

San Francisco

March 1989

FROM TOM O'NEILL...

Elsewhere in this newsletter you will find an article describing officer and management changes at Tudor, including my appointment as company President. I am of course grateful and honored at this assignment, but I would be less than candid if I did not confess that I am also a little humbled at the realization of my dependency on the good will, competence, enthusiasm, and all those other things that make up the essential factors for Tudor personnel — not only me — to lead us in our continuing role as a healthy and outstanding consulting engineering organization. Tudor enjoys a remarkable reputation in the public works community as a reliable and trustworthy consultant, and I pledge my best efforts in continuing and enhancing this reputation. By all of us working together, we can enjoy Tudor's success for many years to come.

FROM PHOENIX...

The Phoenix office continues to prepare data on four alternatives for Grand Avenue. This information will be input to the environmental studies being conducted by ADOT. Public involvement meetings begin in April.

During February the Ellegood's held their third annual Mardi Gras celebration which was covered on Phoenix television and attended by many guests from throughout

Arizona. This affair has come to be a well recognized Phoenix community social activity.

FROM SEATTLE...

The Seattle office is working with Deloitte, Haskins and Sells on a project for the Washington State Legislative Transportation Committee to evaluate the cost of accomplishing construction and maintenance projects by government agency personnel as compared to accomplishment by private contractors.

Tudor's involvement includes providing input to DHS and providing on-call inspection of projects being constructed by government personnel. Government participation includes six cities, four counties, and two districts of the State Department of Transportation.

Einer Handeland is Tudor's project manager. He is assisted by the entire Seattle staff on an "as-needed" basis.

NEW OFFICERS AND OTHER APPOINTMENTS...

The Tudor Board of Directors met on March 6, 1989, and made several major personnel appointments of importance to the company. Thomas J. O'Neill was named as President, with the continuing assignment of Chief Operations Officer. Robert N. Janopaul, former Tudor President, remains as Chairman of the Board and

Chief Executive Officer. Robert A. Wilkinson was appointed Vice President and Assistant Secretary with continuing responsibilities as Marketing Manager.

The Board also accepted the March 1, 1989 resignation of Paul E. Potter, former Executive Vice President and Board Member. Other appointments included naming John Williams and Donald J. Hoel trustees of the Employee Stock Ownership Plan, with S.T. Su as continuing trustee. Robert W. Myrdal was appointed Chairman of the ESOP Administrative Committee (which also functions as the Retirement Plan Committee) with new Committee Member Robert J. Cermak and continuing member Gregory A. Reichert. Bob Myrdal was also appointed the company's Affirmative Action Officer.

NEW EMPLOYEES...

The Phoenix office welcomes Holly Simmons, a University of Washington masters degree graduate specializing in transportation. Holly will be working with John Merritt in traffic engineering.

The San Francisco office also welcomes Odilon Dris who is a new CADD operator.

WORK BEGINS ON ARGONNE PROJECT

On February 10, Randy Wilkinson travelled to Chicago to participate in the signing of the contract

between Argonne National Laboratory and Lester B. Knight & Associates, Inc. (LBK) for design services to be provided to the Laboratory for a new 7 GeV Advanced Photon Source particle physics facility. Tudor is a major subconsultant to LBK, and will be responsible for the structural design of the facility. This includes the ring structure that houses the acceleration system and related support facilities.

Heinz Mueller and Diana Lee have been assigned to the project and are now in residence in Chicago and working in LBK offices. They are participating in the mobilization of the project office on a separate floor of LBK's offices on Randolph Street in downtown Chicago and beginning the conceptual design of the project.

TUDOR SELECTED FOR ON-CALL HYDROLOGY AND HYDRAULIC STUDIES

During February Tudor was selected by Caltrans District 7 in San Francisco to provide on-call hydrology and hydraulic studies and drainage plans, specifications, and estimates for various assignments in San Francisco, San Mateo, Contra Costa, Marin, Napa, and Sonoma Counties. Project specialists will include Dave Willer, S.T. Su, Roberto Iniguez, Bob Cermak, Steve Van Til, Bob Toothman, Dewitt Jensen, Pete Paterson, and other Tudor hydrology, hydraulics, and highway drainage specialists. The

Project Administrator will be Tom O'Neill.

Work assignments will be issued by the San Francisco Caltrans district to Tudor for engineering tasks to be accomplished in the six Bay Area counties under this contract. Specific personnel will be assigned to the assignment in accordance with the work to be accomplished. The first project will probably be assigned this summer.

TUDOR RECEIVES CSI AWARD

We have been advised that Tudor has been selected for an award from the Construction Specifications Institute for the Central Oregon Siphon Power Project. This project, presently under construction, is a power generation facility which was designed by Tudor for the Central Oregon Irrigation District. The award was for Honorable Mention for CSI Category I projects and will be presented to the company in June in New Orleans.

The Central Oregon Siphon Power Project was managed at Tudor by Greg Reichert and Paula Dierkop was Project Specifications Engineer. Total construction cost is about \$9 million.

