Center for Nuclear Waste Regulatory Analyses

POST OFFICE DRAWER 28510 • 6220 CULEBRA ROAD • SAN ANTONIO, TEXAS, USA 78284
(512) 522-5160 • FAX (512) 522-5155

February 15, 1988

Mr. Bolek R. Chytrowski
3900 Puckett Drive
Amarillo, TX 79109

Dear Mr. Chytrowski:

This is in reply to your letter of February 5, 1988, expressing interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Your broad experience in the areas of mining engineering, shaft sinking, and underground construction are germane to the mission of the Center as it evaluates and reviews the activities of the DOE on behalf of the Nuclear Regulatory Commission.

Although all management and senior technical positions in this area have been filled, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks on an intermittent basis, as directed.

Please advise me if you would like to be considered for a role as consultant to the Center in the area of mining engineering. If you are interested, please advise me at your earliest convenience.

Sincerely yours,

Wesley C. Patrick
Technical Director

WCP/yl

cc: J. Hageman
bcc: H. Garcia

426.1
NH14

B Chytrowski
3900 Puckett Drive
Amarillo, Texas 79109

February 5, 1988

Dr. Wesley Patrick
CNWRA Technical Director
6220 Culebra Road
San Antonio, Texas 68284

Dear Mr. Patrick:

I learned from the Radioactive Exchange Publication that you have vacant positions within your organization.

I shall like to apply for one of the vacant positions because I believe that some of my experience can be of interest to you.

As Project Engineer with the Bechtel Corporation, head office in San Francisco, I was in charge for the design of the Waste Isolation Pilot Plant (WIPP) project. I was involved in the evaluation of the geotechnical data for the WIPP site in order to determine the requirements for the surface and subsurface structures, this includes the four shafts. I participated in the selection of equipment to transport the contact and remote handled nuclear waste in the waste handling building and subsurface facilities. In addition, I was involved with Sandia National Laboratories, Albuquerque, New Mexico, in the selection and layout of scientific tests for the waste and non waste test areas.

With the Battelle Project Management Division, I participated in the preparation of the Conceptual Design Report for the high level nuclear waste commercial repository planned for the Deaf Smith County site in Texas. The conceptual design was based on the requirements mandated by the Nuclear Regulatory Commission for a licensed repository in order to conceptually design the repository. I evaluated the geotechnical data for the Texas site.

I am especially interested in a position with your organization because I believe it offers opportunities to use my experience.

I shall be glad to fill out an application form if you would send one, to provide you with references, but to expedite matters, I am enclosing my resume.

Should you wish to discuss further details of my experience, I would be happy to do so in a personal interview.

I look forward to hearing from you in the near future.

Sincerely yours,

B. R. Chytrowski

Bolek R. Chytrowski

Bus: (806) 364-8930
Res: (806) 354-9627

BOLEK R. CHYTROWSKI
3900 Puckett Drive
Amarillo, Texas 79109
(806) 364-8930 (Office)
(806) 354-9627 (Home)

EDUCATION

M.S., Business Administration Courses,
University of Saskatchewan, Saskatoon, Canada, 1970

M.S., Mining Engineering, Silesia Polytechnic,
Gliwice, Poland, 1958

B.S., Mining Engineering, Silesia Polytechnic,
Gliwice, Poland, 1956

EXPERIENCE SUMMARY

Thirty years mining engineering experience, twelve years in construction, six years in operations, nine years with an architect-engineering firm, three years in project management in the following capacities: Project Manager, Consulting Engineer, Chief Engineer, Project Engineer and Superintendent on numerous projects in the U.S., Canada, and Europe.

TECHNICAL EXPERTISE

- Coal, potash, salt, trona, peat [illegible] shale, heavy oil sands, lead, copper, uranium with subsurface or sur[illegible]ning methods.
- Design and construction of n[illegible]ste repositories in the U.S.
- Shaft construction and design.
- Artificial ground consolidation by freezing.
- Hoisting machines and material handling systems.
- Geotechnical including instrumentation exploration and directional drilling.
- Tunnels with conventional and continuous borers.
- Properties evaluation to establish mining feasibility for acquisition.
- Cost estimating, determination of capital and operating costs, budgeting, lifecycle, and cash flow analysis.
- Scheduling and project management systems development and implementation.

Detailed Achievement Summary

1985 - Present Battelle Project Management Division,
Amarillo, Texas and Columbus, Ohio

Senior Technical Advisor, responsible to the manager of the Construction Suport Department for the planned Site Characterization Plan consisting of exploratory surface and subsurface drilling and the construction of the Exploratory Shaft Facilities for the Deaf Smith County Site, Texas. Inter-faces with the client, construction Manager, and Architect/Engineers responsible for the design of the facilities.

Manager, Subsurface Facilities, responsible to the Manager of the Repository Department coordinating the development of the Conceptual Design Report for the first commercial high level nuclear waste

repository planned for Texas. Interfaced with the Architect/Engineer, Fluor Inc., responsible for the design of the repository and Architect/ Engineer, Parsons-Brinckerhoff/PB-KBB responsible for the design of the Exploratory Shaft Facilities of the repository. Mermber of the board of reviewers for the repository and exploratory shaft facilities meeting on a weekly basis with the client, Department of Energy to discuss and advise on the design of the repository. Frequent travel within the U.S. to attend major project meetings. In contact with Battelle consultants representing various universities and laboratories. The Conceptual Design Report and final design of the Exploratory Shaft Facilities was developed on schedule, supported by a cost estimate, project value approximately 11 billion dollars. Visited low and high level nuclear waste repositories and laboratories in West Germany and discussed with the German authorities the technology and costs of the facilities.

1976 - 1985 Bethtel Civil and Minerals, Inc.
Mining and Metals Division

Project Engineer, responsible to the manager of mining for the design of the Waste Isolation Pilot Plant in Carlsbad, New Mexico. Project value approximately $650 million, sponsored by the U.S. Department of Energy. Participated in the project from its inception, through detail engineering and construction. The project involved the design of an underground salt mine and surface facilities for storage of nuclear waste material.

Engineering Specialist - mining - responsible to the manager of mining for the following feasibility studies:

- Cost estimate of an underground mine in Alaska to recover oil from heavy sands deposited at a depth of 3,000 feet. The study was sponsored by the Atlantic Richfield Company.
- Cost estimate and design of two underground coal mines in the Shen Mu Province in China.
- Prefeasibility study involving design and cost estimates of surface coal mines in Zhungeer, China.
- Feasibility study of peat harvesting for the First Colony Farms, Inc., in Creswell, North Carolina. The study dealt with the selection of peat harvesting methods, equipment and cost estimates.
- Cost study for the Electric Power Research Institute to evaluate surface vs. underground mining of uranium mines in Grants, New Mexico.
- Cost study and preliminary engineering of an underground coal mine in Utah. The study was sponsored by the Intel Corp of San Francisco.
- Feasibility studies of several oil shale mines. The mines were rated to produce 80,000 tpd of oil shale rock to produce 50,000 barrels of crude oil.

- Consulting Engineer to the Commission Federal Electricidat, a government-owned national power company of Mexico. Assignment involved the review of plans for tewo underground coal mines utilizing longwall mining.

- Consulting Engineer to the Electricity Commission of New South Wales in Sydney, Australia. Assignment involved a tour of operating and coal mines under construction and a review of existing production targets and production expansion for the next 10 years.

- Other assignments involved business development trips in U.S., Canada, and Europe.

1973 - 1976: The Cementation Company of America, Inc.

Assistant to the Project Manager, responsible to the project manager for the mine rehabilitation work at the Cargill, Inc. Salt Mine in Louisiana. A shaft was sunk through an area previously caved in, in difficult, heavy, water-bearing ground. Ground-freezing technique was used during shaft sinking, and injection of chemical grout was applied to seal off inflows from old working to complete the project on schedule. Numerous subcontractors had to be coordinated and supervised.

1970 - 1973 Consolidation Coal Company, Ohio

Chief Engineer, Underground Mines, responsible to the vice president.

Work involved the operation of five underground mines utilizing room and pillar and longwall mining, employing 700 people. Assignments were to resolve existing labor and production problems.

- Successfully increased production by 7000 tpd within 6 months, reducing costs by approximately 4 percent and increased man-per-shift production by 3 tons.

Transferred to the surface coal mining division to become familiar with mine planning, design, costs and acquisition of new properties.

1968 - 1970 Duval Corporation of Canada - Potash Mine, Saskatoon, Saskatchewan, Canada

Mine Superilntendent, responsible to the resident manager for mine department of 185 employees. Was responsible for production and administration of operating and capital budget. Trackless operation in room and pillar stress relief systems.

- Successfully increased production from 4,000 to 7,500 tpd within 1 year.

- Achieved savings in mining cost from $18.00 to $11.00 per ton.

- Maintained high standards of safety and, during my assignment, the mine won the corporate safety award.

1966 - 1968: Foraky, Ltd. - Cementation Company of Canada

Consulting Engineer to Cementation, Ltd. for shaft sinking with freezing at the Cominco, Duval and Potash Company of America mine sites in Saskatchewan. Responsible to the Foraky North America Manager for shaft freezing.

- Due to the excellent freezing application, Cementation Ltd. established a new world record in shaft sinking: 650 feet of finished shaft in 30 days.

1962 - 1966: S.A. Foraky, Brussels, Belguim

Project Manager for various projects including mine development work, longwall installations, shaft construction, drilling, and freezing. Spent two years on an LNG project in the city of Antwerp and constructed two tunnels for liquid natural gas storage. Also involved in exploration drilling and open pit mine planning for african operation for precious metals.

1958 - 1962: Enterprise of Mining Construction work, Upper Silesia, Poland

Project Manager, responsible to the division manager for mine projects. Responsible for crews up to 135 men involved in mine development and operation throughout Poland.

1952 - 1958: University Student

Summer employment at the Anna, Mszana, coal mines.

PROFESSIONAL AFFILIATIONS:

Registered Professional Engineer - Saskatchewan
Member, Engineering Institute of Canada
Member, American Institute of Mining, Metallurgical and Petroleum Engineers

PUBLICATIONS:

- Exploratory Shafts and Underground Test Facility for the Waste Isolation Pilot Plant (WIPP)
- ERG and GRG Review of the horizontal versus vertical modes of Waste Package Emplacement at the Deaf Smith County Site, Texas
- Waste Disposal Status in the Federal Republic of Germany.

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February 17, 1988

Mr. William M. Bland, Jr., P.E.
President
MANAGEMENT AND TECHNICAL CONSULTING
Division of GeeB's, Inc.
18575 Martinique Drive
Houston, TX 77058

Dear Mr. Bland:

You have come to our attention through Mr. Joseph Bunting as one who may be interested in serving in a consulting capacity with the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Your depth and breadth of experience in the area of quality assurance are particularly germane to the mission of the Center.

Although all management and senior technical positions have been filled, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed.

Please advise me if you would like to be considered for a role as consultant to the Center in the area of quality assurance. If you are interested, please forward a complete resume. As you noted in your letter to Joe, there are varying opinions on what constitutes a "good resume". For our purposes, it needs to include your complete record of employment and experience, highlights on the specific responsibilities and accomplishments related to each assignment, education, professional affiliations and registrations, and a list of pertinent publications.

