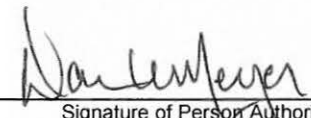


	<h1>Offer and Acceptance</h1>		State of Arizona State Procurement Office 100 N. 15 th Ave. Suite 201 Phoenix, AZ 85007
	SOLICITATION NO.: ADSP016-00005912 Request for Qualifications: 2016 Annual Professional Services List	PAGE 1	
Offeror:	OF 1		

OFFER

TO THE STATE OF ARIZONA:

The Undersigned hereby offers and agrees to furnish the material, service or construction in compliance with all terms, conditions, specifications and amendments in the Solicitation and any written exceptions in the offer. Signature also certifies Small Business status.

<u>Black & Veatch</u> Company Name	 Signature of Person Authorized to Sign Offer
<u>3133 E. Camelback Rd., Suite 210</u> Address	<u>Dan W. Meyer, P.E.</u> Printed Name
<u>Phoenix</u> <u>AZ</u> <u>85016</u> City State Zip	<u>Project Director/Vice President</u> Title
<u>MeyerDW@bv.com</u> Contact Email Address	Phone: <u>(602) 381-4417</u> Fax: <u>(602) 381-4440</u>

By signature in the Offer section above, the Offeror certifies:

1. The submission of the Offer did not involve collusion or other anticompetitive practices.
2. The Offeror shall not discriminate against any employee or applicant for employment in violation of Federal Executive Order 11246, State Executive Order 2009-9 or A.R.S. §§ 41-1461 through 1465.
3. The Offeror has not given, offered to give, nor intends to give at any time hereafter any economic opportunity, future employment, gift, loan, gratuity, special discount, trip, favor, or service to a public servant in connection with the submitted offer. Failure to provide a valid signature affirming the stipulations required by this clause shall result in rejection of the offer. Signing the offer with a false statement shall void the offer, any resulting contract and may be subject to legal remedies provided by law.
4. The Offeror certifies that the above referenced organization IS/ IS NOT a small business with less than 100 employees or has gross revenues of \$4 million or less.

ACCEPTANCE OF OFFER


The Offer is hereby accepted.

The Contractor is now bound to sell the materials or services listed by the attached contract and based upon the solicitation, including all terms, conditions, specifications, amendments, etc., and the Contractor's Offer as accepted by the State.

This Contract shall henceforth be referred to as Contract No. ADSP016-00005912

The effective date of the Contract is March 1, 2016

The Contractor is cautioned not to commence any billable work or to provide any material or service under this contract until Contractor receives purchase order, contract release document or written notice to proceed.

State of Arizona
 Awarded this 29 day of February 2016

 Procurement Officer



ATTACHMENT I – General Qualifications

ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
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DEFINITIONS

Architect Services, Engineer Services, Land Surveying Services, Assayer Services, Geologist Services and Landscape Architect Services: Those professional services within the scope of the practice of those services as provided in ARS § 32-101.

Branch Office: A geographically distinct place of business or subsidiary office of a firm that has a key role on the team.

Discipline: Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.

Firm: Defined in ARS § 32-101(B.19.).

Key Personnel: Individuals who will have major contract responsibilities and/or provide unusual or unique expertise.

SPECIFIC INSTRUCTIONS:

1. Complete this form for each branch office seeking work under this RFQ.
 - a. – e. **Firm (or Branch Office) Name and Address.** Self-explanatory.
 - f. **Year Established.** Enter the year the firm (or branch office, if appropriate) was established under the current name.
 - g. **Ownership.**
 - (g1). *Type.* Enter the type of ownership or legal structure of the firm (sole proprietor, partnership, corporation, joint venture, etc.).
 - (g2). *Small Business Status.* A firm is a small business if the firm has less than 100 employees **or** has gross revenues of \$4 million or less.
 - h.-j. **Point of Contact.** Provide this information for a representative of the firm that the Customer can contact for additional information. The representative must be empowered to speak on contractual and policy matters.
 - k. **Name of Firm.** Enter the name of the firm.
2. **Employees by Discipline.**
 - a. Select disciplines from the List of Disciplines (Function Code) listed on Page 3 of 4 Instructions. For employees that do not qualify for any of the disciplines, select "Other". *Note: The intended searchable database indicated in the RFQ will be populated from the Qualifications Form I Excel attachment only.*
 - b. Each person can be counted only twice; once for his/her primary function and once for his/her secondary function. Primary and secondary functions should be indicated by including a "P" or an "S" in column b after the Description Title is given.
 - c-d. If the form is completed for a firm (including all branch offices), enter the number of employees by disciplines in column c. If the form is completed for a branch office, enter the number of employees by discipline in column d and for the firm in column c.
3. **Profile of Firm's Experience and Annual Average Revenue for Last Year.**
 - a. Enter the approximate number of projects the firm (or branch) has done attributable by Profile Code listed on Page 3 of 4 Instructions over the last year.



