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September 18, 2008

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PROCURING DIVISION
STATE OF WV

Ms. Roberta Wagner
State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street, East
PO Box 50130
Charleston, WV 25305-0130

Re: Request for Quotation
RFQ #EHS90039

Dear Ms. Wagner,

In accordance with the Request for Quotation for the West Virginia Bureau of Public Health, Rummel, Klepper & Kahl, LLP (RK&K) is pleased to submit one (1) original and seven (7) convenience copies of our engineering proposal to provide engineering services for their Source Water Protection Technical Help Program (SWPTHP). RK&K has extensive experience in all aspects of water system management in West Virginia and the Mid-Atlantic region. Prior experience gained from earlier SWAP projects completed for the WV BPH will be utilized to successfully complete this project.

David G. Vanscoy, P.E., associate and regional manager of RK&K's West Virginia operations will be assigned as program manager for the project. Dave has over 37 years of experience in all aspects of public works engineering requirements including water, sewer, drainage, roads and streets. G. Michael Mower, P.E. will be assigned as the SWAP project manager for the project. Mike has over 22 years of experience with the BPH prior to joining RK&K and approximately three (3) years of experience working on previous SWAP projects. Dave, Mike and RK&K's staff of experienced engineers and technicians are capable of immediately addressing the engineering needs for the WV BPH project.

Assisting RK&K with efforts will be Dr. Joe Donovan a professor with WVU's Department of Geology and Geography who will be on staff should any of the systems require modifications to their existing delineations. Dr. Donovan teamed with RK&K on the prior SWAP projects.

RK&K is a 622-person multidisciplinary consulting engineering firm headquartered in Baltimore, Maryland. The firm has been providing services throughout the Mid-Atlantic and Southeastern states since 1923. RK&K's expertise encompasses water, environmental, sanitary, civil, transportation, structural, geotechnical, mechanical/electrical, natural gas/petroleum operations, and construction engineering inspection. Ranked #128 on the 2008 *Engineering News Record's* listing of Top 500 Design Firms and Ranked #75 on their list of Pure Design Firms in 2008, RK&K serves an array of Federal, State, and local clients from our headquarters and 14 branch offices.

RK&K has offices in West Virginia, Virginia, North Carolina, Pennsylvania, Delaware, Florida, and Washington, D.C. The firm employs a well-diversified staff of engineers, planners, environmental specialists, surveyors, designers, draftsmen/CADD technicians, construction managers, inspectors, and support staff. RK&K's services involve feasibility studies, project planning, preliminary engineering, final design, and construction inspection/management.

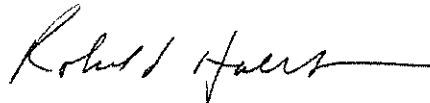
RK&K has developed an experienced engineering team to partner with the West Virginia Bureau of Public Health to develop their source water protection technical help program. The following items summarize the direct benefits resulting from assignment of this project to RK&K:

- David G. Vanscoy, PE, PS, a proven project manager, will manage all work.
- Project Team has extensive West Virginia SWAP experience.
- Project Team's experience allows effective communication with local agencies.
- Multitude of project experience allows for quick problem solving.
- RK&K is a full-service engineering firm capable of providing all required services.
- RK&K's Keyser office location is conducive to quick response/close coordination with WV BPH.

As partner-in-charge, I will personally ensure that all appropriate resources are made available to the project team for the timely completion while maintaining quality control as our top priority. RK&K appreciates your consideration of our qualifications and looks forward to developing a solid working relationship with the West Virginia Bureau of Public Health.

Very truly yours,

RUMMEL, KLEPPER & KAHL, LLP



Robert J. Halbert, P.E.
Partner

RJH: DGV:rlc

Enc.

**GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125 fee.
5. All services performed or goods delivered under State Purchase Order/Contracts are to be continued for the term of the Purchase Order/Contracts, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA BUSINESS ASSOCIATE ADDENDUM:** The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Cover Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.
15. **WEST VIRGINIA ALCOHOL & DRUG-FREE WORKPLACE ACT:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in case of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications: Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130, Charleston, WV 25305-0130



FIRM HISTORY

Origin

In 1923, two German-trained engineers named Richard Charles Sandlass and George Arnold Wieman, formed the consulting engineering firm of Sandlass, Wieman & Associates in Baltimore, Maryland. The firm prospered from steady growth and diversification of services. With the addition of Edward Rummel, Howard Klepper and William Kahl, the firm changed its name in 1951 to Rummel, Klepper & Kahl. Since its inception, RK&K has remained a partnership.

Ownership

RK&K became a limited liability partnership in 1998; current partners include:

- Robert J. Halbert, P.E.
- David W. Wallace, P.E.
- Stephen G. Zentz, C.P.A.
- J. Michael Potter, P.E.
- Thomas E. Mohler, P.E.
- James A. Zito, P.E.
- Michael W. Myers, P.E.
- William K. Hellmann, P.E. (Partner Emeritus)

The firm's associates, key individuals who manage and coordinate projects and staff, work closely with the Partners and serve as liaisons with clients and subconsultants, and enhance projects with their vital technical expertise. RK&K currently has 32 associates located in seven states and the District of Columbia. The **Keyser, WV Office** is managed by RK&K Associate, David G. Vanscoy, P.E., P.L.S.

Professional Registrations

RK&K supports the professional growth of its employees. The firm offers paid leave as well as exam expenses for engineers seeking professional engineering license. Presently, RK&K has 127 professional engineers registered in 15 states.

Reputation and Philosophy

RK&K is one of the most respected engineering firms in the mid-Atlantic and Southeastern regions. RK&K is a partnership that promotes teamwork, while stressing quality and service, resulting in product-driven responsiveness to clients' needs. RK&K is technically strong, diverse and aggressive, yet respectful. RK&K is large enough to compete with national firms, yet small enough to know employees faces and names. RK&K knows that its dedicated people are our greatest asset.

OVERVIEW OF THE FIRM

Rummel, Klepper & Kahl, LLP is a 622-person multi disciplinary consulting engineering firm headquartered in Baltimore, Maryland. The firm has been providing services throughout the mid-Atlantic and Southeastern regions since 1923. RK&K's expertise is in sanitary, environmental, civil, transportation, structural, geotechnical, mechanical/electrical, natural gas/petroleum operations and construction engineering and inspection. Ranked #128 on the 2008 *Engineering News Record's* listing of Top 500 Design Firms and Ranked #75 on their list of Pure Design Firms, RK&K services an array of Federal, State, and local clients from our headquarters and 14 branch offices in **Keyser, West Virginia**; Alexandria, Fairfax, Virginia Beach, Newport News, Richmond and Staunton, Virginia; Raleigh and Concord, North Carolina; York, and Norristown, Pennsylvania; Dover, Delaware; Lakeland Florida, and Washington, D.C. The firm employs a well-diversified staff of engineers, planners, environmental specialists, surveyors, designers, draftsmen/CADD technicians, construction managers, inspectors, and support staff.



RK&K's services involve feasibility studies, project planning, preliminary engineering, final design, and construction inspection/management. RK&K has provided the full range of engineering and inspection services on similar projects including:

- Water Resources Engineering:** hydrology/hydraulic analysis, stream restoration, TMDL reduction strategies, flood control, floodplain studies, storm drainage structures, stormwater management, sediment/erosion control and soil bio-engineering
- Sanitary Engineering:** water and wastewater pipeline, pumping and treatment facilities; industrial and solid waste disposal; wet-weather compliance; system modeling and operations
- Site Development:** educational, medical, commercial, industrial, recreational/sports and waterfront facilities; military installations
- Natural Gas, Petroleum and Pipeline Engineering and Consulting:** natural gas pipelines, transmission and distribution systems and facilities; petroleum pipelines, storage, distribution, training and related facilities; system modeling and analysis; and natural gas utility consulting services
- Environmental Engineering:** facility and site assessments; hazardous and toxic waste site characterization and remediation; spill plan development, spill containment system design; underground/aboveground storage tank system testing, design, installation and closure; and hazardous material handling
- Utility Alignment, Rehabilitation, and Relocation:** all public and private utilities
- Natural Environment:** wetland delineations/mitigations; stream classifications/stabilization; forest stand delineations; natural resource inventories; rare, threatened and endangered species surveys and biological assessments; and completing supporting environmental technical reports, documentation and regulatory agency coordination
- Transportation Engineering:** highways, interstates, roadways and streets, interchanges, collector-distributor roads, roundabouts, railroads and mass transit, toll facilities, airport landslide facilities
- Construction Management and Inspection:** bridges, highways, buildings, water and sewer, utilities and other public works facilities
- Structural Engineering:** bridges and related transportation structures, tunnels, site-specific utility structures, culverts, retaining walls, noise barriers, foundations, piers, bulkheads, relieving platforms and jetties
- Traffic Engineering:** traffic forecasting and analysis; highway signing, pavement marking and lighting; traffic signal design; traffic control; maintenance of traffic during construction; traffic impact studies; high accident location studies; travel time/delay studies; warrant, capacity, intersection/interchange, arterial, queuing and roundabout analyses; and trip generation/distribution
- Geographic Information Systems (GIS):** GIS needs analysis, master plans, design/development and implementation management, conversion services, training and support, relational database administration, field collection and data verification (conventional and GPS), custom GIS programming and integration services, document scanning and image archive development
- Geotechnical Engineering/Geology:** retaining walls, foundations, dams and impoundments, groundwater supply/management/quality investigations, slope stability and dredged material management
- Permit Application and Acquisition:** Section 401/404, CERCLA, RCRA, NPDES, wetlands, natural resources, floodplains, stormwater management and sediment/erosion control



DETAILED STATEMENT OF FIRM'S CAPACITY, AS IT RELATES TO THE PROJECT

A. Introduction

RK&K has achieved great success in sanitary/environmental engineering since entering the field in 1946. During this time, RK&K has placed numerous water and wastewater projects into successful operation. The firm's environmental/sanitary engineering experience covers the full spectrum of services including evaluation, planning, design and construction management for water supply, treatment, pumping, transmission and distribution systems as well as wastewater collection, treatment, and disposal. These projects have included new construction, rehabilitation, upgrading and expansion of water/wastewater treatment plants, water/wastewater pumping stations, transmission/distribution mains, sanitary sewers, interceptors, force mains, gravity sewers and storage facilities including raw water storage reservoirs and finished water storage tanks. RK&K has also been involved in numerous studies to evaluate the adequacy of existing facilities and to develop and evaluate alternatives for new facilities that best meet the current and future needs of our clients.

B. Source Water Protection and Watershed Inventory Capabilities

RK&K maintains a team of diverse professionals that are especially qualified and experienced in performing all types of environmental inventories and natural resource surveys. RK&K has performed literally hundreds of various types of geographical inventories including watershed contaminant source inventories, wetland delineations, stream classifications, biological assessments as well as completing all the necessary technical reports and documentation for regulatory agency review and approval. RK&K has completed a watershed Contaminant Source Inventory (CSI) and Susceptibility Analyses for the three watersheds supplying the Liberty, Loch Raven and Liberty Reservoirs which supply drinking water to approximately 1.8 million customers of the Baltimore Metropolitan area. A more detailed description of this project is presented in the included project profiles.

In addition to the above list, RK&K has completed ground water assessment and protection (SWAP) studies for over ninety (90) systems throughout West Virginia for the Bureau for Public Health, Environmental Health Services. The experience gained from those studies is directly applicable to this project.

C. Geotechnical Engineering and Geophysical Capabilities

The RK&K Geotechnical Engineering/Geology Department has been involved in field investigations, laboratory testing, analyses, and geotechnical report preparation for various municipal engineering facilities for in excess of 36 years. During this period, numerous treatment plants, pumping stations, solid waste disposal facilities, earth and rockfill dams, levees, floodwalls, lagoons, and water supply reservoir projects have been investigated and final designs prepared. In addition, remedial measures and upgrades of existing facilities have been analyzed and geotechnical input provided for final design. For essentially all of these projects, test borings and observation wells have established soil, rock, and groundwater conditions at the site which, when used in conjunction with laboratory test results where required, has resulted in the most practical foundation system or rehabilitation measures for the project. As directly related to this project, RK&K has extensive engineering experience in wellhead protection, karst evaluations, sinkhole mitigation, geophysical surveys and in-situ tests in carbonate rock areas.

D. Geographical Information System (GIS) Capabilities

The RK&K GIS Department has provided a wide variety of GIS services to our clients for over 18 years. Services include the design, development and implementation of GIS data and systems related to: asset management; utility management and maintenance; transportation and traffic analysis; environmental inventories, studies and analysis; and other engineering and planning related subjects.



RK&K utilizes software from leading GIS industry leaders, including **ESRI**, **Bentley Systems** and **AutoDesk**, with focused expertise in the ESRI GIS environment. RK&K analysts and technicians use the **ArcGIS version 9.2** suite (ArcInfo, ArcView, ArcMap, ArcCatalog, ArcEditor, ArcPad, and ArcToolbox) and special add-on packages (Spatial Analyst and 3D-Analyst) to design, build, edit, manage and analyze spatial data. We maintain powerful spatial data servers (**ArcSDE 9.1 and 9.2/Oracle 9i**) on which we perform multi-user access and editing of large GIS datasets and geodatabases, and which quickly and efficiently serve spatial vector and raster data throughout the firm. Our GIS personnel have extensive experience working with all the ESRI GIS formats, including: SDE databases, Personnel geodatabase (Microsoft Access), shapefiles and coverages, as well as raster formats.