Sincerely yours,

Wesley C. Patrick
Technical Director

WCP/yl

cc: B. Mabrito
bcc: H. Garcia

MANAGEMENT AND TECHNICAL CONSULTING
Division of GeeB's, Inc.
18575 Martinique Dr.
Houston, TX 77058

January 22, 1988 (713) 333-4580

Note for Joe Bunting,

As a result of a phone call from Joe Levine today, I became aware of your suggestion that Joe and I send resumes to you for possible transmittal to Southwest Research Institute of San Antonio. This sounds like a good idea to me since it offers an opportunity to help SwRI in their support of the NRC or in some other of their interesting activities. San Antonio is an easy drive from here and an even easier flight by Southwest Airlines. I believe that SwRI has a branch in Houston.

I am happy to provide a resume. As you are aware, there are resumes and there are resumes. No two are alike; and everyone seems to have a different idea of what a "good resume" should contain. Since I favor one-pagers, I have enclosed two of them. One, dated May 1987, is fairly broad. A more recent one, dated December 1987, is current and has more emphasis on nuclear work. If desired, I can provide more details.

Also, following your recent suggestion, I have mailed the material that I previously sent to Commissioner Asselstine to Forrest Remick. A copy of my cover letter to Remick is enclosed for your information.

Good luck in your contacts with the NASA! Can I be of any assistance?

Bill
Bill Bland

Enclosures: As noted.

Copy

MANAGEMENT AND TECHNICAL CONSULTING
Division of GeeB's, Inc.
18575 Martinique Dr.
Houston, TX 77058

January 12, 1988 (713) 333-4580

Dr. Forrest J. Remick
Vice Chairman, Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Dear Dr. Remick,

It is my understanding that you have an interest in the application of the Readiness Review concept to phases of the nuclear licensing process. Such an interest is commendable because of the great potential the proper application of that concept offers to the effectiveness and timeliness of the licensing process.

As a result of my experience with pre-Challenger-accident NASA and my exposure to the NRC during the TMI-2 investigation and, later, as a consultant to the U.S. NRC Division of Waste Management, I have developed an understanding of possible application of the older NASA Milestone Review system, which includes the Readiness Review concept, to nuclear power and nuclear waste repository programs. I have previously offered the use of this understanding to the NRC and to the DOE; an opportunity for the application of this understanding has not yet developed. Recently, Mr. Joseph O. Bunting, U.S. NRC DWM, informed me of your interest; thus this letter.

Enclosed is a copy of the material that I forwarded to Commissioner Asselstine, shortly before the end of his tenure with the U.S. NRC. While this material is pointed toward the HLW Waste Repository Program and covers more than the Readiness Review concept, it is all applicable to the licensing process of the nuclear repository and power programs.

There is a significant dependency, that is frequently overlooked, on the effectiveness of the Readiness Reviews concept on other related activities of the older NASA Milestone Review system and, of course, Configuration Management. These relationships are described in NUREG/CR-4271, which I prepared for the NRC. Should you be interested, I will be glad to provide additional information.

A very brief resume has been enclosed to acquaint you with my background. It is believed that NRC's J.O. Bunting, M.S. Delligatti and John Austin can provide additional background information, should that be desired.

When appropriate, arrangements can be made for detailed discussions on this subject.

Sincerely,

William M. Bland, Jr., P.E.
President

Enclosures: As noted.

December 1987

RESUME

William M.Bland, Jr., P.E.
18575 Martinique Dr., Houston, TX 77058, (713) 333-4580

SUMMARY-More than 40 years of engineering experience in many discipline and management areas. Emphasis has been on establishirg requirements and evaluating conformance to requirements and on conducting investigations of failures and accidents to determine causes and corrective actions. Skilled and experienced with the application of the NASA safety, reliability, quality assurance and test techniques and programs and of the NRC QA Program of 10CFR50-Appendix B. Generated the documents, Recommended Safety, Reliability, Quality Assurance and Management Aerospace Techniques With Possible Application by the DOE to the High-Level Radioactive Waste Repository Program (NUREG/CR-4271) and Internal Quality Assurance Plan for the NRC Division of Waste Management. This work for the NRC, investigative work for the President's Commission on the Accident at Three Mile Island, and analyses of QA programs of a DOE project office, two nuclear power plants and a nuclear material processing plant, combined with the prior NASA experience resulted in the concept of a management technique with the potential to significantly improve the effectiveness and timeliness of the licensing process. Also experienced as project engineer and project manager through conceptual design, design, development, test and operation of research and of major aerospace projects. Experienced in conducting field inspections, audits, design and acceptance reviews, readiness reviews and inspections, and problem investigations of major aerospace flight and facility installations and nuclear facility installations. Skills also appropriate for serving as "Red Team" advisor.

PUBLICATIONS-Author or coauthor of seventy substantial technical reports/ papers related to aeronautical research, expendable launch vehicles, manned spacecraft performance, equipment failure and accident analyses, proposal evaluations, personnel capability, design criteria and techniques, and nuclear power and waste. Also author of reports on more than two dozen accident events involving property damage and, in some cases, injuries, with potential for litigation. Extensive experience as technical editor.

ACTIVITIES-Currently offering technical and management consulting services. Served as a consultant to ERC International concerning quality assurance at a nuclear power plant and NASA SRM&QA programs, 1987-Pres.; to Battelle (Columbus Laboratories) concerning the application of aerospace/NASA safety, reliability, quality assurance, and management techniques to the HLW repository program, 1985-1986; to the California Public Utilities Commission on QA and management matters for nuclear power installations, 1985-1987; to the NRC on the application of aerospace SRQA and management technology to the HLW effort and to internal efforts, 1984-1985; to the Boeing Company on SRQA proposal preparations, 1983; to Suffolk County, NY, on QA/QC matters related to a nuclear power plant, 1982-1983; to a Governor's committee that assessed the long-range utilization plans of a nuclear material processing plant, 1981-1983; to insurance companies for accident event investigations, 1981-Pres.;to a committee of the National Academy of Science that assessed the FAA certification of large commercial passenger aircraft, 1980; and to the management of a planned nuclear power plant, 1980. Also served as a member of the technical staff of the President's Commission on the Accident at Three Mile Island, 1979. Served for more than 32 years as a research scientist and aerospace engineering manager/director for the NACA/NASA, 1947-1979; including being the Deputy Project Manager and Technical Manager of the Mercury Spacecraft Project, the Chief of Apollo Spacecraft Test Division, and the Deputy Director of Safety, Reliability and Quality Assurance at NASA Johnson Space Center. Also served as an aircraft maintenance officer in the USAAF.

EDUCATION-North Carolina State College-BSME (Aero Option), 1947; graduate studies at University of Virginia-Aeronautical Engineering, through 1955.

OTHER-Registered Professional Engineer in Texas. Additional information on special assignments, publications, accident reports, special training, honors, and society memberships and references available.

May 1987

RESUME
of
William M.Bland, Jr., P.E.
18575 Martinique Dr., Houston, TX 77058, (713) 333-4580

SUMMARY-More than 39 years of engineering experience in areas such as aerodynamics, aircraft, audits, bioengineering, contract services, data analysis, engineering design, expendable launch vehicles, health services, lessons learned, manned space flight, non-metallic ma erials, nuclear operations, problem reporting and corrective action, quality assurance, reliability, research, risk management, safety, and testing. Emphasis has been on establishing requirements and evaluating conformance to requirements and on conducting investigations of failures and accidents to determine causes and corrective actions. Also skilled and experienced with the application of the NASA safety, reliability, quality assurance and test techniques and programs and the NRC QA Program of 10CFR50-Appendix B. Experienced as project engineer and project manager through conceptual design, design, development, test and operation of research and of major aerospace projects. Experienced in conducting field inspections, audits, design and acceptance reviews, readiness reviews and inspections, and problem investigations of major aerospace flight and facility installations and nuclear facility installations. Skills also appropriate for serving as "Red Team" advisor to proposers of major NASA procurements.

PUBLICATIONS-Author or coauthor of more than sixty substantial technical reports/papers related to aeronautical research, rocket vehicles, manned spacecraft performance, equipment failure and accident analyses, proposal evaluations, personnel capability, design criteria and techniques, and nuclear power. Also author of reports on more than two dozen accident events involving property damage and, in some case, injuries, with potential for litigation. Extensive experience as editor of technical documents.

ACTIVITIES-Currently offering technical and management consulting services. Served as a consultant to Battelle (Columbus Laboratories) concerning the application of aerospace/NASA safety, reliability, quality assurance, and management techniques to the HLW repository program, 1985-1986; to the California Public Utilities Commission on QA and management matters for nuclear power installations, 1985-Pres.; to the NRC on the application of aerospace SRQA and management technology to the HLW effort and to internal efforts, 1984-1985; to insurance companies for accident event investigations, 1981-Pres.; to the Boeing Company on SRQA proposal preparations, 1983; to Suffolk County, NY, on QA/QC matters related to a nuclear power plant, 1982-1983; to the technical advisory group in support of a Governor's committee that assessed the long-range utilization plans of a nuclear material processing plant, 1981-1983; to a committee of the National Academy of Science that assessed the FAA certification of large commercial passenger aircraft, 1980; and to the management of a planned nuclear power plant, 1980. Also served as a member of the technical staff of the President's Commission on the Accident at Three Mile Island, 1979. Served for more than 32 years as a research scientist and aerospace engineering manager/director for the NACA/NASA, 1947-1979; including being the Deputy Project Manager and Technical Manager of the Mercury Spacecraft Project, the Chief of Apollo Spacecraft Test Division, and the Deputy Director of Safety, Reliability and Quality Assurance at NASA Johnson Space Center. Also served as an aircraft maintenance officer in the USAAF.

EDUCATION-North Carolina State College-BSME (Aero Option), 1947; graduate studies at University of Virginia-Aeronautical Engineering, through 1955; and other training courses through NASA.

OTHER-Registered Professional Engineer in Texas. Additional information on special assignments, publications, accident reports, special training, honors, and society memberships and substantial references available.

Center for Nuclear Waste Regulatory Analyses

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(512) 522-5160 • FAX (512) 522-5155

February 11, 1988

Dr. Donald E. Clark
U.S. Salt Repository Project Representative
to the Republic of Germany
Battelle
Project Management Division
Hoeben 38 a
D-3301 Gross-Schwuelper
Federal Republic of Germany

Dear Dr. Clark:

This is in response to your letter of February 2, 1988. We appreciate your interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Although recent developments have focused the U.S. program on tuff, rather than salt rocks, your experience in the areas of waste-form leaching, radionuclide solubility, radiation effects, and engineered barriers are germane to the mission of the Center.

All management and senior technical positions in these areas have been filled, so we are unable to consider you for permanent employment. However, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed.

Please advise me if you would like to be considered for a role as consultant to the Center in the areas noted above.

Sincerely yours,

Wesley C. Patrick
Technical Director

WCP/yl

Hoeben 38a
D-3301 Gross-Schwuelper
Federal Republic of Germany
2 February 1988

Dr. Wesley Patrick, Technical Director
Center for Nuclear Waste Regulatory Analysis (CNWRA)
Southwest Energy Research Institute
6220 Culebra Road
San Antonio, Texas 68284

Dear Dr. Patrick:

It has come to my attention that you are planning to put together a team of highly competent persons with direct experience in DOE's national HLW repository program for the new NRC-supported program at Southwest Energy Research Institute. I have had very extensive experience with most all elements of the DOE program, particularly over the past 5 1/2 years through my association with Battelle's Office of Nuclear Waste Isolation (ONWI). The enclosed "Biosketch" will introduce you to relevant features of my background and professional experience.

