THE TERRAPHASE TEAM

Statement of Qualifications

for Santa Monica-Malibu Unified School District

Services Related to Environmental Concerns at District Facilities

December 20, 2013

terraphase engineering

Environmental Health Decisions

Health Science Associates

VISTA ENVIRONMENTAL CONSULTING

December 20, 2013

Ms. Janece L. Maez
Associate Superintendent, Business and Fiscal Services
Santa Monica-Malibu Unified School District
1651 16th Street
Santa Monica, CA 90404

Subject: Statement of Qualifications to Provide Services Related to Environmental Concerns at Santa Monica- Malibu Unified School District Facilities

Dear Ms. Maez:

Terraphase Engineering Inc. (Terraphase) thanks you for the opportunity to submit a detailed Statement of Qualifications and a Conceptual Outline of the DTSC School Property Evaluation and PCB Abatement Program described in your Request for Qualifications to Provide Services Related to Environmental Concerns at District Facilities (RFQ). This Statement of Qualification and Conceptual Outline presents the Terraphase Team, our Understanding and Approach to the Initial and Future Scopes of Work, Relevant Project Summaries with References and Resumes of Key Personnel. A Schedule of Time and Materials Charges will be submitted under a separate cover, as requested in the RFQ. It also summarizes the Terraphase Team's qualifications, key project personnel, and a description of relevant projects with references.

From our review of documents posted on the District's website as well as the Santa Monica-Malibu Unified School District Public Meeting Study Session held in Santa Monica on December 12, 2013, we understand that expedited resolution to the issue of PCBs in the classrooms at Malibu Middle/High School is critical. Further we understand that the USEPA Region 9 TSCA group is ready to begin work immediately with the District's selected environmental consultant to develop a plan to clean, monitor and sample the classrooms using a methodology acceptable to the Agency. The goal of this work will be to ensure that all classrooms at the school are safe to occupy, as preliminary air data collected by the District indicates, and to develop a plan to remove caulk detected at levels greater than the allowable level of 50 mg/kg.

Following the evaluation of the classrooms, PCBs (and other chemicals of concern) in soil will require investigation under the oversight of the DTSC. Previous investigations and remediation of the subsurface soil and soil vapor were not conducted under DTSC oversight, thus these documents may need to be revised, updated and supplemented.

Finally, a District-wide program for the testing and management of PCBs in classrooms as well as general environmental program for interfacing with the DTSC will need to be developed over the longer term.

TERRAPHASE PROJECT TEAM

To best serve the Santa Monica-Malibu Unified School District (District), Terraphase Engineering, Inc. (*Terraphase*), general engineering contractor license number 960398, has formed a team of professional experts (**Terraphase Team**) to ensure the highest quality of service for these sensitive high profile projects. The **Terraphase Team** has very strong relationships with the USEPA TSCA unit as well as the DTSC Schools Group and their toxicologists. The **Terraphase Team** has worked together seamlessly on many successful projects in the past, including the assessment and remediation of school sites. Our team includes licensed and certified engineers, geologists, toxicologists, certified industrial hygienists and abatement professionals. The **Terraphase Team** has licensed and certified environmental engineering professional with demonstrated experience in the areas required by the SM-MUSD RFQ as seen in the table below:

Terraphase Team for Santa Monica-Malibu Unified School District

Role	Name	Firm	Individual and Firm Licenses and Certifications
Project Manager & Professional Engineer Project Geologist Project Geotechnical Engineer	Gwen Tellegen P.E. Alan Gibbs P.G. Jeff Raines P.E.,G.E.	Terraphase Engineering	California General Contractor # 960398 with Hazardous Substance Removal Certification, California Professional Engineers (Civil), California Professional Geologists, California Geotechnical Engineers, California Certified Engineering Geologists, California Certified Hydrogeologists, Asbestos Site Surveillance Technicians
Toxicologist - Health Risk Assessor	Jill Powder Ph.D., DABT	Environmental Health Decisions	Diplomate of the American Board of Toxicology (since 1990), Ph.D. Toxicology
Certified Industrial Hygienist	Kathy Jones C.I.H. Joel I. Berman, C.I.H.	Health Science Associates	Certified Industrial Hygienist (CIH), Certified Safety Professional (CSP), California State Certified Asbestos Consultant (CAC), California Department of Public Health Certified Lead Inspector/Assessor (CDPH I/A), California Department of Public Health Certified Lead Project Designer (CDPH PD), California Department of Public Health Certified Lead Project Monitor (CDPH PM), California Department of Public Health Certified Lead Sampling Technician (CDPH ST), Certified Indoor Air Quality Manager (CIAQM) Registered Environmental Health Specialist (REHS), American Board of Industrial Hygiene (ABIH)
Hazardous Building Materials Expert	Michael C. Legerski M.S.	Vista Environmental	California State Certified Asbestos Consultant (CAC), California Department of Public Health Certified Lead Inspector/Assessor (CDPH I/A), California Department of Public Health Certified Lead Project Designer (CDPH PD), California Department of Public Health Certified Lead Project Monitor (CDPH PM), California Department of Public Health Certified Lead Sampling Technician (CDPH ST), C

MINIMUM QUALIFICATIONS

Project specific descriptions of work in the following areas is found in **Attachment A**. Our experience shows through past performance that our team meets and exceeds these minimum qualifications.

A. PCB investigations, management and abatement, including in the context of building demolition
B. Multimedia site investigation, removal and remedial activities under the oversight of the California Department of Toxic Substance Control for K-12 Schools
C. Previous work experience with the Department of Toxic Substances Control, the United States Environmental Protection Agency, Region 9, TSCA Coordination unit, and the California Department of Education (CDE) and related departments in the event of direct services for schools.

A select summary of Terraphase Team's K-12 School District project experience is found in **Attachment B**.

Resumes detailing key personnel's previous project experience, licenses and certifications, skills and positions are found in **Attachment C.**

SITE BACKGROUND

The Terraphase Team understands that Santa Monica-Malibu Unified School District ("District"), conducted a Phase I Environmental Site Assessment in 2000 which was submitted to DTSC as part of the proposed Malibu High School Expansion Project. The DTSC's review concluded no action was necessary with respect to investigation and remediation of the Site at that time (CTL Environmental Services, 2000).

A second Phase I Environmental Site Assessment was conducted in 2009 in conjunction with proposed construction of 20 sites on the Malibu Middle/High School campus, not under regulatory oversight. Six recognized environmental conditions (RECs) were identified in 8 of the 20 areas scheduled for modification assessed during the Phase I (LFR, 2009). An environmental assessment of these 8 areas was recommended. The Preliminary Environmental Assessment (PEA) revealed the presence of PCB and pesticide impacted soil near classroom buildings within areas scheduled for modification (ARCADIS, 2010b). In 2011 approximately 1,180 cubic PCB and pesticide impacted soils were removed and confirmation soil sampling was conducted by ARCADIS. All final confirmation soil samples were below the site specific risk-based preliminary cleanup goal (PCG) of 89 µg/L and only a few samples contained detections of PCBs below the PCG. Additionally arsenic, cadmium and lead were detected in soils as well as benzene in soil vapor above conservative screening levels. However a health risk assessment was performed for all constituents detected at the Site concluding that only PCBs required removal to attain acceptable predicted potential health risk values of less than 1 in a million cancer risk and a hazard index of less than 1. Post remediation concentrations of all constituents of concern were found to be below the health risk based clean-up levels (ARCADIS, 2010a, 2012). These investigations were not conducted under the oversight of the DTSC.

Health concerns expressed by faculty, staff and student parents at the school, led to an investigation of indoor air quality, electromagnetic fields, radon and included PCB wipe and building material samples conducted in November 2013 (Phylmar, 2013). Select classrooms adjacent to the soils removed in 2011 and near recent trenching activities were sampled. While the investigation largely ruled out potential hazards from electromagnetic fields or radon gas in the classroom, indoor air sampling indicated low levels of PCBs in indoor air (Panacea, 2013; Unnamed Consulting Firm, 2013a). Wipe and bulk sampling further revealed detections of PCBs in window caulk in some locations. Window caulk in three locations was reported to be at concentrations greater than 50 ppm, requiring removal under TSCA regulations as a TSCA waste (Unnamed Consulting Firm, 2013b). The concentrations of PCBs in air were within the range of those generally acceptable for residential use (EPA Region 9 Guidelines) and lower than a school standard set by EPA Region 2. This investigation was also done outside of regulatory oversight.

In 1971, the Toxic Substances Control Act banned the continued use and manufacture of any caulk containing PCBs above the regulatory threshold, irrespective of health considerations. Generally caulk in schools constructed between 1950 and 1978 is presumed to contain PCBs, unless testing proves otherwise. Malibu Middle/High School and the adjoining Juan Cabrillo Elementary School were largely constructed in the 1950's and 1960's. Areas which were not part of the proposed construction activities at the Malibu Middle/High School as well as the area surrounding the Juan Cabrillo Elementary School have not undergone recent investigation to evaluate the potential for contamination which may present potential risk to occupants.

For purposes of this Statement of Qualification, we assume an evaluation of PCB-containing materials and other hazardous material at the Malibu campuses and throughout the seventeen campuses comprising the District is required.

PROPOSED APPROACH AND SCOPE OF WORK

In accordance with information presented in the Request for Qualifications the following is our scope of work for providing environmental engineering services related to concerns at District facilities. We have followed the conceptual outline format as presented by the District.

Task A) Indoor Air Quality Testing program design and implementation (for PCBs, and potentially for VOCs and Radon) and health and safety procedures for Malibu Middle/High School and Juan Cabrillo Elementary School. **The Terraphase Team** will conduct an evaluation of indoor air quality data, including a Health Risk Evaluation, quality assurance and concise report preparation for presentation to EPA Region 9, DTSC, CDE and LA County Health Department as required.

The Terraphase Team understands the USEPA is willing to meet with the District's Environmental Consultant immediately to discuss the scope and format of this PCB Sampling and Management Work Plan in order to ensure that the number and location of indoor air samples collected will be acceptable. Further we understand that following additional testing and preparation of proper cleaning protocols, the USEPA has recommended cleaning of dust by

a licensed abatement contractor in the classrooms where PCBs have been detected in air and in window caulk. We believe that this work should be done with proper monitoring and oversight, and should include an evaluation and cleaning of the existing HVAC system to ensure that no existing dust is allowed to spread.

A thorough review of previous indoor air quality investigations will be conducted to determine what additional testing may be required to supplement the existing data and the best approach to collecting this data. We will work collaboratively with the USEPA Region 9 TSCA team and the District to design, implement, record and present the continued and the new indoor air quality testing at Malibu Middle/High School and Juan Cabrillo Elementary School in an expeditious manner. The Air Testing Work Plan will incorporated public opinion as appropriate.

Additionally The **Terraphase Team will** conduct human health risk assessment activities based on the results of the air quality testing targeted towards:

- Evaluating the health risks associated with PCBs detected in indoor air
- Evaluating the health risks associated with all potential exposures to contaminants that may be present in caulk or other building materials, soil, and indoor air
- Conducting a literature search to evaluate potential links between exposures to chemicals at the school and current health issues.

The health risks associated with PCBs detected in indoor air will be evaluated using risk assessment guidance and methodology presented by the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC) and Office of Environmental Health Hazard Assessment (OEHHA). DTSC and OEHHA provide equations to estimate intake (or dose) for both cancer and non-cancer effects. They also provide standard exposure parameters such as exposure duration (years of exposure), exposure frequency (days per year and hours per day), breathing rate, and body weight. Estimated cancer effect doses and noncancerous effect doses will be combined with toxicity factors (provided by OEHHA in their Toxicity Criteria Database) to calculate potential cancer risk and noncancerous hazard from exposure to the measured concentrations of PCBs in indoor air. Results will be presented in a report and provided to DTSC for review and comment. The final report can be summarized into a Power Point presentation that is suitable for public viewing.

Task B) **Best Practices for the Management** of PCB and other hazardous building materials management and abatement, assessment and specification preparation, and building demolition and materials disposal. **The Terraphase Team** understands that based on the PCBs in the bulk and wipe samples of window caulk above the regulatory threshold and the age of the buildings at Malibu Middle/High School that additional PCB-containing caulk may be detected at the campus (Unnamed Consulting Firm, 2013b). In addition to strictly adhering to TSCA regulations, **The Terraphase Team** will develop protocols that incorporate the September 2005 EPA guidance for school administrators and building managers for managing PCBs in caulk along with tools to help minimize possible exposures. There remains unresolved scientific questions about the

magnitude of the problem of PCBs in caulk and how to identify the best long-term solutions. As such, The **Terraphase Team** will work with the Santa Monica-Malibu Unified School District and the maintenance staff, the EPA Region 9 TSCA unit, along with other identified concerned community members and/or relevant representatives to review and participate in the development of a "Best Management Practices (BMPs)" plan to further evaluate and reduce potential exposures. The BMPs created for PCB Caulk in New York City School Buildings dated March 12, 2010 will be used as a guide (Castagnola, 2102) in this process. This program will initially be created for the Malibu campuses, but it will be designed such that it can be extended to all seventeen District campuses

As a part of this work, the Terraphase Team will work with the District and the EPA to properly communicate the on-going status of any PCB environmental conditions or other hazardous building materials identified within the school facilities. This communication will target all appropriate District staff, teachers, students and community members (through newsletter, internet community accessible sites and/or District/community open meetings).

Those groups involved in the School District with construction, rehabilitation, maintenance and usage of the various school facilities will need to be an integral part of the Best Management Practices Plan. In particular, specific approaches for each type of facility related activity will be addressed to ensure that activities associated with possible dust generation and/or PCB or other contamination impacting activities will be controlled. As mentioned previously, the first portion of work will be to develop protocols for additional sampling and investigation that will more precisely and definitively identify and clarify the areas of interest related to PCBs and other possible contaminants within the Santa Monica-Malibu Unified School District and in particular Malibu Middle/High School and the Juan Cabrillo Elementary School. Ultimately, the areas of PCB containing materials will be more definitively identified, and protocols for construction, rehabilitation and maintenance will be developed to specify appropriate and "healthy" maintenance, repair and replacement materials as well as the associated control activities.

Task C) **DTSC School Property Evaluation and PCB Abatement Program** to address known and possible health hazards at Malibu Middle/High School. **The Terraphase Team** will create a thorough assessment and remediation program for the Malibu Middle/High School campus, under the oversight of the DTSC's School Property Evaluation and Cleanup Division and EPA Region 9 TSCA Coordinator. The program shall identify potential sources of environmental contaminants, including transformers, the bus wash area, the former Underground Storage Tanks, chemicals stored in the art, woodshop, laboratory and photography darkroom areas, septic systems and a back-up generator. The assessment will test for soil and soil vapor for contaminants such as pesticides, VOCs and heavy metals. Air assessment activities will look for PCBs, VOCs, SVOCS, particulates impacted with metals and pesticides, as well as radon and other hazardous building materials.

The Terraphase Team will follow the DTSC school property evaluation process which would be initiated by an updated Phase I Environmental Site Assessment to identify recognized

environmental conditions (RECs) on or near the property. This is achieved through visual inspection, historical record research, interviews, and aerial and topographic map reviews. If RECs are identified, a Preliminary Environmental Assessment (PEA) Workplan or Technical Memo Workplan (for smaller scope) will be prepared that outlines the proposed locations and procedures for testing. A PEA will include sampling of suspected media, health hazard risk evaluations of sampling results, and recommendations for removal action or no further action. Based upon the results of the sampling, a Supplemental Site Investigation (SSI) Workplan or Technical Memo will be prepared that may require additional sampling as documented in an SSI. Based upon the results off the PEA and/or SSI sampling, Health Risk Based Clean-Up Standards will be developed for the remediation of impacted materials discovered during site assessment. With those clean-up levels established, a Removal Action Workplan (RAW) would be developed outlining specific procedures for the clean-up. This RAW would include the mitigation measures to be implemented, the schedule of work and the monitoring requirements. Following DTSC approval of the RAW, the remediation would be completed and documented in a Removal Action Completion Report.

The DTSC School Evaluation process involves public notification and participation throughout. A notification of field investigation is provided to the public after PEA Workplan is prepared. Following the preparation of the PEA, a questionnaire is sent out to the public and a 30-Day comment period is implemented. Once the Removal Action Workplan is completed, there is another 30-Day comment period during which the DTSC, the District and their consultant generate a Fact Sheet on the proposed remediation and a Community Profile is also compiled. Once the Removal Action is scheduled, a Public Field Notification is posted prior to beginning the work.

As discussed above, during the PEA and RAW process, the health risks associated with all potential exposure to contaminants that may be present in soil, indoor air, and caulk will be evaluated using risk assessment guidance presented by DTSC, OEHHA, (USEPA) and the U.S. Army Center for Health Promotion and Preventive Medicine. The DTSC provides guidance to assess the potential risks associated with chemicals in soil, indoor air, and outdoor air through their *Preliminary Endangerment Assessment Guidance Manual (PEA)*, dated October 2013. The DTSC assessment will provide information regarding health risks assuming unrestricted land use. A school-specific assessment can be conducted using OEHHA's *Guidance for School Site Risk Assessment Pursuant to Health and Safety Code Section 901(f): Guidance for Assessment Exposures and Health Risks at Existing and Proposed School Sites*, dated February 2004, to provide health risks assuming land use restricted to schools. Chemicals, including but not limited to pesticides, volatile organic compounds, and metals, in soil and air will be included in the PEA and OEHHA risk assessments. Health risks associated with PCBs in caulk (and potentially other surfaces) can be evaluated using the USEPA's *Current Best Practices for PCBs in Caulk Fact Sheet – Interim Measures for Assessment Risk and Taking Action to Reduce Exposures* (dated December 2012) and the U.S. Army Center for Health Promotion and Preventive Medicine's Technical Guide 312 entitled *"Health Risk Assessment Methods and Screening Levels for*

Evaluating Office Worker Exposures to Contaminant on Indoor Surfaces Using Surface Wipe Data," dated June 2009. Results will be presented in a report and provided to DTSC for review and comment. The results of the PEA can be summarized into a Power Point presentation that is suitable for public presentation.

If results of the risk assessment(s) show that cancer risks exceed the acceptable (de minimis level) of 1 in 1 million or noncancerous hazard indices exceed the target level of 1, health-based cleanup levels will be derived in the PEA and RAW process such that chemicals can be removed to concentrations below these clean-up levels.

As a part of the evaluation of the potential contamination and potential associated health risks to occupants, a literature search will be conducted to assess the relationships, if any, between contaminants present at the property and current health complaints. The literature search will examine peer-reviewed epidemiological and laboratory animal studies. The literature search will also examine current regulatory levels for chemicals in soil as well as the toxicological bases for the regulatory levels. The results of the literature search will be presented in the risk assessment report for review by the regulatory agency. If desired, the material can be presented to the district and public in an organized, referenced, and public-friendly format.

The results of PCB air sampling (described in Task A) conducted under the oversight of the EPA Region 9 TSCA Unit will be compared to their acceptable standard for residences (0.0043 ug/m^3 to 0.43 ug/m^3) and the EPA Region 2 standards for schools of 0.2 ug/m^3. If these levels are exceeded and/or samples of building materials collected from the rooms with the exceedances find PCB concentrations greater the 50 ppm in materials such as caulk, a PCB abatement program will be developed using the protocols accepted by the EPA and DTSC. This PCB work will be conducted by licensed abatement contractors, who are experienced in the area of PCB, lead and asbestos containment. Any such work will take place outside of school operating hours and notice will be given public notice prior to the work.

The Terraphase Team recognizes that the sites are occupied schools which will constrain the execution of this program. The work will be limited by school activities/operation and working hours allowed by the city. We are prepared to work outside of general school hours to avoid disrupting faculty, staff and students.

Additionally **The Terraphase Team** will prepare and execute a systematic program for the District relating to investigations and abatement of PCBs in caulk in conjunction with future District building activities. We anticipate the District to continue to improve its campuses both in the near and long term. The program will ensure the timely identification, abatement and disposal of PCB or other contaminated waste derived from construction processes.

The Terraphase Team will communicate frequently with the regulatory agency and District personnel will be active in negotiations and public presentations as needed for all activities pertaining to this scope of work.

ADDITIONAL KEY TERMS

- The Terraphase Team understands the District would like the selected project team to compile a work plan for the testing of indoor air together with the EPA Region 9 TSCA Unit as soon as possible. The Terraphase Team is prepared to begin work immediately upon contract approval, meeting with EPA and District as soon as the contract documents are in place. Terraphase's project managers utilize Microsoft Project to develop, maintain and cross-check schedules to ensure that we meet our clients' requirements with respect to schedule. After award of this project, we will develop a detailed project schedule and update it monthly or as the project requires, making sure appropriate resources are available to meet the project demands.

- The **Terraphase Team** has participated in many projects which included community outreach elements including the presentations at public meetings and development of fact sheets for public distribution. This work has included presentations to City Councils, District Boards and Community Members and Staff for clients such as Carlsbad Unified School District, Corona-Norco Unified School District, Oxnard Unified, Oakland Unified School District, Aspire Public Schools, Martinez Unified School District, Pittsburg Unified School District, and Marysville School District.

- The **Terraphase Team** is very familiar with waste characterization, storage and disposal requirements in the State of California and will work with the client to find the safest and most cost-effective means to deal with waste materials generated during this work.

- Terraphase selects our subcontracts on a job by job basis and have developed a highly competent and experienced team for this project. All of our subcontractors must sign a subcontractor agreement that will flow down the provisions of our agreement with the District. We maintain a database of subcontractors with proven track records of excellent work, who have worked for us during our professional career. Typically we choose subcontractors that balance work quality with cost consciousness thus providing the best service as opposed to the simple low-bidder. **Terraphase** takes responsibility for the actions of all our subcontractors.

- **Terraphase Team** plans on acquiring the best value for Santa Monica-Malibu Unified School District in terms of non-dispositive subcontractors. The following is a list of subcontractors we typically utilize:

    - Laboratory: Associated Laboratories, LA Testing, CalScience Laboratories, H&P Mobile Geochemistry, Jones Environmental;
    - Field Services: Cascade Drilling, J&H Drilling, Millennium Environmental, Gregg Drilling, BlaineTech;
    - Waste Disposal: American Integrated Services, Industrial Waste Utilization, Republic, Waste Management, EnviroServ ;
    - Abatement Services (typically contracted directly by client): TEG/LVI Services, MetalClad, Argus Contracting, Inc.

- The **Terraphase Team** has worked at K-12 schools throughout the State of California and is very familiar with the security and background check necessary to complete this work. We will provide this information to the school district prior to conducting any work on the school facilities. As shown in the HSSE, **Attachment D**, we take health and safety, and drug and alcohol awareness very seriously and comply with all state, federal and local requirements. We will provide training through daily tailgate safety meeting with all on-site staff which will include provisions of no interaction with Staff or students. We will develop a communication plan as part of all health and safety plans that will provide a method for our field staff to direct all public inquiries to the appropriate school district personnel in a direct and non-confrontational manner.

- Terraphase has a robust health and safety program and prides our self on our safety record. We have had zero lost work incidents since our inception in 2010. Our senior managers are all trained in Loss Prevention Systems which is a behavior based safety program that is setup to prevent safety incidents by proactively observing work activities and investigating near-miss incidents.

