

Project No. 90-700  
July 1990

 Paul C. Rizzo Associates, Inc.  
CONSULTANTS

**Proposal**

---

**Vanport Investigation**

---

**Beaver County, Pennsylvania**

---

**Westinghouse Electric Corporation  
Pittsburgh, Pennsylvania**

---

**PROPOSAL  
VANPORT INVESTIGATION  
BEAVER COUNTY, PENNSYLVANIA**

**PROJECT No. 90-700  
JULY 18, 1990**

**PAUL C. RIZZO ASSOCIATES, INC.  
300 OXFORD DRIVE  
MONROEVILLE, PENNSYLVANIA 15146  
PHONE: (412) 856-9700  
TELEFAX: (412) 856-9749**



## TABLE OF CONTENTS

	<u>PAGE</u>
LIST OF TABLES	ii
1.0 INTRODUCTION	1
2.0 SITE HISTORY	2
3.0 SCOPE OF WORK AND TECHNICAL APPROACH	4
3.1 TASK 1 - PROJECT PLANNING	4
3.2 TASK 2 - PROJECT MANAGEMENT	4
3.3 TASK 3 - AERIAL MAPPING	4
3.4 TASK 4 - FIELD ACTIVITIES	5
3.4.1 Subtask 4.1 - Subsurface Exploration and Well Installation	5
3.4.2 Subtask 4.2 - Ground Surveying	5
3.4.3 Subtask 4.3 - Groundwater Sampling	6
3.4.4 Subtask 4.4 - Water Level Measurement and Aquifer Testing	6
3.5 TASK 5 - LABORATORY ANALYSIS AND DATA VALIDATION	7
3.6 TASK 6 - ENGINEERING ANALYSIS	7
3.7 TASK 7 - REPORT PREPARATION	7
4.0 PROPOSED PROJECT STAFF	8
5.0 COSTS	10
6.0 SCHEDULE	11
7.0 SUMMARY	12
TABLES	
APPENDIX A: RESUMES	

## LIST OF TABLES

<u>TABLE NO</u>	<u>TITLE</u>
1	LEVEL OF EFFORT - MANHOURS
2	LEVEL OF EFFORT - COST
3	REIMBURSABLE EXPENSES
4	SUMMARY OF COSTS
5	PENNSYLVANIA DRILLING ESTIMATED COSTS
6	IT CORPORATION ESTIMATED COSTS
7	PERSONNEL CLASSIFICATIONS

**PROPOSAL  
VANPORT INVESTIGATION  
BEAVER COUNTY, PENNSYLVANIA**

**1.0 INTRODUCTION**

At the request of Westinghouse Electric Corporation (Westinghouse), Paul C. Rizzo Associates, Inc. (Rizzo Associates) has prepared this proposal to perform an environmental investigation in Vanport, Pennsylvania, as described in the Work Plan, submitted on May 24, 1990 and in a letter to the PADER submitted on June 21, 1990. Rizzo Associates is highly qualified to perform this project. We have extensive experience in performing environmental investigations on projects regulated by the PADER and USEPA. Because of our experience at the Westinghouse - Beaver facility, and our review of prior work performed by other consultants and contractors, our knowledge of the site is significant.

Subsequent sections of this proposal describe the history of the site, our proposed scope of work and technical approach, proposed project staff, costs, and schedule.

As requested, we are providing a detailed breakdown of costs on the basis of tasks identified in the Work Plan. Our costs are estimated on a time and materials basis, and an estimated cost which will not be exceeded without Westinghouse authorization is clearly indicated.

**DCR**

## 2.0 SITE HISTORY

The town of Vanport, Pennsylvania is located on the northern bank of the Ohio River, approximately two miles downstream of the confluence of the Ohio and Beaver Rivers. Vanport is bordered to the north and west by the town of Brighton and to the east by the city of Beaver. The Beaver facility is located in the northeast portion of the study area.

Surface topography within the area of study is relatively flat, with an elevation ranging from approximately 682 to over 900 feet above mean sea level (MSL). An abandoned, partially refilled gravel pit is found north of Route 68 approximately equidistant between the Westinghouse facility and the Vanport Township Municipal Authority (VTMA) wellfield. The bedrock wall of the Ohio River Valley rises to the north and northwest of the study area, reaching an elevation of over 1,100 feet MSL in Brighton. The normal pool elevation of the Ohio River is 682 feet MSL. Two Mile Run, a small stream, flows southwest from the northeast corner of the town, discharging to the Ohio River. The VTMA wellfield, consisting of six water supply wells, is located between the abandoned gravel pit and the Ohio River.

In January, 1988, volatile organic compounds (VOCs), including trichloroethene, 1,1,1-trichloroethane, 1,1-dichloroethene, and cis-1,2-dichloroethene, were detected in water samples collected at the VTMA wellfield.

From December, 1988 through February, 1989, the Pennsylvania Department of Environmental Resources (PADER) drilled ten borings and installed nine monitoring wells in the area around the abandoned gravel pit and along the Ohio River to delineate the source and extent of the VOCs. Water samples were collected and analyzed from each of these wells and the results indicated the presence of varying levels of VOCs in ground water from several wells. Maximum of total concentrations of 1,479 and

1,374 parts per billion (ppb) VOCs were detected. In one boring, sludge was encountered at a depth of 15.8 feet in fill near the abandoned gravel pit.

Water samples from the VTMA water supply wells and nearby monitoring wells were also obtained and analyzed by PADER. Analytical results indicated the presence of total VOC concentrations ranging from less than detection limits to approximately 200 ppb. VOC concentrations in the samples from these wells exhibited relatively major variability in spite of the close proximity of the wells to one another. These data suggest that a source of VOCs may be located relatively close to several of the wells in the wellfield.

In September, 1988, the gravel pit was placed on the U.S. Environmental Protection Agency (USEPA) CERCLIS list under the name "Beaver Sand Company Quarry."

In January, 1990, a water treatment plant was installed at the VTMA wellfield. This system removes VOCs from the water supply using air stripping techniques.

### 3.0 SCOPE OF WORK AND TECHNICAL APPROACH

The Scope of Work presented herein is based on the scope of work as described by Westinghouse and the Work Plan. A series of tasks are proposed, as described in subsequent paragraphs.

#### 3.1 TASK 1 - PROJECT PLANNING

Task 1 includes activities required to initiate the investigation. Procurement of subcontractors for drilling, aerial mapping, and laboratory analyses is included in this task. Site-specific health and safety procedures, drilling and monitoring well installation, and sampling procedures will be updated under this task. This task also includes time spent assisting Westinghouse in obtaining access to drilling locations.

#### 3.2 TASK 2 - PROJECT MANAGEMENT

Task 2 includes the management time necessary to direct the overall investigation, including field activities, cost accounting by task and labor category, scheduling, and meetings with Westinghouse and PADER.

