



CANADIAN ENVIRONMENTAL TECHNOLOGY VERIFICATION

Enhancing the Credibility of Environmental Technologies

TECHNOLOGY VERIFIED: Katch Kan™ System

Performance Claim

When installed on a drilling or service rig in accordance with the manufacturer's recommendations, the Katch Kan™ System enables the collection and retention of drilling fluids released from the drill pipe during tripping operations. At a 95% confidence level, Katch Kan™ System results in no greater than 1% of the released fluids escaping to the environment directly below the rig floor, under the specified operating conditions.

Installation conditions:

- The Katch Kan™ System technology was installed on the oil and gas Aikita 41E drilling rig manufactured in 2015;
- Drilling rig has a 9.1 meters (m) floor height and a 6500 m drilling capacity; and
- Installation is fitted and completed by the Vendor's trained and qualified personnel in accordance with their quality management system.

Operational conditions include:

- The use of a 4-1/2-inch, SS105, 16.6 lbs/ft drill pipe with DS40 connections;
- The tripping activities are undertaken by crew that is competent in using the Technology; and
- During favorable summer weather conditions.

VERIFIED* PERFORMANCE:

March 2017

License Number: ETV 2017-01

Issued to: Katch Kan™ Ltd.

Expiration Date: March 31, 2020

John D. Wiebe, PhD
Executive Chairman



Canada

* This verification conforms to the Canadian ETV Program's General Verification Protocol and the ISO 14034:2016. Please refer to Technology Fact Sheet for additional information on the verification of this performance claim.

CANADIAN ETV VERIFIED

Katch Kan™ System

Technology Fact Sheet for Katch Kan™ Ltd.



Performance Claim

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Performance and Operational Conditions

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Technology Description and Application

The Katch Kan™ System is designed to collect and retain drilling fluids released during tripping events. The Katch Kan™ System helps prevent drilling fluid from being released onto the derrick floor. The System also collects and re-directs drilling fluid from the derrick floor back into a containment system. Drilling fluid captured by the Katch Kan™ System can be re-introduced into the drilling rig's fluid circulation system. The Katch Kan™ System is composed of two components:

1. **Rig Safety System™ (RSS):** The RSS™ consists of an inventory of tools and equipment designed for use on the floor of the drilling rig. RSS™ features specific to fluid containment include the following:

- The Kelly Kan™ to control and redirect drilling fluids back into the annulus
- The Splash Guard™
- Mats to collect and retain drilling fluids released to the floor of the rig
- The adjustable containment structure and second stage low profile Katch Kan™ which collects fluids from the rig floor and discharges them to a containment system.

Environmental Technology Verification

Technology Description and Application (cont'd)

2. Zero Spill System™ (ZSS): The ZSS™ is mounted on the blowout preventer (BOP) in the substructure and consists of containment structures that are placed under the floor of the drilling rig. The ZSS™ is installed and sealed with clamps and latches to the upper section of the BOP and includes the following components:

- The upper Katch Kan™ to redirect drilling fluid from the derrick floor into the annulus
- The adjustable containment structure and second stage low profile Katch Kan™ which collects fluids from the rig floor and discharges them to a containment system.

Verification

The data and information provided by Katch Kan™ Ltd. to support the performance claim verification included the following:

- Test Report: "Technical Assessment of the Katch Kan Spill Containment System," prepared by December 2015 by WSP of Calgary, Alberta, Canada.
- Formal Application to Canadian Environmental Technology Verification
- Katch Kan™ Ltd., Certificates of Registration for ISO 9001:2008 and ISO 14001: 2004

The verification was completed by The Edmonton Waste Management Centre of Excellence of Edmonton, Alberta, employing the Canadian ETV Program's General Verification Protocol (March, 2000) and conforming to the ISO 14034:2016 Environmental management -- Environmental technology verification (ETV).

What is Canadian ETV?

Canadian Environmental Technology Verification (ETV) is delivered by GLOBE Performance Solutions under a license agreement from Environment Canada. Canadian ETV is designed to support Canada's environment industry by providing credible and independent verification of technology performance claims.

For more information on the Katch Kan™ System please contact:

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