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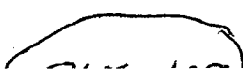
1965

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DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS UNITED STATES AIR FORCE  
WASHINGTON, D.C.



REPLY TO  
ATTN OF:

AFSPD

SUBJECT:

Record of Performance Selected Contractors

TO:

Memorandum for Record

1. This memorandum summarizes the results of a two day inquiry as to the record of actual performance over the past five years of the following contractors:

Boeing - Aero Space Division

Douglas - Space and Missile Division

General Electric - Missile and Space Division

Lockheed - Missile and Space Division

2. The basis for the evaluation is information furnished by:

a. OSD Data Bank of Contractor Performance Evaluations

b. AFPR offices of the respective plants

c. NASA/AF project manager offices

3. The areas of performance evaluated were: schedule, costs, and specification fulfillment. In addition, each of the agencies contacted were requested to provide an overall assessment of the performance of the contractor with whom they were doing business.

4. In summary:

a. On the basis of overall performance, all four contractors are currently and in the recent past been performing satisfactorily.

b. Schedules. In terms of meeting schedules, all have a good record overall in meeting schedules with individual exceptions.

c. Costs. In terms of controlling costs, all four reflect a mixed performance of overruns and underruns.



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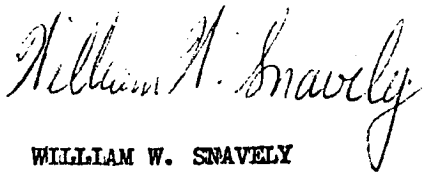
d. Specification Fulfillment. All were judged to have generally done a good job in fulfilling the technical requirements of their contracts.

e. Responsiveness. All have shown satisfactory to excellent cooperation and responsiveness in their relationships with the Air Force and NASA.

f. Subcontract Management. All have satisfactory systems. In practice, performance has varied on individual contracts. On the whole, it is considered satisfactory.

Specific comments covering each of the above points for each contractor are contained in Tab 2. Tab 1 reflects the results of the evaluation made by the Contractor Performance Panel in the first evaluation of the MOL Source Selection Board. This was not used by the Board in arriving at their conclusions largely because of the lack of depth and uniformity of the data obtained. It is included here because it provides an indicator, rough as it may be, which may contribute to formulating an overall judgment.

(Note: The numerical data used was for the most part obtained by telephone and as a consequence may contain some errors. However, this would not affect the evaluation comments.)



WILLIAM W. SNAVELY  
Colonel, USAF  
Deputy Director of Production and Programming  
DCS/Systems and Logistics

TAB I  
CONTRACTOR PERFORMANCE

	CONTRACTORS			
	A	B	C	D
3.1.1 Engineering	245	181	259	259
3.1.2 Manufacturing	210	228	162	192
3.1.3 Management	<u>185</u>	<u>185</u>	<u>157</u>	<u>189</u>
TOTAL	640	494	578	640

	SUBFACTORS *											
	R	M	S	R	M	S	R	M	S	R	M	S
<u>Eng</u>												
Tech Data	6	6	36	6	6	36	6	6	36	6	6	36
Configuration Mgt	7	5	35	8	5	40	3	5	15	7	5	35
Safety Engineering	6	4	24	7	4	28	2	4	8	6	4	24
Personnel Subsystem	6	4	24	6	4	24	6	4	24	6	4	24
Reliability	5	7	35	7	7	49	3	7	21	6	7	42
Test	7	7	49	8	7	56	4	7	28	7	7	49
Systems Engineering	6	7	42	7	7	49	7	7	49	7	7	49
<u>Manufacturing</u>												
Production	7	18	126	8	18	144	7	18	126	6	18	108
Q.C.	7	12	84	7	12	84	3	12	36	7	12	84
<u>Management</u>												
Estimating	5	3	15	4	3	12	3	3	9	6	3	18
Value Engineering	6	1	6	8	1	8	6	1	6	8	1	8

SUBFACTORS (Cont'd)

	R	M	S	R	M	S	R	M	S	R	M	S
<u>Management</u> (cont'd)												
Cost Reduction	8	1	8	6	1	6	6	1	6	7	1	7
Property	6	2	12	6	2	12	4	2	8	6	2	12
Cost Control	7	6	42	7	6	42	6	6	36	7	6	42
Purchasing	5	5	25	7	5	35	4	5	20	6	5	30
Subcontract Admin.	6	7	42	5	7	35	6	7	42	6	7	42
Logistics	7	5	35	7	5	35	6	5	30	6	5	30

