REQUEST FOR PROPOSALS
(RFP)

RFP # 12-06-PJ

Issue Date:	March 2, 2012
Title:	Uranium Study
Commodity Code:	91843
Issuing Agency:	Commonwealth of Virginia Department of Environmental Quality Attn: Patsy Jones, Contract Officer P. O. Box 1105 Richmond, VA 23218
Using Agency And/Or Location Where Work Will Be Performed:	Department of Environmental Quality Department of Mines, Minerals and Energy

Initial Period Of Contract: From Date of Award Through November 30, 2012.

Sealed Proposals Will Be Received Until 2:00 p.m. on April 3, 2012 For Furnishing The Services Described Herein.

All Inquiries For Information Should Be Directed To: Patsy Jones, Contract Officer, Phone: (804) 698-4335 or E-mail: Patricia.Jones@deq.virginia.gov. **Questions will be accepted until close of business on March 12, 2012.**

IF PROPOSALS ARE MAILED, SEND DIRECTLY TO THE ISSUING AGENCY SHOWN ABOVE. IF PROPOSALS ARE DELIVERED BY COURIER OR HAND DELIVERED, DELIVER TO: 1st Floor Receptionist Desk, Department of Environmental Quality, Attn: Patsy Jones, Contract Officer, 629 East Main Street, Richmond, VA, 23219.

In Compliance With This Request For Proposals And To All The Conditions Imposed Therein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Services In Accordance With The Attached Signed Proposal Or As Mutually Agreed Upon By Subsequent Negotiation.

Name And Address Of Firm:
Southeast RCAP, Inc.
347 Campbell Avenue
Roanoke, VA
Zip Code: 24016
eVA Vendor ID or DUNS Number: e31975
Fax Number: (540) 342-2932
E-mail Address: hcupit@sercap.org

Date: April 2, 2012
By: Hope F Cupit
(Signature In Ink)
Name: Hope F. Cupit, CPA
(Please Print)
Title: President & CEO
Telephone Number: (540) 345-1184 ext.121

PREPROPOSAL CONFERENCE: A mandatory preproposal conference will be held at 9:30 a.m. on March 13, 2012 at the Department of Environmental Quality, 629 East Main Street, Richmond, VA, 23219. Reference: Section VII herein. NO ONE WILL BE ADMITTED AFTER 9:40 a.m. If special ADA accommodations are needed, please contact Patsy Jones at 804-698-4335 by March 9, 2012.

Note: This public body does not discriminate against faith-based organizations in accordance with the *Code of Virginia*, § 2.2-4343.1 or against an offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment.

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I. PURPOSE

Southeast Rural Community Assistance Project, Inc. (Southeast RCAP) responds to this Request for Proposals (RFP) through this sealed proposal to establish a contract through competitive negotiation for contractor services to provide information and expert analysis of uranium mining and milling issues in Virginia relevant to the statutory jurisdictions of the Department of Environmental Quality (DEQ) and the Department of Mines, Minerals and Energy (DMME).

II. BACKGROUND

The Governor has directed that the Virginia Departments of Environmental Quality; Mines, Minerals, and Energy; and Health conduct a study and provide a framework for potential regulations should the Virginia General Assembly decide to lift the current moratorium on uranium mining in Virginia. Southeast RCAP proposes to be the contractor to provide technical experts who can advise the Uranium Workgroup on the regulatory gaps that would need to be filled.

III. STATEMENT OF NEEDS

A. Initial Literature Analysis and Recommendations

Southeast RCAP will conduct research and provide a report summarizing literature regarding uranium mining and milling issues including an analysis of Virginia specific studies, existing regulatory programs and international emerging standards. This report will be delivered within three weeks after the contract award date.

The Virginia specific studies are well known and include those prepared by the Uranium Workgroup (National Academy of Sciences/National Academies Press [NAS/NAP]; those commissioned by the City of Virginia Beach and Fairfax; studies by the Roanoke River Basin Association, Chmura Economics and Analytics, and RTI International, and the 1984 Senes Assessment of Risk and associated Uranium Task Force Report). Analysis of the literature review will also compare existing uranium mining and milling regulatory programs including those of the Nuclear Regulatory Commission (NRC), all agreement state programs, and international programs including those of Australia, Canada, France, New Zealand, South Africa, and others. The report will include provisions extracted from those regulatory programs which have relevance to Virginia in terms of effectiveness, safety and environmental protection. In addition, the report will summarize pertinent information and studies from the International Atomic Agency, the World Nuclear Association, the Nuclear Energy Agency, the US Nuclear Energy Institute, and others to provide recommendations based on the review that are relevant to the Commonwealth's regulation of the life span of uranium mining and milling. These recommendations will include highlighting the latest best international practices and other relevant emerging standards and technologies.

III.A. (cont.)

Specifically, the report will identify internationally accepted best practices that can be implemented to mitigate the risk of radioactive releases, and will discuss technologies available to reduce emissions and maintain a focus on pollution prevention and reduction.

B. Ongoing Technical Advice and Assistance to Commonwealth of Virginia Uranium Workgroup

1. Coordinate with the Workgroup

Southeast RCAP is a 501 (C)3 private non-profit corporation headquartered in Roanoke, Virginia. Founded in 1969 and originally known as the Virginia Water Project. Southeast RCAP has grown to be a nationally recognized expert in the delivery of technical assistance and training in the fields of water and wastewater. Southeast RCAP is a partner in the national RCAP organization and serves the seven southeastern Atlantic coastal states.

Southeast RCAP proposes to create an expert Project Team that will coordinate with the Workgroup through at least monthly progress meetings to develop analyses of the requested study items and to develop and provide a final report. The Project Team will (a) compare recommendations in the initial report to the statutory jurisdictions of the DEQ and the DMME; (b) will identify areas where regulatory coverage might need to be created, modified or expanded to ensure protection of public health and the environment with respect to the lifespan of mining and milling projects in Virginia and long-term site monitoring requirements; and, (c) will recommend changes, including statutory changes to meet these needs.

The Southeast RCAP Project Team is composed of four highly qualified engineers including Project Manager Val Green, Robert Britts, Larry Wallace, and Doug Phillips. Brief biographies of the Project Team follow. Complete resumes and curricula vitae are provided at the end of this proposal.

Project Manager Francis Laval "Val" Green, M.S.

Val Green graduated with a Bachelor of Science in Civil Engineering from Clemson University, earned a Master Degree in Water Resources Engineering from the University of Oklahoma and obtained a second master Degree in Environmental Chemistry from the New Mexico Institute of Mining and Technology. Upon graduation, Mr. Green worked as an Assistant Professor in the Mineral Engineering Department at NM Institute of Technology where he developed and taught courses in mine site design, ground water monitoring procedures for mine sites, land reclamation planning, closure / post closure plans and financial security for nine years. Throughout his 35 year career, Mr. Green provided designs for mining site plans, waste treatment facilities, hydrologic control structures, tailings

III.B.1. (cont.)

impoundments, waste rock containment structures, groundwater monitoring stations, and closure and post-closure plans, as well as computing bonding requirements for regulatory permitting. Mr. Green's expert mining consulting and education led him to writing most oof the reclamation aspects of the New Mexico Hard Rock Mining Law of 1993; to a two-year appointment as New Mexico State Mining Commissioner in 1995; and as a member of the U.S. Environmental Protection Agency Storm Water Regulation group. He has provided expert witness testimony for cases involving mining and reclamation technical and financial litigation for clients such as Lloyd's of London, Inc and Ted turner Ranches. Val Green will serve as Project Manager for Southeast RCAP's Uranium Study Proposal and is ideally qualified to do so.

Mr. Green's experience in mining regulation includes the engineering for mining plans and regulatory permitting, and the writing of most of the reclamation aspects of the New Mexico Hard Rock Mining Law of 1993. He also served on the first New Mexico Mining Commission.

Robert P. Britts, P.E.

Robert Britts, P. E. has over 40 years of industrial, consulting and technical assistance experience. He received a Bachelor of Science in Chemical Engineering from Virginia Tech, a Master of Science in Industrial Management from Purdue University, is a Registered Professional Engineer (P.E.), a Class B Water Operator, a Class B Waste Water Operator, a Certified Quality Auditor, and a Certified Provisional ISO Auditor. He worked for Bethlehem Steel, Syntex Corporation, Safety-Kleen, and Avery Products in Indiana obtaining relevant experience in the steel and chemical engineering industries handling bulk iron ore and coal, as well as dust control, dewatering effluent, wastewater treatment, chemical reaction and "off-gassing" from coke ovens. Mr. Britt's safety, process control and quality improvement experience includes storage and handling industrial chemicals, solid waste landfills, industrial operations, process design, control and optimization, and hazardous chemical safety at three industrial plants.

As Regional Program manager and Director of Regional Programs for Southeast RCAP, Mr. Britts has managed the environmental technical assistance programs of Southeast RCAP from 2001 to the present. Bob Britts brings extensive knowledge and experience to the Southeast RCAP Uranium Study Proposal Team. He will provide expert analysis of the conceptual regulatory framework needed to address the unique chemical processes involved in the mining and milling of uranium ore.

III.B. 1.(cont.)

Larry W. Wallace, P.E., M.ASCE

Mr. Wallace graduated with a Bachelor of Science in Engineering Technology from Virginia Tech and went on to earn a Master's Degree in Business Administration and later a second Master's Degree in Environmental Engineering from Johns Hopkins University. He is a Registered Professional Engineer with over 40 years of experience in facilities engineering and construction, public works/municipal engineering, environmental and water resources engineering, and development engineering services. Mr. Wallace is highly experienced in the field of development engineering and large-scale land modification projects, surface and groundwater resources protection, erosion and sediment control requirements, storm water management planning and design, flood control, stream and riparian lands protection and mitigation, and public and private drinking water source protection.

Based on his long experience in this field, he has served on numerous planning teams involved in the process of analyzing existing systems and functions of developments such as universities, industrial parks, resorts, utility systems, recreational facilities, and transportation systems. He has participated as the lead civil engineering member for a number of master planning teams, developing long-range plans for developments, lending expert advice on subjects such as drainage and storm water management, environmental impacts, utility systems, and transportation. He has also served as either a professional consultant or a member of a development industry committee advising local governments in the development and analysis of zoning ordinances, comprehensive plans, and storm water management regulations.

Having worked in Roanoke, Franklin, Patrick, Pulaski, and Brunswick Counties; in the city and towns of Williamsburg, Herndon, Blacksburg, Danville, Halifax, he is very familiar with the land forms and environment of the Piedmont region, and the problems associated with ground surface modification and construction associated with development; and notably with the regulations and permitting functions of the Commonwealth's agencies that have oversight for land development/industrial development projects including VDCR, VDEQ, VDH, VDOT, and VMRC. Mr. Wallace will provide the Southeast RCAP Uranium Study Proposal Team with expert analysis of the existing regulatory framework pertaining to ground water, surface water, environmental impacts and related issues necessary to construct a new conceptual framework for addressing uranium mining and milling operations in the Commonwealth.

III.B. 1.(cont.)

Douglas W. Phillips, Jr. PE

Mr. Phillips earned a Bachelor of Science in Civil Engineering from Virginia Tech and currently serves as a Small Systems Specialist and Staff Engineer for Southeast RCAP. During his career with the State Office of Drinking Water, VDH from 1990 to 1998 he served on one long-standing committee which wrote the new federally mandated Lead and Copper Rule. The committee drew from a mixture of industry, state, and utilities people with which he served as a liaison. Mr. Phillips worked with one or two others in several sections of the draft writing of the state's rule. Later he helped implement the new regulations in several public water systems in his assigned districts in northern Virginia where the systems ranged in size from very small to the largest plants.

