(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:	**BLACK & VEATCH**
b. FIRM (OR BRANCH OFFICE) STREET:	**3133 E. CAMELBACK 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 MEYER**
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**

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	5	0
CADD Technicians	P	119	2
Chemical Engineer	P	12	2
Civil Engineer	P	225	11
Construction Manager	P	217	2
Construction Inspector	P	145	2
Control System Engineer	P	25	1
Cost Engineer / Estimator	P	10	0
Electrical Engineer	P	44	1
Environmental Engineer	P	6	0
Environmental Scientist	P	9	0
Geographic Information System	P	3	0
Hydraulic Engineer	P	41	0
Hydrologist	P	11	0
Mechanical Engineer	P	49	1
Project Manager	P	95	8
Sanitary Engineer	P	51	2
Soils Engineer	P	7	0
Structural Engineer	P	28	0
Water Resource Engineer	P	30	3
Total		1132	38

3. PROFILE OF FIRM'S EXPERIENCE AND ANNUAL AVERAGE REVENUE FOR LAST YEAR

a. Approximate No. of Projects	b. Experience	c. Revenue Index Number *(see below)*
100	Acoustics, Noise Abatement	2
40	Air Pollution Control	3
94	Area Master Planning	8
870	Automation, Control, Instrumentation	8
450	Chemical Processing and Storage	7
870	Communications System	5
870	Computer Facilities	3
155	Construction Management	9
50	Corrosion Control, Cathodic Protection Electrolysis	1
870	Cost Estimating; Cost Engineering and Analysis; Parametric Costing; Forecasting	4
94	Dams (Concrete)	9
21	Dams (Earthen)	8
40	Desalination (Process and Facilities)	6
17	Design Build – Preparation of Requests for Proposals	10
870	Electrical Studies and Design	8
27	Energy / Water Auditing Savings	2
27	Energy Conservation, New Energy Source	2
55	Environmental Impact Studies, Assessments or Statements	6
870	Heating, Ventilation and Air Conditioning	5
5	Industrial Waste Treatment	2
69	Infrastructure	8
50	Pipelines (Liquid and Gas)	7
430	Plumbing and Pipeline Design	5
430	Rehabilitation (Bldg, Facilities)	5
90	Security Systems; Intruder and Smoke Detection	2
110	Seismic Designs and Studies	2
168	Sewage Collection, Treatment and Disposal	8

450	Soils and Geologic Studies; Foundations	7
38	Solar Energy Utilization	6
62	Solid Wastes; Incineration; Landfill	7
450	Structural Design; Special Structures	7
870	Sustainable Design	6
28	Storm Water Handling and Facilities	8
870	Specification Writing	6
19	Tunnels	8
90	Utilities (Gas and Steam)	1
27	Value Analysis, Life Cycle Cost	7
21	Water Resources; Hydrology; Ground Water	6
418	Water Supply; Treatment and Distribution	10
455	Waste Water Treatment Facility	10
2	Water Well Rehabilitation; Water Well Work	8

PROFESSIONAL SERVICES REVENUE INDEX NUMBER

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

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	
DAN MEYER	**PROJECT DIRECTOR / Sr. VICE PRESIDENT**	1. TOTAL: **30 YRS**	2. WITH CURRENT FIRM: **30 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
MS, Civil Engineering, 1985
BS, Civil Engineering, 1980

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 23656 (AZ – CIVIL)

g. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc):* **AWWA, AZ WATER**

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
Deer Valley Water Treatment Plant Reservoir Replacement,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and involves demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir. Design also includes provisions for reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The estimated design cost is approximately $1.7 M. Design also includes reestablishing electrical and instrumentation conduit and sample piping that was disconnected during the existing reservoir demolition. Dan will be responsible for overall project management during the design and construction of the new replacement reservoir.

2)
(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead Effluent Pipeline Condition Assessment,
Glendale, Arizona

(2) Year Completed:
Professional Services: **Oct 2013**
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project involved developing inspection plan and performing condition assessment for 3 miles of bar-wrapped (C303) pipe ranging from 16 to 36 inches. The inspection utilized high-resolution video inspection technology to identify defects, located leaks and determine sediment accumulation. Indirect corrosion assessment and soil resistivity tests were conducted using the Wenner 4-pin method. Dan was responsible for developing consensus with stakeholders resulting in the City having confidence to rely on the existing pipeline, saving future program costs. The project cost was approximately $554 K.