\* R = Rating

M = Multiplier (weighting)

S = Score (RXM)

Contractor: Boeing, Aero Space Division, Seattle, Washington

Contract Subject: Minuteman Weapon System

Contract Date,	Number,	Type,	Amount,	Comment
May 1960	-580(M <sup>2</sup> Prod)	FPIF	419.6M	16M underrun
June 1960	-289 (M <sup>2</sup> Devel)	CPFF	669.5M	56M underrun
Jan 1962	-46 (M <sup>2</sup> A&C)	FPIF	94.1M	6M underrun(es
Jan 1962	-107 (M <sup>2</sup> AGE)	FPIFV	546.2M	90M underrun(es
Sept 1962	-266 (VI Dev)	CPIFV	108.5M	15M underrun
Sept 1963	-451 (Assy&Test)	CPIFV	50.0M	-
Oct 1963	-431 (Prod)	FPIFV	34.5M	-
Apr 1964	-545 (Modern)	CPIFV	27.4M	-

#### Evaluation

1. Schedules. Contractor has done very good job in meeting schedule requirements. Reflected in record of entire M<sup>2</sup> program.

2. Costs. Contractor has done very good job of controlling costs. In 1.5 billion dollars of work the contractor has had a 20M overrun. This is over and above the contracts cited above. Taken together the contractor has substantially underrun the program to date.

3. Compliance with specifications. The contractor's performance has been very good.

4. Responsiveness. Cooperation and responsiveness to needs of program have been excellent. He has been an effective member of the associate team on the M<sup>2</sup> program.

5. Subcontract Management. Has had an approved purchasing system since December 1960. His management of subcontracts has been satisfactory.

6. Appraisal of AFPR. Considers the contractor has done a good to excellent job in all the evaluated areas. He feels the particular strength of the contractor is the depth of strong management in nearly all functional areas of the company.

July 1, 1965

Contractor: Boeing Aero-Space Division, New Orleans, La.

Contract Subject: Design, develop and furnish SIC Booster Stages, test and checkout equipment for the Saturn V Vehicle, and support MSFC.

Contract Value: \$667.4 million      Contract No: NAS8-5608

Contract Date: January 1, 1963 (definitive)

Contract Type: CPFF

Status: In process; first stage to be delivered in latter half 1965, last delivery in 1968.

Evaluation:

1. Schedules. Have had some problems primarily in delivery of subcontractor components for the first article. Inclination to accept with optimism very tight schedules. Underestimated some vendor design and quality test problems. Were energetic, however, in correcting problems and obtaining fixes.

2. Costs. Up until 6 months ago there were problems, at which time the matter received company's top management attention. Several corrective actions taken including reorganization, and new accounting system. Large overruns had been forecast but appear to be under control now.

3. Performance. (specification fulfillment). Adherence to specifications is not considered apropos here - stage still largely in development.

4. Responsiveness. Cooperation and response to requirements has been good in all areas. Project manager has praise.

5. Subcontract Management. Boeing is considered a strong, tough buyer, and a good team leader. Company's President has taken hand when needed. Have used fixed price contracts when development problems were unsolved, necessitating fixes to pull out components on schedule.

July 1, 1965

Contractor: Boeing, Seattle

Contract Subject: Lunar Orbiter Space System

Contract number: NAS1-3800

Dollar Value: \$80,637,182.

Date of Contract: May, 1964

Type of Contract: CPIF - fee 6.25% incentive on cost, performance and delivery

Status: Not completed

Evaluation:

1. Schedules. Some slippage but trying to make up by concurrent testing.
2. Costs. An overrun of around \$22,000,000 is anticipated. Have run into some technical difficulties. Large part of overrun centers around subcontractors RCA and Eastman.
3. Compliance with specifications. Too early to comment, definitely, but looks fairly good.
4. Responsiveness. Quite responsive to requests and cooperation very good.
5. Subcontract Management. Hasn't done very well; overrun traced largely to subcontractors.