#### 3.3 TASK 3 - AERIAL MAPPING

Task 3 represents the effort required to obtain a detailed map of the study area. This map will be used as the base map for many of the figures in the investigation report. It is currently anticipated that existing aerial photographs obtained in 1986 will be utilized to prepare the base map.

The map will have a scale of 200 feet per inch, with ground surface contours at two-foot intervals. The coordinate grid system established for horizontal control will be tied into the State Plane Coordinate System. All elevations will be relative to MSL.



### 3.4 TASK 4 - FIELD ACTIVITIES

Field activities planned to address the data gaps identified in the Work Plan include subsurface exploration, soil sampling, monitoring well installation, surveying, groundwater sampling, water level measurement and aquifer testing.

#### 3.4.1 Subtask 4.1 - Subsurface Exploration and Well Installation

As described in the Work Plan, 13 borings are anticipated, one north of the Westinghouse plant, three north of Georgetown Lane, four around the abandoned gravel pit, one southwest of Crevelli Chevrolet, and four along the Ohio River near the VTMA wellfield. Eleven monitoring wells will be installed in these borings. In addition, there will be several exploration borings performed in the area just west of North Walnut Lane, and an as-yet unspecified number of monitoring wells will be installed in these. Finally, several test pits will be excavated in the bottom of the abandoned gravel pit. This task encompasses all field work associated with drilling and monitoring well installation and subsurface soil sampling for geotechnical and chemical analyses. It is anticipated that some soil samples collected as part of the field investigation will be analyzed for volatile organic compounds.

The drilling subcontractor will be Pennsylvania Drilling of Pittsburgh, Pennsylvania. Costs for drilling and monitoring well installation have been estimated based on quoted unit prices and the assumption that drilling will be performed using Level D personal protective equipment. In addition, it has been assumed that all soil and water generated during drilling will be collected for disposal by Westinghouse.

#### 3.4.2 Subtask 4.2 - Ground Surveying

Existing PADER wells, Vanport's Monitoring Wells V-1 and V-2, and the new monitoring wells will be surveyed for horizontal and vertical control as required. Test pits will be located horizontally and vertically. Finally, a surface water elevation measurement station will be surveyed for the Ohio River in the vicinity of the wellfield.

For monitoring wells, vertical elevations of the top of casing and top of PVC riser pipe will be determined to the nearest 0.01 foot. Vertical elevations of the ground surface will be determined to the nearest 0.1 foot.

#### 3.4.3 Subtask 4.3 - Groundwater Sampling

A round of groundwater sampling will be performed for the monitoring wells in the saturated alluvium. Groundwater samples will be analyzed for VOCs and cyanide.

Quality control samples will include a duplicate sample from one well, one field blank, one VOC trip blank per day of sampling, and triple sample volume from one well so that the laboratory can perform matrix spike and matrix spike duplicate analyses. Chain-of-custody procedures will be maintained throughout the sampling activities.

#### 3.4.4 Subtask 4.4 - Water Level Measurement and Aquifer Testing

A complete round of water levels will be taken upon completion of Subtasks 4.1, 4.2, and 4.3. Water levels will be measured to the nearest 0.01 foot from the top of casing. Additional rounds of groundwater levels will be taken quarterly for the next two years in order to evaluate possible seasonal variations in the geohydrologic regime.

In order to assess aquifer characteristics in the vicinity of the wellfield, an incremental aquifer performance test will be performed. The test will be conducted by connecting pressure transducers to an electronic data logger and inserting them into existing Wells V-1 and V-2 and proposed Monitoring Wells MW-48 and MW-49. Then, with the cooperation of the VTMA, changes in water levels will be measured as different pumping wells in the wellfield are turned on and off over the course of one or two days. The data will then be used in time-drawdown and distance-drawdown calculations to determine the transmissivity of the aquifer in the vicinity of the wellfield.

### 3.5 TASK 5 - LABORATORY ANALYSIS AND DATA VALIDATION

As described above, selected subsurface soil samples may be analyzed for VOCs based on HNu readings. Groundwater samples will be analyzed for VOCs and cyanide. The respective methods of analysis are:

<u>Analysis</u>	<u>Method</u>
VOCs - aqueous	EPA 624
VOCs - solid	EPA 8240
Cyanide	ASTM D-2036 (aqueous)

In order to assure that the data generated can be relied upon, laboratory data will be validated, including consideration of factors such as sample holding times, instrument calibration, results in blanks, and matrix spike interferences. Laboratory services will be supplied by IT Corporation, of Export, Pennsylvania.

### 3.6 TASK 6 - ENGINEERING ANALYSIS

Task 6 includes analysis required to assess the hydrological regime. This will include preparation of geologic cross-sections, updated contours of bedrock surface and water levels, analysis of the incremental aquifer performance test, and assessment of VOC and cyanide distributions.

### 3.7 TASK 7 - REPORT PREPARATION

A report will be prepared which will document the methods used to gather data, the results of the testing and analyses, and findings based on the data obtained and analysis performed for filling in the data gaps. The data of previous investigations will be combined with the results of this investigation, and a comprehensive description of the aquifer used as a source by the VTMA will be presented.

#### 4.0 PROPOSED PROJECT STAFF

Rizzo Associates proposes a project team which is highly experienced in soil and groundwater investigations and whose key individuals are extremely familiar with the Beaver Site and previous investigations conducted there. Brief descriptions of the proposed staff are provided in the following paragraphs. Full resumes for all identified staff are provided in Appendix A.

- o Principal-in-Charge/Project Manager: Patrick F. O'Hara  
Mr. O'Hara is Vice President of Environmental Services for Rizzo Associates. He was principal-in-charge for previous investigations at the site, and is well-known to Westinghouse and PADER staff who have worked on the Vanport Site.
- o Sr. Project Geologist: William A. Baughman  
Mr. Baughman is a professional geologist experienced in hazardous waste investigations and has previously worked at the Beaver Site. He will be committed to the project for the duration of the work proposed herein.
- o Sr. Project Engineer: David M. Brown  
Mr. Brown is a Senior Project Engineer for Rizzo Associates. He prepared the Work Plan for this project and is acquainted with Westinghouse and PADER staff associated with this site. Mr. Brown's technical specialties are groundwater hydrology and contaminant fate and transport.
- o Project Consultant: Kenneth J. Bird  
Mr. Bird, who has expertise in analytical chemistry, industrial hygiene, and site remediation, will serve as a consultant to the project. Specifically, he will provide guidance to Ms. Jenkins and Ms. Vargas who are discussed below.
- o Project Consultant: Mark P. Zatezalo  
Mr. Zatezalo acts as an in-house consultant for hydrogeology for all Rizzo Associates projects, and he is familiar with the Beaver Site. He has served in a similar role for previous Rizzo Associates work at Vanport.

