STATEMENT OF QUALIFICATIONS GEOTECHNICAL ENGINEERING, ENVIRONMENTAL CONSULTING, SOLID WASTE ENGINEERING, SPECIAL INSPECTION, AND RESOURCE MANAGEMENT SERVICES

HOLDREGE & KULL CONSULTING ENGINEERS • GEOLOGISTS

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COMPANY BACKGROUND

Tom Holdrege and Chuck Kull formed their company, Holdrege & Kull, in 1993 in Nevada City, California. Since that time, Holdrege & Kull has opened offices in Davis, Truckee, and Oakdale, California. Holdrege & Kull provides geotechnical, environmental, and solid waste engineering services, as well as special inspection and quality assurance/quality control during project construction. Projects have included commercial developments, residential subdivisions, sanitary landfill design and construction, landslide repair, canal rehabilitation, earth-rock dam design and construction, leaking underground storage tank sites and abandoned mineland assessments. Our clients include homeowners, large development firms, civil engineers and planners, and governmental agencies.

Mr. Holdrege and Mr. Kull, combined, have over 30 years of experience in the fields of geotechnical engineering, engineering geology, solid waste engineering, and environmental engineering. Mr. Holdrege and Mr. Kull worked together for nearly five years before starting their firm. They have formed a strong working relationship, one in which their strengths and skills complement each other. Because of this relationship, Holdrege & Kull has established a reputation for providing responsive, quality recommendations and solutions to a wide variety of engineering problems and environmental concerns.

Tom Holdrege and Chuck Kull have educational backgrounds in both civil engineering and geology. Mr. Holdrege's emphasis was in geology (B.S. in geology, M.S. in engineering geology). Mr. Kull's emphasis was in geotechnical engineering (B.S. in engineering geology, M.S. in geotechnical engineering). Both are registered in the State of California as civil engineers, registered geologists, and certified engineering geologists. Mr. Kull is also a registered Geotechnical Engineer in the state of California and a registered Civil Engineer in the states of Nevada and Oregon.

In addition to the two principals, Holdrege & Kull employs one associate level engineer (who is a licensed civil engineer, registered geologist, certified engineering geologist, and certified hydrogeologist in California); one licensed senior level engineer; three licensed project level civil engineers; one staff level engineer; one licensed project level, one senior level and three staff level geologists; two laboratory technicians and ten engineering technicians. The staff provides geologic input for environmental impact reports, testing and observation during grading projects, materials testing, sampling and inspection, and installation and sampling of monitoring wells. Holdrege & Kull has staff certified by the American Concrete Institute (ACI) and the International Conference of Building Officials (ICBO). Field personnel have completed the 40-hour training course and annual 8-hour refresher courses to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).



LIST OF SERVICES

GEOTECHNICAL ENGINEERING

- , Compaction testing during grading
- , Consolidation settlement analysis
- , Distressed structure investigations
- , Feasibility to full-scale design reports
- , Pavement design
- , Slope stability analysis

HYDROGEOLOGY/ENVIRONMENTAL ENGINEERING

- , Abandoned mine land assessments
- , Contaminated soil/groundwater site evaluations
- , Environmental site assessments/asbestos inspections
- , Hydrogeologic modeling
- , Monitoring well installation and sampling
- , Preliminary endangerment assessments
- , Soil and groundwater remediation
- recommendations
- , Underground storage tank investigations

FOUNDATION ENGINEERING

- , Deep foundation design
- , Footing design
- , Retaining wall design

GEOLOGY/SEISMICITY

- , Geologic mapping
- , Geologic hazards report
- , Fault evaluation reports
- , Seismic refraction/rippability studies
- Geologic input to EIRs

RESOURCE MANAGEMENT

- , BMP design and management
- , Erosion and sediment control
- , Landscape and revegetation plans
- , Storm water pollution prevention plans
- , Wetlands delineations and mitigation plans
- , Wetlands and stream restoration design

LABORATORY TESTING & QUALITY ASSURANCE

- , Complete geotechnical and materials testing facility
- , Construction quality assurance

PERMIT ASSISTANCE

- , CEQA compliance
- Clean Water Act Section 401 compliances
- Clean Water Act Section 404 permitting
- , Environmental review
- , Local, county, state and federal regulatory assistance
- , NPDES permitting

ENVIRONMENTAL IMPACT REPORTS

- , Geologic input
- , Geotechnical input
- , Wetlands delineations and mitigation plans

SEPTIC SYSTEM DESIGN

- , Alternate systems
- , Community systems
- , Percolation and mantle testing
- , Sand filter systems

SPECIAL INSPECTION

- , Masonry
- , Pre-stress/post-tensioning
- , Reinforced concrete
- , Spray-applied fireproofing
- , Structural steel and welding

SOLID WASTE

- , Article 5 requirements
- , Hydrogeology
- , Hydrology
- , Landfill liner and cover design
- Monitoring well installation and sampling
- Quarterly groundwater monitoring and reporting
- , Sealed double ring infiltrometer testing
- , Sedimentation basin design
- , Waste discharge requirements
- , Stability analysis of landfill covers and embankments
- , Storm water/leachate calculations
- , Waste discharge requirements



<<< GEOTECHNICAL ENGINEERING ===

Holdrege & Kull provides geotechnical engineering services throughout California, Nevada and Oregon. Our scope of services ranges from investigation and design for large residential and commercial subdivisions to foundation distress investigations for single family residences to design of deep foundations and DOSD-jurisdiction earth dams. In addition to geotechnical investigation and design, we provide comprehensive observation and testing services during construction. We perform the majority of our soil testing at our geotechnical laboratory in Nevada City, California.

Tom Holdrege and Chuck Kull have over 30 years experience between them in the geotechnical engineering field. Our staff of highly qualified engineers and geologists has an extensive technical background that we take pride in offering at affordable costs. Our staff of field technicians maintains OSHA and ICBO certification.

Holdrege & Kull is actively involved with local and regional engineering concerns. Tom Holdrege recently completed a term as president of the Engineers Association of Nevada County. Chuck Kull recently assisted in the preparation and grading of the California State Board of Registration geotechnical engineer exam.

We make a point of exploring and recommending alternative engineering methods and materials that can save our clients money during construction. Following are brief summaries of representative projects for which Holdrege & Kull has provided geotechnical engineering services. A complete list of projects is available upon request.

<< Commercial and Public Projects ==

Sugar Bowl Expansion Project Norden, California

Holdrege & Kull performed a geotechnical investigation, provided foundation design criteria and developed geotechnical grading recommendations for expansion of the Sugar Bowl resort in the Sierra Nevada. The proposed access road to the resort traversed Nevada County and Placer County land as well as portions of the Tahoe National Forest. We developed geotechnical recommendations that met the different design and grading requirements mandated by the three agencies. To accommodate the large amount of rock on site and limit soil import, we provided recommendations for gradational rock fills up to 20 feet deep and for rock bolting of concrete bridge abutments. We provided testing and observation services during grading of the new roadway, backfill of retaining walls, and construction of foundations for a new lodge, maintenance building and employee housing.



Landslide Analyses Nevada, Placer and Sierra Counties

Holdrege & Kull provided engineering consultation, design and construction quality assurance in an emergency response capacity for repair of slides and roadway washouts following the floods of January 1997. Projects were located in Squaw Valley, on Highway 40 near Rainbow Lodge, Emigrant Gap, Alta and Baxter, and in Nevada City. We also provided design recommendations for several landslides that occurred in Sierra County, California. Repairs have included Hilfiker wall systems, gabions, rock walls, rollercompacted concrete, cement-treated soil, extensive drainage systems and large diversion abutments for slide debris.



<< Residential Development Projects ==

Winchester Estates Subdivision Placer County, California

Current plans for this 800-acre development include a four-phase residential subdivision, two dams, a golf course and 12 miles of roadway. We reviewed the preliminary geotechnical recommendations and design that had been provided by another engineering firm. Our revisions allowed for considerable cost savings for the construction of 80,000 square feet of retaining walls associated with the subdivision.

As resident engineer for the dam construction project, Holdrege & Kull worked closely with the Division of Safety of Dams during the design and construction phases of the project. We performed a subsurface investigation and slope stability analyses, provided earthwork plans and specifications, and performed construction quality assurance during construction of the 80,000 cubic-yard earth dam.



We provided recommendations and construction quality assurance for placement of 800,000 cubic yards of soil associated with the golf course. In addition, we provided recommendations for bridge construction, pavement design, and lime treatment of subgrade soil to facilitate wet weather construction.

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Gazebos Apartment Complex

Grass Valley, California

provided recommendations for grading,

foundations, retaining walls, slabs-on-grade, drainage and pavement design. We also provided CQA and geotechnical laboratory services during construction.

Paradise Valley Estates Retirement Community Fairfield, California

Mr. Holdrege performed a geotechnical investigation for the property in 1987 while employed by others. In 1994, Holdrege & Kull was requested to perform a more detailed investigation

for the proposed project. We provided recommendations for expansive soil mitigation, soil corrosion potential, bridge pier design and subsurface drainage. In addition, we investigated several landslides on and near the project site. Holdrege & Kull provided design of a debris flow conveyance channel and barrier to mitigate future landslide impact to the project.

