

**APPLICATION (INCLUDING ATTACHMENTS) FOR
INDEPENDENT REDISTRICTING COMMISSION**

Answer all items in print or type. Attach additional sheets as needed to answer completely.

Full Name Grant Buma _____

Spouse's Name (if applicable) Maryann Eeds, PhD _____

City Prescott, AZ _____ **Zip** 86303 _____

County of Residence Yavapai _____ **Resident of Arizona Since** 1995 _____

Employer Retired _____ **Title** NA _____

Office Address NA _____ **Office Phone** NA _____

City NA _____ **State** NA _____ **Zip** NA _____

Education: Include name(s) of institution(s) and year diploma(s) or degree(s) received.

BSc Geological Engineering -University of Utah 1968 _____

MS Earth & Planetary Science - MIT 1970 _____

List **all** political activities for **at least** the past ten years. Include dates of service and indicate **all** offices held in any organization. (Use attachment if necessary.)

NONE. _____

List **all** professional and occupational memberships for **at least** the past ten years. Include dates of service and indicate **all** offices held in any organization. Please include honors, awards and other forms of recognition. (Use attachment if necessary.)

Tau Beta Pi (National Engineering Honor Society)-U of U; Phi Lambda Upsilon (National Chemical Honor Society)-MIT; AIPG – Chairman Utah State Section (1988-1990); Registered Professional Engineering Geologist in Washington, Utah, Wyoming and Alaska (1995-Present); Registered Environmental Assessor CA (1995-2010); _____

List **all** civic and community service activities for **at least** the past ten years. Include dates of service and indicate **all** offices held in any organization. Please include honors, awards and other forms of recognition. (Use attachment if necessary.)

Represented Colorado River Indian Tribes at AWBA meetings and ADOT/BIADOT board meetings. _____

ATTACH A **STATEMENT OF INTEREST** explaining why you are interested in serving on the independent redistricting commission.

ATTACH A **RESUME** OR **BIOGRAPHICAL STATEMENT**.

Applications that do not include the required resume or biographical statement, and a statement of interest, will be considered incomplete and will NOT be considered for nomination.

COMPLETELY ANSWER ALL OF THE FOLLOWING QUESTIONS:

1. Are you committed to applying the provisions of the Arizona Constitution, Article IV, Part 2, Section 1 in an honest, independent and impartial fashion, and to upholding public confidence in the integrity of the redistricting process? Yes (x) No ()
2. Will your employment and/or personal circumstances permit you to attend meetings of the Independent Redistricting Commission in their entirety? Yes (x) No ()
3. Are you a registered Arizona voter? Yes (x) No ()
4. Have you been continuously registered for at least the past three years with the same political party or as unaffiliated with a political party? Yes (x) No () If no, attach explanation.

Indicate political registration for the past three years: Democrat

5. During the past three years, have you:
 - a. been appointed to, elected to, or a candidate for any other public office, including precinct committeeman or committeewoman, but not including school board member or officer? Yes () No (x)
 - b. served as an officer of a political party or as an officer of a candidate's campaign committee? Yes () No (x)
 - c. served as a registered paid lobbyist? Yes () No (x)

If your answer to any part of this question is "Yes," attach an explanation.

6. Is there any possible conflict of interest or other matter that would create problems or prevent you from fairly and impartially discharging your duties as an appointee to the Independent Redistricting Commission? Yes () No (x) If your answer is "Yes," attach an explanation.
7. Are you now an officer, director, or majority stockholder, or otherwise engaged in the management, of any business enterprise? Yes () No (x)
If your answer is "Yes," give details by attachment, including the name of the enterprise, the nature of the business, the title and description of your position, the nature of your duties, and the term of your service.
8. Have you filed your state or federal income tax returns for all years you were legally required to file them? Yes (x) No () If your answer is "No," explain by attachment.
9. Have you paid all state, federal and local taxes when due? Yes (x) No () If your answer is "No," explain by attachment.