- o Quality Assurance: Beth F. Cockcroft  
Ms. Cockcroft is Director of Quality Assurance for Rizzo Associates, and she will be responsible for quality assurance activities for the project. She is familiar with the quality aspects of hazardous waste site investigations.
- o Data Validation: Christine L. Vargas  
Ms. Vargas reports to Mr. Bird and she will be responsible for validation of all data obtained from the analytical laboratory. She is fully committed to this role for the duration of the project.
- o Health and Safety: Beth Ann Jenkins  
Ms. Jenkins also reports to Mr. Bird and she will be responsible for monitoring health and safety aspects of work at the site.
- o Project Staff: Jeffrey D. Holchin, Matthew E. Grebner, Scott A. Harris, and Matthew J. Valentine  
These individuals are candidates for the project staff and in this capacity will be involved in field sampling, data gathering, and analysis and reporting of data.

The Rizzo Associates staff currently numbers about 115 people. The proposed workload is consistent with existing commitments on other Westinghouse projects. Staff level personnel assigned to the project will remain involved with the project to its completion to the extent they are needed.

## 5.0 COSTS

Estimated costs for the tasks described in Section 3.0 are presented in Tables 1 through 4. Table 1 provides the estimated hours by category for each task. The associated labor costs are presented in Table 2. Expenses for the various tasks are indicated in Table 3, and the total cost, including markup on expenses is presented in Table 4. Costs for associated contractors are not included in the totals as they will be paid directly by Westinghouse. The estimated costs for Pennsylvania Drilling and IT Corporation are shown in Tables 5 and 6. Rizzo Associates personnel in the various billing categories are identified in Table 7.

Costs will be tracked in the same manner as for the Westinghouse Gettysburg projects. A spreadsheet detailing expenditures for each task will be submitted with the monthly invoice. The spreadsheet will indicate the budget for each task as well as the percentage completion of the various tasks.

The estimated cost for the work to be performed by Rizzo Associates described herein is \$133,326.

## 6.0 SCHEDULE

The work proposed herein shall be performed in accordance with the schedule submitted in the Amended Work Plan (Figure 8 of that report) as approved by PADER. This means that field activities should initiate in July, 1990 culminating in issuance of the investigative report by November 25, 1990. Rizzo Associates can maintain this schedule if authorization to proceed is received by July 20, 1990.

## 7.0 SUMMARY

Rizzo Associates has prepared this proposal in a manner which we believe is responsive to your request. The proposal addresses the scope of work defined in the Amended Work Plan.

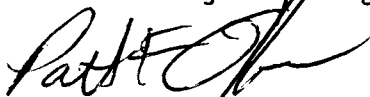
The project team proposed for the work is experienced in performing remedial design investigations and is familiar with the site, its history, previous engineering studies, and the personnel involved for both Westinghouse and PADER. We are confident that we will undertake this project in a manner that will enable a successful and relatively cost-effective investigative program.

In closing, we sincerely appreciate the opportunity to propose on the Vanport investigation, and look forward to continuing our relationship with Westinghouse.

Respectfully submitted,



William A. Baughman  
Senior Project Geologist



Patrick F. O'Hara  
Vice President

WAB/PFO/cab





## TABLES





TABLE 3  
 REIMBURSABLE EXPENSES  
 RIZZO ASSOCIATES  
 WESTINGHOUSE- VANPORT  
 VANPORT, PENNSYLVANIA

TASK NUMBER	DESCRIPTION	VEHICLE	SUB- CONTRACT	COMPUTER/ WORD PROC	COMM- POSTAGE	REPRO	MISC	TOTAL
		\$75.00	N/A	\$9.00	N/A	N/A	N/A	
1	PROJECT PLANNING	\$0	\$0	\$198	\$22	\$22	\$110	\$352
2	PROJECT MANAGEMENT	\$495	\$0	\$198	\$22	\$22	\$110	\$847
3	AERIAL MAPPING	\$165	\$9,070	\$396	\$22	\$22	\$110	\$9,785
4	FIELD ACTIVITIES	\$4,950	\$0	\$792	\$110	\$110	\$3,850	\$9,812
5	LAB ANALYSIS AND DATA VALIDATION	\$0	\$0	\$1,188	\$22	\$22	\$110	\$1,342
6	ENGINEERING ANALYSIS	\$0	\$0	\$792	\$22	\$22	\$110	\$946
7	REPORT PREPARATION	\$0	\$0	\$1,188	\$110	\$1,100	\$110	\$2,508
8	MEETINGS	\$0	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL REIMBURSABLE EXPENSES		\$5,610	\$9,070	\$4,752	\$330	\$1,320	\$4,510	\$25,592
CHECK								\$25,592

NOTE: COSTS INCLUDE MARKUP OF 10% ON EXPENSES AND 15% ON SUBCONTRACTS.

TABLE 4  
SUMMARY OF COSTS  
RIZZO ASSOCIATES  
WESTINGHOUSE - VANPORT  
VANPORT, PENNSYLVANIA

TASK NUMBER	DESCRIPTION	TIME	SUBCONTRACTS	EXPENSES	SUBTOTAL SUB & EXP	TOTAL
1	PROJECT PLANNING	\$3,095	\$0	\$352	\$352	\$3,447
2	PROJECT MANAGEMENT	\$9,557	\$0	\$847	\$847	\$10,404
3	AERIAL MAPPING	\$3,082	\$9,070	\$715	\$9,785	\$12,867
4	FIELD ACTIVITIES	\$36,308	\$0	\$9,812	\$9,812	\$46,120
5	LAB ANALYSIS AND DATA VALIDATION	\$5,048	\$0	\$1,342	\$1,342	\$6,390
6	ENGINEERING ANALYSIS	\$19,197	\$0	\$946	\$946	\$20,143
7	REPORT PREPARATION	\$25,612	\$0	\$2,508	\$2,508	\$28,120
8	MEETINGS	\$5,835	\$0	\$0	\$0	\$5,835
TOTALS		\$107,734	\$9,070	\$16,522	\$25,592	\$133,326
CHECK						\$133,326

NOTE: COSTS INCLUDE MARKUP OF 10% ON EXPENSES AND 15% ON SUBCONTRACTS.  
WESTINGHOUSE WILL PAY SUBCONTRACTOR DIRECTLY FOR DRILLING AND LABORATORY SERVICES.  
ESTIMATED COSTS FOR THOSE SERVICES ARE SHOWN ON TABLES 6 AND 7.

