

[SS 1] hydraulic and (device OR system)

Results in EPODOC 363.071

[SS 2] 1 and sediment

Results in EPODOC 561

[SS 3] 2 and monitoring

Results in EPODOC 15

[SS 4] 3 and sensor

Results in EPODOC 7

[SS 5] ..vi

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[SS 5] ..v

[EPODOC: SS 5] ..li



- 1/7 © EPODOC / EPO
- PN

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[MX2016013903](#) A 20170926
- PR

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IN2014DEL1105
20140423; WO2015EP58169
20150415
- AP

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MX20160013903 20150415
- DT

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- CCI

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[F03B11/008](#) ; [F03B15/00](#)
- CUI

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[F03B11/004](#) ; [F03B11/08](#) ;
[F03B13/08](#) ; [F03B15/06](#) ;
[G01N15/06](#)
- CCA

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[Y02E10/226](#) ; [F05B2220/32](#) ;
[F05B2260/63](#) ; [F05B2260/80](#)
- PA

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ALSTOMRENEWABLE
TECHNOLOGIES [FR]
- TI

-

**SEDIMENT
CONCENTRATION MONITORING
SYSTEM FOR WATER TURBINES.**
- AB

-

The present invention relates to
a **hydraulic** installation
where **sediment** concentration in
the water flow circulating
through the cited installation is
monitored continuously.
According to the invention,
the **hydraulic** installation
comprises a pressure-
reducing **device** and a
primary **sensor**: the pressure
reducing **device** decreases the

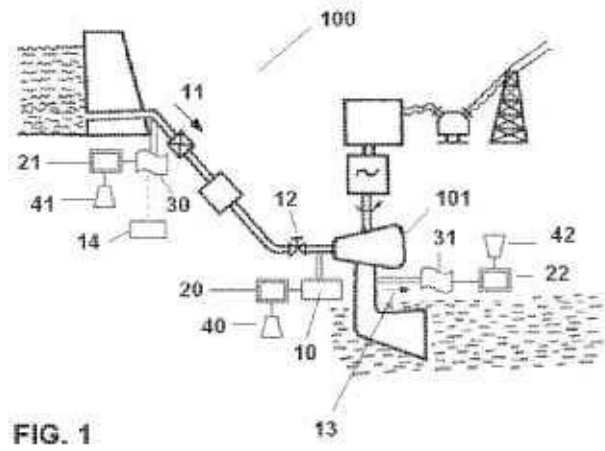


FIG. 1

pressure and discharge of upstream water flow, comprising sediments, allowing that the primary **sensor** can operate continuously measuring **sediment** concentration from the upstream water flow. The **hydraulic** installation also comprises a calibrating **device**, providing the primary **sensor** with a reference value to be used for comparison matters and for establishing the content of **sediment** in the water flow.

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- PN - [CN106460772](#) A 20170222
- PR - IN2014DEL1105 20140423; WO2015EP58169 20150415
- AP - CN2015821143 20150415
- DT - I
- CCI - [F03B11/008](#) ; [F03B15/00](#)
- CUI - [F03B11/004](#) ; [F03B11/08](#) ; [F03B13/08](#) ; [F03B15/06](#) ; [G01N15/06](#)
- CCA - [Y02E10/226](#) ; [F05B2220/32](#) ; [F05B2260/63](#) ; [F05B2260/80](#)
- PA - ALSTOMRENEWABLETECHNOLOGIES
- TI - **Sediment** concentration **monitoring system** for water turbines
- AB - The present invention relates to a **hydraulic** installation where **sediment** concentration in the water flow circulating through the cited installation is monitored continuously. According to the invention, the **hydraulic** installation comprises a pressure-reducing **device** and a primary **sensor**: the pressure reducing **device** decreases the pressure and discharge of upstream water flow, comprising sediments, allowing that the primary **sensor** can operate continuously measuring **sediment** concentration from the upstream water flow. The **hydraulic** installation also comprises a calibrating **device**, providing the primary **sensor** with a reference value to be used for comparison matters and for establishing the content of **sediment** in the water flow.

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- PN - [WO2015162043](#) A2 20151029
- PNFP - WO2015162043 A3 20151210
- PR - IN2014DEL1105 20140423
- AP - WO2015EP58169 20150415
- DT - *; Rep
- CT - |EP| ISR (A3)
[EP1970561](#) A1 20080917 [XAI] (ALSTOM HYDRO FRANCE [FR])
[X] 1,4,6,7,9,13-15
* abstract *
* paragraph [0005] *
* paragraph [0007] *
* paragraphs [0020] - [0022] *
* paragraph [0031] *
* paragraphs [0037] - [0041] *
* paragraph [0045] *
* figures 1-2 *
[A] 8
[I] 2,3,5,10-12;
[JPH094556](#) A 19970107 [A] (TOSHIBA CORP)