In his current position Mr. Phillips regularly assists low-to-medium income / small rural communities or individuals by 1) assisting in many private well needs; 2) performing onsite wastewater design and state permitting using his professional engineer's license and design-drafting experience; and by 3) using his licensed Water and Wastewater Operator experience to help small and medium public systems attain compliance with state public health regulations. In addition, Mr. Phillips regularly conducts inspections and engineering on small, rural community water and sewer construction projects. Mr. Phillips will provide the Southeast RCAP Uranium Study Proposal Team with expert analysis of the existing regulatory framework pertaining to ground water and ground water contamination issues.

2. Assist the Workgroup in preparing reports

The Southeast RCAP Project Team will assist the Workgroup in preparing reports for the issues listed below. Through its research, the Project Team may also identify other issues as being necessary and relevant for an effective regulatory framework for the life cycle of uranium mining and milling in the Commonwealth. Included in this assistance, the Project Team will assist the Workgroup in the development of a draft conceptual regulatory framework for uranium mining and milling and other pertinent issues.

a. Water Quality Monitoring plan for surface waters, including but not limited to:

1) The ecological risks to be evaluated will be due to exceeding the established concentrations of uranium and radium in the soil both on and off site and in ground water private wells and test wells and in surface waters in proposed uranium mining/milling sites, or in the case of the proposed Coles Hill site, the Roanoke River Basin. Results of established toxicity tests for the above elements will be incorporated in the legislation. New toxicity tests will be initiated upon passing of the legislation. Toxic levels of expected contaminants will be established in the new

III.B.2.a (cont.)

regulations. In the instance of the proposed Coles Hill site, these new tests will be in Mill Creek, Whitehorn Creek, The Banister River and selected tributaries not mentioned here. A certified toxicity testing organization will be contracted to run these ongoing tests. In surface water bodies close to proposed sites, analysis for molybdenum, thorium, selenium and other trace minerals and heavy metals may be warranted. The draft conceptual regulatory framework should have a section that covers ecological risks and control methods for same.

2) The potential impacts of mine dewatering activities will be determined by previous studies in mines in the United States and Canada. The technology used to wash, and extract the uranium from the ore will be part of the dewatering study. If a lower usage of water is anticipated, it must be documented with sound research. The concentrations due to dewatering in the tailings pond should be modeled for the next 35 years by a proven modeling program. Due to large quantities of ground water and surface water needed to separate the mineral from the ore, the impact of the activities on the current and future water supplies must be considered. Employment of a Professional Geologist and/or a Water Resource Engineer will be required in the enabling legislation. These professionals will employ the tailing pond concentration model software and include in the model the inflow and outflow over time of the tailing pond. A draft of the regulations will include how mine dewatering activities should be run and what to do if they are done improperly.

3) The tracking and minimizing the impacts of elevated concentrations of trace elements are important for the controlling the long terms effects of the operation. The trace elements could include molybdenum, selenium, lead, antimony, arsenic, and other elements natural to the ore, the area or the chemicals used in the extraction process. Baseline concentrations of these same elements will be established from samples and samplers in operation for one year before the mine starts up. The impacts will be predicted and measured base on previously documented impacts on flora, fauna, livestock and hay and silage crops. A section of the draft legislation will be devoted to tracking and minimizing the concentration of trace elements.

4) The impacts of land disturbance activities and surface water run-off will need to be known for the long-term sustainability of the project site and surrounding area. The land disturbance activities include but are not limited to creation of the mine itself, the creation of the tailings pond, roads and pipelines installed in the area, storm waste retention ponds, power lines right of ways, and any other disturbance activities. An experienced site development firm should be employed by the mining company before any ground is broken. This firm will have a land disturbance section in the site development plan. Remediation steps for negative impacts will be a part of the plan. Before the facility can be permitted, as per the draft legislation, a land disturbance impact plan will be required.

III.B. 2.a. (cont.)

Water bars or other erosion control devices such as are used in forestry timber cutting operations will be required to slow down run off. A topographical survey of the area and historical records on the rainfall will be used to predict the volume, direction, and frequency of the run off. Any paved, impervious surfaces should have a "crown", a drainage ditch(es), aggregate rock in buffer zones, or the latest technology to minimize run off. So a mixture of technologies will be use to minimize and control run-off from the highest anticipated rainfall and if the tailing pond were to fail or overflow this would be controlled too.

5) The potential for long-term water quality degradation must be thoroughly addressed by the Workgroup. Both groundwater in the form of drinking water and irrigation wells and surface water in creeks, rivers and lakes should be considered critical resources. If sample results at key pre-determined locations after one, two or three years show signs of trending toward harmful concentrations, the mine operator should alter operations, cease operations, or purchase any contaminated property if that is an option. The water quality parameters should be modeled forward for the 35 year expected life of the mine. The draft legislation will have a section that addresses how long-term water quality degradation will be predicted, modeled, measured and controlled. The water resources in the area must be protected.

b. Water Quality Monitoring Plan for groundwater

1) Evaluating data from the Workgroup's previous studies, and other relevant studies, review of the current Commonwealth regulations for groundwater protection that fall short of addressing or dealing with the particular potential damage to the ecology and nature of subsurface groundwater aquifer(s) from uranium mining and milling operations is necessary in relation to potential impacts associated with construction, operation and decommissioning of a mine, mill and tailings facility. All aspects of the plan must take into account the extremely long lifespan of the toxic elements involved.

2) Evaluating the adequacy and applicability of current Commonwealth regulations pertaining to the design, construction, and monitoring of impoundments for solid wastes, toxic waste, and mining waste as it would apply to uranium ore processing is necessary. All aspects of containment technology with specific regard to contaminants from uranium ore mining and processing must be evaluated for real-life efficacy vs. theoretical effectiveness.

3) The plan must evaluate the current regulatory approaches to dealing with and/or mitigating the effects of groundwater dewatering operations involved in mining operations including potential impacts on stream base flow recharge pathways, quantity and quality impacts on public or private drinking water wells, agricultural irrigation sources, and subsurface aquifer dynamics.

III.B.2.b. (cont.)

4) The plan must evaluate the adequacy of the Commonwealth's requirements for hydrogeological modeling of proposed subsurface mining operations to predict possible impacts of mine flooding associated with failure of dewatering systems or influent surface waters from major rainfall events or surface flooding its impact on subsurface water supplies.

5) Review of current mining and groundwater well drilling regulations to ascertain the adequacy of measures to prevent intrusion of pollutants into existing aquifers must occur in light of the particular constituents of the uranium ore-bearing strata, and the measures required for capture and disposal of the contaminated cuttings and drilling mud residue that will accumulate at the surface drilling location.

c. Air Quality Monitoring Plan

For the air quality monitoring plan, Federal and EPA statutes and regulations will be reviewed and referenced if relevant as well as those of the various states. These include but are not limited to:

- US EPA 40 CFR part 440, "Effluent Guidelines and Standards"
- U S EPA 40 CFR part 61, "National Emission Standards for Hazardous Air Pollutants"
- US NRC 10 CFR Part 40 "Domestic Licensing of Source Material"
- US NRC Regulatory Guidelines
- US DOE Notice 441.1 "Radiological Protection for DOE Activities"
- US DOE "DOE Standard Guide of Good Practices for Occupational Radiological Protection in Uranium Facilities", August 2000
- Colorado Department of Public Health and Environmental Regulations, Radiation Control 1007, Part 18, "Milling of Thorium and Related Radioactive Materials"
- Oregon Administrative Rules, "Construction, Operation and Decommissioning Rules for Uranium Mills", 345-095-005
- Texas Administrative Code Title 30, Environmental Quality
  Part 1, Texas Natural Resources Conservation Commission, Subchapters
  A General Provisions
  G. Construction prior to permit issuance
  TNRCC Regulatory Guidance

III.B.2.c. (cont.)

- Washington, Revised Code of Washington
  Title 70 Public Health and Safety
  Chapter 98, Nuclear Energy and Radiation
  Chapter 121, Mill Tailings
  Title 78 Mines, Minerals and Petroleum
  Chapter 56 Metals, Mining and Milling

- Wyoming Statutes
  Title 30 Mines and Minerals
  Title 35 Public Health and Safety
  Wyoming Rules
  Water Quality Rules and Regulations
  Land Quality Division Rules and Regulations

(1) **Air monitoring technologies for mining and milling operations for various minerals are widely published**. The best proven technology to detect and analyze the air for uranium, radium and radon will be used. There are isotope specific detection devices that use in place on-site analysis technology. A general radiation detection meter like a scintillation meter can be used at most of the air sampling stations. Another device could be a high tech filter that can be cleaned and the solids analyzed for specific elements on a periodic basis. The existing air sampling stations operated by VA DEQ need to be used as well as some new ones.

In reference to the proposed Coles Hill site, the closest VA DEQ monitoring stations are:

155-Q PM 2.5 Leesville Hwy & Greystone Drive EPA# 51-680-0015 Lynchburg Long/Lat. 37.33175-79.11623

53-G Lead Central VA Training Center EPA# 51-009-0007 Madison Hghts Amherst Co. 37.4122-79.11623

Since these two locations are many miles north of the mine site, it is recommended that the new air quality monitoring stations be located within five miles east, south and west of the mine site. Any new air quality monitoring sites (AQMs) would need to register with U. S.EPA. Instead of being on the National Air Monitoring Sites (NAMS) system they could be considered a State or Local site (SLAMS). The Commonwealth of Virginia has an extensive history of monitoring for these contaminants: CO (Carbon Monoxide), O3 (Ozone), SO2 (Sulfur Dioxide), NO2 (Nitrogen Oxides) and PM10 (particulates less than 10 microns in diameter). Some additional sampling has

III.B.2.c. (cont.)

been conducted for VOCs (Volatile Organic Carbon Compounds), PM2.5 (particulates less than 2.5 microns in diameter). In limited cases a TSP analysis is conducted for Lead.

(2) **The release of particulate matter from wind erosion of ore stockpiles, waste rock, mine tailings, procession facilities, and mine blasting will be major sources of air contaminants.** Each process activity will need to be analyzed based on other states' uranium mining activities. An emission control plan for each source needs to be part of the construction and operating permits. There will be a two pronged approach to the control of particulate matter. The most efficient approach is to have process steps and equipment to reduce or minimize the generation of these particulates. The second, less efficient approach is to control the dispersal of these particulate by the wind, solids handling, etc. Technologies are available for all mining and milling operations to do this. Due to the radiation from the particulates, personal protective equipment (PPE) for the employees and contractors may be specialized.

(3) **Mobilization of contaminants means to quantify and prioritize contaminants by concentration in the air at similar uranium mining and milling operations.** The contaminant severity is determined by the established health effects and or the established threshold level for human contact. A list of the detectable contaminants, sources, predicted and expected concentrations, and severity to human health needs to be generated. The list should be presented to the Workgroup early in the study. After the list is generated and reviewed, a work plan for contaminant control will be the next step in this program.

(4) **The adequacy of the U. S. Environmental Protection Agency's National Emissions Standards for Hazardous Air Pollutants (NESHAP) for radon can be established several ways.** The initial date and latest revision date of the NESHAP standards needs to be taken in to account. The Commonwealth of Virginia can establish stricter or tighter radon standards if sound scientific reasoning is used. It is likely that the EPA standards which should have been in place for decades will be sufficient.