TABLE 5

## PENNSYLVANIA DRILLING ESTIMATED COSTS

<u>ITEM</u>	<u>AMOUNT</u>	<u>UNIT PRICE</u>	<u>PRICE</u>
Mobilization & Demobilization	1	\$300.00/ea	\$ 300.00
Augering (4.25-inch augers)	1,540 l.f.	22.00/l.f.	33,880.00
Split-spoon Soil Samples	460	12.00/ea	5,520.00
Well Installation	40 hrs	130.00/hr	5,200.00
Well Installation Materials	1,000 l.f.	8.00/l.f.	8,000.00
Steel Protective Covers	12	100.00/ea	1,200.00
Well Development	30 hrs	130.00/hr	3,900.00
Decontamination	50 hrs	130.00/hr	6,500.00
Cuttings and Drum Handling	40 hrs	130.00/hr	5,200.00
Construction of Decon Facility	1	400.00/l.s.	400.00
Standby Time (Delays)	20 hrs	130/hr	2,600.00
Test Pits	-	-	4,000.00
	<b>TOTAL</b>		<b>\$76,700.00</b>

TABLE 6

IT CORPORATION ESTIMATED COSTS

<u>ANALYSIS</u>	<u>AMOUNT</u>	<u>UNIT PRICE</u>	<u>PRICE</u>
Soil VOCs (Target Analyte List with Validation Data)	22	\$242.00/ea	\$5,324.00
Aqueous VOCs (Target Analyte List with Validation Data)	29	242.00/ea	\$7,018.00
Aqueous Cyanide (Total and Free)	29	57.00/ea	\$1,653.00
Aqueous Trip Blanks (VOCs)	10	242.00/ea	\$2,420.00
Disposal	51	5.00/ea	\$255.00
	<b>TOTAL</b>		<b>\$16,670.00</b>

---

1. Prices assume normal (15 working day) turnaround.



**TABLE 7**

**PERSONNEL CLASSIFICATIONS**

Officer	- Patrick F. O'Hara
Principal	- Kenneth J. Bird - Mark P. Zatezalo
Project Manager	- Beth F. Cockcroft
Sr. Project Geologist	- William A. Baughman
Sr. Project Engineer	- David M. Brown
Asst. Project Engineer/ Scientist	- Beth Ann Jenkins - Christine L. Vargas
Engineer/Geologist	- Matthew E. Grebner - Scott A Harris - Jeffrey D. Holchin - Matthew J. Valentine



**APPENDIX A**

**RESUMES**

**PATRICK F. O'HARA**  
**VICE PRESIDENT**

Mr. O'Hara serves as a Principal-in-Charge, Project Manager, or Internal Consultant for environmental science and engineering projects. His primary areas of expertise include site investigation and engineering analysis and design. He has participated in numerous studies of nuclear facilities, chemical waste sites, and design and construction of new chemical and nuclear waste disposal facilities. Mr. O'Hara has authored ten technical publications in the fields of environmental engineering and quality assurance.

**EDUCATION**

Graduate Studies, Civil Engineering, University of Pittsburgh  
B.S., 1974, Civil Engineering, University of Pittsburgh

**REGISTRATION/CERTIFICATION**

Professional Engineer, Pennsylvania  
Health and Safety Training in accordance with OSHA Regulations  
29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"  
Certified Nuclear Quality Assurance Auditor (ANSI N.45.2.23)

**EXPERIENCE AND BACKGROUND**

1984 to Present - Vice President - Environmental Services, Rizzo Associates. In early 1984, Mr. O'Hara and several of his colleagues formed Rizzo Associates, Inc. He currently serves as Vice President responsible for environmental science and engineering projects. He has served as Project Manager for remedial construction projects; RI/FS projects and RFI/CMS projects; remedial design programs for NPL sites; investigations for divestitures of real estate; and investigations, design, and permitting for new waste disposal facilities, including a landfill with a capacity of approximately 100 million cubic yards. He has worked on remedial and removal programs for 21 sites on the National Priorities List. His work has included design of foundation improvements for structures to be founded upon sanitary landfills, groundwater investigation and monitoring programs, and the development of health and safety and quality assurance plans for hazardous waste projects. Mr. O'Hara has participated in public meetings and regulatory negotiations and has successfully managed projects with up to \$250,000 per month in billings. He has served as a consultant in developing and assessing quality assurance programs for site investigations for a European consulting firm actively involved in nuclear facility construction and for the Atomic Energy Commission of Israel. Mr. O'Hara currently serves on the Environmental Affairs Committee of the Consulting Engineers Council of Pennsylvania.

1975 to 1984 - Assistant Project Engineer to Quality Assurance Director, D'Appolonia Consulting Engineers. In 1975, Mr. O'Hara joined the D'Appolonia group of companies. He participated in the development of the Corporate Quality Assurance Program and the application of the program to projects throughout the corporation. He was responsible for quality assurance reviews and audits for approximately 70 investigation,

**DCR**

design, and construction projects. His work included conducting training sessions in quality control for personnel throughout the company; preparation, documentation, and verification of computer programs; field and laboratory testing; development of testing procedures; and report preparation. He also participated in the development and review of client quality assurance programs on a consulting basis. In 1983, Mr. O'Hara was delegated responsibility for managing the Corporate Quality Assurance Program and managing its implementation in five American and three European offices. Several projects in which Mr. O'Hara had significant technical participation are: 1) hydrologic, geotechnical, and seismological site evaluation for the Defense Nuclear Waste Processing Facility at the Savannah River Plant in Aiken, South Carolina; 2) project quality assurance for geotechnical and hydrogeologic testing programs at the nuclear waste demonstration repository (WIPP Project) in Carlsbad, New Mexico; 3) hydrogeologic and contaminant migration studies for the Split Rock Uranium Mill for the Western Nuclear Corporation in Jeffrey City, Wyoming; 4) turnkey remediation of the Hooker Chemical Plant in Mohtague, Michigan (pre-Superfund); 5) RI/FS consulting services for two NPL sites in northern Illinois; 6) remediation of the Enterprise Avenue Superfund Site in Philadelphia; 7) remediation of the Hranica Landfill Superfund Site in western Pennsylvania; and 8) remediation of the Aidex Chemical Superfund Site in Iowa. He also conducted independent quality assurance audits of site investigations, design, and licensing studies for over 30 existing or proposed nuclear facilities located on four continents.

1974 to 1975 - Civil/Structural Engineer, Bechtel Power Corporation. Mr. O'Hara served as a civil/structural engineer responsible for structural analysis and preparation of design documents for a standardized nuclear power plant. He also was responsible for software development, preparation, and verification in accordance with nuclear industry standards.

1973 to 1974 - Prior to earning his degree, Mr. O'Hara was employed as a geotechnical laboratory technician with the Pittsburgh District Laboratory of the U.S. Army Corps of Engineers.

#### CONTINUING EDUCATION

USEPA Intermediate Level Training in accordance with Order 14402,  
Chorpus Christi State University  
Numerous short courses and seminars in civil and environmental  
engineering

#### AFFILIATIONS

American Society of Civil Engineers  
International Society of Soil Mechanics and Foundation Engineering  
Hazardous Materials Control and Research Institute  
Consulting Engineers Council of Pennsylvania, Environmental Affairs  
Committee

#### PUBLICATIONS

Mr. O'Hara has authored 12 technical publications in the fields of environmental engineering and quality assurance.

