



Environmental Science International - Principle Resume

Ernest H. H. Shih

Years Experience: 20

EDUCATION

M.S. Geoscience, 1982. University of Arizona, Tucson, Arizona.
B.A. Geology, 1975. Earlham College, Richmond, Indiana.
Geology Field Camp, 1975. University of Kansas at Canon City, Colorado.
Junior Year Abroad, 1974. American University of Beirut, Beirut Lebanon.

PROFESSIONAL AFFILIATIONS AND CERTIFICATIONS

Professional Geologist, State of Washington #1473.
Associate Member, Hawaii Federal Safety and Health Council.
Member, Hawaii Water Pollution Control Association.
First Aid and CPR Certified, since 1993.
29 CFR 1910.120 (40 Hour HAZWOPER), since 1992.
29 CFR 1910.120 (8 Hour HAZWOPER Supervisor), 1994.
29 CFR 1910.146 (Permitted Confined Space Entry), 1995.
EnSys Field Method Certification Training, 1995.
USACE Construction Quality Management for Contractors, 1996.
NITON XRF Spectrum Analyzer Certification, 2001.

SUMMARY OF QUALIFICATIONS

Mr. Shih is in charge of the technical and business development of ESI. He is also a director of and technical advisor to Environmental Science Corporation, a related Japanese Corporation. He has over 14 years of International Asia-Pacific consulting experience in the areas of Environmental Studies, Investigations, Remediation, Geology, Remote Sensing, and Construction Management.

Formerly, Vice President in charge of Brewer Environmental Services (BES), Mr. Shih was responsible for the supervision of the Brewer Environmental International Japan (now ESC) office, which opened in Tokyo in 1998. He is well acquainted with the environmental conditions and regulatory environment of Pacific Rim countries especially those governing commercial and US SOFA work in Japan and Korea.

During the past nine years, he has been the Principal Investigator (PI) or Chief Program Manager (CPM) for three US Army Corps of Engineers IDIQ contracts in the Pacific. He was PI for the Honolulu Engineering District under contract DACA83-91-D-0014, Indefinite Delivery Contract for Remedial Actions, Various Pacific Locations, and contract DACA83-95-D-0003, Indefinite Delivery Contract for Environmental Cleanup and Remedial Action for Hazardous/ Toxic, Radiological Wastes (HTRW) at Various Pacific Locations. He has served as the CPM for the Japan Engineering District contract, DACA79-97-D-0003, Japan-wide Remedial Action Contract.

Mr. Shih was the Program Manager for BES's team participation in the five-year NAVY PACDIV RAC contract under OHM. He has supervised BES's participation in Task Orders for Red Hill, Pearl Harbor, Midway Island, Johnston Atoll, and Barbers Point.

Mr. Shih has directed or conducted a variety of environmental plans, studies, investigations, and remedial action. Studies have included: Environmental Site Assessments, feasibility studies, treatability studies, Engineering Evaluation and Cost Analysis (EECA), Risk Evaluations and Risk



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Assessments, NPDES stormwater permitting, UIC permitting, and Air Quality Analysis. Environmental investigations have included: UST closures; PA/SI; RI/FS; and soil and groundwater investigations for petroleum, halogenated compounds, and heavy metals contamination. Remedial action has included: CERCLA emergency recovery actions, in situ and ex situ bioremediation, soil vapor extraction, groundwater pump and treat using dual-drawdown pumps, total fluids pumps, and Multiphase extraction.

Mr. Shih was recently Principal Investigator, Project Designer and Project Manager of the Simultaneous Recovery Action and Site investigation for a 30 ton surface spill of 98% Sulfuric Acid at Barbers Point Oahu, the largest chemical spill in Hawaii history. He has directed hundreds of projects on Kauai, Oahu, Molokai, Lanai, Maui, and the Big Island of Hawaii and is well acquainted with the U.S. EPA Region IX and the State of Hawaii Department of Health Clean Water Branch, Clean Air Branch, Hazard Evaluation and Emergency Response (HEER) office, Safe Drinking Water Branch, and the UST section.

Mr. Shih has implemented a variety of innovative remedial designs, bioremediation enhancers, remedial investigative tools, field screening methods, and project management software. These have included the installation of the first MPX systems in both Japan and Korea, the early adoption of probe and micro-well technology, the use of suction lysimeters and Time Domain Reflectometry in landfill and golf course monitoring; and the use of real-time field techniques such as immunoassay, and in-situ methods for natural attenuation monitoring.

PROFESSIONAL EXPERIENCE

Program Management

USACE - Chief Program Manager for JED IDIQ contract DACA79-97-D-0003. UST removal and replacement multiple sites at Torii Station, Okinawa, Japan; UST removal and replacement multiple sites at Misawa AFB, Japan; Subsurface plume investigation at Tank Farm 2, Misawa AFB, Japan; Investigation of TCE contamination of Drinking water wells, and replacement of pumps and pipes, Misawa AFB; Removal and Replacement of Multiple USTs, Yokota AFB, Japan.

