



# CASE STUDY: Bruce Power Improves Control Room Operations with DLAN

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*DLAN Nuclear Power Plant System for Off-Site Communications*

**Buffalo Computer Graphics, Inc.**  
4185 Bayview Road  
Blasdell, NY 14219  
716-822-8668  
Disasterlan.com  
info@bcgeng.com

# Introduction

As part of Bruce Power’s commitment to safety, they approached FutureShield about software products that would enhance the transmission of critical data among internal and external stakeholders. This included the need to validate the data to ensure accuracy to the supporting scientists for Bruce Power and their provincial authority, Ontario Fire Marshal Emergency Management Ontario (OFMEM). FutureShield recommended Buffalo Computer Graphics, Inc. (BCG) to provide both their COTS Incident Management System and to create custom forms and integrations to meet the needs of Bruce Power. BCG and FutureShield worked together to improve Bruce Power’s Control Room Operations by modernizing form submission and enhancing visual situational awareness.

# DLAN Nuclear Power Plant System for Off-Site Communications

Before DLAN, Bruce Power control room operators would manually fax data to the Bruce Power EOC, OFMEM, and the Canadian Nuclear Safety Commission (CNSC) where other staff would enter the information into their respective systems for analysis and tracking.

BCG and FutureShield worked with Bruce Power to replace the fax-based system with DisasterLAN (DLAN). DLAN is a web-based, mobile friendly incident management system that provides tools for shared situational awareness, workflow-based information management, and real-time communication.

With DLAN, control room operators could use hand held devices to gather data on custom forms built to meet Bruce Power’s needs. For example forms were created for SAMG (Severe Accident Management Guideline), Source Term Survey Data, Nuclear Emergency Plan Notification, Station Parameters, and Re-Pressurization. Using these digital forms the Bruce Power stations could share real-time critical plant data and other emergency response data to internal stakeholders and external agencies via a secure cloud-environment.

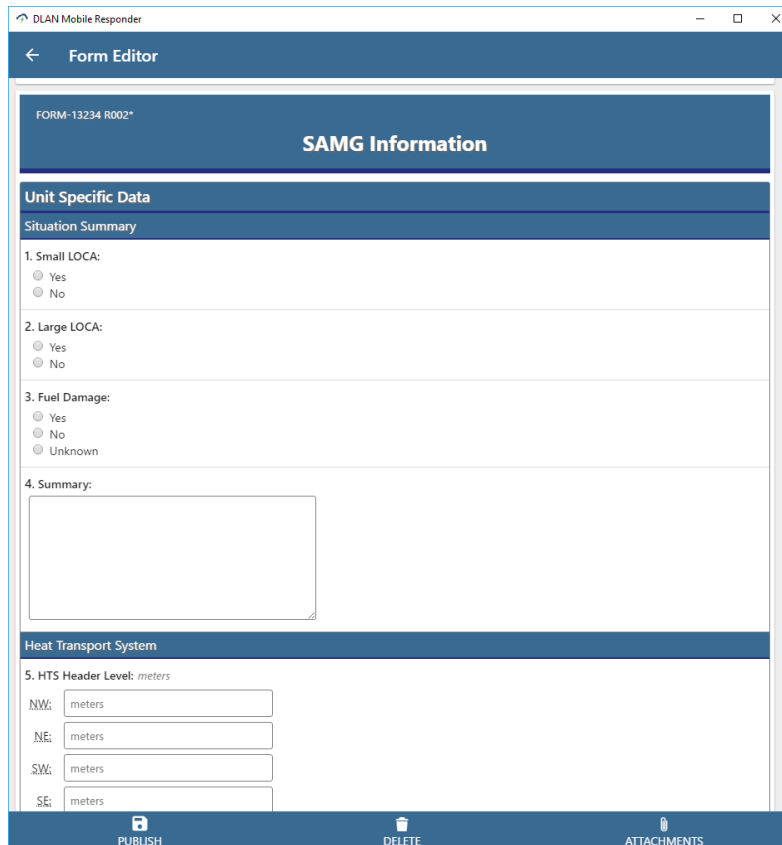


Figure 1: SAMG Form

One of the advantages often cited for using hard copies is that unlike online forms, they are available regardless of connectivity. DLAN mimics this advantage by making forms available anytime, anywhere using store and forward technology. In the case of communications outage, operators can continue to collect data and submit forms when connectivity is restored or even print forms during long term outages.

Since all information is captured in one unified system, dashboards can be created to display form data as graphs and figures to help users visualize and comprehend summary data. Dashboards were also created to allow users to drill down from an overhead view of the stations, to a plant schematic with detailed and verified plant status and data. By creating easily understandable dashboards of information that offer a collaborative approach, decision making during incidents is improved through situational awareness.

