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(71) Applicant (for all designated States except US): SHELL
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B.V. [NL/NL]; Carel van Bylandtlaan 30, 2596 HR The Hague (NL).

(71) Applicant (for US only): SHELL USA, INC. [US/US];
P.O. BOX 576, Houston, Texas 77001-0576 (US).

(72) Inventors: LU, Ligang; 3333 Hwy 6 South, Houston, Texas 77082-3101 (US). ZHANG, Shun; 77 Massachusetts Ave, 37-312, Cambridge, Massachusetts 02139 (US). YANG, Huihui; 3333 Hwy 6 South, Houston, Texas 77082-3101 (US). TSAI, Kuochen; Westhollow Technology Center, 3333 Hwy 6 South, Houston, Texas 77082-3101 (US). SIDAHMED, Mohamed; 3333 Hwy 6 South, Houston, Texas 77082-3101 (US).

(74) Agent: SHELL LEGAL SERVICES IP; PO BOX 384,
2501 CJ The Hague (NL).

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(54) Title: SYSTEM AND METHOD FOR PREDICTING CORROSION RATE IN A PIPE SECTION

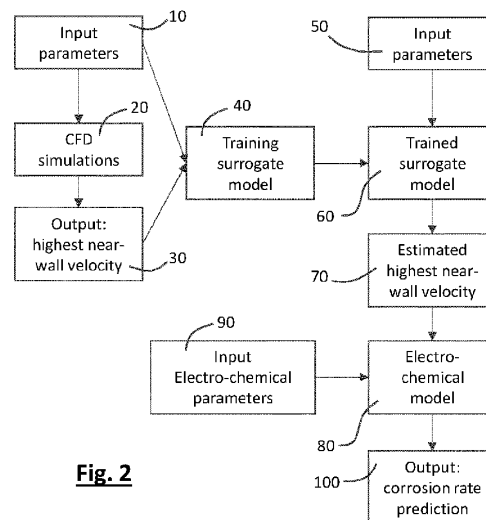


Fig. 2

(57) **Abstract:** A computer-implemented approach has been developed to estimate corrosion rate (100) in a section of a pipe transmitting a corrosive substance. A trained surrogate model (60) is provided to output an estimated value of maximum near-wall velocity (70) of the substance in the pipe section. The estimated value of maximum near-wall velocity (70) is then fed into a computerized electrochemical model (80), together with electrochemical parameters (90) associated with the corrosive substance, which electrochemical model then determines an estimated corrosion rate (100) imposed on the pipe section by the corrosive substance. The surrogate model is trained using results of a full physics-based simulation. Once it has been trained, the surrogate model can generate the estimated value of maximum near-wall velocity (70) much faster than the full physics-based simulation can.

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