- Terraphase has the required insurance coverages by maintaining $3 Million Aggregate/$3 Million per incident coverage with a $2 Million Umbrella policy on top of this general coverage. After being selected, Terraphase will work closely with the District to ensure all district insurance requirements are met.

We appreciate the opportunity to submit this Statement of Qualifications to provide services related to environmental concerns at District facilities. We look forward to discussing this challenging project with you further during the January 2014 interviews. If you have any questions, comments or concerns regarding this Statement of Qualifications, please do not hesitate to contact me via email at gwen.tellegen@terraphase.com or by telephone at (949)378-8448.

Sincerely

Gwen Tellegen, P.E. (58670)
Principal Engineer

William Carson, P.E. (60735)
Principal Engineer and President

Attachments:
A Relevant Project Experience
B Terraphase Team Select K-12 School District Experience
C Resumes for Key Personnel
D Health, Security, Safety, and Environmental "HSSE" Pre-Qualification Forms
E References Cited

The terraphase Team

Attachment A

Relevant Project Experience

The terraphase Team

Aspire Public Schools– Assessment, Abatement, Demolition and Remediation of PCBs, Asbestos Arsenic, Lead, Petroleum, VOCs

College Preparatory Academy, Oakland, CA.

building surveys and PCB abatement
building demolition & site cleanup
RI/FS Studies
risk based clean up levels
multiple agency oversight
community outreach & fact sheets
EPA Region 9, DTSC, CDE expertise

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The Terraphase Project Geologist and Geotechnical Engineer managed work at the Aspire Golden State College Preparatory Academy on 66th Avenue in Oakland included: hazardous materials building surveys (asbestos, lead-based paint, PCB assessments), PCB, asbestos and lead abatement and demolition oversight, chemical hazard surveys, geotechnical and geological hazard surveys, pipeline and railroad risk assessments and preparation a DTSC approved RAW using Health Risk Based clean-up levels, and implementation of the cleanup. The school was constructed and occupied with DTSC and EPA regulatory approval of cleanup. This work involved regulatory negotiations (Federal Environmental Protection Agency [EPA – TSCA unit], DTSC, Alameda County Health Department, Oakland Fire Department, Oakland Housing Authority, and Public Outreach and preparation of fact sheets as part of the CEQA process for the Site.

The Aspire Academy was constructed over a former industrial site where electrical transformers were reconditioned. Contamination at the site included arsenic, PCBs, lead and petroleum products. The contamination affected soil, soil gas and shallow groundwater. The existing structure also contained PCBs, asbestos and lead-based paint, which had to be abated before the building could be demolished. US EPA TSCA Unit oversaw the work because the site was impacted by high levels of PCBs. Remediation consisted of hazardous materials abatement and the excavation and off-site disposal of impacted soil. This was followed by dual-phase extraction of soil gas and groundwater which continues with regular monitoring.

ASPIRE PUBLIC SCHOOLS

The terraphase Team

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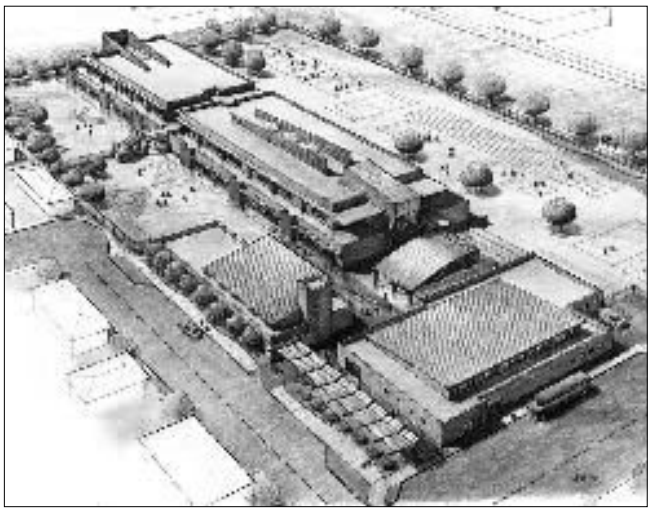
Carlsbad Unified School District – Soil Remediation

Arsenic and Pesticide Impacted Soil Remediation Carlsbad High Modernization & New Sage Creek High, Carlsbad, California



environmental site assessments (Phase I&SSI)
remedial investigation/feasibility studies
risk based cleanup levels
removal action workplans & completion reports
community outreach & fact sheets elevated background arsenic level & clean-up levels
removal of impacted soils during holiday week
media coverage and interface

Terraphase's Project Manager directed the site assessment and remediation of two Carlsbad high schools obtaining Expedited Site Closure from the DTSC.

Carlsbad Unified School District (CUSD) modernized and expanded the existing Carlsbad High School which originally opened in February 1958 with the construction of a new stadium and sports complex. In addition CUSD constructed the new Sage Creek High School on former agricultural land. Both sites were assessed, remediated and issued No Further Action Letters by the DTSC within weeks of submittal of the Removal Action Completion Reports.

The work included:

- Phase I and II Environmental Site Assessments
- Remedial Investigation & Feasibility Studies (RI/FS)
- Sampling for and calculation of DTSC acceptable elevated background concentrations for arsenic
- Determination of Risk Based Clean-up Levels for pesticides
- Removal Action Work Plan & Public Fact Sheet
- Removal of more than 9,000 tons of impacted soil

This project received a significant amount of local media coverage. Addressing concerns over student safety, neighborhood issues about hauling and dust control, and maintaining an aggressive construction schedule allowing for home football games in 2009 were a top priority for CUSD. Under Ms. Tellegen's oversight the work was completed on time and received closure from DTSC meeting CUSD construction schedules, with no neighbor complaints.

The terraphase Team

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Grossmont Union High School District, La Meas, CA –

RAW revision, Removal Action, RACR and DTSC Closure Hazardous Materials Inspections, Abatement Design, and Abatement Management & Monitoring

RAW revision, Removal Action for Dump Site, RACR
expedited DTSC No Further Action Letter
hazardous materials surveys and abatement
remediation monitoring
hazardous materials inspections, specifications, design
abatement monitoring
DTSC, DSA, SDAPCD, Cal/OSHA and CDPH Oversight
Saved client more than $250,000 over original remediation cost estimate

Grossmont Union High School District

Grossmont Union High School District (GUHSD) discovered an undocumented fill site during the modernization of Grossmont High School. The Terraphase Project Manager revised the proposed approach to the excavation of these lead, chromium, dioxin and TPH impacted soils originally described the Draft Removal Action Workplan (RAW) prepared by others. The revised was approved by the Department of Toxic Substances Control (DTSC) within a week of submittal, and this approach saved GUHSD more than $250,000 as compared to the original approach.

The cost saving Lapproach involved sorting the various waste streams as they were excavated and reusing and recycling all materials that were found not to contain any chemicals of concern, as determined by the DTSC.

VEC also performed comprehensive hazardous materials surveys, cost estimates, and hazardous materials abatement, demolition and modernization design for GUHSD. The surveys included detailed inventories of asbestos containing materials, asbestos in soil, lead-based paint and lead containing components, PCB ballasts and transformers, universal waste. The team was involved in the remediation monitoring and the modernization/demolition of the structures

The terraphase Team

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Saugus Union School District–Indoor Air Quality

Arsenic, Formaldehyde, Phenol Investigation in Portable Classrooms

Santa Clarita Valley, Northern Los Angeles County, California

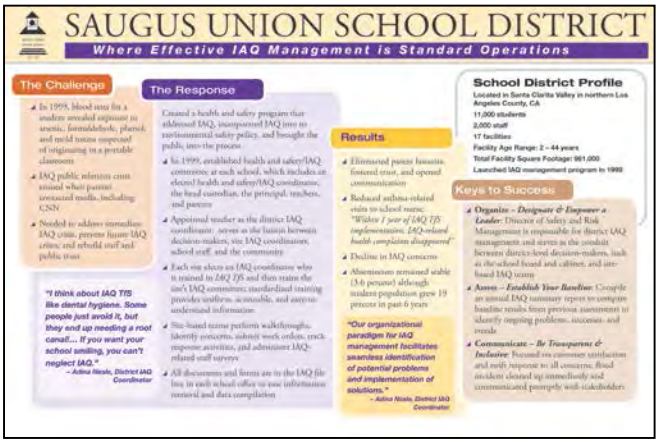
School District faced with significant health risk concerns from the community

Portable Classroom Construction Investigation

Air Sampling performed along side County & State Health Departments

Demonstrated Portable Classrooms posed no greater exposure

Media Coverage and Community interface



SAUGUS UNION SCHOOL DISTRICT

Where Effective IAQ Management is Standard Operations

The Challenge

The Response

Results

School District Profile

Keys to Success

The Project Certified Industrial Hygenist was retained by the district to investigate the alleged excessive exposures to formaldehyde, phenol, arsenic and other chemicals used in the construction of the portable classrooms. A physician in the community, via the media, raised parental concerns about their children who attended classes in the school district's portable classrooms. The District was beset with concerns from the community and negative publicity in the media. Health Science and the County and State Health Departments-investigated these concerns in a comprehensive air sampling program. The results of this substantial effort demonstrated that the air in the portable classrooms posed no greater potential exposure risk to the students than other indoor environments such as permanent classrooms, homes and shopping centers.

The District conducted public meetings to discuss these findings, which were supported by the County and State Health departments. Health Science made presentations at these meetings and responded to questions. Parent concerns were diffused by these concerns and the use of portable classrooms continues at Saugus Union High School District .

The terraphase Team

www.healthscience.com

Zeneca Inc Richmond Facility– Remedial Investigation, Feasibility Study including TSCA compliant risk based clean-up

remedial investigation/feasibility studies (RI/FS)

TSCA risk based cleanup removal action workplans

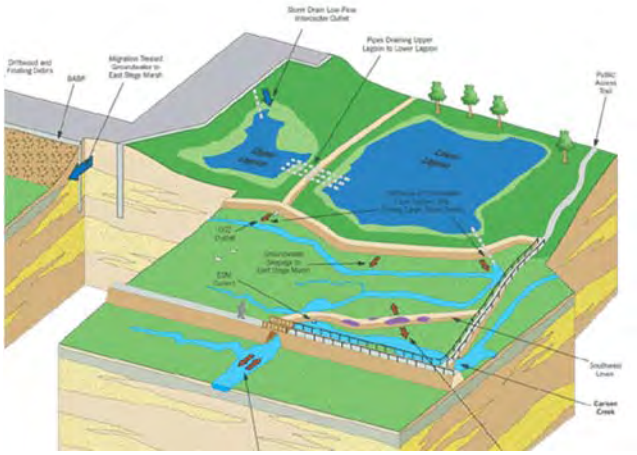
PCB, VOC, pesticides, metals clean-up

soil, soil vapor, and groundwater remediation

tidal marsh remediation

DEPARTMENT OF TOXIC SUBSTANCES CONTROL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



Terraphase principals have been working at the Zeneca Inc. Site in Richmond, California for more than 10 years under the oversight of the California Department of Toxic Substances Control (DTSC) and the San Francisco Bay Regional Water Quality Control Board (RWQCB) to restore the site for development. The work followed the Terraphase principals when they left Arcadis-US to form Terraphase in 2010.

This work included the characterization of the 86-acre and former 100 year old chemical manufacturing facility for PCBs, VOCs, heavy metals, pesticides, dioxins, and other contaminants. Our principals evaluated risk from PCBs and developed clean-up plans that were compliant with Toxic Substance Control Act(TSCA).We directly negotiated TSCA complaint characterization work plans and risk assessment approaches for PCB clean-up actions with the USEPA in San Fransico. We evaluated indoor air for a variety of compounds including PCBs.

Terraphase Engineers and Geologist have designed and implemented large scale soil removal and soil neutralization projects to remove residual organic compounds in the soil or to reduce the potential leachability of heavy metals. Terraphase Engineers and geologists have designed and implemented field-scale pilot tests of in-situ injection of substrates to enhance natural attenuation of chlorinated solvents.

This site work has been conducted under the scrutiny of a highly active and interested community.

The terraphase Team

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Corona Norco Unified School District – Human Health Risk Assessment for Chemicals in Indoor Air and Soil
Norco High School, Norco, CA

Human health risk assessment
Risk based clean up levels
agency oversight
community outreach & fact sheets
DTSC expertise

California Department of
Toxic Substances Control

The Project Toxicologist conducted Human Health Risk Assessment work at the Norco High School in Norco, California. This work included the evaluation of chemicals detected in indoor air, outdoor air, groundwater, and soil. Chemicals of concern included vinyl chloride, tetrachloroethylene, and trichloroethylene.

The health risk evaluations included vapor intrusion modeling and evaluated risks associated direct contact with soil – findings were used to determine the source of VOCs in indoor air. The source of the VOCs was determined to be an indoor source. This work was conducted under DTSC oversight and the agency concurred with the findings.

Environmental Health Decisions prepared fact sheets distributed to the public and presented the results of the risk assessment at public meetings and responded to community questions.

NORCO HIGH SCHOOL

The terraphase Team

Environmental Health Decisions

Summit Public Schools – Indoor Air and Sub-Slab Soil Vapor Investigation and Assessment of Volatile Organic Compounds Summit Denali, Sunnyvale, California

Building Survey

Indoor and Outdoor Air Sampling in Conjunction with Sub-Slab Soil Vapor Sampling

Demonstrated Indoor Air Concentrations Equivalent to Outdoor Air

Terraphase was contracted by Summit Public Schools (Summit) to evaluate chemicals in indoor air, outdoor ambient air and sub-slab soil vapor. The chemicals of concern detected at the site include tetrachloroethene, trichloroethene, benzene, carbon tetrachloride, chloroform, and naphthalene.

The Summit site was historically used as research and development facility, and microwave manufacturing facility. Hazardous materials were stored and used at the site by the previous tenants including but not limited to chloromethanes, petroleum hydrocarbons, chlorinated ethanes and ethenes, and alcohols.

The work included:

- Performing a building survey to identify chemicals in the space prior to sampling
- Collecting indoor air samples in open common spaces and small contained areas
- Collecting outdoor ambient air samples to represent background conditions
- Collecting sub-slab soil vapor samples to evaluate vapor intrusion concerns

Terraphase concluded that the chemicals detected in indoor air were below screening criteria or equivalent to the background concentrations detected in ambient air and therefore were not the result of vapor intrusion. The work was performed under the Sunnyvale Fire Department oversight and in accordance with Department of Toxic Substance Control and California Environmental Protection Agency guidance. The school was opened shortly after the investigation activities were completed.

The terraphase Team

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Rowland Unified School District, Rowland Heights, CA –

Hazardous Materials Assessment, Remediation Design, and Remediation Management

hazardous materials surveys
cost estimates
hazardous materials abatement design
remediation monitoring
hazardous materials inspections
hazardous materials design
abatement monitoring

VEC key personnel performed comprehensive hazardous materials surveys, cost estimates, and hazardous materials demolition design of several buildings. The surveys included detailed inventories of asbestos containing materials, asbestos in soil, lead-based and lead containing components, PCB ballasts and transformers, universal waste. The team was involved in the remediation monitoring and the demolition of the structures. These projects are currently ongoing.

Currently, VEC is involved in the hazardous materials assessments, design (drawings and specifications), and remediation monitoring for the current modernization and bond program. Additional work under our contract includes, AHERA 3 Year Re-inspections, and up to 15 additional schools for modernization.

The terraphase Team

VISTA ENVIRONMENTAL CONSULTING

Attachment B

Terraphase Team Select

K-12 School District Experience

Terraphase Team K-12 School District Experience for
Santa Monica Malibu Unified School District

District	Work
Aspire Charter Schools	TSCA EPA Region 9 Interface on PCB assessment and removal, lead-based paint, asbestos surveys and abatement, 1/4mile hazard surveys, CEQA support, geological hazard and geotechnical, construction and demolition management, Phase I ESA, PEA, RAW
Capistrano Unified School District	Microbiological Investigation and Post remediation follow up.
Carlsbad Unified School District	Phase I ESAs, Tech Memo Workplans, SSI, PEA, RAWs, RACRs, Media and Community Outreach, Immediate removal and agency closures of USTs, methane mitigation system monitoring and DTSC Closure for Carlsbad and Sage Creek High Schools and Poinsettia Elementary School, Air monitoring at Carlsbad High School during soil Removal
Chadwick School – Palos Verdes Peninsula	Review of Association Between Presence of Asbestos and Potential Health Effects
Claremont Unified School District	Radio Frequency survey, Preparation of remediation guidelines, Industrial Hygiene fungal and water intrusion investigation, Preliminary and post remediation fungal inspections at El Roble Intermediate School, Lead Sampling/Inspection, Claremont Unified High School
Corona Norco Unified School District	Health risk assessment activities for chemicals in indoor and outdoor air – Public meetings under DTSC Oversight
Corona-Norco Unified School District	PCB Risk Assessment Activities related to Removal Action Completion Report, Kennedy Middle College High School Under DTSC Oversight
Davis Joint Unified School District	Geological hazard, flood studies, phase I ESA, PEA, Board Presentation under DTSC Oversight
Dublin USD	Phase I ESAs, building surveys, emergency response, pipeline risk assessments under DTSC Oversight
Fontana Unified School District	Asbestos Abatement Monitoring, Accident Prevention Program Review
Grossmont Union High School District	Transformer Oil Spill Immediate Response, Assessment and removal of hydraulic lifts, Revision of RAW and Implementation of DTSC RACR saving District over $250K over original approach. Indoor Air Quality Assessments and Bond related surveys for Modernizations and Maintenance Renovations. PEA Project: Newly discovered hydraulic hoist and sump removal found during construction. Opened as a voluntarily case with DTSC. Assessment included soil sampling, soil vapor sampling and soil excavation activities. Case closure and no further action was obtained with DTSC. Work was performed on a fast track construction schedule.
Los Angeles Unified School District	Valley Region High School #5 – Metals evaluation – comparison of site metals to background and health-based levels under DTSC oversight
Long Beach Unified School District	Methane Engineer for the on-going operation and maintenance of an active methane mitigation system with membranes, blowers, alarms and sampling ports under DTSC oversight

Terraphase Team K-12 School District Experience for
Santa Monica Malibu Unified School District Continued

District	Work
Marysville Unified School District	Phase I ESAs, PEAs, RAWs, Naturally Occurring Asbestos soil surveys, geological hazard and geotechnical studies, document preparation and coordination with DTSC, CDE, and OPSC for financial hardship funding for school closure
Monrovia Unified School District	Comprehensive asbestos, lead and hazardous material survey (PCB, mercury and other potential hazards)
Oakland Unified School District	Phase I ESAs, PEAs, RAWs, under DTSC oversight ¼ mile hazardous materials surveys, remediation, abatement, demolition oversight, litigation support, risk assessments, geological hazard and geotechnical studies
Oxnard Unified School District	LBP and asbestos survey, "fast track response" for soil vapor survey and presentation to Board (1–day turnaround) under DTSC, pipeline risk, railroad risk Indoor air surveys due to complaints-public meetings with DTSC, and litigation support
Pittsburg Unified School District	Phase I ESAs, PEAs, RAW, geological hazard and geotechnical studies, preparation documents and coordination with DTSC, CDE, and OPSC for financial hardship funding for school closure
Rocketship Charter Schools	Phase I ESAs, PEAs, RAWs, pipeline/railroad/air risk assessments, CEQA support, geological hazard and geotechnical studies, naturally occurring asbestos surveys, H&S construction worker air monitoring under DTSC oversight
Rowland Unified School District	Indoor Air Quality assessments at District offices. Employee complaints with respiratory issues. Assessment concluded lack of air supply and movement and recommended HVAC changes. Rowland E.S. had a complaint in the Kindergarten building that teachers over the past 30 had cancer. An assessment for potential Indoor Air Contaminants was performed and revealed no elevated concentrations above outdoor background concentrations.
Sacramento City Unified School District	Phase I ESAs, PEAs, ¼ chemical hazard surveys, railroad risk assessment, geotechnical engineering under DTSC oversight
San Marcos Unified School District	Mission Hills High School San Marcos - Human Health Risk Assessment as part of PEA under DTSC oversight
Saugus Unified School District	IAQ sampling for formaldehyde, arsenic, summa, phenol, VOCs and ventilation measurements, temp, humid, and carbon dioxide measurements. Total and viable air samples for mold.
Summit Public Schools	Indoor, ambient and sub-slab air sampling

Notes:
Yellow = PCB Investigation and Abatement Under TSCA Oversight
Orange = PCB Risk Assessment Under DTSC Oversight
Green = Multi Media Environmental Projects Under DTSC Oversight
Blue = Schools air quality testing, risk assessment, PCB, lead and Asbestos Assessment, Abatement and Demolition with no agency involvement

Attachment C

Resumes for Key Personnel

The terraphase Team

terraphase engineering

Gwen Tellegen, P.E.

Principal Engineer

gwen.tellegen@terraphase.com

949-378-8448

Education

University of Southern California,
M.S., Biology, 1990

University of Southern California
M.S., Environmental Engineering, 1989

University of Rochester,
B.S., Biology/Geology, 1985

Professional History

Leighton Consulting, Principal Environmental Engineer, 2008 to 2013

The Reynolds Group, Principal Engineer, 2005 to 2008

ERM West, Program Director, 2004 to 2005

Brown & Caldwell, Managing Engineer, 2001 to 2004

Brea Canon Oil, Estate of A. Levinson, Director of Engineering, 1993 to 2001

RMT, Inc., Project Engineer, 1991 to1993

Metropolitan Water District of Southern California, Assistant Engineer, 1989 to 1991

Licenses

California Civil Engineer 58670

Ms. Tellegen has more than 20 years of experience in site assessment, remediation and redevelopment, technical litigation support, engineering forensic investigations of historic releases and deposition testimony. She has obtained more than 45 No Further Action Letters from regulatory agencies throughout California allowing for the redevelopment of brownfield properties. Clients have included school districts (such as Carlsbad USD, Long Beach USD, Los Angeles USD, Grossmont UHSD), local and international oil companies, land developers and construction companies, home builders, newspaper publishers, public agencies (such as the CPUC and Helix Water District) and dry cleaners.

Ms. Tellegen has obtained closure for sites impacted with PCBs, asbestos, PNAs, hydrocarbons, arsenic, solvents, chromium, lead and pesticides, including expedited closures at school sites by the DTSC. She brings extensive school site experience, managing DTSC guided Phase I and Subsurface Site Assessments, Preliminary Endangerment Assessments, Remedial Action Plans, Removal Action Workplans. Ms. Tellegen's relationships with key state agencies, such as Department of Toxic Substance Control (DTSC), and the California Department of Education (CDE) are invaluable in promoting projects through the process, and keeping them on schedule, on budget and compliant with State laws. This approach has resulted in expedited DTSC No Further Action Letters, even for school sites with previously unknown, newly discovered areas of hazardous materials. To guide the Districts towards quick closure of environmental issues, Ms. Tellegen specializes in negotiating with the DTSC to reasonably limit the scope of investigation and remediation contaminants, while still meeting regulatory requirements. She has implemented RAWs in an expedited fashion using alternative field technologies such as XRF screening to determine arsenic background and clean-up levels. Ms. Tellegen has also successfully worked with Districts and the DTSC to perform outreach and address community concerns.