Hidden Glen Subdivision Auburn, California This project consisted of 59 single family residential lots on 12 acres. Our subsurface investigation of the site revealed an area of previously placed fill up to 12 feet deep, which included pockets of highly plastic clay. We assessed stability of rock slopes and recommended

measures for slope stabilization. We provided recommendations addressing grading, foundations, slabson-grade, bridge abutments, site drainage and retaining wall and pavement design.

Distressed Home Evaluations Following Northridge Earthquake Los Angeles Region, California

The January 1994 Northridge earthquake in southern California resulted in thousands of earthquake insurance claims. Holdrege & Kull was retained by Allstate Insurance Company to evaluate claims in the Los Angeles area following the earthquake. We teamed with a structural engineering firm and evaluated over 120 homes during the spring of 1994. We provided observations and conclusions regarding the mechanisms of distress, and recommendations for repair and mitigation.



<< Deep Foundation Projects ==

Eastmoor Overcrossing over I-280 Daly City, California This project involved the construction of a utility overcrossing of Interstate 280 in Daly City for water supply line improvements serving San Francisco. The contractor drilled and constructed six 8-foot diameter, 1,500-ton capacity concrete piers to a depth of 65 feet to support concrete

bents for the overcrossing. Because the contractor was unable to withdraw the 8-foot diameter steel casing supporting two of the pier excavations, Caltrans determined that the piers were not acceptable and ordered their removal. Holdrege & Kull was engaged to provide an economical repair to the piers that would increase the capacity back to the design values without disrupting traffic. We recommended pressure grouting around the piers to a depth of 20 feet to densify the soil and increase skin friction between the steel casing and the surrounding soil. We determined the location and number of grout points. Monitoring of Interstate 280 was performed to reduce the likelihood of uplift of the concrete pavement. After grouting, Holdrege & Kull performed SPT testing to verify the soil density and recalculated the design capacity of the piers. Caltrans approved the repair methods, allowing the project to continue without substantial delays or costs to the contractor.

Cellular Repeater Sites Northern California

Niles Canyon These three lightly

loaded antennas were located two miles up a steep,

narrow roadway. Holdrege & Kull performed detailed geologic mapping of the site and stability analyses of the roadway slopes. We provided access road repair recommendations to mitigate future sliding, foundation design criteria for the generator building, and grading recommendations. During construction, Holdrege & Kull provided full time testing and observation services for this technically challenging project.

Lake Berryessa

This project consisted of the construction of a 40-foot high antenna founded in siltstone in the Coastal Range north of San Francisco. Holdrege & Kull provided foundation design criteria and grading recommendations. We also performed geologic mapping for approximately two miles of access road.

We provided drainage design, stability analyses and landslide repair recommendations for a 1000-foot section of roadway. Holdrege & Kull field technicians provided testing and observation during landslide repair and pier construction.

Vacaville

This 150-foot high antenna was founded in soft, Central Valley sediments. Holdrege & Kull provided foundation design criteria for three-legged tower footings with high uplift and bending moments. Design and construction were complicated by caving conditions in the 40-foot deep pier holes. In addition to providing pier design and monitoring pier hole drilling, Holdrege & Kull provided environmental services to delineate the extent of contaminated soil at the site.





Holdrege & Kull has provided special inspection and materials testing services on hundreds of projects since the company was founded. Our technicians and inspectors are certificated with ICBO, ASNT, ACI, NICET and Caltrans for inspecting and testing soil; structural concrete, masonry and welding; high strength bolting; and spray applied fireproofing. This enables Holdrege & Kull to provide clients with a full range of services, from preliminary design to special inspection during construction. We perform inspection services on a variety of projects, from simple foundations to multi-story buildings requiring extensive structural steel and concrete inspection. We also perform a variety of soil and materials testing services in our in-house laboratory.

The following project summaries present a few examples of representative projects on which we have provided services. A complete project list is available upon request.

<< Representative Projects ==

Sugar Bowl Expansion Project Norden, California

Holdrege & Kull provided the geotechnical and special inspection services for the expansion of the ski resort in the Sierra Nevada. The one-mile access road to the resort traversed Nevada County and Placer County land, as well as Tahoe National Forest Property. The location presented unusual and unique conditions for constructing such a project.

Holdrege & Kull provided special inspection services during the construction of a bridge to span the Sierra Pacific Railroad's rail lines. Services included high strength rock bolting, structural steel inspection for retaining walls, and sampling of high strength concrete. Holdrege & Kull has provided materials sampling and testing services during construction of five new ski lifts at Sugar Bowl, most recently during the summer of 1999.



Placer County Correctional Facilities Auburn, California Placer County Department of Facility Services contracted with Holdrege & Kull in 1997 to provide geotechnical engineering services, as well as special inspection and materials testing during construction

and remodeling of several correctional and law enforcement facilities in Auburn. Following are brief descriptions of the services we provided on those projects.

<<Special Inspection - Quality Control Assurance==

The Placer County Juvenile Hall was a unique project on which our services were required. Holdrege & Kull worked with the county inspectors to test and observe the construction of the 56,000-square-foot, multi-story juvenile hall. Holdrege & Kull's special inspection services included masonry, concrete, structural steel and fireproofing. Special security concerns required construction and testing of the highest quality.

The remodel of the Violent Offenders section of the Placer County Jail was another project where inspection of the constructed work was critical. Holdrege & Kull again worked with county inspectors and engineers to provide masonry, structural steel, concrete and fireproofing inspections in a timely manner.

Holdrege & Kull also provided special inspection, including concrete testing, during construction of the Placer County Sheriff's garage. Following construction of the building, the county inspector required high strength bolt testing, which is usually performed during construction. Working with the county, we developed a testing protocol to perform high strength bolt testing following completion of the building.

Springhill Industrial Developments Grass Valley, California Holdrege & Kull provided geotechnical engineering, construction quality assurance and special inspection services on the majority of new industrial developments in the Springhill Road area in Grass Valley. Several of these projects presented challenging grading and

inspection protocol. The percentage of serpentine rock in the native fill material precluded the use of standard density testing methods. Holdrege & Kull developed a performance specification to facilitate quality fill placement and testing. At Springhill Mini Storage and Ernie's Van & Storage sites, we provided special inspections for structural steel, concrete, and high strength concrete used to construct second story floors. On the two most recent project sites, we provided special inspection of concrete footings, structural steel, pre-cast concrete tilt-up panels, and welding including construction of built-up members.

Winchester Estates Subdivision Placer County, California Holdrege & Kull performed geotechnical and special inspections during construction of the new dam at the Winchester Subdivision. Inspections for this project required responsive coordination between personnel representing Placer County, local water agencies, the contractor, and the

California State Division of Safety of Dams. Holdrege & Kull provided special inspection of the reinforced steel and high strength concrete placed during expansion of the Placer Hills Bridge. The bridge footings were located below and adjacent to a large water conveyance channel, which presented unique construction challenges.

In addition, Holdrege & Kull provided the geotechnical testing required during construction of this 11,017-acre development, which includes a four-phase residential subdivision, 18-hole golf course, grading involving 800,000 cubic yards of soil, 18 miles of roadway and more than 80,000 square feet of retaining walls.



In addition to providing design recommendations throughout project construction, we provided construction quality assurance during roadway, retaining wall, and golf course construction. We recently provided special inspection of concrete and masonry block during construction of the golf course maintenance facility building.

Liberty Motors Grass Valley, California

Holdrege & Kull performed the geotechnical investigation and provided grading recommendations for this project. The project was graded and constructed during the winter, which presented wet weather challenges. To facilitate grading during the wet season, we provided lime treatment recommendations. During building construction, we performed footing inspection; obtained

concrete and grout cylinders, and mortar blocks for testing; and inspected footing and concrete masonry unit steel reinforcement.

Turlock Irrigation District Morgan Fill Repair Turlock, California In the summer of 1999, one of Turlock Irrigation District's (TID's) main canals began leaking. Inadequately placed fill, which supported the section of leaking canal, was the underlying cause of seepage. Holdrege & Kull was initially selected

to evaluate repair options and costs. Within a week of performing the geotechnical investigation and providing recommendations, TID began demolition of 300 feet of the canal walls and underlying fill. To expedite project completion, TID contracted with Holdrege & Kull to provide engineering design-build recommendations and construction oversight during canal reconstruction. Special inspection services included reinforcing steel inspection and concrete testing. From start to finish, this project took less than two months to complete.

Nextel Cellular Communications Site East San Leandro, California Holdrege & Kull provided alternative design services and special inspection during construction of several cellular communication facility projects throughout northern California. For the majority of the projects, we provided our services on short notice, typically within 24 hours. At the

East San Leandro project site, Holdrege & Kull provided alternative design services and special inspection during construction of a drilled-pier retaining wall to facilitate fast-track grading and construction of a cellular communications facility. The existing side slope and space limitations onsite required the construction of a retaining wall. However, project scheduling prevented the construction of a conventional cast-in-place concrete or masonry-unit wall. To accommodate the required construction schedule, Holdrege & Kull provided an alternative, drilled-pier retaining wall design and timely special inspection services including reinforcing steel inspection and concrete sampling and testing.

Placer County Water Agency Water Storage Tanks Placer County, California

H&K has been performing construction management and quality assurance services during several Placer County Water Agency projects since April 2000. The projects have included construction of

a 5-million gallon steel water storage tank and a 10-million gallon concrete water storage tank and related facilities in Placer County, California. Our construction management services have included scheduling inspections and materials testing, reviewing submittals and amendment requests, documenting time and materials work, approving pay estimates and change orders, completing daily reports, photographing project progress and acting as liaison between the client, design engineer, contractors and material testing firm. We also provided compaction testing services during grading.