(5) **The emission of radon from waste rock piles, ore stockpiles, and wind blown particulates could be significant.** Data will be requested from other uranium mining facilities in operation in the United States in the last twenty years. A note will be made of any technology used to limit radon gas emission. Such technologies could be a tap cover, roof, fans, or other devices designed to control or direct any radon gas. There are many radon gas detectors on the market. These range in size from the household size to those large units used in radioactive materials industrial plants. The radon from solid piles would be regulated by the new regulations from the state legislature.

III.B.2.c. (cont.)

(6) **For release of radon from tailing ponds or impoundments, detection devices can be strategically located at the perimeter**. This same kind of device can be mounted on floating platforms or stands in the middle of the pond or impoundment. By using this methodology, a better profile can be obtained of the radon concentration gradient by location. Hopefully the control technology can be the same or nearly the same as that used for radon over waste rock piles and ore stockpiles. So after the study, detection, monitoring and data analysis is complete, the radon profile over and near the ponds and tailings will be known. A control plan can then be generated. The Workgroup would be instrumental in creating the control plan. The Workgroup would advise the legislature as to what regulations would be needed to establish, monitor and control radon from this source

(7) **The release of radon during dewatering activities could be just as significant as the release of uranium or radium in the effluent from dewatering activities**. Since the dewatering activities are a size limited and possibly enclosed operation, hoods, scrubbers or bag houses or other air pollution control devices would be feasible. The radon could be removed from the air, captured, and treated by use of a carbon filter or other media specific to radon. There would be a section in the new regulations that would address radon from all sources in the operation at any uranium facility in Virginia.

For the Air Quality Monitoring Control Plan, some experts, references or resources could be employed from those states that have uranium mining and milling operations. These references could include David Berry of Colorado Department of Health and Environment for one. Other references will be determined from West Virginia, Nebraska, Wyoming, Oregon and Washington. These references need not be current state employees but could be retired state employee or private consultants.

d. Adequacy of Virginia's Water Quality Standards for groundwater and surface waters

1) Water-soluble radionuclides or absorbed chemicals;
2) The potential for the increase in radioactivity concentrations in a river/reservoir system and the exceedance of Maximum Contaminant Level (MCL) established for radiological contaminants for drinking water, recreational use, irrigation, agricultural use, and other non-potable uses;
3) A sampling protocol and regulatory oversight for radiological contaminants in surface water and groundwater;
4) The potential for undiluted tailings liquids to exceed existing Safe Drinking Water Act standards for uranium; and,
5) Identify additional water quality criteria if needed.

III.B.2. d.(cont.)

Addressing 1 through 5 above, a complete review of the Commonwealth's WQS and the requirements of the Safe Drinking Water Act standards, as they pertain to radiological contamination, should be reviewed for their adequacy in addressing the wide range of radiological elements and daughter elements associated with the uranium mining and milling process. The current standards do well in setting benchmarks for safe expected levels of naturally occurring radiological particle levels in drinking and surface (non-potable) water supplies, but given the myriad additional daughter elements and associated toxic elements specific to the uranium milling and ore purification process, the standards will probably need to be expanded to provide sampling protocols and testing methods for detection of these constituents.

e. Standards for the safe disposal of mine waste

1) The overburden removal, excavation of the ore body, the movement (hauling or otherwise) of the ore, stockpiling, and disposal are the physical processes of all mining operations. The exposure to an environment different from which the material originated provides the possibility of degradation in that new environment.

Overburden and waste rock are generally the more benign products of mining operations, but may often constitute the largest volume of waste material. Wind and precipitation will spread these products rapidly. Regulations for handling these large quantities should focus on early containment, isolation, and stabilization of the waste disposal area. Early containment (concurrent reclamation) means requiring the mining operation to segregate the inert materials and create a geometric surface that can provide minimal safeguards and a covering growth medium that will allow rapid development of a stabilizing vegetative cover.

2) When waste rock has mineralizing components, chiefly reactive sulfides, chemical alteration and leaching into aquatic environments presents a formidable problem for effective mine waste stabilization. Mine waste units that contain these materials should be designed using the standardized practices of the solid and hazardous waste industries (Resource Conservation and Recovery Act—RCRA—40CFR, parts 257 and 258.) The technical criteria of these sections require soil material and geo-synthetic liner systems to provide assurances of containment. These liner systems are necessarily placed under the waste unit to prevent aqueous migration and over it to prevent entrance of precipitation and oxygen.

3) The tailings, or the remaining material from the separation or beneficiation of the mineral from the ore body, constitute a more acute problem because the solublizing and transporting agent occurs in large quantities, while the residual mineral will usually be in small concentrations. It is

III.B.2.e. (cont.)

generally ineffective to attempt to recover small quantities of the mineral, although recirculation of clarified tailings liquid allows for some recapture. Thickened deposition in tailings impoundments reduces water use and provides for efficiency in the milling process.

The environmental hazards resulting from open tailings impoundments are multiple. Toxic residuals from chemical additives, solublized minerals, and volatile components all contribute to air and ground/surface water pollutants.

Secondary hydrolyzing of double cationic metals presents additional problems if the local aquatic environment is impacted. Extreme values of soil reaction also result in solublizing of these metals.

Solid/liquid separation in the tailings deposition usually has a recirculation system to return liquid to the process line. The settled mixture of the crushed ore, water process chemicals, all in an oxidizing environment, provide for an active chemical alteration of the gangue minerals; including the decay products of the uranium. A long-term containment and isolated environment for these wastes necessitate an encapsulating shield below and above the waste pile. RCRA parts 257 and 258 standardize the materials and methods that are appropriate to accomplice the above tasks.

4) Mitigation of possible ground and surface water contamination by mine waste materials is provided by first assuming that the entire mining site constitutes a closed hydraulic loop. Relegating the site water loss to evaporation and/or hauling offsite is the goal. Process water, storm water, and all other liquid sources should be contained by a double standard of holding and leak detection, with a redundant pumping system to capture any losses from the primary containment structures. Using the basic design standards for solid and/or hazardous waste containment, along with appropriate hydrologic models, constitute the Best Available Technology (BAT). Fugitive dust and other airborne disseminated contaminants are subject to the same methodology for closed loop processes.

5) Onsite worker health and safety are adequately defined by Atomic Energy Commission (AEC) standards. The Commonwealth of Virginia would save itself both time and effort by adopting these standards.

f. Engineering designs and best management practices designed to prevent the release of radionuclides and other contaminants

1) The design of structures and facilities to contain and provide for safe and efficient handling of mining ore and process waste materials from the mining/milling process should follow the standards outlined for the separation, storage, and containment of all solid wastes (as defined

III.B.2.f. (cont.)

by the Bevill Amendment—Subtitle D). These are tested designs that have been proven to be the Best Management Practices (BMP) for the industry. In formulating the RCRA standards, EPA recognized that mining waste differs substantially from other types, and they differentiated these mining wastes by virtue of the above Bevill Amendment. These differences can be reasonably well defined by their properties of volume and concentration. Whereas most solid and hazardous waste are noted for their high concentration and low volume of material, mining wastes fall into the opposite categories. In particular, the very large volume of many types of mining wastes are equal to the total disturbed site quantities, as only a very small fraction of the disturbed materials end up as product. The remaining bulk all becomes a waste material which has been translocated and is now in an environment where it is subject to climatic factors very different from those of its paleo-origin. The best designs for long-term containment are those that most closely resemble the original environment of these materials.

Loading and transporting of any mine site materials has to be structured to contain spillage, and other losses common to moving large quantities of earthen materials. The primary goal is to ensure that these lost materials are contained in one or more closed loop hydraulic systems of the site. The same logic is true for any chemicals brought onto the site to be used in the process. All such chemicals should be regulated by redundant closed-loop systems.

2) Human management failures within the mining processes are usually the purview of the mining company. There are adequate federal and state standards for materials handling, and these apply equally to mining processes.

Natural disasters, or extreme climatic occurrences, are foreseeable only to a certain extent. Extreme precipitation events can be extrapolated into models that provide margins of safety for mining facilities. Where the hazard potential for a uranium process is concerned, a "100 year" precipitation event should be considered for a minimum design storm, and facilities should be designed for this with suitable factors of safety.

Seismic event prediction should also follow the same reasoning and adequate pre-mining (historic) data should be carefully evaluated, with suitable design standards.

3) Any proposed mine operating permit should require pre-mining data collection on all susceptible resources—water, air, flora, and fauna. Most State regulations consider a year of data collection to be a minimum requirement. This accumulated "background" data is one reliable measure of possible changes that may occur as a result of the mining operations. Defining the resource or species that may be impacted is a site-specific task.

III.B.2.f. (cont.)

4) Historically, the exposure of the human population, exclusive of the mining personnel, is a function of the design of the mining processes and their waste-containment structures. The simple over-riding premise is that any contaminants produced as a result of the mining operation must stay within the boundaries of the site. This idea encompasses air, surface, and sub-surface migration of all soluble and particulate materials.

   Limiting access to the mine site, providing warning notices, along with adequate sampling monitoring stations on the periphery is the best warning system to preclude public exposure.

5) Any predictive hydrologic model whose output data are used for the design of the mine site units and facilities should have historic verification for the climatic conditions appropriate to this region. The US Army Corps of Engineers, ***Hydrologic Evaluation of Landfill Performance*** **(HELP)** is the type of model to consider. This model deals with the soil material and synthetic liner systems that are designed to contain solid waste for a very long post-closure period. The natural evolution and deterioration of the soil surface that would normally be used in mine closure processes have to be a part of the design process. Site specific soil materials are an important element in any closure and post-closure design. Design storms must be a prominent factor, as well as the project post-closure use of the property.

   There are adequate predictive models for long-term containment. The regulatory agency should carefully consider the cost of initial closure and the possibility that additional work will be needed at a later date to insure the long-term environmental stability of the site.

g. Necessary components of a full environmental impact analysis

1) Given the nature and unprecedented proposal of uranium ore mining and milling operations in Virginia, it is in the best interests of the Commonwealth to ascertain as complete a picture as possible of the potential impacts to the environment, both natural and built, prior to the issuance of any permitting structure for operations. A wealth of studies already exist as compiled by the Workgroup, which provide many and varied analyses and opinions of the impacts and benefits of the mining proposal, but the regulatory review process, and the requirement for a full EIA, should be the initial step following the application for an operations permit or an application to VMRC for distribution to all interested agencies.

2) It would seem prudent that any baseline data set include, if not already required under Commonwealth law, the development of a comprehensive groundwater and surface water hydrological model of the proposed mining and milling sites. The model should extend up-gradient and down-gradient to points where negligible impacts are expected either from inflowing surface waters, or groundwater aquifer recharge zones on the up-gradient surfaces, and surface waters and groundwater-supplied potable drinking water supplies present in the down-gradient zones. A subsurface mapping model, using electrical resistivity testing or other

III.B.2.g. (cont.)

approved method should be considered as a means to develop a three-dimensional image of the existing site subsurface that could show the process of the expansion of the mining impact to the existing geology over the life span of the operation. All baseline data should include testing and characterization of all drinking water wells within the zone of expected hydraulic influence, as well as baseline data for the public water intakes downstream in the Bannister/Roanoke basin.

