



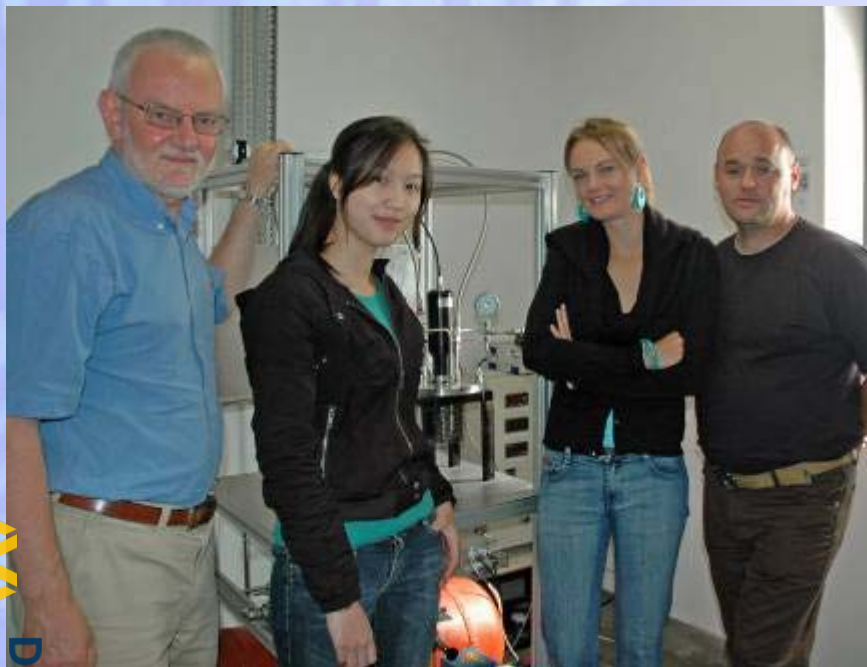
ESDU SPE-M4-1

Stirred vessel fouling tests

Unamended
Issued 01 Oct 2007



CRUDE OIL FOULING PROJECT SUB-PROJECT E : STIRRED VESSEL FOULING TESTS



**Professor Barry Crittenden
Mr Andrew Young (PhD Student)
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Miss Gabriella Thomas (VI Form Student)**

**Meeting with CROF Collaborators
@ Imperial College of Science and
Medicine LONDON
25th Sept 2007**

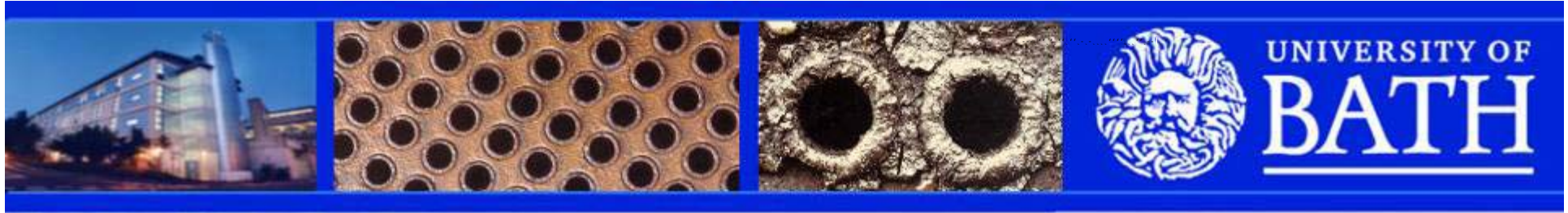
(CROF Sub Project E - www3.imperial.ac.uk/crudeoilfouling)



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Outline

- I Objectives & Links to Sub-Projects
- II Cell Design and Construction
- III Cell Calibration and Commissioning
(Paratherm, Distilled Water, Crude)
- IV Work In Progress
- V Compensation Effects
(Crude Oil, Polystyrene)



SUB-PROJECT (E) - OBJECTIVES

1. Design & construct stirred cell to Eaton & Lux design (c.30 bar & c. 300°C surface temperature);
2. Obtain representative data over wide range of conditions for comparison with theoretical models developed under Sub-Project C & for input to Sub-Projects involved in chemistry & thermodynamics;
3. Modelling fouling processes under controlled & known conditions of shear stress and temperature (surface & bulk) for further development in Sub-Projects G & H;
4. Provide representative samples of deposits for the Sub-Projects involved in chemistry & thermodynamics.



