CYGNA
ENERGY SERVICES
101 California Street, Suite 1000, San Francisco, CA 94111-5894 415/397-5600

Docket No.: 50-445

December 29, 1983
83090.003

Mr. S. Burwell
Licensing Project Manager
U.S. Nuclear Regulatory Commission
7920 Norfolk Avenue
Bethesda, Maryland 20014

Mr. H. Schmidt
c/o Westinghouse
4901 Fairmont Avenue
Bethesda, Maryland 20814

Subject: Request for Supplemental Information
Independent Assessment Program
Texas Utilities Services, Inc.
Comanche Peak Steam Electric Station

Dear Sirs:

As requested during the December 23, 1983 conference call, please find the manhour summary (Attachment A) and the resumes of project personnel not included in the program plan (Attachment B).

If you have any questions or require additional information to complete your review, please do not hesitate to contact Ted Wittig or me at (415) 397-5600.

Very truly yours,

N.H. Williams

Nancy H. Williams
Project Manager

NHW:meb
Enclosures: Attachment A: Manhour Summary
Attachment B: Resumes

cc: Mr. J.B. George (w/attachment)
Mr. D. Wade (w/attachment)

B001
1/1

CYGNA
ENERGY
SERVICES

ATTACHMENT A

COMANCHE PEAK INDEPENDENT ASSESSMENT PROGRAM
MANHOUR SUMMARY

Review Activity	Manhours*	
Programmatic Reviews		
G&H Design Control Program	132	
Texas Utilities Design Control Program	305	
Sub-Total - Program Reviews		437
Implementation Evaluations		
Design Analysis Control	284	
Design Change Control	1067	
Interface Control	516	
As-Built Verification	600	
Design		
Pipe Stress/Flued Head	772	
Pipe Supports	456	
Raceway Supports	1029	
Seismic EQ	214	
Electrical/I&C	611	
Sub-Total - Implementation Evaluations		5549
TOTAL:		5986

* - Includes Data Collection, Project Management, Project Administration, and Documentation.

CYGNA
ENERGY
SERVICES

ATTACHMENT B

RESUMES

Mehmet Bilgin Atalay
Steve Bibo
James W. Dady
Miguel de Guzman
Stuart W. Dillon
Anthony Klinger
Simon Luo
Max S. Maire
Mohan K. Mani
Thinh Duc Nguyen
John P. Russ
Steve C. White
Chun K. Wong

MEHMET BILGIN ATALAY

EDUCATION:

Ph. D., Civil Engineering, University of California, Berkeley CA

M.S., Civil Engineering, University of California, Berkeley, CA

B.S., Civil Engineering, Middle East Technical University, Ankara, Turkey

PROFESSIONAL EXPERIENCE:

As a supervising engineer with Cygna, Dr. Atalay is responsible for the direction of advanced structural and dynamics work within the Structural Mechanics Division. His recent work involved:

- Seismic risk assessment for a solar-powered plant in California.
- Testing of electrical control panels using an HP-5423A dynamic analyzer.
- Evaluation of structural computer program for a software developer.
- Equipment qualification for the WPPSS-2 nuclear plant.

Dr. Atalay's previous work with Cygna included the design of friction connection devices in precast panel structures, pipe whip analysis, probabilistic seismic risk analysis, nuclear power plant equipment qualification, identification of dynamic systems using Kalman filters, soil-structure interaction, and piping analysis.

Prior to joining Cygna, Dr. Atalay was an Assistant Professor at the Middle East Technical University in Ankara, Turkey lecturing on structure dynamics, earthquake engineering, and engineering mathematics. He also participated in various research projects including experiments on dynamic characteristics of structures and site-selection and geophysical studies for Turkey's first nuclear power plant. Earlier experience includes experimental and analytical research on inelastic behavior of reinforced concrete structural elements, work which he performed as a research specialist and research assistant at the University of California at Berkeley.

Dr. Atalay's experience with dynamic testing techniques exceeds thirteen years. At the University of California at Berkeley, he was involved in testing a 100-foot long model box girder bridge for the California State Department of Highways, inelastic testing of uncracked and epoxy-injection repaired reinforced concrete flexural members, and dynamic testing of the Transamerica Pyramid in San Francisco using ecocentric-mass vibration generators. His doctorate thesis was also experimental in nature and included hysteretic testing of twelve reinforced concrete column specimens. While at the Middle East Technical University, Dr. Atalay participated in dynamic tests of various dams and building structures using ecocentric-mass vibration generators. While with Cygna, Dr. Atalay conducted tests to determine dynamic cyclic behavior of a friction device intended for use for seismic control of large panel structures.

