~~Top Secret~~ [redacted]

During your short visit with us this afternoon, we would like to show by our discussions and our hardware displays the role of the Laboratory in support of and in extending over a period of about 20 years, the Navy mission through the use of spaceborne systems. Our history encompasses conceptual, developmental and operational use of space in support of the Navy Communications, Navigation and Intelligence (surveillance) as well as a broad range of basic research. While you will see hardware associated with several of these fields of endeavor, it is specifically the arena of Intelligence Collection (Surveillance) where I direct my remarks. In 1958, I advanced the initial concept for placing a simple omnidirectional Radar-Receiving system in orbit and reading it out in real time at sites around the Sino Soviet Bloc. The program was approved and launched in 1960 just after the U-2 incident and has been increasingly successful with 27 spacecraft successfully orbited since this pioneering first effort for the nation in Overhead Signal Intelligence collection. Not only have the spacecraft been designed and built at NRL but the special purpose ground terminals have also been prepared here and deployed by our personnel. The Naval Security Group has been responsible for manning the operational sites and continues to this day with the current and the future systems now being developed here.

SLIDE # 1:

Beginning at the top - center, we have two spacecraft portrayed - these are flying about [redacted] miles apart and are equipped

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with nearly identical receiving systems so that they both can intercept the signals directed toward them as the Target #1 scans normally. The blue data is transponded in real time through data links to the ground site in . At the same time, Data from Target #2 (an ABM Emitter at Sary Shagan) is illuminating the spacecraft as it scans. The Green Data is similarly passed to the site through the same time shared data link. The Target #3 is a ship in the Black Sea with a emitter that similarly illuminates the spacecraft as the emitter scans. The RED Data from this ship mounted is time shared along with the data from the other two Targets and received at the ground station. Since the ship is mobile, it must be treated in a priority manner at the station or the data will be obsolete by the time the data is couriered back to NSA. Using the small data processor systems that NRL has engineered for the site, it is possible to isolate the data and geolocate the ship as shown in the next slide. Notice that the ship locations are then transferred to the FOSIF for dissemination to Navy Ocean Surveillance users.

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LOP #2...LOP #3, etc., until a convergence occurs on the right hand side of the flight line, this is the Location FIX that is sent by teletype message to the O/S network. TARGETs #1 and #2 could also be geolocated but since they are not normally mobile, this task is more properly done at NSA.

The POPPY program has been highly successful and responsive to the most urgent of the National Priority Intelligence collection requirements. Over the years, POPPY has remained the leader by a wide margin for making the initial intercept on new or unusual systems. Among the outstanding successes is the discovery of the SA-6 Weapon System and its deployment into [redacted] and a long list of firsts in the ABM arena. It was in 1968 that ADM MOORER, CNO, gave us our mandate to locate and report ships of the Soviet Fleet and since that time the program has continued to exploit its capability to do ocean surveillance until today at [redacted] there are on-site data processing systems that are tasked regularly to locate ships at sea as well as the other high priority emitters ashore. Total of over 6000 locations reported during July 1974 with nearly 4000 of them being shipborne.

Let us turn our attention to the timeliness of reporting these ship locations.

