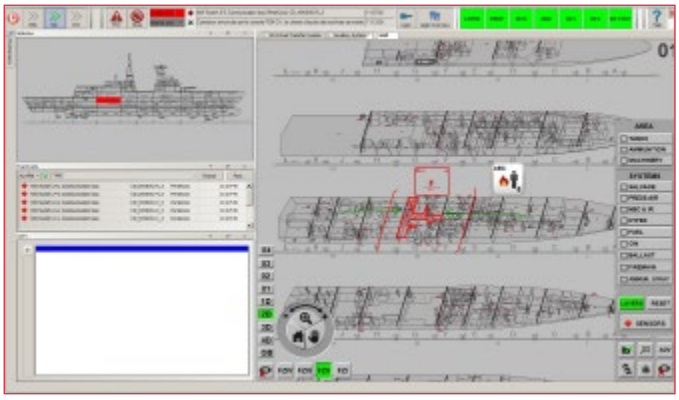
BATTLE DAMAGE CONTROL SYSTEM



Designed to provide full support to officers and decision makers in carrying out their duties, the L3 MAPPS Battle Damage Control System (BDCS) helps the damage control team manage the full range of emergency situations from fire, flood, and smoke to radiation and chemical hazard detection. Fully integrated within the L3 MAPPS IPMS, BDCS information is distributed across all IPMS workstations on the network. The main features of BDCS are as follows:

- Incident management and plotting
- 2-D or isometric representation of the ship's General Arrangement Plan (GAP) on which all plots are performed
- Infinite numbers of layers to display ship systems information as overlay on the GAP
- Works in unison with all damage-control-related Automatic Sequence Controller (ASC) running in the IPMS to automate incident management tasks
- Automated Kill Cards to provide support in managing incident or state transition
- Embedded CCTV support to quickly see incidents or damage
- Direct interaction with ship stability calculation and related advice
- Radiation monitoring and logging
- Management of personnel and material resources
- Casualty management and prioritisation
- Logging and report generation of all damage control events
- Integration with the L3 MAPPS On-Board Training System (OBTS) to provide the best training environment for students/instructors to learn, practice and validate damage control procedures and scenarios
- Expandable to a full expert system by including the latest suite of L3 MAPPS NBCD advisories

SUPPORTED WITH CCTV

The CCTV support can be accessed directly from the GAP by selecting the compartment and then requesting the CCTV image in that compartment. BDCS can be configured to automatically pop up the CCTV image as soon as an active fire sensor is detected in a compartment equipped with CCTV.

INCIDENT MANAGEMENT AND PLOTTING

Incident management is the primary function of the BDCS and can be performed from the same display that is used to perform ship monitoring and control. Therefore, switching between machinery control and damage control is transparent to the operator. Incidents and resource deployment are plotted directly on the GAP and are automatically distributed to all IPMS workstations for fast and accurate update of the situation. This ensures that all parties are making decisions based on the same information. Active sensors and incident progression are easily identified with standard symbols displayed on the GAP. Operators can intuitively select these graphics to get more information or to amend a specific situation.

CLOSE COOPERATION WITH ASCS

The BDCS interacts directly with some ASCs that reside in the control system nodes. Plotting an incident or marking the progression of an incident can stop the ventilation, perform electrical/mechanical isolation of the compartment, start smoke removal, etc.

AUTOMATED KILL CARDS

Automated Kill Cards help the operator to manage a particular incident or to achieve a particular state of ship readiness. Kill Cards are dynamic and interactive checklists that provide full management of an incident by requesting action to be taken at a remote site and also by monitoring the status of various sensors and devices. Request for action, timeout on actions that are not performed, automatic link to mimic pages where action can be performed and link to online help are just some of the features supported by the L3 MAPPS BDCS Kill Card function.

SHIP STABILITY CALCULATION

Built within the BDCS is a full stability package that allows the operator to see the impact of damage and ship condition on the stability of the vessel. The stability package will calculate weight and momentum, lifting arms, hydrostatic values, vessel motion during swells and waves, safe sailing determination and advice. Also, the stability operator can enter a "simulation" mode (i.e., a what-if scenario) in which simulated data can be input to the system so that the effects of these counter measures can be analysed prior to performing them on the actual ship.

EXPERT SYSTEM WITH NBCD ADVISORIES

The BDCS can be even more comprehensive when used in association with the latest suite of damage control advisories. It will use rule-based algorithms to determine the optimal sets of cooling and smoke boundaries, provide smoke removal path and automated smoke removal operation, combustible hazard relocation, optimal escape and attack routes based on current ship closure state, minimize damage by predicting the blast route of unexploded ordnance can be customised to the specific need of the customer.

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