3)
(1) TITLE AND LOCATION *(City and State)*
Val Vista Water Treatment Plant GAC Implementation,
Phoenix, Arizona

(2) Year Completed
Professional Services: **Sept 2013**
Construction *(if applicable):* **Sept 2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
In order to meet Stage 2 D/DBP Rule water quality requirements, City of Phoenix implemented post-filer GAC contactors. B&V designed and provided constructions administration and inspection (CA&I) services for twelve new GAC contactors, a low-lift GAC supply pump station, GAC backwash pump station, GAC water recirculation pump stations, GAC equalization basins, and an electrical building. Dan provided technical expertise, guidance and overall QC/QA at regular intervals at various stages of the project. The design and construction admin fees were estimated to be $6.2M and $3.8M, respectively.

4)
(1) TITLE AND LOCATION *(City and State)*
Ocotillo Transmission Main
Chandler, Arizona

(2) Year Completed
Professional Services **July 2012**
Construction *(if applicable)* **Feb 2013**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [x] Check if project performed with current firm
Black & Veatch designed a 24-inch water transmission main that serves both of Chandler's Zone 1 and Zone 2 pressure zones. Included hydraulic and surge analysis of the system, and design of about 5.5 miles of water transmission line including trenchless crossing of SRP Consolidated Canal and the Union Pacific Railroad. Responsible for corrosion mitigation since the line parallels a gas main for much of the alignment. The design and construction admin fees were approximately $298 K and $258 K, respectively. During design & construction, Dan provided technical expertise, guidance and overall QC/QA at regular intervals at various stages of the project.

5)
(1) TITLE AND LOCATION *(City and State)*
Zone 2 Reservoir Supply System Improvements
Chandler, Arizona

(2) Year Completed
Professional Services**:**
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is ongoing and includes review of the City's Zone 2 Reservoir Supply System Santan Vista WTP pump station including power supply and determines requirements to increase the pump discharge pressure. The project team will evaluate the improvements relative to near term expansion of the Santan Vista WTP increasing the City's capacity from 12 to 24 MGD. Dan will provide overall QC/QA and technical planning expertise at regular intervals at various stages of the project. The study fees are estimated to be in the range of $30 K.

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	
BRAD HEMKEN	**PROJECT DIRECTOR**	1. TOTAL: **39 YRS**	2. WITH CURRENT FIRM: **38 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Civil Engineering, 1974

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 15695 (AZ – CIVIL)

g. OTHER PROFESSIONAL QUALIFICATIONS *(Publications, Organizations, Training, Awards, etc):* **WEF, AZ WATER**

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Plant Odor Control Improvements
Mesa, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and involves designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements include replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also includes improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Brad will provide project oversight to ensure that the team has available all technical resources during the project. The estimated design fee is approximately $178 K.

2)
(1) TITLE AND LOCATION *(City and State)*
Sacramento Regional County Sanitation District's
Sacramento, California

(2) Year Completed:
Professional Services:
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and includes design of a new biological nutrient removal (BNR), tertiary filtration and disinfection facilities to comply with the new Water Quality Board discharge permit. The project also includes improvements and integration of Electrical and Instrumentation of new and modified facilities with the treatment plant computer system. Brad's technical expertise in municipal water and wastewater facilities and project oversight will ensure that the team has available all technical resources during the design. The estimated design fee is approximately $30.8 M.

3)
(1) TITLE AND LOCATION *(City and State)*
SROG Regional Capacity Management Facilities Studies,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
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. Brad will provide technical expertise and QC/QA during the studies. The estimated study fee is approximately $1.05 M.

4)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Miscellaneous Improvements
Mesa, Arizona

(2) Year Completed
Professional Services
May 2012
Construction *(if applicable)*

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [x] Check if project performed with current firm
The City of Mesa's Northwest Water Reclamation Plant (NWWRP) is a 12 MGD treatment facility. Black & Veatch performed a condition assessment, design and construction administration for the existing influent junction structure, influent piping, manholes, head works, and primary clarifiers. The project team prepared plans and specifications including facility bypass plans in conjunction with the CMAR contractor and developed protocols for varying levels of deterioration within the facilities. The project is currently under construction. Brad will provide project oversight to ensure that the team has available all technical resources during the project. The estimated project cost is approximately $3.3 M.

5)
(1) TITLE AND LOCATION *(City and State)*
Riverside RWQCP Phase 1 Plant Expansion
Riverside, California

(2) Year Completed
Professional Services**: Aug 2012**
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
B&V is currently assisting with submittal and RFI reviews during the construction for the project designed for conversion of existing rectangular secondary clarifiers to membrane bioreactor (MBR) 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. Brad will provide project oversight to ensure that the team has available all technical resources during the project. The design and construction admin fees were estimated to be approximately $3.6M and $1.2M, respectively.

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	
DAN BURHMASTER	**PROJECT DIRECTOR**	1. TOTAL: **30 YRS**	2. WITH CURRENT FIRM: **30 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
MS, Civil Engineering, 1991
BS, Civil Engineering, 1983

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 32098 (AZ – CIVIL)
PE # 81635 (CA – CIVIL)

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

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
SROG Regional Capacity Management Facilities Studies,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
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. Dan's technical expertise in municipal water and wastewater facilities and project oversight will ensure that the team has available all technical resources during the studies. The estimated study fee is approximately $1.05 M.