MEHMET BILGIN ATALAY
(continued)

PUBLICATIONS:

"Simplified Pipe Whip Analysis Using a Rigid Plastic Pipe Model," Proceedings of the 1983 ASCE EMD Specialty Conference, Purdue University, W. LaFayette, Indiana.

"State-of-the-Art of Lifeline Earthquake Engineering," Panel Secretary's Report; State-of-the-Art in Earthquake Engineering 1981, Edited by Turkish National Committee on Earthquake Engineering, Ankara, October, 1981; 7th World Conference on Earthquake Engineering.

"Forced Vibration Experiments of Structures," Earthquake Engineering Research Institute Report, Middle East Technical University, Ankara, May 1981.

"Dynamic Tests on Keban Dam," Earthquake Engineering Research Institute Report No. 80-2, Middle East Technical University, Ankara, March 1980 (in Turkish).

"Experimental Determination of the Dynamic Parameters of the Cubuk II Dam," EERI Report No. 79-8, METU, Ankara, December 1979 (in Turkish).

"Vibration Tests in the Determination of Building Dynamic Characteristics," Proceedings of the Turkish Civil Engineering 7th Technical Congress, Ankara, October 1978 (in Turkish).

"A Mathematical Model for the Seismic Behavior of Reinforced Concrete Critical Regions as Influenced by Moment and Shear," Proceedings of the 6th European Conference on Earthquake Engineering, Dubrovnik, Yugoslavia, September 1978.

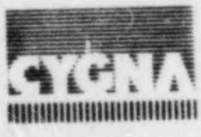
"Inelastic Cyclic Behavior of Reinforced Concrete Flexural Members," Proceedings for the 6th World Conference on Earthquake Engineering, New Delhi, India, January 1977.

"Seismic Behavior of Reinforced Concrete Critical Regions as Influenced by Moment, Shear and Axial Force," Earthquake Engineering Research Center Report No. 75-19, Berkeley, California, December 1975.

"Inelastic Cyclic Behavior of Reinforced Concrete Columns," Proceedings of the 5th European Conference on Earthquake Engineering, Istanbul, September 1975.

"Inelastic Cyclic Behavior of Reinforced Concrete Flexural Members," Proceedings of the U.S. - Japan Seminar on Earthquake Engineering, Hawaii, 1975.

"Rate of Loading Effects on Repaired and Uncracked Reinforced Concrete Members," Proceedings of the 5th World Conference on Earthquake Engineering, Rome, Italy, 1973; and Earthquake Engineering Research Center Report No. 72-9, Berkeley, 1972.



STEPHEN L. BIBO

EDUCATION

B.S., Industrial Technology, Northeastern University, Boston, MA.

A.S., Aeronautical Technology, Wentworth Institute, Boston, MA.

PROFESSIONAL REGISTRATIONS

Associate Engineering Technician

PROFESSIONAL AFFILIATIONS

Member, National Society of Professional Engineers

PROFESSIONAL EXPERIENCE

Mr. Bibo has over seven years of experience in the nuclear industry. As a Project QA Engineer, he is responsible for all quality related activities of assigned projects at Cygna.

Prior to working at Cygna, Mr. Bibo worked for Stone & Webster Engineering Corp. as the Records Management Administrator for the Beaver Valley Unit No. 2 Nuclear Project. His responsibilities included supervising the Records Management Group, developing and implementing computerized information systems, and coordinating the use of computerized indexing and retrieval systems. Prior to his assignment as the Records Management Administrator, he was assigned as the Engineering Assurance Engineer on the Beaver Valley Project where his work included assisting project and site personnel in the implementaton of S&W's QA Program, development of QA requirements for specifications, preparation of project instructions, and the coordination of training programs for project and site personnel. Major areas of responsibility included implementing corrective action for client and NRC audits and conducting audits of project and site engineering activities. He is qualified as a lead auditor per ANSI N45.2.23.

Mr. Bibo's earlier experience at Stone & Webster included: preparation of Engineering Assurance Procedures and Technical Guidelines; preparation of the S&W Corporate Specification Manual; mechanical engineering design, analysis, and design review activities; and vendor bid evaluation and cost estimating.