[A] 1-8,13-15
 * abstract *;
[US6152684](#) A 20001128 [A] (FERME JEAN-MARC [DE], et al)
 [A] 1-8,13-15
 * abstract *
 * column 2, lines 33-41 *
 * column 6, lines 36-44 *
 * column 9, lines 5-14 *
 * figures 1-10 *;
[JP2007198388](#) A 20070809 [A] (TOSHIBA CORP)
 [A] 1-8,13-15
 * abstract *

CCI - [F03B11/008](#) ; [F03B15/00](#)
 CUI - [F03B11/004](#) ; [F03B11/08](#) ; [F03B13/08](#) ; [F03B15/06](#) ; [G01N15/06](#)
 CCA - [Y02E10/226](#) ; [F05B2220/32](#) ; [F05B2260/63](#) ; [F05B2260/80](#)
 PA - (A2 A3)
 ALSTOM RENEWABLE TECHNOLOGIES [FR]
 TI - (A2)
HYDRAULIC INSTALLATION AND METHOD OF OPERATING SUCH AN INSTALLATION
 - (A3)
SEDIMENT CONCENTRATION **MONITORING SYSTEM** FOR WATER TURBINES
 AB - (A2 A3)
 The present invention relates to a **hydraulic** installation where **sediment** concentration in the water flow circulating through the cited installation is monitored continuously. According to the invention, the **hydraulic** installation comprises a pressure-reducing **device** and a primary **sensor**: the pressure reducing **device** decreases the pressure and discharge of upstream water flow, comprising sediments, allowing that the primary **sensor** can operate continuously measuring **sediment** concentration from the upstream water flow. The **hydraulic** installation also comprises a calibrating **device**, providing the primary **sensor** with a reference value to be used for comparison matters and for establishing the content of **sediment** in the water flow.

PN - [CN103969402](#) A 20140806
 PNFP - CN103969402B B 20150923
 PR - CN20141181903 20140428
 AP - CN20141181903 20140428
 DT - I
 CT - || STSE (A)
[CN203053935U](#) U 20130710 [A] (YANTAI INST COASTAL ZONE RES CAS)
 [A] 1-9
 全文
[CN202101863U](#) U 20120104 [A] (BEIJING PIONEER HIGH TECH DEV CO LTD)
 [A] 1-9
 全文
[CN102607887](#) A 20120725 [A] (NANJING INST GEO & LIMNOLOGY)
 [A] 1-9
 全文
[CN200965495Y](#) Y 20071024 [A] (FIRST INST OCEANOGRAPHY SOA [CN])
 [A] 1-9
 全文
[CN201229258Y](#) Y 20090429 [Y] (NAT OCEAN TECHNOLOGY CT [CN])
 [Y] 1,8-9
 说明书第4页倒数第4段-第5页第2段,第5页第4段和摘要
[CN201355315Y](#) Y 20091202 [A] (UNIV NANKAI [CN])
 [A] 1-9
 全文

	CN102012326 A 20110413 [A] (BEIJING LION WISDOM ENVIRONMENT TECHNOLOGY CO LTD) [A] 1-9 全文 CN201083634Y Y 20080709 [Y] (OCEAN UNIV CHINA [CN]) [Y] 1,8-9 说明书第2页倒数第1段 US5473952 A 19951212 [A] (LIEBERMAN STEPHEN H [US], et al) [A] 1-9 全文 SU1656382 A1 19910615 [A] (GOJ VLADIMIR L [SU], et al) [A] 1-9 全文 DE4318347 A1 19941201 [A] (STIFTUNG A WEGENER INST POLAR [DE]) [A] 1-9 全文 CN201688994U U 20101229 [A] (UNIV CHINA THREE GORGES CTGU) [A] 1-9 全文 US2011126644 A1 20110602 [A] (HAYES THOMAS DAVID [US]) [A] 1-9 全文
PA	- (A) INST OCEANOLOGY CHINESE ACAD
TI	- (A) Multifunctional in-situ sampling device for seabed flux and sediment
AB	- (A) The invention relates to the technical field of ocean monitoring , and particularly relates to a multifunctional in-situ sampling device for seabed flux and sediment . The device comprises an external bracket system , a non-disturbance sediment in-situ sampling mechanism, a sediment flux culture mechanism, a multi-parameter sensor measuring mechanism, a seawater timing sampling mechanism, a hook and a recycling system , wherein the sediment flux culture mechanism is suspended on the external bracket system through a hydraulic pressure pole I; the non-disturbance sediment in-situ sampling mechanism is arranged at the bottom of the sediment flux culture mechanism; the upper end of the non-disturbance sediment in-situ sampling mechanism is hinged to the sediment flux culture mechanism and connected with the external bracket system through a hydraulic pressure pole II; the seawater timing sampling mechanism and the recycling system are arranged on the external bracket system ; the multi-parameter sensor measuring mechanism is fixed at the upper part of the sediment flux culture mechanism; the hook is arranged at the top of the external bracket system . According to the invention, the device is simple in structure and wide in application; in addition, undisturbed monitoring in-situ sediment can be obtained.
5/7	© EPODOC / EPO
PN	- CN102298164 A 20111228
PNFP	- CN102298164B B 20130508
PR	- CN20101176670 20100519; CN20111130166 20110519
AP	- CN20111130166 20110519
DT	- I
CT	- STSE (A) CN1786350 A 20060614 [A] (NO 1 INST OF OCEANOLOGY STATE [CN]) [A] 1-8 全文 CN1790016 A 20060621 [A] (SHENGLI ADMIN SINOPEC DRILLING [CN]) [A] 1-8 全文