RK&K programmers utilize ESRI's **ArcObjects** and **Microsoft's .NET** programming environments to create applications and tools that run within the ESRI ArcGIS environment to assist in the creation, management, quality reviews, analysis of GIS data, or integration with relational databases and other systems. RK&K uses the **ArcIMS**, **Java** and **ASP.NET** to build **Internet and Intranet web sites** that access GIS spatial content allowing users with only a browser to access, view and query a wide range of GIS datasets within an interface specifically designed to facilitate the user's interaction with the data.

GPS equipment readily available includes Trimble TSC1 mapping grade units to the more accurate Topcon Hyper XT and GR3 survey grade units.

1. **GIS Services:**

Services RK&K's GIS department has provided for our clients during the last the six years include:

- Performing needs analysis and cost justification/benefit
- Acquiring and installing hardware and software (including networks)
- Designing GIS layers for the GeoDatabase, Shapefile and Coverage formats
- Develop/maintain geodatabase metadata
- Implementing and administering ArcSDE databases
- Implementing ArcIMS websites
- Coordinating and management of photogrammetric services:
 - Establishment of horizontal and vertical survey control
 - Management & acquisition aerial photography and development of digital orthophotography
 - Development of new and updated planimetrics
- Design and development of environmental-related data layers through GPS field data collection
- Developing of utility (sanitary sewer, water, stormwater, natural gas) GIS data layers, by:
 - Performing detailed field surveys to obtain feature locations, existing conditions and attributes, by using mapping and survey-grade GPS technologies, and traditional surveying techniques
 - Scanning and vectorizing utility records
- Developing Project-wide/Citywide/Countywide/Statewide GIS data layers
- GIS-based analysis and reporting
- Custom map layout and development
- Developing customized application software to make the use of GIS-base technology more efficient
- Integration of utility GIS datasets with hydraulic modeling software
- Development and presentation of both standard and customized training



2. Database Expertise

Personnel in the RK&K GIS department have extensive experience working with relational database technologies from Microsoft, ORACLE, INFORMIX, Dbase and others. This experience enhances our ability to create solid relational databases for our clients both inside and outside the ESRI GIS environment. The current RK&K programming staff has designed, developed, implemented and provided support for numerous database applications for our engineering clients. Listed below are several of these database applications that have been developed within the Microsoft Access environment. Several of the applications listed below make use of the Access database within other application environment, such as: GIS (ArcView/ArcGIS/ArcInfo), CADD (MicroStation and AutoCAD), and Office applications (Word and Excel).

Several recent projects utilizing RK&K's database expertise include:

I-270 Wetland Mitigation - A Microsoft Access application/database was created to evaluate wetland mitigation sites. The application combined GIS data (land use, property information, GPS) along with environmentally based information. The application ranked, aggregated and related other information such as property owner, habitat, soil type, slope, hydrology and constraint issues.

NCDOT Stream Assessment - RK&K performed stream assessments for NCDOT. An Access database design and user-interface was created to input stream attributes such as channel condition, alterations, riparian data and water quality/appearance. This data was tied to the GIS to perform preliminary site analyses while querying pertinent spatial data.

Automated Letter System - RK&K developed an automated letter system for the Office of Bridge Development that greatly simplifies the task of producing many of the hundreds of letters required for each project. The system utilizes Microsoft Access to manage all projects, project managers, consultants and the letter base; Microsoft Word for word processing; and OLE (Object Linking and Embedding) to perform inter-application management tasks.

Project Review Tracking System - RK&K developed a structural review tracking system utilizing Microsoft Access for the Office of Bridge Development. The application enables a review manager to prioritize and schedule structural reviews through each stage of the review process. Reports may be generated that show information on the reviews by priority, length in the queue, and review stage. The system can also generate a statistical analysis of historical reviews to assist in identifying possible review process bottlenecks.

Schedule of Prices Generator - RK&K developed an application that reads schedule of prices information output by the Engineer's Estimate application, reformats and imports the information into a word processing document for use in a project's Invitation for Bids. Supported word processing applications: Microsoft's Word for Windows, WordPerfect (V5.1, DOS V6.0, Windows V6.0, Windows V6.1).

Maryland Construction Management System - RK&K developed the replacement to the DBase Clipper-based Maryland Construction Management System (MCMS) in use at all construction sites around the state. The new system was designed and developed using the SQL database and object-oriented technology found within Microsoft Access. The application manages all contract items and associated costs and usage, all information found on the Inspector's Daily Reports (IDR), extra work orders, stored materials, invoice estimate generation, trainee management, calculation of earthwork quantities based on the end area method, and simple to complex area and volume calculations.



E. Environmental Site Assessment Capabilities

- **Environmental Site/Facility Assessment Experience:** RK&K has been a leader in implementing cost-saving and innovative approaches to the assessment, investigation, characterization, design, and remediation of petroleum and hazardous waste; underground storage tank (UST) and aboveground storage tank systems management, testing, design and installation; as well as closure of leaking UST's throughout the mid-Atlantic and southeastern regions. RK&K is extremely familiar with the special requirements for preparation of Phase I Reports, Phase II Reports and Corrective Action Plans. Site assessments, compliance audits and "due diligence" assessments for real estate acquisition are performed in accordance with ASTM guidelines as applicable. As required by OSHA and the EPA, RK&K ensures that members of the project team fulfill the training requirements of the 40-hour OSHA 29 CFR 1910.120, Hazardous Waste Operations and Emergency Response (HAZWOPER) and OSHA 29CFR 1910.146 Confined Space Regulations. RK&K staff are trained to recognize and assess site safety and health hazards, implement work practices to minimize site hazards, recognize properties and toxic effects of hazardous materials and identify exposure guidelines, select and use self-contained breathing apparatus and air purifying respirators, select and use specialized chemical protective clothing, decontaminate personnel and equipment, select and use atmospheric monitoring equipment, identify components of a medical surveillance program, perform first-aid and cardiopulmonary resuscitation, and plan for safe site investigations.
- **Specialized Field Investigations:** RK&K's experience with groundwater ranges from the installation/development of monitoring wells for hydrogeological investigations to modeling of groundwater pollutant fate and transport to design and start-up of bioremediation systems to treat contaminated aquifers. RK&K's hydrogeologists, geologists, scientists, engineers, and environmental specialists are experienced in geophysical surveys, monitoring well installation, computer modeling, contaminant transport, groundwater flow mapping, and geologic interpretation. RK&K maintains an extensive supply of field sampling and monitoring equipment including a state-of-the-art photoionization detector for atmospheric screening of volatile organic compounds in ambient air and personnel monitoring and field-portable gas chromatograph capable of analyzing multimedia samples for a broad range of contaminants including volatile, semi-volatile and chlorinated hydrocarbons; polychlorinated biphenyls (PCBs); pesticides and polynuclear aromatic hydrocarbons (PAHs). Additionally, RK&K is capable of performing a wide range of geophysical studies including electrical resistivity, seismic refraction, magnetometer and electro-magnetic surveys and ground penetrating radar as well as hydrological studies including groundwater elevation monitoring and aquifer performance testing.
- **Corrective Action/Remediation Design:** RK&K, as part of numerous environmental remediation projects, has evaluated and/or designed soil and groundwater remediation incorporating pump and treat, bioremediation and in-situ technologies. These technologies have included air stripping, granular activated carbon (GAC) adsorption, oil-water separation, filtration, air sparging, soil vapor extraction, reverse osmosis, chemical precipitation, chemical oxidation, as well as bio-stimulation.

F. Work Force Availability

Rummel, Klepper & Kahl has a combined professional staff of over 622 people located in the mid-Atlantic region, including 30 design and inspection staff working out of our Keyser, West Virginia office. The RK&K Team includes 19 environmental scientists/specialists, 18 hydraulic/water resources engineers, 9 GIS specialists and numerous support staff committed to this contract. The RK&K Team includes 9 personnel who were actively involved in RK&K's previous West Virginia SWAP experience in 2001 through 2003. As a result, the RK&K Team has the experience to immediately start on this project when given notice. This is a sizeable staff for the West Virginia Bureau of Public Health Environmental Health Services to draw from to complete the source water assessment and protection project needs.



PROJECT UNDERSTANDING

RK&K has reviewed the WVBPH's EOI, particularly Section 3.2 identifying the various requirements and objectives of the project. RK&K's SWAP experience is directly applicable to this project, particularly our knowledge of a majority of the systems and previous interface with many of the system personnel. Although the objectives listed in the EOI have been expanded from earlier SWAP work, the basic principles are the same.

PROJECT APPROACH

Based on the Team's previous experience and the objectives outlined in the EOI, RK&K has developed the basic project approach listed below in the following subsection.

Record Review and Data Collection

When notification of award has been given, the Team will begin reviewing RK&K's files of previous work relevant to the systems listed in the EOI to again familiarize themselves with the various systems. Preliminary contact with the District Health Offices will be made and visits scheduled to the District Offices to gather valuable information such as Sanitary Surveys, previous SWAP reports and monitoring data all of which will provide valuable information in understanding the various systems, additional visits to the Central Office may be required to gather additional information. In addition, once the BPH's database of known PCS's as well as the state and federally regulated databases are received, the Team will begin reviewing and preparing material to review with the various CPWS Systems. A letter of introduction from RK&K will be sent to each system explaining RK&K's involvement and the scope of the project as well as request contact information for scheduling visits to the system.

CPWS Systems Field Review

In an effort to efficiently proceed with this project utilizing prior experience, the RK&K Team anticipates scheduling multiple system visitations per week in order to conduct the field review and various meetings. As described in Section 3.2.3 of the EOI, the Team anticipates scheduling a minimum of three (3) meetings with each system to inform them of the project, review existing data, solicit input, present findings and provide management and contingency plans.

PCS Survey

Following the initial meeting with the CPWS systems and as described in Section 3.2.4 of the EOI, the RK&K Team will survey the PCS previously identified, identify and locate any new PCS within the delineations and ZCC areas. Updates to the PCS database will be made accordingly.

Management & Contingency Plans

Once the initial meeting with the system and corresponding field work has been conducted, the SWAP PM and SWAP Specialists will coordinate and review the information gathered for the system in order to develop management and contingency plans as discussed in Section 3.2.5 and Section 3.2.6 of the EOI. At a minimum, the items listed under these two (2) sections (Section 3.2.5 and Section 3.2.6) in the EOI will be discussed and addressed for each of the plans.

Reporting

Following the first two meetings indicated in the EOI, the RK&K Team will meet with each of the system operators to discuss the results. In addition, as indicated in Section 3.2.2 of the EOI, RK&K will provide the BPH PM weekly updates, general discussions, projected invoices, and CPWS meeting minutes with attendees.

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

VENDOR OWING A DEBT TO THE STATE:

West Virginia Code §5A-3-10a provides that: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

West Virginia Code §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

ANTITRUST:

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

LICENSING:

Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY:

The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and is in compliance with the requirements as stated.

Vendor's Name: Rummel, Klepper & Kahl, LLP

Authorized Signature: 

Date: 9/16/8



OVERVIEW OF FIRM'S STAFF CAPACITY

The most important element to the success of an engineering project is the staff available to complete the assignment. The project team assembled for this project has a wealth of experience and knowledge in their respective fields. Equally important, RK&K's professional staff recognizes that providing consulting engineering services extends beyond number crunching and preparation of construction plans and specifications. The success of this project also hinges on our ability to respond to the needs of the WV Bureau of Public Health officials in a timely and professional manner. Whether working on a specific task or responding to requests made over the telephone, the staff at RK&K is anxious to work with the WV Bureau of Public Health to address their engineering consulting needs. Simply put, we are a people-oriented firm.

An organization chart depicting the team proposed for this project is found on the following page. The design team proposed on the organization chart will be assigned for the project's duration. Information pertaining to RK&K staff that may be assigned to this project and a description of individual responsibilities can be found on page 3-2. Full page resumes for our proposed key staff begins on page 3-3.

RK&K's project team will be supported from our multi-disciplined staff of 622 individuals in the noted disciplines. The disciplines highlighted in blue are most likely to be involved in this project.

