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PROGRAM PLAN
for
NAVOCEANO PARTICIPATION



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PX-15 Gulf Stream Drift Mission

PROGRAM PLAN
for
NAVOCEANO PARTICIPATION

5 February 1968

Report No. OSR-68-3

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1.0 Introduction

By mutual agreement, the United States Naval Oceanographic Office (NAVOCEANO) and the Grumman Aircraft Engineering Corporation (Grumman) will conduct the PX-15 Gulf Stream Drift Mission. This document specifies the work to be accomplished and serves as the basis for a written agreement between NAVOCEANO and Grumman. Each has an obligation to support the mission as follows:

1.1 NAVOCEANO will provide: *Contract - ACOR*

- 1.1.1 Surface support ships to track and communicate with the PX-15, provide surface navigation and conduct synoptic and supporting oceanographic measurements.
- 1.1.2 Instrumentation to conduct scientific oceanographic studies both on the PX-15 and surface support ships.
- 1.1.3 Personnel to perform the scientific experiments and operate the surface support ships.
- 1.1.4 Grumman with a final mission report and a complete set of the scientific data obtained by NAVOCEANO's scientific instrumentation as soon after the completion of the mission as is practicable. (Grumman will be able to use any of this data in conjunction with commercial follow-on uses.)
- 1.1.5 During the NAVOCEANO final integration testing, the support ship will tow and work with the PX-15 as required.
- 1.1.6 The support ship will:
 - 1.1.6.1 Tow or transport the PX-15 from West Palm Beach to the mission starting point.
 - 1.1.6.2 Work with the PX-15 during the Gulf Stream mission and tow as required.
 - 1.1.6.3 Tow or transport the PX-15 back to West Palm Beach.

1.2 Grumman will provide:

- 1.2.1 PX-15 with adequate consumables and the operating crew.
- 1.2.2 Mission coordination.

2.0 APPLICABLE DOCUMENTS

This program plan takes precedence over any and all documents listed herein or used in connection with the PX-15 Gulf Stream Drift Mission. The following documents are listed for reference only.

- 2.1. Correspondence - these served to establish the agreement between NAVOCEANO and Grumman.
 - 2.1.1 Grumman letter to NAVOCEANO, OS-67-160, 31 August 1967, PX-15 Gulf Stream Drift Mission.
 - 2.1.2 NAVOCEANO letter to Grumman, Code 9120-hh Serial 8079, 28 September 1967, with attachments.
 - 2.1.3 Grumman letter to NAVOCEANO, OS-67-190, 17 October 1967.
- 2.2 Other - Grumman is committed to Dr. Jacques Piccard to conduct this mission provided outside support can be obtained. This commitment is included in the following:
 - 2.2.1 Agreement, 1 February 1966, between Grumman and Jacques Piccard.
 - 2.2.2 Agreement, 6 October 1966, between Grumman and Jacques Piccard, PX-15 Construction Contract, PO 4-56120.
 - 2.2.3 Telex TOL-67-291, 11 October 1967.
 - 2.2.4 Report No. OSR-68-4, Technical Proposal, Inclusion of NAVOCEANO Scientific Instrumentation on the PX-15.

3.0 OBJECTIVE

This program plan defines the scope of efforts required of NAVOCEANO and Grumman in order to achieve the scientific objectives of this mission including the following:

- 3.1 Detailed definition of the scientific objectives.
- 3.2 Preparation of a mission profile to meet the scientific objectives.
- 3.3 Selection, design and installation of the instrumentation required to meet the scientific objectives.
- 3.4 Determination of the operating parameters within which the scientific objectives will be met utilizing the capabilities of the PX-15
- 3.5 Establishing the PX-15 acceptance criteria.
- 3.6 Defining mission planning requirements, including:
preparation, mission and post mission; logistics; personnel and support.
- 3.7 Provide a definitive work schedule.

4.0 TASK STATEMENT4.1 NAVOCEANO will provide the following:

4.1.1 A detailed description of their scientific objectives. These will be limited to the following primary areas:

4.1.1.1 Geological survey between West Palm Beach, Florida and Cape Hatteras, North Carolina.

4.1.1.2 Biological studies beyond Cape Hatteras.

Note: In each instance, the other scientific objective will serve as the secondary objective of that which is prime.

4.1.2 Preparation of a detailed scientific mission profile for the entire Gulf Stream Drift Mission within the capabilities of the PX-15.