NAS ALAMEDA HANGAR OPENED

In late January Lou Salaber and Heinz Mueller were invited to participate in

opening ceremonies for the Aircraft Corrosion Control Facility at NAS Alameda. Tudor was the prime consultant for the project and was responsible for project management, civil engineering, and structural design. This \$15,000,000 facility will strip paint and remove corrosion from aircraft prior to other maintenance operations.

The facility includes a 55,000-square-foot steel-framed, metal-clad hangar supported on piles; a support building containing fire protection systems; a treatment plant for treating industrial waste from the chemical stripping operations; and other facilities.

Conceptual design commenced in late 1982 and actual construction was completed in early 1987. Since that time major modifications were required in consideration of revised standards for air quality and waste products.

LATE NEWS

We have just learned as we go to press with this newsletter that Tudor has been selected for two major projects: Addition of lanes to Highway 99 in Kern County for Caltrans (Bob Cermak, project manager), and design of major bridge structures at the Concord, California, Naval Weapons Station (Lou Salaber, project manager). Congratulations to the teams that pursued and won this work for us!

San Francisco

April 1989

SEATTLE PROJECT NEWS

Gallagher Hill Road - Bids for the construction of the Gallagher Hill Road project on Mercer Island were opened in early April. The low bid was well under the engineer's estimate. Tudor was responsible for the preliminary and final design of the project and will provide construction services.

Waterfront Streetcar Extension - Tudor has completed the design of the Waterfront Streetcar Extension project and is negotiating a supplement with Metro for on-call services during construction. Construction is scheduled to start in the summer and be completed in time for the Goodwill Games in June, 1990.

I-90 Luther Burbank Lid to North Mercer Undercrossing - Tudor has signed a supplement to our design contract with Washington State Department of Transportation to provide on-call services during construction. Construction is scheduled to start in mid-summer.

West Seattle Bridge II - Tudor has signed a contract and is currently providing construction services to the City of Seattle for the West Seattle Bridge II. Construction is scheduled to last two and a half years.

WELCOME TO NEW EMPLOYEES

We extend our welcome to new Tudor employees Bob Cuhley, a Senior Engineer in the Phoenix office, who will provide drainage, right-of-way, and utilities engineering; Joann Boorsma who is a right-of-way specialist working in Phoenix; Wendy Ross and Bernadette (Bambi) Solana working in accounting in San Francisco; Jane Mahon, an Engineering-Aide in Phoenix; and Kathleen Page, a secretary in Phoenix.

...AND WELCOME BACK TO SOME OLD ONES

We welcome back to our staff two old-timers at Tudor.

Rainer Rungaldier has been called back from his short retirement to assist with the Dublin-Pleasanton BART extension project. Rainer is also scheduled to play a significant role in the BART General Engineering Consultant support services we will be providing.

Marcus Rodrigues rejoined Tudor after a long absence and is working with Lou Salaber on the Durham Road Interchange project. Marcus worked with Tudor in the BART years and thereafter. He was one of the first Tudor staff members to be assigned to the Seattle office.

Tudor is happy to welcome Peter De Boldt back to full-time status in the Seattle office. Peter has been on a two month sab-

atical pursuing other interests.

WORK BEGINS ON SR-178 STUDY IN BAKERSFIELD

Tudor, working as a subconsultant to Boyle Engineering Corporation, has begun work on the extension of State Route 178 in Bakersfield. This existing four lane freeway currently ends about two miles east of its planned termination at SR-99, with traffic routed through Bakersfield city streets. The continuation of the freeway was halted many years ago due to the objections of property owners and citizens in the area of the planned extension. Traffic has now grown to a point that the extension of the SR-178 freeway must be reconsidered. Construction cost of the extension will exceed \$50 million.

A "kick-off" meeting with Caltrans representatives was held in March. Tudor will provide geometric and highway design services for the feasibility level studies for the Caltrans Project Approval Report, including engineering input to the environmental studies for the project.

This is a "fast-track" project with our work scheduled for completion in August. Tudor staff includes Tom O'Neill, as project sponsor, Bill Hordan, Jim Schroeder, Einer Handeland, and Heidi Ouren.

FOUR HYDRO PROJECTS SCHEDULED FOR STARTUP

It will be very difficult to catch our electrical and mechanical engineers in the San Francisco office during the next few months. Ron Dusterdick, Bill Untiedt, Don Guild, and Kuen Chen will all be heavily involved in the startup of the Broadwater (Montana), Stagecoach (Colorado), Abiquiu (New Mexico), and Siphon (Oregon) power projects. The four projects include a total of six turbine generator units and will add 28.9 megawatts of generating capacity to the operating list of Tudor-designed hydro facilities. All four facilities are scheduled for startup testing in the period April through June.

ABIQUIU TUNNEL REOPENED

The Corps of Engineers reopened the Abiquiu discharge tunnel on March 10 after construction completion of the Tudor-designed plenum chamber by Bechtel Civil Construction Incorporated. The tunnel had been shut down since November 15 so that the penstock could be connected to the tunnel at the discharge portal. While the tunnel was shut down, all water releases from Abiquiu Reservoir were pumped over the top of the dam.

