JETGARD

pecofacet
a CLARCOR company

Fuel handling

Electronic Sensor

Differential Pressure Transmitter

Filtration into-plane is carried out by a Filter/ Water Separator (FWS) or a Monitor Filter. Before the fuel is delivered into-plane, JETGARD monitors the fuel with regard to free water and particulate matter, while also measuring the differential pressure in the FWS or Monitor Filter. All the information obtained is stored locally in the iHLogger.

If the parameters measured are above the specified requirements an alarm signal is emitted stopping the fuelling operation by operating the deadman circuit.

The system is in compliance with API/EI 1598 guides.
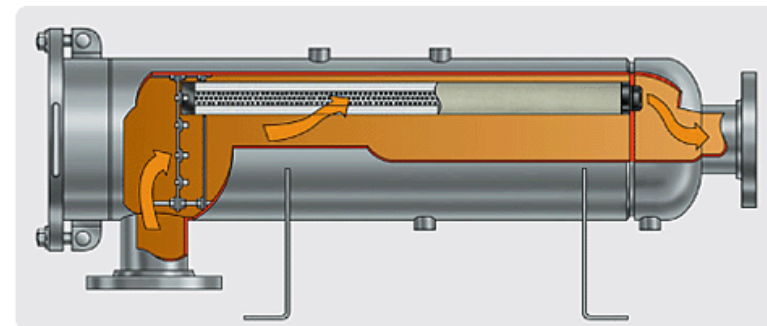
Filter Water Separator or Monitor Filter

Storage terminals

Jetgard monitors the fuel going into the storage terminals throughout fuel pipelines or other means.

The electronic sensor is located at the entry of the storage terminal and monitors the incoming fuel with regard to free water and particulate matter.

All the information obtained is stored locally in the iHLogger.

The system may be powered by a solar panel.

Electronic Sensor

Fuel pump stations

Jetgard monitors the fuel supplied throughout hydrant systems or fuel pipelines.

The electronic sensor is located at the entry of the hydrant system or fuel pipeline and monitors the fuel with regard to free water and particulate matter.

All the information obtained is stored locally in the iHLogger.

The system may be also powered by a solar panel.

Electronic Sensor

## Transmission of the information to the base station

All the information stored at the iHLogger and located either at the refuelling unit, entry of storage terminals or pump stations that supplies the hydrant system or fuel pipelines, is transferred via radio waves to the iRouter, which is installed at the associated company's facilities and connected to the Internet.

Transmission of Information to the Server

The data received by each iRouter from the iHLoggers related to it are transmitted to the Central Server via the Internet
All the information is stored indefinitely for each associated company.

iRouter
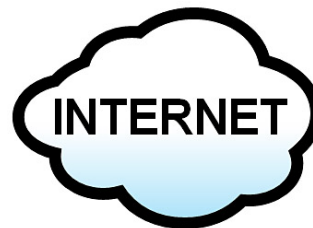
INTERNET

Access to the information, graphs and reports

All the information is stored in a Central Data Warehouse Server.

Each company has exclusive and restricted access with the possibility to download their own reports via Internet through the web site: www.jetgard.com

When the quality of the fuel does not meet the standard, JETGARD sends an alarm by:

