






NUMBER 17/1977

Division Expenses 1977

JANUARY								JULY							
	2	3	4	5	6	7	8		3	4	5	6	7	8	9
	9	10	11	12	13	14	15		10	11	12	13	14	15	16
	16	17	18	19	20	21	22		17	18	19	20	21	22	23
	23	24	25	26	27	28	29		24	25	26	27	28	29	30
	30	31	1	2	3	4	5		31	1	2	3	4	5	6
FEBRUARY								AUGUST							
	6	7	8	9	10	11	12		7	8	9	10	11	12	13
	13	14	15	16	17	18	19		14	15	16	17	18	19	20
	20	21	22	23	24	25	26		21	22	23	24	25	26	27
	27	28	1	2	3	4	5		28	29	30	31	1	2	3
MARCH								SEPTEMBER							
	6	7	8	9	10	11	12		4	5	6	7	8	9	10
	13	14	15	16	17	18	19		11	12	13	14	15	16	17
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	27	28	29	30	31	1	2		25	26	27	28	29	30	1
APRIL								OCTOBER							
	3	4	5	6	7	8	9		2	3	4	5	6	7	8
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MAY								NOVEMBER							
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	22	23	24	25	26	27	28		27	28	29	30	1	2	3
	29	30	31	1	2	3	4								
JUNE								DECEMBER							
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	19	20	21	22	23	24	25		18	19	20	21	22	23	24
	26	27	28	29	30				25	26	27	28	29	30	31

260 WORKING DAYS

-  SALARIES AND WAGES (105 DAYS)
-  GOODS, UTILITIES, TRANSPORTATION AND SERVICES (101 DAYS)
-  LOCAL, STATE, FEDERAL TAXES (21 DAYS)
-  PENSIONS, INSURANCE, AND DEBT SERVICE (20 DAYS)
-  EARNINGS (PROFIT) (13 DAYS)

We have turned the corner, general manager says

"This year, 1977, was the year in which we turned the corner," C. B. Hurtt, division vice president and general manager, said as he reviewed 1977 accomplishments and discussed business prospects for 1978.

"Our sales curve moved upward, and we added more than 800 people," he said. "I see 1978 as being the same kind of year, with about 500 new employees being hired in the first half of the year."

The key to continued growth in the division, according to Hurtt, is the broad customer and contract base. In the past, he reported, the division was dependent on a few major contracts.

"This year we have acquired new business with many customers and in diverse product lines to give us a balanced operation in the division," he said. "For employees, this means fewer manpower ups and downs and provides them an opportunity to develop and grow with the business."

"We have made good progress in meeting our affirmative action plan goals and

we must continue putting strong emphasis in this area," Hurtt said. "This includes the hiring and upgrading of women and minorities."

"During 1977 we once again achieved 100 per cent mission success. This is an environment where there are many opportunities to fail. I sense that more and more our success record is what our customers want to buy. This dedication to mission success has and will lead to more job opportunities for us. Further, during 1977 we had superior performance on most of our contracts."

"In addition to our Titan and Viking mission success, our technical performance on all of our programs has proceeded very well. For example, our first complete external tank was delivered this past September, our Central Valley deliveries are ahead of schedule, and the CCMS hardware has made all its technical milestone."

The resources are being provided for employees to do their jobs well, Hurtt pointed out, with an aggressive facilities investment which includes building new

laboratories and updating others, and further modernization of the factory. More work space will be available when the administrative complex — now to be called the Denver Systems Center — is reoccupied in 1978.

With this investment comes a commitment to continue to acquire new business.

"MX is one new program I believe is essential for us and for the nation," Hurtt said. "We plan to have a major role in the development and future production of this weapon system. We have assigned many good people to this program, not only because we want the contract, but also because we believe our country needs the best weapon system at the lowest possible life-cycle cost."

In concluding Hurtt said, "I feel very good about our success in 1977 and commend everyone in the division for contributions to that success. We will have to work hard in 1978, but we can do that work knowing we are in a growing business and without some of the fears we all have had in the past few years."

