

**RFQ# ADSP014-00003465, Annual Request for Qualifications and Experience  
REVISED - Attachment I – General Qualifications**

(If a firm has branch offices, complete for each specific branch office seeking work.)

**1. REVISED ADSP013-00003465: Annual Request for Qualifications**

a.	FIRM (OR BRANCH OFFICE) NAME:	Tetra Tech, Inc. (GEO)
b.	FIRM (OR BRANCH OFFICE) STREET:	4801 E. Washington Street, Suite 260
c.	FIRM (OR BRANCH OFFICE) CITY:	Phoenix
d.	FIRM (OR BRANCH OFFICE) STATE:	Arizona
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	85034
f.	YEAR ESTABLISHED:	1966

(g1).	OWNERSHIP - TYPE:	Corporation
(g2)	OWNERSHIP - SMALL BUSINESS STATUS:	N/A

h.	POINT OF CONTACT NAME AND TITLE:	Scott Parsons
i.	POINT OF CONTACT TELEPHONE NUMBER:	602-682-3320
j.	POINT OF CONTACT E-MAIL ADDRESS:	Scott.parsons@tetrattech.com

k.	NAME OF FIRM (If block 1a is a branch office):	Tetra Tech, Inc.
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**2. EMPLOYEES BY DISCIPLINE**

a. Discipline Title	b. Function: Primary (P) or Secondary (S)	c. No. of Employees - Firm	d. No. of Employees - Branch
Environmental Engineer	P	438	2
Geologist	P	427	3
Other	P	13635	1
<b>Total</b>		14500	6



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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT** (Complete one Section 4 for each key person.)

a. NAME Matthew J. Branche, P.E	b. ROLE IN THIS CONTRACT Project Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 7	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc. (GEO), Phoenix, Arizona			
e. EDUCATION (Degree and Specialization) B.S. Environmental Systems Engineering, College of Earth and Mineral Sciences, The Pennsylvania State University, 2006.		f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline) Registered Professional Environmental Engineer, No. 54867, Arizona	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) OSHA 40 hour HAZWOPER and Supervisor Training, API (petroleum inst.), LPS (Chevron), First Aid, CPR, Defensive Driving			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	ADEQ Water Quality Assurance Revolving Fund Site, 20 <sup>th</sup> and Factor, Yuma, Arizona	Current	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Early Response Action - Capping Project - Project Engineer responsible for implementation of capping of potentially contaminated soils and drainage tie-in to City stormwater drain system. Tasks included acquiring subcontractor quotes, multi-party subcontractor pre-selection site meeting/walk, subcontractor selection, oversight of all field activities, and coordination between the client, the property owner, the City, the onsite stake holders, and all subcontractors. Tasks included coordination and oversight of site health and safety, City permitting, traffic control, sub grade/asphalt/ concrete testing, staking, and laboratory testing. Tasks were conducted at an active and highly dynamic site with multiple stakeholders and were performed at minimal disruption with no apparent impact to site business activities.		
2)	Former Ted's Truck Stop, Quartzite, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Early Response Action - Staff Engineer responsible for the coordination of operation and maintenance activities by field staff at a dual phase extraction remediation facility conducted under contract to the ADEQ at the Former Ted's Truck Stop Site in Quartzsite, Arizona. The remediation system was designed to stop the offsite migration of an extensive petroleum plume that consists of liquid phase hydrocarbons and dissolved phase volatile organic compounds. The remediation system includes dual phase extraction (soil vapor and groundwater), catalytic/thermal oxidation for vapor abatement, and organophyllic clay and granular activated carbon treatment for the groundwater effluent.		
3)	Former Earl's Exxon Station, Benson, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Mr. Branche was responsible for Project Management and site characterization of an Arizona leaking underground storage tank site. Contaminants of concern included gasoline products and residuals in the near surface and vadose zone soils. Responsibilities included budget management, subcontractor costing and coordination, data reduction and analysis, boring location selection, direction of field staff, site characterization report deliverables and recommendations for future remedial activities.		
4)	Government Accelerant Contractor, Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE		