2)
(1) TITLE AND LOCATION *(City and State)*
Sacramento Regional County Sanitation District's
Sacramento, California

(2) Year Completed:
Professional Services:
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and includes design of a new biological nutrient removal (BNR), tertiary filtration and disinfection facilities to comply with the new Water Quality Board discharge permit. The project also includes improvements and integration of Electrical and Instrumentation of new and modified facilities with the treatment plant computer system. Dan's technical expertise in municipal water and wastewater facilities and project oversight will ensure that the team has available all technical resources during the design. The estimated design fee is approximately $30.8 M.

3)
(1) TITLE AND LOCATION *(City and State)*
Irvine Ranch Water District BioSoilds and Energy Recovery Facilities,
Irvine, California

(2) Year Completed
Professional Services:
Sept 2012
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project includes design and construction for comprehensive biosolids facility utilizing biogas for onsite power generation. The project team prepared plans and specification for Centrifuge thickening and dewatering, Sludge Storage, and Odor Control System, including improvements to the Electrical and Instrumentation systems. Dan will provide overall QC/QA and technical planning expertise at regular intervals at various stages of the project. The estimated project cost is approximately $150 M.

4)
(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead UV Disinfection Project
Glendale, Arizona

(2) Year Completed
Professional Services
Feb 2012
Construction *(if applicable)*
July 2013

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [x] Check if project performed with current firm
The City of Glendale acquired an Energy Efficiency and Conservation Block Grant (EECBG) to upgrade the existing medium pressure UV disinfection system at the Arrowhead Ranch Water Reclamation Facility to a more energy efficient low pressure-high output system. Black & Veatch provided equipment pre-purchase assistance, preliminary and detailed design, and is currently providing construction administration and inspection services to assist the City with improving their energy efficiency goals at the facility. Dan provided overall QC/QA and technical planning expertise at regular intervals at various stages of the project. The design and construction admin fees were estimated to be approximately $593 K and $684 K, respectively.

5)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Miscellaneous Improvements
Mesa, Arizona

(2) Year Completed
Professional Services**: May 2012**
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The City of Mesa's Northwest Water Reclamation Plant (NWWRP) is a 12 MGD treatment facility. Black & Veatch performed a condition assessment, design and construction administration for the existing influent junction structure, influent piping, manholes, head works, and primary clarifiers. The project team prepared plans and specifications including facility bypass plans in conjunction with the CMAR contractor and developed protocols for varying levels of deterioration within the facilities. The project is currently under construction. Dan provided overall QC/QA and technical planning expertise at regular intervals at various stages of the project. The estimated project cost is approximately $3.3 M.

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

c. NAME:	d. ROLE IN THIS CONTRACT:	c. YEARS EXPERIENCE	
LISA JACKSON	**PROJECT MANAGER**	1. TOTAL: **30 YRS**	2. WITH CURRENT FIRM: **28 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Civil Engineering, 1983

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 21535 (AZ – CIVIL)
PE # 42312 (CA – CIVIL)

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

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
Deer Valley Water Treatment Plant Reservoir Replacement,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and involves demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir. Design also includes provisions for reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The estimated design cost is approximately $1.7 M. Design also includes reestablishing electrical and instrumentation conduit and sample piping that was disconnected during the existing reservoir demolition. Lisa will be responsible for project management and execution during the design and construction of the new replacement reservoir.

2)
(1) TITLE AND LOCATION *(City and State)*
CAP Annunciators Replacement with HMIs.
Phoenix, Arizona

(2) Year Completed:
Professional Services:
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and includes replacing the switchyard annunciators, the pumping plant annunciator and all of the pump unit annunciators with two large HMIs in the pumping plant control room at Central Arizona Water Conservation District's (CAWCD) fourteen pump station. The existing temperature monitors and pressure monitors are replaced with individual displays for each pump on each of the master HMIs. Lisa will be responsible for overall project management .The estimated design cost is approximately $380 K.

3)
(1) TITLE AND LOCATION *(City and State)*
Val Vista Water Treatment Plant GAC Implementation,
Phoenix, Arizona

(2) Year Completed
Professional Services: **Sept 2013**
Construction *(if applicable):* **Sept 2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
In order to meet Stage 2 D/DBP Rule water quality requirements, City of Phoenix implemented post-filer GAC contactors. B&V designed and provided constructions administration and inspection (CA&I) services for twelve new GAC contactors, a low-lift GAC supply pump station, GAC backwash pump station, GAC water recirculation pump stations, GAC equalization basins, and an electrical building. Lisa was responsible for project management and execution during the design and construction of the new facilities. The design and construction admin fees were estimated to approximately $6.2M and $3.8M, respectively.