USACE - Principal Investigator for HED IDIQ contracts DACA83-91-D-0014, and DACA83-95-D-0003 . Projects include: alien plant investigation and mitigation at the MPRC, Pohakuloa Training Area; remedial investigation at UST sites at Hickam AFB and Bellows AFS; investigation into a leaking UST at Schofield Barracks; UST removal at J. Avery Cooper Battery, Kualoa Ranch; UST removal at Coconut Island, Kaneohe Bay; RI/FS study at Tripler Army Medical Center landfill; remedial investigation at Hickam AFB, tank monitoring system investigation in Kaneohe, Remedial Investigation and installation of MPX system in Yokota, UST removals in Yokosuka Naval Base, Sludge removal in Hakozaki Cave, Yokosuka Naval Base, volumetric testing and survey of 110 USTs in Kunsan AFB, Remedial Investigation, Human Health investigation, and Subsurface Intercept Drain installation in Okinawa.

Project Management

Confidential Client – Hawaii Emergency Planning and Community Right-to-know Act (HEPCRA). Mr. Shih performed the HEPCRA compliance for 12 industrial facilities and completed forms for those facilities for years 1993 to 2001. During the project he reviewed the years of operation and inventory for numerous silos, storage tanks, chemical storage containers. He also reviewed and revised MSDS files. He evaluated facility management data, as well as chemical storage data and calculated maximum amounts, average daily amounts, and number of days on-site. A set of maps was also created for each facility to locate the facilities and also locate the chemical storage at each facility for every year of filing.



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USACE – Investigation and Remedial Action, North POL, Kunsan AFB, Korea. Principal Investigator. Mr. Shih designed and supervised the installation of a packaged MPX system at North POL. The system drew from a 10 multiphase recovery wells connected by aboveground pipes thermally protected with insulated explosion proof heat-tracing. A simultaneous investigation included the installation of 15 wells to investigate multiple subsurface plumes. The MPX system was able to remove all available product and establish hydrogeological control over the site.

USACE - Volumetric Testing and Survey of 110 USTs, Kunsan AFB. Principal Investigator. Project Designer. Designed the conceptual approach and database management for the first comprehensive survey of underground storage tanks in Kunsan AFB. The project was completed on time despite the challenges at the base which included, a changeover in fuel contractors, the inclusion of a comprehensive tank survey and interruption by ongoing base exercises.

BEI – Emergency Recovery Action for 30 ton Sulfuric Acid Spill, Barbers Point, Kapolei Hawaii. Project Manager. Created Recovery Action Plans and Site Investigation plans in two days to take over spill recovery action from initial responders. Managed the recovery action which operated for two months, 12 hours a day, every day. Neutralization and recovery efforts included in situ and ex situ neutralization and recovery of 98% sulfuric acid from the subsurface, the staging of soil management units, the establishment of titration tanks and the use of acid resistant pumps, tanks, and tank trucks. Project included monitoring for acid in air, worker exposures, and installed microwells. Natural resources monitoring included daily observation of endangered birds and plants, and monitoring the pH of surrounding ocean water and ponds.

USACE - Remediation of Leaking Fuel Hydrant H2-1, Yokota. Principal Investigator, Project Manager. Mr. Shih performed the investigation and remediation of a leaking fuel hydrant pit. The project was composed of two major tasks: an additional site characterization and the development and implementation of a remedial approach. Mr. Shih selected and designed a containerized MPX or bioslurper system to recover liquid, vapor and dissolved jet fuel. This was the first MPX system used in Japan. Simultaneously, Mr. Shih directed the drilling and well investigation at the site. The system successfully recovered over 14,000 gallons of JP-4 over a period of 3 years.

USACE - UST Removal, Yokosuka. Principal Investigator. Mr. Shih performed the assessment and removal of two underground storage tanks. Mr. Shih researched all applicable rules and regulations to determine appropriate site action levels.

USACE - Assessment and Remedial Investigation of Camp Courtney Fuel Leak, Okinawa. Principal Investigator. Mr. Shih performed the project in three phases: subsurface investigation, remedial action, and human health risk assessment. The drilling investigation consisted of drilling and sampling 16 soil borings. Remedial action was conducted by installing an 88 meter long subsurface intercept drain in the embankment below the release.

USACE Replacement Off-gas Treatment System for MPX, Yokota, Japan. Principal Investigator. Mr. Shih oversaw the conversion of the pre-existing MPX system into a MPX-CATOX system. The CATOX unit converts hydrocarbon contaminants in the effluent stream to carbon dioxide and water vapor. The CATOX unit was constructed in a wooden container and shipped to Yokota from the US. The unit was then placed on a concrete foundation and connected to an existing electrical and influent vapor piping of the MPX system. Mr. Shih challenged was to balance the two active systems from two different manufacturers.

USACE - Cave Sludge Removal and Disposal, Hakozaki Fuel Terminal, Yokosuka. Project Manager. Mr. Shih was responsible for the overall quality and performance of the removal of sludge within a cave. The permitted confined-space remediation was executed under level B safety conditions, in a cave within a fuel farm, on an off-shore island in Japan. Mr. Shih designed an



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innovative remote monitoring system for observation of the atmosphere within four different cave zones.