10. Have you ever violated a court order including but not limited to an order for payment of child or spousal support? Yes () No (x) If your answer is "Yes," explain by attachment.
11. Have you ever been expelled, terminated, or suspended from any employment or school or course of learning on account of plagiarism, cheating, or any other "cause" that might reflect in any way on your integrity? Yes () No (x) If your answer is "Yes," explain by attachment.
12. Are you, in any jurisdiction, currently charged with or have you ever been arrested for, convicted of, or pleaded guilty to any felony, misdemeanor (excluding civil traffic violations), or violation of the Uniform Code of Military Justice? Yes () No (x) If your answer is "Yes," explain by attachment.
13. If you performed military service, please indicate the date and type of discharge. If other than honorable discharge, explain by attachment.
14. List and describe by attachment any litigation involving an allegation of fraud in which you are or were a defendant.
15. In the past year, have you ever been reprimanded, demoted, disciplined, placed on probation, suspended, or terminated by an employer as a result of your alleged consumption of alcohol, prescription drugs, or use of illegal drugs? Yes () No (x) If your answer is "Yes," explain by attachment the circumstances under which such action was taken, the name(s) of any persons who took such action, and the background and resolution of such action.
16. Have you failed to vote in any general election held during the past eight years? Yes () No (x) If your answer is "Yes," explain by attachment.
17. Have you ever refused to submit to a test to determine whether you had consumed and/or were under the influence of alcohol or drugs? Yes () No (x) If your answer is "Yes," state the date you were requested to submit to such a test, type of test requested, the name of the entity requesting that you submit to the test, the outcome of your refusal and the reason you refused to submit to such a test.
18. Within the last five years, have you ever been formally reprimanded, demoted, disciplined, placed on probation, suspended or terminated by an employer? Yes () No (x) If your answer is "Yes," state the circumstances under which such action was taken, the date(s) such action was taken, the name(s) of any persons who took such action, and the background and resolution of such action.
19. Has a judgment or finding that you failed to comply with the substantive requirements of any business or contractual arrangement, including but not limited to bankruptcy proceedings, ever been entered against you? Yes () No (x) If your answer is "Yes," explain by attachment.
20. List by attachment all elected or appointed offices that you have held and/or for which you have been a candidate, and the dates.
21. Provide any additional information relative to your application or qualifications you would like to bring to our attention at this time.

STATEMENT OF INTEREST

GRANT BUMA

To: Commission on Appellate Court Appointments

Ladies and gentlemen: For years, but more so recently, I have been concerned about our election process. Partisan attempts at gerrymandering the voting districts to favor one side or the other are not in the spirit of the Constitution or the intent of the Founders. I used to vote Republican years ago but the last few years I have voted Democratic. Whatever your view on the issues politically, I believe we need to have fair voting so that everyone can feel confident that their vote counts. This is the strength of our Democracy. Attempts to suppress voting are troubling to me. Unless we can put our differences aside and rally around the winner we will not be able to move forward. I feel like I should do something to help so I am submitting my application.

Respectfully, Grant Buma

GRANT BUMA, CPG, REA

Geological Engineering/Geohydrology/Geochemistry/Air and Water Quality
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Ph: (602)495-9246/(928)216-0084
e-mail: grantbuma1@gmail.com