As you will note, my current assignment is that of International Representative to the Federal Republic of Germany (FRG). I have been in the FRG for about one year now, and my work here has put me in close contact with much of the European nuclear waste management community. I am very familiar with the programs on this side of the Atlantic for geologic disposal of radioactive wastes; I also serve as an authoritative point of contact here for information and data on the U.S. nuclear waste disposal programs. Due to the recent changes in the U.S. program (NWPA Amendment Act of 1987), the U.S. salt project and ONWI are in the process of winding down, and my own situation has not yet been clarified. Therefore, I would be quite interested in exploring what opportunities may exist for me at the Southwest Energy Research Institute should I return to the States in the near or not too distant future.

Please let me know if you have any questions concerning my qualifications or professional interests, or if there is other information that you would like to have me provide at this time. I am planning to make a consultative visit to the U.S.A. over the next several weeks; if you would like to communicate with me during this period, you may contact my sister, Mrs. T. E. Armstrong, at (318) 686-8027 in Shreveport, Louisiana.

A business card with my FRG telephone numbers is attached to the "Biosketch" for your information.

I shall look forward to hearing from you.

Sincerely yours,

Donald E. Clark

Encl.

DONALD E. CLARK

EDUCATION

Ph.D., Physical/Radiochemistry, Iowa State University (1965)
A.B., Chemistry, Mathematics, University of South Dakota (1961)

EXPERIENCE SUMMARY

Dr. Clark has been active in nuclear fuel cycle research and development and nuclear waste management for more than 16 years. He has a broad background in nuclear and physical chemistry which includes industrial research experience, 8 years of teaching at the university level, and participation in radiation and nuclear waste research programs at several national laboratories. He is currently assigned to the Federal Republic of Germany (FRG) as the long-term Salt Repository Project (SRP) representative to that country to promote effective use of the technical results and experience gained by both the FRG and the United States in nuclear waste management.

EXPERIENCE DETAIL:

Battelle Project Management Division, Battelle Memorial Institute, 505 King Avenue, Columbus, Ohio 43201

International Representative, Office of Nuclear Waste Isolation, 1986 - present

The purpose of this assignment is to obtain information and data on the FRG nuclear waste disposal program and to make current information and data on the SRP available to FRG counterparts, to provide a regular communication link between the SRP and FRG, and to identify important areas of mutual concern/interest for which increased U.S.-FRG interactions are advisable. Responsibilities of the International Representative include monitoring the progress of the FRG nuclear waste program and participation in FRG program activities; gathering technical information, e.g., reports, meeting minutes, and planning documents; and communicating the potential usefulness of technical information to the appropr-

iate U.S. management and technical staff. The International Representative also explains the scope and nature of U.S. activities to FRG personnel, serves as a principal point of contact for FRG personnel regarding all informational aspects of the SRP, serves as a representative of SRP interests at selected European-based waste management-related meetings, and serves as the SRP's visitor liaison contact in the FRG.

Supervisor: Sam J. Basham

Other experience in the Office of Nuclear Waste Isolation, 1982-1986

During this period, Dr. Clark served in a variety of assignments, involving both line and project management responsibilities, as Project Manager, Lead Project Manager, and Section Manager. This work was concerned with testing and development of materials for waste packages and sealing systems components for a high-level nuclear waste repository in salt, the development of associated engineering technology, equipment, and instrumentation for nuclear waste disposal, rock mechanics testing, and the conduct of field/in-situ testing programs. He has been extensively involved in programmatic planning and all technical management and quality aspects of the waste package materials program for the SRP. He has managed the activities of contractors, external peer review groups and various consultants, organized many technical meetings (including the SRP Brine Migration Workshop at Berkeley, California in 1985), and served as Workshop Leader for the US/FRG Corrosion Workshop held at the Karlsruhe Nuclear Center, KfK, in 1985, and the US/FRG Sealing Workshop held in Albuquerque, New Mexico in 1986. He has managed technical activities concerned with the effects of radiation on natural rock salt, radionuclide solubilities in brines, and standard test development and peer review for SRP waste package testing methods.

Supervisors: Sam J. Basham, Sam Matthews, John Treadwell, Peter L. Hofmann, and James R. Schornhorst

Brookhaven National Laboratory, Upton, New York 11973

Senior Chemist, Department of Nuclear Energy (1980-1982)

Served as Principal Investigator/Contributor for U.S. Department of Energy nuclear waste programs. Conducted investigations on low-level nuclear waste (LLW) and transuranic (TRU) wastes, including waste management practices/processing/solidification, radionuclide releases (leaching) from solid waste forms, LLW

burial practices, standardization of testing procedures (e.g., ASTM and ANS standards work), geochemical behavior of radionuclides, and environmental effects of nuclear waste disposal. This work involved extensive interaction with both Department of Energy and Nuclear Regulatory Commission groups.

Supervisor: Peter Colombo

Hanford Engineering Development Laboratory (Westinghouse Hanford Company), Richland, Washington 99352

Senior Scientist, Engineering and Fuels Department (1974-1980)

Conducted research and development programs in nuclear waste management (LLW; TRU; and high-level wastes -- HLW) and radiation exposure, which included extensive experience with nuclear power plants (LWRs in the U.S.A.) and their radwaste management and treatment practices, volume reduction/incineration/solidification, shallow land burial practices, decontamination and plutonium recovery, mixed-oxide fuel fabrication and waste generation, nuclear fuel reprocessing, plutonium radiological hazards, aerosol measurements and characterization, radiation shielding and computer codes, neutron dosimeter development, standards development (leaching of radioactive wastes, migration of radioactive liquids in geomedia, test methods for nuclear waste forms, etc.), and chemical processing of radioactive materials (e.g., acid digestion) and effluent treatments.

Supervisors: Carl R. Cooley, Ronald A. Lerch

Western Illinois University, Macomb, Illinois 61455

Associate Professor of Chemistry (tenured; 1970-1974)
Assistant Professor of Chemistry (1966-1970)

Taught graduate and undergraduate-level courses, conducted research, served on numerous university committees and as a technical consultant. Investigations in fields of environmental chemistry, radiation effects on materials, nuclear energy needs of modern society, distribution of trace elements and radionuclides in the environment, and the radioactive effluents from nuclear power plants.

Douglas United Nuclear, Inc., Richland, Washington 99352

AEC Faculty Appointee (1972)

Characterized the chemical and radioactive effluents of N-reactor.

Los Alamos Scientific Laboratory, Los Alamos, New Mexico 87545

Visiting Staff Member/Consultant (1971)

Conducted research and served as consultant on radiation effects on materials.

Battelle Pacific Northwest Laboratories, Richland, Washington 99352

AEC Faculty Appointee (1969-1970)

Conducted research on the gamma radiolysis of gaseous mixtures simulating high-temperature gas-cooled reactor (HTGR) conditions.

Miami Valley Laboratories, The Procter & Gamble Company, Cincinnati, Ohio 45223

Research Chemist (1965-1966)

Studied oxidation of melanin, sorption phenomena, and use of radiotracers to elucidate diffusion-controlled reactions in biological media.

Ames Laboratory of the AEC, Ames, Iowa 50010

Research Assistant (1961-1965)

Performed research on chemical behavior of recoil carbon-11 atoms.

REFERENCES

1. Prof. Herman Gies, GSF/IfT, Theodor-Heuss-Strasse 4, D-3300 Braunschweig, Federal Republic of Germany, (49-531) 8012-0.

2. Wayne A. Carbiener, Program Manager, Office of Nuclear Waste Isolation, Battelle Project Management Division, 1303 West 1st Street, Hereford, Texas 79045, (806) 364-8931.

3. Peter L. Hofmann, Battelle Project Management Division, 505 King Avenue, Columbus, Ohio 43201, (614) 424-5683.

4. Prof. Frank L. Parker, Department of Civil and Environmental Engineering, Vanderbilt University, Box 1596, Station B, Nashville, Tennessee 37235, (615) 322-2697.

5. Carl R. Cooley, Office of Civilian Radioactive Waste Management, U.S. Department of Energy, Washington, D.C. 20585, (202) 586-6116.

6. Prof. Thomas Pigford, Department of Nuclear Engineering, University of California, Berkeley, California 94720, (415) 642-6469.

PROFESSIONAL AFFILIATIONS

- American Chemical Society
- American Nuclear Society (Serves on ANS Standards Group 16.1)
- American Society for Testing and Materials (past Chairman of Subcommittee D-18.14, Geotechnics of Waste Management)
- American Association for the Advancement of Science

AWARDS/ACCOMPLISHMENTS/PUBLICATIONS/PATENTS/OTHER

- Listed in "Who's Who in Frontier Science and Technology (1984)"
- Serves on Editorial Board of international journal "Nuclear and Chemical Waste Management"
- Author of more than 20 articles, professional papers, and reports

REPRESENTATIVE PUBLICATIONS

- 1965. "Gaseous Products from Interactions of Recoil Carbon-11 Atoms with Liquid Hydrocarbons." Coauthor, in Journal of American Chemical Society, Vol. 87, pp. 5558-5565.
- 1970. "Gasification of Graphite under HTGR Operating and Potential Accident Conditions." Coauthor, invited paper at American Nuclear Society Meeting, Washington, D.C., Nov. 15-19.
- 1976. "Treatment Technologies for Non-High-Level Wastes (U.S.A.)." Coauthor, invited paper at International Symposium on the Management of Wastes from the LWR Fuel Cycle, Denver, Colorado, July 11-16.

- 1979. "Volume Reduction Options for the Management of Low-Level Radioactive Wastes." Coauthor, in MANAGEMENT OF LOW-LEVEL RADIOACTIVE WASTES, VOL. I, Ed. M. W. Carter, A. A. Moghissi, and B. Kahn, Pergamon Press, New York, New York.

- 1981. "Chemical Durability." Coauthor, in A STATE-OF-THE-ART REVIEW OF MATERIALS PROPERTIES OF NUCLEAR WASTE FORMS, PNL-3802.

- 1984. "The Expected Environment for Waste Packages in a Salt Environment." Coauthor, in SCIENTIFIC BASIS FOR NUCLEAR WASTE MANAGEMENT VII, Ed. G. L. McVay, North Holland Press, NY.

Center for Nuclear Waste Regulatory Analyses

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January 26, 1988

Mr. Carl Boyars
1000 Playford Lane
Silver Spring, MD 20901

Dear Dr. Boyars:

This is in response to your letter to Dr. Martin Goland dated January 12, 1988. We appreciate your interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Although your experience in high-level nuclear waste disposal appears to be germane to the broad mission of the Center, all management and senior technical positions have been filled. Therefore, we are unable to consider you for permanent employment.

In the coming months, the Center will identify the need for retaining consultants to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed. At that time, your resume and potential for involvement will be more thoroughly evaluated.

Very Truly Yours,

for John E. Lanz, President

JEL/yl

cc: M. Goland
W. Patrick

Mr Letz
Any interest?

