

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

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| Applicant's or agent's file reference 2007P01462WO | FOR FURTHER ACTION | | See item 4 below |
| International application No. PCT/EP2008/051282 | International filing date (<i>day/month/year</i>) 01 February 2008 (01.02.2008) | Priority date (<i>day/month/year</i>) 16 February 2007 (16.02.2007) | |
| International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237 | | | |
| Applicant SIEMENS AKTIENGESELLSCHAFT | | | |

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|--|-------------------------------------|---|---------------------|--------------------------|------------|----------|--------------------------|-------------|--|--------------------------|------------|----------------------------|-------------------------------------|-----------|---|--------------------------|------------|-------------------------|-------------------------------------|-------------|--|--------------------------|--------------|---|
| <p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p> | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3. This report contains indications relating to the following items:</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 5%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 30%;">Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p> | <input checked="" type="checkbox"/> | Box No. I | Basis of the report | <input type="checkbox"/> | Box No. II | Priority | <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | <input type="checkbox"/> | Box No. IV | Lack of unity of invention | <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | <input type="checkbox"/> | Box No. VI | Certain documents cited | <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application | <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. II | Priority | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VI | Certain documents cited | | | | | | | | | | | | | | | | | | | | | | |
| <input checked="" type="checkbox"/> | Box No. VII | Certain defects in the international application | | | | | | | | | | | | | | | | | | | | | | |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application | | | | | | | | | | | | | | | | | | | | | | |

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| The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 338 82 70 | Date of issuance of this report 08 September 2009 (08.09.2009) Authorized officer <p style="text-align: center; font-weight: bold;">Agnes Wittmann-Regis</p> e-mail: pt06.pct@wipo.int |
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PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

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| Date of mailing (day/month/year) | See form PCT/ISA/210 |
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| Applicant's or agent's file reference 2007P01462WO | FOR FURTHER ACTION See paragraph 2 below |
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|---|---|---|
| International application No. PCT/EP2008/051282 | International filing date (day/month/year) 01.02.2008 | Priority date (day/month/year) 16.02.2007 |
|---|---|---|

International Patent Classification (IPC) or both national classification and IPC
E21B43/24

Applicant
SIEMENS AKTIENGESELLSCHAFT

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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| Name and mailing address of the ISA/EP | Date of completion of this opinion | Authorized officer |
| Facsimile No. | | Telephone No. |

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/EP2008/051282

| Box No. I | Basis of this opinion |
|-----------|---|
| 1. | <p>With regard to the language, this opinion has been established on the basis of:</p> <p><input checked="" type="checkbox"/> the international application in the language in which it was filed</p> <p><input type="checkbox"/> a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b)).</p> |
| 2. | <p><input type="checkbox"/> This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43bis.1(a))</p> |
| 3. | <p>With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p>a. type of material</p> <p><input type="checkbox"/> a sequence listing</p> <p><input type="checkbox"/> table(s) related to the sequence listing</p> <p>b. format of material</p> <p><input type="checkbox"/> on paper</p> <p><input type="checkbox"/> in electronic form</p> <p>c. time of filing/furnishing</p> <p><input type="checkbox"/> contained in the international application as filed</p> <p><input type="checkbox"/> filed together with the international application in electronic form</p> <p><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search</p> |
| 4. | <p><input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> |
| 5. | <p>Additional comments:</p> |