An example of her value to a project team is her fast-tracked revision of a Removal Action Workplan (RAW) for the excavation a previously unknown dump-site which was encountered during school site grading. The revised RAW called for field screening of landfill debris during excavation followed by real-time sorting of the material, separating hazardous components for offsite disposal and reusing/recycling of clean materials on- site. The DTSC approved the revised RAW within one week of submittal. Ms. Tellegen then managed the implementation of the expedited Removal Action, finishing the work within schedule and keeping the excavation and disposal contractors within budget. Ms. Tellegen's revised RAW approach saved the District more than $250,000 as compared to the original approach prepared by another consultant. Construction activities were allowed to resume within days of submittal of the final Removal Action Report to the DTSC.

Ms. Tellegen has participated in the closure of former industrial facilities such as a grey iron foundry (acquired by LAUSD), a medical chemical manufacturing facility, a refractory brick manufacturing facility and a glass factory which were subsequently successfully redeveloped.

REPRESENTATIVE PROJECT EXPERIENCE

Carlsbad High School Modernization Project, Carlsbad, California
Ms. Tellegen was the Project Manager for the assessment and remediation of identified soils impacts at the existing Carlsbad High School which was being expanded and modernized. She prepared a draft Preliminary Environmental Assessment (PEA) which identified chlorinated pesticides in the expansion portion of the property and arsenic in shallow soils at the football field. This project was high profile with significant local media coverage, since it was performed during the school year and displaced the school's football team. Gwen's work, under the oversight of the DTSC, included community outreach through mailed questionnaires, public hearings and mailed fact sheets describing the work. The Removal Action included heavily monitored excavation and off-site disposal of soils that have contaminants in excess of accepted standards. The removal activities were extensively monitored as they took place while school was in session. No delays due to neighbor complaints were experienced, even though thousands of tons of soil were hauled from the site through this dense residential area. The DTSC granted Site Closure within days of their receipt of the Remedial Action Completion Report, allowing for the timely construction.

Grossmont High School, Undocumented Fill Removal, La Mesa, California
Project Manager for an expedited review and revision of a Work Plan prepared for other for the excavation of lead, chromium, dioxin and TPH impacted soils. The Undocumented Fill was discovered during grading for a new Science building. Ms. Tellegen's revised Work Plan was approved by the Department of Toxic Substances Control (DTSC) within a week of submittal, and this approach saved the District more than $250,000 as compared to the original approach prepared by others. Ms. Tellegen utilized innovative methodologies such on-site sorting and reuse of acceptable soils and cobbles found in the native conglomerate. Innovative real time laboratory screening techniques were used to keep the excavation activities moving smoothly. More than 200 tons of soil was removed

from the site and all confirmation samples showed that the remedial action was successfully completed to DTSC approved levels.

Sage Creek High School, Carlsbad, California
Ms. Tellegen managed a PEA for a new high school. The Initial assessment identified minimal volumes of hydrocarbon impacted soils and an extensive area of arsenic impacted soil. As the arsenic did not have a clear source, a SSI Technical Memorandum which proposed a naturally occurring background evaluation was submitted to and approved by the DTSC. The work included geologic trenching with lithologic logging and correlation sampling to determine the natural occurrence of arsenic in a portion of the site. Completion of a Removal Action Workplan which established and described removal action objectives was submitted to and approved by DTSC, including a partial site approval to allow construction to commence.

Monte Vista High School, Spring Valley, California
Principal Engineer for emergency response to transformer oil spill during modernization construction. Samples were immediately collected to ascertain whether the oil contained PCBs, which it was not. Oil impacted soils had been dumped several locations, including planter bed, and stormwater catch basin. Based on analytical results, Ms. Tellegen prepared a memorandum of recommended action to include confirmation samples be collected below the removal areas to confirm that no heavy hydrocarbons in excess of 100 mg/kg remain in these areas. Clean-up was completed within two weeks of the release during off hours while school was not in session.

Former Aerospace Manufacturing Plant, Pomona, California
During this fast-paced emergency response remedial action, Ms. Tellegen managed the sampling, profiling, proper decontamination removal and off-site disposal of PCB impacted soils, switches and building materials. A large amount of PCBs were released both inside outside an electrical switching building slated for demolition by transients scavenging copper from switches. The delay in demolition of the building was holding up construction activities at this Brownfield site. Ms. Tellegen arranged for decontamination of the building using TSCA approved methodologies, rather than disposal as PCB impacted materials, as suggested by the first response contractor. By obtaining approval of this emergency response action from the LA County Fire Department in advance to the action, delayed EPA approval was avoided. The decontamination, soil excavation and confirmation testing, wipe testing with building clearance was completed within 3 weeks of Ms. Tellegen's involvement.

Poinsettia Elementary School, Carlsbad Unified School District, Carlsbad, California
Project Manager for quarterly sampling and reporting of methane gas mitigation and monitoring system. DTSC granted closure of this case after Leighton demonstrated that the methane mitigation system was functioning property with no risk to students and building occupants.

Deed Restricted Residential Property, Encinitas, California
Project Manager for Soil Vapor Survey and Exposure Assessment Report which resulted in RWQCB approval of the construction of residential housing on this deed restricted property. Hydrocarbon containing sewage sludge was buried at the site in the early 1990's resulting in a Deed Restriction on

the property which had prohibited any construction. A soil vapor sampling plan including methane speciation was developed and approved by the RWQCB. Potential health risks from the hydrocarbons detected during the soil vapor survey were determined to be within acceptable levels using health risk assessment modeling. Elevated levels of methane found at the site were determined to be biogenic in origin, not petrogenic. Therefore, only a limited, passive methane collection system was required for the site, and the RWQCB approved the construction of housing at the site, revoking the deed restriction requirements.

Former Oilfield, Newhall, California
Ms. Tellegen acted as "Remediation Umpire" for $120 Million dollar settlement between a major oil and gas production company and a huge land and farming company. She directed the enforcement of provisions of the settlement agreement, including the oversight of excavation, sampling and mapping activities. Attended weekly meetings between the parties in which site activities, disagreements on the settlement agreement and analytical data were discussed and resolved.

Oil and Natural Gas Production Facility, Kazakhstan
Performed international waste audit and treatability study for a major oil production facility in Kazakhstan. This work involved a site visit, interviews of site personnel, reviewed oily waste handling procedures and evaluated treatment and recycling options for oily sands, drilling muds and hydrocarbon-impacted soils.

Former Oilfield, Carson, California
On this 100-acre former oil and natural gas production facility, Ms. Tellegen directed the environmental assessment activities beginning with a preacquisition Phase I/Phase II assessment of the site. Ms. Tellegen performed a detailed site assessment and supervised the preparation of a Remedial Action Plan for the site, which called for excavation and bioremediation of hydrocarbon impacted soils. This included preparing environmental budgets and timelines for all aspects of the remediation and managing various consultants, including labs, drillers, and earthmoving contractors. She also contributed to an Environmental Impact Report and testified at public hearings and neighborhood meetings for the site's development. Ms. Tellegen managed other site remedial activities, including asbestos abatement, radioactive pipe removal and disposal, and mercury containing soil removal and disposal. To allow for expedited development of the site, agency closures were requested in a phased manner. As a result, 6 Regional Water Quality Control Board closure letters covering more than 80 acres of the property have successfully been obtained. This has allowed for the development of more than 500 homes, and an industrial center in the area. She has negotiated final terms and language for the No Further Action Letters & deed restrictions for future use of areas of the property.

Former Coal Tar Plant, Brisbane, California
In this high-profile case involving soil impacts to an adjacent low-income housing tract, Ms. Tellegen negotiated a DTSC-administered Memorandum of Understanding regarding a portion of a former coal tar plant site impacted with PNAs. She negotiated with the City of Brisbane and the responsible party for an as-is purchase of the property with a deed restriction and City-planned future use as an

open-space retention basin for stormwater for the impacted portion of the parcel. Another portion of the site found not to have environmental impact was granted closure by the DTSC and is currently slated for redevelopment.

Grey Iron Foundry Remediation, South Gate, California

Ms. Tellegen managed the shutdown, assessment, and remediation of the Grey Iron Foundry in South Gate. The site was found to have lead, PNA, and hydrocarbon impacted soils, as well as minor groundwater impact by TCE. Ms. Tellegen supervised the shutdown and cleanup of a portion of a former foundry, resulting in regulatory agency closure and sale of most of the site. Another portion of the property was condemned by Los Angeles Unified School District (LAUSD), and Ms. Tellegen prepared the environmental remediation cost estimates used in price negotiations with LAUSD. Further, Ms. Tellegen identified policies and assisted in obtaining environmental insurance for this transaction, thus limiting future liability and risk to both parties.

Alan Gibbs

P.G., C.HG.
Principal Hydrogeologist
Vice President
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(916) 240-2293

Education

San Francisco State University
Bachelors of Science
Geology
1973

San Diego State University
Masters of Science
Geology
1976

Professional History

Terraphase Engineering, Inc.
Principal Hydrogeologist
2011 –present

LFR/ARCADIS
Principal Geologist
2000-2011

ENSR
Manager, Environmental Services
1997-2000

Kleinfelder
Environmental Manager
1995-1997

Licenses

California Professional Geologist 4827
California Certified Hydrogeologist 196
Registered Geologist, Arizona 24225
Registered Geologist, Oregon G1154
Professional Geologist, Florida PG620

Alan Gibbs has over 30 years of experience in the environmental consulting field providing due diligence site assessments, regulatory negotiation, remedial investigations, feasibility studies, and remediation. He specializes in the management of large-scale due diligence projects often involving Brownfield-type properties with extensive contamination and regulatory issues.

He also directed two contracts with the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) for preparation of Preliminary Endangerment Assessments, Technical Site Investigations, and Remediation.

Mr. Gibbs has overseen a California New School Assessment Program where he was responsible for directing staff in identifying and assisting school districts with site acquisition, identification of environmental concerns, regulatory negotiation, infrastructure planning, mitigation planning, and civil and geotechnical engineering oversight, as well as asbestos, lead based paint, PCBs, and mold management. This program was highly successful due to his thorough understanding of the process affecting school districts. He is one of handful of people in California with expertise in this area. Mr. Gibbs frequently lectures on regulations affecting school districts and is active in associations that are at the forefront of solving issues affecting new school siting and construction.

Mr. Gibbs also develops strategies for clients on a wide range of topics such as regulatory strategy, multiple party cost allocation, negotiating site closure requirements, litigation support, and expert witness testimony. He maintains an excellent working relationship with many key law firms throughout the state as well having worked with Judicial Arbitration and Mediation Services, Inc. (JAMS) on several occasions.

REPRESENTATIVE PROJECT EXPERIENCE

Site Assessments and Investigations

California Public Schools: K-12Assessment New School and Modernization Projects
Since 2000, Mr. Gibbs has been the program manager for over 100 school districts and community colleges requiring site assessment (Phase I ESAs, PEAs, and Remedial Action Workplans), CEQA studies, risk assessments (pipeline, railroad, air), geotechnical, geological hazard, hydrology, noise studies, and mitigation.

He has worked for Lozano Smith and Atkinson Andelson Loya Ruud and Romo law firms, as well as the following school districts: Alisal Union, Aspire Public Schools, Anaheim Unified, Atascadero Unified, Buellton Union, Burton Unified, California Montessori Charter-Elk Grove, Chabot-Las Positas Community College, Davis Joint Unified, Dixon Unified, Dry Creek Joint Elementary, Dublin Unified, Ecole Bilingue de Berkeley, Esparto Unified, Fairfax Unified, Fairfield-Suisun, Golden Valley Unified, Guadalupe Unified, Kings County Office of Education, Hayward Unified, Las Vigenes Unified, Lodi Unified, Loomis Unified, Los Angeles Unified, Marysville Unified, Napa Unified, Natomas Unified, North Monterey County Unified, Oakland Unified, Oakland School for the Arts, Oakley Union Elementary, Orange County Office of Education, Palo Verde Unifed, Peralta CC, Placer Union, Peralta Community College, Pittsburg Unified, Porterville Unified, Rancho Conejo Unified, Rocketship Education, Roseville Elementary, Sacramento City Unified, Salida Union, San Francisco Unified, San Joaquin County Office of Education, San Joaquin Delta College, San Luis Obispo County Office of Education, Santa Rita Unified, Scotts Valley Unified, Sequoia Union High, Tracy Unified, West Valley-Mission Community College, Wheatland Elementary, Wasco Unified, and Yuba Community College.

Mr. Gibbs has also coordinated CEQA studies (air, noise, hydrology, environmental, geological hazard) for the following colleges and school districts: Chabot-Las Positas Community College, San Joaquin-Delta Community College, Aspire Charter Schools, Davis Joint Unified School District, Dublin Unified School District, Oakland Unified School District, Pittsburg Unified School District, Rocketship Charter Schools, Sacramento City Unified School District, Wasco Union Elementary school and Wheatland School District.

California Environmental Protection Agency (EPA) Department of Toxic Substance Control (DTSC)
Program Director for Contract (2007-2011) for orphan sites-- Preliminary Environmental Assessments and Technical Site Investigations throughout Northern California.

California Environmental Protection Agency (EPA) Department of Toxic Substance Control (DTSC)
From 2010-2011, Mr. Gibbs was also the client director for a DTSC Remediation contract for the California Northern and South Central Regions. This project included preparation of remediation work plans on the following orphan sites: Wickes, Sellar, Lava Cap Mine, and Osage Sites.

Remedial Investigations and Feasibility Studies

Marin Municipal Water District
Corte Madera, California
Program Director for the investigation of former Mill Valley Air Force Base, a former FUDS project. Work included conducting Phase I Environmental Assessment and subsurface investigations to assess if USACOE had adequately assessed the leased property.

Marin Municipal Water District
Corte Madera, California
Program Director for multiple projects throughout District, to include: emergency response to landslides/water pipeline ruptures; underground ground storage tank (UST) removals and associated investigations; Phase I Environmental Assessments and subsurface investigations, profiling of cut and fill material for disposal/reuse and regulatory liaison; mold, asbestos, and lead based paint surveys; litigation support; and preparation of air permits.

Remedial Investigation
Division of State Architect (DSA), California
Project Manager for a DSA contract at Los Alamitos involving the investigation of the potential impact and extent of contamination to soil and groundwater from existing and former USTs. Mr. Gibbs prepared the initial proposals, coordinated subcontractors, conducted cost negotiations, oversaw the development of the work plan, and managed daily field operations. The client was very satisfied and issued a sole source contract to Mr. Gibbs for further site investigation services.

Environmental Construction

Emergency Response
Contra Costa County Public Works, California
Provided emergency response, remedial investigation, remediation, and became a regulatory liaison for environmental problems encountered during utility installations in Contra Costa County.

Emergency Response
California Department of Transportation (DOT), California
State Program Manager responsible for emergency response for DOT construction projects in California that encounter underground storage tanks, asbestos pipe and lead impacted soils.

Remediation
Texaco, California
Project Manager, for several sites (Alameda, Vallejo, and Napa) for subsurface investigations, remediation and risk assessment.

Department of Defense

Shooting Range Berm Repair
Air Force 9th Contracting Squadron, Beale Air Force Base, California

Engineering design, environmental sampling, air monitoring, and MEC/UXO services during repair /reconstruction of a firing range berm, as a subcontractor to North Star Construction & Engineering, Inc.

Engineering Design Review
U.S. Army Corps of Engineers, San Francisco District, California
Provide engineering services for the former Hamilton Air Force Base, Novato, California; conduct Independent Technical Review (ITR) of the Design portion of a USACE Design-Build contract for a large wetland construction project, as a subcontractor to Magnus Pacific Corporation.

Site Characterizations
U.S. Army Corps of Engineers, Sacramento District
Program Director for FUDS in Utah and California. Managed remedial investigations of Naval Auxiliary Air Stations in Wendover, Utah; Oakland, California; and Santa Rosa, California. All work conducted in accordance with provisions of CERCLA, and included review of existing data and preparation of Preliminary Assessments. Field work included removal of USTs and impacted soils, installation of borings and hydropunch to assess impacts to soil and groundwater from former use by the Department of Defense. Worked closely with property owners and regulatory agencies. Performed community relations services to include preparation of fact sheets.

Work Plan for Characterization of Soils and Groundwater
U.S. Army Corps of Engineers, Sacramento District, California
Project Manager for a delivery order contract to develop and implement a work plan to characterize soils and groundwater at the Titan 1-A site, a FUDS east of the town of Lincoln, California. Work involved performing a hydropunch investigation for delineation and potential source characterization for chlorinated hydrocarbons.

Groundwater Study
U.S. Army Corps of Engineers, Sacramento District, California
Program Director for a groundwater study at the Walker Air Force Base in Roswell, New Mexico

Remediation, Risk Assessment
U.S. Army Corps of Engineers, Sacramento District, California
Project Manager for a delivery order contract from the Sacramento District Corps of Engineers to develop and implement a work plan on a “fast track” basis for the complete closure of a wastewater sump and French drain at Dugway Proving Ground, Utah. Field work included excavation under Level C and collection and analysis of multiple soil samples for volatile organic compounds, metals and sulfide reactivity. A risk assessment was prepared and the site has been closed.

UST Closure and Transformer Removal
U.S. Army Corps of Engineers, Sacramento District, California
Technical Adviser for Underground Storage Tank Closure and Transformer Removal at Fort Cronkhite, Sausalito, California. Work involved preparation of cost estimates and subcontracting negotiations for an in place closure of a former 1,000 gallon diesel/gasoline underground storage tank, and removal of several suspect PCB containing transformers. Work was in a very sensitive coastal/park area, and was to be performed using helicopters, as no ground vehicles were allowed on site due to landslide washing out access roads.

terraphase engineering

Jeff Raines, P.E., G.E.

Principal Geotechnical Engineer

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510-507-3086

Education

University of Connecticut
Bachelor of Science, Civil Engineering, 1980

Northeastern University
Master of Science, Mechanical Engineering, 1983

Stanford University
Master of Science, Geotechnical Engineering, 1985

Stanford University
Engineer, Civil Engineering, 1988

Professional History

Terraphase Engineering Inc.
Principal Geotechnical Engineer
2010 – present

LFR/ARCADIS
Principal Geotechnical Engineer 2005-2010

TechLaw, Inc.
Director of Engineering, 1998-2005

Geosyntec Consultants/MAA
Senior Project Engineer, 1992-1998

Amblin Entertainment, Screenwriter
1991-1992

Stanford University, Graduate Research Assistant, 1984-1991

Stone & Webster Engineering Corporation, Engineer, 1980-1984

Licenses

California Civil Engineer 51120
California Geotechnical Engineer 2762
California QSP/QSD 21402
Hawaii Civil Engineer 12190
Oregon Civil Engineer 79510PE
Nevada Civil Engineer 17953
Washington, Civil Engineer 47547

Mr. Raines has over 30 years of experience in Civil, Geotechnical and Environmental Engineering. He is a registered geotechnical engineer in California and a registered civil engineer in California, Hawaii, Nevada, Oregon, and Washington.

He has served as the geotechnical engineer of record for the Chabot College modernization project since 2005 in which he has designed foundations for three new buildings, overseen the reconstruction of the campus sports facilities and provided pavement section recommendations for more than 12 acres of new and temporary parking lots.

Mr. Raines has prepared and certified more than a dozen pipeline risk assessments for school districts in California including for the Anaheim Union High School District, Aspire Public Schools, Dublin Unified School District, Las Virgenes Unified School District, Lodi Unified School District, Marysville Unified School District, North Monterey County Unified School District, Oakley Union Elementary School District, Palo Verde Unified School District, Pittsburg Unified School District, Rocketship Charter Schools, Salida Union School District, Twin Rivers School District, and the Visalia Unified School District. He has also prepared railroad risk assessments for two school districts. He was one of six consultants invited by the California Department of Education to a meeting to address changes to the department's pipeline risk assessment protocol.

Mr. Raines designed and was the engineer of record for a petroleum-impacted soils excavation project in the High Sierra. The project was located on a steep slope above Highway 80 and below a high-pressure gasoline pipeline. The work required the installation of soldier piles through a boulder field into Sierra Nevada granite and the installation of tiebacks below the high-pressure gasoline pipeline. He was the engineer of record for the construction of a $130 million pipe mill on Bay Mud in Pittsburg, California. The project involved preloading of the foundation soils with wick drains because of the unusually high floor loads inside the pipe mill. The selected foundation consisted of both piles and spread footings for economy.

He performed the foundation investigation and prepared foundation recommendations for the construction of the United Spiral Pipe facility located in Pittsburg, California. Completed in 2009, the facility includes 9 acres under roof and a laydown yard with a higher traffic index than the Santa Monica Freeway. Foundation design was complicated by floor loads of up to 5000 pounds per square foot located directly adjacent to settlement sensitive equipment.

Mr. Raines was a Hearing Board officer for the BAAQMD between 2002 and 2005 and was the Community Monitor for the Altamont Landfill and Recycling Facility between 2003 and 2005. Mr. Raines developed the statistical techniques used by the Orange County Waste and Recycling Department to assess groundwater impacts resulting from its landfills.

In addition to his engineering work, Mr. Raines has had two novels published by major publishing houses and is a *Jeopardy!* champion and beat Ben Stein on *Win Ben Stein's Money*.

REPRESENTATIVE PROJECT EXPERIENCE

Chabot Community College Modernization Project, Hayward, California
Mr. Raines has served as the Geotechnical Engineer of Record for the Chabot Community College Modernization project since 2005. Mr. Raines has provided geotechnical engineering services for the District for three different companies (LFR, Arcadis and Terraphase) over the past five years. His most recent assignment was the preparation of a geotechnical investigation and design report for the proposed Building 1200 Annex (dated December 9, 2010). He designed foundations for the recently completed Student and Community Access Center which is the centerpiece of the Community College District's modernization project. He designed the foundations for the new Instructional Office Building (finished) and the new Physical Education Building (currently under construction). He provided foundation and drainage recommendations for the conversion of the football field to artificial turf (completed 2007) and for the realignment of the campus Tennis Center. He provided pavement section recommendations for the repaving of the campus parking lots (1.5 inches thinner than the existing lots) and provided construction support to the District to mitigate an area of pumping foundation soils. He designed a temporary parking lot to handle parking during repaving of the parking lots and provided dust control recommendations that were successfully implemented. He provided litigation support services to the District for a construction claim against a Contractor regarding the deck around the Campus swimming pool.

Santa Fe Pipeline Partners (SFPP) Exit 174 Release, Soda Springs, California
SFPP operates a high-pressure petroleum products pipeline between Nevada and California running parallel to Highway 80 and the Santa Fe Railroad alignment through Donner Summit in the High Sierra. A slow leak from the pipeline resulted in impacts to soil above Highway 80 which threatened water quality in the wild and scenic Yuba River. Responding to the release, SFPP authorized the installation of a groundwater collection system at the toe of the slope in the Highway 80 median. After operating the system for two years, SFPP opted to excavate the petroleum impacted soils to restore the site to its pre-release condition. Mr. Raines organized both a physical (boring) and geophysical exploration program for the site to assess the quantity of soils requiring excavation and the need for shoring below the active pipeline. Mr. Raines designed a shoring system for the top of the excavation consisting of soldier piles and lagging with optional tie-backs which would be installed if the excavation exceeded a critical depth. The petroleum-impacted soils were successfully excavated during the summer of 2009. The groundwater extraction system and treatment system

were decommissioned in 2010 with the assent of the Nevada County Department of Environmental Health.