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- b. Enter the appropriate Profile Codes from Instructions Pages 3 of 4 that represent the type of work the firm (or branch) has done over the last year.
 - c. Using the Revenue Index Number on Page 3 of 6 Form, indicate the approximate revenue the firm has earned over the last year per Profile Code entered into the table.
4. **Resumes of Key Personnel Proposed for This Contract.** Complete this section for each key person who will participate in this contract.
- a. Self-explanatory.
 - b. Self-explanatory
 - c. Total years of relevant experience (block c1), and years of relevant experience with current firm, but not necessarily the same branch/office (block c2).
 - d. Name, City and State of the firm where the person currently works, which must correspond with one of the firms (or branch office or a firm, if appropriate) listed in Section 1.
 - e. Provide information on the highest relevant academic degree(s) received. Indicate the area(s) of specialization for each degree.
 - f. Provide information on current relevant professional registration(s) and in which State(s) they are current.
 - g. Provide information on any other professional qualifications relating to this contract, such as education, professional registration, publications, organizational memberships, certifications, training, awards, and foreign language capabilities.
 - h. Provide information on no more than five (5) projects in the last year which the person had a significant role that demonstrates the person's capability relevant to her/his proposed role in this contract. These projects do not necessarily have to be any of the projects presented in Section 5 for the project team if the person was not involved in any of those those projects or the person worked on other projects that were more relevant than the team projects in Section 5. Use the check box provided to indicate if the project was performed with any office of the current firm. If any of the professional services or construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description and Specific Role.
5. **Example Projects Which Best Illustrate Firms Qualification for this contract.** Select project where multiple team members worked together, if possible, that demonstrate the team's capability to perform work similar to that required for this contract. Complete one Section 5 for each project. List no more than five (5) projects.
- a. Title and Locations of project or contract. For an indefinite delivery contract, the location is the geographic scope of the contract.
 - b. Enter the year completed of the professional services (such as planning, engineering study, or design), and/or the year completed if construction. If any of the professional services or the construction projects are not complete, leave Year Completed blank and indicate the status in Brief Description of Project and Relevance to This Contract (block f).
 - c. Project Owner or user, such as a government agency or installation, an institution, a corporation or private individual.
 - d. Provide the original budget or not to exceed dollar amount for the project.
 - e. Provide the Total Cost of the Project. If any of the professional services or construction projects is not complete, indicate the percentage complete and whether this project will be on budget, over or under budget.
 - f. Brief Description: Indicate scope, size, and length of project, principle elements and special features of the project. Discuss the relevance of the example project to this contract.
6. **Additional Information.** Use this section to provide additional information you feel may be necessary to describe your firm's qualifications for this contract.
7. **Annual Average Professional Services Revenues of Firm for Last 3 Years.** Complete this block for the firm or branch office for which this form is completed. In column a, enter an approximate percentage of total work attributable to State, Federal or Municipal Work. In column b, enter an approximate percentage of total work attributable to Non-Government work. Percentages should take into consideration work completed over the last 3 years.



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8. **Authorized Representative.** An authorized representative of the firm or branch office must sign and date the completed form. Signing attests that the information provided is current and factual. Provide the name and title of the authorized representative who signed the form.

List of Disciplines (Function Codes) for Question 2

- | | | |
|---------------------------|--|--------------------------|
| Aeronautical Engineer | Environmental Engineer | Mining Engineer |
| Agricultural Engineer | Environmental Scientist | Nuclear Engineer |
| Archeologist | Fire Protection Engineer | Petroleum Engineer |
| Architect | Geodetic Surveyor | Photogrammetrist |
| Architectural Engineering | Geographic Information System Specialist | Project Manager |
| Biologist | Geological Engineer | Sanitary Engineer |
| CADD Technician | Geologist | Soils Engineer |
| Chemical Engineer | Hydrographic Surveyor | Structural Engineer |
| Civil Engineer | Hydraulic Engineer | Technician/Analyst |
| Construction Manager | Hydrologist | Transportation Engineer |
| Construction Inspector | Industrial Engineer | Water Resources Engineer |
| Control Systems Engineer | Landscape Architect | |
| Cost Engineer/Estimator | Mechanical Engineer | |
| Ecologist | Metallurgical Engineer | |
| Electrical Engineer | | |

List of Experience Categories (Profile Codes for Question 3)

- | | |
|---|--|
| Acoustics, Noise Abatement | Dams (<i>Concrete; Arch</i>) |
| Aerial Photography; Airborne Data and Imagery Collection and Analysis | Dams (<i>Earth; Rock</i>); Dikes; Levees |
| Activity Centers | Desalinization (<i>Process and Facilities</i>) |
| Air Pollution Control | Design-Build - Preparation of Requests for Proposals |
| Airports; Navajds; Airport Lighting; Aircraft Fueling | Digital Elevation and Terrain Model Development |
| Airports; Terminals and Hangars; Freight Handling | Digital Orthophotography |
| Agricultural Development; Grain Storage; Farm Mechanization | Dining Halls; Clubs; Restaurants |
| Animal Facilities | Dredging Studies and Design |
| Anti-Terrorism/Force Protection | Design & Planning Structured Parking Facilities |
| Area Master Planning | Detention Security Systems |
| Auditoriums and Theaters | Disability / Special Needs |
| Automation; Controls; Instrumentation | Ecological and Archeological Investigations |
| Barracks; Dormitories | Educational Facilities; Classrooms |
| Bridge Design: Bridges | Electrical Studies and Design |
| Cartography | Electronics |
| Cemeteries (<i>Planning and Relocation</i>) | Elevators; Escalators; People-Movers |
| Chemical Processing and Storage | Energy / Water Auditing Savings |
| Child Care/Development Facilities | Energy Conservation; New Energy Sources |
| Codes; Standards; Ordinances | Environmental Impact Studies, Assessments or Statements |
| Cold Storage; Refrigeration and Fast Freeze | Fallout Shelters; Blast-Resistant Design |
| Commercial Building (<i>Low Rise</i>); Shopping Centers | Fire Protection |
| Community Facilities | Fisheries; Fish Ladders |
| Communications Systems; TV; Microwave | Forensic Engineering |
| Computer Facilities | Garages; Vehicles Maintenance Facilities; Parking |
| Conservation and Resource Management | Gas Systems (<i>Propane; Natural, Etc.</i>) |
| Construction Management | Geodetic Surveying: Ground and Airborne |
| Construction Surveying | Heating; Ventilating; Air Conditioning |
| Corrosion Control; Cathodic Protection Electrolysis | Highways; Streets; Airfield Paving; Parking Lots |
| Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting | Historical Preservation |
| Cryogenic Facilities | Hospital and Medical Facilities |
| Construction Materials Testing | Hotels; Motels |
| | <i>Housing (Residential, Multi-Family; Apartments; Condominiums)</i> |