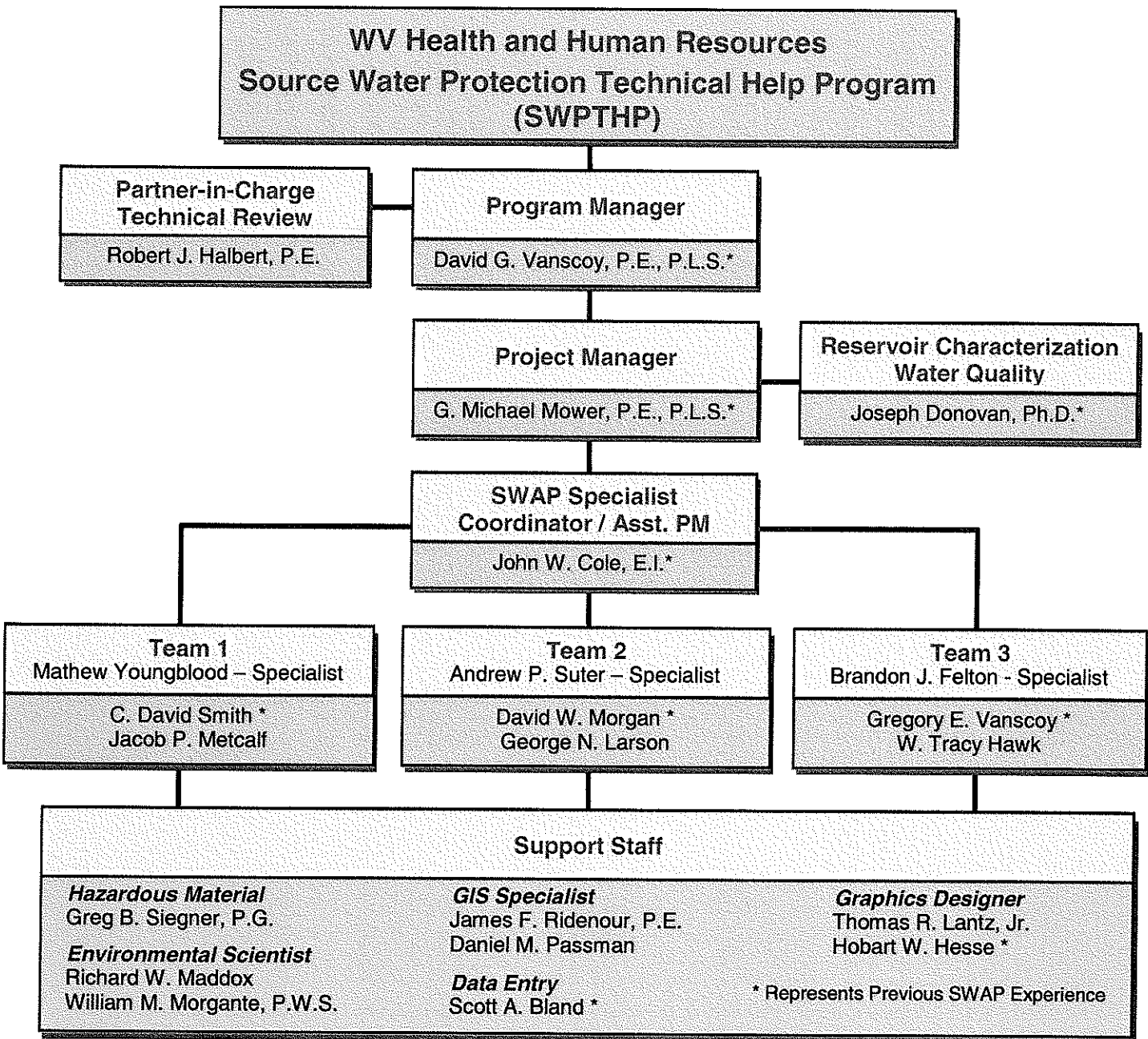
Civil Engineers	-	18	Archaeologist Historians	-	1
Sanitary/Environmental	-	28	Planners: Urban/Regional	-	9
Utility Engineers	-	12	Hydraulic/Water Resources	-	18
Engineers			Engineering		
Structural Engineers	-	30	GIS Specialists	-	9
Construction Inspectors	-	158	Environmental Scientists	-	19
Construction Managers	-	30	Traffic Engineers	-	18
Draftspersons/CADD Techs.	-	51	Landscape Architects	-	2
Mechanical Engineers	-	3	Transportation Engineers	-	92
Electrical Engineers	-	6	Technical, Administrative and		
			Financial Support Personnel	-	63
Geologists	-	3	Computer Technicians	-	8
Environmental Designers /	-	12	Graphics Specialists	-	7
Technicians					
Soils Engineers	-	5	Surveyors	-	20
			TOTAL STAFF:	-	622

The project will be managed out of RK&K's Keyser, West Virginia office with **David G. Vanscoy, P.E.** as project manager. Dave provides technical leadership and management of projects in RK&K's **Keyser Office**, and has over 37 years of experience in civil and structural engineering, with an emphasis on rural public works projects. Dave earned his bachelor's degree from the West Virginia Institute of Technology and his master's degree from West Virginia University in Morgantown. He is a registered professional engineer in West Virginia and Maryland, a registered land surveyor in West Virginia and an active member of the American Society of Civil Engineers, West Virginia Rural Water Association, Water Environment Federation, and American Water Works Association.



Assisting Dave and acting as the SWAP Project Manager will be G. Michael Mower, P.E. Mike was project manager for the previously successful SWAP contracts with the WVBPH, which included groundwater systems in the St. Albans-Wheeling Districts. While retired, Mike remains technically linked to several RK&K projects on a subcontract basis and is available to return to manage this project. Dr. Donovan will be available in the event that modifications to an existing delineation is necessary or in the event that a new sources water delineation is required to meet WV BPH requirements.

Both Dave and Mike will be assisted by a team of experienced professionals knowledgeable in their respective fields and who were selected on the basis of (1) past experience with similar projects detailed in **Section 4** of this technical proposal, (2) familiarity with the project area, (3) skill and experience with the required equipment/software and (4) availability to devote sufficient time to work on this project. In addition, a team organization chart depicting the team members and the management flow is provided below followed by each team member's resume.





DAVID G. VANSCOY, P.E., P.L.S.
 Associate



Project Assignment:
 Program Manager

Education:
 M.S., Structural Engineering, 1972
 B.S., Civil Engineering, 1970

Registration:
 P.E. West Virginia and Maryland
 P.L.S. West Virginia

Years' Experience:
 RK&K: 9
 Other Firms: 27

Associations:
 American Water Works
 Association
 American Society of Civil
 Engineers
 West Virginia Rural Water
 Association
 West Virginia Society of
 Professional Surveyors
 American Society of Highway
 Engineers

Mr. Vanscoy has over 36 years of experience in public works projects. His career started as a summer interim for the West Virginia Department of Highways in 1966, being first employed there for 7 years after obtaining a masters degree in structural engineering from West Virginia University at Morgantown. In 1987, Mr. Vanscoy started his own firm in Keyser, West Virginia, and served as City Engineer on a consultant basis. Mr. Vanscoy has diverse experience in design of water and wastewater treatment plants and facilities as well as construction management. In June 1999, Mr. Vanscoy joined RK&K as the regional manager in charge of the Keyser, West Virginia office and was later promoted to an associate. Mr. Vanscoy was born and educated in the State of West Virginia and has a very strong bond and sense of responsibility to West Virginia. Relevant experience includes:

Source Water Assessment Projects (SWAP), West Virginia Bureau of Public Health: project manager for ground water assessment and protection studies for over 90 systems throughout West Virginia.

Town of Lonaconing, Maryland, New Water Distribution System: project manager for the design and construction of four completed water line projects involving over 40,000' of new water line and three additional water line projects which will be advertised this year. Two of these projects were AML funded.

LaVale Sanitary Commission, LaVale, MD: project manager for design and construction of various projects including a 450 gpm pumping station, transmission mains, replacement of distribution lines and services

Grant County Public Service District: project manager for design and construction of a water main replacement project including the replacement of an existing 100,000 gallon concrete stave water tank with a 300,000 gallon glass coated steel tank.

Corporation of Harpers Ferry: project manager for design and construction of a the replacement of an existing 190,000 gallon riveted steel water storage tank with a 340,000 gallon water storage tank. The design also required insallation of telemetry system to control the high service pumps.

Keyser Raw Water Intake Modifications, Keyser, WV: project manager / regulatory /funding agency liaison (RK&K) for City's comprehensive water and sewer improvement program. A part of the water project included major modifications of the raw water intake. This project was funded in part by a Small Cities Block Grant.

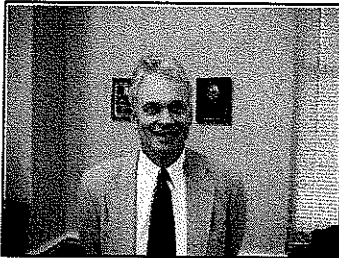
Fort Ashby Public Service District Water System Improvements, Fort Ashby, WV: project manager/regulatory/funding agency liaison for design and construction of 1-mgd water treatment plant, raw water intake, and various other improvements to their water and sewer systems.

New Creek Water Association, New Creek, WV: project manager for evaluation of existing system and design and construction of 140,000 gallon storage tank; 350,000 gallon storage tank; 30,000 gallon storage tank; new booster station; upgrade booster pumping stations; addition of fire hydrants to system; drilling of well.

Frankfort Public Service District Wiley Ford Sewer Project, Mineral County, WV: project manager responsible for design, contract plans and specifications, and construction engineering and inspection services for the new Wiley Ford Sewer System. The project provides wastewater collection services for over 450 resident and commercial customers within the community of Wiley Ford. The collection system consists of over 55,000 feet of collection lines, 6,600 feet of force main, and nearly 12,000 feet of service laterals. The system contains 273 manholes and 48 cleanouts. Construction bids were 1.1 million below the engineer's estimate. Also included in the system were three duplex pumping stations and an 8" force main under the Potomac River to discharge into the City of Cumberland system.

Frankfort Public Service District Northern Mineral County Regional Sewer System, Mineral County, WV: project manager for the proposed regional sewer system. At this time the Facility Plan has been prepared for this 39 million dollar sewer project which includes over 64 miles of sewer collection, 15 pump stations and a new 1.15 MGD wastewater treatment plant including biological nutrient removal.

ROBERT J. HALBERT, P.E.
 Partner



Project Assignment:
 Technical Review

Education:

B.S., Civil Engineering, 1974

Registration:

Maryland, Pennsylvania, South Carolina, Virginia, Delaware, Maine, West Virginia and Florida

Years' Experience:

RK&K: 17
 Other Firms: 14

Associations:

American Society of Civil Engineers
 American Water Works Association
 Water Environment Association
 Society of America Military Engineers
 Wastewater Operators Association
 Water Environment Federation

Mr. Halbert is a partner of the firm with responsibilities for civil, water resources, sanitary and environmental projects and assignments undertaken by RK&K. He will be responsible for technical review and input throughout the course of this project. He has extensive experience in planning; design and construction management of large civil works projects throughout the mid-Atlantic region. Examples of projects undertaken during his 31-year career are:

Source Water Assessment Projects (SWAP), West Virginia Bureau of Public Health: partner-in-charge of ground water assessment and protection studies for over 90 systems throughout West Virginia

Town of Lonaconing, Maryland, New Water Distribution System: partner-in-charge for the design and construction of over 20,000 LF of water line replacement on existing system. Two of these projects were AML funded.

Susquehanna River Intake and Pumping Station, York, PA: partner-in-charge for a 12-mgd raw water pumping station, submerged river intake and 36-inch water transmission main to provide additional raw water during drought conditions for the York Water Company. Water will be pumped through 15 miles of pipeline to the Lake Redman Impoundment.

Lake Linganore Intake Structure and Pumping Station, Frederick County, MD: partner-in-charge for civil, sanitary, environmental, geotechnical, structural, mechanical and electrical design and construction phase services for permanent intake structure, multi-level screens, raw water pumps, raw water main, and a future zebra mussel prevention/mitigation system. Raw water intake configuration was evaluated as part of a feasibility study and decision matrix.

Front Royal Raw Water System Improvements, Front Royal, VA: partner-in-charge during study and design for replacement of an existing raw water pumping station and a 14-inch steel raw water transmission main with a new raw water river intake structure in the Shenandoah River, 8-mgd pumping station, and approximately 2 miles of 16- to 24-inch ductile iron pipe transmission main to the treatment plant's raw water reservoir.

Havre de Grace Raw Water Intake, Harford County, MD: partner-in-charge of design of a 10-mgd raw water intake structure for the Harford County WTP at Havre de Grace in the Susquehanna River. Design included investigation of riverbed, depth of intake, configuration of bar screen. Also provided construction phase/startup and operation services.

Rockville Raw Water Intake Rehabilitation Construction/Program Management, Montgomery County, MD: provided constructability/technical reviews of structural and operational modifications to an existing Potomac River intake pumping station to increase protection against flooding, increase the pumping capacity and improve the monitoring and control of the pumping station components. Provided engineering evaluation and guidance regarding several challenging construction issues including blasting and removal of bedrock in the vicinity of the submerged intake in the Potomac River.

Montebello Water Filtration Plant Improvements, Phase VI, Baltimore, MD: partner-in-charge for the design of a 318-mgd dual media filtration plant including chemical feed systems, filter backwash facilities, rapid mix systems and other miscellaneous appurtenances. Filtration facility will be designed to treat water from two major reservoirs and the Susquehanna River.

Montebello Water Filtration Plant Improvements, Phase V, Baltimore, MD: partner-in-charge for this \$25-million project to provide major improvements and alterations to the Montebello Plant, which supplies two-thirds of the Baltimore Metropolitan water supply. Project includes extensive improvements to existing Plant 1 facilities including washwater pumps, 4 new 260-foot diameter sedimentation basins, sludge vaults and new 6 grounds maintenance complex buildings. Currently providing construction phase management services during the three-year construction schedule.

G. MICHAEL MOWER, P.E., P.L.S.
 Project Engineer



Project Assignment:
 SWAP Project Manager

Education:

M.B.A., Business Administration, 1985
 B.S., Civil Engineering, 1966

Registration:

P.E. West Virginia and Maryland
 P.L.S. West Virginia

Years' Experience:

RK&K: 8
 Other Firms: 34

Associations:

American Society of Civil Engineers,
 West Virginia Society of Professional
 Surveyors
 American Society of Highway
 Engineers

Mr Mower has over 40 years of experience in highway and utility design, construction, and maintenance projects for the public and military sector. His engineering career started in highway construction, evolving to bridge inspection and replacement engineer and eventually to district maintenance engineer. As a WV Department of Highways maintenance engineer, he managed seven county staffs and three district staffs in the maintenance of 3,000 miles of roads, bridges, and drainage structures. In the private sector, Mr. Mower served as a construction superintendent where he provided construction management and engineering services for roadways and utilities in subdivisions and highway projects in northern Virginia. Mr. Mower continued his service for the State of WV as Supervisor of District Environment Engineers for the State's eight eastern county district providing oversight of USEPA WV BPH requirements for district public water and wastewater systems. Mr Mower, in addition to his public and private sector education and experience, had over 21 years tenure with the United States Navy Reserve, Construction Battalions. He served as an engineer in his Battalion's operations department rising to his highest position held, Battalion Operations Chief. Other relevant experience includes:

WV Bureau for Public Health - Source Water Assessment and Protection (SWAP) Plan: project manager for three SWAP contracts containing 93 community public ground water systems studies within the Kearneysville, Wheeling and St. Albans district.

