COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-175988

May 16, 1973

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The Honorable John W. Warner
The Secretary of the Navy

Dear Mr. Secretary:

Reference is made to letter SUP 022 dated March 5, 1973, from the Deputy Commander, Procurement Management, Naval Supply Systems Command (NAVSUPP), reporting on the protest of Mine Safety Appliances Company (Mine Safety), against the award of, and a subsequent order under, contract No. N00104-72-A-0309, a basic ordering agreement, to Lear Siegler, Inc. (Lear Siegler), by the Navy Ships Parts Control Center.

The award represented the culmination of over 4 years of testing and evaluation to procure a suitable emergency breathing device, following several fires on board aircraft carriers causing over 200 deaths. Asphyxiation caused many of the casualties and it is reported that a substantial number of lives might have been saved if crew members trapped in smoke-filled spaces had been equipped with emergency escape breathing devices. In October 1967, the Chief of Naval Operations (CNO) assigned to the Chief of Naval Material (CNM), on an urgency priority basis, the responsibility to develop a new, small, lightweight, easily donned and operated individual emergency breathing device which would have a minimum oxygen supply of 10 minutes. On March 17, 1966, the Naval Ship Engineering Center (NAVSEC), acting as technical agent for the Naval Ship Systems Command (NAVSHIPS), polled the industry to determine the possible availability of such equipment for immediate issuance to shipboard personnel. The letter reads, in pertinent part, as follows:

> Specifically, the Navy is interested in securing a self-contained closed-cycle device which will allow a man to escape from any smoke filled section of a ship. The following set of operational characteristics is being sought in the device:
>
> (1) Support life for a minimum of ten (10) minutes under heavy labor conditions.
>
> (2) Eye protection against smoke irritants
>
> (3) Conveniently carried by a man as he performs his daily work; in this respect, a package size of 6"x4"x2" appears reasonable
>
> (4) Device must be easy to don and simple to operate

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(5) Device must have a long "shelf" life - be ready for instant use but not require periodic maintenance

(6) Weight must be low enough to not degrade normal working performance

(7) Carrying case must be of a durable, fire resistant material.

Quantity-wise, the Navy's initial procurement would be for about one hundred thousand (100,000), units. The delivery period desired would be as short as possible, in terms of a few months.

It is requested that any products you have that meet, surpass, or approach the requirements cited above be identified. In addition, it is requested that availability, unit cost and an estimated delivery schedule be provided for any devices which you identify. This information is desired by 1 April 1968. In order to gain a complete picture of the availability and state of the art regarding such devices, negative replies are also desired.

Following are quotations from reports of CNO and NAVSEC submitted to our Office summarizing key occurrences in the program history of the equipment:

As the result of this letter several commercial devices were offered for testing by the Navy. Testing eventually narrowed to concentrated evaluation of products manufactured by Mine Safety Appliances Co. (named Self Contained Oxygen Breathing Escape Apparatus, or SCOBEA) and a device manufactured by Scott Aviation Corporation, and was carried on by the Navy over several months at the Naval Research Laboratory (NRL). Both units were scheduled for side-by-side operational evaluation (OPEVAL) by COMOPTEVFOR [Commander, Operational Test and Evaluation Force] in Norfolk in July 1969, however, in February of that year, the Naval Ship Engineering Center (NAVSEC) reported that, as a result of tests conducted at NRL, the Scott Aviation device was unsafe for OPEVAL. Subsequently, the SCOBEA was sent to OPEVAL by itself.

In the OPEVAL report dated 12 November 1969 several major and minor discrepancies were pointed out. The next several months were spent in trying to correct these discrepancies. In the meantime the Naval Safety Center, who had reservations with respect to safety aspects of the SCOBEA, recommended, in April 1970, that a Survival Support Device (SSD) manufactured by Lear Siegler, Inc. of Anaheim, Calif,

be evaluated and tested for use aboard ship as an emergency system.