1000 Playford Lane
Silver Spring, Md. 20901
January 12, 1988

JAN 15 88

Dr. Martin Goland, President
Southwest Research Institute
P.O. Drawer 28510
San Antonio, TX 78284

Dear Dr. Goland:

We served together on the Ad Hoc Working Group for review of the DOD/DOE report, "Study of Insensitive High Explosives and Propellants", for the Assistant Secretary of the Navy (Research, Engineering and Systems) in July 1979. (See enclosure (1)). You were then a member of the Naval Research Advisory Committee, and I had been asked to participate in the Group because of my expertise in energetic materials R&D, manufacture, hazards, safety, transport, and accident investigation.

That expertise had been developed during 35 years as a civilian scientist at three installations of the Navy Department, from which I retired in 1977 to accept employment in related fields for the Aerospace Corporation in Washington, D.C. I am now retired from Aerospace, where my final assignment was on the problem of disposal of high level nuclear wastes in long term repositories. When Aerospace terminated its work in that area, I became a consultant directly to the Nuclear Regulatory Commission on that problem.

Now that SwRI has embarked on that program for NRC, you may be interested in using me as a consultant on your NRC work. I might also be useful to you on problems in the areas mentioned in the first paragraph of this letter. Enclosure (2) is a resume giving more detail on my employment history, publications, and patents.

Sincerely,

Carl Boyars

Carl Boyars
tel. (301)593-3476

Enclosures

RESUME

Carl Boyars
1000 Playford Lane
Silver Spring, MD 20901

Telephone:
301/593-3476

Dr. Boyars, a specialist in the area of propellant and explosives stability and sensitivity, has had extensive experience in Department of Defense (DOD) explosives and propellants R&D programs at a number of military installations. He has participated in numerous national and international propellant and explosives symposia and workshops, often as organizer or chairman. He has conducted a number of investigations of serious accidents in the manufacture and use of propellants and explosives. He has numerous publications and patents and has considerable experience in effective oral presentations, including service as an expert witness and corporate representative during litigation on the cause of a massive explosion during manufacture.

Dr. Boyars' employment record includes 17 years at the Naval Powder Factory, Indian Head, MD, where his final position was Chief of the Chemical Physics Division; 4 years at the Bureau of Naval Weapons, Washington, D.C., where he headed the Ordnance Sciences group on propellant and propulsion research; and 14 years at the Naval Ordnance Laboratory, White Oak, MD, where he was, successively, Chief of the Physical Chemistry Division, Chief of the Advanced Chemistry Division, Acting Chief of the Chemistry Research Department, and Senior Scientist. In addition to developing propellants and explosives, his work also has been in the related fields of polymers, power batteries, and energetic and unstable materials in general.

For 9 months prior to his retirement from Federal employment in April 1977, he was a consultant to The Aerospace Corporation in their program on the tagging of commercial explosives for pre-detonation detection and post-detonation identification of the specific lot of explosive used by a criminal (as an aid in investigation and prosecution of terrorist bombers). Following that retirement, he became a full-time employee for Aerospace on that program. At Aerospace, he also managed a program for the Department of Transportation on simplifying and coordinating the regulations governing transportation of explosives and was engaged in preparing an Engineering Handbook for Hazardous Waste Incineration for the Environmental Protection Agency. At Aerospace, he also had served as a member of the small Ad Hoc Working Group that reviewed the DOD and Department of Energy (DOE) report, "Study of Insensitive High Explosives and Propellants," and provided a technological assessment requested by the Assistant Secretary of the Navy; had participated in an investigation of the sensitivity of explosives in naval shipboard magazines; and had provided expertise to DOE programs on health and environmental effects of

nitrogen oxides and on batteries. In 1984-85, he also worked on the complications introduced by propellant and explosive components in the disposition of toxic chemical ordnance, as part of Aerospace's program for the U.S. Army.

Following his retirement from Aerospace on April 30, 1985, he continued working for them as a "casual" employee (limited to 999 hours per calendar year) on problems of (1) hazardous waste incineration, (2) interactions between the explosive destruct system and the solid rocket boosters of the space shuttle, (3) explosion hazards of the space shuttle's hydrogen fuel, and (4) the long-term effects of disposal of high-level nuclear wastes in underground repositories. The latter is a mission of the Nuclear Regulatory Commission (NRC), and, following the termination in September of 1986 of Aerospace's participation in that program, he became a consultant directly to NRC.

EDUCATION:

Ph.D. in Chemistry, 1956, George Washington University
Master of Science in Chemistry, 1952, George Washington University
Bachelor of Science in Chemistry, 1940, City College of New York
Visiting Senior Research Scientist, Department of Aerospace and Mechanical Sciences, School of Engineering, Princeton University, 1972-1973.

PUBLICATIONS IN THE OPEN LITERATURE:

"Turbidimetric Method for Determination of Potassium Sulfate in Propellant Powders," Analytical Chemistry, Vol. 20, p. 87 (1948).

"The Dichlorination of o-Xylene," Journal of the American Chemical Society, Vol. 75, p. 1989 (1953).

"Test for Establishing Residual Safe Life of Stabilized Solid Propellants," Analytical Chemistry, Vol. 27, p. 957 (1955) (with W.G. Gough).

"The Dielectric Properties of Solid Nitrodichloro-o-xylenes," Journal of Physical Chemistry, Vol. 60, p. 1584 (1956) (with R.E. Wood).

"Kinetics and Mechanism of the Cyclization of Substituted -Alkyl -nitroguanidines," Journal of the American Chemical Society, Vol. 78, p. 4590 (1956) (with W.F. Sager and S. Skolnik).

"Kinetics and Mechanisms of the Cyclization of Substituted Alkyl-nitroguanidines, II 1-Bromoethyl-2-nitroguanidine; the Effect of Common Ion," Journal of Organic Chemistry, Vol. 22, p. 716 (1957) (with V. Stark).

"Surveillance of Solid Propellant Rockets," American Rocket Society Journal, Vol. 29, p. 148 (1959).

"The Sensitivity of Nitroglycerin to Impact," Combustion and Flame, Vol. 9, p. 131 (1965) (with D. Levine).

"Measurement of Impact of Sensitivity of Liquid Explosives and Monopropellants," in Advanced Propellant Chemistry, Advances in Chemistry Series No. 54, American Chemical Society, Washington, D.C. (1966), p. 261 (with D. Levine).

"Drop-Weight Impact Sensitivity Testing of Explosives," Pyrodynamics 6, 53 (1968) (with D. Levine.

"Desensitization of Nitroglycerin: Viscosity Effects," Combustion and Flame 13, 439 (1969).

"Propellants Manufacture, Hazards, and Testing," Advances in Chemistry Series No. 88, American Chemical Society, Washington, D.C. (1969).

"Sensitivity and Desensitization of Nitroglycerin," in Symposium on Chemical Problems Connected with the Stability of Explosives (2), p. 197, Sektionen for Detonik och Forbranning, Sundbyberg, Sweden (1971).

"Sensitivity and Desentization of Liquid Nitrate Esters," Combustion and Flame 17, 379 (1971) (with Kayser).

"Reducing the Explosion Sensitivity of Ammonium Nitrate Fertilizer," I&EC Product Research and Development 15, 308 (1976).

"The Compatibility of Taggants Used for the Post-Detonation Identification of Explosives," in Symposium on Chemical Problems Connected with the Stability of Explosives (5), p. 393, Sektionen for Detonik och Forbranning (1979), Sweden.

PATENTS:

Cool nitrocellulose base, noncarbon forming propellant, U.S. 3,097,123, 9 July 1963 (with B.W. Lewis).

Fast start-up device for torpedo power plant, notice of allowability issued 1966, U.S. 3, 379,178 (with C. Sharn).

Nitrogen generator (solid propellant), U.S. 3, 775,199.

Nitrogen generator (hybrid), U.S. 3,773,947.

Explosive composition containing guanidinium picrate, U.S. 4,094,710, 13 June 1978 (with M.J. Kamlet).

Insensitive ammonium nitrate, U.S. 4,124,368, 7 November 1978.

Taggants with explosion-induced magnetic susceptibility, U.S. 4,359,399, 16 November 1982.

Bomb blast attenuator, U.S. 4,432,285, 21 February 1984.

Preface

This report summarizes the comments and recommendations of an ADHOC Working Group convened under the auspices of the Naval Research Advisory Committee (NRAC) to review the DOD/DOE Report "Study of Insensitive High Explosives and Propellants." The group members included internationally recognized experts in the areas of explosives and propellants research and development; weapon and weapon systems survivability/vulnerability analyses; weapons effects; energetic materials hazards, safety and transport; energetic materials accident investigation and analysis; and energetic materials manufacture. Each member of the group was supplied with a copy of the report for independent study and evaluation prior to convening. On 12-13 July 1979 the group members assembled for detailed discussions. These discussions led to a unanimous position with respect to the DOD/DOE Report which is attached.

Members of the ADHOC group and their affiliations were as follows:

Mr. L. H. O'Neill - ADHOC Group Chairman*
Riverside Research Institute

Dr. Carl Boyars
Aerospace Corp.

Dr. Martin Goland*
Southwest Research Institute

Dr. Hyla Napadensky
IIT Research Institute

Dr. Bruce Reese*
School of Aeronautics &
Astronautics
Purdue University

Dr. Henry Shuey
Rohm & Haas

Dr. Benjamin Sussholz
TRW Defense & Space System Group

*NRAC member

THE ASSISTANT SECRETARY OF THE NAVY
(RESEARCH, ENGINEERING AND SYSTEMS)
WASHINGTON, D.C. 20350

31 JUL 1979

Dr. Carl Boyars
Aerospace Corporation
955 L'Enfant Plaza
Washington, D. C. 20024

Dear Dr. Boyars:

On behalf of of the Chairman of the Naval Research Advisory Committee, Mr. L. H. O'Neill, and myself, I would like to extend sincere appreciation for your dedicated participation as a member of the Ad Hoc Working Group for review of the DoD/DoE report "Study of Insensitive High Explosives and Propellants."

On very short notice, you, along with your fellow members, digested the report and brought to bear your expertise in an expeditious and penetrating analysis of the conclusions and recommendations. Your participation in this effort has contributed very significantly to the formulation of a Navy position. For your information I have attached a copy of the Group's comments as submitted to the Under Secretary of Defense for Research and Engineering.

Mr. O'Neill and I wish to commend you for your timely and thoroughly professional efforts.

Sincerely yours,

D. E. Mann

D. E. MANN

Copy to: (w/att)
Chairman, NRAC

Center for Nuclear Waste Regulatory Analyses

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(512) 522-5160 • FAX (512) 522-5155

January 25, 1988

Mr. E. A. Luebke
Apt. 1923N
5500 Friendship Blvd.
Chevy Chase, MD 20815

Dear Dr. Luebke:

This is in response to your letter of January 18, 1988, acknowledging receipt of an application and medical history form from the Southwest Research Institute. We appreciate your interest in exploring the possibility of establishing a consulting arrangement with the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Institute.

The Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed. Your experience as an Administrative Judge-Technical with the U.S. NRC, and technical and managerial expertise in working with large integrated systems are of particular interest to the Center in fulfilling its mission in support of the NRC licensing of the nation's first high-level nuclear waste repository.

Please advise and transmit the noted forms, as appropriate, if you would like to be considered for a role as consultant to the Center in the areas of licensing and program integration.