Contractor: Douglas

Contract Subject: Thor Production, Modification Launch Support

Contract Numbers,	Program,	Type,	Amount,	Comment
AF -63	Thor	CPFF	10.8M	.30M underrun
-65	Thor	CPFF	232.1M	11.25M overrun
-81	Thor	CPFF	9.48M	.18M underrun
-466	Thor	CPFF	33.6M	2.13M underrun
-527	Thor	CPFF	6.55M	.41M underrun
-759	Thor	CPFF	8.22M	.11M underrun
-114	Thor	CPIF	166.46M	12.10M underrun
-407	Thor	FPIF	8.42M	.84M underrun
-25	Thor	FPIF	5.25M	.70M overrun
-80	Thor	FPIF	6.75M	1.09M overrun
-36016	Genie	CPFF	6.44M	.370M underrun
-19960	Genie	FPIF	14.0M	1.04M underrun
-20748	Genie	FPIF	6.10M	.139M underrun

### Evaluation

1. Schedule. Contractor has maintained schedule on these contracts. Contractor has been adaptable to adjusting schedule to meet changing needs of Government. There have been delays in individual launch schedules but these have been for the most part controlled by the Air Force.

2. Costs. As reflected above the contractor has been very close to meeting contract cost with an overall pattern of underruns.

3. Compliance with Specifications. Compliance was considered good. There is a consistent and sustained record of successful launches of both Thors and Genies. The actual reliability of Thors has exceeded the specifications requirement. The contractor is, for the most part, earning his performance incentives on incentives contracts.

4. Responsiveness. Contractor was considered satisfactory.

5. Subcontract Management. Considered satisfactory.

6. AFPR's Appraisal. Contractor has good procedures and within the last year has adapted them to meet the requirements of the Air Force 375 series regulation. His overall schedule performance has been 97% on schedule; he has an excellent record of successful launches of Thors and Genies. Reliability achieved in firings has exceeded specification requirement. Contractor has an active, effective cost reduction program.

Contractor: Douglas, Santa Monica

Contract Subject: Skybolt Development and Production

Contract Number	Program	Type	Amount	Comment
AF-39587	Skybolt (Dev)	CPFF	448M	44.3M overrun <u>Terminated</u>
-8220	Skybolt (Prod)	L/C	71.0M	<u>Terminated</u>

Evaluation

1. Schedule. The contractor missed some development milestones during the life of the program. However, the several reorientations and dollar constraints created a difficult environment. At the time the program was terminated the contractor's performance was considered satisfactory.

2. Costs. As reflected above the contractor had a 44.3M or 9.82% overrun on the development contract. Since the production contract was terminated in a L/C stage there is no assessment of cost performance. At the time of termination the contractor's efforts to control cost were considered satisfactory.

3. Compliance with specifications. The initial technical approach proposed by Douglas was substantially altered. There were subsequent but more limited reorientation throughout the life of the program. As the program progressed, however, the contractor was, for the most part, meeting his technical milestones and was achieving the expected performance. This is reflected by the results of a detailed status report on the Skybolt program progress with particular emphasis on results of the first guided flight conducted 28 November 1962. Representatives of OSD were present at this meeting and agreed with Air Force personnel present that the program appeared technically sound. Further, the second flight launched 22 December was reported as completely successful.

4. Responsiveness. After overcoming initial difficulties and establishing a strong project management organization, the contractor's cooperation and responsiveness was very good.

5. Subcontract Management. After the initial adjustments which affected the entire program, the contractor's performance was satisfactory.

6. Overall Appraisal. Based on the evaluation of those knowledgeable on the Air Staff of the Skybolt Program, the following overall appraisal of Douglas' performance is provided. In the initial stages of the program, Douglas did a below average job. They had a weak project organization that was too low in the division structure to achieve effective overall program management or elicit required top management assistance. After these deficiencies were corrected early in the program, the contractor's performance steadily improved. By the time the program was terminated, Douglas was doing a very satisfactory job. The contractor's performance must be viewed in the context of the total environment. His performance was certainly affected by the dollar constraints and the re-orientation of the program.

Contractor: Douglas

Contract Subject: Nike/Hercules/Zeus

Contract Number,	Program,	Type,	Amount,	Comment
Army -983	Hercules	CPFF	98.50M	.62M underrun
-149	Hercules	CPFF	10.09M	.43M underrun
-1859	Hercules	CPFF	8.83M	.35M underrun
-1082	Hercules	CPFF	37.89M	.67M underrun
-1556	Hercules	CPFF	14.29M	.24M underrun
-1562	Hercules	CPFF	100.19M	.86M underrun
-2235	Hercules	CPFF	31.68M	.69M underrun
-2309	Hercules	CPFF	16.18M	.20M overrun
-1955	Nike-Zeus	CPIF	309.03M	3.86M underrun

Evaluation

1. Schedules - Contractor's performance has been satisfactory.
2. Costs - Performance has been very good. Generally there have been slight underruns.
3. Specification Compliance . Performance satisfactory.
4. Responsiveness. Contractor was responsive.
5. Subcontract Management. Satisfactory.

