

Quicksand™

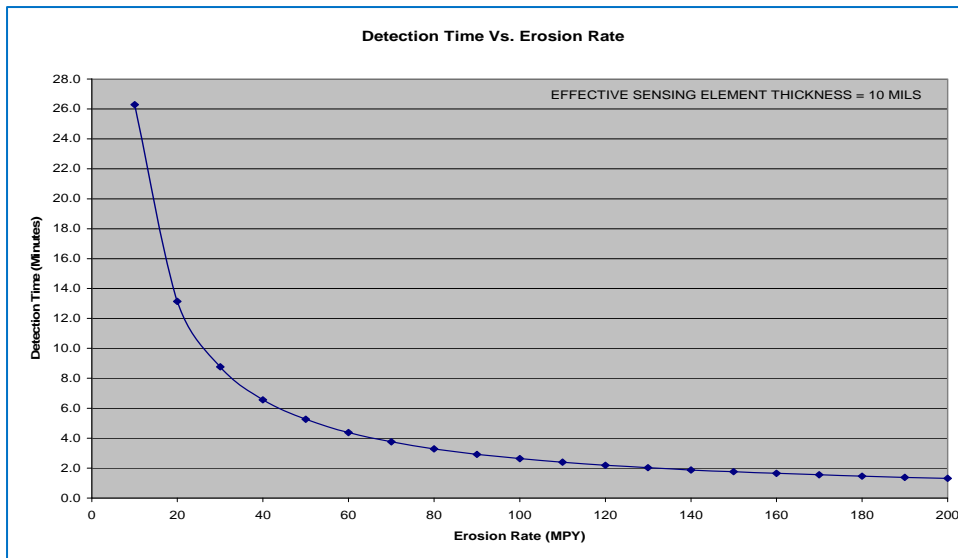
Erosion Detection System

The Problem

Sand production in oil and gas producing wells can cause rapid erosion and wear of top side equipment such as chokes, valves, and flow-lines. In addition, it may cause serious formation damage. Rapid detection and remediation of sand producing/erosion episodes is necessary to prevent short-term failure of topside equipment, and cumulative formation damage.

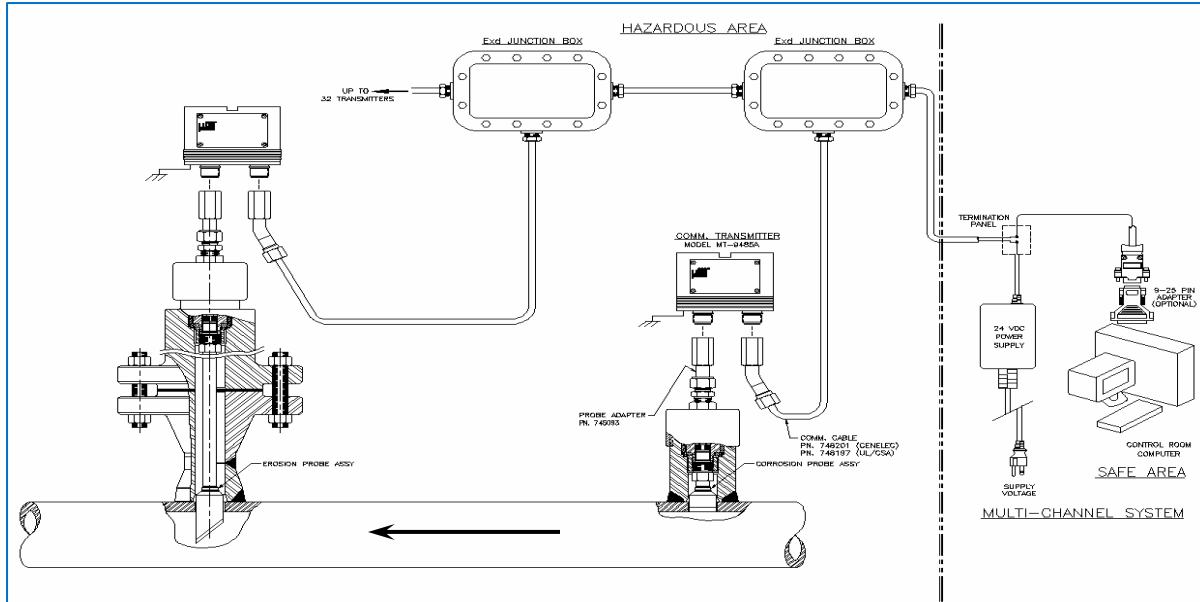
The Solution

RCS offers a range of metal loss sensors and instrumentation, designed specifically to detect sand erosion at speeds approaching real time. Typical detection times for various sand erosion rates are shown below:



Sensing elements for the Quicksand erosion measurement system can be made from almost any commercially available alloy. Less corrosion resistant materials, such as carbon steel, will show the combined effects of corrosion, and erosion, whereas more resistant alloys, such as duplex stainless steel or Hastelloy, will show erosion effects exclusively. Quicksand probes and instrumentation can be fully integrated with other digital loop transmitters manufactured by RCS, such as Linear Polarization (CORRATER®), or high resolution electrical resistance (MICROCOR®), to provide a comprehensive corrosion/erosion monitoring solution within a single digital communication and data handling system.

The areas experiencing the most severe effects of erosion are the outer diameters of bends and areas downstream of changes in pipeline diameter. However, the Quicksand probe is best placed with its sensing element at the center of the line in a straight run pipe section where the greatest flow rates are experienced, since this is the place where the highest concentrations of sand are typically found.



Typical On-Line Monitoring System

A Typical Quicksand System Consists of the Following:

Probe

Two versions are available. The rugged, all welded cylindrical element model S4500 with a specially designed element support shield is suitable for severe flow or high temperature applications. The angled element S4700 probe is exposed to the flow at a 45° angle, simulating a change in direction in the pipe. The maximum temperature of this probe is 400°F, and is recommended for less severe flow rates of less than 25 ft/sec. Both these probes are mounted in the Cosasco line of high pressure access fittings; however, alternative mounting methods are available. Please contact the factory for more information.



S4500 Probe



S4700 Probe

Transmitter

The ST-9485A erosion transmitter is mounted directly on the probe, using the appropriate probe adapter. Connection to the monitoring system is made using an industry standard RS-485 multi-drop connection. This line may be attached to a number of ST-9485A erosion transmitters, MT-9485A MICROCOR corrosion transmitters, and E9020 CORRATER transmitters. Alternatively, each transmitter may be attached to a ML-9500B data logger.

Ordering Information:

- ST-9485A Erosion Transmitter**

Probe adapter: P/N 745093 Probe adapter for retrievable probes

Transmitter to

Junction Box Cable: P/N 748197-L Flexible Ex-proof connection (UL/CSA)

P/N 748201-L Flexible connection (CENELEC)

Local Junction Box: P/N 702181-1 Hazardous area junction box

- ML-9500B Data Logger**

Transmitter to

Data Logger Cable: P/N 748203-L (UL/CSA)

P/N 748202-L (CENELEC)

- Checkmate DL Data Transfer Unit**

PC Power &

Interface Module: P/N 748237 RS232/485 converter & 24VDC power supply

Probes:

Model	Retrievable Quicksand Probe	
S4500	Complete Probe Assembly, Cylindrical Element	
	Code	Element Form and Thickness
	S10	Cylindrical, 10 mil thickness (5 mil life)
	S20	Cylindrical, 20 mil thickness (10 mil life)
	S50	Cylindrical, 50 mil thickness (25 mil life)
	Code	Element Alloy
	XXXXXX	Enter UNS Number
	Code	Order Length
	LL.LL	Order Length in Inches
		2.75" min, 36.00" max for T10
		4.50" min, 36.00" max for T20
		10.50" min, 36.00" max for T50
S4500	S20	S31803 — 6.00

← Example

Model	Retrievable Quicksand Probe	
S4700	Complete Probe Assembly, Angled Element	
	Code	Element Form and Thickness
	S10	Angled, 10 mil thickness (5 mil life)
	S20	Angled, 20 mil thickness (10 mil life)
	Code	Element Alloy
	XXXXXX	Enter UNS Number
	Code	Order Length
	LL.LL	Order Length in Inches
		2.00" min, 36.00" max
S4700	S20	S31803 — 6.00

← Example



Rohrback Cosasco Systems, Inc.
 11841 East Smith Avenue
 Santa Fe Springs, CA 90670, USA
 Tel: (1) 562-949-0123 Fax: (1) 562-949-3065
 US Toll Free: 800-635-6898
 E-Mail: sales@rohrbackcosasco.com
 Web Site: <http://www.rohrbackcosasco.com>



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