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Hotels; Motels
Hydraulics and Pneumatics
Hydrographic Surveying
Industrial Buildings; Manufacturing Plants
Industrial Processes; Quality Control
Industrial Waste Treatment
Intelligent Transportation Systems
Infrastructure
Irrigation; Drainage
Judicial and Courtroom Facilities
Laboratories; Medical Research Facilities
Land Surveying
Landscape Architecture
Libraries; Museums; Galleries
Lighting (*Interior; Display; Theater, Etc.*)
Lighting (*Exteriors; Streets; Memorials; Athletic Fields, Etc.*)
Labs - General
Labs – Research – Dry
Labs – Research – Wet
LEED Accredited A/E
LEED Independent 3rd Party Building Commissioning
Mapping Location/Addressing Systems
Materials Handling Systems; Conveyors; Sorters
Metallurgy
Materials Testing
Measurement / Verification / Conservation Water Consumption Savings
Mining and Mineralogy
Medical Related
Modular Systems Design; Fabricated Structures or Components
Mold Investigation
Museums
Nuclear Facilities; Nuclear Shielding
Office Buildings; Industrial Parks
Outdoor Recreation
Petroleum and Fuel (*Storage and Distribution*)
Photogrammetry
Pipelines (*Cross-Country - Liquid and Gas*)
Phase I Environmental
Prisons & Correctional Facilities
Plumbing and Piping Design
Prisons and Correctional Facilities
Product, Machine Equipment Design Pneumatic Structures, Air-Support Buildings Power Generation, Transmission, Distribution Public Safety Facilities
Radar; Sonar; Radio and Radar Telescopes
Radio Frequency Systems and Shielding's
Railroad; Rapid Transit
Recreation Facilities (*Parks, Marinas, Etc.*)
Refrigeration Plants/Systems
Rehabilitation (*Buildings; Structures; Facilities*)
Research Facilities
Resources Recovery; Recycling
Roof Infrared Imaging to Identify Water Leaks

Roofing
Safety Engineering; Accident Studies; OSHA Studies
Security Systems; Intruder and Smoke Detection
Seismic Designs and Studies
Sewage Collection, Treatment and Disposal
Soils and Geologic Studies; Foundations
Solar Energy Utilization
Solid Wastes; Incineration; Landfill
Special Environments; Clean Rooms, Etc.
Structural Design; Special Structures
Surveying; Platting; Mapping; Flood Plain Studies
Sustainable Design
Swimming Pools
Storm Water Handling and Facilities
Specifications Writing
Toxicology
Testing and Inspection Services
Traffic and Transportation Engineering
Topographic Surveying and Mapping
Towers (*Self-Supporting and Guyed Systems*)
Tunnels and Subways
Traffic Studies
Transportation
Urban renewals; Community Development
Utilities (*Gas and Steam*)
Value Analysis; Life-Cycle Costing
Warehouse and Depots
Water Resources; Hydrology; Ground Water
Water Supply; Treatment and Distribution
Wind Tunnels; Research/Testing Facilities Design
Waste Water Treatment Facility
Water Well Rehabilitation; Water Well Work
Zoning; Land Use Studies



ATTACHMENT I – General Qualifications
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(If a firm has branch offices, complete for each specific branch office seeking work.)

1. **Annual Request for Qualifications**

a. FIRM (OR BRANCH OFFICE) NAME:	Black & Veatch
b. FIRM (OR BRANCH OFFICE) STREET:	3133 E. Camelback Rd., Suite 210
c. FIRM (OR BRANCH OFFICE) CITY:	Phoenix
d. FIRM (OR BRANCH OFFICE) STATE:	Arizona
e. FIRM (OR BRANCH OFFICE) ZIP CODE:	85016
f. YEAR ESTABLISHED:	1915 (Nationally); 1982 (Local Branch Office)
(g1). OWNERSHIP - TYPE:	Corporation
(g2). OWNERSHIP - SMALL BUSINESS STATUS:	N/A
h. POINT OF CONTACT NAME AND TITLE:	Dan W. Meyer, P.E.; Project Director/Vice President
i. POINT OF CONTACT TELEPHONE NUMBER:	(602) 381-4417
j. POINT OF CONTACT E-MAIL ADDRESS:	MeyerDW@bv.com
k. NAME OF FIRM (If block 1a is a branch office):	Black & Veatch



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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
Architect	P	3	0
CADD Technician	P	78	1
Chemical Engineer	P	8	1
Civil Engineer	P	147	12
Construction Manager	P	142	2
Construction Inspector	P	95	2
Control Systems Engineer	P	16	1
Cost Engineer/Estimator	P	7	0
Electrical Engineer	P	29	2
Environmental Engineer	P	4	0
Environmental Scientist	P	9	0
Geographic Information System Specialist	P	3	0
Hydraulic Engineer	P	27	0
Hydrologist	P	7	0
Mechanical Engineer	P	32	1
Project Manager	P	62	8
Sanitary Engineer	P	33	2
Soils Engineer	P	5	0
Structural Engineer	P	18	0
Water Resources Engineer	P	20	1
Total		745	33



ATTACHMENT I – General Qualifications
ANNUAL REQUEST FOR QUALIFICATIONS AND EXPERIENCE NO:
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3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number <i>(see below)</i>
100	Acoustics, Noise Abatement	2
40	Air Pollution Control	3
90	Area Master Planning	8
820	Automation; Controls; Instrumentation	8
430	Chemical Processing & Storage	7
820	Communications Systems; TV; Microwave	5
820	Computer Facilities	3
150	Construction Management	9
50	Corrosion Control; Cathodic Protection; Electrolysis	1
820	Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting	4
90	Dams (Concrete; Arch)	9
20	Dams (Earth; Rock); Dikes; Levees	8
40	Desalinization (Process & Facilities)	6
15	Design-Build – Preparation of Requests for Proposals	10
820	Electrical Studies and Design	8
25	Energy/Water Auditing Savings	2
25	Energy Conservation; New Energy Sources	2
50	Environmental Impact Studies, Assessments or Statements	6
820	Heating; Ventilating; Air Conditioning	5
5	Industrial Waste Treatment	2
70	Infrastructure	8
50	Pipelines (Cross-Country – Liquid & Gas)	7
430	Plumbing & Pipeline Design	5
410	Rehabilitation (Buildings; Structures; Facilities)	5
90	Security Systems; Intruder & Smoke Detection	2
100	Seismic designs & Studies	2



