

**RFQ# ADSPO14-00003465, 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 ADSPO13-00003465: Annual Request for Qualifications**

a.	FIRM (OR BRANCH OFFICE) NAME:	Clear Creek Associates, PLC
b.	FIRM (OR BRANCH OFFICE) STREET:	6155 East Indian School Road
c.	FIRM (OR BRANCH OFFICE) CITY:	Scottsdale
d.	FIRM (OR BRANCH OFFICE) STATE:	Arizona
e.	FIRM (OR BRANCH OFFICE) ZIP CODE:	85251
f.	YEAR ESTABLISHED:	1999
(g1).	OWNERSHIP - TYPE:	Professional Limited Liability Company
(g2).	OWNERSHIP - SMALL BUSINESS STATUS:	Small Business
h.	POINT OF CONTACT NAME AND TITLE:	Lori Bartlett, Principal / Business Manager
i.	POINT OF CONTACT TELEPHONE NUMBER:	(480) 659-7131
j.	POINT OF CONTACT E-MAIL ADDRESS:	lbartlett@clearcreekassociates.com
k.	NAME OF FIRM (If block 1a is a branch office):	---

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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	1	-
Geographic Information System Specialist	P	2	-
Geologist	P	16	-
Hydrologist	P	8	-
Project Manager (Regulatory Specialist)	P	1	-
Environmental Scientist (Geochemist)	P	1	-
Other	P	5	-
<b>Total</b>		34	



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

a. NAME R. Douglas Bartlett, R.G.	b. ROLE IN THIS CONTRACT Principal Hydrogeologist	c. YEARS EXPERIENCE	
		1. TOTAL 36	2. WITH CURRENT FIRM 14
d. FIRM NAME AND LOCATION (City and State) Clear Creek Associates - Scottsdale, Arizona			
e. EDUCATION (DEGREE AND SPECIALIZATION) <u>Education</u> M.S., Geology, Colorado State University, 1984 B.S., Geology, Colorado State University, 1977  <u>Specialization</u> Hydrogeology/Geology Mathematical Groundwater Modeling		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Registered Geologist: Arizona No. 25059 Professional Geologist: Alaska No. 656 Professional Geologist: California No. 8809 Registered Geologist: Oregon No. G2305 Professional Geologist: Pennsylvania No. PG004995 Licensed Geologist: Washington No. 2879 Certified Hydrogeologist: California No. HG 965	

**g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)**

Publications

Burnell, D.K, Mercer, J.W., Van Oort, M., Suriano, T.R., and **Bartlett, R.D.**, 2011, Stochastic Model to Estimate Travel Times from the 52nd Street Facility in Phoenix, AZ; Journal of Earth Science and Engineering, v. 1, no. 2, November 2011, p. 73-81.

Reynolds, S.J., and **Bartlett, R.D.**, 2002, Subsurface geology of the easternmost Phoenix Basin - Implications for groundwater flow: Arizona Geological Survey Contributed Report CR-02-A, 72 p.

Moreno, J.L., Sinton, P.O., **Bartlett, R.D.**, Williamson, A.L., 2002, A Method for Simulating Pit Lake Development and Passive Containment Resulting from Complex Geometry Pit Lakes; Presented at the EPA Hardrock Mining Conference, Denver, Colorado, May 7-9, 2002.

**Bartlett, R.D.**, Moreno, J.L., Williamson, A.L., 1999, Demonstrating Passive Hydraulic Containment for an Open Pit Copper Mine; in Proceedings of the Society of Mining Engineers Annual Meeting, Denver, Colorado, March 1-3, 1999.

Gailey, R.M., and **Bartlett, R.D.**, 1998, A Linear Programming Application for Water Resource Management at a Mining Operation, in Proceedings of the 25th Annual Conference on Water Resources Planning and Management, ASCE Water Resources Planning and Management Division, Chicago, Illinois, June 7-10, 1998.

Moreno, J.L., **Bartlett, R.D.**, and Townsend, P.H., 1997, Using Groundwater Models in Remediation Decisions, Invited Paper presented at the ASCE Water Resources Planning and Management Conference, Houston, Texas, April 7-10, 1997.

**Bartlett, R.D.**, and Cruse, L.T., 1996, Groundwater Supply in the Carefree/Cave Creek Basin; in Proceedings of the Ninth Annual Symposium of the Arizona Hydrological Society, Prescott, Arizona, September 12-14, 1996, p. 149-151.