- e-mail
- sms
- warning
- stopping the fuelling operation

INTERNET

Graphs and reports

TEST 14 Feb 2008

TEST 14 Feb 2008

Continued
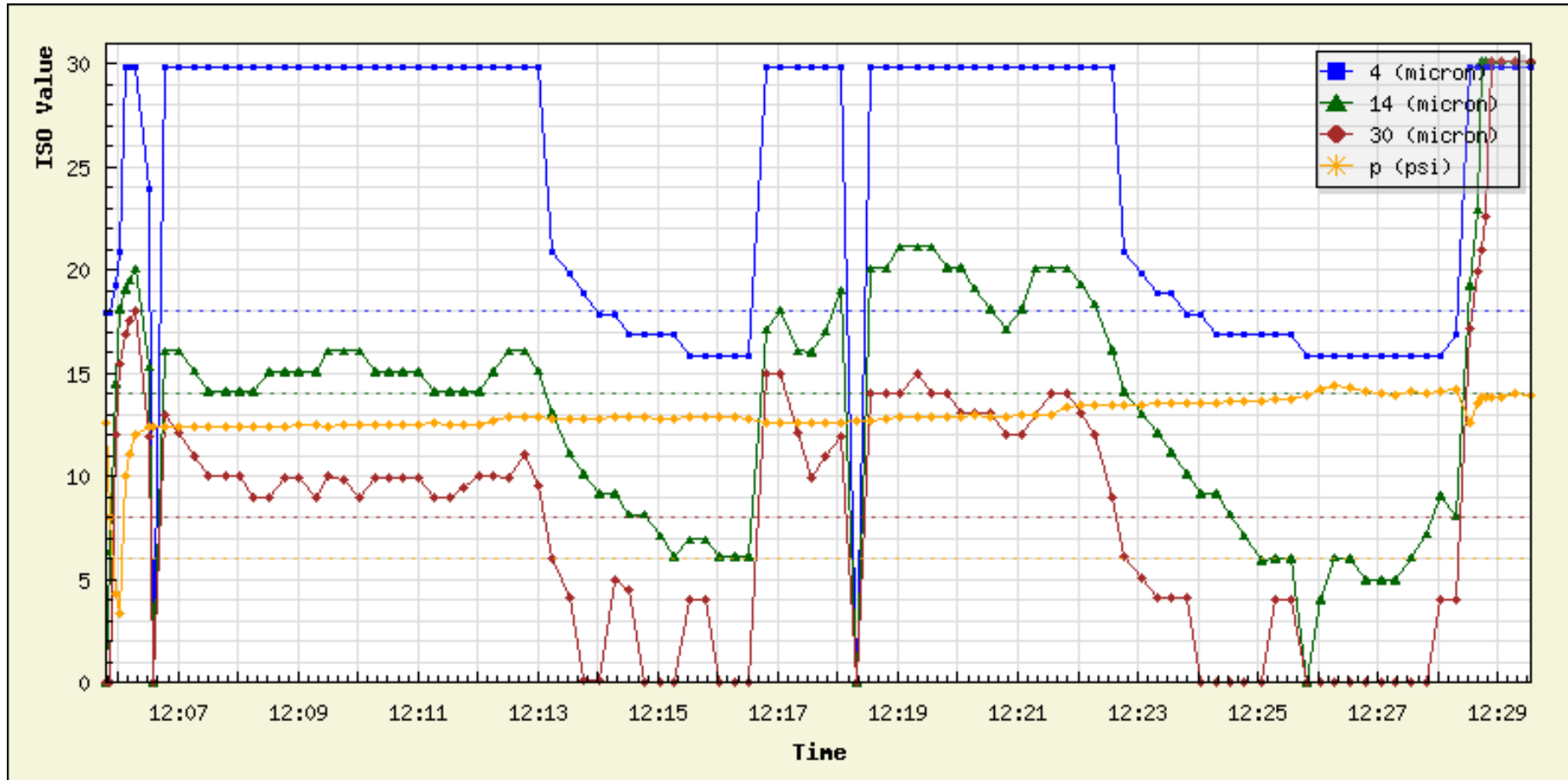
