

WORLD-CLASS SPILL RESPONSE

Enbridge and Burns & McDonnell Team Up to Maximize Efficiency and Effectiveness in Cleanup

On July 26, 2010, a 30-inch pipeline carrying crude oil from Griffith, Ind., to Sarnia, Ontario, ruptured. Line 6B, part of the Lakehead Pipeline — the world's longest petroleum pipeline, owned by Enbridge Energy Partners, L.P. (U.S.) and Enbridge, Inc. (Canada) — spilled an estimated 19,500 barrels of oil near the town of Marshall, Mich.

After heavy rains, Talmadge Creek and the Kalamazoo River were near flood-stage. The oil quickly found its way to the swollen creek and was carried to the rushing waters of the Kalamazoo River. The oil continued down the Kalamazoo River approximately 35 miles to the Morrow Lake delta.

The spill needed to be contained. If it overtopped the dam at Morrow Lake, it was just 80 more river miles to Lake Michigan.

Call to Battle

As the federal agency in charge of the spill response, the U.S. Environmental Protection Agency (EPA) took a leadership role in the unified command and mobilized an Incident Management Team of federal, state and local agencies.

As cleanup began, Enbridge engineering supervisor Vince Kolbuck called Trevor

McIntyre, a Burns & McDonnell engineer he had worked with on another project. Burns & McDonnell environmental professionals from multiple offices, armed with the company's OneTouchPM® proprietary software tool, quickly built a dedicated team to help Enbridge respond to the spill. Mike Swieca, a seasoned environmental remediation manager and former EPA emergency responder, would lead the spill response during the day shift, and Trevor Gustafson, an experienced responder, filled that role at night.

Round-the-Clock Support

Swieca and McIntyre attended the command post meeting at 7 a.m. the next morning. By this time more than 50 contractors were on site attacking the release. Enbridge's goal was to contain the oil no matter what it took — and make sure oil didn't reach Morrow Lake. The plan was to double the amount of resources on the river and the amount of boom in the river by week's end.

The more than 38-mile site stretching from the rupture point to the Morrow Lake Dam was divided into five sections with multiple control points in each section. Enbridge needed an ongoing, accurate picture of what was happening throughout the linear site. Recognizing the EPA's reporting requirements and the logistics of managing resources on the river, Burns & McDonnell professionals were teamed with Enbridge supervisors to assist with managing the resources of the massive spill response.

"My guys on the front lines didn't realize how valuable you Burns (& McDonnell) guys would be," Kolbuck later told Swieca. "They couldn't do it without you. Thanks."

Massive Response

The strategy for containing and removing the spilled oil involved identifying control points along the river where boom could be stretched to direct and trap the oil. Once held, the oil could then be skimmed or siphoned from the

Facing page, top left: Burns & McDonnell engineers prepare to build a 10-acre temporary decontamination facility along the Kalamazoo River. Top right: Crews conduct flushing activities to remove oil from the water in the Battle Creek Mill Pond area. Center: In the days following the release, oil and water top the Ceresco Dam on the Kalamazoo River. The same region is shown cleaned and restored on the cover of this *BenchMark* issue. Lower left: Containment and sorbent boom surround an island in the Kalamazoo River. Lower right: Workers clean up the river shoreline.



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water. Within the first week of the response, Enbridge was employing more than 730 workers at the site. While an arduous cleanup still lay ahead, the oil was contained.

“Burns & Mac folks were there from the start of the incident in Marshall and were an integral part of what we have accomplished in the weeks and months after the spill,” says Brad Salo, compliance coordinator, U.S. compliance for Enbridge Energy Co. Inc. “In my book, they get an A+ when it comes to professionalism and responsiveness.”

The 38-mile site was continuously being assessed and redefined. It eventually grew to encompass more than 40 control points, 1,778 field personnel, 338 regulators and

420 management personnel. Marshall’s population, 7,100 in July, exploded to more than 9,600 by September. Enbridge had been part of the Marshall community for more than 40 years, and it proved its commitment to the city in containing and cleaning up the oil.

As Enbridge put systems in place, knowing where its resources were on the river and where resources were needed became a key function of its operations and strategic planning teams — and Burns & McDonnell was a key partner in providing that information. OneTouchPM was a valuable tool in the effort, combined with extensive Burns & McDonnell experience in large, linear construction projects.