Frankfort Public Service District Northern Mineral County Regional Sewer System, Mineral County, WV: project engineer for the proposed regional sewer system in charge of collection system. At this time the Facility Plan has been prepared for this 39 million dollar sewer project, which includes over 64 miles of sewer collection, 15 pump stations and a new 1.15 MGD wastewater treatment plant including biological nutrient removal.

Supervisor of District Environmental Engineers, WV State Bureau for Public Health, Environmental Engineering Division, Kearneysville, WV: district engineer providing oversight and engineering assistance of the operation of public water and wastewater treatment systems, providing design review and construction inspections of new treatment systems, providing engineering assistance to local government entities, and to county health departments, monitoring and enforcement of public health laws and regulations. Supervised subordinate professional engineering staff as well as provided administrative oversight of District Office Public Health professionals and administrative assistants.

Town of Lonaconing, MD: project engineer for the design and construction of over 20,000 LF of water line to replace existing system and chief engineer for the design of over 70,000 LF of water main replacement.

New Creek Water Association: project engineer for evaluation of existing system. Project engineer for design and construction of 140,000 gallon storage tank; 350,000 gallon storage tank; 30,000 gallon storage tank; new booster station; upgrade booster pumping stations; addition of fire hydrants to system; drilling of well.

Town of Lonaconing, Allegany County, MD: project engineer on two water improvement project including line replacement, pump station and upgrade of computer control systems on three water treatment plants.

Grant County PSD Water Project: chief design engineer for project which included new 297,000 gallon Maysville storage tank, 54 LF US Rt 220 South, water main relocation and upgrade to point pump station

Harpers Ferry Storage Increase and Telemetry Control System: chief design engineer for additional 241,000 gallon storage tank and new telemetry/water plant interface system.



JOHN W. COLE, E.I.
Project Supervisor



Project Assignment:
SWAP Specialist Coordinator /
Assistant Project Manager

Education:
B.S., Civil Engineering
Technology, 2001

Registration:
E.I. West Virginia

Years' Experience:
RK&K: 7
Other Firms: 0

Associations:
American Society of Civil
Engineers
Water Environment Federation
American Water Works Association

Mr. Cole is an engineering intern and has over 7 years of experience in public and private works projects. His career started as a summer intern for the West Virginia Department of Highways in 2000. Since joining RK&K in 2001, Mr. Cole has developed a diverse experience in the design of water and sewer infrastructure including distribution/collection, pumping and treatment as well as construction management. Relevant experience includes:

Source Water Assessment Project (SWAP), West Virginia Bureau of Public Health: project analyst for 92 ground water systems throughout the State of West Virginia.

Town of Lonaconing, Maryland, New Water Distribution System: assisted in the design and construction of over 20,000 LF of water line replacement on existing system. Mill Run Project is being funded by AML.

LaVale Sanitary Commission, LaVale, MD: assisted in the design and construction of replacement of distribution mainline and services.

Northern Mineral County Regional Sewer System, Phase 1, Mineral County, WV: project supervisor, responsible for assisting in the development of the facilities plan, coordinated efforts involved in the funding and permitting process, coordinated and oversaw the design efforts of the various disciplines (i.e. mechanical, structural, environmental, etc.) involved with designing the 1.20 MGD SBR WWTP.

New Creek Water Association – Construction Contract 3, New Creek, WV: project supervisor responsible for overseeing contractor during the cleaning, rehabilitation, and painting of a 100,000 gallon and 50,000 gallon water storage tanks.

Romney Collection System Replacement – Phase 2, Hampshire County, WV: assisted in the facility plan preparation, which lead to a preliminary approved WWTP which will allow the City additional treatment capacity.

Romney Collection System Replacement – Phase 1, Hampshire County, WV: assisted in the facility plan preparation, funding acquisition, design and construction efforts of the 29,000 LF of sewer collection system replacement project.

New Creek Water Association – Construction Contract 1 & 2, New Creek, WV: assisted in the design and construction of approximately 5-miles of water line extension and the addition of fire hydrants to existing system.

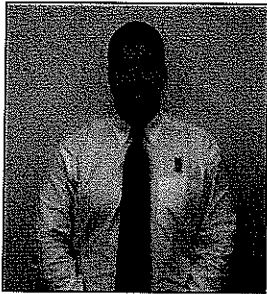
Northern Mineral County Regional Sewer system, Mineral County, WV: assisted in the preparation of the facilities plan identifying the 35 square mile service area, 62 miles of new collection system and a regional WWTP.

Capon Bridge Technology and Industrial Park, Hampshire County, WV: assisted in the design, contract plans and construction of Technology Park including site development, roadway, water, sewer and other utilities including a 30,000-sf multi-tenant building.

Central Hampshire PSD WWTP, Hampshire County, WV: assisted in the evaluation process in determining significant sources of I&I within the collection system and recommending remedial action.

Romney Wastewater Treatment Plant Dechlorination, Romney, WV: assisted in the design efforts for the 2002 improvements to the chlorine disinfection system and addition of the dechlorination system to remove the chlorine from the wastewater stream.

Matthew J. Youngblood
 Project Designer



Mr. Youngblood is a civil engineering graduate with over 2 years of experience in public and private works projects. His career started as a summer intern for the West Virginia Department of Highways in 2001. Since joining RK&K in 2006, Mr. Youngblood has developed experience in the design of water and sewer infrastructure. Relevant experience includes:

Tuscan Ridge – Town of Davis Subdivision, Tucker County, WV: assisted with design of roadway layout, which included sizing culverts for drainage in the subdivision. Also assisted with the design and layout of the water and sewer utilities.

Romney Collection System Replacement – Phase 1, Hampshire County, WV: assisted in the construction management of the sewer collection system replacement project.

Greater Marion Public Service District, Marion County, WV: assisted with Inflow and Infiltration study with sewer camera inspections. Designer on vacuum sewer line relocation to improve the efficiency of the sewer collection system in the Town of Idamay. Assisting with design to replace the vacuum system with gravity and force main sewer system.

Town of Lonaconing, Allegany County, MD: designer on three water improvement projects including new lines and line replacement in the Towns of Midland and Barton. Assisted with construction management of all three projects.

Deep Creek Lake State Park, Garrett County MD: designer on the replacement of water line and two chlorination feed stations. Designed an rv dump station to expand the traffic volume for the camp ground.

Wiley Ford, Mineral County WV: designer on the replacement of the water lines to improve the service and quality of water. The project also includes a new water tank to provide improved water pressure and supply.

Project Assignment:
 SWAP Specialist – Team 1 Leader

Education:
 B.S., Civil Engineering, 2006

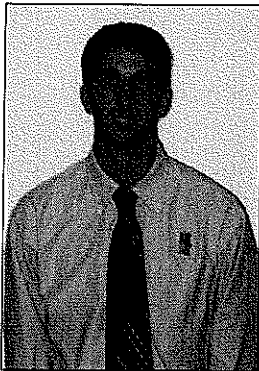
Registration:
 None

Years' Experience:
 RK&K: 2
 Other Firms: 1

Associations:
 American Society of Civil Engineers,
 American Society of Highway
 Engineers



Andrew P. Suter
Project Designer



Project Assignment:
SWAP Specialist – Team 2 Leader

Education:
B.S., Civil Engineering,
2007

Registration:
None

Years' Experience:
RK&K: 1
Other Firms: 0

Associations:
American Society of Civil Engineers
American Society of Highway
Engineers

Mr. Suter is an engineering graduate and has over a year of experience in public and private works projects. His career started as a summer intern for the West Virginia Department of Highways in 2004. Mr. Suter joined RK&K as an intern during the summer of 2006, and in the summer of 2007, he began working full time. Relevant experience includes:

Northern Mineral County Regional Sewer System Mineral County, WV: one of the project designers, responsible for assisting in the development of the facilities layout. Assisted in Design of Several of the WWTP buildings.

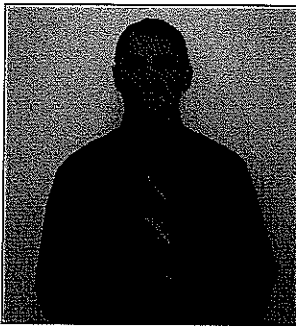
Tuscan Ridge, Town of Davis Subdivision, Phase 3-4, WV: one of the project designers responsible for roadway layout and design, as well as lots and right-of-way design. Assisted in E & S Design of Phase 3, as well as water tank site design on phase 4.

Dan's Mountain Access Road and Storage Facility, MD: Assisted in design of access road, and erosion and settlement control plan. Also assisted in design of storage facility, as well as site layout and development.

Potomac Plaza, Greyhound Properties, L.L.C., Mineral County, WV: assisted in the design of foundations for building 601 and 701 shopping centers.

Keyser/McCoole Bridge, Mineral County, WV: assisted in right-of-way acquisitions. Responsible for Field Verification of Properties, and Plan assisting others in plan development.

Brandon J. Felton
 Project Designer



Project Assignment:
 SWAP Specialist – Team 3 Leader

Education:
 B.S., Mechanical Engineering, 2006

Registration:
 None

Years' Experience:
 RK&K: 2
 Other Firms: 0

Associations:
 American Society of Heating,
 Refrigeration & Air Conditioning
 Engineers

Mr. Felton is a mechanical engineering graduate with over 2 years of experience in public and private works projects. His career started in the water and waste water industry as a maintenance worker for the Frankfort Public Service District in 2003. Since joining RK&K in 2006, Mr. Felton has developed experience in design of equipment pertaining to water and wastewater treatment systems. Relevant experience includes:

Grant County Public Service District – Point Pump Station Upgrade, Grant County, WV: assisted in the design of increasing the pumping capacity of the pump station in order to reduce pump run time and supply the recently increased demand flow due to increased population growth. Also assisted with the design of a new 5400' transmission main between the upgraded Point pump station and the existing storage tank.

Northern Mineral County Regional Sewer System– Phase 1, Mineral County, WV: assisted in the design of mechanical equipment, buildings, treatment plant site layout, and pump stations pertaining to the 1.20 MGD SBR WWTP and collection system. Also assisted in right-of-way acquisition for the collection system, which consisted of over 9 miles of line work.

Alliant Technical Systems Raw Water Intake – Conceptual Design, Rocket Center, WV: assisted in the conceptual design of a new raw water intake and pump station along the Potomac River to supply the Allegany Ballistics Laboratory Water Treatment Plant with treatable water.

Tuscan Ridge Subdivision – Phase 3, Davis, WV: assisted in the design of a sewage pumping station and related valve vault along with the pump station site layout.

LaVale Sanitary Commission – Water Distribution System Improvements, LaVale, MD: assisted in the design of a suspended stream crossing where the waterline was placed in a casing and the casing secured to a bridge in order to eliminate an underground stream crossing.

Greater Marion Public Service District – Sewer System Upgrade, Marion County, WV: assisted in the design of several sewage pumping stations that utilized two non-clog series pump sets. Also assisted with an I&I study to temporarily reduce excess flow surges in the system during rain events.

Grant County Public Service District – Maysville Water Storage Tank, Grant County, WV: assisted in the design of a new 297,000 gallon glass coated steel water storage tank, site layout and telemetry alignment.

Harpers Ferry Water Works – Water Storage Tank, Harpers Ferry, WV: assisted in the design of a new 241,000 gallon glass coated steel water storage tank that involved the demolition of an existing 190,000 gallon water storage tank.

Scott Bland



Project Assignment:
 Data Entry

Education:

Registration:

Years' Experience:
 RK&K: 5
 Other Firms: 0

Associations:

Mr. Bland started working for RK&K in 2002 as an Intern and was hired full-time in 2003. Since joining RK&K he has been involved in numerous projects for both computer and survey related work. Relevant experience includes:

Source Water Assessment Project (SWAP), West Virginia Bureau of Public Health: data entry and field crew for 92 ground water systems throughout the State of West Virginia.

Northern Mineral County Regional Sewer system, Mineral County, WV: data research/ data entry and crew member for survey and GPS control/processing for the 35 square mile service area, 62 miles of new collection system and a regional WWTP.

Alliant Techsystems, Allegany Ballistics Laboratory, Rocket Center, WV: survey crew member for location of 49 test pits at Allegany Ballistics Laboratory and tie into existing monuments for horizontal and vertical control for Risk Reduction Resources at facility operated for US Navy in Mineral County, WV.

Keyser-McCoole Bridge, WV & MD: crew member doing deed research/ data entry and survey work for the planning and design of a replacement bridge to replace the existing 2,200-foot bridge.

Lakewood Subdivision, Short Gap, WV: crew member doing data entry, QA/QC and survey work for the development of 940± acres of Northern Mineral County, WV; circa 1987 to present. Project to date includes 400+ platted lots in Sections 1 thru 6 as well as engineering support for a 50-acre manmade lake and water distribution & sewer collection systems.