United Spiral Pipe Pipe Mill, Pittsburg, California
Mr. Raines was the geotechnical engineer of record for the $130 million United Spiral Pipe pipe mill located in Pittsburg, California. The project involved the construction of a 10-acre under roof spirally-welded pipe mill. The project was interesting because of the unusually high floor loads resulting from the storage of more than 120 35-ton (each) steel coils inside the mill on a foundation constructed over compressible clays. In addition, the project roads were subject to unusually high traffic indices and the pipe laydown yard had a traffic index higher than the Santa Monica Freeway's. The high floor loads were mitigated by installing a 35-foot high preload on the site with wick drains. The purpose of the wick drains was to accelerate consolidation to meet the project's accelerated construction schedule. The high traffic indices on the site roads were addressed through the use of geogrids and thick sections of gravel with the understanding that routine preventative maintenance would be required to address rutting in the yard. Operations began at the facility in October 2009.

Regional Oversight Contract, San Francisco, California
Mr. Raines was the program Manager for the U.S. EPA Regional Oversight Contract (ROC), a $7.2 million dollar indefinite delivery/indefinite quantity (ID/IQ) contract that used 80% of its authorized budget and which was extended twice. As the program manager, Mr. Raines expanded the project staff from one person (himself) to 12 full time equivalent employees and operated the most profitable office in the company. In addition to his programmatic and corporate duties, Mr. Raines was also the site manager for McClellan Air Force Base, the largest of the 35 federal facility clean-ups for which his staff was providing support to U.S. EPA Region IX. In addition to his other duties, Mr. Raines provided technical reviews for Corrective Action Management Unit (CAMU) designs, natural attenuation remedies for chlorinated organic compounds and petroleum hydrocarbon plumes, slurry wall specifications, Engineering Evaluations/Cost Assessments (EE/CA) for groundwater contamination remedies, statistical analysis of removal action data for soils and groundwater, RI/FS reports, RCRA facility investigations (RFI) reports, and landfill designs. He worked with the EPA project manager for the Treasure Island Naval Station remedial action project to oversee Navy cleanup of Treasure Island.

Point Molate Naval Fuel Depot, Richmond, California
Mr. Raines has performed the required annual inspection of the closed RCRA landfill at Point Molate as well as inspection of the 20 large UST (2 million gallons each) underground petroleum storage tanks present at the facility.

Vancouver Wharves Facility, North Vancouver, British Columbia
Mr. Raines was the Engineer of Record for the groundwater containment project implemented at the facility by LFR. Mr. Raines's responsibilities included design and construction of slurry walls and groundwater extraction systems at the Wharves. The project was complicated by the need to install slurry walls immediately adjacent to existing facilities at the site and adjacent to Burrard Inlet. Mr. Raines, who had previously overseen the installation of a vibrating beam slurry wall at the USS Lead Facility in Indiana.

WDI Landfill, Belleville, Michigan
Mr. Raines was tasked with assessing the design of a vertical expansion of a PCB landfill over a closed

hazardous waste landfill. The final cover of the closed landfill incorporated a composite liner consisting of a clay cover with an overlying geomembrane. Mr. Raines's assessment was that the weight of the new waste would compress the underlying clay strata to the point of saturation at which point the effective stress on the clay/geomembrane interface would be reduced to the point of instability. Mr. Raines proposed the obvious redesign of ripping out the geomembrane (which the owner had been reluctant to do because they had received final closure of the cell) and designing the new cell with positive (inherently stable slopes). Mr. Raines recommended, and the regulators required, that an extensive settlement monitoring system be installed in the new cell liner to verify that the liner was not being stressed in excess of the design allowables. Based on Mr. Raines's work, the new cell was permitted which provided the landfill owner with a new revenue stream and the regulators with a permitted PCB landfill cell in the Midwest. The EPA project manager received a cash bonus based on the successful completion of the work.

Rumpke Landfill, Cincinnati, Ohio
On March 9, 1996, the north slope of the Rumpke Landfill, located near Cincinnati, Ohio, failed. Approximately 1.4 million cubic yards of municipal solid waste (MSW) moved 1,000 feet in about two minutes, completely filling a new landfill cell which had just been constructed below the existing slope. The landslide left a vertical scarp in waste more than 100 feet high. A few days later the landfill caught on fire. Mr. Raines designed and supervised the installation of the slope monitoring system for the failed slope to verify that additional slope movement was unlikely. The monitoring system consisted of vibrating wire piezometers and inclinometers. Mr. Raines performed the slope stability analyses for the forensic analysis to assess the causes of the slide and also performed the stability analyses for the redesign of the landfill.

Puente Hills Landfill, Los Angeles County, California
Design of a grading plan for a landfill expansion was complicated by slopes with adversely-oriented bedding planes containing weak claystone and the need to preserve a ridge for visual mitigation. Grading the existing slopes to 4H:1V would have reduced the permitted fill volume and used up earthfill needed for landfill operations. Mr. Raines designed a slope stabilization system that consisted of passive soil anchors tied into surface bearing blocks, which allowed the slopes to be cut on 2H:1V. This saved more than $4.2 million compared to other systems. More than 260 soil anchors up to 52 m long (at the time, the longest ever installed in North America) with capacities up to 4,450 kN were distributed over the three upper benches by the specialty contractor, who completed the project in 39 working days, three months ahead of schedule, with no change orders.

PUBLICATIONS/PRESENTATIONS

Seed, Raymond B., and Raines, Jeffery R., "Failure of Flexible Long-Span Culverts Under Exceptional Live Loads", Transportation Research Record, 1191 Culverts and Tiebacks, Transportation Research Board, National Research Council, 1988.

Raines, Jeffery R., Borja, R.I., Anwar, H., and Seed, Raymond B., "Numerical Analysis of Membrane Penetration Effects on Undrained Triaxial Tests", in Proceedings of the Third International Conference on Soil Dynamics and Earthquake Engineering, Princeton, New Jersey, June 22-24, 1984, Elsevier Press Series, Advances in Geotechnical Engineering, Vol. 42, pp 353-364.

Jill Ryer-Powder

Ph.D., D.A.B.T.

Associate Toxicologist

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Education

Rutgers University, Piscataway, New Jersey, Ph.D., Toxicology, 1987

Cornell University, Ithaca, New York, B.S., Nutrition, 1982

Professional History

Terraphase Engineering, Associate Toxicologist, 2013 - present

Environmental Health Decisions, Principal Health Scientist, 1999 – present

Waterstone Environmental, Principal Health Scientist, 1998 – 1999

McLaren/Hart, Supervising Health Scientist, 1997 - 1998

Environ, Manager - Health Sciences, 1994 - 1997

McLaren/Hart, Senior Health Scientist,. 1992 - 1994

Unocal Corporation, Supervisor, Product Safety Evaluation, 1988 - 1992

Children's Hospital of Los Angeles, Research Associate, 1987 - 1988

Certifications

Diplomate of the American Board of Toxicology, Certified 1990, 1995, 2000, 2005 and 2010

Dr. Ryer-Powder brings more than 25 years of experience in risk assessment, Proposition 65 evaluation, litigation support, and occupational toxicology to human health hazard and evaluation projects. In her position, Dr. Ryer-Powder is responsible for strategic preparation, project management, and evaluation of chemical toxicity for risk assessment and product hazard evaluation projects. She is also involved in the investigation and analysis of legal and regulatory issues and controversial claims regarding chemical causation of diseases in humans. Her solid technical background, coupled with her frequent involvement in risk and hazard evaluation projects, gives her a broad perspective on the technical, economic and regulatory considerations for human health hazard evaluation work.

Dr. Ryer-Powder has experience as the lead author in preparation of preliminary risk assessments for school sites. Dr. Ryer-Powder's risk assessments evaluated the safety of building schools at former farm and auto repair shop sites including exposure potential and toxicity of VOCs, SVOCs, TPH, metals, pesticides, and nitrates. Her evaluations encompassed school child and school teacher scenarios.

Dr. Ryer-Powder's expertise is in providing human health hazard evaluations work to public and private-sector clients. Dr. Ryer-Powder was a pioneer in the development of safe exposure levels for petroleum fuels and ammonia. She has extensively researched the toxicological issues surrounding human exposures to ammonia, chlorinated hydrocarbons, pesticides, lead, hexavalent chromium, arsenic, and petroleum hydrocarbons. In her experience in evaluating potential hazards from chemicals, she has worked extensively with the Office of Environmental Health Hazard Assessment, USEPA Region IX, Cal/EPA Department of Toxic Substances Control (DTSC), Los Angeles Regional Water Quality Control Board, San Diego Regional Water Quality Control Board, County of Santa Barbara, Orange County Health Care Agency, Nevada DEP, and Arizona DEQ. Negotiations have involved presentation and approval of

health risk assessments, health-based cleanup levels, and the setting of safe levels of exposure in the occupational and public arena.

Dr. Ryer-Powder has managed and performed more than 100 health risk assessments for local and national clients. Her site experience includes Preliminary Endangerment Assessment risk assessments, Proposition 65 evaluations, federal and state Superfund sites, Manufactured Gas Plant sites, RCRA sites, and Brownfields sites. She has prepared and reviewed hundreds of Material Safety Data Sheets (MSDSs) and product labels for consumer and industrial products, including petroleum fuels, solvents, metals, fertilizers, pesticides, adhesives, and fabric protectors. She has worked with trade associations, private industry, and regulatory agencies to develop safe exposure levels to petroleum products and ammonia. She has also provided expert testimony in cases involving exposure to polycyclic aromatic hydrocarbons, chlorinated hydrocarbons, petroleum hydrocarbons, and metals. Dr. Ryer-Powder lectures on the subject of risk assessment to students in the University of California system.

REPRESENTATIVE PROJECT EXPERIENCE

Lead Author in Preparation of Preliminary Endangerment Risk Assessments for School Sites. For the San Marcos School District, prepared a Preliminary Endangerment Risk Assessment to evaluate the safety of building a school at a former farm site. Evaluated the exposure potential and toxicity of metals, nitrates, and pesticides.

For the LA Unified School District, prepared a Preliminary Endangerment Risk Assessment to evaluate the safety of building a school at a former gasoline station / auto repair shop site. Evaluated the exposure potential and toxicity of TPH and metals.

For the LA Unified School District, prepared several Preliminary Endangerment Risk Assessments to evaluate the safety of building a school at a former gasoline stations, former auto repair shop sites, and a former furniture manufacturing site. Evaluated the exposure potential and toxicity of TPH, VOCs, SVOCs, and metals. Included a school child and school teacher scenario.

Senior scientist in Preparation of Several Risk Assessments to Evaluate Proposition 65 Compliance. Prepared risk assessments for a church, daycare center, and several commercial facilities to evaluate the need for a Proposition 65 warning. Chemicals included both carcinogens and reproductive toxicants. Performed air modeling to determine concentrations of Proposition 65 chemicals inside buildings. Performed Proposition 65 analysis on chemicals in fabrics, toys, and food.

Senior risk assessor for Stringfellow Site in Glen Avon, California. Evaluated the potential for adverse health effects at Stringfellow Site. Risk assessment was submitted to and accepted by USEPA Region 9. Groundwater chemicals included various volatile organic compounds (VOCs) and heavy metals such as

cadmium, nickel, chromium, and manganese. Soil chemicals included pesticides, polychlorinated biphenyls (PCBs), sulfates, and heavy metals.

Senior Toxicologist in Preparation of Multimedia Multipathway Screening Human Health Risk Assessment. For the City of Irvine, developed health-based cleanup levels and performed a screening risk for more than 700 locations at the El Toro Marine Corps Air Station.

Senior Toxicologist in Preparation of Multimedia Multipathway Human Health Risk Assessment. For the Brown and Bryant Task Force, prepared a Human Health Risk Assessment and developed health-based cleanup goals for a former pesticide manufacturing plant in Shafter, CA. This site will be developed into commercial property. Provided services including negotiations with DTSC.

Senior Toxicologist / Risk Assessor in Preparation of Health Risk Assessment / Risk Communication. For City of Riverside, evaluated potential for health effects from PCBs present at a site surrounded by a residential area. Looking at previous uses of the site and relevant exposures. Evaluated potential exposures to previous employees. Presented information at public meetings.

Senior Toxicologist in Preparation of Multimedia Multipathway Human Health Risk Assessment. For Home Depot, prepared a Human Health Risk Assessment and developed health-based cleanup goals for a site in Burbank, CA. This site, a former manufacturing facility, will be developed into a Home Depot. Provided services including negotiations with OEHHA, the LARWQCB, and the City of Burbank. Risk assessment was approved by OEHHA.

Senior Toxicologist in Preparation of Multimedia Multipathway Human Health Risk Assessment. For Property Development company, prepared a Human Health Risk Assessment and developed health-based cleanup goals for a site in Irvine, CA. This site, which was the former Parker Hannifin Facility, will be developed for residential and commercial use. Provided services including negotiations with City of Irvine. Risk assessment was approved by the City of Irvine.

Lead Author in Preparation of Preliminary Endangerment Risk Assessment. For BreitBurn and Company, prepared a Preliminary Endangerment Assessment risk evaluation for a large former oilfield located in Los Angeles, California. Chemicals of concern included total petroleum hydrocarbons in the gasoline, diesel, motor oil, and grease range along with volatile organic carbons.

Lead Author in Preparation of Preliminary Endangerment Risk Assessment. For FishKing Company, prepared a Preliminary Endangerment Assessment risk evaluation for a former fish processor located in Los Angeles, California. Chemicals of concern included metals and volatile organic carbons.

Lead Author in Preparation of Several Risk-Based Corrective Action (RBCA) Risk Assessments. For several clients in Northern and Southern California, prepared RBCA risk assessments a Preliminary Endangerment

Assessment risk evaluation for former gasoline station sites. Chemicals of concern included benzene, toluene, ethylbenzene, and xylene.

Senior scientist in preparation of risk assessments for land involved in the Alameda Corridor. Assisted in preparation of several risk assessments for land to be used for the Alameda Corridor. Involved assessment of former manufacturing sites with chemicals including solvents, petroleum hydrocarbons, and metals.

Project manager and Senior risk assessor in the planning, creation and negotiation of a risk assessment for a state Superfund remedial action plan for a site in Escondido, California. The client group was represented by approximately 50 Potentially Responsible Parties. This risk assessment was the first using Monte Carlo that has been accepted by the California Department of Toxic Substances Control. Was invited to present at the Risk Assessment Advisory Committee to discuss the methodology used in the risk assessment. Continued work to assess potential for health effects from presence of 1,4-dixoane in groundwater.

Project manager and Senior risk assessor for the preparation of a risk assessment for the Unocal Ammonia Plant in Kenai, Alaska. Prepared risk assessment in compliance with air permitting process for the State of Alaska. Worked with the State of Alaska Department of Environmental Control.

Lead toxicologist in the development of health-based concentration goals for various media contaminated with middle-distillate petroleum constituents that had leaked from underground pipes in Guadalupe, California. Performed work for Unocal Corporation. Site consisted of a beach and an inland recreational area. The potentially impacted media includes soils, surface water (an inland lagoon used for kayaking and a beach used for surfing and other recreational uses) and groundwater. Personally developed the toxicity value to represent the range of petroleum constituents identified at the site as well as some exposure parameters that were unique to populations at the site. The resulting clean-up goal was less than the agency's default value used for Total Petroleum Hydrocarbon cleanup. Agencies involved included the California Department of Toxic Substances Control and Water Quality Control Board - Central Region. In 2002, prepared a revised health risk assessment for the Site based on new data.

Project manager for over 50 national and California-based health risk assessments for soil and/or groundwater contaminated with volatile organic compounds, metals and petroleum hydrocarbons. Sites included manufactured gas plant sites, dry-cleaning facilities, recycling facilities, gas and electric company facilities, and oil refineries. Worked with the California Department of Toxic Substances Control and several Regional Water Quality Control Boards to help obtain closure of these sites.

Senior scientist in the development of toxicity profiles and safe exposure levels for crude oil, diesel fuel, diluent, lubricating oil, and mineral spirits. Used the safe exposure levels in several risk assessment projects to obtain cleanup levels that were higher than the default value used by regulatory agencies for Total Petroleum Hydrocarbons. These toxicology profiles were published as chapters in the second edition of Clinical Principals of Environmental Health.

Project manager for the review and/or preparation of hundreds of MSDSs and product labels for consumer and industrial products. Chemicals have included petroleum products (Unocal Corporation, Witco), solvents (Micronova Inc.), agricultural products (Unocal Corporation, Valent USA, IMC Global, CF Industries), adhesives (Loctite Corp.), metals (Unocal Corporation), cosmetics (Arsynco), resins (3D Systems), glass products (Allwaste), and fabric protection products (Guardian Inc.). Prepared hazard evaluations for each chemical component of every product. Work required an understanding of all regulatory information required for MSDS and label preparation (including OSHA, TSCA, VOC regulations, RCRA, CERCLA, DOT, and Proposition 65). Performed all work under the scrutiny of the Occupational Health and Safety Administration.

Senior scientist for the preparation of comments regarding the Reference Dose of Ammonia. Participated as a representative for Unocal Corporation in a task force through The Fertilizer Institute in the preparation of a document entitled Health Effects of Ammonia and submitted comments regarding the Reference Dose to the U.S. Environmental Protection Agency.

Senior scientist for the preparation of report regarding Perchlorates in fertilizer. Prepared a report regarding the potential for adverse health effects from perchlorates in fertilizer.

Senior scientist for the preparation of comments regarding the use of risk assessment in setting Threshold Limit Values. Prepared and submitted comments on behalf of Unocal Corporation to the Occupational Health and Safety Administration.

Senior scientist for the preparation of comments regarding the National Research Council's Community Emergency Exposure Level for Ammonia. Prepared and submitted comments on behalf of The Fertilizer Institute to the National Research Council.

Senior scientist for the preparation of comments regarding the California Office of Health Hazard Assessment's (OEHHA) Determination of Acute Toxicity Exposure Levels for Airborne Toxicants. Focused on the level derived for ammonia. Submitted comments to OEHHA on behalf of Unocal Corporation.

Senior scientist for the derivation of a safe level of dust being emitted into a facility as a result of production of a cardiac drug. Performed work for ALZA Corporation for the local fire department. Evaluated scientific data regarding the toxicology as well as the exposure potential to employees to arrive at a safe level, which was subsequently approved by the fire department.

Serving as an expert witness in a case involving residential exposures to lead. Prepared expert reports, gave depositions, and provided testimony regarding health effects from exposures to lead.

Serving as an expert witness in a case involving residential exposures to vinyl chloride. Prepared expert reports and gave depositions regarding health effects from exposures to vinyl chloride in water.

Serving as an expert witness in a case involving residential exposures to hexavalent chromium. Prepared expert report and will testify regarding exposures and potential health effects from the presence of hexavalent chromium in soil, air, and groundwater.

Served as an expert witness in a case involving employee exposure to Diacetyl in a Popcorn Plant. Prepared reports and provided a deposition regarding MSDS warnings and potential for health effects from exposures to diacetyl.

Served as an expert witness in a case involving contamination from acid sludge seeps. Prepared reports, provided a deposition, and testified regarding potential for health effects from exposures to acid sludge seeps. Chemicals of potential concern were polycyclic aromatic hydrocarbons.

Served as an expert witness in a case involving migration of gasoline under a residential area. Testified regarding potential for health effects from exposure to benzene, toluene, ethylbenzene, and xylene. Evaluated potential toxicity and routes of exposures.

Served as an expert witness in a case in Fresno, CA where a determination of contribution to total risk needed to be established for pesticides, metals, and solvents. Prepared a risk assessment using all detected chemicals in the groundwater – determined the percent contribution to risk and hazard from the chemicals – developed toxicological profiles for chemicals that drove the risk assessment.

Served as an expert witness in a case in Los Angeles, CA where potential health effects of lead needed to be established at the Gautier Site. Peer-reviewed a risk assessment for the Gautier Site in Los Angeles. Deposed regarding potential health effects of lead. Provided testimony regarding the surrounding residential use and agricultural use

KATHY S, JONES, CIH

Vice President

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Education

California State University, Fresno
B.A.,Chemistry, 1975

Professional History

Health Science Associates, Vice President
2004 - Present

Health Science Associates, Senior Consultant
1996-2004

TOSHCO, Principal
1991-1996

Health Science Associates, Vice President and Director, Laboratory Services
1978-1991

Professional Credentials

ABIH Certified Industrial Hygienist (CIH), Certificate Number 2653
California State Cert. Asbestos Consultant, Certificate Nos. 92-0779, 04-3529
Certified Lead Inspector/Assessor (California), Certified Lead Project Designer (California), Certified Lead Project Monitor (California), ID # 3551
Certified Indoor Air Quality Manager - Certificate Number 0908024
EPA Certified Lead-Based Paint Professional Project Designer (Nevada), Certificate No. NV-P-109164-1

Other Professional Training

Industrial Hygiene Quality Assurance / Quality Control - NIOSH
Statistical Analysis for Industrial Hygiene Sampling and Decision Making - USC/ISSM
Laboratory Techniques & Trends - MBA Associates/HSA
Indoor Air Quality - Orange County AIHA

Kathy Jones, is Vice President of a full service Industrial Hygiene and Environmental consulting firm. Ms. Jones' duties include managing the development, growth, and delivery of HSA's services. The company has grown on the basis of reputation and referral (with minimal marketing) and includes Branch Operations in Northern California. Providing technical oversight, project management, report review, staff management and administration. Ms. Jones also serves as Training Director for HSA's California Department of Health Services Lead Training Classes, Cal/OSHA Asbestos refresher training classes and in house training.

In HSA's regular course of business, Ms. Jones provides:

Property environmental assessments; asbestos and lead assessments, management programs, specifications, and monitoring/surveillance; community noise assessment and control; off-site and property line airborne contaminant surveys; risk assessments; community "right-to-know" programs; Proposition 65 compliance.

Industrial hygiene surveys and evaluations to meet Cal/OSHA or Fed/OSHA requirements and/or client criteria. Reviews client Industrial Hygiene and Safety programs to ensure that they are complete and that they meet or exceed the requirements set by Cal/OSHA or Fed/OSHA.

Prepares or reviews client abatement, health and safety or hazard control programs to ensure that they meet the requirements of OSHA, EPA or other local jurisdiction requirements.

Ms. Jones is also performs Attorney-client privilege work; technical investigations and retrospective assessments (including accident re-construction); expert testimony in workers compensation, civil, tort and product liability cases, expert consultation.

REPRESENTATIVE PROJECT EXPERIENCE

Kathy S. Jones as Project Manager and senior Industrial Hygienist lead a multi-year sampling and investigation program to include evaluation of potential cancer concerns within the worker population of one of the facility buildings in El Segundo, CA. As a part of this investigation multi-

ple chemical evaluations were performed associated with work processes (aromatic hydrocarbons, metals, acid mists, dusts, etc.) along with the assessment of standard Indoor Air Quality parameters (volatile organic compounds, formaldehyde, carbon monoxide, carbon dioxide, etc.)