Very truly yours,

John E. Latz, President

JEL/yl

cc: R. Adler
W. Patrick

EMMETH A. LUEBKE

5500 Friendship Boulevard
Apartment 1923N
Chevy Chase, MD 20815

(301) 654-0199

OBJECTIVE: Consulting position to apply experience in broad fields of engineering physics.

SUMMARY OF QUALIFICATIONS: Technical experience in a wide variety of applied physics ranging from research for ICBM nose cone design to liquid metal cooled power breeder reactor, and including nuclear weapon effects, nuclear safety, environmental systems, atmospheric physics, high temperature materials, superconductivity, magnetohydrodynamic power and microwave radar.

EXPERIENCE:

Administrative Judge - Technical, presiding at proceedings of the U.S. Nuclear Regulatory Commission's Licensing Boards and writing decisions regarding the granting, suspending, revoking or amending of any license to construct or operate a nuclear power plant or other nuclear facilities. (1972-87)

General Electric Co., TEMPO, Center for Advanced Studies, involving nuclear weapon effects, space war, nuclear safety, environmental systems, atmospheric physics. (1963-72)

General Electric Missile and Space Division, acquire staff, plan and implement research programs regarding the hypersonic reentry of the ICBM nose cone. Coordinate nose cone design with requirements of the nuclear weapon. (1959-63)

G.E. Engineering Lab., design and test magnetohydrodynamic power plant. Made technical and business evaluations of new concepts in complex fields such as lasers, super-conductivity, microelectronics, electronic photography, medical electronics and high power electron beams. Prepared technical plan for a NASA Space Radiation Effects Lab. (1955-59)

G.E. Knolls Atomic Power Lab., evaluate conceptual designs of nuclear reactors and demonstrate technical feasibility. Technical design of Early Liquid Metal Power Breeder Reactor and Seawolf Submarine Reactor. (1950-55)

G.E. Research Lab., technical preparation for pending commercial nuclear power plant development. (1945-50)

(continued)

EXPERIENCE: (continued)

Group Leader, Radiation Lab., Mass. Inst. of Tech., research and development for microwave radar components, particularly precision, high-resolution radar bombsight. (1941-45)

Instructor, University of Illinois, conducted laboratory and lecture courses in engineering physics.

EDUCATION:			
	Ph.D., Physics	University of Illinois	1941
	B.A.	Ripon College, Wisconsin	

HONORS: Presidential Certificate of Merit for Microwave Radar Research.

PROFESSIONAL SOCIETIES: American Physical Society
Fellow, American Nuclear Society

Center for Nuclear Waste Regulatory Analyses

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(512) 522-5160 • FAX (512) 522-5155

January 25, 1988

Mr. J. M. McGough
5601 Planeta Court, N.E.
Albuquerque, NM 87111

Dear Mr. McGough:

This is in response to your letter to General Mahlon Gates dated January 13, 1988. We appreciate your interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Your experience in transportation systems and in the integration of organizations and physical components of large-scale scale subsystems of a nuclear waste disposal system are particularly germane to the mission of the Center.

All management and senior technical positions in these areas have been filled, so we are unable to consider you for permanent employment. However, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed.

Please advise whether you would like to be considered for a role as consultant to the Center in the areas of transportation and program integration.

Very truly yours,

John E. Latz, President

JEL/yl

cc: M. Gates
W. Patrick ✓

John Latz
- for action please.

5/18

5601 Planeta Court, N.E.
Albuquerque, NM 87111
January 13, 1988

Mr. M. Gates
Senior Vice President
Southwest Research Institute
P.O. Drawer 28510
San Antonio, TX 78284

Dear Mr. Gates:

Mr. Worth Bateman suggested I send my resume to you for consideration at the Center for Nuclear Waste Regulatory Analysis.

My background and experience which may be of interest to the Center include:

1. A degree in Nuclear Engineering
2. An active Department of Energy "Q" Clearance
3. Twenty-eight years of nuclear-related experience in the following major areas:

    a. Nine years experience in nuclear waste management and transportation including four years as Project Manager on the Waste Isolation Pilot Plant (WIPP), the world's first nuclear waste repository.

    b. Ten years experience in the review and analysis of nuclear power plant license applications as a staff member of the U. S. Nuclear Regulatory Commission.

    c. Nine years operating experience on research, test, power, and rocket propulsion reactor systems including the start-up and operation of the first utility-owned power plant in the United States.

My resume contains additional details of my experience. If further information or clarification is needed, please contact me.

I look forward to hearing from you.

Sincerely,

J. M. McGough

Enclosure

RESUME

JOSEPH M. MCGOUGH

5601 Planeta Court, N.E., Albuquerque, New Mexico 87111
Telephone: 505-821-7309 (Home)
505-883-7844 (Business)

January 1984 to Present

Director, Waste Management and Transportation Development Division, Albuquerque Operations Office, U. S. Department of Energy, Albuquerque, New Mexico

Responsible for the formation, staffing, and management of the Joint Integration Office (JIO), which is the focal point for the Department of Energy's Defense Programs Waste Management Activities. Responsible for the integration of all elements of the thirteen site nationwide system to ensure that the necessary processing and certification facilities, R&D activities, transportation systems, and institutional interfaces are in place to support the opening of the Waste Isolation Pilot Plant. Establish budget and schedule priorities for 41 tasks on a national basis. Extensive coordination is required with DOE Headquarters and the Civilian Waste Management Program to ensure consistency with their program goals.

In addition to JIO activities, responsible for management of the DOE National Transuranic Waste Program, the National Transportation Technology Center at Sandia National Laboratories, the Subseabed Program (a part of the Civilian Nuclear Waste Management Program), and all Albuquerque Operations Office Radioactive and Mixed Waste Operations.

Manage 60 DOE and contractor personnel with a $40 million annual budget.

May 1980 to January 1984

Project Manager, Waste Isolation Pilot Plant, Albuquerque Operations Office, U. S. Department of Energy, Albuquerque, New Mexico

Responsible for management of the design, construction and operational aspects of the Waste Isolation Pilot Plant Project, a $948 million nuclear waste repository located in southeast New Mexico. Developed a dedicated and highly effective project staff and supporting contractor organization which brought the project from the conceptual design phase to full construction status in three years. Responsible for directing the activities of 600 DOE and contractor personnel at three locations with an annual budget of $141 million. Major project participants included: Sandia National Laboratories, Westinghouse Electric Corporation, Bechtel National, Incorporated, and the U. S. Army Corps of Engineers. The sensitive and highly controversial nature of this project required frequent contacts with New Mexico state officials, the public, and the media.

As of January 1984 the Project had been appropriated $441 million, was under full construction, and was ahead of schedule and under budget.

October 1978 to May 1980

Senior Licensing & Quality Assurance Manager, Waste Isolation Pilot Plant, Albuquerque Operations Office, U. S. Department of Energy, Albuquerque, New Mexico

Responsible for management of all Nuclear Regulatory Licensing and Quality Assurance (QA) activities associated with the Waste Isolation Pilot Plant Project. Developed and implemented the overall Quality Assurance Program for the Project, including the integration and approval of each of the contractor's Quality Assurance Programs. Directed the preparation of the Safety Analysis Report and the Draft and Final Environmental Impact Statements for the Project. Arranged and conducted public hearings in eight cities in three states.

January 1975 to October 1978

Group Leader, Standard Technical Specifications (STS), Division of Operating Reactors, U. S. Nuclear Regulatory Commission (USNRC), Bethesda, Maryland

Responsible for the conceptual development, implementation and management of the USNRC STS Program. Supervised five professionals engaged in the preparation, maintenance, and revision of STS's for use at licensed commercial nuclear power facilities. Position required broad and comprehensive knowledge of Title 10 of the Code of Federal Regulations, Regulatory Guides, Standard Review Plan and Standard Format, and Content of Safety Analysis Reports. Served as member of the ANS 58.4 Standards Committee and the Regulatory Task Group on Standardizing Environmental Technical Specifications.

March 1972 to January 1975

Nuclear Engineer, Quality Assurance Branch, Directorate of Licensing, U. S. Atomic Energy Commission (USAEC), Bethesda, Maryland

Responsible for the technical review and evaluation of quality assurance activities associated with the design, construction, and operation of commercial nuclear power reactors. Review and evaluation directed towards determining compliance with applicable Regulatory Guides and Quality Assurance Criteria of Appendix "B" of 10 CFR Part 50, including the review of Preliminary and Final Safety Analysis Reports and the preparation of safety evaluations for presentation to the Advisory Committee on Reactor Safeguards.

October 1970 to March 1972

Project Manager, Directorate of Reactor Licensing, U. S. Atomic Energy Commission (USAEC), Bethesda, Maryland

Responsible for management of the review, analysis and evaluation of license applications submitted for the construction and operation of commercial nuclear power plants. Duties included the preparation of work plans and project schedules, review of Safety Analysis Reports, Environmental Impact Statements, and Environmental Reports for adequacy of technical data, and preparation of Safety Evaluation Reports for review by the Advisory Committee on Reactor Safeguards. Provided technical advice to the Atomic Safety and Licensing Board as required during public hearings.

August 1968 to October 1970

Senior Reactor Safety Engineer, Directorate of Reactor Licensing, U. S. Atomic Energy Commission (USAEC), Bethesda, Maryland

Performed review and evaluation of Safety Analysis Reports in support of Regulatory Project Staff. Areas of responsibility included: Facility Operations, Staff Training, Plant Staffing and Organization, Preoperational and Startup Testing, Emergency Planning, and Industrial Security.

April 1965 to August 1968

Senior Engineer, Westinghouse Astronuclear Laboratory, Nuclear Rocket Development Station, Jackass Flats, Nevada

Assigned to Test Engineering and Operations Group for the development and testing of nuclear rocket engines for use in deep space. Prepared facility activation and operating procedures for remote assembly/disassembly and testing of gas-cooled, graphite-core nuclear rocket engines. Coordinated source engineering test specification objectives with site test program to obtain reactor and engine performance data. Initiated and reviewed facility design changes based on requirement of test program. Performed as Chief Test Engineer and directed members of the operations group during facility test operations.

June 1961 to April 1965

Reactor Engineer/Shift Supervisor, Carolinas-Virginia Nuclear Power Associates, Parr, South Carolina

Supervised and trained technicians and operations personnel during the construction, startup, and operation of the first utility-owned nuclear power plant to be placed into operation using their own personnel. Responsible for monitoring and acceptance of facility construction, system acceptance testing, training of operations personnel, supervision of fuel loading and initial criticality, and performance of preoperational and full power test programs. Issued USAEC Senior Operator License on this facility in October 1963.

September 1960 to June 1961

Reactor Engineer, Engineering Test Reactor, National Reactor Testing Station, Idaho Falls, Idaho

Performed operational duties at 175 Mw Engineering Test Reactor, including reactor console operation, refueling and fuel handling work, experimental loop operation and equipment change-out.

June 1960 to September 1960

Reactor Operator, North Carolina State University, Raleigh, North Carolina

Performed operational duties on research reactor including flux mapping, initial power calibration and routine irradiation of materials. Issued USAEC Operator's License on this facility in September 1960.

Military Service	U. S. Army - 1953 to 1955.
Education	Bachelor of Science in Nuclear Engineering, North Carolina State University; June 1960.
Security Clearance	Currently hold U. S. Department of Energy "Q" Clearance.

References available upon request.