July 1, 1965

Contractor: Douglas Aircraft Co., Inc., Santa Monica, Calif.

Contract Subject: Delta space vehicles and launch services

Contract Dates, Numbers, Type, Amounts, and Status:

Dec. 1961	NAS 5-1681	CPFF	\$27,889,000	Completed
Oct. 1960	NAS 7-220	CPIF	17,548,000	Completed
July 1964	NAS 7-266	CPFF	18,628,000	Not Completed
Apr. 1959	NASw-38	CPFF	32,277,000	Completed
Oct. 1960	NAS 7-265	CPFF	8,832,000	Completed
Jan. 1965	NAS 7-335	CPIF	15,536,000	Not Completed
	NAS 7-336	FP Incen.	16,200,000	Not Completed
Oct. 1960	NAS 7-221		<u>7,468,000</u>	Completed
Total			\$144,378,000	

Evaluation:

Schedules. Has been very good. Has never missed a launch date. At times, when NASA did not need delivery on schedule and funds could be saved by later delivery, delivery has been beyond contract date. Delivered first development hardware three months after contract delivery date.

Costs. Has been very good. Largest overrun was 8.8% of estimated cost. Of five completed contracts, there were no overruns on three.

Compliance with Specifications. Contract specifications were quite broad. Contractor compliance has been good and results of program have been good.

Responsiveness. Contractor has been cooperative and responsive except for the incentive contracts. In those, it feels it must consider the incentive elements for its own protection.

Subcontract Management. The business management elements, cost, schedule, etc., have been good. Technical control of subcontractors started out with mediocre effect but later improved and is now good.

July 1, 1965

Contractor: Douglas Aircraft Co., Inc., Santa Monica, Calif.

Contract Subject: Research, development and engineering for the S-IV stage of the Saturn I vehicle and the related S-IV-B stage of the Saturn I-B and Saturn V vehicles.

Contract Nos.: NAS 7-1 and NAS 7-101

Contract Value: NAS 7-1: \$226.7 million  
NAS 7-101: \$354.8 million

Dates of Contract: May 27, 1960 and April 2, 1960 (definitive), respectively

Type of Contracts: CPFF

Status: S-IV deliveries complete; S-IV-B nonflight deliveries began in 1964, flight deliveries to extend into 1968.

Evaluation:

1. Schedules. Improvement in last six months has reduced several months' forecast slip to essentially an on-schedule condition. Contractor has demonstrated ability to take effective corrective action when slippage is discovered, but in both S-IV and S-IV-B projects did not take early preventive measures.

2. Costs. There are currently overruns in this program, something less than \$100 million. Amount is obscured by outstanding change orders and preparations to convert NAS 7-101 to an incentive.

3. Compliance with Specifications. Evaluation on balance is that contractor does good job of meeting specifications when they are definite. Frequently requests deviations.

4. Responsiveness. Has been good in the past six months; not as good earlier. Company is strict about contract coverage and changes. Project people have been quite responsive, especially in recent months.

5. Subcontract Management. Has good liaison and communications with subs. A tough buyer. Does well usually on technical management but on occasion has run into trouble buying development hardware on fixed-price contracts.

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Contractor: General Electric Company, Missile and Space  
Division, Valley Forge, Pennsylvania

Contract Subject: Programs I and II

Contract Dates	Number	Type	Amount	Comments
11/28/60	-8 (I)	CPFF	50.8M	16.1M overrun. 32% of negotiated cost. <u>Terminated.</u>
No date	-98 (I)	Ltr Cont	-	Terminated
No date	B-1* (II)	CPFF	29.0M	
12/1/61	-76 (II)	CPFF	94.1M	7.5M overrun
5/1/62	-155 (II)	CPFF	14.5M	.56M overrun
1/1/64	-432 (II)	CPIF	34.9M	2.5 overrun

There are two other contracts totalling approximately 88.0M  
which have not matured sufficiently to be evaluated.

\*Fictitious designation.

Evaluation:

1. Schedules

Program I. Contractor was 30 to 60 days behind  
schedule during development resulting in 30 to 45 day delay in  
each of 5 launches.

Program II. Minimum 60 day delay attributable  
to contractor during period of basic development. During  
period of manufacture and launch, average delay of 7 weeks  
per launch on first 6 flights. Contract schedule formally  
revised to match contractor's capabilities. Average delay of  
one week per launch on flights 7-16 based on revised contract  
schedule. In December 1964 there was a one-month program delay  
to the revised schedule attributable to additional contractor  
design and manufacturing problems. Contract schedule again re-  
vised to match contractor capabilities.