**Bartlett, R.D.**, Fisher, G., Hussey, J.R., Cruse, L.T., Weitzman, M.J., 1993, Performance Evaluation of the Motorola 52nd Street Operable Unit Extraction Well System; in Proceedings of the Sixth Annual Symposium, Arizona Hydrological Society, Casa Grande, Arizona, September 23-24, 1993, p. 31-43.

Moreno, J.L., and **R.D. Bartlett**, 1987. Ground-Water Model Planning: The Limitations of Data; Proceedings: Waste Management Conference; Focus on the West, Colorado State University, June 1-3, 1987.

Organizations

- American Society of Civil Engineers; Member, Managed Aquifer Recharge Standards Committee
- National Ground Water Association
- Arizona Hydrological Society (Phoenix Chapter Past President)
- American Institute of Professional Geologists; Arizona Section President-Elect
- International Association of Hydrogeologists
- Society of Mining Engineers

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**H. RELEVANT PROJECTS**

(1) TITLE AND LOCATION <i>(City and State)</i>		(2) Year Completed	
1)	Freeport-McMoRan Sierrita Mine Groundwater Model Development, Tucson, AZ	Professional Services 2009-2011	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Oversaw the development of a large groundwater computer model of the Sierrita and Twin Buttes Mines that simulates the future development of mine pit lakes in several open pit excavations. The model utilizes the USGS model code MODFLOW and the LAK3 module to simulate the development of pit lakes. The model domain encompassed 211 square miles and included more than 1 million calculation cells. The prediction results will be incorporated in Aquifer Protection Permit applications and amendments to existing permits to demonstrate future passive containment capture zones.		
2)	Expert Witness: Groundwater Contamination, Merced, CA	Professional Services 2009-2011	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Mr. Bartlett conducted groundwater flow and contaminant transport simulations of a wood treatment facility near Merced, California. Mr. Bartlett testified regarding the potential impact of known chromium releases to groundwater on a drinking water supply well located about 1600 feet from the source area. Mr. Bartlett prepared both an Expert Report and a Rebuttal report and was deposed as part of the case. Mr. Bartlett's testimony relied on groundwater computer modeling that he oversaw showing the historical development of a plume of chromium contamination migrating into a housing community near the wood treatment facility. Mr. Bartlett successfully defended his testimony as part of a Daubert Hearing and then testified before a jury in the case.		
3)	Expert Witness: Groundwater Pumping Impacts to Verde River, Central Arizona	Professional Services 2008	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Retained by Ryley, Carlock & Applewhite to provide expert testimony regarding alleged impacts from agricultural pumping along the Verde River in Arizona. The Salt River Project had filed an injunction against certain ranchers that had groundwater wells near the Verde River. The case required groundwater modeling to assess the magnitude and impact of groundwater pumping on the Verde River. Mr. Bartlett, in support of groundwater pumping interests, prepared an Expert Report and was deposed in the case. He also testified before a Superior Court judge.		
4)	City of Peoria Groundwater Model, Peoria, Arizona	Professional Services 2006	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Retained by the City of Peoria to develop a groundwater computer model of the western portion of the Salt River Valley for the purpose of managing Peoria's groundwater resources. Managed the development of the 3D model and prepared a detailed report describing the model construction and model results. The model incorporated more than 1,000 production wells and covered several hundred square miles of the Phoenix Metropolitan area. The project required nearly a year to complete and is being used by Peoria staff to evaluate future changes in groundwater use.		
5)	Broadway Pantano WQARF Site, Tucson, Arizona	Professional Services 2008 and 2012	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm Developed an interim groundwater volatile organic compounds (VOC) containment plan and conducted a Remedial Investigation (RI) and Feasibility Study (FS) for the groundwater operable unit (GOU) at the Broadway Pantano Water Quality Assurance Revolving Fund (WQARF) Site in Tucson, Arizona. Oversaw the development of a quasi three-dimensional groundwater flow model of 236 square miles of the Tucson Basin that includes over 400 production wells in the City of Tucson's Central Well Field. The calibrated groundwater flow model was used to develop an interim containment-pumping plan that adheres to various constraints such as well field operational plans and community acceptance.		