Defense systems makes major contribution

"With new orders amounting to more than \$50 million in 1977, the defense systems organization made a major contribution to the division's business base this year," H. Wayne Terbush, director of defense systems said.

"While I cannot be specific about this new business," Terbush said, "I can report that we have exceeded the orders, sales, and profits goals set for us in the division's long range business plan."

Defense systems is doing work for a "broad base of customers" and efforts in 1978 will be directed toward two major goals: 1. maintaining excellent performance on current business and 2. bidding on opportunities that will result in contracts for 1978 and 1979.

"We anticipate a lower dollar volume in contracts in 1978 simply because the opportunities for new business will be fewer," Terbush said. "However, we will be preparing proposals in 1978 aimed at major business for which contracts will be awarded in 1979."

Work on current contracts, work on those expected to be won in 1978, and the preparation for more new business in 1979 will make 1978 a year of continued expansion for defense systems.

"We expanded our facilities in 1977, establishing some new laboratories, and updating others," Terbush reported. "We will continue this kind of expansion

in 1978, including the adding of some people.

"This expansion will aid us in meeting performance requirements on our current contracts and allow us to continue to develop the technology required for major new business."

Efforts will be directed toward completing successfully the system test phase of the SCATHA (spacecraft charging at high altitudes) satellite and its delivery in 1978 for launch in early 1979.

Two other recently awarded contracts also are begin managed by defense systems — space sextant and large space structures.

"It may be a trite saying — and I am sure every other manager and director in the division can say the same thing — but defense systems must perform excellently on current contracts and at the same time do an equally excellent job in getting new business in 1978," Terbush said.



Space sextant among new division contracts

Program development plans for growth

"In Martin Marietta News a year ago, I remarked that we had demonstrated our ability to write good proposals and I expressed some concern that we could not afford to let down in our competitive activity in 1977," says Howard F. Keyser, vice president for program development.

"I am happy to say now that was an unfounded fear," he said. "In fact, in 1977 we achieved a success ratio even better than in 1976."

"More important, as I look at 1977, it definitely was the year in which we made the turn towards a firm, upward growth in the division."

In looking at the past and the future, Keyser chose to cover a 10-year period — the past five years and the next five years — based on the division's long range plan (LRP).

He pointed out that in 1973 almost everyone in the division was working on one of three projects, Viking, Skylab, or Titan III.

"We recognized this as a precarious situation," Keyser said, and established some objectives which, if achieved, would give the division more balance. Achievement of the objectives would also make us less subject to the ups and downs that might occur in a single program.

"Let me list most of the objectives we

had in our 1973 LRP and discuss briefly how we have done in the past five years."

These are the objectives and accomplishments Keyser cited:

1. Maintain Titan III as the primary medium class expendable launch vehicle. *Accomplishment:* Titan 34D has been funded and will assure a long, steady base for Titan III during the Shuttle transition period and for some years beyond.

2. Become involved in Department of Defense Shuttle ground operations. *Accomplishment:* We have won the ground support system (GSS) contract at Vandenberg and, if we perform well, should become the Shuttle ground operations contractor.

3. Be a participant in the Department of Defense Shuttle payload integration. *Accomplishment:* We have won the Air Force payload integration contractor role which has great promise to continue indefinitely.

4. Determine market possibilities in new strategic booster systems. *Accomplishment:* We have won the MX VDCT contract and performed outstandingly. We are currently submitting the MX ATSS proposal which we hope will result in selection of Martin Marietta in May 1978 for the long-term assembly, test, and systems support role on the MX program.

5. Win astronomy sortie mission. *Accomplishment:* We have been funded as one of two contractors preparing for what is now the mission integrator operations contractor. We expect a final request for proposal in March 1978.

6. Win subcontracts on Shuttle orbiter. *Accomplishment:* Won contracts for the pyroiniator circuits, caution and warning subsystem, and reaction control system tanks.

7. Win external tank program. *Accomplishment:* Won the program and are starting the long lead procurement effort for increment two.

8. Win defense systems hardware contracts. *Accomplishment:* We have won SCATHA and another major program that has great follow on and great growth potential.