JAMES W. DADY

EDUCATION:

Ph.D. candidate, Electrical Engineering, California Western University

B.S., Electrical Engineering, Indian Technical College

PROFESSIONAL REGISTRATION:

Professional Engineer, Control Systems, California

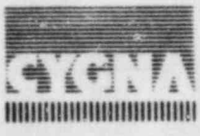
PROFESSIONAL AFFILIATIONS:

Senior Member, Instrument Society of America

PROFESSIONAL EXPERIENCE:

Mr. Dady has more than 26 years of controls and instrumentation experience in the nuclear, petrochemical, mining and pharmaceutical industries. During the past 15 years, he has held positions such as Principal Instrument Engineer or Engineering Supervisor. Mr. Dady has more than seven years of BWR experience, all of which has been at the Perry, Grand Gulf, Susquehanna or Browns Ferry sites.

Mr. Dady has been involved in the design, installation, functional check-out and start-up of both NSSS and BOP systems. He routinely needs to read and interpret piping and instrument diagrams, instrument loop diagrams, elementary diagrams, instrument data sheets and specifications, and logic diagrams and system descriptions. Being in the field, he has had to coordinate the efforts of the A/E, NSSS vendor and construction people.



MIGUEL DE GUZMAN

EDUCATION:

B. S., Civil Engineering, University of the Philippines, Quezon City, Philippines

Graduate Courses in Structural Engineering, University of the Philippines, Quezon City, Philippines

Prestress Concrete Seminar, San Francisco, CA

Soil Lateral Pressures Seminar, sponsored by the Department of Transportation, at M.I.T., Cambridge, MA

Construction Management Seminar, sponsored by the Association of General Contractors, New England Region

PROFESSIONAL REGISTRATION:

Registered Civil Engineer, California

Registered Professional Engineer, Georgia

Registered Professional Engineer, Massachusetts

PROFESSIONAL AFFILIATIONS:

Member, National Society of Professional Engineers

Member, American Society of Mechanical Engineers

PROFESSIONAL EXPERIENCE:

As an engineering Supervisor/Structural Group Leader, Mr. De Guzman has participated in the following projects:

- Yankee Rowe Systematic Evaluation Program, a detailed structural evaluation and design of necessary modifications of all Category I structures of the Yankee Nuclear Power Station at Rowe, Massachusetts.

- Hines Building (101 California), a 48-story steel-framed building in downtown San Francisco, with built-up 92'0" tall columns, horizontal transfer trusses and stub girder flooring systems.

- Oakland Convention Center Parking Structure, 5-level structure with exposed steel-framed parking decks.

MIGUEL DE GUZMAN
(continued)

In the performance of the work detailed above, Mr. De Guzman has acquired extensive experience in structural modeling techniques for complex structures, and the application of computer programs such as BATS, EESAP and SAPIV in the structural analysis of multistory structures subjected to linear static and dynamic loadings. His work has included major modifications to improve the dynamic response of large structures and detailed analysis to provide qualification of structures which do not meet standard criteria.

Before joining Cygna, Mr. De Guzman was employed by Parsons, Brinckerhoff, Quade & Douglas, Inc., in both their Boston and San Francisco offices. As a Project Manager/lead Structural Engineer, he was actively involved in the Hoosac Pier Study. This required investigation and evaluation of existing pile foundations, steel sheet bulkheads and fender systems to support the proposed building development of the site.

Prior to that, he worked on the Copley Place Project, which required relocation and modification of various Massachusetts Turnpike steel and concrete structures, including bridges, entrance and exit ramps, temporary access ramps, and permanent decking over the Turnpike.

In performing the work detailed above, Mr. De Guzman acquired experience in evaluating geotechnical investigations and structural adequacies of existing turnpike structures. He was also responsible for structural design and drafting efforts in the production of contract documents, and interfacing structural work with other design disciplines, consultants and utility companies.

On previous assignments as Job Captain/Project Engineer, Mr. De Guzman worked on the final designs of MBTA's Harvard Square Station and South Cove Tunnel Project. Both of these structures are cut and cover tunnels of reinforced concrete.

In the performance of these projects Mr. De Guzman was responsible for supervising design and drafting efforts in the production of contract documents, and coordinating existing utility relocations, mechanical, electrical, and geotechnical efforts.

