

ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeal of -- )  
 )  
Defense Systems Company, Inc. ) ASBCA No. 50918  
 )  
Under Contract No. DAAA09-92-C-0477 )

APPEARANCES FOR THE APPELLANT: Joseph S. Wager, Esq.  
Jon N. Kulish, Esq.  
Haas & Najarian  
Washington, DC

APPEARANCES FOR THE GOVERNMENT: COL Nicholas P. Retson, JA  
Chief Trial Attorney  
MAJ Jeffrey D. Stacey, JA  
CPT Melissa T. Miller, JA  
CPT Christine M. Choi, JA  
Trial Attorneys

OPINION BY ADMINISTRATIVE JUDGE TING

In 1992, Defense Systems Company, Inc. (DSC) entered into a fixed price contract with the Army (the Government) to supply HYDRA-70 rockets on a “systems” basis. Prior to that time, the Government had been procuring components of the rockets, and had contracted with “Load, Assembly and Pack” contractors to assemble the rockets. DSC completed the basic contract and the quantities covered by the Option A period of the contract after experiencing numerous technical and financial difficulties. In 1994, the Government decided not to exercise Options B and C, and to award a follow-on contract to another contractor. In 1996, DSC filed a claim alleging that the Government breached the contract in bad faith and caused its demise as a viable company. It seeks breach and other damages in the amount of \$71,999,163. We decide entitlement only.

**PART I.**

**FINDINGS OF FACT**

**BACKGROUND**

1. DSC was a wholly owned subsidiary of BEI Electronics, Inc. (BEI), a San Francisco-based holding company (tr. 2/18). DSC was founded in 1952, in Little Rock, Arkansas. It produced electronics and ordnance products (tr. 2/13).

2. The 2.75-inch HYDRA-70 rockets are the most widely used rockets in the world. They are made up of three major components - the rocket motor, warhead, and fuze. The rocket has two types of motors. The Army version of the rocket motor is designated as the Mark (MK) 66, Mod. 3; the Navy version is designated as the MK66, Mod. 2. (Tr. 4/7) The rockets can be outfitted with as many as 11 types of warheads, including the M261 (tactical submunition) and the M267, the training version of the M261 warhead (tr. 3/137, 4/7-8, 22/52). Because different components can be selected and combined to adapt to specific mission requirements, the HYDRA-70 rockets are used by every branch of the armed services.

3. Until 1992, the Government procured the HYDRA-70 rockets by components. The components were assembled by a "Load, Assembly and Pack" or "LAP" contractor. In 1966, DSC established a LAP facility in Camden, Arkansas, for rocket motors. (Tr. 2/13)

4. The HYDRA-70 rocket program was originally managed by the Army Missile Command (MICOM), Redstone Arsenal, Alabama. The program was transferred to U.S. Army Munitions and Chemical Command (AMCCOM), Rock Island, Illinois, in September 1991 (tr. 8/90, 109, 126). AMCCOM subsequently changed its name to U.S. Army Industrial Operations Command (IOC-Rock Island) (tr. 4/103).

5. With the transfer, the HYDRA-70 rocket program was managed out of the Program Office at IOC-Rock Island, where the procurement and quality assurance offices were also located. The Army Research Development and Engineering Center (ARDEC), Picatinny Arsenal, New Jersey, continued to be the design agent of the fuzes and the warheads of the rocket. The Naval Surface Warfare Center (NSWC), Indian Head, Maryland, continued as the design agent of the rocket motors. (R4, tab 7294; tr. 21/7, 34, 193, 22/8)

6. By October 1990, preparation was underway at MICOM and IOC-Rock Island to implement Army Material Command headquarters' direction to procure the HYRA-70 rockets on a systems basis (AR4, tab 1047, 1151). The reason for switching to the systems contract method was to shift the administrative and logistical burden of managing the numerous component contractors from the Government to one systems contractor (tr. 10/68, 11/20-21, 26). The switch to the systems contract method of procurement was not related to the adequacy of the Government's Technical Data Package (TDP) (tr. 3/115, 5/121).

7. The procurement of the HYDRA-70 rockets under the systems concept was conducted under a two-step process. Step one included the submission and evaluation of technical proposals. Step two included the submission of priced offers from those who submitted an acceptable technical proposal. (AR4, tab 1327)

8. On 18 November 1991, IOC-Rock Island issued a request for unpriced technical proposals (solicitation). The solicitation was for fiscal year (FY) 1992 requirements; it had options for FY 93-95 requirements.

9. For the basic contract (FY 92), the solicitation sought to procure 232,764 rockets, rocket motors, and warheads under eight Contract Line Items (CLINs), *i.e.*, CLINs 0001AB-0001AJ (R4, tabs 5007, 5008 at Amend. No. 0005; tr. 15/148). The solicitation provided for three option periods: Option A (15 September 1992 through 30 September 1993), Option B (15 September 1993 through 30 September 1994), and Option C (15 September 1994 through 30 September 1995). Offerors were required to quote a unit price for each CLIN for each option period to be eligible for award. (R4, tab 5008 at IOC0030297) Offers were evaluated by adding the total price for the options to the total price for the basic requirement. The solicitation made clear that “Evaluation of options *will not* obligate the Government to exercise the option(s).” (Emphasis added) (AR4, tab 360 at ex. 7)

10. Based on submission of an acceptable technical proposal, the Procuring Contracting Officer (PCO), by letter dated 2 March 1992, requested DSC to submit a price proposal (AR4, tab 1050).

#### DSC’s Bid Strategy

11. DSC’s the competitor, the joint venture of Hercules, Inc. and Conventional Munitions Systems (Hercules/CMS) also submitted an acceptable step-one technical proposal (AR4, tab 1073; tr. 15/9). DSC expected Hercules/CMS to take a “very aggressive pricing posture,” including a willingness “to bid a number below cost,” in order to win the contract. (AR4, tab 360 at 1-2; tr. 2/17)

12. DSC was a “one product line, one customer company.” It considered the systems contract a “must win” situation for its survival. (Tr. 29/16; R4, tab 7288) To win the contract, DSC’s strategy was to “bid as low as [it] could possibly bid,” and to work itself “out of the hole” (tr. 29/16).

13. This strategy was reflected in a pre-bid briefing DSC gave to the officers and directors of its parent company, BEI, on 17 March 1992 (AR4, tab 358; tr. 16/77). A briefing chart entitled “Competitive Assessment HYDRA 70 Bid Scenarios” showed that DSC believed that if it were to bid \$179 million, its confidence level in winning the contract was only 20 percent. Its confidence level progressively increased to 60, 90 and 100 percent with a progressively lower bid of \$169, 159 and 149 million respectively. (AR4, tab 358)

14. DSC’s 100 percent confidence level in bidding \$149 million was based on the following assumptions:

- Hercules won't bid below assumed BEI manufacturing cost.
- Use "mistake" to recover.
- Use corporate "muscle" to regain profitability via Government and suppliers.

(AR4, tab 358)

15. As explained by DSC at the hearing, the "Use 'Mistake' To Recover" remark indicated DSC's belief of what Hercules/CMS would do, not what DSC would do. DSC speculated that since Hercules had not produced rocket components before, and its partner CMS had produced only the fin and nozzle assemblies of the rocket through its affiliation with another company (DRI), Hercules/CMS would use the fuze/ Ram Air Decelerator (RAD) parts of the TDP to "claim against the government and recover from a low bid price." Through its prior warhead contract experiences, DSC knew there were problems with the fuze and RAD TDP. (Tr. 29/13-14; 27/70)

16. Another chart in the briefing package was entitled "Major Issues 'What if' Scenarios." This chart displayed a "WIN SCENARIO" and a "LOSE SCENARIO." BEI's officers and directors were told that if DSC were to win the systems contract at a bid of \$149 million, it would have to implement the following steps to get itself out of its loss position:

- Look for "mistakes."
- Set stage for later protest that option structure an "inappropriate" contract vehicle.
- Work contract Mod to allow separate billing of PPE [Preproduction Evaluation] effort.
- Propose facility/storage contract or Mod to existing contract effective after delivery of existing backlog.
- Work business development/cost reduction plans.

(AR4, tab 358)

17. DSC estimated that its cost to perform the systems contract would be \$181 million. At \$149 million, DSC would be bidding \$32 million below its estimated cost of performance. (AR4, tab 358)

18. According to BEI's Chief Financial Officer (CFO), who was at the 17 March 1992 briefing, DSC had acquired insight when it performed for another component contractor in New Jersey that there were problems with the fuze and the RAD, and that it thought it could recover partially from its loss position through changes to correct what it believed to be defects in the TDP (tr. 29/25-26).

19. The BEI officers and directors were told that even though DSC bid at \$32 million below cost, it still hoped to be profitable for each FY over the course of contract performance (AR4, tab 358 at 12; tr. 2/54-55). DSC hoped to achieve this goal by using the profits from its ongoing component contracts to subsidize the first two FY years of the systems contract (tr. 27/39). Since DSC applied the \$32 million loss primarily to the option years, DSC hoped, by FY94, it would have generated enough additional business under the systems contract as well as direct international sales to maintain profitability in the out years (AR4, tab 358 at 12; tr. 2/24, 50, 53-54, 16/94, 19/96).

20. DSC's bidding strategy was to "bid its lowest 'affordable' price" to win the systems contract. As it explained at the hearing, this strategy called for DSC to bid:

the lowest price that the Company could bid on the identified contract requirements and still sustain reasonable profitability overall during the period of performance.

(AR4, tab 360 at 1-2; tr. 2/17) This strategy was based on the concept of "program pricing," which contemplated "the total program rather than a single action." According to DSC, there was nothing unique about this approach since it was the business model for rocket and missile manufacturers. (Tr. 2/58-59)

21. DSC's "affordable pricing" strategy was based on three underlying assumptions: First, DSC assumed that "all the options would be exercised." Second, DSC assumed that "a significant amount of additional hardware would be procured because the [solicitation] quantities were so low by historic standards." Third, DSC assumed that it would get "some FMS add-ons during the performance of the contract, and that [it] would realize 10,000 rockets per year on an international sales basis." (Tr. 2/196; AR4, tab 360 at 2)

22. Because the quantities procured under the systems contract was half of what had historically been procured, DSC believed that "the chance that all of those options would not be exercised, and a lot more hardware procured was virtually nil" (tr. 21-22, 2/52; AR4, tab 1054).

23. According to DSC, prior IOC-Rock Island solicitations specifically identified quantities for Foreign Military Sales (FMS) in separate CLINs (tr. 2/67). Since the solicitation did not identify any FMS quantity, we find DSC reasonably concluded that there were none included (tr. 2/68). Based on its five-year sales record, DSC assumed it would sell an additional 5,000 FMS rockets each year as add-ons (tr. 2/34-35, 27/39).

24. Since 1987 or 1988, DSC had been pursuing direct international commercial sales of rocket components on an ongoing basis (tr. 2/172, 174-75). In a direct

commercial sales situation, DSC sold rocket components directly to foreign governments (tr. 2/36).

25. Because there were no FMS quantities designated in the systems contract solicitation, DSC assumed, during FY93 through FY97, it would be able to sell 10,000 or approximately \$20 million worth of HYDRA-70 rockets per year through direct international sales (AR4, tab 358; tr. 2/33-34). This projection was based on DSC's "own historical experience in making direct commercial sales, versus FMS sales" (tr. 2/35). While conceding there was no guarantee in making direct commercial sales to foreign governments, DSC maintained that "there is a history that supported that international sales had been . . . realized on a regular basis" (tr. 2/50). DSC acknowledged that it knew when it bid the contract, FMS, if ordered, would compete with its direct international sales. Since it was unfamiliar with government procurement through the Special Defense Acquisition Fund (SDAF), such procurement was not a part of its bid strategy. (Tr. 2/66-67)

26. BEI's CFO testified that there were extensive discussions and doubt with respect to direct international sales at the 17 March 1992 meeting. He testified that sales to Saudi Arabia and Pakistan were regarded as questionable, and there were concerns about competition from other rocket producing countries. (Tr. 29/21)

27. According to BEI's CFO, there were also extensive discussions as well with respect to the various loss recovery scenarios. Because DSC had never achieved the level of direct international sales projected, those involved in considering the bidding strategy believed there was a "potential chance" that it would "dig ourselves out of this hole" (tr. 29/33). But, in the end, the approving committee felt "because it was a multi-faceted recovery program, we were hopeful that maybe one would be better than the other and maybe something would . . . pick up the slack in something that didn't happen" (tr. 29/20).

28. DSC's Vice President acknowledged that with an "inherent loss" built into its bid, to bring its program pricing into fruition, DSC would have to "take the action to manage [its] cash flow . . . and make the other things happen" (tr. 13/119). DSC anticipated that the cash to finance its performance would come from three sources: (1) uninterrupted progress payments, (2) delivery of profitable pre-systems contract backlog, and (3) other new business, primarily direct international sales and FMS. (AR4, tab 692) In order to recover from its built-in loss, all three sources of income had to not only materialize, but flow without interruption. DSC's bid price left no room for error, and left itself at risk if one or more of its assumptions failed to materialize. (AR4, tab 1325; tr. 29/27)

29. Without FMS and direct international sales to offset its deficit cash flow, DSC's own analysis showed that, were the Government to exercise Options A, B, and C,

it would have to finance \$8.2, 19.6 and 17.8 million respectively, during the option periods (ex. G-D; tr.13/122).

30. DSC's proposed \$149 million bid was approved by the officers and directors of BEI (tr. 2/53, 29/33). DSC submitted the bid and was awarded the systems contract (DAAA09-92-C-0477) on 9 April 1992 (tr. 2/84). The basic contract was in the firm fixed price of \$47,625,609.90 (R4, tab 5007). There is no evidence the Government was privy to DSC's bidding strategy or recovery plan prior to award.

31. In becoming the systems contractor, DSC acquired two areas of responsibility it did not have as a LAP contractor. DSC would now be responsible for production shutdowns caused by unavailable rocket parts, and it would be responsible for integrating various rocket components by its own manufacturing and assembling processes (tr. 21/32).

32. As it turned out, DSC would have won the contract at a bid of \$179 million. Hercules/CMS' bid came in at about \$180 million (tr. 27/71). According to BEI's CFO, some within the company felt that DSC did not need to bid as low as it did. Once it received the contract, "It became a long and very excruciating process because a lot of the things that were in the plan obviously didn't happen . . . and it became a challenge to . . . [DSC] to make it happen" (tr. 29/34).

33. DSC's \$149 million bid price was \$1 million less than what it would have bid. The M229 warhead bodies were Government Furnished Material (GFM) under the basic contract and Option A. In December 1992, DSC discovered that it had mistakenly left out the cost of the M229 warhead bodies under Options B and C. IOC-Rock Island advised DSC by letter dated 31 August 1993 that in the event the options were exercised, the Government would either furnish the parts as GFM or authorize DSC to procure them at the Government's expense. (Ex. A-AE; tr. 27/79, 82-85)

**PART II**  
**FINDINGS OF FACT**  
**FOREIGN MILITARY SALES & SPECIAL DEFENSE ACQUISITION FUND BUYS**

Foreign Military Sales

34. Subpart 225.72 of the DOD FAR Supplement (DFARS) (48 CFR Part 225) applicable as of the date of the solicitation -- 18 November 1991 -- deals with "Military Assistance Program Acquisitions." Under FMS programs, DOD has the responsibility to see to it that no more than a fair price is paid for the acquisition. Thus, FMS contracts are generally priced on the same principles as are used in pricing normal defense contracts. However, the DOD regulation recognizes that "the pricing principles established by FAR Part 15 and FAR Part 31 may require pricing results that differ from normal defense

contract prices for the same item because certain kinds of cost may reasonably and allocably arise in different amounts” for FMS contracts. DFARS 225.7304(a). (Gov’t br. at attach. 3a)

35. In pricing FMS contracts, the regulation recognizes, for example, the costs of doing business with a foreign government, such as selling expenses, maintaining international sales and service organizations, and sales promotions, demonstrations, and related travel. DFARS 225.7304(c) Contractors are entitled to charge higher prices, including G&A and profit, than for normal government sales to cover the costs of doing business (tr. 2/66, 29/41). For this reason, the DFARS applicable at the time the solicitation for the systems contract was issued required “known FMS requirements shall be separately identified in solicitations.” DFARS 225.7304(a) Similarly, contract modifications must identify FMS requirements. DFARS 243.170, “Identification of FMS Contract Modifications,” provided:

If the modification adds FMS requirements, identify the modification by clearly stamping or otherwise indicating the “FMS Requirement” on the face of the modification and specify within the modification each FMS case identifier code by line/subline item number. . . .

36. The United States Army Security Assistance Center (USASAC) is responsible for FMS (tr. 17/81). It was possible for DSC to obtain a printout from USASAC of various FMS cases (tr. 17/85). DSC could also trace FMS requirements through what was known as a Letter of Offer and Acceptance, which was “basically a contract between the foreign customer and the U.S. Government to provide the items listed in the Offer and Acceptance” (tr. 17/87). Even if it were possible for DSC to independently determine from USASAC and elsewhere a list of funded FMS requirements, in the absence of separate identification, DSC could only speculate whether the systems contract solicitation included such FMS requirements. We find IOC-Rock Island, not bidders, was charged by regulation to separately identify FMS requirements.

37. Requirements for FMS were specifically addressed in a concept paper used in a November 1990 discussion of the FY 92 acquisition strategy in which the PCO’s supervisor participated. (Tr. 10/61; AR4, tab 1152) In June 1991, when the Acquisition Plan for the FY 92 systems procurement was prepared, IOC-Rock Island understood there would be “FMS activity over the course of the contract” (tr. 10/64). Before IOC-Rock Island issued the systems contract solicitation, it knew that the quantity procured included FMS (tr. 4/106; 29/41). Because the requisition activity within DOD did not break out the FMS quantity but furnished IOC-Rock Island a lump sum quantity, and because no “ship to” addresses were provided, the PCO did not delineate any FMS quantities as separate CLINs in the solicitation (tr. 5/132, 16/121-22). Since the PCO knew the quantity to be procured included FMS, he could and should have sought further details to

identify the FMS quantities as separate CLINs. Once the applicable regulations were brought to his attention, the PCO acknowledged that failure to separately identify FMS quantities “was an omission on our part” (tr. 15/103-04).

### Contract FMS Clauses

38. The systems contract incorporated the “EXERCISE OF OPTION TO FULFILL FOREIGN MILITARY SALES COMMITMENTS” clause, DFARS 252.217-7000 (APR 1984). (R4, tab 5008 at 57) This clause provides:

The U.S. Government may exercise the option or options under the option clause of this contract to fulfill Foreign Military Sales commitments undertaken by the U.S. Government on behalf of a foreign country.

39. The systems contract contains Clause F-5, “VERIFICATION OF FMS SHIP TO (MAR 1988).” It states “At least 10 days in advance of actual shipping date, contractor should request verification of ‘Ship To’ and ‘Notification’ address from the appropriate DCASMA.” (R4, tab 5008 at 51) With respect to this clause, DSC takes the position that since there was no CLIN for FMS rockets in the contract, “It is just . . . an empty clause” (tr. 2/161).

40. The systems contract contains Clause H-14, “MATERIAL INSPECTION AND RECEIVING REPORT (DD FORM 250) (MAR 1988).” This clause requires the contractor to send DD Form 250s to IOC-Rock Island and USASAC. (R4, tab 5008 at 68-69)

41. The systems contract contains Clause F-15, “INFORMATION FOR SOLICITATION/CONTRACTS INVOLVING FMS (MAR 1988).” This clause provides:

To identify the Foreign Military Sales (FMS) requirements and to permit the Contractor to comply with DOD FAR Supplement Appendix I-301 Block1b(d)(12) [Preparation of the DD Form 250 and DD Form 250C], the following information is furnished for Foreign Military Sales (FMS) shipments:

CONTRACT LINE ITEM NO. (or Subcontract Line Item No.):  
(TO BE PROVIDED) in Section B.  
FMS Country and case identifier (TO BE PROVIDED).  
Special Markings (TO BE PROVIDED).

(R4, tab 5008 at 69)

42. The systems contract incorporated the “PROGRESS PAYMENTS FOR FOREIGN MILITARY SALES ACQUISITIONS” clause, DFARS 252.232-7003 (APR 1984), which establishes additional progress payment procedures for contracts containing FMS requirements (R4, tab 5008 at 80).

43. The foregoing clauses alerted contractors of the possibility of option exercises, provided contractors instructions with respect to shipment verification, preparation and submission of DD Form 250s, and additional progress payment procedures in the event FMS requirements were ordered. They did not provide DSC information with respect to the specific types and quantities of rockets ordered for FMS so that DSC could have priced them accordingly.

#### Special Defense Acquisition Fund (SDAF) Buys

44. The Special Defense Acquisition Fund was authorized in 1981 by enactment of Chapter 5 of the Arms Export Control Act, 22 U.S.C. § 2795(a). The SDAF funds the procurement of defense articles in anticipation of their sale or transfer to foreign governments. The basic objective of the fund is to facilitate delivery of material and to establish a readily available source of selected items of material. Such source enhances the United States Government’s capability to satisfy urgent military requirements of allied and friendly nations while avoiding diversions from production for U.S. forces or withdrawals from U.S. stocks. (AR4, tab 1426) SDAF items may also be used to replace items diverted from the U.S. Army to foreign governments (R4, tab 5166 at § 11-1).

45. The Defense Security Assistance Agency (DSAA) has overall management responsibility for SDAF. Its responsibilities include preparation of annual procurement plans, and issuance of SDAF funding documents to procure articles and services by the fund. (AR4, tab 1426) DSAA also published FMS and SDAF product availability schedules (tr. 17/105-06).

46. Implementing Agencies (IAs) have overall responsibility for program implementation of SDAF. Tasks performed by IAs, such as IOC-Rock Island, include, submissions to the annual procurement plan, program management of SDAF assets, and contract management. (Chapter 14, DOD 5105.38-M, Change No. 3, 1 March 1991 at 1400-1-2, AR4, tab 1426)

47. The operation of SDAF primarily encompasses two overlapping processes: (1) buy-in and sales (or sell out). Buy-in involves “procurement of defense articles and services through the IAs.” Sales involved “procurement by foreign countries, through the established FMS process, of defense articles and services previously acquired.” (AR4, tab 1426 at 1400-2-3)

48. Following Congressional appropriation, the Office of Management and Budget (OMB) provides an annual apportionment to the SDAF account. This apportionment determines the amount of obligations SDAF can incur out of its total capitalization. (AR4, tab 1426 at 1400-3)

49. Prior to issuance of a Military Interdepartmental Purchase Request (MIPR), DSAA would have coordinated with the procuring IA to define item configuration, ancillary items, and delivery schedule for the purchase. Following the decision to buy an item, DSAA issues a MIPR, DD Form 448, to the appropriate IA to procure the item. (AR4, tab 1426 at 1400-3)

50. Policies for implementing SDAF procurement are contained in Chapter 14 of the DOD Security Assistance Management Manual (SAMM). DOD 5105.38-M, §§ 140006 C. and D. of the SAMM, applicable at the time of the systems contract procurement, provided:

C. MIPR Issuance. DSAA issues MIPRs to the appropriate IA for the purchase of SDAF items. MIPRs are processed generally in accordance with DFARS 208.70, Coordinated Acquisition. IA negotiate, wherever possible, separate contracts for SDAF procurements. *Where separate contracts are not feasible, SDAF items must be on separate contract lines. . . .*

. . . .

D. Procurement of SDAF Items. Procurements for SDAF *are subject to the FAR and, in particular, to DFAR Supplement 25.7303 on notification to prospective sources of the procurement for a potential FMS and to DFAR Supplement 25.7304 on pricing* such acquisitions. . . .

(AR4, tab 1426 at 1400-4, -5) (Emphasis added)

51. Inasmuch as the IA for the procurement of SDAF rockets must first receive a MIPR -- DD Form 488 -- from DSAA, and inasmuch as prior to issuance of the MIPR, DSAA would have coordinated with IOC-Rock Island to define the details of the procurement, we find that the PCO knew and therefore should have separately identified the SDAF rockets to be procured prior to issuance of the systems contract solicitation.

52. Chapter 11 of Army Regulation 12-8, "Security Assistance Operations and Procedures," pertains to SDAF. Section 11-4.a.(2) provides, in part, that "SDAF contracts may be considered FMS, and *contractors must be so alerted for pricing*

reasons.” Section 11-4.b. provides, “SDAF items will be placed on *separate contracts* if possible; however, *separate contract line items* are acceptable. . . .” (Emphasis added) (R4, tab 5166 at 53-54)

53. Generally, the Government procures through FMS when there is a firm FMS requirement with “money in hand,” and procures through SDAF in anticipation of a sale to foreign governments (tr. 4/118-19). FMS procurements are funded with foreign government money; SDAF procurements are funded with U.S. government money (tr. 29/43-44). Since SDAF procurements are made in anticipation of foreign government sales, the items procured might initially be delivered to the U.S. military and ultimately shipped from a depot to fulfill FMS requirements (tr. 16/58-60; 17/16). In the present case, we find no evidence that the SDAF rockets purchased were not ultimately used to fulfill FMS requirements (tr. 17/16-17). Therefore, for purposes of this appeal, no distinction in treatment is necessary between FMS and SDAF rockets.

54. As early as February 1991, the HYDRA-70 team was tasked, among other responsibilities, to “Identify SDAF . . . requirements to support anticipated FMS requirements” (AR4, tab 1045; tr. 5/156) The Acquisition Plan for the systems contract procurement reflected specific SDAF quantities as a part of the projected FY 92 quantities. (AR4, tab 1047 at 8; tr. 10/67) No SDAF quantities were separately identified in the solicitation because the PCO was unfamiliar with SDAF procurement, having never had experience with it (tr. 15/101).

#### FMS/SDAF Buys Under the Basic Contract and Option Exercises

55. In June 1992, the Government broached the idea of advancing the dates for exercising its options (tr. 2/88-89). This idea was not well received by DSC because to do so would advance the “window” for subsidizing its built-in loss with revenues from direct international and add-on sales (tr. 2/94). DSC initially took the position that the Government could exercise Option A early but only at the basic contract prices which were higher than the Option A price. Additionally, DSC was unwilling to sell FMS rockets at the basic contract price, contending that the contract did not provide for FMS (tr. 27/93-94).

