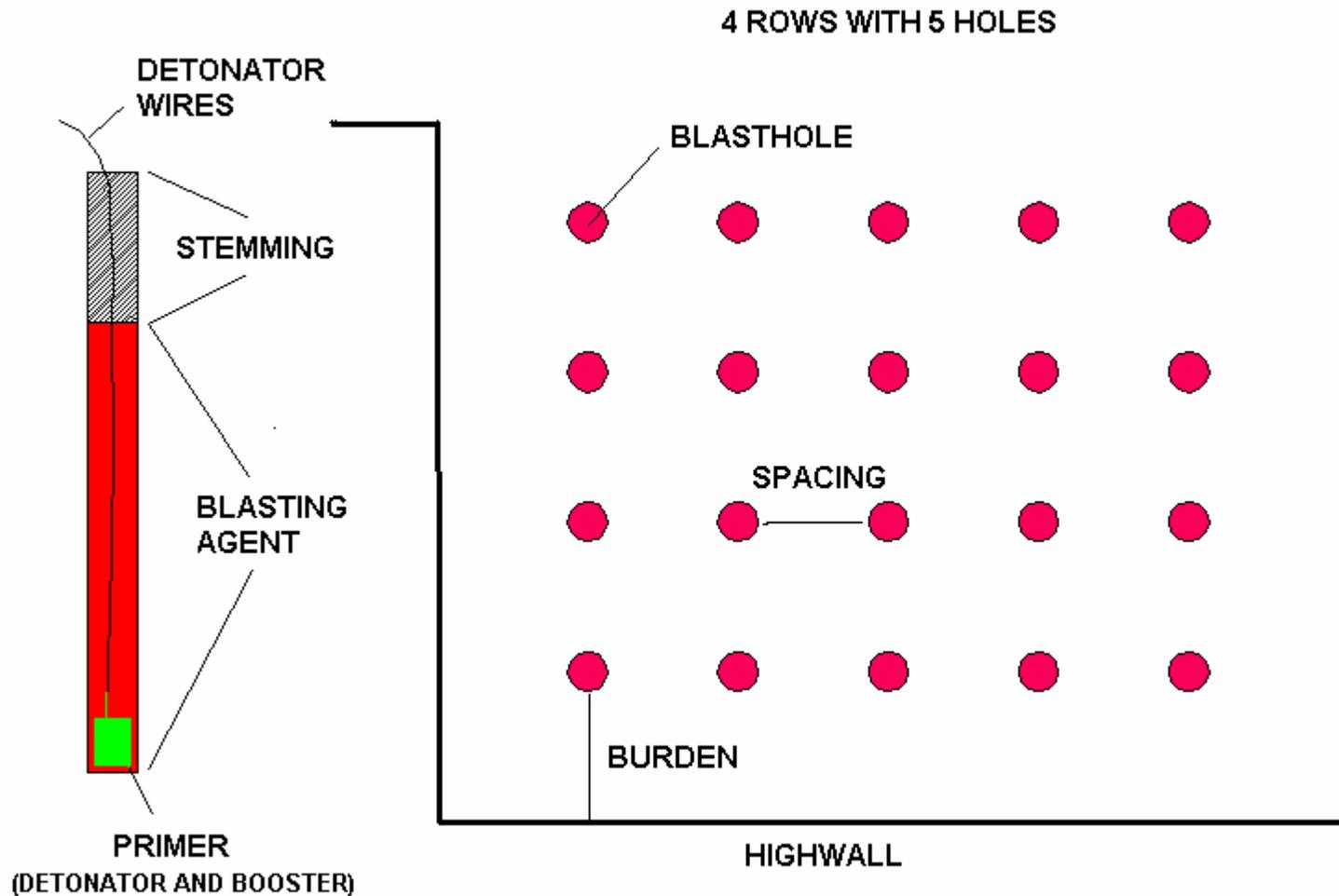


# **Using GIS as a Tool for Blasting Complaint Investigation**

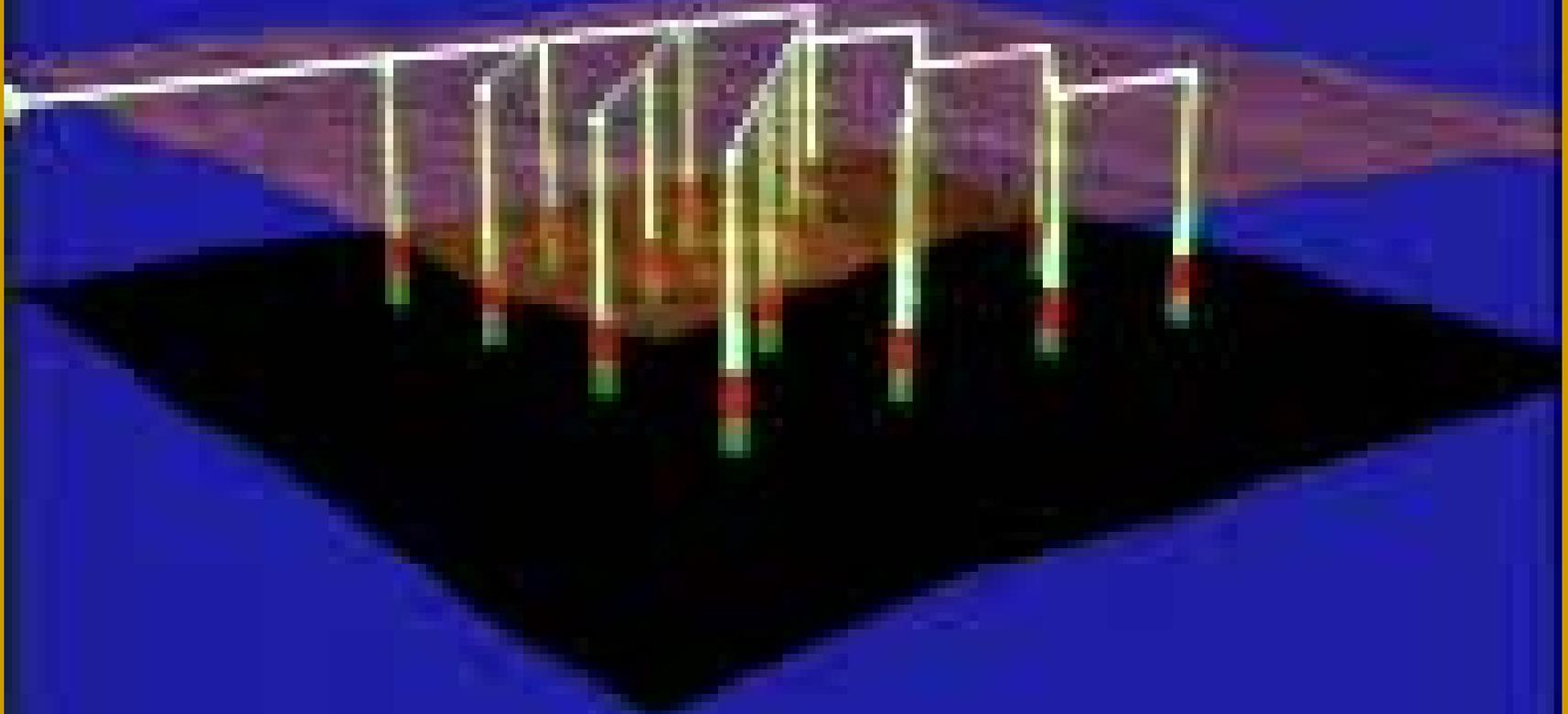
# Typical Blast Design

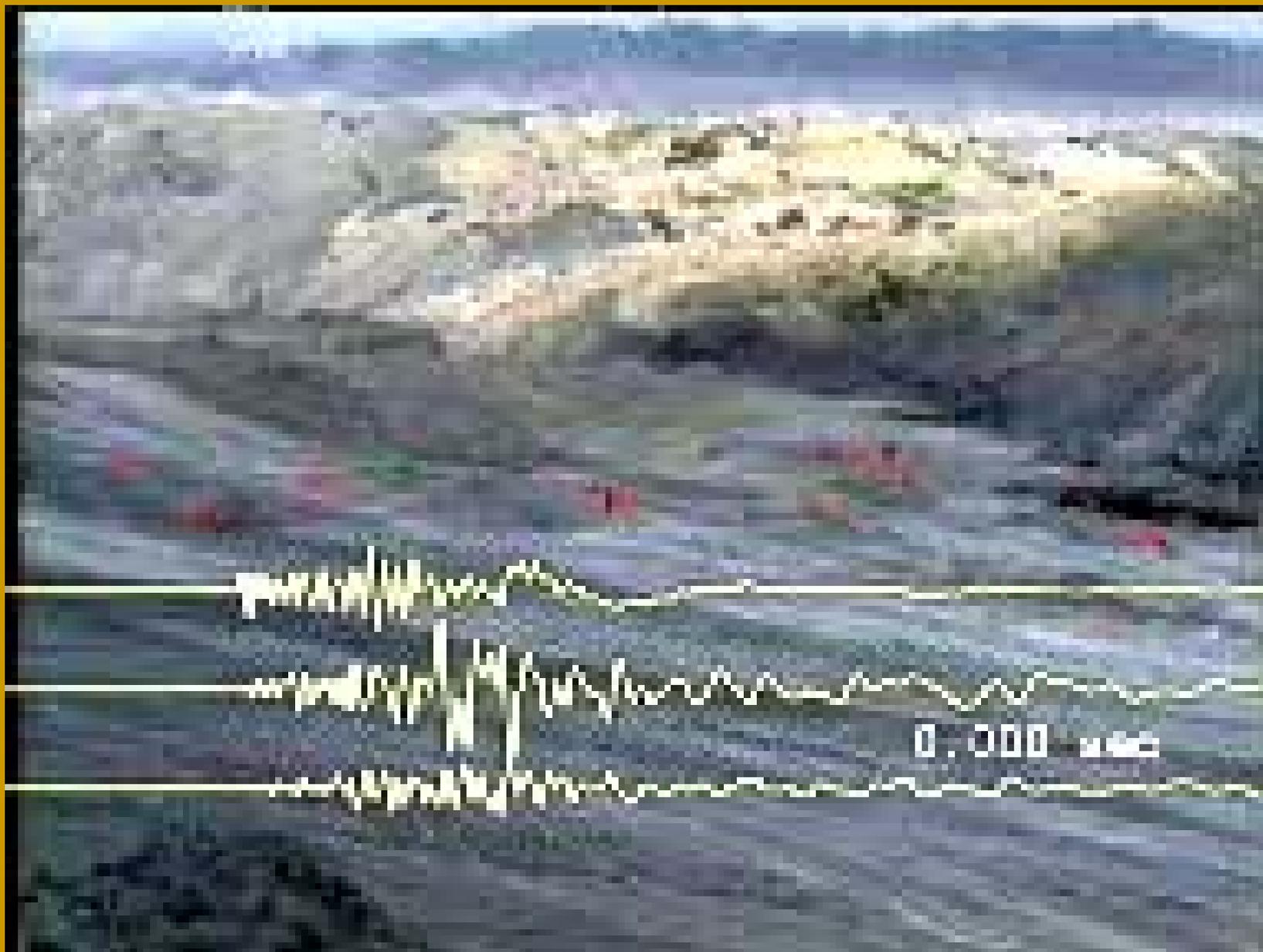


# Commonly used explosives products

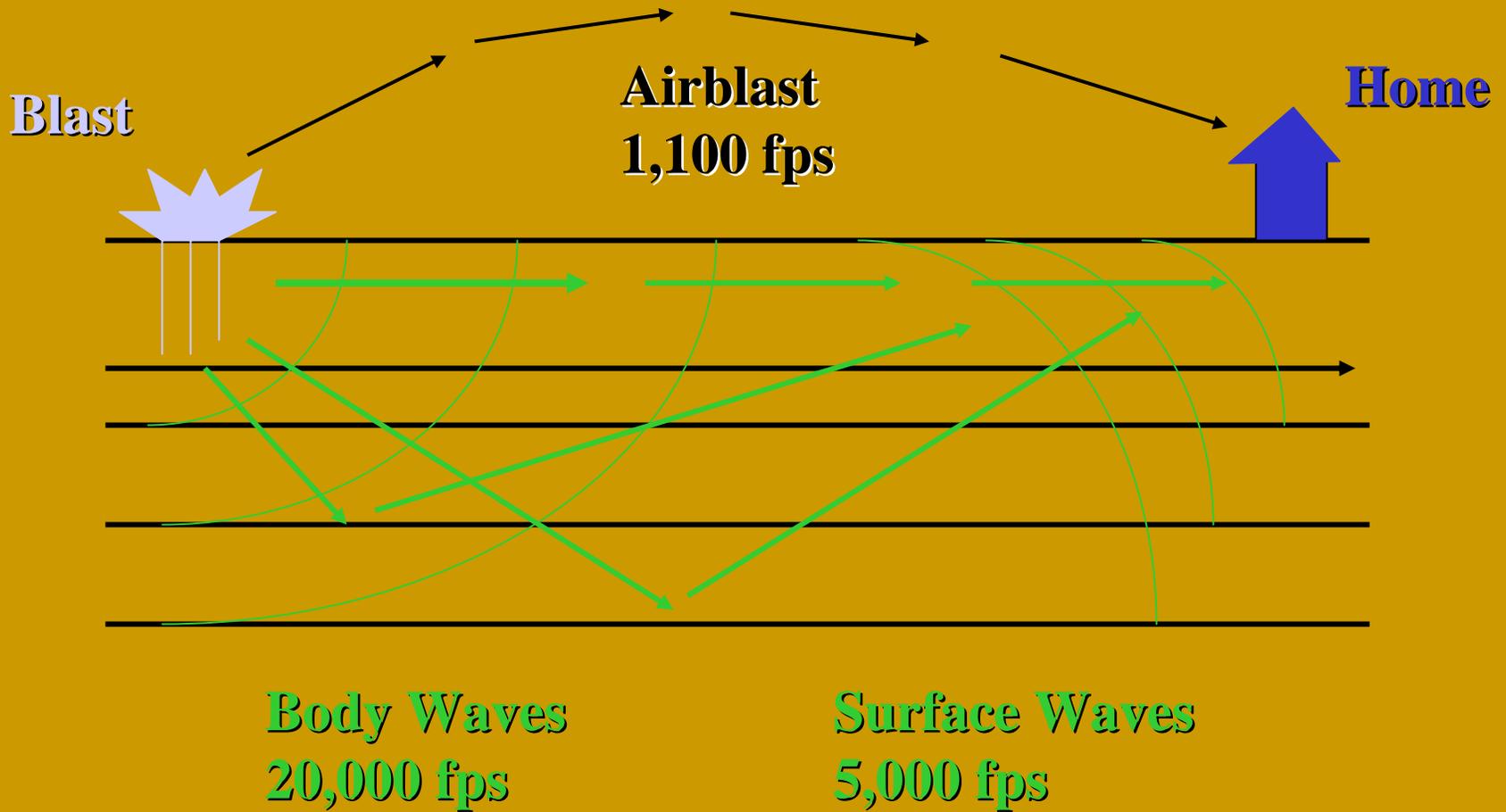


0.000 sec





# Adverse Effects



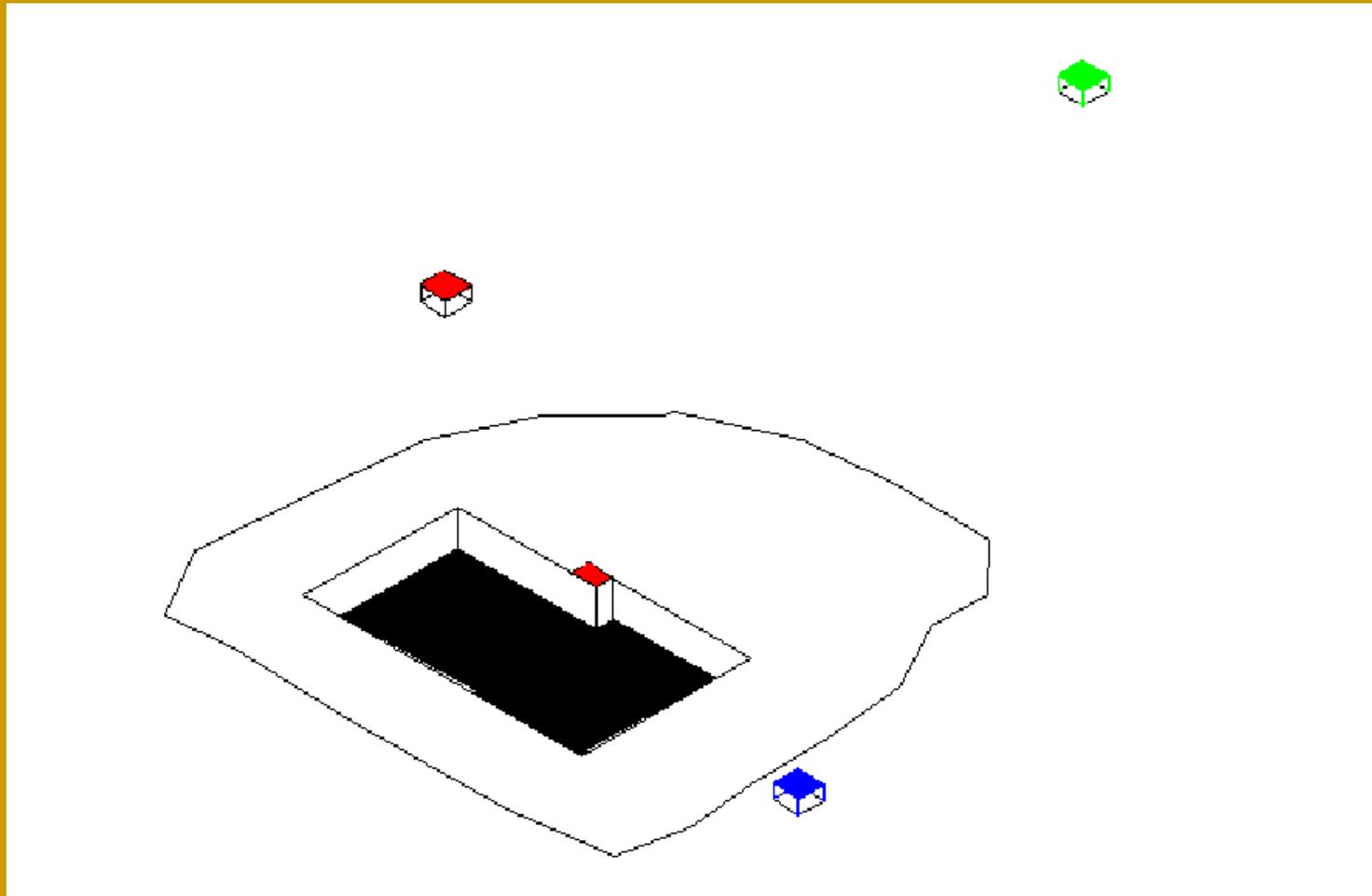
# **Adverse Effects are Influenced by Distance and Direction**

- **Ground Vibrations**
- **Airblast**