In a previous position as Structural Engineer, Mr. De Guzman was involved in the following projects:

- Church Street Station and Line Structures, a project for the Bay Area Rapid Transit (BART) District, which included analysis, design and production of contract documents, and final design of reinforced concrete subway structures, in addition to the Daly City Station, which included analysis and design of a reinforced concrete aerial station and parking structures.

MIGUEL DE GUZMAN
(continued)

- Ferry Building Plaza Platform, San Francisco which included analysis and design of reinforced concrete flat plates, precast concrete piles and wooden fender systems.

- Halawa Interchange Structure No. 4, a two-span, prestressed, post-tension box girder bridge for the state of Hawaii, which included modeling and computer analysis and design of the box girders, reinforced concrete pier walls footings, cap beams, retaining walls, and abutments.

In performing the work detailed above, Mr. De Guzman was responsible for the structural design and production of contract documents and interfacing structural effort with other design disciplines and utility companies.

As Senior Engineer/Lead Engineer for Parsons-Brinckerhoff-Tudor-Bechtel, Mr. De Guzman was involved in projects for the Metropolitan Atlanta Rapid Transit Authority. Theses included the Preliminary Design of Cain Street Station, final design of ancillary structures for the Five Point Station, and the final design of the Forsyth Street Bridge and structures.

Mr. De Guzman was responsible for supervising structural design and production of contract drawings, as well as preparing conceptual and preliminary design phase drawings for underpinning and demolition of existing buildings and bridges.

Additional industry expertise acquired by Mr. De Guzman include his position a Structural Engineer/Resident Inspector for Thomas J. Davis, Inc; Structural Engineer and general contractor for a metropolitan cathedral, construction project engineer and structural design engineer of churches and schools, industrial, commercial and residential buildings; and as structural engineer, he participated in the final designs of 12-, 14-, and 16-story buildings.

Mr. De Guzman spent some time as an instructor at the College of Engineering, University of Pangasinan, Philippines, where he taught subjects such as steel, concrete and timber design, principles of reinforced concrete, foundation engineering, theory of structures and soil mechanics.

PUBLICATIONS:

Co-Author, "Seismic Analysis of the 101 California Building." If the topic is selected, it will be included in the technical publications for the Eighth World Conference on Earthquake Engineering to be held in San Francisco in 1984.

STUART W. DILLON

EDUCATION:

B.S. Civil Engineering, Imperial College of Science and Technology, University of London, 1979

PROFESSIONAL EXPERIENCE:

EES, INCORPORATED, Santa Ana, California, Junior Engineer

Mr. Dillon has been involved in the finite element modeling of a concrete floor slab of varying thickness. The finite element analysis was performed to determine how dynamic loading from shear walls above flowed through the slab to shear walls below. He has also been involved in the design and analysis of supporting steelwork for piping and machinery in the Palo Verde Nuclear Generating Station. This work has required hand and computer analyses of structural systems to determine if they satisfy stress and deflection criteria a dynamic analysis of the pipe work under seismic loading.

Prior to joining EES, Mr. Dillon obtained an Upper Second Class Honours Degree in Civil Engineering from Imperial College. His major topics of study were Structural Analysis, Engineering Mechanics and Elasticity, Mathematics, Fluids and Hydraulics and Soils Mechanics; design of Structural Steel and Reinforced and Prestressed Concrete.

PETRO-MARINE, London, England, Engineer 3

Mr. Dillon's work involved design, analysis and specification for various projects on North Sea Offshore Platforms, for Petro-Marine, a firm of Offshore Engineering Consultants.

He was responsible for the computer analysis of three North Sea Gas Platforms each in approximately 120 ft. of water. The analyses were required to determine pile factors of safety and member and joint stresses subsequent to the installation of riser protectors and incorporating revised loading criteria.

He completed three offshore surveys to investigate site conditions in the vicinity of proposed "lifecraft areas" and one to determine existing roof loading on a Storage Module.

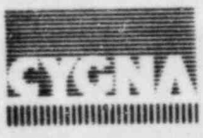
Mr. Dillon has designed and supervised and drafting of various parts of the "C" Process Platform in Denmark's Gorm Field, including mud mats, bouyancy tanks, pipe supports, plant room for heating, ventilation and air conditioning and removable boat fenders for Wellhead Platforms "A" and "B".

