

RESOLUTION NO. 2020-44

**RESOLUTION AUTHORIZING THE VILLAGE OF CALEDONIA TO AWARD
A CONTRACT FOR THE EPA RISK & RESILIENCE ASSESSMENT AND
EMERGENCY RESPONSE PLAN**

WHEREAS, the Caledonia Utility District is required by the Environmental Protection Agency (EPA) through America's Water Infrastructure Act (October 23, 2018) to develop a Risk & Resilience Assessment and an Emergency Response Plan for its water system.

WHEREAS, The Caledonia Utility District, based on its size and number of customers served, will need to have a Risk & Resilience Assessment certified by the EPA by June 30, 2021 and an Emergency Response Plan certified by the EPA by December 31, 2021.

WHEREAS, the Caledonia Utility District has directed, prepared, and distributed a Request for Proposal (RFP) to 6 Engineering Consulting Firms for the Risk & Resilience Assessment and an Emergency Response Plan.

WHEREAS, the Caledonia Utility District received 2 Proposals from Engineering Consulting Firms for the Risk & Resilience Assessment and an Emergency Response Plan on June 1, 2020.

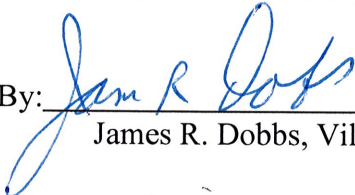
WHEREAS, the Caledonia Utility District reviewed the Proposals and a recommendation was made to the Caledonia Utility District to accept the proposal from Foth Infrastructure & Environment for the not to exceed total of \$18,850.00.

WHEREAS, The Caledonia Utility District moved to award the contract for the EPA Risk & Resilience Assessment and Emergency Response Plan to Foth Infrastructure & Environment LLC., using the VSAT Web 2.0 RRA in the not to exceed amount of \$18,850.00.

NOW, THEREFORE, BE IT RESOLVED that the contract for the Project be, and hereby is, awarded to Foth Infrastructure & Environment LLC., in the not to exceed amount of \$18,850.00 and that the Utility Director, Village President and Village Clerk are authorized to execute any documents necessary to carry out the intent of this Resolution.

Adopted by the Village Board of the Village of Caledonia, Racine County, Wisconsin, this 15th day of June, 2020.

VILLAGE OF CALEDONIA

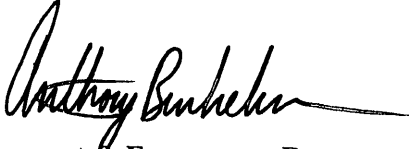
By: 
James R. Dobbs, Village President

Attest: 
Karie Pope, Village Clerk

MEMORANDUM

DATE: Wednesday, June 3, 2020

TO: Caledonia Utility District

FROM: Anthony A. Bunkelman P.E.
Utility Director 

RE: EPA Risk & Resilience Assessment & Emergency Response Plan Contract Award

BACKGROUND INFORMATION

On October 23, 2018 the Federal Government signed the America's Water Infrastructure Act. This act requires that all community drinking water systems that serve more than 3,300 people to develop or update risk assessments and emergency response plans. Due to the size of the Caledonia Water Utility, the Utility District must prepare and submit a Risk and Resilience Assessment of its system. Once the Risk and Resilience Assessment is certified by the EPA, an Emergency Response Plan is required to be prepared and certified within 6 months. The Caledonia Utility District has until June 30, 2021 to have a Risk and Resilience Assessment certified and until December 31, 2021 to have the Emergency Response Plan certified.

The Risk and Resilience Assessment must include the following:

1. the risk to the system from malevolent acts and natural hazards;
2. the resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, treatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system;
3. the monitoring practices of the system;
4. the financial infrastructure of the system;
5. the use, storage, or handling of various chemicals by the system; and
6. the operation and maintenance of the system.

The Emergency Response Plan must include the following:

1. strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system;
2. plans and procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water;
3. actions, procedures and equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals, including the development of alternative source water options, relocation of water intakes and construction of flood protection barriers; and

4. strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.

The America's Water Infrastructure Act also requires that the Risk and Resilience Assessment is reviewed every 5 years. For the Caledonia Utility District, the assessment will need to be reviewed by June 30, 2026. Emergency Response Plans, if necessary, will also need to be revised every 5 years or by December 31, 2026.

