

The UXO Hazard at Yekau Lake, Stoney Plains Reserve, Near Edmonton, Alberta

Location

The former Yekau Lake Range is located in the Stoney Plains Reserve, which is part of the Enoch Cree Nation. The former range, located just west of Edmonton, Alberta, covers a land area of approximately 520 hectares.

Topography and Vegetation

The topography of the area is varied, consisting mainly of rolling prairie, with steep berm edges and swamps, ponds and wetlands in some areas. Soil is mostly sandy, with small patches of loam. There is heavy underbrush throughout all natural areas, particularly in the wetlands. Some areas are open and grassy.

It has been widely reported that Yekau Lake has been receding for a number of years. It is not known at the present time exactly why the lake is receding. The current depth of Yekau Lake is estimated at 3 feet. The lake is bounded by poplar trees.

History

The Yekau Lake Range was first leased in 1941 for use as a British Commonwealth Air Training Program (BCATP) Practice Bombing Range. It was leased for the duration of the war and for one subsequent year. An agreement between the Department of Mines and Resources and the Department of Transport, dated March 5, 1942, created a practice bombing range on “a certain parcel or tract of land, equivalent to two sections in extent, Nos 14 and 15 together with two quadrant shelter sites adjacent thereto in the Stoney Plain Indian Reserve.”

Other areas in the vicinity such as the Winterburn Range (also located in the Stoney Plains reserve) had been leased for many years prior to the bombing range, for various activities such as military training camps. Edmonton was the home of No.2 Air Observer School from August 5, 1940 to July 14, 1944, No. 16 Elementary Flying Training School from Nov. 11, 1940 to July 17, 1942, as well as No. 4 Initial Training School.

Types of Munitions Used

The types of munitions used specifically in the area is currently under research. BCATP munitions records indicate both High Explosive (HE) and practice bombs were allocated to the program as a whole during the time period.

A partial list of the annual allocation of munitions to the BCATP in Canada during the time is as follows:

HE Aircraft Bombs: 20 lb F MK III, 40 lb F MK III; 250 lb GP MK IV; 250 lb SAP MK V; 500 lb SAP; 500 lb GP;

Aircraft Bombs: 4 lb MK IV; 4 lb MK IV “E”; 30 lb MK 1; and

Practice Bombs: 11.5 lb Smoke MK I; 11.5 lb Flash MK I.

There are no reports of HE bombs found in the Yekau Lake area, but remnants of 11.5 lb practice bombs have been confirmed.

The Risk

The risk to the public will increase if the lake continues to recede and bombs become evident. The extent and type of potential UXO in the area is unknown and it is possible that UXO and Munitions Scrap (MS) will appear if the lake continues to recede. With development plans under consideration on the Reserve, increase in human activity is expected. Recently there have been reports of numerous encounters of MS during the development of the nearby golf course, which occupies approximately 50% of Section 15. Anecdotal information of loud explosions during operational days suggests that HE was used in the area. Remnants of an 11.5 lb practice bomb were revealed during snow clearing operations over ice for wintertime recreational activities.

In light of the above, the risk to the public of encountering munitions scrap is considered to be significant.

Approaches to Mitigation

Any proposed mitigation of the site appears extremely challenging for the following reasons:

- Records of munitions used in the area have not been confirmed to date. Any clearance activities may have to be based on the type of munitions allocation to the program as a whole.
- Yekau Lake appears to be receding. Planning for clearance activities must take into account effects on the lake. An exhaustive clearance would entail disruption to the ecology.
- The potential penetration depth of the ordnance and bottom characteristics of Yekau Lake will make detection challenging.
- The land mass that forms the target areas is subject to considerable topographical shift due to environmental conditions.
- Even an exhaustive clearance would not completely remove the UXO hazard. The site would continue to require thorough annual maintenance and follow-up.

The Next Step

A recent review of the site is near complete. On-site interviews with residents of the community will continue and findings from the report will be summarized and presented to the Explosive Risk Rating Subcommittee (XRRSC) for priority review. The recommendations from the committee will dictate the approach to further investigation and mitigation.