Holdrege & Kull provides professional resource management services throughout California and the Tahoe Basin, including BMP design and management, erosion control, landscape and revegetation plans, project mitigation plans and wetlands delineations and mitigation Additionally, Holdrege & Kull offers regulatory permit assistance for new and designs. existing projects at the local, county, state and federal levels. Our staff is knowledgeable of the laws and regulations of Sierra Foothill counties, the California Regional Water Quality Control Board (CRWQCB), State Water Resources Control Board and the Army Corps of Engineers.

Holdrege & Kull is dedicated to using the best available technology, including bio-engineered products, where possible, to decrease the costs associated with less suitable products that may be more time consuming to install. By completing on-going site inspections, in-the-field changes can be made to minimize unnecessary project expenses.

<< BMP Design and Management ==

We have been contracted by several developers in Nevada County to prepare BMP designs and management plans, including post-implementation inspections. Many of our BMP plans have been submitted in conjunction with Storm Water Pollution Prevention Plans and approved by the Central Valley CRWQCB. Holdrege & Kull has worked directly with the CRWQCB to develop a site specific, mutually agreeable BMP plan for a residential subdivision along Highway 20 near Nevada City.

<< Landscape, Revegetation and Restoration ==</p>

Holdrege & Kull has proposed and implemented several landscape and revegetation plans to prevent erosion and mitigate project impacts. These plans included pre-construction and post-construction comparisons, site-specific techniques and post-project monitoring and reporting requirements pursuant to regulatory agency requests. Our expertise is in steep mountainous terrain with harsh weather conditions.

<< Permit Assistance ==

Holdrege & Kull provides comprehensive permit assistance at the local, county, state and federal levels, including CEQA compliance, CWA Section 401 certifications and 404 permitting and environmental review. Holdrege & Kull has prepared numerous Storm Water Pollution Prevention Plans and completed NPDES permitting for various sites throughout Nevada and Placer Counties. Our staff has expertise in Streambed Alteration Agreements for California Department of Fish and Game and water rights application requirements for the State Water Resources Control Board. Holdrege & Kull has successfully secured reimbursement funds from the State Water Resources Control Board's Underground Storage Tank Cleanup Fund in excess of \$200,000 for its clients.



<<< ENVIRONMENTAL CONSULTING ===

Holdrege & Kull offers comprehensive environmental consulting services throughout California. Our services range from preliminary assessments to full scale investigations and remediation. We have a strong rapport with the lead agencies for contaminated sites, including local county regulatory agencies, the California Regional Water Quality Control Board (CRWQCB) and the California Integrated Waste Management Board (CIWMB). We work efficiently with these agencies to meet their monitoring and remediation requirements. Our collaborative efforts with these agencies and our extensive field experience often lead to reduction of monitoring and remediation requirements, thereby lowering project costs.

Tom Holdrege and Chuck Kull have over 30 years experience between them as environmental consultants. Our staff of engineers and geologists has a broad technical background that we are proud to offer at affordable rates. Our field personnel have completed training to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

We make a point of exploring and recommending alternative methods for investigations and remediation, and working closely with regulatory agencies to save our clients money. This approach results in successful projects and satisfied clients. The following project summaries illustrate the range of our environmental expertise.

<< Underground Storage Tank Projects ==

Nevada County Fleet Maintenance Facility Nevada City, California

The Nevada County Department of General Services contracted with us to perform a comprehensive investigation and develop a groundwater monitoring program for a leaking underground fuel tank site at the county's vehicle maintenance facility. We prepared the workplan, managed the drilling and construction of four onsite groundwater monitoring wells, and obtained soil, groundwater and surface water samples to determine the extent of contamination. Our report provided conclusions and recommendations for site remediation. We recently completed an additional groundwater investigation at the site and continue to perform quarterly groundwater monitoring and reporting.



Maintenance Yard

Capitan, New Mexico

New Mexico Department of Transportation

Kyle Leach, while employed by others, performed various managerial and field technician duties during remediation system installation and operations at New Mexico's DOT maintenance yard in Capitan. A petroleum release from the

USTs formerly located at the site had impacted onsite soil and groundwater. Mr. Leach was involved with onsite pilot testing of the proposed remediation system, supervised drilling and installation of air sparging/vapor extraction wells and oversaw operations and maintenance of the air injection/vapor extraction system (with catalytic oxidizer). He was also involved with installation and operation of a duel well, free product recovery system.

Former Automobile Dealership Oakland, California Chris Rossitto, while employed by others, was the project manager for site investigation and remediation of gasoline impacted soil and groundwater from an underground storage tank at a former automobile dealership. Mr Rossitto

performed project planning, contractor solicitation/selection, supervised soil excavation and disposal, conducted site characterization activities, installed groundwater monitoring wells, implemented a groundwater remediation program, and prepared reports. The groundwater treatment program was an enhanced passive in-situ bioremediation program that used naturally occurring hydrocarbonutilizing microbes to degrade petroleum hydrocarbons in soil and groundwater. The process involved introducing oxygen and nutrients to the impacted groundwater to enhance the microbial activity, thereby increasing degradation rates. His other responsibilities included assisting the client with the California Underground Storage Tank Cleanup Fund reimbursement process, managing the quarterly groundwater monitoring program, evaluating groundwater conditions and bioremediation progress, assessing the need for adjustments to the program, reporting results and performing cost-analysis for remedial alternatives.

Underground Heating Oil Tank Sites Nevada County, California Holdrege & Kull has provided environmental consulting services for numerous underground heating oil tank projects. We recently expedited project completion to obtain site closure during escrow for a real estate transaction. The project included obtaining permits,

coordinating with contractors, removing product contents from the tank, excavating and removing the tank, transporting the tank and contents offsite for disposal, performing soil sampling and analysis, backfilling the excavation and restoring the site, preparing a tank closure report and communicating with the local regulatory agency and realtor. To obtain site closure, we have also determined solubility of and estimated volumes of contaminants remaining in place, and evaluated risk to groundwater using nearby groundwater elevation data.

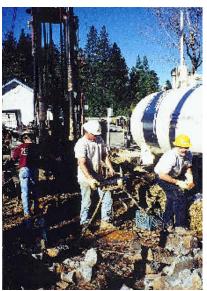
Cordova Tack and Feed San Ysidro, New Mexico Kyle Leach, while employed by others, was the project manager during groundwater remediation system operations and maintenance at this leaking UST site. His responsibilities included monitoring of air sparging/vapor extraction system performance, and performing quarterly groundwater monitoring

and sampling. Throughout the course of the project, Mr. Leach was involved with air monitoring to determine compliance with air discharge requirements. He also supervised onsite sub-contractors and field technicians, and acted as project liaison with the client, site owner and regulatory agencies.

<< Hazardous Waste and Spill Sites ==

Gold Flat Gas and Card Lock Nevada County, California In February 1998, during refilling of a 6,000-gallon above ground storage tank, the fill hose became disconnected from the tank.

Approximately 700 gallons of fuel escaped, filled the tank containment area, and flowed onto the adjacent, downslope residential property. The fuel moved under and around the residence, filled the septic tank, and entered a storm drain downslope of the residence, which discharges into a nearby creek. After emergency cleanup efforts were completed, the station owners contacted Holdrege & Kull to assess the extent of contamination, provide recommendations for remediation, and oversee further cleanup activities.



Although the project was slowed by litigation, we worked with the lead agencies to develop remedial measures and sampling protocol

for nearby streams, provided effective dewatering measures and pre-treatment prior to discharging, and oversaw the removal of impacted soil. To determine impacts of the spill to shallow groundwater at the gas station and residential properties, groundwater monitoring well installation and quarterly monitoring were performed. We successfully completed remedial actions and satisfied the state's closure criteria.

Nevada County Airpark Grass Valley, California Nevada County Department of Environmental Health (NCDEH) secured our services to provide environmental services at a former dump site at the Nevada County Department of Transportation yard adjacent to the Nevada County Airpark. Material from the dump had been mixed with fill placed during expansion of the airpark

runway. We performed soil sampling, testing and characterization in an emergency capacity during construction to determine the extent of contaminated fill. Our assessment included the use of GPS technology to document sample locations. We worked closely with NCDEH and the CRWQCB to develop remedial options for the site.

Former Shipbuilding Facility Richmond, California Chris Rossitto, while employed by others, was instrumental in the success of a large scale remedial program and in obtaining site closure for the City of Richmond Redevelopment Agency and a commercial developer. He was an assistant project manager for remedial actions involving removal and

treatment of lead and petroleum hydrocarbon contaminated soil from a shipbuilding facility that operated during World War II. His responsibilities included coordinating and supervising the removal, metal separation, amendment, and onsite relocation of 5,200 cubic yards of lead contaminated and metal debris-containing soil; coordinating and supervising the removal, segregation, bioremediation and onsite relocation of 7,300 cubic yards of petroleum hydrocarbon contaminated soil; managing the sampling and analytical program, contractors, backfilling activities, and groundwater monitoring program. Mr. Rossitto also prepared the remedial closure report, bioremediation progress reports, and quarterly groundwater monitoring reports.