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***Patent* by P. Eaton and R. Lux 1983**

Concept Features

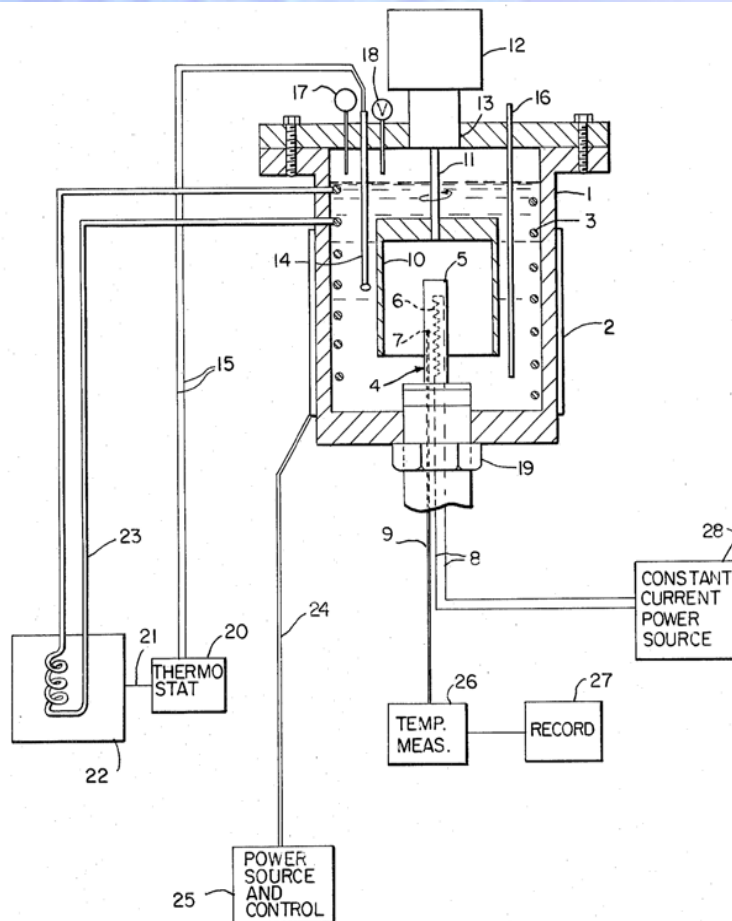
- Small Quantities of Crude (1 litre)
- Heat Exchanger Tube Simulation
- Variable Agitation & Reaction Conditions
- Rapid Generation of Data
- Fouling Runs (3 – 20 bar, t_{surface} to 600 ° C)

Various Prepared Feedstocks

Ashphaltene Solubility & Depletion

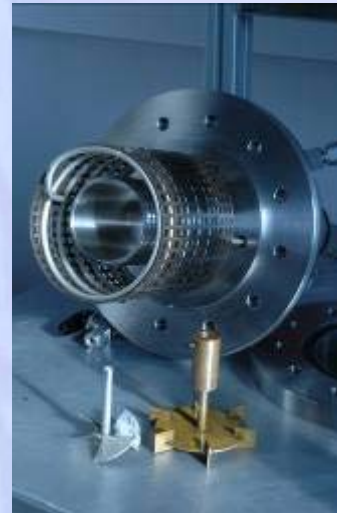
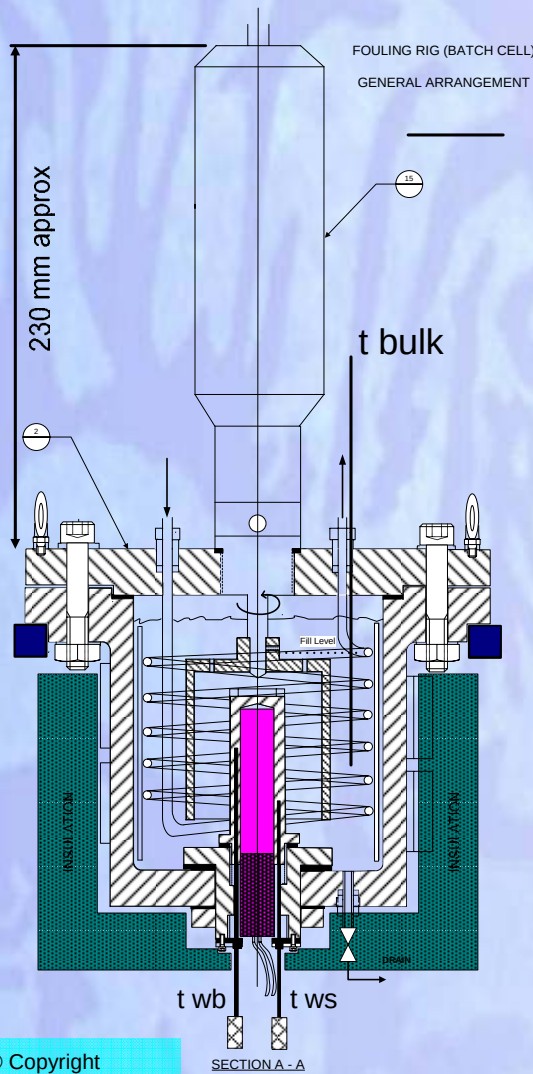
Metal Chlorides Influences