56. At a meeting held at IOC-Rock Island on 11 August 1992, the Government presented DSC with Modification No. P00011 proposing to “revise the contract line items of the basic contract in order to reflect delivery of foreign military sales (FMS) and Special Defense Acquisition Fund (SDAF) requirements,” at no cost. The Government decreased four CLINs (0001AC, 0001AD, 0001AE and 0001AF) by 17,076 rockets (4,744 M261s, 6,012 M267s, 1,432 M274s and 4,888 M151s) and added five CLINs for 17,076 rockets:

0001AK	M261 (SDAF)	4,744
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0001AL	M267 (SDAF)	4,580
0001AM	M267 (FMS)	1,432
0001AN	M274 (FMS)	1,432
0001AP	M151 (SDAF)	<u>4,888</u>
		17,076

(AR4, tabs 360 at ex. 3, 1059; tr. 2/102, 16/7, 11)

57. This proposed modification triggered a realization on DSC's part that the Government had included FMS and SDAF quantities in the basic contract without identifying them as such. On 20 August 1992, DSC told the Government that since the systems contract solicitation did not identify any FMS/SDAF quantities, it did not understand the systems contract to have included any such quantities, and that it was able to bid below cost on the basis that it might realize full profit on FMS and direct international sales. DSC told the Government that "full pricing" of all FMS/SDAF requirement was "critical" to its successful performance of the systems contract. (AR4, tab 351)

58. DSC notified the Government by letter dated 24 August 1992 that the solicitation did not specify any FMS requirements, and it was DSC's understanding that should there be FMS requirements, they would be handled by separate negotiated modifications to the contract. The letter asked the Government to consider the following:

- 1) Any FMS requirements shall be identified prior to the Contractor's proposal in accordance with Government regulations. Since the subject contract has already been bid without this identification, any FMS cases should be identified and procured as additional requirements.
- 2) . . . any domestic requirements, over and above the subject contract (basic/options) and outside the specified time period for option exercise will be separately negotiated and added to the contract as supplemental requirements.

(AR4, tab 1060) Proposed Modification No. P00011 was not executed by DSC and was subsequently withdrawn by the Government (tr. 2/108, 16/14).

59. The Government rejected DSC's proposal to treat all existing and future requirements as add-ons to the systems contract, maintaining that it could make whatever disposition it chose with the hardware that was already under the basic contract (AR4, tab 360 at 3). DSC was instructed to submit a claim if it felt the Government's position was incorrect (AR4, tab 360 at 3; tr. 2/108). The Government agreed to identify by letter those FMS quantities that were included in the basic contract.

60. The Government proposed as a solution that it would treat any new (post 11 August 1992) requirements for FMS that should materialize as negotiated add-ons, rather than buy them through exercise of available options (tr. 2/108, 111, 117). This proposal was acceptable to DSC and the parties reached an oral agreement on the proposal during the last week of August 1992 (tr. 27/8). We find the Government's proposal did not include SDAF quantities, since it considered SDAF as "U.S. Government, not FMS purchases[s]" (tr. 29/39) and the agreement, therefore, did not include SDAF quantities.

61. Bilateral Modification No. P00017 became effective 28 August 1992. Subject to certain conditions, this modification allowed the Government to "exercise option period A early (one or more times) for a quantity not to exceed the total quantity specified for the option period." (R4, tab 5033; tr. 2/167-68) DSC understood that the quantities ordered under Modification No. P00017 were for DOD use and not for fulfilling FMS obligations (tr. 2/108, 27/94-95).

62. The Government issued Modification No. P00018 under option A, effective 31 August 1992. This bilateral modification ordered 1,542 SDAF rockets, among others (Gov't br. attach. 2; AR4, tabs 1055, R4, tab 5033; tr. 2/96, 167-68). It did not separately identify the 1,542 rockets as SDAF (R4, tab 5034).

63. The Government issued Modification No. P00019 under Option A, effective 31 August 1992. This bilateral modification ordered 5,000 SDAF rockets, among others. (AR4, tabs 1065; R4, tab 5035; tr. 2/168) It did not separately identify the 5,000 rockets as SDAF (R4, tab 5035).

64. The Government issued Modification No. P00022 under Option A, effective 24 September 1992. This bilateral modification ordered 1,166 SDAF rockets. (AR4, tabs 1065; R4, tab 5038; tr. 2/168) It did not identify the 1,166 rockets as SDAF (R4, tab 5038).

65. Since the Government considered SDAF quantities as "U.S. Government, not FMS, purchase[s]" (tr. 29/39) and since the parties' August 1992 oral agreement pertained only to FMS quantities, we find there was no intent on the part of the Government to cause DSC injury in not specifically identifying SDAF quantities as a part of Modification Nos. P00018, P00019, and P00022.

66. As agreed, the PCO by letter dated 9 October 1992 to DSC identified the following FMS requirements as having been included in the basic contract:

1,432 M274	Taiwan
1,432 M151	Taiwan

1,432 M267	Taiwan
1,432 M261	Taiwan
<u>3,180 M261</u>	Greece
8,908	

(AR4, tab 349)

67. By letter dated 13 October 1992 to IOC-Rock Island, DSC asked what SDAF quantities in addition to FMS quantities were included in the basic contract so that its claim could include SDAF rockets also (AR4, tab 356; tr. 2/114). In response, the PCO by letter dated 30 October 1992 identified 14,212 SDAF rockets as having been included in the basic contract (AR4, tab 350).

68. Pursuant to Modification No. P00038, effective 26 February 1993, the Government ordered 10,881 FMS rockets as negotiated add-ons. Consistent with the parties' August 1992 agreement, the modification indicated that the 10,881 rockets were for FMS. (Gov't br. at attach. 2; R4, tab 5054)

69. Pursuant to Modification No. P00042, effective 14 September 1993, the Government ordered 7,084 FMS rockets, among others as negotiated add-ons. Consistent with the parties' August 1992 agreement, the modification contained a separate line item for FMS quantities (see CLINs 0006AB). (Gov't br. at attach. 2; R4, tab 5058)

70. In summary, the Government ordered 8,908 FMS rockets and 14,212 SDAF rockets under the basic contract. It ordered 7,708 SDAF rockets pursuant to Modification Nos. P00018, P00019 and P00022 under Option A. In addition, it ordered 10,881 FMS rockets under Modification No. P00038, and 7,084 FMS rockets under Modification No. P00042. (Gov't br. at attach. 2)

71. Rather than submitting a claim, DSC chose to submit an executive summary on the FMS/SDAF issue in December 1993 seeking to "achieve resolution of its claim by mutual agreement" (tr. 2/117-18). The summary confirmed that DSC offered a contract price \$32 million below its estimated cost of performance. DSC contended that it had expected to "offset the loss on the basic and option quantities" with (1) new DOD requirements, (2) FMS/SDAF quantities, and (3) direct international sales. (AR4, tab 360)

72. DSC's summary contended that, had the Government identified the FMS/SDAF quantities in the solicitation, DSC would have priced them at "full cost plus a reasonable profit." DSC estimated the Government's omission in this regard had a \$7 million impact. In addition, DSC contended that, as a result of rockets being made available for the FMS/SDAF programs under the systems contract, it "lost high margin commercial international sales." It estimated that for FYS 93-95, it would have lost the

opportunity to sell 10,000 rockets per year with a \$16 million impact, and it would have lost the opportunity to sell 5,000 rockets per year in FYS 96-97 with a \$5 million impact. (AR4, tab 360)

73. DSC's summary identified 44,643 rockets which it alleged the Government to have improperly ordered under the contract. This quantity included (1) 8,908 FMS and 14,212 SDAF rockets under the basic contract, and (2) 21,523 rockets "as new procurement for FMS/SDAF disposition." (AR4, tab 360 at 6)

74. DSC charged that the Government's "inappropriate diversion of substantial quantities of below cost Systems Contract hardware for FMS and SDAF usage has grievously disrupted [its] ability to perform to the above price commitment . . . [and the Government's] actions represent a Material Breach of the Systems Contract." As relief, DSC sought "damages of \$21.1 [sic] million (\$16.1 million current damages and \$5.1 million future damages), and a price reformation of \$7.0 million . . . in order to put it in the same economic position it would have occupied if the breach had not occurred." (AR4, tab 360 at 8)

75. During discovery, DSC found an 11 May 1992 Army Information Paper which allegedly showed the Government improperly procured 68,120 rockets under the systems contract: 8,908 FMS and 14,212 SDAF rockets under the basic contract and 45,000 SDAF rockets under contract option. (AR4, tab 1164; tr. 2/65, 72-73) While this paper confirms that 8,908 FMS and 14,212 SDAF rockets were ordered under the basic contract, not all of the remaining 45,000 SDAF rockets have been shown to have been ordered since the paper merely provided "a forecast for the out-year quantities" (tr. 17/10).

76. Based on the evidence in the record, we find that the Government ordered a grand total of 48,793 FMS/SDAF rockets under the contract. Of these, 23,120 rockets were ordered under the basic contract, and 25,673 under various Option A modifications (Modification Nos. P00018, P00019, P00022, P00038 and P00042).

**PART II.**  
**DECISION**  
**FMS/DSAF**

DSC contends that DOD regulations and policy guidance recognize FMS and SDAF items could, under certain circumstances, command higher prices and thus require known requirements be separately identified in the systems contract solicitation (app. br. at 67). It argues that "Having failed to explicitly provide for FMS/SDAF quantities in the contract, IOC is precluded from diverting contract quantities for FMS/SDAF use" (app. br. at 67). DSC argues that the Government's failure to comply with the applicable regulations constitutes a material breach of the systems contract (app. br. at 69).

The Government argues the various clauses in the solicitation should have alerted DSC to the possibility that the basic systems contract included FMS requirements (Gov't br. at 238-39). We have found the clauses the Government relies upon address the possibility of option exercises, provide contractors instructions with respect to shipment verification, preparation and submission of DD Form 250s, and additional progress payment procedures in the event FMS quantities were ordered. We conclude that they did not provide DSC information with respect to the specific types and quantities of rockets ordered for FMS so that DSC could have priced them accordingly.

The DFARS applicable at the time of the solicitation required "known FMS requirements shall be separately identified in the solicitations." DFARS 225.7304(a) Contract modifications were subject to the same rule. DFARS 243.170.

DOD's SAMM, which set forth policies for implementing SDAF procurements provided that such procurements were subject to the FAR and DFARS provisions on notification and pricing, and SDAF items must be on separate contract lines where separate contracts were not feasible. DOD 5105.38-M, § 140006 C. Moreover, Army Regulation required SDAF contractors be alerted to pricing, and SDAF items be placed on separate contracts if possible, although separate contract line items were acceptable. AR 12-8, § 11-4.a.(2), 4.b.

The Government also argues that DSC could have confirmed known FMS quantities by contacting USASAC prior to bid (Gov't br. at 239). The short answer to this argument is that the regulation placed the responsibility squarely on the Government, not DSC, to identify FMS requirements in the solicitation. In this case we have found that based on its prior experiences, DSC reasonably concluded that no FMS requirements were included in the solicitation.

The Government concedes that the systems contract solicitation did not separately identify FMS requirements. It acknowledges that some FMS requirements in the solicitation were known to IOC prior to issuance of the solicitation, and explains that no CLINs were assigned to the FMS quantities because "[t]he requirements were provided to the Contract Directorate in lump sums." (Gov't br. at 234) In August 1992, the Government revealed that it had also failed to separately identify SDAF requirements.

Relying on *Cessna Aircraft Co. v. Dalton*, 126 F.3d 1442 (Fed. Cir. 1997), *cert. denied*, 525 U.S. 818 (1998), the Government argues that DSC cannot seek to enforce the applicable regulations against the Government because they were not promulgated for the protection or benefit of the contractor. The Government contends that the FMS program was intended to benefit the Government by making its procurement system available to eligible foreign governments and organizations, and that the SDAF program was intended

to benefit the Government by providing for foreign sales without diverting Government stocks or production. (Gov't br. at 236-37)

*Cessna* is distinguishable. In that case, the Navy deviated from a mandatory DAR-prescribed CANCELLATION OF ITEMS clause in drafting a contract schedule that gave the Navy until the day after the contract expired to exercise its options. The Federal Circuit held that, even though the Navy failed to obtain proper authorization to deviate from the DAR clause, the contractor was not entitled to rely on the unauthorized deviation to invalidate the Navy's option exercises because the CANCELLATION OF ITEMS clause was primarily for the benefit of the Government -- to monitor availability of funds for each fiscal year.

The particular regulations requiring separate identification of FMS and SDAF items were clearly for the benefit and protection of contractors. We have found that in the case of FMS or SDAF procurements, contractors were entitled to charge higher prices, including G&A and profit, than for normal Government sales to cover the costs of doing business. The DOD SAMM policy guidance and Army Regulation pertaining to SDAF procurements provided the same benefit and protection for contractors.

In this case, before IOC-Rock Island issued the systems contract solicitation, it knew that the quantities procured included FMS. Under the circumstances, the PCO could and should have sought further details to identify the FMS quantities as separate CLINs. Similarly, prior to issuance of the MIPR, DSAA should have coordinated with IOC-Rock Island to define the details of the procurement. We have found that the PCO should have separately identified the SDAF rockets to be procured in the system contract solicitation. We conclude that, in failing to identify FMS and SDAF requirements in the solicitation, the Government effectively precluded DSC from bidding higher prices on these requirements.

Contract modifications must also identify FMS requirements. DFARS 243.170. Procurements for SDAF were subject to the FAR and DFARS on notification and pricing. Thus, in failing to separately identify SDAF requirements in Modification Nos. P00018, P00019 and P00022, the Government effectively precluded DSC from submitting higher prices on these requirements.

We have found that Modification Nos. P00034 and P00042 properly identified their respective FMS quantities. Therefore, there is no basis for an adjustment on those two modifications.

In *Hughes Aircraft Co.*, ASBCA No. 21429, 79-1 BCA ¶ 13,641, *aff'd on recon.*, 80-1 BCA ¶ 14,329, the Government and the contractor entered into a contract for the sale of missiles purportedly for the sole use of the Government. After the missiles were manufactured, accepted and stored at Government-owned facilities operated by the

contractor, the Government from time to time shipped missiles out to foreign countries to fulfill its FMS commitments. Interpreting the DOD Instruction to exempt from FMS regulations only those missiles from stock requiring no replacement, we held that the contractor was entitled to an equitable adjustment for extraordinary costs and special profit under the FMS pricing principles.

In *E-Systems, Inc.*, ASBCA No. 21091, 82-1 BCA ¶ 15,774, we held that the contractor was entitled to an equitable adjustment as a constructive change when the Government diverted some of the radio sets originally designated for delivery to specific countries to other countries. The Board reached its decision on the basis that the FMS transactions were subject to the special pricing and profit provisions of the Armed Services Procurement Regulation. 82-1 BCA at 78,109.

Based on these precedents, we conclude that the proper remedy for failure to disclose FMS and DSAF requirements is an equitable adjustment and not damages for breach of contract.

#### Modification Nos. P00018, P00019 and P00022

DSC contends that the Government in bad faith breached the oral agreement reached during the last week of August 1992 in failing to separately identify SDAF quantities in Modification Nos. P00018, P00019 and P00022 (app. br. at 42-44). We have found the parties' oral agreement did not include SDAF requirements, since the Government considered SDAF as "U.S. Government, not FMS, purchase[s]." Thus, Modification Nos. P00018, P00019 and P00022 were consistent with the Government's understanding of the agreement.

Any analysis of Government bad faith must begin with the presumption that public officials act "conscientiously in the discharge of their duties." *Librach v. United States*, 147 Ct. Cl. 605, 612 (1959). Showing bad faith is tantamount to showing malice or conspiracy and requires a high standard of proof, *i.e.*, specific intent to injure the contractor. *Kalvar Corp. v. United States*, 211 Ct. Cl. 192, 198-99, 543 F.2d 1298, 1301-02 (1976), *cert. denied*, 434 U.S. 930 (1977). We have found no evidence that the Government intended to cause DSC injury by deliberately withholding SDAF information.

#### Damages From Loss of Direct International Sales

DSC contends that the Government is liable for damages including lost profits on its international sales because "It was reasonably foreseeable prior to contract award that a breach of the contract by the government would cause the loss of current and future direct international sales by DSC" (app. br. at 73). DSC asserts that since its bid was substantially below that of its competitor's, "it was foreseeable that DSC would

aggressively pursue direct international sales of Hydra 70 rockets.” DSC also argues that it was foreseeable that its direct international sales market would be adversely impacted when the Government made available below-cost contract prices for FMS. (App. br. at 74)

There is no evidence that the Government was privy to DSC’s strategy to bid the systems contract at a \$32 million loss and to partially recover that loss through aggressive direct international sales. While the Government did not separately identify FMS requirements in the basic contract, various contract clauses relating to FMS should have alerted DSC that FMS rockets might be ordered during the life of the contract. We conclude, therefore, DSC had no basis for assuming that future FMS requirements would not compete with its direct international sales.

The evidence shows that DSC’s expectation with regard to its direct international sales was highly speculative. Sales to Saudi Arabia and Pakistan were regarded as questionable, and there were concerns about competition from other rocket producing countries. DSC also knew, before it bid the contract, it had never achieved the level of direct international sales it projected.

Remote or speculative damages such as general loss of business or loss of potential contracts are, as a matter of law, not recoverable even assuming such damages could be proven. *William Green Constr. Co. v. United States*, 201 Ct. Cl. 616, 626, 477 F.2d 930, 936 (1973), *cert. denied*, 417 U. S. 909 (1974) (damages such as general loss of business and loss of entire net worth considered too remote and consequential to be recovered); *Northern Helex Co. v. United States*, 207 Ct. Cl. 862, 524 F.2d 707 (1975), *cert. denied*, 429 U.S. 866 (1976); *Olin Jones Sand Co. v. United States*, 225 Ct. Cl. 741 (1980) (award of damages denied for losing bonding capacity as a result of Government wrong doing). Furthermore, for lost profits to be recoverable as damages for breach of contract, they must be foreseeable and directly related to the contract that was breached. They are not recoverable if they result only from a contractor’s “independent and collateral undertaking . . . entered into in consequence and on the faith of” the breached contract. *Wells Fargo Bank, N.A. v. United States*, 88 F.3d 1012, 1022 (Fed. Cir. 1996), *cert. denied*, 520 U.S. 1116 (1997) (loss on profits on additional loans bank allegedly could have made had there been no breach was too uncertain and remote to be recoverable as damages for breach of contract); *Ramsey v. United States*, 121 Ct. Cl. 426, 101 F. Supp. 353 (1951), *cert. denied*, 343 U.S. 977 (1952) (lost profits of collateral undertakings which the contractor was unable to carry out are too remote to be classified as a natural result of the Government’s breach).

Here, DSC’s direct international sales were not directly and naturally related to the systems contract; they were DSC’s independent and collateral undertakings. Even though such sales were a part of DSC’s bidding strategy, they were not a part of the parties’ contract and therefore the damages arising out of the lack of such direct international

sales were not foreseeable. Consequently, they cannot form the basis for recovery even if the Government ordered FMS and SDAF requirements under the systems contract.

Because the Government failed to separately identify the 8,908 FMS rockets and 14,212 SDAF rockets in the systems contract solicitation, contrary to the requirements of DFARS 225.7304(a) and SAMM DOD 5105.38-M, §§ 140006 C. and D., we hold DSC is entitled to an equitable adjustment under the applicable FMS pricing principles for these rockets.

Because the Government failed to separately identify 7,708 SDAF rockets as a part of Modification Nos. P00018, P00019 and P00022, issued under Option A, contrary to the requirements of DFAR 243.170, and SAMM, DOD 5105.38-M, §§ 140006 C. and D., we hold DSC is entitled to an equitable adjustment under the applicable FMS pricing principles for these rockets. Because there is no evidence that the Government intended to cause DSC injury by deliberately withholding SDAF information from DSC, we hold that there was no bad faith breach of contract in this regard.

Because DSC's direct international sales of the HYDRA-70 rockets were not directly related to the systems contract, were DSC's independent and collateral undertakings, and were not foreseeable, we hold the damages DSC suffered, when such sales failed to materialize, are not recoverable as a matter of law.

**PART III.**  
**FINDINGS OF FACT**  
**NON-CONFORMING LOCKWIRES**

77. The lockwire is a 1/8-inch square by 10-inch long metal wire. It has two functions: (1) it provides a mechanical interlock between the rocket motor tube and the fin and nozzle assembly, and (2) it provides electrical continuity or serves as a ground path for the motor igniter. (Tr. 5/59, 71, 15/110, 21/143; AR4, tab 1296 at 2)

78. The systems contract TDP initially authorized only zinc or cadmium plating as alternate methods of coating lockwires for corrosion protection (tr. 12/180, 18/196). At the time the systems contract was awarded, the hot-dipped tin-lead method of coating lockwires was not authorized by the TDP, although the method had been authorized as a deviation under previous LAP contracts. During the Preproduction Evaluation (PPE) phase of the systems contract, DSC submitted, and the Government approved, the hot dipped tin-lead as a third authorized method of coating lockwires. (Tr. 12/160-61, 176-77, 18/96, 21/158-59; AR4, tabs 428, 431)

79. DSC selected Andrasko Engineering Inc. (AEI) to supply the lockwires for the systems contract rockets. DSC had previously procured lockwires from AEI. AEI came

up with the hot-dipped tin lead method of coating lockwires and had supplied DSC with 1/2 million such lockwires for its LAP contracts. (Tr. 12/160-61, 176-77)

80. During the Desert Shield/Storm conflict, AEI could not control the coating thickness using the hot-dipped tin lead method in a mass production environment. It was at that point AEI decided to switch to electroplating tin lead to coat the lockwires. (Tr. 12/178-79)

81. There is no evidence that DSC knew about this change prior to October 1993. In October 1993, a DSC employee stopped by AEI's facility in California and found no hot-dip bin or tub on the premises. DSC knew, at that time, that AEI had not been delivering conforming lockwires. (AR4, tab 1296 at 2; tr. 2/128-29)

82. Instead of notifying the Government of the non-conformance immediately, DSC decided to put in an ECP. It submitted ECP No. 92-0477-083 on 12 November 1993 to add "electroplated tin-lead (40 to 60% TIN), .0003 inch minimum thickness in accordance with MIL-F-14072, finish M222." As justification for the ECP, DSC stated that the electroplating process would result in the same but better controlled metallic coating than the coating currently being used. The proposed method was said to be more commonly available at plating shops and would therefore be less expensive. (R4, tab 7137; tr. 17/25-26) DSC did not mention "producibility" as a reason for proposing the ECP.

83. The Government's design activity at Indian Head, Maryland (NSWC) disapproved the ECP, noting that DSC had not addressed the two plating methods allowed by the TDP, and that these methods, which were commonly available, had not been shown to have a control problem. NSWC also noted that the ECP plating method would reduce the coating thickness to 0.0003 inches from 0.0005 inches and no laboratory tests had been conducted to show whether the proposed change would be feasible. (R4, tab 7137; tr. 17/27-28) DSC's ECP was rejected on 15 December 1993 (R4, tab 7137; tr. 12/161, 17/25-26, 21/160-63).

84. In the meantime, on 4 November and 7 December 1993, DSC tendered two DD Form 250s covering five lots of rockets for acceptance by the Government QAR at its Camden facility (R4, tab 7145; tr. 17/29, 31). Upon signing the DD Form 250s, the rockets tendered became Government property, and payment for the rockets tendered would be authorized. (Tr. 16/175, 17/29-30, 19/119) In this case, the QAR at Camden signed the two DD Form 250s on 23 December 1993 (tr. 19/121). DSC knew that the rockets tendered contained non-conforming lockwires.

85. On 20 December 1993, DSC submitted 20 lockwire samples to Hurst Metallurgical Research Laboratory (Hurst) for testing. Hurst evaluated the coating thickness and conducted salt spray tests. Its 30 December 1993 report stated "it is our

opinion that the submitted samples have low to moderate corrosion resistance.” (R4, tab 5260; tr. 22/10)

86. IOC-Rock Island was notified of the non-conformance by telephone on 4 January 1994 (tr. 16/167). By letter dated 7 January 1994, the PCO asked DSC to “identify all MK66 Rocket Motors that were delivered to the Government but failed to comply with the specification for lockwire plating.” DSC was told that the Government intended to invoke its rights under the warranty clause of its contracts. (R4, tab 7141)

87. DSC formally notified the Government of the non-conformance by letter dated 11 January 1994. The letter stated that its production of MK66 rocket motors “was suspended today due to the incorrect use of a process for plating lockwires by our subcontractor” (R4, tab 7142; tr. 16/168).

88. By letter dated 18 January 1994, DCS advised IOC-Rock Island that testing showed the lockwires did not meet the minimum plating thickness requirement and did not pass the salt spray test. DSC stated, “At this point . . . we decided to qualify a new subcontractor using an alternate Zinc plating process authorized by the drawing in order to have the least impact on production.” (R4, tab 7014; tr. 22/13-14)

89. At the hearing, DSC’s former president acknowledged that DSC bore the responsibility for the non-conforming lockwires. He testified:

Unfortunately . . . our quality department never went back to the root material to see whether . . . vendors in place making that item were indeed following the specification.

And what happened was . . . some of those vendors were not using the correct material. . . .

(Tr. 16/85)

90. Between November 1993 and January 1994, DSC shipped 17,000 rockets containing non-conforming lockwires and submitted two progress payment requests totaling \$8,400,000 (AR4, tab 1296 at 2). Both systems contract and pre-systems LAP contract rocket motors containing the non-conforming lockwires were shipped (tr. 2/153; 15/112).

91. In response to the PCO’s 7 January 1994 letter for accounting, DSC’s 17 January 1994 letter identified 183,378 rockets and rocket motors with lockwires with non-conforming electroplated tin lead (R4, tab 7100; tr. 16/170).

92. Although there was a concern over the long-term corrosion reliability of the rockets with non-conforming lockwires, DSC did not believe the lockwires presented a safety concern (tr. 2/130; AR4, tab 1082). DSC believed if testing showed no degradation of shelf life, there would be no need to replace the non-conforming lockwires (tr. 2/131). DSC initially proposed reworking only the rocket motors of the tactical (as opposed to training) assets which would be kept in inventory for a longer period of time (tr. 2/154).

93. By letter dated 18 January 1994, DSC proposed that the Government continue to permit DSC to submit for inspection and acceptance rockets and rocket motors, and to simply annotate the ammunition data cards with lockwire non-conformance. DSC suggested that the Government could invoke the warranty clause if “any of the end items become inoperable or show shelf life deterioration.” (R4, tab 7143; tr. 16/171)

94. The Government rejected this solution because it did not want to have inoperable rockets in the event of war, and it did not want to make more progress payments on top of the significant amount already made for rockets it might not be able to use. (Tr. 16/171-72) By letter dated 26 January 1994, the PCO notified DSC that he considered DSC to have breached the contracts’ warranty on all deliveries with non-conforming lockwires, that direction regarding correction of non-conforming rockets would be furnished, and that all future deliveries must conform to contract requirements (R4, tab 7147).

95. Within weeks after the lockwire issue first surfaced -- by the end of January 1994 -- DSC was able to qualify a new lockwire supplier. This supplier coated the lockwire with zinc plating, one of the two coating methods authorized by the original TDP. (AR4, tab 1082; tr. 2/154, 9/180) The zinc plating method of coating was available to DSC throughout its performance of the systems contract (tr. 18/97). As far as the evidence shows, zinc coating had not presented DSC with any problems (tr. 21/173).