SPECIAL ASSIGNMENT - JAPAN

Clyde Earnest and Don Guild have been on special assignment in Tokyo working on a claims analysis for Fuji. We expect to have them back in San Francisco in early April.

CONCORD BRIDGE PROJECT

As we went to press for the March newsletter we were just advised of the selection of Tudor for the Concord bridge project for the U.S. Navy. Some details of this project are as follows:

There are two roughly parallel bridges to be designed, one to handle vehicular traffic within the base and one to handle railroad traffic. Both structures will pass over Port Chicago Highway. The vehicular bridge will be a two-lane three span structure about 350 feet long, probably of box girder construction. The railroad bridge will be an eight to ten span structure about one-quarter mile long, probably a post tensioned through girder superstructure. The construction cost will be in the order of \$10 million. Related work includes relocation of the Base entrance, construction of a guard house and security office, and about one mile of track relocation.

Key personnel supporting Lou Salaber as project manager include Perry Lin, Jun Quiray, and DeWitt Jensen.

San Francisco

May 1989

FROM BOB JANOPAUL...

The Tudor Annual Stockholders' meeting was held this year on Saturday, April 28, 1989, at the Radisson Inn in South San Francisco.

A total of 20 Tudor stockholders participated in the meeting which extended from 9:00 AM through lunch. Items discussed included a detailed review of the recently completed financial statement by our auditor, Deloitte, Haskins & Sells; reports on stock sales, retirement plan, and stock plan; election of the Board of Directors; and roundtable discussions of ownership transfer.

The new Board of Directors, in addition to myself, includes Tom O'Neill, Doug Mansfield, Bob Myrdal, John Williams, Mike Ellegood, and Clyde Earnest, with Clyde, in effect, replacing Paul Potter on the Board.

PAUL POTTER RETIRES

The March and April issues of this newsletter failed to note the retirement of one of Tudor's most notable engineers. Effective the end of February, 1989, Paul E. Potter retired from active employment with Tudor Engineering Company. Paul leaves the company after 37 years of service, dating back to 1952 when Paul joined us as employee number 17 after receiving his masters degree from Yale. Paul worked on many of the most significant

Tudor projects, and was particularly specialized in structural engineering, bridges, and transit, progressing from a design engineer to executive and senior vice president and a member of the Board of Directors. He will continue to be available to us on a consulting basis.

Paul's service to Tudor will be recognized at the annual San Francisco office Christmas party.

TUDOR SELECTED FOR SR-99 WIDENING IN BAKERSFIELD

Tudor has been selected by Caltrans to provide engineering services for the widening of 5 miles of SR-99 in Bakersfield. The work will be separated into two parts. Phase 1, Project Report and Environmental Document, will evaluate adding lanes in the median, adding auxiliary lanes on the outside, or adding lanes in the median and restriping the outermost lane to act as an auxiliary lane. Phase 2 will involve the preparation of plans, specifications, and estimates for the recommended option. Bob Cermak will be responsible for project management, geometrics, drainage, and report preparation. Einer Handeland and Darrel Chambers will organize the traffic data collection and perform the traffic analysis. Karen Yapp will be responsible for the CADD preliminary geometrics drawings. Amy Rudell, LSA

Associates, will perform the environmental assessment and Wiley Pierce, Harris Consulting Group, will be the project surveyor. Phase 1 work is expected to begin this summer.

...AND FOR REHABILITATION OF ROUTES 129 AND 9 IN SANTA CRUZ COUNTY

Early in April Tudor was also selected to provide plans, specifications, and estimates for segments of Routes 129 and 9 in Santa Cruz County. The Route 129 project involves extensive interchange modifications at Highway 1 near the Monterey County line, including bridge widening at the overpass. The Route 9 project consists of roadway rehabilitation beginning near the Santa Cruz city limits to Paradise Park. Bob Toothman will be the project manager with Tom O'Neill as the project sponsor. Subconsultants include Geo/Resource Consultants and Harris Consulting Group.

TUDOR PARTICIPATION IN NEW DENVER AIRPORT

Last month Tudor began providing services to Parsons-Brinckerhoff on the New Denver Airport. These services primarily consist of structural engineering for the Automated Guideway Transit System (AGTS) which will operate between terminals of the new airport -- the largest in the world when it is scheduled to be opened in the

1990's. The tunnel is a major component of the airport, and will be a cast-in-place cut and cover concrete structure for movement of people, baggage, and utilities.

Harry Jasper has been assigned to Tudor's Denver office for the duration of this assignment which is expected to last for one year. Harry will be working in Parsons Brinckerhoff's offices in Denver for this assignment.

LATE NEWS — TUDOR SELECTED FOR CALTRANS DISTRICT 3 ON-CALL PRELIMINARY ENGINEERING

As we go to press we have just learned that we have been selected for on-call preliminary engineering services for Caltrans District 3, headquartered in Marysville. Services will consist of preliminary engineering studies and reports in Caltrans format for work throughout District 3 counties, i.e., Glenn, Butte, Sierra, Colusa, Sutter, Yuba, Nevada, Yolo, Placer, El Dorado, and Sacramento Counties. Tudor was one of six firms considered for this assignment. Randy Wilkinson will be the Contract Administrator/Project Manager, and Bob Cermak will be Project Engineer. Alternative Project Engineers may participate in the on-call services, dependent upon the nature of the requested studies. Amy Rudell of LSA Associates will provide environmental studies

and traffic modeling.