A RPF was prepared and sent out to 6 of the local Engineering Firms (Foth Infrastructure & Environment, RA Smith, Strand Associates, Hey & Associates, AECOM, and Baxter & Woodman) qualified for the work. 2 Engineering firms submitted proposals for the project (Foth Infrastructure & Environment and Strand & Associates). So the Commission is aware, after the original RFP was issued, additional guidance was released by the EPA for small drinking water systems. The RFP was then amended to provide an alternative for the additional guidance to be followed.

The original RFP was issued for the using the Vulnerability Self-Assessment Tool (VSAT) Web 2.0, which is a more comprehensive review and assessment. The amended RPF provides an alternative using the additional guidance checklist provided by EPA. Each firm provided costs for both the VSAT and the checklist alternative.

The costs of the work as provided in the RFP's is as follows:

Foth Infrastructure & Environment	
VSAT Web 2.0 RRA and Emergency Response Plan	\$18,850.00
Alternate EPA Checklist RRA and Emergency Response Plan	\$9,780.00
Strand & Associates	
VSAT Web 2.0 RRA and Emergency Response Plan	\$50,300.00
Alternate EPA Checklist RRA and Emergency Response Plan	\$31,300.00

Based on the review of the RFP's both firms would be qualified to perform the work. Foth has a very attractive price for the work and Strand has current contracts with both Racine and Oak Creek, the providers of wholesale water for the Village.

Based on the results it is recommended that the more comprehensive VSAT Web 2.0 RRA and Emergency Response Plan be performed by Foth Infrastructure & Environment.

RECOMMENDATION

Move to award a contract for the EPA Risk & Resilience Assessment and Emergency Response Plan to Foth Infrastructure & Environment using the VSAT Web 2.0 RRA in not to exceed amount of \$18,850.00.



Lincoln Center II
2514 South 102nd Street, Ste. 278
West Allis, WI 53227
(414) 336-7900
www.foth.com

June 1, 2020

Mr. Tony Bunkelman, PE
Utility Engineer
Village of Caledonia
5043 Chester Lane
Racine, WI 53402

Dear Tony:

RE: Proposed Level of Effort and Fee
Water and Wastewater Risk and Resilience Assessment Summary

We greatly appreciate the opportunity to provide professional consulting services for the above referenced report. It is our understanding that the Village needs a Risk and Resilience Assessment to comply with the requirements of the American Water Infrastructure Act of 2018 (AWIA). We have completed the attached RFP form and are providing the below information along with our resumes.

Scope

We propose to perform the work according to the revised RFP issued May 20, 2020, which will use either the Vulnerability Self Assessment Tool (VSAT) as prepared by the U.S. Environmental Protection Agency (EPA) to meet the requirements of the AWIA Act of 2018. Foth will perform/review the following:

Risk Assessment

Enter Data in VSAT
Physical Barriers
Source Water
Pipes & Constructed Conveyances, Water Collection and Intake
Pretreatment and Treatment
Storage and Distribution Facilities
Electronic, Computer, or other Automated Systems
Monitoring Practices
Financial Infrastructure
The Use, Storage, or Handling of Chemicals
The Operation and Maintenance of the Utility

Utility Resilience Index

Emergency Response Plan Review
National Incident Management System Compliance Review
Mutual Aid and Assistance Review
Emergency Power for Critical Operations Review
Minimum Daily Demand/Treatment Review
Critical Parts and Equipment Review
Critical Staff Resilience Review
Business Continuity Plan Review
Utility Bond Rating Review
Government Accounting Standards Board Assessment Review
Unemployment Review
Median Household Income Review

The Village's Utility infrastructure sites that will be reviewed per the above include:

Crestview Lift Station	6601 Lone Elm Drive
River Meadows Lift Station	6724 4 Mile Road
Caddy Vista Lift Station	8846 Nicholson Road
4 Mile & STH 31 Lift Station	5000 Highway 31
Central Lift Station	333 4 1/2 Mile Road
Dominican Lift Station	5915 Erie Street
West Johnson Lift Station	3608 West Johnson Avenue
North Main Street Lift Station	4222 North Main Street
Wind Meadows Lift Station	3095 Lake Meadow Drive
Lighthouse Drive Lift Station	4804 Lighthouse Drive
K&V Lift Station	11526 Northwestern Avenue
Hoods Creek Attenuation Basin	Northwestern & Airline
Hoods Creek Lift Station	3501 Gifford Road
River Bend Lift Station	3725 River Bend Drive
Industrial Park Elevated Storage Tank	Storage Drive
Crestview Elevated Storage Tank	Indian Trail
7 Mile Road Elevated Storage Tank	7 Mile Road
Wind Point Meter Vault #1	4 Mile Road & Valley Trail
Wind Point Meter Vault #2	3 Mile Road & North Main
Oak Creek Meter Vault	Douglas Ave & County Line
Dunkelow Road Booster Station	7838 Dunkelow Road
4 Mile & Memco Booster Station	4 Mile Rd & Memco Lane
Nicholson Road Meter Building	8846 Nicholson Road
Caddy Vista Meter Building	Duane Court