96. DSC alleges that the hot dipped tin lead method was “unproducible” because it resulted in uneven coating so that the dimensional requirements across the lockwire could not be met (tr. 9/179-80). As support for this proposition, DSC alleges the Government deleted the requirement from the follow-on contract (tr. 9/180). The Government ultimately deleted the hot-dipped tin-lead method of plating from the follow-on contract because of environmental concerns with lead, not because of any “producible” problems (R4, tab 7276; tr. 8/150).

97. By mid-February 1994, the Government had determined that the non-conformance did not have any short term safety or reliability problems. Salt spray and long term aging tests were being planned to evaluate the long term impact of the non-conformance. (R4, tab 7162) Not knowing the long-term shelf lives of the non-conforming lockwires, the Government took the position that all rockets in DOD’s

inventory and FMS rockets would have to be reworked (tr. 17/116-17). By letter dated 15 February 1994, the PCO asked DSC to submit a rework schedule with a start date and rework rate to the local QAR by 22 February 1994 (AR4, tab 1196).

98. The “PROGRESS PAYMENTS” clause, FAR 52.232-16 (JUL 1991), of the contract provided that “Progress payments shall be made to the Contractor when requested as work progresses, but not more frequently than monthly in amounts approved by the Contracting Officer.” The clause authorized the CO to suspend progress payment upon a finding that “The Contractor failed to comply with any material requirement of this contract,” and when “Performance of this contract is endangered by the Contractor’s (i) failure to make progress . . .” FAR 52.232-16(c)(1) & (2). By letter dated 17 February 1994, the PCO notified DSC that he was suspending progress payments pursuant to FAR 32.503-6 (“(b)(1) The contractor must comply with all material requirements of the contract”). DSC was told that the bases for the suspension were rockets not being produced with conforming material, and no adequate progress had been made to correct the deficiency. (AR4, tabs 456; R4, tab 5276; tr. 15/161, 163)

99. DSC’s 21 February 1994 response told the PCO that it did not believe that the lockwires needed to be reworked. It estimated that it could rework the rocket motors at the rate of 240 units an hour. It stated that rework could begin one week after receipt of approved rework procedure and following completion of a motor lot in progress. The letter said that “The cost of this rework effort will be borne by [DSC] and its lockwire supplier.” (AR4, tab 1195; tr. 15/117) The parties met on 24 February 1994. At this meeting, DSC’s president asked the PCO to provide a list of what were needed to “get [the] progress payment restarted” (tr. 15/169). The PCO agreed to provide such a list (AR4, tab 1169).

100. By letter dated 1 March 1994, the PCO advised DSC that it must meet the following requirements for the Government to resume progress payments:

- a. Establish acceptable rework procedure and rework schedule for non-conforming MK66 Rocket Motors.
- b. Complete M439 Fuze first article testing by submission of failure analysis on Lots 1 and 2.
- c. Complete M261 Rocket first article or submit adequate RFW based on contract DAAA09-91-C-0489 first article.
- d. Complete M231 Fuze First Article.
- e. Complete RAD ECP/technical submittal.

f. Provide revised delivery schedules for all line items under subject contract.

(AR4, tab 457) Some of the requirements went beyond the lockwire issue. Even so, we find that they all dealt with ongoing material requirements of the systems contract, and therefore within the scope of FAR 32.503-6. In addition, we find the PCO provided the list of requirements at the invitation of DSC's president.

101. The parties met again on 9 March 1994. At this meeting, DSC pointed to various actions and commitments that had been implemented to ensure lockwire conformance and requested that the suspension and the ceiling on progress payments (imposed until first articles were approved) be lifted (AR4, tab 355). DSC contends that it was its engineering judgment that rework of the non-conforming lockwires was unnecessary, and that it agreed to the rework because the Government would not otherwise accept delivery and release progress payments (tr. 27/118).

102. Documentary evidence shows the Government recognized that cessation of production at DSC due to lack of progress payments would not be in its best interest. Ceasing production would stop delivery of rockets to FMS customers, and impact training and combat capabilities within a few months. It would also set back the development of the next generation of the 2.75-inch Advance Rocket System (ARS) for at least three years. In addition, the Government would have to establish a new source of production with a significant increase in program costs. (AR4, tab 1079)

103. Satisfied that DSC had made sufficient progress, the HYDRA-70 program manager recommended that the progress payment ceiling be increased to \$42 million, but that a ceiling be maintained until the required first articles were approved (R4, tab 5283; tr. 15/176). By memorandum dated 14 March 1994, the PCO lifted the suspension effective 15 March 1994. He also increased the progress payment ceiling to \$42 million. (R4, tab 5282; tr. 15/163) On 14 March 1994, DSC submitted Progress Payment Request No. 11, in the amount of \$9,406,375. Of this amount, the Government paid \$7,936,670 on 18 March 1994. At this point, DSC had received close to \$34 million in progress payments. (AR4, tab 5317; tr. 15/177)

104. Altogether, suspension of progress payments lasted for less than a month (from 17 February to 15 March 1994) (tr. 15/163). We find that to the extent DSC was impacted by the lack of cash flow during this period, it was responsible.

#### Criminal and Civil Investigations

105. When the non-conforming lockwire issue surfaced, IOC-Rock Island referred the matter for investigation by the Army's Criminal Investigation Division (CID), the Defense Criminal Investigative Service (DCIS), and the United States Attorney's Office

in Fort Worth. The lockwire issue was referred for criminal investigation because DSC “knowingly delivered nonconforming product without advising [the Government]” (tr. 16/181). In view of DSC’s initial lack of candor in notifying the Government of the coating non-conformance, and its subsequent effort to get around the problem by the proposing an ECP, we find IOC-Rock Island’s referral for criminal investigation was justified. There is no evidence that the Government’s referral was motivated by the possibility of extracting from DSC a release of its unrelated contract claims.

106. In connection with the criminal investigation aspects of the lockwire non-conformance issue, DSC was represented by Joseph Russoniello, Esq. (Russoniello). Russoniello had been the United States Attorney for the Northern District of California, San Francisco. (Tr. 11/31, 34)

107. Once the lockwire referral reached the U.S. Attorney’s Office, IOC-Rock Island and other DOD components’ role became purely supportive. Information papers were submitted to the AUSAs in charge of the criminal and civil aspects of the case to bring them “up to speed on what was going on,” to provide them a way to look at “all the contract issues as a whole,” and to lay out potential remedies in the event a settlement were to occur (tr. 16/189, 128). There is no evidence that IOC-Rock Island procurement officials understood what a “global settlement” would encompass in the context of Civil and Criminal False Claims Act actions.

108. Russoniello met with the AUSA on 31 January 1994. He “stopped in to pledge cooperation,” and suggested that the Government waive its hot-dipped requirement for coating lockwires. (Tr. 11/102) In early February 1994, DSC was notified that it had become a target of criminal investigation (tr. 9/135).

109. Another meeting with the AUSA took place around the end of March 1994. At this meeting, DSC took the position that if the electroplated lockwires could perform as well as the hot-dipped lockwires, there would have been no “material” non-conformance with the contract requirement even though there was a “technical” non-conformance. (Tr. 11/49; AR4, tab 689) The parties discussed whether a test could be performed simulating the long-term effect of electroplating the lockwire coating. Whether the Government was willing to accept rockets with non-conforming lockwires and waive rework was not resolved at this meeting. (Tr. 11/48, 56)

110. According to Russoniello, in the context of a criminal investigation at the U.S. Attorney’s Office, the idea of a “global settlement” is generally understood to include criminal, civil and administrative remedies. Criminal and civil remedies are normally handled through the U.S. Attorney’s Office. Administrative remedies, such as debarment and suspension, are handled by the procuring agency. (Tr. 19/83-84, 96) While a global settlement generally does not include actions that have not yet occurred or

are outside the scope of what is being specifically addressed, the U.S. Attorney's Office could deal with existing contract claims as a part of settlement (tr. 19/84).

111. Russoniello testified that, at meetings which government procurement officials and investigators attended, he sensed that IOC-Rock Island had a hidden agenda. His impression was based on the "stridency" of an IOC-Rock Island contract specialist who allegedly insisted upon reworking every rocket motor and replacing every non-conforming lockwire. He viewed such insistence as "extreme." (Tr. 11/55, 59) Russoniello testified that he was also troubled when IOC-Rock Island raised issues on claims "totally unrelated to the nonconformance issue" at the March 1994 meeting (tr. 11/61-62).

112. Russoniello met with the AUSA again on 6 July 1995, a year later. The purpose of this meeting was to "wrap up the nonconforming component issue," and to see if the parties could bring closure to the case. (Tr. 11/68) At the meeting, Russoniello offered to resolve the case by conceding to a technical violation of the Civil False Claims Act<sup>1</sup> and paying a fine for each false DD Form 250 submitted (tr. 11/17, 104). With respect to the idea of a global settlement, Russoniello testified "it would have been my practice at the time to have brought it up if nobody else did" (tr. 11/103). Russoniello made clear at this meeting that any global settlement pertained only to the lockwire issue and did not include unrelated contract claims (tr. 11/66, 103). If in fact the Government contract specialist left any impression that DSC must forfeit its unrelated contract claims in order to extricate itself from civil and criminal liabilities, we find no evidence that DSC acted accordingly.

113. At the 6 July 1995 meeting, the AUSA notified DSC that he had decided not to prosecute DSC criminally. What was left was for the AUSA to look into what damages the Government might have incurred for purpose of possibly filing a Civil False Claims Act action. (AR4, tab 451; tr. 11/66) In February 1997, the AUSA decided that no Civil False Claims Act action would be filed (tr. 11/67).

#### Rework of Non-conforming Lockwires

114. DSC commenced its rework of the rocket motors containing non-conforming lockwires in June 1994 (tr. 9/152). According to DSC, it acceded to the government demand because:

Without progress billings, and a commitment to replace the lockwires there would be no cash receipts from deliveries, or from progress billings. And we were going to spin into the ground in a matter of months. . . .

(tr. 9/160) From DSC's standpoint, it was prevented from delivering \$1,000 rockets over a "75 cent lockwire that has a two cent coating that is different than what it should be" (tr. 9/161). The Government's position was DSC did not provide what was called for by contract and DSC should either rework the non-conforming products or replace them (tr. 10/79).

115. On 20 July 1994, the parties entered into a Memorandum Of Agreement (MOA) for the purpose of reworking "nonconforming MK66 motors and make them fully conforming to contractual requirements." Among the provisions of the MOA were the following:

3. Rework shall be performed in accordance with Government approved rework procedues only and at [DSC's] expense. . . .

. . . .

7. The Government's approval of rework product does not constitute a settlement, release or waiver of any Government civil and criminal claims or remedies for submission or substitution of nonconforming parts.

8. Rework schedules are to be negotiated and are pending approval of the rework procedures. Contract modifications will be issued to incorporate the negotiated schedules. Letter accepting schedules will be issued within two weeks after negotiations.

9. The Government will conduct the long term aging test as documented on Attachment 2. The cost of the test will be at [DSC's] expense.

. . . .

12. Based upon the terms and conditions of this agreement, [DSC] hereby remises, releases, and discharges the Government, its officers, agents, and employees, of and from all civil liabilities, obligations, claims, appeals, and demands which [DSC] now has or hereafter may have, whether known or unknown, administrative or judicial, legal or equitable, arising under or in any manner relating to the rework of MK66 rocket motors (this includes demands requests, or

appeals for reimbursement of contractor expenses resulting from any rework effort or action).

(AR4, tab 1219; 15/135)

116. Pursuant to ¶ 8 of the MOA, the Government prepared no-cost modifications revising the systems contract delivery schedules and sent them to DSC (tr. 15/137,16/53, 196). DSC attached a letter to the modifications reserving its rights to claim equitable adjustment at a later date (tr. 16/196). It felt it was entitled to an equitable adjustment for stretching out the delivery schedules (tr. 15/139).

117. The PCO took the position that ¶ 8 of the MOA mentioned nothing about additional compensation for revising the systems contract delivery schedules, and to the extent reworking of the lockwires was necessary, DSC was responsible for additional costs arising from it (tr. 10/39-40,15/137). As a result of this disagreement, no rework schedules or revised delivery schedules under the systems contract could be agreed upon (tr. 16/196).

118. DSC reworked 175,000 rocket motors, both tactical and training rounds, between June 1994 and May 1995. In choosing which rocket motors to rework, no consideration was given to when the rockets would be used. Some of the rockets reworked had been built but not delivered to the Government; others had been built, tested and accepted by the Government and stored at DSC. Some of the reworked rocket motors were ordered under the systems contract; others were ordered under the LAP contracts. (Tr. 2/153, 9/166)

119. DSC paid for all of the rework (tr. 4/137-38). The effort cost DSC about \$2 million (tr. 9/156-57). We find that incurring this cost exacerbated DSC's already tenuous financial condition stemming from its \$32 million below cost bid. Having to rework the non-conforming lockwire also caused DSC to fall behind in its delivery of the systems contract rockets (tr. 9/161-62).

120. The expected service life of a conforming MK66 rocket was a minimum of 16 years. NSWC's accelerated aging test on the non-conforming electroplated tin lead lockwires showed that a 11-year service life at ambient temperature could be expected. (Tr. 21/168-70) The Government's test report issued on 28 May 1995, stated nonetheless that the non-conforming lockwires performed "acceptably with no need to restrict their service life" (AR4, tabs 1190, 1221; tr. 2/152). The Government incurred \$123,090 in costs conducting the long term aging test. DSC has not paid this expense as required by ¶ 9 of the MOA. (AR4, tab 7270; tr. 15/140-41)

121. At the hearing, DSC's counsel advised the Board that no equitable adjustment was sought for reworking the non-conforming lockwires, and it raised the

lockwire issue in the context of the Government's attempt to use the criminal justice system to leverage itself out of liability on DSC's FMS/SDAF and other claims. It considered the Government's action in this regard as a breach of the systems contract. (Tr. 2/166)

122. Some of the pre-systems contract rockets with non-conforming lockwires also had a problem with their fin and nozzle assemblies (tr. 16/176, 180). The problem was caused by the Government's failure to restrict in the specification the amount of "RTV" sealant used. Because the use of the sealant could cause damage to aircraft, the Government suspended the use of the affected rockets in July 1994, at the time the parties were engaged in serious discussions as to whether it was necessary to rework the rockets with non-conforming lockwires. (Tr. 16/180)

123. It is purely coincidental that some of the rocket motors with defective fin and nozzle assemblies were also installed with non-conforming lockwires. Because separating the rocket motor from the fin and nozzle assembly would put stress on the motor tube, the Government wanted to replace the non-conforming lockwires at the same time the defective fin and nozzle assemblies were replaced to minimize taking the rocket apart as much as possible (tr. 15/114, 16/180). There is no evidence that the Government's purpose in demanding lockwire rework was to reduce its cost for replacing the defective fin and nozzle assemblies.

**PART III.**  
**DECISION**  
**NON-CONFORMING LOCKWIRES**

The lockwire episode was clearly one of DSC's own making. Instead of providing lockwires conforming to the TDP requirements, DSC provided non-conforming electroplated tin lead lockwires. DSC seeks to shift the focus on its non-conforming lockwires by alleging that the Government improperly "criminalized" the lockwire issue for the purpose of extracting a release from DSC of its unrelated contract claims (app. br. 265, 274).

We address first the reason the non-conforming lockwire issue was referred for criminal investigation. DSC knew in October 1993 its subcontractor was providing non-conforming lockwires. Instead of notifying the Government immediately, it sought to get around the problem by proposing an ECP in November 1993. In November and December 1993, it continued to tender rockets with non-conforming lockwires for acceptance by the Government. DSC did not notified the Government of the non-conformance until January 1994 after the Government rejected the ECP on 15 December 1993. In view of DSC's initial lack of candor in notifying the Government immediately, and its subsequent effort to try to get around the problem by proposing an ECP, we have found that the Government's referral for criminal investigation was justified. There is no

evidence that the Government's referral was motivated by any aspiration to extract from DSC a release of its unrelated contract claims. We conclude that DSC has failed to prove the essential element, *i.e.*, specific intent to injure DSC, in support of its claim of bad faith breach of contract. *See Kalvar*, 211 Ct. Cl. at 198-99, 543 F.2d at 1301-02.

Once the lockwire referral reached the U.S. Attorney's Office, IOC-Rock Island and other DOD components' roles became purely supportive. DSC was represented by competent counsel, a former U.S. Attorney, who was totally familiar with the concept of global settlement and its limitations. The lockwire referral was ultimately resolved, and DSC forfeited no unrelated contract claims.

DSC alleges that the hot-dipped tin lead method of coating lockwires was "unproducible." As support for this proposition, DSC alleges the Government deleted the requirement from the follow-on contract. (App. br. at 261) We have found the Government ultimately deleted the hot dipped tin lead method of plating lockwires because of environmental concerns with lead, not because of any "producible" problems. We note that if producibility had been a problem, DSC did not mention it as a problem when it proposed the method in its ECP in November 1993.

DSC contends that it was coerced into agreeing to rework the non-conforming lockwires when the Government suspended progress payments, and the suspension caused financial distress in performing the contract (app. br. at 262, 265).

The contract authorized zinc and cadmium plating as alternate methods of coating the lockwires. During the PPE phase of the contract, the Government approved hot dipped tin lead as a third authorized method of coating lockwires. The electroplated tin lead method was not authorized. We conclude that DSC's lockwires coated in this fashion failed to comply with a material requirement of the contract. The PCO suspended progress payments because rockets were not being produced with conforming material, and no adequate progress had been made to correct the deficiency. In this regard, the "PROGRESS PAYMENTS" clause of the contract authorized the contracting officer to suspend progress payment upon a finding that "The Contractor failed to comply with any material requirement of this contract," and when "Performance of this contract is endangered by the Contractor's (i) failure to make progress . . ." FAR 52.232-16(c)(1), (2) (JUL 1991).

The PROGRESS PAYMENTS clause does not mandate payment. It is conditional. In *McDonald Welding & Machine Co., Inc.*, ASBCA No. 36284, 94-3 BCA ¶ 27,181, *aff'd* 66 F.3d 347 (1995) (table), we upheld the Government's right to withhold progress payments under an earlier version of the same clause on the bases the contractor's accounting system was not adequate and its unliquidated progress payments exceeded the fair value of the work remaining under the contract. Under the circumstances, we conclude that the PCO properly suspended progress payments upon his finding that DSC

failed to comply with a material requirement of the contract, and failed to take action to correct the deficiency.

In light of the Government's 1995 determination that DSC's electroplated lockwires performed "acceptably with no need to restrict their service life," DSC contends that there was no operational or technical merit to require rework of the training rockets. DSC argues there was particularly no merit with respect to the training rockets which had shown no reliability degradation and had no shelf life issue. (App. br. at 262) Operational or technical merit is not the point. The point is that the Government was entitled to strict compliance without regard to whether contractor believes this is prudent or desirable. As the Court of Claims has said, the Government could, if it wanted, "engage a contractor to make snowmen in August." *Rixon Electronics, Inc. v. United States*, 210 Ct. Cl. 309, 320, 536 F.2d 1345, 1351 (1976); see also *Maxwell Dynamometer Co. v. United States*, 181 Ct. Cl. 607, 628, 386 F.2d 855, 868 (1967) ("Regardless of the technical soundness of the Government's requirements, a contractor must comply with them and cannot substitute its own views for those of the Government"); *H.L.C. & Associates Construction Co. v. United States*, 176 Ct. Cl. 285, 306, 367 F.2d 586, 598 (1966) (contractor cannot substitute his judgment for that of the Government, regardless of the reason, when strict compliance is required).

DSC also accuses the Government of having an improper agenda. It contends that another purpose in demanding rework was to reduce its cost of reworking its inventory of rockets with defective fin and nozzle assemblies. (App. br. at 268-69) The fact that some of the rocket motors with defective Government-furnished fin and nozzle assemblies also happened to have been installed with non-conforming lockwires was purely coincidental. Because separating the rocket motor from the fin and nozzle assembly would put stress on the motor tube, the Government wanted to replace the non-conforming lockwires at the same time the defective fin and nozzle assemblies were replaced to minimize taking the rocket apart as much as possible. We have found no evidence that the Government's purpose in demanding lockwire rework was to reduce its costs for replacing the defective fin and nozzle. Here again, we conclude there was no bad faith breach of contract. *Kalvar*, 211 Ct. Cl. at 198-99, 543 F.2d at 1301-02.

DSC incurred about \$2 million in reworking the rockets with non-conforming lockwires. Because DSC was solely responsible for providing the non-conforming lockwires, and because the Government was entitled to strict compliance of its contract, we hold that DSC was responsible for the financial consequences caused by its rework of the non-conforming lockwires.

Because DSC has failed to prove that referral of the lockwire non-conformance issue for investigation was motivated by an aspiration to extract from DSC a release of its unrelated contract claims, we hold there was no bad faith breach of contract on the part of the Government.

Because DSC has failed to prove that the Government demanded rework of the non-conforming lockwires was motivated by its desire to have DSC shoulder the cost of correcting defective fin and nozzle assemblies in the Government's inventory, we hold that there was no bad faith breach of contract on the part of the Government.

Because DSC failed to comply with a material requirement of the contract and failed to take action to correct the non-conforming lockwires, we hold that the PCO properly suspended progress payments in accordance with the applicable regulation.

**PART IV.**  
**FINDINGS OF FACT**  
**THE 230/231 FUZES**<sup>2</sup>

The Roles of the 230/231 Fuzes in the HYDRA-70 Rockets

124. The M261 warhead of the HYDRA-70 rocket has nine high-explosive M73 grenades. The M267 training warhead has three M75 smoke grenades and six dummy grenades. The M230 fuze goes into the M73 grenade. The M231 fuze goes into the M75 grenade. (Tr. 23/9) The M230/231 fuzes are very small devices. They measured 2 1/2 inches in diameter and 1/2 an inch thick. Because they function mechanically, there are "a lot of tolerances and dimensions" on them. (Tr. 3/152)

125. The arming and firing of the M230 and M231 fuzes depend on the sequential movement of the slider, the trigger, the detent ball, the firing pin and the detonator within each fuze (tr. 23/12-13). The sequential movement of these parts explains their respective roles within the fuze. When a rocket with an M261 warhead is fired from a helicopter launcher, an electrical signal is sent to the M439 fuze at the base of the warhead. There, a capacitor sends a firing command to the motor which launches the rocket. After the launch, the M439 fuze electrically fires the detonator within the fuze which pushes the grenades out through the front of the rocket. Due to aerodynamic drag, the grenade parachute, known as the Ram Air Decelerator, starts to deploy. This deployment shears the shear wire and pulls up the arming pin and releases the slider which holds the firing pin in place. When the M230/231 fuze functions, the trigger pivots out of the way allowing the detent ball to fall away from the firing pin which is propelled forward by a spring and stabs the detonator causing an explosion. (Tr. 28/7-10) We find the M230/231 fuzes to be "complex components" of the type contemplated when the systems contract required implementation of MIL-Q-9858A.

### DSC's Familiarity With Prior TDPs Generally

126. Between 1987 and 1990, DSC was given a number of Engineering Service Memoranda<sup>3</sup> (ESMs) under various ongoing component contracts to maintain the TDP of the HYDRA-70 rockets, including the warheads, fuzes and rocket motors. Under these ESMs, DSC's task was to "update the technical data package to incorporate approved ECP changes and . . . provide maintenance of all the drawings and . . . a system for identifying . . . the drawings." DSC was also responsible for completeness of the TDP. (Tr. 23/88-89) When the Government ultimately decided that maintenance of the HYDRA-70 rocket TDP should be returned to ARDEC, DSC was given ESM No. 251, dated 27 February 1990, to do a final scrubbing of its TDP inventory to ensure that all warhead and fuze drawings were returned to ARDEC (AR4, tab 190; tr. 23/92). We find DSC had more than a passing familiarity with the HYDRA-70 rocket TDP when it bid the systems contract.

### DSC's Prior Experience Producing the M230 Fuzes

127. Breed Corporation (Breed) designed the M230/231 fuzes under a government contract in the late 1970's (tr. 24/9). Research and development were completed with the submission of a report in 1981 (AR4, tab 220). Breed was awarded the first production contract (tr. 23/22). Breed had trouble meeting the specification requirements especially in functioning the fuze in a "go" test environment (tr. 23/22). It experienced a learning curve transitioning from development into production (R4, tab 6120; tr. 23/22-30).

128. Breed produced the M230/231 fuzes for five years (1984-89) (tr. 23/18). It subsequently lost interest in producing fuzes and went into another line of business (tr. 23/18). Breed subcontracted with Byrne Industries (Byrne) to produce the fuzes for the Government. Byrne did so for two years (1989-91) and filed for bankruptcy (tr. 23/19).

129. DSC had had experience manufacturing the M230 fuze prior to the systems contract. In October 1989, the Government directed DSC to furnish 100,000 fuzes under Contract No. DAAA21-85-C-0371 (the 0371 contract), a LAP contract for the M261/267 warheads, under which the fuzes were originally GFE (tr. 3/24). In December 1990, DSC issued a purchase order to Byrne, the Government's fuze contractor, for 100,000 M230 fuzes to fulfill the Government's requirement. At that time, Byrne had a significant backlog of fuzes ordered by the Government. (AR4, tab 453; tr. 3/24-25)

130. Breed sold its ordnance manufacturing business to Byrne in 1989. So that it could take over and manufacture the fuzes the Government awarded to Breed, Byrne leased Breed's manufacturing facility in Boonton, New Jersey (the Boonton facility). (Tr. 3/25) Byrne shut down in the Fall of 1990, without delivering DSC's 100,000 fuzes and

the 400,000 fuzes it had contracted with Breed to furnish to the Government (tr. 3/26, 9/129).

131. With the Boonton facility shut down, DSC could not deliver the 100,000 fuzes and consequently the warheads needed for the Desert Shield/Storm conflict (tr. 3/31). At a meeting in May 1991, DSC proposed to the Government a plan whereby the Government would terminate its fuze contract with Byrne, and award a reprocurement contract to DSC. DSC would in turn acquire Byrne's fuze assets and enter into a facility use agreement with Breed so that the 100,000 fuzes and the backlog could be manufactured at Boonton. (Tr. 3/35) The Government accepted the plan (tr. 3/41). In May 1991, DSC terminated its fuze contract with Byrne. Byrne "stepped aside" and DSC took over operation of the Boonton facility and began producing fuzes for the first time (tr. 9/132-33). In July 1991, the Government issued a modification to the 0371 contract, adding 252,421 M230 fuzes to the contract (AR4, tabs 293, 453; tr. 4/10, 13/43-44).

132. DSC purchased Byrne's equipment and took over Breed's Boonton facility in October 1991 (tr. 4/10, 9/127). DSC produced the 100,000 M230 fuzes it originally tasked Byrne to produce and the 252,421 fuzes added to its 0371 contract. Deliveries were made in January and August 1992, respectively. The Government accepted the fuzes delivered. (Tr. 4/11, 146; AR4, tab 453) Between deliveries, DSC was awarded the systems contract in April 1992 (tr. 3/145, 4/10).