Tuscan Ridge Subdivision, Tucker County, WV: crew member for boundary survey, control survey for aerial mapping, subdivision design, lot stakeout, and sewer stakeout for 486± acres lying adjacent to the Monongahela National Forest in Davis, WV

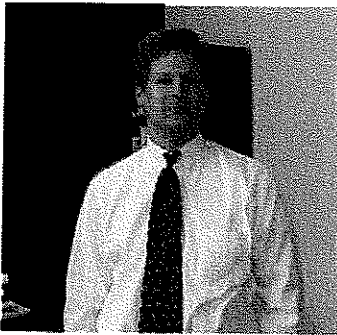
LaVale Sanitary Commission, LaVale, MD: collected data from site and digitized information for the design and construction of replacement of distribution mainline and services.

New Creek Water Association – Construction Contract 1 & 2, New Creek, WV: crew member for deed research, data entry, QA/QC and surveying in the design and construction of approximately 5-miles of water line extension and the addition of fire hydrants to existing system.

New Creek Highlands Subdivision: crew member doing deed research/ data entry and survey work for boundary survey, control survey for subdivision design, lot stakeout, and for 826± acres on New Creek Mountain and Abrahams Ridge in Mineral County, WV

Dan's Mountain Access Road and Storage Facility, MD: crew member for survey and GPS control/processing for design of access road, and storage facility, as well as site layout and development.

James F. Ridenour, P.E.
 Associate



Project Assignment:
 GIS Specialist

Education:
 B.S. Civil Engineering
 1983

Registration:
 P.E. 1990/Civil Engineering
 Maryland Registered #18139

Years' Experience:
 RK&K: 25
 Other Firms: 1

Mr. Ridenour heads the RK&K GIS department and is the firm's chief systems analyst with over 26 years of experience in the Engineering and Information Technology fields. During his 26-year career, Mr. Ridenour has focused on the design, development and implementation of systems containing GIS, relational database and CADD technologies for projects relating to infrastructure management, utilities, transportation, civil, planning and geotechnical engineering. Mr. Ridenour has expert knowledge of ESRI's GIS applications and technologies, and experience working with a variety of asset management and work order systems. He has extensive experience performing needs assessment, analyses and implementation of enterprise-wide systems deployed via a network (LAN/WAN) or the web. Mr. Ridenour's relevant project experience includes:

University of North Carolina, Chapel Hill, NC: task manager responsible for: redesign of stormwater utility ArcSDE GIS; Design documentation; PLTS QA/QC suite development; development of field collection and inspection procedures and manuals; Quality assurance of existing stormwater GIS data; Engineering document conversion; GIS editing tools development.

Utility GIS Data Automation - Water, Baltimore, Maryland: project manager responsible for the development of a comprehensive ESRI ArcStorm data layer of the entire water distribution network within the City. Resulting dataset contained over 750,000 features and annotations with all water meter features linked by the account number to the City's utility billing database.

Jones Falls Sewershed Study - Project 994, Baltimore, Maryland: task manager responsible for data management for this large EPA consent decree project. Responsibilities include the management of a large SDE-based geodatabase running in Oracle, geodatabase synchronization with the client, oversight of all GIS data edits and QC, 8,000 manhole inspections, GPS and traditional survey data, 1.4 million feet of CCTV inspection data and associated DVS video files. Additionally supervised and assisted in the design and development of numerous data management tools and application running in the Windows and ESRI GIS environments.

Baltimore City Emergency Water On-Call, Baltimore, Maryland: conducted a study of the feasibility in integrating the City's Customer Service Request and Work Order database systems with the current water GIS data layer, allowing engineers to perform spatial analysis of system problems to enable better informed maintenance decisions.

Collection System GIS, Wilmington, Delaware: project manager responsible for the design and development of a detailed ESRI geodatabase GIS of the City of Wilmington's collection system. Designed and implemented comprehensive topology analysis and testing routines, using Oracle, to locate errors and elevation inconsistencies within the network.

GIS On-Call Services, Wilmington, Delaware: project manager responsible for providing numerous GIS-related services, including: collection system maintenance; assistance with photogrammetric services; GIS consulting and training to City and City consultants; digital archive maintenance; and the collection system PDF CD.

Design and implementation of a GIS for the City of Charlottesville, Virginia: assisted with needs analysis, and design of the utility GIS data layers (water, sewer and gas) for the City and surrounding County. Developed custom user ArcView GIS and AutoCAD CADD tools to speed access and data consistency.

Enhanced Street Centerline GIS, Wilmington, Delaware: project manager responsible for the design and development of an enhanced street centerline file for the City of Wilmington's Department of Public Works. Developed several GIS utilities to enable technicians to quickly and accurately reposition the original DelDOT centerline source file. Also developed tools to assist in the population and checking of centerline segment attributes.



**William M. Morgante, P.W.S.
 Environmental Scientist**



**Project Assignment:
 Environmental Scientist**

Education:

M.S. Plant and Soil Science, 2000
 B.L.A. 1981

Certifications:

Qualified Professional (Forest
 Conservation Planning) MD/2003
 P.W.S. 2007/Professional Wetland
 Scientist #1712/National

Years' Experience:

RK&K: 4
 Other Firms: 19

Mr. Morgante has 8 years of experience as an environmental scientist and 12 years of experience as a landscape architect working for both public and private sector clients. His experience includes varied projects along the East Coast from Massachusetts to Florida and inland to Ohio. Mr. Morgante's projects have focused on wetland delineation and mitigation, ecological restoration and assessment, forest stand delineation, stream restoration, as well as environmental construction monitoring. Representative projects are described below:

Northern Damascus Park and Ride, Montgomery County, Maryland: Responsible for the Natural Resource Inventory of an eight acre parcel including a Forest Stand Delineation and a wetland delineation. Forest Stand Delineation followed Montgomery County requirements.

Maidens Choice Creek Wetland Enhancement Design, Baltimore City, Maryland: Managed and coordinated design components for complex wetland design involving the enlargement of a one-half acre floodplain area for a degraded urban stream. Design components included water budget analysis, site layout, grading, planting and specifications.

The Landings, Berlin, Maryland: Project Manager responsible for designing and the Microstation drafting for a Wetland Mitigation Plan Widgeon Grass Transplanting Methodology, shoreline canal stabilization, and native landscape plan associated with a 200 unit residential development along a sensitive coastal estuary.

Lower Mill Creek Basin Greenway Master Plan, Cleveland, Ohio: Assisted with natural resource inventory and analysis along three miles of an urban stream. Presented initial ecological findings at public meeting. Supported with coordination of design charrette identifying natural resource preservation and enhancement strategies as well as potential greenway trails.

Loyola College of Maryland Master Plan, Baltimore, Maryland: Project manager responsible for assembling ecological components for an urban college master plan including resource inventory, analysis, synthesis and design recommendations. Provided ecological principles, goals, and objectives for the master plan. Project issues included incorporation of unnoticed campus stream into campus design, the reduction of impervious surfaces, and removal of exotic invasive plants. Graphics provided in PowerPoint format.

Towson University Master Plan, Towson, Maryland: Assisted with field reconnaissance, natural resource inventory, analysis and synthesis for urban college campus master plan. Important issues addressed included impervious surface reduction, exotic invasive plant removal and campus sustainability. Natural resource initiatives and issues provided in PowerPoint format.

Woodrow Wilson Bridge Reconstruction, Potomac Rive, Maryland and Virginia: Served as Environmental Compliance Monitor overseeing the enforcement of federal (ACE and EPA) and state (Maryland and Virginia) environmental permits for numerous environmental permits relating to a high profile bridge reconstruction project. Responsibilities included on-site monitoring of dredging operations at the Woodrow Wilson Bridge and monitoring placement of dredged materials in Charles County, Virginia.

Richard W. Maddox
Natural Resources Group Manager



Project Assignment:
Natural Resources Group Manager

Education:
B.A. Biology/Environmental
Science, 1982

Registration:
None

Years' Experience:
RK&K: 3
Other Firms: 20

Associations:
Society for Ecological Restoration
International Erosion Control
Association

Mr. Maddox is the manager of the Natural Resources Group at RK&K and an experienced project manager specializing in managing diverse environmental projects. Projects have included over 20 distinct environmental disciplines and roles including: ecological assessments, natural resource permitting, regulatory compliance, mitigation monitoring, stormwater management studies, NPDES permitting, resource agency negotiation, contract specification development, revegetation design, right-of-way negotiations, value engineering review, public involvement, client advocacy, NEPA documentation, and constructability review. His experience includes the following:

South Wilmington Wetland Park Functional Assessment, Delaware Department of natural Resources and Environmental Control (DNREC), Wilmington, Delaware: supervising wetlands delineation, wetland functional assessment, well installation and monitoring, coordination with environmental regulatory agencies, and preparation of permit package revisions. Leading the QAQC review of the project

Middle, East and Lower Stony Run Interceptor Improvements and Stream Restoration Project, City of Baltimore, Maryland: leading the environmental permitting effort for this \$46M project that includes 8,100 LF of stream restoration, 10,800 LF of interceptor rehabilitation, 4,600 LF of parallel relief sewer, a 20-mgd diversion pumping station and 2,000 LF of force main. Role includes close communication with the US Army Corps of Engineers, and Maryland Department of the Environment, and the coordination of six design firms.

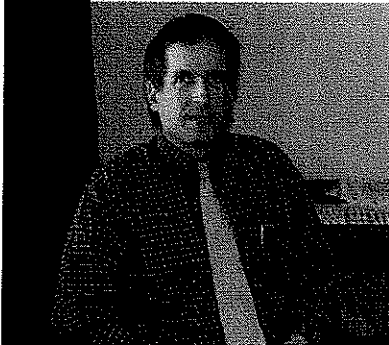
Stemmers Run Relief Wastewater Pumping Station and Force main, Baltimore County, Maryland: Supervised coordination with environmental regulatory agencies, and preparation of permit package revisions, including mitigation plans for the 72-mgd relief pumping station, flow diversion structure, 16,200 linear feet of 54-inch force main, and 54-72 inch relief interceptor. Reviewed and revised contract documents and wetland mitigation plans.

Stormwater Management Program, Safeway Corporation, Oakland, CA: Assisted in responding to State storm water regulations for six of Safeway's industrial facilities in Oakland, CA. Conducted site inspections, recommended pollution prevention practices, and developed the Storm Water Pollution Prevention Plans (SWPPPs) and Monitoring Programs.

I-95 Woodrow Wilson Bridge Replacement Project, Potomac River, VA-MD-DC: Managed Section 404 permit modifications for wetlands and waters of the U.S. mitigation projects associated with the bridge replacement project. Oversight of the submerged aquatic vegetation (SAV) mitigation commitment including related construction inspection for installation and mitigation monitoring of SAV.

Edgehill South Drainage Study and Design, York County, VA: environmental project manager responsible for stream and wetland delineation for a neighborhood drainage study. Work included coordination with the U.S. Army Corps of Engineers and the Department of Environmental Quality for permitting.

**Gregory B. Siegner, P.G.
 Professional Geologist**



**Project Assignment:
 Geologist**

Education:

B.S. Geology, 1978

Registration:

P.G. 1992/ Professional Geologist
 Hazardous Waste Operations and
 Emergency Response – General
 Site Worker Refresher Course,
 Aerosol Monitoring & Analysis, Inc.
 (AMA), 2004
 Hazardous Waste Operations and
 Emergency Response – General
 Site Supervisor's Course, America
 North/EMCON, Inc., 1992

Years' Experience:

RK&K: 23
 Other Firms: 7

Mr Siegner has been involved in planning and performing subsurface investigations, test boring inspection, laboratory analysis, analysis of geotechnical data, and preparation of reports and recommendations for design and construction. He currently serves as the technical lead for contamination, remediation and waste management issues. Mr. Siegner also served for seven years as an environmental project manager during which time he was involved with assessment and corrective action at contaminated sites. He has successfully completed the 40-hour OSHA course. He supervised the site assessments and clean up work at over 100 impacted sites along the Trans Alaska Pipeline from Prudhoe Bay to Valdez. Mr. Siegner served as project manager or project geologist for UST-related site assessments and corrective actions at over 30 service stations in southern California. The following project examples typify Mr. Siegner's geological/environmental experience.

Emergency Response During the Accidental Sewage Spill into the Town's Groundwater Supply, Town of Walkersville, Maryland: project geologist. In coordination with Dr. Tom Aley of Ozark Underground Laboratory, fluorescein dye was injected into the karst aquifer to track the contaminant plume migration. The dye concentration was monitored from water wells, springs, and streams throughout the town. The persistent dye provided a reliable marker that served as the primary water quality indicator after the index bacteria life span had expired. The plume was tracked as it passed the town water supply wells and moved downgradient sufficiently for public groundwater consumption to resume. Project completed.

Crabbs Branch Stormwater Management Facility Stability Analysis, Montgomery County, Maryland: project geologist for geotechnical investigation of 1,200-foot long earth dam with a busy county roadway along the dam crest. Performed rapid-turnaround field investigation of unconfined groundwater migration through the dam embankment and laboratory analysis of unusual erosion features. Determined that dam integrity was not at risk and prepared recommendations for corrective action of erosion problems.

Stemmers Run Relief Wastewater Force Main, Baltimore County, Maryland: RK&K's design efforts included a construction dredging investigation for the 54-inch force main crossing of Back River. RK&K was responsible for regulatory liaison with the United States Army Corps of Engineers (USACE), as well as state and county environmental regulators; planning and completion of environmental characterization of the clay sediments along the 2,000-foot long crossing for disposal. The investigation included Vibracore sampling to depths of 20 feet and laboratory analysis of sediment and surface water. The report of findings will be used by the regulatory agencies to evaluate upland and tidal disposal proposals.

