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~~TOP SECRET UMBRA~~ SECTION 2 OF 3

FOR DIRECTOR

EXTENSIVE CONSIDERATION OF THE PAST AND ANTICIPATED FUTURE TRENDS
IN COMMUNICATIONS SECURITY SYSTEMS

HAS LED DSD TO CONCLUDE THAT A SUBSTANTIAL
INCREASE IN COMPUTER SUPPORT IS NECESSARY IN ORDER TO MAINTAIN
DSD'S CRYPTANALYTIC CAPABILITY AT AN EFFECTIVE LEVEL.

THE COST OF THIS PROJECT IS ESTIMATED TO BE 12.350M, AND UNDER
THE PROCEDURES APPLICABLE TO MAJOR PROJECTS OF ESTIMATED EXPENDITURE
EXCEEDING 10.000M, IT IS NECESSARY THAT APPROVAL IN PRINCIPLE BE
GIVEN BY CABINET.

CONSIDERATION OF THE ISSUES

DURING THE LAST 10 YEARS THERE HAVE BEEN SIGNIFICANT DEVELOPMENTS
IN THE APPLICATION OF MODERN ELECTRONIC AND COMPUTING TECHNOLOGY TO
COMMUNICATIONS SECURITY. THESE DEVELOPMENTS HAVE RECENTLY BEEN
FURTHER STIMULATED BY AN INCREASING GENERAL AWARENESS OF THE POWER
OF CRYPTANALYSIS. PROGRESSIVE IMPROVEMENTS IN COMMUNICATIONS
SECURITY DISCIPLINE ARE BEING ACHIEVED

HAVE ALREADY PLACED SEVERE
STRAINS ON DSD'S COMPUTER RESOURCES, AND HAVE RESULTED IN SOME
REDUCTION IN THE TIMELINESS AND FLEXIBILITY OF CRYPTANALYTIC
PROCESSING.

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MORE RECENTLY, NEW COMMUNICATIONS SECURITY DEVICES, WHOSE ANALYSIS DEMANDS WORK FACTORS WELL BEYOND THE REACH OF DSD'S EXISTING COMPUTER RESOURCES HAVE BEEN PLACED IN SERVICE

IN ADDITION, THERE IS A TREND TOWARDS THE DEVELOPMENT OF INDIGENOUS (NON COMMERCIAL) SYSTEMS.

WILL FURTHER THREATEN DSD'S SIGINT CAPABILITY IN THE YEARS AHEAD.

THE URGENCY OF THE REQUIREMENT IS ILLUSTRATED BY TRENDS IN THE USE OF THE CYBER 175, WHERE THE RATE OF GROWTH IN CRYPTANALYTIC COMPUTATION HAS BEEN SUSTAINED AT 64 PERCENT PER ANNUM OVER THE 18 MONTHS TO JANUARY 1983. THE CYBER IS NOW SATURATED, AND A PROGRESSIVE CURTAILMENT OF SOME CRYPTANALYTIC SUPPORT IS BEING OBSERVED.

IT HAS BEEN DETERMINED THAT THE MAINTENANCE OF DSD'S CRYPTANALYTIC CAPABILITY REQUIRES THE ACQUISITION OF A SPECIALISED COMPUTER OF AT LEAST 10 TIMES THE POWER OF THE CYBER 175.

A THOROUGH INVESTIGATION OF ALTERNATIVES HAS SHOWN THAT THE ONLY APPROPRIATE COMPUTER IS THAT MANUFACTURED BY CRAY RESEARCH INC., COMBINED WITH CERTAIN SUPPORT EQUIPMENTS MANUFACTURED BY CONTROL DATA AND NETWORK SYSTEMS CORPORATION. THIS CONCLUSION WAS REACHED ON BOTH COST/PERFORMANCE GROUNDS AND BECAUSE THE SYSTEM SOUGHT IS BASED ON THE "STANDARD" CRYPTANALYTIC COMPUTER USED IN THE U.S.

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AND U.K., WHICH WILL ALLOW DSD TO ACQUIRE AT NO COST, A VERY LARGE
QUANTITY OF SPECIALISED CRYPTANALYTIC SOFTWARE.

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