133. Unlike the systems contract, the 0371 contract had no first article requirement. DSC simply continued to do what had been done. (Tr. 4/13, 9/132) After DSC made its deliveries in August 1992, it shut down the Boonton facility and moved its fuze production line to its facility in Fort Worth, Texas (tr. 3/145-47).

134. DSC decided to relocate for two reasons. First, the systems contract had imposed the more stringent quality requirements of MIL-Q-9858A (Quality Program Requirements) (R4, tab 5001 at 2; tr. 4/12-13), and it would take "a lot of time and money" to upgrade the Boonton facility to meet the new quality standard. Secondly, DSC felt it would be difficult to manage the Boonton facility from Texas. (Tr. 4/147)

135. Although the Government accepted the fuzes DSC manufactured in Boonton, DSC acknowledged that there were requirements in the systems contract that were not in the 0371 contract (tr. 4/21). Some of the non-conforming fuze first article issues of the systems contract came about when DSC attempted to use the residual inventory parts from Boonton to pass FATs under the systems contract (tr. 4/14). DSC used residual straight pins, arming pins and slider produced at Boonton as first articles under the systems contract (tr. 9/135).

136. None of the employees except one DSC used at Boonton were transferred to its Fort Worth facility (tr. 13/183-84). We find a part of DSC's difficulty in producing

systems contract first articles and fuzes stemmed from a learning process which occurred with new employees at a new facility.

137. As the following testimony from its Program Manager shows, DSC experienced a learning curve in producing fuzes at its Fort Worth facility:

What we were trying to do is get to where we could reliably build the fuze, almost at – regardless of what cost it was. We were trying to find out what it would take to build a fuze. And once you got there, then you could really start looking at ways of cutting costs out of it.

(Tr. 3/192)

138. In addition, DSC lacked expertise in machining fuze parts. Its former president acknowledged that not being a “machine house,” it was “probably a mistake on [DSC’s] part in taking on that . . . it probably would have been better to outsource that because . . . [DSC] was not a machine tool or machine house.” He testified that DSC “had to build up to that expertise . . . [and] had a lot of problems with the fuze when we took that on.” (Tr. 16/90)

#### The Systems Contract M230/231 Fuze TDP

139. The systems contract TDP for the M230/231 fuzes (MIL-F-63446A(AR)), as modified through Amendment No. 9, 28 May 1991, and ECP 92-0477-0009, dated 11 September 1992, included both specifications and drawings (AR4, tabs 1197R at 16-18; R4, tab 6089; tr. 23/70-71, 75). The TDP did not specify production processes or methods. Nor did they specify what machines or equipment to use for production. Such decisions were left to the contractor. (Tr. 23/75)

140. For example, Drawing No. 9333816 for the firing pin body shows the dimensions, material, and finish required for the firing pin body, but does not specify any required manufacturing processes (R4, tab 6089 at 219). Drawing No. 9333812 for the trigger shows the dimensions, material, and finish required for the trigger. The drawing also includes an advisory note informing the contractor about a successful process which has been used in the past for achieving an alternate construction, but the drawing does not require that process nor specify any other required manufacturing processes (R4, tab 6089 at 217). Drawing No. 9333824 for the fuze body shows the dimensions, material, and finish required for the fuze body, but does not specify any required manufacturing processes for such items as drilling the holes in the fuze body or machining the fuze body surface areas (R4, tab 6089 at 222-23).

141. DSC claims that it had to modify “the machining operations performed by the Mikron on the fuze body casting to drill the pivot screw hole, but not to tap it” (AR4, tab 695 at 86, ¶ F.3.) To tap means to form treads (tr. 25/130). Whether DSC drilled and tapped the pivot screw at the same time was a machining process which was DSC’s manufacturing choice since the TDP did not specify how DSC was to do its machining (tr. 25/130).

142. Because so many parts and subassemblies could affect the ultimate reliability of the fuze, DSC acknowledges the way to improve reliability was to “put more in process controls and more inspections on the pieces going into [the fuzes]” (tr. 3/195). DSC used the so-called “Langlie Test” -- a test it developed under an ESM funded by the Government under a separate contract -- to monitor the manufacturing process of the fuzes (R4, tab 6004; tr. 13/186-87, 199). DSC added in-process inspections and implemented 100 percent inspection on the arming pins before they went into the fuzes to improve their chances of passing lot acceptance tests (tr. 3/203).

143. The length of the fuze trigger is a critical dimension in locating the detent ball which is critical to the reliable functioning of the fuze. DSC contends that it had to “[control] the dimension, the tolerance better, tighter, than what was required” (tr. 3/204-05). DSC controlled the trigger tip finish to between 8 and 16 microfinish (AR4, tab 695 at 85). Since the contract drawing required the trigger tip finish to be 16 micro or less, we find it was up to DSC to determine the appropriate trigger tip finish (tr. 12/96).

144. Section 3 of the specification sets out the performance requirements, including the following provisions:

3.2 First Article. This specification makes provision for first article inspection. Requirements for the submission of first article samples by the contractor shall be as specified in the contract.

....

3.5 Functional requirements.

....

3.5.10 Fuzing-No Go. An armed fuze shall not trigger (release firing pin) when subjected to the NO GO Shock Test.

3.5.11 Fuzing-Go. An armed fuze shall trigger and initiate the detonator when subjected to the Go Shock Test.

3.5.12 Reliability.<sup>[4]</sup> The fuze shall demonstrate a minimum acceptable value of 94.6% with a best operational capability of 99% at 90% confidence.

....

3.7 Workmanship. All parts and assemblies shall be free from burrs, chips, sharp edges, cracks . . . corrosion products and other foreign matter . . . .

(R4, tab 6089 at 000030-33)

145. Section 4 of MIL-F-63446A(AR) pertained to “Quality Assurance Provisions.” It provided that, unless otherwise specified, “the contractor is responsible for the performance of all inspection requirements . . . may use his own or any other facilities suitable for the performance of the inspection requirements specified” (§ 4.1). Two types of inspections were specified: First Article Inspection, and Quality Conformance Inspection (§ 4.2). Paragraph 4.3 specified the fuse first article items and quantities that had to be submitted. First article inspections were to be performed in accordance with MIL-A-48078 and Table I (§ 4.3.2). (R4, tab 6089 at 000033-101) Table I set out the tests or inspection method to be performed during Quality Conformance Inspection of various fuze items and classified various characteristics (*e.g.*, arming time, fuzing no go and fuzing go) as critical, major or minor. It specified the sample size and the acceptable quality level (AQL). (R4, tab 6089 at 000101; tr. 24/48)

#### Preproduction Evaluation (PPE)

146. Paragraph 3.1 of the systems contract Statement of Work (SOW) pertained to “Preproduction Evaluation” or “PPE.” Under this provision of the contract, DSC was required to perform a detailed analysis of the M261/267 rockets and the MK66, Mod. 2 and 3 rocket motors to “eliminate design inconsistencies related to producibility, omissions, errors . . . to include finishes, materials, processes and design features.” Based on its analysis, DSC was to prepare and propose necessary Engineering Change Proposals (ECPs) to ensure producibility of the rockets or rocket motors. Upon completion of the PPE effort, DSC was required to certify to the PCO that all components, assemblies, and parts of the HYDRA-70 rockets can be produced, fabricated, assembled, and tested in complete compliance with the systems contract. (AR4, tab 305)

147. This PPE requirement arose out of the Government’s concern over potential producibility problems. The Government recognized that each contractor brought with it a unique set of production histories, technical capabilities, and methods of manufacture. (AR4, tab 305) The PPE phase of the contract was designed to “allow the contractor to

go through the technical data package looking at his production capability or planned production facilities and determine where he might want to make adjustments . . . to make it easier for him to produce in his chosen manufacturing environment” (tr. 18/57-58).

148. DSC was required to complete its PPE effort by 31 October 1992, six months after contract award. Completion of the PPE effort was to be evidenced by DSC’s submission of a TDP Validation Report.<sup>5</sup> (Tr. 16/214) Because of the relatively short time frame allowed, DCS actually began work on PPE in January 1992, three months prior to award of the systems contract (tr. 12/171). DSC initially submitted the TDP Validation Report on 30 November 1992. The report was amended 15 April 1994 and again 30 November 1994. (AR4, tab 6134; tr. 16/215, 18/58) DSC never certified that the systems contract rockets were producible. It began production nonetheless.

#### Nature of the TDP and Prior Waivers and Deviations

149. A pre-solicitation conference was held on 31 October 1991 (tr. 5/93). At this conference, there was a discussion concerning whether the Government or the contractor would be responsible for meeting the performance requirements of the TDP now that the procurement was going from a component breakout to a systems contract (tr. 5/94). According to DSC, the Government’s oral response at the meeting was “somewhat garbled,” stating that “they wanted both, that they wanted [the contractor] to build it to the drawing, and that [the contractor] would be responsible for meeting the performance requirements” (tr. 5/95). According to DSC, it asked for a list of waivers and deviations issued to various prior component contractors at the conference (tr. 5/84).

150. As a result of the discussions held at the pre-solicitation conference, the Government on 2 March 1992 issued Amendment No. 0001 to the solicitation which provided, among other things:

30. The current technical data packages represent designs which, if built to print, will meet the performance requirements. The contractor will be required to build to print and the proof of conformance will be the results of first article and lot acceptance.

(AR4, tab 194)

151. Because waivers and deviations were one-time occurrences issued to accommodate contractors under peculiar situations, and do not reflect permanent changes to the TDP, the Government saw no reason and consequently did not provide DSC a comprehensive list of waivers and deviations (tr. 24/39). We find no basis in fact for the allegation that the Government’s refusal to provide such a list was motivated by its desire

to further an alleged procurement strategy to have the systems contractor redesign the M230/231 fuze. Waiver and deviation information was available to DSC in any event since DSC went to the same vendors used by prior component contractors (tr. 12/171-72). These vendors knew what ECPs had been incorporated in the component contract TDP and what waivers and deviations had been granted (tr. 12/172).

### Quality Program Requirements Under the Systems Contract

152. The systems contract required DSC to comply with MIL-Q-9858A, “Quality Program Requirements,” Amendment No. 2, dated 8 March 1985 (R4, tabs 5001, 5116; tr. 15/207). This specification required DSC to develop and implement a quality program to assure compliance with the requirements of the contract (R4, tab 5116 at ¶ 1.2). The specification was intended to apply to complex supplies, components, equipment and systems where “total conformance to contract requirements cannot be obtained effectively and economically solely by controlling inspection and testing,” but where it was essential to “control work operations and manufacturing processes as well as inspections and tests.” The purpose for this control was not only to “assure that particular units of hardware conform to contractual requirements, but also to assure interface compatibility among these units of hardware when they collectively comprise major equipments, subsystems and systems.” (R4, tab 5116 at ¶ 8.1) Having found the M230/231 fuzes to be “complex components” of the HYDRA-70 rockets, we find further that, notwithstanding the Government’s representation in Amendment No. 0001 (¶ 30) of the solicitation, total conformance with the fuze TDP cannot be effectively and economically achieved without putting in place the work operation and manufacturing process controls required by MIL-Q-9858A.

153. The requirements of MIL-Q-9858A are extensive. The following provisions are relevant to the issues raised in this appeal:

#### 3. QUALITY PROGRAM MANAGEMENT.

....

3.3 Work Instructions. The quality program shall assure that all work affecting quality (including such things as purchasing, handling, machining, assembling, fabricating, processing, inspection, testing, modification, installation, and any other treatment of product, facilities, standards or equipment from the ordering of materials to dispatch of shipments) shall be prescribed in clear complete documented instructions of a type appropriate to the circumstances. Such instructions shall provide the criteria for performing the work functions and they shall be compatible with acceptance

criteria for workmanship. The instructions are intended also to serve for supervising, inspecting and managing work. The preparation and maintenance of and compliance with work instructions shall be monitored as a function of the quality program.

....  
4. FACILITIES AND STANDARDS.

....  
4.2 Measuring and Testing Equipment. The contractor shall provide and maintain gages and other measuring and testing devices necessary to assure that supplies conform to technical requirements. These devices shall be calibrated against certified measurement standards which have known valid relationships to national standards at established periods to assure continued accuracy. The objective is to assure that inspection and test equipment is adjusted, replaced or repaired before it becomes inaccurate.

....  
5. CONTROL OF PURCHASES

5.1 Responsibility. The contractor is responsible for assuring that all supplies and services procured from his suppliers (subcontractors and vendors) conform to the contract requirements. . . . The inclusion of a product on the Qualified Product List only signifies that at one time the manufacturer made a product which met specification requirements. It does not relieve the contractor of his responsibility for furnishing supplies that meet all specification requirements or for the performance of specified inspections and tests for such material. . . .

(AR4, tab 5116)

154. In October 1992, DSC relocated the fuze and RAD production lines for the HYRDA-70 rockets to its Fort Worth facility from Boonton, New Jersey (tr. 18/43). As of February 1993, 10 months into the systems contract, DSC still could not assure IOC-Rock Island that its Fort Worth facility was in compliance with MIL-Q-9858A (tr. 16/208). Sometime prior to 15 February 1993, the PCO asked Defense Contract

Management Center (DCMC), Dallas, to initiate a review of DSC's Fort Worth facility for compliance with MIL-Q-9858A (R4, tab 5151).

155. There were a significant increase in the Corrective Action Reports (CARs) issued at DSC's Fort Worth facility beginning in 1993. This sudden increase in CARs was attributable to the newly established fuze line and DSC's efforts in producing the FAT piece parts, particularly with respect to those involving the M230/231 fuzes. Some of the CARs, which DCMC Quality Assurance Representatives (QARs) considered systemic, arose as a result of DSC's failure to fully implement MIL-Q-9858A. Quality deficiencies included DSC's failure to issue work instructions and to verify compliance on the part of its subcontractors which, in turn, resulted in defective FAT parts being submitted to the Government. (R4, tab 7074; tr. 20/31, 55-56, 75-76)

156. The DCMC QAR assigned to DSC's Fort Worth facility testified that one of DSC's weaknesses was that it did not have work instructions in all areas (tr. 20/87). For example, a CAR was issued on 12 November 1993 upon rejection of DSC's M230 fuze body cavity FAT because of omission of material certification and dimensional characteristics on DSC's work instructions (R4, tab 7208 at ex. 5; tr. 20/45). A CAR was issued on 20 May 1994 on the M230/231 fuze body FAT because the dimension of the arming pin groove was omitted from DSC's inspection records. Omission of this dimension from the work instructions suggested that the dimension was not inspected. (R4, tab 7208 at ex. 6)

157. The DCMC Contract Administration Manual (October 1990) provides that a "Method C" CAR is for use under the following circumstances:

(3) Method C: Used for *serious* quality problems, e.g., repetitive deficiencies, lack of response to Method B requests, or the contractor has been negligent in . . . correcting its written procedures. A letter will be sent by Quality Assurance, signed by the QAR or higher-level supervisor, to the contractor's top management requesting immediate action. Copies are provided to the ACO and PCO. [Emphasis added]

If Method C produces no tangible result, the QAR could proceed to Method D which is used where the contractor cannot or will not comply with contract requirements. Imposition of a Method D results in "a suspension of all Government Contract Quality Assurance actions at the contractor's facility." (R4, tab 5162 at ¶ 46.5(3) & (4)) Without a government QAR there to accept shipment, a contractor would not be able to bill for progress payments and, as a result, production would have to cease.

158. On 8 April 1993, as a result of its evaluation, DCMC, Dallas, issued a Method C letter to DSC. The letter stated that between 26 January and 2 April 1993,

15 CARs were issued. The CARs were said to relate to systemic problems in DSC's implementation of MIL-Q-9858A, in the following areas: "Calibration, Nonconforming materials, Material Review Board (MRB) activity, Work Instructions, Corrective Action, Management oversight to monitor maintenance and compliance of the Quality Program." In view of the seriousness of the deficiencies, DSC was told that the "government in-plant quality assurance functions may be selectively discontinued unless corrective action is implemented to preclude recurrence." The letter instructed DSC to:

Please provide this office a Corrective Action Milestone Plan by 30 April 1993. This plan must identify the root cause of quality problems and contain a detailed course of action that will correct the quality problems and the root cause.

(AR4, tab 395; tr. 19/44-45) DCMC did not lift its Method C until December 1993, some eight months after it was imposed (tr. 20/68).

159. DSC's own employee attributed its quality problems to its failure to add staff to properly monitor all aspects of the systems contract including quality surveillance of subcontractors (tr. 19/93).

160. DSC's own top management review also revealed significant quality problems (R4, tab 5162). In the Spring of 1993, as a result of receiving the Method C letter, BEI dispatched a headquarters troubleshooter to assess DSC's situation. The troubleshooter reported the following performance deficiencies, among others, to BEI's chairman: (1) the Fort Worth facility lacked "firm direction in the plant, detailed manufacturing planning, an overall program plan, configuration management [and] mechanical manufacturing engineering skills . . .," (2) despite lack of skills within the plant, no corrective action was taken because "everyone knew money was short and the desire was to do the job with existing staff," and (3) existing configuration management had led to "a lot of parts not being built to the latest revision." The report recommended additional resources to define a configuration management plan, to add manufacturing engineering to improve the tools and fixture on the RAD and the M231 fuze line. (Emphasis added) (R4, tab 5219; tr. 13/100-04)

161. We find in the Spring of 1993, one year after award of the contract, DSC still did not have the quality program (MIL-Q-9858A) and the necessary human resources in place at its Fort Worth facility to execute the systems contract. While DSC was busy implementing its corrective actions, nothing else was being accomplished for two or three months (tr. 20/66). We find these shortcomings, *i.e.*, lack of work operations and manufacturing process controls which were the centerpiece of MIL-C-9858A, contributed significantly to the delays encountered in the approval of its fuze FATs and in the production of acceptable fuze lots.

## Statistical Process Control (SPC)

162. The systems contract included at Clause E-4, “Statistical Process Control (SPC) (JUL 1991).” This clause provided that, “In addition to the quality requirements of the technical data package, the contractor shall implement Statistical Process Control (SPC) in accordance with the Contractor’s Government accepted SPC Plan” (R4, tab 5008). We find that the purposes for requiring implementation of SPC as a part of DSC’s performance requirements were (1) to minimize process variability so that the probability of rejecting a part is decreased, and (2) to reduce costs (AR4, tab 1406 at 37; tr. 14/63-64).

163. Manufacturing companies traditionally rely upon statistical sampling and inspection to assess the quality of a product. These techniques sort defective products from good ones after they are made. (Tr. 8/21) SPC is a technique that “controls the process [of] manufactur[ing] components within specified ranges and adjusts the process as parts are manufactured to preclude rejections” (AR4, tab 1406 at 36; tr. 14/63). The theory behind SPC is that it is more effective to invest money in controlling the manufacturing process to minimize defects than to spend money after the fact to find and correct defects (tr. 22/237; AR4, tab 1406 at 36). By monitoring and making adjustments during manufacturing, a contractor is able to minimize variability and produce acceptable products. This technique enables a manufacturer to cut cost by eliminating inspection at the end of the manufacturing process. (Tr. 8/21-22, 27)

164. The systems contract Contract Data Requirements List (CDRL) listed all data items required to be provided by the contractor to the Government for review. One such item was an SPC Plan. (Tr. 22/123) The CDRL also required DSC to submit, for approval, a General SPC Plan and a Detailed SPC Plan (R4, tab 6093 at ¶ 10.2; R4, tab 5003; tr. 20/13, 22/131).

165. DSC was to provide in its General SPC Plan its management philosophy, structure and training, and how it would use SPC and what tests it would use to implement SPC. This General SPC Plan was to apply to all components of the rocket system “across the board” (tr. 22/259). DSC set out the following commitment in its General SPC Plan, Revision B, dated 18 February 1994:

### 1.2 Management Commitment

Management is fully committed to providing all the resources necessary to ensure effective implementation and maintenance of [DSC’s] SPC program. [DSC’s ] goals regarding SPC are as follows:

1.2.1 Significantly reduce the cost of scrap, rework, and inspection by effectively and efficiently controlling the manufacturing processes.

1.2.2 Reduce operating costs by optimizing process control parameters.

1.2.3 Increase productivity by identifying and eliminating assignable root cause of variation.

1.2.4 Establish and validate predictable and consistent levels of quality for products produced.

(R4, tab 6126; tr. 22/179)

166. The Detailed SPC Plan pertained to specific rocket components such as the M230/231 fuzes (tr. 22/259). Because detailed plans frequently change as improvements are made (tr. 22/134), they are “living” documents. In this case, DSC’s Detailed SPC Plan was to be submitted to the DCMC QAR at its Fort Worth facility for approval (tr. 20/13, 22/130).

167. Within its SPC plans, it was strictly up to DSC to decide where in its manufacturing process it wished to apply SPC (R4, tab 6093 at ¶ 10.3.1.6; tr. 14/69, 22/122, 24, 40). DSC also chose what type of equipment it would use to implement SPC (tr. 22/125). DSC was free not to apply SPC to product characteristics which were classified as critical, special or major; it simply had to find other means to control quality (tr. 22/124).

168. To be eligible to eliminate inspection of finished products, DSC had to demonstrate that it achieved certain process capability (Cp) measured by process performance indices, known as Cpk. Data Item Description (DID) OT-90-12138 required a Cpk of greater than or equal to 1.33 for non-critical parameters/characteristics, and a Cpk of greater than or equal to 2.00 for critical parameters/characteristics.<sup>6</sup> (R4, tab 6093 at ¶ 10.3.1.7.d.; tr. 14/68) For SPC to work, the manufacturing process must have nominal dimensions. The probability of exceeding the design tolerances is kept low by minimizing variations from the nominal dimensions. (Tr. 8/24) Thus, a Cpk of 1.33 simply means that the total variation of the manufacturing process when it is in control is within three-fourths of the total tolerance (tr. 22/149).

169. There was no requirement for DSC’s manufacturing process to actually achieve Cpk 1.33 or 2.00. If it did, the Government would have considered a request

from DSC to reduce or eliminate final acceptance inspection/testing from DSC. (R4, tab 6093; tr. 22/151-52, 238)

170. As of 31 January 1994, DSC's General SPC Plan, Revision A, was still deficient. IOC-Rock Island's Product Quality Manager recommended approval of the plan pending receipt of further revisions. (R4, tab 5143; tr. 22/136) DSC forwarded its General SPC Plan, Revision B, by letter dated 21 February 1994. Based on DSC's representation that it intended to "utilize variable control charting methods for variable characteristics whenever it is economically feasible to do so," and based on its intention to "develop a continuous improvement approach to utilizing variable data control charting techniques in lieu of attribute control charting techniques for variable characteristics whenever economically practical," IOC's Product Quality Manager recommended approval of DSC's General SPC Plan on 28 February 1994. The PCO approved DSC's General SPC Plan by letter dated 2 March 1994, 23 months after contract award. (R4, tab 6126; tr. 22/141-42) DSC's General SPC Plan recognized that even if it did not become process capable, SPC still could be used to minimize defective production through "cause-and-effect" analysis (R4, tab 6126 at 26, ¶ 8.6.1.3).

171. DSC submitted several Detailed SPC Plans. DSC submitted its "SPC Detail Plan For M230/231 Fuze General Purpose Grenade" on 3 February 1993 (R4, tab 6130; tr. 20/13). This plan identified the processes DSC had targeted for SPC, and described the characteristics to be monitored, control chart type, sample size and sampling frequency (R4, tab 6130 at 6; tr. 20/14). A DCMC QAR notified DSC on 26 April 1993 that its Detailed SPC Plans "appear to be acceptable at this time for subject contract provided that the enclosed comments are addressed and resolved" (R4, tab 6108; tr. 22/144).

172. Full implementation of SPC was hampered by DSC's lack of cash (tr. 20/17, 22/139, 141,170). In any event, DSC's SPC came too late to be of help "because by the time they really got to use it, they had already produced many fuzes and had suffered fuze lots being rejected . . . because of . . . manufacturing problems" (tr. 22/170).

173. DSC's lack of commitment to SPC is reflected in a resignation letter dated 29 April 1994, written by its SPC coordinator:

It has recently been brought to my attention that the Plant Manager/Manufacturing Manager is no longer required to participate in SPC activities in any way. . . . Even the SPC Steering Committee was dissolved on the pretense that we were attempting to implement a program better suited for a much larger organization. As stated in every SPC implementation text I have ever read, **SPC cannot succeed if there is no direct involvement by the highest levels of**

**Management.** Without this involvement requirement, there is no way to consistently enforced the controls we place on our process.

.....

... I came to [DSC] to help build a Quality Organization. **Everyone should know that QUANTITY is easily achieved after QUALITY has been attained.** I regret to say that I do not believe that [DSC] will soon understand, much less believe what I have just said. And this is why I must leave.

(Emphasis in original) (R4, tab 5145 at 4, 6) DSC's expert, who review DSC's implementation of SPC on the M230/231 fuze production program, would only say that DSC "made an honest effort" and "attempted to comply" with its own SPC plan (AR4, tab 1406 at 40-41).

174. DSC's expert testified that, in a build-to-print TDP such as the one for the M230/231 fuzes, if DSC had manufactured the various fuze components within the specified tolerances, imposition of SPC should not have been necessary (tr. 4/64, 72; AR4, tab 1406 at 10). He acknowledged however, there was high variability in the design of the M230/231 fuzes (tr. 14/74). One of the purposes for SPC was to enable DSC to control its fuze manufacturing process to within the specified tolerances to minimize rejection when fuze lots were tendered for acceptance. DSC's own SPC Summary Report of March 1994 indicated that to the extent it implemented SPC, it made significant improvements between January and March 1994, in reducing the variation of the true positions of the M230/231 fuze (1) Detent Ball Hole, (2) Pivot Screw Hole and (3) Firing Pin Bore. (R4, tab 6125; tr. 22/172-74)

175. The MIL-Q-9858A requirement was a part of IOC-Rock Island's overall "philosophy and approach to upgrade the quality of the products" for its customers (tr. 17/78). Since its introduction at IOC-Rock Island in 1980, the Command had implemented SPC "across the board" to complex, large dollar procurements (tr. 22/101, 106). Its application to the HYDRA-70 rocket systems program was not unique (tr. 17/75-76). In light of the complexity of the HYDRA-70 rockets, we find inclusion of these quality assurance measures in the systems contract appropriate. We find no support for DSC's proposition that the Government included these quality assurance measures in the systems contract as a means to obtain a redesign of the allegedly defective M230/231 fuze design at DSC's expense, and to place responsibility for alleged past procurement failures on DSC.