Subsequent to the extended period of sampling, the resulting data was accumulated, tabulated, evaluated and put into a format that was presented at a public forum meeting to allow access, review and questions from any interested company personnel. Additionally, individual meetings were performed with employees that had specific questions that were not addressed in the public forum.

Kathy S. Jones as Project Manager and senior Industrial Hygienist lead a one year sampling and investigation program for a Government Facility, to include evaluation of potential health concerns associated with building occupants working within this facility immediately proximal to a petroleum coke storage facility in Long Beach, CA. Concerns had been raised by the occupants regarding potential exposures to petroleum coke related polynuclear aromatic compounds (PNAs). Air, wipe and bulk sampling was performed throughout the facility and within the general exterior environment. This data was accumulated and presented at various meetings to interested building occupants.

During this one year commitment, Kathy was permanently stationed at this facility to perform routine daily monitoring, to address any emergency conditions raised by the occupants and to be available for on-going interaction with management, staff and other building occupants and visitors.

Kathy S. Jones, as Project Manager for the Carlsbad Unified School District, Carlsbad High School project, lead a team of staff industrial hygienists and technicians in providing work area, perimeter and neighborhood air monitoring for particulates. Air samples (direct reading and integrated filter samples) were only evaluated for particulate levels based upon the California Department of Toxic Substances Control Maximum Allowable Total Dust Concentrations calculated using the Agency for Toxic Substances and Disease Registry (ATSDR) Minimum Risk Levels (MRLs) and the Office of Environmental Health Hazard Assessment (OEHHA) acute Reference Exposure Levels (RELs) based upon previous area soil sample results for contaminants that included arsenic and organochlorine pesticides.

Kathy S. Jones as Project Manager lead a team of staff industrial hygiene technicians in providing perimeter and neighborhood air monitoring for lead, pesticides and dust along with performance of meteorological measurements during multiple phases of soil excavation and remediation activities for Various Los Angeles Unified School District schools. Measurements were performed for evaluation to community action levels associated with dust, lead and pesticide exposures. Measurements were being performed in compliance with the work plan specifications.

Kathy S. Jones worked together with other HSA professional staff in the development and servicing of surveillance and monitoring activities associated with a PCB tank removal and associated soil remediation at the Long Beach Naval Complex.

JOEL I. BERMAN, CIH

Vice President

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Education

California State University, Long Beach
B.S., Business Administration, December, 1987

Professional History

Health Science Associates, Vice President
2004 - Present

Health Science Associates, Director
1992-2004

Professional Credentials

Certified Safety Professional - Serial No.: 11595
Certified Asbestos Consultant - California Certificate 92-0838
Certified Industrial Hygienist - Certificate Number 8606
Certified Indoor Air Quality Manager - Certificate Number 0908021
Certified Lead Sampling Technician - ID Number 20946

Other Professional Training

Hazardous Waste Operations and Emergency Response (HAZWOPER) training.

Biological Contamination of Indoor Environments: Sponsored by the U.S. Environmental Protection Agency, Presented by MidAtlantic Environmental Hygiene Resource Center and the University of Tulsa, Division of Continuing Education and Center for Environmental Research and Technology.

Radon Measurement and Operators course: Western Regional Radon Training Center

Attended a Professional Development Course in Conducting Effective Health and Safety Audits at the American Industrial Hygiene Conference, St. Louis, Missouri, (May, 1989).

Joel I. Berman, is Vice President of Health Science Associates, a full service Industrial Hygiene and Environmental consulting firm. His duties include project oversight of HSA's professional and technician staff, project set-up, field investigations, report writing and review, etc. He provides consulting to HSA's clientele on various health and safety issues including, but not limited to: asbestos; radon; mercury; indoor air quality; safety evaluation; program management; and in the Southern California area is a well known and respected expert witness in various areas of practice, including fungal contamination issues.

REPRESENTATIVE PROJECT EXPERIENCE

Joel I. Berman as Project Manager, as part of a major renovation, completed a comprehensive bulk asbestos, lead-based paint (LBP), fungal contamination, polychlorinated biphenyls (PCBs), hazardous waste materials review (i.e. chemical labs) and inspection of the majority of the buildings at Monrovia High School. The scope of work included the performance of a comprehensive AHERA survey of the buildings, which included all interior building materials. HSA was also tasked with collecting bulk asbestos samples from all exterior buildings materials due to the impact that the planned renovation would have on these materials. The LBP survey included an X-ray Fluorescence (XRF) survey with confirmatory paint chip sample collection. The LBP inspections were performed to determine which materials were coated with LBP, specifically to inform the contractors of the hazards of lead that may be encountered during the renovation/demolition of the buildings.

In addition to the above scope of work, HSA was also tasked with identifying possible sources of observable fungal growth and/or water intrusion that could indicate the presence of fungal growth.

Finally, HSA was tasked with the surveying and evaluating the various labs at the high school to determine the scope of work to dismantle the labs so that renovation activities could be performed.

This included bringing in a hazardous waste hauler to provide costs for the transportation and disposal of the various chemical wastes.

At California State University, San Bernardino, HSA, with Joel I. Berman as Project Manager, as part of a major renovation, completed a comprehensive bulk asbestos, lead-based paint (LBP), fungal contamination, polychlorinated biphenyls (PCBs), hazardous waste materials review (i.e. chemical labs) and inspection of several buildings in the science wing of the campus The scope of work included the performance of a comprehensive AHERA survey of the buildings, which included all interior building materials. HSA was also tasked with collecting bulk asbestos samples from all exterior buildings materials due to the impact that the planned renovation would have on these materials.

The LBP survey included an X-ray Fluorescence (XRF) survey with confirmatory paint chip sample collection. The LBP inspections were performed to determine which materials were coated with LBP, specifically to inform the contractors of the hazards of lead that may be encountered during the renovation/demolition of the buildings.
In addition to the above scope of work, HSA was also tasked with identifying possible sources of observable fungal growth and/or water intrusion that could indicate the presence of fungal growth.

Once the bulk sampling of the buildings was complete, HSA also performed monitoring and surveillance of the ACM and LBP abatement of the buildings.

The City of Oxnard selected Health Science Associates, with Mr. Berman as Project Manager to act as their Hazardous Materials Consultant for their Asbestos Abatement Project, located at Old Oxnard High School Complex. Our responsibility was to provide the City ongoing oversight, monitoring, testing and a final clearance documentation on the Asbestos Abatement Contractor who performed the Asbestos Abatement, and a final report related to our activities during the abatement process. This project continued for seven months and culminated in the demolition of all but one building on this 35 acre campus.

VISTA ENVIRONMENTAL CONSULTING

Michael C. Legerski
Principal

Experience

Mr. Legerski has been involved in the environmental consulting industry since 1988 and was involved in the initial surveys required by the AHERA regulation. Mr. Legerski has performed over 6,000-asbestos surveys and 3,000-lead-based paint surveys. He received his Master's degree in Industrial Hygiene and a Bachelor's of Architecture, both from the University of Southern California. This professional combination has enabled Mr. Legerski to become actively involved in all aspects of building-related environmental activities. These activities start at the planning phases and end at final site turnover following building remodel or demolition.

- **Fullerton Joint Union High School District, Modernization Projects, Fullerton, CA.** Principal-In-Charge for the team providing hazardous materials consulting for several modernization projects throughout the district. Responsibilities included training, coordination, and supervision of field staff, assisting district personnel and contractors in understanding regulatory requirements, liaison with SCAQMD inspectors, establishment of dust controls and dust monitoring protocols for construction work in occupied school buildings, oversight for the decontamination of a large PCB- containing transformer, and coordination of contractors and regulatory personnel for the removal of a diesel UST. 2010-2013

- **University of Southern California, Campus-Wide Consulting, Los Angeles, CA.** Over the past 22 years has served as a project manager responsible for the identification, documentation and observation of removal of hazardous materials for the capital improvement projects for USC. Responsibilities include: review of previous data, coordination of tenants, identification and testing of hazardous materials, development of a final report and bidding docs and specs, coordination of contractor job walks, addenda, bid support, final work completion acceptance and compilation of closeout documentation. 2010-Ongoing

- **Alameda Naval Air Station, Hazardous Materials Inspections, Alameda, CA.** Industrial Hygienist for an eight-person team to survey and inventory hazardous materials in over 2 million square feet of residential and industrial structures. Hazardous materials surveyed include asbestos, lead, PCBs, mercury, Title 22 metals, radioactive materials, and organochloro pesticides. Responsible for the development of plans and specifications for the removal of hazardous materials. 2008-2009 [1]

- **Haslett Warehouse Hotel, Emergency Response, San Francisco, CA.** Responsible for the design, development, oversight, coordination, management and clearance following the fire, roof collapse and release of asbestos from the Haslett Warehouse, located next to the Cannery in San Francisco. Developed and received a variance from Bay Area Air Quality Management District for the clean-up operations. Developed cost saving methods for the eight-month long clean-up and decontamination operations. This project also included the removal of lead-based paints and remediation of mold. 2006 [1]

[1] – *Activities performed for previous employer*

Proposed Responsibility

Principal in Charge

Education

M.S./1993/Industrial Hygiene, University of Southern California
B.A./1990/Architecture, University of Southern California
Minor/1990/Safety Science, University of Southern California

Certifications

Cal-OSHA Certified Asbestos Consultant #94-1433

CA Department of Public Health Certified Lead-Related Construction
Inspector/Assessor
Project Monitor
I/M 6353

NITON XL XRF Spectrum Analyzer

Scitec Map XRF Spectrum Analyzer

NIOSH 582 Trained

EPA 40 Hour "Hazardous Waste Operations and Emergency Response" trained

CPR & First Aid Trained

VISTA ENVIRONMENTAL CONSULTING

Raul Garcia
Vice President

Experience

Mr. Garcia has been working in the environmental industry since 1985, both as a contractor and as a consultant. He has provided expertise guidance to his clients as well as to a variety of professionals, including industrial hygienists, engineers, geologists, microbiologists, and field technicians. Mr. Garcia has extensive experience conducting comprehensive and/or limited hazardous materials surveys for asbestos, mold and lead, CFCs, PCBs and mercury based on his clients needs both for pre-demolition and/or renovation projects. Mr. Garcia has practical working knowledge of Industrial Hygiene Indoor Air Quality problems such as microbiological contaminates, petroleum hydrocarbons, solvents and biological contaminants. Mr. Garcia demonstrates a proactive and practical approach in the design, management and control methods involved in hazardous material remediation projects and/or management control solutions.

- **Grossmont Union High School District, Hazardous Materials Surveys, Specifications, and Oversight, La Mesa, CA.** Project Manager working with the schools district and the Bond Management Team. Coordinate and Implement Hazardous Materials Surveys, Specifications and Bid Documents, Project Management, Daily Construction Monitoring, and Final Certifications for the planned modernization throughout the school district.

- **Rowland Unified School District, Hazardous Materials Consultant During Bond Funded Modernizations, Rowland Heights, CA.** Project Manager working with the schools district and the Bond Management Team. Coordinate and Implement Hazardous Materials Surveys, Specifications and Bid Documents, Project Management, Daily Construction Monitoring, and Final Certifications for the planned modernization throughout the school district.

- **Burbank Unified School District, Hazardous Materials Surveys, Specifications, and Oversight, Burbank, CA.** Project Manager of 20 schools involving the Phase I - Hazardous Materials Survey; Phase II - Project Design Specifications; and Phase III - Abatement Oversight for asbestos and lead based-paint.

- **Fullerton Union High School District, Hazardous Materials Surveys, Fullerton, CA.** Project Manager working with the schools district and the Bond Management Team. Coordinate and Implement Hazardous Materials Surveys, Specifications and Bid Documents, Project Management, Daily Construction Monitoring, and Final Certifications for the planned modernization throughout the school district.

- **Bassett Unified School District, , Hazardous Materials Consultant During Bond Funded Modernizations, La Puente, CA.** Project Manager working with the schools district and the Bond Management Team. Coordinate and Implement Hazardous Materials Surveys, Specifications and Bid Documents, Project Management, Daily Construction Monitoring, and Final Certifications for the planned modernization throughout the school district.

Proposed Responsibility
Project Manager

Additional Capabilities
Bilingual (Spanish/English)

Certifications
CA Certified Asbestos Consultant, #94-2524

Cal-OSHA Approved AHERA Trainer

AHERA Accredited:
- Contractor/Supervisor
- Building Inspector
- Management Planner
- Project Designer

NIOSH 582 Trained

HAZWOPER

VISTA ENVIRONMENTAL CONSULTING

Michael D. Cardone
Field Manager

Experience

Mr. Cardone has been in the environmental consulting field since early 1988 when he began his career with performing surveys, training and coordinating 30+ technicians performing AHERA inspections for over 10 percent of the schools throughout California in less than one year. He received his first Cal/OSHA asbestos certification early in the 1990's and his lead certifications by 1998. He has performed a wide range of environmental sampling/monitoring including, but not limited to, ambient air monitoring, asbestos, lead, ground water, hazardous waste, industrial hygiene, noise, soil, stationary source emissions, waste water sampling, and laboratory analysis of many these sample types. His projects have included remodeling, repainting, seismic mitigation, rehabilitation of historic structures, movement of historic structures, soil remediation, UST removals and abandonments, and demolition of structures ranging from small support buildings to multi-story housing structures. In addition to personally performing the work, he has also regularly been tasked with training others both to obtain certifications and to improve their abilities once certified.

- **University of Southern California, Campus-Wide Consulting, Los Angeles, CA.** Performed numerous hazardous materials surveys, abandonment of USTs, awareness training for construction workers, project monitoring, and final reporting. These activities were performed in a wide variety of structures including single family residences, dorms, multi-unit apartments, laboratories, classrooms, athletic facilities, libraries, and theaters. The projects included renovations, seismic strengthening, and plumbing replacement projects involving hundreds of dorm rooms, fire/life/safety projects, relocation of structures, demolitions and rehabilitations. Several of these structures are eligible for registration as historic structures. A historic preservation award was received for work performed for the seismic repair, strengthening, and refurbishment of the main campus library built in the early 1930's and considered to be the "jewel of the campus".
- **University of Southern California School of Cinematic Arts, remediation of hazardous materials, Los Angeles, CA**. Primary on-site field technician and project manager during remediation of hazardous materials prior to the demolition of the former George Lucas Instructional Building. Materials remediated included hazardous materials issues including asbestos-containing materials, lead-based and lead- containing components, PCB ballasts and transformers, universal wastes, ozone depleting chemicals, electronic wastes, and elevator hydraulic fluids both in the units' tanks and the piston housings.
- **San Bernardino Community College District, hazardous materials surveys, contamination investigation, and abatement monitoring, San Bernardino, CA.** Field Operations Manager for the team performing comprehensive hazardous materials surveys, contamination investigation, and abatement monitoring. Duties included coordination and training of field staff, performing surveys and on-site monitoring. Projects included decontamination of an administration building, and pre-demolition services for a media center and science buildings. [1]
- **Seaver Science Building, Pomona Colleges, Hazardous Materials Sampling and Remediation, Pomona, CA.** Provided the survey for hazardous materials prior to the demolition of all interior to the base structure and was the primary on-site technician during remediation of the identified hazardous materials. Hazardous materials remediated included: mercury, lead, asbestos, arsenic, chromium, hexavalent chromium, acids, caustics, volatile organics and semi-volatile organics.

[1] – *Activities performed for previous employer*

Proposed Responsibility
Project Designer/Modeler

Education
1985-1988/Architectural Program, University of Southern California

Certifications
Cal-OSHA Certified Asbestos Consultant, #01-3025

CA Department of Public Health Certified Lead-Related Construction
- Inspector/Assessor
- Project Monitor
- # I/M 5485

Spectrum Analyzer:
- NITON XRF

AHERA Accredited:
- Building Inspector
- Management Planner
- Contractor/Supervisor
- Project Designer

NIOSH 582 Trained

EPA 40 Hour "Hazardous Waste Operations and Emergency Response" trained

Confined Space Trained

CPR & First Aid Trained

Community Emergency Response Team (CERT) Volunteer - Huntington Beach, CA

Attachment D

Health, Security, Safety, and Environmental

“HSSE” Pre-Qualification Forms

The terraphase Team

Requesting Company:	
Health, Security, Safety, and Environmental "HSSE" Pre-qualification	
Legal Company Name: Terraphase Engineering Inc.	**Industry Classification Code(s):** 541620, 541330, 562910
Company Address: 11590 West Bernardo Ct.	**City:** San Diego
State/Province: California	**Zip/Postal Code:** 92127
Country: USA	
HSSE Contact Person: William Carson	**Phone No(s):** 510 645-1850
	Fax Number: 510 380-6304
Internet Access? (Y/N): Yes	**Company website:** www.terraphase.com
If Yes, e-mail address: william.carson@terraphase.com	
Please list any previous Company names used in the last 3 years: No other names have been used	

Work References

1) If your company has performed work for the Santa Monica-Malibu School District in the past:
No other past work for Santa Monica-Malibu School District

Approximate completion date of work last performed: _____

Business Unit and Location where work was performed: _____

Requesting Company Representative who was responsible for the project: _____

2) If your company has never performed work for the District, please provide two references who may be contacted to provide information regarding past performance.

Company_____ Contact Person_____ Phone_____

Name of Project and Value: _____

Company_____ Contact Person_____ Phone _____

Name of Project and Value: _____

Contact 1 Company: GAFCON
Contact 1 Person: Aaron Golde
Bond Program Manager
Carlsbad Unified School District
Contact 1Phone: 619 778-8533
Contact 1Email: agolde@gafcon.com
Project 1: Sage Creek and Carlsbad High School
Clean-up under DTSC Oversight
Project 1 Value: $500,000

Contact 2 Company: EDUFac
Contact 2 Person: Charles Robitaille
Partner
Contact 2 Phone: 925-698-1118
Contact 2 Email: charles@charterpg.com
Project 2: Aspire Charter High School PCB
Clean-up under USEPA/DTSC
Project 2 Value: $1,000,000

HSSE Statistics

Provide the following HSSE statistics for all your company's operations. Refer to the HSSE statistic instructions on page 3.

(A) Reporting year	2013	2012		2010
(B) Average Number of Employees	21	15	12	5
(C) Total annual man hours worked for this reporting entity (for all customers, not just Requesting Company)	42,721	31,440	25,535	2,957
(D) Number of Recordable Cases	0	0	0	0
(E) Incident Rate of Recordable Cases	0	0	0	0
(F) Number of Days-Away-From-Work Cases	0	0	0	0
(G) Incident Rate of Days-Away-From-Work Cases	0	0	0	0
(H) Number of Days Away from work	0	0	0	0
(I) Severity Rate	0	0	0	0
(J) Number of Fatalities	0	0	0	0
(K) Vehicle Accident Rate	0	0	0	0
(L) Total number of Vehicle Accidents	0	0	0	0
(M) Total miles driven	60,000	40,000	30,000	1,000
(N) Worker's Compensation Experience Modification Rate	NA	NA	NA	NA

Approximated based on expenses paid and 50 miles per day of truck rental

Please provide a copy of your company's OSHA 300 logs. Please provide a letter from your insurance carrier indicating your worker's compensation experience modification rate.

Comments and/or clarifications on above data (if any):

As the company recently turned three years old - our insurance company has not calculated an experience modification rate. As show above, we have had zero lost day or reportable incidents since the inception of Terraphase. Our senior managers have been trained in behavior-based health and safety practices and regularly perform loss prevention observations and each near-miss is documented and investigated.

Since our primary SIC code is as 87 Engineering, Accounting, Research, Management and Related Services, we are exempt from filing OSHA 300 logs (https://www.osha.gov/recordkeeping/pub3169text.html).

HSSE STATISTICS INSTRUCTIONS

(A) YEAR: As shown.

(B) Average # of Employees: List the average # of employees who worked during the year. An employee shall be defined as any person engaged in activities for an employer from whom direct payment for services is received. Include working owners and officers.

(C) Employee Hours: List the total number of hours worked during the year by all employees, including those in operating, production, maintenance, transportation, clerical, administrative, sales and all other activities.

(D) Number of Recordable Cases: List the total number of Recordable cases that occurred in that year. Recordable Cases include: Fatalities, Days Away From Work Cases, Restricted Work Cases and Medical Treatment cases as defined by OSHA Part 1904 Recording and Reporting Occupational Injuries and Illnesses: http://www.osha-slc.gov/recordkeeping/1904_record_report.pdf

(E) Incidence Rate of Recordable Cases: $\frac{\textit{Number of Recordable Cases X 200,000}}{\textit{Employee Hours}}$

(F) Number of Days-Away-From-Work Cases: List the total number of Days-Away-From-Work cases that occurred during the year. A Days-Away-From-Work case will be defined as any Recordable Case that results in death or lost workdays with days away from work.
For the purpose of this questionnaire, Recordable cases that result in days with restricted activity should not be added in this column. Only Recordable cases that result in one or more days away from work should be counted.

(G) Incidence rate of Days-Away-From-Work cases: $\frac{\textit{No. of Days-Away-From-Work cases X 200,000}}{\textit{Employee hours}}$

(H) Number of Days Away from work:
List the total number of Days-Away-From-Work experienced by all employees during the year. For the purposes of this questionnaire, lost workdays with restricted activity should not be added in this column. Only Recordable cases that result in one or more days away from work should be counted.

(I) Severity Rate $\frac{\textit{Total number of Days Away from work X 200,000}}{\textit{Employee Hours}}$

(J) Number of Fatalities: List the total number of fatalities that result from occupational injuries or illnesses. Deaths that occur in the workplace but are not the result of occupational injuries or illness should not be included.

(K) Vehicle Accident Rate: $\frac{\textit{Total Vehicle Accidents X 1,000,000}}{\textit{Total Miles Driven}}$

(L) Total number of vehicle accidents: List the total number of vehicles accidents that occurred during the year for all vehicles operated by your employees. A vehicle accident is defined as an accident involving a motor vehicle resulting in injury, or loss/damage, or harm to the environment, irrespective of whether the accident was preventable or non-preventable. Excludes circumstances where: 1) vehicle was legally parked, 2) travel is to or from the driver's normal place of work and home (i.e. commuting), 3) Minor wear and tear, 4) vandalism or theft.

(**M) Total miles driven:** List total miles driven for all vehicles operated by your employees.

(N) Worker's Compensation Experience Modification Rates: Please provide a letter from your insurance carrier.