Belair Road Transmission Main, Baltimore County, Maryland: Project geologist for Environmental Site Assessment (ESA) as part of the design for 9,500 foot or 24-inch water main for Baltimore County DPW. The assessment included review of MDE files for contaminated sites adjoining the alignment. Prepared recommendations for management and disposal of petroleum-contaminated soils excavated during construction.

South Capitol Street Transportation Study, D.C.: Project geologist for assessment of contaminated site issues for the ongoing Environmental Impact Statement preparation for DDOT. Mr. Siegner is responsible for preparation of the Preliminary Environmental Screening Assessment technical report that summarizes contaminated site issues and potential impacts to the transportation design alternatives.

Source Water Assessment Protection (SWAP) Program - WV Bureau for Public Health

Kearneysville District

Introduction

The Safe Drinking Water Act (SDWA) Amendments of 1996 requires states to develop and implement Source Water Assessment Protection (SWAP) programs to analyze existing and potential threats to the quality of the public drinking water throughout the state. In order to meet the requirements of the United States Environmental Protection Agency (USEPA) federal (SDWA) Amendments, RK&K under contract with the West Virginia Bureau of Public Health (WVBPH), conducted a ground water (wells and springs) assessment on twenty (20) systems in the Kearneysville District. This assessment which was submitted in individual system reports to the WVBPH included:

- Resource Characterization
- Delineation of SWAP Area
- Inventory of Potential Contaminant Sources (PCS) within the SWAP Area which included pictures and GPS locations
- Susceptibility Analysis Report
- Detailed maps of the SWAP delineation area, the geology and topography of the SWAP area, the PCS in relationship to the SWAP area, the water system features and a vicinity map
- Water Quality Monitoring Results

The contract required RK&K to verify site listings within the SWAP area of the various databases provided by the WVBPH. These databases included federal, state and local agencies that maintain environmental regulatory databases. The contract also required RK&K to complete and submit a MS Access Database created by the WVBPH, this database contained all of the PCS, Source Information and General Information for all of the individual systems compiled into one database.



Client: West Virginia Bureau for Public Health Environmental
Health Services
Cost: \$140,000
Date: 2001



Comprehensive Plan for Water Facilities

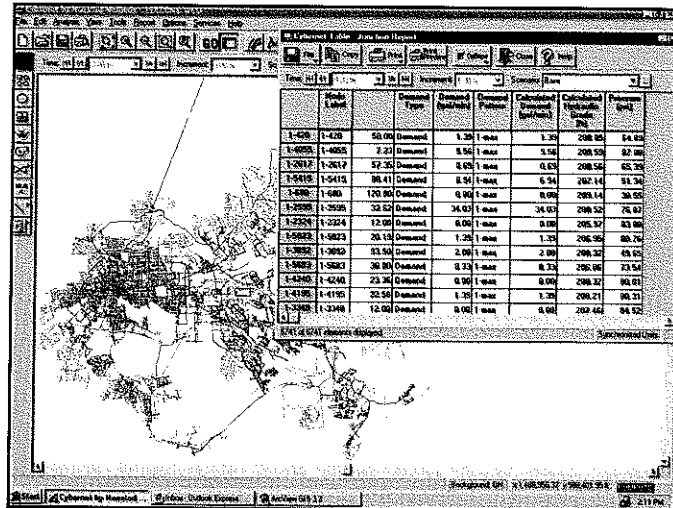
Baltimore, Maryland

Introduction

The project scope of the Comprehensive Plan for Water Facilities encompassed virtually all facets related to the supply of drinking water from "source to tap" with the primary focus being on those aspects related to water quality. Specifically, this project involved performing facility evaluations and developing recommended improvements for Baltimore's source watersheds, dams, raw water transmission mains, treatment facilities, finished water storage, distribution, pumping and rechlorination facilities.

As part of the Comprehensive Plan, RK&K performed a watershed Contaminant Source Inventory (CSI) and susceptibility analyses for the Loch Raven, Prettyboy and Liberty Reservoirs. Together, these three reservoirs have a drainage area of over 460 square miles and are the primary source of drinking water for approximately 1.8 million customers of the Baltimore metropolitan area. One of the primary objectives of the investigations was to summarize existing and potential point sources of contamination within the Loch Raven, Prettyboy and Liberty Watersheds as well as to assess the potential risk to the quality of the raw water from the contamination sources.

RK&K performed the CSI by compiling and supplementing as necessary all available existing information from a variety of Federal, State and local agencies into a Geographic Information System (GIS) format. Some of the contaminant sources included in the inventory were owners and locations of Aboveground Storage Tanks (AST) and automotive businesses, community right-to-know facilities that store, use or produce threshold amounts of hazardous materials under Superfund Authorization and Amendment Act (SARA), Registered Underground Storage Tank (UST) owners and locations, CERCLA sites, NPDES sites, landfill sites, sewage sludge disposal sites, spills, sinkholes and hazardous waste generators among others.



A final report was generated detailing the location of all potential contaminant sources as well as recommendations for improvements to the existing regional source water protection program.

Client: City of Baltimore Department of Public Works
 Cost: \$735,000 (Fee)
 Date: 2001



Source Water Assessment Protection (SWAP) Program - WV Bureau for Public Health

Wheeling District

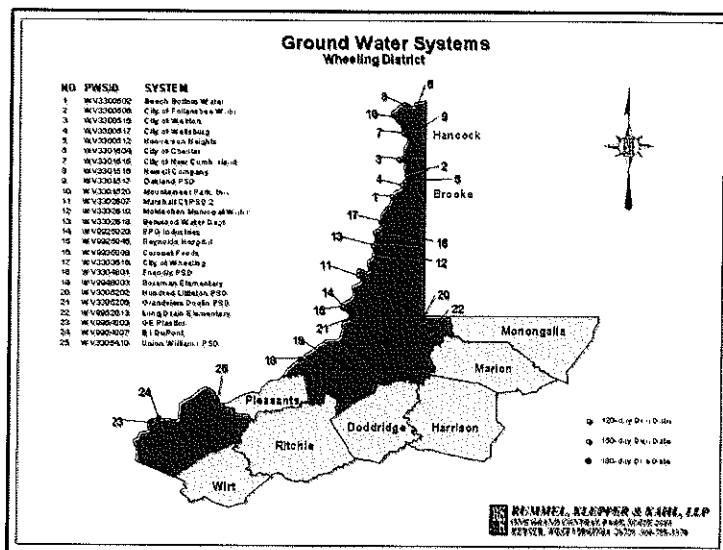
Introduction

RK&K was selected to perform Source Water Assessment Protection (SWAP) reports on eighteen (18) systems in the Northern Panhandle of West Virginia. RK&K was the only consultant short listed by the West Virginia Bureau of Public Health (WVBPH) from three consultants who had preformed work on previous SWAP projects.

Background of SWAP Program

The Safe Drinking Water Act (SDWA) Amendments of 1996 requires states to develop and implement SWAP programs to analyze existing and potential threats to the quality of the public drinking water throughout the state. In order to meet the requirements of the United States Environmental Protection Agency (USEPA) Federal (SDWA) Amendments, RK&K, under contract with the WVBPH, conducted groundwater source assessment on eighteen (18) public water systems in the Wheeling District. This assessment, which was submitted in individual reports included:

- Resource Characterization
- Delineation of SWAP Area
- Inventory of Potential Contaminant Sources (PCS) within the SWAP Area which included pictures and GPS locations
- Detailed maps of the SWAP delineation area, the geology and topography of the SWAP area, the PCS in relationship to the SWAP area, the water system features and a vicinity map.
- Water Quality Monitoring Results



The contract required RK&K to verify site listings, within the SWAP area, of the various databases provided by the WVBPH. These databases included federal, state and local agencies that maintain environmental regulatory databases. The contract also required RK&K to complete and submit a MS Access Database created by the WVBPH, this database contained all of the PCS, Source Information, Water Quality Monitoring Results and General Information for all of the individual systems compiled into one database.

Client: West Virginia Bureau for Public Health Environmental Health Services
 Cost: \$131,000
 Date: 2002



Source Water Assessment Protection (SWAP) Program - WV Bureau for Public Health

St. Albans District

Introduction

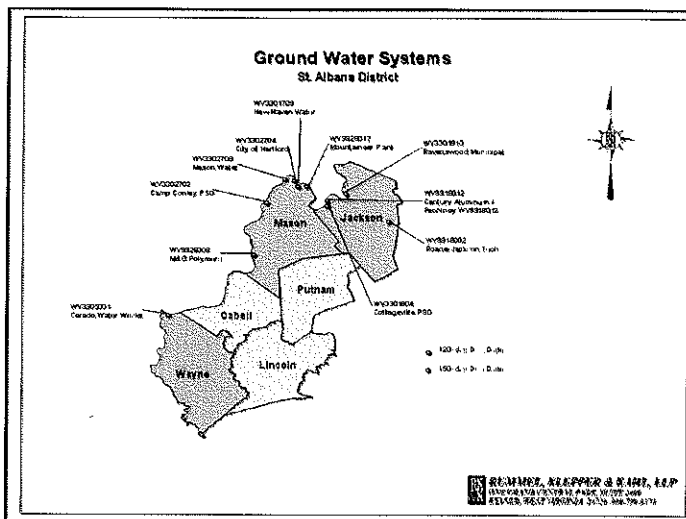
RK&K was selected to perform Source Water Assessment Protection (SWAP) reports on ten (10) systems on the Western border of West Virginia. RK&K was the only consultant short listed by the West Virginia Bureau of Public Health (WVBPH) from three consultants who had preformed work on previous SWAP projects.

Background of SWAP Program

The Safe Drinking Water Act (SDWA) Amendments of 1996 requires states to develop and implement SWAP programs to analyze existing and potential threats to the quality of the public drinking water throughout the state. In order to meet the requirements of the United States Environmental Protection Agency (USEPA) Federal (SDWA) Amendments, RK&K, under contract with the WVBPH, conducted groundwater source assessment on ten (10) public water systems in the St. Albans District. This assessment which was submitted in individual system reports to the WVBPH included:

- Resource Characterization
- Delineation of SWAP Area
- Inventory of Potential Contaminant Sources (PCS) within the SWAP Area which included pictures and GPS locations
- Detailed maps of the SWAP delineation area, the geology and topography of the SWAP area, the PCS in relationship to the SWAP area, the water system features and a vicinity map.
- Water Quality Monitoring Results

The contract required RK&K to verify site listings with the SWAP area of the various databases provided by the WVBPH. These databases included federal, state and local agencies that maintain environmental regulatory databases. The contract also required RK&K to complete and submit a MS Acces Database created by the WVBPH, this database contained all of the PCS, Source Information, Water Quality Monitoring Results and General Information for all of the individual systems compiled into one database



Client: West Virginia Bureau for Public Health Environmental
Health Services
Cost: \$83,200
Date: 2002



Source Water Assessment Protection (SWAP) Program - WV Bureau for Public Health

Eastern Panhandle (Kearneysville District)

Introduction

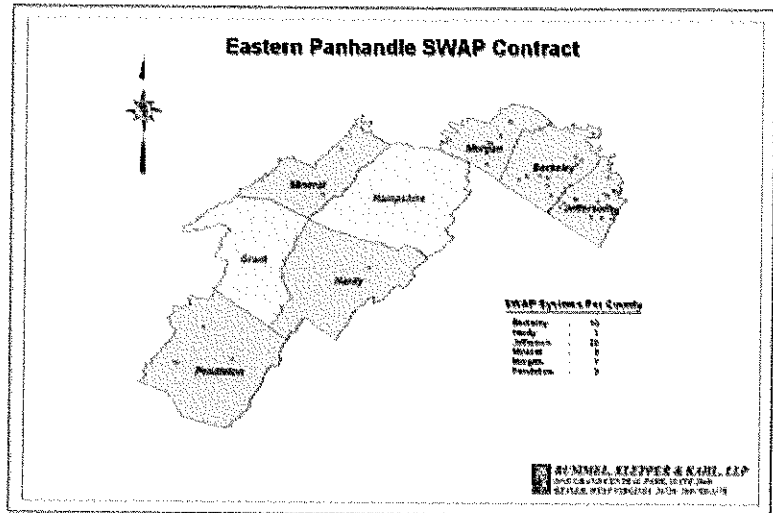
RK&K was selected to perform Source Water Assessment Protection (SWAP) reports on forty-five (45) systems in the Eastern Panhandle of West Virginia. RK&K was short listed by the West Virginia Bureau of Public Health (WVBPH) from three consultants who had performed work on previous SWAP projects

Background of SWAP Program

The Safe Drinking Water Act (SDWA) Amendments of 1996 requires states to develop and implement SWAP programs to analyze existing and potential threats to the quality of the public drinking water throughout the state. In order to meet the requirements of the United States Environmental Protection Agency (USEPA) Federal (SDWA) Amendments, RK&K, under contract with the WVBPH, will conduct groundwater source assessment on the forty-five (45) public water systems in the Eastern Panhandle. This assessment which will be submitted in individual system reports to the WVBPH will include:

- Delineation of SWAP Area
- Inventory of Potential Contaminant Sources (PCS) within the SWAP Area which included pictures and GPS locations
- Water Quality Monitoring Results

RK&K will review and verify site listings in various databases provided by the WVBPH that lie within the SWAP area. These databases included federal, state and local agencies that maintain environmental regulatory databases. RK&K will also complete and submit a MS Access Database created by the WVBPH. This database will contain all of the PCS, Source Information, Water Quality Monitoring Results and General Information for all of the individual systems compiled into one database



Client: West Virginia Bureau for Public Health Environmental Health Services
Cost: \$90,000
Date: 2003

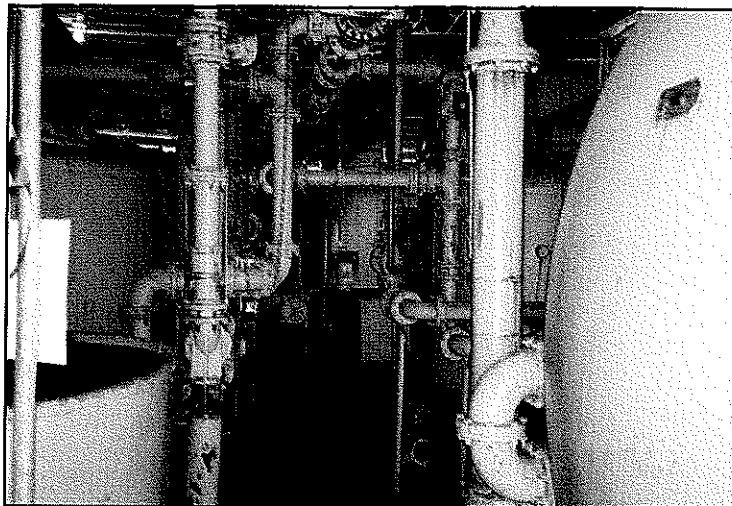


Water Emergency Response and Treatment Plant Upgrade

Frederick County, Maryland

Introduction

The Town of Walkersville in Frederick County, Maryland retained RK&K to provide monthly operational assistance to their water plant operators. The Town operates a groundwater treatment facility under the influence of surface water. The water system includes three wells, ferric chloride coagulation, pressure filtration, ion exchange softening and nitrate removal, fluoridation, chlorine disinfection and three high service pumps. While these services were provided, the Town experienced the ultimate water utility nightmare; their water supply source was contaminated with approximately one million gallons of raw sewage from a sewer main break.