SUMMARY OF PROFESSIONAL EXPERIENCE

HYDROLOGIST ENGINEER/DIRECTOR WATER RESOURCES 1993-2016	COLORADO RIVER INDIAN TRIBES Parker, Arizona
PRINCIPAL HYDROGEOLOGIST/ GEOCHEMIST 1992-Present	ENVIRONMENTAL HEALTH MGM'T., INC. Salt Lake City, Utah
MANAGER ENVIRONMENTAL DEPARTMENT 1991- 1992	VERSAR A & E, INC. Salt Lake City, Utah
MANAGER SALT LAKE OFFICE 1988-1991	KLEINFELDER, INC. Salt Lake City, Utah
MANAGER SITE ASSESSMENT 1987-1988	URS CORPORATION Sacramento, California
PRINCIPAL GEOHYDROLOGIST/ GEOCHEMIST 1984-1987	ENGINEERS INTERNATIONAL, INC. Westmont, Illinois
EXPERT WITNESS GEOHYDROLOGY/GEOCHEMISTRY 1982-1984 (2 year contract)	NIAGARA MOHAWK POWER CO. Syracuse, New York
VICE PRESIDENT ENVIRONMENTAL & GOVERNMENT AFFAIRS 1980-1982	MINATOME CORPORATION Denver, Colorado
PRESIDENT & GENERAL MANAGER 1976-1980	ROCKY MOUNTAIN GEOCHEMICAL CORPORATION Salt Lake City, Utah
MANAGER GEOLOGICAL/RESERVOIR ENGINEERING 1973-1976	WESTINGHOUSE (WYOMING MINERAL CORPORATION) Denver, Colorado
ASSOC. SCIENTIST/GEOCHEMISTRY 1964-1966; 1970-1973	KENNECOTT COPPER CORP. Salt Lake City, Utah

EDUCATION/REGISTRATION

GRADUATE DEGREE: Massachusetts Institute of Technology (MIT)
Master of Science, 1970
Earth & Planetary Science, Geochemistry Specialty
Honors: Phi Lambda Upsilon; Sigma Xi; N.S.F. Fellowship

PROFESSIONAL DEGREE: University of Utah
Bachelor of Science, 1968, Geological Engineering
Honors: Tau Beta Pi; Cum Laude

POST-GRADUATE: Graduate Westinghouse Management Courses
Project Administration, 1975

USBR Water Management Workshop; GPS & GIS

Continuing Education at University of Utah
Pathcalc Computer Simulation/Chemical
Equilibria

NWWA course on computer simulation of ground
water flow

REGISTRATION & CERTIFICATION

American Institute of Professional Geologists

Registered Geologist States of Alaska, Wyoming, Utah, Washington

State of California Environmental Assessor

US Army COE Wetlands Certification

EPA Health and Safety Training for Hazardous
Waste

EPA Inspector/Management Planner for Asbestos

State of Utah Certified Consultant/UST's

PROFESSIONAL SOCIETIES: AIME (25 yr. cert.); The Geochemical Society;
AAPG; NWWA; UGA; NMA; GSN; AIPG; CECU; AWWA

Past President Utah Chapter AIPG;
Past Chairman HWAC Committee of Consulting
Engineers Council of Utah

LANGUAGES: English; Dutch; Afrikaans; Flemish; French; Sci. German

SUMMARY OF EXPERIENCE

Grant Buma is a Geological Engineer/Geochemist with over 25 years of experience in Geohydrology, *Water Quality, and Air Quality*. He has managed several large field projects involving characterization and remediation of contaminated groundwater and soil, and has a broad background in waste management in general, both hazardous and non-hazardous. He has served as Program Manager on State Superfund contracts in the states of Utah and Arizona, and on Air Quality permit reviews for the State of Utah. He has owned and operated his own drilling company, commercial laboratory and consulting firm. Mr. Buma's consulting career is based on several years operating experience in mining, oil and gas, water resources, and environmental industries world-wide. He is currently involved in the development and management of water resources for over 80,000 acres of farm land and 29 resorts on the Colorado River.

RESOURCE DEVELOPMENT

Colorado River Indian Tribes - Development and management of water resources for over 80,000 acres of agricultural land and 29 resorts on the Lower Colorado River, including two EA's for major operational and structural developments. Supervised the design and construction of a \$57 million Casino/Marina/Hotel complex. *One million acre-foot aquifer recharge project.*

Numerous exploration - and development projects for the mining and oil and gas industries.

Gulf Minerals - completed a two year contract to evaluate major aquifers in North Dakota and Minnesota.

Tahoe City PUD - Water resource study and design and location of principal water supply well.