After a successful demonstration of the SSD at NRL on 1 September 1970, the Chief of Naval Operations (CNO) recommended to the Chief of Naval Material that the SSD be included as an additional candidate in the search for an emergency escape breathing apparatus.

Various tests on both devices were conducted at the Naval Research Laboratory, the Naval Medical Research Institute (NMRI) and by COMPETITOR over the next several months. These devices were progressively modified by each firm to meet performance problems and deficiencies as they were encountered during testing. These tests culminated with a final side-by-side test at NMRI in May 1971. * * * The results of this test showed that, although both devices had liabilities, both were within the physiological parameters which had been established with respect to cardiovascular strain and carbon dioxide.

Since both devices were considered adequate and safe, and both could perform the function of an emergency escape device, it was decided to arrange for a side-by-side OPEVAL to determine which device was more suitable for Fleet use. The CNO concurred and the OPEVAL was scheduled for October 1971.

COMPETITOR, in June 1971 outlined the scope of the side-by-side tests and recommended minimum criteria to be used in determining the acceptability of the devices. Subsequently, the Chief of Naval Material (CNM) indicated that failure to meet the goal of 10 minute duration should not in itself be disqualifying and CNO concurred.

* * * In general, COMPETITOR found discrepancies in both devices and indicated that both devices would support a person for 6 minutes in escaping from or through an irrespirable atmosphere. The SSD, however, was considered to be the most suitable of the two as an emergency escape breathing apparatus. * * *

After the OPEVAL was over, COMNAVSHIPS questioned some safety aspects of the SSD device and recommended further testing. Without being asked, the Bureau of Medicine and Surgery (BUMED) stated that both devices were considered to be adequate and safe as an interim rescue breathing device and that no further testing of either prototype device is considered necessary. Based on this information, the CNM indicated non-concurrence with the

recommendations of COMNAVSHIPS and recommended to CNO that the Lear Siegler SSD be approved for service use and for immediate procurement. This occurred on 30 November 1971.

The CNO, on 10 February 1972, approved the 6-minute Lear Siegler SSD for service use provided that certain improvements recommended by COMOPTEVFOR were incorporated, * * *

NAVSHIPS was requested to prepare a modified performance specification for the Lear Siegler unit. The specification was prepared by NAVSEC, and reviewed by concerned activities. The specification was published but subsequently recalled at the direction of NAVAIR, with no procurement to be made by this specification.

PROCUREMENT PHASE:

In mid-April 1972, the CNM informed COMNAVSHIPS of the intent of OPNAV to procure the Lear Siegler device. CNO directed proceeding to point of contract with the procurement of the Lear Siegler SSD and specified the details of the program, including the use of the Lear Siegler specification, a specification requiring tests but lacking the definitive quality assurance test procedures of [the recalled specification]. Subsequently a request for procurement was prepared by NAVSEC, funding obtained and the document revieved by NAVAIR, NAVSHIPS and BUMED prior to release to the SHIPS PARTS CONTROL CENTER, Mechanicsburg.

Initial BUMED reservations, based on physiological aspects were not pressed and were not disqualifying. On 18 May 1972 funds were recalled and the program temporarily halted. Upon receiving additional guidance from NAVAIR on 23 May 1972, and the decision reaffirming the selection of the (SSD) by [the Assistant Secretary of the Navy (Installations and Logistics)], a new request for procurement was prepared, funding obtained and the program restarted. NAVAIR again cited the urgent need for the device. * * *

The present situation on emergency breathing devices embodies two actions:

1. The procurement of a limited number, approximately eight aircraft carriers worth, of Lear Siegler SSD's as an interim device to be supplied on an urgent basis. The devices are to be rigorously tested and their performance characteristics promulgated to their introduction to the fleet.

2. In parallel with this interim action, a long range development program, has been initiated to produce through competition, a device or devices to meet all the Navy's requirements for emergency breathing equipment.