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2. Costs. On both programs, contractor has had a history of cost overruns. His cost control is considered marginal.

3. Technical Performance

Program I - Marginal in meeting specifications.

Program II - Generally satisfactory in meeting specifications. Flight performance has, in general, showed an upward trend.

4. Overall Appraisal.

Program I. Performance has been below average, marginal in meeting specifications, general customer satisfaction and cost control.

Program II. Performance has been generally satisfactory on an average with other contractors doing work of comparable complexity.

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Contractor: General Electric Co. Missile and Space Division  
Valley Forge, Pa.

Contract Subject: Re-entry Vehicles ATLAS and TITAN and M<sup>2</sup>

Contract Dates,	Numbers,	Type,	Amounts,	Comment
3/1/57	-116 (MK 2)	CPIF	35.5M	2.9M underrun
9/23/58	-269 (MK 3)	CPIF	101.6M	3.3M overrun
7/2/59	-329 (MK 3)	CPIF	15.9M	.250M overrun
8/22/60	-617 (MK 6)	CPIF	70.0M	Within target (est.)
7/1/61	-20 (MK 6)	FPIF	26.9M	1.0M overrun (est.)
10/25/63	-473(MK 12)	FPIF	52.9M	Within target (est.)

#### Evaluation

1. Schedules - Performance considered satisfactory. Schedules have been maintained. Problems encountered from time to time were normal and did not affect schedules.

2. Costs - Cost performance is considered satisfactory. Contractor has been prompt in meeting target dates for submission of cost proposals. Negotiations are conducted by Program Manager.

3. Compliance with Specifications - Contractor's record is considered satisfactory. He has been granted relief in some instances from specification requirements, conversely he has been required to tighten specification requirements. Technical performance is considered excellent.

4. Responsiveness - Response has been excellent. Top management has shown interest and has participated actively in these programs. The cost reduction, value engineering and zero defects programs are active and meaningful.

5. Subcontract Management - Contractor has a satisfactory subcontract management program in which subcontracts are effectively administered by business and technical personnel.

6. OIC's Appraisal - Contractor has done a good job of meeting schedules for cost proposal submission. Contractor has an operating efficiency factor of 88%. (This means that DIRECT personnel spend 88% of their time on direct effort rather than

being diverted.) Subcontract management is effective. Cost performance is considered satisfactory. Technical performance is considered good. Top management support and interest in programs is very evident.

July 1, 1965

Contractor: General Electric Co., Missile and Space Vehicle Dept.,  
Valley Forge, Pa.

Contract Subject: Furnishing and testing of flight model stabilization  
and control sybsystems for the NIMBUS meteorological  
satellite

Contract Number: NAS 5-1347

Contract Value: \$11.4 million

Contract Date: April 11, 1962 (definitive)

Type Contract: CPFF

Status: Not Completed.

Evaluation:

1. Schedule. The contractor's schedule has been changed due to changes in component alterations. Contractor is considered to have done fairly well.
2. Costs. The contractor's cost control was not considered good. An overrun, the amount not yet determined, may run as high as \$6,000,000 and is partly attributed to its cost management.
3. Compliance with Specifications. The contractor's compliance with specifications is considered fairly good. The control system was overweight and required major redesign to obtain the required accuracy. Its technical performance is not considered above average.
4. Responsiveness: The contractor was responsive.
5. Subcontract Management. There were no major subcontracts, so no comment is made on this factor.

July 1, 1965

Contractor: General Electric Co., Missile and Space Vehicle Dept.,  
Valley Forge, Pa.

Contract Subject: Integration and testing of NIMBUS spacecraft

Contract Number: NAS 5-978

Contract Value: \$34.5 million

Contract Date: March 28, 1962 (definitive)

Type of Contract: CPFF

Status: Not completed

Evaluation:

1. Schedule. Certain changes, because of technical problems, required changes in schedule. Contractor is considered to have been responsive to needed schedule alterations and some schedule delay not considered the fault of the contractor.

2. Costs. The contractor's cost control is considered average. An overrun in the neighborhood of \$6,000,000 is about equally the responsibility of the contractor and other factors.

3. Compliance with Specifications. Contractor's compliance with specifications was considered good and its technical performance considered about average.

