and reporting survey data to the Engineer will be paid for as extra work as provided in Section 4-1.03D, "Extra Work", of the Standard Specifications.

The contract lump sum price paid for asbestos compliance plan (naturally occurring asbestos) must include full compensation for preparing and implementing the ACP and no additional compensation will be allowed therefor.

The contract lump sum price paid for dust control plan (naturally occurring asbestos) includes full compensation for preparing and implementing the DCP and providing notification and payment of fees to the APCD and no additional compensation will be allowed therefor.

The contract lump sum price paid for sampling and analysis plan (naturally occurring asbestos) includes full compensation for preparing and implementing the SAP and no additional compensation will be allowed therefor.

Full compensation for stockpiling of excavated NOA material on site, and for performing necessary dust and erosion control during the holding and sampling period is included in the contract price paid per cubic yard for the type of excavation (naturally occurring asbestos) involved and no additional compensation will be allowed therefor.

Transporting and disposing of surplus material containing greater than or equal to 0.25 percent of NOA to an appropriately permitted landfill facility, including providing copies of disposal documents to the Engineer will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

Placing of NOA material and covering of NOA material within the project limits must be directed by the Engineer and will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

Full compensation for cover material used for blasting is included in the contract price paid per cubic yard for the type of excavation (naturally occurring asbestos) involved and no separate payment will be made therefor.

Sampling of cover material after blasting for NOA as directed by the Engineer will be paid for as extra work under Section 4-1.03D, “Extra Work”, of the Standard Specifications.

Air monitoring and reporting results will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

Soil sampling, analyzing and reporting results for stockpiled material containing NOA will be paid for as extra work under Section 4-1.03D, "Extra Work," of the Standard Specifications.

The Department does not pay for sampling, analyzing, transporting, and disposing of material containing NOA from outside the limits of payment for contract items.

Fugitive Dust Prevention and Control and Asbestos Hazard Dust Mitigation Plan
July 1, 2008

CALAVERAS COUNTY

AIR POLLUTION CONTROL DISTRICT (APCD)
FUGITIVE DUST PREVENTION AND CONTROL PLAN AND ASBESTOS HAZARD DUST MITIGATION PLAN

The following is the Prescriptive Standard ("Standard") for the Calaveras County Fugitive Dust Prevention and Control Plan, and Asbestos Hazard Dust Mitigation Plan, for Calaveras County. The Standard is authorized pursuant to APCD Rule 205, "Nuisance". The intent of the Standard is to insure adequate dust control and asbestos hazard mitigation measures are implemented during all phases of project construction and operation. This Standard applies to all project construction and operation sites and shall be also be a condition of approval for all applicants for a Calaveras County building or grading permit. Compliance with this Standard is required prior to groundbreaking. The applicant shall insure that a copy of this Standard is available at the project site. Additional requirements for fugitive dust and asbestos hazard dust control measures may be imposed by the APCD if deemed necessary to protect public health. This Standard does not apply to the use of agricultural equipment necessary for the growing or harvesting of crops, including timber, or raising fowl or animals. However, all grading activities must comply with Best Management Practices (BMP's). For additional information, please contact:

Calaveras County Air Pollution Control District

(209) 754-6588

The following mitigating measures shall be employed where applicable to prevent and control dust emissions:

SECTION 1: FUGITIVE DUST PREVENTION AND CONTROL

Land Clearing/Earth Moving:

Water shall be applied by means of truck(s), hoses and/or sprinklers prior to any land clearing or earth movement to minimize dust emissions.

Haul vehicles transporting soil into or out of the property shall be covered.

A water truck shall be on site at all times. Water shall be applied to disturbed areas as necessary to control dust, but no less than 4 times per day during construction.

Equipment speeds shall not exceed 15 mph on construction sites speed signs shall be posted at 1,000-foot intervals.

The disturbed area shall be sprayed down at the end of the work shift to form a thin crust. This application shall be in addition to the minimum rate of application (4 times per day.)

Security measures (gate) shall be placed at the project entrance to prevent the entry of unauthorized vehicles during non-working hours and weekends.

No spoil materials shall be transported off-site, except to approved sites.

Visibly Dry Disturbed Soil Surface Areas:

All visibly dry disturbed soil surface areas of operation shall be watered to minimize dust emissions.

A water truck shall be on site at all times. A minimum of 4 passes shall be made per day with the water truck or more as necessary. Water shall be the sole spray medium.

Paved Road Track-Out:

Existing roads and streets adjacent to the project will be washed down at least once per day unless conditions warrant a greater frequency. The Contractor shall consistently monitor the off-site road conditions for the formation of fugitive dust.

Visibly Dry Disturbed Unpaved Driveways:

All visibly dry disturbed unpaved driveway surface areas of operation shall be watered to minimize dust emissions.