NEWS FROM PHOENIX

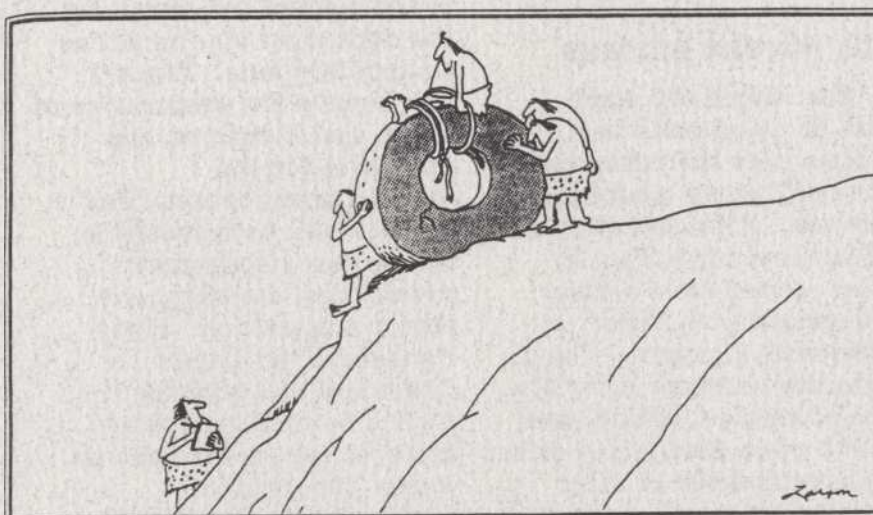
Congratulations to Wendy Fowler, the new Office Administrator for Phoenix!

FROM TOM O'NEILL...

Elsewhere in this newsletter, and in previous issues, you will note that Tudor personnel have been assigned or moved to many locations away from their home office and residence: Harry Jasper in Denver; Heinz Mueller, Diana Lee, and Kirit Shah in Chicago; Jun Quiray in San Francisco; etc. — not to mention those that are involved in the construction programs of our clients. These assignments, and this travel, as well as others of shorter duration, have always been an essential activity of our business; indeed, without

the historical willingness and enthusiasm of our personnel to undertake such assignments, we could not practice our profession and our company could not survive as we have come to be recognized.

While the experience of travelling may be exciting and professionally rewarding, I recognize that these travels and physical moves present hardships of varying degrees to you and your family. I personally will always endeavor to see that our employees receive the maximum benefit — professionally and economically — possible for the inconveniences you may suffer as a result of these travels. Tudor is in debt to those of you who undertake these assignments, and be assured that it is recognized.



Early experiments in transportation
(about the time that Paul Potter joined Tudor)

San Francisco

June/July 1989

CONSTRUCTION SERVICES

by Tom O'Neill

Since the foundation of Tudor Engineering Company, the provision of services during construction has been an important part of our work as an essential element in safeguarding the intent of the design for our clients.

Major early and recent projects for which we have provided such services include numerous bridges in the northwest, the Tri-Dam project in California, the Tagus Bridge in Portugal, and the BART and MARTA transit projects in San Francisco and Atlanta. We continue to provide these services to our clients under the management and direction of Tudor Vice President Clyde Earnest. Clyde currently has four active projects for which we are responsible. These projects and the responsible field personnel are as follows: (1) North Stanislaus Power Project, Calaveras County, California (Fred Estep, Ray Buffington, Fred Ford, Gary Lee); (2) Oregon Siphon Project, Bend, Oregon (Robert Beal); (3) Broadwater Hydro Project, Toston Dam, Montana (Kurt Scholz); (4) Abiquiu Power Project, Los Alamos County, New Mexico (Bill and Jimmy Gray, Mike Gazit).

Field services during construction involve the solution of many problems that are not always apparent during the design process.

The efforts—and occasional hardships involved in field assignments—of our construction services staff is appreciated by Tudor management.

TUDOR SELECTED FOR RAYMOND CHUTE POWER PROJECT

Tudor, in association with UMA Engineering, Ltd., has been selected to provide engineering services for the 18 megawatt Raymond Chute Hydroelectric Power Project in Alberta, Canada. Services will consist of preparation of the project design report which will include operations studies, turbine and generator type selection, and preliminary cost estimates. Greg Reichert will be Tudor's project manager. Estimated construction cost is \$13 million.

TUDOR SELECTED FOR ON-CALL SERVICES FOR CALTRANS/LOS ANGELES

In late June, Tudor was interviewed for on-call civil engineering services for highway projects in Los Angeles. The Tudor presentation was made by Mike Ellegood, John Merritt, Pete Paterson, and Bob McLaughlin. In early July we were advised that Tudor was selected for this work. Jim Schroeder will serve as our project manager.

