(U) BLAST FROM THE PAST: YRS IN THE BEGINNING

(U//FOUO) YRS has recently unearthed mountains of historical records; everything from photos to fascinating 40-year old briefings. To celebrate the amazing work the YRS Chief of Staff has accomplished, through sorting and archiving these valuable documents, The Northwest Passage will begin a series of monthly historical tidbits. We will start at the beginning with a brief history of the Yakima Research Station….

(C//REL) Almost 10 years passed between the launch of the first Soviet (MOLNIYa-I) and INTELSAT communications satellites (EARLY BIRD) in 1965 and the time Yakima Research Station (YRS) – built to respond to this emerging technology -- reached full operational capability in 1974. As we inch closer to our 40th anniversary in 2014, YRS is pleased to share some of its unique history with our newsletter audience in a series of articles that highlight various aspects of our operations, activities, and environment.

(S//SI//REL) In 1966, NSA established the FROSTING program, an umbrella program for the collection and processing of all communications emanating from communication satellites. FROSTING's two sub-programs were TRANSIENT, for all efforts against Soviet satellite targets, and ECHELON, for the collection and processing of INTELSAT communications. Two years later, approval was given for FROSTING's West Coast project (JACKKNIFE) to begin initial site surveys and Mr. Jack G. Daniels (later to become the second YRS Chief of Station) was designated JACKKNIFE Project Manager.

(U//FOUO) YRS Construction Site, July 1971.

(S//SI//REL) Several locations were considered in addition to the site eventually selected on the Yakima Firing Center (later renamed Yakima Training Center) in south central Washington. Alternate locations were near the town of Yelm, Washington, rejected because of anticipated electromagnetic radio frequency interference (EMI/RFI) from the proposed SAFEGUARD antiballistic missile system to be installed nearby, and near Stevenson, Washington, free of radio interference, but too far from sizeable population centers to support the assigned workforce. The fourth potential site was near Oakridge, Oregon in the Willamette National Forest, also rejected when assessed to be affected by EMI and RFI from the network of microwave communications crisscrossing the valley. In October 1970, the Department of Defense formally approved the Yakima Firing Center as the location for the JACKKNIFE facility.

(U//FOUO) Ground Breaking Ceremony: L to R, Charles Cowardin, NSA; Richard Le-Boeuf, DIO YFC; Morris Johnson, Post Engineer, YFC; LTC Mervin Emmel, Deputy Commander, YFC; Jack Daniels, NSA; Richard Schmidt, NSA.

(U//FOUO) Ground was broken for YRS on 23 July 1971 and the first two appointments were announced -- Arthur J. Newman, Chief of Station, and John Markland, Security Officer. NSA took occupancy of the operations building on 18 December 1972. The Yakima Herald Republic subsequently ran an editorial on 21 December that read, "We in the Yakima area may never have more than a vague idea what goes on inside that new facility at the Yakima Firing Center….Essentially all that can be told is that the facility will be engaged in various forms of communications security research…. Employees' families will begin moving into the Yakima area next June… that means relatively high-salaried individuals making a substantial payroll boost to the entire area. It is altogether a welcome addition to our community."

(U) YRS IN THE BEGINNING (CONT.)

(C//REL) In July 1973, Lt. General Phillips (DIRNSA/CHCSS) visited YRS and Messrs. Newman, first Chief of Station, and Jack Daniels, Deputy Chief of Station and Chief of Operations, began their tours of duty and from then on, employees continued to trickle in. In January, the Communications Center and Maintenance organization began round-the-clock operations. In February, TOPCO (Terminal Operations Control in then G8) began 24/7 operations and the FROSTING program was underway. The summer of 1974 was significant for areas other than operations. YRS personnel formed a softball team and entered the establish City of Yakima league. They were the first team in the history of the league to go through the season undefeated. Also in 1974, a contest was held to design a station crest for YRS. Twenty designs were submitted by YRS personnel and voting was by secret ballot. The winning design was in use until 2008.