Center for Nuclear Waste Regulatory Analyses

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February 15, 1988

Mr. Ram (Seesabathuni S.R.) Murthy
Meadows Phase II Apartments, Apt. #177
6800 Virginia Street
Amarillo, TX 79109

Dear Mr. Murthy:

This is in reply to your letter of January 4, 1988, to Mr. Allen Whiting. We appreciate your interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Your experience in the area of quality assurance is germane to the mission of the Center, particularly when evaluated in the context of your formal education in the geosciences.

Although all management and senior technical positions in this area have been filled, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks on an intermittent basis, as directed.

Please advise me if you would like to be considered for a role as consultant to the Center in the area of quality assurance. If you are interested, please advise me at your earliest convenience.

Sincerely yours,

Wesley C. Patrick
Technical Director

WCP/vj

cc: B. Sagar
A. Whiting
bcc: M. Garcia

DR. ALAN W[illegible]TING
PROGRAM MANAGER
SOUTH WEST RESEARCH INSTITUTE
[illegible] CULEBRA ROAD
P.O. DRAWER [illegible]
SAN ANTONIO, TX [illegible]

DEAR DR. [illegible]ITING:

[illegible] UNDERSTAND THAT [illegible] ARE LOOKING FOR EXPERIENCED PERSONNEL IN THE [illegible] WASTE MANAGEMENT AREA. IN THIS CONNECTION IAM SENDING MY RESUME [illegible] POSSIBLE EMPLOYMENT IN YOUR ORGANIZATION.

I HAVE BEEN WORKING WITH BATTELLE MEMORIAL INSTITUTE FOR THE PA[illegible] SEVEN YEARS IN THEIR OFFICE OF NUCLEAR WASTE ISOLATION (ONWI)PROJECT WHICH IS CURRENTLY MANAGING THE SALT REPOSITORY PROJECT FOR DOE [illegible] HEREFORD, TEXAS.

DURING THIS PERIOD IHAVE HELD SEVERAL KEY POSITIONS IN THIS PROGR[illegible]AM AND HAD AN OPPERTUNITY TO WORK CLOSELY WITH DOE,NRC AND VARIOUS NATIC[illegible]NAL LABS.IHAVE ALSO ATTACHED THE COMMENDATONAL LETTERS I RECIEVED FROM BOTH DOE AND ONWI MANAGEMENT FOR YOUR PERUSAL.IF YOU NEED FURTHER INFORMATION PLEASE CALL ME AT (806-355-0790)OR (806-364-5930,EXT 322).

VERY TRULY YOURS,

SAM S. MURTHY
1/4/88

[illegible]

[illegible]
[illegible]
[illegible] NEVADA

[illegible]C. DR.T.[illegible]ERMA
[illegible]
HIGH LEVEL WASTE MGMT
[illegible]

[illegible]
[illegible]
[illegible]

Department of Energy
National Waste Terminal
Storage Program Office
505 King Avenue
Columbus, Ohio 43201

April 12, 1982

Mr. Stanley Goldsmith
Manager
Office of Nuclear Waste Isolation
505 King Avenue
Columbus, Ohio 43201

Dear Mr. Goldsmith:

"A JOB WELL DONE"

I want to take this opportunity to thank ONWI for the support provided in preparing the QA presentations for the recent meeting with USGS in Reston, Virginia.

In particular, I would like to recognize the efforts and contributions of Ram Murthy for his imaginative, creative and responsive QA presentation which was well received by the USGS. I recommend that the format used by Ram be standardized and used for all future "kick off" QA presentations to DOE prime contractors.

We look forward to continued positive interactions with your QA staff.

Sincerely,

J. O. Neff
Program Manager
NWTS Program Office

NPO:RBL:dsl

cc: N. Carter, BPMD
J. Easterday, ONWI
R. Murthy, ONWI

ST# 130-82

ONWI
Office of Nuclear Waste Isolation

BATTELLE Project Management Division

Project Number _____

Internal Distribution

Date September 8, 1987

To GK Beall

From SJ Basham SJB

Subject RD Review

WA Carbiener
R. Murthy
SJ Basham
ONWI Files
LB

This note is to appraise you of outstanding support to this task by Ram Murthy. He was involved with this task from the very beginning and represented me during my absence during the actual review and comment task which was done off site.

After this he aided in the enormous task of reading, sorting and transcribing a set of comments for each review coordinator to treat. When the comments were completed he assisted in getting the final document issued to SRPO.

As a final task for the records turnover package he had all comment resolutions incorporated into each set of comments so full traceability can be obtained. He is currently getting final signoffs and is preparing the records turnover package while maintaining contact with QA.

He operated with a minimum of supervision and independently assessed what needed to be done, decided on an approach, and carried it out. He has my personal thanks for this excellent support on a very demanding job.

SJB:lw

RAM (BEESABATHUNI S.R.) MURTHY
MEADOWS PHASE II APARTMENTS, APT. #2177
4600 VIRGINIA STREET
AMARILLO, TEXAS 79109
HOME: (806) 355-0790
OFFICE: (806) 364-8930, EXTENSION 322

PERSONAL: Married; no children
U.S. Citizen
DOE "Q" Clearance

EXPERTISE: Mining Geology
Quality Assurance and Records Management
Certified Lead Auditor
Hazardous Waste Management
Registered Geologist in the States of Delaware and Georgia

EXPERIENCE SUMMARY:

Mr. Murthy has more than 13 years experience in developing, managing, and implementing quality assurance in the construction field geotechnical activities. Mr. Murthy, as lead QA auditor, has conducted several quality assurance audits on major ONWI contractors such as Stone & Webster, Bechtel, NUS, WCC, etc. Mr. Murthy is thoroughly familiar with NQA-1, ANSI N45.2, and other applicable codes and standards. Mr. Murthy has also served as a working member in NQA 2.20 standard entitled QA program requirements for subsurface investigations for nuclear facilities. Mr. Murthy, as lead QA specialist, has managed several contractors, reviewed, approved, and commented on several QA documents pertaining to HLW programs.

As a member of the ONWI Technical Assurance Council, representing the QA activities, Mr. Murthy conducted quality consciousness seminar for DOE and ONWI top management personnel. He also developed a draft technical position paper on licensing data acceptability criteria for geological repositories in salt.

As advisor/coordinator for the ONWI Engineering Department, Mr. Murthy has reviewed and commented on documents such as OGR-QA Plan, BPMD Quality Plan, and the ONWI QA Manual. He has also conducted reviews on procedures, internal and external audit reports. Mr. Murthy also conducted Engineering Department training, and certification of personnel.

Prior to Battelle, Mr. Murthy developed and implemented a QA program for Dames and Moore, a Geotechnical Consulting firm, for more than 7 years. Before this, Mr. Murthy worked as a mining geologist in India in charge of a division reporting directly to the president of the Company. As part of this work, he conducted drilling operations, developed both underground and open cast mines, and installed processing plants at the mine site.

Mr. Murthy received a commendation letter from SRPO in 1982 for the excellent QA presentations made to USGS in Reston, Virginia.

Mr. Murthy has presented several papers which are listed in the publications section of this resume.

RAM MURTHY

BATTELLE MEMORIAL INSTITUTE, OFFICE OF NUCLEAR WASTE ISOLATION (ONWI), (1981 to present)
Principle Data Base Analyst, ONWI Engineering Department, (October 1987 to present)

Responsibilities included:

- Coordination of Technical Review and comments on the Salt Repository Project (SRP) Systems Requirement Document
- Development, maintenance, updating of the SRP Synthetic Geotechnical Data Base Hand Book for the design of repository and exploratory shaft
- Coordination and liaison with shaft and repository architect engineers to ensure utilization baselined geotechnical data in the design of shaft and the repository
- Development of computerized filing system for the Exploratory Shaft Section of ONWI Engineering Department
- Implementation and coordination of the various Quality Assurance activities within the ONWI Engineering Department.

Quality Assurance (QA) Advisor/Coordinator (January 1986 to October 1987)

Was appointed as QA Coordinator to troubleshoot QA problems and to counsel the Engineering Department Manager on QA topics to ensure compliance with NQA-1 requirements. Responsibilities included:

- Conducting quality review of procedures, internal audits, reports, and client audits and reports
- Coordinating Engineering Department QA functions and conducting training of department staff on procedure implementation
- Coordinating training and certification of department staff with BPMD Training Department
- Reviewed and commented on DOE HQ documents such as OGR QA plan, etc.

Member Technical Assurance Council (July 1984 to January 1986)

As a member of the Technical Assurance Council, reported directly to the ONWI Program Manager and to the Vice President of Battelle Memorial Institute. Responsibilities included:

- Reviewed and monitored of ONWI activities
- Provided guidance to ONWI management on licensing issues related to safe performance of nuclear waste repositories
- Provided interface with DOE Columbus operations
- Conducted technical assurance reviews and audits
- Participated in NRC, DOE, and contractor meetings
- Provided technical reliability, retrievability, and product assurance
- Standardized and provided uniform guidance throughout the Program
- As Chairman of the SCP Data Base Committee, was instrumental in designing and developing the SCP data collection sheets
- Coauthored the ONWI draft technical position paper on "Numerical Performance Objectives for the Engineered Barrier System in Salt Repository: The Role of the Waste Package" which involved conducting a two-day detailed ONWI-wide workshop
- As Chairman of a working group, developed DOE (SRP) draft position on "Licensing Data Acceptability Criteria for Geologic Repositories in Salt".

Lead QA Specialist, ONWI Project (1981-1984)

Principal responsibility was implementation of QA programs in accordance with DOE and NRC regulations on the various investigations performed by several contractors, (i.e., geologic project managers, regulatory project managers, environmental A/Es, etc.) in the salt repository studies conducted by ONWI for DOE.

Ram Murthy
Resume

EMPLOYMENT RECORD:

1981 to Present - Battelle Memorial Institute, Office of Nuclear Waste Isolation, Columbus, Ohio

Title: Q.A. Advisor/Coordinator (January 1986 to present)

Was appointed as QA Coordinator to troubleshoot QA problems and to counsel the Engineering Department Manager on QA topics to ensure compliance with NQA-1 requirements. Responsibilities include:

- Conducting quality review of procedures, internal audits, reports, and client audits and reports
- Coordinating Engineering Department QA functions and conducting training of department staff on procedure implementation
- Coordinating training and certification of department staff with the BPMD Training Department
- Reviewed and commented on DOE HQ documents such as OGR QA plan, etc.

Title: Member Technical Assurance Council (July 1984 to January 1986)

As a member of the Technical Assurance Council, reported directly to the ONWI Program Manager and to the Vice President of Battelle Memorial Institute. Responsibilities included:

- Reviewed and monitored of ONWI activities
- Provided guidance to ONWI management on licensing issues related to safe performance of nuclear waste repositories
- Provided interface with DOE Columbus operations
- Conducted technical assurance reviews and audits
- Participated in NRC, DOE, and contractor meetings
- Provided technical reliability, retrievability, and product assurance
- Standardized and provided uniform guidance throughout the Program
- As Chairman of the SCP Data Base Committee, was instrumental in designing and developing the SCP data collection sheets
- Coauthored the ONWI draft technical position paper on "Numerical Performance objectives for the Engineered Barrier System in Salt Repository: The Role of the Waste Package" which involved conducting a two-day detailed ONWI-wide workshop
- As Chairman of a working group, developed DOE (SRP) draft position on "Licensing Data Acceptability Criteria for Geologic Repositores in Salt"

Title: Lead QA Specialist, ONWI Project (1981-1984)

Principal responsibility was implementation of QA programs in accordance with DOE and NRC regulations on the various investigations performed by several contractors, i.e., geologic project managers (GPM), regulatory project managers (RPM), environmental A/Es, etc.) in the salt repository studies conducted by ONWI for DOE.