4)
(1) TITLE AND LOCATION *(City and State)*
Ocotillo Transmission Main
Chandler, Arizona

(2) Year Completed
Professional Services **July 2012**
Construction *(if applicable)* **Feb 2013**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [x] Check if project performed with current firm
Black & Veatch designed a 24-inch water transmission main that serves both of Chandler's Zone 1 and Zone 2 pressure zones. Included hydraulic and surge analysis of the system, and design of about 5.5 miles of water transmission line including trenchless crossing of SRP Consolidated Canal and the Union Pacific Railroad. Responsible for corrosion mitigation since the line parallels a gas main for much of the alignment. Lisa was responsible for project management and execution during the design and construction of the transmission main. The design and construction admin fees were estimated to approximately $298 K and $258 K, respectively.

5)
(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead Effluent Pipeline Condition Assessment,
Glendale, Arizona

(2) Year Completed
Professional Services**:** **Oct 2013**
Construction *(if applicable)*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project involved developing inspection plan and performing condition assessment for 3 miles of bar-wrapped (C303) pipe ranging from 16 to 36 inches. The inspection utilized high-resolution video inspection technology to identify defects, located leaks and determine sediment accumulation. Indirect corrosion assessment and soil resistivity tests were conducted using the Wenner 4-pin method. Lisa was responsible for project execution and to ensure that the team has available all technical resources during the studies. The project cost was estimated to to approximately $554 K.

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

e. NAME:	f. ROLE IN THIS CONTRACT:	c. YEARS EXPERIENCE	
MIKE CARUSO	**PROJECT MANAGER**	1. TOTAL: **16 YRS**	2. WITH CURRENT FIRM: **16 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Chemical Engineering, 1997

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 41905 (AZ – CHEMICAL)

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

H. RELAVANT PROJECTS

	(1) TITLE AND LOCATION *(City and State)*	(2) Year Completed	
1)	**Deer Valley Water Treatment Plant Reservoir Replacement, Phoenix, Arizona**	Professional Services:	Construction *(if applicable)*
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [x] Check if project performed with current firm		
	The project is currently in progress and involves demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir. Design also includes provisions for reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The estimated design cost is approximately $1.7 M. Design also includes reestablishing electrical and instrumentation conduit and sample piping that was disconnected during the existing reservoir demolition. Mike will be responsible for project execution during the design and construction of the new replacement reservoir.		
2)	(1) TITLE AND LOCATION *(City and State)* **Trilby Wash Substation, Phoenix, Arizona**	(2) Year Completed:	
		Professional Services:	Construction *(if applicable):*
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [x] Check if project performed with current firm		
	The project is currently in progress and includes design and construction of a new 230 kV/69kV Trilby Wash Substation for Arizona Public Service Company (APS) located on approximately 12.3 acre property. The initial build out will provide 230kV interconnections to Sun Valley and Palm Valley Substation and 69kV interconnections to Festival Ranch and Waddell Substation. Mike is providing permitting and technical expertise during design and will assist with coordination with various utilities during the construction of the facility. The estimated design cost is approximately $10.08 M.		
3)	(1) TITLE AND LOCATION *(City and State)* **Cucamonga Valley Water District WTP Upgrades, Cucamonga, California**	(2) Year Completed	
		Professional Services: **April 2012**	Construction *(if applicable):*
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [x] Check if project performed with current firm		
	The project includes design and construction of upgrades to the water treatment plant to meet current and future regulatory compliance requirements. New facilities include GAC contactors operating in effluent flow control mode, UV trains, equalization basins, an 8.0 MG pre-stressed concrete reservoir, evaporation ponds, and associated yard piping. Mike was involved in detailed design of the GAC contactors and is currently coordinating submittals reviews and RFIs to support construction of the project. The estimated design cost was approximately $2.1 M.		
4)	(1) TITLE AND LOCATION *(City and State)* **Escondido-Vista WTP Disinfection and Electrical System Upgrades Escondido, California**	(2) Year Completed	
		Professional Services **Nov 2013**	Construction *(if applicable)*
	(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE — [x] Check if project performed with current firm		
	The project includes replacing existing gaseous chlorine disinfection system. Initial project work included a study to evaluate alternative sodium hypochlorite technologies, capital and O&M requirements, life cycle costs, and development alternative rankings. Study also included evaluation of chlorine dioxide generation alternatives since the City's current system utilized chlorine gas. Following study, the City decided to replace their gaseous chlorine disinfection system with an on-site sodium hypochlorite generation system. Mike provided overall project oversight and technical expertise during the design of the project. The estimated design cost was approximately $500 K.		
5)	(1) TITLE AND LOCATION *(City and State)* **Val Vista Water Treatment Plant GAC Implementation, Phoenix, Arizona**	(2) Year Completed	
		Professional Services: **Sept 2013**	Construction *(if applicable)* **Sept 2013**
	(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE — [x] Check if project performed with current firm		
	In order to meet Stage 2 D/DBP Rule water quality requirements, City of Phoenix implemented post-filer GAC contactors. B&V designed and provided constructions administration and inspection (CA&I) services for twelve new GAC contactors, a low-lift GAC supply pump station, GAC backwash pump station, GAC water recirculation pump stations, GAC equalization basins, and an electrical building. Mike was responsible for project execution during design and assisted with CI &A services. The design and construction admin fees were estimated to be $6.2M and $3.8M, respectively.		