Order No. 0001 under the basic ordering agreement contract was issued to Lear Siegler on June 8, 1972, despite the pendency of the protest at our Office, based on the urgent need for 25,300 devices for use by aircraft carriers on tactical missions in Southeast Asia. The order was issued pursuant to the following determination and findings under 10 U.S.C. 2304(a)(2) which authorizes the negotiation of contracts where the public exigency will not permit the delay incident to formal advertising:

DETERMINATION AND FINDINGS

Authority to Negotiate Individual Contract When the Public Exigency Will Not Permit the Delay Incident to Formal Advertising.

Upon the basis of the following findings and determination, the proposed contract described below may be negotiated without formal advertising pursuant to the authority of 10 U.S.C. 2304(a)(2).

FINDINGS

1. The proposed contract calls for the furnishing of Emergency Breathing Devices for all ships in the United States Navy. It is proposed to furnish these devices to those aircraft carriers in the combat zone in Southeast Asia, on a priority basis. These Emergency Breathing Devices shall then be supplied to other aircraft carriers and thereafter to all ships in the Fleet. The supplies being procured shall provide ships' personnel with an emergency breathing device for use in high-risk areas aboard ship where the incidence of fire or explosion is high. Such high-risk areas are more prevalent on aircraft carriers than on other ships in the Fleet.

2. Because of the safety-of-life factor without these devices, aircraft carriers in Southeast Asia have curtailed the performance of operational tasks. These aircraft carriers will be unable to fully accomplish their assigned missions without having the Emergency Breathing Devices available for use by ships' personnel, in the event of catastrophe.

3. The use of formal advertising for this procurement is impractical, because such method would cause substantial

delay in the availability of the material and would prevent aircraft carriers from fully complying with their assigned missions during said period.

DETERMINATION

The use of a negotiated contract, without formal advertising, is justified because the public exigency will not permit the delay incident to formal advertising.

It is quite evident from the record that the Navy utilized an approach based on the testing and evaluation of then existing commercial devices with the expectation that, with only slight modification, those devices could be made suitable for actual use. The award of the interim procurement to Lear Siegler was followed by a Navy implementation of a research and development program to significantly increase the effectiveness of emergency escape breathing devices. The research and development contemplates a program from August 1972 through June 1974 whereunder steps will be taken to approve, develop, test, and evaluate devices, and develop specification for eventual procurement on a competitive basis if possible. The request for proposals accompanied by a detailed specification to accomplish this research and development program was issued on March 8, 1973.

We note at this juncture that neither the Lear Siegler SSD nor the Mine Safety SCOBEA entirely meets the design, operational and performance characteristics of the optimum emergency breathing apparatus desired by the Navy. At least as early as the final side-by-side OPEVAL in October, 1971, which recommended testing and evaluation to advance the state-of-the-art, the Navy's goals had not been reached. At that time, a research and development program would have been appropriate as contemplated by Armed Services Procurement Regulation 4-101 and 4-102.

In expressing the foregoing view, we do not mean to negate the Navy's belief that an interim supply of admittedly less than optimum devices was of the utmost urgency which could not await the completion of a research and development program. Faced with this urgency, the Navy contracted with Lear Siegler for its less than optimum device. Mine Safety argues that its device was technically acceptable and immediately available and questions the determination of urgency in light of the 4-year procurement program. However, we find no basis in the record to question the urgency determination supporting the negotiation of Order 0001. In this regard, the following extract from 52 Comp. Gen. 57, 62 (1972) is pertinent:

> * * * the D&F cited 10 U.S.C. 2304(a)(2) as authority to negotiate the contemplated contract. The provisions of 10 U.S.C. 2310(b) make the findings of the D&F final; therefore, we are precluded from questioning the legal sufficiency of the

findings. In our decision 51 Comp. Gen. 658 (1972), our Office concluded that we are not precluded from questioning whether the determination, based upon the findings, is proper. We recognize that while reliance upon the "public exigency" exception to formal advertising does not per se authorize a sole-source award, it does clothe the contracting officer with considerable latitude to determine the method best suited to satisfy the urgent needs of the Government. 46 Comp. Gen. 606 (1967).