Abandoned Mine Lands Northern California

Holdrege & Kull has investigated numerous former mining properties proposed for residential development to assess potential contamination resulting from ore extraction processes. We have performed preliminary endangerment assessments, researched amalgamation and flotation ore extraction processes previously used at the mines, obtained soil and groundwater samples for



heavy metal analyses, and provided recommendations for site remediation. Remedial measures have included encapsulation and stabilization through lime treatment of impacted soil. In addition to environmental recommendations, we have provided geotechnical recommendations for closure of exposed, abandoned mine shafts.

Dial/Cades Property Nevada County, California In 1996, we performed a site assessment required by NCDEH and developed remedial recommendations for the owner/ developer of this 54-acre parcel. An auto storage and dismantling business had operated on the site for many years and had received several environmental violations. We worked closely with NCDEH to develop

a sampling program that would determine impacts to the onsite soil resulting from the auto dismantling practice. Our objectives were to establish acceptable, representative sampling locations and protocol without incurring unreasonable analytical laboratory fees for our client. Following sampling, we performed a risk assessment and findings in a report to NCDEH and the CRWQCB. Following minor overexcavation of locally impacted areas, the site was deemed suitable for single family residential development.

Phase I Environmental Site Assessments Throughout California Holdrege & Kull staff has performed numerous phase I environmental site assessments (ESAs) throughout California, using ASTM guidelines. These assessments are typically performed prior to purchasing or refinancing

non-residential property or property where contamination is suspected. The assessment involves extensive research of available historical records for the property and surrounding area. The site and neighboring properties are observed for potentially hazardous conditions and owners/occupants are interviewed. On many projects, our AHERA accredited staff has assessed onsite structures for suspect asbestos containing building materials. Our ESA reports present our findings and any recommendations for further assessment, if warranted.

<< Landfill Sites ==

McCourtney Road Landfill Nevada County, California McCourtney Road Landfill is founded in an extremely complex geologic and hydrogeologic region of the Sierra Nevada Foothills near Grass Valley. Nevada County Department of Sanitation has spent over ten years complying with requirements mandated by the CRWQCB and the CIWMB. We have developed a strong working relationship with these agencies and have negotiated for the reduction of quarterly monitoring requirements, resulting in significant savings to Nevada County. Tom Holdrege, Chuck Kull, and Holdrege & Kull staff have performed a wide variety of tasks at the landfill. Tasks specific to environmental concerns are summarized below:

- Between 1996 and 2000, we performed quarterly sampling of 29 groundwater monitoring wells, 9 neighboring domestic wells, 37 lysimeters, 5 leachate wells and sumps, and 5 surface water sampling points onsite. We also prepare the quarterly and annual water quality monitoring reports. Our contract was recently renewed. Due to changes required by the CRWQCB, sampling and reporting is now performed on a semi-annual basis.
- Holdrege & Kull staff has been involved with the drilling and construction of leachate extraction wells and landfill gas perimeter wells at the site.
- In 1995, Holdrege & Kull was the engineer of record and provided construction monitoring during closure of two non-permitted waste cells (including the aforementioned white metals area). Waste was removed from the non-permitted cells, transported to a permitted cell, and placed under our supervision.
- Tom Holdrege, while employed by others, performed a supplemental investigation to fill gaps in the site's hydrogeologic data. The investigation included large scale pumping tests of groundwater wells, a downhole geophysical survey of all onsite and nearby monitoring wells, a geochemical study of the constituents found in each monitoring well, stereonet analysis of fracture orientation data, and a computer analysis of piezometric levels in each well.

Western Regional Sanitary Landfill Placer County, California Holdrege & Kull oversaw the drilling of 14 of the 23 onsite groundwater monitoring wells. With data from well drilling and quarterly sampling, we significantly expanded the site's hydrogeologic model. Backed by our knowledge of site conditions, we worked with

CRWQCB and county staff to develop approved waste discharge requirements (WDRs) and Corrective Action Plan for the site.

In addition to groundwater monitoring and sampling, we performed quarterly monitoring of leachate sumps, lysimeters, and surface water sampling points as required by the WDRs. Between December 1995 and July 1997, we prepared quarterly water quality monitoring reports for the site.



<<< SOLID WASTE ENGINEERING ===

Holdrege & Kull provides professional engineering services for numerous landfills in California. Our thoroughness and responsiveness have gained high acclaim from our clients. Through value engineering and dedication to providing the highest quality services, we have improved operations and reduced monitoring requirements at various project sites, and saved our clients unnecessary expenses. On our design projects, our engineer's estimates have been within 2% of project costs, and contractors' extras have been less than 0.5% of project costs. Following are summaries of services we have provided at several California landfills.

<< Construction Quality Assurance ==

Western Regional Sanitary Landfill Placer County, California

Holdrege & Kull provided CQA services during installation of 14 groundwater monitoring wells, construction of an infill gas extraction system, construction of two Subtitle D base liners, and closure of two waste modules. Typical duties included:

- Comprehensive quality assurance testing and observation during construction;
- SDRI testing;
- Clay evaluation;
- Project coordination;
- Submittal and invoice review; and
- Production of CQA documentation to satisfy all regulatory requirements associated with the project.

McCourtney Road Landfill Nevada County, California In 1995, we were the engineer of record and provided CQA services during

closure of two non-permitted waste cells and, in a separate project, interim closure of the 90/91 Cell. In addition to developing project plans and specifications, and comprehensive health and safety plans, our duties included:

- Landfill gas monitoring at the working face;
- Observing construction operations;
- Acting as liaison between contractor and regulatory personnel;
- Collecting confirmation soil samples from overexcavated areas;
- Developing composite sampling protocol for stockpiled material for onsite treatment and disposal; and
- Preparing regulatory documentation and final reports.

In 1989, Tom Holdrege, while employed by others, developed a quality assurance program to use during placement of the landfill cap and a new waste cell liner at McCourtney Road Landfill. Tom was the project manager and supervised CQA field personnel during placement of the landfill cap and liner.





Meadow Vista Landfill Placer County, California Holdrege & Kull provided full-time CQA services for the closure of the Meadow Vista Landfill. Closure activities consisted of construction of a geosynthetic clay liner over the landfill, an asphaltic barrier layer, a leachate collection and recovery system, infill and perimeter gas extraction systems, blower building, and landfill gas flare. Additional

construction activities included onsite disposal of excavated waste, and construction of utility trench, paved roadway, and erosion control facilities. We provided the following administrative services for the closure project:

- Facilitation of preconstruction and coordination meetings;
- Review of plans and specifications;
- Project scheduling;
- Review of contractor's material submittals and monthly invoices; and
- Preparation of post-closure maintenance plan and closure documentation to satisfy regulatory requirements.

In addition, we performed source testing and screening risk assessment for the landfill gas flare to satisfy regulatory requirements.

<< Landfill Systems Design ==

Western Regional Sanitary Landfill Lincoln, California

Holdrege & Kull designed two Subtitle D base liners at this Placer County landfill. Our design included the use of a geosynthetic clay liner (GCL) and incorporated a tie-in to the adjacent existing and proposed waste modules. This design will help to maximize usable landfill space, thereby increasing the service life of the landfill. We provided CQA services during construction of one of the modules in the summer of 1998. In 1997, we designed a



perimeter roadway and landscape berm to screen the landfill from its neighbors and passersby.

B&J Landfill Vacaville, California Don Olsen, who joined Holdrege & Kull in 1998, has worked on numerous projects at B&J Landfill since 1984. He was involved with the design and construction of a clay slurry cut-off wall surrounding an unlined portion of the landfill. The cut-off wall was designed to serve as a hydraulic barrier to reduce lateral movement of landfill leachate and contaminated groundwater into the

surrounding environment. Don was also involved with the design and construction of numerous final covers and Subtitle D base liners at the landfill. Special design considerations have included the installation of a capillary break beneath portions of the liners to preclude the migration of shallow groundwater into the landfill modules.

Ox Mountain Landfill Half Moon Bay, California Don Olsen, while employed by others, designed a Subtitle D landfill expansion module at this landfill west of San Francisco Bay. Underlying alluvial deposits as well as the site's proximity to the San Andreas Fault resulted in a high seismic liquefaction potential. The module design incorporated the installation of "stone columns" through the alluvium to increase the alluvium's density and shear strength and provide high permeability pathways for movement of groundwater during seismic events. Rapid movement of groundwater into the columns during earthquakes allows excess soil pore water pressures to dissipate quickly, thereby reducing liquefaction potential.

<< Testing, Investigation and Monitoring ==

McCourtney Road Landfill Nevada County, California

McCourtney Road Landfill is founded in an extremely complex geologic and hydrogeologic region of the Sierra Nevada Foothills. Since 1986, Tom Holdrege, Chuck Kull and Holdrege & Kull staff have performed a wide variety of tasks at McCourtney Road Landfill including:

 Since 1996, provided monitoring and sampling of groundwater monitoring wells, surface water sampling locations, leachate extraction wells, surface impoundments, lysimeters and



leachate pump stations. We have prepared quarterly and annual water quality reports required by the RWQCB. Based in part on our input to the RWQCB, reporting was recently changed to semi-annually, which has resulted in significant cost savings to the county.