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

g. NAME:	h. ROLE IN THIS CONTRACT:	c. YEARS EXPERIENCE	
ANDY MALLY	**PROJECT MANAGER**	1. TOTAL: **12 YRS**	2. WITH CURRENT FIRM: **8 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Chemical Engineering, 2005

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 50592 (AZ – CIVIL)

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

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Plant Odor Control Improvements
Mesa, Arizona

(2) Year Completed:
Professional Services:
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The project is currently in progress and involves designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements include replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also includes improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Andy is responsible for project execution during the design for the project. The estimated design cost is approximately $178 K.

2)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Miscellaneous Improvements
Mesa, Arizona

(2) Year Completed
Professional Services: **May 2012**
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The City of Mesa's Northwest Water Reclamation Plant (NWWRP) is a 12 MGD treatment facility. Black & Veatch performed a condition assessment, design and construction administration for the existing influent junction structure, influent piping, manholes, head works, and primary clarifiers. The project team prepared plans and specifications including facility bypass plans in conjunction with the CMAR contractor and developed protocols for varying levels of deterioration within the facilities. The project is currently under construction. Andy is responsible for project execution during the design for the project. The estimated project cost is approximately $3.3 M.

3)
(1) TITLE AND LOCATION *(City and State)*
Goodyear Integrated Water Master Plan
Goodyear, Arizona

(2) Year Completed
Professional Services: **Aug 2013**
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The project involved preparation of a comprehensive system inventory, land used based demand forecasting and metered sales analysis/geocoding, water resources analysis and balance, construction of water, wastewater and reclaimed water models and the preparation of an Integrated Master Plan Report with phased capital improvement plan (CIP). Black & Veatch also provided assistance with site master planning and condition assessment at the City's 157th Avenue WWTP in preparation for an expansion to 6 mgd. Andy provided technical assistance during model development and master planning. The estimated project cost was approximately $670 K.

4)
(1) TITLE AND LOCATION *(City and State)*
23rd Avenue WWTP Miscellaneous Improvements
Phoenix, Arizona

(2) Year Completed
Professional Services: **Dec 2012**
Construction *(if applicable)* **July 2013**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE
[x] Check if project performed with current firm
Black & Veatch designed and provided assistance during construction of a new piping route for existing waste activated sludge piping including maintenance of plant operation planning and coordination with the City's JOC contractor. The new pipe routing is intended to improve mixing of WAS across the full profile of secondary clarifiers operated at the 23rd Avenue WWTP. Andy was responsible for overall project execution and planning during the design of the Improvements for the WWTP. The estimated project cost was approximately $115 K.

5)
(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead UV Disinfection Project
Glendale, Arizona

(2) Year Completed
Professional Services**:** **Feb 2012**
Construction *(if applicable)* **July 2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The City of Glendale acquired an Energy Efficiency and Conservation Block Grant (EECBG) to upgrade the existing medium pressure UV disinfection system at the Arrowhead Ranch Water Reclamation Facility to a more energy efficient low pressure-high output system. Black & Veatch provided equipment pre-purchase assistance, preliminary and detailed design, and is currently providing construction administration and inspection services to assist the City with improving their energy efficiency goals at the facility. Andy was responsible for overall project execution and planning during the design of the Improvements. The design and construction admin fees were estimated to be approximately $593 K and $ 684 K, respectively.

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

i. NAME:	j. ROLE IN THIS CONTRACT:	c. YEARS EXPERIENCE	
SHAWN ROHR	**ELECTRICAL ENGINEER**	1. TOTAL: **26 YRS**	2. WITH CURRENT FIRM: **24 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ 85016

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Electrical and Computer Engineering, 1987

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 35678 (AZ – ELECTRICAL)
PE # 27858 (M0 – ELECTRICAL)

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

H. RELAVANT PROJECTS

1)
(1) TITLE AND LOCATION *(City and State)*
Deer Valley Water Treatment Plant Reservoir Replacement,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The project is currently in progress and involves demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir. Design also includes provisions for reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The estimated design cost is approximately $1.7 M. Design also includes reestablishing electrical and instrumentation conduit and sample piping that was disconnected during the existing reservoir demolition. Shawn will provide instrumentation and control (I &C) design for new and modified facilities.

