

Analysis of Unmanned Aerial Vehicle (UAV) strike against the Chornobyl Nuclear Power Plant Sarcophagus Commissioned by Greenpeace Ukraine

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1 Introduction

McKenzie Intelligence Services (MIS) were instructed by Greenpeace Ukraine to analyse CCTV and handheld imagery following an explosive strike against the sarcophagus at the Chornobyl Nuclear Power Plant, Ukraine. During the night 13/14 February 2025, the sarcophagus containing the destroyed nuclear reactor at the Chornobyl nuclear power plant was subject to an explosion, almost certainly as a result of a strike from an unmanned aerial vehicle. The CCTV footage records the moment of impact and resulting explosion. Handheld footage after the strike confirms the breaching of the sarcophagus shell and internal damage to the facility. Debris from the strike is also captured in the imagery. In the conduct of the analysis and assessment, MIS employs the probability yard stick as detailed below.



2 Analysis of Footage

CCTV footage from the Chornobyl plant identifies a sudden explosion on the northwestern slope of the containment sarcophagus. In the immediate aftermath of the explosion, burning debris is observed falling from the seat of the explosion. Subsequent video footage following the strike indicates a fire burning at the seat of the explosion and successful firefighting to control the fire. The breached sarcophagus is also depicted in the footage.

Handheld imagery, most likely collected once the fire was extinguished and the investigation commencing identifies what is almost certainly engine parts from the warhead delivery system (Fig.1).





Fig.1 – Engine Part of Warhead Delivery System

Analysis of the engine part identified at Fig.1 confirms a piston engine attached to a sheared propeller hub. This debris is almost certainly the remains of the piston engine that powers the Shahed-136 drone; supplied by Iran to the Russians. An example of a Shahed engine can be seen at Fig.2.



Fig.2 – Intact Shahed Drone Engine. Credit: Defense Express

Other debris recovered from the site on 14 February includes parts of the airframe (Fig.3). The item recovered by the investigators shows an airframe part with a series of numbers, possibly a serial number and FEPAHb-2 (Cyrillic for Geran-2) printed in yellow on a black background. Some reporting suggests (Meta-Defense.FR) that some Geran-2 airframes have been painted black for night time operations. The recovery of this piece of the airframe further indicates the use of this system in the strike on the plant.



Russia has been supplied with Shahed-136 drones from Iran since their full scale invasion of Ukraine in February 2022 and has subsequently manufactured its own airframes under the name Geran-2. This system is capable of being deployed with either a 52kg warhead and as of May 2024 a version with a 90kg warhead was reported with a smaller fuel tank and repositioned avionics. The 52kg equipped version has a range of 2,500km and the heavier version has a reduced range of approximately 1,000km. Both version would be able to target Chornobyl from within Russia and Belarus (Fig.4).



Fig.4 – Ranges of 52kg & 90kg Airframes in Relation to Chornobyl. Credit Google Earth

It is very difficult to determine the size of warhead used in the strike from the available imagery. The fact it struck a metal surface will have dissipated much of the blast so analysis of the entry hole will also make it difficult to determine the size of the warhead. The Russian Geran UAV is equipped with the Russian Komet navigation system which incorporates the GLONASS system for navigation; Russia's version of GPS. This provides CEP accuracy of approximately 10-15metres.

3 Assessment

The debris recovered following the strike against the Chornobyl sarcophagus indicates the attack was almost certainly conducted using the Shahed-136/Geran-2 unmanned aerial vehicle equipped with a high explosive warhead of undeterminable size but likely either 52kg or 90kg. In the Russian/Ukraine conflict, this system is exclusively in use by the Russian forces. The modification of the system for use in the conflict by Russia incorporates modern navigation technology. The system is guided by pre-set geo-coordinates to the intended target. This would indicate the almost certain deliberate targeting of the Chornobyl plant on behalf of the Russians. With a reported CEP accuracy of 10-15 metres, this would also suggest the sarcophagus, or its immediate vicinity was the intended target. Kremlin



spokesman Dmitry Peskov has denied Russian responsibility further stating that the Russian Military does not target nuclear infrastructure.