Air - etc





Design Update



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PID - Stirred Vessel & Support Systems

Variables

Chemistry & Materials

Temperatures

Pressure

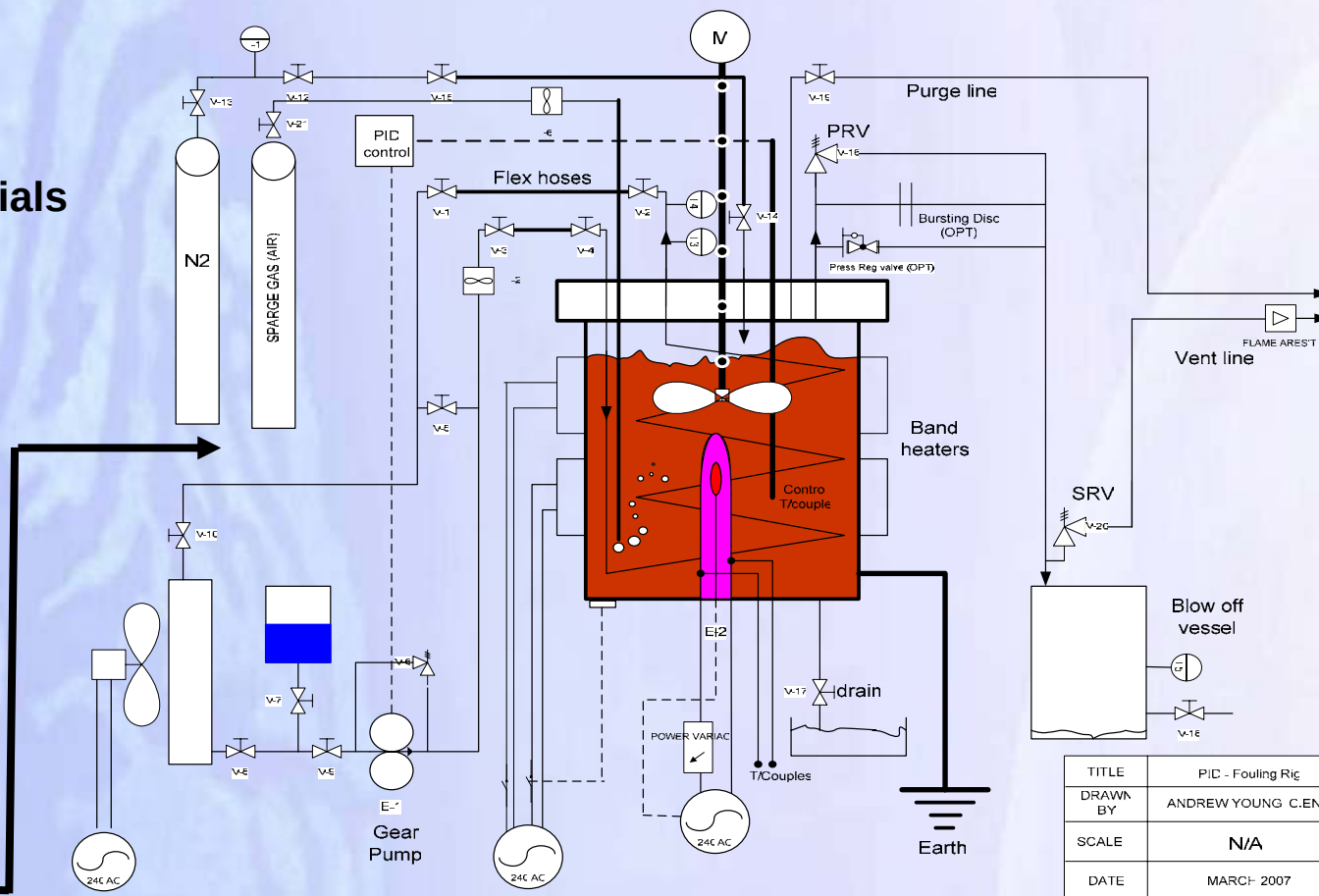
Heat Flux

Sparge Gas

Shear Rate



Computer
Data logger



TITLE	PID - Foulings Rig
DRAWN BY	ANDREW YOUNG C.ENG
SCALE	N/A
DATE	MARCH- 2007

NB DIAGRAMMATIC ONLY

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