TUDOR SELECTED FOR SQUAW PEAK HIGHWAY DESIGN

In early July, Mike Ellegood was advised by the Arizona Department of Transportation that Tudor was selected to provide design services for a 1.3 mile segment of the Squaw Peak Highway (Section 2) in Phoenix. The project involves preparation of plans, specifications, and estimates for an urban freeway with a bridge, roadways, and retaining and sound walls. Dick Rudolph will serve as project manager, with Bob McLaughlin as project engineer. Construction cost is \$14 million.

WORK CONTINUES ON MARTA

The MARTA board of directors met in June and voted to continue PBT services through fiscal year 1990, including options for services somewhat beyond that originally anticipated, particularly for engineering services in connection with the North Line extension. This will mean the continued significant presence of Tudor on this project through June 1990. Doug Mansfield represents Tudor on this project, and functions as the joint venture division manager of engineering.

June/July 1989

San Francisco

NEWS FROM SEATTLE

The Seattle office has been selected by Mercer Island to provide street improvement services for Island Crest Way. The project will involve resurfacing of 1.5 miles of an arterial street with traffic engineering services and landscaping, with an anticipated construction cost of approximately \$1 million.

Don and Judith Hoel represented Tudor at the I-90 all day ribbon-cutting ceremony in Seattle on June 4 in celebration of the completion of Interstate 90 in Washington--and the essential completion of this coast to coast route. Tudor played a significant role in this \$1.5 billion project through downtown Seattle and Mercer Island.

The Seattle office is pleased to have Holly Simmons, formerly of Tudor/Phoenix, assigned to Seattle. Holly is a native of Washington and has a masters in civil engineering from the University of Washington, specializing in pavement design.

AN ADDITION TO THE LEMCKE FAMILY

Congratulations to Elise and Ulrich Lemcke in Atlanta on the birth of their son, Christopher William, on May 12th.

DAVE WILLER RETIRES

Effective June 30, 1989, Vice President David C. Willer formally retired from Tudor Engineering Company. Dave will continue to assist us in San Francisco and elsewhere on a part time basis as a consultant.

Dave began his career with Tudor in 1966 as a water resources specialist. Major assignments included residency in Buenos Aires, Argentina, where Dave served as a consultant for the city water supply system, the Santa Clara County Baylands flood study project, and many hydroelectric projects in the Sierra Nevada and elsewhere. Dave is particularly specialized in small hydro, and is a recognized authority in the development, financing, and permitting of complex small and medium hydroelectric facilities. We intend to continue using Dave's talents in the future years as a Tudor consultant.

San Francisco

August 1989

NEW WORD PROCESSING SYSTEM FOR SAN FRANCISCO OFFICE

The San Francisco office is in the process of transferring the word processing operations from the NBI dedicated system to the Microvax II, using Wordperfect software.

In mid-August, the word processing center will move from the sixth to the fifth floor, and, shortly thereafter, all new documents will be produced on the Microvax using Wordperfect. The NBI system will be phased out as current jobs are finished. Any NBI documents which are needed for long-term future use can be converted to the new system.

The final phase of the plan is to provide authors with access to Wordperfect, so that drafts can be input directly, rather than written by hand, and then electronically transferred to a word processor for formatting, polishing and final printout.

FROM PHOENIX...

As reported in last month's newsletter, Tudor has been selected to provide design services (PS&E) for the Squaw Peak Project--a \$14 million urban highway in Phoenix. This 1.3 mile project is being performed for the Arizona Department of Transportation and includes a bridge structure, noise walls, and roadway design.

Negotiations for these services are progressing, with an expected notice to proceed in mid-August. Dick Rudolph will be Tudor's project manager for this assignment.

Congratulations to Craig and Tracy Force on the arrival of their son, Gregory Force. Congratulations are also appropriate for Wendy Fowler who has been promoted to project controls manager.

FROM SEATTLE...

The Seattle office reports that construction of the Waterfront Streetcar extension into historic Pioneer Square and the International districts officially began with the ground breaking ceremony on Tuesday, July 25th. Dr. Gary Zimmerman, chairman of the Metro Council, was the Master of ceremonies and George Benson, Metro and Seattle city council member, was the keynote speaker. Tudor was well represented by DeWitt Jensen, Patty Arnquist, Rosemary George, Peter De Boldt, and Einer Handeland. The project manager was Don Hoel, with much assistance from DeWitt Jensen.

The new four-lane Interurban Bridge across the Duwamish River south of Seattle was officially opened on August 1st with a ribbon-cutting ceremony. Tudor has been involved with this project since 1984, beginning

with conceptual design and ending with on-call construction services. Don Hoel was the project manager.

TUDOR OPENS LOS ANGELES OFFICE

In August Tudor's offices in Los Angeles were opened near the Los Angeles International airport at the Integrated Resources Airport Center at 9841 Airport Boulevard. Jim Shroeder will serve as office manager with initial assignments of the Harbor Freeway improvement project and providing on-call civil engineering services for Caltrans District 7, as well as providing assistance on the Bakersfield and other highway projects for Caltrans. Don Payne and Ruben Aguilar are being transferred from Phoenix to assist Jim.