Managed - gold mining operations for Cominco-American at the Buckhorn Mine south of Elko, Nevada and for Amigo Mining north of Craig, Colorado, including design and construction of mills.

Manager - uranium solution mining activity world-wide for Westinghouse and Total Petroleum.

Exploration - and development programs for minerals for Kennecott, Gulf, Chevron, Texaco, and others.

Exploration - and development of oil and gas properties for Shell Oil and Golconda, Ltd.

REMEDIAL INVESTIGATIONS/FEASIBILITY STUDIES (RI/FS)

States of Arizona and Utah - Departments of Environmental Quality

Program Manager on State Superfund programs involving numerous sites throughout the states.

USEPA - Evaluation of Superfund Sites

Project Engineer on REM-FIT Field Investigation Team to evaluate compliance with EPA regulations under RECRA.

Composition of QAPP, RAMP, RI/FS to meet requirements under CERCLA.

Sites Investigated:

United Nuclear Corporation - Church Rock, N.M. Uranium Mill tailings (>\$1,000,000).

Leadville, Colorado - California Gulch: 11.5 square miles of abandoned mine workings, slag, mill tailings, land fills, etc. (>\$1,000,000)

Installation Restoration Program (IRP)

Project Manager - McChord AFB, Washington

- RI/FS/RD Superfund site cleanup of mixed organic and inorganic waste spills.
- RI/FS/RD cleanup of TCE contamination in two water supply wells.
- RI/FS/RD cleanup of JP-4 spill and demonstration project for insitu remediation with ORNL.

Senior Program Manager - Lackland AFB, Texas

- RI/FS mixed organic/inorganic and radioactive wastes.

Deer Valley Ski Resort, Park City, Utah - Project Manager on Environmental Audit

Varian-Eimac, Salt Lake City, Utah - Project Manager on RI/FS/RD remediation at major electronics manufacturing firm. Involved solvents and mixed organic and inorganic wastes. Project fees over \$500,000.

Salt Lake City Airport - RI/FS fuels spills.

Hill AFB, Utah - Investigation of containments at chemical storage facilities and crossconnects between the storm drains and the sewer systems.

Dugway Proving Grounds, Utah - Sampling and analysis of contaminated water from cleanup operations. Soils investigations of old landfill sites.

Flying "J" Oil Company - RI/FS on site in Salt Lake City for groundwater and soil contamination from fuel spills.

Hilton Texaco - RI/FS/RD at site in St. George, Utah of groundwater and soils contamination from fuel spills.

Christensen Boyles Corporation - RI/FS/RD Environmental Audit of drilling company at sites in Salt Lake City, Utah and Reno, Nevada. Included preparation of a hazardous waste compliance manual for operations personnel.

Equitable Life Insurance Company - RI/FS/RD of contaminated soils and groundwater at Interchange Park in Salt Lake City, Utah.

Construction Rental - Senior Program Manager on RI/FS/RD of major soils and groundwater contamination from fuel spills at equipment rental facility on old gasoline station site in industrial area in Salt Lake City. Involved replacement of underground storage tanks and remediation of floating product on groundwater.

Utah National Guard - Senior Program Manager on management of underground storage tank program involving closure plans, mitigation and removals.

Pirini - Major RI/FS/RD and construction of groundwater flow, solute transport model for \$70,000,000 hotel - golf course complex in Squaw Valley, California. Developed chemical management plan for agricultural products and environmental criteria to satisfy courts in legal action.

Ralph H. Larsen Trucking - RI/FS/RD closure plan and removal of large UST's at major trucking facility in Salt Lake City. Mitigation of major groundwater/soils cleanup involving fuels releases.

Chevron - RI/FS/RD of leaky UST's at Reno station.

UNOCAL - RI/FS/RD of two stations in Carson City, Nevada and Bishop, California including pump and treat remediation of Bishop facility. RI/FS in Carson City including soil gas survey and groundwater investigation.

City of Bishop, California - RI/FS of city wide sewer system contamination.