**WILLIAM A. BAUGHMAN**  
**SENIOR PROJECT GEOLOGIST**

Mr. Baughman has over eight years of experience in supervision of subsurface explorations, site investigations, and site characterizations. He is also experienced in using the data gained in the field for preparation of geologic cross sections and fence diagrams and in the preparation of report sections documenting field activities. His project responsibilities on four Superfund sites include site investigation and engineering geology activities.

**EDUCATION**

Graduate Studies, Hydrogeology, Wright State University  
B.A., 1981, Geology, Alfred University

**REGISTRATION/CERTIFICATIONS**

Registered Professional Geologist No. 525 - State of Delaware  
American Institute of Professional Geologists - Certified Professional Geologist, No. 7305  
Health and Safety Training in accordance with OSHA Regulations  
29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"  
Cardiopulmonary Resuscitation - American Red Cross

**EXPERIENCE AND BACKGROUND**

1985 to Present - Senior Project Geologist, Rizzo Associates.

Mr. Baughman has been involved in the supervision of a variety of site investigations involving soil sampling, rock coring, monitoring well design and installation, borehole geophysical logging, surface geophysical studies and soil gas analysis. Duties have also included developing geologic cross sections, isometric fence diagrams, and contour maps from field data, researching the local and regional geology of project sites, and report preparation. Several projects in which Mr. Baughman has participated include:

- The review of a geologic/geomorphic aerial photographic interpretation for a low-level radioactive disposal facility in Spain.
- Aerial photographic interpretation for a fracture trace analysis related to a groundwater study in Gettysburg, Pennsylvania.
- A geophysical survey utilizing electromagnetics and a magnetometer to investigate suspected linear trenches and drum disposal areas at a pesticide processing plant.

Most recently, Mr. Baughman supervised the drilling operations and installation of monitoring wells for a major industrial client at a Superfund Site in Gettysburg, Pennsylvania. He also supervised the geotechnical boring program and monitoring well installation at the Moyer Landfill Superfund Site in Collegeville, Pennsylvania; the Monroe Township Superfund Site in Jamesburg, New Jersey; and the South Brunswick Superfund Site in South Brunswick, New Jersey.

1983 to 1985 - Geologist, Walter E. Fike Consulting Engineers. Duties included geologic field investigation of proposed mining sites, evaluation of environmental impacts due to surface coal mining, surface and groundwater sampling, logging of test borings, installation of monitoring wells and private water supply wells, and sampling coal overburden and analyzing results of acid-base account testing.

1981 to 1983 - Geologist, Decollement Consulting, Inc. Duties included sampling, analyzing, and description of rock chips and rock cores during oil and gas exploration drilling. His work also involved evaluation of geologic formations encountered, drill-stem testing, and interpretation and correlation of borehole geophysical logs as well as continuous monitoring of formation gas using a gas chromatography and flame ionization detector, including calibration, maintenance, and analysis of data.

#### AFFILIATIONS

American Institute of Professional Geologists  
Association of Ground Water Scientists and Engineers  
Pittsburgh Geological Society  
Pittsburgh Association of Petroleum Geologists

#### PUBLICATIONS

Mr. Baughman co-authored a technical paper on the Lackawanna Refuse Superfund Site, which is located in Old Forge, Pennsylvania.

**KENNETH J. BIRD  
PRINCIPAL  
DIRECTOR OF REMEDIATION PLANNING**

Mr. Bird has extensive experience related to hazardous waste sites including preparation of RI/FS Work Plans for quality assurance and health and safety, supervision of the site field investigations and remedial action programs, and management of projects involving remedial design implementation. He is currently responsible for the preparation and implementation of remedial investigations, risk assessments, project health and safety plans, chemical analysis programs, and hazard assessments for environmental projects. He is also in charge of training all of the firm's professional staff to meet the requirements of OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response." He has personally served as the on-site health and safety officer at several EPA remedial action projects, including the Lipari Landfill waste containment project (Ranked No. 1 on the National Priorities List).

**EDUCATION**

M.S., 1982, Industrial Hygiene, University of Pittsburgh  
B.S., 1977, Biology (Chemistry Minor), Indiana University of Pennsylvania

**REGISTRATION/CERTIFICATIONS**

American Board of Industrial Hygiene, Certified Industrial Hygienist  
Certified Commercial Scuba Diver  
Health and Safety Training (Instructor) in accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"

**EXPERIENCE AND BACKGROUND**

1985 to Present - Project Manager to Principal - Director of Remediation Planning, Rizzo Associates. Mr. Bird is responsible for remedial planning projects including remedial investigations, feasibility studies, and waste removal remedial actions. He has extensive experience interacting with regulatory agencies, community relations, and in monitoring the performance of remedial action contractors.

Mr. Bird has designed, implemented, and managed remedial activities that deal with a variety of projects. These projects include slurry wall construction, drum material excavation, sampling, treatment and disposal, lagoon sampling, and sludge solidification.

1984 to 1985 - Health and Safety Supervisor, NUS Corporation. Mr. Bird developed health and safety plans for numerous remedial investigations. He participated in various site activities relative to investigations, including initial reconnaissance, land and geophysical surveying, environmental sampling, test pit activities, and drilling. He was also the manager and instructor of the REM I (Zone 1) Hazardous Waste Training Program.





1977 to 1984 - Organics Laboratory Group Leader to Health and Safety Supervisor, D'Appolonia Consulting Engineers, Inc. Mr. Bird provided overall supervision of on-site mobile laboratories supporting hazardous waste site cleanup activities. Mr. Bird was responsible for training, developing analytical procedures, and reviewing and reporting data. Two of the more unique laboratory projects were Enterprise Avenue, Philadelphia and Crystal Chemical, Houston.

In addition to his responsibilities as supervisor of on-site mobile laboratories, Mr. Bird formerly served as the Organics Section Group Leader in the D'Appolonia Corporate Environmental Laboratory. Mr. Bird also had extensive experience with most wet chemical analytical techniques presently being employed, including potentiometric, gravimetric, titrimetric and spectrophotometric techniques.

#### CONTINUING EDUCATION

Asbestos Abatement Council, Asbestos Abatement Certified  
Contractor No. 5-85-282-93  
EPA Intermediate Level Training Program, National Spill Control  
School, Corpus Christi State University  
EPA Superfund Health and Safety Training Course, NUS  
Corporation, Pittsburgh, Pennsylvania  
Gas Chromatography, Perkin-Elmer Corporation, Norwalk,  
Connecticut  
Gas Chromatographic Applications for Water Quality  
Laboratories, U.S Environmental Protection Agency,  
Cincinnati, Ohio  
Mass Spectrometry Workshop, Spectroscopy Society of Pittsburgh

#### CONTINUING EDUCATION

Completed ASFE's Introduction to Professional Practice, a professional liability loss prevention education program.

#### AFFILIATIONS

American Industrial Hygiene Association

#### PUBLICATIONS

Mr. Bird has authored six technical publications regarding health and safety and hazardous waste remediation issues.

