

# Navigation Systems

## *Global Positioning System technology helps locate trapped miners in Pennsylvania*

The pinpoint accuracy of the Global Positioning Satellite system helped find and rescue nine miners trapped in a Pennsylvania mine-shaft in August. The rescue team on site determined that the first step would be to drill an exploratory hole to try to locate the miners and to begin blowing compressed air into the tunnel to create an air bubble to keep flood waters at bay. A mining map revealed that an underground gas line ran very close to the drilling route, so

any misdirection in drilling could have been catastrophic. An engineering technician from a civil engineering company in the area used a GPS system to determine exactly where to drill the first hole that located the miners.

The GPS surveying equipment uses a local reference point and the GPS satellite constellation to determine position within less than a centimeter. Using the data provided by the GPS, the rescuers' drill broke through to the tunnel in less than two hours, leading to the rescue of the trapped men.



### People Who Make It Happen:

#### Larry Newman

When the U.S. Air Force decides in 2003 who will win its multi-billion dollar contract to provide the next-generation Global Positioning System (GPS III), Larry Newman and his team will already have spent more than two years getting ready for the momentous day.



As Chief Engineer for the GPS III space vehicle, which includes the spacecraft and payload, Newman oversees design and performance improvements that will provide major gains in accuracy, assured service delivery, integrity and flexibility over our enormously successful GPS IIR. Despite intense competition and unrelenting pressure, Newman remains focused on providing the best value solution for customer requirements, which include improved accuracy and availability, anti-jam protection and realtime system integrity messages for civil aviation.

Newman is part of a corporate-wide team providing a total systems package that includes ground systems, advanced communications and the space vehicle. With a steadiness and confidence that comes from 35 years in the navigation business, Newman predicts that a stellar performance record on GPS IIR and the best technical solutions will win the day.



### More Highlights

Navigation Systems has been awarded an extension to the System Architecture and Requirements Definition study to assist the U.S. Air Force Global Positioning System (GPS) Joint Program Office in the development of the **GPS III**—the next generation of the Global Positioning System satellite system used in ongoing U.S. military operations worldwide. The win affirms our demonstrated strength in GPS programs and signals promising forward motion in Navigation Systems' charter to tie together all global positioning expertise across the corporation and provide a single portal for our customers. Lockheed Martin is ramping up for a request for proposal, expected in early 2003, to develop and demonstrate the ground, space, and system interfaces for GPS III. The program could lead to delivery of more than 50 GPS III satellites over the next 30 years.