- Performed in-situ permeability testing of proposed final cover material using Boutwell permeameters.
- Drilled and constructed monitoring, leachate extraction and perimeter gas wells through the landfill mass and surrounding the landfill.
- Performed static and pseudo-static stability analyses of a 40-foot high refuse embankment. Tom
 provided buttress design to increase embankment stability after analyses showed a marginal factor of
 safety.
- Performed an extensive investigation in a proposed expansion area. The study included design of a composite base liner for the cell.
- Investigated a non-permitted, "white metals" disposal area. Extensive exploratory trenches were
 excavated to determine the lateral and vertical extent. Soil sample results indicated the presence of
 various contaminants. Holdrege & Kull later provided CQA services during closure of the area. We
 also prepared workplans for closure of three other non-permitted disposal areas at the site.
- Performed a supplemental investigation to fill the "data gaps" noted during review of hydrogeologic data. The supplemental investigation included large scale pump tests, a downhole geophysical survey of all monitoring wells on and surrounding the landfill, a geochemical study of the constituents found in each monitoring well, stereonet analysis of fracture orientation data, and a computer analysis of piezometric levels in each well.

- Developed a fracture controlled hydrogeologic model, based on the supplemental and existing data.
- Performed storm water calculations, analyzed existing sedimentation basins for particulate drop-out rates, sized culverts, provided recommendations for regrading of areas with runoff problems, and designed drop inlets.

Western Regional Sanitary Landfill Lincoln, California

Sealed Double Ring Infiltrometer Testing

Holdrege & Kull (H&K) installed and monitored several sealed double ring infiltrometers (SDRIs) between 1995 and 1997. We calculated field permeability rates based on SDRI monitoring results. The permeability results were used to determine suitability of proposed base liner and cover material for various modules at the landfill. We will be installing and monitoring two more SDRIs in the near future at the landfill.

Quarterly Monitoring and Sampling

We oversaw the drilling of 14 groundwater monitoring wells at the site. Following drilling, wells were logged using Hydrophysical[™] and geophysical methods. The data obtained during our drilling, logging, and sampling of the wells enabled us to update our hydrogeologic model for the site. Backed by our knowledge of site conditions, we



worked with the RWQCB and landfill owners in developing the new WDRs for the landfill. The RWQCB approved the WDRs and our proposed Corrective Action Plan required in the WDRs to address groundwater contamination in one of the onsite wells.

In addition to groundwater monitoring and sampling, we performed quarterly monitoring of leachate sumps, lysimeters, and surface water sampling points as required by the WDRs. We prepared quarterly water quality monitoring reports for the site between December 1995 and July 1997.

We began performing quarterly and/or monthly gas monitoring at the site before the gas extraction system became operational in late 1995. We also performed a surface scan of methane emissions from existing landfilled modules and performed a screening risk assessment based on emissions from the gas flare.



Thomas J. Holdrege, P.E., C.E.G.

EDUCATION

Colorado State University, 1984 - Bachelor of Science Degree, Geology

Purdue University, 1986 - Master of Science Degree, Engineering Geology

Continuing Education, 1986 to present - Groundwater flow through fractured media, rock mechanics, in-situ testing methods, geophysics with applications for groundwater investigations, slope stability, and contaminant transport. He has completed the 40-hour OSHA training course and completes an 8-hour refresher course annually to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

REGISTRATION

Registered Civil Engineer, California Certified Engineering Geologist, California Registered Geologist, California

POSITION

Principal

EXPERIENCE

Since 1986, Mr. Holdrege has completed over 1,000 solid waste, geotechnical, geoenvironmental, and geologic projects in California. Mr. Holdrege's areas of expertise include slope stability, fault location, geologic mapping, hydrogeology, groundwater modeling, and contaminant transport studies. In addition, he has provided a wide variety of geotechnical services, including design and consultation during construction of earth dams, levees, several steel and concrete reservoirs, landslide debris walls, rock bolt implementation for unstable slopes, stability of benches supporting water pipelines, and waster and waste water treatment plant expansion projects.

Mr. Holdrege has been project engineer/manager for numerous solid waste projects. He is presently the principal-in-charge of coordination of McCourtney Road Landfill and formerly for Hirschdale Landfill projects in Nevada County and Eastern Regional Landfill in Placer County. Project scopes include developing permeability test parameters for clay liner material, designing landfill clay liners and caps, providing quality assurance during construction of waste cell liners and covers, writing specifications for closure of two non-permitted waste cells, overseeing drilling and construction of landfill gas monitoring probes and groundwater monitoring wells, and acting as liaison between regulators and county officials.

Mr. Holdrege has worked on several complex hydrogeologic projects ranging from leaking underground fuel tank investigations to modeling of a complex fractured rock aquifer beneath a sanitary landfill. He has provided geologic and geotechnical input for over 30 environmental impact report projects.

Mr. Holdrege was president of the Engineers Association of Nevada County in 1996, and is actively involved in regional engineering issues.



Charles R. Kull, G.E., C.E.G.

EDUCATION

San Jose State University, 1984 - Bachelor of Science Degree, Engineering Geology

- San Jose State University, 1989 Master of Science Degree, Civil Engineering (emphasis Geotechnical)
- Continuing Education, 1986 to present Deep foundation design, landfill gas migration and cogeneration plants using methane gas turbines. He has completed the 40-hour OSHA training course and completes an 8-hour refresher course annually to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

Mr. Kull provides seminars on geotechnical engineering to local organizations and has been the guest speaker at local universities. He participates annually in the preparation and grading of the Registered Geotechnical Engineer exam given by the California Board of Registration of Professional Engineers and Land Surveyors.

REGISTRATION

Registered Geotechnical Engineer, California Registered Civil Engineer, California Certified Engineering Geologist, California Registered Geologist, California Registered Civil Engineer, Nevada and Oregon

POSITION

Principal

EXPERIENCE

Since 1984, Mr. Kull has designed and overseen construction projects throughout California and Oregon. His professional background includes design of deep foundations and tie-back retaining walls, consolidation analysis of bay mud in the San Francisco Bay region, structural design and rock bolting for large penstock thrust blocks and bridge abutments, and extensive grading projects in difficult soil. Mr. Kull has extensive experience in design of reinforced earth retaining walls with geogrid geosynthetics.

Mr. Kull has designed and overseen the construction of large and small earth dams and concrete spillways in Northern California. Analyses have included seepage calculations, slope stability and borrow material selection. Several of the dams are under jurisdiction of the Division of Safety of Dams.

Mr. Kull is currently working as the design engineer and construction manager for the improvements at Sugar Bowl Ski Resort. His involvement has been to provide foundation design, material testing and grading for several new ski lifts and mountain operations building. Mr. Kull is also involved in the design of several large commercial projects in the Truckee and Tahoe basin. Mr. Kull is the design engineer for a 1,000-acre subdivision in Placer County. The project includes two earth dams (one under the jurisdiction of the Division of Dam Safety), 18-hole golf course and 12 miles of roads. Large stacked rock and cement treated fill slopes were designed by Mr. Kull to reduce the cost of the extensive retaining walls that were planned for the project.



Donald M. Olsen, P.E., C.H.G., C.E.G.

EDUCATION

San Diego State University, 1978 - Bachelor of Science Degree, Engineering Geology

- San Jose State University, 1988 Master of Science Degree, Civil Engineering (emphasis Geotechnical)
- Continuing Education, 1988 to present 40-hour OSHA training course and completes an 8-hour refresher course annually to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

REGISTRATION

Registered Civil Engineer, California Certified Engineering Geologist, California Registered Geologist, California Certified Hydrogeologist, California

POSITION

Director, Central Valley Operations

EXPERIENCE

Since 1988, Mr. Olsen has managed a wide variety of geotechnical and solid waste projects throughout California. Responsibilities have included client and regulatory agency consultation, proposal preparation, engineering, geology and hydrogeology field investigations, budget tracking, personnel supervision, civil and geotechnical engineering design, construction quality assurance engineering services, and report preparation.

Mr. Olsen has provided construction management, construction quality assurance and quality control for numerous solid waste facilities, in addition to commercial and residential development projects. Solid waste projects have included construction of final cover and base liner systems using soil and geosynthetic materials. Land development projects have included general earthfills, fill and cut slope construction utility trenches, retaining walls, and road and parking lot construction.

Mr. Olsen has been involved with the design of a wide variety of projects. Project scopes have included groundwater seepage control (e.g., slurry cut-off walls, pressure grout cut-off walls, excavation dewatering), groundwater resource evaluation, contaminant transport modeling, elastic and consolidation settlement analysis, and expansion and closure of solid waste facilities. He has designed conventional and deep pier and pile building foundations, sheet pile and cantilever retaining walls, roadway pavement sections and has performed static and seismic slope stability analyses.

Between 1989 and 1991, Mr. Olsen published several papers on contaminant migration evaluation, infiltration through final cover systems, and dynamic moduli and Poisson's ratios of refuse and underlying soils at landfill sites.



John K. "Jake" Hudson, P.E., C.E.G.

EDUCATION

California State University, Sacramento, 1990 - Civil Engineering

University of Nevada, Reno, 1983 - Bachelor of Science Degree, Geology

Continuing Education - Neotechtonics and Earthquake Engineering at the University of Nevada, Reno and short courses in slope stability analysis, pavement rehabilitation and foundation engineering

REGISTRATION

Certified Engineering Geologist, 2239, California, 2001 Registered Geologist, 6922, California, 1999 Professional Engineer, Civil, 11055, Nevada, 1994 Professional Engineer, Civil, 050923, California, 1993

POSITION

Senior Engineer

EXPERIENCE

Mr. Hudson has 13 years of experience in the geotechnical field. He has performed numerous geotechnical, geologic and geologic hazards investigations for projects in California, Nevada and Idaho. He has extensive experience in project management and materials testing, including all types of special inspection. Over the past five years, he has managed materials testing and geotechnical groups.