Using DLAN Role-based users at the EOC, CNSC, and OFMEM have the capability to drill down on both current and historical data as it arrives from the Control Centre with near real-time interactive graphs.

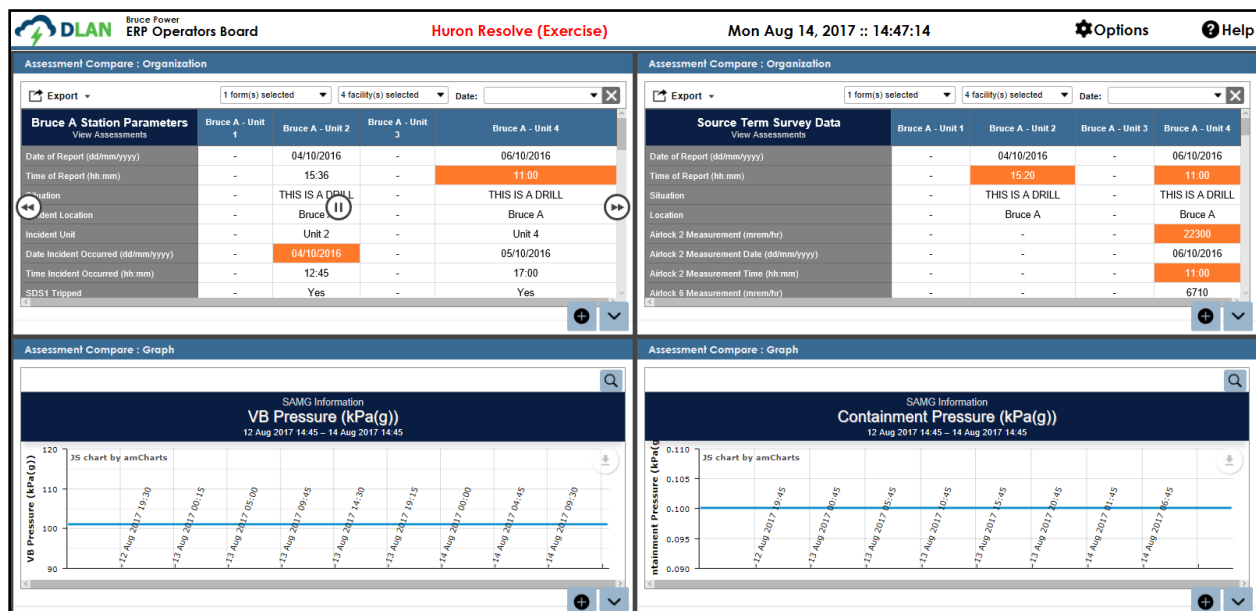


Figure 2: ERP Operators Board

## Huron Resolve Exercise

The DLAN system was tested during Bruce Power's Huron Resolve Exercise. Users found graphics easy to view and understand and the user interface straightforward and intuitive. They found situational awareness was enhanced through the use of maps and schematics. A key advantage of DLAN is that it eliminated primary reliance of fax machines, which are a cumbersome technology at best. Since the system also captures all response information, it allows for easy, unified situation reports and after-action reporting.

## Conclusion

Working together BCG and FutureShield were able to turn Bruce Power's vision into reality. The new system allows Bruce Power's control room operators to easily communicate key information to the Bruce Power EOC as well as external stakeholders, CNSC and OFMEM. Easily comprehensible dashboards allow all stakeholders to easily view, analyze, and report on data improving situational awareness and safety.

## About the Authors

### About Buffalo Computer Graphics Inc.

DLAN is engineered by Buffalo Computer Graphics, Inc. (BCG), a veteran owned US small business that has over 30 years of experience in software, hardware, and systems engineering.

### About FutureShield Inc.

FutureShield Inc. was founded in Toronto, Canada in 2005 on the premise that there is a strong need for domain expertise in integrating software solutions for security, emergency management, and critical infrastructure protection.

### About Bruce Power

Bruce Power operates the world's largest operating nuclear generating facility and is the source of about 30 per cent of Ontario's electricity. The company's site in Tiverton, Ontario, is home to eight CANDU reactors. Formed in 2001, Bruce Power is an all-Canadian partnership among Borealis Infrastructure Trust Management (a division of the Ontario Municipal Employees Retirement System), TransCanada, the Power Workers' Union and the Society of Energy Professionals. A majority of Bruce Power's employees are also owners in the business. Learn more at [www.brucepower.com](http://www.brucepower.com).