



Geological Survey of Western Australia: Innovative use of mobile computing and GPS significantly improves productivity for field data collection program

Challenge

The inventory of abandoned mine sites, conducted by the Geological Survey of Western Australia (GSWA), commenced in 1999 and has focused on mapping sites of historic production, mostly for mines that closed prior to 1990. The project aims to accurately locate and document abandoned mine sites in Western Australia, identify public safety and environmental hazards, and assess their state of preservation. The Western Australian abandoned mine site database (WABMINES) of mine site features has the potential to assist mineral exploration and land use planning in addition to the primary safety and environmental objectives.

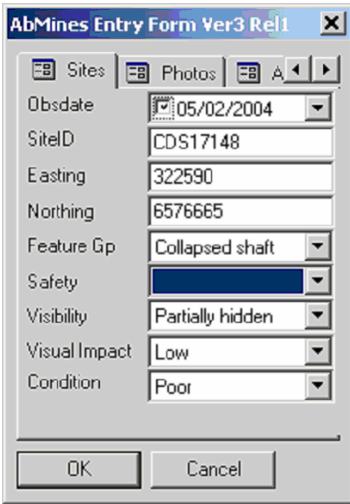


Data for the WABMINES database were originally collected using DGPS connected to a "palmtop" computing device. The increase in GPS accuracy caused by the removal of Selective Availability (the intentional degradation of the Global Positioning System signals by the US Department of Defense) provided an opportunity for the GSWA team to switch to less expensive and more portable GPS and computing devices with the goal of increasing the productivity of the field survey team.



Solution

To make the project a success, GSWA needed to meet three requirements: a software solution that offered robust mobile GIS functionality; lightweight GPS receivers that could cost effectively provide superior GPS performance; mobile computers that had both serious computing power and the ability to stand up to the harsh conditions of the Western Australian wilderness. To meet these goals GSWA chose ESRI ArcPad software, LinksPoint's GlobalPoint GPS receiver and Symbol PPT 2800 mobile computers.



GSWA team members now use the integrated handheld computer/GPS platform to capture attribute data in the field. They use a forms-based data collection application that was developed by GSWA in house. GPS data collection is seamlessly incorporated into the inspection process and the color screen on the handheld computer enables more flexibility in the display of data points for different attributes. Data collected in the field is downloaded from the handheld to a laptop computer in the field and later transferred to GSWA's WABMINES database on return from the field.



Benefits

The use of innovative technology and approaches has made the WABMINES project a success in meeting its goals of effective and accurate field data collection. The use of handheld computers with LinksPoint GPS receivers enabled a significant improvement in productivity in the field. After an initial ramping up in year one, the number of records the team collected stabilized at around 24 000/year in years 2 and 3. In the first half of year 4, the number of new records exceeded 31 000, reflecting in part the productivity gains from the new hardware and software enhancements. The hardware and software enhancements increased the number of features recorded without compromising quality. The team is now well positioned to continue collecting the remaining high priority sites throughout Western Australia in the next 5 years. For more information on GSWA visit <http://www.doir.wa.gov.au/GSWA/>.