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<p>Staff Engineer for field investigation of perchlorate contamination at a high profile RCRA site. Tasks included coordination of subcontractors with client site operational schedules, safety program and work permits, drill rig oversight, UCSC soil classification, well installation, concrete consistency and volumetric calculations, well development, dedicated pump installation, quarterly sampling and monitoring, well operation and maintenance, writing quarterly and annual monitoring reports with tables, figures and appendices, writing field investigation reports, maintaining and reducing transducer data and using GIS software for display of data. Additional Tasks included sampling and interfacing with potential receptors (private residents) adjacent to site, coordinating with ADEQ during sample splits, and preparation of private results letters</p>				
<p>(1) TITLE AND LOCATION (<i>City and State</i>)</p> <p>ADEQ UST State Lead Unit, Numerous Sites</p>		<p>(2) YEAR COMPLETED</p> <table border="1"> <tr> <td>PROFESSIONAL SERVICES Current</td> <td>CONSTRUCTION <i>(If applicable)</i> N/A</td> </tr> </table>	PROFESSIONAL SERVICES Current	CONSTRUCTION <i>(If applicable)</i> N/A
PROFESSIONAL SERVICES Current	CONSTRUCTION <i>(If applicable)</i> N/A			
<p>5)</p>	<p>(3) BRIEF DESCRIPTION (<i>Brief scope, size, cost, etc.</i>) AND SPECIFIC ROLE</p> <p>Staff Engineer responsible AS/OS and SVE system well installation, piping layout plan, pressure/vacuum testing, manifold design, equipment installation, utilities coordination, system commissioning, air permitting, operation and maintenance documentation, implementation and tracking of maintenance programs, system optimization, and onsite troubleshooting of high complexity equipment issues. Field staff task management included planning and directing field staff for operation and maintenance activities, air compliance sampling, groundwater sampling, and troubleshooting low to medium complexity onsite issues.</p>			

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a. NAME Christopher L. Jacquemin, P.E., BCEE	b. ROLE IN THIS CONTRACT Senior Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 32	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc., (GEO) Phoenix, Arizona			
e. EDUCATION (Degree and Specialization) B.S.-Civil Engineering, Arizona State University, 1979		f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline) Professional Civil Engineer-Arizona, 16984, Professional Environmental Engineer-Arizona Board Certified Environmental Engineer, 33809	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	Central and Camelback WQARF Site, Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Managed remediation systems to remove tetrachloroethene (PCE) and other chlorinated solvents from soil and groundwater. Remedial systems included groundwater pump and treat system and soil-vapor extraction system. Responsible for evaluating soil-gas and groundwater extraction rates and making adjustments to maximize removal rates; volatile organic compound (VOC) concentrations to estimate and predict loading of granular activated carbon used to control vapor extraction emissions; and groundwater extraction rates and water levels to maintain capture zone. Directed maintenance and equipment repair/replacements, re-calibration of transducers and other measuring devices, and sampling and testing efforts to provide analytical data for evaluation of system performance and to comply with permitting requirements.		
2)	Cooper and Commerce WQARF Site - Gilbert, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Managed remediation systems to remove PCE from soil and groundwater. Remedial systems included groundwater pump and treat system and soil-vapor extraction/air sparge systems. Responsible for evaluating flow rates for vapor extraction and air sparge to maximize removal rates and evaluating VOC concentrations in soil-gas to estimate and predict loading of granular activated carbon which was used to control vapor extraction emissions. Directed construction of discharge line to complete groundwater treatment system and manage system commissioning. Mr. Jacquemin directed sampling and testing efforts to provide analytical data for evaluation of system performance and to comply with permitting requirements.		
3)	North Canal Plume, West Central Phoenix WQARF Site, Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Managed the rehabilitation of over 40 groundwater monitoring wells that had been unused for over five years. Following rehabilitation, groundwater monitoring was conducted using low flow sampling methods to minimize the quantity of purge water generated for the sampling event.		
4)	WQARF Preliminary Investigation, 7 <sup>th</sup> Street and Missouri Avenue Area - Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Managed the installation of seven groundwater monitoring wells for use in evaluating the presence of PCE in groundwater samples from several monitoring wells and a Salt River Project irrigation well. Two of the new wells were located in City of Phoenix Right of Way. Obtained Right-of-Way permits for installation of the two new wells and Traffic Restriction and Closure System permits to sample three wells located in traffic lanes of two major arterial roadways. Following well completion, the wells were developed and sampled. Test results indicated the presence of two distinct sources of PCE, one of which resulted in PCE concentrations up to 1,000 ug/l in groundwater samples. Follow up services included designing a sampling program for obtaining soil gas samples from an soil underlying an underground parking garage within the footprint of a former dry cleaning facility. Project activities were documented in engineering reports.		