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

a. NAME Marvin F. Glotfelty, R.G.	c. ROLE IN THIS CONTRACT Principal Hydrogeologist	c. YEARS EXPERIENCE	
		3. TOTAL 30	4. WITH CURRENT FIRM 14
d. FIRM NAME AND LOCATION (City and State) Clear Creek Associates - Scottsdale, Arizona			
e. EDUCATION (DEGREE AND SPECIALIZATION) <u>Education</u> M.S., Geology, Northern Arizona University, 1985 B.S., Geology, Northern Arizona University, 1979  <u>Specialization</u> Hydrogeology/Geology Water Resources Investigations Well Assessment, Design, and Rehabilitation		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE)  Registered Geologist: California No. 4988 (1990) Registered Geologist: Arizona No. 22744 (1989) Licensed Well Driller: Arizona Nos. 160 and 672	

**g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)**

Presentations and Publications

Mr. Glotfelty has given over 100 presentations on hydrogeologic and water well topics during his career, including serving as the National Ground Water Association's McElhiney Distinguished Lecturer in 2012. He has also authored over 20 publications, including a Dictionary of Driller's Terms (published by the National Ground Water Association in 2004), and editorial review of the Water Well Construction and Abandonment chapter of the 3rd edition of Groundwater & Wells (published by Johnson Screens Co., 2007). A complete listing of his publications and presentations is available upon request.

Professional Affiliations

Arizona Hydrological Society  
Arizona Hydrological Society Foundation (Board of Directors 2010-present)  
Arizona Water Well Association (Technical Director 1990-present)  
California Groundwater Association (since 2010)  
Groundwater Resources Association of California (since 2011)  
National Ground Water Association (since 1984)  
Northern Arizona University College of Engineering and Natural Sciences Advisory Council  
American Institute of Professional Geologists

Recent Awards

National Ground Water Association's Distinguished McElhiney Lecturer for 2012

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**H. RELEVANT PROJECTS**

(1) TITLE AND LOCATION <i>(City and State)</i>		(2) Year Completed	
Well Evaluation and Rehabilitation Projects, Arizona and California		Professional Services Last 14 years	Construction <i>(if applicable)</i>
<p>(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm</p> <p>Mr. Glotfelty conducted numerous well evaluation/rehabilitation projects for municipalities and private water companies to improve the pumped water quality through the structural modification of the well. These projects included site-specific well analyses utilizing flow profile analysis (spinner flowmeter logging or dye tracer profiling) under both dynamic (pumping) and static (non-pumping) conditions, along with depth-specific groundwater sampling to determine the hydrogeologic, chemical, and biological conditions of the well. In addition, conventional aquifer test data were collected and analyzed for each well, and a well video survey of each well was conducted to assess its structural condition.</p> <p>1) Well evaluation/rehabilitation projects include: four wells for Arizona-American Water Company near Surprise, AZ; four wells for the City of Chandler, AZ; twenty wells for the City of Cottonwood, AZ; one well for the Town of Gilbert, AZ; five wells for the City of Phoenix, AZ (rehabilitation of Wells No. 211, No. 214, and No. 250 resulted in a 30% to 95% reduction of nitrate concentrations, for which Mr. Glotfelty was awarded the City of Phoenix Mayor's Environmental Award in 1995); eight wells for the City of Mesa, AZ; fourteen wells for Global Water Company in Pinal County, AZ; one well for the City of Scottsdale, AZ; Two wells for the City of Surprise, AZ; five wells for the City of Ontario, CA; two wells for San Antonio Water Company in Upland, CA; and one well for Adaman Water Company near Goodyear, AZ; and one well for the Harquahala Power Plant in western Arizona.</p> <p>The tasks performed as part of these projects included: evaluation of the spinner logs or dye tracer flow profile data, as well as the depth-specific (zonal) groundwater samples under dynamic (pumping) as well as static (non-pumping) conditions; collection and analysis of aquifer test data; and review of well video surveys. When the well evaluation indicated structural modification would improve the well, the well rehabilitation design was based on these analyses. Mr. Glotfelty was responsible for the design and construction administration of the structural modification of each well. He coordinated and supervised the inner-string cementing operations, utilizing a combination of water well and oil well industry techniques.</p>			
Well Siting and Water Resources Studies, Various Locations Throughout Arizona		Professional Services Last 14 years	Construction <i>(if applicable)</i>
<p>2) (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm</p> <p>Well Siting and Water Resources Studies (regional hydrogeological investigations and prioritization matrix development) – City of Mesa (72-mile<sup>2</sup> study area); City of Phoenix (1,344-mile<sup>2</sup> study area); City of Peoria (central portion); City of Tempe; City of Scottsdale (70-mile<sup>2</sup> study area); City of Surprise (SE portion); Citizens Utilities/Arizona-American Water Co. (now EPCOR); City of Casa Grande (recharge siting study).</p>			
Public Supply & ASR Well Installations, Arizona		Professional Services Last 14 years	Construction <i>(if applicable)</i>
<p>3) (3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm</p> <p>Public Supply &amp; ASR Well Installations - Town of Buckeye (Well 14, a design-build project); City of Mesa (City Wells 11 &amp; 12, and Desert Wells 17, 18, 21, &amp; 22); City of Phoenix (Wells 287, 288, 289, 291, 292, 299, 300, 301, Cave Creek ASR, and Deer Valley ASR); City of Scottsdale (Wells 41, 50, 106, 108, 115, 122, and 140); City of Peoria (Westbrook No. 3 Well, Sports Complex Well, and Desert Harbor Well).</p> <p>Work includes permitting, preparation of technical specifications, construction oversight, testing, and documentation.</p>			