2)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Plant Odor Control Improvements
Mesa, Arizona

(2) Year Completed:
Professional Services:
Construction (*if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The project is currently in progress and involves designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements include replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also includes improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Shawn will provide instrumentation and control design for the project. The estimated project cost is approximately $178 K.

3)
(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Miscellaneous Improvements
Mesa, Arizona

(2) Year Completed
Professional Services:
May 2012
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The City of Mesa's Northwest Water Reclamation Plant (NWWRP) is a 12 MGD treatment facility. B&V performed a condition assessment, design and construction administration for the existing influent junction structure, influent piping, manholes, head works, and primary clarifiers. The project team prepared plans and specifications including facility bypass plans in conjunction with the CMAR contractor. The project is currently under construction. Shawn was involved in instrumentation and control design and is currently providing support to construction activities through submittal reviews and RFIs. The estimated project cost is approximately $3.3 M.

4)
(1) TITLE AND LOCATION *(City and State)*
Midland T-Bar Ranch Production Well Field Development and Delivery
Midland, Texas

(2) Year Completed
Professional Services
Construction *(if applicable)*

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE
[x] Check if project performed with current firm
Ongoing design build project that includes development of 44 wells, 28 MGD pumping station and approximately 70 miles of pipeline to deliver water to the City of Midland. The well pumps deliver water to a local 2 MG storage tank. Control system consists of programmable logic control of pump station, chlorine feed and terminal facility using microwave radio communication. The well field utilized remote terminal units at each well which communicated to the pump station using unlicensed spread spectrum radios. Shawn designed control system design and is also providing support to construction activities through submittal reviews and RFIs. The estimated project cost is approximately $ 162 M.

5)
(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead UV Disinfection Project
Glendale, Arizona

(2) Year Completed
Professional Services
Feb 2012
Construction *(if applicable)*
July 2013

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE
[x] Check if project performed with current firm
The City of Glendale acquired an Energy Efficiency and Conservation Block Grant (EECBG) to upgrade the existing medium pressure UV disinfection system at the Arrowhead Ranch Water Reclamation Facility to a more energy efficient low pressure-high output system. Black & Veatch provided equipment pre-purchase assistance, preliminary and detailed design, and is currently providing construction administration and inspection services to assist the City with improving their energy efficiency goals at the facility. Shawn was involved in complete instrumentation and control design for the project. The design and construction admin fees were estimated to be approximately $593 K and $ 684 K, respectively.

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

k. NAME:	l. ROLE IN THIS CONTRACT:	c. YEARS EXPERIENCE	
CHRIS MORRIS	**ELECTRICAL ENGINEER**	1. TOTAL: **15 YRS**	2. WITH CURRENT FIRM: **15 YRS**

d. FIRM NAME AND LOCATION *(City and State)*
BLACK & VEATCH
3133 E CAMELBACK, SUITE 210, PHOENIX, AZ

e. EDUCATION (*DEGREE AND SPECIALIZATION)*
BS, Electrical Engineering, 1999

f. CURRENT PROFESSIONAL REGISTRATION *(STATE AND DISCIPLINE)*
PE # 47664 (AZ – ELECTRICAL)

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

H. RELEVANT PROJECTS

1)

(1) TITLE AND LOCATION *(City and State)*
Deer Valley Water Treatment Plant Reservoir Replacement,
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and involves demolition of the existing 20 MG Reservoir and design and construction of new 20 MG replacement reservoir. Design also includes provisions for reservoir leak detection collection system, sump pump station, and chlorine & pH analyzer systems. The estimated design cost is approximately $1.7 M. Design also includes reestablishing electrical and instrumentation conduit and sample piping that was disconnected during the existing reservoir demolition. Chris will provide electrical design including integration of Electrical and Instrumentation of new and modified facilities with the treatment plant computer system.

2)

(1) TITLE AND LOCATION *(City and State)*
Northwest Water Reclamation Plant Odor Control Improvements
Mesa, Arizona

(2) Year Completed:
Professional Services:
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and involves designing improvements to the existing sodium hypochlorite and sodium hydroxide chemical feed system feeding the Odor Scrubber. The improvements include replacing feed pumps, storage tanks, feed piping and valves, including replacement of Odor scrubber packing media. The project also includes improvements and integration of Electrical and Instrumentation of modified facilities with the plant computer system. Chris will provide electrical design for the project. The estimated project cost is approximately $178 K.