Mr. Tony Bunkelman, PE, Utility Engineer
Village of Caledonia
June 1, 2020
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As an alternative, due to the size of the Utility District and the number of customers, the Risk and Resilience requirement can be met using the EPA's Guidance for Small Community Water Systems on Risk and Resilience under America's Water Infrastructure Act. This method uses a simplified reporting format and will result in lower fees and a somewhat less detailed review.

A draft and final Risk and Resilience Assessment report will be prepared summarizing a list of assets and threats as well as a Countermeasure Risk Assessment. The attached listed fee does not include any effort for cost estimating, as we do not know at this time the magnitude of threat corrections that will need to be implemented. If the Village desires this to be included in our scope, we can add that task once the assessment is completed in spring of 2021. We have further assumed that we will have access to the applicable Village department heads and consultants (financial, for example) to be able to complete the assessment.

Schedule

We will begin per the addendum which stipulates no sooner than December 1, 2020. The field work for the utility site reviews would occur over the winter and a draft Assessment report would be completed by April 30, 2021. We anticipate producing the final report after staff review of the draft to be completed by May 30, 2021.

Proposed Fees

We propose to complete the above described level of effort on an hourly basis for the estimated fee of \$18,850 per our Caledonia Standard 2020 hourly rates.

Alternatively, if the Utility decides to use the EPA's Guidance for Small Community Water Systems on Risk and Resilience under America's Water Infrastructure Act, we propose an estimated fee of \$9,780.

Agreement to Proceed

Foth will proceed with work upon contract authorization from the Village Utility Commission.

Thanks again for allowing us to team with you on this important project for the Village. If you have any questions regarding our proposal, please call me at (414) 336-7905.

Mr. Tony Bunkelman, PE, Utility Engineer
Village of Caledonia
June 1, 2020
Page 4

Sincerely,
Foth Infrastructure & Environment, LLC



Thomas J. Ludwig, P.E.
Client Director

ADDITIONAL RFP REQUESTED ITEMS

References: Tony Bunkelman, Bob Lui, Village of Caledonia Utility District. |

Larry Ratayczak, P.E.
Director of Public Works
Village of Germantown
(262)250-4725

Paul Haugen, Water Utility Superintendent
Village of Germantown
(262)808-7464

Scott Osborn, P.E., Water Utility Superintendent
City of Oconomowoc Utilities
(262)569-6421

David White, P.E. (retired)
Former DPW, Village of Pewaukee
(262)844-392

Resumes: Attached.

Experience: City of Franklin Water and Wastewater Risk and Resilience Assessment; Village of Germantown Vulnerability Assessment; and City of Oconomowoc Water System Study.

VILLAGE OF CALEDONIA UTILITY DISTRICT
VILLAGE OF CALEDONIA, WISCONSIN
333 4 ½ MILE ROAD
RACINE, WISCONSIN 53402

REQUEST FOR PROPOSALS
REVISION #1

DATE: WEDNESDAY, MAY 20, 2020

TO: CONSULTANTS SUBMITTING PROPOSALS FOR
ENGINEERING SERVICES

FROM: ANTHONY A. BUNKELMAN P.E.
UTILITY DIRECTOR

RE: EPA RISK & RESILIENCE ASSESSMENT AND EMERGENCY
RESPONSE PLAN (Project)

The Village of Caledonia Utility District is requesting consultant proposals for the Project listed above. The intent of this Request For Proposal is to allow consultants the opportunity to enter into an agreement with the Village of Caledonia, Wisconsin and the Village of Caledonia Utility District, a utility district created by the Village of Caledonia, Wisconsin (collectively the "Owner") to accomplish the work described below.

The Village of Caledonia Utility District is requesting proposals for a Project to meet the EPA's requirement of preparing and certifying a Risk & Resilience Assessment and Emergency Response Plan for the District.

