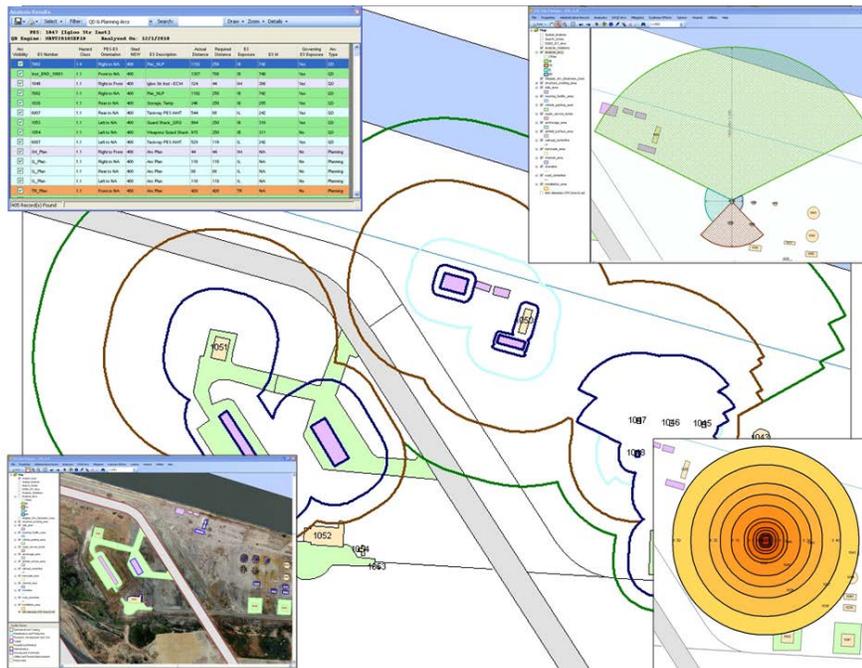


Explosives Safety Siting (ESS) Software

Technology Description

The Naval Facilities Engineering and Expeditionary Warfare Center (NAVFAC EXWC) manages the Explosives Safety Siting (ESS) software program and serves as the central design authority for the software on behalf of the DoD Explosives Safety Board (DDESB).

The ESS software is a Geographic Information System (GIS) software application that automates the calculation and display of Explosives Safety Quantity Distance (ESQD) arcs for explosives storage or handling sites. ESS software tools are used to assist with the development of site plan maps and packages. NAVFAC EXWC works with DDESB, the Naval Ordnance Safety and Security Activity (NOSSA), and the NAVFAC Enterprise to develop and support the ESS software for use at Navy, Army, and Air Force installations.



Explosives safety site plans are required by Department of Defense 6055.9-STD and NAVSEA OP-5, Ammunition and Explosives Safety Ashore and are used to mitigate the risk involved in ammunition storage and help ensure required ammunition is available to the war fighter. Site planning can be very time-consuming and complicated, so to help with efficiency, the ESS software was developed by NAVFAC EXWC to automate and standardize the process.

The concept behind the ESS software is to use existing installation GIS map data combined with real property inventory data (iNFADS) and explosives safety data to calculate, analyze, and generate ESQD arcs. The GIS data is used for the map display and spatial analysis. Real property data used by ESS includes building numbers and descriptions as well as facility category codes which describe the use of each facility. The explosives safety data consists of a listing of potential explosives sites that identifies the sited net explosive weight for all hazard divisions, building number, and a listing of the types of buildings (operating location, earth-covered magazine, above-ground magazine).

The ESS software is a tool designed to help safety professionals focus more time on important safety responsibilities.

Value to the Warfighter

Each year hundreds of explosive safety site plans are manually developed and submitted for DoD approval by the Navy and other Services. The planning and siting for explosives ordnance handling and storage is a complex, high-risk, time intensive and error-prone activity that too often results in an inefficient use of land and facilities. The ESS software automates and standardizes site plan submittal forms and maps which are generated in a fraction of the time compared to manual methods. ESS software tools greatly enhance what-if analysis capabilities and optimizes explosives storage capacity for mission planning.

Economics of the Technology

A Return on Investment was developed to quantify the possible savings of automating the generation of site plan submittal forms and maps using the ESS software compared to manual methods. An analysis of 5 years showed the Navy had an average of 278 Explosive Safety Site Approval Requests (ESSARs) each year at a cost of approximately \$830,000 using traditional manual procedures. Using an Automated Site Planning (ASP) tool such as the ESS software is expected to reduce the cost by 83 percent.

Site Implementation

The ESS software has been implemented at 65 Navy and 63 Army bases. Deployment of the ESS software to Air Force is underway. The ESS software is available for use via NMCI on desktop computers and will also be available for use via a CITRIX connection with the NAVFAC Information Technology Center (NITC) in 2014.

Specific Applications

The ESS software is being used by Navy Planners and Explosives Safety Officers to automate and standardize the generation of site plan submittal forms and maps. ESQD arcs are quickly generated for planning operations. The software is also being used to perform enhanced what-if scenarios to optimize explosives storage capacity for mission planning.

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