STUART W. DILLON
(continued)

He investigated the dynamic response of proposed "Firewater Stilling Tubes" for five gas platforms. His final report included investigation of the dynamic response to vortex shedding under cyclic waveloading and constant curent, checks on static deflections, fatigue, clamp bolting, and recommendations to improve and existing design.

He further investigated research papers on Spectral and Deterministic Fatigue Analysis and hot spot "stress concentration factor" prediction by the use of Parametrict Equations and Finite Element Analysis. He prepared a short document explaining the relevance of each of the above to fatigue analysis and resulting major structural repairs on Occidental's Claymore "A" Platform. He assisted in the investigation of the adequacy of the proposed repairs. In connection with this, he wrote an extensive specification for "Procedures For Remedial Grouting of Conductor Framing at (-)100'-0 elevation".

Mr. Dillon research the Nastran Finite Element Program for tubular joints in order to prepare a report for Occidental Petrolem on Petro-Marine's finite element analysis. These were performed to determine the variation of stress concentration and stiffness at cross-joints on the Claymore "A" Platform as a result of adding external stiffeners and then grout.



ANTHONY W. KLINGER

EDUCATION:

M.S., Civil Engineering, Cracow Institute of Technology, Poland,

B.S., Technical Geologist, Technical College of Geology, Cracow, Poland.

PROFESSIONAL EXPERIENCE:

Cygna Energy Services

As a Senior Engineer at Cygna, Mr. Klinger is currently assigned to the piping analysis work for Diablo Canyon Unit 1, where he is responsible for defining spectral loading for the stress problems. In this capacity, he utlizes his extensive experience in both pipe stress analysis and structural design and construction. His previous projects include:

- Piping analysis and redesign of the Safety Injection system for the Yankee Rowe Nuclear Plant, using the ADLPIPE program.
- Piping analyses for Diablo Canyon, Arkansas, and Vermont Yankee nuclear stations using both in-house and general purpose finite element codes.

Prior to transferring to Cygna Energy Services, Mr. Klinger worked for Cygna Consulting Engineers as a Structural Engineer involved in the design of earthquake resistant buildings.

Bernhard Benning Construction Firm

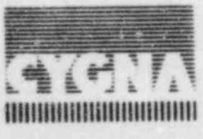
As a civil engineer, Mr. Klinger was in charge of construction details for workshops and housing units, and design of drainage facilities.

State Agency of Civil Engineering (Harbor Construction) Gdansk, Poland

As a Civil Engineer and Chief of Construction, Mr. Klinger was in charge of construction of the Cval Pier and Wharf in the new North Harbor at Gdansk and the dry dock in the Gdansk Shipyard

MASTER'S THESIS:

"Harbor Design Illustrating Different Computational Methods," January 1973, Cracow Institute of Technology.



SIMON LUO

EDUCATION:

M.S., Civil Engineering (structural), Texas Tech University, Lubbock, TX

B.S., Civil Engineering, Tamkang University, Taipei, Taiwan, R.O.C.

PROFESSIONAL REGISTRATION:

Engineer-in-Training, Texas

PROFESSIONAL AFFILIATIONS:

Member, American Concrete Institute

Member, American Institute of Steel Construction

PROFESSIONAL EXPERIENCE:

Mr. Luo is a Staff Engineer currently assisting in program development for Cygna's CYTRAC computer program which tracks radwaste in-plant. Other projects Mr. Luo has been involved in were the static and dynamic structural analysis and design evaluations of the pipe support systems for Perry Unit 1, Comanche Peak Units 1 and 2, Diablo Canyon Unit 1 and La Salle Unit 2.

Previous assignments have included computer analysis for the Susquehanna Nuclear Power Plant pipe support system under seismic load and documenting analysis results to meet ASME, ANS codes; computer pipe stress analysis for the La Salle Unit 1 Nuclear Power Plant CRD piping system under seismic, thermal and gravity loads.

Formerly employed by the Hugh M. O'Neil Company, Mr. Luo was responsible for the design and analysis of a jib crane including the detailing of structure in steel. Other design work required the application of finite element methods of dynamic analysis for a Lucky Stores' project.

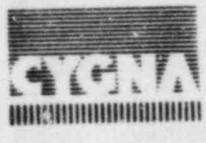
While working on his master's at Texas Tech University, Mr. Luo was involved in the research of spall behavior for the U.S. Air Force. He developed a finite element computer program to simulate the stress wave propagation due to impact and by using a suitable numerical integration scheme for the dynamic equation of motion involved in the stress wave propagation phenomena.