3)

(1) TITLE AND LOCATION *(City and State)*
CAP Annunciators Replacement with HMIs.
Phoenix, Arizona

(2) Year Completed
Professional Services:
Construction *(if applicable):*

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
The project is currently in progress and includes replacing the switchyard annunciators, the pumping plant annunciator and all of the pump unit annunciators with two large HMIs in the pumping plant control room at Central Arizona Water Conservation District's (CAWCD) fourteen pump station. The existing temperature monitors and pressure monitors are replaced with individual displays for each pump on each of the master HMIs. Chris will provide electrical design for the project. The estimated design cost is approximately $380 K.

4)

(1) TITLE AND LOCATION *(City and State)*
Glendale Arrowhead UV Disinfection Project
Glendale, Arizona

(2) Year Completed
Professional Services **Feb 2012**
Construction *(if applicable)* **July 2013**

(3) BRIEF DESCRIPTION (Brief scope, size, cost, etc.) AND SPECIFIC ROLE [x] Check if project performed with current firm
The City of Glendale acquired an Energy Efficiency and Conservation Block Grant (EECBG) to upgrade the existing medium pressure UV disinfection system at the Arrowhead Ranch Water Reclamation Facility to a more energy efficient low pressure-high output system. Black & Veatch provided equipment pre-purchase assistance, preliminary and detailed design, and is currently providing construction administration and inspection services to assist the City with improving their energy efficiency goals at the facility. Chris was involved in complete electrical design assisted with submittal review and responding to RFI for the project. The estimated design and construction admin fees were approximately $593 K and $684 K, respectively.

5)

(1) TITLE AND LOCATION *(City and State)*
Val Vista Water Treatment Plant GAC Implementation,
Phoenix, Arizona

(2) Year Completed
Professional Services**:** **Sept 2013**
Construction *(if applicable)* **Sept 2013**

(3) BRIEF DESCRIPTION *(Brief scope, size, cost, etc.)* AND SPECIFIC ROLE [x] Check if project performed with current firm
In order to meet Stage 2 D/DBP Rule water quality requirements, City of Phoenix implemented post-filer GAC contactors. B&V designed and provided constructions administration and inspection (CA&I) services for twelve new GAC contactors, a low-lift GAC supply pump station, GAC backwash pump station, GAC water recirculation pump stations, GAC equalization basins, and an electrical building. Chris was involved in electrical design and assisted with submittal review and responding to RFI during the CA &I of the project. The design and construction admin fees were approximately $6.2M and $3.8M, respectively.

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 *(City and State)*	b. YEAR COMPLETED	
Val Vista Water Treatment Plant GAC Implementation, Mesa, Arizona	PROFESSIONAL SERVICES Sept 2013	CONSTRUCTION *(If applicable)* Sept 2013

23. PROJECT OWNER'S INFORMATION		
c .PROJECT OWNER	d .DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	$6.2 M (Design), $3.8 (CM/CA)	$6.2 M (Design), $3.8 (CM/CA)

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

In order to meet Stage 2 D/DBP Rule water quality requirements, City of Phoenix (COP) implemented post-filer granular activated carbon (GAC) contactors. The project was initiated in November 2009; Black & Veatch provided a fast-tracked design so that construction could be completed by Sept 2013. Black & Veatch also provided construction administration and inspection (CA&I) services for the project.

The major project components included:

- Diversion Connection Structure to intercept filtered water flow and return GAC treated water to existing filtered water conduit.
- GAC Contactor and Backwash Pump Station consisting of a common wet well.
- GAC Contactors consisting of twelve dual cell contactor beds with a total capacity of 220 MGD.
- GAC Contactor Electrical Building to support GAC Contactor and Backwash Pump Station
- GAC Equalization Basins with return pumps.
- New control system and programming to support new facilities.

The City also expanded chlorine dioxide generation facilities capacity and added a new ferrous chloride chemical storage and feed facilities as another treatment alternative to reduce THM formation.

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 *(City and State)*	b. YEAR COMPLETED	
SROG Regional Capacity Management Facilities Studies (Interceptor Capacity Evaluation), Phoenix, Arizona	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)* N/A

23. PROJECT OWNER'S INFORMATION		
c .PROJECT OWNER	d .DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Phoenix	$1.05 M (Study)	Ongoing (approx 75% complete and is expected to be on budget)

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

The Subregional Operating Group (SROG) is a five-city partnership formed to facilitate the joint ownership and operation of a regional wastewater conveyance and treatment system in the Phoenix metropolitan area. The cities of Glendale, Mesa, Phoenix, Scottsdale and Tempe are party to this partnership. The regional system consists of the 91st Avenue WWTP, the SRO, the SAI and the 99th Avenue Interceptor.