RAM (BEESABATHUNI S.R.) MURTHY
Resume

PRESENT
EMPLOYMENT (cont'd):

- Also responsible for the development, and implementation of ONWI Q.A. program.

- Responsible for day to day coordination, liaison, monitoring and reporting to DOE Columbus office on the ONWI Q.A. operations.

- Have developed and issued detailed Q.A. specificiations based on 10 CFR 50 Appendix B; NQA - 1, DOE orders, and the scope of work to major contracts such as Geologic project managers, Regulatory project managers; Licensing project managers; National Laboratories, Government agencies such as U.S.G.S., T.B.E.G., etc.

- Has participated in DOE Headquarters Q.A. Audit of BWIP Project in 1982 to evaluate BWIP's Q.A. program.

- Has developed the draft of "Q.A. Handbook For Site Investigation Studies" for DOE Headquarters.

- Has conducted and participated in the peer reviews of various technical reports prepared by ONWI and sub-contractors.

- Prepared the draft of Quality Assurance section for the Permian site characterization report.

- Participated in the DOE Headquarters "SCP Coordination meetings".

- Has reviewed and commented on DOE mission plan.

- Has reviewed and commented on DOE, Generic Requirements document for a Geologic Repositories.

- Has participated in several ONWI and DOE technical meetings, on modelling far field, near field, waste package design, site characterization, insitu testing, etc.

- Has participated in the DOE meetings with states.

- Has reviewed the draft report on "Adaptability of Non High Level Waste - NRC Regulatory Guides to Repository Design."

- Has reviewed and commented on NRC Draft Standard Review plan "Q.A. Programs for Site Characterization of High Level Nuclear Waste Repositories".

- Has reviewed and commented on DOE Columbus' Q.A. Manual, several DOE Headquarters orders and guidance documents.

RAM (BEESABATHUNI S.R.) MURTHY
Resume

PRESENT
EMPLOYMENT (cont'd):

- Has reviewed and commented on NRC Regulatory Guide 4.17, "Standard Format and Content of Site Characterization Reports for High Level Waste Geologic Respositories".

- Has participated as a working group member in upgrading the standard NQA 2.20, "Q.A. Requirements for Subsurface Investigations for Nuclear Facilities".

- Has participated in the NRC review meetings with DOE on Salt project such as Hydro Data Review, Repository Design Reviews, and presented the DOE Q.A. program as applicable during the site selection and conceptual design phases to NRC staff.

- Responsible for review, monitoring and evaluation of the Q.A. manuals, procedures and the Q.A. programs of Architect Engineer for the design of Exploratory Shaft.

- Responsible for review, monitoring and evaluation of the Construction Managers Q.A. Manuals, Procedures and Programs for the Exploratory Shaft construction.

- Responsible for review, monitoring, and evaluation of the Q.A. program of the Architect Engineer for the development of conceptual design of a repository in the salt.

- Responsible for review and development of ONWI Q.A. Manual and Procedures and implementation of ONWI Q.A. program.

- Responsible for review and evaluation of Q.A. manuals, procedures, and programs for insitu testing in exploratory shaft.

- Has reviewed and commented on activity plans, test plans, procedures, and reports submitted by various contractors such as GPMs, RPMs, AEs, waste package designs, far field, and near field modelling, etc. used for conducting Geo technical studies.

- Has participated in the Source Evaluation Boards as Q.A. member in the selection of contractors such as GPMS, Sealing contractors, Rock Mechanics testing contractors, etc.

- Has conducted several Q.A. audits as lead Auditor on Contractors such as geologic project managers, regulatory project managers, (Bechtel & NUS), Architect Engineers, universities, national labs, government agencies such as USGS, TBEG, etc. to evaluate the adequacy of the Q.A. program to assure safe nuclear waste repository selection and performance.

RAM (BEESABATHUNI S.R.) MURTHY
Resume

PRESENT
EMPLOYMENT (cont'd):

- Has participated in the Incident Review Board (IRB) as a member for evaluation of the incidents and unusual occurrences. Has issued NCRs corrective action report, trend analysis, etc.

- Has conducted several field audits and surveillances on the drilling, ground water sampling, geophysical surveys, seismic surveys, etc. conducted by GPMs in Permian, Paradox and Gulf Coast areas.

1974 - 1981 **DAMES & MOORE**
6 Commerce Drive
Cranford, New Jersey

1979 - 1981
Title: Regional Q.A. Coordinator/Project Geologist

As Regional Q.A. Coordinator responsible for implementation of Q.A. Program on the Nuclear Power plant site investigation in accordance with 10 CFR 50 Appendix B and ANSI N45.2 on various nuclear power plant investigations conducted by Dames & Moore in the N.E. United States.

Specifically responsible for developing Q.A. Manual, Q.A. procedures and plans; conducting Q.A. training programs for Q.A. and project staff, updating of various regulatory requirements, codes and standards (ASME/ASTM, etc.), responding to client/regulatory audits. Developing techniques for computer program certifications. Implementing procurement procedures, maintenance of central vendor files and certification of vendors. Review of design drawings and reports. Development of manuals of technical practices and document control procedures, etc. on various Geologic, Geohydrologic, Seismic, Environmental and other site investigations, pertaining to P.S.A.R./F.S.A.R. and various other licensing activities of nuclear power plants. Also responsible for coordinating and reviewing Hazardous Waste Regulations. Other functions included proposal preparation and client contact.

- Developed Draft Quality Assurance Criteria for low level radio active waste disposal sites as a part of "Low Level Radio active Waste Regulations (Draft)" for U.S. Nuclear Regulatory Commission.

- Managed and implemented Quality Assurance activities on the "Numerical Modelling of potential for differential movement. Along Rad Waste Fault due to Seismic Excitation" for Niagara Mohawk Power Corporation Nine Mile Unit II. This investigation involves the development of state-of-the art computer modelling and various rock stress studies conducted both in the Field-Laboratory to assess the stability of the plant during a seismic event.

PRESENT
EMPLOYMENT (cont'd):

Implemented Q.A. programs on Aquifer Thermal Energy Storage System (A.T.E.S.) for Battelle/DOE at Stony Brook Facility. This project involved the utilization of state-of-the art computer modelling in groundwater flow predicting the behavior of the plume basing on the field tests. These feasibility studies involved assessment of economic viability and energy savings for Stony Brook Campus utilizing A.T.E.S. systems.

- Implemented Q.A. requirements on the "Liquefaction Studies" for PSE&G Salem "Nuclear Generating Project". This project involved the studying of the available soils data and conducting Engineering Analysis by the state-of-the-art in computer modeling and assessing the Liquefaction potential at the reactor site.

- Responsible for reviewing and following up on various regulatory requirements imposed by E.P.A. and various other state regulations.

1978 - 1979

- Implemented Q.A. requirements on the investigations for Dairyland Power Co. The project dealt in assessing the liquefaction conditions using the latest state-of-the-art techniques in undisturbed sampling and lab testing at Lacross Boiling Water Reactor.

- Developed and implemented Q.A. procedures on the Geologic investigations at Nine Mile site for Niagara Mohawk Power Corporation. The investigations consisted of field overcoring operations, laboratory rock stress determinations to determine the stresses at the site, Geophysical Surveys and blast vibration monitoring studies, etc.

- Also supervised the Q.A. operations conducted by Dames and Moore on the K.G&E, Wolf Creek Project.

- Union Electric project; Common Wealth Edison project, etc.

- Revised Dames and Moore Q.A. Manual and various Q.A. procedures.

1977 - 1978
Title: Supervising Q.A. Engineer

- As project manager, organized and conducted Quality Assurance training services for the Environmental Planning Division of Tennessee Valley Authority, this project consisted of developing training manual, Q.A. manual, and conducting week long training seminars and lectures for Q.A. coordinators of Environmental Planning Division of T.V.A.

EMPLOYMENT
(cont'd):

- Developed Dames & Moore procedures for implementing 10 CFR part 21 "Reporting of Defects and Non-Compliances to N.R.C."

- As Supervising Q.A. Engineer responsible for conducting internal audits and implementation of Q.A. requirements on various projects for Dames & Moore in the N.E. United States, like PS&EG - Hopecreek; DP&L - Summit; ConEdison - Indian Point; RG&E - Sterling; etc.

- Participated in several client and regulatory audits.

- Responsible for maintaining central sub contractor/vendor files and certification of vendors.

1976 - 1977
Supervising Q.A. Engineer

- Implemented complete Q.A. program on the Excavation dewatering monitoring program at the PSE&G - Hope Creek Nuclear Generating Station. Responsible for implementation of Q.A. program for design, monitoring and installation of dewatering system.

- Supervised and implemented Q.A. program on several offshore geophysical surveys conducted by Dames and Moore for RG&E - Sterling and ConEdison - Indian Point Station as a part of geologic investigation. Also responsible for implementing Q.A. program on rock stress studies conducted by Dames & Moore at the Indian Point Generating Station.

- Supervised various other Q.A. projects in my region conducted by Dames and Moore offices in Chicago, Atlanta, Washington, Boca Ratone for various clients like Common Wealth Edison, South Carolina Electric Gas & Co., Baltimore Gas & Electric Co., DP&L, etc. Most of these studies include preparation of Section 2 of P.S.A.R. & F.S.A.R. (Site-Studies) and Environmental reports.

1975 - 1976
Project Q.A. Coordinator

- Developed and implemented Q.A. program on the P.S.E.&G. - Hope Creek Generating Station, as a part of foundation investigatin for section 2 of P.S.A.R. & F.S.A.R. These studies included subsurface exploration, geophysical studies, soils tesing, liquefactin analysis, etc. During this time conducted several field surveillances, drilling inspections, sub-contractor audits, report review, computer program certification. Controlled design review, procurement activities and measuring and testing equipment.

EMPLOYMENT (cont'd):

- Responsible for coordination and implementation of Q.A. activities on various other projects like Delmara Power & Light Co. - Summit Site, PE Co. - Fulton investigation, and PE Co. - Limerick investigations by Dames & Moore.

1974 - 1975

- Joined Dames & Moore as Project Quality Assurance Coordinator responsible for developing Q.A. plans, conducting field surveillances, laboratory surveillances, audits, controlling procurement activities, reviewing and coordinating technical reviews, on the various geological soils, environmental and other reports prepared by D&M on projects such as:

  P.S.E. & G. - Hope Creek Generating Station
  D.P.& L. - Summit Generating Station
  ConEdison - Indian Point
  PE Co. - Limerick
  PE Co. - Fulton

1965 - 1974 **Mining Division in charge (Mining Geologist)**
Hyderabad Asbestos Cement Products Ltd.
Sanath Nagar, Hyderabad, A.P. India

1973 - 1974
Title: **In Charge of Mining Division In The Executive Offices.**

- Responsible for reporting directly to the president of the company on the Mining Progress & Production in the Asbestos Mines in India & Exploration Activities for lead, copper & zinc in Nepal.

