

~~SECRET~~

DD/S&T# 1606-68

AQUILINE

16 Apr 1968

Ryef

Executive Registry
68-1876

ADM-12.6

MEMORANDUM FOR: Executive Director-Comptroller
SUBJECT : Revised AQUILINE Program

I. This memorandum contains recommendations for concurrence. The recommendations are contained in paragraph IV.

II. Program Review

A. A comprehensive review and evaluation of the AQUILINE program objectives, accomplishments to date, current status, and future prospects has been conducted by the Directorate of Science and Technology. This review has included extensive consultations with the Science and Technology Panel. As a direct result of this activity, a redirection of the program appears highly desirable in order to achieve significantly earlier availability of a truly operational system. An outline of the recommended program revision, together with the supporting rationale, will be developed in this memorandum.

B. Program History Summary. The program was initiated in FY 1966 with a 96K study effort to analyze system requirements, vehicle performance requirements, and provide preliminary designs.

1. During 1967 this development program was hardened and broken into three phases:

a. Phase 1 (target date August 1968). Design, fabricate and test a small vehicle with two cycle engine to verify concept feasibility.

AQUILINE

~~SECRET~~

GROUP 1
Excluded from automatic
downgrading and
declassification

~~SECRET~~
AQUILINE

b. Phase II (target date December 1969). Design, fabricate and test a small airplane with improved subsystems and a four-cycle engine. Phase II was to demonstrate a limited operational capability to

c. Phase III (target date mid-FY 1972). Design, fabricate and test a small bird configured aircraft with full operational capability to .

III. The Revised Program

A. In Phase I four test flights with vehicle #1 verified launch, recovery and general handling feasibility. Vehicle #2 crashed on initial flight in January 1968. A wiring error was established as the cause. A thorough program review was then conducted both in the Directorate and with the S&T Panel to review concept feasibility and intelligence value against current and projected requirements. The Panel was enthusiastic but saw no advantage in proceeding with Phase II. The Directorate review established a series of intelligence requirements which could not be provided by other programs.

1. The Panel concluded that base technology gave assurance there was no technical reason not to start immediately on Phase III.

2. Phase II would not have produced a bird-like vehicle and would therefore have had a significantly lower order of penetration survivability.

3. Proceeding directly to Phase III would, by establishing a single well-defined goal, be more efficient from a cost standpoint.

B. The recommended revised development program will produce the ultimate vehicle. Initial range of

~~SECRET~~
AQUILINE

will be extended to [] simply by microminiaturizing proven subsystems. The airframe would not need redesign

1. The target flight of the first bird-like vehicle with the ultimate degree of penetration survivability and [] range extending as payload weight is reduced would be scheduled for April 1970 -- more than two years ahead of the previous target date.

C. Program Milestones. In addition to technical milestones, two others have been incorporated to facilitate over-all management decision:

1. Six months from program start there will be a Preliminary Design Requirements Document permitting a stop-go decision on the basis of capabilities firmly predicted and specified in this document.

2. There is a design release nine months from start after which the remaining program could go for competitive bids if desirable.

D. Revised Costs.

1. 1.3M of the FY 1968 2.6M will be redirected to the air-bird system.

2. 1.2M of the FY 1969 old Phase II flight testing and support would be similarly redirected.

3. Proforma cost schedule for [] bird-like vehicle capability:

(In Millions)

<u>FY 66</u>	<u>FY 67</u>	<u>FY 68</u>	<u>FY 69</u>	<u>FY 70</u>	<u>Total</u>
[]					

Minima
Maxima

These figures include:

a. Basic vehicle and subsystem development costs.

AQUILINE

b. Ground Control Station prototype (limited operational) development costs.

c. Payload development costs for those items in paragraph above.

4. It is anticipated that expenditures will peak in FY 1969 beyond that year's previously established budget level of [redacted] It will then be required to increase funds in that year with a corresponding reduction in funds required in FY 1970 in order to meet cash flow requirements. Total costs through FY 1970 would remain as shown. A Management option that is available would be to slip the first flight milestone from 1 April 1970 to approximately 1 July 1970 in order to allow total application of FY 1970 funds to the first flight milestone.

IV. Recommendations

A. The following actions are recommended as soon as possible in order to start the recommended AQUILINE Operational System development:

1. Authorize FY 1968 prime contract reprogramming.
2. Authorize four-cycle engine development.
3. Authorize Loran navigation receiver development.
4. Authorize 5 mc video recorder development continuation.
5. Approve FY 1967 McDonnell/Douglas overrun.

B. It is noted that the Executive Director-Comptroller has approved 4 and 5 above.

[redacted]

CARL E. DUCKETT
Deputy Director

for
Science and Technology

CONCUR:

[redacted]

W.E.S

Executive Director-Comptroller

22 Apr. 68

AQUILINE

TRANSMITTAL SLIP		DATE 22 April 1968
TO: DD/S&T		
ROOM NO. []	BUILDING HQ	AA
REMARKS: Carl: Please see DDCI's comment. The stop-go decision to which he refers should be made by DDCI or DCI. Please keep this in mind and arrange a briefing at the appropriate time.		
[] LKW		
FROM: Executive Director - Comptroller		
ROOM NO. []	BUILDING HQ	EXTENSION 6767

FORM NO. 241
1 FEB 55

REPLACES FORM 36-8
WHICH MAY BE USED.

(47)

MEMORANDUM FOR: Exec. Dir.

DDCI comment:

Paragraph III C. 1. also provides for one more backward glance. By that time the CCPC and Wood studies should provide additional basis for consideration.

I say let's go ahead with the revised program and look once more at six months from program start as suggested.

/s/ T

22 Apr 68
(DATE)

FORM NO. 101
1 AUG 54

REPLACES FORM 10-101
WHICH MAY BE USED.

(47) 2

MEMORANDUM FOR: Admiral Taylor

The attached memorandum was prepared at my request following our briefing of last week on Project AQUILINE. I am inclined to authorize Carl to proceed along the lines he recommends if you agree that this is the right course of action. I think we should not be too concerned at this point in time about the cash flow requirements mentioned in paragraph III. D. 4. We can cross this bridge when we come to it.



L. K. White

19 April 1968

(DATE)