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5)	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
	WQARF Preliminary Investigation, Rollins Property - Tucson, Arizona	PROFESSIONAL SERVICES 2002	CONSTRUCTION <i>(if applicable)</i> N/A
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm		
<p>Directed an investigation of PCE in groundwater at a former dry cleaning facility in Tucson, Arizona which was under evaluation by ADEQ for inclusion in the WQARF program. Investigation included review of existing data for facility; preparing health and safety plan, investigation work plan, sampling and analysis plan, and hazardous waste management plan; drilling two exploratory borings; soil sampling and testing; soil vapor sampling and testing; and groundwater sampling using a Hydropunch sampling device. A fugacity equation was used to calculate theoretical PCE concentrations in soil based on soil vapor concentrations. Data was evaluated and presented in a comprehensive technical report summarizing the investigation</p>			

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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (Complete one Section 4 for each key person.)**

a. NAME Christian D. Lewallen	b. ROLE IN THIS CONTRACT Staff Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 5	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc. (GEO), Phoenix, Arizona			
e. EDUCATION (Degree and Specialization) B.S. Geology, Oregon State University, 2008 A.S. General Education, Portland Community College		f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline) ASBOG Geologist-in-Training (GIT), Washington, 2011	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) 8-Hour HAZWOPER Refresher, 29 CFR 1910.120 (e) (8) OSHA, 2012 40-Hour HAZWOPER Training, 29 CFR 1910.120 OSHA, 2009			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	Phase I Environmental Site Assessment, City of Mesa, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Conducted Phase I Environmental Site Assessment (ESA) and reconnaissance for the City of Mesa. The ESA included previous report investigations, relevant records review and due diligence, and interviews with various entities involved with the subject property. The ESA also included documentation of field observations, photographic documentation, and reporting requirements.		
2)	ADEQ, 20th and Factor WQARF Site, Yuma, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Conducted soil and water sampling for a large-scale tetrachloroethylene, trichloroethylene, and cyanide investigation. Project involved installation, sampling, and testing of groundwater monitoring and soil vapor monitoring wells; surface and sub-surface soil sampling; groundwater monitoring; soil vapor sampling, and soil surveys. Project involved extensive quality assurance/quality control of field sampling methods, laboratory reports, and tabulated analytical results.		
3)	ADEQ, Former Eloy's Chevron Station UST Site, Douglas, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Conducted borehole drilling and subsurface characterization sampling for a UST investigation. Project involved borehole drilling and subcontractor oversight for multiple boreholes; sub-surface soil sampling for BTEX and PAH compounds; lithological description of drill cuttings; ADWR well records review, and authoring of a Site Characterization Report upon completion of field activities and lab data analysis.		
4)	City of Phoenix, 19 <sup>th</sup> Avenue Landfill Annual Site Inspection Report, Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Assisted main author on the preparation of the City of Phoenix Annual Inspection Report for the 19 <sup>th</sup> Avenue Landfill. Work included the preparation of photographic logs, figures, and various tasks associated with the report. Work also included the review of previous prepared reports and all field documents associated with the previous annual inspections and subsequent landfill maintenance.		
5)	City of Sedona, Waste Water Treatment Plant Effluent Discharge Area, Sedona, Arizona	2012	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input type="checkbox"/> Check if project performed with current firm Conducted field activities and soil borings to characterize geochemical conditions located at the City of Sedona's Waste Water Treatment Plant effluent discharge area. This work was done to determine water quality of the effluent and to determine if effluent water was causing the formation of mineral phases within the soil matrix, such as gypsum, which could decrease the porosity and infiltration of the soil at the site.		

