

ARMED SERVICES BOARD OF CONTRACT APPEALS

Appeals of -- )  
)  
Raytheon Company dba )  
Raytheon Systems Company ) ASBCA Nos. 50166, 50987  
)  
Under Contract Nos. DAAH01-88-C-0809 )  
DAAH01-91-C-0483 )

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OPINION BY ADMINISTRATIVE JUDGE FREEMAN

These appeals are before us on remand from the Federal Circuit. *See Raytheon Co. v. White*, 305 F.3d 1354 (Fed. Cir. 2002), *aff'g in part and vacating and remanding in part Raytheon Co. dba Raytheon Systems Co.*, ASBCA Nos. 50166, 50987, 01-1 BCA ¶ 31,245. In our decision of 8 January 2001, we found that the direct material incurred and estimate-to-complete (ETC) cost of the defective TDP was as reported and testified to by the Defense Contract Audit Agency (DCAA) auditor. We did not make specific findings on the refrigerated detector unit (RDU) ETC component of that cost, other than to note in Finding 31 an apparent discrepancy between the claimed RDU rework ETC and an earlier claimed RDU rework actual incurred cost. *See* 01-1 BCA at 154,203.

In its remand decision, the Federal Circuit directed that we make specific findings on Raytheon's claims (i) that it needed to purchase 200 new RDUs to complete the contract; (ii) that the auditor's RDU rework ETC made no allowance for future failures; and (iii) that the RDU rework ETC should be based on a vendor quote rather than historical costs. *Raytheon Company v. White, supra* at 1360-61. Our findings on the remanded issues are set forth below. These findings supersede any inconsistent findings in our

previous decision, and on these findings, we conclude that Raytheon is entitled an additional price adjustment of \$3,858,928.

FINDINGS OF FACT ON THE  
RDU ESTIMATE-TO-COMPLETE

1. Up to the termination of the production contract, approximately 40 percent of the RDUs installed in guidance sections by Hughes Missile and Space Company (HMSC) failed to perform in a satisfactory manner and required rework by the manufacturer, Raytheon<sup>1</sup> (R4, tab 2381 at 5000862; tr. 2/146-47, 149-51, 166). It is not disputed that most of the RDU failures were due to a defective technical data package (TDP) provided by the Government. Since Raytheon had built the RDUs in accordance with the TDP, it was not obligated to rework them without additional compensation.

2. In 1991 and 1992, Raytheon reworked 26 RDUs at an average cost to HMSC of \$1,128 per unit.<sup>2</sup> These were the only failed RDUs actually reworked with the cost incurred by HMSC up to the termination of the production contract. (Ex. G-28 at I-8a-3, I-8e-2, I-8e-5, I-8e-6, I-8e-7) While 401 other RDUs failed during the performance of the production contract, they were at termination either awaiting rework or in engineering analysis (R4, tab 5000862 at 5000862; tr. 2/145-47, 149-51). *See* Finding 5 below.

3. In February 1994, HMSC noted a “[l]ack of committment [sic] from Raytheon to repair RDU’s required to build-out” (R4, tab 2300 at 14). On 31 August 1994, Raytheon proposed a firm fixed price of \$551,884 for repair/rework of 200 RDUs (average unit price \$2,759) with delivery 44 weeks (10 months) after receipt of order. The quotation stated that it was based on an analysis of “the material requirements to rework the fifty-four units returned to date.” It also stated that: “[t]he closing and relocation of approved vendors over the five years since the RDU parts were initially purchased by Raytheon will require some new vendors,” and that “No costs are included in this proposal for first article, pre-production or qualification testing on the RDU or its components.” (Ex. G-28 at I-8f-3, I-8f-4)

4. In December 1994, HMSC prepared an estimate-at-completion (EAC) for internal planning purposes. This EAC showed the availability of RDUs as the pacing item for production. It estimated that 600 new RDUs and 600 reworked RDUs would be needed to complete the production contract by May 1997. (Ex. A-1; tr. 3/230-40) On 6 January 1995, Raytheon proposed a price of \$2,149,400 for a minimum quantity of 200 new RDUs (\$10,747 each). The proposal stated that a purchase lot of any less than 200 would be “uneconomical.” (Ex. G-28 at I-8f-5, I-8f-6)