(S//SI//REL) When YRS (SIGAD USF-787) reached full operational capability on 4 October 1974, it represented a capital inv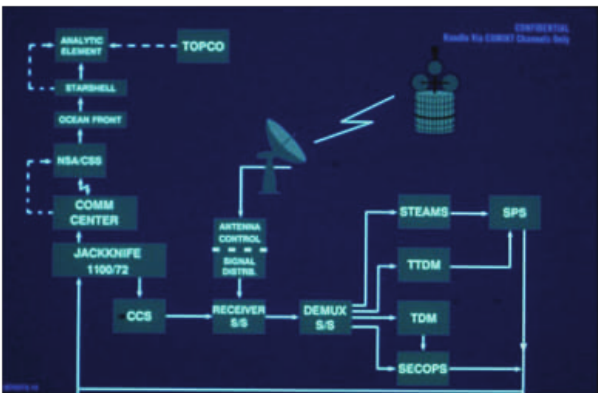estment of approximately $21.3 million and had an authorized strength of 95 people, with an on-board strength of 89. The mission was "to collect, process and forward selected International Common Access telegraphy voice, and facsimile signals relayed over the POR satellite to NSA for analysis and reporting." The station's collection capability comprised:

(U//FOUO) 30-Meter Antenna Installation.

(C//REL) JACKKNIFE Basic System Diagram at FOC.

- Single 30-meter parabolic dish feed antenna
- Front-end system consisting of two quads of five manual receiver and two quads with four automatic receivers, 30 voice channel demodulators (VCDMs), 64 teletype demodulators (TTDMs) and two Signal Processing Subsystems.
- Single Word Forming Buffer
- Single Communications Handler Subsystem
- Two Computer Control Subsystems
- Single UNIVAC 1108 mainframe computer, which also served as the message processing system.

(U//FOUO) YRS Operators in the Early Days.

(U) YRS IN THE BEGINNING (CONT.)

(U//FOUO) Aerial view of Project JACKKNIFE, showing the main and support buildings under construction, May 1972

(S//SI//REL) In addition to the major components above, the JACKKNIFE mission was augmented with a voice collection effort consisting of 16 audio records. The original collection, analysis, and processing configuration also included an analysis subsystem known as STEAMS (System Test, Evaluation, Analysis, and Monitoring Subsystem).This collection system and the missions tasked to YRS would see tremendous changes over the next few years.

(U//FOUO) YRS with its very first antenna. - a 30-meter parabolic feed. JAM still stands today.

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(S//SI//REL) CLOUD INGESTS MULTI-ACCESS DATA TO SUPPORT CYBERQUEST

(TS//SI//REL) As technology advances and sharing of data becomes increasingly important, data ingestion into a Cloud environment is currently happening at the Yakima Research Station (YRS) as a means to advance cyber threat discovery. Traditionally, YRS has specialized in the collection and processing of packetized data within the Foreign Satellite (FORNSAT) environment and for over two and a half years, the CYBERQUEST (CQ) mission has relied heavily on this access to execute the cyber threat discovery mission.

(TS//SI//REL) To date, FORNSAT data has provided an intrusion-rich environment in which attackers of all skill levels continue to conduct their operations. That data now resides locally on the SSG Cloud framework called GINPENNANT and is accessible anywhere in the world via RUMBUCKET by authorized analysts, who pull the needed data and conduct analysis. With FORNSAT data continuing to be routinely processed, another data type has been authorized for processing within GINPENNANT. Recently, four Special Source Operations (SSO) data snap-shots were received from an external source, then processed like FORNSAT data and ingested into GINPENNANT to support the cyber threat discovery mission. As a result, numerous intrusions were detected and documented in the CROSSBONES Analytic Journal.

(TS//SI/REL) Additionally, CQ-YRS also began ingesting and processing network data from national resources. Relatively small samples of data were received from NSA-Colorado and ingested into GINPENNANT. Subsequently, analysts accessed the data using RUMBUCKET in a manner like the FORNSAT and SSO data types. With FORNSAT, SSO and national resources data now being processed and ingested, the cyber threat discovery mission is expected to grow and expand in the months ahead.

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