

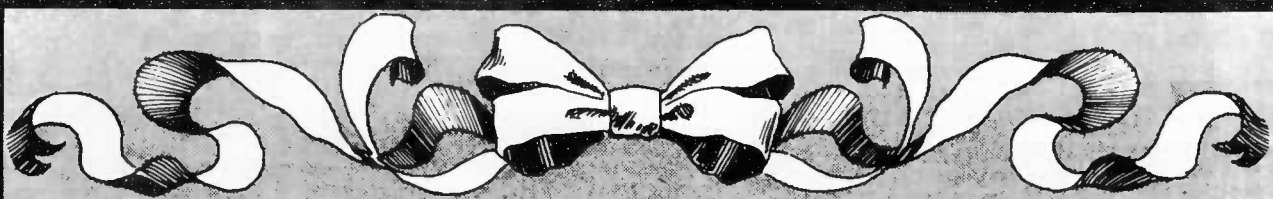
SANGAMO WESTON
Schlumberger

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NEWS ABOUT SANGAMO WESTON, SARASOTA

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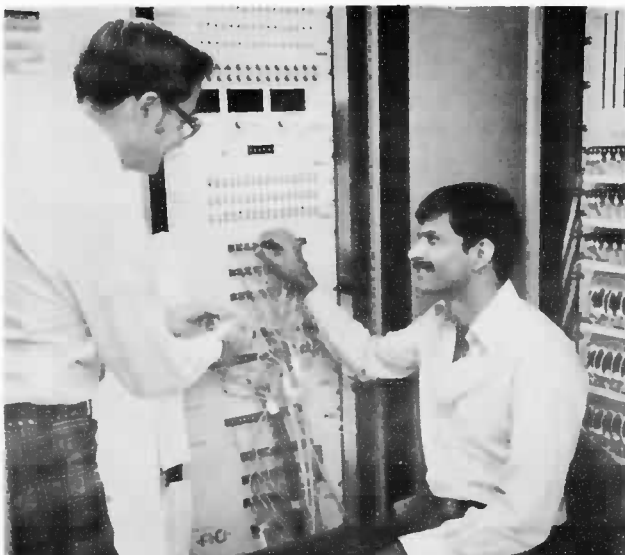
Merry Christmas and Happy New Year

OIL PRODUCTION MONITORING SYSTEMS ORDERED BY CONOCO FOR USE BY DUBAI PETROLEUM IN THE ARABIAN GULF

Customer in-plant acceptance testing is underway this month on the huge oil production monitoring systems ordered by Conoco Oil Company for use by Dubai Petroleum in the Arabian Gulf.

Our Industrial Systems group is preparing to ship the two computer-controlled systems, including 32 of our RECON III Remote Stations and Master Stations operating with our SUPCON-DOS software.

Project Engineer Hal Roberts and his team of hardware and software engineers and technicians are working with the customer's representatives to assure that the system will meet the customer's requirements before leaving Sarasota for its 10,000 mile journey to Dubai and the offshore oil platforms in the Arabian Gulf.

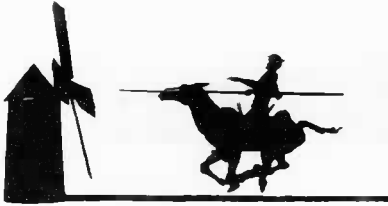


Hal Roberts and Masood Khokhar, Systems Programmer for Dubai Petroleum Company, with the system stimulator.



Chuck Berster, of Industrial Systems Software (at left) with customer representatives during in-plant acceptance testing. Center is C. Paul Murphy, Supervising Systems Technician with Dubai Petroleum, and (at right) Duane Coltharp, of Conoco Production Engineering Services.

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FROM WINDMILLS TO WIND TURBINES --

POWER FOR THE FUTURE

...Introducing the Field Service Employees working on NASA Wind Turbine Contract

For more than three years, employees from Sangamo Weston's EMR Data Systems and, currently, Fairchild Weston Systems have been working with NASA and the Department of Energy (DOE) in providing test data on the windmills of the future -- giant wind turbines for studying feasibility of wind power to produce additional sources of electricity.

These wind turbines are research and development projects to determine if wind turbines can generate power as cheaply as coal or nuclear plants. DOE/NASA windmills have progressed from the 1975 version -- a 100-foot-high tower at Sandusky, Ohio, to the newer Mod-2 units near Goldendale, Washington.

Three Mod-2 200-foot-high towers form the "first multi-megawatt electric power wind farm in the world," according to Bonneville Power Administration, the U.S. Department of Energy, and the contractor, Boeing Engineering & Construction Company.