Unpaved driveways may be graveled to reduce dust emissions.

A water truck shall be on site at all times. A minimum of 4 passes shall be made per day with the water truck or more as necessary. Water shall be the sole spray medium.

Haul road speed shall not exceed 15 mph. Speed limit signs shall be posted at 1,000-foot intervals.

Haul roads shall be sprayed down at the end of the work shift to form a thin crust. This application of water shall be in addition to the minimum rate of application (4 times per day).

The contractor shall keep a daily record of measures taken to control fugitive dust in accordance with this plan.

A copy of said report shall be submitted to APCD for inspection as requested by the district and a copy kept at the job site during construction.

Vehicles Entering/Exiting Construction Area:

Vehicles entering or exiting construction area shall travel at a speed, which minimizes dust emissions, not to exceed 15 MPH.

Employee Vehicles:

Construction workers shall park in designated parking area(s) to help reduce dust emissions.

Soil Piles:

Soil pile surfaces shall be moistened if dust is being emitted from the pile(s). Adequately secured tarps, plastic or other material may be required to further reduce dust emissions.

SECTION 2: ASBESTOS HAZARD DUST MITIGATION

Asbestiform Containing Soils:

In the event asbestiform containing soils are suspected or identified, the real property owner shall implement the following Asbestos Hazard Dust Mitigation measures immediately to minimize and control potential asbestos dust emissions which shall include, but not be limited to the following:

1. Cease construction activities in the discovery area. A California-registered geologist shall verify suspected material within two (2) working days. If geologist is unable to verify material as an asbestiform mineral, suspect material shall be analyzed using California Air Resources Board Test Method 435 or other approved test method to confirm the asbestos containing material. Analyses shall be completed within ten (10) working days from date asbestiform containing soil was suspected.
2. Pre-wet work area and follow with fine spray application on the immediate area being worked to eliminate visible dust to the greatest extent possible.
3. To the extent feasible, construction activity should avoid disturbance of asbestiform minerals and during periods of inactivity, cover any disturbed asbestos material area with non-asbestos cover material.
4. Limit vehicle access and speed on exposed serpentine and rock containing asbestos material areas.
5. Cover areas exposed to vehicle travel with non-asbestiform cover material.
6. Maintain a high moisture condition of the disturbed surface or treat the disturbed surface of the work area with an approved "palliative" material to seal loose fibers together to the parent rock particle.
7. Material transfers or stockpiles of loose material shall be kept adequately wet and sealed by an approved palliative or covered when conditions warrant.
8. Employee/worker notification, safety and monitoring shall be performed in accordance with applicable agency laws and requirements (e.g., California Code of Regulations (CCR), Title 8, section 1529 et al).
9. During disturbance activities, the Owner shall maintain onsite records of watering schedules, daily logs of dust mitigation and air monitoring activities (if required) by the APCD at the construction site. Upon request, all such records shall be made available to the Air Pollution Control Officer (APCO) and/or other applicable County staff/inspector(s) as designated by the APCO.
10. Copies of all test results, reports, and locations of asbestiform containing soils shall be submitted to the APCO upon completion of coverage; retained at the construction site and, upon request, be readily available to the APCO and/or other applicable County staff/inspector(s) as designated by the APCO.
11. The Owner shall maintain copies of all test results, daily logs, maps, consultant reports and location of asbestiform containing soils, as applicable, for real property disclosures.
12. Asbestiform containing soils removed by excavation shall be placed into fills to be constructed elsewhere on the project. The location(s) of such removals and the placement quantities and locations shall be documented in an asbestos management report which shall include a copy of the grading plan showing the locations of removal and placement locations.
13. Asbestiform containing soils placed within fills shall be covered by at least two feet of non-asbestiform cover soil material.
14. Asbestiform containing soils uncovered during the construction of utilities shall be appropriately covered such as by placement within deep fills. Utility trenches shall be backfilled with non-

asbestiform cover materials.

15. Asbestiform containing soils moved off-site shall be managed as a hazardous substance and in accordance with appropriate agency laws and requirements.

16. The Calaveras County Air Pollution Control Officer or his/her designee may require additional mitigation and/or air monitoring measures to be included in this Asbestos Hazard Dust Mitigation Plan whenever he/she finds that such measures are necessary to protect the public health and safety.

NOTICE: Criminal and/or civil penalties may be imposed on any person who violates any rule, regulation, permit or Order of the State Air Resources Board or of a district that is adopted to control and contain air emissions.