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a. NAME Don Hanson, R.G.	d. ROLE IN THIS CONTRACT Principal Hydrogeologist	c. YEARS EXPERIENCE	
		5. TOTAL 27	6. WITH CURRENT FIRM 14
d. FIRM NAME AND LOCATION (City and State) Clear Creek Associates - Scottsdale, Arizona			
e. EDUCATION (DEGREE AND SPECIALIZATION) <u>Education</u> B.S., Geology/Hydrogeology, Northern Arizona University, 1984  <u>Specialization</u> Hydrogeology Groundwater Recharge Water Resources Environmental Investigations		f. CURRENT PROFESSIONAL REGISTRATION (STATE AND DISCIPLINE) Registered Geologist, 1992 - Arizona Registration No. 26036 Professional Geologist, 1998 - Wyoming Registration No. PG-2983	

g. OTHER PROFESSIONAL QUALIFICATIONS (Publications, Organizations, Training, Awards, etc.)

Presentations and Publications

- 2013 - **High Capacity Well Design.** National Groundwater Association, 2013 Groundwater Expo – Nashville, TN, December.
- 2013 – **Water Reuse – New Perspectives on Policy and Science.** 2013 Annual AHS Symposium – Shifting Boundaries, Recalibrating the Hydrologic Approach, September.
- 2013 - **Well Screen Rehabilitation.** Groundwater Resources Association of California, High Resolution Tools and Techniques for Optimizing Groundwater Extraction for Water Supply Symposium, June.
- 2013 - **Capitalizing on Well Capacity Analysis.** 86<sup>th</sup> Annual AZ Water Conference, May.
- 2013 – **Groundwater Recharge For The Future of Chile.** Presented to the Chilean Government, Department of Agriculture, April.
- 2012 – **Groundwater Recharge In Arizona.** Presented to the Chilean Government, Department of Agriculture, December.
- 2012 - **High Capacity Well Design.** National Groundwater Association, 2012 Groundwater Expo – Las Vegas, NV, December.
- 2012 - **117 Degrees in The Shade – Solutions to a Hot Water Supply Well.** 28<sup>th</sup> Annual Tri-State Seminar-on-the-River, September.
- 2012 - **Basin Recharge - Planning For Success.** 85<sup>th</sup> Annual AZ Water Conference, May.
- 2012 - **Well Evaluation Concepts and Techniques, Well Rehabilitation and Modification Methods.** ADEQ Operator Certification Program Workshop, April.
- 2011 - **Enhancing Basin Recharge.** A presentation to the City of Pomona, California, October.
- 2011 - **Aquifer Recharge-From Vision to Reality.** 84<sup>th</sup> Annual AZ Water Conference, May.
- 2011 - **Well Evaluation Concepts and Techniques, Well Rehabilitation and Modification Methods.** ADEQ Operator Certification Program Workshop, February.
- 2010 - **Groundwater Recharge – Tips for Siting, Design, and Operation.** 26<sup>th</sup> Annual Tri-State Seminar-on-the-River, September.
- 2008 - **Groundwater Recharge and its Impacts on Non-Point Source Nitrate Contamination.** Peer-reviewed article in The Professional Geologist, Volume 45, Number 4, August/September.
- 2006 - **New Well Techniques for Well Installation.** 22<sup>nd</sup> Annual Tri-State Seminar-on-the-River, September.
- 2006 - **Developing a Wet Water Supply.** A presentation to Pulte Homes of Arizona, March.
- 2005 - **Is It a Pump or Well Problem?** 21<sup>st</sup> Annual Tri-State Seminar-on-the-River, September
- 2005 - **Maintaining ASR Well Efficiency.** 12<sup>th</sup> Biennial Symposium on Groundwater Recharge, June.
- 2005 - **Well Cleaning Eliminates Costly Arsenic Treatment.** AWP/PCA 78<sup>th</sup> Annual Conference and Exposition, May.
- 2004 - **The Data Game, How Much, What Kinds, and Why.** 20<sup>th</sup> Annual Tri-State Seminar-on-the-River, September.
- 2004 - **Chandler's Reclaimed Water Program Yields 30 MGD Water Supply,** Co-author, 19<sup>th</sup> Annual Water Reuse Symposium, September.
- 2004 - **Water Solutions for Development.** An invited presentation for the DR Horton Continental Series, Phoenix, Arizona, March 24, 2004.
- 2003 – **Groundwater Recharge And Its Impacts On Non-Point Source Nitrate Contamination,** 11<sup>th</sup> Biennial Symposium on Groundwater Recharge, June.