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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (Complete one Section 4 for each key person.)**

a. NAME Michelle Oakley		b. ROLE IN THIS CONTRACT Senior Hydrogeologist		c. YEARS EXPERIENCE	
				1. TOTAL 12	2. WITH CURRENT FIRM 12
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc. (GEO) Phoenix, Arizona					
e. EDUCATION (Degree and Specialization) B.S., Geologic Sciences, California State University, Fullerton, 2003			f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)		
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) 8-Hour HAZWOPER Refresher, 29 CFR 1910.120 (e) (8) OSHA, 2012 40-Hour HAZWOPER Training, 29 CFR 1910.120 OSHA, 2001					

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	ADEQ, 20th and Factor WQARF Site, Yuma, Arizona	Current	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Compilation, review, and documentation of groundwater, soil, and soil vapor investigations for a large-scale tetrachloroethylene, trichloroethylene, and cyanide investigation. Project involved sampling and testing of over 70 groundwater monitoring and soil vapor monitoring wells; large-scale soil vapor surveys; installation of soil borings, groundwater monitoring, and remediation wells; soil vapor sampling, and well development. Conducted industrial surveys to determine past uses of adjacent properties, including soil vapor surveys and review of historical city directories.		
2)	ADEQ, Former Cars for Less, Casa Grande, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Performed soil boring investigation for LUST case, including compilation, review, and reporting of soil sampling data for closure investigation. Responsibilities included coordinating day-to-day activities associated with the investigations at the site, including soil sampling and oversight of drilling activities.		
3)	Arizona Department of Transportation – Various Phase I and Phase II ESAs, Maricopa County, Arizona	2012	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Projects involved evaluation, research, file reviews, and reported findings for ten separate parcels of formerly developed commercial, agricultural, and/or residential land. Included extensive ADEQ file reviews and review of previously submitted environmental reports. Projects involved documentation of Phase I and Phase II ESA activities with emphasis on recognizing potential redevelopment concerns		
4)	Western Refining, Inc., LUST Sites Characterization, Remediation, and Closures, Various Locations, Arizona.	2012	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Site investigation, remediation, and closure services to WNR at LUST sites in Phoenix, Gilbert, Mesa, Safford, Marana, and Douglas, Arizona (totaling 18 ADEQ LUST cases). Petroleum releases at four of these sites impacted groundwater. Site investigation services generally included UST closure assessment, soil gas sampling, drilling and soil boring sampling, and groundwater monitoring well installation and sampling.		
5)	Salt River Pima Maricopa Indian Community, Scottsdale, Arizona	2012	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		

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EPA Brownfield Investigation involving extensive Phase I and Phase II ESAs for Brownfield site. Compilation, review, and documentation of groundwater monitoring and soil sampling data. Project involved identification and management of unmarked small landfill with heavy metal contamination and toxaphene. Responsibilities included managing and coordinating day-to-day activities associated with the investigations at the site, including soil, soil gas and groundwater sampling, well assessment/abandonment activities, and community involvement. Coordination of field personnel and subcontractors in accordance with EPA Region IX for Sampling and Analysis Plan, Quality Assurance Project Plan, and HASP.

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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT (Complete one Section 4 for each key person.)**

a. NAME Scott Parsons, P.E.	b. ROLE IN THIS CONTRACT Principal Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 29	2. WITH CURRENT FIRM 29
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc. (GEO), Phoenix, Arizona			
e. EDUCATION (Degree and Specialization) MBA, Business Administration, California State University, Long Beach, 1995.  B.S., Mechanical Engineering, University of New Hampshire, Durham, New Hampshire, 1982.		f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline) Professional Engineer: California # M28483	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	United Technologies Corporation, Puente Valley Operable Unit	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Remedial Design and Remedial Action for the PVOU shallow zone remedy. Responsible for the design and implementation of 1,500 gpm extraction system that includes 10 extraction wells, over 3 miles of pipeline in the public right-of-way, advanced oxidation, granular activated carbon, and ion exchange		
2)	Carrier Corporation, City of Industry, California	2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Operating and maintaining an integrated groundwater extraction system and soil vapor extraction system. Implemented cost saving measures that have resulted in savings of approximately \$200,000 per year including reducing sampling frequency, eliminating onsite carbon regeneration system, reducing labor, and discontinuing operation of a UV oxidation vapor treatment system.		
3)	Los Angeles Unified School District, Los Angeles, California	2008	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Removal Action to support the construction of Central Regional Elementary School No. 16. A total of approximately 2,100 tons of soil were excavated and transported offsite for disposal as RCRA hazardous waste and non-RCRA hazardous waste. Approximately 75 post-excavation bottom confirmation samples and 200 sidewall confirmation samples were collected and analyzed for lead and arsenic to confirm that DTSC-approved remedial action objectives had been achieved. The DTSC issued a No Further Action Letter approving school construction after reviewing the Removal Action Completion Report.		
4)	Los Angeles Unified School District, Los Angeles, California	2008	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Remedial Action Plan and Remedial Design Document for Central Regional Middle School No. 7. The DTSC-approved remedial action included excavation of approximately 100,000 cubic yards of VOC-impacted soil, post excavations soil-matrix and soil vapor confirmation sampling, and contingent soil vapor extraction. The RAP, which was approved by the DTSC, included a sampling and analysis plan, quality assurance project plan, health and safety plan, design drawings, engineering specifications, and an operations and maintenance plan.		
5)	ARCO Transportation Services Company, Long Beach, California	1995	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		