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a. Approximate No. of Projects	b. Experience	c. Revenue Index Number <i>(see below)</i>
160	Sewage Collection, Treatment and Disposal	8
430	Soils & Geologic Studies; Foundations	7
40	Solar Energy Utilization	6
60	Solid Wastes; Incineration; Landfill	7
820	Specifications Writing	6
25	Storm Water Handling & Facilities	8
430	Structural Design; Special Structures	7
820	Sustainable Design	6
20	Tunnels & Subways	8
90	Utilities (Gas and Steam)	1
25	Value Analysis; Life-Cycle Costing	7
430	Waste Water Treatment Facility	10
20	Water Resources; Hydrology; Ground Water	6
400	Water Supply; Treatment and Distribution	10
2	Water Well Rehabilitation; Water Well Work	8

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

- | | |
|---|---|
| 1. Less than \$100,000 | 6. \$2 million to less than \$5 million |
| 2. \$100,000 to less than \$250,000 | 7. \$5 million to less than \$10 million |
| 3. \$250,000 to less than \$500,000 | 8. \$10 million to less than \$25 million |
| 4. \$500,000 to less than \$1 million | 9. \$25 million to less than \$50 million |
| 5. \$1 million to less than \$2 million | 10. \$50 million or greater |



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Dan W. Meyer, P.E.	b. ROLE IN THIS CONTRACT Project Director/Vice President	c. YEARS EXPERIENCE	
		1. TOTAL 35	2. WITH CURRENT FIRM 35
d. LOCATION <i>(City and State)</i> Black & Veatch Phoenix, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> MS, Civil Engineering, 1985 BS, Civil Engineering, 1980		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 23656 PE – CO, 26557	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> American Society of Civil Engineers, AZ Water, Water Environment Federation, American Water Works Association			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project includes demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir with reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The project also includes assessment and rehabilitation of the filtered water tunnel and a new finished water pump station drain pump. Cost: \$1.7 M. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm	
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Mesa Signal Butte Water Treatment Plant Mesa, AZ	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project will initially be a 24 MGD surface water treatment facility co-located on a site with an existing reservoir and booster pump station with a planned ultimate capacity of 48 MGD. The scope of work includes pre-design services, design services and construction services. The project will be constructed beginning in 2016 using a Construction Manager at Risk project delivery method. Cost: \$6.8 M. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm	
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Cholla Water Treatment Plant Process Improvements Glendale, AZ	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Evaluated the existing process and treatment system to recommend improvements for increased operational resilience and redundancy. Cost: \$367 K. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm	
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Arrowhead Ranch Water Reclamation Facility Influent Sewer Rehabilitation Glendale, AZ	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Modeling of existing and future flows to recommend an optimized influent pipe size. Cost: \$120 K. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm	
5.	(1) TITLE AND LOCATION <i>(City and State)</i> Santan Vista Water Treatment Plant Expansion Gilbert, AZ	(2) YEAR COMPLETED	
		Professional Services	Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Design consultant for Phase II improvements to expand the WTP to its ultimate capacity of 48 MGD using sand-ballasted flocculation and monomedia filtration. Ozone and sodium hypochlorite are generated on site for organic oxidation and disinfection. Effort has been taken during design to minimize impact to existing operations. The project utilizes Construction Manager at Risk project delivery method. Cost: \$600 K. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm	