Fairchild Weston Service personnel at work on the various wind turbine projects include Steve Prenger, Debbie Prenger and Dave Long, currently at Plum Brook Station, Sandusky, Ohio. Bud Frew is at the Goodnoe Hills location with the three "wind farm" windmills. Jim Matthews, at Wheaton, Maryland, is Contract Manager for the NASA Wind Turbine contract, and Ron VanderVliet, in Sarasota, handles spare parts, material, and technical support as required at the various sites. Ron has traveled to windmill sites, such as Clayton, N.M.; Culebra, Puerto Rico; Block Island, Rhode Island; Oahu, Hawaii; Boone, N.C.; Goodnoe Hills, Wash., Sandusky, Ohio and Palm Springs, California. Sharon Ames handles the monthly technical and financial report to NASA.

A big instrumentation van, containing our data acquisition and monitoring equipment, was delivered to NASA a few years ago. It is currently at the Washington State Mod-2 site. A Fairchild Weston mini-van travels from site to site to assist in data monitoring or service. Our instrumentation includes Remote Multiplexing Units mounted on the turbine hub (between the blades) and in the nacelle, and at the base of the tower.

The Sangamo Weston equipment collects data on the wind turbines' vibration, stress and strain, wind speed, wind direction, power, voltages, etc. NASA collects the engineering data for analysis and evaluation.



Mini-van on location at Mod-0A site in Clayton, N.M. with Dave Long (left) and Art Hallett.

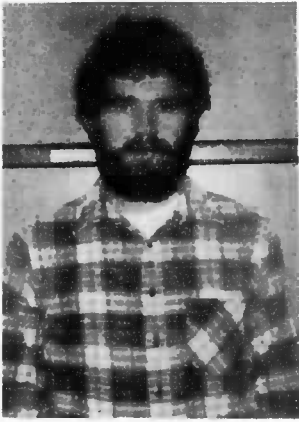
At the Goodnoe Hills site, near Goldendale, Washington, three Mod-2 wind turbines are clustered, approximately a third of a mile apart. The Mod-2 machine utilizes a two-blade steel rotor measuring 300 feet, tip to tip. The rotor is mounted to the nacelle (a 37-foot-long boxcar-shaped structure that houses the drive train, turbine generator,



Mod-2 wind turbine cluster in Washington state. Top left is the Columbia River Gorge.



FROM WINDMILLS TO WIND TURBINES -- POWER FOR THE FUTURE



Steve Prenger



Deborah Prenger



Dave Long



Sharon Ames

electronics and other equipment). Access to the top of the Mod-2 tower, 200 feet high, is provided by a ladder and by a "manlift" elevator.

The Goodnoe Hills wind turbines are used as a wind farm laboratory with Boeing, Bonneville, NASA, Batelle Northwest Laboratories, and the Solar Energy Research Institute evaluating the suitability of megawatt-size turbines as a source of electricity.

Other wind turbine projects coming along in the near future are a new Mod-4 unit at Medicine Bow, Wyoming, and a new Pacific Power & Light unit at Coos Bay, Oregon.

"NASA and DOE have indicated their satisfaction with the performance of our equipment and service personnel, and we look forward to continued success in the wind energy program," says Scott Blair, Manager of Field Service for our Fairchild Weston Systems group.

Photos of other personnel working on the NASA Wind Turbine contract will appear in the next issue of PULSE.



DOE/NASA instrumentation van as seen from the base of the nacelle, approximately 200 feet up.



Mod-0A Block Island, R.I.