9. Define data management systems as distinct product line. *Accomplishment:* We have established the command and information systems product area, won TFCC, Rainmaker, and other seed programs and hope to be selected for Oasis in the next few weeks.

10. Win good research and development contracts. *Accomplishment:* We far exceeded our goals and each year have increased our penetration with the Department of Defense.

11. Stabilize sales at greater than \$200 million per year. *Accomplishment:* Sales in 1977 will be approximately \$317 million.

"As I look to the future we are forecasting a growth in sales of approximately 10 percent each year over the next five years and no one product line will account for more than 18 to 20 percent of the division's sales. This is extremely important in order to smooth out the cyclic nature of the business," says Keyser.

Looking at the "customer mix" in the next five years, Keyser sees about one-third of the business coming from the Air Force, about one-third from NASA, and the remaining one-third coming from a wide variety of mostly new customers.

Major efforts in 1978 as reviewed by Keyser are:

• We will have plant visits, orals, and final pricing on our ATSS proposal leading up to contractor selection in May.

Defense Systems: In the next five years we have two major opportunities available. We are forecasting we will win one of the two. In 1978 we have a major competitive gate on Program 760.

Command and Information Systems: In 1978 we will be preparing for the global positioning ground station opportunity. We have made progress in the Army with the message handling system and plan to pursue that business in 1978. We have a bid in on BETA (Battlefield Evaluation and Targeting Analysis) which, if we win, could establish us as a major contractor for the Army in the Command and Control area. We have plans to pursue growth of other key programs we have already won, like CCMS for the Air Force and Central Valley exploitation. This product area is dynamic with many opportunities emerging.

Planetary: We believe the next planetary start will be Venus Orbiting Imaging Radar, a program from the Jet Propulsion Laboratory. We plan to be a Phase A winner in the Spring of 1978 and pursue that program with vigor all the way to the hardware start in the 1980 fiscal year.

MIOC (Formerly Labcraft): We expect the RFP for this opportunity in the Spring; we plan to make a major effort for this exciting long term integration program.

Advanced NASA Programs: We have won the tele-operator retrieval system and believe this program offers great growth potential for the future. We also are keying on the small power module for which NASA plans to release a validation request for proposal in mid-1978. We plan to bid on that program and we have significant other advanced technology opportunities in the advanced NASA product line.

Technical Operations: This organization continues to look toward growth in orders and sales. Major accomplishments in 1977 include selection to build the Space Telescope faint objects spectrograph and the award by the Air Force Space and Missile Systems Organization (SAMSO) of ANARS (advanced navigation attitude reference system), called the space sextant, to the division.

"All in all, I look forward to the future with great promise if we continue to do our business job as we have done it over the past three or four years. We should be able to achieve the growth I've talked about," Keyser concluded.