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Brad Hemken, P.E.	b. ROLE IN THIS CONTRACT Project Director	c. YEARS EXPERIENCE	
		1. TOTAL 41	2. WITH CURRENT FIRM 40
d. LOCATION (City and State) Black & Veatch Phoenix, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Civil Engineering, 1974		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 15695	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) AZ Water, Water Environment Federation			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant Odor Control Upgrades Mesa, AZ	(2) YEAR COMPLETED
		Professional Services 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project involved designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements included replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also included improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Cost: \$178 K. Role: Project Team Oversight.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Sub-Regional Operating Group (SROG) Regional Capacity Management Facilities Studies Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The SROG Partnership includes the cities of Glendale, Mesa, Phoenix, Scottsdale and Tempe. The study is in progress and includes the review of the modeling methods used in the previous Regional Capacity Management Facility studies, and to provide an opinion of the adequacy of the previous modeling performed. The study will address any model improvements and study changes identified with the goal to evaluate the SROG system wet weather and dry weather flows and SROG interceptor capacity. Cost: \$1.05 M. Role: QA/QC and Technical Expert.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) EchoWater Advanced Wastewater Treatment Plant Biological Nutrient Removal Project Sacramento, CA	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Design of a secondary treatment process upgrade for the facility's 181 MGD WWTP to meet new NPDES discharge limitations. Estimated at approximately \$450M, the construction includes a new biological nitrogen removal (BNR) complex and associated blower facility and chemical storage/feed facility. Design capacity is 181 MGD average dry day weather flow. The main treatment component includes a complex of eight basins and associated piping/equipment galleries. The process design and basin layout provides the flexibility to operate in either a 2-stage MLE configuration or a 4-stage Bardenpho configuration. Cost: \$30.8 M. Role: Project Team Oversight and Technical Expert.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Riverside Water Quality Control Plant (RWQCP) Design and Construction Project Riverside, CA	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project includes submittal and RFI reviews during the construction for the project designed for conversion of existing rectangular secondary clarifiers to membrane bioreactor basins to increase capacity from 20 to 26 mgd. During design, the team developed construction phasing plans to sequentially convert portions of the existing basins to MBR while maintaining operation of remaining secondary clarifiers. Associated design responsibilities include the addition of 2-mm fine screens downstream of the primary clarifiers, upgrades to the existing aeration basins, addition of a fifth aeration basin, and new process air and membrane scour air blower facilities. Supervising the design of disinfection and membrane related chemical feed facilities and the expansion of an existing chlorine contact basin. Cost: \$2.5 M. Role: Project Team Oversight.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant VFD Upgrades and MCP Implementation Mesa, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Preliminary/final design & engineering services during construction for replacement of approximately 30 VFDs plant wide including comprehensive MOPO planning and CMAR coordination and implementation of a master control panel for blower and aeration control. Cost: \$3.7 M. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Dan Burhmaster, P.E.	b. ROLE IN THIS CONTRACT Project Director	c. YEARS EXPERIENCE	
		1. TOTAL 32	2. WITH CURRENT FIRM 32
d. LOCATION (City and State) Black & Veatch Phoenix, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) MS, Civil Engineering, 1991 BS, Civil Engineering, 1983		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 32098 PE – CA, 81635	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.) American Society of Civil Engineers, Water Environment Federation			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant VFD Upgrades and MCP Implementation Mesa, AZ	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Preliminary/final design & engineering services during construction for replacement of approximately 30 VFDs plant wide including comprehensive MOPO planning and CMAR coordination and implementation of a master control panel for blower and aeration control. Cost: \$3.7 M. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant Odor Control Upgrades Mesa, AZ	(2) YEAR COMPLETED
		Professional Services 2015 Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project involved designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements included replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also included improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Cost: \$178 K. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) EchoWater Advanced Wastewater Treatment Plant Biological Nutrient Removal Project Sacramento, CA	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Design of a secondary treatment process upgrade for the facility's 181 MGD WWTP to meet new NPDES discharge limitations. Estimated at approximately \$450M, the construction includes a new biological nitrogen removal (BNR) complex and associated blower facility and chemical storage/feed facility. Design capacity is 181 MGD average dry day weather flow. The main treatment component includes a complex of eight basins and associated piping/equipment galleries. The process design and basin layout provides the flexibility to operate in either a 2-stage MLE configuration or a 4-stage Bardenpho configuration. Cost: \$30.8 M. Role: Project Director.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) 91st Ave. Wastewater Treatment Plant National Pollutant Discharge Elimination System Permit Update Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services 2015 Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Preparation of permit documents and support for renewal of the existing NPDES permit at the 91st Ave. WWTP. Cost: \$150 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Sub-Regional Operating Group (SROG) Regional Capacity Management Facilities Studies Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The SROG Partnership includes the cities of Glendale, Mesa, Phoenix, Scottsdale and Tempe. The study is in progress and includes the review of the modeling methods used in the previous Regional Capacity Management Facility studies, and to provide an opinion of the adequacy of the previous modeling performed. The study will address any model improvements and study changes identified with the goal to evaluate the SROG system wet weather and dry weather flows and SROG interceptor capacity. Cost: \$1.05 M. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Lisa Jackson, P.E.	b. ROLE IN THIS CONTRACT Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 32	2. WITH CURRENT FIRM 30
d. LOCATION <i>(City and State)</i> Black & Veatch Phoenix, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i> BS, Civil Engineering, 1983		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 21535 PE – CA, 42312	
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i> AZ Water, Water Environment Federation, American Water Works Association			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION <i>(City and State)</i> Pyramid Peak Water Treatment Plant Improvements Study Phase I Glendale, AZ	(2) YEAR COMPLETED
		Professional Services Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Assessed various treatment plant resiliency improvements, bench scale testing/process optimization and prepared budgetary estimate for WTP expansion. Cost: \$175 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION <i>(City and State)</i> Mesa Signal Butte Water Treatment Plant Mesa, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project will initially be a 24 MGD surface water treatment facility co-located on a site with an existing reservoir and booster pump station with a planned ultimate capacity of 48 MGD. The scope of work includes pre-design services, design services and construction services. The project will be constructed beginning in 2016 using a Construction Manager at Risk project delivery method. Cost: \$6.8 M. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION <i>(City and State)</i> Zone Split Evaluation Glendale, AZ	(2) YEAR COMPLETED
		Professional Services 2015 Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Distribution system hydraulic modeling to characterize and evaluate operation constraints in four pressure zones and recommend zone split locations. Cost: \$56 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION <i>(City and State)</i> Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project includes demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir with reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The project also includes assessment and rehabilitation of the filtered water tunnel and a new finished water pump station drain pump. Cost: \$1.7 M. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION <i>(City and State)</i> Lake Pleasant Energy Management Study Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services 2015 Construction (if applicable)
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Study to develop recommendations to reduce energy costs and provide documentation supporting \$153 K rebate from APS. Cost: \$63 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Mike Caruso, P.E.	b. ROLE IN THIS CONTRACT Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 18	2. WITH CURRENT FIRM 18
d. LOCATION (City and State) Black & Veatch Phoenix, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Chemical Engineering, 1997		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 41905	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.)			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION (City and State) Pyramid Peak Water Treatment Plant Improvements Study Phase I Glendale, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Assessed various treatment plant resiliency improvements, bench scale testing/process optimization and prepared budgetary estimate for WTP expansion. Cost: \$175 K. Role: Engineering Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Cholla Water Treatment Plant Process Improvements Glendale, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Evaluated the existing process and treatment system to recommend improvements for increased operational resilience and redundancy. Cost: \$367 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project includes demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir with reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The project also includes assessment and rehabilitation of the filtered water tunnel and a new finished water pump station drain pump. Cost: \$1.7 M. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Santan Vista Water Treatment Plant Expansion Gilbert, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Design consultant for Phase II improvements to expand the WTP to its ultimate capacity of 48 MGD using sand-ballasted flocculation and monomedia filtration. Ozone and sodium hypochlorite are generated on site for organic oxidation and disinfection. Effort has been taken during design to minimize impact to existing operations. The project utilizes Construction Manager at Risk project delivery method. Cost: \$600 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Trilby Wash Substation Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project included design and construction of a new 230 kV/69kV substation for Arizona Public Service Company located on approximately 12.3 acre property. The initial build out provided 230kV interconnections to Sun Valley and Palm Valley Substation and 69kV interconnections to Festival Ranch and Waddell Substation. Cost: \$10.08 M. Role: Permitting and Technical Expert.	<input checked="" type="checkbox"/> Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Andy Mally, P.E.	b. ROLE IN THIS CONTRACT Project Manager	c. YEARS EXPERIENCE	
		1. TOTAL 14	2. WITH CURRENT FIRM 10
d. LOCATION (City and State) Black & Veatch Phoenix, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Chemical Engineering, 2005		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 50592	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.)			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION (City and State) Arrowhead Ranch Water Reclamation Facility Influent Sewer Rehabilitation Glendale, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Modeling of existing and future flows to recommend an optimized influent pipe size. Cost: \$120 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant Odor Control Upgrades Mesa, AZ	(2) YEAR COMPLETED
		Professional Services 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project involved designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements included replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also included improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Cost: \$178 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant VFD Upgrades and MCP Implementation Mesa, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Preliminary/final design & engineering services during construction for replacement of approx. 30 VFDs plant wide including comprehensive MOPO planning and CMAR coordination and implementation of a master control panel for blower and aeration control. Cost: \$327 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant Miscellaneous Improvements 2015 Mesa, AZ	(2) YEAR COMPLETED
		Professional Services 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Study to determine the economic feasibility of converting from coarse to fine bubble aeration, replace centrifuges with alternative thickening technologies, implement liquid phase grit removal at the headworks, and improvements to existing plant cogeneration facilities. Cost: \$138 K. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Sub-Regional Operating Group (SROG) Regional Capacity Management Facilities Studies Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The SROG Partnership includes the cities of Glendale, Mesa, Phoenix, Scottsdale and Tempe. The study is in progress and includes the review of the modeling methods used in the previous Regional Capacity Management Facility studies, and to provide an opinion of the adequacy of the previous modeling performed. The study will address any model improvements and study changes identified with the goal to evaluate the SROG system wet weather and dry weather flows and SROG interceptor capacity. Cost: \$1.05 M. Role: Project Manager.	<input checked="" type="checkbox"/> Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME		b. ROLE IN THIS CONTRACT		c. YEARS EXPERIENCE	
Shawn Rohr, P.E.		Electrical Engineer		1. TOTAL 28	2. WITH CURRENT FIRM 26
d. LOCATION <i>(City and State)</i>		Black & Veatch Phoenix, AZ			
e. EDUCATION <i>(DEGREE AND SPECIALIZATION)</i>			f. PROFESSIONAL TRAINING - REGISTRATIONS		
BS, Electrical and Computer Engineering, 1987			PE – AZ, 35678 PE – MO, 27858		
g. OTHER PROFESSIONAL QUALIFICATIONS <i>(Organizations, Awards, etc.)</i>					