Regulatory Compliance

		Yes	No
1)	**Has your company received any HSSE related notice of violations ("NOVs"), or citations within the past 3 years?** *(do not include contested citations later dismissed)*	☐	☒

If yes, please provide the following information:

Number of citations or NOVs: _____

Date(s) of above citations or NOVs: _____

Agency issuing citation or NOVs: _____

Nature of citations or NOVs: _____

Have these citations or NOVs been resolved? _____

Comments and/or clarifications on above data (if any): _____

2)	Does your company have a program for determining, which HSSE regulations apply to your company's work activities?	Yes ☒	No ☐
3)	Does your company have a procedure for identifying people who must know about or be trained regarding HSSE regulations?	Yes ☒	No ☐
4)	Does your company have a process for managing subcontractor HSSE compliance with regulations?	Yes ☒	No ☐

HSSE Programs

1)	Has your company developed and implemented a formal HSSE Program? Please provide a PDF electronic copy of the program. See attached: Injury and Illness Prevention Plan	Yes [X]	No [ ]
2)	Does your company have a clearly written safety policy endorsed by upper management? See Attached Health and Safety Section in the attached Standard of Conduct Section of Employee Guide	Yes [X]	No [ ]
3)	Does your company have a formalized observation or other type of behavioral safety program? If yes, name of program_____ Terraphase Management is trained in Loss Prevention System and utilizes Loss Prevention Observation, Near Miss and Incident Investigations from this system	Yes [X]	No [ ]
4)	Does your company have a written procedure in place for communicating and assuring that all personnel and subcontractors understand their obligations to stop work that is unsafe? Every job with field work requires a formal health and safety plan that is reviewed and signed by the field workers (including subcontractors), the project manager and a senior manager.	Yes [X]	No [ ]
5)	Does your company develop site specific HSSE plans for projects? Every job with field work requires a formal health and safety plan.	Yes [X]	No [ ]
6)	Does your company have scheduled, documented employee safety meetings?	Yes [X]	No [ ]
7)	Does your company's management actively communicate HSSE expectations, monitor HSSE performance, and develop plans for continuous improvement?	Yes [X]	No [ ]
8)	Does your company hold on-site (tailgate/toolbox/pre-tour) safety meetings?	Yes [X]	No [ ]
9)	Does your company perform detailed JSA's? Depending the scope of the work, the health and safety plans may have include one or Job Safety Worksheets for specific activities.	Yes [X]	No [ ]
10)	Does your company have a written incident investigation system in place to investigate and document incidents, injuries, spills, and near misses? We have a policy to complete a formal investigation of each near-miss, injury incident and property damage incident. Results are communicated company wide via email.	Yes [X]	No [ ]
11)	Does your company have a case management program? Not really - a senior manager and project manager will run an investigation and then publish the results to the group	Yes [ ]	No [X]
12)	Does your company verify that subcontractors meet or exceed your HSSE and training requirements? By contract but not by auditing.	Yes [ ]	No [X]

13)	Does your company have an Emergency Response Plan to address an emergency event? Within Attached I2P2.	Yes [X]	No [ ]
14)	Does your company have a process to effectively manage preventive maintenance for equipment? Only equipment requiring preventive maintenance is pick-up trucks. They are regularly inspected.	Yes [X]	No [ ]
15)	Does your company conduct and document workplace and equipment inspections? Through Loss Prevention Observation process.	Yes [X]	No [ ]
16)	Does your company have a written environmental program with a clearly written environmental policy endorsed by upper management? See Attached Health and Safety Section in the attached Standard of Conduct Section of Employee Guide	Yes [X]	No [ ]
17)	Does your environmental program include written procedures and assigned responsibilities to control:		
	Environmental Incident Reporting?	Yes [X]	No [ ]
	Work related Environmental Impacts?	Yes [ ]	No [X]
	Spill Prevention?	Yes [ ]	No [X]
	Handling & Waste Disposal?	Yes [ ]	No [X]
18)	Does your company have a HSSE records retention program?	Yes [ ]	No [X]
19)	Does your company have a management of change process?	Yes [ ]	No [X]
20)	Does your company have a documented New Employee Orientation?	Yes [X]	No [ ]
21)	How does your company overcome inherent challenges to HSSE protection with respect to language barriers? _____		X

22)	What percentage of your work force falls under the following criteria for experience within your specific industry? Less than 6 months 5 % 6 months to 1 year 13 % 1 year to 5 years 27 % More than 5 years 55 %		
23)	Does your company provide a (behind the wheel driving the vehicle) driving instruction course? In 2014, we are implementing a classroom driving training for all employees and behind the wheel training for all employees that conduct more than 100 hours of field work.	Yes ☒	No ☐
24)	Does your company have a written fitness-for-duty program, which includes assessment of the physical capabilities of personnel to perform specific tasks? Employees are required to take annual physicals	Yes ☒	No ☐

HSSE Training

Please respond to **ALL** items with "Yes, No

Do not leave any items unanswered. **(Estimated Percentage of Employees should reflect the percentage of employees who will perform services for Remediation Management and are required by your company to have the training -- not the percentage of the total number of employees in your organization.):**

1) Does your company provide HSSE Training

Yes [X] No [ ]

Safety and Environmental Programs and Training	Type of instruction (School-certified, on-site instructor, safety meeting, video, on the job, etc.)	Estimated Percentage of Employees Receiving Training	Frequency of Training for Individual Employees (I-Initial, A-Annual, B-bi-annual, P-periodic)	Individual Employee Training Documented Yes / No
Defensive Driving/Vehicle safety	This is the new requirement for 2014		P	Yes
Hazard Recognition Training	Yes	90%	A	Yes
Drug Awareness	Yes	100%	P	No
Emergency Response	Yes	90%	A	Yes
Fire Extinguisher Training	Yes	25%	P	No
First Aid/CPR	Yes	25%	A	No
Hazard Communication (Employee Right to Know)	Yes	100%	A	Yes
New Employee Orientation	Yes	100%	P	No
Personal Protective Equipment	Yes	50%	P	Yes
Incident Reporting and Investigation	Yes	50%	P	Yes

2) Does your company maintain documentation that includes all HSSE regulatory required training and other HSSE training required by your company?

Yes [X] No [ ]

3) Does your company maintain a training matrix that defines who will receive specific training courses and the intervals at which re-training is required?

Yes [X] No [ ]

4) Does your company have a process to identify, which personnel are not current in their training?

Yes [X] No [ ]

5) Does your company have a written plan for training personnel and subcontractors in required project specific requirements prior to commencing work on the project?

Yes [X] No [ ]

Drug and Alcohol Program

	Yes	No
1) Does your company have a written policy statement regarding drug/alcohol screening or testing of your employees?	X	

If, so, please provide a PDF electronic copy of the policy statement.

Yes, See Attached Drug Free Workplace Policy in the attached Standard of Conduct Section of Employee Guide

	Yes	No
2) Does your company's drug/alcohol testing program conform to DOT requirements?		X

If Yes, which DOT regulation is your testing program designed to satisfy?

Federal Aviation Administration _____

Federal Railroad Administration _____

Federal Highway Administration _____

United States Coast Guard _____

Research and Special Projects Administration/Pipeline _____

3) Check the circumstances in which your company's employees may be subject to drug/alcohol screening.

Employment (pre-hire) ☐ Probable Cause ☐ Periodic ☐

Random ☐ Post Accident ☐ Other ☒

4) Check the frequency of random drug testing that is performed of employees per year.

None ☒ 10% ☐ 25% ☐ 50% ☐ 100% ☐ Other: ☐

5) Circle the frequency of random alcohol testing that is performed of employees per year.

None ☒ 10% ☐ 25% ☐ 50% ☐ 100% ☐ Other: ☐

6) Does your company conduct medical physicals for:

Pre-employment ☒ Pulmonary Function ☒ Respiratory Protection ☒

V

CERTIFICATION OF DATA
BY CONTRACTOR MANAGEMENT

William Carson

The questionnaire was completed by: _____ and the facts as stated are true and correct.
(please print)

Position with Company President

Phone # 510 388-8745

Signature: _____ Date: _____ 12/19/2013

EMPLOYEE HANDBOOK
TERRAPHASE ENGINEERING INC.

(VERSION 1.3)

Terraphase Engineering Inc.
1404 Franklin St., Suite 600
Oakland, California

April 1, 2013

terraphase engineering

CONTENTS

7.0 STANDARD OF CONDUCT POLICY

Every employee is expected to act in a professional, responsible, and courteous manner at all times. Such behavior fosters a positive and productive work environment. Conversely, inappropriate or unprofessional behavior is disruptive and unproductive. Moreover, inappropriate conduct may be cause for discipline, up to and including immediate termination.

In the context of this manual, it is impossible for the company to identify all standards of conduct that are unacceptable. Employees are expected to use common sense and good judgment in their conduct and behavior. However, the company's judgment, and not that of any individual employee, is the benchmark for what is acceptable and what is not. An employee's conduct is not made acceptable solely because the employee believes it to be. Nor may an employee excuse his or her conduct because this manual does not specifically prohibit the objectionable conduct. The company expects that employees recognize that inappropriate conduct, from rudeness to theft, is unacceptable. The decision as to what is inappropriate is left in the company's hands and sole discretion.

7.1 Drug-Free Workplace Policy

Terraphase is committed to protecting the safety, health and well being of all employees and other individuals in our workplace. We recognize that alcohol abuse and drug use pose a significant threat to our goals. We have established a drug-free workplace program that balances our respect for individuals with the need to maintain an alcohol and drug-free workplace. Terraphase encourages employees to voluntarily seek help with drug and alcohol problems.

COVERED WORKERS

Any individual who conducts business for the Company, is applying for a position or is conducting business on the Company's property is covered by our drug-free workplace policy. Our policy includes, but is not limited to managers, supervisors, full-time employees, part-time employees, off-site employees, contractors, volunteers, interns and applicants.

APPLICABILITY

Terraphase's drug-free workplace policy is intended to apply whenever anyone is representing or conducting business for the Company. Therefore, this policy applies during all working hours and whenever conducting business or representing the Company.

PROHIBITED BEHAVIOR

It is a violation of our drug-free workplace policy to:

- use, possess, sell, or trade illegal drugs on Company premises, in Company vehicles, or while conducting Company business
- consume alcohol during work hours
- conduct Company business, whether in the office or outside of the office, under the influence of drugs or alcohol
- operate a Company, or personal vehicle while on Company business, under the influence of drugs or alcohol

NOTIFICATION OF CONVICTIONS

Any employee who is convicted of a criminal drug or alcohol violation must notify the Company in writing within five calendar days of the conviction. Terraphase will take appropriate action within 30 days of notification. Federal contracting agencies will be notified when appropriate.

SEARCHES

If an individual is suspected of violating the drug-free workplace policy, they may be asked to submit to a search or inspection at any time. Searches can be conducted of lockers, desks and work stations and vehicles and equipment.

CONSEQUENCES

One of the goals of our drug-free workplace program is to encourage employees to voluntarily seek help with alcohol and/or drug problems. If, however, an individual violates the policy, the consequences are serious.

If an applicant for a position with Terraphase violates the drug-free workplace policy, the offer of employment can be withdrawn. The applicant may not reapply.

If an employee violates the policy, they will be subject to progressive disciplinary action and may be required to enter rehabilitation. An employee required to enter rehabilitation who fails to successfully complete it and/or repeatedly violates the policy may be terminated from employment.

RETURN-TO-WORK AGREEMENTS

Following a violation of the drug-free workplace policy, an employee may be offered an opportunity to participate in rehabilitation. In such cases, the employee must sign and

abide by the terms set forth in a Return-to-Work Agreement as a condition of continued employment.

ASSISTANCE

Terraphase recognizes that alcohol and drug abuse and addiction are treatable illnesses. We also realize that early intervention and support improve the success of rehabilitation. To support our employees, our drug-free workplace policy:

- Encourages employees to utilize the services of qualified professionals in the community to assess the seriousness of suspected drug or alcohol problems and identify appropriate sources of help.
- Allows the use of accrued vacation and sick leave while seeking treatment for alcohol and other drug problems.

Treatment for alcoholism and/or other drug use disorders may be covered by the employee benefit plan. However, the ultimate financial responsibility for treatment belongs to the employee.

CONFIDENTIALITY

All information received by the organization through the drug-free workplace program is confidential communication. Access to this information is limited to those who have a legitimate need to know in compliance with relevant laws and management policies.

SHARED RESPONSIBILITY

A safe and productive drug-free workplace is achieved through cooperation and shared responsibility. Both employees and management have important roles to play. All employees are required to not report to work or be subject to duty while their ability to perform job duties is impaired due to on- or off-duty use of alcohol or other drugs.

In addition, employees are encouraged to:

- Be concerned about working in a safe environment.
- Support fellow workers in seeking help.
- Report dangerous behavior to their supervisor.

It is the supervisor's responsibility to:

- Inform employees of the drug-free workplace policy.
- Observe employee performance.
- Investigate reports of dangerous practices.

- Document negative changes and problems in performance.
- Counsel employees as to expected performance improvement.
- Clearly state consequences of policy violations.

COMMUNICATION

Communicating our drug-free workplace policy to both supervisors and employees is critical to our success. To ensure all employees are aware of their role in supporting our drug-free workplace program, all employees will receive a written copy of the policy.

7.2 Anti-Discrimination and Anti-Harassment Policy

Terraphase is an equal opportunity employer. The employer will not discriminate and will take affirmative action measures to ensure against discrimination in employment, recruitment, advertisements for employment, compensation, termination, upgrading, promotions, and other conditions of employment against any employee or job applicant on the basis of race, creed, color, national origin, sex, or sexual orientation.

Terraphase is committed in all areas to providing a work environment that is free from harassment. Harassment based on an individual's sex, race, ethnicity, national origin, age, religion or any other legally protected characteristics will not be tolerated. All employees, including supervisors and other management personnel, are expected and required to abide by this policy. No person will be adversely affected in employment with the employer as a result of bringing complaints of unlawful harassment.

Sexual harassment is behavior of a sexual nature that is unwelcome and offensive to the person or persons it is targeted toward. Examples of harassing behavior may include unwanted physical contact, foul language of an offensive sexual nature, sexual propositions, sexual jokes or remarks, obscene gestures, and displays of pornographic or sexually explicit pictures, drawings, or caricatures. Use of the employer's computer system for the purpose of viewing, displaying, or disseminating material that is sexual in nature may also constitute harassing behavior.

Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature constitute harassment when (1) submission to or rejection of such conduct is made either explicitly or implicitly a term or condition of an individual's employment; (2) submission to or rejection of such conduct by an individual is used as the basis for decisions about employment, promotion, transfer, selection for training, performance evaluations, benefits, or other terms and conditions of employment; or (3) such conduct has the purpose or effect of creating an intimidating, hostile, or offensive work environment or substantially interferes with an employee's work performance.

If an employee feels that he or she has been harassed on the basis of his or her sex, race, national origin, ethnic background, or any other legally protected characteristic they should immediately report the matter to their supervisor. If that person is not available, or if the employee feels it would be unproductive to inform that person, the employee should immediately contact that supervisor's superior or human resources. Once the matter has been reported it will be promptly investigated and any necessary corrective action will be taken where appropriate. All complaints of unlawful harassment will be handled in as discreet and confidential a manner as is possible under the circumstances.

The procedure for reporting incidents of harassing behavior is not intended to impair, replace, or limit the right of any employee to seek a remedy under available state or federal law by immediately reporting the matter to the appropriate state or federal agency.

7.3 Moonlighting Policy

Absent express prior approval from Supervisor, the company does not permit moonlighting -- working for another company while employed by our Company. While the company does not seek to intrude on employee's personal lives, moonlighting impacts on an employee's ability to dedicate him or herself to the company. Clearly, working for a competitor is unacceptable and will lead to immediate termination. Other employment, while not directly competitive with our operations, also may impact adversely on an employee's ability to work. That holds true for self-employment. Accordingly, if your circumstances require that you work a second job, or you intend to pursue your own business, please discuss the matter with your supervisor. Supervisors will not unreasonably deny your request to work on businesses that are do not compete with Terraphase and if the work does not interfere with your Terraphase job duties and responsibilities.

7.4 Standards, Formats and Quality Control

Adherence to Company standards and document formats is important to ensure that work products, and especially final deliverables, are of highest quality that meet or exceed professional industry standards and client expectations. Furthermore, technical quality control through peer review helps protect the Company from potential legal action and it helps protect licensed individuals from potential disciplinary action by licensing boards.

Terraphase deliverables include written documents, such as work plans, reports, proposals, memos, and letters; engineering plans and drawings; figures and maps; cost estimates; miscellaneous engineering calculations; PowerPoint presentations; and, boring logs. All products that are submitted as deliverables to clients, regulators, or

anyone outside of Terraphase, must be prepared in a manner consistent with Terraphase standards. Standards include specific fonts and report formats, logos, figure layouts and title blocks. Employees should be aware of the current standards, as standards change from time to time. Employees must not alter Terraphase document formats without the approval of the project manager or supervisor. Formats may occasionally be altered in cases where specific changes are requested by a client or required as part of a proposal package.

PEER REVIEW POLICY

Terraphase's future depends on maintaining our reputation for quality products and designs. Hence, it is Terraphase's policy that all client deliverables will be peer-reviewed. Any deliverable with the Terraphase name or logo on it is a deliverable and must be peer-reviewed. This policy extends to e-mail that contains design or construction advice, opinions on regulations or appropriate technologies, cost estimates, etc..

Peer review involves more than having a technical editor correct grammar and spelling. A peer reviewer should be senior to the employee preparing the product and should have the appropriate level of technical expertise. Selecting an inappropriate peer reviewer could be considered to be negligent. Employees who are asked to peer-review a product that is outside of their area of expertise should decline and direct the peer review to a more appropriate employee.

USE OF ELECTRONIC SIGNATURES AND STAMPS

The use of electronic signatures in official Company documents, such as reports, proposals and purchase orders, is common practice. The unauthorized use of another person's electronic signature is not allowed and potentially illegal. An employee's use of another person's electronic signature without their knowledge and explicit approval can lead to disciplinary action, up to and including dismissal and criminal prosecution. Similar rules and potential consequences apply to the unauthorized use of another person's professional license, such as the use of a professional engineer or professional geologist stamp.

7.5 Internet, Voice Mail, Email, and Computer Usage Policy

USE OF COMPANY AUTOMATION SYSTEMS FOR PERSONAL PURPOSES

The use of Company automation systems, including all forms of Internet/intranet access, voice mail, email, computers, and fax machines, is for company business and for authorized purposes only. Brief and occasional personal use of the electronic mail system or the Internet is acceptable as long as it is not excessive or inappropriate, occurs during personal time (lunch or other breaks), and does not result in expense or harm to the Company or otherwise violate this policy.

Use is defined as "excessive" if it interferes with normal job functions, responsiveness, or the ability to perform daily job activities. Electronic communication should not be used to solicit or sell products or services that are unrelated to the Company's business; distract, intimidate, or harass coworkers or third parties; or disrupt the workplace.

Use of Company computers, networks, and Internet access is a privilege granted by management and may be revoked at any time for inappropriate conduct carried out on such systems, including, but not limited to:

- Sending chain letters or participating in any way in the creation or transmission of unsolicited commercial e-mail ("spam") that is unrelated to legitimate Company purposes;
- Engaging in private or personal business activities, including excessive use of instant messaging and chat rooms (see below);
- Accessing networks, servers, drives, folders, or files to which the employee has not been granted access or authorization from someone with the right to make such a grant;
- Making unauthorized copies of Company files or other Company data;
- Destroying, deleting, erasing, or concealing Company files or other Company data, or otherwise making such files or data unavailable or inaccessible to the Company or to other authorized users of Company systems;
- Misrepresenting oneself or the Company;
- Violating the laws and regulations of the United States or any other nation or any state, city, province, or other local jurisdiction in any way;
- Engaging in unlawful or malicious activities;
- Deliberately propagating any virus, worm, Trojan horse, trap-door program code, or other code or file designed to disrupt, disable, impair, or otherwise harm either the Company's networks or systems or those of any other individual or entity;
- Using abusive, profane, threatening, racist, sexist, or otherwise objectionable language in either public or private messages;
- Sending, receiving, or accessing pornographic materials;
- Causing congestion, disruption, disablement, alteration, or impairment of Company networks or systems;
- Maintaining, organizing, or participating in non-work-related Web logs ("blogs"), Web journals, "chat rooms", or private/personal/instant messaging;

- Failing to log off any secure, controlled-access computer or other form of electronic data system to which you are assigned, if you leave such computer or system unattended;
- Using recreational games; and/or
- Defeating or attempting to defeat security restrictions on company systems and applications.

Using Company automation systems to access, create, view, transmit, or receive racist, sexist, threatening, or otherwise objectionable or illegal material, defined as any visual, textual, or auditory entity, file, or data, is strictly prohibited. Such material violates the Company anti-harassment policies and is subject to disciplinary action. The Company's electronic mail system, Internet access, and computer systems must not be used to harm others or to violate the laws and regulations of the United States or any other nation or any state, city, province, or other local jurisdiction in any way. Use of company resources for illegal activity can lead to disciplinary action, up to and including dismissal and criminal prosecution.

OWNERSHIP AND ACCESS OF ELECTRONIC MAIL, INTERNET ACCESS, AND COMPUTER FILES; NO EXPECTATION OF PRIVACY

The Company owns the rights to all data and files in any computer, network, or other information system used in the Company and to all data and files sent or received using any company system or using the Company's access to any computer network, to the extent that such rights are not superseded by applicable laws relating to intellectual property. The Company also reserves the right to monitor electronic mail messages (including personal/private/instant messaging systems) and their content, as well as any and all use by employees of the Internet and of computer equipment used to create, view, or access e-mail and Internet content. Employees must be aware that the electronic mail messages sent and received using Company equipment or Company-provided Internet access, including web-based messaging systems used with such systems or access, are not private and are subject to viewing, downloading, inspection, release, and archiving by Company officials at all times. The Company has the right to inspect any and all files stored in private areas of the network or on individual computers or storage media in order to ensure compliance with Company policies and state and federal laws. No employee may access another employee's computer, computer files, or electronic mail messages without prior authorization from either the employee or an appropriate Company official.

SOFTWARE ACCESS, USE, AND OWNERSHIP

The Company has licensed the use of certain commercial software application programs for business purposes. Third parties retain the ownership and distribution rights to such

software. No employee may create, use, or distribute copies of such software that are not in compliance with the license agreements for the software. Violation of this policy can lead to disciplinary action, up to and including dismissal.

Software that is needed in addition to the Microsoft Office suite of products must be authorized by a supervisor. Employees are not allowed to load software on Company computers, including those specifically assigned for their use, without approval from their supervisor.

7.6 Expenses and Expense Reimbursement

Purchases made for a project in excess of $250 should be approved by the project manager before purchased.

Non-billable expenses in excess of $250 should be approved by an authorized manager of the firm prior to expenditures. Authorized managers cannot authorize their own expenditures. Non-billable expenses should have a legitimate business purpose. If the purchase has dual purpose, in that it may be used for both business and personal purposes, the purchase must be approved in advance regardless of cost.

It is expected that billable expenses will be entered into the Time and Expense system by the third week of the month or earlier if requested by the project manager. A delay in filing expenses causes a lag behind the invoice cycle in billing the expenses to a project, which results in a financial loss to the Company.

Employees are free to delay the filing of non-billable expenses to the Company by not entering them into the Time and Expense System in a timely fashion. However, all non-billable expenses must be entered into the Time and Expense system by December 1st, to allow for a smooth year-end-close and an accurate determination of funds available for raises, bonuses and promotions.

Terraphase employees will, from time to time, spend company money entertaining clients. A good rule of thumb before spending any money on a client is to imagine that the client's supervisor is reading about the expenditure in the next morning's newspaper – many firms and most if not all government agencies have strict rules about what can and cannot be gifted in the way of entertainment to their employees. Entertainment expenses that violate the client's company's guidelines and potentially regulations are not good use of Company money. The $250 pre-approval on expenses applies to client entertainment. Equipment Rate Sheets

Terraphase owns equipment and purchases consumable items in bulk. Equipment and consumables used on a project must be billed to the specific project. This is done by filling out an Equipment Rate Sheet. Equipment Rate Sheets should be filled out at the end of each month prior to the end of the billing cycle.