INSTRUCTIONS TO CONSULTANT

1. The Village of Caledonia Utility District requests proposals for consulting engineering services for the Project. The Village will prepare an "Agreement For Engineering Consulting Services", with the terms and conditions that the Consultant shall agree to.
2. Provide all requested information on Exhibit "B" of Addendum 1, including a "not to exceed" amount per Task and hourly rates for all various staff that may work on the Project.
3. Amend the Scope of Work To Be Performed On The Project on Exhibit "A" of Addendum 1 ("Scope of Work") as desired. The amended scope shall restate the desired tasks of the proposal request in any format the

consultant deems appropriate. The consultant may include any recommended variations in this portion of the submittal.

4. Provide a minimum of one set of references, resumes or any other general information that can be reviewed as a “statement of qualifications”.

5. The Owner’s preference at the time of the issuance of this RFP is to retain a consultant that has successfully completed two or more projects/studies in the recent past that included work similar to the Scope of Work. The Consultant shall include in the Consultant’s statement of qualifications a list of such projects, a description of the work performed and owner contact information.

6. The award of the contract will not be based on price alone. A consultant will be selected and awarded the Project based on experience, competence, and the time period in which the Consultant agrees to complete the Scope of Work and price.

7. Proposals shall include the dates on or before which the Scope of Work will be commenced and completed by the Consultant. The awarded contract shall specify required commencement and completion dates that will be acceptable to the Owner.

8. All consultants are invited to meet with Village of Caledonia Utility District staff, prior to submittal of the proposals, if there are questions regarding the work. There will not be a pre-proposal meeting for this RFP. If a consultant wishes to set up an individual meeting with the Village of Caledonia Utility District staff or have questions regarding the work, please contact Anthony Bunkelman at 262-835-6416 or Robert Lui at 262-898-2601.

9. Proposals are due in the office of the Utility Director by 10:00 a.m. on the 1st day, of June, 2020. **The Utility Director’s office is located at 5043 Chester Lane, Racine, Wisconsin 53402.**

10. Proposals will be reviewed by the Village of Caledonia Utility District Staff and the selected proposal is expected to be approved by the Village of Caledonia Utility District Commission on June 10, 2020 and the Village Board on June 15, 2020.

Anthony A. Bunkelman P.E.
Utility Director

Attachment:
Addendum 1 – Exhibit A & Exhibit B

Addendum 1

Exhibit "A"

VILLAGE OF CALEDONIA UTILITY DISTRICT ("District")

EPA RISK & RESILIENCE ASSESSMENT AND EMERGENCY RESPONSE PLAN PROJECT ("Project")

Project Description:

On October 23, 2018, America's Water Infrastructure Act (AWIA) was signed into law. AWIA Section 2013 requires community drinking water systems serving more than 3,300 people to develop or update risk assessments and emergency response plans (ERP's). The law specifies the components that the risk assessments and ERP's must address, and establishes deadlines by which water systems must certify to EPA completion of the risk assessment and ERP.

The District, which serves more than 3,300 people, is required by the AWIA to prepare and have certified a risk assessment and ERP. The Project will involve the preparation and certification of a risk assessment and ERP with the EPA.

Scope Of Work To Be Performed On The Project ("Work"):

The Consultant will perform the following Work on the Project:

- Task 1. Risk & Resilience Assessment
The Consultant shall prepare the Risk & Resilience Assessment using the Vulnerability Self-Assessment Tool (VSAT) Web 2.0 or an alternate risk assessment method. This portion of the Work shall include the following:
- (a) The Risk to the System from malevolent acts and natural hazards. The EPA's document entitled "Baseline Information on Malevolent Acts for Community Water Systems" shall be used as a guidance document to provide baseline information regarding malevolent acts of relevance to Community Water Systems.
 - (b) The Resilience of the pipes and constructed conveyances, physical barriers, source water, water collection and intake, pretreatment, storage and distribution facilities, electronic, computer, or other automated systems (including the security of such systems) which are utilized by the system.
 - (c) The monitoring practices of the system.
 - (d) The financial infrastructure of the system.
 - (e) The use, storage, or handling of various chemicals by the system.
 - (f) The operation and maintenance of the system.