H. RELEVANT PROJECTS

	(1) TITLE AND LOCATION <i>(City and State)</i>	(2) YEAR COMPLETED	
		Professional Services	
1.	Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project includes demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir with reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The project also includes assessment and rehabilitation of the filtered water tunnel and a new finished water pump station drain pump. Cost: \$1.7 M. Role: I&C Designer.	<input checked="" type="checkbox"/>	Check if project performed with current firm
2.	Northwest Water Reclamation Plant Odor Control Upgrades Mesa, AZ	2015	
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project involved designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements included replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also included improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Cost: \$178 K. Role: I&C Designer.	<input checked="" type="checkbox"/>	Check if project performed with current firm
3.	Northwest Water Reclamation Plant VFD Upgrades and MCP Implementation Mesa, AZ		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Preliminary/final design & engineering services during construction for replacement of approx. 30 VFDs plant wide including comprehensive MOPO planning and CMAR coordination and implementation of a master control panel for blower and aeration control. Cost: \$3.7 M. Role: I&C Designer.	<input checked="" type="checkbox"/>	Check if project performed with current firm
4.	Cholla Water Treatment Plant Process Improvements Glendale, AZ		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE Evaluated the existing process and treatment system to recommend improvements for increased operational resilience and redundancy. Cost: \$367 K. Role: I&C Designer.	<input checked="" type="checkbox"/>	Check if project performed with current firm
5.	Mesa Signal Butte Water Treatment Plant Mesa, AZ		
	(3) BRIEF DESCRIPTION <i>(Brief scope, size, cost, etc.)</i> AND SPECIFIC ROLE The project will initially be a 24 MGD surface water treatment facility co-located on a site with an existing reservoir and booster pump station with a planned ultimate capacity of 48 MGD. The scope of work includes pre-design services, design services and construction services. The project will be constructed beginning in 2016 using a Construction Manager at Risk project delivery method. Cost: \$6.8 M. Role: I&C Designer.	<input checked="" type="checkbox"/>	Check if project performed with current firm



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4. Resumes of Key Personnel Proposed for this Contract *(Complete one Section #4 for each key person.)*

a. NAME Chris Morris, P.E.	b. ROLE IN THIS CONTRACT Electrical Engineer	c. YEARS EXPERIENCE	
		1. TOTAL 17	2. WITH CURRENT FIRM 17
d. LOCATION (City and State) Black & Veatch Phoenix, AZ			
e. EDUCATION (DEGREE AND SPECIALIZATION) BS, Electrical Engineering, 1999		f. PROFESSIONAL TRAINING - REGISTRATIONS PE – AZ, 47664	
g. OTHER PROFESSIONAL QUALIFICATIONS (Organizations, Awards, etc.)			

H. RELEVANT PROJECTS

1.	(1) TITLE AND LOCATION (City and State) Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project includes demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir with reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The project also includes assessment and rehabilitation of the filtered water tunnel and a new finished water pump station drain pump. Cost: \$1.7 M. Role: Electrical Engineer.	<input checked="" type="checkbox"/> Check if project performed with current firm
2.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant Odor Control Upgrades Mesa, AZ	(2) YEAR COMPLETED
		Professional Services 2015
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project involved designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements included replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also included improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Cost: \$178 K. Role: Electrical Designer.	<input checked="" type="checkbox"/> Check if project performed with current firm
3.	(1) TITLE AND LOCATION (City and State) Northwest Water Reclamation Plant VFD Upgrades and MCP Implementation Mesa, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Preliminary/final design & engineering services during construction for replacement of approx. 30 VFDs plant wide including comprehensive MOPO planning and CMAR coordination and implementation of a master control panel for blower and aeration control. Cost: \$327 K. Role: Electrical Designer.	<input checked="" type="checkbox"/> Check if project performed with current firm
4.	(1) TITLE AND LOCATION (City and State) Santan Vista Water Treatment Plant Expansion Gilbert, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE Design consultant for Phase II improvements to expand the WTP to its ultimate capacity of 48 MGD using sand-ballasted flocculation and monomedia filtration. Ozone and sodium hypochlorite are generated on site for organic oxidation and disinfection. Effort has been taken during design to minimize impact to existing operations. The project utilizes Construction Manager at Risk project delivery method. Cost: \$600 K. Role: Electrical Designer.	<input checked="" type="checkbox"/> Check if project performed with current firm
5.	(1) TITLE AND LOCATION (City and State) Mesa Signal Butte Water Treatment Plant Mesa, AZ	(2) YEAR COMPLETED
		Professional Services
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE The project will initially be a 24 MGD surface water treatment facility co-located on a site with an existing reservoir and booster pump station with a planned ultimate capacity of 48 MGD. The scope of work includes pre-design services, design services and construction services. The project will be constructed beginning in 2016 using a Construction Manager at Risk project delivery method. Cost: \$6.8 M. Role: Electrical Designer.	<input checked="" type="checkbox"/> Check if project performed with current firm