5. When the production contract was terminated on 17 January 1995, there were 595 guidance sections remaining to be delivered under that contract.<sup>3</sup> To meet the

requirement of one RDU for each of these guidance sections, HMSC had 390 failed RDUs awaiting rework by Raytheon, 11 failed and two good RDUs in engineering analysis, and 192 unproven RDUs in storage (43), in guidance sections in process (128) and in delivered guidance sections rejected at destination (21). (R4, tab 2381 at 500862; tr. 2/145-47, 149-51)

6. In May 1995, four months after the termination, the HMSC project engineer prepared a Delivery Forecast showing that 200 new RDUs and 420 reworked RDUs would have been required to complete the terminated portion of the contract by June 1996. The estimate of the total number of new and reworked units required (620) was based on an anticipated lowering of the RDU failure rate from 40 percent at termination to 27 percent for completion of the terminated units.<sup>4</sup> While there had been some improvement over the course of the contract in the RDU concentricity and harness failure modes, microphonics was the predominant RDU failure mode at termination and the prospect of microphonics improvement at that time was “hope rather than science.” (R4, tab 2381; R4, tab 2495 at 5001710; tr. 2/137-69)

7. At hearing, HMSC’s project engineer explained the need for 200 new RDUs to avoid an extended production period as follows:

[T]here’s growth in here of 200 RDU’s. And the way this was laid out was had we just repaired hardware and then failed, we still had an expected failure rate of RDU’s which would have then gone back to Raytheon again and there would have been iterating there as we kind of petered out on the RDU supply. Now, we looked at some of those projections and it would have driven our schedule way out.

So in looking for a more cost effective way to conclude the program, this is projecting adding in 200 additional new build, brand new RDU’s in this time frame, so that we can keep the line running at closer to the rate – our maximum rate which was around 40 at the time.

(Tr. 2/144)

8. The substance of the Delivery Forecast was included in the estimate at completion (EAC) section of HMSC’s 27 June 1995 request for equitable adjustment (REA) (R4, Vol. 62, tab 1 at 017219, Vol. 63, tab 1 at 017519, 017522, 017534). After the contracting officer allowed in part the incurred costs in the REA, HMSC on 12 December 1997 submitted a statement of “costs still claimed” for the REA. That statement included a total of \$3,283,349 for RDU direct material ETC costs consisting of

\$2,149,400 for the purchase of 200 new RDUs at \$10,747 each and \$1,133,949 for the rework of 411 failed RDUs at \$2,759 each.<sup>5</sup> (Ex. G-3 at 5002973, 5002981-82)

9. On 7 January 1999, the DCAA issued its audit report on HMSC's "costs still claimed." For the RDU direct material ETC cost, the auditor allowed two new RDUs at \$10,747 each and 390 reworked RDUs at \$1,058 each for a total of \$434,114. (Ex. G-4 at 14) The two new RDUs were allowed as replacements for two RDUs listed on the termination inventory as scrap. The 390 rework items allowed were the 390 failed RDUs that were at or awaiting shipment to Raytheon for rework when the contract was terminated. (*Id.*; Finding 5 above)

10. The auditor's RDU ETC allowance provided for rework and replacement of only those units that had failed up to the time of termination. It made no allowance for RDU failures in the period when the contract would have been completed. It assumed a 100 percent yield/zero percent failure rate on the 192 unproven units that were on hand at termination. It assumed a 100 percent yield/zero percent failure rate after rework on the 401 failed units awaiting rework or in engineering analysis at termination. *See* Finding 5 above. There is no credible engineering evidence supporting these assumptions. Considering the incurred 40 percent failure rate at termination, and the unresolved technical problems with the RDUs at that time, the auditor's RDU ETC failure rate assumptions were not reasonable. *See* Findings 1 and 6 above.

