



SAFLLI#MAJ HAMLEY/57204/Betty/May 26

MAY 26 1971

Dear Mr. Andrews:

Per your request, attached are details pertaining to the origin of the space fragments which fell in North Dakota on April 12, 1971. We have endeavored to provide as much unclassified information as possible. Since certain aspects of this mission are classified, we would appreciate it if you could assist in reducing speculation into the nature of the mission. Please feel free, however, to use all of the data provided in the attachment.

If we can be of further assistance to you on this matter, please let us know.

Sincerely,

C. W. HAMMOND, Colonel, USAF
Congressional Inquiry Division
Office of Legislative Liaison

FACT SHEET
Attachment

Honorable Mark Andrews

House of Representatives

SAFUSS

INFORMATION FACT SHEET REGARDING ORIGIN OF SPACE
FRAGMENTS FOUND IN NORTH DAKOTA

Air Force metals' experts recently confirmed that the space fragments which fell on North Dakota in April emanated from an Agena spacecraft.

The Agena is a multi-purpose vehicle designed and built by Lockheed Missiles and Space Company of Sunnyvale, California. Both the Air Force and NASA employ the Agena. It will be remembered that Agenas have been used by NASA as docking vehicles in the Gemini program to illustrate man's ability to perform docking maneuvers in space. Other NASA related uses of the Agena have been as a relatively short-lived, high-performance booster stage for satellites and lunar and interplanetary probes. The Air Force has used the Agena for self-injecting spacecraft applications for development of spaceflight techniques and technology.

The identified fragments were cold-gas spheres used for attitude control of the spacecraft. The spheres were a part of the spacecraft launched by the Air Force's Space and Missiles Systems organization from Vandenberg Air Force Base on March 24, 1971. This vehicle carried the United Nations Registry Number 71-22A. The Space Defense Center of the North American Air Defense Command at Colorado Springs, Colorado, identified the spacecraft as Object 5059/71 in its tracking network. The spacecraft was tracked in decay by the Space Defense Center and was predicted to decay and burn-up on a track over Southern Canada during the mid morning of April 12.

Occasionally, some of the components of a naturally decaying satellite fail to burn up completely upon re-entering the atmosphere. It has been calculated by scientists, however, that the chance of one of these components landing in a populated area and causing property damage or personal injury is infinitesimally small.

The gas spheres which fell near Oakes were a part of the Agena's guidance and control system. The Agena spacecraft consists of five functional systems: structure, propulsion, electrical power, guidance and control, and telemetry. Overall the basic vehicle is 20 feet long and 60 inches in diameter. The control gas spheres are mounted in the guidance and control system on the aft equipment rack. The gas is used to provide attitude control for the spacecraft.

The Agena's engine is the Bell Model 8096 which is a turbopump-fed, dual-start, liquid bi-propellant rocket engine. The engine develops a rated thrust of 16,000 pounds in a vacuum for a period of 240 seconds. Fuel is unsymmetrical dimethylhydrazine; oxidizer is inhibited red-fuming nitric acid.

Launch configuration includes a first-stage or a combination of boosters which provide the velocity, attitude control, and discrete commands necessary to initiate the operation of the Agena. At separation of the first stage, following launch, a pyrotechnic device releases the Agena from its booster adapter. Retro rockets, mounted on the booster adapter, provide the reverse thrust necessary to reduce the velocity of the first stage. As the velocity is reduced, the Agena, continuing at an undiminished rate, leaves the adapter.

When separation has been accomplished, the Agena assumes an appropriate attitude, ignites the main propulsion system, and continues through a programmed series of events. The programmed flight may include injection into a variety of earth orbits or a trajectory into space. Attitude controls are exercised by a combination of programming, attitude sensing, propulsion thrust deflection or passive gas jets. Upon reaching the desired orbital path or space trajectory, the Agena may remain and function as an integral part of the payload, initiate payload functions and separation, or perform other desired activities.

Several drawings and schematic portrayals of the Agena spacecraft are furnished to illustrate the placement and function of the spheres which were recently identified.