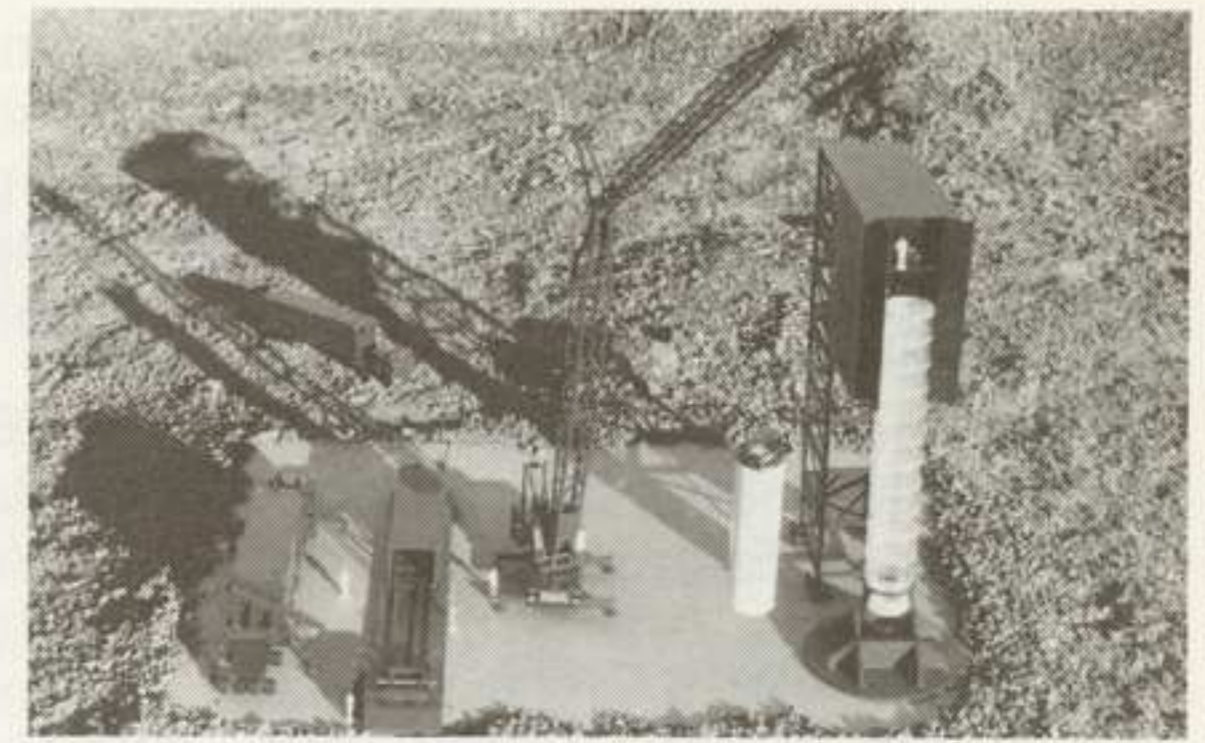
MX win important to division's future

"Winning the MX missile system assembly, test, and system support (AT&SS) contract is of great importance to the division because it is a major program of many years duration," W. O. Lowrie, division vice president in charge of the MX program, said.

"It is for that reason we have devoted so much of our time and talent to the pre-proposal and proposal efforts this year," he said. "We believe we have prepared an excellent proposal that contains innovative ideas and approaches that will provide an MX weapon system at the lowest life cycle cost."

"Under Jim Sterhardt we won the Vehicles Design/Critical Tests (VD/CT) contract in December 1976. The two options considered were shelter based weapon system and a buried trench weapon system. Our study showed that the shelter based weapon system had no critical technical areas requiring full scale test work," Lowrie said.

"However, we did identify the need for full scale testing of some of the critical hardware elements associated with the buried trench system. A Phase 2 contract was awarded to us to design, build, and test these critical hardware elements.



Typical layout for pad canister launch of MX.

This program is in progress and is scheduled for completion in October of 1978. Winning this Phase 2 contract was a major highlight in 1977, and the successful completion of the test program is a critical goal for us in 1978."

Work on this part of the MX system was an aid to understanding all facets of the MX development program and provided program knowledge and insight which helped in our preproposal effort for the assembly, test and system support activities. The AT&SS proposal was submitted in December and contract award is expected in May.

"I believe we have an excellent proposal because we have an excellent team. I want everyone to recognize the quality of work done by these people and I want employees in the division to know who these people are," Lowrie said.

Those on the proposal team were: Stan Albrecht, system test; Carroll Curlander, systems engineering; Mike Davis, instrumentation and flight safety; Ric Davis, transportation and handling; Bill Bollendonk, operations and logistics; George Mumma, safety; Bill Simonini, quality; Don Gray, requirements; and Tom Callan, business management.

Lowrie said, "This was a tough, complex proposal that in many ways required greater effort than the successful Viking proposal. It was in some ways like writing four proposals that had to be integrated into one."

The proposal is for the system definition phase and full scale development of the assembly, test, and system effort. The system definition phase would start in May 1978 and continue until the end of the year. Funding would be about \$7 million.

The option for full scale development includes the development of the instrumentation system, the transportation and handling system, the facility criteria, Vandenberg AFB site activation, and the conduct of the flight test program at Vandenberg AFB. The division would also be responsible for major support roles in development of the missile system.