3) Required regulatory changes to address the proposed uranium mining and milling process that will necessitate establishing or modifying existing regulations will need to be addressed by means of modifying interpretations of current code at an Agency level, or by promulgation of new regulations by the General Assembly. This has local implications as well. For example, in case of the proposed Coles Hill site, the West Piedmont Planning District Commission's Regional Water Supply Plan adopted by the member jurisdictions of the West Piedmont Planning District Commission will have to be modified and approved by the Commonwealth to include the impacts of the uranium mining operations on groundwater and surface water supplies. As it pertains to Federal regulations, Virginia may seek to expand its current approval by the USNRC as an Agreement State Program to cover the oversight process for the mining and milling operations.

h. Methods for incorporating "As Low As Reasonably Achievable" (ALARA) standards into Commonwealth regulations of uranium mining and milling

As Low as Reasonably Achievable (ALARA) is an industry term for limiting exposure to radiation. There are four basic methods to achieve this. The first is by time. This is done by reducing the time of exposure. The second is by distance. This is done by increasing the distance from the radiation. The third is by shields that can reduce radiation by scattering (making it weaker) or by absorption. The fourth is by controlling the amount. The amount of radiation is controlled by making the source weaker or the opening the radiation passes through smaller.

In a uranium mine and mill, the initial ore is only 2-3% uranium. The radiation at this point is of low dosage. The personnel in the mine or mill will have limited time in contact with the uranium ore or milled product. Their time of work day, like a long distance truck driver, will be set in the new regulations. Operations will be by remotely controlled equipment so there will be some distance from the uranium and the operators. This can be put in the regulations too. Buildings and equipment can be made of denser material than would be required for structural strength. Thicker gauge steel or denser and thicker concrete can be used with little additional cost. The amount of radiation can be controlled by smaller ore piles, narrower but faster conveyors, smaller tanks, etc. The structures and equipment will be engineered to limit the concentration of the radioactive material.

III.B.2.h. (cont.)

The professionals who design a mine or milling plant will juggle these four factors to get the most cost effective solution. All equipment and processes should use justification of exposure, limitation of exposure and optimization to use "Low Doses" to make ALARA a reality. In terms of the conceptual regulatory framework, maximum safety to the workers, community members and environment will be considered more heavily than the economic sustainability side of the equation.

i. **Methods for addressing risk of catastrophic events into the Commonwealth's uranium mining and milling regulations and the Commonwealth of Virginia's Disaster Preparedness Plan**

The Project Team will offer assessment of risks regarding potential catastrophic events. These recommendations will include vulnerability analysis for security events, risk analysis for natural disasters (including extreme weather events such as tornadoes, hurricanes, etc.); minimization of both long-term and short-term environmental effects of the failure of a waste containment facility or a temporary storage area; the potential for extreme flooding events; the potential for landslides and debris flows; the potential for seismic events; and will address the potential impact of failures of on-site storage facilities or accidents in the loading and transportation of chemicals on groundwater quality. An evaluation of catastrophic weather, seismic and flooding events will be determined to set benchmark minimum design criteria for mining and milling facilities. Due to the inherent risks of facility failure in consideration of uranium ore's unique properties, worst case planning must be incorporated to prevent decades- or centuries-long problems associated with clean up after a catastrophic event.

j. **Identification and analysis of life span financial assurance mechanisms**

Should uranium mining and milling be permitted within the Commonwealth, the public must be assured that the mine operators will provide for modern mining practices for continuous rehabilitation of all aspects of the site during the entire life of the operation, including post-closure. Operators must ensure that the life cycle costs as well as long-term stewardship are reflected in the type of and amount of financial surety as required by the regulatory framework. Similarly, the public must be assured that any costs of rehabilitation, or liability due to catastrophic events are not passed on to the public, but instead are borne directly by the operators. The unique nature of the uranium ore and its consequent hazards require that an unusually high surety be required of the operators, which is not generally required of mine operators of other minerals.

III.B.2. j.(cont.)

At a minimum, best practices require: 1. A Security bond issued by a bonding company. The bond amount will be enough to cover any accident or clean up or remediation after at least 35 years.

2.A large reserve fund is another way to provide financial assurance. The owner of the mine will contribute a fixed or increasing variable amount each year to build up the value in the reserve fund. This can be financed by a surcharge on the uranium sold.

3. Uranium companies must have their own insurance for liability. Requiring liability coverage is another way to mitigate risk.

Limits for all of these strategies must be evaluated by the Workgroup in order to ensure public confidence that good stewardship, risk management, and end-of-operations management are well accounted for.

k. Evaluation of validity and reliability of site-specific data provided by Virginia Uranium, Inc. and its contractors, and analysis of these baseline conditions

1) Once the regulatory framework is established, and all expectations for the safe and sustainable operations of the Coles Hill site have been addressed, the proposal from Virginia Uranium, Inc. can be evaluated, as a gap analysis, to determine where shortcomings are obvious and where additional information on baseline conditions and mining and milling operations is needed. It would seem that it would have to be a foregone conclusion on VUI's part that they will need to present a total, comprehensive analysis of the existing, *in situ* conditions of the entire Coles Hill site. As it concerns groundwater and surface waters, there are not many active well monitoring sites in this region managed by DEQ's Ground Water Characterization Program staff, and few stream flow monitoring stations. It will be necessary, again, for VUI to provide sufficient background data on current conditions within the mining project area and downstream/downwind locations.

DELIVERABLE: Interim Analyses of Issues—Due: As needed for meetings with the Workgroup.

DELIVERABLE: Final Report—Due: October 15, 2012.

Southeast RCAP shall provide a monthly report of subcontracting expenditures with small businesses in accordance with the Small Business Subcontracting Plan. This report shall be submitted by the 10th of each month to the DEQ Contract Officer, Patsy Jones.

IV. PROPOSAL PREPARATION AND SUBMISSION INSTRUCTIONS

A. GENERAL INSTRUCTIONS

1. RFP Response: One (1) original and five (5) copies of this proposal are attached.
2. Proposal Preparation: Southeast RCAP agrees to the submission requirements.
3. Oral Presentation: Southeast RCAP agrees to the potential need for a fact finding and explanation session in which the Project Manager would be required to attend.

B. SPECIFIC PROPOSAL INSTRUCTIONS

1. RFP cover sheet—please see page 1
2. Offeror Data Sheet—please see Attachment A, **page 23**
3. Written narrative statement to include:
   a. Experience in providing the services, please see **page 4**
   b. Names, qualifications and experience of personnel to be assigned to the project, please see **pages 4-7**
   c. Resumes of staff to be assigned to the project, please see **pages 27-49**
4. Specific plans for providing the services requested in the Statement of Needs, please see **pages 3-20**
5. Proposed Price: Please see Pricing Schedule, Section XI on **page 22**
6. Small Business Subcontracting Plan: Please see Attachment B, **pages 24, 25**
7. State Corporation Commission Form: Please see Attachment C, **page 26**

V. EVALUATION AND AWARD CRITERIA:

Southeast RCAP agrees to the proposal evaluation criteria and award outlined in the RFP.

VI. REPORTING AND DELVIERY INSTRUCTIONS:

Southeast RCAP agrees to the reports and deliverables schedule outlined in the RFP.

VII. MANDATORY PREPROPOSAL CONFERENCE:

Russell Rice, Southeast RCAP Director of Planning & Development, represented the agency at the March 13, 2012 mandatory preproposal conference.

VIII. GENERAL TERMS AND CONDITIONS:

A.—BB. Southeast RCAP agrees to the general terms and conditions set forth in the RFP.

IX. SPECIAL TERMS AND CONDITIONS

A.—H. Southeast RCAP agrees to the special terms and conditions set forth in items A—H.

I. PROJECT MANAGER

Name of Project Manager: Val Green
E-mail Address: vgreen@sercap.org
Telephone Number: 803-446-7110 cell

J. SMALL BUSINESS SUBCONTRACTING AND EVIDENCE OF COMPLIANCE:

Southeast RCAP agrees to the goals of the Small Business Subcontracting Plan.

K. STATE CORPORATION COMMISSION IDENTIFICATION NUMBER:

Southeast RCAP's VSS Account Number is e31975.

L. SUBCONTRACTS:

Southeast RCAP agrees that no portion of the work shall be subcontracted without prior written consent of the purchasing agency.

X. METHOD OF PAYMENT

Southeast RCAP agrees to the terms of payment.

XI. PRICING SCHEDULE

GRAND TOTAL PRICE **$87,500**

XII. ATTACHMENTS

A. Offeror Data Sheet (please see **page 23**)
B. Small Business Subcontracting Plan (please see **pages 24, 25**)
C. State Corporation Commission Form (please see **pages26**)
D. Resumes of staff to be assigned to the project (please see **pages 27-49**)

ATTACHMENT A

OFFEROR DATA SHEET

Note: The following information is required as part of your response to this solicitation. Failure to complete and provide this sheet may result in your proposal being scored lower.

1. Qualification: The vendor must have the capability and capacity in all respects to satisfy fully all of the contractual requirements.

2. Vendor's Primary Contact:

   Name: Hope F. Cupit, CPA Phone: 540-345-1184 ext. 121

3. Years in Business: Indicate the length of time you have been in business providing this type of good or service:

   34 Years 5 Months

4. Vendor Information:

   eVA Vendor ID or DUNS Number: e31975

5. Indicate below a listing of at least four (4) current or recent accounts, either commercial or governmental, that your company is servicing, has serviced, or has provided similar goods. Include the length of service and the name, address, and telephone number of the point of contact.

   A. Company: Dept. HHS-OCS Contact: Katrina Morgan
   Phone: (202) 401-5513 Fax: (202) 401-4687
   Project: Water & Wastewater Technical Assistance Project
   Dates of Service: 10/1/11 to present $ Value: 717,672

   B. Company RCAP Contact: Robert Stewart
   Phone: (202) 408-1273 Fax: (202) 408-8165
   Project: USDA Technitrain Water & Wastewater Technical Asstistance
   Dates of Service: 10/1/11 to present $ Value: 918,000

   C. Company: Virginia DHCD Contact: Bill Shelton
   Phone: (804) 371-7000 Fax: (804) 371-7090
   Project: General Assembly Appropriation for Facilities Development
   Dates of Service: 7/1/11 to present $ Value: 968,442

   D. Company: Pulaski County, VA Contact: Shawn Utt
   Phone: (540) 980-7710 Fax: (540) 980-7717
   Project: Pulaski Tornado Recovery Project
   Dates of Service: 10/1/11 to present $ Value: 110,000

I certify the accuracy of this information.

Signed: Hope F Cupit Title: President & CEO Date: 4/2/12

ATTACHMENT B

Small Business Subcontracting Plan

Definitions

Small Business: "Small business " means a business, independently owned or operated by one or more persons who are citizens of the United States or non-citizens who are in full compliance with United States immigration law, which, together with affiliates, has 250 or fewer employees, or average annual gross receipts of $10 million or less averaged over the previous three years.

Women-Owned Business: Women-owned business means a business concern that is at least 51% owned by one or more women who are citizens of the United States or non-citizens who are in full compliance with United States immigration law, or in the case of a corporation, partnership or limited liability company or other entity, at least 51% of the equity ownership interest is owned by one or more women who are citizens of the United States or non-citizens who are in full compliance with United States immigration law, and both the management and daily business operations are controlled by one or more women who are citizens of the United States or non-citizens who are in full compliance with the United States immigration law.