Riverside Chevron/Top Stop - Expert witness and RI/FS/RD on program involving some 20 UST's throughout southern Utah and Nevada.

Clark County Nevada - RI/FS/RD for mixed fuel spill at Automotive Services East Flamingo refueling facility including remediation of contaminated soils with bio-remediation.

Boulevard Mall - RI/FS of old mixed fuel and hydrocarbon spill in Las Vegas, Nevada.

Spear Development - RI/FS/RD for rehabilitation of contaminated industrial septic system at Las Vegas facility.

Texaco - RI/FS/RD at service station in Las Vegas.

Greyhound - RI/FS/RD and remediation of major leak from UST's at the Reno station. Soils excavation primarily.

City of Fairbanks, Alaska - Senior Program Manager on RI/FS/RD on contaminated water supply wells - mixed fuels and other organics.

Numerous Phase 1 Site Assessments - for Real Estate property transfers and underground storage tank investigations for removal and closure.

Colorado River Indian Reservation - RI/FS/RD for 38 UST's and ag-chemical spills over 80,000 acres and 400 miles of canals.

REMEDIATION PROJECTS

Colorado River Indian Tribes - Removal, replacement and cleanup at 38 UST sites.

Ogden Defense Depot - Principal Reviewer on two groundwater and soil remediation projects for the State of Utah Superfund Program.

Top Stop - Installation of oil-water separator at Vernal, Utah facility.

Phillips 66 - Abatement of floating product on groundwater at facility in Ogden, Utah.

Hilton Texaco - Abatement of floating product and remediation of contaminated soil and groundwater at facility in St. George, Utah.

Chevron - Remediation of contaminated soil and groundwater at stations in Carson City and Las Vegas, Nevada.

Niagara Mohawk Power Company, Syracuse, N.Y. - Expert Witness before New York State Public Service Commission regarding groundwater remediation related to hazardous waste from uranium mining operations in South Texas.

Principal Consultant - regarding groundwater pollution and remediation of contamination from uranium mining operations on the following projects:

Texas	Clay-West and Burns Ranch - U.S. Steel Weatherston - Aquitaine
Wyoming	Nine Mile Lake - Rocky Mountain Energy Reno Ranch - Rocky Mountain Energy Sundance - Bethlehem Steel Bison Basin - Ogle Petroleum

U.S. Bureau of Mines

- Evaluation of groundwater criteria for restoration techniques including economic feasibility of the available alternatives for hazardous wastes resulting from uranium mining.
- *Summary of all regulations on state and federal levels for remediation of groundwater.*

Westinghouse - Responsible for all matters regarding groundwater remediation of hazardous waste resulting from uranium mining operations in South Texas, Wyoming, Colorado, and Utah. Project Manager on \$3,000,000 research joint venture with the Germans and the French. Developed and implemented groundwater remediation programs for 3 pilot plants and 4 commercial uranium solution mining operations. Programs included pump-and-treat and Bio-remediation technologies.

Ogden Defense Depot - Principal Reviewer on two groundwater and soil remediation projects for the State of Utah.

Niagara Mohawk Power Company - Syracuse, New York

Expert witness before New York State Public Service Commission regarding ground water pollution and restoration related to hazardous waste from uranium mining operations in South Texas.

Principal Consultant - regarding ground water pollution and remediation from hazardous wastes resulting from uranium mining on the following projects:

Texas	Clay West-Burns Ranch - U.S. Steel Weatherston-Aquitaine
Wyoming	Nine Mile Lake-Rocky Mountain Energy Reno Ranch-Rocky Mountain Energy Sundance-Bethlehem Steel Bison Basin-Ogle Petroleum

Two major projects for the USBM: 1) Evaluation of ground water criteria for restoration techniques including economic feasibility of the available alternatives for hazardous wastes resulting from uranium mining and 2) summary of all regulations on state and federal levels.