- (g) The evaluation of capital and operational needs for risk and resilience management of the system.
- Task 1.a ALTERNATE: Risk & Resilience Assessment
 The Consultant shall prepare the Risk & Resilience Assessment using EPA's "Guidance for Small Community Water Systems on Risk and Resilience under America's Water Infrastructure Act"
- Task 2. Certification of Risk & Resilience Assessment
 The Consultant shall assist the District in the submission of the Risk & Resilience Assessment.
- Task 3. Emergency Response Plan
 The Consultant shall prepare an Emergency Response Plan that incorporates the findings of the Risk & Resilience Assessment. The Consultant shall Utilize the Emergency Response Plan Template and Instructions This portion of the work shall include the following:
- (a) Strategies and resources to improve the resilience of the system, including the physical security and cybersecurity of the system.
 - (b) Plans and Procedures that can be implemented, and identification of equipment that can be utilized, in the event of a malevolent act or natural hazard that threatens the ability of the community water system to deliver safe drinking water.
 - (c) Actions, Procedures and Equipment which can obviate or significantly lessen the impact of a malevolent act or natural hazard on the public health and the safety and supply of drinking water provided to communities and individuals, including the development of alternative source water options, relocation of water intakes and construction of flood protection barriers.
 - (d) Strategies that can be used to aid in the detection of malevolent acts or natural hazards that threaten the security or resilience of the system.
 - (e) The Consultant shall assist the District to the extent possible coordinate with local emergency planning committees established under the Emergency Planning and Community Right of Know Act of 1986 when preparing the Risk & Resilience Assessment and/or Emergency Response Plan under the AWIA.
- Task 4. Certification of Emergency Response Plan
 The Consultant shall assist the District in the submission of the Emergency Response Plan.
- Task 5. Meeting Attendance.

Attend all meetings requested by the Owner including public hearings, Village Board meetings and Village of Caledonia Utility District meetings to present the Risk & Resilience Assessment and the Emergency Response Plan. Also attend all meetings requested by the District staff regarding the Project.

The Work also includes, without limitation:

- a. Obtaining all information and records necessary to perform the Work.
- b. Conducting all necessary engineering studies, calculations and investigations to perform the Work.
- c. Providing the Utility Director with copies of the Materials generated by Consultant as part of the Work as the Utility Director shall request from time to time.
- d. Revisions to the Materials after review of the initial draft thereof by the Owner, Utility Director and governmental officials.

Time Constraints For Completion Of Work:

It is the desire of the Village of Caledonia Utility District that the Consultant not begin work on the Risk & Resilience Assessment portion of the work until December 1, 2020.

The Consultant shall commence the Work on the Risk and Resilience Assessment before _____, 2020 and have the Risk and Resilience Assessment certified by the EPA on or before June 30, 2021.

The Consultant shall commence the Work on the Emergency Response Plan before _____, 2020 and have the Emergency Response Plan certified by the EPA on or before December 31, 2021.

Failure to meet the above referenced schedule will result in the Consultant's not-to-exceed amount being reduced at the rate of \$100.00 per day unless the delays are caused by circumstances beyond the Consultant's control and approved by the Owner.

Exhibit "B"

Not To Exceed Amount:

The Work described on Exhibit "A" shall be provided on a time and materials basis in accordance with the Professional Fees Rate Schedule set forth below and the Consultant agrees that the total cost for the performance and completion of the Work shall not exceed the total sum of \$ \$18,850.00 or total sum (alternate) of \$ \$9,780.00

Task 1 Cost \$ 13,000.00

Task 2 Cost \$ 480.00

Task 3 Cost \$ 1,920.00

Task 4 Cost \$ 480.00

Task 5 Cost \$ 2,970.00

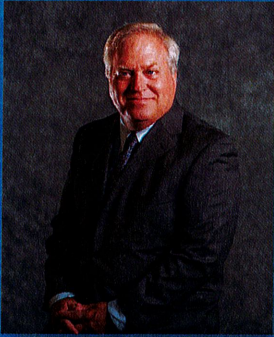
Total Not to Exceed Cost \$ 18,850.00
(Tasks 1, 2, 3, 4, & 5)

ALTERNATE
Task 1a. Cost \$ 3,930.00

ALTERNATE
Total Not to Exceed Cost \$ 9,780.00
(Tasks 1a, 2, 3, 4, & 5)

Professional Fees Rate Schedule:

Job Title:	Hourly Billing Rate:
Client Team Leader	\$160.00
Project Manager	\$160.00
Lead Project Engineer	\$160.00
Project Engineer	\$124.00



Greg Bolin, P.E. Project Engineer

Introduction

Greg has more than 30 years of experience specializing in water supply. His experience includes design, contract administration, facility startup, testing and troubleshooting. He has been involved on a variety of water supply projects. These include elevated and at-grade storage tanks, SCADA systems, water wells, pumping stations, booster stations, water treatment plants, computerized analysis of water distribution systems, facility planning and water quality studies.