**DAVID M. BROWN**  
**SENIOR PROJECT ENGINEER**

Mr. Brown's background covers a wide range of technical aspects of the environmental field, including contaminant fate and transport, hydraulics and hydrology, geology, chemistry, laws and regulations, waste treatment, health and safety, and risk assessment. He has prepared work plans for RI/FS projects, managed field investigations for the RI phase of site investigations, and participated in the feasibility study portions of Superfund site evaluations. His technical specialties are groundwater modeling, fractured rock hydrology, and contaminant transport.

**EDUCATION**

M.S., 1984, Civil Engineering, Massachusetts Institute of Technology  
B.S., 1981, Civil Engineering, Massachusetts Institute of Technology

**REGISTRATION/CERTIFICATION**

Engineer-in-Training, Pennsylvania

**EXPERIENCE AND BACKGROUND**

May 1989 to Present - Project Engineer to Senior Project Engineer, Rizzo Associates. Mr. Brown is a recent employee and will be responsible for a wide range of environmental topics, including RI/FS studies and contaminant transport modeling.

1987 to 1989 - Assistant Project Manager, ICF Technology, Inc. Mr. Brown was responsible for preparing the Work Plan and Remedial Investigation Report for the Norwood PCB Superfund site RI/FS and was also the leader of the field team for conducting the remedial investigation. His responsibilities involved supervising drillers, sampling operations, and field and laboratory testing. Mr. Brown also co-authored the Pinette's Salvage Yard Superfund site feasibility study report. His RCRA experience at ICF included providing technical assistance during a private client's Consent Order negotiations with both the USEPA and Ohio EPA regarding contamination at a RCRA facility. He also designed a compliance groundwater monitoring program for this site.

1984 to 1987 - Groundwater Hydrologist/Engineer, Goldberg-Zoino & Associates, Inc. Mr. Brown designed and participated in field investigations for groundwater problems at several sites. He was also responsible for mathematical and computer modeling of groundwater flow and contaminant transport. On one project, the Gilson Road Superfund Site supervised pumping tests and used the data in conjunction with a three-dimensional groundwater flow model to determine the as-built effectiveness of slurry walls in containing contaminated groundwater.

**AFFILIATIONS**

American Geophysical Union

**PUBLICATIONS**

Mr. Brown has published several papers related to groundwater modeling.

**MARK P. ZATEZALO**  
**PRINCIPAL HYDROGEOLOGIST**

Mr. Zatezalo has more than 12 years of experience primarily in the fields of hydrogeology and environmental geology. He is experienced in the siting of major facilities with respect to environmental and groundwater concerns. He serves as a consultant with respect to hydrogeologic issues on all major projects performed by the firm and on projects dealing with assessment of risk.

**EDUCATION**

M.A., 1977, Geology (Hydrogeology), University of Missouri-Columbia.  
B.S., 1974, Geology, West Virginia University  
Health and Safety Training in Accordance with OSHA 29 CFR 1910.120,  
"Hazardous Waste Operations and Emergency Response"

**BACKGROUND AND EXPERIENCE**

1985 to Present - Principal Hydrogeologist, Rizzo Associates. Since joining Rizzo Associates in 1985, Mr. Zatezalo has been responsible for the technical direction of hydrogeologic contamination assessment projects and remedial actions to mitigate soil and groundwater contamination. Specific responsibilities with Rizzo Associates have included management of several large projects involving the feasibility and permitting of landfills. He has also served as a consultant on many projects dealing with hydrogeologic issues and projects concerned with property transfer risk assessments.

As project manager for various government agencies and private clients, Mr. Zatezalo has been responsible for overall technical, budget, and schedule matters associated with several large projects involving the feasibility, design, and permitting of landfills. He has effectively managed significant subcontracting efforts, remedial implementation activities, and construction projects related to groundwater contamination.

Mr. Zatezalo has also managed multidisciplinary projects associated with field exploration and monitoring well installation, laboratory analysis, and cost control of various facilities which required hydrogeology, pollutant transport evaluation, and design. He has been involved in design and evaluation of groundwater recovery and treatment systems at several contaminated sites.

1982 to 1985 - Corporate Hydrogeologist, Browning-Ferris Industries, Inc. (BFI). Mr. Zatezalo was responsible for groundwater monitoring plans at over 50 hazardous and municipal waste disposal facilities. He was also responsible for hydrogeologic aspects of remedial planning and

regulatory interfacing on the local, state, and national levels, and for technical evaluation of real estate for development of waste disposal facilities. Mr. Zatezalo also performed leachate generation and water balance assessments for numerous land disposal facilities and managed subsurface investigations at new and existing disposal sites.

1977 to 1982 - Hydrogeologist, D'Appolonia Consulting Engineers. Mr. Zatezalo's work included assessment of local and regional groundwater characteristics, mass transport, and aquifer performance. Typical projects involved both surface and underground mines, port facilities, uncontrolled waste sites, waste disposal facilities, and industrial plants. He was responsible for field investigations, laboratory investigations, and computer modeling and analysis of groundwater flow regimes associated with numerous hydrogeologic investigations and environmental assessments.

#### AFFILIATIONS

Association of Ground Water Engineers and Scientists

#### PUBLICATIONS

Mr. Zatezalo has authored two publications in the environmental field.

**BETH F. COCKCROFT  
PROJECT MANAGER  
DIRECTOR OF QUALITY ASSURANCE**

Ms. Cockcroft has nine years of experience in environmental and civil engineering where her work has been oriented toward the technical aspects of surface and groundwater investigation and contamination remediation. She currently serves as the firm's Director of Quality Assurance.

**EDUCATION**

Post Graduate Studies, University of Pittsburgh  
M.S., 1981, Environmental Engineering, University of Cincinnati  
B.S., 1980, Civil Engineering, University of Cincinnati

**REGISTRATION/CERTIFICATIONS**

Professional Engineer, Pennsylvania  
Certified Commercial Scuba Diver  
Health and Safety Training in accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"  
Cardiopulmonary Resuscitation - American Red Cross

**EXPERIENCE AND BACKGROUND**

1985 to Present - Project Manager, Rizzo Associates. Ms. Cockcroft presently serves as the Director of Quality Assurance and is responsible for implementation of the corporate quality assurance program. Prior to her current duties, Ms. Cockcroft participated in several civil and remedial design and construction projects involving preparation of detailed plans, specifications, and cost estimates. Representative projects include dam remediation, "RCRA-type" clay cap and synthetic cap system designs, leachate collection and treatment systems, and surface water diversion systems. Ms. Cockcroft has also designed and implemented several field and office evaluations of contaminant infiltration and migration in groundwater to define the regional and site hydrogeology and to document existing contamination. She has supervised drilling, monitoring well installation, soil and groundwater sampling activities, and implementation of health and safety protocols pertaining to remedial investigations.