**The intensity decreases as distance increases.**

**The intensity may be affected by direction.**

# Spatial Considerations



# Ground Vibrations and Airblast



# Typical Coal Mining Blast



# BLAST RESULTS





**Blasts often annoy people!**



**Blasting can  
cause damage!**

**Ground vibration and airblast are very likely to be influenced by direction from this kind of blast!**



**Ground vibrations and airblast from this blast may not be influenced by direction.**



**This map shows direction of mining advance and seismograph monitoring stations used in a ground vibration/airblast study.**



**This map was used to investigate a complaint which resulted in future blasts being monitored at the Spangenberg home.**



**This map was used in a complaint investigation to explain the vibration levels that affected the Blumish residence.**



In this case blasting occurred throughout the quarry with blast orientation in many directions. Map shows that the seismographs were closer to the blasting than homes of the complainants.



Map illustrates where blasting occurred over a 12 year period.





# PASDA

## PENNSYLVANIA SPATIAL DATA ACCESS

The Pennsylvania Geospatial Data Clearinghouse



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The Pennsylvania Spatial Data Access (PASDA) is Pennsylvania's official geospatial information clearinghouse and the Commonwealth's node on the [National Spatial Data Infrastructure \(NSDI\)](#). PASDA was developed as a service to the citizens, governments, and businesses of the Commonwealth. PASDA is a collaborative project of the [Pennsylvania State University](#) and the [Pennsylvania Geospatial Information Council](#). Funding is provided by the [Pennsylvania Department of Environmental Protection](#).



# Conclusions

- Modern GPS and GIS makes it easier to survey blast locations and create maps.
- GPS/GIS created maps help investigators quickly draw informed conclusions.
- GPS/GIS map pictures settle complaints better than a 1,000 lawyer's words.