Relevant Experience

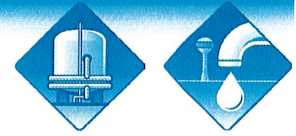
- ◆ Well No. 3 Radium Treatment Pilot Plant Study, Village of Germantown, Wisconsin. Lead engineer, project manager for radium treatment pilot plant project to evaluate effectiveness of alternative treatment processes for radium reduction. Responsible for plant equipment coordination and delivery, process layout, sampling protocols, sampling collection, laboratory analyses, changing process variables (chemical dosages, media filter design, filter run times, etc.) to optimize treatment, report preparation and approvals by regulatory authorities. The process selected for full scale implementation was addition of hydrous manganese oxide (HMO), followed by dual media filtration.
- ◆ Well No. 3 Pumping Station and Treatment Facility, Village of Germantown, Wisconsin. Lead designer, manager and client contact for reconstruction of Well No.3 pumping station. The well was idle for many years because it produced water containing natural radium at concentrations exceeding allowable limits. The existing station was demolished and a new facility was constructed. The new facility includes treatment to remove radium. Treatment includes addition of premixed hydrous manganese oxide (HMO). The treatment train is pressure aeration, prechlorination, detention, HMO addition, dual media pressure filtration, post chlorination. The well pump is a 150 horsepower line shaft unit with a variable frequency drive (VFD).
- ◆ Well No. 3 Pump Station – Well, Well Pump and Treatment System Rehabilitation, Village of Germantown, Wisconsin. After about 15 years of service, the well and HMO treatment system became bio-fouled. Biofouling is the formation of excessive naturally occurring common soil and water based microorganisms. These organisms produce biofilms, which are microbial byproducts such as enzymes, proteins, and saccharides. The presence of excessive biofilms creates favorable conditions for the formation of a wide variety of nuisance bacteria/microbes. This condition rendered the HMO treatment system ineffective. The project included chemical treatment of the well and filter tank to remove biofilms, complete removal and replacement of the filter media, support gravels, airwash piping and nozzles, and replacement of the well pump. The well was also investigated, and it was determined that the bottom portion of the open borehole was contributing little water. A portion of the lower borehole was abandoned, which reduced the radium levels in the raw water by about 40 percent.

EDUCATION
B.S. Civil & Environmental
Engineering
University of Wisconsin,
Madison- 1979

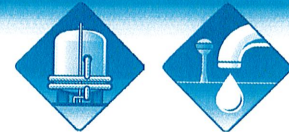
REGISTRATION
Professional Engineer, WI

SPECIALTY
Well Water Supply and
Treatment

2514 S. 102nd Street,
Suite 278
West Allis, WI 53227
414-336-7916



- ◆ New Well No. 12, Pumping Station and Treatment Facility, Village of Germantown, Wisconsin. These project are currently under design. The well will be finished in the sandstone aquifer to about 1,400 feet deep. The pumping station will include an HMO treatment system for radium reduction.
- ◆ Well No. 2 Radium Reduction Treatment Study, City of Pewaukee, Wisconsin. Prepared a desktop study to evaluate treatment options for reducing radium. Options investigated included blending, treatment by HMO addition, treatment by Water Remediation Technologies (WRT) selective proprietary media, and treatment by a different proprietary media. The study included a comparative net value analysis of the options, Based on the results of the study, the village selected the WRT process.
- ◆ Well No. 2 Treatment Plant Addition and Pumping Station Upgrade, City of Pewaukee, Wisconsin. Lead designer and manager for a treatment system project to remove radium from an existing well. The system uses a proprietary granular media selective for radium. Responsible for managing all phases of the project, and for design of mechanical and treatment portions. The project included architectural upgrades and additions to the existing building facility.
- ◆ Well, Pumping Station and Treatment Facility, Prairie Island Indian Community, Welch, Minnesota. Lead designer and manager for a bedrock aquifer well, pumping station and treatment facility. Treatment is included to reduce levels of iron, manganese, and radium in the well water. The treatment process includes addition of premixed hydrous manganese oxide solution (HMO). The treatment train is pressure aeration, prechlorination, detention, HMO addition, dual media pressure filtration, post chlorination and post fluoridation.
- ◆ Well, Pumping Station and Treatment Facility, Village of Wittenberg, Shawano County, Wisconsin. Lead designer and manager for locating and developing a new well source in a difficult hydrogeologic setting. The only aquifer available in the area is a shallow unconsolidated formation, which is inconsistent and is subject to potential contamination from surface sources. Project included site investigations, test drilling, and water quality sampling to identify a suitable location for a new well. It included treatment pilot plant studies, design and construction of a pumping station with treatment to reduce raw water iron and manganese.
- ◆ Dual Aquifer Wells, Pumping Station, Treatment Facility and Reservoir, City of Brookfield, Wisconsin. Lead designer and project manager for a 2.3 MGD water production and treatment facility. The facility includes two wells. One is finished in the lower sandstone aquifer to about 1,500 feet deep. The other is finished in the upper fractured dolomite aquifer to about 400 feet deep. The two sources are blended to reduce naturally occurring radium in water from the sandstone aquifer well to provide an acceptable finished water. Treatment is included to remove iron. The treatment train is induced draft aeration, prechlorination, gravity flow filtration, and post chlorination. The deep well pump is a 250 horsepower submersible unit producing 1.4 MGD. A 500,000 gallon concrete ground level reservoir, emergency power, and high lift pumps are included. The architecture is designed to be compatible with upscale residential development in the surrounding area.
- ◆ Dual Aquifer Wells, Pumping Station, Treatment Facility and Reservoir, City of Brookfield, Wisconsin. Lead designer and project manager for a 2.3 MGD water production and treatment facility. The facility includes two wells. One is finished in the lower sandstone