11. At hearing, the auditor questioned HMSC's rationale for the 200 new RDUs on the ground that: "there was a substantial number of Gimbal Barrels that needed to be reworked too so if that issue is considered . . . it wouldn't be necessary to buy these new [RDUs] when you could replace them at a lower cost if that break in production was eminent [sic]" (tr. 10/148-49, *see also* 12/94-95). HMSC's ETC costs included the rework of 376 gimbal/barrel assemblies, but there is no evidence of their repair/rework turn-around time, and, apart from the auditor's surmise, there is no evidence that their availability was otherwise the pacing factor for completion of the contract (ex. G-4 at 14).

12. The availability of RDUs, and not the availability of gimbal/barrel assemblies, was cited as the pacing item of production in HMSC's December 1994 EAC. That EAC was prepared for internal planning purposes before the contract was terminated. *See* Finding 4 above. Moreover, the Government's 6 May 1996 technical report on the post-termination EAC also stated that the availability of RDUs was the pacing item for production at the time of termination (ex. G-25 at 9).<sup>6</sup> On this evidence, we find that the availability of RDUs was the pacing item for completion of the contract at termination, and that there is no substantial evidence that availability of gimbal/barrel assemblies was a concurrent pacing item.

13. HMSC's May 1995 Delivery Forecast showed 351 guidance sections scheduled for completion in the last ten months of production (R4, tab 2381 at 5000862). These would have employed reworked RDUs, and at HMSC's estimated rework and new purchase failure rates, 101 of them could be expected to fail in the last ten months of production, and 119 new RDUs would be required to assure their replacement without a ten-month rework delay  $((351 \times .29)/.85)$ . *See* Finding 6, footnote 4 above.

14. HMSC's RDU ETC included the cost of 200 new RDU's at the \$2,149,400 price quoted by Raytheon. This was the minimum number of units that Raytheon would quote. *See* Finding 4 above. The Government does not challenge the reasonableness of the quoted price (tr. 10/150). The estimated cost of keeping the production line open was approximately \$500,000 per month. Considering that reworked RDUs failing in the last month of scheduled production might not be returned from a second rework for another ten months (*see* Finding 3 above), the purchase of 200 new RDUs to assure completion of guidance section production without that delay was the less costly means of completing the contract. (Tr. 2/161-63)

15. For the ETC reworked units, HMSC claimed the average unit cost in Raytheon's 31 August 1994 quote. The auditor allowed the average unit cost (as he computed it) for the RDUs reworked in 1992. At hearing, when asked whether the 1992 incurred rework prices would "still be good in 1995," the auditor answered "I'm not certain of that but . . . nonetheless we felt that the actual history and actual costs that were incurred were the best indicator of the future cost." (Ex. G-4 at 8; tr. 10/83-87) The auditor also opined with respect to the August 1994 quotation that "typically they are able to negotiate a lower price than that initial quotation" (tr. 10/150).

16. We are not persuaded by the auditor's testimony that the incurred cost for reworking 26 units in 1992 was the best indicator of the rework cost that would be incurred in 1995 and beyond. The August 1994 quotation was based on an analysis of the material requirements of 54 units "returned to date." Also as noted in that quotation, the RDU was not in current production, the use of "some new vendors" would be required, and the cost of qualifying the new vendors was not included in the proposal. *See* Finding 3 above. The August 1994 quotation was in effect a minimum price, and the actual cost of the rework to HMSC might be greater. Moreover, we give no weight to the auditor's opinion that "typically" a lower price would be negotiated. There was nothing "typical" about the rework at issue here, and HMSC had minimal bargaining leverage. Raytheon had built the RDUs in accordance with the TDP, the technical problems had still not been fully resolved, and there is no evidence that any other manufacturer was willing to undertake the rework of Raytheon's product in these circumstances. On this record, we find that the August 1994 quotation was a better indicator of the RDU ETC rework cost than the 1992 incurred cost on which the auditor relied.