Minority-Owned Business: Minority-owned business means a business concern that is at least 51% owned by one or more minority individuals or in the case of a corporation, partnership or limited liability company or other entity, at least 51% of the equity ownership interest in the corporation, partnership, or limited liability company or other entity is owned by one or more minority individuals and both the management and daily business operations are controlled by one or more minority individuals.

All small businesses must be certified by the Commonwealth of Virginia, Department of Minority Business Enterprise (DMBE) by the due date of the solicitation to participate in the SWAM program. Certification applications are available through DMBE online at www.dmbe.virginia.gov (Customer Service).

Offeror Name: Southeast RCAP, Inc.

Preparer Name: Hope F. Cupit, CPA **Date:** 4/2/12

Instructions

A. If you are certified by the Department of Minority Business Enterprise (DMBE) as a small business, complete only Section A of this form. This shall not exclude DMBE-certified women-owned and minority-owned businesses when they have received DMBE small business certification.

B. If you are not a DMBE-certified small business, complete Section B of this form. For the proposal to be considered and the offeror to be declared responsive, the offeror shall identify the portions of the contract that will be subcontracted to DMBE-certified small business in Section B.

Section A

If your firm is certified by the Department of Minority Business Enterprise (DMBE), are you certified as a **(check only one below)**:

_____ Small Business

_____ Small and Women-owned Business

_____ Small and Minority-owned Business

Certification number: N/A Certification Date: _____

Section B

Populate the table below to show your firm's plans for utilization of DMBE-certified small businesses in the performance of this contract. This shall not exclude DMBE-certified women-owned and minority-owned businesses that have received the DMBE small business certification. Include plans to utilize small businesses as part of joint ventures, partnerships, subcontractors, suppliers, etc.

B. Plans for Utilization of DMBE-Certified Small Businesses for this Procurement

Small Business Name & Address DMBE Certificate #	Status if Small Business is also: Women (W), Minority (M)	Contact Person, Telephone & Email	Type of Goods and/or Services	Planned Involvement During Initial Period of the Contract	Planned Contract Dollars During Initial Period of the Contract
ATS International, Inc. 107 Lester Street, Christiansburg, VA 24073 DMBE Cert.# 648731	(M)	Warren T. Dean, P.G. (540) 382-8861 www.ats-intl.com	geo-technical consulting	geo-technical consulting	$8,000
Totals $					$8,000

ATTACHMENT C

STATE CORPORATION COMMISSION FORM

Virginia State Corporation Commission (SCC) registration information. The offeror:

☒ is a corporation or other business entity with the following SCC identification number: e31975 **-OR-**

☐ is not a corporation, limited liability company, limited partnership, registered limited liability partnership, or business trust **-OR-**

☐ is an out-of-state business entity that does not regularly and continuously maintain as part of its ordinary and customary business any employees, agents, offices, facilities, or inventories in Virginia (not counting any employees or agents in Virginia who merely solicit orders that require acceptance outside Virginia before they become contracts, and not counting any incidental presence of the offeror in Virginia that is needed in order to assemble, maintain, and repair goods in accordance with the contracts by which such goods were sold and shipped into Virginia from offeror's out-of-state location) **-OR-**

☐ is an out-of-state business entity that is including with this offer an opinion of legal counsel which accurately and completely discloses the undersigned offeror's current contacts with Virginia and describes why those contacts do not constitute the transaction of business in Virginia within the meaning of § 13.1-757 or other similar provisions in Titles 13.1 or 50 of the Code of Virginia.

****NOTE**** >> Check the following box if you have not completed any of the foregoing options but currently have pending before the SCC an application for authority to transact business in the Commonwealth of Virginia and wish to be considered for a waiver to allow you to submit the SCC identification number after the due date for offers (the Commonwealth reserves the right to determine in its sole discretion whether to allow such waiver): ☐

Resume for Francis Laval Green, III:

Francis Laval Green, III
81 Hwy 215 N
Blair, SC 29015
Work: 803- 446-7110
Home: 803-635-9785
Fax: 803-635-9785

Email: Kliliya@truvista.net

Education:

1990-1993	New Mexico Institute of Mining & Technology Post Graduate, Environmental Chemistry
1968-69	University of Oklahoma Post Graduate, Water Resources Engineering
1967-68	University of Texas Master of Science, Environmental Engineering
1960-64	Clemson University; Bachelors of Science, Civil Engineering

Employment History:

5/2002—present **Southeast Rural Community Assistance Project, Inc.**
Engineer

- Assist small communities with water, wastewater and solid waste problems.
- Provide training for community leaders on Capacity Development Initiatives.

2/ 2000 – 5/2002 **H2O`DOC INDUSTRIES, Inc**
Owner

- Private Practice Consultant-wastewater, mining,& solid waste
- Teaching Water & wastewater plant operator classes
- Wastewater Technical Assistance Evaluations- Federal Clean Water Act, Sect. 104g- Thru DHEC & SC Environmental Training Center

2/99- 2/2000 **Robert L. Bellamy & Associates**
Engineer

- Business Development
- Site planning and development- Project management
- Solid Waste Facility Closure Plans

- Wastewater and Storm Drainage collection systems

8/89-12/99 **Suntech CM&TS: Environmental, Geotechnical & Mining Consultants**
Engineer

- Evaluation & review of EA, EIS, & permit applications for mining operations, includes expert witness testimony-LAC minerals
- Hydrologic investigation- storm drainage design- Magdalena, NM
- Design of Mineral Reserves and Reclamation Plan- Sandia Pueblo,
- RCRA Municipal Solid Waste Landfill design/ construction- Tri Sect
- Underground storage tank remediation- City of Bernallio, NM.
- Consultant on permitting for landfill operations- Safe Waste Inc.
- Permitting for tire recycling operations- SW Tire Processors, Socorro
- Community water system design- Polvadera, NM
- Wastewater sludge composting facility design-Santo Domingo Pueblo
- MSW Landfill Closure Plan- County of Sierra, NM
- MSW Transfer Station Design (3 facilities)- Sierra Co. NM
- Design of 450,000 gpd Activated Sludge WWTP- San Juan Pueblo
- Permit for Liquid Waste Disposal System- Sierra Co. NM
- Expert Witness- Ted Turner Ranch vs. Gold Resources, Inc.- 1996
- Expert Witness- Lords of London, London Market Insurers, Pecos Mine
- New Mexico Mine Law Task Force- Hard Rock Mining Law
- New Mexico Mining Commissioner

8/89-5/94 **New Mexico Institute of Mining & Technology, Socorro, New Mexico**
Assistant Professor- Minerals & Environmental Engineering
Department

Teaching and research topics:

- Industrial Waste Management
- Environmental Law, Regulations & Ethics
- Environmental Management for Mining Wastes
- Hydrologic Analysis & Design
- Solid & Hazardous Waste Engineering
- Mine Waste Facility Design
- Biological Waste Treatment
- Mining Waste Disposal
- Basic Civil Engineering Courses

1978-89 **South Carolina Land Resources Commission**
Division of Mining & Reclamation, Columbia, South Carolina:
Environmental Engineer

Review & oversight of projects:

- Aquifer containment and remediation- mine site dewatering
- Surface and subsurface contamination from mine process wastes

- Regulatory permitting procedures
- Mining regulations development

1974-78 **Engineering Consultants, Inc., Florence, South Carolina:**
Engineer

Consulting Engineering Company

- Water Distribution Systems
- Waste Treatment Plant and Collection System Design
- Industrial Waste Treatment Design
- Site Development and Storm Drainage

1971-1974 **South Carolina Department of Health & Environmental Control, Florence, South Carolina:**
District Environmental Director

Regulatory supervision:

- Construction and operation of municipal water supply
- Construction of wastewater facilities
- Landfill operation
- Water and wastewater plant operator-training courses with Clemson University

1969-1971 **Sumter Technical College, Sumter, SC:**
Dept. Head, Environmental Engineering Technology Program

Formulated, Developed, and Taught program classes

1968-1969 **Palmer and Mallard & Associates, Sumter, SC:**
Engineer

1965-1968 **Military Service:**

1st Lieutenant, United States Army; Fort Bliss, Texas

Research Grants and Contracts at NM Institute of Technology

- Bureau of Land Management - Engineering Evaluation of Tailings Deposition, Questa Mine
- U.S. Forest Service - HAZ MAT Procedures for Mining Operations
- Socorro County - Solid Waste Landfill Permit Application and Design
- Santo Domingo Pueblo - Sludge Composting Operational Design
- City of Socorro- Hydraulic and Process Design Evaluation for municipal WWTP

Boards and Appointments:

New Mexico State Mining Commissioner- 1993 to 1995
U.S. Environmental Protection Agency Storm Water Regulation Group

New Mexico Mining Law Task Force
Santa Fe County Mine Plans Review Board

Professional Affiliations:

National Association of State Land Reclamationists
Water Pollution Control Association
American Society of Civil Engineers
Society for Mining, Metallurgy, and Exploration

Solid Waste Management Experience & Projects

- State of New Mexico Environment Department- Solid Waste Management Regulations- contract to write
  - ◊ Section 303- Siting Criteria for Construction and Demolition Landfills;
  - ◊ Section 306- Design Criteria for Municipal or Special Waste Landfills;
  - ◊ Section 307- Testing and quality control for Geomembrane and Soil Material Liners for MSW Landfills- 1994
- Horry County Landfill, Conway, SC- Chemical trace study of leachate from landfill- from groundwater and surface sources.–2000.
- Kimberly- Clark – Jackson, SC – Groundwater monitoring and Landfill Closure plan for Industrial Waste Landfill. – 1999.
- Application for Permit to Operate Municipal Solid Waste Landfill, Valencia Co. for Robbins and Associates, Albuquerque, June 1990.
  This project involves the preparation of an application for a permit to operate a large regional landfill in South Central New Mexico. A private consortium interested in developing a regional landfill supplied by rail transport sponsored the project.
- Lincoln County Solid Waste Management Study.
  Phase I: Economic Assessment of Alternatives. March 1991.
  Phase II: Evaluation of Potential Landfill Sites. July 1991.
  The Lincoln County Solid Waste Management Study was completed in July 1991. This study was designed to provide an economic assessment of the options available to Lincoln County in managing their solid waste. It further evaluated the entire county for potential landfill sites. It developed a methodology for land-data processing to evaluate large areas.
- Socorro County Solid Waste Landfill Application for Permit.
  A preliminary site evaluation and geotechnical report for a Socorro County landfill site in 1990. The second phase of this project involves the preparation of an application to operate a solid waste management facility to be submitted to the Solid Waste Bureau of the New Mexico Environment Department.

- Southern New Mexico Regional Landfill.
  This project involved the collection of field data and the preparation of the Application for Permit to Operate a regional Solid Waste Landfill in Sierra County. The facility is initially designed to dispose of 1900 tons/day of municipal solid waste.

- Preliminary Site Assessment. *PSA's were prepared under Section 213 of the New Mexico Solid Waste regulations (1991) for the following entities: Socorro County - three sites, City of Socorro, and City of Truth or Consequences*

- Site Assessment, Landfill Permit and Design, and Site Closure, City of Truth or Consequences.
  This project evaluated the remaining capacity in the current landfill, selecting a site for a new disposal facility, preparing a Permit Application, and design plans for a new disposal facility. It also included preparing a closure plan for the existing facility.

