
Incident Brief: Virginia Highway Flyrock Incidents (2013)

Matter

Flyrock projected onto public highway during quarry blasting operations in Virginia

Location

Virginia, United States

Year

2013

Incident Type

Flyrock / blast safety failure involving public roadway exposure

Summary

During two separate blasting incidents in 2013, flyrock from quarry blasts was propelled onto a busy highway in Virginia despite traffic-control measures being implemented before each blast.

In both cases:

- traffic had been stopped before detonation;
- flyrock escaped the intended blast clearance area;
- rocks entered a public roadway;
- the incidents occurred in an area where vehicles would normally have been present.

Fortunately, **no injuries occurred**.

Incident 1 — May 2013

Facts

Before the blast:

- Traffic on the highway was stopped as part of the blasting procedure.

During the blast:

- Flyrock traveled approximately:

400 feet (122 metres)

from the blast area.

Damage

The flyrock:

- struck one vehicle;
- damaged another vehicle when it drove over a rock approximately the size of a football that had landed on the highway.

Consequences

- Property damage occurred.
 - No injuries were reported.
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Incident 2 — August 2013

Facts

A second blast at the same operation resulted in additional flyrock reaching the roadway.

The blast clearance procedure again included stopping highway traffic before detonation.

Flyrock Distance

Flyrock traveled approximately:

1,200 feet (366 metres)

and landed in the roadway.

Consequences

- No vehicles were struck.
 - No property damage was reported.
 - No injuries occurred.
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Safety Significance

These incidents demonstrate a critical blasting safety issue:

A controlled roadway closure does not eliminate the hazard if flyrock travels beyond the intended exclusion zone.

The highway was already treated as a protected area through traffic stoppage, yet flyrock still exceeded the assumed blast boundary.

The incidents highlight the importance of:

- accurate blast design;
 - adequate burden and stemming;
 - geological evaluation;
 - conservative clearance distances;
 - post-blast review after flyrock events.
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Regulatory / Engineering Issues

The incidents raise several technical questions commonly examined after flyrock occurrences:

1. Blast Design

Investigators would typically review:

- burden;
- spacing;
- hole depth;
- explosive loading;
- stemming length;
- timing sequence.

Improper confinement or localized overenergy can allow rock fragments to escape.

2. Clearance Zone Adequacy

The events show that:

- planned exclusion zones may be exceeded;
- historical performance does not guarantee future containment;
- public roads require special consideration.

A 400-foot and 1,200-foot flyrock occurrence demonstrates why highway closures alone are not the only protective measure; the blast itself must prevent uncontrolled rock projection.

3. Public Safety Implications

These incidents are significant because the potential outcome was severe:

- a vehicle was struck in the May incident;
- larger rocks could have penetrated vehicle cabins;
- an occupied roadway represents a high-consequence exposure.

The absence of injuries was due to the traffic-control measures and circumstance rather than proof that the flyrock hazard was insignificant.

Legal Significance

No lawsuit, enforcement action, operator identity, or court decision is identified in the excerpt provided.

However, incidents of this type could potentially support claims involving:

- negligence;
- failure to maintain adequate blast clearance;
- unsafe blasting practices;
- property damage;
- regulatory violations.

Comparison With Other Flyrock Cases

Incident	Location	Flyrock Distance	Outcome
Virginia highway incident (May 2013)	Virginia	122 m (400 ft)	Vehicle struck; another damaged
Virginia highway incident (Aug. 2013)	Virginia	366 m (1,200 ft)	Rock landed on highway; no damage
Pakenham Quarry (2009)	Ontario	~300 m	Worker struck; vehicles damaged
Miller Braeside Quarry (2005)	Ontario	>400 m reported	Residential property damage
Minnesota taconite mine	Minnesota	3,463 m reported	Extreme documented flyrock distance

Key Finding

The Virginia 2013 incidents demonstrate that **flyrock can exceed intended blast boundaries even when public-road controls are implemented**, and that highway closures are a secondary protection measure rather than a substitute for preventing flyrock generation.