Prior to his employment with Holdrege & Kull, Mr. Hudson was responsible for business development and was involved in company management and staffing for a small engineering firm in Truckee, California. His responsibilities included project management, preparation and review of geotechnical investigations and management of the materials testing group. He has performed numerous field investigations for geotechnical and materials testing projects, geologic analyses, air photo interpretation, and report preparation for fault and geologic hazards evaluations.

Construction project involvement includes the Roadway Services Hub Distribution Center in Sacramento, California; the Reno Rehabilitation Hospital and Parkside Center in Reno, Nevada. Mr. Hudson was the project manager for the Washoe County Jail expansion in Reno, Nevada. His involvement included foundation design, and providing recommendations for expansive soil remediation, earthwork grading, materials testing and special inspection for cast-in-place concrete, and masonry construction.

Mr. Hudson was project manager for the Washoe County Courts Complex in Reno, Nevada. The project involved construction of a four-story steel frame structure on the Truckee River in Reno, Nevada. His involvement included a geotechnical investigation, foundation and subsurface drainage design, earthwork grading, materials testing and special inspection for cast-in-place and precast concrete, masonry and structural steel construction.



Jason W. Muir, P.E.

EDUCATION

University of California at Berkeley, 1994 - Master of Science Degree, Environmental Engineering University of California at Berkeley, 1992 - Bachelor of Arts Degree, Environmental Science Continuing Education, 1994 to present - 40-hour OSHA (29 CFR 1910) (1995), Geotextiles in Waste Containment (1997)

REGISTRATION

Registered Civil Engineer, California

POSITION

Project Engineer

EXPERIENCE

Mr. Muir began working for Holdrege & Kull in July 1995. He has provided construction management and engineering services for numerous geotechnical projects and landfill construction projects in Northern California. He has performed geotechnical investigations, stability analyses for earth dams, foundation distress evaluations and environmental site characterizations and has provided foundation design criteria and footing design.

Mr. Muir was the lead CQA Engineer for final closure of two landfill cells and construction of a Class II, Subtitle D base liner at Western Regional Sanitary Landfill (WRSL) in Placer County. He was also the project engineer for final closure of Meadow Vista Landfill in Placer County and for clean closure of two unpermitted waste management units at McCourtney Road Landfill in Nevada County. His duties have included comprehensive CQA for construction of two Subtitle D base liners, final closure of five landfill cells, installation and logging of 11 groundwater monitoring wells using mud rotary equipment, installation and permitting of infill gas extraction wells and sealed double ring infiltrometer testing. He performed and supervised CQA for GCL barriers, HDPE geomembranes, geotextiles and clay barriers. He provided CQA for asphaltic barriers over waste, leachate collection systems, infill and perimeter gas extraction systems, storm drain systems and roadway construction. As project engineer, Mr. Muir was the liaison between contractor and regulatory agencies, administered changes to closure plans, updated post-closure maintenance plans and prepared CQA documentation and certification.

Mr. Muir was project engineer for several emergency storm damage repair projects in Placer County, during which he provided comprehensive CQA services, materials quantity and cost estimations, time and materials documentation and negotiation of unit costs for time and materials work items based on Caltrans rates. The projects focused on slope stabilization, rock wall construction, installation of drainage facilities, roadway construction and asphalt paving.

Most recently, Mr. Muir has been the project engineer providing engineering solutions and overseeing CQA services during construction of the Nevada County Juvenile Detention Center and the Winchester Estates subdivision in Placer County.

Mr. Muir is currently serving as vice-president of the Engineers Association of Nevada County.



Robert E. Fingerson, P.E.

EDUCATION

California Polytechnic University, San Luis Obispo, 1996 Bachelor of Science Degree, Civil Engineering

Continuing Education 1996 to present - Completion of the 40-hour OSHA training course to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910) Geotextiles in Waste Containment Systems Seminar

Debris Flow Hazards Conference

REGISTRATIONS AND CERTIFICATION

Registered Civil Engineer, California

POSITION

Project Engineer

EXPERIENCE

Mr. Fingerson has performed engineering services for Holdrege & Kull at both the staff and project level since 1996. He has provided his expertise on geotechnical, solid waste, sewage disposal and environmental projects throughout northern California.

Mr. Fingerson has been involved with a wide variety of projects since joining Holdrege & Kull. He has performed geotechnical investigations for commercial and residential developments throughout the Sierra Nevada, foothill and Central Valley region. Projects scopes have included slope stability analysis, seismic refraction surveys, providing design recommendations for slab-on-grades, foundations, site dewatering and groundwater concerns, grading, pavement sections, retaining walls, and utility construction. Mr. Fingerson has provided construction quality assurance services during grading and construction of many of these projects. He has also performed evaluations of and has provided repair recommendations for numerous distressed structures, including residential buildings.

In addition, Mr. Fingerson has provided onsite wastewater treatment and disposal design recommendations for numerous residential and commercial projects. He has worked closely with the RWQCB in the design of commercial wastewater treatment systems to bring sites into compliance with state laws. He recently completed an evaluation of the performance, maintenance and operations of 30 onsite residential sand filter systems in Placer County for the county health department.

Mr. Fingerson's solid waste experience includes landfill gas monitoring of onsite structures, waste modules, and perimeter gas extraction wells; performing screening risk assessments for landfill gas flares; groundwater monitoring and sampling; materials testing of soil; preparing monthly and quarterly reports; preparing site maps and details in CAD.

Mr. Fingerson was president of the Engineers Association of Nevada County in 2001 and is active in local engineering issues.



Kyle Leach, R.G.

EDUCATION

California State University, Humboldt, 1989, Bachelor of Arts Degree, Geology

Continuing Education 1989 to present - Graduate courses in Quaternary Geology (CSUH); completion of the 40-hour OSHA training and supervisor training courses to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

CERTIFICATION

Registered Geologist, California Mine Safety and Health Agency 24 Hour Mine Safety Training Nuclear Density Gauge Operation

POSITION

Project Geologist

EXPERIENCE

Mr. Leach has eight years of experience in the geotechnical and geoenvironmental fields. His observation and testing experience includes construction quality assurance for landfill liner and cover material placement, materials selection, borrow investigations, roadway construction, utility trench backfill and various construction grading projects. He has experience with logging borings and trenches during subsurface investigations; pile driver monitoring and pile load testing; sampling, testing and classification of construction materials; and interpreting plans and specifications.

Prior to joining Holdrege & Kull, Mr. Leach managed a geotechnical soils laboratory, where he was responsible for scheduling; equipment maintenance; performing tests in accordance with ASTM, AASHTO, USDA and Caltrans standards; and reporting.

Mr. Leach was project manager for environmental site assessments and remediation for numerous contaminated project sites in Oregon and New Mexico. Projects included former lumber mills, active mines, underground tank sites, and various industrial and commercial sites. Responsibilities included evaluating extent of contamination; overseeing drilling, soil excavation, stockpiling, sampling and backfilling operations; performing soil gas surveys; evaluating and developing remedial options; and preparing project reports. His experience with soil and groundwater remediation systems includes soil aeration and bioremediation, air sparging/vapor extraction systems with catalytic oxidizer, stripper towers, oil/water separators and free product recovery systems.

Mr. Leach has performed hydrogeologic studies of several active and proposed mining sites in Arizona and New Mexico. He supervised drilling activities and monitoring well construction; he evaluated lithology, groundwater flow and chemistry; monitored large scale pump tests and assessed regional drawdown and recovery data.



Chris Rossitto, R.G.

EDUCATION

Sonoma State University, 1987 - Bachelor of Science, Geology

Continuing Education 1987 to present - National Ground Water Association, 2000 Pacific Focus Ground Water Conference. Environmental Sampling: Multimedia Methods and Field Practices. Project Management Training Course. Completion of the 40-hour OSHA training, supervisor training and annual 8-hour refresher courses to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

CERTIFICATION

Registered Geologist, California

POSITION

Senior Geologist

EXPERIENCE

Mr. Rossitto has fourteen years of experience in the geoenvironmental and geotechnical fields. Mr. Rossitto has been project manager/project geologist on numerous geologic, hydrogeologic and environmental engineering projects in the western United States. He has extensive experience with site assessments, investigations, interpreting data, evaluating and selecting remedial alternatives, remedial design, construction management, and closure of hazardous waste sites. He has performed environmental services at electronic equipment manufacturing facilities, hazardous waste landfills, drycleaning facilities, pesticide and chemical manufacturing plants, former military bases, wood treatment facilities, abandoned mining sites, and leaking underground fuel storage tank sites.

Mr. Rossitto has been responsible for budgeting, permitting, planning, cost-analysis, contractor selection, contract negotiation, implementation of investigations and remediation, reporting and making recommendations for numerous environmental site assessments and contaminated project sites. His experience with local county agencies, the California Regional Water Quality Control Board and the State Water Resources Control Board has provided him with a strong knowledge of local and state regulations, and requirements of the Underground Storage Tank Cleanup Fund reimbursement program.