- Engineering for Construction and Quality Control/Assurance (QA/QC), Tri-Sect Landfill, Valencia County.
  Phase I for the Tri-Sect landfill has been completed with Suntech Engineers providing general site construction engineering and QA/QC on the liner system for the disposal cell. The liner system was constructed to conform to the latest provision of RCRA (Subtitle D). The Tri-Sect site is a privately owned disposal facility slated to eventually have a disposal capacity of 1900 acres.

- Solid Waste Transfer Station Design, Sierra County.
  Provided design engineering for a 120-yd3 transfer station. Completed Spring 1994.

- Transfer Station Design and Closure Plan, Village of Magdalena.
  Design of an 80-yd3 transfer station and closure plan for an existing 10-acre landfill facility.

- Tire Recycling and Disposal Operation Permit, Southwest Tire Processors, 1995.
  Assisted in preparation permit application following NMED Solid Waste Regulations.

- Transfer Station Design and Construction Management, Sierra County, NM. Winston and Hillsboro Transfer Stations, 1998.

- Evaluation for Monitoring Reporting of an Industrial Solid Waste Landfill Closure Plan, Kimberly-Clark Mill, Jackson, SC., 2000.

- Hydrologic Investigation of Upgradient Water Quality parameters- Horry County Solid Waste Authority, 2000.

Mine Waste Management Experience:

- Chino Mine - **Design of Stream Gauging Station**, Whitewater Creek, Grant Co., NM, 1991.
- Bureau of Land Management - **Evaluation of Tailings Dam and Storage Facilities**, Questa Mine EIS, Taos Co., NM, 1992.
- U.S. Forest Service - Training Course, **HAZMAT Procedures for Evaluation of Mining Operations**, Socorro Co., NM, 1992.
- New Mexico Energy and Natural Resources Department, Mining and Minerals Division - **Technical Advisory Committee** for New Mexico State Mining Regulations (NM Mining Act 1993).
- Mining Remedial Recovery Company - **A Geochemical Characterization of Tailings at the Hanover and Bullfrog Mines**, Grant Co., NM, 1993.
- Pueblo of Sandia - **A Mineral Resource Assessment & Mining Plan for Sandia Pueblo Tribal Lands**, Bernalillo Co., NM, 1994
- Gold Resources Inc. - **A Chemical Method for Estimation of Leakage through an Earthen Tailings Dam**, Copper Flats Mine, Sierra Co., NM, 1994.
- Friends of Santa Fe County vs. Lac Minerals – Ortiz JV Project- **Expert Witness- USEPA Clean Water Act litigation, 1995**
- Ladder Ranch- Ted Turner Ranches, (Copper Flat Mine Permit) vs. Gold Resources, Inc. - **Expert Witness, 1996**
- Ladder Ranch- Ted Turner Ranches,(C. F. Mine Water Use Permit) vs. Gold Resources, Inc.- **Expert Witness, 1998**
- Acequia De Gavilan, et al, vs. Espanola Transit Mix Company, Rio Arriba Co, N.M.- **Expert Witness, 1998**.
- Lloyd's London & London Market Insurers (Subsidiary of Lloyd's of London) vs. Cyprus Amax Minerals Inc., **Site Consultant, 1999**.
- Kimberly Clark- Beech Island Plant—**Industrial Solid Waste landfill Evaluation**- report for reducing monitoring requirements, 2000.

Courses taught at Central Carolina Technical College

1. Wastewater- levels A,B, C, D biological
2. Wastewater- levels B,C,D, physical / chemical
3. Water- levels B,C,D
4. Hydrology- Hydrogeology of SC Aquifers, Waterwell Hydraulics, Aqueous Geochemistry of Groundwater
5. Wastewater- Lab Procedures, Activated Sludge Process Control
6. Hazardous Waste- First Responder Procedures
7. Hazardous Waste Identification

Resume for Robert B. Britts:

ROBERT P. BRITTS, P.E.
330 Spruce Glen Road
Lexington, SC 29072
(803) 356-2208; Alternate (803) 446 7145
Email: brittsrp@att.net

PROGRAM ADMINISTRATOR with experience in environmental regulations, accounting for grants management, and program implementation. Demonstrated results for obtaining funding for non-qualified communities. Exceptional analytical and problem solving skills with the ability to investigate, evaluate, and implement for results for process and compliance goals.

PROFESSIONAL EXPERIENCE

2001-present SOUTHEAST RURAL COMMUNITY ASSISTANCE PROJECT, INC. Columbia, SC

Director of Regional Programs Manages technical environmental assistance programs for rural communities in DE, MD, VA, NC, SC, GA and NC; administered five grants; wrote two grants

- Reported activities for 5 to 7 staff in the three state sub-region to regional director
- Created partnerships with other non-profit agencies to accomplish goals
- Sought out other applicable grants/loans to develop leveraged funds
- Established the Columbia and Walterboro SC offices and hired three more staff members
- Conducted training for 22 town councils in SC
- Made presentations at four national or state conferences

1999-2000 SAFETY-KLEEN CORPORATION (Environmental Management)

TEAM Engineering Specialist (1999-2000) Charlotte, NC

- Evaluated customer's environmental process
- Created technical proposals to enhance environmental mgt.
- Transmitted proposals to corporate office for final publication and made verbal presentations to customers

1979 – 1998 DEVRO-TEEPAK, INC. (Collagen Casing Mfg.) Columbia, SC

Process Development Engineer (1996 – 1998)
Responsible for evaluating plant tests, developing processes, start-up of machines, operating pilot machines defining the new processes, and documenting all results.

- Developed three new product colors in two years, which helped to increase profits by 25%.

Senior Development Engineer (1985 – 1996)
Responsible for sanitation, mold control, bacteria control, yield improvement, statistical process control, training, and departmental compliance to ISO standards.

- Initiated own certification studies and became ASQ Certified Auditor in order to conduct better ISO Internal Audits.

- Worked with MIS to convert paper control charts to computerized statistical process control charts that improved control of eight variables by 10%.

Technical Services Engineer (1979-1985)

1974–1979 *ARAPAHOE CHEMICALS, INC. (fine chemicals)* *Newport, TN*

Production Engineer (1974 – 1976)

EDUCATION

PURDUE UNIVERSITY, Hammond IN
M. S. Degree - Industrial Management

VIRGINIA POLYTECHNIC INSTITUTE, Blacksburg VA
B. S. Degree - Chemical Engineering

PROFESSIONALTRAINING

- Statistics, University of Georgia
- Assertiveness, University of South Carolina
- Accounting Best Practices for Non-Profits, Williams Young & Assoc.
- Courses at eight RCAP National Policy Conferences; two AWWA conferences, one WEF conference

COMMUNITY ASSOCIATIONS

- U. S. Jaycees, in three states, officer four years
- President, Oak Grove Civic Club, Lexington SC, 1994
- American Red Cross Disaster Action Captain
- Water Missions International, Hurricane Katrina Disaster Recovery Team in MS, 2005-2007
- Men's Divisions International

CERTIFICATIONS/MEMBERSHIPS

- Registered Professional Engineer, SC
- Certified Water Operator, SC
- AIChE Section, Columbia SC, President
- Certified Waste Water Operator, SC
- Certified Quality Auditor; Certified Provisional ISO Auditor
- Member ASQ
- Member AWWA,WEASC

Robert P. Britts, Project Experience

Robert Britts had been Regional Program Manager for Southeast RCAP since 2003 and Director of Regional Programs since 2011.

1. **Management Trainee and Supervisor at Bethlehem Steel, Bethlehem PA and Burns Harbor IN**

His first position after college, in 1970, was with Bethlehem Steel, a large basic steel mill in Burns Harbor, Porter County IN. In this industrial mill, operations included reaction of coal to coke and coke and iron ore to raw steel. Typical solid handling processes were controlled in the multistep process. These processes included coal and iron ore handling, gas furnaces, dust control, air pollution control devices, solids handling including conveyors, cranes, railcars, trucks, bucket elevators, etc. The raw materials in basic steel mills come from coal and iron ore mines. Relevant industrial experience was received in solids handling, water pollution monitoring and control, air pollution technologies and solid liquid reactions

2. **Laboratory Technician at Thermark, Avery Products, Schererville IN**

The next position, in 1973, was at Avery Products in Indiana. This was a part time technician in a paint and coatings development laboratory while going to school. He received an M S. Degree in

Industrial Administration from Purdue University in this period. There was limited chemical lab experience gained in this two year period.

3. **Process Engineer and Production Engineer and Start Up manager for Arapahoe Chemicals, Division of Syntex Corporation, Newport TN**

In 1974, Mr. Britts was a Process Engineer and later a Production Engineer and Start-Up Manager for Arapahoe Chemicals in Newport TN. This was an industrial chemicals and fine chemical facility. Raw materials were in the form of industrial chemicals that arrived in tank wagon trucks. Other raw materials were bulk powders that were in drums. The finished product was usually a dry powder. Valuable experience in industrial processes, chemical reactions, solids and liquid handling and transportation, safety, process control and quality control, and efficiency was gained in this position. This was a regulated facility as the Food and Drug Administration approved the processes and the final product. New products that were created in the laboratory and then pilot plant were brought in the production in this facility. Unit operations that are relevant to any other facility where solids and liquids are used to get a concentrated new compound were mixing, chemical reaction, filtration, both static and by centrifuge, solid size reduction and control, drying, and screening. Safety was an important facet of this position as extremely dangerous chemicals such as aniline, sulfur trioxide and phosgene (gas) were used in the production of the intermediates and finished products. Handling of these dangerous chemicals required safety equipment, process controls and a plan for emergency operations and evacuation. This industrial experience included process development and improvement, quality control, safety, compliance with regulations, and product development.

4. **Process Development Engineer and Senior Development Engineer for Teepak, Inc. later to become Devro, Ltd, Columbia SC**

In 1979, he joined Teepak, Inc. in Columbia SC as a Process Development Engineer. He later was promoted to Senior Development Engineer for Devro-Teepak, Inc. In this capacity he became a Certified Quality Auditor and an ISO Lead Auditor. This position lasted for over 19 years. In this position, he was responsible for start up of new production lines, introduction of new chemicals and raw materials, development of new processes, and quality improvement process. The unit operations in this facility included mass production, handling of the sold and semi-solid product all along the way, safe handling of strong acids and gaseous ammonia, drying, packing and quality improvement. He became a Certified Quality Auditor and was the Lead Quality Trainer for the plant. Courses were taken to become an Environmental Management Auditor (ISO 14001). This major career position solidified credentials to become a Senior Process, Production, Safety and Quality Engineer.

In the early 1990s Mr. Britts was Chairman of the Columbia SC section of the American Institute of Chemical Engineers (AIChE). In this position he regularly met with other Chemical Engineers

who worked at the nearby Westinghouse Nuclear Fuels plant in Columbia SC. This facility converts processed uranium in to fuel grade pellets. Through these professional contacts and a tour of the Westinghouse Nuclear Fuels plant in Columbia one evening, he gained knowledge of the challenges and success of handling large amounts of uranium.

During this period, he went from an Engineer-in-Training in 1978 to become a Professional Engineer in 1983. As a part-time private consultant working for industrial consultant Tom Scala and for himself, Mr. Britts performed engineering studies and signed and sealed plans for a chemical plant, a sign plant the used heavy metals, and an industrial sand plant.

5. **TEAM Engineering Specialist for Safety-Kleen, Charlotte NC**

In 1999, he was TEAM (Total Environmental Activity Management) Engineering Specialist for Safety-Kleen Corporation at their Charlotte NC branch. His responsibilities were to accompany and environmental audit team on visits to regional and commercial establishments. These audits were to identify all types of waste and decide on any equipment or process changes to minimize waste streams. Many of these customer or potential customer sites used hazardous chemicals, heavy metals, heavy industrial equipment, etc. The "TEAM" team looked at the financial, health and safety and engineering solutions to waste generation.