Instant Intelligence

The teams gathering information on the river needed to convey it back to the incident command team. To make that possible, a Burns & McDonnell information management team, led by Wes Hardin and Garry LaBelle, created a customized OneTouchPM mobile application that allowed real-time updates. Field observations, photographs and documents the team members uploaded could be seen instantly by everyone with access to the password-protected system. In addition to field data, data from EPA and other contractors were incorporated into the system. Enbridge adopted OneTouchPM, dubbing the system its “real-time tactical evaluation tool.”



Workers dredge the Kalamazoo River above the Ceresco Dam.

Incident Command System

In accordance with the Federal Emergency Management Agency’s National Response Plan, the Incident Command System (ICS) was used for command, control and coordination of the emergency response in Marshall.

Burns & McDonnell worked with all involved agencies and as an extension of the Enbridge staff. The Burns & McDonnell teams’ knowledge and proficiency with the ICS helped Enbridge accurately meet many deadlines.

A primary component of the ICS is the Incident Action Plan (IAP). The IAP establishes measurable strategic objectives during each operational period. Burns & McDonnell professionals served in key positions during the Marshall response to assist Enbridge in preparing and implementing the IAP.

“I’d like to reiterate the extremely high level of customer service we’ve received from Burns & Mac personnel,” wrote Jonathon Thiessen, situation unit leader for Enbridge. “Their ability to deliver on EPA’s requests in a timely manner has built credibility and facilitated the transfer of responsibility to Enbridge through this transition phase.”

All information gathered at the site, including more than 140,000 geo-referenced date- and time-stamped photos, the number of people responding each day, the number of feet of boom deployed and the quantity of oil recovered all became part of the wirelessly accessible, continually updated database, along with communications about safety and methodology and volumes of other information. This allows future users of the system to recreate what happened at any location on any date throughout the spill area.

“Burns & Mac provided a critical role in our response to the Marshall release,” says Mike Moeller, Enbridge response operations chief. “Their field personnel were professional and their experience with linear projects proved invaluable to gathering, organizing and presenting daily data. OneTouchPM is a powerful tool that housed all relevant data. Its best quality is ease of use. We had a system set up in the forward command post to use during discussions and decision-making conversations. Anyone could navigate through the OneTouchPM system without being a GIS specialist.”

Total Team Effort

As the response efforts on the river continued to grow, requests continued to come in for the Burns & McDonnell team, which provided 24-hour, seven-days-a-week incident command, field supervisory and documentation support throughout the clean-up area. Burns & McDonnell supported the response in other areas, such as material management in the supply yards, wastewater treatment, and procurement and orientation of subcontractors. It also designed and managed construction of earthen containment berms and a large decontamination pad for oil-covered equipment.

High Praise

“Without the help and dedication from companies such as (Burns & McDonnell), we would not have been able to accomplish what we did in such a short time frame,” wrote Enbridge President and Chief Executive Officer Patrick Daniel.

For more information, contact Mark Knaack, 816-822-3306.

Faster SCAT

The Burns & McDonnell team used OneTouchPM mobile to help speed up the Shoreline Contamination Assessment Teams (SCAT) natural resource damage assessment and floodplain assessments along the banks of the river.

For the assessments, teams made up of a representative from the EPA, the Michigan Department of Natural Resources and Environment, the Fish and Wildlife Service, and Enbridge contractor Cardno Entrix minutely examined the area along the 30-mile stretch of river shore, taking detailed notes on the type of vegetation, noting the position and amounts of oil, and indicating the recommended cleanup method for each area of concern identified — all with pencil and paper.

Service at Warp Speed

“As the cleanup progressed, it became clear that the speed of the SCAT team was becoming a limiting factor to the speed of the cleanup,” says Mark Knaack, Burns & McDonnell situation unit leader on the ICS team. “Working very quickly, our information management team created a new Google Mobile application customized to the needs and specifications of the SCAT and floodplain assessment teams.”

Tool Triples Productivity

Equipped with GPS-enabled laptops displaying a custom background map with site-specific control-point markers, the teams of trustees could see their locations in the field on the interface, mark the GPS coordinates, take a photograph, and instantly update the database with the image and notes as to the cleanup method required.

Each SCAT team’s progress updates were immediately available throughout the site and back at the Unified Command Center, allowing Enbridge operations to immediately respond in the field to any cleanup recommendations made by the trustees.

“The use of the mobile app combined with OneTouchPM tripled the productivity of the SCAT teams and greatly reduced the time between the initial assessment and final signoff of each area of concern,” Knaack says.

After using the mobile SCAT application, SCAT leader Denise Kay of Cardno Entrix commented that the use of the new tool “revolutionized how SCAT will be performed from now on.”



OneTouchPM provides a dashboard of information for managers, including real-time updates from field staff.