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Col	4			

REGISTERED CIVIL ENGINEER DATE

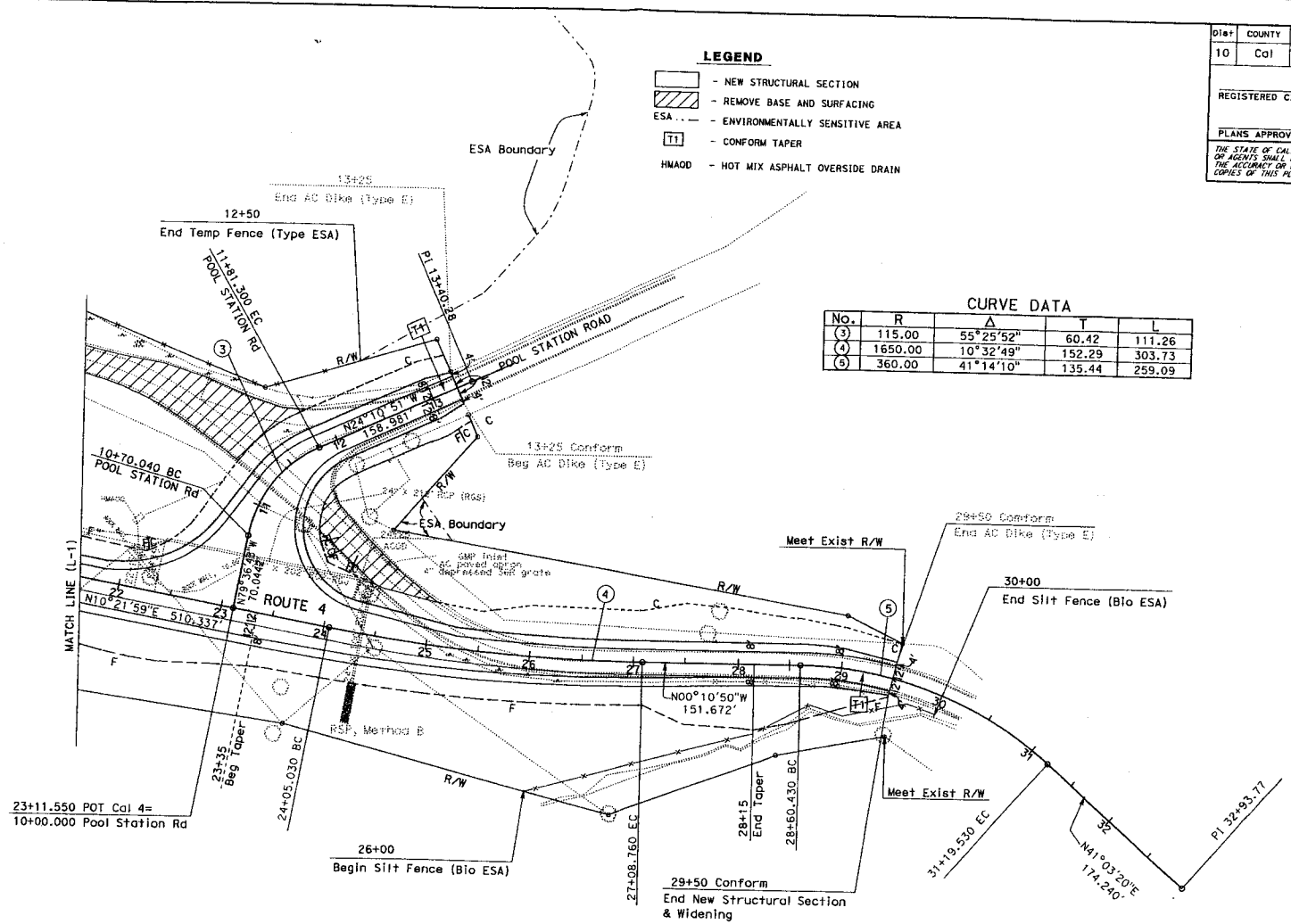
PLANS APPROVAL DATE

REGISTERED PROFESSIONAL ENGINEER No. Exp. CIVIL STATE OF CALIFORNIA

THE STATE OF CALIFORNIA OR ITS OFFICERS OR AGENTS SHALL NOT BE RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF ELECTRONIC COPIES OF THIS PLAN SHEET.

LEGEND

- NEW STRUCTURAL SECTION
- REMOVE BASE AND SURFACING
- ESA ... - ENVIRONMENTALLY SENSITIVE AREA
- T1 - CONFORM TAPER
- HMAOD - HOT MIX ASPHALT OVERSIDE DRAIN



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LAYOUT

SCALE: 1"=50'

