Abstract: The present invention is a method for detecting an abnormal event for process units of a Delayed Coking Unit. The method compares the operation of the process units to statistical and engineering models. The statistical models are developed by principal components analysis of the normal operation for these units. The engineering models are based statistical and correlation analysis between variables. If the difference between the operation of a process unit and the normal model result indicates an abnormal condition, then the cause of the abnormal condition is determined and corrected.

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INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER
IPC: G06F 11/00(2006.01)

USPC: 702/182,183,184,700/108
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S.: 702/182,183,184,700/108

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>US 6,925,338 A (ERYUREK et al) 2 August 2005, column 1 lines 27-29 and column 7 line 11-column 31 line 8.</td>
<td>1-11,14-34,36-48</td>
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<td>12-13,35,49</td>
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<tr>
<td>Y</td>
<td>US 6,760,639 A (KALLELA et al) 6 July 2004 (06.07.2004), column 6, lines 1-12</td>
<td>35,49</td>
</tr>
</tbody>
</table>

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"A" document member of the same patent family

Date of the actual completion of the international search: 29 May 2008 (29.05.2008)

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