Other projects which she has supervised include:

- Leachate treatability assessments which included comprehensive laboratory analysis and treatment process evaluation.
- Comprehensive investigation of a chemical manufacturing facility to determine and assess potential environmental liabilities.



- Site evaluation studies for a hazardous waste landfill involving conceptual and detailed design, operating plans, surface and groundwater controls, and completion of the permit application.

1981 to 1985 - Assistant Project Engineer, D'Appolonia Consulting Engineers. Ms. Cockcroft was involved in interdisciplinary projects during her tenure at D'Appolonia (subsequently IT Corporation). Her duties included project responsibilities and participation in quality assurance audits and reviews. Typical projects included:

- Determined hydrologic impacts of a mining operation on the groundwater regime utilizing computer simulation techniques.
- Supervised a mobile analytical laboratory and quality control program for on-site analysis of waste, soil, and water samples pertaining to hazardous waste sites.
- Compiled information and authored Remedial Investigation/Feasibility Study (RI/FS) reports for two CERCLA (Superfund) sites.
- Evaluated erosion and sedimentation control techniques and design of sedimentation basins, diversion ditches, and revegetation programs at several sites.
- Participated in an assessment of radioactive contaminant migration and the future extent of migration downgradient from a uranium tailings pond. Performed computer modeling of saturated/unsaturated contaminant migration.

#### CONTINUING EDUCATION

Completed ASFE's Introduction to Professional Practice, a professional liability loss prevention education program.

Health and Safety - EPA Intermediate Level Training, National Spill Control School, Corpus Christi State University

#### AFFILIATIONS

American Society of Civil Engineers  
National Water Well Association

#### PUBLICATIONS

Ms. Cockcroft is the author of three technical publications in civil and environmental engineering.

**CHRISTINE VARGAS  
ASSISTANT PROJECT ENGINEER**

Ms. Vargas is a chemical engineer with over five years of progressively responsible experience in quality control, process control, and related technical work in water treatment projects. She possesses an extensive background in all phases of laboratory testing procedures in accordance with EPA Standard Methods. She also has practical knowledge in all aspects of water treatment (e.g., mixing, flocculation, sedimentation, filtration, waste disposal, and monitoring of field operations).

**EDUCATION**

B.S., 1983, Chemical Engineering, West Virginia Institute of Technology

**CERTIFICATION/REGISTRATION**

Health and Safety Training in Accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"

EPA Laboratory Certification for Bacteriological Testing and Chemical Analysis

West Virginia Water Treatment License, Class III (of IV)

**EXPERIENCE AND BACKGROUND**

January 1990 to Present - Assistant Project Engineer, Rizzo Associates. Ms. Vargas utilizes her background and expertise in quality assurance/quality control procedures and data validation on the firm's environmental projects. She has an extensive knowledge of contract laboratory protocol and has conducted audits to assess and monitor the performance of contract laboratories. She has also coordinated the acquisition of environmental information to perform data validation.

In her position with Rizzo Associates, Ms. Vargas will have extensive interface responsibilities with governmental and environmental organizations, such as state and federal agencies (EPA, DER, OSHA).

1984 to January 1990 - Quality Control Supervisor, Clarksburg Water Board. In this position, Ms. Vargas reported to the general manager and was responsible for supervising and directing a crew to monitor and operate a 10 MGD water treatment plant. She acted as the lead liaison to the West Virginia State Environmental Engineering Division and reported regularly on the facility's operational progress. In this capacity, Ms. Vargas administered bid specifications, performed inventory control and conducted purchasing activities.

Several specific accomplishments included:

- Development of methods to measure and improve the efficiency of the water treatment process, ensuring optimal allocation of resources.

- Development of a quality assurance plan to establish an EPA certified laboratory for bacteriological testing and chemical analysis.

**AFFILIATIONS**

American Institute of Chemical Engineers  
American Water Works Association



**BETH ANN JENKINS**  
**ASSISTANT PROJECT SCIENTIST**

Ms. Jenkins' background and experience in the environmental field primarily involves health and safety issues and assessment of risks associated with contaminated materials sites. She is currently responsible for assisting in the development and implementation of Site Specific Health and Safety Plans and the management of Rizzo Associates' Corporate Employee Medical Surveillance and Right-to-Know programs. Ms. Jenkins routinely meets with field personnel and subcontractors on hazardous materials projects to ensure ongoing compliance with these programs and regulations.

**EDUCATION**

M.S., 1987, Occupational Health and Safety Engineering,  
West Virginia University  
B.A., 1986, Biology, West Virginia University

**CERTIFICATIONS**

American Red Cross Cardiopulmonary Resuscitation Instructor  
Health and Safety Training in accordance with OSHA Regulations 29  
CFR 1910.120, "Hazardous Waste Operations and Emergency Response"

**EXPERIENCE AND BACKGROUND**

July 1989 to Present - Assistant Project Scientist, Rizzo Associates. Since joining the firm, Ms. Jenkins has been responsible for managing corporate safety and health issues such as the Employee Medical Surveillance and Worker Right-to-Know programs. She has assisted in the development and implementation of health and safety plans for a variety of geotechnical projects located in the states of Pennsylvania, Ohio, and New Jersey. She is currently serving as the Health and Safety Officer for a project at a RCRA landfill investigation site in Ohio. Ms. Jenkins is also currently focusing on expanding the company's internal respiratory protection program.

January 1988 to June 1989 - Industrial Hygienist, Clayton Environmental Consultants, Inc. As an industrial hygienist in the indoor air quality department at Clayton, Ms. Jenkins was responsible for writing proposals, performing field investigations involving hygiene sampling, analyzing sampling results, and presenting formalized reports for clients. These reports included recommendations for engineering and administrative controls and modification of work practices and processes.

**AFFILIATIONS**

American Industrial Hygiene Association

**JEFFREY D. HOLCHIN**  
**ENGINEER**

Mr. Holchin's educational background and work experience have given him the opportunity to be involved with various types of construction inspection, lab testing of soil and water, and analysis/design for environmental, structural, and geotechnical projects.

**REGISTRATION/CERTIFICATION**

Health and Safety Training in Accordance with OSHA 29 CFR 1910.120,  
"Hazardous Waste Operations and Emergency Response"  
Engineer-in-Training, Pennsylvania

**EDUCATION**

Graduate Studies, Geotechnical Engineering, University of Pittsburgh  
B.S., 1988, Civil Engineering, University of Pittsburgh

**BACKGROUND AND EXPERIENCE**

January 1989 to Present - Engineer, Rizzo Associates. Since joining the firm, Mr. Holchin has been involved with several environmental, geotechnical, and structural projects where his assignments have included the following:

- Performed the static stability analysis for an earth fill hydroelectric dam located in Columbia, South Carolina. This involved the development of cross-sections and flow nets as well as the selection of appropriate strength parameters for use in the computer program.
- Involvement in the field investigation of the earth fill hydroelectric dam, which included supervision of the test boring work and piezometer installation.
- Assessment of Contractor submittals for the Moyer Landfill project.
- Performed calculations for the cost estimate for the Moyer Landfill Superfund site.
- Worked on regrading and final grade drawings for the Moyer Landfill Superfund site.
- Performed calculations for the surface water controls for Moyer Landfill, including the design of a road ditch, downslope drain, and energy dissipators.