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Design and construction of a remediation system for soil and groundwater impacted by more than 100,000 gallons of gasoline from a transportation pipeline release. Free product with apparent thickness of up to 25 feet was measured on the groundwater. Conducted vapor extraction pilot tests and a feasibility study to evaluate the best technologies for controlling plume migration and remediating the site. Designed and obtained permits for an integrated remediation system utilizing pneumatic pumps and vapor extraction. The free product was pumped to a 2,000 gallon above ground storage tank (AST). Extracted vapors were destroyed by a thermal oxidizer.

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**4. RESUMES OF KEY PERSONNEL PROPOSED FOR THIS CONTRACT** (Complete one Section 4 for each key person.)

a. NAME Amelia R. Willits	b. ROLE IN THIS CONTRACT Staff Geologist	c. YEARS EXPERIENCE	
		1. TOTAL 2	2. WITH CURRENT FIRM 1
d. FIRM NAME AND LOCATION (City and State) Tetra Tech, Inc., (GEO) Phoenix, Arizona			
e. EDUCATION (Degree and Specialization) B.S. Geological Sciences, Arizona State University, 2011		f. CURRENT PROFESSIONAL REGISTRATION (State and Discipline)	
g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.) 40 Hour HAZWOPER, 40 Hour MSHA			

**H. RELEVANT PROJECTS**

	(1) TITLE AND LOCATION (City and State)	(2) YEAR COMPLETED	
		PROFESSIONAL SERVICES	CONSTRUCTION (If applicable)
1)	United Technologies Corporation, Puente Valley Operable Unit, City of Industry, California	Current	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Staff Geologist - Created figures presenting well locations and VOC plume boundaries using Geographic Information Systems (GIS), interpret VOC plume boundary locations, created hydrographs, and time series graphical presentation of data		
2)	Integrated Solid Waste Management Plan, Cocopah Tribe, Yuma, Arizona	2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Staff Geologist - Planned and conducted a Solid Waste Audit, and developed a solid waste handling strategy for both short term and long term implementation.		
3)	ADEQ, 20th and Factor WQARF Site, Yuma, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Staff Geologist - Conducted soil and water sampling for a large-scale tetrachloroethylene, trichloroethylene, and cyanide investigation. Project involved installation of groundwater monitoring wells; surface and sub-surface soil sampling; groundwater monitoring; and soil vapor sampling. Project involved quality assurance/quality control of laboratory reports, permitting and tabulated analytical results.		
4)	ADEQ, West Osborn WQARF Site, Phoenix, Arizona	2013	N/A
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Staff Geologist – Well abandonment project that involved site assessment, developing a well abandonment protocol, and observing well closure activities.		
5)	ADEQ, Former Exxon Site, Benson, Arizona	2013	
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Staff Geologist - Project involved quality assurance/quality control of laboratory reports and tabulated analytical results.		