The full scale development option will be exercised in January 1979, if the Air Force and Congress give final approval and go ahead.

"What that means to us is that if we win

the definition phase contract there will be no further competition for the full scale development contract," Lowrie said.

"This was a very complex request for proposal; we have produced a high quality response, and I am confident we will be successful in winning the contract," Lowrie said.

"Now that our proposal has been submitted we will continue to give our full attention to the successful accomplishment of the VD/CT test program while concurrently preparing for the initiation of the AT&SS role."

Plant operations improves facilities

Money spent on improving Denver division facilities in 1977 was the largest capital investment made since the plant was opened.

And, according to Daniel A. Linn, head of plant operations organization, even more will be spent in 1978.

"All the expenditures are aimed at meeting needs of current and future business," Linn said. "The \$9.5 million expended in 1977 included the addition to the administration building, a series of laboratory updates, and the installation of some basic equipment."

The new Centrex telephone system, the latest in telephone communication providing a variety of time-saving features, was installed.

In the first steps of a five to eight year factory modernization program, some numerical control controllers were installed and are in acceptance testing.

"With out product lines changing as they are," Linn said, "we are converting the manufacturing area from a production-type facility to more of a prototype/model shop operation. We need a fairly broad spectrum of machines that permit extremely close tolerances.

"The parts we are producing are more complex and each part goes through more machining operations to produce it. We cannot afford to scrap a part," Linn said.

The addition of new employees requires more work space.

"We were able to get most of the space we needed in 1977 by creating more open space," Linn said. "This kept us from having to move people away from our main facilities.

"In 1978, however, we will be moving some people offsite. We will reopen our building on Wadsworth near Hampden early in the year."

Plant operations has, perhaps, the most diverse functional responsibilities in the division. Included are facilities, maintenance, capital acquisition, property

management, materiel, and plant services.

In 1978, the program to conserve electrical energy through the automated building system will be expanded. More equipment using electricity will be controlled by the system.

Also in 1978, plant operations will begin a study to determine if coal instead of natural gas or oil as fuel for the division's main boiler.

"We don't expect to make the conversion until the early 1980s," Linn said. "It is probable we will have to replace one of three boilers about then, so we are going to look carefully at planning an installation that will permit us to use coal, natural gas, or oil so we have a choice of energy sources."

Another natural resource that gets careful attention is the division's more than 5000 acres of land and forest area. The pine beetles control program will continue in 1978. A program to control the spruce bud worm, which attacks spruce and Douglas fir trees will be started.

"Plant operations, as you can see, has broad responsibilities," Linn said, "but we have but one overriding objective. That is to make the Denver division a successful, growing business."

Business operations formed in 1977

The business operations organization was formed in 1977 to give the leadership necessary for current contracts and the future expansion of the division.

Albert E. Hawkins, director, said the separation of business operations from plant operations increased the emphasis on the work of his organization, and permitted more attention on the major functions of plant operations.

"Both organizations are extremely important to the development of the division," he said, "and I see the separation as an indication of the confidence in the growth of the division."

Hawkins also sees the creation of a separate planning function as a major step.

"It is my intent to recreate the kind of function that the division had in the successful business years of the very early 1960s," Hawkins said. "Specifically, I want the department to develop plans that will assist the product areas accomplish contractual obligations and to lay out the basic plan that will increase our ability to meet the division's long range plan (LRP) commitments."

Business operations also includes contract and legal, finance, and provides business managers for product areas.

1977 was an extremely satisfying year," Hawkins said. "The division has exceeded all its 1977 goals with the excep-

tion of the orders goal. That goal included Space Telescope and Whitefish which we lost.

"We were able to make up almost all of that shortfall with other programs," Hawkins said. "We came very close meeting the orders goal even with the two losses."

Also the division won more than 50 percent of the contracts on which it bid.

"Perhaps more important," he said, "we won more than 50 percent of the dollars represented by new business on which we bid. And we competed against the giants in the aerospace industry."

Hawkins sees 1978 continuing that growth.