[CN2519290Y](#) Y 20021030 [A] (LIANG JUN [CN])
[A] 1-8
全文

PA - (B)
INST OF COMM APPLIC PLAN

TI - (B)
Seabed geology investigation apparatus

AB - (A)
The invention discloses a seabed geology investigation apparatus, and belongs to the seabed **sediment** geology prospecting equipment field. The investigation apparatus comprises a frame, a drum type continuous penetration mechanism, a counterweight iron, an aligning guide mechanism, a grounding **sensor**, a **hydraulic system**, an electrical cabin and a conjunction box. Under control of an external waterborne **monitoring device**, the **hydraulic system** drives the drum type continuous penetration mechanism to work. A drilling rod is straightened by the aligning guide mechanism. A probe is pressed in a seabed soil layer with preset pressure. A **sensor** on the probe collects various data and sends the data to the external waterborne **monitoring device** in real time. The external waterborne **monitoring device** analyzes received data and determines a seabed **sediment** condition. According to the invention, the drilling rod is pressed in seabed soil with a uniform speed and a vertical angle in a continuous mode, and collected data is continuous and accurate. The seabed investigation apparatus in the invention has a large measurement depth, and a playback function of data facilitates subsequent data analysis by research personnel.

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PN - [WO2007008844](#) A2 20070118

PNFP - WO2007008844 A3 20070308

PR - US20050178055 20050708

AP - WO2006US26804 20060707

DT - **

CT - (A2)
[US5293931](#) A
[X]; [US2005051329](#) A1 [Y]

CCI - [E21B47/00](#) ; [E21B43/02](#)

PA - (A2 A3)
BESST INC [US]; KAJIMA CORP [JP];
HELLER NOAH [US]; ATSUMI
HIROYOKI [JP]; TOIDA MASARU
[JP]; CHINO TORU [US]

TI - (A2 A3)
SYSTEMS AND METHODS FOR
INSTALLATION, DESIGN AND
OPERATION OF
GROUNDWATER **MONITORING**
SYSTEMS IN BOREHOLES

AB - (A2 A3)
Systems and methods for
installation and operation of a
groundwater **monitoring system**
in a borehole of any angle using
a coaxial gas displacement
pump with a unique O-ring
assembly that serves as a two-
position valve for groundwater
purging and sampling and also
as a housing and sealing



mechanism for isolating an optical pressure **sensor**. The optical **sensor** measures in-situ **hydraulic** pressure directly subjacent and adjacent to the surrounding rock fractures and **sediment** pores without **hydraulic** interferences from potentiometric equilibration lag time from recovery fluid pressure inside a borehole, in a zone above the optical **sensor**, or on the inside of a riser pipe that rises to the ground surface.

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PN	- US2007007005 A1 20070111	
PNFP	- US7493954 B2 20090224	
PR	- US20050178055 20050708	
AP	- US20050178055 20050708	
DT	- *; Rep	
CT	- STSE (B2) US6158516 A 20001212 [] (SMITH MICHAEL L LEE [US], et al) US6668943 B1 20031230 [] (MAUS L DONALD [US], et al) - R141 (A1) US2776013 A []; US4995456 A []; US5293931 A []; US2005051329 A1 []; US5909773 A []; US3002828 A []; US4475595 A []; US5828520 A []; US6158516 A []; US6668943 B1 []	
CCI	- E21B43/02 ; E21B47/00	
PA	- (A1) KAJIMA CORP [US] - (B2) BESST INC [US]; KAJIMA CORP [JP]	
TI	- (A1 B2) Systems and methods for installation, design and operation of groundwater monitoring systems in boreholes	
AB	- (A1 B2) Systems and methods for installation and operation of a groundwater monitoring system in a borehole of any angle using a coaxial gas displacement pump with a unique O-ring	

assembly that serves as a two-position valve for groundwater purging and sampling and also as a housing and sealing mechanism for isolating an optical pressure **sensor**. The optical **sensor** measures in-situ **hydraulic** pressure directly subjacent and adjacent to the surrounding rock fractures and **sediment** pores without **hydraulic** interferences from potentiometric equilibration lag time from recovery fluid pressure inside a borehole, in a zone above the optical **sensor**, or on the inside of a riser pipe that rises to the ground surface.