4.1.2.1 Provide scientific mission alternates.

4.1.2.2 Establish scientists' time lines, and surface support scientific functions and assignments.

4.1.3 Oceanographic data on the Gulf Stream which is pertinent to this mission, with particular emphasis on the velocity of the stream as it might affect the desired mission profile.

4.1.4 Names and qualifications of the personnel to be used to support this mission, including those who will perform as follows:

4.1.4.1 NAVOCEANO Project Manager

4.1.4.2 NAVOCEANO project scientists on the PX-15.

4.1.4.3 NAVOCEANO scientific observers and mission support crew on the surface support ships to track, navigate and communicate with and for the PX-15.

4.1.4.4 Personnel to assist in the preparation of this mission's operational plan, i.e. - provide NAVOCEANO's scientific objectives, mission profiles, pertinent oceanographic data, shipping lane clearances and arrange for surface and air support, ~~PX-15 acceptance~~ transfer of government furnished equipment (GFE) to be used on the PX-15 and any other planning which may be needed to contribute to this mission's success.

- 4.1.5 Instrumentation with which to perform their scientific experiments. In addition to providing the instrumentation with sufficient lead time to allow proper integration and test prior to this mission, NAVOCEANO will provide a detailed specification for each instrument to be used which will include its physical characteristics, size, weight and cg. location, its performance characteristics, and operational requirements, power supply, outputs, recording requirements and any other special considerations which may be required for successful operation on the PX-15.

NAVOCEANO will also supply such instrumentation as they may need for their surface and air support with sufficient lead time to be installed and tested by them prior to this mission. They will supply all pertinent data concerning their operational use to Grumman in time for use in the preparation of this mission's operational plan.

- 4.1.6 Financial assistance, as required, to integrate their equipments on the PX-15 and provide for the support of their personnel, ships and equipment for the duration of this mission.

4.2 Grumman will provide the following:

- 4.2.1 The mission plan which will describe in detail the entire mission, including preparatory requirements, mission requirements and post mission requirements.

4.2.1.1 Preparatory Requirements include the following:

- a. Preparation of such documentation which will define the effort to be completed prior to the mission.
- b. Provisioning of the PX-15 with all consumables necessary for the crew and scientists' life support and comfort.
- c. Conducting psychological and physiological tests of the PX-15 crew and scientific personnel.
- d. Charging of the power supply, pneumatic and hydraulic systems, providing sufficient stores for recording scientific data.
- e. Crew and scientist training in normal operation of the PX-15 and emergency procedures.
- f. Final subsystems check.

4.2.1.2 Mission Requirements include the following:

- a. Preparation of a detailed operational plan for the entire mission.
- b. Establish PX-15 crew time lines, and surface support functions and assignments.

- 4.2.1.2 c. Provide mission abort criteria.
- d. Provide PX-15 crew and scientist rescue procedure.
- 4.2.1.3 Post Mission Requirements include the following:
 - a. Documentation of the mission accomplishments, including an evaluation of the PX-15 and its instrumentation, the scientific instrumentation and the crew and scientists performance.
 - b. Conducting psychological and physiological tests of the PX-15 crew and scientific personnel.
- 4.2.2 Preparation of design data required to install the scientific instrumentation being provided by NAVOCEANO including:
 - 4.2.2.1 Installation layouts, design details, interface drawings, functional diagrams and interface control drawings required to modify, adapt, install and operate the instrumentation and its supporting gear in the PX-15.
 - 4.2.2.2 Detail test requirements and procedures necessary to integrate these equipments with the PX-15 systems.
- 4.2.3 Fabrication of mountings and modification of existing structure as necessary to install the NAVOCEANO equipments on board the PX-15.
- 4.2.4 Installation of the NAVOCEANO equipments.
- 4.2.5 Assistance in the functional check out of the NAVOCEANO equipments.
- 4.2.6 Mission direction
- 4.2.7 Coordination and initiation of publicity, preparation of informational materials, and response to requests from all public (mass) media in close cooperation with NAVOCEANO, including movie coverage, book rights and still pictures, for a period of time not to exceed 18 months after the completion of the mission.

5.0

SCHEDULE

This schedule, Figure 1, shows the "Gulf Stream Drift Mission" tentative starting date of 15 February 1969. In order to meet this mission date, interim specific milestone dates must also be met.