Mr. Rossitto has experience in a variety drilling techniques, direct-push sampling technologies, soil sampling, groundwater sampling, soil-gas sampling, groundwater monitoring well design and installation, groundwater remediation methods, soil remediation methods, construction management, and data evaluation and management. In addition, he has worked on a variety of geotechnical projects, including soil investigations and testing for foundation and retaining wall design, landslide studies for repair design and construction, and construction oversight.



Gregory N. Porter, P.E.

EDUCATION

Virginia Polytechnic Institute and State University, 1995 - Bachelor of Science Degree, Civil Engineering

REGISTRATION

Registered Civil Engineer, California

POSITION

Project Engineer

EXPERIENCE

Mr. Porter has eight years of experience in geotechnical, materials and civil engineering applications. He has performed numerous geotechnical investigations for commercial and residential projects in California and Virginia. Mr. Porter has also been extensively involved in ground improvement techniques such as deep dynamic compaction, compaction and pressure grouting, and posttensioned ground anchoring. His experience also includes spread footings in clay, drilled shaft design and construction, Karst terrain mitigation, roller-compacted concrete (RCC) dam rehabilitation, construction and RCC mix design development and testing.

Prior to working with H&K, Mr. Porter was employed as a Staff Engineer for a large, east coast based geotechnical engineering consulting firm. Mr. Porter was extensively involved in geotechnical engineering investigations, shallow and deep foundation construction, slope stability analysis, construction materials testing, CQA engineering for landfill liners and caps, mitigation of Karst terrain hazards (caves and sinkholes), full time construction monitoring and engineering consultation during construction.

Currently, Mr. Porter is the project engineer for several large residential subdivision and ski area expansion projects. His involvement includes preparing geotechnical engineering reports for project design, as well as acting as project manager of observation and testing services during the construction phases. Specific engineering recommendations for these projects have included foundation, retaining wall, slab-on-grade and pavement design criteria, as well as subdrainage design, rockery retaining walls and engineered slopes requiring mechanical stabilization and rock slope protection. Mr. Porter has also performed evaluations for distressed structures in the Truckee-Tahoe and Sierra Foothills and provided recommendations regarding expansive soil, foundation settlement, groundwater seepage and freeze-thaw damage mitigation for concrete and asphalt pavements.



Shane D. Cummings

EDUCATION

California State University, Chico, 1999 - Bachelor of Science, Geoscience option in Geology Butte College, Oroville, 1996 - Associate of Arts Degree, Social and Behavioral Science Continuing Education, 1998 to present - 40-hour OSHA (29 CFR 1910)

REGISTRATION AND CERTIFICATIONS

Nuclear Density Gauge Operation

POSITION

Project Geologist

EXPERIENCE

Mr. Cummings began working for Holdrege & Kull in 2003. He has experience in data analysis, drilling and well installation, technical writing, land surveying, data collection, and AutoCAD drafting. Mr. Cummings has served as a project manager/geologist for monitoring, investigations and remediation of sites contaminated by chlorinated solvents, inorganics, petroleum hydrocarbons, pesticides, and heavy metals. Mr. Cummings also has experience in technical writing under RCRA, CERCLA, and CCR Titles 23 and 27. In addition, he has performed environmental assessments for private properties.

Prior to joining H&K, Mr. Cummings was the project manager/geologist at Landfills 2 and 3 at Beale Air Force Base in Marysville, California. He performed monitoring and sampling of groundwater, surface water and landfill gas at the site. As project manager he acted as client liaison, interpreted field and laboratory data, and prepared technical reports to meet regulatory compliance of two landfills in post-closure monitoring.

Mr. Cummings was project geologist during leaking underground storage tank (LUST) investigation and remediation at the Capehart Service Station at Beale AFB. Responsibilities included providing client relations/contact, preparing fee proposals, project management, soil/rock and groundwater sampling, field and laboratory data interpretation, technical reports, and regulatory review of LUST related contamination (MTBE) within the perched groundwater zone at the site as well as in the deep fractured aquifer within metamorphic rock. The investigation involved deep hard rock continuous coring/exploratory borings and monitoring well installations, borehole geophysical surveys, sampling, and conducting aquifer pump testing. He oversaw operations of the remediation system and supplemental investigations to investigate fate transport of MTBE through fractured metavolcanic rock.

Mr. Cummings was project geologist for site investigations and remedial activities at the Former Dudley Truckstop, Corning, CA. He investigated regional chlorinated solvent groundwater plumes suspected to be related to 50 years of on going Truckstop operations. Onsite investigations included soilgas surveys, comprehensive coring investigation identifying soil and groundwater hydrocarbon and solvent contamination, development of sampling program for over 40 residential domestic and irrigation water supply wells, and interface with private well owners, technical writing for fate transport of DNAPL and petroleum hydrocarbon related contamination in complex fluvial depositional environments.



Joseph D. Riley

EDUCATION

Sierra College, 1997 - Associate of Science Degree, Geology Humboldt State University, 2000 - Bachelor of Arts Degree, Geology Continuing Education, 2000 to present - 40-hour OSHA training course and annual 8-hour refresher course to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910); Erosion Control

CERTIFICATION

Troxler Electronic Laboratories, Inc. - Nuclear Radiological Safety and Gauge Operation

POSITION

Staff Geologist

EXPERIENCE

Prior to Holdrege & Kull, Mr. Riley worked for a local company that constructed and sold soil testing equipment. He began working for Holdrege & Kull during the summer of 1998. He was initially employed to perform ASTM and California state soil tests in our in-house geotechnical laboratory, including direct shear, compaction curve, sieve analysis, Atterburg limits, sand equivalence, and concrete and grout testing. His background allowed him to master test procedures quickly and he soon was responsible for performing septic system testing in the field. After completing his BA degree, Mr. Riley's responsibilities with H&K increased. He currently provides septic system testing and design, including design of engineered systems.

Mr. Riley is the project geologist responsible for cellular tower geotechnical investigations. His responsibilities include oversight during site drilling and sampling, and preparation of geotechnical reports.

During the rainy season, Mr. Riley is responsible for implementing erosion control plans and best management practices (BMPs) for several large construction projects. He performs soil and groundwater investigations for leaking underground storage tank (LUST) sites and prepares quarterly monitoring reports and site investigation reports for LUST sites. Tasks include preparing investigation workplans, site specific health and safety plans, overseeing site drilling and sampling, performing sensitive receptor surveys, and preparing site closure requests to meet California Regional Water Quality Control Board requirements.

Mr. Riley's other environmental experience includes assisting in soil sampling and site assessment for abandoned mine land projects. Most recently, he was the onsite geologist providing oversight during asbestiform mineral mitigation on a large theater construction project in Auburn, California.

In addition to environmental services, Mr. Riley oversaw extensive drilling of the levees along the Sacramento River for a study performed by the Army Corps of Engineers.



Sean L. Dunbar

EDUCATION

California State University, Chico, 2002 - Master of Science Degree, Geosciences California State University, Chico, 2001 - Bachelor of Science Degree, Geology California State University, Chico, 1991 - Bachelor of Arts, Information and Communication Studies Continuing Education, 2002 to present - 40-hour OSHA (29 CFR 1910)

POSITION

Staff Geologist/Hydrogeologist

EXPERIENCE

Mr. Dunbar began working for Holdrege & Kull in 2002, following completion of his graduate work at Chico State. Prior to Holdrege & Kull, Mr. Dunbar was employed by the Department of Water Resources where he assisted in groundwater and geologic studies. Responsibilities included surface and subsurface characterization by literature review, aquifer test evaluation, groundwater level monitoring, report writing, aerial photograph analysis, field mapping, structure and topographic contouring, well drilling, logging of bore holes, geophysical analysis, seismic studies, surveying and computer-aided design.

Most recently, Mr. Dunbar has been involved with performing Phase I environmental site assessments, performing preliminary endangerment assessments on abandoned mine land sites, soil and groundwater sampling, analysis of results and report preparation.

He has also been involved with quarterly monitoring of leaking underground storage tank sites, evaluating groundwater gradient and flow characteristics and analytical laboratory results of groundwater samples, and preparing quarterly groundwater monitoring reports.



Bryan J. Hanna, E.I.

EDUCATION

University of Nevada, Reno, 2000 - Bachelor of Science Degree, Civil Engineering Edinboro University of Pennsylvania, 1992 - Bachelor of Arts Degree, Mathematics Continuing Education, 2000 to present - Graduate course in Foundation Design (UNR), short course in Basics of Geosynthetics (UNR), Insulated Concrete Form Construction (Reno), and 40-hour OSHA (29 CFR 1910)

REGISTRATION AND CERTIFICATIONS

Engineer Intern, Nevada American Concrete Institute (ACI) - Grade 1 (Concrete Field Testing) Nuclear Density Gauge Operation

POSITION

Staff Engineer

EXPERIENCE

Before entering the engineering profession, Mr. Hanna worked in the construction industry for eight years as a carpenter and journeyman electrician. Mr. Hanna has installed underground utility lines, erected timber structures, and installed residential and commercial wiring. As an electrician, Mr. Hanna was a foreman and project manager. This experience prepared him for project management on construction quality assurance projects.