FEDERAL LARGE WIND TURBINE PROGRAM

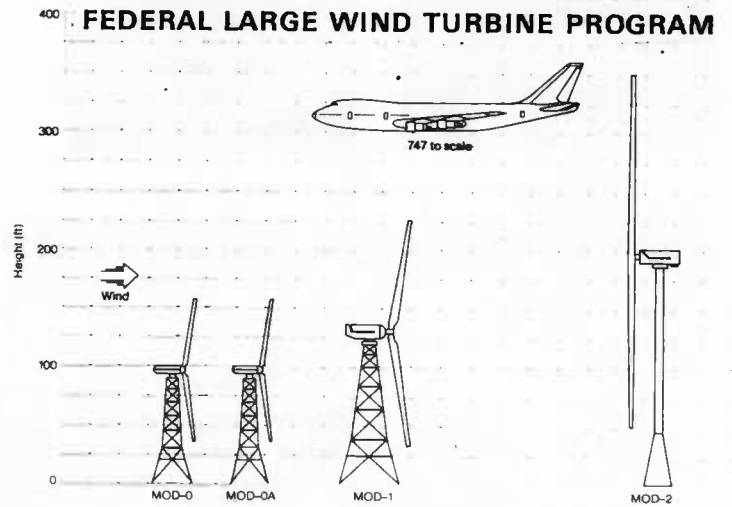


chart courtesy EPRI Journal

	MOD-0	MOD-0A	MOD-1	MOD-2
Tower height	100 ft	100 ft	135 ft	200 ft
Rotor blade span	125 ft	125 ft	200 ft	300 ft
Rated power output for rated wind speed	100 kW	200 kW	2.0 MW	2.5 MW
Rated wind speed (at 30 ft)	14.5 mph	11.3 mph	25.7 mph	19.9 mph
Expected energy output per year	700 MWh	820 MWh	3.7 GWh	9.3 GWh
Mean wind speed (at 30 ft)	14 mph	14 mph	14 mph	14 mph
cut-in, Cut-out speed	10, 35 mph	10, 35 mph	11, 35 mph	9, 35 mph
Weight, kW	800 lb/kW	450 lb/kW	328 lb/kW	240 lb/kW
Location (first rotation)	Sandusky, Ohio (1975)	Clayton, New Mexico (1977) Culebra, Puerto Rico (1978) Block Island, Rhode Island (1979) Oahu, Hawaii (1980)	Boone, North Carolina (1979)	Goldendale, Wash (1980)

ANNIVERSARY GREETINGS

Happy anniversary to the employees marking major service anniversaries with our company during December. They are: Bob Wallace (20 years); Marlin Beer (15 years); Bob Murphy, Sales Rep for the Detroit, Michigan area (10 years); and Darrel Forrest, of Customer Service, based at McClellan Air Force Base, California (5 years). Congratulations!



Marlin Beer, Bob Wallace



Bob Murphy



Darrel Forrest

FESTIVE DECOR

Holiday decorations around the plant are adding to the festive season. Wometco Cafeteria employees brought in some special items to complement the traditional touches.

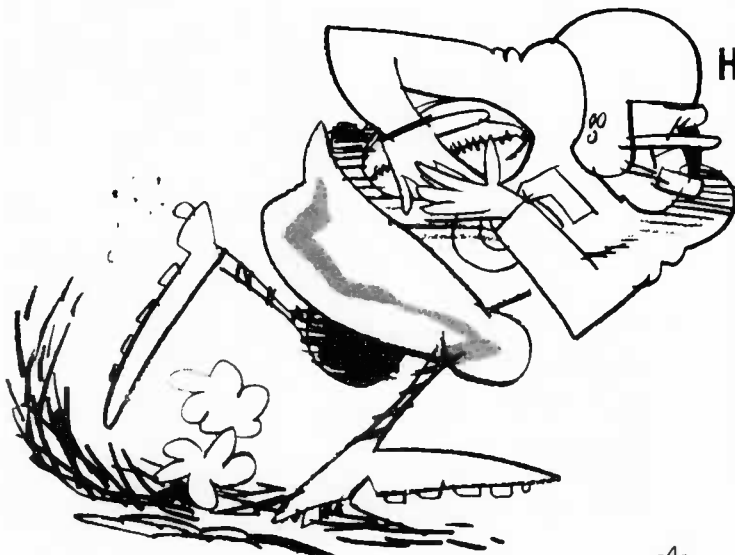


Sonya Carlson (right) with her own Raggedy Anne and Raggedy Andy dolls. Sonya has made about a hundred of them. Mary Haluska (left) persuaded her son Michael John (aged 5) to lend his stuffed tiger to put under the Cafeteria Christmas tree for the enjoyment of all employees.

CREDIT UNION PLANNING JANUARY ANNUAL MEETING

Watch for an announcement soon about the EMR Employees Credit Union Annual Meeting to be held during the last week of January, 1982. There will be refreshments and door prizes, in addition to an update on the 1981 activities of the Credit Union.

SAFETY TIPS FOR SMART EMPLOYEES



He Wears His Protective Equipment

because he knows how costly an injury can be. Not only to himself, but to the whole team. Before you tackle a job, take the professional approach. Wear yours!

PORTABLE EXPRT FEATURES NEW LOOK, SMALL SIZE



Pictured with new Portable EXPRT are Jim Wayda, Phil Potts, Don Worthington, Nick Ostrye and Art Tackman.

A new version of the EXPRT modular product line is now in pilot production. The Model 1750 Portable EXPRT is self-contained and portable, but still retains the full functionality of the original EXPRT telemetry products.

"EXPRT" stands for Expandable Processor for Reduction of Telemetry.

A major new technology used to achieve the significant size reduction is Bubble memory, a semiconductor substitute for the cassette magnetic tapes used in the 1700 EXPRT. Bubble memory not only provides a large amount of storage capacity, but it retains its data when power is removed from the unit.