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<b>5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT</b>		
<i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i> ASRAC Contract, Multiple Sites in Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2000-2014	CONSTRUCTION <i>(If applicable)</i> N/A
<b>23. PROJECT OWNER'S INFORMATION</b>		
c. PROJECT OWNER Arizona Department of Environmental Quality	d. DOLLAR AMOUNT OF PROJECT \$7.1 M	e. TOTAL COST OF PROJECT On Going

f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Water Quality Assurance Revolving Fund (WQARF) Sites; Early Response Actions (ERAs), Remedial Investigations (RIs), Feasibility Studies (FSs), Preliminary Remedial Action Plans (PRAPs), Records of Decision (RODs), Remedy Design and Implementation, and Community Involvement Services, Arizona.

Since 2000, Tetra Tech has been the prime contractor on the ASRAC contract for the Arizona Department of Environmental Quality (ADEQ) WQARF (i.e., State Superfund) Program. Major individual sites under contract include the 20<sup>th</sup> and Factor Site in Yuma, AZ; Park-Euclid Site in Tucson, AZ; Western Avenue Site in Goodyear, AZ; Payson PCE Site in Payson, AZ; and the Tonto and Cherry Site in Payson, AZ. Tetra Tech drilled, logged, and sampled numerous soil borings, and drilled, logged, installed, and sampled numerous groundwater and soil vapor monitoring wells.

The projects also involved conceptual site hydrogeologic model generation and evaluation in the context of typical Arizona multi-aquifer systems; developing and evaluating subsurface lithology utilizing geologic cross-sections and fence diagrams; hydrogeologic flow and fate-and-transport modeling; assessment of site groundwater quality data in terms of tri-linear diagrams of geochemistry; and interpretation of Arizona Department of Water Resources (ADWR) groundwater maps and databases. Tetra Tech developed extensive Access-compatible databases of site information (geological, contaminant chemistry, etc.), which are integrated in a GIS database for each site.

Tetra Tech planned and implemented a total of 4 early response actions (ERAs) to eliminate source areas, reduce risk by removing pathways and installing caps, prepared RI reports for four sites, prepared FS reports for three sites; prepared PRAPs and RODs for two sites, and designed/built/maintained two ERA and remedial systems. Remedial investigation activities and groundwater monitoring are currently underway at one site. Tetra Tech also supported the ADEQ at site-specific Community Action Board meetings by preparing fact sheets, newsletters, and public notices. Tetra Tech also assisted ADEQ as a consultant providing oversight on other projects.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT		
<i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>
Waste Stream Analysis of the Cocopah Indian Tribe, Yuma Arizona	2013-Current	N/A
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Cocopah Indian Tribe	\$55K	\$55K

g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Tetra Tech was contracted by the Cocopah Indian Tribe to prepare a comprehensive solid waste management plan that incorporates some of the following components: efficient waste management; analyzing benefits of recycling partnerships; analyzing current waste streams to understand and identify possible waste diversions, including food waste; and, guidance with respect to special waste materials.

The Waste Stream Analysis will be used to evaluate the waste management program that the Tribe already has in place, alongside the waste disposal habits of residents and tribal enterprises, to create a solid foundation to build the waste management plan that will best suit the needs of the Tribe.

A Residential Waste Characterization Audit was performed on April 10, 2013 in the parking facility of the Cocopah Police Department. At the request of Tetra Tech, four containers trash were collected and reserved by the Tribe from the April 8, 2013 trash collection of residential waste. The locations were selected at random to prevent a bias in results. One canister was collected from the northern residential area, two cans were collected from the western residential area, and one canister was collected from the eastern residential area. Waste was separated into primary categories as per the EPA's Municipal Solid Waste (MSW) Characterization Methodology (EPA-530-F-11-005). Additional categories were added to target materials that may have value and are marketable.

This integrated solid waste management plan serves as a planning tool which will enable the Tribal Council to make necessary and appropriate solid waste management decisions now and in the future. Adoption of the Plan by the Tribe will ensure the most environmentally beneficial and best value approach for solid waste management. Improving solid waste management practices on the reservation has many benefits, such as protecting the environment, maintaining the aesthetic appearance of the reservation, cost savings, and minimizing health hazards associated with current practices. In addition, the goal of continuously improving solid waste management practices on the reservation should be adopted by the Tribe. Examples of continuous improvement would include the expansion of recycling, waste diversion programs on the reservation, and integrating profitable recycled product into the marketplace.