7.7 Environmental and Health and Safety Policy

Terraphase is committed to a clean, safe and healthy workplace and environment. All aspects of our business are managed in a safe and environmentally responsible manner in accordance with the principles set forth in this policy. We believe these actions benefit our customers, shareholders, employees and the public, both now and for the future, while improving the quality of the environment. This policy reaffirms our commitment to environmental stewardship and protecting the well-being of our customers, employees and the public.

CULTURE

Terraphase fosters a culture that encourages safe, healthy and environmentally responsible behavior by clearly defining the responsibilities of all employees. Proactive employee involvement in these efforts is encouraged. Incentives for extraordinary performance will be provided.

HEALTH & SAFETY

Safety is the overriding value of all aspects of our business and the personal health and safety of each employee is of primary importance. Terraphase strives to provide a safe and healthy environment for our employees, our customers and the community. We demand safe work behavior, practices, design and systems. Terraphase has developed a health and safety program with the objective to reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing the best experience of similar operations by others. Our goal is zero accidents and injuries. The health and safety manual conveys the specifics of the companies health and safety program.

Each employee has the right and responsibility to stop-work in any situation they feel is unsafe. This stop-work authority can be applied both in the office and in the field. If the employee feels uncomfortable with work practices, they should stop work and call their supervisor to evaluate the potential risks. Every injury that occurs on the job must be reported to management and/or the Responsible Safety Officer as soon as possible. Under no circumstances, except emergency trips to the hospital, should an employee leave the work site without reporting an injury.

Training is one of the most important elements of any injury and illness prevention program. Such training is designed to enable employees to learn their jobs properly, bring new ideas to the workplace, reinforce existing safety policies and put the injury and illness prevention program into action. Terraphase will arrange for the applicable HAZWOPER training to employees with a job description that requires them to work on

hazardous waste sites. For employees expected to work on hazardous waste sites, Terraphase will enlist these employees in a medical monitoring program.

For projects requiring field activities, Terraphase requires that a health and safety plan be prepared that addresses the hazards expected at the Site and from work to be conducted at the Site. All employees are expected to follow the safe practices and rules contained in the health and safety plan and other rules and practices communicated on the job.

MEDICAL EXAMINATIONS

As required by the Occupational Safety and Health Administration (OSHA) regulations, all new employees are required to complete an entry physical examination. Employees are also required to complete annual physical examinations. Employees are required to complete an exit physical examination upon termination. Terraphase will identify the appropriate OSHA-certified clinic and will pay for all required medical exams.

POLLUTION PREVENTION

Pollution prevention is an operating objective. We strive to prevent or reduce the generation of waste at the source. Our impact on the environment is minimized through good engineering practices. Where waste cannot be eliminated, it will be managed in compliance with all applicable requirements.

COMMUNITY

We support and participate in the design, development and establishment of sound public policy and educational initiatives that protect human health and the environment. We will work with governments and others in creating responsible laws, regulations and standards to safeguard the community, workplace and environment. We will share with the communities our performance in the environmental, health and safety areas.

COMPLIANCE

Compliance with all applicable environmental, health and safety laws and regulations is required. All Terraphase employees, from the officer level to the front line, are responsible and accountable for compliance and have an obligation to bring issues and concerns forward for resolution.

STEWARDSHIP OF NATURAL RESOURCES

We will responsibly use natural resources, such as air, water, soils and forests, and we will help to conserve these natural resources through efficient use and careful planning. We will pursue an energy resource plan that emphasizes environmental protection,

energy conservation and efficiency. We will responsibly address conditions that endanger health, safety or the environment.

7.8 Cell Phone Policy

Terraphase employees are prohibited from using a cell phone, be it a personal or Company-supplied, without a hands-free device while driving a Company vehicle or while driving a personal vehicle on Company business. Terraphase employees are also prohibited from using a Company-supplied cell phone without a hands-free device while driving any vehicle, even when not on Company business. This prohibition includes receiving or placing calls, text messaging, surfing the Internet, receiving or responding to email, checking for phone messages, or any other purpose related to your employment; the business; our customers; our vendors; volunteer activities, meetings, or civic responsibilities performed for or attended in the name of the Company; or any other Company or personal activities not named here while driving. Employees who violate this policy will be subject to disciplinary actions, up to and including employment termination.

Employees will have the option of either joining the company's cell phone plan or continue to use their own. Employees are strongly encouraged to join the company plan as soon they are out of contract with their original cell phone plan. Terraphase will not pay for any termination fees. The employee will be provided with a budget for a phone. If a phone over the allotted amount is desired they will be responsible for the difference. Employees are allowed use of Company-supplied cell phones for personal use, so long as such use does not result in additional costs to the Company outside of the standard phone/text/data plan. For example, the sending or receiving of images, videos, or audio files through SMS or MMS messages usually adds costs beyond the standard plan. Employees who abuse Company-supplied cell phones through excessive or inappropriate use may be required to pay for excessive charges unrelated to official Company business. The Company may take disciplinary action against employees who abuse the cell phone policy.

Employees who use their personal cell phone for Company business may be partially reimbursed for cell phone costs resulting from Company-related use. The amount of reimbursement will be decided on a case-by-case basis and may vary from month to month. Employees must file an expense report with a copy of their cell phone bill and an estimate of the percentage of the cell phone bill related to Company business. All expense reports must be approved by the employee's supervisor. Expense reports for cell phone usage may be rejected by the supervisor if the requested reimbursement amount is inconsistent with the employee's use of the cell phone for Company business.

The replacement of a cell phone will be on a case by case basis. The amount provided toward the replacement of your cell phone will be determined by the employees supervisor.

If an employee decides to leave the company or is terminated within 12 months of receiving money for a new/replacement phone, they are responsible for paying the company back at a prorated rate. Also, if there are any termination costs associated with the cell phone plan they will be responsible for the cost.

7.9 Use of Company Vehicles

Vehicles owned, leased, or rented by the Company ("Company vehicles") can be used by Terraphase employees for business purposes only, unless otherwise authorized by a Vice President or President of the Company. The use of Company vehicles must be tracked in accordance with the billing requirements of the associated project (ie. miles vs. daily use.)

Prior to operating a Company vehicle, employees must inspect the vehicle to make sure that key systems are operational, including tire inflation, headlights and taillights, windshield wipers, fuel supply, etc. Any deficiencies should be noted and reported to the employee's supervisor. If a deficiency causes a safety problem, the vehicle should not be driven until the deficiency is corrected. Employees shall keep Company vehicles clean and tidy. Company vehicles should be refueled when the gas gauge indicates a quarter tank of fuel or less.

If an employee is involved in an accident in a Company vehicle, they must immediately notify their supervisor and/or the Corporate Health and Safety Director, in addition to notifying the appropriate authorities, as needed.

If an employee receives a parking ticket, traffic ticket, toll fine while using a company vehicle, they are responsible for the fine. The employee is to reimburse the company within 30 days or the employer has the opton of deducting the amount from the employee's next paycheck.

7.10 Conflict of Interest Policy

Employees should not allow their responsibilities outside of work to create a conflict of interest. If an employee has an opportunity to serve on a board or committee in the community, they should first weigh the possibility of conflict. If conflict of interest is unavoidable, the employee should decline such offers to serve. In cases where family members of an employee are employed by or serve on committees of our clients, suppliers, competitors, etc., the employee is required to notify their supervisor to make a formal notice of such association. A permanent record may be made and placed in the

employee's file. In this way, scenarios that may potentially be damaging to the reputation of the employee and our Company can be prevented.

7.11 Signature Authority Policy

All proposals, work orders, subcontractor purchase orders, or any other agreements to purchase or commit to a scope of work on the company behalf are subject to signature authority limits, as shown below.

Management Level	Overhead Expenses	Proposal or Project-Specific Agreement (Standard Terraphase T&C or existing MSA)	Project-Related Subcontractor (Standard Terraphase T&C or existing MSA)	Project Related Goods
All Employees	<$250	None	None	<$1,000
Project Manager	<$250	<$100,000	<$50,000	<$50,000
Vice President	<$1,000	<$500,000	<$250,000	<$250,000
President	>$1,000	>$500,000	>$250,000	>$250,000

All non-standard Terms and Conditions, as part of a project or proposal, must be approved by a Vice President or President of the Company. All master services agreements (standard or non-standard form) must be signed by the President.

7.12 Progressive Corrective Disciplinary Action Policy

Terraphase has adopted a progressive discipline policy to identify and address employee- and employment-related problems. However, depending on the severity of violation of employee conduct policies, the Company may choose at its sole discretion to skip steps in this policy. This policy applies to any and all employee conduct that the Company, at its sole discretion, determines must be addressed by discipline. Of course, no discipline policy can be expected to address each and every situation requiring corrective action that may arise in the workplace. Therefore, the Company takes a comprehensive approach regarding discipline and will attempt to consider all relevant factors before making decisions regarding discipline.

Most often, employee conduct that warrants discipline results from unacceptable behavior, poor performance or violation of the Company's policies, practices or procedures. However, discipline may be issued for conduct that falls outside of those identified areas. Equally important, the Company need not resort to progressive discipline, but may take whatever action it deems necessary to address the issue at hand. This may mean that more or less severe discipline is imposed in a given situation. Likewise, some Company polices like sexual harassment and attendance, contain specific discipline procedures.

Progressive discipline may be issued on employees even when the conduct that leads to more serious discipline is not the same that resulted in less severe discipline. That is, violations of different rules shall be considered the same as repeated violations of the same rule for purposes of progressive action.

Probationary employees are held to the highest standards for behavior and job performance. Progressive discipline is the exception rather than the rule for probationary employees.

The Company will normally adhere to the following progressive disciplinary process:

1. Verbal Caution: An employee will be given a verbal caution when he or she engages in problematic behavior. As the first step in the progressive discipline policy, a verbal caution is meant to alert the employee that a problem may exist or that one has been identified, which must be addressed. Verbal warnings will be documented and maintained by the supervisor. A verbal caution remains in effect for three (3) months.

2. Verbal Warning: A verbal warning is more serious than a verbal caution. An employee will be given a verbal warning when a problem is identified that justifies a verbal warning or the employee engages in unacceptable behavior during the period a verbal caution is in effect. Verbal warnings are documented and placed in the employee's personnel file and will remain in effect for three (3) months.

3. Written Warning: A written warning is more serious than a verbal warning. A written warning will be given when an employee engages in conduct that justifies a written warning or the employee engages in unacceptable behavior during the period that a verbal warning is in effect. Written warnings are maintained in an employee's personnel file and remain in effect for one (1) year.

4. Suspension: A suspension without pay is more serious than a written warning. An employee will be suspended when they engage in conduct that justifies a suspension or the employee engages in unacceptable behavior during the period that a written warning is in effect. An employee's suspension will be documented and, regardless of the length of the suspension issued, will remain in effect for duration of the suspension.

5 Decision-Making Leave: Generally following a suspension, an employee will be reprimanded then sent home for the day on decision-making leave. This is intended to help the employee decide whether they should continue employment with the Company. If the employee returns, they will be expected to make a greater effort than before to follow Company guidelines and continue their employment without interruption. The other option following decision-making leave is the employee may choose to resign because employment with the Company is not a match.

6. Termination: An employee will be terminated when they engage in conduct that justifies termination or does not correct the matter that resulted in less severe discipline.

Again, while the Company will generally take disciplinary action in a progressive manner, it reserves the right, at its sole discretion, to decide whether and what disciplinary action will be taken in a given situation.

Terraphase Illness and Injury Prevention Plan

Contents

Executive Summary

It is the responsibility of every employer to provide a safe and healthful environment for their employees to work by providing an effective Health and Safety Program. One component of this Program is to provide direction through policy and procedure addressing occupational health and safety issues. Terraphase Engineering Inc. (Terraphase) has established this Injury and Illness Prevention Plan to meet those needs.

Terraphase recognizes that an effective health and safety program is directly related to the dedication with which it is implemented by both management and employees.

Key Terraphase - Resource Staff

Terraphase Health and Safety Officer	Peter Zawislanski	(415) 645-1858
Terraphase Emergency Coordinator	Jeff Raines	(510) 645-1853
Terraphase President	William Carson	(510) 645-1852

The IIPP has been developed in order to comply with the laws and regulations contained in Title 8, California Code of Regulations, Title 29, Code of Federal Regulations, and the California Labor Code, which are designed to protect employees by requiring employers to provide a safe and healthful workplace.

The provisions of this policy are intended to supplement but not conflict with existing law, regulation or any ruling made thereto governing employee conduct and performance and management responsibilities, including but not limited to the Ralph C. Dills Act, Workers Compensation law, statutes and regulations implemented by the State Personnel Board. Nothing in this policy is intended to supersede or invalidate such laws, regulations or any rulings made thereto. Management has the duty and responsibility to impose conditions of the workplace and for performance, consistent with the law, as referenced above. This policy is intended to further the goal of providing safe and healthful working conditions, without limiting the rights and responsibilities under law of management and employees.

1. Introduction

Terraphase Engineering Inc. (Terraphase) has developed and implemented this Injury and Illness Prevention Program (IIPP) as part of our health and safety program. It is the policy of Terraphase to comply with Section 3203, Title 8 of the California Code of Regulations. Terraphase expects and requires all employees to follow the requirements set forth in this IIPP.

The goals of the program are:

- To promote and maintain the well being of Terraphase personnel by the prevention of occupational injury and illness;
- To identify and eliminate hazards that endanger the health and safety of Terraphase personnel;

- To reduce work interruptions and delays caused by accidents;
- To develop safety consciousness in Terraphase personnel through their active participation in the IIPP;
- To maintain and evaluate the effectiveness of the IIPP through periodic inspections and review of practices and procedures.

An effective health and safety program is directly related to the dedication with which it is implemented by both management and employees. Every person is expected, as an individual, to comply in all respects with the goals and requirements in the IIPP to ensure safety for themselves and for their fellow workers.

2. Roles and Responsibilities

The following individuals and programs are responsible for implementing Terraphase's IIPP. Their duties and responsibilities are:

President

The President is responsible for the overall management and administration of the IIPP. The President is also responsible for ensuring that all employees of Terraphase adhere to Federal and State regulations outlined herein.

Vice Presidents

The Vice Presidents are responsible in assisting the President in the development of both policies and procedures, by providing constant input concerning the needs of all Terraphase employees. Vice Presidents are responsible for ensuring that employees under their supervision comply with State and Federal regulations outlined herein.

Terraphase Managers/Supervisors

All Terraphase Managers/Supervisors are responsible for ensuring that proper health and safety procedures are being followed by all staff. The manager/supervisor also has overall responsibility for implementing the IIPP in his/her work area. Additional responsibilities include:

- Ensuring that employees under their supervision understand and follow the IIPP;
- Setting a good example by following all safety rules;
- Keeping informed of existing health and safety standards and effective safe work practices;
- Encouraging employees to suggest improvements;
- Ensuring that no employee is assigned a task without appropriate safety training;
- Discussing attitude and compliance with the health and safety program in performance appraisals;
- Recommending appropriate action when personal safeguards and safety equipment are not used in accordance with established procedures.

Health and Safety Program

The Health and Safety Program provides technical consultation and training on occupational health and safety issues for all Terraphase employees. Included in these responsibilities are:

- Furnishing technical information to provide assistance in complying with the IIPP;
- Conducting a quarterly inspection (January, April, July and October) to identify unsafe work conditions and practices. The inspection will verify compliance with the Code of Safe Practices, Appendix A;
- Investigating occupational injury and illness, and providing any necessary corrective action, and/or training to prevent reoccurrence, when warranted;
- Gathering and compiling data from hazards and accidents for the purpose of reducing injuries and/or illness claims caused by work related injuries or illnesses;
- Assisting Terraphase Managers/Supervisors in developing appropriate health and safety programs and procedures;
- Providing updated information on occupational regulatory requirements to Terraphase management, Health and Safety Committee, and Terraphase employees.

Terraphase Employees

It is the responsibility of every Terraphase employee to follow proper health and safety procedures as outlined in the IIPP. Employees are responsible for:

- Participating with Managers/Supervisors to achieve health and safety goals;
- Understanding and complying with all safety rules and regulations;
- Keeping physically fit and mentally alert to accomplish work without injury;
- Becoming familiar with safety practices and potential hazards associated with their job assignments;
- Watching for and recognizing potential safety hazards and correcting them when possible. If unable to correct the hazard, report it immediately to their supervisor;
- Keeping supervisors apprised of any limitations that interfere with safe performance of their assigned job task;
- Reporting all injuries and illnesses to supervisors immediately.

3. Safety Communication

All matters concerning occupational safety and health will be communicated to Terraphase employees through written documentation, health and safety committee meetings, staff meetings, formal and informal training and posting. The elements of Terraphase's IIPP and all aspects of its health and safety program shall be communicated in a readily understandable manner to employees.

It is Terraphase's policy to encourage all employees to report hazards which exist at their worksite to their supervisor or the Health and Safety Officer so that corrective action can be taken in a timely

manner. Employees who report such conditions will not be disciplined nor will they suffer any reprisals due to their actions.

The following mechanisms are available to all employees to communicate occupational health and safety matters.

Employee Safety Suggestions

Employee's suggestions concerning health and safety are solicited by:

- Written, telephone or personal contact with the employee's supervisor or Health and Safety Program personnel;
- Anonymous telephone calls to the Health and Safety Officer;
- Terraphase's Suggestions Box;
- Grievance or complaint process.

Health and Safety Grievances: It is the policy of this Terraphase to afford employees an effective means of obtaining prompt consideration of grievances or complaints. An employee who has a problem or complaint should first, without undue delay, try to settle the matter through discussion with the immediate supervisor. Every effort should be made to find an acceptable solution by informal means at the lowest possible level of supervision. If the employee is not in agreement with the decision reached through these discussions, a formal grievance or complaint may be filed in writing pursuant to the procedure and time limits set forth in the appropriate Memorandum of Understanding.

No reprisal or threat of reprisal for using the grievance or complaint procedure is permitted. Lack of observance of rule can result in appropriate action by Terraphase or the State Personnel Board against the offending party.

Employer-To-Employee Communications of Safety Topics

The following are forms of employer-to-employee communications relating to health and safety topics:

- Office Emergency Evacuation Drills;
- Health and Safety Program informational memoranda on various safety related topics;
- Safety and Video Library;
- Health and Safety Training and Education;
- Health and Safety Bulletin Board.

Required Posting: Cal/OSHA - Safety and Health Protection on the Job

- Emergency Evacuation Plan
- Emergency Telephone Numbers
- Summary of Injury and Illnesses (February only)
- Material Safety Data Sheet (MSDS) location

4. Employee Compliance/Disciplinary Policy

Under Terraphase's Health and Safety Policy, all employees are required to follow safe practices and operating procedures. When applicable, employees will be provided with additional training and information, or retrained to maintain their knowledge. Training is specified in the Health and Safety Training Section of this IIPP.

The disciplinary policy of Terraphase works in conjunction with the IIPP to encourage employee compliance with health and safety policies and procedures as mandated in the California Labor Code Section 6401.7(a)(6). Unsafe actions will be corrected or prevented from reoccurring. When unsafe actions continue, corrective steps will be taken by the appropriate supervisor in accord with the California Government Code, Section 19574. Employee performance appraisals shall include a review of the employee's effectiveness in following good practice of vehicle and personal safety.

5. System for Identifying, Evaluating and Preventing Workplace Hazards

It is the intent of Terraphase through this IIPP to identify and evaluate unsafe work conditions and unsafe work practices so that injuries and job-related illnesses are reduced, if not completely eliminated. The principle method to reduce accidents at Terraphase is through periodic scheduled and unscheduled inspections.

Inspections will be conducted on a quarterly basis (March, June, September, and December) to identify unsafe conditions and work practices. The inspection will be performed by the Health and Safety Officer or his designee. The Health and Safety Officer or his designee will notify the Health and Safety Committee Chair when quarterly inspections will be conducted. Areas supervisor will be responsible to conduct periodic general office inspections of their area.

At an offsite office location it will be the responsibility of the Health and Safety Officer or his designee to conduct periodic inspections. Office managers will be responsible to conduct periodic general office inspections.

Inspections will also be conducted if any of the following occur:

- Whenever new substances, processes, procedures, or equipment are introduced into the workplace that represent an occupational health and safety hazard, or
- Whenever Terraphase is made aware of a new or previously unrecognized hazard.

Inspections shall be conducted to verify compliance with the Code of Safe Practices (See Appendix A). The Inspections Checklist and Correction Form, IIPP-1 (Appendix D) shall be used when conducting the inspection. Note: "Specific Hazard Evaluation for General Work Areas and Preventive Measures" is provided for additional guidance (Appendix D).

6. Methods and Procedures for Correcting Unsafe or Unhealthy Conditions, Work practices

It is the intent of Terraphase to eliminate all hazards and unsafe conditions or work practices. Unsafe or unhealthy work conditions or work practices will be corrected in a timely manner, as determined by the severity of the hazard. Under no condition will Terraphase personnel be required or permitted to work under conditions which pose a clear or imminent hazard.

When an imminent hazard exists which cannot be immediately corrected without endangering employees and/or property, the following steps will be followed:

1. Remove all potentially threatened employees.

2. Provide employees responsible for correcting the conditions with necessary safeguards.

3. Correct the problem.

4. Document the corrective action and date corrected. The documentation shall be completed by the Health and Safety Officer or his designee through a memorandum format. Documentation will be maintained by the Health and Safety Program.

Hazards will be eliminated or minimized first through engineering controls. If engineering controls are impractical or infeasible, administrative controls will be used. When engineering controls alone, or in combination with administrative controls cannot adequately minimize the hazard, personal protective equipment shall be provided.

7. Injury and Illness Treatment and Investigation

Medical Treatment

If the employee reports a physical injury or illness the supervisor shall ensure the employee is provided with prompt first aid followed by professional medical attention (if required). [Reference: 9.0 Reporting Injury and Illness]

Medical attention can be provided by the employee's personal physician, or the nearest hospital or medical clinic. The selection of the medical provider will depend upon the type of injury or exposure and the severity of the injury. It is preferable that the employee use Terraphase's pre-designated medical facility except in the following cases:

- If the injury requires urgent medical attention, the closest available physician or medical facility should be used.
- If the employee has previously notified his/her supervisor in writing that he/she prefers treatment by a specified physician.

If no symptoms are reported, but confirmed or suspected exposure to substance which require medical surveillance by Cal/OSHA regulations has occurred, the employee shall be authorized by the Health and Safety Officer for examination or testing. The Health and Safety Officer shall be available for consultation on these matters.

If the employee does not report any symptoms of exposure to substance for which Cal/OSHA regulations require medical examinations, the employees shall be encouraged to seek medical attention from their personal physician and identify the work related nature of the incident.