Black & Veatch was selected by the City of Phoenix to act as the lead agent for SROG to perform a review and update of the 2008 Regional Capacity Management Facilities (RCMF) Study. The project was initiated in July 2012 and currently in progress. Black & Veatch will the review of the modeling methods used in the previous Regional Capacity Management Facility studies and will provide an opinion of the adequacy of the previous modeling performed. Black & Veatch will also provide model improvements and identify the magnitude of the SROG system wet weather and dry weather flows and any interceptor capacity deficiencies. If capacity deficiencies are identified, Black & Veatch will develop and analyze technically feasible alternative capacity solutions at a conceptual planning level of detail.

Major activities included in the project include:

- Development of a dynamic Regional Collection System Model.
- State-of- the- Art Radar Rainfall analysis which include developing a 10-Year, 24-Hour design storm with spatial and temporal characteristic appropriate for a large scale regional system.
- Analyzing the design storm in a manner which recognizes the dynamic characteristics of rainfall
- Developing cost effective capacity solutions for those portions of the SROG system that are found to be at risk of SSO

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Ocotillo Water Transmission Main , Chandler, Arizona	July 2012	Feb 2013

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Chandler	$298 K (Design), $370 K (CM/CA)	$298 K (Design), $258 K (CM/CA)

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

Black & Veatch designed a 24-inch water transmission main that serves both of Chandler's Zone 1 and Zone 2 pressure zones. Included hydraulic and surge analysis of the system, and design of about 5.5 miles of water transmission line including trenchless crossing of SRP Consolidated Canal and the Union Pacific Railroad. The project design was initiated in Nov 2011 and fast tracked with bid documents and specification completed by July 2012. The construction of the transmission main was completed in Feb 2013. The project also included utility coordination, pothole location requirements and working with the City's ROW and Public Involvement professionals. The team was responsible for corrosion mitigation since the line parallels a gas main for much of the alignment. Project was constructed in a phased approach to allow construction in a compressed timeline which required multiple permits and bid document sets. Black & Veatch was also provided construction administration and inspection (CA&I) services.

Project features include the following:

- Hydraulic modeling and water pipeline preliminary and final design
- Corrosion mitigation studies and design
- Local agency coordination and permitting
- Conventional /trenchless construction
- Construction phase / resident services

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 *(City and State)*	b. YEAR COMPLETED	
	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*
Arrowhead Ranch WRF UV Replacement, Glendale, Arizona	Feb 2012	July 2013

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .DOLLAR AMOUNT OF PROJECT	e. TOTAL COST OF PROJECT
City of Glendale	$593 K (Design), $684 K (CM/CA)	$593 K (Design), $684 K (CM/CA)

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

City of Glendale acquired an Energy Efficiency and Conservation Block Grant (EECBG) to upgrade the existing medium pressure UV disinfection system at the Arrowhead Ranch Water Reclamation Facility to a more energy efficient low pressure-high output system. Black & Veatch provided equipment pre-purchase assistance, preliminary and detailed design, and construction administration and inspection (CA&I) services to assist the City with improving their energy efficiency goals at the facility. The project design was initiated in September 2010 with the construction of the upgrades completed in July 2013.

Project features included the following:

- Multiple technology/manufacturer evaluation
- New control system and programming upgrades to support new facilities
- Extensive coordination with plant and other City staff
- Extensive maintenance of plant operations
- Extensive field investigations and identification of existing utilities
- Aquifer protection permit amendment
- Coordination with other ongoing contracts

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 *(City and State)*	b. YEAR COMPLETED	
Central Arizona Project (CAP) Annunciators Replacement with HMIs, Phoenix, Arizona	PROFESSIONAL SERVICES	CONSTRUCTION *(If applicable)*

23. PROJECT OWNER'S INFORMATION

c .PROJECT OWNER	d .DOLLAR AMOUNT OF PROJECT:	e. TOTAL COST OF PROJECT
Central Arizona Project (CAP)	$380 K (Design)	Ongoing (approx 95% complete and is expected to be on budget)

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

Central Arizona Water Conservation District's (CAWCD) pumping plants have annunciators that were installed during original construction and will be replaced with Human Machine Interface (HMIs). This project replaces plant annunciators with HMI/PC systems at CAWCD's fourteen pumping plant facilities. The project replaces the switchyard annunciators, the pumping plant annunciator and all of the pump unit annunciators with two large HMIs in the pumping plant control room. The existing temperature monitors and pressure monitors will be replaced with individual displays for each pump on each of the master HMIs. The two HMI panels will be used to display all of the analog and digital inputs for all of the pumps, plants and switchyard. CAWCD will program the graphic displays for the HMI and provide a Functional Test procedure for validation of the field device signal annunciation to the newly installed HMI displays. The project was initiated in May 2012 and is scheduled to be completed by Dec 2013.

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

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

Signature: Dan Meyer Date: DECEMBER 12, 2013

Name: DAN MEYER Title: Sr. VICE PRESIDENT