Westlands Water District

Project Engineer - Deep injection well compatibility study. Agricultural drain water.
Clark County, Nevada

Underground Storage Tank (UST) management program for the School District. Involves over 40 tanks slated for abandonment or replacement.

Westinghouse (Wyoming Mineral Corp.):

Responsible for all matters regarding groundwater pollution and remediation of hazardous wastes resulting from uranium mining on the following projects:

Texas	-	Bruni
	-	Lamprecht
Wyoming	-	Irigary Ranch
Colorado	-	Grover Project
Utah	-	Bingham Canyon

Chevron Station, Carson City, Nevada - remediation of contaminated soil and groundwater from fuel spill.

Consultation with State Authorities - and review of ground water monitoring and restoration requirements for uranium mining permits for the following states:

Texas, Wyoming, Colorado, Utah, New Mexico and Montana

Project Manager - on \$3,000,000 research project with the Germans, the French and Westinghouse. Developed and implemented groundwater remediation programs for 3 pilot plants and 4 commercial uranium solution mining operations. Programs included pump-and-treat and bio-remediation technologies.

SOLID WASTE MANAGEMENT

USNRC Evaluation of nuclear waste repository sites proposed by USDOE for compliance with USEPA regulations under 10 CFR Part 60. Provided performance assessments.

Evaluation of numerical models of ground water flow and geochemical processes including corrosion of canisters and deterioration of seals.

Problems of ground water flow in fractured media. Design review. Sites reviewed:

- Basalt Waste isolation Project (BWIP) in Washington State.
- Nevada Test Site (NTS).
- Deaf Smith County, Texas (salt site).
- Lavender and Davis Canyons, Utah (salt sites).

State of Utah - Governor's Committee on radioactive waste disposal.

Colorado River Indian Tribes - Closure of current landfill and location of new landfill site.

U.S. Tungsten, Bishop, California - Project Manager on siting study for new landfill and closure of old landfill. Relocation and expansion of tailings impoundment at tungsten mine.

Kennecott Copper - Research Geochemist studying natural weathering systems and extractive applied geochemistry of dump leaching systems. Operation of full scale dump in Bingham Canyon, Utah.

Molycorp, Mountain Pass, California - Closure of tailings impoundment, siting and installation of new impoundment, compliance monitoring of other impoundments at rare earth mine.

Westinghouse - Project Manager on siting, permitting, installation, operation and compliance monitoring of 4 lined landfills associated with commercial uranium mining operations in Texas, Wyoming and Colorado.

Program Manager - on compliance monitoring for municipal landfills in six counties in Northeastern California and Northwestern Nevada.

Project Manager - on construction of heap leach impoundments including installation of massive double liners for gold mining operations at the Buckhorn Mine of Cominco-American south of Elko, Nevada.

Program Manager - on field investigation team under the IRP program for the Air Force to investigate and characterize landfills which contained potentially hazardous materials at McChord Air Force Base in Washington and Lackland Air Force Base near San Antonio, Texas.

EPA - Investigations of breached tailings impoundments at Leadville, Colorado and Church Rock, New Mexico.

Vitro Chemical - study of stabilization of uranium waste at landfill site in Salt Lake City.

Management of disposal - to landfills of asbestos containing building materials from demolition projects in Las Vegas, Elko, and Salt Lake City.

Elk Ridge, Idaho - development and design of new landfill operations concept with Dr. Paul Johnson.

Program Manager - on RI/FS work at three landfills in Arizona and one in Utah under the respective State Superfund programs.

EPA - Investigation of mine waste landfills at Leadville, Colorado Superfund site.

Review of closure - and monitoring requirements at tri-cities municipal landfill near Orem, Utah.

Project Manager - on permitting, siting and design of landfills associated with gold mining operations for Amigo Mining north of Craig, Colorado and Silver Queen Mining near Lovelock, Nevada.

Clark County, Nevada - site assessment and compliance monitoring of solid and hazardous waste transfer stations in the Las Vegas area.

