



## *SUBSURFACE OIL DETECTION AND DELINEATION USING CANINE DETECTION OR K9-SCAT TEAMS*

In June 2015, OCC and K2 Solutions completed a series of successful field tests on behalf of the American Petroleum Institute (API). The trials, which demonstrated a 99.7% accuracy over a range of 21 tests, were related to shoreline, inland and pipeline scenarios. The tests are described and the results summarized on a poster that was presented at the 2015 Clean Pacific Conference in British Columbia and which can be accessed at:

<http://www.shorelinescat.com/Documents/Subsurface%20Oil/Clean%20Pacific%20Poster.pdf>

For information purposes, listed below is a range of possible canine oil detection applications to support shoreline, and inland or pipeline work.

**For shorelines, lake shores, river banks and terrestrial environments,** K9-SCAT teams can:

- conduct an off-leash Wide Area Search (WAS) to "clear" areas for No Detectable Oil (NDO) surface or subsurface oil as part of an initial ground survey or as part of a post-cleanup inspection ("sign off") process within a SCAT survey program,
- delineate subsurface oil with on-leash search patterns if oil is located by a WAS, and
- operate in wetlands and scrub land, where aerial or ground observers may not be able to detect surface or subsurface oil, or on difficult terrain such as vegetated bedrock, boulders or rip rap.

**For onshore and shallow underwater pipelines,** oil detection canines have the proven potential to support pipeline integrity management, particularly in the following areas:

- Routine inspection, as part of an integrity management plan
- Situations where corrosion has been identified by In Line Inspection (ILI), and a verification of 'no leak' is required
- Situations where coating problems have been identified by above-ground surveys
- Pipelines that cannot be "pigged"
- Delineation of the area of a subsurface leak
- Locations with poor cathodic protection coverage
- Cases where there are suspected 'illegal taps' and theft
- Following a hydrotest (where water has been scented and the dog can locate any leak)

**Oil detection canines:**

- ✓ are highly cost effective
- ✓ can work in snow and ice conditions
- ✓ can locate small quantities of oil (<0.1mL)
- ✓ currently have demonstrated the ability to detect subsurface oil to 90cm (but have the potential, as yet untested, to detect to greater depths)
- ✓ can be imprinted to detect multiple target scents
- ✓ can inspect up to 5 km of pipeline per day, singly or in pairs
- ✓ have shown the ability to detect oil under water for shallow river, lake or shoreline areas during informal testing
- ✓ can quickly pinpoint the area of highest concentration and therefore the approximate leak location

Our trained canine teams and K9 SCAT support scientists are based in the USA, and are available for deployment worldwide at short notice.

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**FOR FURTHER DETAILS AND INFORMATION CONTACT:**

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**ADDITIONAL INFORMATION RESOURCES:**

Subsurface Oil Detection: <http://shorelinescat.com/SOD.html>

Video: <https://vimeo.com/user12911942/review/130477589/651f66b890>