## Acceptance Inspection Equipment (AIE)

176. Clause E-6 of the systems contract, "ACCEPTANCE INSPECTION EQUIPMENT (AIE)" required the contractor to provide all the AIE necessary to assure conformance of components and end items to contract requirements. AIE was required to be available for use prior to first article submission and initiation of production. AIE for inspection of characteristics listed as critical, special or major had to be submitted for review and approval by ARDEC. AIE for minor or unlisted characteristics only needed to be approved by a QAR. (R4, tab 5008 at IOC004005; tr. 24/204-5)

177. AIE was to be evaluated in accordance with the criteria set out in Data Item Description (OT-90-12009), "ACCEPTANCE INSPECTION EQUIPMENT DESIGN DOCUMENTATION" (R4, tab 6088; tr. 24/206). ARDEC had no preference for one type of equipment over another. It simply evaluated whatever AIE DSC submitted. Once approved, QARs at DSC would use the approved AIE for inspections. (Tr. 24/214)

178. DSC submitted its AIE Design Documentation for the M230/231 fuzes by letter dated 25 November 1992 (R4, tab 6104; tr. 24/215). The submission was incomplete, missing set-up, operating and calibration procedures. ARDEC asked DSC to submit detailed procedures to allow for a complete review (R4, tab 6104). By letter dated 12 February 1993, the Government rejected DSC's request to use previously approved AIE under another contract as AIE for the systems contract (R4, tab 6104; tr. 24/219).

179. By letter dated 12 February 1993, DSC submitted AIE documentation for the M230/231 fuzes. To measure the fuze body dimensions, DSC proposed to use hard or attribute gauges. (R4, tab 6104; tr. 24/219-20) In March 1993, DSC changed its mind and proposed to use a Coordinate Measuring Machine or "CMM machine" that measured variable data as AIE for both the fuze first article and quality performance inspections (tr. 24/221). DSC's AIE plan called for using a CMM machine to inspect fuze body dimensions (tr. 20/19). A CMM machine measures the true positions of features of complex configurations. It can be very precise and detailed. It is, however, a complicated piece of equipment and using it can be time-consuming (tr. 22/126-27). ARDEC evaluated the CMM machine and approved it in April 1993 (R4, tab 6104; tr. 24/223-24). Using the CMM machine, DSC found certain dimensions on its fuze bodies out of tolerance (tr. 20/20). Because using a CMM machine was time-consuming, DSC built up a sizable backlog in its fuze inspection (tr. 22/159).

180. In June 1993, DSC submitted the hard gauges again to be used as an alternate to the approved CMM machine (R4, tab 6104; tr. 24/224-25). ARDEC reviewed DSC's hard gauges and in July 1993 approved them as AIE with certain category exceptions in July 1993. It approved the submission in October 1993. (R4, tab 6104; tr. 24/229)

181. At a meeting held on 29 October 1993, DSC advised the Government that an excessive (40%) rejection rate was experienced on the fuze bodies and its machining process was not capable of machining fuze bodies in accordance with the TDP (R4, tab 6028). We find that DSC's failure to produce conforming fuze bodies was attributable to its micron machine which added variations to the machining process (tr. 22/171).

182. Even though the CMM machine's ability to measure variable data could have helped DSC to find out what in its machining process needed to be corrected (tr. 22/120-21, 163), DSC decided it would rather rely totally on functional hard gauges instead (22/63, 65, 120-21). Since there was nothing in the contract which required DSC to use the CMM machine, the PCO by letter dated 8 December 1993 authorized DSC to use functional hard gauges in lieu of the CMM machine for the M230/231 fuze inspections performed under the systems contract (AR4, tab 1230; tr. 22/168). DSC's decision to abandon the use of the CMM machine illustrates its lack of commitment to reducing or eliminating defective parts during its manufacturing process.

*a. Measurement of Pivot Screw Hole and Detent Ball Hole*

183. The contract required the Pivot Screw Hole and the Detent Ball Hole in the fuze body to be within certain tolerance of each other (tr. 3/167; AR4, tab 1313). If the holes are out of tolerance, it could affect the sensitivity of the fuzes (tr. 3/170). To measure tolerances, DSC initially used a hard gauge approved by the Government as a part of the AIE. Because of the configuration and the type of threads, a slope was created in the Pivot Screw Hole, and the hard gauge would not reject bad parts. (Tr. 3/169, 173)

184. To compensate for its inability to measure tolerances accurately, DSC moved the threading of the Pivot Screw Hole off-line, measured the concentricity of the two holes by a CMM machine. DSC then went through a secondary operation of threading before conducting an AIE inspection. (Tr. 3/179) DSC expended engineering hours in finding a solution which delayed the production of fuzes (tr. 3/177-78). After discussing several alternatives with the Government, DSC decided to return nonetheless to the unsatisfactory hard gauge (tr. 3/172).

*b. Measurement of Firing Pin Bore*

185. DSC initially measured the fuze firing pin bore with a no-go pin gauge. This gauge was approved by the Government as a part of the AIE. (Tr. 3/180, 184) The gauge was ineffective in measuring the hole at the bottom where it "got bigger," or where it was oval in shape (tr. 3/180). DSC had to scrap a lot of fuzes later because the gauge was unable to detect enlarged dimensions of the holes (tr. 3/181).

186. To catch the defective parts which it acknowledged was its responsibility, DSC added a sample inspection process "as these parts came off . . . manufacturing" (tr.

3/182). DSC also used an air gauge which was able to measure the diameters of the hole at three different locations “including the entrance . . . [and] just above and below the location of the detent ball” (tr. 3/182; AR4, tab 1313). DSC contends the government-approved AIE was inadequate to detect defects and that it was not required to add an additional inspection processes during manufacturing (tr. 3/183-84, 87). We find the Government did not mandate what AIE DSC was to use. The choice of appropriate AIE belonged strictly to DSC. We find DSC’s fuze production was hampered by its choice of AIE.

### The M230/231 Fuze First Articles<sup>7</sup>

187. Under the systems contract, first article testing (FAT) was required as specified in the contract.<sup>8</sup> All FAT was required to be completed by 15 February 1993, 10 months after award (R4, tab 5007 at IOC0171578; tr. 3/163). FAT was required to be conducted in accordance with Clause E-3, “INSTRUCTIONS REGARDING SUBMISSION OF FIRST ARTICLE (CONTRACTOR TEST) (OCT 1988).” A FAT Report was required to be submitted pursuant to Clause E-3(c) (R4, tab 5008 at IOC0040048-49). Since a FAT Report was a deliverable under the contract, where the Government allowed DSC to conduct FAT on each individual item separately (*e.g.*, the RAD or the M230 or M231 fuzes) as in this case, we do not consider all FAT completed until all FAT Reports were approved by the Government. DSC acknowledged that it recognized the first article schedule was a “big” risk when it submitted its proposal, and “the primary risk on this contract.” DSC tried to minimize this risk by dealing with existing qualified vendors (tr. 12/173-74). It even offered the Government \$1 million to waive the first article requirements (tr. 12/174). The Government rejected this offer (tr. 12/182).

#### *Difficulties Encountered In Producing the M230/231 First Article*

##### *a. Draft Angle*

188. To build a fuze body, a mold has to be used. At the end of the molding process, the mold has to be withdrawn. To do this, there has to be a taper where two parts of the mold come together. The TDP drawing specified the taper or the draft angle that must be met. No inspection method for measuring draft angle was specified. (Tr. 3/154-56, 24/79-80, 25/91; R4, tab 6089 at 00022-23)

189. In producing the fuze bodies, DSC used an old mold it purchased from a prior producer. During first article qualification, DSC sent its fuze bodies out for measurement and found the draft angles did not meet contract requirements. (Tr. 24/81, 84, 91, 98) To assist DSC, ARDEC in March 1994 relaxed the TDP requirements and permitted DSC to take draft angle measurements off of the mold rather than the fuze bodies (tr. 25/99-100, 24/82).

190. DSC alleges in its claim that it had to control “nominal dimensions, dimensional tolerances and draft angles on the mold used to cast the fuze body casting tighter than required by the TDP” (AR4, tab 695 at 86, ¶ F1). We find no merit in this claim. DSC’s old mold was not in compliance with the TDP requirements. Thus, DSC’s efforts in controlling dimensions and tolerances were to bring its mold into compliance with contract requirements.

191. Nor was it impossible to verify the measurements of the draft angle (tr. 24/197-98). When DSC ultimately went to a new mold, it was discovered that the dimensions and tolerances required originally could be attained (tr. 25/102-03, 129-30; R4, tab 6071).

*b. The Fuze Straight Pin*

192. The straight pin is a part of the M230/231 fuzes. It is the sharp tip of the firing pin. It was designed to ensure there is proper angle to initiate the detonator. (Tr. 23/103-04, 209-10) The TDP drawing required the straight pins to be made of stainless steel (tr. 4/169). For its first article, DSC submitted straight pins from its residual inventory (tr. 4/21). At a meeting held in February 1993, DSC advised the Government that there was a possibility non-conforming straight pins might have been delivered to the Government. DSC explained that it had relied on its supplier’s compliance certifications (AR4, tab 438; tr. 4/35).

193. During first article testing, it was revealed that DSC had furnished carbon steel instead of stainless steel straight pins called for by the contract drawing (tr. 4/36, 17/51, 25/109). Carbon steel is susceptible to corrosion and can cause a fuze not to function (tr. 25/100). Because DSC could not obtain stainless steel straight pins in small quantities, it submitted an ECP to use Ferritic steel (R4, tab 6004; tr. 25/114). Ferritic steel is much softer, and is thus susceptible to damage which could result in not being able to initiate the detonator (tr. 25/114). The parties eventually resolved the problem through an ECP which changed “the type of stainless steel” (tr. 4/170).

194. DSC contends this issue relates to “what cause[d] the delays associated with the first article approvals of the systems contract” (tr. 4/29). If DSC was delayed in having its straight pin first article approved, the delay was attributable to its failure to discover the carbon steel straight pins originating from its vendor. This failure is indicative of DSC’s failure to fully implement MIL-Q-9858A (*i.e.*, assuring all supplies procured from suppliers conform to contract requirements).

*c. Coating of Fuze Arming Pin*

195. The contract drawing required the fuze arming pin to be coated with Emralon. The purpose for this coating was to reduce friction. The drawing required the coating thickness to be a minimum of 0.0003 inches and a maximum of 0.0007 inches. (Tr. 4/30, 33) The arming pin first article package was prepared by DSC and submitted to the Government on 10 June 1993. The arming pins submitted were coated by Metal Cladding. DSC also submitted a Certificate of Conformance, dated 10 August 1992, from Metal Cladding. The Government approved the arming pin first article on 22 June 1993. (AR4, tab 453)

196. In June 1993, Metal Cladding submitted a new quotation to DSC and a problem relating to the thickness of the coating surfaced. Testing of the arming by an outside laboratory confirmed that the arming pin coating failed to meet the minimum thickness requirement of the contract drawing. (AR4, tab 453) After a series of tests, DSC concluded that the minimum coating thickness specified could not be achieved with the coating method specified (tr. 4/33-34).

197. DSC notified the Government, and on 14 September 1993, submitted an ECP to change the minimum coating thickness from 0.0003 inches to 0.0001 inches (AR4, tab 453; tr. 23/104-05). The Government approved the ECP. The minimum coating thickness was reduced from 0.0003 to 0.0001 inches and no maximum thickness was specified. Thereafter, DSC resubmitted its arming pin first article package and it was approved on 25 October 1993. (AR4, tabs 453, 1368; tr. 23/106)

198. According to DSC, after it revealed to the Government it submitted non-conforming arming pins, the Government referred the matter to “the criminal justice system,” and made its first article approval of the fuzes “much more difficult to complete” (tr. 4/32-35). Since DSC submitted a vendor Certificate of Conformance which proved not to be truthful, we do not find it inappropriate for the Government to refer the matter for investigation. DSC’s failure to discover the coating thickness was yet another instance of its failure to implement MIL-Q-9858A.

199. As these examples illustrate, DSC was itself responsible for the difficulties it experienced in passing the M230/231 fuze FATs.

*d. The 230/231 Fuze FAT Approvals*

200. DSC was not able to produce the M230 fuze first article until July 1993, 15 months after award (tr. 3/153). DSC conducted its M230 first article tests on 27 July 1993 (tr. 4/38). It failed one of the functional tests and its M230 fuze first article was rejected. The root cause of the failure was “[o]ne of the fuzes jammed up during the auto

trigger test” (tr. 4/38). The jamming was the result of a burr which DSC acknowledged was a workmanship problem and its responsibility (tr. 4/39).

201. DSC retested the M230 fuze first article in mid-December 1993. The test was successful. (Tr. 4/39) After successfully completed this test, DSC immediately began production (tr. 4/40). Acknowledging it was taking a risk, DSC’s Project Manager testified that, at the time, he felt “it was relatively low risk that [the first article] report would [not] be accepted and that we should continue production” (tr. 4/40).

202. DSC submitted its M230 First Article Test Report (FAT Report) on or about 16 February 1994 (AR4, tab 1344). By letter dated 26 August 1994, the PCO notified DSC that review of the M230 FAT Report had been suspended pending completion of the failure analysis of fuse lot 004 submitted for Lot Acceptance Test (LAT) under Contract No. DAAA09-91-C-0489 (AR4, tab 1341). Earlier, the Government had agreed to accept the M230 fuze first article under the 0489 contract as the M230 fuze first article for the systems contract. The PCO felt that DSC’s M230 fuze FAT Report would not be complete in light of the LAT failure under the 0489 contract. (Tr. 15/189) By letter dated 26 July 1994, DSC revised its M230 fuze FAT Report to incorporate two ECPs (ex. G-U; tr. 22/195-96). DSC submitted its M231 fuze FAT Report by letter dated 12 August 1994 (ex. G-W; tr. 22/200).

203. IOC-Rock Island’s Product Quality Manager reviewed DSC’s fuze FAT Reports and identified various omissions (ex. G-Y). Some of the omissions pertained to component material certifications (ex. G-AA; tr. 22/209). Other omissions related to DSC’s failure to conduct 15 tests on the M230 fuze slider required by the contract drawings (tr. 4/41-42). By e-mail dated 5 October 1994, IOC-Rock Island’s Product Quality Manager identified a list of omissions and recommended that the M231 fuse FAT Report be disapproved until the omissions were addressed (ex. G-AB; tr. 22/211).

204. By letter dated 11 November 1994, DSC forwarded an addendum, dated 9 November 1994, to its previously submitted fuze FAT Reports. The letter stated that all of the material certification issues had been resolved and asked the PCO to approve the fuze FAT Reports expeditiously (ex. G-AC; tr. 22/212-13). As a result of discussions with the IOC Product Quality Manager, DSC by letter dated 18 November 1994 made two changes to its 9 November 1994 addendum (ex. G-AE; tr. 22/215-16).

205. By letter dated 12 December 1994, the PCO authorized DSC to use five M230 and five M231 fuze lots for the production of M261/267 rockets “after passing the appropriate fuze lot acceptance test.” The letter also authorized the use of certain specified slider lots for fuze production. (AR4, tab 1229) Under Clause I-2(g), FAR 52.209-3, “FIRST ARTICLE APPROVAL-CONTRACTOR TESTING-ALTERNATE II (SEP 1989),” the PCO could authorize the contractor “to commence production to the extent essential to meet the delivery schedules” before first article approval (R4, tab 5008 at 36

of 41; tr. 15/146-47). The controversy with respect to the 15 tests on the M230 fuze slider and approval of the M230/231 fuze FAT Reports remained unresolved at this point.

206. ARDEC later determined that the 15 slider tests required by the TDP drawing could be reduced to four and issued an ECP to that effect (tr. 23/110-12). Because of the issue with respect to conducting the tests on the slider, the PCO never officially approved DSC's M230/231 fuze FAT Reports. DSC did receive a letter from the PCO in February 1995 stating that all technical issues relating to the M230/231 fuzes had been resolved. (Tr. 4/51) DSC takes the position that the M231 FAT Report was approved in November 1994 and the M230 fuze FAT Report was approved in January 1995 (ex. A-AN), and we so find.

### Fuze Suitability

207. DSC contends that the Government should have used the M223 fuze which is more reliable and can be purchased at a fraction of the cost of the M230/231 fuzes. The M223 fuze is not omni-directional. A 1983 study showed uni-directional fuzes did not function well in a foliage terrain where the HYDRA-70 rockets are expected to be used. Because the grenades upon release from the warhead descend with a significant amount of "coning" and because of the possibility of surface winds, grenades may impact at almost any angle up to 90 degrees. (Tr. 23/77, 82; R4, tab 6174 at 7-8) The M230/231 fuze design allows the fuze to be sensitive to impacts at angles of up to 90 degrees to the grenade's axis. In this case, due to the reliability requirement specified by the user, it was determined that a uni-directional fuze would not be acceptable for the HYDRA-70 rocket. (Tr. 23/77, 82) We find the omni-directional design of the M230/231 fuzes was necessary and suitable for the HYDRA-70 rockets (R4, tab 6174 at 7-8).

### Fuze Safety

208. The M230/231 fuzes are stored energy or spring-loaded fuzes. When the rocket impacts, the sensing mass releases the spring-loaded firing pin which strikes a detonator. The detonator sets in motion an explosive train. If the rocket does not function as intended, a subsequent stimulus, such as a nearby explosion or vibration from a truck, may set off an explosion. (Tr. 6/38, 48-50)

209. A stored-energy fuze is not inherently hazardous or unsafe. In the case of the M230/231 fuzes, the spring is restrained by two independent and redundant safety locks of the slider: (1) the bore-rider feature and (2) the shear wire. (Tr. 25/58) Virtually every country that develops armaments uses a spring-loaded design (tr. 25/34).

210. The M230/231 fuzes were subjected to extensive testing, both in the laboratory and in the field to ensure safety. They were reviewed by the independent Fuse Safety Board. (Tr. 25/36) In addition, even though the M230/231 fuzes were not

separately type-classified because they were not considered items of issue, the M261/267 warheads in which the fuzes reside had been type-classified since 1982 (R4, tab 6078, 6164; tr. 23/49). This means that the M261/267 warheads underwent a formal “in-process review by a panel of several . . . voting members” and determined to be ready for high volume production (tr. 23/48).

211. Material Release is a formal process to ensure that weapons released to the field are safe (tr. 23/50). To obtain such a release, the M261/267 warheads received unanimous concurrence from representatives from, armament, engineering, safety, logistics, explosive ordnance disposal and other military authorities (R4, tabs 6090, 6098; tr. 6/38-42, 23/53, 58). The M261 warhead obtained Material Release in 1990 (R4, tab 6090; tr. 23/55, 59), and the M267 warhead obtained Material Release in 1987 (tr. 23/52, 59).

212. Specific fuze safety criteria that detailed procedures that must be followed in design, testing, manufacturing, and handling of fuzes are codified and incorporated by DOD into an all-service Design Criteria Standard, MIL-STD-1316 (R4, tab 6152 at 19). The Government’s fuze expert evaluated the M230/231 fuze designs specified in the systems contract TDP against the requirements of MIL-STD-1316B which he deemed applicable to the M230/231 fuzes. He found the fuze designs satisfied each and every one of the requirements in that standard and were not unsafe (R4, tab 6152 at 45; 6174 at 9-13).

213. As DSC’s fuze engineer acknowledged, no ordnance is 100 percent reliable. “You’re always going to have a certain reliability level less than perfect, and whether you have a great many hazardous duds or just a few hazardous duds, you still have hazardous duds.” (Tr. 7/58) Notwithstanding DSC’s assertions to the contrary, we find the M230/231 fuze design to be safe. We find no evidence to support DSC’s claim (*see* tr. 57-58) that changing from a component break-out to a systems buy was motivated by the Government’s desire to shift the problem of excessive hazardous duds (unexploded rockets) to the contractor. Nor is there evidence that the Government administered the contract in such a way as to punish DSC for pointing out safety concerns of the fuzes.

#### Suitability Of Fuze Lot Acceptance Tests (LATs)

214. DSC called Joseph H. Berk (Berk) as its expert (in the areas of fuze reliability analysis and SPC) (tr. 8/19, 22). Berk submitted a report entitled “M230 AND M231 FUZE STATISTICAL ANALYSIS” dated 7 November 1998 (AR4, tab 1197). The M230/231 fuzes have a non-redundant mechanical firing train design. Berk considered the M230/231 fuze design “weak” due to its potential for high variability in fuze performance. He attributed what he considered “significant inherent variability” to “spring force variability, surface finish variability, hole concentricity variability.” (AR4, tab 1197 at 1, 8)

215. Examining the LAT data provided by DSC, which included 26 Breed lots, 17 Byrne lots, 17 DSC Boonton lots, and 31 DSC Fort Worth lots, Berk found the M230/231 fuzes manufactured by the companies to be 95 to 99+ percent reliable (AR4, tab 1197 at 1). He found the reliability range exhibited by the fuzes manufactured by the companies to be consistent with, and in some cases to have exceeded, the reliability that can be expected from a non-redundant mechanical fuze (AR4, tab 1197 at 1, 7). To the extent the M230/231 fuze manufacturers attained reliability equal to or exceeding 98 percent, Berk opined that the fuzes were probably manufactured to tolerances tighter than those specified in the TDPs involved (AR4, tab 1197 at 7).

216. Berk also determined the probability of passing LATs.<sup>9</sup> The LAT specified in the systems contract as well as previous contracts included a number of tests: the fuze *Go* Test, the fuze *No Go* Test,<sup>10</sup> the 5-foot Drop Test, the Safety Pin Pull Test, the Shear Wire Low Pull Test, the Shear Wire High Pull Test, the Short Arming Time Test, and the Long Arming Time Test. (AR4, tab 1197 at 3) The LAT requirements for the M230 and M231 fuzes are identical except that the M231 fuze has an additional requirement that pertains to aluminum foil tape (R4, tab 6174 at 15).

217. Using binomial probability distribution function,<sup>11</sup> Berk first determined the probability of passing each portion of the LAT for each of the manufacturers (AR4, tab 1197 at 3-5). As a second step, he calculated the probability of each manufacturer passing the entire LAT. This probability is the “product of the probabilities of passing each portion of the lot acceptance test.” (AR4, tabs 1197 at 6, 1406 at 19-20) He determined that the probabilities of any of the manufacturers passing the entire LAT were not high, ranging from 2.9 to 83 percent. He found the low probabilities of passing to have been driven primarily by failures involving the fuze *Go* Test (AR4, tab 1197 at 8).

218. Berk concluded that while the M230/231 fuze design was consistent with their reliability, the fuze design was inconsistent with the LAT requirements. In other words, the LAT requirements were too stringent for the M230/231 fuze design. (AR4, tab 1197 at 7) As a point of reference, the evidence shows that the Government structured the fuze functional requirements by considering not only the fuzes’ capability but the risk to the buyer (the Government) and the seller (the contractor). The Government’s risk is that the pass/fail criteria may result in accepting a bad lot; the seller’s risk is that the same criteria may result in a good lot being rejected. (Tr. 24/55) In the case of the M230/231 fuzes, the Government, in accordance with typical practice for ammunition items, balanced the risk so that the contractor would have a 90 percent chance of passing a LAT, assuming that the fuzes tendered met acceptable quality levels (tr. 24/57-58).

219. As indicated in Berk's written direct testimony, his 7 November 1998 report was based on DSC's representation to him that DSC's production was in accordance with the TDP and approved inspection equipment. That turned out to be untrue. The evidence indicated that some of DSC's fuze failures were attributed to non-conforming components or workmanship deficiencies. (AR4, tabs 1406 at 25, 1406R)

220. Berk rectified the error in his revised report dated 6 February 1999. He stated on page 21 of this report:

As mentioned earlier, when I initially prepared this analysis I understood that all failures occurred in fuzes built in conformance with the M230 and M231 technical data package. Subsequent research by [DSC] indicated that a few fuze lot acceptance test fuze failures that occurred during their Texas production were attributed to known (and correctable) departures from the technical data package. These included the following failures.

- Originally, I listed 43 [DSC] Texas fuze go test failures. [DSC] subsequently discovered that 3 of the go test failures were attributable to Loctite, and another 3 were attributable to defective triggers. Based on this, 6 of the go test failures could be eliminated in determining [DSC] Texas go test reliability. [DSC] explained that the remaining 37 failures occurred in fuzes built in accordance with the technical data package.
- Originally, I listed 4 long arming failures. [DSC] subsequently discovered that all 4 were attributable to escapement broken slider teeth. Based on this, all 4 of the long arming time failures were eliminated in determining [DSC] Texas long arming time reliability.
- Originally, I listed 1 torque test failure. [DCS] subsequently discovered that this failure was induced by workmanship. Based on this, I eliminated this failure in determining [DSC] Texas torque test reliability.

(AR4, tab 1197R at 21)

221. After censoring these DSC-responsible failures, Berk recalculated the fuze reliabilities and the probability of passing the LATs. The probability of passing the entire LAT rose 8.6 percent (from 73.0 to 81.6 percent) for DSC Fort Worth. Berk maintained that 81.6 percent probability of passing the entire LAT was still unacceptably low. (AR4, tab 1197R at 21-22) As demonstrated here, non-conforming components and workmanship deficiencies do affect the calculation of the probability of passing LATs.

222. While acknowledging that some of the LAT failures could be attributable to workmanship problems for which it was responsible, DSC attributes all its other LAT failures to an overly stringent LAT requirement. (Tr. 3/192, 4/78, 82-83) It acknowledges, however, that it could not account for the root cause of a “significant percentage” of fuzes that failed the LATs (tr. 4/80, 7/73). We have found that the quality control measures called for by MIL-Q-9858A and SPC were an integral and critical part of DSC’s performance obligations to achieve “total conformance” of the systems contract. DSC has not shown whether and to what extent previous contractors were subject to the same requirements. Without such proof, statistical analysis of historical LAT pass rate is not meaningful in demonstrating that the LAT requirements called for in the systems contract are too stringent.

223. The Government called Melvin Eneman as its expert. Eneman was qualified as an expert in the areas of fuze safety, fuze design, fuze reliability and fuze producibility. (Tr. 26/11, 15) The Government submitted into evidence his report entitled “EVALUATION OF GENERAL PURPOSE GRENADE FUZES M230 AND M231 (PRACTICE)” dated 15 February 1999 (R4, tab 6152) and his written direct testimony (AR4, tab 6174). Eneman reviewed the LAT requirements and found them to be “adequately comprehensive and reasonable” based on the purposes for which they were specified (R4, tab 6174 at 17). We find Eneman’s report and testimony persuasive.

224. Unlike Berk, Eneman did not consider each portion of the entire LAT test sequence to present equal rejection risk. He considered the fuze *Go* Test, the Shear Wire Pull Test, and the Arming Time Test “to present some significant level of risk with regard to lot rejection” (R4, tab 6152 at 16). Because the “[a]llowable sensitivity is limited by the Critical *No-Go* test requirement,” Eneman found that “high skill and diligent effort are required to pass [the fuzing *Go* Test] consistently” (R4, tab 6152 at 16. ¶ 2.2). Eneman believed that defective items involved in non-destructive tests could simply be repaired or discarded and therefore did not present a risk of rejection (R4, tab 6174 at 17).