Professional Affiliations

- Arizona Water Association (AZ Water)
- National Groundwater Association (NGWA)
- American Institute of Professional Geologists (AIPG)

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**H. RELEVANT PROJECTS**

(1) TITLE AND LOCATION <i>(City and State)</i>		(2) Year Completed	
1)	Vadose Zone Injection Well Design and Installation, City of Surprise, Arizona	Professional Services 2009	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Manager for siting, design, installation and testing of five new vadose zone injection wells to recharge reclaimed water produced from the City's new SPA-2 reverse osmosis WRF. Project included development of O&M plans, operator training, and technical support for automated control logic development. Project also included Aquifer Protection Permit (APP) and Underground Storage Facility (USF) / Water Storage (WS) permitting.		
2)	Water Resource Development for Pulte Homes, Inc., Phoenix Metropolitan Area, Arizona	Professional Services 2004-2008	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Technical expert for water resources development at several Master Planned Communities in the Phoenix metro area. Project manager for the design and installation of 10 large-scale public water supply wells in areas with naturally occurring arsenic and fluoride impacts. Conducted Well Siting/Well Impact analyses and Arizona Department of Water Resources (ADWR) permitting for all wells.		
3)	Well Rehabilitation Program for Arsenic, City of Mesa, Arizona	Professional Services 2007	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Manager for an eight well rehabilitation evaluation program for arsenic mitigation. Project included well video surveys, well cleaning oversight, spinner logging and depth-specific sampling. Several wells were successfully rehabilitated to meet the current arsenic standard without treatment.		
4)	Recharge Basin Performance Assessment and Rehabilitation, Peoria, Arizona	Professional Services 2009	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Managed the evaluation of performance problems at two new recharge basins at the City's Beardsley Road Water Reclamation Facility (WRF). The project included detailed hydrogeologic investigation, pilot testing of recommended solutions, implementation and construction management of full scale remedy, and oversight of final testing.		
5)	Former Southwest Cooperative Wholesale Facility, Phoenix, Arizona	Professional Services 2009-2013	Construction <i>(if applicable)</i>
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE <input checked="" type="checkbox"/> Check if project performed with current firm		
	Manager for characterization and remediation of residual organochlorine pesticides at the former Southwest Cooperative Wholesale facility conducted in association with the Arizona Department of Environmental Quality Voluntary Remediation Program (VRP). A more detailed description is presented in Section 5, Page 10, of this submittal.		

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**5. EXAMPLE PROJECTS WHICH BEST ILLUSTRATE PROPOSED TEAM'S QUALIFICATIONS FOR THIS CONTRACT**

*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

a. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>
Former Southwest Cooperative Wholesale Facility, Phoenix, Arizona	2009-2013	