DENVER INTERNATIONAL AIRPORT

Harry Jasper reports from Denver that the "project booklet phase" to define criteria for the design of the automated guideway transit system (AGTS) tunnel was completed in June. Preliminary design of the tunnel box structure and mechanical and electrical subsystems is presently under way with a 35 percent drawing completion submittal due in mid-September. Design is complicated by the interface of closely related designs of the terminal

building, concourse buildings, apron pavement, utilities, AGTS train system and maintenance facility, and the air traffic control tower.

Construction documents for the \$43 million tunnel facility are scheduled to be completed by April of next year and a one year construction period is planned. Tudor project participation will extend well into 1990.

LES HELGESSON HONORED

Leslie A. Helgesson, a founding partner of Tudor Engineering Company and past Board Chairman, visited Tudor offices with his wife, Agnes, July 11, 1989, on the occasion of his 85th birthday. Les and Agnes toured the office and were present at the hanging of Les's photograph alongside Ralph Tudor's in the entryway as one of the founders of the company.

COLDWATER-JOHNSTON HYDROELECTRIC PROJECT AWARDED

The U.S. Forest Service office in Vancouver, Washington, has awarded Tudor, in association with others, the design of a number of facilities for the Mount St. Helens National Monument in the area of Coldwater Lake and Johnston Ridge.

The project includes the final design and preparation of construction bid documents for a high head 750 Kw hydroelectric facility, two

small water treatment plants, power distribution network within the complex, and for a telemetry system.

Tudor will design the civil, structural, and mechanical portions of the work. Most of the work will be performed in Tudor's Seattle office. The project manager will be Pete Paterson.

NEW TUDOR STAFF

Since the last newsletter, several new employees have joined Tudor in San Francisco as a result of the need to build our staff to meet our job requirements and the expansion of the company. These new employees include the following:

John Selin is a civil engineer specializing in rail and highway engineering with twenty four year's experience and a B.S. from City University of New York. He joins us from Morrison-Knudsen Engineers.

Howard Fields is a specialist in computer systems and CADD with a degree in architecture from Berkeley with 10 year's experience. Howard formerly managed Morrison Knudsen-Engineers' CADD and scientific computing department.

Johnson Wong is a civil engineer specializing in structures with eight year's experience. Johnson comes to us from URS/Blume with his B.S. from the University of Illinois and M.S. from Berkeley.

Etty Mercurio is a civil engineer with a B.S. from U.C. Davis and five year's experience at Bechtel where she specialized in dynamic analysis of structures and base isolation. (Etty is the daughter of former Tudor employee Andy Lamore).

Stephanie Soley received her M.S. in structural engineering this spring, and holds a B.S. from the University of Maryland. She has undergraduate work experience in transportation and structures.

Gus Dagher received his B.S. in civil engineering from the University of North Carolina and has undergraduate experience in transportation.

Other recent personnel matters: a belated welcome to Gary Lee, a specialist in mechanical systems and power generation with degrees from Purdue University....Welcome to Mike Gazit as a regular employee who transferred from an hourly employee status in early July--also a specialist in mechanical systems and the designer for the spillway gates at Itaipu, one of the largest gate systems in the world....Welcome back to Sanae Lame who is heading

San Francisco

October 1989

FROM BOB JANOPAUL

I'm sure that all Tudor employees have learned of the announcement in mid-September of the merger of Tudor into American Capital and Research Corporation. We hope that these arrangements will be ratified by the Tudor stockholders in October. By the end of this year Tudor should be fully merged into the ACR family. As I stated in my memorandum to all employees, however, we will remain an independent operating unit of ACR, retaining the name of Tudor Engineering Company and continuing to capitalize on the excellent reputation that all Tudor employees have helped build. I hope you share my enthusiasm in the expanded opportunities for us all that this merger presents, including working with our sister ACR firms in the Bay Area, Kaiser Engineers and CYGNA.

As I advised the San Francisco office staff when I spoke to them about this matter, any member of the Board of Directors, including myself, is available to all of you to answer questions you may have regarding this change in ownership.

LINCOLN BYPASS STUDY BEGINS

Earlier this year Tudor was awarded a contract by Caltrans for "on-call" services for District 3. In September we received our first task

order under this contract: a traffic engineering study to develop traffic volumes of various alternative bypass routes around Lincoln, California, near Sacramento. At Caltrans' suggestion, the firm of Omni-Means, Ltd. of Roseville, California has been retained as a subcontractor for traffic modeling. Bob Cermak is the project engineer and Randy Wilkinson the Tudor sponsor for the assignment.

Additional task orders are anticipated in the near future under this contract.

WORK BEGINS ON SR-99 IN BAKERSFIELD

In August, Tudor began work on the preparation of preliminary engineering plans, project report, and environmental documents for the widening of State Route 99 in Bakersfield. This project involves widening of 5 miles of freeway from 6-lanes to 8-lanes. Two options will be examined: adding lanes in the median, and adding outside auxiliary lanes between interchanges.