- He has been involved with the structural analysis of a concrete hydroelectric dam, using a computer program that models the dam and various loading conditions.
- He was involved with the assessment of a hydroelectric dam in Augusta, Georgia. A computer program that modeled the dam and river was used to determine the effects of various flood levels.
- Performed calculations for the bearing capacity and settlement of the soil beneath the liner for the Carbon-Limestone Landfill project.

1988 - Engineer-in-Training, Ackenheil and Associates Consulting Engineers. Mr. Holchin worked as an assistant to the senior engineer, developing a site plan for an asphalt plant, supervising test borings, working in a soils lab, preparing drawings, and working on slope stability and foundation design calculations.

1985 to 1987 - Construction Inspector, Pennsylvania Department of Transportation. During the three summers with PennDOT, Mr. Holchin was involved with the construction inspection of deep and shallow foundations, retaining walls, concrete culverts, soil excavation and placement, road rehabilitation, and various phases of construction for three bridges.

1985 to 1986 - Lab Technician, Koppers Company, Inc. Mr. Holchin worked as an assistant to the engineer, and performed work in testing and treating contaminated materials in a water quality lab and soils engineering lab.

#### AFFILIATIONS

American Society of Civil Engineers  
National Society of Professional Engineers

**MATTHEW E. GREBNER  
ENGINEER**

Mr. Grebner has nearly four years of experience in the fields of civil and geotechnical engineering. Since joining Rizzo Associates, he has primarily been involved in civil and geotechnical aspects of environmental engineering projects. He is also experienced in the development and implementation of computer systems and programming.

**EDUCATION**

M.S.C.E., 1989, Geotechnical Engineering, Massachusetts Institute of Technology

B.S.C.E., 1985, Geotechnical Concentration, Rensselaer Polytechnic Institute

**REGISTRATION/CERTIFICATION**

Health and Safety Training in Accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operation and Emergency Response"  
Engineer-in-Training

**EXPERIENCE AND BACKGROUND**

August 1989 to Present - Engineer, Rizzo Associates. Since joining the firm, Mr. Grebner has been responsible for civil, geotechnical, and environmental engineering aspects of several projects including the review of remedial action designs, contamination assessment, remedial action planning, landfill design, writing reports and specifications, foundation feasibility investigations and stability analyses. He has also performed field investigations on several solid waste landfill projects where responsibilities involved the installation of gas monitoring wells and pump test wells, performance of in situ permeability testing, soil and rock boring, and test pit installations.

June 1987 to August 1987 - Field Geotechnical Engineer, The Geotechnical Group, Inc. Mr. Grebner monitored construction activities, conducted field density tests, performed site investigation and exploration activities, and wrote reports.

July 1986 to June 1987 - Engineer, Urban Engineers, Inc. Mr. Grebner was responsible for the development and implementation of the company's computer aided design and drafting (CADD) system. He supervised the team performing design work at several major airports and on interstate roadways.

1985 to 1986 - Director of Communications, Division of Medical Genetics, Thomas Jefferson University. Mr. Grebner converted the department's manual record keeping system to a computerized system. He designed and developed software, selected and installed hardware for the entire system, and trained staff members in its use.

**AFFILIATION**

American Society of Civil Engineers

**SCOTT ALLYN HARRIS  
ENGINEER**

Mr. Harris's background and interests include the disciplines of mechanical and civil engineering. His educational background has given him the opportunity to be involved in analysis and design for several environmental projects.

**EDUCATION**

B.S., 1989, Civil Engineering Technology, University of Pittsburgh  
Associate Engineering, 1985, Mechanical Engineering Technology,  
Pennsylvania State University

**REGISTRATION/CERTIFICATION**

Health and Safety Training in accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"

**BACKGROUND AND EXPERIENCE**

January 1990 to Present - Engineer, Rizzo Associates. Since joining the firm, Mr. Harris has been involved in environmental engineering projects, which have included the following:

- Performed a value engineering analysis on the initial design of the Moyer Landfill Superfund Site in eastern Pennsylvania.
- Performed a partial and full cap regrading plan for the Moyer Landfill.
- Performed research for the Army Creek Landfill in New Castle County, Delaware.

**AFFILIATIONS**

American Society of Civil Engineers

**MATTHEW J. VALENTINE  
GEOLOGIST**

Mr. Valentine has over five years of academic and professional experience in geology and hydrogeology. As a recent addition to the firm, Mr. Valentine's work at Rizzo Associates has included various geologic and hydrogeologic remedial investigations and the monitoring of organic solvents at several hazardous waste sites in Pennsylvania.

**EDUCATION**

M.S., 1990, Geology, West Virginia University  
B.S., 1987, Geology, Indiana University of Pennsylvania

**REGISTRATION/CERTIFICATIONS**

Health and Safety Training in Accordance with OSHA Regulations 29 CFR 1910.120, "Hazardous Waste Operations and Emergency Response"  
Cardiopulmonary Resuscitation - American Red Cross

**EXPERIENCE AND BACKGROUND**

April 1990 to Present - Geologist, Rizzo Associates. Since joining the firm, Mr. Valentine has been involved in various geologic and hydrogeologic remedial investigations at Westinghouse sites in East Pittsburgh, and Beaver, and Sharon, Pennsylvania. Activities include developing geologic cross-sections, developing isopach and structure contour maps, and conducting aquifer pump tests, and installing groundwater monitoring wells.

March 1990 - Field Geologist, Almes and Associates, Inc. Mr. Valentine's responsibilities included supervising the installation of groundwater monitoring wells, lithologic logging, and field permeability tests at the Arden Sanitary Landfill in Washington County, Pennsylvania.

August 1987 to 1990 - Graduate Teaching Assistant, West Virginia University. Mr. Valentine's responsibilities included lecturing and instructing students in physical geology laboratories, preparing and administering tests, quizzes, and laboratory projects. Also organized weekly meetings for 15 other teaching assistants.

Summer 1989 - Geologic Technician, Consolidated Natural Gas Development Company. While working with this firm, Mr. Valentine was involved in the development of natural gas prospects including the creation of isopach maps, structure maps, and cross-sections.

Summers of 1988 and 1987 - Scientific Intern, Pennsylvania Topographic and Geologic Survey, PADER. Mr. Valentine's activities included water sample collection, performing pump and transmissivity tests, geophysical well logging, seismic surveying for a city water supply and reconnaissance field mapping.

**AFFILIATIONS**

Association of Ground Water Scientists and Engineers  
Pittsburgh Geologic Society