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	\$500,000	

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

City of Phoenix Voluntary Acquisition Program – Investigation, Remediation, and Risk Assessment for the Former Southwest Cooperative Wholesale Pesticide Formulation Facility - Clear Creek was retained by the City of Phoenix to perform due diligence for the Voluntary Acquisition Program on an 11-acre parcel of land located in an industrial area adjacent to Phoenix Sky Harbor International Airport. From the mid-1950s to approximately 1999, site operations included formulation of various bulk pesticides for both agricultural applications and cattle dipping. Toxaphene, a currently banned organochlorine pesticide, was identified as the primary chemical of concern (COC). After historical remediation to risk-based closure standards, the site received a No Further Action (NFA) determination by the Arizona Department of Environmental Quality (ADEQ) and a Declaration of Environmental Use Restriction (DEUR) was recorded to restrict the property to non-residential use. Clear Creek conducted a Phase I ESA pursuant to the process prescribed in the ASTM E 1527-05 Standard Practice for Environmental Site Assessments which is compliant with the EPA Standards and Practices for AAI Rule, 40 CFR 312. In conjunction with the Phase I Environmental Site Assessment (ESA), a review of numerous environmental documents including the Health Risk Assessment (HRA) was conducted to formulate an opinion on the appropriateness of the original site characterization, remediation activities, and risk-based closure that supported the existing NFA and DEUR documents. As a result of the document review, Phase II activities included development of a Conceptual Site Model (CSM) and preparation of a SAP to fill data gaps created by unusable data. Existing usable data along with known survey points on the property were imported into ArcView and digitized to produce NAD 83 coordinates. An additional 224 soil samples were collected and analyzed utilizing rapid turnaround times. The results identified significant additional toxaphene contamination above the original cleanup goals as well as other COC's. Clear Creek developed potential remediation costs for several different remediation scenarios with the intent of reducing potential liability exposure for the City of Phoenix during negotiations with the property owner. After the City acquired the property, Clear Creek was retained to develop and oversee a Phase III remediation program including a human health risk assessment that is being conducted in coordination with the ADEQ Voluntary Remediation Program. Project deliverables included a Remedial Action Plan (RAP), Sampling and Analysis Plan (SAP), Quality Assurance Project Plan (QAPP), and Excavation Plan. Phase III field work was initiated in December 2012 and was completed in February 2013. Excavated soils, concrete, and asphalt were tested and segregated for disposal based on RCRA waste determinations. In addition to the excavation of impacted soils, the remediation work included the demolition and removal of historical operational facilities including underground utility lines, power poles and substation and a septic system. Throughout the project, decontamination, dust, and stormwater controls were implemented to prevent the migration of contaminants off the property. Nearly 8,000 tons of soils and concrete were hauled offsite for disposal. Approximately 15% of that waste was RCRA toxicity characteristic hazardous waste.

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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>		

b. TITLE AND LOCATION <i>(City and State)</i>  Production Well Rehabilitation Evaluation, Peoria, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2013	CONSTRUCTION <i>(If applicable)</i>

<b>23. PROJECT OWNER'S INFORMATION</b>		
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c. PROJECT OWNER  City of Peoria	d. DOLLAR AMOUNT OF PROJECT  \$30,000	e. TOTAL COST OF PROJECT
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g. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Clear Creek was retained by the City of Peoria to conduct a well evaluation to determine if their 89<sup>th</sup> Avenue and Union Hills could be structurally modified to reduce arsenic concentrations in the pumped water to <80% of the maximum contaminant level (MCL) of 10 micrograms per liter (ug/L). The well was drilled in the mid-1990's and had been out of service for several years. Clear Creek oversaw the completion of the downhole video survey to assess the current condition of the well. Significant scale accumulation was present to the degree that much of the screened interval was completely blocked. An initial cleaning program consisting of wire brushing followed by bailing was recommended and completed by their pump contractor. A subsequent well video still indicated significant blockage of the screen.

Clear Creek recommended chemical treatment of the well using sulfuric acid. To determine the amount of acid necessary for treatment, samples of the scale were collected and a bench scale study was conducted. Four equal weights of scale were subjected to various strengths of acid ranging from ¼ lb/gallon to 1 lb/gallon. The samples were observed over a three day period to determine the duration of reactivity at different strengths. At the end of the test, the residual scale samples were dried and re-weighed to determine the amount of scale that was dissolved at each varying acid strength. The well was subsequently acidized with the recommended volume and strength. Subsequent pumping of the well indicated that production capacity had returned to historical rates with only a 20% loss in well efficiency.

With the well now back in operational condition, Clear Creek conducted downhole static (non-pumping) and dynamic (pumping) spinner logs to determine which portions of the screened intervals were contributing to the overall flow. Additionally, downhole water quality sampling at each producing zone was conducted. Samples were analyzed for arsenic, fluoride, TDS, nitrate, and chromium. After compiling the data, Clear Creek determined that the bottom portion of the well was producing the majority of the arsenic and that if this zone were eliminated, the arsenic concentration in the pumped water would meet the <8 ug/L goal. This analysis saved the City considerable money because it eliminated the need for design and installation of a costly arsenic treatment system.