SIMON LUO
(continued)

Additional industrial experience was acquired by Mr. Luo through his association with the Public Works Department, Taipei City. He was responsible for construction material quality and quantity control, sheer wall and basement construction design, schedule control.

PUBLICATIONS:

"A fracture spall finite element model in impact problems," Eleventh Southwestern Graduate Research in Applied Mechanics, Oklahoma State University, April 11, 1980.



MAX S. MAIRE

EDUCATION:

B.S., Engineering, U.S. Coast Guard Academy, New London, Connecticut

Engineering Economics, American Management Association, New York, N.Y.

Economics, Harvard University, Cambridge, Mass.

Labor Economics, Harvard University, Cambridge, Mass.

Business Law, University of Hawaii, Honolulu,Hawaii

Industrial Engineering for Managers, Lehigh University, Bethlehem, Pennsylvania

PROFESSIONAL REGISTRATION

Professional Engineer in Massachusetts, New Hampshire, New Jersey, Wisconsin, Nebraska, Oklahoma, Texas

Certified Safety Professional

Certified Plant Engineer

Licensed Construction Supervisor, Massachusetts

PROFESSIONAL ACTIVITIES:

Member, American Institute of Plant Engineers

Member, American Society of Heating, Refrigeration, and Air Conditioning Engineers

Member, American Association for the Advancement of Science

PROFESSIONAL EXPERIENCE:

Mr. Maire has over 25 years experience in industrial engineering with emphasis on productivity improvement and the development of user-effective operational control and management information systems. He has designed and installed materials management systems such as materials acquisition, inventory, and usage analysis for diverse industrial applications including plastics fabrication, non-ferrous casting, and machinery manufacturing. He is presently a Project QA Engineer at Cygna, responsible for various QA functions on projects for the Maine, Yankee and Shoreham nuclear power plants.

Before joining Cygna, Mr. Maire was Principal Consultant for the ROIT Corporation, a management engineering consulting firm specializing in systems, procedures, and industrial engineering with assignments for various domestic and foreign clients, as well as government agencies such as the USDA, NIOSH, and the Texas and Oklahoma Departments of Commerce. He was responsible for site location studies; pollution and energy engineering; safety engineering; and the design of production, inventory, cost and management information control systems.

In the production control sector, Mr. Maire's emphasis has been on systems that integrated production and cost control for industrial applications, and production and quality control for office applications. In the field of productivity improvement, he developed and installed productivity enhancement programs in a number of different manufacturing plants. Initially, Mr. Maire was an Industrial Engineer in the Casting Division of ALCOA.

MOHAN K. MANI

EDUCATION:

M.E., Mechanical Engineering, Indian Institute of Science, Bangalore, India

B.E., Mechanical Engineering, University of Mysore, Bangalore, India

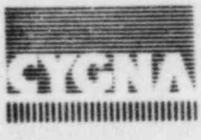
PROFESSIONAL EXPERIENCE:

Mr. Mani has eight years of experience in the nuclear power field. His specialization has been in the analysis of nuclear power plant piping systems to ASME B&PV Section III code, as well as pipe rupture analysis utilizing computer programs. He has been involved in the development of computer programs in these areas.

As a research engineer in Cygna's Research & Development Division, Mr. Mani is working on developing and maintaining Company proprietary CAE (Computer Aided Engineering) systems. These computer programs make use of interactive graphics interfaces that enable the engineers to work more effectively. As a part of this experience and advanced course work, Mr. Mani has developed a familiarity with industry graphics standards and the conversion of programs from one machine to another.

Prior to joining Cygna, Mr. Mani was employed by major A/E and consulting engineering companies where he was responsible for performance of the following representative projects: development and maintenance of a public domain piping analysis computer program; pipe rupture analyses on several nuclear power plants; piping analysis to ASME B&PV Section III code on several nuclear power plants; and development and maintenance of an in-house computer program for pipe rupture analysis.

The above analytical experience included extensive use of piping codes such as PIPESD, SUPERPIPE, PISOL, ANSIS and STRUDL.