TEST 14 Feb 2008

Jet Fuel Test Rig - Sample point at the Inlet of the Filter/Water Separator
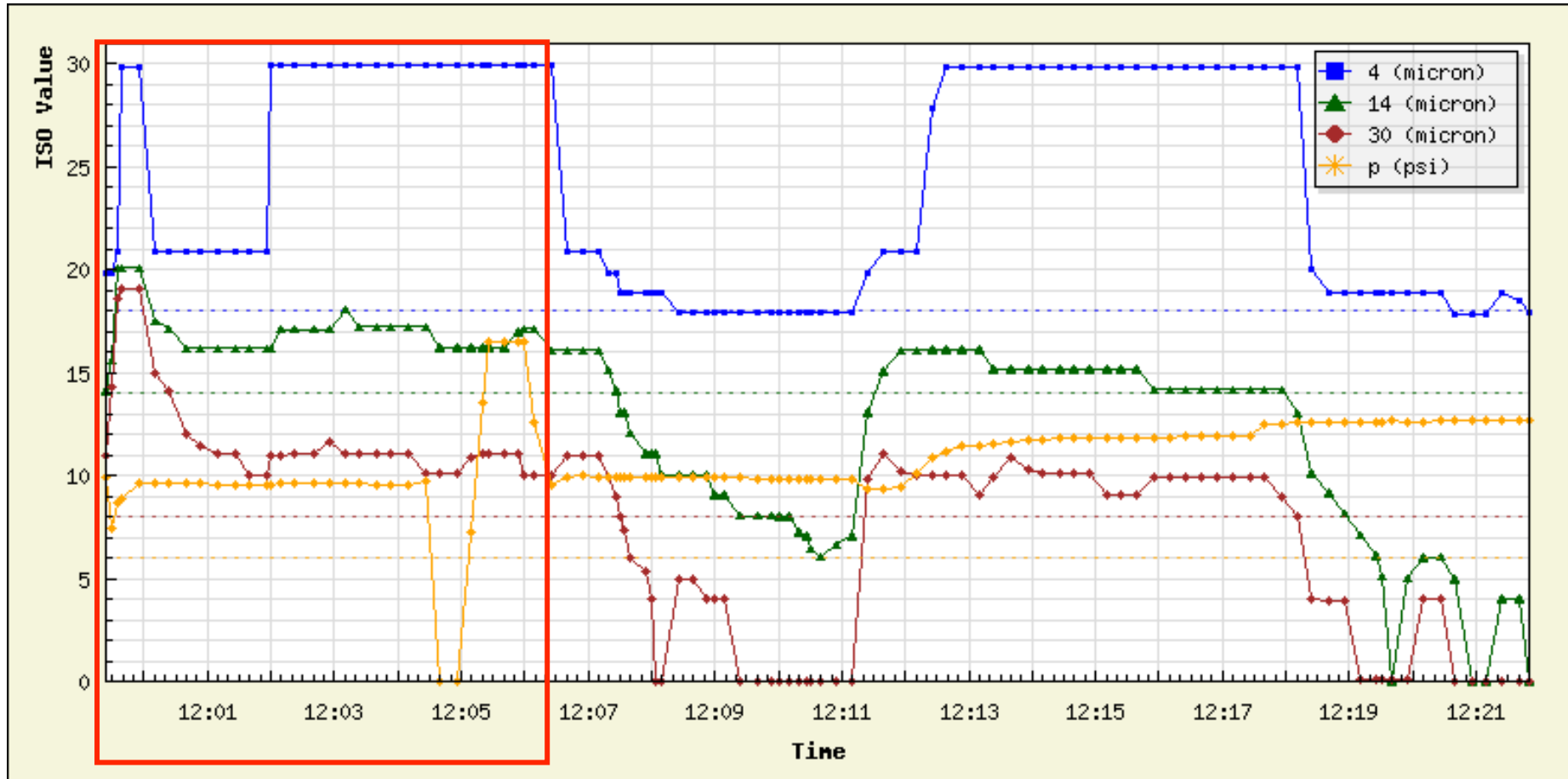
TEST 14 Feb 2008

