Capturx Case Study

Nevada Division of Minerals (NDOM)

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Summary

Background: The Abandoned Mine Lands (AML) Program was developed by the Nevada Division of Minerals (NDOM) to discover, record, and secure 50,000 potentially hazardous out of the estimated 200,000 abandoned mine land features across Nevada.

Challenge: Identifying and securing abandoned mines more efficiently and accurately. Teams end up spending hours on administrative tasks rather than doing more abandoned mine surveys, planning, or analysis.

Solution: Capturx Forms Service and digital pens. Data written on paper forms with digital pens is recorded and integrated into Microsoft Office Excel. After importing into MS Access and reviewed, hazardous and non-hazard sites are marked for easy recognition with symbols and ranking systems in ESRI ArcMap.

Results: Teams save time and get more accurate data by eliminating data entry. Built-in audit trails help GIS specialists keep track without disrupting simple pen and paper data collection in the field. As a result, more mines are processed and there is less risk to the community.

Capturx Streamlines Abandoned Mine Tracking – Reducing Risk to Community

Mining has played a vital role in Nevada's economy since the discoveries of gold and silver in the mid-1800s. As the industry matured and time progressed, many of these mines became inoperable leaving a legacy of an estimated 200,000 abandoned mine land features, 50,000 of which are believed to be hazardous. Abandoned mines can present a variety of risks to people and animals – ranging from dangerous gas build-ups to cave-ins near entrances worn down by erosion. The Abandoned Mine Lands (AML) Program was developed by the Nevada Division of Minerals (NDOM) in 1987 to discover, record, and secure these sites. Given the large number of abandoned mines spread across the state, NDOM teams spend a great deal of time in the field collecting data on forms which they later manually re-enter into central tracking databases. To streamline the process, the NDOM deployed a Capturx Forms Solution, which instantly scanned data on handwritten forms using digital pens, eliminating the cost, delays, and risks from data entry.

"*Data collection using Capturx Forms Software for digital pens makes our data input faster and easier,*" said Rachel Wearne, Geologist and GIS Field Specialist for the Nevada Division of Minerals in Carson City.

Challenges:

Nevada has teams of seasonal interns, contractors, and NDOM staff that work across the state identifying and recording data about abandoned mines on paper forms during field shifts that can last up to twelve hours. After recording conditions and locations for a variety of mines, field teams return to the office to manually enter the data into their Microsoft Access Database, so that a GIS Specialist can import, review, and track the data with ESRI ArcMap. A review is necessary for transcribed data integrity and to ensure data for every mine in a given parcel has been properly recorded. When there are questions about the data or locations during the reporting process, teams need to retrieve the original paper documents from the archive to identify and resolve the issues.

The data entry and review process can take up to three hours per team member. As a result, teams end up spending hours on administrative tasks rather than doing more abandoned mine surveys, planning, or analysis. NDOM set out to find ways to automate their data capture so teams could spend more time identifying and reporting on abandoned mine issues and minimizing dangers to the public.

Since field workers are highly mobile in rugged and remote locations, they wanted to retain the simplicity and flexibility of collecting data on paper. NDOM had explored deploying mobile computers, but the costs

were high – in training, support, and equipment – and the forms factors were too limiting with their weight, keyhole views, short battery life, and fragility.

Solution: Capturx Forms Service and Digital Pens

NDOM selected Capturx Forms Service to streamline data entry for AML field data collection. Capturx software enables field teams to continue collecting field data with pens and their familiar paper forms. The digital pens record all the data as it's written on paper forms. Once the pen is docked to a PC back at the office, the data is automatically integrated into MS Office Excel, where it's accessible in the original handwriting and as digital data using advanced character recognition.

After a quick review and import into MS Access, a GIS Specialist is able to overlay the data onto ESRI ArcMap using the GPS coordinates converted from the original handwritten data on the forms. Hazardous and non-hazard sites are marked for easy recognition with symbols and ranking systems. The overlay view exported as a shape file shows multiple mine instances per region or county making it easier for high-level reporting and strategic planning for next week or next month.

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RACHEL WEARNE
Geologist and GIS Field Specialist
Nevada Division of Minerals (NDOM)
Carson City

Benefits

Saves Time by Eliminating Data Entry:
Since field teams inventory hundreds of sites a week, the data entry can consume as much as one day of work per week per team member. With Capturx, data can now be instantly imported and quickly reviewed in seconds per form, saving each team member hours of data entry time per week. Time freed up from data entry, can be re-assigned to more planning, as each week of field work requires strategic logistics planning and scheduling.

Streamlined Workflow Eliminates Paperwork Processing & Costs:
NDOM was able to automate the survey data capture without changing their simple and reliable paper-based process. The pen is durable, easy to carry, and can keep its charge for up to a week of twelve-hour days in the field. Unlike mobile computers, software for digital pens does not require complex training, support, or suffer from limited use in harsh environments. Capturx eliminates transcriptions errors, enabling teams to focus simply on data review. If there is a data point in question, the reviewer no longer has to search for the archived hard copy, but simply clicks a button to see an original copy of the handwritten form along with date, time, and author stamp.

More Mines Processed – Less Risk to the Community:
Most importantly, the streamlined data processing enables field teams to spend more time in the field planning, surveying, and identifying potential abandoned mine hazards rather than doing paperwork. As a result, hazards can be quickly identified and physically secured based on proximities to population centers, transportation corridors, and recreation sites. Teams are better equipped to quickly and accurately assess potential hazards, making Nevada a safer place for the community.