Bob Cermak is the project manager and Tom O'Neill the project sponsor.

FROM PHOENIX

Work is well underway on the Squaw Peak project....The Phoenix office welcomes back John Merritt as a Tudor employee.

LOS ANGELES OFFICE OPENS

Here is the address of our new Los Angeles office which is under the management of Jim Schroeder:

*Tudor Engineering Company
9841 Airport Blvd., Suite 414
Los Angeles, CA 90045
Telephone: (213) 337-9825
Fax: (213) 337-9616*

FROM SEATTLE

In recent weeks, the Seattle office has been awarded contracts for several new projects in Washington. These include traffic engineering services along with the design of a seven block boulevard for new office buildings at the East Campus of the State Capitol, Olympia (Tudor will serve as a subconsultant to Heery Program Management, Inc.); a traffic study for Port Townsend (Tudor will determine the feasibility of providing private ferry service between Port Townsend and Victoria, B.C. utilizing the old state ferry dock); a traffic study for a new junior high school in Snohomish (Tudor will analyze existing and future conditions and prepare mitigation recommendations); a feasibility study for 130th Avenue Northeast/SR-520 Ramp (Tudor will investigate feasibility of constructing a half-diamond interchange); and preliminary and final contract documents for improvements to Island Crest Way between 40th and 53rd

Streets (approximately one mile of urban arterial on Mercer Island).

The entire Seattle staff will be involved in the awarded projects.

PERSONAL NEWS

Our best wishes to Rose Dela Cruz, receptionist in the San Francisco office, who was married on September 30th to Alfred Vaquilar....The San Francisco office welcomes Mitch Yamin who is transferring from Phoenix....Welcome to Sunny House, a new employee coming from Caltrans, who has joined the Los Angeles office....Also, a warm welcome to Patrick Lee who recently joined the San Francisco office. Patrick graduated from U.C. Berkeley in May where he received his M.S. in civil engineering, with emphasis in hydraulic, river, and coastal engineering.

WATER POWER '89

Tudor was represented at Water Power '89 at Niagara Falls, N.Y., by several Tudor personnel who presented papers. The papers that were presented included Abiquiu Pumping System, Paul Kneitz; Leroy Anderson Dam, S.T. Su; and Highline Canal Hydroelectric Project, Kurt Scholz. Dave Willer also chaired one of the sessions.

STAGECOACH PROJECT

The Stagecoach project was dedicated on August 12, 1989. The former Governor of the state of Colorado, John

Love, two congressmen, and several state senators, as well as John Fetcher, the secretary-manager of the Upper Yampa Water Conservancy District, were in attendance. Ron Dusterdick, Sal Todaro, and John Williams from Tudor attended the ceremonies.

Stagecoach Dam is a roller-compacted concrete dam about 125 feet high on the Yampa River near Steamboat Springs, Colorado. The construction of the dam was completed in the fall of 1988, and the power plant was just completed this summer. Tudor designed the 1 MW hydroelectric power plant, and also participated in the design of the dam. Sal Todaro was the project engineer for dam and powerhouse structural design and Ron Dusterdick was the project engineer for the installation and startup of the hydroelectric equipment.

FROM TOM O'NEILL

In September, the State of Montana held the dedication ceremonies for the Broadwater Power project. The master of ceremonies was Karen Barclay, Director of the Department of Natural Resources and Conservation, and the main speaker was the Honorable Stan Stevens, Governor of the state of Montana.

The Broadwater project, located on the Missouri River, was designed and constructed in about two years, a monu-

mental effort for Tudor personnel. The total project cost was almost \$25 million consisting of four construction contracts: generating equipment, powerhouse, dam and spillway modifications, and substation.

Key Tudor personnel were Roberto Iniguez, project manager, Kurt Scholz, Ron Dusterdick, Bill Untiedt, and Don Guild. Kurt Scholz not only was the project design engineer for the powerhouse and dam but also served as the resident engineer from February through July 1989. Clyde Earnest was also heavily involved during the construction of the project. John Williams served as the Tudor sponsor and principal-in-charge.

The powerhouse contains a pit-type turbine that has a runner diameter of 5.5 meters (18.04 feet). Other interesting project features are the rubber dams that were installed on the existing spillway. This installation includes seven rubber dams, eleven feet high and 50 feet long. This is the largest installation of this type in the United States.

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Tudor Engineering to Join the ACR Corporate Family

In September, Tudor Engineering Company of San Francisco agreed to join the ACR family of companies. Although it will be a separate company, Tudor Engineering will work closely with ICF Kaiser Engineers (ICF KE).

"We were looking for an opportunity to move into new fields and pursue transportation, water, and energy work on a broader scale," says Robert Janopaul, Chairman and CEO of Tudor Engineering, which was founded by Ralph Tudor in the 1950s. "ICF KE is already a recognized international player in these fields," he adds.