Jet Fuel Test Rig - Sample point at the Outlet of the Filter/Water Separator
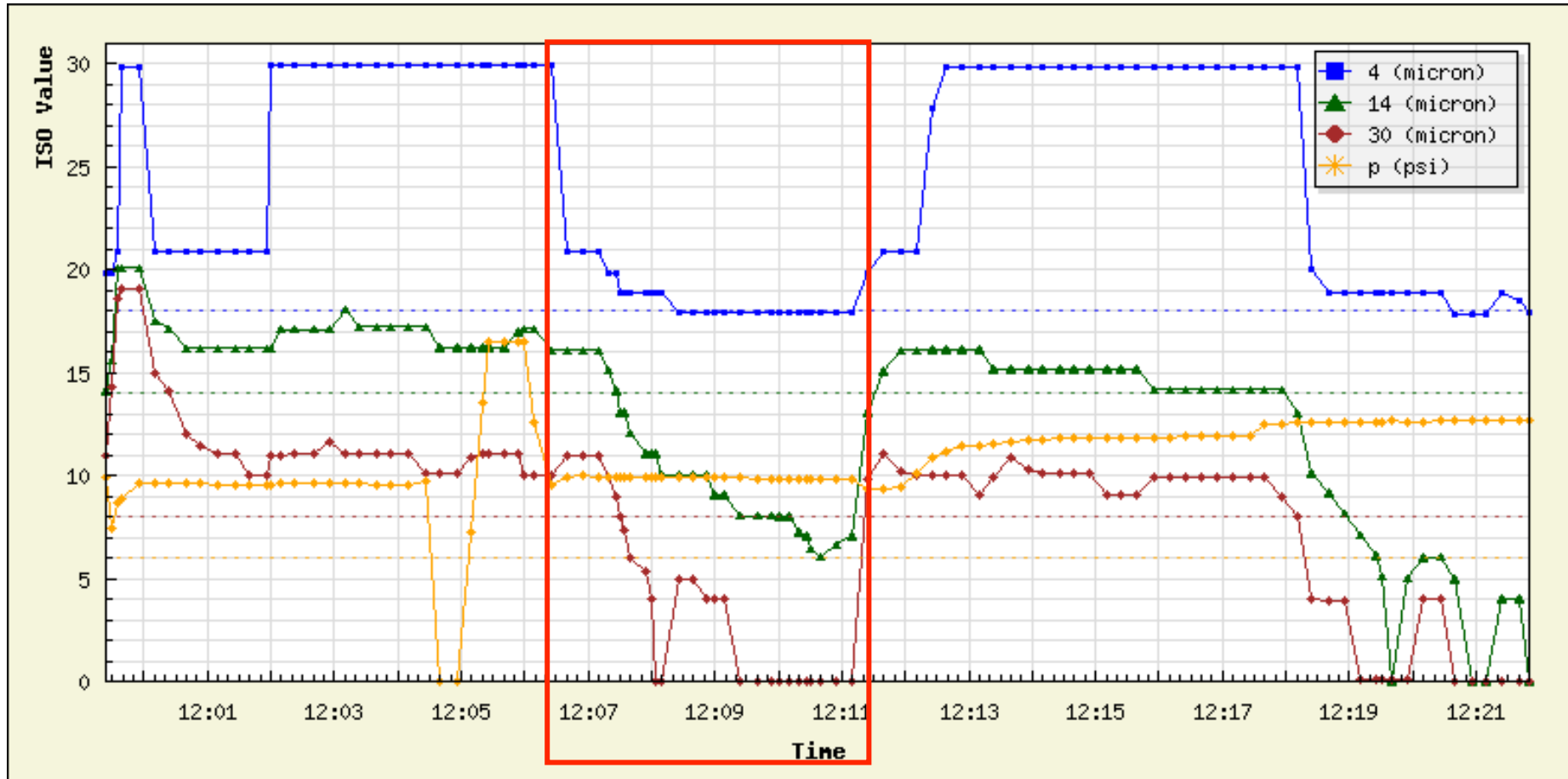
TEST 14 Feb 2008