Engineering Services

RK&K assisted the Town in responding to this event in numerous ways. RK&K immediately recommended a groundwater monitoring program including dye trace studies and sampling for groundwater contaminants, sewage indicators and surrogates. A groundwater extraction program was implemented in order to expedite the removal of the contamination. RK&K also evaluated the feasibility of emergency treatment and water supply alternatives, as the Town's plant was removed from service due to the contamination from the sewage spill. Alternatives evaluated included portable nanofiltration, cartridge filtration and a temporary connection to the City of Frederick Water System. While the Town was connected to the City's supply, RK&K performed a detailed investigation of the Town's water plant and recommended modifications to the existing plant including an upgrade of the existing pressure filters, chemical feed system, data management and remote alarm systems. RK&K also designed an absolute, one-micron cartridge filtration system used as a backup in the event of future contamination events. During this time, RK&K attended numerous public meetings and press conferences to inform the public of the events that transpired and to provide technical information on the planned treatment plant upgrades.



Finally, RK&K prepared Standard Operating Procedure (SOP) Manuals for the Town's plant and conducted training sessions with the Town's operators. Training was provided for each unit process as well as for the Town's data management and alarm system.

Client: Town of Walkersville
Cost: \$125,000
Date: 1999



Rock Ridge Estates Water Appropriation Permitting and Contamination Investigation

Cecil County, Maryland

Introduction

CEM performed a complete contamination investigation and provided water supply development services for this proposed residential development on individual well and septic fields in Cecil County.

Project Scope

The site was characterized by a poor aquifer, and there was extensive and organized local opposition to the project. Several high-yield wells were sited using innovative geophysical techniques, and were successfully brought into full production. A thorough resource impact analysis was conducted, and the results of the entire investigation were presented at a public hearing held by the Water Management Administration of the Maryland Department of the Environment. Based on the analysis and testimony, a water appropriation permit was granted by the State for the full amount requested by the client.

CEM also prepared an environmental site assessment for the property, for which the results of the investigation were used to fulfill the *Due Diligence* requirements necessary for the "Innocent Landowner Defense" provisions of the federal Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), commonly known as Superfund.

These services include reviewing existing county, state, and federal government records and databases for the project study area. The results of the database searches were summarized, tabulated and presented in a report.

CEM documented the environmental setting of the project area by describing the geology, topography, and general groundwater flow. CEM also documented land use activities within the project area, and acquired database map files from EDR services to review past and present aerial photographs, property maps, deeds, zoning maps, and landowner interviews.

CEM used the latest Trimble ProXL Global Positioning System (GPS) to quickly and accurately capture the attributes and GPS position of the locations, geographic points, lines and areas for the project. The use of GPS eliminated the need for cumbersome field logging, as well as duplication of effort resulting from traditional surveying after the assessment.



Chesapeake Environmental Management, Inc.

Client: First Land Management, Inc

Cost: \$22,000

Date: 2001

Baltimore Raw Water Management Study

Baltimore, Maryland

Introduction

The Baltimore Metropolitan Water System receives raw water supply from three river sources: the North Branch of the Patapsco River, Gunpowder River and the Susquehanna River. The North Branch of the Patapsco River is impounded by the Liberty Dam and has a capacity of 43 billion gallons (bg). The Gunpowder River has two impoundments, Loch Raven Dam and Prettyboy Dam, having a combined capacity of 43 bg. The Susquehanna River is currently a standby source, only used when the elevation of the reservoirs drop. In the future with the construction of the new Fullerton Water Treatment Plant, this source will be used on a full-time basis. Recent agreements between the City of Baltimore and the Susquehanna River Basin Commission (SRBC) limit the amount of water the City can use, especially during drought conditions.

Engineering Services

This study was conducted under the Comprehensive Plan for Water Facilities project. The purpose of the study was to develop and analyze alternative management strategies of the City's raw water sources and minimize the impacts of the recently imposed SRBC restrictions.

In order to fully evaluate the operations and hydraulics of Liberty, Loch Raven and Prettyboy Reservoirs in conjunction with the Susquehanna supply source, extensive computer programming was required to develop a project specific computer model for analyzing alternative reservoir management strategies. The computer program, designated as "RESMODEL", incorporated 63 years of historic streamflow data, system demands, electric power rate schedules, alternative reservoir withdrawal parameters as well as all pertinent pumping, transmission and treatment facility data. The program was operated under various alternative operating scenarios to simulate the coordinated operation of all raw water supply sources in conjunction with the hydraulics of the respective treatment, pumping and transmission facilities. The program identified anticipated reservoir fluctuations, pumping costs and treat-



ment capacity requirements over a 63-year duration under current year and projected year 2025 system demands. An added feature of the program was the ability to plot the results showing water levels in the reservoirs over the study period of record.

As a result of utilizing the "RESMODEL" computer model, RK&K was able to specifically identify the operational and financial impacts of the SRBC withdrawal restrictions to Baltimore City and devise an alternative operational strategy that minimized added pumping costs and ensured sufficient raw water reserves during the most severe record drought conditions.

Client: City of Baltimore Department of Public Works
Cost: \$735,000 (Fee)
Date: 2001



Comprehensive Plan for Water Facilities, Phase 1

Baltimore, Maryland

Introduction

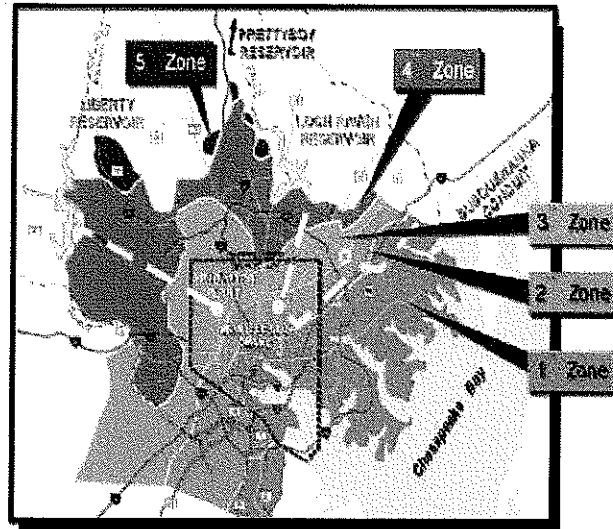
The project scope of the Comprehensive Plan for Water Facilities encompassed virtually all facets related to the supply of drinking water from "source to tap" with the primary focus being on those aspects related to water quality. Specifically, this project involved performing facility evaluations and developing recommended improvements for Baltimore's source watersheds, dams, raw water transmission mains, treatment facilities, finished water storage, distribution, pumping and rechlorination facilities. The project also involved development and implementation of operator training and certification programs and Capital Improvement Program (CIP) review and recommendations.

Engineering Services

A list of recommendations was presented in the plan that have been formulated into capital improvement projects and initiatives. These projects and initiatives are needed to replace aging facilities, maximize water quality throughout the system, maintain compliance with the requirements of the Safe Drinking Water Act, and improve plant operation, maintenance and training activities. This list of projects was distilled from the multitude of findings and recommendations contained in the nine volumes of the plan:

- Volume 1 Modernization Report
- Volume 2 Regulatory Compliance Report
- Volume 3 Water Treatment Facilities
Baseline Evaluation Report
- Volume 4 Computerization Report
- Volume 5 Water Treatment Facilities
Operations Assessment Report
- Volume 6 Plant Scale Testing Report
- Volume 7 Pilot Testing Report
- Volume 8 Watersheds and Raw Water
Reservoir Assessment Report
- Volume 9 Finished Water Facilities Assessment Report

The area of particular importance, and greatest impact, was the evaluation of Baltimore's three water treatment facilities: Montebello Filtration Plants 1 and 2 and the Ashburton Filtration Plant. These facilities have a combined treatment capacity of about 465 mgd. Detailed performance evaluations were completed for each treatment unit process to identify those "performance limiting factors" that



directly impact plant operations and water quality. The facilities were also evaluated to determine their ability to comply with all current and future water quality regulations including Stage I and II of the Disinfection/Disinfectant By-Product Rule (D/DBPR).

The overall approach to the facility evaluations involved identifying immediate, short- and long-term improvements required to ensure regulatory compliance, as well as optimize plant performance. An important factor influencing the selection of improvement alternatives was the ability of the existing facilities and administration to accommodate such changes. The goal of the recommended improvements was not to simply comply with the water quality regulations, but to achieve the best quality water economically and practically possible.

On-site bench and pilot scale testing was utilized to evaluate the performance of existing plant operations as well as alternative treatment technologies. Recommended immediate improvements included installation of individual filter turbidimeters, various filter control modifications and enhancements to existing backwash and filter media schemes. The primary challenge under short-term evaluations was reducing the formation of chlorinated disinfection by-product levels to below acceptable limits of the proposed Stage I D/DBPR without performing major capital improvements. Long-term improvement evaluations considered conventional filtration with ozone, direct filtration with ozone and microfiltration (Membranes). Biologically Active Filtration (BAF) was evaluated under a variety of alternative filter schemes using anthracite, sand and Granular Activated Carbon (GAC).

Client: City of Baltimore Department of Public Works
Cost: \$3.5 Million (Engineering Fee)
Date: 1998



City of Charlottesville GIS

Charlottesville, Virginia

Introduction

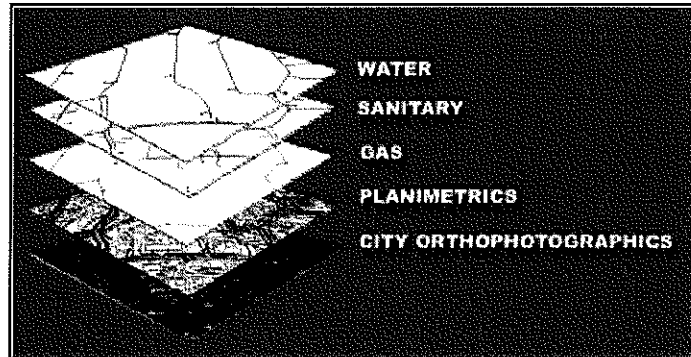
Following a qualifications-based professional services procurement process, the City of Charlottesville Department of Public Works (DPW), having responsibility for water, sewer and gas utilities along with road and building maintenance, awarded RK&K a contract to provide complete implementation services for a GIS for use by DPW, city engineer, city planner and the surrounding county's water and sewer authority

GIS Services

Services included conducting a needs analysis, basemap creation, utility GIS layer development (water, sanitary sewer, storm sewer and gas), cadastral mapping, database georeferencing and the development of a gas distribution network model.

The needs analysis was conducted with interviews of representatives from all city departments, Albemarle County, University of Virginia (whose campus is in Charlottesville), Albemarle County Service Authority, regional planning agencies and utility companies including electric, telephone and cable. The resulting report identified sources of data, required applications, suggested hardware/software solutions, departmental responsibilities for maintenance of data and possible additional users of the system.

RK&K's joint venture partner, Air Survey Corporation, supported the effort by developing landbase information. This included the establishment of new high accuracy horizontal and vertical control; acquisition of aerial photography for approximately 72 square miles; analytical triangulation; development of 1"=100' planimetric base maps; digital elevation model; and one-foot resolution digital orthophotographic image files



To complete the implementation of GIS, RK&K scanned the City's original 24" x 36" gas, water, sewer, storm drain and cadastral maps. These maps were converted to vector based AutoCAD files and the attribute data was attached to files utilizing ESRI's ArcCAD GIS software. The digitized AutoCAD files were adjusted to match photogrammetry and features field verified using Global Positioning System (GPS) equipment. The resulting ArcView GIS dataset represents the local public facilities/utilities in the City of Charlottesville and a portion of Albemarle County.

