

INNOVATIVE TECHNOLOGY APPLICATION FORMER LOWRY BOMBING AND GUNNERY RANGE

Sensor Orientation	Integrated sensor orientation measurement devices, used to augment geophysical sensor data were initially completed at the FLBGR Test Plot. These orientation data are essential for application of target discrimination technologies. This project supports ESTCP.
Target Discrimination	An extensive project was successfully executed to apply target discrimination methods in conjunction with the clearance of CWM shipping containers (PIGS). This included evaluation of several magnetic and electromagnetic sensors and application of advanced modeling methods.
Target Discrimination	This ESTCP “Live Sites” project entails collection of sophisticated geophysical data in conjunction with clearance activities to evaluate and optimize the use of advanced sensor collection procedures and modeling approaches to reduce false alarm rates.
Target Discrimination	A comprehensive EDRC project is underway at FLBGR to define optimal methods for effect reduction of false alarm rates using innovative data collection, interrogation and data analysis methods. This work leverages ongoing FLBGR UXO clearance activities.
Laser Positioning	The FLBGR site was used to test, evaluate and deploy innovative positioning system technology based on laser robotic total stations. This project supports ESTCP.
Wireless Communication	The FLBGR site was used as a test-bed for use of new data collection and communication technologies that exploit Bluetooth devices. The successful use of this technology improved efficiency and data quality.
SAR	FLBGR was the first UXO clearance site where synthetic aperture radar technology was deployed to define areas of UXO contamination. Additionally, recent SAR data have been collected supporting a new comprehensive ESTCP wide area assessment technology development effort.
LiDAR	Light Detection and Ranging imagery was collected at data FLBGR representing the first deployment of this technology supporting UXO characterization activities at a live site. Additionally, recent LiDAR data have been collected supporting a new comprehensive ESTCP wide area assessment technology development effort.

INNOVATIVE TECHNOLOGY APPLICATION FORMER LOWRY BOMBING AND GUNNERY RANGE

Hyperspectral Imaging	Hyperspectral imaging technology was collected at data FLBGR representing the first deployment of this technology supporting UXO characterization activities at a live site. Additionally, recent hyperspectral data have been collected supporting a new comprehensive ESTCP wide area assessment technology development effort.
Geophysical Data Center	The GDC concept was developed and implemented at FLBGR to streamline the collection, management and sharing of geophysical data supporting UXO activities. The GDC integrates geophysical field data, analysis results, archival database information, and excavation data within a web-enabled GIS structure.
Data Portals	The first comprehensive Web-based information portals were developed at FLBGR. These systems allow for simplified and secure access to facility information supporting UXO activities and various GIS-based visualization tools.
Helicopter Mapping	FLBGR will be used as a test facility for the innovative application of helicopter-based magnetometer surveys. Based on a Cooperative Research and Development Agreement (CRADA) with the Naval Research laboratory, data from these surveys are used to accurately define the footprint of UXO contamination.
Visual Sampling Plan	VSP statistical assessment technologies, funded by SERD, have been applied by Sandia National Laboratory using geophysical data collected by Sky Research to estimate the spatial extent and degree of UXO contamination within the footprint of FLBGR bombing targets.
RangeMaster	The RangeMaster surface UXO removal technology will be evaluated at FLBGR by Timberline as part of an ESTCP effort. This system allows for the automated, rapid and safe removal of small UXO items to a depth one foot.