- Prepared a report on the occurrence and origin of chrysotile asbestos deposits in India.

1972 -1973

- Responsible for Administration, Management, and Quality Assurance and Quality Control operations of the mining and exploration activities and reporting day to day progress to the president.

1971 - 1972
Title: **Mining Geologist, In Charge Of Mines**

- Responsible for Quality Control in the Asbestos Milling plants, and production of asbestos. Reporting directly to the general manager of Bihar Mines.

RAM (BEESABATHUNI S.R.) MURTHY
Resume

EMPLOYMENT (cont'd):

- Responsible for underground mapping, ore production, mine safety and drilling operations.

1969 - 1970

- Responsible for installation of asbestos milling & processing plants at the mine site.

1968 - 1969

- Responsible for obtaining government licenses and permits for installation of processing plants.

1967 - 1968

- Responsible for developing undergound mines.

- Responsible for obtaining mining lease, and permits for mining operations and excavation of open pit mines.

1966 - 1967

- Prepared geological model showing the structure of the ore deposit and the proposed underground mine shafts, drifts, raises, winzes, etc.

- Prepared geological maps, sections and estimated ore reserves at the site.

1964 - 1966
Title: Exploration Geologist

- Conducted diamond - core drilling operations, including core logging, preparation of geological maps, sections, grade coutour maps, trench-pit logging, geophysical surveys, etc.

- Responsible for processing and filing of prospecting license.

ACADEMIC BACKGROUND:

1962 - B.S. In Geology, Zoology & Chemistry
1964 - M.S. in Mining Geology

Short courses in Hazardous Waste Mangement
Diploma in Computer Programming
Short course on Groundwater Dewatering During Construction by University of Missouri

PROFESSIONAL AFFILIATIONS:

American Society for Quality Control
American National Standards Institute
Geological Society of America

RAM (BEESABATHUNI S.R.) MURTHY
Resume

PROFESSIONAL
AFFILIATIONS (cont'd):

Project Management Institute
Registered Geologist in the States of Delaware and Georgia
Member of Working Group for N.Q.A. 2.20 "Q.A. For Substance Exploration"

PUBLICATIONS:

"Occurrence and Origin of Chrysotile Asbestos Deposits in India", presented to Messrs. Hyderabad Asbestos Cement Products Ltd., India, 1973.

"Exploration and Exploitation of Asbestos Deposits in India", presented at a seminar entitled Exploration and Exploitation of Mineral Deposits in India, Indian GeoSciences Association, May 1972.

"Siting for Nuclear Power Plants", presented a paper and conducted workshop in the IAEA Training Course conducted by Argonne National Laboratory, Argonne, Illinois, November 1981.

"Quality Assurance Program Supporting the Development of An Exploratory Shaft", presented a paper, 1981 National Waste Terminal Storage Program Information Meeting, DOE/NWTS-15, Columbus, Ohio, November 1981.

"Application of Q.A. Requirements for Conducting Field Investigations for HLW Repository Studies", presented paper 1982, National Waste Terminal Storage Program Information Meeting, DOE/NWTS Meeting, Las Vegas, Nevada, 1982.

Conducted Quality Consciousness Seminar entitled "Quality Break Down - the Nuclear Nemesis" for DOE, at King's Island Inn, Cincinnati, Ohio, November 1984.

Participated in the preparation and development of Draft NQA.2.20 Standard "Q.A. Program Requirements for Subsurface Investigations for Nuclear Facilities."

Coauthored the ONWI Draft Technical position paper on "Numerical Performance Objectives for the Engineered Barrier System in Salt Repository: The Role of the Waste Package."

As Chairman of working group developed DOE (SRP) draft position on Licensing Data Acceptability Criteria" for geologic repositories in salt.

Center for Nuclear Waste Regulatory Analyses

POST OFFICE DRAWER 28510 • 6220 CULEBRA ROAD • SAN ANTONIO, TEXAS, USA 78284
(512) 522-5160 • FAX (512) 522-5155

February 12, 1988

Mr. Robert W. Wiesener
4 Windsong
Irvine, CA 92714

Dear Mr. Wiesener:

This is in response to your letter to Allen Whiting dated February 6, 1988. We appreciate your interest in the Center for Nuclear Waste Regulatory Analyses which was recently formed at the Southwest Research Institute. Your experience in the areas of spent-fuel management and reprocessing are particularly germane to the mission of the Center.

All management and senior technical positions in these areas have been filled, so we are unable to consider you for permanent employment. However, the Center is in the process of identifying consultants in several key areas. These consultants would be retained to review activity plans and programs of the Center and to perform certain technical assistance tasks, as directed.

Please advise me if you would like to be considered for a role as consultant to the Center in the areas of spent-fuel management and reprocessing, and the design of related facilities.

Sincerely yours,

Wesley C. Patrick
Technical Director

WCP/lf

cc: A. Whiting

February 6, 1988

Alan Whiting
Southwest Research Institute
6220 Culebra Road
San Antonio, Texas 78284

Dear Alan:

I noted with interest the SwRI contract awards from NRC to establish a Center for Nuclear Waste Regulatory Analysis (CNWRA) and to provide technical assistance on nuclear power reactors. I called Jim Crane to inquire about the status of these programs and whether SwRI would be hiring any additional personnel to support them. He suggested that I send my resume and inquiry letter to you and that you could see that it got circulated to departments at SwRI that may have openings.

I understand from talking to Jim that you have been assigned to the CNWRA but only a skeleton staff has been assembled due to delays in getting money appropriated. I certainly would appreciate your assistance to get an interview for employment at SwRI.

I left GCA Corporation three years ago after they purchased PaR Systems Corp. and have been working for Fluor since then. The work has been interesting and challenging but the Los Angeles area has its problems.

Thanks for any help that you can provide. I always enjoyed coming to SwRI and San Antonio and look forward to seeing you again.

Sincerely,

Bob Wiesener

ROBERT W. WIESENER
Director
Nuclear Systems and Robotics
(714) 975-5476

FLUOR

FLUOR TECHNOLOGY INC
ADVANCED TECHNOLOGY DIVISION
3333 MICHELSON DRIVE
IRVINE, CALIFORNIA 92730 U.S.A.
TELEX 18-2294

February 6, 1988

Southwest Research Institute
6220 Culebra Road
San Antonio, Texas 78284

Gentlemen:

I noted with interest the SwRI contract awards from NRC to establish a Center for Nuclear Waste Regulatory Analysis (CNWRA) and to provide technical assistance on nuclear power reactors. I am interested in exploring the possibility of joining the SwRI staff to work on these programs or others that I may also be qualified for.

I have over 30 years engineering experience in the Nuclear Industry which is summarized on the enclosed resume. Some specific experience with the nuclear power industry and fuel cycle is as follows:

- Responsible for increasing the spent fuel storage capacity at 30 plants (39 units).

- Lead Engineer responsible for all in-cell equipment for a new head-end fuel reprocessing facility for Hanford.

- Provided technical input on fuel consolidation and remote handling for the waste repository in a salt media.

- Responsible for the engineering of complete refueling systems for 19 CE reactors, 49 GE refueling platforms, and 13 Westinghouse refueling machines.

- Designed and patented the reactor vessel ISI machine used by SwRI, CE, Rockwell, NES and several foreign ISI Companies.

- Established the basic designs of the prototype overhead robot system for the Remote Radiation Survey & Analysis System (for shipping casks) being developed at Sandia and the telerobot system incorporated into the Waste Consolidation prototype mockup at Savannah River.

I look forward to meeting with members of the SwRI staff and can arrange to come to San Antonio for an interview at your convenience. Thank you for your consideration.

Sincerely,

Robert W. Wiesener

CONFIDENTIAL RESUME OF:

ROBERT W. WIESENER
4 Windsong
Irvine, CA. 92714
(714) 975-5476 (work)

I have more than 30 years experience in the nuclear industry in engineering management, sales & marketing, project engineering, and product development. This experience encompasses robotics and remote handling systems, power plant refueling and inspection systems, high density fuel storage, in-service inspection, reactor development and operation, and weapons development.

EXPERIENCE SUMMARY:

1985 to Present

Fluor Technology, Inc.
Advanced Technology Div.
3333 Michelson Drive
Irvine, CA. 92730

Director - Nuclear Systems & Robotics. Technical support is provided to projects requiring remote operations and maintenance, nuclear mechanical systems and robotics. Currently assigned as Lead Engineer responsible for in-cell equipment design, and remote handling systems for the PFM Project. This nuclear fuel reprocessing plant is a new head end facility designed to replace the chemical de-cladding and dissolution steps currently used at the Hanford PUREX Plant.

Vice President - Technical Services, 1981 - 1985, GCA Corporation. Responsible for Engineering and Marketing of the PaR nuclear products and industrial handling equipment. The nuclear products consisted of refueling systems, fuel inspection equipment, vessel in-service inspection systems, and high density fuel storage racks for the Nuclear Utility Industry and custom engineered manipulators and remotely operated cranes for hazardous remote handling. The industrial equipment included large custom engineered overhead robots and handling equipment for the mining industry. In 1981 I hired additional sales and engineering personnel to support the GCA entry into the industrial robotics business and supervised the development and marketing of the Extended Reach Robot. This was the first industrial gantry robot and it was exhibited at Autofact III and ROBOTS VI trade shows in Detroit.

Vice President - Sales & Marketing, 1974 - 1981, PaR Systems Corp. Under my direction yearly sales increased from approximately $2,500,000 to $20,000,000 during this time period. A significant portion of my time was utilized in new product development, technical proposal preparation and presentation, and remote handling consulting. Established a five year business plan to aggressively enter the field of industrial automation and robotics. Assisted in preparing a successful public stock offering. Participated in all negotiations leading to the sale of PaR Systems Corp. to GCA Corporation.

Staff Engineer, 1968 - 1974, PaR Systems Corp. Responsible for numerous remote handling equipment projects and engineering study contracts. Developed several new standard products including the Reactor Vessel In-Service Inspection System and Tru-Motion Mini-Manip.

Staff Member, 1956 - 1968, University of California, Los Alamos Scientific Laboratory. Worked on the development of Nuclear Power Reactors. Responsible for a major portion of the mechanical systems for the Ultra High Temperature Reactor Experiment (UHTREX) and the TURRET program. Responsible for systems and components as follows: helium purification and storage system, control rod drives, reactor core support, fuel element handling system, remote handling and maintenance equipment, primary and secondary heat exchangers and general facility layout. Participated in operation of the Los Alamos Molten Plutonium Reactor Experiment (LAMPRE). Development engineer on weapon detonating systems.

Applications Engineer, 1955 - 1956, Timken Roller Bearing Company.

MILITARY SERVICE:

United States Army (82nd Airborne Division)
Dates of Service: August 1948 - June 1952
Rank at discharge: Sergeant First Class

EDUCATION:

Rochester High School, Rochester Minnesota
Graduated June 1948

Tri-State College, Angola, Indiana
B.S. in Mechanical Engineering, December 1954

PROFESSIONAL SOCIETY MEMBERSHIP:

American Nuclear Society
Robotics International

PATENTS:

3,661,276	Master-Slave Extended Reach Counterweight
3,650,410	Tru Motion Master-Slave Manipulator
3,780,571	Reactor Vessel Inspection Device