THINH DUC NGUYEN

EDUCATION:

Doctorate, Mechanical Engineering, University of Lyon, France

Post Graduate Certificate, Applied Mechanics, University of Lyon, France

B.S., Mechanical Engineering, Ecole Centrale de Lyon, France

Certificates in Mechanics, Engineering Mathematics, Fluid Mechanics and Engineering Electrics, University of Lyon, France

PROFESSIONAL REGISTRATION:

Registered Professional Engineer, California

PROFESSIONAL EXPERIENCE:

As a Senior Engineer at Cygna, Dr. Nguyen is currently assigned as the piping project engineer for the Yankee Nuclear Power Station at Rowe, Masachusetts. This work includes the stress analysis of the piping to the SEP requirements. Dr. Nguyen has personally performed the analyses of those systems requiring special techniques such as displacement time history analyses or inclusion of the structural mass and stiffness in the piping model.

Dr. Nguyen was previously assigned as pipe stress group leader for the La Salle Unit 2 CRD piping analysis. In this function, he was responsible for issuing design criteria and work instruction, coordinating work with the frame analysis group, and liaison with the client. Dr. Nguyen performed parametric studies which allowed the large number (370) of CRD lines to be qualified by the analysis of very few. In a similar position for the La Salle Unit 1 CRD piping, Dr. Nguyen's responsibilities included:

- sensitivity study of static, seismic, and hydrodynamic analyses of the CRD system composed of 370 similar lines. Analysis was principally performed through mode shape studies.
- evaluation of seismic anchor movement, Annulus Pressurization displacement from time history data.
- generation of matching response spectra from time history and envelope spectra to use for each system.
- time history analysis for Annulus Pressurization displacements.
- study of a simplified model for the Hydraulic Control Unit.

DUC THINH NGUYEN
(continued)

- establishing standards, such as charts related to maximum mass point spacing versus pipe sizes based on cut-off frequencies, and coding procedures conforming to ANSI B31.1 standards.

- writing procedures and final reports.

Dr. Nguyen's other project work included static and dynamic analysis of class 1 and 2 piping systems in accordance with applicable codes and standards such as ASME III, B31.1 for plants such as Vermont Yankee, Arkansas, Susquehanna, and Diablo Canyon. These analyses included the study of behavior of supports, finding the appropriate type of support through load, stress, and mode shape considerations; selection of spectra to be used according to eccentricity, elevation, location of attachment points, and envelope of spectra; evaluation of the applicability of previous thermal analysis to the suggested changes to the systems (cutting a relatively big system to small ones and using the overlapping techniques).

In the performance of the work detailed above, Dr. Nguyen has acquired extensive experience in the use of computer programs such as PIPESD, INSPEC, ADLPIPE, NEWSPECTRA, and ANSYS.

Dr. Nguyen's previous industry experience included serving as a senior engineer for an American architectural/engineering firm based in Saigon, Viet Nam. During this time he concurrently provided private consulting engineering services for a construction firm in Saigon, Viet Nam, which involved the study of unsteady flow in canal networks, hydraulic reduced scale models of outlets, gates, dams, and basins of dissipation of energy.

Dr. Nguyen's academic experience includes holding the position of Professor and Dean of the School of Engineering, National Institute of Technology, Saigon, Viet Nam, for eight years. For five years, he was Assistant Professor at Ecole Centrale de Lyon, France. Dr. Nguyen concurrently performed research in the reduced scale compressor project for the Chatou Thermal Power Plant, France.

THESIS:

"Study of the Secondary Effects of the Flow at the Extremity of Blades in an Axial Compressor." The research was closely related to the rotating stall phenomena in axial compressors.

JOHN P. RUSS

EDUCATION:

M.S., Civil Engineering, University of Illinois, Urbana, IL

B.S., Civil Engineering, Purdue University, West Lafayette, IN

PROFESSIONAL ACTIVITIES:

Member, American Society of Civil Engineers

Associate Member, American Concrete Institute

Member, Chi Epsilon

PROFESSIONAL EXPERIENCE:

Mr. Russ has over two years of experience with Cygna in structural, piping and field work. His experience includes:

- Extreme weather phenomenon analysis and seismic analysis for Yankee Nuclear Power Station at Rowe, Massachusetts.
- Pipe support design for Comanche Peak, Glen Rose, Texas.
- Field engineering of pipe support and piping modifications for the Yankee Nuclear Power Station at Rowe, Massachusetts.
- Verification of existing conditions for pipe support modifications for the Diablo Canyon Nuclear Power Plant - Unit 1, San Luis Obispo, California.
- Field surveillance and qualification of air-handling units for the Washington Public Power Supply System - Unit 2, Hanford, Washington.
- Site verification of feasibility of structural modifications to the turbine building at the Yankee Nuclear Power Station at Rowe, Massachusetts.