This plan provides recommendations for both short term and long term solid waste programs which are intended to improve solid waste management on the reservation. Implementation of these programs will assist the Tribe in developing a well-organized recycling program thus reducing the amount of solid waste sent to a landfill.

This Technical Memorandum has been developed by Tetra Tech, Inc. (Tetra Tech) in order to analyze data compiled from the Residential Waste Audit performed on April 10, 2013, and data provided by waste servicers and results from surveys distributed to commercial entities within the Cocopah community.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT		
<i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>
Former Earl's Exxon Station, Benson, Arizona	2013	N/A
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Arizona Department of Environmental Quality (ADEQ)	\$55K	\$55K

h. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Former Earl's Exxon Station, Benson, Arizona - The purpose of this task was to assess the severity and extent of soil contamination and groundwater contamination resulting from the release(s) of the former Underground Storage Tank (UST) systems. The scope of work included: 1) utility locating and agency permitting; 2) drilling, soil sampling and analysis; 3) monitoring well installation, development, and well head survey; 4) groundwater sampling and laboratory analysis; 5) Contingency well installation; 6) disposal of Investigative Derived Waste (IDW); and, 7) report preparation.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i> Soil Vapor Extraction at Former Cars for Less, Casa Grande, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i> N/A
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER Arizona Department of Environmental Quality	d. DOLLAR AMOUNT OF PROJECT \$198K	e. TOTAL COST OF PROJECT On Going

i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Pursuant to a request from the Arizona Department of Environmental Quality (ADEQ), Tetra Tech, Inc. (GEO) performed the task of installation, operating, and maintaining a soil vapor extraction (SVE) system at the former Cars for Less (the Site), located in Casa Grande, Arizona. The scope of work included agency permitting, exposing the existing lateral piping to inspect and test the pipe for leaks, repairing the leaks, installing the SVE system, operating the SVE system for six months, soil vapor and groundwater monitoring, and preparing the reports. The work was conducted under the Terms and Conditions established in the ADEQ Tanks Master Contract.

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5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT <i>(Present no more than five (5) projects. Complete one Section 5 for each project.)</i>		
a. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
Former Cattle Feedlot Brownfields Site Phase I and II ESAs, Salt River Pima Maricopa Indian Community (SRPMIC), Arizona	PROFESSIONAL SERVICES 2007-2011	CONSTRUCTION <i>(If applicable)</i> N/A
23. PROJECT OWNER'S INFORMATION		
c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
Salt River Pima Maricopa Indian Community (SRPMIC)	\$489K	\$489K

j. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Tetra Tech conducted Brownfields-related services for the SRPMIC under an USEPA Brownfields grant. The subject site is a 160-acre parcel comprised of building structures, granaries, ASTs, cattle-loading scales, livestock pens, water wells, cattle feeding troughs, a cattle dip vat, a number of concrete slabs, and possible septic systems. Several recognized environmental conditions (RECs) and areas of potential concern (AOPCs) were identified during the Phase I ESA; they included ACMs; potential buried drums; and impacted soil and groundwater. We prepared the Phase II ESA SAP, which was approved by the SRPMIC and USEPA Region 9. The Phase II ESA included well rehabilitation; groundwater monitoring; a geophysical survey of a suspected buried drum area; an asbestos survey of building structures; several soil borings; and a soil vapor assessment. The Phase II ESA report was approved in January 2009. We also rehabilitated two on-site production wells into groundwater monitoring wells. In addition, we demolished the former concrete dip vat and the associated pad and performed soil characterization after their removal. We also characterized the Northwest Disposal Area by trenching associated with visual observations and soil sampling. A Draft Site Cleanup and End Use Plans were also developed.

## 6. ADDITIONAL INFORMATION

a. PROVIDE ANY ADDITIONAL INFORMATION YOU FEEL MAY BE NECESSARY TO DESCRIBE YOUR FIRMS QUALIFICATIONS. (ATTACH ADDITIONAL SHEETS AS NEEDED.)