"For example, 92 percent of the sales planned in the long range plan for 1978 are either firm or follow on business. This is business for which we do not have to compete.

"In the next five years, about 50 percent of the planned sales are firm or follow on in nature. Normally, we would have only 25 to 30 percent of our business firm or follow on in a five year long range plan."

Hawkins plans to create two new elements in his organization to provide new resources.

One is a planning control. It will strive to improve planning systems and keep abreast of new planning approaches. And it will monitor the status of product areas and integrate the information into a division-wide report on our health.

The second will be financial analysis to interpret data, plan for contingencies, and determine the impact of financial decisions.

"We already have people who are working on new ideas and making suggestions in these areas because they are finding management willing to listen and to act," Hawkins said.

"I am enthusiastic," Hawkins says. "Next year will be fun; 1977 was hectic but also fun. People who are busy and contributing do have fun in their jobs."

Launch vehicle gives division business base

Continued success in the launch of Titan III and the growth in the launch vehicle product area is providing a solid business base for the division.

"As important as that contribution is, I believe we are providing the division with another, equally important asset," C. E. Carnahan, who heads the launch vehicles area, said.

"That asset is a reputation for competence."

Prime example of that competence is the eleven consecutive years of successful

Titan launch vehicle use in which Martin Marietta built hardware has never caused a launch failure.

"That kind of success is evidence to potential customers that we can produce quality and reliable systems and hardware," Carnahan said.

The success of Titan III was continued in 1977, including the back-to-back launch of two Voyager spacecraft.

"We have important Titan launches in 1978 and we expect them all to be successful," Carnahan said.

A new Titan, the 34D, moved from the concept stage to the design stage in 1977. It will be used as a transition launch vehicle between the other Titan IIIs and Space Shuttle.

"We will move ahead smartly with Titan III 34D in 1978," Carnahan said, "and it is probable we will begin production of this new vehicle."

The launch vehicle product area has an important role in Space Shuttle itself. Substantial headway has been made in the Shuttle ground support system at Vandenberg and the recent win of the payload integration contract from the Air Force for Space Shuttle gives the division another major role in Department of Defense Shuttle use.

"We are looking forward to an active year in 1978," Carnahan said. "Our performance on Titan III as a standard launch vehicle and on the work we are doing on Space Shuttle will determine our business future for many years."

"While Titan III and Space Shuttle work are in the spotlight," Carnahan said, "the division cannot overlook our support of the Titan II ICBM operations."

He said, "Titan II is still a very important part of our business, it is important to the nation, and we will have an active and substantial role in its operation for years to come."

"Our performance is the key to our success in 1978 and the years that follow," Carnahan said. "I expect performance to continue to be outstanding and that we will achieve the hoped for long-term business success."

Command and information systems has good year

"We have had a good year in command and information systems," John L. Slack, who heads the organization, said. "We won some major contracts, but were unsuccessful in our efforts to get some others. These losses kept us from having an outstanding year."

"The technical content of all proposals submitted was excellent," he said. "The losses we experienced were all 'cost' losses. We have proved our technical competence."

Examples of contracts won by the command and information systems organization include the ADCOM functional definition contract, Naval intelligence system architect management contract, mission utilization systems integration contract, and the space defense operations center architectural contract.

"I might explain the term architect or architectural used with two of these contracts," Slack said. "In these programs we will analyze what is needed to perform the work, do a conceptual design of the layout, show what the equipment looks like, and develop specifications. They are not study contracts."

A measure of the success of command and information systems and its capabilities has been the response of others in industry. "We are being contacted by other firms who want to team with us on future proposals," Slack said. "They are convinced, they tell us, that being part of a team which we lead will mean sales for them."

Slack says CIS will enter 1978 with a reasonable backlog of orders and with good prospects for more new business in 1978.

"Our performance was excellent in 1977," Slack said. "We earned two consecutive 100 percent award fees on one program. We expect this same kind of performance in 1978 and anticipate we will grow more than 20 percent in the coming year — just as we did in 1977."