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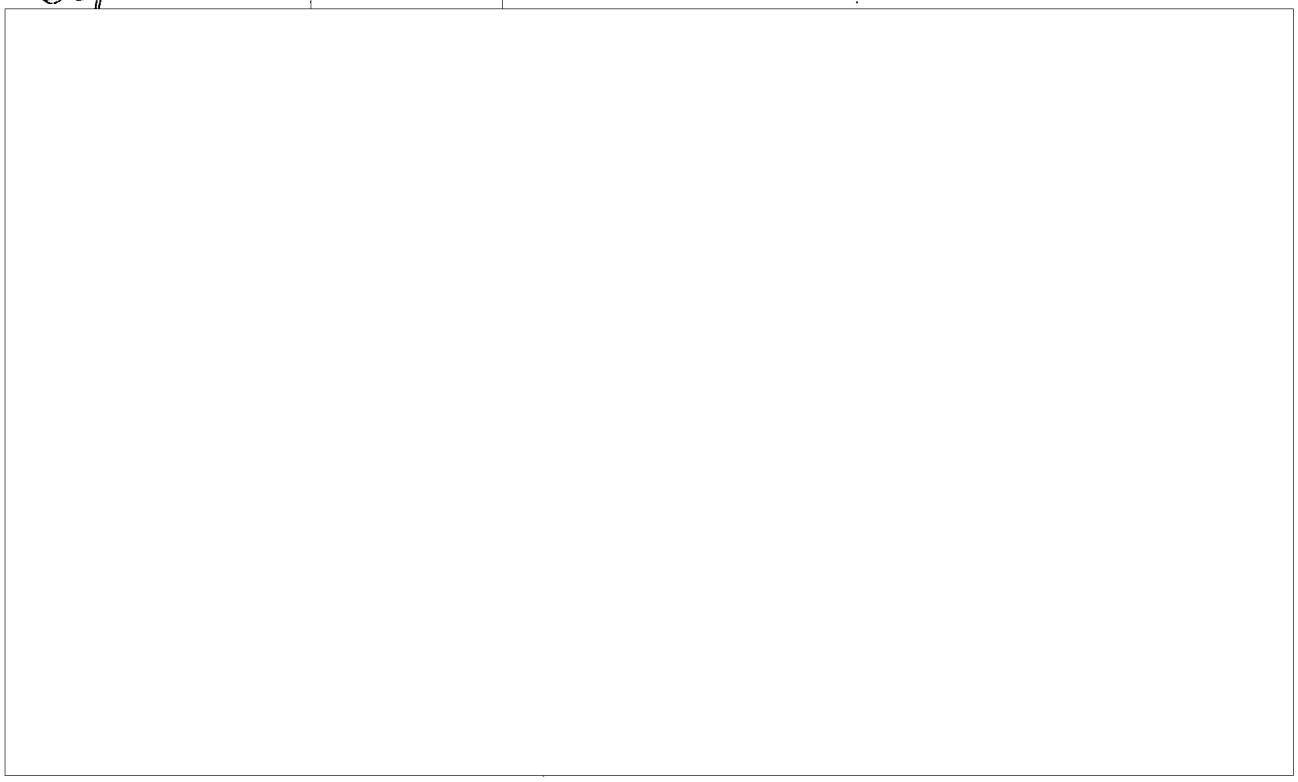

SLIDE #3 & #4 show the ship tracks in Med and toward the Red Sea and in the Indian Ocean transfer respectively made by POPPY during the times shown. This takes us through the discussion of the current operational POPPY System and leads us

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In summary the POPPY Program Capabities are:

Timely Discovery of UNKNOWN emitters

Technical assessment of new emitter capabilities and functions

Electronic Order Of Battle Surveillance

Location

Fingerprinting for Hull Correlation

Parametric measurement of Radar Emitters:

Signal Level measurement

[redacted]

Antenna Scan Characteristics

Slide # 5: NRL Provides in POPPY:

The initial conceptual generation and its evolution

Program Definition

Total System-Level Management, engineering and integration

Hardware & software design and development for space and ground systems.

Integration and Launch

Operational Evaluation periodic

Operational Exploitation and/support Logistic of the system.

[redacted]

In 1972 the decision was made to build a new Ocean Surveillance system one the POPPY System experience and talent base. Thus NRL was given responsibility for Designing the System including both the Space components and the ground station data acquisition and control systems. This new program is different in several significant ways from the forrunner POPPY:

It is a program of four launches placed in a phased orientation so as to optimize the revisit of the ocean areas above 30°N Latitude (Less than one hour maximum gap between visits of the satellites at all points on the earth north of 45°N. Lat. as shown in the next SLIDE) # 6.....

With [redacted] sites for data collection and processing the time coverage of the world is shown in SLIDE # 7. This is given in minutes/day. The sites will be in [redacted] from POPPY configuration and adding the [redacted]

The predicted locational accuracy is dependant on length of data observation and many other things [redacted]

[redacted]

SLIDE # 8: [redacted]

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