Mr. Hanna began working for Holdrege & Kull in 2002. Mr. Hanna has been the project manager for multiple materials testing projects in the Tahoe-Reno area since 1999. He has overseen compaction testing, concrete sampling and testing, and special inspections for reinforced concrete, masonry, spray-applied fireproofing and structural steel. He has managed public works and private quality assurance projects, including supervising laboratory personnel. Mr. Hanna has worked on numerous geotechnical investigations, storm water pollution prevention plans (SWPPPs), chemical application management plans (CHAMPs), TRPA hydrology scoping reports and geotechnical design projects.

His current duties include performing geotechnical investigations on projects ranging from single family residential projects to large commercial, residential and industrial projects. He is currently the construction services manager in the Truckee office. He is responsible for scheduling field technicians, field supervision, preparing and submitting final reports and providing project management for various materials testing and special inspection projects.



Janis E. Johnson-Cowie

EDUCATION

University of California, Santa Barbara, 1984 - Bachelor of Arts Degree, Geological Sciences

University Extension, University of California, Davis - Groundwater Contamination: Technology and Regulatory Overview

Completion of the 40-hour OSHA training course and an annual 8-hour refresher course to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910).

REGISTRATION AND CERTIFICATION

Nuclear Density Gauge Operation

POSITION

Staff Geologist

EXPERIENCE

Ms. Johnson-Cowie has worked on numerous contamination investigation projects throughout the Sacramento and Sierra Nevada foothill regions. Project scopes have included phase I site assessments, underground tank investigations, pesticide and heavy metal investigations and remediation, and monitoring well development and sampling. Her expertise is in developing workplans to assess site contamination and working closely with regulatory agencies to establish cost-effective remediation plans.

Ms. Johnson-Cowie has been involved with a number of environmental impact studies for proposed developments in the Sierra Nevada foothill area. She has collected inclinometer data for landslide analysis. She has performed percolation and mantle testing for residential septic system design projects throughout Nevada County.

Her solid waste experience includes drilling and developing leachate extraction wells at the McCourtney Road Landfill in Nevada County. She participated in a hydrogeologic evaluation of complex fractured rock beneath the landfill. She was involved in the editing and compilation of several extensive reports on the soil and sediment conditions, hydrogeology, leachate management and site background at the landfill.

Ms. Johnson-Cowie has worked as an engineering technician on numerous grading projects throughout the Sacramento, east San Francisco Bay and Sierra Nevada regions. Projects have included large residential subdivisions, shopping centers, new roads and other commercial/industrial developments.



John H. Atkinson

EDUCATION

Nevada Union High School, 1987 - General Education

Continuing Education, 1988 to present - Geotechnical Seminar addressing laboratory and field testing, compaction equipment, soil and rock characteristics, foundation design, and hillside construction. Completed one semester of application for Residential Building Codes. Completed Structural Steel Welding Inspection course.

CERTIFICATION

American Concrete Institute (ACI) - Grade 1 (Concrete Field Testing)
 National Institute for Certification in Engineering Technicians (NICET) - Level I: soil and concrete
 International Conference of Building Officials (ICBO) - Special Inspector for Reinforced Concrete (including post-tension slab inspection)

Nuclear Density Gauge Operation

POSITION

Senior Engineering Technician, Laboratory Manager, Radiation Safety Officer

EXPERIENCE

Before entering the geotechnical field, Mr. Atkinson spent over ten years as a site foreman and operated heavy equipment for a grading contractor. That experience enabled him to make an easy transition to engineering technician.

Mr. Atkinson began working with Holdrege & Kull when the company was founded. Since that time, he has performed engineering technician services on a variety of grading projects throughout the Sierra Nevada foothills, Sacramento and Bay Area regions. Projects have included residential subdivisions, municipal utility line and roadway construction, apartment complexes, and commercial developments. He has provided services ranging from percolation testing for septic system designs to nuclear density testing to sampling concrete for strength testing. Mr. Atkinson has also performed liquid level surveys in evaluating distressed structures locally and in Los Angeles area following the 1994 Northridge earthquake.

Mr. Atkinson has performed groundwater sampling services for numerous leaking underground fuel tank sites and four landfills in Nevada and Placer Counties. He is also experienced with landfill gas, vadose zone and surface water monitoring and sampling.

As laboratory manager, Mr. Atkinson is responsible for performing ASTM and California State approved soil tests, maintaining laboratory equipment, scheduling of laboratory tests, and training other laboratory personnel. Mr. Atkinson is currently the Radiation Safety Officer for Holdrege & Kull. He is responsible for maintaining current documentation and proper procedures regarding use and storage of nuclear density testing equipment.



Kimberly L. Granholm

EDUCATION and TRAINING

Nevada Union High School, 1989 - General Education

Continuing Education - Completion of the 40-hour OSHA training course and annual 8-hour refresher to comply with OSHA Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910)

CERTIFICATIONS

American Concrete Institute (ACI) - Field Testing - Grade 1 Troxler Electronic Laboratories, Inc. - Nuclear Radiological Safety and Gauge Operation Troxler Electronic Laboratories, Inc. - Radiation Safety Officer

POSITION

Laboratory and Field Support Services

EXPERIENCE

Mrs. Granholm joined Holdrege & Kull in 1998 to perform the editing and compilation of soil, concrete, and special inspection testing field reports. On her own initiative, she often accompanied certified technicians to project sites to broaden her understanding of observation and testing procedures in the field environment. Mrs. Granholm then obtained certification for nuclear density gauge operation and concrete sampling.

Responding to seasonal requirements of field work, Mrs. Granholm has performed field technician services on several construction and grading projects. She has performed special inspection and construction quality assurance services for projects located throughout Nevada, Placer, Sacramento, and Contra Costa Counties. Projects have ranged from commercial and residential developments to municipal improvements, including landfills. She has provided services ranging from earthwork construction quality assurance to nuclear density testing to construction materials sampling.



2003 FEE SCHEDULE

Personnel

Secretary	
Engineering Assistant	our
Office Technician/Draftsperson \$50.00/He	our
AutoCAD Operator \$60.00/He	our
Technical Editor \$62.00/He	our
Field Technician \$55.00/He	our
Senior Field Technician \$60.00/He	our
Supervisory Technician\$70.00/Ho	our
Construction Inspector (ICBO, ACI Certified) \$60.00/He	our
Staff Engineer/Geologist\$85.00/He	our
Project Engineer/Geologist \$90.00/He	our
Senior Engineer/Geologist \$100.00/He	our
Associate Engineer/Geologist\$110.00/He	our
Principal	our
Expert Testimony and Deposition \$250.00/He	our*
* Four-hour minimum	

Laboratory Services

Atterberg Limits (LL+PL+PI) - Dry Method (ASTM 4318)\$100.00/EachAtterberg Limits (LL+PL+PI) - Wet Method (ASTM 4318)\$110.00/EachCompaction Curve, Modified (4" ASTM D-1557)\$160.00/EachCompaction Curve, Modified (6" ASTM D-1557)\$170.00/EachCalifornia Impact Curve (Cal 216G)\$170.00/EachDirect Shear Test (3 points)\$240.00/EachRemolded Direct Shear (3 points)\$300.00/EachTriaxial Compression Test (Consolidated, Undrained)\$100.00/PointSieve Analysis with Long Hydrometer\$135.00/EachLong Hydrometer (no Specific Gravity)\$90.00/EachSieve Analysis with 200 sieve wash\$90.00/EachMoisture Determination\$225.00/EachSpecific Gravity\$75.00/EachSpecific Gravity <th>ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו</th>	ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו ו
This is a partial list of the most common laboratory tests. Additional laboratory testing to be quoted upon request.	
Field Equipment \$100.00/Day Photoionization Detector (PID) \$100.00/Day 4-inch Pump with Trailer \$150.00/Day Brass/Stainless Steel Sample Tube \$5.00/Each State Steel Sample Tube \$5.00/Each	
Disposable Bailer \$10.00/Each Well Sounder \$20.00/Day	

Notes

- Mileage and hourly rates will be charged portal to portal. Mileage will be billed at \$0.50 per mile.
- Outside services will be billed at our cost plus 15 percent.
- Overtime rates for Saturday, Sunday, or over 8 hours/day: hourly rate plus \$25.00/Hour.
- A minimum 2 hour fee will be charged for any site visit.
- Per Diem will be billed at cost unless other arrangements are made.
- Four copies of reports will be sent to clients. Additional copies will be charged on a time and materials basis.

pH/Conductivity Meter \$40.00/Day

- All field personnel involved with environmental projects have met OSHA training requirements for hazardous materials handling.
- Prevailing wage projects quoted on case-by-case basis.



PROFESSIONAL REFERENCES

Mr. Ed Sylvester, President SCO Planning & Engineering, Inc. 140 Litton Drive, Suite 240 Grass Valley, CA 95945 (530) 272-5841

Mr. Russell King and Mr. Reginald King, Owners King Engineering 10563 Brunswick Road, Suite 11 Grass Valley, CA 95945 (530) 272-8328

Mr. Tom Lott Nevada City Engineering, Inc. 505 Coyote Street Nevada City, CA 95959 (530) 265-6911

Mr. Keith Sauers, President Sauers Engineering, Inc. 440 Lower Grass Valley Road, Suite A Nevada City, CA 95959 (530) 265-8021

Mr. Ben Barretta Nevada Irrigation District PO Box 1019 Grass Valley, CA 95945 (530) 273-6185

Mr. Curt Fujii, Regional Engineer Allied Waste 901 Bailey Road Pittsburg, CA 94565 (925) 458-9800