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*(Present no more than five (5) projects. Complete one Section 5 for each project.)*

c. TITLE AND LOCATION <i>(City and State)</i>  Broadway-Pantano WQARF Site Remedial Investigation, Tucson, Arizona	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES 2012	CONSTRUCTION <i>(If applicable)</i>

**23. PROJECT OWNER'S INFORMATION**

c. PROJECT OWNER Arizona Department of Environmental Quality	d. DOLLAR AMOUNT OF PROJECT \$274,000	e. TOTAL COST OF PROJECT
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h. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Clear Creek Associates was retained by the Arizona Department of Environmental Quality (ADEQ) to complete a Remedial Investigation of the Broadway-Pantano Water Quality Assurance Revolving Fund (WQARF) Site - Landfill Operable Unit. The scope of work included the collection and analysis of approximately 160 soil vapor samples to be used in a health risk evaluation and to assess possible rebound of VOCs in the vadose zone and impacts to groundwater. The sampling points ranged from 350 feet deep to 5 feet deep, and from ½ inch diameter to 6 inches in diameter. Samples were collected in 1-liter Summa canisters and analyzed for volatile organic compounds (VOCs) by EPA Method TO-15.

**RFQ# ADSPO14-00003465, Annual Request for Qualifications and Experience  
REVISED - Attachment I – General Qualifications**

<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>		
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d. TITLE AND LOCATION <i>(City and State)</i>  WWTP TDS Modeling For Aquifer Protection Permit, Arizona State Prison Complex – Yuma, Arizona	b. YEAR COMPLETED <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:50%; text-align: center;">PROFESSIONAL SERVICES 2010</td> <td style="width:50%; text-align: center;">CONSTRUCTION <i>(If applicable)</i></td> </tr> </table>		PROFESSIONAL SERVICES 2010	CONSTRUCTION <i>(If applicable)</i>
PROFESSIONAL SERVICES 2010	CONSTRUCTION <i>(If applicable)</i>			

<b>23. PROJECT OWNER'S INFORMATION</b>		
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c. PROJECT OWNER  Arizona State Prison Complex / Arizona Department of Administration	d. DOLLAR AMOUNT OF PROJECT  \$30,000	e. TOTAL COST OF PROJECT
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i. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT *(include scope, size, and length of project)*

Clear Creek assisted Carollo Engineers in the application for a significant amendment to an APP for the state prison complex near Yuma, Arizona. As part of the permit application, Clear Creek Associates characterized the hydrogeology of the area and delineated a discharge impact area. However, ADEQ requested further evaluation of the potential impacts from the proposed wastewater treatment plant (WWTP) improvements on the concentration of total dissolved solids (TDS) in groundwater pumped from the U.S. Bureau of Reclamation's '242' downgradient wellfield. Clear Creek Associates completed the evaluation by developing and applying a contaminant fate and transport model to simulate TDS concentrations. Results successfully showed minimal impact to the well field and the modified APP has been issued.

**RFQ# ADSPO14-00003465, Annual Request for Qualifications and Experience  
REVISED - Attachment I – General Qualifications**

<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>		
e. TITLE AND LOCATION <i>(City and State)</i>	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>
Water Supply Well CW27 Groundwater Quality and Well Rehabilitation Evaluation,3 City of Mesa, Arizona	2012	
<b>23. PROJECT OWNER'S INFORMATION</b>		
c. PROJECT OWNER	d. DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Mesa	\$14,000	

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

Clear Creek was retained by the City of Mesa to conduct a groundwater quality and rehabilitation evaluation on a municipal production well (CW27) that will serve a new baseball training facility. This evaluation was conducted to evaluate whether arsenic concentrations in the groundwater could be reduced through operational changes and/or potential well construction modifications. Clear Creek determined that improved water quality could be attained through operational changes and provided recommendations on modified pumping rates to achieve the target reduction of arsenic concentrations in extracted groundwater.

6. ADDITIONAL INFORMATION

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

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:	10
b.	Percentage of Total Work Attributable to Non-Government Work:	90

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

Signature: *Lori Bartlett*  
Name: Lori Bartlett

Date: 12/11/13  
Title: Principal