Technical operations grows professionally

Growing business needs of the division in 1977 and those projected for 1978 have created a "highly satisfactory growth in a professional sense" for the division's technical operations organization, according to John D. Goodlette in his review of 1977 and a look forward to 1978.

"We have had one of those challenges that all management is pleased to accept — the challenge of adding highly competent new people to our staff," Goodlette, who is vice president for technical operations, said. "After several years of low needs, this year we have been able to hire recent college graduates in generous quantity. We have added about 100 of them to our organization."

"These young, well-trained engineers and scientists, who are now being introduced to our business, will help us stay in the forefront of technology for many years."

In addition to the hiring of these college graduates, technical operations has added "several hundred" others. "Managing this acquisition of people in an orderly fashion and getting the right people in the right assignments has been a struggle," Goodlette said, "but, it has been a pleasant struggle. It is a credit

to the people in professional and industrial relations and to our technical managers that we have integrated well-qualified people smoothly into our functions."

Goodlette's organization has in it the chief engineer and the departments of manufacturing, test, and structures engineering; quality and safety; electronics; areothermal and propulsion engineering; mission operations and software; systems engineering; and product development. Goodlette is also onsite director for the Viking project.

While the technical operations departments are responsible for support of all product areas in the division, each is also responsible for advancing technology in its own area. Every technical operations department will meet or exceed its sales/orders goal for 1977, Goodlette said. In 1978, research and development and technology contracts are expected to be worth more than \$30 million.

"This is a challenging sales/orders goal, but I am confident we can achieve it," Goodlette said.

"The growth in this year has been in most cases a recognition of our technology capability, with some contracts having system implications beyond the initial contract. The space sextant, for example, is one of those."

"It is clear to me," he said, "that the pattern of growth will continue in 1978 with major opportunities in all product areas."

"This growth will also mean a continuing need for new talent and an opportunity to obtain more new college graduates."

Michoud delivers external tank for test

September 9, 1977 was a red-letter day for the division's Michoud operations. That was the day NASA accepted the first external tank as it was rolled from the assembly facilities on its journey to NASA's National Space Technology Laboratory (NSTL) in Bay St. Louis, Mississippi.

"Delivery of this first complete tank, called the main propulsion test article, was the most significant achievement in 1977," George E. Smith, vice president and project director for Michoud operations, said.

Major emphasis at Michoud in 1977 was on the manufacture and delivery of external tank test articles to support the three major ground test programs — structural test, main propulsion test, and ground vibration test.

The tests are being conducted at NSTL in Mississippi and at the Marshall Space Flight Center (MSFC) in Huntsville, Alabama. Michoud operations employees have been assigned to these NASA

facilities to support the test program.

In February, the intertank structural test article (ISTA) was delivered nine days ahead of schedule to the Marshall Space Flight Center where it completed a series of 10 successful tests verifying its ability to withstand the structural stress of flight toward Earth orbit.

The ISTA is being mated with the static test article liquid oxygen tank, which was delivered in November three weeks ahead of schedule, in preparation for liquid oxygen modal tests to be conducted in January 1978.

Liquid oxygen tanks for the main propulsion test article, the static test article, and the ground vibration test article all successfully passed proof pressure tests conducted at Michoud. The liquid hydrogen tanks of the three test articles completed a series of pressure and mechanical load tests.

"The tank proof tests and the intertank static test have confirmed that the external tank will meet design and manufacturing requirements," Smith said.

Highlights of 1978 will be deliveries of the three remaining test articles, completion of three major ground test programs, and delivery of the first external tank flight article to the Kennedy Space Center in Florida.

The static test article's liquid hydrogen tank will be mated with an intertank at Michoud and delivered to MSFC for strength tests. The ground vibration test article is scheduled for delivery in March. It will be mated with orbiter 101 and the solid rocket boosters in the test stand for boost configuration and launch configuration tests.

The first external tank flight article will be delivered December 1978. Additional flight tanks will then be in production.

"Next year promises to be a busy and productive one," he said. "Attaining 1978 goals will require the continued dedication and support of all personnel — the kind of dedication and support that made 1977 a very good year."