Injury and Illness Investigations

When injuries or illnesses occur on the job which require medical care, they will be thoroughly investigated by the Health and Safety Officer or his designee. The purpose of the accident investigation is to identify facts about the injury and illness. Every attempt shall be made to report all incidents to the Health and Safety Officer within 24 hours of the occurrence. The investigation will determine at least the following:

- Who and What was directly involved in the accident;
- Who and What was indirectly involved in the accident;
- Where and When the accident occurred;
- The Cause of the accident, if known;
- Steps/Procedures to take to prevent reoccurrence, if known.

The Health and Safety Officer will investigate the reported injury or illness. An Injury and Illness Investigation form, IIPP-2 shall be completed to document the investigation. The form will document any unsafe conditions, unsafe practices and provide the necessary information to eliminate a recurrence.

All completed Injury and Illness Investigation forms, IIPP-2 (Appendix B) will be retained by the Health and Safety Program. A copy will also be provided to the employee, their supervisor, and the Deputy Director.

8. Reporting Injury and Illnesses

Claims Management

All occupational injury and illness occurring while an employee is engaged in official Terraphase business must be documented and reported.

Supervisor's Responsibility

It is the responsibility of the supervisor to carry out Terraphase’s injury prevention policies. In case of injury, this responsibility includes initiating action to obtain prompt medical treatment for injured employees.

Responsibility of the Injured Employee

It is the responsibility of the employee to report an injury or illness to the supervisor within 24 hours of the time it occurred. The employee should obtain first aid for minor injuries or accept medical assistance provided for by the supervisor when the injury is significant. Notify the supervisor of the physician's recommendation concerning the ability to work.

Reporting Injury and Illnesses

All injuries or illnesses which occur on the job shall be documented by the following steps:

1. All injuries must be reported by the employee to their supervisor as soon as possible. In some cases, it may be necessary to report the injury to the supervisor after obtaining medical attention.

2. The employee's supervisor must immediately notify Personnel and the Health and Safety Officer if an injury/illness occurs.

3. The employee's supervisor must complete State Compensation Insurance Form (SCIF) Form 3067 - Employer's Report of Occupational Injury or Illness. This form must be submitted to Personnel immediately. See Appendix B for an example of SCIF Form 3067.

4. Within 24 hours of the reported injury/exposure, Personnel must provide the employee with a SCIF Form 3301 - Employee's Claim for Workers' Compensation Benefits. The employee uses SCIF Form 3301 to describe the circumstances of the injury/illness. See Appendix B for an example of SCIF Form 3301.

5. A copy of the SCIF Form 3067 shall be immediately provided to the Health and Safety Officer so an accident investigation can be conducted.

9. Health and Safety Training

Training is essential to maximize the skills and knowledge of all Terraphase employees. All employees shall receive training and instruction in the following areas:

- General safety and health work practices;
- Specific instruction with respect to hazards unique to the job assignment.

Training of employees at Terraphase regarding this IIPP shall occur:

- When the program is first established;
- To all new employees;
- To all employees given a new job assignment for which training has not previously been received;
- Whenever new substances, processes, procedures, or equipment are introduced to the workplace and represent a new hazard;
- Whenever Terraphase is made aware of new or previously unrecognized hazards.

Specific training requirement for Terraphase employee are based on their assigned job duties and is outlined in the specific Health and Safety Program Policies normally in a Site Specific Health and Safety Plan.

10. Recordkeeping

Terraphase will keep records of actions taken to implement and maintain this IIPP. The records will be maintained on file for a minimum of three years. The records kept by the Health and Safety Program relating to this IIPP will not adversely affect the retention of medical and exposure records as specified in Title 8, California Code of Regulations, Section 3204 -Access to Employees Exposure and Medical Records.

Inspections

Records of scheduled and unscheduled periodic inspections as well as other records including methods used to identify and evaluate workplace conditions and work practices shall also be retained by the Health and Safety Program.

Records relating to the IIPP shall include, as a minimum, person(s) conducting the inspection or evaluation; the unsafe conditions and work practices that have been identified; and, action taken to correct the identified condition or work practice.

Health and Safety Training

The Health and Safety Program shall maintain records of all health and safety training which is coordinated through the Health and Safety Program. Records and documentation of health and safety training shall include, at a minimum, the name of the employee, training dates, type of training, and training providers.

APPENDIX A

CODE OF SAFE PRACTICES

General

1. All persons shall follow these safe practices/rules, render every possible aid to safe operations, and report all unsafe conditions or practices to the supervisor.

2. Supervisors shall insist on employees observing and obeying every rule, regulation, and order as is necessary to the safe conduct of the workplace and shall take such actions necessary to obtain observance.

3. All employees shall be given accident prevention instructions whenever a new task is introduced or a task is changed which could cause an accident or injury.

4. Anyone known to be under the influence of drugs or intoxicating substances shall not be allowed on the job while in that condition and is subject to appropriate action.

5. Horseplay, scuffing and other acts which tend to have an adverse influence on the safety or well being of the employees are prohibited.

6. Work tasks shall be well planned and supervised to prevent injuries when handling all materials and in working with equipment.

7. No employee shall knowingly be permitted or required to work while his/her ability or alertness is so impaired by fatigue, illness, or other causes that might unnecessarily expose him/her or others to injury.

8. All injuries shall be reported promptly to the supervisor so appropriate arrangements can be made for medical or first aid treatment.

9. When lifting heavy objects, proper lifting techniques will be used.

10. All employees shall be provided with hazard communication and accident prevention information.

General Office

1. Report all unsafe conditions and equipment to your supervisor or the Health and Safety Officer or H and S staff.

2. Report all injuries and illnesses to your supervisor. The supervisor or manager shall report the event to the Health and Safety Officer or H and S staff immediately.

3. Means of egress shall be kept unblocked, well lighted and unlocked during working hours.

4. In the event of fire, sound alarm and evacuate.

5. Upon hearing fire alarm, stop work and proceed to the nearest clear exit. Gather at the designated location.

6. Only those designated Emergency Plan Coordinators shall respond to a fire or other emergency.

7. Exit doors must comply with fire safety regulations.

8. Stairways should be kept clear of items that can be tripped over and all areas under stairways that are egress routes should not be used to store combustibles.

9. Materials and equipment will not be stored against doors or exits, fire ladders or fire extinguisher stations.

10. Aisles must be kept clear at all time.

11. Work areas should be maintained in a neat, orderly manner. Trash and refuse are to be disposed of in proper waste containers.

12. All spills shall be cleaned up promptly.

13. Files and supplies should be stored in such a manner to prevent damage to the supplies or injury to personnel when they are moved. Heaviest items should be stored closest to the floor and lightweight items stored above.

14. All cords located in areas where they can be a tripping hazard must be taped down or inserted through rubber protectors.

15. Never stack materials precariously on top of lockers, file cabinets, bookcases, or other high places.

16. Never leave lower desk or cabinet drawers open that present a tripping hazard. Use care when opening and closing drawers to avoid pinching fingers.

17. Do not open more than one upper drawer at a time; particularly the top two drawers on tall file cabinets.

18. Always use the proper lifting technique. Never attempt to lift or push an object which is too heavy. Contact your supervisor when help is needed to move a heavy object.

19. Individual heaters and fans are not allowed in the work areas.

20. All electrical equipment should be plugged into appropriate wall receptacles or into an extension of only one cord of similar size and capacity. Three-pronged plugs shall be used to ensure continuity of ground.

21. When carrying material, caution should be exercised in watching for and avoiding obstructions, loose material, etc..

22. Appliances such as coffee pots and microwaves should be kept in working order and inspected for signs of wear, heat or fraying of cords.

23. Equipment such as scissors, staplers, etc., should be used for their intended purposes only and should not be misused as hammers, pry bars, screwdrivers, etc.. Misuse can cause damage to the equipment and possible injury to the user.

24. Cleaning supplies should be stored away from edible items.

25. Cleaning solvents and flammable liquids should be stored in appropriate containers.

26. Solutions that may be hazardous shall be kept in well labeled containers.

27. No obstacles are to be left where a person could trip over them.

28. Use step ladders or step stools for high reaching. Never use a swivel chair or piled-up-boxes.

29. Avoid leaning back on chairs.

30. Know the locations of exits, fire extinguishers, and first aid equipment.

31. Smoking is permitted in designated areas outside of the building.

32. Be sure that your workstation has been ergonomically adjusted.

Field Activities

1. All persons shall follow all requirements as outlined in the Field Health and Safety Plan.

2. Supervisor shall insist on employees observing and obeying every rule, regulation, and order as is necessary to the safe conduct of the work, and shall take such actions as are necessary to obtain observance.

3. All employees shall be provided with hazard communication and accident prevention information associated with field activities.

4. Field personnel will participate in the required health and safety training and medical surveillance programs.

5. All employees shall immediately report accidents, injury, illness and toxic exposures immediately to their supervisor.

6. To properly use and care for all personal protective equipment and field instrumentation used while conducting field duties.

7. Properly plan and safely execute field work.

8. Practice good personal hygiene while performing field duties. Always wash hand and face thoroughly before leaving the site or as soon as possible thereafter.

9. Avoid contaminating the interior of vehicles by practicing good hygiene. Remove boots and any contaminated articles by placing them in a plastic bag before entering the vehicle.

10. If heavy equipment or other vehicles are present, stay out of traffic routes.

11. Do not touch any materials without appropriate gloves or other personal protective equipment.

12. Decontaminate all personal protective equipment onsite whenever possible.

13. Stay upwind and a safe distance away from high hazard areas to prevent exposure whenever possible.

14. Never enter a confined space area.

15. Store field equipment at the field shop to prevent contamination of the office or your home.

APPENDIX B

FORMS

Instructions - Accident, Injury and Illness Investigation Form, IIPP-2

All occupational injuries, illnesses or exposures to toxic materials, occurring while an employee is engaged in official Terraphase business must be documented and reported. The Accident, Injury and Illness Investigation Form, IIPP-2 is used when conducting an investigation of a reported accident, injury or illness.

As specified in the IIPP, Accident, Injury and Illness Investigations Section every occurrence will be thoroughly investigated by the Health and Safety Officer or his designee. Supervisor and employees are responsible to report all accidents, injuries, and illnesses immediately. The Accident, Injury and Illness Investigation form, IIPP-2 shall be used to document any unsafe condition, practice and/or violation of the Code of Safe Practice. A copy of the completed IIPP-2 will be retained by the Health and Safety Program. A copy will also be provided to the employee and their supervisor.

When a reportable accident, injury or illness occurs the employee's supervisors is required to complete a State Compensation Insurance Form (SCIF) Form 3067 - Employer's Report of Occupational Injury or Illness and SCIF Form 3301 - Employee's Claim for Workers' Compensation Benefits. These forms must be submitted to Personnel immediately. See Appendix F for a sample of each. Note: SCIF Form 3301 must be completed within 24 hours of the reported injury/exposure.

To aid in the investigation a copy of each of these SCIF Forms should be provided to the Health and Safety Officer or his designee.

IIPP-2

Terraphase

ACCIDENT, INJURY AND ILLNESS INVESTIGATION FORM

Person(s) Conducting Investigation and Title_____

Date/Time of Accident/Injury/Illness_____

Name(s) of Affected Employee(s) and Title_____

Work Area of Affected Employee(s)_____

_____

Nature of Accident/Injury/Illness_____

_____

Part(s) of Body Affected_____

Was first aid rendered at the time of the accident/injury? (YES/NO)._____

If YES, who rendered the first aid (include full name and title)? _____

Was the employee advised to seek medical attention? (YES/NO)._____

If YES, which medical facility/physician was the employee referred to? (include address)

_____

Did a workplace condition, work practice or protective equipment contributed to the incident?

_____

_____

Was the Code of Safe Practice violated? (YES/NO) _____

If So, Which One_____

What corrective actions will be taken to prevent another occurrence?

_____

Will an additional Code of Safe Practice be needed? (YES/NO)._____

If so, state it _____

_____

Was the unsafe condition, practice or protective equipment problem corrected immediately? (YES/NO)
_____

If no, what has been done to assure correction?_____

_____

_____

Until corrected, what actions have been taken to prevent recurrence in the interim?

_____

Will the Inspection Checklist and Correction Form (IIPP-1) for the area require modification to prevent recurrence? (YES/N0)._____

If so, what needs to be added?_____

_____

Signature of Investigator _____

Date of Investigation _____

Person Responsible for Corrective Actions _____

Copy of This Report Received by Above Person _____

Signature of Person Responsible for Correction _____

Management Approval _____

Date _____

Note: SCIF Form 3067 - Employers Report of Occupational Injury or Illness contains information which will aid filling out this form.

Instructions

Inspections Checklist and Correction Form, IIPP-1

The Inspection Checklist and Correction Form is used when conducting an initial or periodic inspection of the facility. This form will aid in documenting workplace deficiencies/hazards and provide the corrective action needed to alleviate the problem.

As specified in the IIPP, System for Identifying, Evaluating and Preventing Workplace Hazards inspections shall be conducted on a regular basis. Supervisors and employees are responsible to report any deficiencies and hazards they are aware of and may require corrective action.

All inspection will be documented on the Inspection Checklist and Correction Form, IIPP-1. Scheduled inspection will be conducted by Health and Safety Officer and/or his designee at least quarterly (March, June, September, December). Inspections will also be conducted when a new or unrecognized hazard is identified.

Inspections will be conducted to verify compliance with the Code of Safe Practices.

********** COMPLETE ALL OF SECTION **********

TERRAPHASE

INSPECTION CHECKLIST AND CORRECTION FORM

Facility: _____

Date Prepared: _____

Preparer: _____

Instructions: Checklist is based on Code of Safe Practices and Title 8, California Code of Regulations for the area/job. If corrections are required, distribute copies to responsible person(s).

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

Check

(Initial)

Corrective Action Needed

Specific Condition Place a check mark in this block or put your initials for each item inspected.

1. Leave blank or enter "NO" if no action is needed.

2. Enter "N/A" if item does not pertain to your area.

3. Enter "YES" if item needs corrective action.

4. Explain in Section "C" of this form the action taken to correct hazard.

Corrective action (specify in detail) _____

Is tag-out/lockout required due to imminent hazard? _____

Person responsible for correction _____ Copy Provided _____

Copy reviewed by Health and Safety Office _____ Date _____

Facility: _____

Date Prepared: _____

Preparer: _____

Instructions: Checklist is based on Code of Safe Practices and Title 8, California Code of Regulations for the area/job. If corrections are required, distribute copies to responsible person(s).

EMPLOYER POSTING

1. The Cal/OSHA poster "Safety and Health Protection on the Job" displayed in a prominent location where all employees can see it.

2. Emergency telephone number are posted where they can be readily found in case of an emergency.

3. Employees which may be exposed to any toxic substances or harmful physical agents, have appropriate information concerning employee access to medical and exposure records. Material Safety Data Sheets have been posted or otherwise made readily available to affected employees.

4. Other required posting.

   a. OSHA 200 form posted from February 1 to March 1 of each year.

   b. Access to Employee Exposure and Medical Records.

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

1. Alarm systems are properly maintained and tested regularly.

2. The emergency action plan is reviewed and revised periodically.

3. Supplementary emergency lighting units (ELU's) are provided to aid in evaluation during power outages.

4. Employee know their responsibilities for:

   a. Reporting emergencies

   b. During an emergency

   c. Conducting rescue and medical duties

FIRE PROTECTION

1. Portable fire extinguisher are properly mounted, located, and easily identified. They are not blocked and are easily accessible without subjecting employees to injuries.

2. Portable fire extinguisher are maintained in a fully charged and operational condition.

3. Fire doors are in good operating condition.

4. Exits or access exits are adequately lit and marked by readily visible signs.

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

5. "Exit" signs (marked with an arrow indicating the direction) are placed in every location where the direction of travel to reach the nearest exit is apparent.

6. The automatic sprinkler system's water control valves, air and water pressure is periodically checked.

7. Proper clearance is maintained below sprinkler heads, specifically in storage rooms, warehouses etc.

8. Employees know where fire alarms and fire extinguisher are located and how to use them.

9. Employees are familiar with fire evacuation procedures and are well versed as to what to do in case of a fire.

FLOOR SURFACES

1. Floor surfaces are clean and free from debris.

2. A non-slip condition is maintained on all floor surfaces.

3. The carpet is well secured to the floor and free of worn or frayed seams.

4. All holes in walls and loose floor or ceiling tiles are reported immediately to the Business Services Office.

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

1. Doorways are free from obstructions or debris that could hinder visibility and movement.

2. All exits are clearly marked and visible. All emergency exits are adequately lit by a reliable light source.

3. All exits are unlocked and are easily accessible during work hours.

4. Adequate walking space is maintained (44 1/2" minimum) at exits.

5. Carpet on stairs are well secured and not torn or loose

6. Lighting in stairwells allow adequate illumination by a reliable light source.

GENERAL WORK ENVIRONMENT

1. All worksites clean and orderly.

2. Toilets and washing facilities are clean and sanitary.

3. Smoking is prohibited within the building.

4. All spilled materials or liquids are cleaned up immediately.

5. All work areas are adequately illuminated.

6. Aisles and passageways are kept clear and free from obstruction.

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

OFFICE FURNITURE

1. File cabinets and storage closets are so arranged that drawers or doors do not open into walkways.

2. Chair casters are not loose and rungs and legs are sturdy.

3. All furniture does not have sharp edges, points, burrs, or splinters.

4. Heavy items are stored in lower and middle shelves of storage cabinets.

5. Only one cabinet/file drawer is open at a time and are closed when work is finished.

6. All drawers are closed when not in use to avoid pinching the employee's fingers and body parts.

7. File cabinets, and shelving are properly bolted.

8. Lateral type doors are pushed in out of the way when they are open.

OFFICE ERGONOMICS

1. Workstation is ergonomically correct.

2. Wrist supports, foot rests, ability to adjust keyboard are available.

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

ELECTRICAL

1. All electrical appliances are grounded using 3 prongs.

2. No multiple plug adapters are available and in use.

3. All extension cords have a grounding conductor.

4. All wiring and cords are not frayed or have deteriorated insulation.

5. Metal ladders are not used in areas where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or circuit conductors.

6. All disconnecting switches and circuit breakers are properly labeled indicating their use or equipment served.

7. Electrical enclosures such as switches, receptacles, junction boxes etc. are provided with tight-fitting covers or plates.

8. All cords are maintained under desks or along baseboards. When cords cross walking areas or present a tripping hazard are to be taped to the floor or covered with a plastic runner.

9. Circuits are not overloaded. (Several items into a single extension cord and socket could cause a fuse blowout presenting a fire hazard.)

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

FIRST AID (EMERGENCY PREPAREDNESS)

1. All first aid kits are easily accessible in each work area.

2. First aid kits are periodically inspected and replenished as needed.

3. An Emergency Plan and Instructions, including evacuation routes and procedures are posted.

4. The following emergency response equipment is available:

a. Flashlights intrinsically safe with extra batteries

b. Hard Hats

c. Blankets

d. Stretcher

e. Portable First Aid Kits with CPR Microshields

f. Disposable Overalls

g. Safety Vest

h. Flares

Safe Work Conditions, Safe Work Practices or Personal Protective Equipment

Corrective action (specify in detail) _____

Is tag-out/lockout required due to imminent hazard? _____

Person responsible for correction _____Copy Provided _____

Copy reviewed by Health and Safety Office_____ Date _____

TERRAPHASE

SPECIFIC HAZARD EVALUATION FOR GENERAL WORK AREAS AND PREVENTIVE MEASURES

Potential Occupational Safety/Health Hazard Preventive Safe Work Conditions/Practice or Personal Protective Equipment

Existence of unsafe conditions which management may not be aware of.

- Requires reporting of all unsafe conditions to supervisor or facility coordinator.
- Report all accidents, injuries and illnesses.

Hazards associated with an emergency (i.e., fire)

- If an emergency occurs, employees must immediately notify their supervisor. Supervisor will call 9-911, order evacuation of the building (if necessary) and notify emergency team members. (Refer to Emergency Plan for additional information).
- An employee hearing an alarm must stop work. Staff working in building must evacuate to the designated emergency meeting location.
- In the event of a fire no employees shall try to extinguish the fire unless they have been specially trained and designated as "emergency responders".
- Misconduct and substance abuse causing carelessness and unsafe conditions.
- Horseplay must be prohibited. Employee use of intoxicants is forbidden during working hour and on the premises.

Tobacco smoke exposure.

- No smoking allowed in the building, only in designated smoking areas.

Fire extinguishers blocked by storage/debris.

- Access to fire extinguishers shall be kept clear.

Means of exit blocked.

- All staff shall keep means of exit open during work hours and inspections shall verify ability to easily exit.

Emergency evacuation.

- Do not use elevators during emergency evacuation.

Stairways

- Use hand rails at all times.

Slips and falls due to wet sidewalks, uneven surfaces around the building and in parking lot.

- Immediately cleanup floor surfaces. provide care during and after floor cleaning.
- Use caution when walking on wet surfaces and uneven surfaces.

Communicable diseases.

- Cold and flu illnesses require isolation in consideration of others (i.e. In other words, stay home).

- Seek professional advice from a physician for life threatening and debilitating illnesses.

Lifting, Carrying, Pushing and Pulling

Strains and sprains in back and extremities due to overexertion in lifting, pushing trucks and carts.

- Receive training in proper lifting techniques and back injury prevention.
- Whenever possible use hand trucks and other material handling devices properly.
- Use a back brace which can be obtained from the Health and Safety Officer.
- Exercise care to avoid overexertion.

Tripping and falls.

- Keep work areas clear of debris, floor storage, electrical cords and telephone cords.

Bumping edges of desk, drawers, and coat racks.

- Assure adequate aisle space and improve employee safety consciousness.

Falling objects from top of work stations.

- Place objects only on stable surface.

Furniture placement.

- Maintain a conscious awareness of furniture placement.

Video Display Terminal (VDT) Operation

Eye strain due to poor lighting, VDT screen glare and work station design.

- Background lighting and screen lighting should be compatible and adjustable.
- "No glare" screens should be available when funding allows.
- Eye care and rest periods should be provided pursuant to the Bargaining Unit contracts in place.
- Screen positions should be adjustable where available.
- Employee training.

Strain and musculoskeletal trauma due to repetitive strain and work station design.

- Anti-carpal wrist supports should be available.
- Foot rests should be available.
- Ergonomic chairs should be available.
- Adjustable keyboards should be available.
- Employees should be trained to avoid muscular skeletal problems.

Lateral Files and File Cabinets

Hitting open file door/drawer

- Push lateral file doors all the way in after use.

Cabinet tipping over onto employee

- Open only one drawer at a time.
- Close file drawers when finished.
- Bolt cabinets together.

Microfiche Cabinets, printers and Copy Machine

Pinching fingers and body parts.

- Use care when closing drawers. Make sure that hands and body parts are clear.
- Only designated personnel will perform major repair to printers and copy machines.
- Special care should be taken when making minor adjustments to equipment (i.e. paper jams, filling paper trays, etc.).

Driving

Vehicle accidents resulting in personal injury.

- All State employees are required by the State Administrative Manual to attend Defensive Driving Class once every four years.
- Wear a seatbelt shoulder harness at all times.
- Do not exceed the speed limit for each condition.
- Practice defensive driving.
- Park in legal spaces and do not obstruct traffic.
- Report all accidents to your supervisor as soon as possible.

Attachment E

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The terraphase Team

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Workplan for ……..

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