At the time of the October 1971 final OPEVAL, only Lear Siegler and Mine Safety were qualified suppliers. Concerning the technical rejection of the Mine Safety device, the Assistant Secretary of the Navy (Installations and Logistics) was advised as follows by the CNM:

Subject: Emergency Escape Breathing Device

1. In reply to your question as to why the Lear Siegler Survival Support Device (SSD) was selected as being more suitable for the Navy than the Mine Safety Appliance Self Contained Oxygen Breathing Escape Apparatus (SCOBEA), the following information is provided as documented in the COMFOTEVFOR report:

a. The donning time of the SCOBEA is twice as long as the SSD (32-36 seconds vice 15-17 seconds).

b. Activation of the SCOBEA requires an unnatural movement; an outward pull on a lanyard vice a downward pull.

c. Trouble was experienced in opening the SCOBEA container.

d. The SCOBEA hood is too fragile - two hoods ripped during the donning sequence.

2. In addition the following characteristics were noted during the OPEVAL by Navy observers (NAVMAT and NAVSEC):

a. Due to the relatively complicated donning sequence of the SCOBEA, much more training of personnel would be required.

b. The SCOBEA presents a dangerous explosive hazard when exposed to oil. This was demonstrated at the Fire Fighting School at Norfolk during the OPEVAL.

c. Communications are curtailed when wearing the SCOBEA unless the mouthpiece is removed from the mouth.

d. The wearer has no way of knowing if the unit is activated. (SCOBEA)

3. Probably the most significant factor was that 80% of the test subjects (10 men who wore both devices in 80 tests) preferred the Lear Siegler SSD because of its simplicity and shorter donning time.

Disregarding the explosive hazard allegedly presented by the Mine Safety SCOBEA, the memorandum points out certain valid human engineering and operational advantages characteristic to the use of the Lear Siegler device. We have viewed specifications prescribing features utilizing such advantages as proper statements of the actual needs of the Government. See 51 Comp. Gen. 247 (1971); B-174140, B-174205, May 16 and November 17, 1972. Therefore, in our view, the choice of the SSD over the SCOBEA would have been justified in October 1971.

However, our review of the practices and procedures involved in the testing, evaluation and eventual award to Lear Siegler indicates that the informalities which permeated those practices and procedures generated a noncompetitive situation to the prejudice of an otherwise qualified second source of supply.

The Deputy Chief of Naval Material (Procurement and Production) furnished our Office with the following information relating to the treatment of the Mine Safety device during test and evaluation:

> There was a considerable discussion of the side-by-side operational evaluation conducted by the Navy's Independent test and evaluation agency, [COMOPTEVFOR], in October 1971, particularly with respect to the Chief of Naval Material message of June 1971 to COMOPTEVFOR to the effect that failure to provide ten minutes breathing duration should not in itself be considered disqualifying. The implication was that this represented a change in requirements from those established by the original Navy expression of interest in March 1968. However it is noted that the original expression of interest set forth only general characteristics and asked that the industry submit devices that "meet, surpass, or approach" those characteristics. The objective of the test was to provide a comparison of the overall operational suitability of available devices. No one of the characteristics enunciated in the original expression of interest was of such importance that it