People growth key to industrial relations

"It is always more pleasant to hire people than it is to lay off people and 1977 was a pleasant year," R. E. Weber, director of professional and industrial relations, said.

In 1977, the division added about 800 new people to the payroll and Weber sees several hundred more being added in 1978.

"The people in IR have done an outstanding job in obtaining these new employees," Weber said, "and many department and product area personnel in the division cooperated and supported

us very well in acquiring and assigning these people as part of our overall division growth. We are quite pleased with the quality of the people we have been able to bring on board."

Through all the hiring procedures, Weber's department has been working towards achieving goals of the division's affirmative action plan.

"We have done well," Weber said. "Of those hired this year, 20 per cent have been women and 13 per cent have been minorities. We have met the overall goals of our affirmative action plan.

"We have had a fair amount of upward movement and growth of our people," Weber said. "In 1978, we believe there will be additional opportunities for employee growth and development."

As the business has grown, as new people have been added to the payroll, as people have been promoted, employees have shown a strong interest in continuing education and development.

"I think this interest in education and development is an indication of the improved attitudes and the improved confidence our employees have in the division's future," Weber said.

"We are going to do all we can to encourage continuing education and development and to provide a way for employees to participate. We expect to put added emphasis on training and development programs."

In other areas of IR responsibilities, highlights of 1977 included distribution of a loose-leaf employee benefits handbook for salaried employees, the updating of the salaried group insurance plan, the offer of an alternate health maintenance plan, and announcement of a performance sharing plan through which salaried employees can invest a percentage of their salaries with the Corporation matching a portion of the investment on the basis of overall corporate performance.

There also was increased emphasis on personal safety in 1977 and that emphasis will continue in 1978.

"We expect to be busy in 1978 hiring people, implementing improved training and development programs, concentrating on improving our overall employee relations, and working toward a fair and equitable new contract with our union-represented employees in Michoud and Denver," Weber said.

Public relations responsive to needs

"Public relations has many facets," John H. Boyd Jr, director of the division's public relations department, said, "but the most commonly recognized is publicity. Our opportunities for this part of our

work were fewer in 1977 because of the nature of the division's business.

"However, in 1978, the opportunities will be greater because programs will be moving toward events that will command more attention from the news media," Boyd said. "Among these will be the division's various roles in Space Shuttle, the SCATHA satellite, and the MX program."

In 1977, some of the lesser recognized tasks of public relations received most of the attention of the department. Boyd cited:

- Support of current contracts and division effort to obtain new business.
- Production of three films portraying the division's competence in delivering complex systems and competence to bid on these systems.
- Planning and staging the Viking awards ceremony and the event marking the rollout of the first external tank at Michoud.
- Developing and managing an advertising program for Martin Marietta Aerospace, with three ads appearing in national publications 27 times between September and December.
- Providing continuing internal communication with the *Martin Marietta News* and the portable bulletin board system.

"It is difficult to make finite long range public relations plans," Boyd said. "We have to be flexible to take advantage of opportunities as they come up and we must be immediately responsive to the division's public relations needs.

"However, we can and do anticipate many of our activities," he added.

Among the specific activities for 1978:

- Step up support to win new business, especially the major role in the MX program.
- Plan and manage the advertising program for Martin Marietta Aerospace, with five advertisements to appear up to 89 times in national and international magazines.
- Increase press coverage of the division's role in Space Shuttle by preparing detailed information on external tank; payload integration contract; ground support system; checkout, control, and monitor subsystem; caution and warning system; pyro initiator circuits; solid rocket booster recovery system; and teleoperator retrieval system.
- Publish a book on the scientific discoveries of the Viking mission and on the spacecraft performance similar to the book produced several years ago on the Viking mission to Mars.
- Continue active participation in the Denver Chamber of Commerce and the Colorado Association of Commerce and Industry (CACI), including continued direction of the CACI Project Confidence news media committee.
- Expand distribution of internal communication media to serve employees moving offsite.

"We are anticipating another busy year in 1978," Boyd said. "Our work will grow as the division grows."

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