225. According to Eneman, where the expected frequency of defects calculated by using binomial frequency distribution does not correlate with observed frequency of defects, he would look for a non-statistical reason that would explain the lack of correlation (R4, tab 6174 at 22).

226. Eneman considered the *Go* Test as the key functional test within the LAT. On this test, he found an underlying basic fuze failure rate to be “between about half of one percent and 9/10 of one percent for every manufacturer” (R4, tab 6174 at 24). Based on matching an underlying failure rate of 1 percent, Eneman found that the probability for a manufacturer to pass the *Go* Test in a LAT is better than 95.6 percent, and for an underlying failure rate of 1/2 of 1 percent, the probability of passing the *Go* Test increases to 99.3 percent (R4, tab 6174 at 25).

227. Treating all the manufacturers as a single manufacturer, Eneman estimated a pass rate of all tests other than the *Go* Test within a LAT to be between 76 percent and 86 percent (R4, tab 6174 at 74). This compared closely with Breed’s 73 percent actual pass rate and DSC Fort Worth’s actual pass rate of 84 percent. Byrne and DSC Boonton, however, had an actual pass rate of 100 percent for 34 lots. He concluded that this showed that “many of these defects can be prevented and actual performance can be better than predictions.” He found the probability of passing a complete LAT ranged from 67 percent for Breed to 97 percent for Byrne and DSC Boonton. (R4, tab 6174 at 27-28)

228. In comparing the expected and actual frequencies of defects per sample for the fuzes produced at DSC Fort Worth, Eneman found a poor correlation between the expected and actual frequencies of defects for the first 15 lots produced and the last 15 lots produced. He found that while “QA tests from all five producers, Breed, Byrne, [DSC Boonton], [DSC Fort Worth] and Action [fuze producer for follow-on contractor] show that each could produce and has produced very reliable fuzes that satisfy LAT requirements” (R4, tab 6174 at 30), DSC lost control of its production process in Texas and “demonstrated a late, and marked, inability to do this consistently” (R4, tab 6174 at 30).

229. The evidence shows that between September and November 1995, DSC’s M230 fuze lots 19, 20 and 23 produced at its Fort Worth facility failed their respective LATs. Examination of the fuzes from the failed lots showed workmanship defects such as indentations in the firing pin ramp and loctite contamination. (Tr. 23/113-16) Subsequent government analysis of additional fuzes from the same lot showed that DSC failed to de-magnetize the fuze trigger tips (tr. 23/121-22), hairline cracks of the surface finish on the firing pin ramp, and indentation on the surfaces of a number of firing pin bodies (tr. 23/120-24; R4, tab 6151). The Government also found non-conformance with the required dimensions and pinched firing pin springs (tr. 23/129-30). We find that DSC was itself responsible for failing to consistently pass LATs.

**PART IV.**  
**DECISION**  
**THE 230/231 FUZES**

Fuze Suitability

DSC questions the suitability of the M230/231 fuzes. It contends that the Government could have modified the M223 fuze which allegedly had been successfully employed in similar applications, worked reliably, and could have been purchased at a fraction of the cost of the M230/231 fuzes. (App. br. at 83, 89-90, 103-04)

The Government's decision to require the omni-directional M230/231 fuzes was based on a 1983 study which showed uni-directional fuzes did not function well in a foliage environment where the HYDRA-70 rockets were expected to be used. The M223 fuze is not omni-directional, and based on the reliability requirement specified by the user, it was determined that a uni-directional fuze would not be acceptable for the HYDRA-70 rocket. The M230/231 fuze design allows the fuze to be sensitive to impacts of up to 90 degrees to the grenade's axis. We conclude, therefore, that the omni-directional design of the M230/231 fuzes was necessary and suitable for the HYDRA-70 rockets.

Fuze Safety

Dredging up a number of early memoranda when the M230/231 fuzes were being developed, DSC contends that the stored energy, spring-loaded fuze design is unsafe because of its high dud rate which could turn areas into which rockets are fired into anti-disturbance mines (app. br. at 84, 86). Virtually every country that develops armaments uses a spring loaded design. The spring of the M230/231 fuzes is restrained by two redundant safety features. In addition, the M261/267 warhead, of which the M230/231 fuzes are a part, received Material Release for safety in 1987 and 1990, and had been type-classified since 1982. Furthermore, the fuzes had been reviewed for safety and production by the independent Fuze Safety Board. The Government's fuze expert testified that the M230/231 fuzes met each and every one of the requirements of MIL-STD-1316B which set forth DOD's fuze design safety criteria. Inasmuch as no ordnance is 100 percent safe, we conclude that the M230/231 fuze design is not inherently unsafe.

As a matter of law, the Government is entitled to strict compliance without regard to whether the contractor believes the requirement is prudent or desirable. *See Maxwell Dynamometer Co.*, 181 Ct. Cl. at 628, 386 F.2d at 868; *H.L.C. & Associates*, 176 Ct. Cl. at 306, 367 F.2d at 598.

## Allegations Of Defective Fuze Design And Overly Stringent LAT Requirements

DSC contends that the M230/231 fuze TDP is a design type specification. It contends that notwithstanding its efforts in holding tolerances to beyond those required by the TDP, the fuzes produced would not function consistently and predictably to meet the LAT requirements. DSC blames its inability to consistently pass LATs to a “weak” M230/231 design. This weakness is said to stem from the variations in the frictional forces caused by various fuze parts such as hole locations and tolerances, surface finishes, flatness and angles, and spring forces. DSC argues that, given the weak design, it was impossible to consistently pass LATs because the LAT requirements are too stringent. (App. br. at 195-96, 204)

We consider first whether the M230/231 fuze TDP is a purely design specification or whether it is of a mixed design and performance variety. Generally, design specifications set forth in precise detail the materials to be employed and the manner in which the work is to be performed, and the contractor is not at liberty to deviate from the details specified. A performance specifications, on the other hand, set forth an objective to be achieved, and the contractor is expected to use its ingenuity to achieve that objective. *See J.L. Simmons Co. v. United States*, 188 Ct. Cl. 684, 689, 412 F.2d 1360, 1362 (1969); *Stuyvesant Dredging Co. v. United States*, 834 F.2d 1576, 1582 (Fed. Cir. 1987). Specifications can take on the characteristics of both design and performance. *See Bethlehem Corp. v. United States*, 199 Ct. Cl. 247, 253, 462 F.2d 1400, 1403 (1972).

We find similarities between this case and *Transtech Corp. v. United States*, 22 Cl. Ct. 349 (1990), relied upon by the Government. That case involved a TDP for the procurement of infrared countermeasure flares by AMCCOM. In *Transtech*, the court found that the specification sets forth in “precise detail” the materials to be used. Although the court found the TDP to have addressed some procedures, it found not all the procedures that would be necessary to produce flares were addressed. One example the court used was an advisory note on assembly procedure. The court noted that the note provided no direction on how to perform any of the steps listed. The court found that the TDP relied on the contractor’s experience and knowhow to fill in the production details and concluded that “The TDP is therefore a design specification as to materials and most aspects of assembly, and it is a performance specification with respect to procedures.” 22 Cl. Ct. at 368. The court then set out the following principle which we endorse:

The court concludes that because the TDP partakes of elements of both design and performance, plaintiff must either isolate the defective element of the TDP, or must affirmatively demonstrate that it did not cause the failures. In other words, to eliminate the potential causation factors introduced by manufacturing steps left to its own ingenuity, plaintiff has to isolate those processes or compositions

mandated by the Government as the only possible causes of failure. Each count, therefore, has to be separately viewed to consider whether plaintiff has created a plausible link between the failure and the design portions of the TDP.

22 Cl. Ct. at 368-69.

Here, while a number of TDP drawings specified the dimensions, material and finish for the M230/231 fuze parts, they did not specify production process or methods. Nor did they specify what machines or equipment to use for production. One drawing included an advisory note informing the contractor about a successful process which had been used in the past for achieving an alternate construction for the fuze trigger but the drawing did not require that process nor specify any other required manufacturing process. Other examples relating to the sequence of drilling the pivot screw hole, using a “Langlie Test” to monitor the manufacturing process, and selecting the appropriate trigger finish support our conclusion that the M230/231 fuze TDP is a mixed design and performance specification.

In this case, we have found the M230/231 fuzes to be “complex components,” and the systems contract appropriately imposed additional performance-type quality programs on the contractor. One such program was MIL-Q-9858A. The other was SPC. MIL-Q-9858A was imposed in recognition that “total conformance to contract requirements cannot be obtained effectively and economically solely by controlling inspection and testing,” and that it was essential to “control work operations and manufacturing processes as well as inspections and tests.” Among other requirements, MIL-Q-9858A required DSC to prescribe clear and complete work instructions for performing work, to maintain properly calibrated measuring and test equipment, and to assure that all supplies procured from suppliers conform to the contract requirements. We have found that total conformance with the M230/231 fuze TDP cannot be effectively and economically achieved without putting in place the work operations and manufacturing process controls required by MIL-Q-9858A.

We have found that the purposes for requiring implementation of SPC as a part of DSC’s performance requirements were to (1) minimize process variability so that the probability of rejecting a part is decreased and (2) reduce cost. We have found that to the extent DSC implemented SPC, it made significant improvements in reducing the variations of fuze parts.

The evidence shows that a year after award of the systems contract, DSC’s Fort Worth facility where the M230/231 fuzes were manufactured was not in compliance with MIL-Q-9858A. DCMC, Dallas, had to issue a Method C letter (used for serious quality problems) due to systemic problems in DSC’s implementation of MIL-Q-9858A in the following areas: “Calibration, nonconforming materials, Material Review Board (MRB)

activities, Work Instructions, Corrective Action, Management oversight to monitor maintenance and compliance of the Quality Program.” DCMC, Dallas’ findings were confirmed by BEI’s troubleshooter, dispatched to evaluate the quality problems which triggered the issuance of the Method C letter. He found DSC’s Fort Worth facility lacked “firm direction in the plant, detailed manufacturing planning and overall program plan, configuration management and mechanical manufacturing skills.” He also found there was a lack of skills within the plant and no corrective action was taken due to the lack of money. DSC’s own employee attributed its quality problems to its failure to add staff to properly monitor all aspects of the systems contract including quality surveillance of subcontractors.

The systems contract required DSC to implement SPC in accordance with its government accepted plans. DSC’s approved General SPC plan committed its management to providing all the resources necessary to ensure effective implementation and maintenance of its SPC program, controlling manufacturing process, identifying and eliminating assignable root causes of variation and establishing predictable and consistent levels of the quality of the products produced. Despite this commitment DSC made to obtain approval of its General SPC Plan, full implementation of SPC was hampered by its lack of money. The evidence shows that DSC’s management did not deliver on its promise. DSC’s frustrated SPC coordinator wrote in his resignation letter, “SPC cannot succeed if there is no direct involvement by the highest levels of Management. Without this involvement, there is no way to consistently enforce the controls we place on our process.” DCS’s expert, who reviewed DSC’s implementation of SPC on the M230/231 production program, would only say that DSC “made an honest effort” and “attempted to comply” with its own SPC plans.

DSC’s lack of commitment to reducing or eliminating defective parts was further illustrated by its decision to abandon the use of the CMM machine. DSC acknowledged that it lacked expertise in machining, and taking on machining in-house rather than outsourcing the work was “probably a mistake.” Because using a CMM machine to measure variable data of the fuze bodies was too time-consuming, DSC chose to rely totally on the less effective functional hard gauge. DSC chose to return to the hard gauge even though the gauge was ineffective in measuring the tolerances of the fuze body Pivot Screw Hole and the Detent Ball Hole. In another instance, DSC chose an ineffective gauge to measure the fuze firing pin bore. It had to scrap a lot of fuzes later because the gauge was unable to detect enlarged dimensions of the holes.

With respect to DSC’s Fort Worth M230/231 fuze production, DSC’s expert initially concluded that the LAT requirements were too stringent based on his understanding that “all failures occurred in fuze built in conformance with the M230 and M231 technical data package.” This turned out to be untrue. The expert accounted for the defects attributable to DSC and found the probability of passing the entire LAT improved somewhat but still unacceptably low. DSC acknowledges, however, that it

could not account for the root cause of a “significant percentage” of fuzes that failed the LATs. We cannot accept the proposition that DSC built the fuzes to the TDP in those “significant percentage” of instances where the root cause of the LAT failures could not be determined. Since DSC responsibility cannot be excluded in such instances, we conclude that DSC has failed to prove that its inability to pass LATs consistently was the direct and proximate result of the systems contract LAT requirements.

### Allegations Of Breach Of Contract

DSC charges that the Government used the quality assurance measures, such as MIL-Q-9858A and the SPC requirements, as a means to correct defective fuze design and producibility problems, to obtain a redesign of the M230/231 fuzes at DSC’s expense, and to pass off responsibility for past procurement failures to DSC. (App. br. at 97, 99, 102)

In light of the complexity of the HYDRA-70 rockets, we have found inclusion of quality assurance measures such as MIL-Q-9858A and the SPC requirements in the contract to be appropriate. We have also found that the inclusion of these measures had been a part of IOC-Rock Island’s overall quality program which was applied across the board where appropriate, and was not unique to the HYDRA-70 systems contract. Furthermore, we have found no proof in support of DSC’s allegation that the purposes for including the quality assurance measures in the systems contract were to obtain a redesign of the allegedly defective M230/231 fuze design and to pass off to DSC the Government’s alleged past procurement failures.

DSC also charges the Government with breach of contract for failing to disclose superior knowledge. Asserting that the Government knew that the M230/231 TDP was defective, DSC contends that the Government withheld material information in its exclusive possession that “would have greatly facilitated [DSC’s] qualification and production of the M230/231 fuzes.” (App. br. at 225-26)

In order to establish superior knowledge on the part of the Government, it is DSC’s burden to show that the Government had vital knowledge of a fact affecting contract performance which it did not share and was aware that DSC did not have, and had no reason to obtain. *Helene Curtis Industries, Inc. v. United States*, 160 Ct. Cl. 437, 312 F.2d 774 (1963). Beyond alleging generally that the Government knew that the M230/231 fuze TDP was defective, DSC has provided no specifics as to what vital information affecting its ability to produce the required first article or production lots the Government withheld. Although DSC encountered difficulties in passing the fuze FATs and in passing the LATs consistently, the evidence shows that DSC was itself responsible. We have also concluded that DSC has failed to prove that the M230/231 fuze design was defective or that the LATs were too stringent for the fuze design.

We have found that DSC had more than a passing familiarity with the fuze TDP. Between 1987 and 1990, DSC was given a number of ESMS under various ongoing component contracts to maintain and update the TDP of the HYDRA-70 rocket. In 1990, DSC was given an ESM to do a final scrubbing of the HYDRA-70 TDP before returning maintenance of the TDP to ARDEC. In 1991, DSC took over Byrne's Boonton facility and began producing HYDRA-70 rocket fuzes which Breed had contracted Byrne to furnish to the Government, and which DSC had originally contracted Byrne to furnish.

The evidence shows that three months before award of the systems contract, DSC began preproduction evaluation (PPE) of the HYDRA-70 rocket TDP to ensure producibility. This culminated in the submission of a TDP Validation Report DSC submitted in November 1992. Moreover, although DSC asked for and was not given a list of waivers and deviations issued to various prior component contractors, we have found that such waiver and deviation information was available to DSC because it went to the same vendors used by prior component contractors.

Because DSC has failed to demonstrate that it fully implemented the quality programs required by MIL-Q-9858A and SPC which were essential to achieving total conformance to contract requirements, we hold that DSC has failed to affirmatively demonstrate that its failures to consistently pass LATs were caused by the M230/231 fuze design. Therefore, DSC is not entitled to an equitable adjustment in this regard.

Because DSC responsibility cannot be excluded in a "significant percentage" of instances where the root cause of LAT failures could not be determined, we hold that DSC has failed to affirmatively demonstrate that its inability to consistently pass LAT was the direct and proximate result of the LAT requirements being overly stringent. Therefore, DSC is not entitled to an equitable adjustment in this regard.

Because DSC has failed to prove that the Government possessed superior knowledge and included the quality measures in the systems contract to obtain a redesign of the allegedly defective M230/231 fuze design, and to pass off to DSC the Government's past procurement failures, we hold that DSC has failed to prove that the Government breached the contract.

**PART V.**  
**FINDINGS OF FACT**  
**RAM AIR DECELERATORS (RADs)**

230. The Ram Air Decelerator, or "RAD," together with the fuze and the grenade constitute what is referred to as the submunition of the HYDRA-70 rocket. The RAD is attached to the arming pin of the fuze which sits atop the grenade. (Tr. 5/6, 23/205) The RAD acts like a parachute. It adds stability to the grenade during its descent so that it hits the ground in a certain orientation. (Tr. 3/83, 5/5, 23/20)

231. Breed developed the original RAD TDP in 1982. That TDP did not include a specification for the coated cloth of the RAD. (Tr. 23/141, 185) Because the RAD TDP was “loose,” it allowed RAD contractors to produce RADs with inferior fabric (tr. 23/86, 141). In 1988, the Government decided to develop a RAD coated cloth specification in conjunction with Reeves International (Reeves), the only company the Government knew “who could deliver accepted [sic] coated fabric” (tr. 23/158). In November 1989, ARDEC gave DSC an ESM to “validate the draft specification to include all of the laboratory testing, the RAD fabrication as well as ballistic firing” (tr. 23/159). Under the ESM, DSC procured the coated fabric from Reeves, participated in laboratory testing and fabrication of the RADs, and assembled the RADs into test rockets for firing at Yuma Proving Ground (tr. 23/80-81, 160). The ESM required DSC to validate that Reeves’ coated fabric would not create problems from a sewing, folding, stitching, and heat treatment standpoint, and would be able to pass the RAD integrity test (tr. 23/181).

232. In the meantime, ARDEC conducted independent testing and found Reeves’ coated fabric acceptable (tr. 23/162). After successful ballistic testing at Yuma Proving Ground, ARDEC considered its draft coated cloth specification for the RAD to have been validated (tr. 23/162). In 1990, DSC was given an ESM to work with a RAD contractor (Grantville) to salvage some of the RADs (tr. 23/186). The rework program was successful. Based on this experience and after ARDEC had a production run of 500 yards to validate the draft coated cloth specification, the Government incorporated the specification -- MIL-C-70991 -- as a part of the RAD TDP in October 1990. (Tr. 23/142, 63, 86, 90; R4, tabs 6096, 6156) DSC subsequently received two pre-systems warhead contracts with the RAD TDP containing the coated cloth specification (tr. 4/172, 23/164).

233. We find DSC participated extensively in the validation, testing and rework process leading to the final incorporation of MIL-C-70991 into the RAD TDP for the systems contract. Throughout its extensive participation in validating and testing the Reeves coated cloth, DSC never complained that the sample size used for qualifying the Reeves coated cloth was inadequate. DSC has not provided any evidence in support of its allegation that the coated cloth specification was developed from an inadequate sample size. Prior to issuance of the systems contract solicitation, the RAD TDP, including MIL-C-70991, was certified by ARDEC. This means the RAD TDP was reviewed for completeness and determined to have met “all of the engineering requirements,” and to be suitable for production. (Tr. 23/140)

234. In connection with the performance of the systems contract, DSC used Reeves as its subcontractor because it was “the only company that could make this cloth, and they worked with the Government on qualifying the spec” (tr. 5/10, 4/170). In addition, Reeves was the only vendor who had the capability to conduct the necessary tests (tr. 5/10). After Reeves coated the cloth, it had to undergo a series of tests required by MIL-C-70991 (tr. 4/171). The cloth had to meet certain weight, thickness, stiffness

and strength requirements (tr. 5/11). DSC began to encounter difficulties in April 1992, about the time it was awarded the systems contract (tr. 4/173). The results on some of the tests it had to run on its pre-systems warhead contracts showed the cloth to be “just short of the minimum acceptable value” on strength and thickness (tr. 4/173-75).

235. At a briefing held in July 1992, DSC told IOC-Rock Island that it was unable to produce the RAD coated cloth first article to the requirements of MIL-C-70991 (R4, tab 6003; 23/165-66). To help DSC overcome its difficulties, the Government participated in failure analysis and worked with Reeves to try to resolve some of the production problems (tr. 23/166). In August 1992, DSC proposed that the Government relax its specification requirements. The Government denied the request because DSC furnished no supporting data with its request. (R4, tab 6005; tr. 23/167) DSC took the position that the test criteria the Government developed was flawed, contending they were developed from “a relatively limited sample of material that they had worked with Reeves” (tr. 4/174). DSC also alleges that the specification for the RAD coated cloth, MIL-C-70991, was “improperly qualified” because “[t]he values for the material, the coated cloth, were not achievable when we had Reeves make the cloth” (tr. 5/9). DSC, however, made no showing that Reeves complied fully with the specification asserted to have been defective.

236. In April 1993, DSC and the Government entered into bilateral Modification No. P00066 to Contract No. DAAA21-85-C-0371 (the 0371 contract). The modification definitized costs for an equitable adjustment in the amount of \$1,187,123, to change supply of the RAD under that contract from GFM to Contractor-Furnished Material (CFM). The modification provided, among other things, that upon successful completion and acceptance of the RAD FAT under the 0371 contract, the RAD FAT for two other contracts would be waived, and “[t]he validated RAD TDP will be submitted as a no cost PPE ECP for DAAA09-92-C-0477 and any justified increase in production material costs will be handled as an equitable adjustment in accordance with Paragraph 3.1.1.2 of DAAA09-92-C-0477.” (AR4, tabs 334, 317A; tr. 28/79-80) Contrary to DSC’s assertion (app. br. at 212), this modification did not relate to any defects of the RAD TDP.

237. DSC worked with the Government on various aspects of the testing requirements for two years (tr. 4/179). Meanwhile, DSC produced the RADs and the Government accepted them on waivers (tr. 4/182, 5/19). By January 1994, the parties had “the last couple of changes . . . to make . . . and wanted to get Reeves to agree to the last changes” (tr. 4/179). Reeves, however, refused to cooperate. In a letter dated 13 January 1994 to DSC, Reeves stated:

Reeves International has invested 3 years of research, time, and materials to this program. We believe that the product, as currently produced, is optimum for the tests specified. We understand that all dynamic deployments using our material

have been successful with testing requirements waived. Reeves cannot continue to produce material that may or may not require a government waiver, as this detracts from good business practices.

(AR4, tab 1391) In light of its past success in developing and testing, we find Reeves' difficulty in meeting some of the requirements in the coated cloth specification was attributable to the loss of a chemist who was familiar with the production process (tr. 23/164-67; R4, tab 6005). With the lack of cooperation from Reeves, DSC went back to the Government for relief (tr. 4/180). The Government approved two more ECPs in April 1994 essentially relaxing the coated cloth specification (tr. 4/181). These last two ECPs established what could be achieved with DSC's manufacturing process and incorporated a retest procedure (tr. 5/18, 23/169-70; R4, tabs 6127, 6129).

238. By letter dated 6 December 1994, the PCO advised DSC that its RAD FAT report submitted under the 0371 contract had been reviewed and found acceptable (AR4, tab 1390; tr. 28/78-79, 169). Based on the parties' agreement that this would be considered approval of the RAD FAT under the systems contract, we find that the RAD FAT report under the systems contract was approved 6 December 1994 (tr. 4/173, 5/6-8).

239. During production, DSC experienced a high scrap rate and had to have different lots "accepted under waiver for a variety of reasons" (tr. 4/184). After the coated cloth passed LATs, the cloth had to be cut into triangles of eight or nine inches in diameter with "edges rolled"(tr. 5/12). The specification does not specify how DSC was to cut. Any cutting method was acceptable so long as the cut cloth could "meet the overall dimension within the technical data package requirement" (tr. 23/193). Since the Kelvar cloth was the same material used in bulletproof vests, it does not cut well by nature (tr. 5/12). DSC's high scrap rate was attributable to the cutting surface it chose to use and the number of fabric layers it chose to stack during the cutting process (tr. 23/194-97; R4, tab 7101).

240. DSC's high scrap rate was also attributable to its failure to comply with MIL-Q-9858A. Paragraph 3.3 of this specification required DSC to prescribed work instructions. The evidence shows on 12 March 1993, the government Quality Assurance Representative (QAR) issued two Corrective Action Requests (CARs) on the RAD. The first CAR indicated DSC failed to issue work instructions on cutting fabric. The second CAR indicated DSC failed to issue work instructions regarding inspection in accordance with Statistical Process Control (SPC) charts. (R4, tab 7074; tr. 20/38-40)

241. High scrap rate was also experienced during the "stitching" operation (tr. 5/14). Initially, DSC was doing the stitching itself (tr. 5/15). During LATs, the threads were found not to have been placed in conformance with the drawings and did not have the correct tightness (tr. 5/16). Broken stitches were found to have been caused by DSC's

sewing machines (tr. 23/201). To correct the problem, DSC qualified and subcontracted the stitching operation to an outside firm (tr. 4/186-87). This firm did not cure DSC's high scrap rate problem (tr. 5/16-17). As was the case with DSC, it too had to go through a learning curve before it stitched satisfactorily (tr. 4/190). After the stitched RADs were returned to DSC, they had to undergo a folding and baking process (tr. 5/115). In performing that work, DSC folded some of the RADs backwards (tr. 23/203). We find that the high scrap rate DSC experienced in manufacturing the RADs was attributable to the manner in which DSC chose to cut the cloth, to its sewing machines, to a learning curve it had to go through, and to poor workmanship.

**PART V.**  
**DECISION**  
**RAM AIR DECELERATORS (RADs)**

DSC contends that the RAD coated cloth specification (MIL-C-70991) was not properly qualified prior to award of the systems contract because it was developed from "a relatively limited sample of material that [the Government] had worked with Reeves," and that the specification was defective because its test criteria could not be met even with the coated cloth supplied by Reeves. DSC contends that the Government has acknowledged that the RAD TDP was inadequate when it gave DSC an equitable adjustment under the 0371 contract. In addition, DSC asserts that it "experienced excessive scrap rates in production because the specified fabric could not withstand the lot acceptance test." (App. br. at 212-213; tr. 4/184)

We have found that DSC has not provided any evidence in support of its allegation that the coated cloth specification was developed from an inadequate sample size. We have found that DSC participated extensively in the validation, testing and rework process leading to the final incorporation of MIL-C-70991 into the RAD TDP. Throughout its extensive participation, DSC never complained that the sample size used for qualifying Reeves' coated cloth was inadequate.