aquifer to about 1,500 feet deep. The other is finished in the upper fractured dolomite aquifer to about 400 feet deep. The two sources are blended to reduce naturally occurring radium in water from the sandstone aquifer well to provide an acceptable finished water. Treatment is included to remove iron. The treatment train is induced draft aeration, prechlorination, gravity flow filtration, and post chlorination. The deep well pump is a 250 horsepower submersible unit producing 1.4 MGD. A 500,000 gallon concrete ground level reservoir, emergency power, and high lift pumps are included. The architecture is designed to be compatible with upscale residential development in the surrounding area.

- ◆ Well and Pumping Station, City of Oconomowoc, Wisconsin. Lead designer and project manager for a 1.4 MGD well and pumping station. The well is 900 feet deep, finished in the Ordovician/Cambrian sandstone aquifer. It was drilled adjacent to an existing unconsolidated sand and gravel aquifer well about 50 feet deep. The existing well had a history of producing water with elevated nitrates. The nitrate levels varied seasonally, with the highest levels occurring during the spring rainy season. There were several instances of nitrates exceeding the Maximum Contaminant Level. The new well was constructed so that water from the two sources could be blended to provide a water product in compliance with the nitrate MCL. Precautions were specified in constructing the deep well so that the shallow well was not negatively affected. Grouted casing was installed at depths greater than code requirements to ensure the nitrate containing groundwater from the shallow aquifer would not migrate to the deep well. The pump in the deep well is a 125 horsepower line shaft unit. It can deliver up to 1.4 MGD. It has a variable frequency drive (VFD), which enables the operator to vary the discharge rate by varying the well pump rotational speed. The project included installing a new VFD on the existing well pump. In this manner, the operator can select the desired discharge rate of each well pump to vary the blending proportions in response to varying nitrate levels in water from the shallow aquifer well.



Thomas J. Ludwig, P.E.

Client Team Leader

Introduction

Mr. Ludwig is Foth's principal-in-charge for civil engineering and municipal planning services. He is responsible for overall client services, resources and quality control and is the State Operations Director for Foth's three Wisconsin offices. Mr. Ludwig has over 32 years of civil engineering experience in all facets of municipal, sanitary, road, bridge, stormwater management, and water distribution engineering. He has managed projects from inception through budgeting, facility planning, design, and the eventual construction management phase.