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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> Signal Butte Water Treatment Plant Mesa, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Mesa	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$6.8 M	e. TOTAL COST OF PROJECT Ongoing (approximately 58% complete and is expected to be on budget)
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The new Signal Butte Water Treatment Plant (WTP) will be constructed in order to serve customers in the southeastern portion of the City of Mesa. It will be a 24 million gallons per day (MGD) surface water treatment facility co-located on a site with an existing reservoir and booster pump station. The WTP's ultimate capacity is 48 MGD. The plant will treat surface water from the Central Arizona Project (CAP) canal and reduce reliance on well water.

Black & Veatch was retained by the City of Mesa to provide Predesign Services (completed November 2014), Design Phase Services and Construction Phase Services (to be determined subsequent to Design Phase).

The project facilities include:

- On-site raw water metering & control
- Carbon dioxide chemical storage and feed system
- Ballasted flocculation treatment facility
- On-site ozone generation with liquid oxygen storage
- Raw and intermediate ozone contactor basins
- Deep bed media filters
- Addition of Falcon Field Zone distribution pumps to the existing pump station
- Filter backwash water supply pump
- Existing Reservoir overflow, clearwell vent and underdrain sump improvements
- Washwater and filter to waste recovery basin
- Washwater and filter to waste recovery plate settler unit
- Gravity solids thickener and sludge pump station
- Mechanical sludge dewatering
- Sludge holding beds
- On-site sodium hypochlorite generation
- Chemical storage feed facilities including carbon dioxide, alum, flocculant polymer, micro-sand, sodium hydroxide, sodium hypochlorite and hydrofluosilicic acid
- Operations/maintenance building
- Well storage building
- Power supply and electrical systems design
- Instrumentation and control/ SCADA
- Site security and on-site lighting

Project design notice to proceed was issued in the spring of 2015. The design is expected to be complete by August 2016, with construction due to start in the beginning of 2016. Portions of the design will be completed in April 2016 to allow for phased permitting and early construction start of a foundation and grading package in July, 2016. The balance of the design will be completed in August 2016 and construction through June 2018.



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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	
EchoWater Advanced Wastewater Treatment Plant Biological Nutrient Removal Project Sacramento, CA	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER Sacramento Regional County Sanitation District	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$30.8 M	e. TOTAL COST OF PROJECT Ongoing (approximately 98% complete and is expected to be on budget)
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The Sacramento Regional Wastewater Treatment Plant (SRWTP) provides wastewater treatment to the Sacramento area and surrounding cities, serving approximately 1.4 million customers. The Sacramento Regional County Sanitation District (Regional San), owner/operator of SRWTP, selected Black & Veatch to design a secondary treatment process upgrade for its 181 MGD plant to meet new NPDES discharge limitations. The EchoWater project is among the largest public works projects in Sacramento's history. When completed, it will keep Regional San in compliance with its regulatory permits and improve water quality by resulting in a nearly 95 percent reduction in ammonia discharged to the Sacramento-San Joaquin River Delta. Ultimately, EchoWater will be capable of meeting the region's needs and protecting the region's waterways for generations to come.

Estimated at approximately \$450 M, the construction includes a new biological nitrogen removal (BNR) complex and associated blower facility and chemical storage/feed facility. Design capacity is 181 MGD average dry day weather flow. The main treatment component includes a complex of eight basins and associated piping/equipment galleries. The process design and basin layout provides the flexibility to operate in either a 2-stage modified Ludzack-Ettinger configuration or a 4-stage Bardenpho configuration. An innovative mixed liquor fermenter (MLF) zone is incorporated into each basin to create biological carbon for driving denitrification. The MLF zones will increase nitrogen removal efficiency and reduce the requirement for chemical carbon supplementation and corresponding operating cost. The process configuration also provides the flexibility to biologically remove phosphorus without any additional construction cost, if required in the future. The diffused aeration and blower equipment required for the project will require significant energy. Considerable analysis and evaluation was conducted under a formal business case evaluation process to select the most cost-effective equipment. Once completed, the facility will be one of the largest BNR facilities in California.

Design services for the BNR complex began in late 2012, and are anticipated to be complete in early 2016.



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ADSP016-00005912

STATE PROCUREMENT OFFICE
Department of Administration
100 North 15th Avenue, Suite 201
Phoenix, Arizona 85007

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> Northwest Water Reclamation Plant Variable Frequency Drive Upgrades and Master Control Panel Implementation Mesa, AZ	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Mesa	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$3.7 M	e. TOTAL COST OF PROJECT Ongoing (approximately 75% complete and is expected to be on budget)
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

Located in the northwest corner of the City of Mesa, the state-of-the-art Northwest Water Reclamation Plant (NWWRP) has a treatment capacity of 18-MGD. The NWWRP collects and treats wastewater from the service area for northwest portion of the City of Mesa, constituting a population of approximately 120,000 persons. This facility treats wastewater from residential, commercial, and industrial sources to reuse standards through a series of physical, chemical, and biological treatment operations that include:

- Preliminary Treatment
- Primary Sedimentation
- Activated Sludge for Carbonaceous BOD Removal
- Nitrification and Denitrification
- Secondary Sedimentation
- Dual Media Filtration
- UV Disinfection

Black & Veatch has provided design services for upgrades to the NWWRP over the last three decades. Most recently, design of a new Master Control Panel (MCP) was implemented for improved blower/aeration system functionality, and design services for the replacement of all facility Variable Frequency Drives (VFD) are currently being provided. Regarding the MCP, new dissolved oxygen instruments, a blow-off control valve, flow measuring devices and a new programmable logic controller were installed for blower and aeration control to address existing operational and control issues. The scope of work for the VFD includes the preliminary/final design and engineering services during construction for replacement of approximately 30 VFDs plant wide and the addition of a new fiber network. Additional tasks consist of comprehensive planning regarding the maintenance of plant operations during construction coordination with the Construction Manager at Risk contractor.