Sample point at the Intlet of the Filter/Water Separator
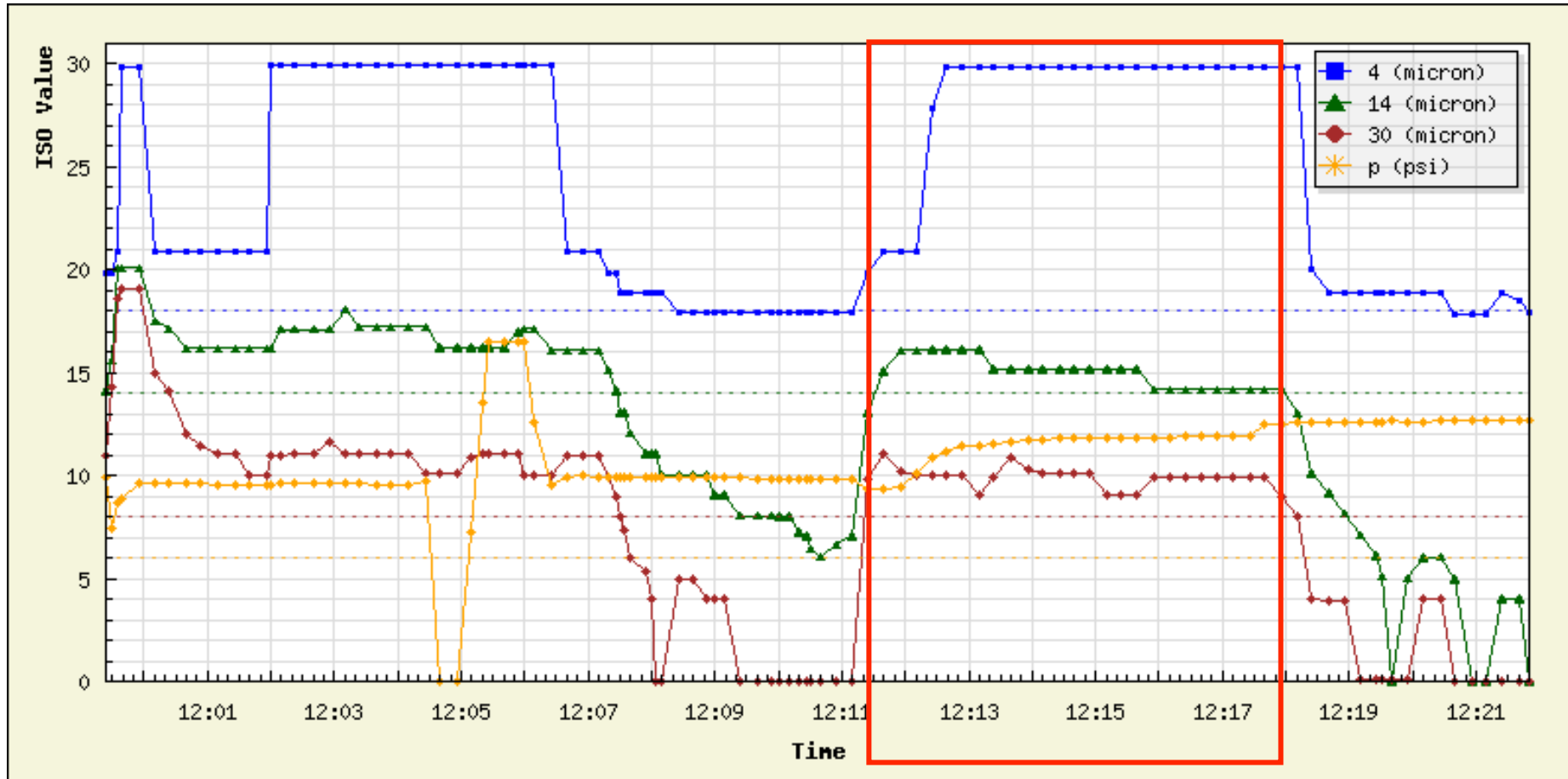
Addition of solids according to API/EI 1581 5th Edition

TEST 14 Feb 2008

Sample point at the Outlet of the Filter/Water Separator

Addition of solids according to API/EI 1581 5th Edition

TEST 14 Feb 2008

Sample point at the Inlet of the Filter/Water Separator

Addition of solids according to API/EI 1581 5th Edition + 10 ppm of water aprox.