Engineering experts point out that ten years ago it probably would have required approximately three racks of telemetry equipment to do the job that can now be done by an 8-1/2 inch box in the Portable EXPRT.

The Portable EXPRT contains two computers -- an Intel microprocessor, and an LSI-11. In addition, the 1750 has a custom monolithic front panel, containing a flat, integral alpha-numeric keypad (rather than keyboard) and protective screen for the CRT (cathode ray tube). The brown and tan color makes the unit a styling standout.

Customers can use the portable unit for applications such as flight-line checkout. The 1750 Portable EXPRT has already been shown to potential customers at the ITC show in San Diego, a major equipment show in Japan, and currently is being demonstrated in India.

RUN FOR UNITED WAY SET FOR JANUARY 24

If you're not in tip-top shape, you may want to start training now for the United Way 10-Kilometer and 2-Mile Run on January 24. Sponsored by Sangamo Weston's Data Systems Division, the run is a benefit for the United Way of Sarasota County.

The event is open to male and female runners of all ages, and there will be tee shirts for all finishers, plus trophies or ribbons for the leading finishers in both the 10,000-meter and 2-mile runs.

Details will be posted soon, and entry forms will be available through Personnel.



INTEREST RATES CHANGE ON CREDIT UNION LOANS

Effective January 1, 1982, the EMR Employees Credit Union will change the schedule of interest rates charged on new loans.

- Signature loans will carry an interest rate of 18%.
- Collateral loans interest rate will remain at 15%.
- Fully secured loans will remain at the very low rate of 12%.

"Our interest rates on loans are lower than those being charged at most local banks and loan offices," Treasurer Ed Annaratone pointed out. "In addition, Credit Union members benefit from free life insurance coverage."

The premiums on this insurance and other expenses in running the Credit Union are rising, and the Credit Union Board is making every effort to cover expenses and still issue competitive-rate dividends each six months.

CONGRATULATIONS!

Steve and Deborah Prenger (Fairchild Weston Systems, Field Service, Sandusky, Ohio) welcomed their new 8-lb. daughter Alayne Marie, on November 24.

Sharon Venneman (Magnetics) and her husband Mike (Machine Shop) are the proud parents of a son, Christopher Michael, who weighed in at 6lb. 1 oz., on December 7.

Susan Combs (Production Control) and her husband Mike announce the arrival of their son, John Michael, on December 2. He weighed 9 lb. 7 oz. The grandparents are Vic Boucher (Systems Engineering) and Barbara Boucher (Manufacturing Engineering).

A MESSAGE FROM THE GENERAL MANAGER

1981 has not been an easy year. Although we experienced a number of important successes, they were at least partially offset by some major disappointments.

On the success side, our shipments were at an all time record high of more than \$70,000,000, up over 40% from last year. And more shipments than ever went out on schedule! SWS shipments alone exceeded \$5,000,000 in one record month. In addition, better planning enabled more consistent weekly shipment levels, avoiding most of the month-end shipping problems we had experienced in prior years.

Offsetting this excellent shipment record was a very disappointing level of orders for new business. For the most part, this low order rate has been the result of a generally poor overall economy compounded by reduced expenditures for government R & D and industrial capital equipment. As a result of this reduced level of new orders, we were forced to reduce our work force in the last quarter to match the reduced level of business.

Fortunately, the transfer of the Fairchild Aviation Recorder business from Commack, N.Y. to Sarasota helped to minimize the cutback. This highly successful business is an excellent complement to the existing Sangamo Data Recorder product line and comes to us at a most opportune time. Thanks to good planning and excellent implementation on the part of many dedicated members of the transition team, the move was accomplished on schedule and the first Cockpit Voice Recorders made in Sarasota were shipped the day before Thanksgiving.

The bottom line for 1981 was that we were indeed profitable, but we did not meet budget. And the profits that we did realize were primarily those of the Wireline and Telemetry businesses. We need to improve the performance of all product lines so that the company's profitability is not dependent on one or two product lines.

We still have a number of unfulfilled objectives that we need to satisfy in order to put our company back on a solid footing. To that end, we have made a number of significant changes during the last half of the year that should help to get us off to a better start in 1982. In 1982 we expect to see some real improvements in reduced manufacturing costs through improved efficiencies. There should be fewer cost overruns due to more selective and thorough cost analysis bidding practices. And we will be installing some new systems that should give us the visibility to help us make better business decisions.

In 1982, our major thrust will be toward reducing manufacturing costs and getting new products to market. By focusing our attention in certain areas we have seen some encouraging initial results in manufacturing problem solving by direct employee participation. This is the way it should be. In troubled economic times like today's, we need, more than ever, the active support and extra effort on the part of all of our employees to be successful. We're counting on all of you.



S.K. Morgan

December, 1981