The MCP portion of the project design was completed in August 2015, with completion of construction anticipated in July 2016. The VFD replacement design is complete as of December 2015 with construction anticipated to be complete in late 2016.



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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	
Cholla Water Treatment Plant Process Improvements Glendale, AZ	PROFESSIONAL SERVICES	CONSTRUCTION <i>(If applicable)</i>

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Glendale	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$367 K	e. TOTAL COST OF PROJECT Ongoing (approximately 85% complete and is expected to be on budget)
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The City of Glendale's (City's) Cholla Water Treatment Plant (CWTP) was built in 1978 after the Cholla 1 finished water reservoir and booster station were built in 1972. Various minor modification projects have been implemented since then, including the recent addition of two filters and relocation of the filter backwash pump station in 2006. Other improvements included an off-site finished water reservoir and solids handling facility. Some of the original plant's equipment is still in operation and may be approaching the end of its useful life. Therefore an assessment of the facility is desired with recommendations for appropriate system optimizations, improvements, rehabilitation or replacement.

Black & Veatch was selected by the City to perform the Scope of Services over the following three phases:

- Phase I - Evaluation of the facility's existing conditions and recommendations for improvements.
- Phase II - Design of recommended improvements and other miscellaneous improvements as directed by the City.*
- Phase III - Construction administration services for the improvements.*

*The Scope of Services and compensation for Phases II and III will be performed under a separate contract or amendment to this contract at a later date.

Phase I included an evaluation of the CWTP to improve and optimize treatment processes' efficiency, critical water treatment plant components and improvements needed to several water treatment plant areas related to increasing WTP resiliency and redundancy. Black & Veatch provided project management, process evaluation and assessment of the existing facilities in order to determine which improvements should be implemented.

Phase I began in February 2014, and is anticipated to be complete in 2016.



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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>
Deer Valley Water Treatment Plant Reservoir Replacement Phoenix, AZ		

23. PROJECT OWNER'S INFORMATION

c. PROJECT OWNER City of Phoenix	d. ORIGINAL BUDGET/NTE AMOUNT OF PROJECT \$1.7 M	e. TOTAL COST OF PROJECT Ongoing (approximately 90% complete and is expected to be on budget)
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f. BRIEF DESCRIPTION OF PROJECT AND RELEVANCE TO THIS CONTRACT (include scope, size, and length of project)

The City of Phoenix completed an investigative study for the conditional assessment, design alternatives, and most probable costs for rehabilitation or replacement of an existing 20 MG reservoir. This study indicated the most favorable alternative was for complete replacement within the existing reservoir footprint and maintaining the current 20 MG reservoir capacity.

Black & Veatch was selected for the design and construction administration and inspection services for demolishing the existing reservoir structure and replacing it with a new 20 MG concrete cast-in-place reservoir having a design life of 60 years. The project includes:

- Demolition of existing 20 MG Reservoir No. 1 and associated east influent box conduit.
- A new 20 MG Reservoir No. 1 and associated overflow structure, and connection to existing 96-inch inlet pipe and dual 7'x7' effluent box conduits.
- Electrical and instrumentation design including electrical conduit, cabling and instrumentation associated with Reservoir No. 1 flow and level monitoring and sampling.
- Reservoir underdrain collection system and pump station and associated pumps, piping and appurtenances.
- Automation of existing chlorination system for filtered water and finished water.
- Assessing and developing a rehabilitation plan for the filtered water tunnel.
- Designing a new filtered water tunnel dewatering pump system.
- Monitoring and evaluating Reservoir 2 for potential settlement during construction of Reservoir 1.
- Resident inspection services and construction administration, including submittal reviews, and schedule and cost evaluations during construction.

A majority of the design was complete by November 2015, but remaining final design items are being done concurrently with construction, which is anticipated to be complete in February 2016.



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6. ADDITIONAL INFORMATION

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

Black & Veatch Corporation is a leading global engineering, consulting and construction company with the mission of Building a World of Difference®. By advancing the frontiers of knowledge, we provide our clients with reliable solutions to their most complex challenges, thereby helping improve and sustain the quality of life around the world.

Founded in 1915, Black & Veatch specializes in infrastructure development in energy, water, telecommunications, and environmental markets as well as management consulting services and special project assignments for the federal government. We offer leading experience in the market segments we serve, understanding our clients' businesses and objectives, and having the financial resources sufficient to execute and sustain projects from the most basic to the very complex.

BLACK & VEATCH BY THE NUMBERS

- \$3.0b 2014 revenue
- 0.38 recordable injury rate
- 100 projects in countries
- 6 projects on continents
- 100+ offices worldwide
- 1915 founded in
- 10,000+ global workforce
- 128 Forbes "US Largest Private Companies"
- 0.07 lost time incident rate

A leading global engineering, consulting and construction company.


A single integrated global workforce allows Black & Veatch to deploy optimal multi-disciplinary teams from around the world to meet client objectives. The single source solutions Black & Veatch provides in the markets we serve allow our clients to focus on their businesses and simplify their lives with a single point of contact, while being offered concept to completion work and lifecycle support. Among the services we offer: conceptual and preliminary engineering services, engineering design, procurement, construction, asset management, environmental, security design and consulting, and management consulting.

Our employee-owned company has more than 100 offices worldwide. Locally in Arizona, we are proud of having served our clients as trusted partners for over three decades. Our continued relationships and representative projects result in our intimate understanding of Arizona's facilities, personnel and standards. We have an established, core team of professionals in our Phoenix office who have proven their technical capabilities and dedication while providing services throughout the state. Our in-depth knowledge of Arizona, coupled with our proven technical expertise and commitment, make Black & Veatch exceptionally qualified to be placed on your annual list for professional services.

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:	95%
b. Percentage of Total Work Attributable to Non-Government Work:	5%

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

Signature:  Date: December 18, 2015

Name: Dan W. Meyer, P.E. Title: Project Director/Vice President