6. **Technical Assistance Specialist, Regional Program Manager and Director of Regional Programs. Southeast RCAP, Columbia SC (Home office is in Roanoke VA)**

He joined Southeast RCAP in 2001 as Technical Assistance Manager and was promoted to Regional Program Manager in 2003. He was appointed Director of Regional Programs in 2011. Early in this position, he conducted site visits and needs assessment all over South Carolina.

He has been Lead Trainer for South Carolina. He has created and presented numerous presentations on system management and capacity development. Since 2005 he has managed the programs in GA, NC and SC and indirectly supervised 11 technical staff in those states. He has written several grants with the latest one funded for Community Vulnerability Assessment Tool for Disaster Response, Mitigation and Funding for Edisto Beach SC. He is on the National Rural Community Assistance Partnership (RCAP) Training Work Group and meets with other Program Managers from all the regions on a regular basis. He has been to seven RCAP national training conferences. He has benefitted from environmental training received at one national Environmental Training Institute for Small Communities by NETC, two American Water Works Association (AWWA) national ACE conferences, and one Water Environment Federation (WEF) national WEFTEC conference.

Resume for Larry Wallace:

Larry W. Wallace, P.E., M.ASCE

Summary of Qualifications:

Mr. Wallace is a senior civil engineering manager with over 40 years of experience in public works and municipal engineering, and development engineering services, having been a registered professional engineer for over 30 years. During this time, Mr. Wallace has served in numerous engagements for public and private entities including positions as corporate officer, principal, senior civil engineering manager, business development manager, and municipal officer. He is a registered professional engineer in Virginia, North Carolina and Maryland.

Education:

Johns Hopkins University
Baltimore, Maryland
Graduate Studies in Masters Program for Environmental Engineering
1994

George Washington University
Washington, D.C.
Graduate Studies in Masters Program for Business Administration
1981

Virginia Polytechnic Institute and State University
Blacksburg, Virginia
Bachelor of Science Degree in Engineering Technology – Option: Civil
1976

J. Sergeant Reynolds Community College
Richmond, Virginia
Associate in Applied Science Degree in Civil and Highway Technology
1974

Professional Experience:

Registered Professional Engineer:
Virginia #013443
North Carolina #10827
Maryland # 16998

Southeast Rural Community Assistance Project (SERCAP)
347 Campbell Avenue, S.W.

Roanoke, Virginia

June 2010 - Present

Virginia State Program Manager – Manger of Regional Programs for SERCAP, a non-profit organization providing funding, capacity building support, and technical assistance to rural communities across Virginia in developing adequate, safe, and affordable drinking water and sewage facilities. Managed programs funded by EPA, HHS/OCS, USDA Rural Development, and Virginia programs funded through VDH and DHCD. Working under SERCAP's ARRA grant through RD to provide assistance to the recipients, provided technical support in grant management, Federal reporting requirements, records and project management assistance, financial accounting, obtaining user agreements, and assisted in completion of RD's Letter of Conditions requirements for the communities. Projects included water distribution and water supply treatment facilities, sewage collection and treatment facilities, and utility systems expansions to previously un-served portions of many rural Southside and Southwest Virginia counties. Worked directly with municipal governments and public service authorities for these services, and coordinated activities with the Area offices of Rural Development.

Draper Aden Associates
2206 South Main Street
Blacksburg, Virginia

February 2001 – March 2009 Associate / Senior Program Manager

Team Leader of Site Planning & Engineering group: Responsible for business development and marketing, client relations and management, staff development, hire/fire responsibility, team oversight and management, engineering design, plan and specifications development, QA/QC program management, and P/L responsibility for development engineering and landscape architecture/planning team.

Senior Program Manager and Business Development Manager: Served as the senior member of the Quality Control Committee for 5 years, assisting in the development of QA/QC protocols, development of a third-party review process for project plans, file naming convention development, project manager training program planning, and CAD standards development. In the position as BD Manager, was responsible for identifying new prospective service areas and clients for the firm, and developing and managing new work from private sector clients, primarily in the land development field. As Program Manager, was responsible for managing and directing the efforts of the Site Planning and Engineering staff on various projects.

Areas of expertise include planning and analysis of facility and land development projects, zoning and land planning analysis, feasibility studies, facility and building programming, value engineering, preliminary engineering reports, cost estimating, master plan development for utilities, transportation and storm water management projects; facility development, environmental impact mitigation and permitting, water resources planning and design, and construction inspection and management.

The Wallace Group, Inc.
Bent Mountain, Virginia

1998 – 2002 Principal / Owner

Owner and manager of my own civil engineering consulting firm based in Roanoke County, Virginia. Responsible for marketing/business development, engineering design, AutoCAD drawing production, engineering report development, financial management, and corporate administration.

Engineering Concepts, Inc.
20 South Roanoke Street
Fincastle, Virginia

1995 – 1998 Partner / Senior Engineer / Branch Manager

As Senior Engineer and Partner, was responsible for business development and growth management of small civil/environmental/industrial consulting business based in Fincastle, Virginia. Had oversight responsibility for land development projects and staff development and management. Was responsible for business development and marketing for all services provided by the firm, including industrial engineering and machine design.

Daft MCune Walker, Inc.
200 E. Pennsylvania Avenue
Towson, Maryland

1993 – 1995 Vice President

Vice President in Civil Engineering Division of well known Maryland-based Landscape Architecture firm, primarily responsible for management of land development, storm water management and erosion and sediment control design for all projects. Projects generally centered on site-sensitive planning and design with the emphasis being on the management of the landform to support and augment the building program while at the same time respecting the natural setting and environment of the site. Worked with integrated team consisting of planners, architects, wildlife biologists, stream restoration and wetland specialists, and engineers.

Ben Dyer Associates, Inc.
11721 Woodmore Road
Mitchellville, Maryland

1989 – 1993 Vice President / Corporate Secretary

Vice President / Corporate Officer for 80-person planning, engineering, and surveying firm in the Maryland suburbs of Washington, D.C. Reported to President and CEO. Served as Head of the Engineering Department, managing approximately 26 Staff members, including 4 senior project managers. Departments included sewer and water design, storm drainage and SWM, erosion and sediment control, and site planning.

Dewberry & Davis, Inc.
551 Piney Forest Road
Danville, Virginia

1983 – 1989 Associate – Head of Engineering

Served as head of engineering department for the Danville branch office of Fairfax-based national consulting firm, responsible for all public works and development engineering projects. Hire/fire, and P/L responsibility. Was responsible for substantial business development and marketing efforts for 16 counties in Southside Virginia and 8 counties in North Carolina.

John Allen Associates
Bethesda, Maryland

1979 – 1983 Project Manager

Project Manager and Project Engineer for 40-person engineering and surveying firm in Bethesda, Maryland. Primary responsibility was engineering design and drafting, project management.

Charles R. Johnson, Inc.
Reston, Virginia

1977 – 1979 Project Engineer

Engineering designer and survey computer for small land development engineering firm. Performed engineering design for grading and drainage plans, performed survey computing for house location surveys, boundary surveys, and road design projects. Managed field survey crews, assembled survey data and information packages for survey teams.

Town of Herndon, Virginia
777 Lynn Street
Herndon, Virginia

1976 – 1977 Town Engineer

Town Engineer for suburban community in Fairfax County, Virginia. Responsible for all municipal engineering design and construction projects. Managed team of construction inspectors and project managers.

City of Williamsburg, Virginia
401 Lafayette Street
Williamsburg, Virginia

1970 – 1972 Engineering Aide
Engineering aide and surveyor for public works department for Williamsburg. Responsible for street and drainage design, plat preparation, zoning map updates, water and sewer line design, and field surveying.

Project Experience:

1. **Town of Halifax 201 Program Improvements Project and Subsequent CDBG Projects, Halifax County, Virginia** – Served as chief project engineer and designer for the wastewater collection system portion of the Halifax 201 project in the early 1980's. As part of the overall 201 project that would construct a new WWTP, was responsible for the routing studies and design for approximately 9 miles of new interceptor and collector sewers that would serve the existing sewer shed as well as expanding the system service area in order to increase service fee revenues to support the system. In addition, 4 new pumping stations and 5 miles of sewage force main were designed to serve the expanded service area. Subsequently, in 1985 and 1986, assisted the Town in preparing successful applications for additional CDBG funds for another system expansion to serve a large LMI population area on the west side of town, and for a bathroom improvements project. Was responsible for the routing and design for these additional projects, as well as grant administration and construction project administration and inspection.

2. **Town Engineer, Town of Herndon, Virginia** – First town engineer for this fast growing suburban community located in Fairfax County, Virginia. Managed public works staff, town facilities inspectors, and on-going town construction projects. Designed signalization for major street intersection, storm water conveyance systems, sanitary sewer improvements, major circumferential highway network, and town-wide sidewalk project. Supervised annual paving contract for town streets. Initiated site development plan review process.

3. **Howard County Stormwater Management Ordinance, Maryland** – As a member of the Public Works Committee of the Suburban Maryland Homebuilders Organization, Mr. Wallace provided feasibility analysis and technical review of Howard County's major update to its storm water management ordinance. Participated in numerous public review meetings with County staff from the engineering, planning, zoning, and inspections departments to garner stakeholder input.

4. **Virginia Department of Transportation Starkey Area Headquarters, Roanoke County, Virginia** – As Civil Engineering consultant to Virginia A&E architects, served as senior project manager for the development of a new VDOT Area HQ located near Cave Spring in Roanoke County. Services included developing a site master plan, schematic design options for a phase growth plan, site development plans, surveying, utility coordination, storm water management and erosion control plan development, and bid and construction phase services for a new approximate 9,700 SF administration facilities, garage, equipment staging yards, and salt dome. Coordinated design with the Salem District and Residency offices.

5. **Union Camp Corporation Mill Waste Landfill** – Project manager for Phase I-Landfill expansion to serve the Union Camp Corporation Paper Mill (now International Paper), Franklin, Virginia, facilities. Project involved extensive groundwater and subsurface investigations to meet state and Federal guidelines. Services provided included several detailed grading plans for construction of waste cells, an active leachate collection system, leachate and contaminated runoff collection pond, leachate pumping station and force main, electrical and site lighting plans, access road design and groundwater interceptor trench design. Total area in landfill was 100 acres.

6. **Franklin County Virginia Consulting Engineer Contract – FY 99-01, 01-02** – Principal-in-charge of open-end professional services contact with the Franklin County Department of Planning and Community Development. Provided engineering review of erosion and sediment control, and storm water management plans submitted for development projects; provided field inspections for review of E&S and SWM installations; provided review of rezoning and special use permit applications; assisted the County with analysis of existing sewer and water regulations, initiated efforts to re-write the County Code sections dealing with water and sewer systems for new development; provided assistance to County Parks and Recreation Department for development of new park at Smith Mountain Lake, and developed engineering report of existing conditions at Waid Recreation Center in support of TEA-21 grant application.

7. **Facilities/Real Property Database Development – VDOT Staunton District, Virginia** - Working with Marsh Witt Architects of Roanoke, assisted in the development of a computer-based inventory and database of all VDOT-owned real property and built facility installations within the Staunton District's boundaries. Worked with project manager on database development and troubleshooting. Assisted in the evaluation of physical improvements and site infrastructure for various area headquarters.