17. The auditor did not question any of the indirect cost rates claimed in HMSC's 12 December 1997 statement of "costs still claimed." The rates applied therein to the direct material ETC costs were (i) 8.80 percent material burden, (ii) 8.87 percent "performance" overhead (POH), and (iii) 2.09 percent G&A. (Ex. G-3 at 5002997-5003001; ex. G-4 at 7-8; tr. 10/167) Raytheon's brief on the remand applies the EAC indirect cost rates (*i.e.*, the rates for the entire contract performance period) to the direct material ETC costs (app. br. at 35 n.18). We find that the ETC rates are the applicable rates for the direct material ETC costs.

DECISION

On the findings above, we conclude that Raytheon has proven that to complete the contract in the most cost-effective manner, it would have needed to purchase 200 new RDUs to avoid a potential extended performance for rework, that it would have incurred rework costs for at least 411 units (including the 390 units awaiting rework at the time of termination), and that it would have incurred the unit rework cost quoted to it in August 1994. Therefore, Raytheon is entitled to a further price adjustment in the full amount of the difference between the auditor's allowance (\$434,114) and its claimed RDU direct material ETC cost (\$3,283,349), plus the allocable ETC indirect costs (*see* Finding 17) and profit at the 12 percent rate allowed in our previous decision. *See* 01-1 BCA ¶ 31,245, Finding 39 at 154,204. We compute the adjustment as follows:

(i) Additional RDU Direct Material ETC Cost.....	\$2,849,235
(ii) Material OH @ 8.8% of (i).....	250,733
(iii) Performance OH @ 8.87% of (i) & (ii).....	274,967
(iv) G&A @ 2.09% of (i), (ii) & (iii).....	70,536
(v) Profit @ 12% of (i), (ii), (iii) & (iv).....	413,457
(vi) Total.....	\$3,858,928

Our decision of 8 January 2001 is amended to increase the price adjustment for Contract No. DAAH01-88-C-0809 by \$3,858,928 from \$7,421,271 to \$11,280,199. Since the added price adjustment is for ETC costs that were not in fact incurred, no interest is due on the added adjustment, and the added adjustment is a basis for payment only to the extent provided for in the convenience termination settlement of the contract.

Dated: 6 August 2003

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MONROE E. FREEMAN, JR.  
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  
Vice Chairman  
Armed Services Board  
of Contract Appeals

NOTES

<sup>1</sup> Raytheon at this time was subcontractor to HMSC. It did not acquire HMSC and become the guidance section prime contractor until after the production contract was terminated.

<sup>2</sup> The total rework cost for those units was \$29,320. The auditor's calculation of \$28,556 as the total rework cost omitted one of the items which had a rework cost of \$764. *Compare* exhibit G-28 at I-8e-5 with the 1811-A reports in the same exhibit at I-8e-6 and I-8e-7 for part no. 13220401.

<sup>3</sup> The spares contract for 27 guidance sections had been completed in February 1994. *See* 01-1 BCA ¶ 31,245, Finding 18 at 154,201.

<sup>4</sup> The HMSC engineer's estimate of the total number of reworked or new RDUs required to complete the contract assumed yields of 67, 71 and 85 percent respectively on 191 unproven RDUs on hand at termination, 420 failed RDUs to be reworked, and 200 new RDUs to be purchased. The overall yield in this estimate was 73 percent (595/811) and the overall failure rate was 27 percent. (R4, tab 2381 at 5000863)

<sup>5</sup> The reduction in claimed RDU ETC rework items from 420 to 411 was due to HMSC's determination that only 411 items could be attributed to the defective TDP. *See* Ex. G-3 at 5002981, paragraph (2).

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This report states in relevant part: “RDU Delivery: Hughes was limited in the quantity of Guidance Sections it was able to complete by the available RDU’s. If the repaired RDU’s or the ‘new buy’ RDU’s were not received in time to support production then the delivery rate was affected” (ex. G-25 at 9).

I certify that the foregoing is a true copy of the Opinion and Decision of the Armed Services Board of Contract Appeals in ASBCA Nos. 50166, 50987, Appeals of Raytheon Company dba Raytheon Systems Company, rendered in conformance with the Board's Charter.

Dated:

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