AIR QUALITY

Utah State Division of Air Quality - Program Manager of contract for processing and review of 41 Notices of Intent from industrial applicants.

Nevada Power Company, Las Vegas - plant site testing of emissions and air quality study at Clark Station Power Plant. *The study included source identification of particulate and odor emissions, and efficiency studies of scrubbers. Minor modeling of diffusion of odors into residential neighborhoods was also included.*

Utah Power and Light Company - pilot plant design installation and operation of a double alkali scrubbing system for removal of SO₂ emissions from the Gatsby Plant in Salt Lake City. The study included efficiency and capacity testing of the unit along with cost-benefit analysis for compliance achievement.

Kennecott Smelter - process design installation and operation of sulfuric acid plant for scrubbing SO₂ out of smelter emissions. Included efficiency studies and cost-benefit analysis for compliance.

Design and installation - of cyclones for capture of particulates from refinery emissions. Energy conservation studies and testing of recycling refinery emissions at oil refineries.

Permit applications - and emission calculations for numerous soil and groundwater remediation projects in several western states including Utah, California, Arizona, and Nevada.

Conoco - testing of emissions and heat from multiple hearth furnace at uranium mining operations in Falls City, Texas.

Westinghouse - design, installation and operation of scrubbers to remove ammonia, HCl and radon fumes from uranium processing facilities at commercial operations in Texas, Wyoming and Colorado.

CONSTRUCTION MANAGEMENT

Colorado River Indian Tribes - Design and construction of a \$57 million Casino/Hotel/Marina complex on the Colorado River. Responsible charge of approval of all construction projects involving COE Sections 404 and 10, and EPA Section 401 permits.

Westinghouse - Project Manager of \$3,000,000 research joint venture with the Germans and the French to develop insitu uranium leaching technology.

- Was in responsible charge of the construction and operation of four commercial process plants. Managed several large pilot scale operations for minerals recovery and aquifer and surface water restoration and management including surface impoundments and deep well injection.

Bureau of Reclamation - exploratory drilling of a dam site for the Yellow Jacket Unit of the Upper Colorado River Storage Project and design and installation of pollution control facilities for construction of the Crystal Dam in the Black Canyon of the Gunnison.

Kennecott at Bingham Canyon, Utah - Project manager on construction and operation of commercial scale pilot plant.

Buckhorn Mine of Cominco-American south of Elko, Nevada - Project Manager of construction of heap leaching impoundment including installation of massive double liner.

Union Pacific - Installation supervision and performance assessment of uranium mining facilities for Niagara Mohawk Power Company and U.S. Steel in Texas, and for Union Pacific and Bethlehem Steel in Wyoming.

Planning and construction management - of numerous underground storage tank and asbestos removal projects with attendant soil remediation.

Design and installation - of numerous water wells for water supply and groundwater monitoring.

City of Colorado Springs, Colorado - construction oversight and performance assessment of water treatment plant.

Western U.S. - Siting, permitting, design and construction supervision of numerous access and haulage roads for mining and oil and gas facilities.

Westinghouse - Design and construction management of two laboratory facilities for Kennecott Copper Corp. in Utah, and for laboratory operations for Westinghouse in Texas, Wyoming, and Colorado.

Project Manager - siting and construction management of numerous drilling locations for oil, gas and mining exploration and production operations.

Project Manager - design construction, and operation of three mobile process pilot plants for Westinghouse uranium mining operations.

Project Manager - on construction of commercial mill for Buckhorn Gold Mine of Cominco-American south of Elko, Nevada.

Owned and operated - own drilling company with equipment for water well installation, mineral exploration, construction siting studies and large diameter caisson drilling.

OTHER:

Chairman - Committee on Environmental Control, workshop on Solution Mining (NSF-RANN) - Stanford University, Fallen Leaf Lake, California, 10/30-11/2/77.

Member - USBR Committee on vegetation management for the Colorado River.

Member - USBR Committee on backwater issues for the Colorado River.

27 Professional papers and numerous technical reports.