### Tetra Tech GEO. Technical Support Services.

Specializing in groundwater flow and transport modeling, Tetra Tech GEO has provided services to some of the most complex environmental sites across the United States such as the Savannah River Site, the Lipari Landfill, the Nevada Test Site, Love Canal, and the Rocky Mountain Arsenal. Its skill set encompasses core capabilities including integrated site characterization, field investigation, risk assessment and clean-up, groundwater modeling and analysis, characterization and remediation of NAPL, brownfields redevelopment, information management, remedial design, implementation and oversight, water resources, litigation and negotiation support, telecommunications site acquisition, remedial system evaluation and optimization, mine closure, and ISO 14000 implementation.

Environmental Tetra Tech offers a full range of environmental consulting services by drawing upon a nationwide pool of experienced and qualified environmental professionals. Our goal is to provide local experience augmented by national recognized experts. Environmental investigations require a multi-disciplinary approach. Tetra Tech is able to provide professional services in any one of many focused disciplines that may require specialized knowledge to support environmental compliance activities. Some of these disciplines include:

- Environmental Scientists
- Wetland Scientists
- Risk Assessment Specialists
- Regulatory Specialist
- Geochemists
- Reclamation Engineers
- Hydrogeologist
- Geologists
- Civil Engineer
- Ecologists
- Ecosystem Modelers
- GIS Designers
- Groundwater Specialists
- Geotechnical Engineers

Our project teams have extensive experience in providing:

- NEPA level clearances for Federally-funded projects including environmental planning and impact assessments.
- Biological assessments, wetland and riparian area delineations; and archaeological surveys and data recovery.
- Water quality assessments including Section 401, 402, and 404 permitting, hydrological monitoring and modeling, pollutions prevention plans, and sampling and testing.

- Highway development impact studies including Section 4(f) evaluations, construction impact assessments, socioeconomic evaluations, and utility conflict assessments.
- Hazardous materials evaluations including Phase I and II Environmental Site Assessments (ESAs).
- Air quality permitting, dust control plans, facility inspections, and compliance reporting.
- Analysis of state and federal environmental regulations and determination of applicability.
- Audits and facility inspections to determine status of compliance efforts.
- Monitoring and inspection of construction activities and record keeping/reporting efforts.
- Permitting to comply with air, water, and waste programs.
- Training including development of materials and presentations to large and small groups.
- General consulting concerning environmental regulations and local practices.

Providing these services, Tetra Tech uses geographical information systems and computer databases to store, organize, and present a myriad of data and spatial information. Tetra Tech has scientist that understand the information, programmers to develop databases and environmental information management systems (EIMSs), and public outreach specialist that can provide eye-catching and effective outreach materials and training to employees and the public.

Total Maximum Daily Loads: Tech's practical experience in establishing Total Maximum Daily Loads (TMDLs) throughout the United States is unmatched. Since 1995 we have developed TMDL calculations for more than 2,500 entities in 45 states and territories covering pollutants like fecal coliforms, nutrients, pesticides, and metals for lakes, rivers, estuaries, and lagoons in watersheds of all sizes. We focus on developing techniques that result in more efficient and defensible TMDL development by the states or, when necessary, for EPA backstopping of lawsuit mandated deadlines.

NPDES Program: Tetra Tech has supported all aspects of developing and implementing the National Pollutant Discharge Elimination System (NPDES) permit program at the federal, state, and local levels. We provide our clients some of the most innovative tools available for NPDES compliance. From application review to compliance inspections, our NPDES team has the knowledge, experience, and efficiency needed to get the job done.

Geographic Information: Tech integrates Geographic

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Information Systems (GIS) into investigation and design tasks to more effectively visualize and assess the natural and constructed world. Tetra Tech utilizes GIS in various projects including water resources, geotechnical, environmental, planning, and permitting. Spatial databases are developed to provide thorough evaluation

of geologic and hydrologic systems through modeling, data management and evaluation.

**7. ANNUAL AVERAGE PROFESSIONAL SERVICES REVENUES OF FIRM FOR LAST 3 YEARS**

a. Percentage of Total Work Attributable to State, Federal and Municipal Government Work:	60
b. Percentage of Total Work Attributable to Non-Government Work:	40

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**8. AUTHORIZED REPRESENTATIVE. The foregoing is a statement of facts.**

Signature: Scott Parsons

Date: December 5, 2013

Name: Scott Parsons, P.E.

Title: Office Manager/Senior Engineer