Tudor is one of the Bay Area's larger engineering firms, with more than 150 employees. It provides technical consulting to clients involved with water resources and power generation, transportation, military facilities, and advanced technology projects. The company has been involved in over 200 hydroelectric power facilities in the western United States, and participated in the original development of the Bay Area Rapid Transit (BART) system and the Metropolitan Atlanta Rapid Transit Authority (MARTA) system.

The Tudor acquisition is the third in a series of strategic



Work on projects such as the Warm Springs Bridge in Northern California helped make Tudor Engineering a prominent Bay Area engineering firm.

acquisitions made by ACR as the firm carries out plans to build a major international engineering and construction force. Kaiser Engineers was the first -- acquired in September 1988 and later combined with ICF Technology -- and CYGNA Group was the second.

Says Bill Stitt, Chairman and CEO of ICF KE, "Tudor's exceptional capabilities in heavy civil infrastructure facilities, and the firm's considerable experience with hydroelectric power plants, strengthens ACR's engineering and construction portfolio. We are confident that

the synergies between Tudor, CYGNA, and ICF KE will make us an even stronger player in the environmental, infrastructure, and energy markets."

In addition to its headquarters in San Francisco, Tudor Engineering has offices in Seattle, Phoenix, Los Angeles, and Denver, and a permanent joint venture office in Atlanta. The firm's address in San Francisco is:

301 Mission Street
San Francisco, CA 94105
Phone: 415/543-9820
Fax: 415/543-5538

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CYGNA Group Officially Joins the ACR Family

CYGNA Group's corporate headquarters shimmers above the other buildings in sunny Walnut Creek, California. Sometimes you can judge a book by its cover. The 350,000 square-foot office complex -- which CYGNA developed, designed, and managed the construction of -- clearly reflects the energy and talent of the engineering firm inside.

Growing at an annual rate of 15-25% per year, ACR's newest family member -- the acquisition and merger were officially completed in late September -- has quickly become one of the Bay Area's largest and most reputable environmental engineering and construction firms. The 350-member firm reported revenues exceeding \$30 million in its last fiscal year. Just who is this new dynamo? Here's a primer on its operations...

CYGNA operates through its two subsidiaries: CYGNA Energy Services (CES) -- which represents roughly 80 percent of CYGNA Group's business -- and CYGNA Consulting Engineers (CCE).

CCE contains the "core" of CYGNA's original business founded in 1973. Its structural engineers have long provided seismic risk analysis services to the building construction industry, working closely with San Francisco architects. CCE is also currently working for the U.S. Navy, providing earthquake risk and rehabilitation analysis for U.S. Navy Facilities in South Carolina and Tennessee.

When the nuclear power industry experienced a building boom in the late 1970s, the company saw a chance to expand from its traditional base, and apply its seismic expertise to the construction of nuclear power facilities.

This is the niche CES filled. Today, CES provides environmental, licensing, engineering, quality

assurance, and construction and operations management services to the power and petrochemical industries. Working through ICF KE's contract at Lawrence Livermore National Laboratory (LLNL), CES is providing a third-party review of systems design changes in LLNL's weapons and lasers programs. CES is also working with Kaiser Engineers Hanford Company, of Hanford, Washington, providing specialized welding and licensing support.

ACR decided to acquire CYGNA because of the strong linkages between CYGNA and ICF Kaiser Engineers, its neighbor about 1/2 hour away in Oakland, California. Although CYGNA Group and ICF Kaiser Engineers will remain separate companies, their marketing efforts are being closely coordinated as the companies team up to pursue

work in hazardous and radioactive waste cleanup, nuclear plant engineering, and safety and operations management.

The companies have already made several joint proposals to the Department of Energy (DOE) and plan to capture work as the DOE attempts to bring the management and operations of its reactors in line with that of commercial reactors. The two companies are also currently negotiating a joint venture agreement with a Japanese corporation to provide waste management services.

In addition to pursuing work in the waste remediation field, says CYGNA Group's President and CEO Richard Stuart, CYGNA will bring ICF KE capabilities into new markets. "This country will have a power shortage in the near future and we can help ICF KE penetrate the electric utility industry," Stuart says.

Kaiser Engineers International Formed to Pursue International Work

In September, ICF Kaiser Engineers (ICF KE) formed a new subsidiary that will aggressively pursue engineering and construction assignments outside of the United States. The new subsidiary -- Kaiser Engineers International (KEI) -- will be jointly owned and operated by ICF KE and an Australian firm called Elders Resources NZFP Limited.

As you may recall, when ACR acquired Kaiser Engineers last year, ACR acquired all but the firm's Australian operations. The Australian operations were purchased by Elders Resources, a multinational firm with revenues of \$4 billion (US). As part of the deal, Elders Resources agreed to

sell 50% ownership interest in the Australian operations back to ACR after one year. It is this jointly owned and managed operation that is being renamed KEI, and will work to capture other engineering and construction jobs around the world.

Based in Hong Kong, KEI will assume responsibility for future ICF KE projects outside of the United States. Current projects will remain under ICF KE management. Some of these projects include program management and systems engineering for the \$6 billion Taipei rapid transit system, and design and construction of a \$70 million tin recovery plant in Portugal.

According to Bill Stitt, Chairman

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