

MINING SOFTWARE - Fred Banfield



Fred Banfield started MineSight from his Tucson apartment in 1970. As a Colorado School of Mines student in the early 1960s, he applied his passion for mine engineering and computers to solving mine modelling and design challenges. Earlier still, Fred accompanied his dad - a consulting geologist - on trips into the Canadian bush, cutting lines, performing geologic interpretation and colouring maps. Now in the seventh decade of his marriage to mining, he presides over a global network of dedicated mining professionals. Through offices in eight countries, the company is committed to helping clients solve problems with MineSight software. MineSight is a comprehensive modelling and mine planning software platform, offering integrated solutions for exploration, modelling, design, scheduling and operations. Still headquartered in Tucson, but no longer in Banfield's apartment, MineSight won a 2013 President's E-Award for Exports - the highest recognition any US company may receive for making a significant contribution to the expansion of US exports. MineSight's unparalleled longevity in a highly cyclical industry begins with Banfield and a simple business plan unchanged in 44 years: make the

client successful. The foundation for that business plan lies partly in his expertise. Few people have been applying computer techniques to mining engineering tasks longer than Banfield. He offers decades of experience in mine design, developing databases, evaluating exploration data and open pit mines, calculating reserves and financial analysis. His more detailed experience includes auditing reserve calculations and mine plans worldwide; the design and implementation of computerised systems for calculation of reserves for oil shale; the design of ultimate pit limits and mining schedules for open-pit mines based on economic and geotechnical data (iron, coal, copper, molybdenum, gold); calculation of reserves for gold/silver, lead, zinc, copper molybdenum, sulphur, uranium, coal, iron, asbestos, and industrial mineral deposits in North America, Africa, and Australia using manual and computer methods; and the design and implementation of financial models for mining projects worldwide. "Fred always seemed to be ahead of the industry, working on solutions before we had defined the problems," says MineSight client, Jim Gray of Moose Mountain Technical Services. "He would anticipate the problems and get going on planning methods and tools before we asked. Isn't that what a pioneer does?" Don Mills, Chief Geologist at Teck agrees: "Fred has done for mining what Bill Gates and Steve Jobs have done for computing. He recognised the opportunity of using computing hardware and software to advance mine geology, engineering and planning." In 2007, he won the SME's Jackling Award for significant contributions to technical progress in mining, geology, and geophysics. Yet more than just his experience and expertise explain the success of MineSight and its clients. His humility and modesty are endearing qualities not always found among leaders. Those qualities are particularly appreciated by his staff and by clients. Mike Lechner of Resource Modelling first met him in 1987 during his introduction to MineSight. "From the onset Fred has been a teacher, mentor, and friend. I believe that Fred is a true innovator and visionary by virtue of what MineSight has become over the past 40 years because of his guidance. I'd like to think that his curiosity about how things work rubbed off onto me. I've seen Fred methodically work out solutions to various problems and often in very elegant ways. For example, the interpolation routines in MineSight that Fred played an instrumental role in developing have been around for many decades and still are lightning fast when compared to some of the competing software packages. Fred instilled in me

the need to know how something works. It's just not a matter of pushing buttons, a person needs to have a fundamental understanding of what the software is actually doing behind the curtain. I think one of Fred's most frequent comments about our industry is how organisations seldom utilise or even know about various software tools at their disposal. That's why Fred is so keen on training and mentoring. "Fred has a ne technical mind but what really sticks out for me is his compassion for his fellow man. Seldom do you hear Fred say anything negative about a person. I believe that he truly cares for each and every one of his employees."

Don Mills, Chief Geologist Teck Coal, met Fred back in 1982 when "Fording was testing out the Medsystem (original name for MineSight) software prior to purchase. I had heard about 'Fast Freddie' but didn't know what to expect. I didn't know much about his background other than he was working in mining and was a bit of a wirehead. There are very few people you instantly like in life and Fred is one of them. Fred is a generous, welcoming individual. He gives one the sense initially that he is very laid back but if one spends more time with Fred it is clear he can be intensely focused and driven. With his team he implanted his vision of how Medsystem would behave. Products such as the variable block model (VBM), Stripper, Dipper and the use of gridded seam models and 3D block models came from Fred and his MineSight team. Fred's open workplace policy attracted many talented individuals who were experts in their genres and catapulted MineSight into the corporation it is today." Garth Kirkham, a past President of the Canadian Institute of Mining and a "proud MineSight client" says of Fred "through his vision, persistence and commitment he has created the earliest and best systems for automated, computerised mine planning that is still in existence and thriving. Fred teamed up with some like-minded engineers, and identified a gap and a need for great systems related to the mining industry. With this vision, Fred started MineSight in order to full the need for computer workstation systems for specic scientific applications. These engineering applications were related to the automation of the processes related to drillhole management, geological modelling, statistical analysis, geostatistical analysis, resource estimation, mine design, pit optimisation, underground volumetric calculation, mine scheduling and nancial analysis - highly complicated and ahead of its time. We must keep in mind that this is at a time where computers were in their infant stages, when Bill Gates and Steve Jobs had not yet dropped out of University, yet Fred saw the power and capability of the early technological breakthroughs. "MineSight partnered with many companies over the years but stayed true to its purpose of supplying great tools to the mining industry and supporting those tools with great people. MineSight has become the pre-eminent and most advanced provider of software systems to the mining industry in a large part due to Fred. His commitment and long hours of dedication are still appreciated. Fred has truly demonstrated himself as the quintessential early adopter! [His] industry changing contributions to the eld of geology and mining software over many, many years, [have] changed the way we work." Jim Gray, of Moose Mountain Technical Services adds "I see Fred once a year (sometimes twice?) and consider him a friend. Why? Because I think he sincerely cares about the people he is associated with. Does mentoring count as a contribution to the industry? Since I rst met Fred in the early 1980s I have seen the software development of the MineSight suite of programs grow to meet the needs of the industry, with practical and e=cient tools. In those days we were looking for answers to model the complex coal deposits of the Rocky Mountains. Some of the programs and methods Fred had built into Medsystem were adaptable to the application and over the years the capabilities of MineSight in complex coal have evolved, using the advances in computing power and 3D graphics. The team Fred assembled at MineSight, under his guidance has also made the same evolution on the hardrock side of the business. Often a particular tricky, obscure problem for the engineers at the mine would start with a call to the MineSight help desk on what programs and methods could best be applied to meet the need. If the help desk couldn't nd a suitable solution, it would be referred up the line to increasing levels of expertise and sometimes it would go all the way up to Fred. Sometimes there would even be a fax or email from Fred as a problem went up the line, he was obviously tracking it. If he didn't have the answer it was never a surprise to hear that he had a proto type solution developed and would we be interested in Beta testing. Gray adds: "Pioneering doesn't create the landscape, the same as mine planning software doesn't dene mining. Pioneers however travel the landscape looking for new and better pathways to the destination. Fred was a pioneer when he started his career

in mine planning system development. He still is pioneering; as the industry evolves our views of the same problems are changing. Fred is still pioneering new pathways over the old landscape to meet our ever increasing views of what a mine should be. I know over the years whenever I got stuck on a problem, I could always send a note to Fred. It was never a surprise to learn he had already considered the issue. It was also never a surprise to get an encouraging word from Fred, and some insightful words to help the rest of us see the issue from his higher view point.