L-2

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans

DESIGN

FUNCTIONAL SUPERVISOR: PAUL ELLIOTT

CALCULATED-DESIGNED BY: MILA GOTICA

CHECKED BY

REVISED BY

DATE REVISED

LAST REVISION

DATE PLOTTED => 14-JAN-2009

TIME PLOTTED => 07:47

BORDER LAST REVISED 3/1/2007

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s124946

DGN FILE => drainl2.dgn

CU 06240

EA 0A0101

Dist	COUNTY	ROUTE	POST MILES TOTAL PROJECT	SHEET No.	TOTAL SHEETS
10	Cal	4			

REGISTERED CIVIL ENGINEER DATE

PLANS APPROVAL DATE

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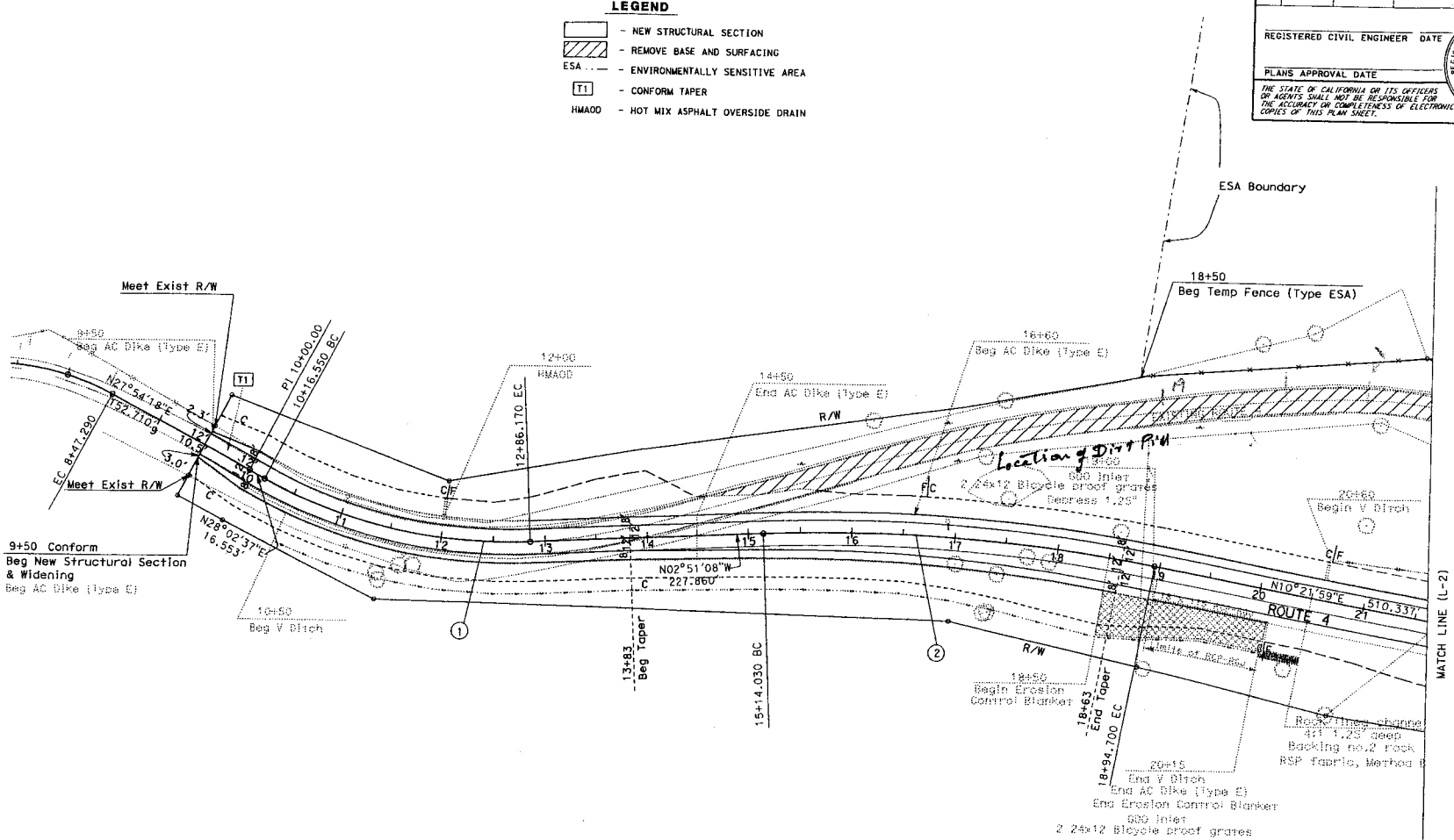

CURVE DATA

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LAYOUT

SCALE: 1"=50'

L-1

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

Caltrans DESIGN

FUNCTIONAL SUPERVISOR: PAUL ELLIOTT

CALCULATED-DESIGNED BY: MILA COTICO

CHECKED BY: MILA COTICO

REVISED BY

DATE REVISED

LAST REVISION DATE PLOTTED => 14-JAN-2009 TIME PLOTTED => 07:46

BORDER LAST REVISED 3/1/2007

RELATIVE BORDER SCALE IS IN INCHES 0 1 2 3

USERNAME => s124946
DGN FILE => drainl2.dgn

CU 06240

EA 0A0101