should be permitted to override all others. While the Lear Siegler device provides less duration it was judged by COMOPTEVFOR to be superior in terms of overall operational suitability. In this respect it is noted that the test criteria were not ranked in order of importance nor assigned weights as would be the case in a formal procurement source selection process. In retrospect the informality of the testing process might seem regrettable. However, the matter must be viewed in the light of circumstances which Navy management faced at the conclusion of the side-by-side operational evaluation in October 1971. It was obvious that the Navy's ultimate needs were for a better device than either of those which had survived the testing program. This need could best be met by a formal development program. Such a program was instituted and * * * is being pursued. However, this would require a considerable period of time and shipboard personnel continued to face unprotected the hazards of smoke inhalation from shipboard fires. In order to prevent further loss of life it was necessary to procure a device to provide protection during the interim until a fully suitable device could be developed and produced. There were only the two candidates to choose from. It is arguable that both of them could have been further improved by providing the results of the side-by-side operational evaluation to both contractors, permitting them to make further modifications, and then conducting further tests. In this regard it is noted that the explosive hazard presented by the MSA SCORPA device is only susceptible of correction by a complete change in the basic design and operating principle of the device which would entail considerable time and effort. In any event to test further would have necessitated a further continuation of a program which had already been prosecuted for over three years. The degree of improvement demonstrated in the devices during that extended period did not appear to offer a promise of further improvement sufficient to warrant further delay in providing the needed protection to shipboard personnel. As pointed out in the previous reports the need for such a protective device had been known for almost five years during which loss of life had continued and further delay in providing the needed protection was considered intolerable. Accordingly it was decided that the test program would be pursued no further and the device most operationally suitable would be procured on an interim basis. An additional factor in the selection was the explosive hazard presented by the MSA SCORPA. This hazard is well known and Navy training courses have included precautions regarding the use of devices of this design for many years. Although it has been tolerated in the past it is nevertheless a genuine

hazard and a drawback in comparison with a device such as the ESD which does not present the hazard. Since the test program was not to be pursued further no purpose would have been served by providing the test report to the companies. The record does not indicate that the test report was furnished to either company.

* * * However, all parties who participated in the preceding test and evaluation were treated equally with respect to knowledge of the requirement and afforded equal opportunity to submit devices for testing. Those, including the protestant, who submitted devices appearing to offer sufficient promise to warrant further consideration were afforded equal opportunity to attempt minor modifications in order to meet the requirements.

The foregoing would seem to indicate that the Navy was faced with a fait accompli in October 1971 which precluded further modification and testing. Neither the OPEVAL test criteria nor the report setting forth the need for further modification of both devices was furnished to either Mine Safety or Lear Siegler. Insofar as the test criteria are concerned, the relaxation of the 10 minute breathing requirement to 8 minutes represented a concession to accommodate the Lear Siegler ESD. But Mine Safety was unaware of this relaxation. However, up to and including the final OPEVAL, the equality of treatment of both companies is evident from the record.

But, in the 8 months subsequent to the final OPEVAL and the award to Lear Siegler on an exigency basis, the record is replete with examples of opportunities extended to Lear Siegler to modify its device to comply with the Navy's requirements. In contrast, Mine Safety was eliminated from consideration and thus had no opportunity to modify its device to a point where Navy approval might have been extended. By way of example, the CNO in a memorandum to the CNO following the OPEVAL set forth various actions that could be taken to implement the recommendations made during the OPEVAL with respect to the ESD. In a memorandum from CNO to CNO dated February 10, 1972, it was stated:

> 1. Commander, Operational Test and Evaluation Force, in the final evaluation report on the Lear Siegler Survival Support Device, reference (a), recommended that the device be accepted for service use provided that certain improvements were accomplished. By reference (b), Commander, Naval Ship Systems Command recommended that further acceptability tests be conducted. In the first endorsement on reference (b), the Chief of Naval Material stated that

sufficient tests had been conducted to support acceptance of the device. Reference (c) supports the CHAMAT position on reference (b).