Relevant Experience

- ◆ Hillcrest Reservoir Water Main Extension, Waukesha Water Utility, Waukesha, Wisconsin. Principal-in-Charge for the extension of 3,000 lineal feet of 20 inch diameter water main in the Hillcrest Reservoir area of the Waukesha Utility Service area. The area was experiencing low pressures after the installation of a new reservoir in the area and Foth was hired to determine the best route based on cost and energy savings, as well as pressure improvements for the service area. Responsibilities included QA/QC for the design, plan preparation, cost estimate, and specifications.
- ◆ I-94 Water Engineering Report, Caledonia Utility District, Racine County, Wisconsin. The Caledonia Utility District had been planning to serve the I-94 corridor with sewer and water service for several years. Increased interest by businesses prompted the need for developing the Engineering report for serving the area. Principal-in-Charge for the team responsible for developing alternatives and preparing the engineering report for submitting to the DNR for review and approval.
- ◆ Green Bay Road and Armstrong Park Meter Facilities, Caledonia Utility District, Racine County, Wisconsin. Principal-in-charge for the design and construction of two meter facilities.
- ◆ Crestview Area Emergency Water Main Feed Study, Village of Caledonia, Racine County, Wisconsin. Principal-in-charge for a study that examined several alternatives for an additional water service to the Crestview area. Project responsibilities included gathering all data from the existing system and for proposed routes for the water study, providing estimates and review of the report.
- ◆ McShane Water Main Extension/Well Abandonment, City of Muskego, Wisconsin. Project manager for the extension of approximately 2,000 feet of water main from the city's system to abandon a well that was serving an assisted living center
- ◆ STH 100 Water Main Relay, City of Oak Creek, Wisconsin. Project manager for approximately 1,000 feet of water main extension in advance of a state WisDOT project. Project entailed extensive coordination with the WisDOT and local utilities
- ◆ Susan Lane Water Main Extension, Cedarburg, Wisconsin. Project Engineer for the design and construction of approximately 2,000 feet of 8 diameter water main.

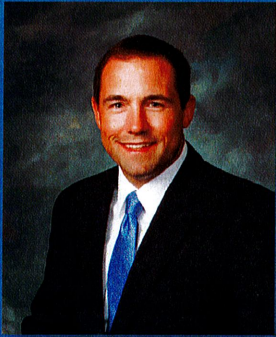
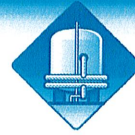
EDUCATION
B.S., Civil Engineering
University of Wisconsin,
Milwaukee - 1987

REGISTRATION
Professional Engineer, WI

SPECIALTY
Water & Sewer Utilities

2514 S. 102nd Street,
Suite 278
West Allis, WI 53227
414-336-7905

One page resume for the purpose of this proposal. More projects available upon request.



Andy M. Schultz, P.E.

Assistant Project Manager

Introduction

Andy specializes in municipal engineering services including project management and construction administration and management. His experience includes water and sewer utility modeling, planning, design and construction, as well as roadway design. He has an extensive background serving in the public sector which has gained him a strong understanding of budgetary challenges and responsibilities, as well as public coordination and communications. His work in construction has included contract compliance, dispute resolution, and constructability review.

Relevant Experience

- ◆ Johnston, IA Water Modeling - Created a water model to assist our client in a legal battle over service area with a neighboring water utility to show deficiency in their system to serve an area with anticipated high commercial growth potential.
- ◆ Oconomowoc Water Study, Oconomowoc, Wisconsin. Project engineer for the review of Oconomowoc's water distribution system. The work included conversion of an existing EPANET model to a WaterCAD model and updating with current demand and controls. Proposed improvements were simulated with future demands and once improvements were identified, budgetary cost estimates were prepared and presented to the City.
- ◆ Oak Creek Service Area Elevated Tank, Caledonia Utility District, Caledonia, Wisconsin. Co-designer and Construction Manager for the 750,000 gallon, steel, water spheroid. Responsible for the plans, specifications and construction administration.
- ◆ TID #4 Utility Extensions, Caledonia Water Utility District, Caledonia, Wisconsin. Project manager for the design and construction of an 8.7 MGD Lift Station, 11,000 lineal feet of dual force main, 5,500 lineal feet of 42 inch and 36 inch diameter interceptor sewer, and 5,500 lineal feet of 16 inch diameter water main. The project also included extensive coordination with multiple municipal jurisdictions, three different general contractors, and environmental regulators.
- ◆ Water Engineering Report, Caledonia Water Utility District, Caledonia, Wisconsin. Responsible for developing water system model for the 1,900-customer water system.
- ◆ STH 31 Water Main and Memco Lane Booster Station, Caledonia Water Utility District, Caledonia, Wisconsin. Project manager for the design and construction of the project which improved redundancy and flexibility between two pressure zones.

EDUCATION

B.S. Civil Engineering
University of Wisconsin,
Platteville- 2000

**B.S. Environmental
Engineering**
University of Wisconsin,
Platteville- 2000

REGISTRATION

Professional Engineer, WI

SPECIALTY

**Constructability and Cost
Estimating**

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414-336-7912**

One page resume for the
purpose of this proposal.
More projects available upon
request.