Using the newly generated ArcView gas data, RK&K developed a B³ GasWorks model of the City's gas distribution network. The input data for the model was extracted directly from the ArcView gas dataset, and RK&K provided utilities and documentation to enable gas model results to be imported back into the ArcView gas dataset for display and additional analysis.

RK&K also provided operation user and administration manuals, custom programming and applications development, training and hardware integration and installation associated with the GIS implementation.

The entire project was completed within 18 months of contract initiation at a cost that was 40% below that projected by an independent consultant. The system is currently fully operational and is maintained by existing City personnel.

Client: City of Charlottesville Department of Public Works
Fee: \$601,000
Date: 1996

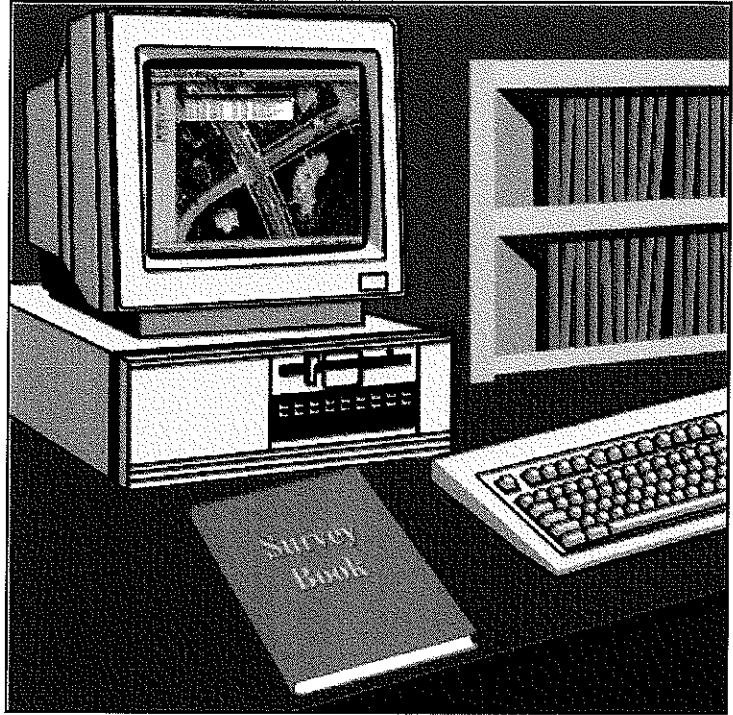


GIS-Based Survey Management System

Statewide – Maryland

GIS Services

Under an open-end contract for metes and bounds plats preparation with the Plats and Survey Division of the Maryland State Highway Administration, RK&K performed a needs analysis and cost justification for the establishment of a GIS-based system to maintain and index the office's collection of 35,000 survey field books dating into the late 1800's. RK&K conceptualized and developed a pilot project to demonstrate the use of GIS technology using ESRI's ArcView software. The pilot application provided the functionality to locate, both visually and by keywords, surveys that were performed by the State for over 100 years. This application significantly reduces the time and complexity of the research/retrieval process necessary to identify the survey field book numbers and pages associated with surveys in the user-specified area. Incorporated in the resulting ArcInfo-based system was data from the National Geodetic Survey to identify survey control monumentation throughout the state. RK&K provided custom programming to incorporate the new system with current drafting/management practices.



Client: Maryland State Highway Administration
Fee: \$400,000
Date: 1998



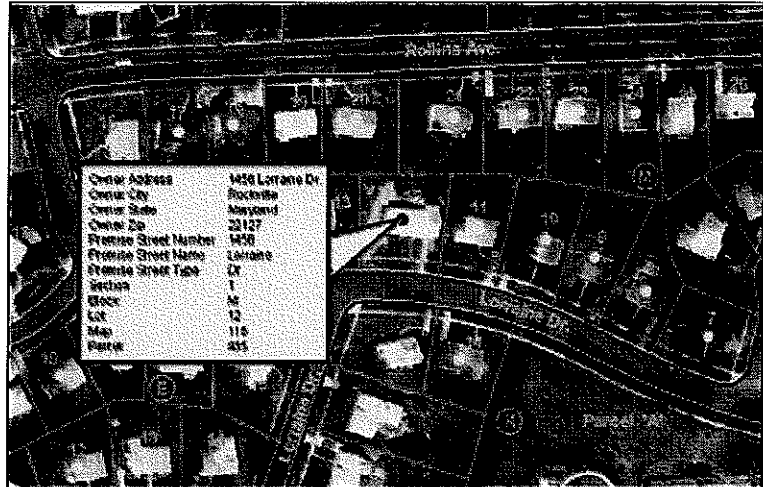
Maryland Office of Planning GIS

Statewide – Maryland

GIS Services

The State of Maryland's project for the Maryland Office of Planning and Department of Assessments and Taxation (DAT) was completed in July of 1996 and involved a four-year effort. Following budget reductions in 1991, the DAT was forced to absorb a 2/3 cut in its cartographic staff, reducing the workforce of 51 cartographers to 17. The staff was responsible for the development and maintenance of nearly 2,800 parcel maps statewide which depicted the location of property boundaries for the nearly 2 million parcels in the state. The Maryland Office of Planning (MOP) was interested in continuing to maintain this state resource in a format that was compatible with the new GIS effort, with the intent of linking the DAT attribute database containing hundreds of fields of data related to each parcel with the proper location of the parcel in the state. RK&K's GIS division was commissioned to conduct a multi-agency study to determine the potential and cost associated with development of a system to modernize these maps through computerization. The resulting report suggested a PC-based networked AutoCAD/ESRI-based system that involved scanning the property maps and maintaining the resulting map image in a hybrid raster/vector format linked to the DAT database. The cost of implementing this system was projected by RK&K at approximately 40% below the cost estimated by the State

Through a competitive bid process, RK&K was subsequently awarded a contract to implement the recommended solution. The cost of implementation was slightly below the original projection of RK&K due to the decreased cost of technology. The PC-based system is now completely implemented throughout the State, and the resulting computerized parcel maps tied to DAT data are currently marketed by MOP to other state agencies, counties, municipalities and other interested parties. The resulting revenue from these ventures is used to support the continued maintenance of the digital product. This project was named "Technological Achievement of the Year" in Maryland in 1994 by the governor.



Client: Maryland Office of Planning and Department
of Assessments and Taxation
Fee: \$600,000
Date: 1996



Water Utility GIS Data Automation

Baltimore, Maryland

Introduction

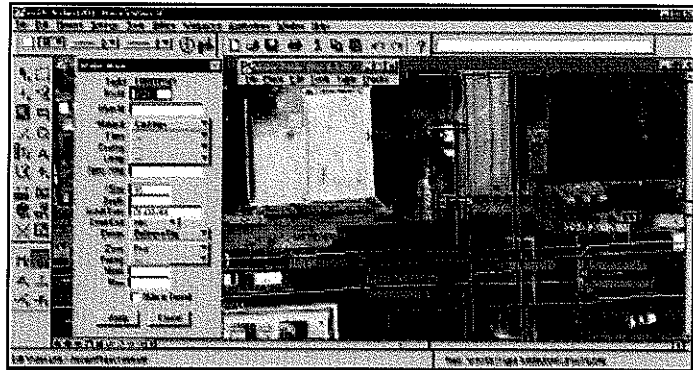
RK&K was awarded the contract for the automation of the Baltimore City Department of Public Works' water utility maps and records. The Utility GIS Automation project allowed water network management and maintenance to become easier and more efficient. The primary objective of this project was to replace the existing and inaccurate 100-scale water plat paper maps with an ArcInfo coverage and ArcStorm database layer of the water system for the entire 92 square miles of the City. A secondary objective of the project was to preserve the City's aging paper water records and documents. To this end, RK&K used high-speed scanning equipment to collect and then catalog the 26,000 existing utility paper maps and engineering documents.

Engineering Services

RK&K worked with the City, and other automation consultants, to establish a database design; automation and annotation specifications encompassing the water distribution network; sanitary and storm sewers; and conduit utilities. These design specifications, while very detailed and specific, were developed with a common thread between the utilities to allow them to work together.

RK&K GIS technicians and engineers, using the digital library of City water documents and field surveys, vectorized all water utility infrastructure features such as mains, valves, hydrants, meters, service lines, tanks, pumps, reservoirs and cathodic protection features into MicroStation CADD design files.

An RK&K custom designed and developed MicroStation MDL application provided a link between the water feature graphic elements within the design file and the Oracle database containing the water feature attributes, enabling users to place and attribute features efficiently. This application also incorporated a series of 150 custom QA/QC routines to



analyze both the topologic network and associated attribute data to ensure consistency and accuracy throughout the dataset.

Final deliverables included the water network as an ArcInfo coverage ready for use with ArcStorm, Oracle export files containing the water feature attribute tables and 2,200 40-scale paper check plots and mylar plots of the network.

RK&K is currently developing a hydraulic model of the entire Baltimore water system, containing all mains 8 inches and larger. A GIS dataset of the water network outside of the City was incorporated with the 750,000 water features within the City limits. This combined GIS dataset is being integrated with the Cybernet water model from Haestad Methods. RK&K analysts and programmers have developed the functionality to calculate and apply the nodal water demands to the model from information directly from the water meter readings from the City's own utility billing database.

Client: City of Baltimore Department of Public Works
Fee: \$2.7 Million
Date: 1999



Susquehanna River Withdrawal Study

New York, Pennsylvania and Maryland

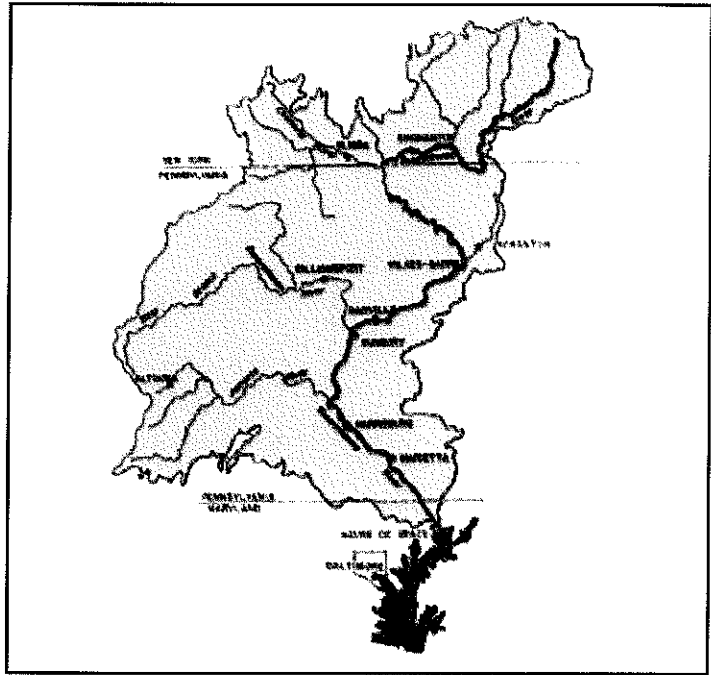
Introduction

The Baltimore Metropolitan Water System receives raw water supply from three river sources: the North Branch of the Patapsco River, Gunpowder River and the Susquehanna River. The North Branch of the Patapsco River is impounded by the Liberty Dam and has a capacity of 43 billion gallons (bg). The Gunpowder River has two impoundments, Loch Raven Dam and Prettyboy Dam, having a combined capacity of 43 bg. Earlier studies performed by RK&K determined the safe yields of the Liberty, Loch Raven and Prettyboy Reservoirs to be 93, 101 and 46 mgd, respectively. During periods of low stream flows in the North Branch Patapsco and Gunpowder Rivers, raw water supply to Baltimore is supplemented by pumping Susquehanna waters from an intake just upstream of the Conowingo Dam. Agreements between the City of Baltimore and the Susquehanna River Basin Commission (SRBC) historically allowed for withdrawal rates of up to 250 mgd; however, restrictions and rate charges imposed by the SRBC made the Susquehanna source less reliable and more costly.

Engineering Services

The overall purpose, therefore, of the Susquehanna River Withdrawal Study was to develop and analyze alternative management strategies of the Patapsco, Gunpowder and Susquehanna raw water sources to minimize the impacts of the added restrictions and costs imposed by the SRBC.

In order to fully evaluate the operations of Liberty, Loch Raven and Prettyboy Reservoirs in conjunction with the Susquehanna supply source, extensive computer programming was required to develop a project specific computer model for analyzing alternative reservoir management strategies. The computer program, designated as "RESMODEL", incorporated 63 years of historic streamflow data, system demands, electric power rate schedules, alternative reservoir withdrawal parameters as well as all pertinent pumping, transmission and treatment facility data. The program was operated under various alternative operating



scenarios to simulate on a weekly basis the coordinated operation of all raw water supply sources in conjunction with all respective treatment, pumping and transmission facilities. The program identified anticipated reservoir fluctuations, pumping costs and treatment capacity requirements over a 63-year duration under current year and projected year 2025 system demands. An added feature of the program was the ability to plot the results showing water levels in the reservoirs over the study period of record.

As a result of utilizing the "RESMODEL" computer model, RK&K was able to specifically identify the operational and financial impacts of the SRBC withdrawal restrictions to Baltimore City and devise an alternative operational strategy that minimized added pumping costs and ensured sufficient raw water reserves during the most severe record drought conditions.

Client: City of Baltimore Department of Public Works
Cost: \$90,000
Date: 1995