2. The Lear Siegler Survival Support Device is approved for service use provided that the improvements recommended for accomplishment by reference (a) (with the exception of anti-fogging measures beyond the state of the art as discussed in paragraph 4b. (1) of the first endorsement to reference (b)) are incorporated in the production equipment. (Emphasis supplied)

Subsequently, the CNM requested that NAVSHIPS provide a modified performance specification in consonance with the OPEVAL report and suggested modifications. The specification was prepared, reviewed, and published, but subsequently recalled without procurement action by CNM. The record contains no explanation for the recall except for a NAVSHIPS letter to our Office to the effect that the specification was in excess of the needs of the Government. Thereafter, the CNO requested the CNM to proceed to contract for the SSD, as described in a Lear Siegler specification dated March 27, 1972, incorporating the OPEVAL recommendations for modification. On the basis of the Lear Siegler specification, the basic ordering agreement and the order thereunder were executed. The Deputy Chief of Naval Material has advised that in several respects the Lear Siegler specification contains less stringent requirements than those in the recalled specification. Most notably, such requirements as a specific breathable gas flow rate, exertion by user, and carbon dioxide buildup are not found in the Lear Siegler specification.

The record does not show that Mine Safety was advised by the Navy that its SCOBA presented a dangerous hazard. To the contrary, in May 1969, NAVSEC stated as follows:

1. Reference (a) states that the subject "SCOBA" has not been properly evaluated or tested and, therefore, is not ready for OPEVAL. It also mentions that the oxygen generating material is potassium peroxide whereas the chemical is potassium superoxide. All components used in the chemical operation of the "SCOBA" units have been used by the Navy in their OBAs for many years. In fact, the "SCOBA" is a miniature "OBA." The MSA CHEMOX, which has Bureau of Mines approval, is the commercial version of the Navy OBA. Problems encountered in the MSA "SCOBA" were not those of hazard and explosion but rather the parameters of weight, cost, comfort and simplicity of operation. (Emphasis supplied)

Furthermore, Mine Safety points out that:

> The Navy has used the MSA OBA (Oxygen Breathing Apparatus) for approximately 30 years with no accidents. This is supported by the Navy's own file (reference MRL letter dated 15 May 1969, enclosure #8 with MSA letter of 1 August 1972). This is the same type of chemical system that the SCOBEA employs. The new R & D specification has no requirement for testing any apparatus by dumping it in gasoline/oil/water; but according to all previous correspondence, this is the paramount overriding reason why the SCOBEA was rejected. It should be pointed out that paragraph 3.2.14 of the new specification is concerned about fragmentation when containers are filled to high pressures, as is the BSD.

There is no information of record that the human engineering defects which disqualified the SCOBEA could not have been corrected if such data were communicated to Mine Safety.

We believe that Mine Safety should have been apprised of the Navy's objections to the SCOBEA and that such company should have been given an opportunity to respond to such objections within the necessary time constraints. In view of the lengthy period from final testing until award, it is conceivable that Mine Safety, a supplier of such devices to other Government agencies, could have developed an acceptable device for the interim procurement.

In retrospect, the Government's interests might have been better served had the Mine Safety device received the same consideration as the Lear Siegler SSD during the period subsequent to the final OPEVAL. Had this been the case, the Government probably would have had the benefits of competition when the interim buy became urgent. Though we believe that the present state of the emergency breathing device program reflects the prior imperfections in the administration of the program, we cannot point to a violation of law or regulation.

Concerning the urgency buy and possible future interim buys, the Deputy Chief of Naval Material advises:

> Further procurements of the interim device will be kept to a minimum consistent with safety requirements and the progress of the research and development program. However, future deliveries of the interim device will have no effect on the quantity of items to be procured upon completion of the research and development program. Because the interim device is not entirely satisfactory and because

of its shelf life (maximum of five years) all of the interim devices will be replaced by the item resulting from the research and development program within a relatively short period.

We recommend that Mine Safety and other qualified firms be given the opportunity to submit emergency escape devices for approval as interim sources of supply pending results of the research and development program. We would appreciate being advised as to our recommendation and as to contemplated procurement actions subsequent to the evaluation of the research and development effort.

Sincerely yours,

Paul G. Dembling

For the Comptroller General
of the United States