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

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| International application No. PCT/EP2008/051282 |
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|--|---|--------------------|-----|--|--------------|----|---------------------|--------------------|-----|--|--------------|----|-------------------------------|--------------------|-----|--|--------------|----|--|
| Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement | | | | | | | | | | | | | | | | | | |
| 1. Statement | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%; padding: 2px;">Novelty (N)</td> <td style="padding: 2px;">Claims <u>1-18</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Inventive step (IS)</td> <td style="padding: 2px;">Claims <u>1-18</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> <tr> <td style="padding: 2px;">Industrial applicability (IA)</td> <td style="padding: 2px;">Claims <u>1-18</u></td> <td style="width: 10%; text-align: right; padding: 2px;">YES</td> </tr> <tr> <td></td> <td style="padding: 2px;">Claims _____</td> <td style="width: 10%; text-align: right; padding: 2px;">NO</td> </tr> </table> | Novelty (N) | Claims <u>1-18</u> | YES | | Claims _____ | NO | Inventive step (IS) | Claims <u>1-18</u> | YES | | Claims _____ | NO | Industrial applicability (IA) | Claims <u>1-18</u> | YES | | Claims _____ | NO | |
| Novelty (N) | Claims <u>1-18</u> | YES | | | | | | | | | | | | | | | | | |
| | Claims _____ | NO | | | | | | | | | | | | | | | | | |
| Inventive step (IS) | Claims <u>1-18</u> | YES | | | | | | | | | | | | | | | | | |
| | Claims _____ | NO | | | | | | | | | | | | | | | | | |
| Industrial applicability (IA) | Claims <u>1-18</u> | YES | | | | | | | | | | | | | | | | | |
| | Claims _____ | NO | | | | | | | | | | | | | | | | | |
| 2. Citations and explanations: | | | | | | | | | | | | | | | | | | | |
| <p>1. Reference is made to the following documents:</p> <p>D1: 42 38 247 A1 (SHELL INT RESEARCH [NL]) 19 May 1993 (1993-05-19)</p> <p>D2: GATES I. ET AL: "Steam Injection Strategy and Energetics of Steam-Assisted Gravity Drainage" SPE INTERNATIONAL THERMAL OPERATIONS AND HEAVY OIL SYMPOSIUM HELD IN CALGARY, ALBERTA, CANADA, 13 NOVEMBER, No. Paper SPE/PS-CIM/CHOA 97742, 1 November 2005 (2005-11-01), pages 278-296, XP009101150</p> <p>D3: US 4 456 065 A (HEIM WERNER [CH] ET AL) 26 June 1984 (1984-06-26)</p> <p>D4: US 6 285 014 B1 (BECK THOMAS [US] ET AL) 4 September 2001 (2001-09-04)</p> <p>2. Document D1 is considered to be the closest prior art and discloses (the references between parentheses relate to said document):</p> <p style="padding-left: 40px;">an injection borehole (9) and a feed borehole (13, figure 1). The injection and feed boreholes both have hot steam applied to them during a heating phase (column 1, lines 19-22). After the end of the heating phase,</p> | | | | | | | | | | | | | | | | | | | |

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

during the production phase, only the injection borehole still has hot steam applied to it (column 1, lines 23-28).

Claim 1 differs from D1 in that:

the "injection pipeline is additionally in the form of induction heating with respect to its environment in the depot" and "in addition, the environment of the active area on the injection pipeline is heated by means of induction heating".

2.1 The subject matter of claim 1 is therefore novel (PCT Article 33(2)).

The problem addressed by the present invention can therefore be considered that of:

improving the overall energy balance for feeding the substance which contains hydrocarbon.

2.2 The solution to this problem, as proposed in claim 1 of the present application, involves an inventive step (PCT Article 33(3)), for the following reasons:

D1 does not indicate that the hot steam heating can be assisted by a further, different type of heating. D2 describes a similar method to that in D1, also without any indication of induction heating.

D3 describes a heating and production phase in which hot steam is applied to the injection

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International application No.

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Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

pipeline (6), which is additionally assisted by a radio-frequency heating appliance (column 6, lines 23-26 and 55-59). In contrast to claim 1, the production pipeline (7) from D3 does not have hot steam applied to it, but a cool solvent (column 7, lines 40-42 and 47-48).

It is therefore not obvious to a person skilled in the art either to change the method from D3 and to use hot steam to heat the production pipeline instead of applying cool solvent to it, or to improve the method described in D1 or D2 by a further type of heating.

The same conclusion also applies to independent claim 3.

3. Dependent claims 2 and 4 to 18 likewise satisfy the criterion of inventive step (PCT Article 33(3)).

WRITTEN OPINION OF THE
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International application No.

PCT/EP2008/051282

Box No. VII **Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

1. The independent claims have not been drafted in the correct two-part form (PCT Rule 6.3(b)).

2. Contrary to the requirements of PCT Rule 5.1(a)(ii), the description does not cite documents D1, D3 or indicate the relevant prior art disclosed therein.