City and County of Honolulu Department of Housing and Community Development, Ewa Villages Project. Principal Investigator. Mr. Shih was the Principal Investigator for a phase II study for the City and County of Honolulu at their 630 acre Ewa Villages project. The Ewa Villages project converted an existing sugar mill, several towns and cane field into a planned community with golf course and commercial district. This six figure project required close coordination with City and County planners and project managers. Field work included removal of USTs, bioremediation of contaminated soils, immunoassay based pesticide study, asbestos survey and abatement, geophysical subsurface survey, soil gas survey, and subsurface characterization.

Construction Company, Honolulu, Oahu, Hawaii, Further Site Characterization. Project Manager. Mr. Shih was the Project Manager on a potential NPL site for a major construction contractor on Oahu. The project included the review of previous consultants work which consisted of several subsurface investigations and a groundwater pump and treat with re-injection remediation system. Mr. Shih designed and implemented an additional site characterization plan, including several wells and borings, and a tidal study . This high profile project was subject to review by regulatory officials, attorneys and consultants representing several interests.

WASA Electric, Environmental Monitoring and Soil Remediation. Project Manager. Mr. Shih was the project manager for the environmental work pertaining to the electrical line distribution modernization at the Honolulu International Airport. This \$5 million dollar project for the Department of Transportation included the construction of the largest remediation bed in Hawaii. This was constructed at night under AOA conditions on the Lagoon Runway at Honolulu International Airport.

Oahu Sugar Company, Groundwater Monitoring and Remediation. Principal Investigator. Mr. Shih conducted the groundwater monitoring and remedial design for a light non-aqueous phase liquid (LNAPL) contaminant plume at a major Sugar Mill in Oahu. The project included construction of intercept wells, monitoring wells, aquifer tests, and installation of a dual-pump, drawdown treatment system consisting of an oil/water separator with GAC.

C&H Sugar Company, NPDES Sampling. Principal Investigator. Mr. Shih was the Principal Investigator for a seven station, twenty-four hour NPDES ocean outfall study at Aiea Bay. This project involved the coordination of three laboratories, three regulatory agencies and the location of monitoring stations in the bay at night.

PUBLICATIONS

Shih, Ernest H. H., 1998, Multiphase Extraction (Bioslurping) and Catalytic Oxidation of Petroleum Impacted Soil and Groundwater – an Example from Japan; Proceedings, POLLUTEX ASIA '98, 7-10 July, 1998, Singapore

Shih, Ernest H. H., 1998, Multiphase Extraction (Bioslurping) Approaches in the Pacific Rim – Examples from Japan, Korea, and Hawaii; Proceedings, Pacific Basin Conference on Hazardous Waste, April 22-24, 1998, Honolulu, Hawaii

Shih, Ernest H. H. and Griffin, David, E., 1996, Multiphase Extraction (Bioslurping) of JP-4 Impacted Soil and Groundwater, Yokota, Japan, Proceedings of the NGWA National Outdoor Convention, May 13-15, 1996, Las Vegas, Nevada

Shih, Ernest H. H., 1994, Monitoring Environmental Impact of Golf Courses with Suction Lysimeters and Time Domain Reflectometers; An Alternative to Pan Lysimeters for Vadose Zone Monitoring in



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Hawaii, First Hawaii National Technologies Conference: Remediation and Environmental Monitoring, September 12-16, 1994, Honolulu, Hawaii

Shih, Ernest H. H., 1994, The Use of Portable Hammerdrill Probe Techniques for Soil, Vapor, and Groundwater Sample Acquisition in Hawaii, First Hawaii National Technologies Conference: Remediation and Environmental Monitoring, September 12-16, 1994, Honolulu, Hawaii

Shih, E. H. H. and R. Schowengerdt, 1983, Classification of Arid Geomorphic Surfaces Using Landsat Spectral and Textural Features; Journal of Photogrammetric Engineering and Remote Sensing, Vol. 49, No. 3, March 1983, pp 337-347

Shih, Ernest H. H., 1982, Spectral Reflectance of Desert Pavement Surfaces In Southwest Arizona, Proceedings, Remotes Sensing in Arizona Conference, Jan 7-8, 1982

Shih, Ernest H. H., 1982, Arid Lands Terrain Analysis with SLAR; in M. Parton, ed., Applications of Remote Sensing to Arid and Semi-Arid Land Management; prepared for the U.S.G.S. by the University of Arizona, College of Agriculture under grant #14-08-0001-G-655

Gerson, R., W. B. Bull, L. H. Fleishhauer, L. R. McHargue, L. Mayer, E. H. H. Shih, and W. C. Tucker, 1978, The Origin and Distribution of Gravel in Stream Systems of Arid Regions, University of Arizona and the U.S. Air Force Office of Scientific Research under contract F49620-77-C-0015