Prior to joining Cygna, Mr. Russ was employed by a major aerospace company where he was responsible for the development of finite element models for the purpose of dynamic and quasi-static analyses. He was also employed by a major architect-engineering firm where he was responsible for the development of a computer model for seismic-analysis and the checking of structural design calculation.

Mr. Russ also has experience in the development of cost-performance studies on public works projects and in the material estimation of construction projects.

CYGNA

STEVEN C. WHITE

EDUCATION:

B.S., Geology, University of Massachusetts, Amherst, MA

M.S., Geology, University of New Hampshire, Durham, NH

PROFESSIONAL EXPERIENCE:

Mr. White has eight years experience in quality assurance in the nuclear power generation industry. While at Cygna, Mr. White has served as Project Quality Assurance Engineer for several projects involving field walkdowns and structural modifications in response to NRC I&E Bulletins 79-02 and 79-14, and Field Quality Control Supervisor for blockwall modifications in response to NRC I&E Bulletin 80-11 and for various subcontractor surveillances to verify conformance to client requirements. Mr. White also served as a member of a spare/renewal parts task force with responsibilities including receipt inspection and determination of appropriate quality categories. Most recently, Mr. White was a member of a review team for an Independent Design Verification Program.

Mr. White's previous experience was as Weston Geophysical's Quality Assurance Manager. In this capacity, Mr. White's responsibilities included the development and implementation of a Quality Assurance Program for Weston's geological, geotechnical, geophysical and seismological consulting services. This included the control of policies and procedures to maintain compliance with 10CFR50, Appendix B; procurement control and control of purchased services; maintenance of a document control system, including computer software documentation; maintenance of a calibration system to control the use of measuring and test equipment; maintenance of a corporate personnel indoctrination and training program; maintenance of a comprehensive audit/surveillance system to control both internal corporate activities and external supplies activities.

Mr. White responsibilities also include providing quality assurance consulting services to utilities and design engineers in conjunction with national and international nuclear siting projects.

An earlier position as a Staff Geologist provided Mre. White with experience in the technical aspects of nuclear siting projects.

CHUN K. WONG

EDUCATION:

M.S., Structural Engineering, University of California, Berkeley, CA

B.S., Civil Engineering, University of California, Berkeley, CA

Ordinary Certificate Building Construction, Hong Kong Technical College, Hong Kong

PROFESSIONAL REGISTRATION:

Registered Professional Engineer (Civil), California

Registered Civil Engineer, Ontario, Canada

PROFESSIONAL EXPERIENCE:

Mr. Wong is currently an Engineering Supervisor in the Engineering Design Division at Cygna. He was assigned as Project Engineer for the design and analysis of the Control Rod Drive System for LaSalle Units 1 and 2. In this position, he was responsible for scheduling work and leading a group of ten engineers in the design of the support frames. His group used the ANSYS computer code to develop stiffnesses for the frames (for input to the pipe stress work) and to perform the final designs.

Previously, Mr. Wong worked on the Limerick Generating Station project. He coordinated and supervised stress analysts in the performance of the analyses of piping systems in accordance with ASME III and B31.1 codes, and reviewed and approved stress calculations. For the Peach Bottom project, Mr. Wong coordinated and supervised analysts in the performance of NRC IE Bulletin 79-14, as-built analysis of nuclear piping systems. Mr. Wong also served as senior stress analyst, for the Surry Power Plant project and performed NRC 79-14 computer analysis of nuclear piping systems.

Mr. Wong has also worked on such major projects as: Humboldt Bay Nuclear Power Plant, for which he performed dynamic seismic analysis of plant structures and soil-structure interaction analysis; Susquehanna Nuclear Power Plant, for which he performed pipe rupture time-history analysis of piping systems; Yankee Nuclear Power Station, for which he performed dynamic analysis of spent fuel pool; and Geyser Steam Gathering, for which he performed stress analysis of piping system.

During his course of work at Cygna, Mr. Wong has gained extensive experience in structural dynamics and in the use of many commercial and Cygna proprietary programs such as ANSYS, PIPESD, PSA, SAPIV, NUPIPE, ME101 (Bechtel Piping Program).