8. **Rotational Landslide Remediation – Pinnacles Hydro-Electric Complex, Patrick County, Virginia** - The City of Danville, Virginia owns and operates the Pinnacles Hydro-Electric Complex, located in the steep mountain terrain of Patrick County, Virginia. The project consists of a 10-megawatt power plant, two reservoirs, interconnecting water conduits, and more than 3,600 acres of protected watershed. Was responsible (as The Wallace Group) for field studies, surveys and ultimate design of a slope remediation project to correct a rotational landslide at the upper reservoir's dam on the Dan River. Developed detailed grading and drainage plans for slope failure remediation and improvements to turbine facility infrastructure.

9. **City of Danville, Virginia – Citywide Stormwater Management Study** – Project manager and engineer for a city-wide comprehensive storm water management study for the City of Danville, Virginia. Was responsible for project oversight and was directly responsible for development of the report sections that addressed the then current SMW regulations observed by other municipalities in the region and the development of a policy document addressing storm water drainage, management, erosion, flooding, comprehensive planning and system design requirements. Studied funding methods including the establishment of a fee collection system (storm water utility) for in-lieu payments to a regional storm water management fund.

10. **Central Downtown Business District Zoning Analysis – Town of Blacksburg, Virginia** – Project manager providing civil engineering and infrastructure input for a critical study and analysis of zoning for the central downtown business district of the Town. Scope of services included participating in all public workshops and hearings, site reconnaissance, and work sessions with the Town staff and community stakeholders. Primary responsibility was to determine impacts of various zoning requirements on the built environment, including pedestrian access, parking drainage, walkways, and street corridor hardscapes.

11. **Site Selection Study, Pulaski County, Virginia** – Project manager for site selection study of seven potential sites locate in the Town of Pulaski and Pulaski County for the development of both a new elementary and middle school to serve this Southwest Virginia community. Working with the County Administrator and School Board staff, a detailed site and utility development-cost matrix was developed in order to rank the potential properties selected for analysis. Compiled data on assessed land values, topography, soils, location in bus transportation network, proximity to existing public utilities, and projected development costs for each site. Developed preliminary grading schemes for each site as well as potential utility extensions necessary to serve the school development.

12. **2006 – 2016 Campus Masterplan - Virginia Tech** – Civil engineering team member (with HEWV Architects) for the development of the next 10-year Masterplan for the main campus of Virginia Tech in Blacksburg. Initial efforts provided the team with a constraints analysis of the existing drainage systems, floodways, and stream corridors on campus. At the time of the study, the existing paradigm for dealing with storm water management for new development on campus was to utilize the storm water management credit remaining in several pre-existing surface impoundments downstream of the main campus. The recommendations developed as part of the master planning effort encouraged future development plans to take advantage of all

possible site LID design techniques and LEED approaches for building design during the planning and program development phases of each project, in effect, attacking the problems of quantity and quality management at the point of development, rather than downstream.

13. **Lawrenceville CDBG Community Improvements Project, Brunswick County, Virginia** – Working with the County, Southside PDC, and FmHA, prepared PER to support successful grant application for funding for the design and construction of town-wide sanitary sewer system improvements for the Town of Lawrenceville in Southside Virginia. Responsible for the routing studies, design, state approvals, bid assistance, and contract and construction administration for the project.

14. **Pittsylvania County Industrial Park (Ringgold West)** – Project manager for the development of a 100 acre industrial park near Danville, Virginia. Design services included site grading, drainage design and storm water management, railroad lead and spur track design, access road design, sewer design and design of a 4,000 LF 12" diameter waterline extension and a 300,000 gallon elevated water storage tank to serve the park. Was responsible for all construction administration and inspection activities for all segments of infrastructure improvements.

15. **Various Telecommunications Projects** – Project manager and site designer for five microwave telecommunications tower sites in central Virginia and the upper Piedmont area of North Carolina. Sites extended from Pittsylvania County, Virginia to Davidson County, N.C. Responsible for all background permitting research, site and cadastral surveys, site grading and layout for tower base operations, guy wire locations, access roads and associated utilities. As project manager, was responsible for the site design and permitting for 50+ cellular tower sites in Virginia, Maryland, and Delaware. Was responsible for all site related research, permitting operations, site design, and expert testimony before zoning boards.

Resume for Douglas W. Phillips, Jr.:

Douglas W. Phillips, Jr., PE
PO Box 4722; Roanoke, VA 24015
540-345-1193(home); 345-1184, Ext 140 (work)
dphillip@rev.net

BACKGROUND SUMMARY

Thirteen years engineering, operation, and inspection experience in water and wastewater systems. Public health efforts as circuit rider for technical assistance; engineering problem solving; design for small communities throughout Virginia; and Disaster relief volunteer efforts.

PROFESSIONAL EXPERIENCE:

SOUTHEAST RURAL COMMUNITY ASSISTANCE PROJECT, INC. 2000-present

Small Systems Specialist, with a mission toward low-income areas: System technical assistance, including: Water pipe and leak locating; sewer pipeline smoke testing; onsite engineering approvals with health department; surveying; referrals of lower income areas to start loan or grant funding and compliance to local & Va. Department of Health.

CULLIGAN WATER CONDITIONERS; Ruckersville, Virginia **1999–2000**

Water Treatment Technician: Service trainee for residential / commercial treatment systems for softening, pH, iron, reverse osmosis, and de-ionization.

TOWN OF WARRENTON, Virginia **1998-1999**

- *As Engineer :* Developed draft and final Federal Consumer Confidence report for water plant monitoring history.
- *As Water plant operator:* Sampled for chlorine, turbidity, fluorine, Alkalinity, and pH. Inspected wells, tanks, and sewage lift stations.
- *As Wastewater Plant Operator :* Ran belt press (solids separation) for a 5 Million gallons per day plant. Took samples and analyzed for: chlorine, turbidity, ammonia. Calibrated plant treatment equipment.

VIRGINIA DEPARTMENT OF HEALTH, Office of Drinking Water; Culpeper, Virginia **1990-1998**

As Environmental Engineer / Inspector: Reviewed design and inspected water improvement projects ranging to $20 million for most counties of Northern Virginia, Piedmont, and Fredericksburg. Scheduled and inspected 5 to 10 surface water plants;

and 30% of the 130 public groundwater systems. Wrote the official inspection reports and provided of any necessary follow up assistance or enforcement.

- *Inspection Scheduling*: Experience and knowledge directed toward the critical scheduling of facilities testing and evaluation; water plant inspections using water standards; and compliance of water production and quality to state regulations.
- *Permit Issuing:* Prepared required state water construction permits and recommendations to Department of Environmental Quality for wastewater permits.
- *Evaluating and compiling:* 80% of sampling results using automated tracking.
- *Organizer* of all work for water systems newly acquired from local agencies.
- *Technical Assistance:* Provided compliance, operational, or monitoring data to system owners, operators, or managers.

SHENANDOAH NATIONAL PARK; Luray, Virginia
1981-1986

Civil Engineer, Maintenance Division: Experienced project manager for Director of Maintenance; reviewed construction plans and specifications; field inspector for Nat'l Park Service in-house work. Knowledgeable and skilled in water and waste water operations and maintenance; detection and solving of problems with limited resources or time; compiled emergency situation data.

- *Graphics:* Provided in-house drawings and kept as-built drawings current.
- *Water Sampling:* Assisted in required monitoring of raw and distribution water.
- *Utility Construction:* Served as liaison and field inspector for outside contracts. Provided assistance to in-house plumbing crew in maintenance and construction of distribution lines.
- *Had a key engineering role* in doing site plans for a new national park in Saudi Arabia

PARSONS ENGINEERING & CONSTRUCTION: Pasadena, California
1975–1979

Civil Engineer and Draftsman for worldwide projects. Did design projects in petrochemical piping layout work; Site design work for Space Shuttle facilities; and Iranian mining project; Field engineering work and construction inspection of ground storage tanks and pipe storage facility at site of pioneer port construction in Saudi Arabia.

OTHER EMPLOYMENT

1967-1969 & 1980: With Highway construction contractor: setting / checking grade, surveying; 1 year Engineer OJT program w/ Va. Dept of Highways in Bridge construction & location design.

1980-81. Kawneer Aluminum, Inc – Run structural aluminum engineering analysis

1987 Copper & Smith, P.C.-- Site work design, survey plot: residential / commercial
1987-88. Va. Dept. of Mental Health – resident construction Inspector, building elevator system
1988. Glen Zint, Home Builders -- Carpenter Apprentice; 1989 – Landscape field crew
1988-89. Higgs Engineering -- Site layout design, survey plotting & field crew work: residential / commercial.

EDUCATION

BS in Civil Engineering, Virginia Tech; College programs in Data Processing, AutoCad, and Spanish

LICENSES

Professional Engineer, Virginia and California, Certificates— # 012158 & # 30773
Waterworks Class III, Virginia; Class IV Va. Wastewater, Certificates—# 001351 & # 002461

PROFESSIONAL ORGANIZATIONS

American Waterworks Association; Water Environment Association; Virginia Rural Water Association; Virginia Cross Connection Control Association

OTHER SKILLS

From 1998: American Red Cross Disaster team experience; Software for Kentucky Pipe, WaterCAD; Proficient in MicroSoft Office/Excel Spreadsheets/ Drawing; Spanish proficiency and some Arabic; Saxophone; Athletics

MILITARY

Honorable Discharge, Marine Officer, Viet Nam Era, 10% Disability Status
Logistics (managing infantry flow of equipment / personnel from ship to shore)
Combat engineering unit training (bridges, explosives, water supplies)

Chronological Summary of Phillips's Equipment & Skills by Organization:

Southeast Rural Community Assistance Project, Inc

- Duration: 2000 to present
- Equipment: Level/Transit; Sonic Testing apparatus; Liquid / Solid Smoke Test machine

- Skills: Kentucky Pipe Program; KeyCad Program; Spanish; Red Cross; Civil Engineering / W & WW automated and manual design; All MicroSoft & Windows.

TOWN OF WARRENTON

- Duration: 1-1/2 years
- Equipment: 5- Ton Dump; Various plant treatment equipment;
- Skills: Belt Press & Polymer Skills: Solids Belt Press; most sampling; some lab analysis; Check Lift Stations.

VA. DEPT OF HEALTH

- Duration: 8-1/2 years
- Skills: Some sample collection / analysis; official site; prepare permits / engineering data; Track / Record Sampling and Inspection results; Drawing Skills
- Equipment: Sample testing / Analysis equipment
-

SHENANDOAH NATIONAL PARK

- Duration: 6-1/2 years, Including 3 months Saudi Arabia, Middle East
- Equipment: Level/Transit/Lock Lever; Some maintenance machinery; Drawing equipment.
- Skills: Civil Engineering / W & WW automated and manual drawing/design.

HIGGS ENGR / COPPER & SMITH / WESTON ENGRS / KAWNEER ALUMINUM MFG

- Length: 2 years
- Equipment: Automatic drafting lettering; Survey rods/chains; Various small power tools / generator.
- Skills: Drafting; surveying assistance; Site & Utility design

PARSONS ENGINEERING & CONSTRUCTION

- Duration: 5 years, Including 3 months Saudi Arabia, Middle East
- Equipment: Automatic drafting lettering machine; Survey rods/chains.
- Skills: Drafting; surveying assistance; Site & Utility design; Field inspection & As-Builts