4. Responsiveness. Contractor was considered to have given good response to requests made to it.

5. Subcontract Management. There were no major subcontracts under this prime so no comment is made on this subject.

Contractor: Lockheed Aircraft Corporation, Lockheed Missiles  
and Space Company, Sunnyvale, California

AF Programs

Standard Agena	Aerospace Ground Equipment
Gemini	Satellite Control Network
Snap Shot	BIO Med. Satellite
Vella	Range Support
Reflector Orbiting Experiments	

5 year Cost History (thru 1964)

<u>Type</u>	<u>Amount</u>	<u>Comment</u>
CPFF	868.291M	74.3M overrun 8.6%
CPIF	163.025M	.878M overrun .5%
FPIF	37.118M	1.070 underrun 2.9%

Evaluation

1. Schedules. Performance considered satisfactory. There has been variations in deliveries but this has been in response to Air Force direction.

2. Cost. There has been a history of overruns but there has been an improving trend over the past three years where the percentage of overrun on CPFF contracts has decreased from a high in 1961 of 14.4% to 6% in 1963 and 3.1% in 1964.

3. Compliance with specifications. Contractors compliance with specifications was considered good. His technical performance on most contracts considered to be satisfactory.

4. Responsiveness. Contractor has been cooperative and responsive.

5. Subcontract Management. Contractor has good procedures and has maintained good surveillance over subcontractor.

6. AFPR's Appraisal. Considers overall performance very good. He feels good progress is being made in improving cost controls and cost performance. Schedule compliance is regarded as good particularly in the light of the variations in Air Force requirements. Contractor's technical performance considered responsive to Air Force requirements.

July 1, 1965

Contractor: Lockheed Aircraft Corporation, Lockheed Missiles  
and Space Company, Sunnyvale, California

Contract Subject: Reactor in Flight Test Vehicle Stage (RIFT)

Contract Number: NAS 8-5600

Contract Value: \$14.952 million

Contract Date: June 28, 1962

Type Contract: CFFF

Status: Terminated for convenience of the Government,  
February 1964.

Evaluation:

1. Schedule. Contractor's performance under the contract was very good. This was a study and technology effort and did not involve production. Contractor was required to meet milestones from a technology approach and his performance in meeting these milestones was very good.

2. Costs. Contractor kept well within ceiling limits of the contract. No overtime was required.

3. Compliance with Specifications. Contractor was required to develop specifications under this study and technology effort. The results were very good and have led to a continuation of the technology effort under other contracts.

4. Responsiveness. Contractor was cooperative and responsive to requirements. Even under termination proceedings, the contractor evidenced a cooperative attitude.

5. Subcontract Management. Not applicable since the subcontractors under this contract were serving in a consulting capacity.



July 1, 1965

Contractor: Lockheed Aircraft Corporation, Lockheed Missiles  
and Space Company, Sunnyvale, California

Contract Descriptions: (two contracts)

- a. NASA AGENA B Program, Space Vehicles for Ranger, Nimbus, Mariner, Comsat
- b. Modification of AGENA vehicle and mission peculiarities under Astronomical Program. Objective of program is to place a stable platform above earth's atmosphere for the purpose of obtaining data relative to astronomical phenomena.

Contract Numbers: a. NAS3-3800      b. NAS3-3801

Contract Values: a. \$99.9 million      b. \$5.126 million

Contract Dates: a. February 6, 1961 (definitive)  
b. December 17, 1962 (definitive)

Type of Contracts: a. CFFF  
b. CPIF

Status: a. Estimated completion date, early 1967.  
b. Estimated completion date, mid-year 1966.

Evaluation:

1. Schedules. Contractor has performed well in meeting contract schedules and has demonstrated ability to take effective action to meet directed changes.

2. Costs. There are currently overruns in these programs estimated at between 5 to 8 percent. Under Contract NAS3-3800 the overrun is due primarily to a subcontract problem. Program costs have risen due to changes in directed spacecraft deliveries. Some cost elements have been considered high but company has shown evidence of improvements in this area.

3. Compliance with Specifications. Contractor has been performing well in this respect. In its desire to comply with specifications, contractor imposed more stringent requirements

-2-

than were required. This resulted in the contractor not being able to meet these more stringent requirements, in some cases, and the requirements were waived.

4. Responsiveness. Contractor has generally been cooperative and is showing consistent improvement in this area. There have been some problems with the contractor in the acceptance of technical direction.

5. Subcontract Management. Contractor exercises good surveillance over his subcontractors and demands good performance. It is continually aware of their status. One subcontractor went into bankruptcy. Contractor effected removal of material from subcontractor's plant and undertook work with minimum problems.