Flow stopped caused when activating the flow switch

TEST 14 Feb 2008

Sample point at the Outlet of the Filter/Water Separator
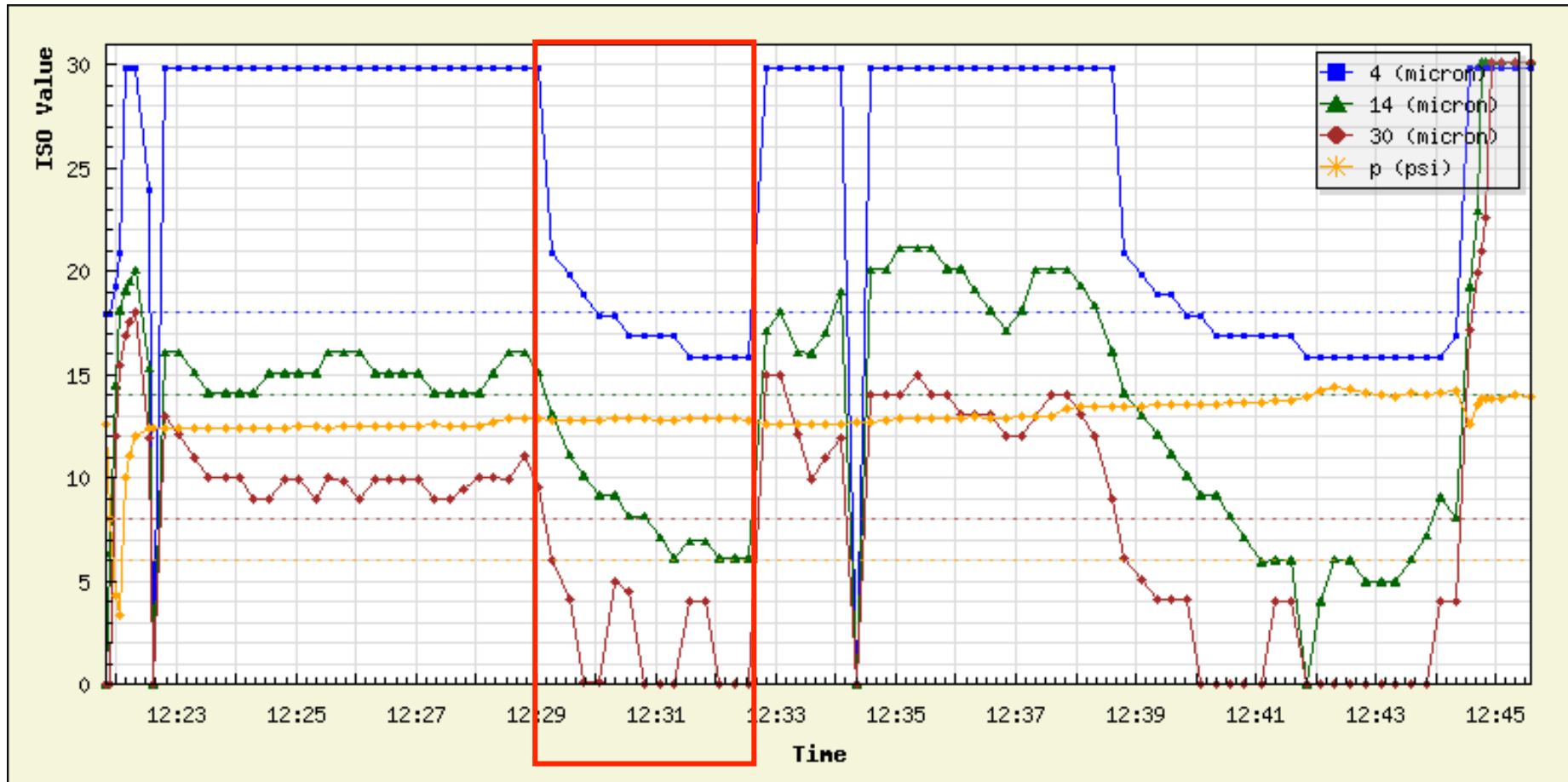
Addition of solids according to API/EI 1581 5th Edition + 10 ppm of water aprox.

TEST 14 Feb 2008

Sample point at the Inlet of the Filter/Water Separator

Addition of solids according to API/EI 1581 5th Edition + 150 ppm of water aprox.