We have found that Reeves' difficulty in meeting some of the requirements in the coated cloth specification was attributable to the loss of a chemist who was familiar with the production process. In this regard, DSC, having chosen Reeves as its subcontractor to produce the coated cloth for the RAD, is responsible for the performance failures of its subcontractor. *See Cellular 101, Inc.*, ASBCA No. 51578, 00-1 BCA ¶ 30,582 at 151,034

DSC's contention that the Government has acknowledged the inadequacy of the RAD TDP by granting DSC an equitable adjustment in the 0371 contract is without any basis in fact. The evidence shows Modification No. P00066 under the 0371 contract was issued in April 1993 to compensate DSC for converting the supply of RADs under that contract from GFM to CFM. We have found that modification did not relate to any defects of the RAD TDP.

Nor can we attribute the excessive scrap rate to the coated cloth specification. We have found that the high scrap rate was attributable to the manner in which DSC chose to cut the cloth, to its sewing machines, to a learning curve it had to go through, and to poor workmanship.

Because DSC has failed to prove that the RAD TDP was defective, and that the high scrap rate it experienced during production was without its fault, we hold that DSC is not entitled to an equitable adjustment under the contract.

**PART VI.**  
**FINDINGS OF FACT**  
**EARLY MOTOR BLOWS (EMBs)**

242. The HYDRA-70 rocket is fired by applying an electrical current through the nozzle. When the electrical current is complete, the igniter ignites and sends a blast of hot gases to the propellant grain causing the rocket to go forward at high velocity. (Tr. 21/15-16)

243. An Early Motor Blow or “EMB” involves a situation where the HYDRA-70 rocket blows within half a second after launch. Such an EMB is considered hazardous because shrapnel from the explosion could damage the launching aircraft and cause loss of lives. (Tr. 5/21, 33, 18/79, 21/69) EMBs occurring after half a second are less dangerous because the explosions are further away from the aircraft (tr. 5/33).

244. Although EMBs had been a problem throughout the history of the HYDRA-70 program, the Government experienced a significant increase in incidents at about the time of award of the systems contract (tr. 5/23). On 9 April 1992, the day the systems contract was awarded to DSC, an EMB occurred during ballistic testing at Yuma Proving Ground (tr. 5/24).

245. The 9 April 1992 EMB occurred on a HYDRA-70 rocket whose warhead was built by DSC under an earlier contract, and whose motor tube was manufactured by a component contractor and furnished to DSC to assemble under a LAP contract (tr. 5/24, 27). The Government initially blamed DSC for damaging the rocket motor tube during its rocket assembling operation and causing the EMB (tr. 5/25, 46, 12/121-25). DSC maintained that its assembling operation was conducted in accordance with the TDP and pursuant to a procedure qualified by the Government (tr. 5/27, 29).

246. At the time of the systems contract, propellant grains were manufactured by the Government at (1) NSWC, Indian Head, Maryland, and (2) Radford Army Ammunition Plant, Radford, Virginia (Radford) and furnished to DSC as GFM (tr. 5/23, 18/91). The applicable specification -- MIL-STD-105 -- did not require 100 percent

inspection. In accordance with the specification, both Indian Head and Radford used a sampling inspection methodology. (Tr. 22/36, 63-64) Only when defects were found in sampling, was 100 percent inspection imposed (tr. 21/193). Indian Head and Radford used slightly different sampling procedures. Because Indian Head's methodology inspected 20 to 30 percent more grains, the rate of potential EMBs of Indian Head-inspected grains was 1 in 300,000, and the rate of potential EMBs of the Radford-inspected grains was 1 in 57,000 (AR4, tabs 383, 1287; tr. 5/23, 18/92-93, 21/115). None of the propellant grains delivered to DSC as GFM were 100 percent inspected (tr. 5/47).

247. Following three EMB incidents between August 1992 and November 1993, NSWC at Indian Head chartered a "Red Team" to conduct an independent failure investigation (R4, tab 7195 at A-1; tr. 21/77). The Red Team's mission was "to look at the data that was available and to weed out all of the tertiary things that had occurred and identify [the] most probable causes" of the EMBs (tr. 22/29). The most probable causes identified by the Red Team were provided to an EMB Investigation Team whose mission was to conduct a technical investigation and to "develop the data to support or refute those most probable causes" (tr. 22/29-30).

248. The EMB Investigation Team spent over a year running tests and analyzing data. On 13 May 1994, two years after the 9 April 1992 Yuma Proving Ground EMB incident, NSWC, Indian Head, issued a report entitled "ROOT CAUSE ANALYSIS FOR EARLY MOTOR FAILURES OF 2.75-INCH ROCKET MOTORS MARK 66." The executive summary of the report stated:

To prevent this type of failure in the future, it was recommended that an independent review of propellant and grain manufacture be conducted to determine the causes and corrective actions for fissures, cracks and poor consolidation. It was also recommended that the Mk 90 grain be 100% real-time, rotationally x-rayed. If this is not possible, the sampling procedure should be changed to include grains from each press charge.

(AR4, tab 1385; tr. 12/131, 16/241)

249. The conclusions and recommendations of the EMB Investigation Team report were presented to an independent tri-service Blue Ribbon Panel in February 1995 (AR4, tab 1287; tr. 12/138, 22/30). After review, the Blue Ribbon Panel endorsed the findings and recommendations of the EMB Investigation Team (tr. 12/138-39, 22/31; AR4, tab 36). The Government ultimately determined that the three most probable causes of EMBs were voids, fissures and cracks in the propellant grains. It was determined these defects were caused by poor consolidation of the grain after it was extruded, or, in some cases, by poor handling in the field. (AR4, tab 1287; tr. 3/111, 5/22) The Government

has acknowledged that DSC was not responsible for the defective propellant grains (tr. 4/139).

250. The Government did not implement 100 percent inspection as soon as the probable causes of the EMB problem were identified because there was no “validated, verified” screening system in place that would enable the Government to furnish DSC grains that would not have to be screened again (tr. 21/210). The fluoroscope system Radford used during the 1990-1991 time frame was considered too insensitive and marginal to be reliable (tr. 22/70, 74).

251. In October 1994, the Government put restrictions on the use of the HYDRA-70 rockets (tr. 5/46, 12/139). By letter dated 5 October 1994, the PCO directed DSC to “suspend all shipments of HYDRA 70 Rockets and Rocket Motors until further notice.” The suspension applied not only to shipments under the systems contract, but to shipments under four other contracts. (AR4, tabs 694; R4, tab 5304; tr. 15/82) In the meantime, the Government continued to supply propellant grains to DSC (tr. 21/132). DSC continued to load grains into the rocket motors and continued to produce rockets (tr. 12/140, 189). In addition, DSC was allowed to present finished lots for acceptance, or “ship in place,” and receive payments for them (tr. 12/140). Based on the foregoing evidence, we find the EMB/defective grain problems did not impact DSC’s production of rockets under the systems contract (tr. 21/132).

252. A new state-of-the-art x-ray screening system was put in place at Radford in 1995 (tr. 22/92). This system had the capability to screen grains as well as motor tubes (tr. 21/123, 127). The Government used the new x-ray system to screen those rocket motors in its inventory suspected of containing defective grains (tr. 21/128). IOC-Rock Island paid for the cost of the screening and any corrective measures taken when defective propellant grains were found (tr. 4/139, 21/206). This change to 100 percent inspection took place after all of the propellant grains under the systems contract had already been delivered to DSC (tr. 5/47).

**PART VI.**  
**DECISION**  
**EARLY MOTOR BLOWS (EMBs)**

Although the Government initially blamed DSC’s assembling operation for having caused EMBs, after extensive testing and analyses, the Government subsequently determined that the three most probable causes of EMBs were voids, fissures and cracks in the propellant grains. The Government has acknowledged that DSC was not responsible for the defective propellant grains which were ultimately determined to be the most probable cause of the EMBs.

The only remaining question is to what extent, if at all, problems relating to the defective propellant grains impacted DSC's production of rocket motors under the systems contract. "To receive an equitable adjustment from the Government, a contractor must show three necessary elements - liability, causation, and resultant injury." *Servidone Constr. Corp. v. United States*, 931 F.2d 860, 861 (Fed. Cir. 1991).

The evidence shows the Government continued to supply propellant grains to DSC after the most probable causes of the EMBs were identified. DSC continued to load grains into the rocket motors, present the finished lots for acceptance and receive payments for them. We have found that the EMB/defective grain problems did not impact DSC's ability to produce rockets under the systems contract. DSC complains that the Government continued to deliver defective propellant grains even though NSWC, Indian Head's May 1994 report recommended 100 percent screening (app. br. at 251, 253-54). DSC has not established how it was adversely impacted. The evidence shows the Government later paid for the cost of screening the rocket motors in its inventory suspected of containing defective grains and paid for the cost of any corrective measures taken when defective grains were found.

Because DSC has failed to establish that the defective propellant grains impacted its production of rockets under the systems contract, and failed to establish that it incurred additional costs as a result of the defective propellant grains, we hold that DSC is not entitled to an equitable adjustment.

**PART VII.**  
**FINDINGS OF FACT**  
**FIN AND NOZZLE REPLACEMENT**

253. A fin and nozzle assembly is attached to the aft end of the HYDRA -70 rocket motor tube by means of a lockwire (tr. 5/53). Prior to the systems contract, these assemblies were furnished to LAP contractors as GFE. They would either have been manufactured by Defense Research Inc. (DRI) or Jerico Precision Manufacturing Company (Jerico). (Tr. 4/141, 5/53)

254. In early 1994, aircraft were damaged firing rockets with fin and nozzle assemblies manufactured by Jerico (tr. 4/141, 5/55, 10/17; AR4, tab 1397). The problem was traced to a substance called RTV which was a sealant used to seal wires at the rear end of the rocket. It was found when rockets were ignited, excess sealant would eject and cause damage to the aircraft. (Tr. 4/140, 5/56, 9/39; AR4, tab 119) This became known as the "rubber bullet" phenomenon (tr. 5/56). Since the specification involved did not specify the amount of RTV to be applied, the Government did not consider Jerico to have manufactured defective fin and nozzle assemblies (tr. 10/20, 21/142).

255. In April 1994, the HYDRA-70 Program Office at IOC-Rock Island became aware of the problem. In anticipation that the Jerico fin and nozzle assemblies of the affected rockets would eventually have to be replaced, the Program Office asked the PCO to fund an ESM for DSC to develop a replacement procedure. (Tr. 16/142)

256. Following ARDEC's conclusion that helicopter damage was caused by the ejection of the nozzle weatherseal plug, IOC-Rock Island by memorandum dated 25 May 1994 placed a restriction on the use of HYDRA-70 rockets with the Jerico fin and nozzle assemblies (AR4, tabs 127, 1386; tr. 4/141-42, 9/37-38). By July 1994, it became clear that the affected rockets would have to be replaced. Rockets with Jerico fin and nozzle assemblies were suspended from use in August 1994. (Tr. 16/140, 18/64)

257. By mid-May 1994, DSC had developed a replacement procedure pursuant to an ESM issued by the Government. By letter dated 26 August 1994, the PCO authorized DSC to commence replacement of one lot of rockets in accordance with the replacement procedure it developed plus several other additional requirements. (R4, tab 5364)

258. Between July and August 1994, IOC-Rock Island estimated that 350,000 fin and nozzle assemblies had to be replaced. Of these, 175,000 were in the Army's inventory, and 175,000 were believed to be in storage at DSC (tr. 16/151). The rockets in storage were Navy and Air Force assets. Their number was later reduced to 101,177 (tr. 16/158-59, 235). The Navy and Air Force subsequently agreed to fund the replacement of only 23,000 of their rockets (tr. 16/237).

259. On 28 September 1994, the PCO executed a Justification and Approval (J&A) pursuant to 10 U.S.C. § 2304(c)(2) and FAR 6.302-2 to procure the replacement of 175,061 Jerico fin and nozzle assemblies in the Army's inventory on a sole source basis. The J&A stated that, with a 90-day lead time for purchase of raw materials, immediate award of a contract was necessary to complete the replacement effort by December 1995 to meet users' needs. The J&A stated that a minimum of six months would be required to qualify a new producer. (AR4, tab 1173)

260. DSC was not solicited to replace the fin and nozzle assemblies of 175,000 Army rockets because it (1) was late on its system contract rocket deliveries, (2) was having problems with its M230/231 and M439 fuzes, and (3) had indicated that it expected to encounter financial difficulties if the Government were to exercise Options B and C (tr. 15/109). Part of what IOC-Rock Island examined in deciding not to seek a bid from DSC was a 9 August 1994 DCAA cash flow analysis. This analysis stated that DSC would not have the financial resources to meet its near term obligations without progress payments, that it had no independent borrowing capacity because all of its assets were pledged as collateral to a loan, and that it had not been timely in paying its bills. (R4, tab 5393; tr. 16/237) There is no proof that IOC-Rock Island excluded DSC from

participation in the fin and nozzle replacement work as a part of the IOC Commander's alleged strategy to eliminate DSC from the HYDRA-70 program.

261. By letter dated 30 September 1994, IOC-Rock Island asked DRI to submit a firm, fixed-price proposal suitable for negotiation purposes to replace 175,061 fin and nozzle assemblies (AR4, tab 120A). DRI submitted its proposal by letter dated 3 October 1994 (AR4, tab 120B; tr. 9/42). The PCO awarded an undefinitized contract to DRI by letter dated 14 October 1994, obligating \$5.4 million initially with a ceiling price of \$9.9 million. DRI was directed to begin work immediately. (AR4, tab 122; tr. 9/45)

262. The solicitation for the systems contract included Clause L-13, "Base Retention Requirements." The clause required all offerors to indicate whether they were agreeable to participating in the DOD Industrial Mobilization Production Planning Program for the rockets being procured. Agreement to participate in the program was required in order for offerors' proposals to be considered. DSC's offer indicated that it agreed to participate. The clause made clear that establishment as a mobilization base contractor was through execution of a Production Planning Schedule (PPS) Contract and "at the Government's discretion." A copy of the PPS contract was included in Section J of the solicitation for informational purposes. (R4, tab 5008 at 122; tr. 16/137-38, 250)

263. As stated in the informational PPS contract in the solicitation, such a contract is entered into to ensure that the contractor possesses the capability under surge/mobilization conditions to produce the items specified in the PPS contract. In exchange for this commitment, a contractor designated as a "Restricted Specified Base Planned Producer (RSBPP) . . . will be solicited for all acquisitions of the item(s), for which competition is restricted to the Restricted Specified Base pursuant to an approved Justification and Approval." (R4, tab 5008 at 122) According to IOC-Rock Island, it was common practice to use its mobilization base producer if at all possible unless fair and reasonable prices became an issue. In that case, the Army would open up the procurement for competition to expand the mobilization base. (Tr. 17/101)

264. According to IOC-Rock Island, to become a mobilization base producer, a contractor "would have had to have been successfully producing the item, meeting all the requirements of the Government, and have proven that [it] can continue to successfully produce" (tr. 17/143-44). In this case, IOC-Rock Island decided in August 1992 that no PPS contract would be signed until DSC had passed all of the FATs (tr. 16/138, 248). We find no PPS contract was executed between DSC and the Government. DSC acknowledged it was never made a mobilization base contractor (tr. 12/165).

**PART VII.**  
**DECISION**  
**FIN AND NOZZLE REPLACEMENT**

DSC summarized its arguments on the fin and nozzle replacement issue as follows:

In the case of the award of the fin and nozzle rework to DRI, DSC had a contractual right to be considered for that work because the solicitation specified that the successful offeror would be designated as the Hydra 70 mobilization producer. The shifting of contract work from an incumbent contractor for whatever reason has long been recognized as giving rise to a cause of action under the contract. *See, Torncello v. United States*, 681 F.2d 756 (Ct. Cl. 1982).

(App. br. at 288)

While agreement to participate in the DOD Industrial Mobilization Planning Program was required in order for DSC's bid to be considered for award, DSC did not automatically become the mobilization producer by virtue of award of the systems contract. As the "Base Retention Requirements" clause made clear, the establishment as a mobilization base contractor was through execution of a PPS contract and "at the Government's discretion." Since no PPS contract was executed between DSC and the Government, we conclude that DSC had no contract right under the systems contract to be awarded the fin and nozzle replacement work.

*Torncello* is inapplicable. That case involved diversion by the Government of pest control work from the contractor with whom the Government had entered into a requirements contract. No requirements contract is involved here. Here, the basic contract made no commitment with respect to the disputed replacement work which, at best, would have been dependent upon the execution of a PPS contract. *See e.g., NW Systems*, ASBCA No. 38117, 90-1 BCA ¶ 22,508 (successful completion of a Phase I contract was a condition for eligibility for a Phase II contract, there was no representation by the Government that a second contract would in fact be awarded).

DSC also accuses the Government of improperly excluding DSC from the fin and nozzle replacement contract "as part of an improper strategy directed by the IOC Commander to eliminate DSC from further participation in the Hydra 70 program" (app. br. at 274). We have found no evidence to support this theory. Nor do we have jurisdiction to consider the propriety of a procurement totally unrelated to the systems contract. *Coastal Corp. v. United States*, 713 F.2d 728 (Fed. Cir. 1983); *NW Systems*, ASBCA No. 38162, 90-2 BCA ¶ 22,652.

Because DSC had not been made a mobilization producer by virtue of execution of a PPS contract, we hold that it had no contract right to be awarded the fin and nozzle replacement contract.

Because DSC's claim with respect to the propriety of evaluating and awarding the fin and nozzle replacement contract is totally unrelated to the systems contract, we hold we have no jurisdiction to entertain such a claim.

**PART VIII.**  
**FINDINGS OF FACT**  
**PROGRESS PAYMENTS**

265. The systems contract incorporated by reference the "PROGRESS PAYMENTS" clause, FAR 52.232-16 (JUL 1991), and the "PROGRESS PAYMENTS - ALTERNATE I" clause, FAR 52.232-16 (AUG 1987) (R4, tab 5008 at 81). The latter clause applied to small businesses and changed the 80 percent liquidation rate to 85 percent. Amendment No. 0001 to the systems contract solicitation added a provision which authorized the contractor to bill for allowable and allocable progress payments for production of components, subsystems, and rockets. It also deleted Clause H-10, "PROGRESS PAYMENT LIMITATION," and provided that the progress payment rate would be in accordance with Clause I-13, "DOD PROGRESS PAYMENT RATES," DFARS 252.232-7008 (JUL 1991). (R4, tab 5008 at 3 of 41, ¶¶ 21, 22; tr. 15/145) Clause I-13 changed the progress payment and liquidation rate for large businesses from 80 to 85 percent, and for small businesses from 85 to 90 percent (R4, tab 5008 at 96). When DSC was awarded the systems contract in 1992, it was a large business (R4, tab 5008 at 96; tr. 15/143). During the course of performance of the systems contract, it became a small business (tr. 27/133-34).

266. Subparagraph (g), Clause I-2, "FIRST ARTICLE APPROVAL (CONTRACTOR TEST) - ALTERNATE II," FAR 52.209-3 (SEP 1989), provided:

(g) Before first article approval, the Contracting Officer may, by written authorization, authorize the Contractor to acquire specific materials or components or to commence production to the extent essential to meet the delivery schedules. Until first article approval is granted, only costs for the first article and costs incurred under this authorization are allocable to this contract for (1) progress payments. . . .

(R4, tab 5008, Amend. No.1 at 36) Thus, DSC was initially only authorized to submit progress payment requests for the costs incurred in connection with FATs. It would have been allowed to include production costs in its progress payment requests after the FATs

were approved. This contract clause was designed to to protect the Government from being saddled with material costs before first article approvals (tr. 9/93, 10/56).

267. In this case, the PCO in coordination with the ACO and “some of the technical people” established a value for each first article item specified in the contract. As these first article items were approved, the Government would periodically lift the ceiling. (Tr. 10/56) There is no showing that the progress payment ceiling established was disproportionate to the values of all the first article items the contract required to be approved.

268. DSC bid the contract under the assumption that progress payments would flow without being “restricted by the imposition of ceiling” (tr. 9/93). It expected to receive progress payments in an “uninterrupted fashion” to fund the performance of its contract (tr. 13/96). In light of the clear language of Clause I-2(g), and in light of DSC’s recognition that the FAT schedule was a “big” risk when it bid the contract, we do not find these assumptions reasonable.

269. Administration of progress payments was delegated to the DCMC, Fort Worth. Upon approval by the ACO, DSC would send its payment requests to the Defense Finance Accounting Services in Columbus, Ohio, which normally made payment in 10 to 30 days. (Tr. 10/44, 53-55, 9/119, 15/177-78, 19/26)

270. Under the systems contract, all FATs were required to be completed by 15 February 1993 (tr. 15/150). In March 1993, after it failed to complete all FATs by 15 February 1993, DSC requested authority to bill some of its production costs prior to FAT approval. The request was granted. (R4, tab 5213; tr. 13/95-99, 15/151-52) By letter dated 19 July 1993, five months after the scheduled FAT completion date, DSC advised DCMC, Fort Worth, that “Due to minor delays in production and vendor deliveries, [DSC] now estimates that full acceptance of all first article testing . . . will not be completed until October of 1993.” DSC requested that the progress payment ceiling be raised to \$26 million. (R4, tab 5380; tr. 15/151-52) This request was granted (tr. 15/150).

271. DSC did not complete all FAT in October 1993. DSC submitted its Progress Payment Request No. 9 on 4 November 1993 (AR4, tab 1288). The ACO advised the PCO by letter dated 11 December 1993 that with Progress Payment Request No. 9, DSC had reached the progress payment ceiling. The letter reported that acceptance of first articles was not expected until late February or early March of 1994. (R4, tab 5380; tr. 15/152-53)

272. DSC submitted Progress Payment Request No. 10 on 9 December 1993 (AR4, tab 1288). By letter dated 13 December 1993, DSC asked DCMC to raise the progress payment ceiling to \$45 million. It gave as justification “delays in production and

vendor deliveries.” It estimated that full acceptance of all FAT would not be completed until March 1994. (R4, tab 5380) The progress payment ceilings did not impact DSC until December 1993. Prior to that time, a number of items passed FATs, and the FAT Reports for them were approved. (Ex. A-AN)

273. Not persuaded that the progress payment ceiling should be raised yet again without further justification, the PCO asked for a detailed accounting (tr. 15/156-57). In response, DSC by letter dated 22 December 1993 stated that it was on schedule with all hardware deliverables and it was only behind on the fuze first articles. The letter said it had been working diligently and not raising the progress payment FAT ceiling would have serious financial impact because it owed \$3.3 million in accounts payable. (R4, tab 5380)

274. The PCO indicated in his 4 January 1994 letter that before he would authorize additional progress payments he would want the parties to negotiate a contract schedule extension for delivery of the M261/267 FAT Reports (R4, tab 5380; tr. 15/157-58). By letter dated 7 January 1994, DSC proposed to deliver the M261/267 FAT Reports on or before 15 March 1994, subject to certain conditions. It offered a \$5,000 consideration for each of the M261/267 FAT Reports<sup>12</sup> and requested immediate release of Progress Payment Request No. 10, submitted 9 December 1993. (R4, tab 5380)

275. Progress Payment Request No. 10 was paid on 25 January 1994 (AR4, tab 1288). This payment was authorized even though the lockwire non-conformance issue had surfaced, and the PCO was preparing to invoke the warranty clause of the contract (tr. 15/160; R4, tab 5317). As found previously, the PCO suspended progress payment by letter dated 17 February 1994 on account of the non-conforming lockwires. The suspension lasted for about a month and was lifted effective 15 March 1994 at which time the Government raised the progress payment ceiling to \$42 million. (AR4, tab 1288)

276. Over the next 12 months, from April 1994 to March 1995, the Government steadily raised the progress payment ceiling from \$42 million to over \$69 million (R4, tab 5317). To enable DSC to receive additional progress payment amounts, the Government recognized DSC’s change of size status from big to small business, and in August 1994, authorized an increase of the progress payment rate from 85 to 90 percent (R4, tabs 5317, 5013; tr. 15/142, 19/12-13).

277. Between June 1994 (Progress Payment Request No. 14) and March 1995 (Progress Payment Request No. 22), while the Government steadily raised the progress payment ceiling from \$46 to \$69 million, the amount of progress payments capped by the ceiling also steadily rose from \$540,000 in June 1994, to \$2.7 million in July 1994, to over \$4 million in July, September and October 1994, to \$6.9, \$7.6, \$9.3 and \$8.5 million

in the January through March 1995 time frame. Application of loss adjustment factors also contributed to the amounts of progress payments withheld. (AR4, tab 1228)

278. While DSC was able to obtain first article approval for a number of items, for reasons found earlier, it had trouble obtaining first article approvals for the RAD and the M230/231 fuzes. The FAT Report for the RAD was not approved until December 1994 (ex. A-AN). DSC passed the M231 fuze FAT in July 1994. It submitted the M231 fuze FAT Report in August 1994. For the deficiencies already mentioned, DSC's M231 fuze FAT Report was not approved until November 1994, 21 months after the completion date specified in the contract. (Ex. A-AN) DSC passed the M230 fuze FAT in December 1993. It submitted the M230 fuze FAT Report in February 1994. For the deficiencies already mentioned, DSC's M230 FAT Report was not approved until January 1995, nearly two years after the completion date specified in the contract. (Ex. A-AN) DSC passed the M261 Rocket FAT in January 1994. It submitted the FAT Report in February 1994. The M261 Rocket FAT Report was not approved until January 1995, nearly two years after the completion date specified in the contract. (Ex. A-AN) Based on the evidence in the record, we are unable to find that DSC's inability to complete all FATs by 15 February 1993 was attributable to the Government.

279. In 1993, DSC's unliquidated progress payments ranged from a low of zero to a high of \$14.6 million (R4, tabs 5334-43). In 1994, DSC's unliquidated progress payments ranged from a low of \$16.1 million to a high of \$23.5 million (R4, tabs 5344-51). In 1995, DSC's unliquidated progress payments ranged from a low of \$10.6 million to a high of \$21.8 million (R4, tabs 5352-62). Because of the non-conforming lockwire problem, which was self-inflicted and apparently unexpected, DSC was unable to deliver and bill for 267,000 rockets and rocket motors (tr. 27/112).

280. By letter dated 23 October 1995, the ACO advised the PCO that based on the most recent financial surveillance report from DCMC's Technical Assessment Group, DSC "appears to be in a precarious situation with respect to the Hydra 70 contract." The ACO recommended that any future requests for progress payments be audited prior to payment. (R4, tab 5316; tr. 19/17) According to the ACO, as of 30 September 1995, DSC had unliquidated progress payments exceeding \$17 million. The ACO estimated that DSC would incur an overrun exceeding \$9 million at completion. (R4, tab 5316; tab 19/17-18) By memorandum dated 1 November 1995, the PCO indicated that he concurred with the ACO's recommendation (AR4, tab 616; tr. 19/21).

281. On 26 October 1995, the PCO issued a cure notice to DSC. The cure notice was issued due to DSC's "failure to maintain satisfactory M430, M230 and M231 fuze production along with [DSC's] projected manufacturing cost overrun conditions that are endangering performance of the . . . contract" (AR4, tab 390).