- 1 March 1968 - Receipt of NAVOCEANO data - this would include the detailed specifications for all the scientific instrumentation to be furnished by them, their desired mission profile and names of cognizant personnel.
- 1 August 1968 - Receipt of NAVOCEANO scientific instrumentation and support equipments.
- 15 November 1968 - Start of Gulf Stream Drift Mission training.

PX-15

GULF STREAM DRIFT MISSION SCHEDULE

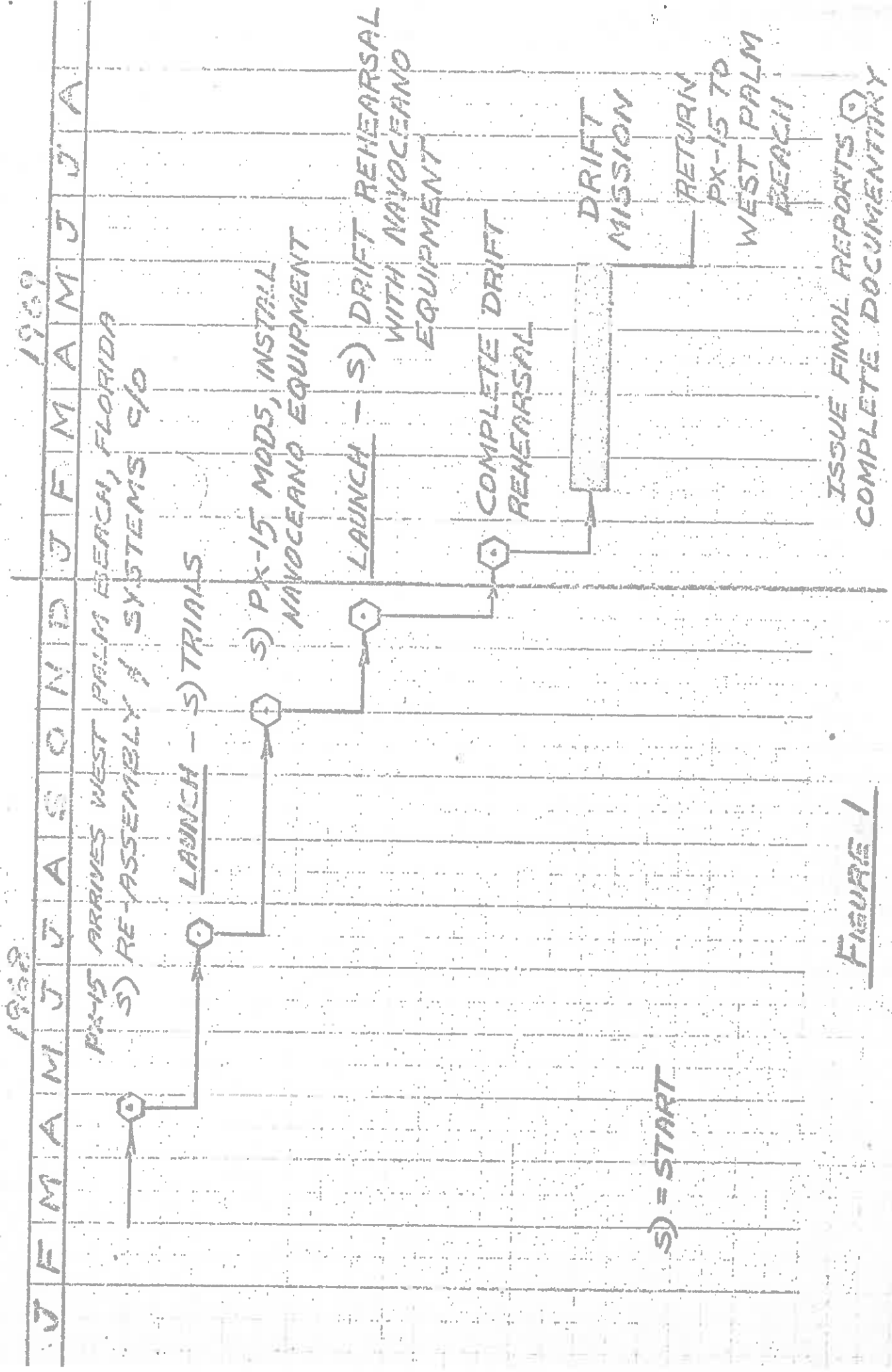


FIGURE 1

ISSUE FINAL REPORTS
COMPLETE DOCUMENTARY

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GRUMMAN AIRCRAFT ENGINEERING CORPORATION
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