282. Thereafter, DCAA audited Progress Payment Request Nos. 28, 29 and 30 before payment. As a result of the audits, payments took a few weeks longer. Progress Payment Request No. 28 was paid in 55 days; Progress Payment Request No. 29 in 56 days, and Progress Payment Request No. 30 in 42 days. (AR4, tabs 1288, 5317; tr. 19/24-25) Altogether, 30 Progress Payment Requests were submitted during the course of contract performance and 30 payments were made. The last progress payment was made on 26 April 1996. (R4, tab 5317)

283. There is no evidence that the Government manipulated the progress payment process to further its alleged objective of forcing DSC to redesign the M230/231 fuzes through the first article approval process. DSC's former president testified:

A. No, I didn't see that it was being used as a tool . . . there were certain milestones that we had to meet in order to get the progress payments. . . .

. . . our cash flow was such at the time it was fairly significant that we get the progress payments. And when we were up against the stops, we usually negotiated with the contracting officer that we were running into problems. And usually there was a negotiation that took place that allowed us to get full or partial progress payments.

So there was a give and take both ways . . . But I didn't see that in any manipulating way. They were just doing their jobs.

(Tr. 16/86)

284. According to DSC's former president, "cash flow [was] always a problem" (tr. 16/87). It was a problem because BEI, DSC's parent, put in place a "profit assurance program." This plan limited DSC's ability "to do certain things," and limited its ability "to implement some things." The plan included certain cost cutting measures which cut DSC's "Overhead, G & A," and required "people reduction." (Tr. 16/87)

285. DSC's bidding strategy left no room for error in terms of cash flow required to continue performance of the systems contract. As early as January 1993, before progress payments became a problem, an internal memorandum warned that DSC would require "a realistic total company solution that satisfactorily addresses how the cash deficit inherent in the Hydra 70 Systems Contract will be overcome by other positive operating results." (Ex. G-C)

286. We find DSC's cash flow problem stemmed from (1) its unrealistic expectations that it would derive revenue from foreign commercial sales, (2) its non-conforming lockwires which caused an unexpected suspension of progress payments, albeit for only a month, and its expenditure of \$2 million to rework the affected rockets, (3) its inability to obtain approval for some of its first articles for nearly two years which limited the amount of progress payments it was paid, and (4) its parent BEI's self-imposed profit assurance plan.

**PART VIII.**  
**DECISION**  
**PROGRESS PAYMENTS**

Over the course of performance of the systems contract, DSC experienced cash-flow problems. DSC contends that the Government breached the contract when "payments due and owing the contractor . . . were not made during contract performance" (tr. 9/63). In this regard, DSC points to the suspension of its progress payments in February 1994 when it was discovered that non-conforming lockwires on rockets and rocket motors had been delivered, and the imposition of progress payment ceilings pending approval of first article items. DSC also accuses the Government of manipulating the progress payment process by arbitrarily withholding progress payments in amounts substantially greater than permitted by the contract in an effort to further its objective of forcing DSC to redesign the M230/231 fuzes through the first article approval process (app. br. at 176-78).

Whether the Government properly suspended progress payments between 17 February and 15 March 1994 due to the discovery of non-conforming lockwires in rocket and rocket motors has been addressed and will not be repeated here.

The evidence does not support DSC's allegation that the Government arbitrarily withheld progress payments in amounts substantially greater than permitted by the contract. The systems contract required all FATs to be completed by 15 February 1993. Clause I-2(g), "FIRST ARTICLE APPROVAL (CONTRACTOR TEST) - ALTERNATE II," provided that except as otherwise authorized, until first article approval was granted, only costs incurred in connection with first articles could be billed. In this case, the Government established a value for each first article item specified in the contract, and raised the progress payment ceiling as first article items were approved. There is no showing that the progress payment ceiling established was arbitrary or disproportionate to the value of all the first article items the contract required to be approved. The evidence shows that from March 1993 to March 1995, the Government authorized DSC to bill some of its production costs prior to FAT approvals and repeatedly raised the progress payment ceiling even though the delays in completing all FATs were due to DSC's "delays in production and vendor deliveries." DSC's former president acknowledged

that DSC had certain milestones to meet in order to receive progress payments and concedes that Government officials were “just doing their jobs.”

To charge the Government with manipulating the progress payment process to further its objective of forcing DSC to redesign the M230/231 fuzes through the first article approval process is to charge the Government with bad faith breach of contract. Such a charge must be supported by “irrefragable proof” which has been equated with evidence of some “specific intent to injure” the contractor such as conspiracy, “designedly oppressive” conduct, animus, or malice. *Kalvar Corp.*, 211 Ct. Cl. at 198-99, 543 F.2d at 1301-02. We have found no such evidence here.

It is well established that when the Government fails to make contractually required progress payments, it is a breach. *Pigeon v. United States*, 27 Ct. Cl. 167 (1892). When a contractor’s financial incapacity to perform is caused by the Government, the default is excused and the contract is deemed to have been terminated for convenience. *National Eastern Corp. v. United States*, 477 F.2d 1347, 1356 (Ct. Cl. 1973). When a contractor claims that its financial inability to perform is due to the Government’s failure to make progress payments, the burden is on the contractor to prove that the progress payments were erroneously withheld and that the withholding was the primary or controlling cause of the contractor’s default. *See TGC Contracting Corp. v. United States*, 736 F.2d 1512, 1515 (Fed. Cir 1984) (contractor’s failure to complete the contract was the direct result of its lack of working capital, its negligence, and its own actions).

In this case, DSC’s cash flow did not cause total inability on its part to perform the contract. To the extent cash flow compromised DSC’s performance, it was not caused by the Government erroneously withholding earned progress payments. DSC bid the contract at \$32 million below its estimated cost of performance expecting the cash to finance its performance to come from an uninterrupted flow of progress payments and direct international sales it hoped to generate during the first two years of contract performance, among other sources. As it turned out, DSC’s anticipated direct international sales did not materialize. What did materialize was its anticipated “big risk” in completing all FAT by 15 February 1993. Also, as it turned out, DSC’s RAD FAT Report was not approved until December 1994, 10 months after the contract FAT completion date. Its M230 fuze FAT Report was not approved January 1995, nearly two years after the FAT completion date, and its M231 fuze FAT Report was not approved until November 1994, 21 months after the FAT completion date. We have found DSC’s inability to complete all FATs by 15 February 1993 was not caused by the Government. Failure to complete all FATs resulted in withholding of progress payments above the ceilings established. At the same time, DSC’s cash flow was also crimped by its self-imposed “profit assurance plan” which cut overhead, G&A and people. Additionally, DSC was unable to progress bill because it unexpectedly found itself unable to deliver 267,000 rockets and rocket motors when the non-conforming lockwire issue surfaced in early 1994.

Because DSC's cash flow problem was not caused by the Government erroneously withholding progress payments, but by its own actions, we hold that the Government did not breach the contract.

Because DSC has failed to show that the Government's partial withholding of progress payments was motivated by an intent to injure DSC, we hold that DSC has failed to prove bad faith breach of contract on the part of the Government.

**PART IX.**  
**FINDINGS OF FACT**  
**ALLEGATIONS OF IMPROPER CONTRACT ADMINISTRATION**

The Downtime/Delay Claims

287. In September 1991, DSC, then known as BEI Defense Systems Company, submitted a downtime/delay claim for the Government's failure to provide GFM (igniters) at the time specified by Contract No. DAAA09-87-G-0008/0002. The CO issued a decision which allowed an amount on the downtime claim but denied recovery of unabsorbed overhead and profit on the claim. He also allowed an amount on the delay claim but denied recovery of profit on the amount. On the contractor's motion for summary judgment on appeal, the Board held that the contractor was entitled to profit on any unabsorbed overhead on the downtime issue but that the contractor had not shown that it was entitled to profit on any unabsorbed overhead on the delay claim. *See BEI Defense Systems Co.*, ASBCA No. 46399, 95-1 BCA ¶ 27,328.

288. In May 1996, the parties entered into a settlement on the quantum aspects of ASBCA No. 46399. A bilateral contract modification was subsequently issued paying DSC \$806,412, including interest (AR4, tab 1371; tr. 9/90). DSC contends that IOC-Rock Island exploited the lockwire issue under the systems contract in an effort to force DSC to forfeit its downtime/delay claim (Claim at 120-21), and that the delayed resolution of the case deprived it of use of "a million dollars" and exacerbated its cash-flow problems during performance of the systems contract (tr. 9/85).

289. The Board decided ASBCA No. 46399 on 21 November 1994. It took 18 months (November 1994 to May 1996) for the parties to resolve the quantum aspects of the case. During the 18 months, initiation of an audit on the claims was delayed due to unavailability of both DCAA and DSC personnel. After the audit was issued, the PCO had to obtain advice from his pricing and legal personnel (tr. 16/62-64). In this regard, the PCO testified that his office did not "sit on these things," and he moved on settling the claim as soon as the required advice and clearances were obtained (tr. 15/38).

## The Warhead Contracts

290. Prior to receiving the systems contract, DSC had two warhead (M261/267) contracts (Nos. DAAA09-90-G-0005/0003 and DAAA09-91-C-0489) it was to perform at the Boonton facility. The PCO notified DSC that these contracts must be performed at a facility qualified to MIL-Q-9858A. Because DSC had no time to qualify the Boonton facility to the standard, it produced the warheads at its Fort Worth facility. (Tr. 9/85-86) DSC completed the warhead contracts in May 1995, and submitted a \$5.1 million equitable adjustment claim in August 1995 (AR4, tab 206; tr. 9/86-87, 15/42). The parties subsequently settled the claim resulting in a payment of about \$3.6 million to DSC (tr. 9/88-90, 15/44-45; AR4, tab 403). According to DSC, the \$3.6 million would have helped its cash-flow situation during performance of the systems contract (tr. 9/88). The evidence shows DSC did not submit its claim until August 1995. By then, only four more progress payments (Nos. 27-30) remained. Progress payment ceilings had been removed since April 1995 (AR4, tab 1228).

## Non-Conforming Dahlgren Bridge Attenuators (DBAs)

291. The Navy (Mod. 2) version of the MK66 rocket motors required protection from “Hazards of Electromagnetic Radiation to Ordnance” or HERO (AR4, tab 1287). The “Dahlgren Bridge Attenuator” or DBA is a wiring configuration in the Mod. 2 version of the MK66 rocket motor which acts as a filter so that electronic radiation from an emitting radar does not accidentally initiate the rocket motor (tr. 18/59, 22/21; AR4, tab 78).

292. DSC had apparently been furnishing the Government with non-conforming DBAs prior to the systems contract. The problem, however, was not discovered until March 1993, when DSC submitted its MK66 Mod. 2 rocket motor first article under the systems contract. (Tr. 15/46-47, 17/160, 18/59; AR4, tab 147, 1082 at 2) The contract drawing required the DBA wires to have a 58 percent reduction in area after final annealing (R4, tab 7206; tr. 22/47). The DBA wires in question did not meet the 58 percent reduction requirement (R4, tab 7252; tr. 22/23). The non-conforming DBA wires were processed by DSC’s subcontractor who had failed to follow the contract drawing (tr. 18/60, 63, 70; AR4, tab 1082). DSC nonetheless provided the subcontractor’s certification to the effect that the wires were produced in compliance with the TDP (tr. 22/43).

293. By the time DSC produced rockets under the systems contract, the DBA wire problem had been corrected. No non-conforming production quantities were delivered under the systems contract. (Tr. 27/141) However, 172,000 MK66 Mod. 2 rocket motors in the Government’s inventory were found to contain non-conforming DBA wires (AR4, tab 1082 at 2; tr. 17/159, 22/24). By letter dated 22 February 1994, the PCO directed DSC to develop rework procedures to replace the DBAs in the rocket motors delivered

under Contract No. DAAA09-90-G-0005 (AR4, tab 147). In August 1994, the PCO asked DSC to furnish a start date and a rework rate to rework the non-conforming rocket motors (R4, tab 7205; tr. 15/45). DSC took the position that it was not responsible for passing the HERO protection requirement because the applicable TDP contained no such requirement (R4, tab 7206; tr. 15/50-51). The Government maintains that although it did not specify a HERO requirement, had DSC followed the annealing process specified, the resultant DBA wires would have had properties that would have satisfied the HERO protection requirement (tr. 22/25-26). By letter dated 9 August 1995, the PCO instructed DSC to detail the actions it would take to rework the affected MK66 rocket motors (R4, tab 7255). DSC maintained that no rework was necessary (tr. 27/150).

294. When the hearing of the systems contract disputes took place in December 1998 and February and March 1999, there was still no resolution on the non-conforming DBA issue. At the hearing, DSC acknowledged that the DBA issue affected its performance under the systems contract in “an immaterial way” (tr. 27/142), and explained the relevance of the DBA issue as involving “the misuse of the criminal justice system in the actions that were taken in which the DBA was the allegation or the basis for the actions that were taken” (tr. 28/36-37). DSC made no further showing as to the nature of the action taken in connection with the DBAs which allegedly constituted misuse of the criminal justice system. Consequently, we can make no finding that the Government misused the criminal justice system under the systems contract as it related to the parties’ dispute with respect to the DBAs.

#### Alleged Misuse of the Criminal Justice System

295. When the lockwire issue surfaced in late 1993 and early 1994, ASBCA No. 46339 was pending before the Board. DSC contends that the Government breached the systems contract by “exploit[ing]” the lockwire issue to force DSC to surrender its downtime/delay claim (tr. 9/77-78). As support, DSC points to an information paper IOC-Rock Island prepared, in anticipation of a meeting to be held on 3 February 1994 with the U.S. Attorney and CID. The paper stated, in part:

All outstanding issues between the Government and BEI must be resolved as part of this settlement, and BEI cannot submit any additional claims against the Government on these contracts. These issues include items such as the M230/M231 fuze, RADS, FMS quantities on basic and Option A of systems contract, downtime claims, etc. A full list of these issues is being prepared in conjunction with the PCO.

(Emphasis added) (AR4, tab 1079) This information paper was prepared by IOC-Rock Island for the benefit of the AUSA and CID. It listed all outstanding contract issues for

consideration that IOC-Rock Island believed would be covered in a “global settlement” scenario. (Tr. 15/30, 128, 16/189) There is no evidence that IOC-Rock Island procurement officials understood what a “global settlement” would encompass in the context of Civil and Criminal False Claims Act actions. In any event, as we noted before, once the lockwire investigation reached the U.S. Attorney’s office, IOC-Rock Island’s and other DOD components’ role became purely supportive, and there is no allegation that the AUSAs acted improperly.

296. There is no evidence that IOC-Rock Island withheld negotiation of the downtime/delay claim for the purpose of using the lockwire investigations to force DSC to surrender the downtime/delay claim. We find no support for the allegation that the PCO issued the 26 October 1995 cure notice in retaliation against DSC for submitting the “warhead” claim in August 1995 (tr. 15/43-44). We find no evidence that the Government intentionally delayed negotiation of the downtime/delay claim or the warhead claim for the purpose of exacerbating DSC’s cash flow problems experienced during the course of performance of the systems contract. DSC was represented by competent counsel throughout the course of the lockwire investigation. As evidenced by the breadth and scope of the current appeal before the Board, DSC gave up no claims during the course of the lockwire investigations.

**PART IX.**  
**DECISION**

**ALLEGATIONS OF IMPROPER CONTRACT ADMINISTRATION**

DSC accuses the Government of a series of actions which, if proven, could constitute a bad faith breach of the systems contract. DSC alleges that the Government exploited the lockwire issue to force DSC to surrender its downtime/delay claim (ASBCA No. 46399). It alleges the Government issued the 26 October 1995 cure notice in retaliation against DSC for submitting the “warhead” claim, and that the Government intentionally delayed negotiation of the downtime/delay claim for the purpose of exacerbating DSC’s cash flow problems it experienced during the course of performance of the systems contract.

Any analysis of Government bad faith must begin with the presumption that public officials act “conscientiously in the discharge of their duties.” *Librach*, 147 Ct. Cl. at 612. Showing bad faith is tantamount to showing malice or conspiracy, and requires a high standard of proof, *i.e.*, specific intent to injure the contractor. *Kalvar*, 211 Ct. Cl. at 198-99, 543 F.2d at 1301-02. We have found no such proof beyond DSC’s vague allegations.

Because DSC has failed to prove that any of the Government contract administration actions or inactions complained about were taken with an intent to injure

DSC, we hold that there was no bad faith breach of the systems contract on the part of the Government.

**PART X.**  
**FINDINGS OF FACT**  
**AWARD OF THE OPTION B AND C WORK TO ANOTHER CONTRACTOR**

297. DSC ultimately completed the basic and Option A portions of the systems contract. It delivered the submunition warheads (M261/267) comprising, among other components, the RADs, the M230/231 fuzes, and the grenades “approximately one year late.” (Tr. 5/103, 9/183) Based on the record developed, we find that the delay was caused primarily by DSC’s efforts to bring its Fort Worth facility into compliance with MIL-Q-9858A, to the difficulties it encountered with respect to the M230/231 fuze FATs, and to its own RAD production problems.

298. In his letter of 6 April 1994 to the PCO, DSC’s president confirmed an earlier conversation he had with the PCO’s superior:

Your account of a portion of my March 22, 1994, conversation with Mr. Pierce is accurate; we agree that the Government’s exercise of Option B as currently detailed in the subject contract would be unconscionable and illegal for the reasons set forth in our draft documents. Further, also as Mr. Pierce and I discussed in that conversation, an early meeting to discuss alternative solutions to the situation is imperative.

(AR4, tab 1091; tr. 15/67-68)

299. The PCO considered DSC to have breached and repudiated its obligations under the systems contract. According to the PCO, DSC’s repudiation threw IOC-Rock Island into turmoil and dashed its expectation of having three or four years of uninterrupted HYDRA-70 rocket production. (Tr. 16/48, 50) Due to DSC’s financial condition and its other problems at the time, the Government became convinced that exercising the options would merely exacerbate DSC’s losses and threaten its survival, and thus would not ultimately be in the Government’s best interest. (Tr. 13/154-55, 15/61-65, 17/111)

300. Thereafter, the PCO put together a solicitation (No. DAAA09-93-R-0713) for a follow-on contract to cover the requirements to be ordered during the Option B and Option C periods (tr. 15/68). The solicitation used the “best value procurement” approach where technical factors were stated to be more important than price. Four firms responded. (AR4, tab 1174) DSC did not submit a proposal itself. It agreed to become a

subcontractor to Alliant Techsystems, Inc. (Alliant Tech.) for purpose of competing for the follow-on contract (tr. 17/109). After evaluation, the Government awarded the follow-on contract to Martin Marietta Ordnance Systems (MMOS) in January 1995 (tr. 15/69, 27/116).

301. A protest to the General Accounting Office (GAO) followed. The GAO sustained the protest on the ground that the Government failed to inform the protester of the evaluated deficiencies in its proposal that resulted in low ratings on certain evaluated elements. *Alliant Techsystems, Inc.; Olin Corporation*, B-260215.4; B-260215.5, August 4, 1995, 92-2 CPD ¶ 79. Thereafter, the Government took corrective action and eventually awarded the follow-on contract, once again, to MMOS (tr. 12/67-68, 17/109-10).

**PART X.**  
**DECISION**

**AWARD OF OPTION B AND C WORK TO ANOTHER CONTRACTOR**

With regard to the award of the follow-on contract to MMOS, DSC states in its post-hearing brief that it “does not seek the relief afforded by GAO or the courts in connection with challenges to award decisions. DSC has not requested a ruling that would interfere with the prior award decisions, nor does it seek bid preparation costs.” DSC goes on to say:

In the case of DSC’s exclusion from participation in the follow-on systems contract award, DSC seeks the loss of the value of the company attributable to improper government conduct in the administration of the system contract.

(App. br. at 288)

In the context of the Government’s decision not to exercise Options B and C, DSC appears to suggest that the Government breached the contract because the decision ultimately led to DSC’s demise as a viable company. The seed for DSC’s demise was actually sown when it bid the contract at \$32 million below its estimated cost of performance. We have found DSC applied the \$32 million loss primarily to the option years hoping such loss would be offset by additional business as well as direct international sales. When those businesses did not materialize, and when other problems (*e.g.*, non-conforming lockwires, difficulties in passing the M230/231 fuze FATs and LATs) began to mount, DSC as well as the Government recognized that exercising Options B and C would only exacerbate DSC’s already tenuous financial situation.

There is no basis for a breach of contract claim where, as here, the Government decided not to exercise an option even if the decision ultimately resulted in the demise of

DSC as a viable company. It is established that the Government's failure to exercise an option does not give rise to a breach of contract action. An option in a Government contract obligates the contractor to perform the additional contract work if the Government chooses to exercise the option, but it does not create a legal obligation on the part of the Government to exercise the option. *See Dynamics Corp. of America v. United States*, 182 Ct. Cl. 62, 74, 389 F.2d 424, 431 (1968); *Government Systems Advisors, Inc. v. United States*, 847 F.2d 811, 813 (Fed. Cir. 1988). In any event, DSC was not excluded from participating in the follow-on contract procurement. It chose to participate as a subcontractor to Alliant Tech.

Because the Government as a matter of law was not obligated to exercise Options B and C, we hold the Government did not breach the systems contract in awarding the follow-on contract work to MMOS.

**PART XI.**  
**FINDINGS OF FACT**  
**CLAIM, CO DECISION & APPEAL**

302. DSC submitted its claim for breach of contract by letter dated 1 October 1996. The claim was in the amount of \$71,999,163. The Government received the claim on 3 October 1996. By letter dated 22 November 1996, the PCO advised DSC that its certification of the claim was defective, and requested that DSC submit a certification with language substantially similar to that suggested in the letter. The CO advised DSC that notwithstanding the certification defects, he had nonetheless begun review of the claim and expected to issue his decision on or before 11 July 1997.

303. By letter dated 25 November 1996, DSC forwarded a CDA certification "in the format requested." The certification was backdated to 30 September 1996. In a subsequent letter dated 4 December 1996, DSC took exception to the projected 11 July 1997 decision date, and took the position that it would be willing to extend the decision date to no later than 31 January 1997. No decision was issued on 31 January 1997. On 1 February 1997, DSC filed a notice of appeal. The Board docketed the appeal as ASBCA No. 50534. Thereafter, the Government filed a motion to dismiss for lack of jurisdiction on the ground that appeal was premature.

304. We dismissed the appeal for lack of jurisdiction on 25 April 1997, holding that the CO had fully complied with the statutory duty imposed on him by 41 U.S.C. § 605(c)(2), and that the time period he sought to render a considered decision was reasonable, given the size and complexity of the claim. *See Defense Systems Company, Inc.*, ASBCA No. 50534, 97-2 BCA ¶ 28,981. As promised, the CO issued a 101-page decision on 11 July 1997. It denied DSC's claim in its entirety. DSC appealed the decision to the Board by notice dated 29 July 1997. The Board docketed the appeal as ASBCA No. 50918.

CONCLUSION

We hold that DSC is entitled to an equitable adjustment under the applicable FMS pricing principles for (1) 8,908 FMS rockets and 14,212 SDAF rockets ordered as a part of the basic contract, and (2) 7,708 SDAF rockets ordered as a part of Modification Nos. P00018, P00019, and P00022, issued under Option A (*see* Part II). This portion of the appeal is remanded to the parties for determination of the quantum of adjustments. CDA interests on the amount found due is to run from 3 October 1996. See 97-2 BCA at 144,325, finding 6.

We dismiss for lack of jurisdiction DSC's appeal with respect to the propriety of evaluating and awarding the fin and nozzle replacement contract (*see* Part VII).

In all other respects, DSC's appeal is denied.

Dated: 20 June 2000

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PETER D. TING  
Administrative Judge  
Armed Services Board  
of Contract Appeals

I concur

I concur

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MARK N. STEMLER  
Administrative Judge  
Acting Chairman  
Armed Services Board  
of Contract Appeals

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EUNICE W. THOMAS  
Administrative Judge  
Acting Vice Chairman  
Armed Services Board  
of Contract Appeals

NOTES

1 The False Claims Act was originally passed at the time of the Civil War. It gave the Government remedies against parties that process false claims. It has now been divided into two sections: the Civil False Claims Act, 31 U.S.C. § 3729, and the Criminal False Claims Act, 18 U.S.C. § 287.

2 The M230 and M231 fuzes are identical in all particulars except that an M230 fuze is provided with a two-piece explosive output lead where the M231 fuze has only a flat piece of aluminum foil tape (AR4, tab 6174 at 6).

3 Typically, the engineering services portion of a contract authorize expenditure of funds “to do something that is essentially out of scope of the contract but in support of production” (tr. 4/85). Engineering services are implemented through issuance of Engineering Services Memoranda or ESMs.

4 Amendment No. 8, dated 7 July 1989, deleted this reliability requirement in its entirety (AR4, tab 1197R at 9, n.2; tr. 14/46).

5 Item B003 of the Contract Data Requirement List (CDRL) required the TDP Validation Report to be submitted 15 days after PPE completion (AR4, tab 5004).

6 DID OT-90-12138, ¶ 10.3.1.7.d. provided:

d. To determined a capable process, the process/operation parameters shall meet the following requirements:

(1) Variable Data: Process capability (Cp) shall be determined, Process performance index shall be greater than or equal to 1.33 (Cpk). For critical parameters/characteristics, the process performance index shall be greater than or equal to 2.0 (Cpk).

7 The facts relating to the M230/231 fuze first articles are mainly though not exclusively relevant to the progress payment aspects of DSC’s claim, *infra*, Part VIII.

8 Paragraph 3.2 of MIL-F-63446A require the submission of first article samples as specified in the contract. A list of first article samples and quantities is set forth under ¶ 4.3.1. (AR4, tab 1405 at 3, 6-8)

9 The LAT requirements for the M230 fuzes are set out in ¶ 4.4.2.50 of MIL-F-63446A; the LAT requirements for the M231 fuzes are set out in ¶ 4.4.2.51 (AR4,

tab 1405 at 73-74; tr. 8/9). Rule 4, tab 1369 sets out a sample “LAT and Retest Sequence” flow chart.

10 A fuze must be sensitive enough to initiate reliably upon ground impact and yet not so sensitive to be hazardous to handle during manufacturing. The *Go* Test is designed to test if the fuze would function reliably on impact. The *No Go* Test is designed to ensure that the fuze is not too sensitive so as to be dangerous. (Tr. 6/90, 7/24-25)

11 Binomial frequency distribution is an accepted method of calculating fuze reliability (AR4, tabs 1197R at 5, 6174 at 20).

12 By agreement, the M261 FATs under Contract No. DAAA09-91-C-0489 and the M267 FATs under the DAAA09-90-G-0005/0003 warhead contracts were to be considered as the FATs of the M261/267 warheads under the systems contract (tr. 15/158).

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeals in ASBCA No. 50918, Appeal of Defense Systems Company, Inc., rendered in conformance with the Board's Charter.

Dated:

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EDWARD S. ADAMKEWICZ  
Recorder, Armed Services  
Board of Contract Appeals