TEST 14 Feb 2008

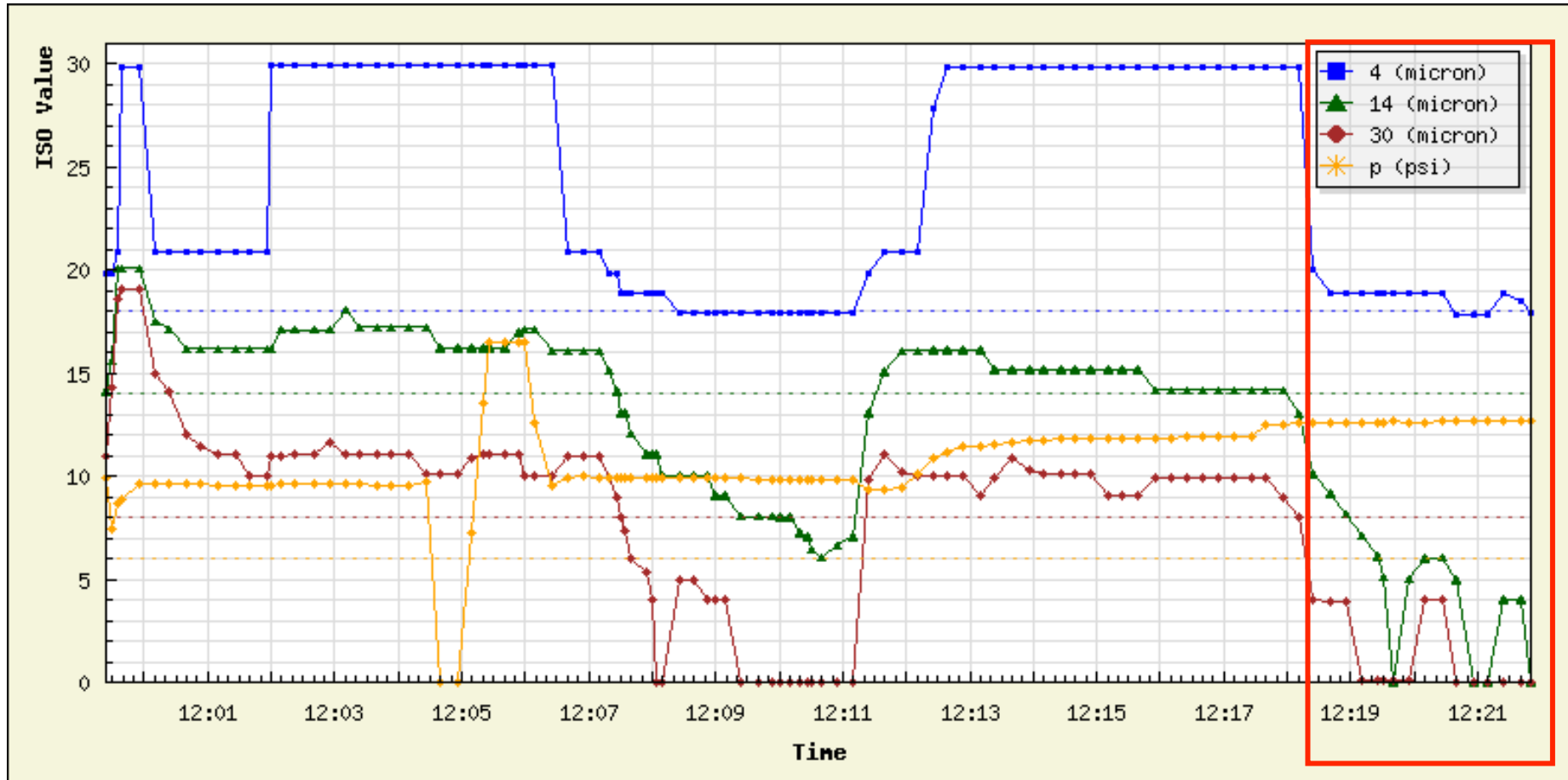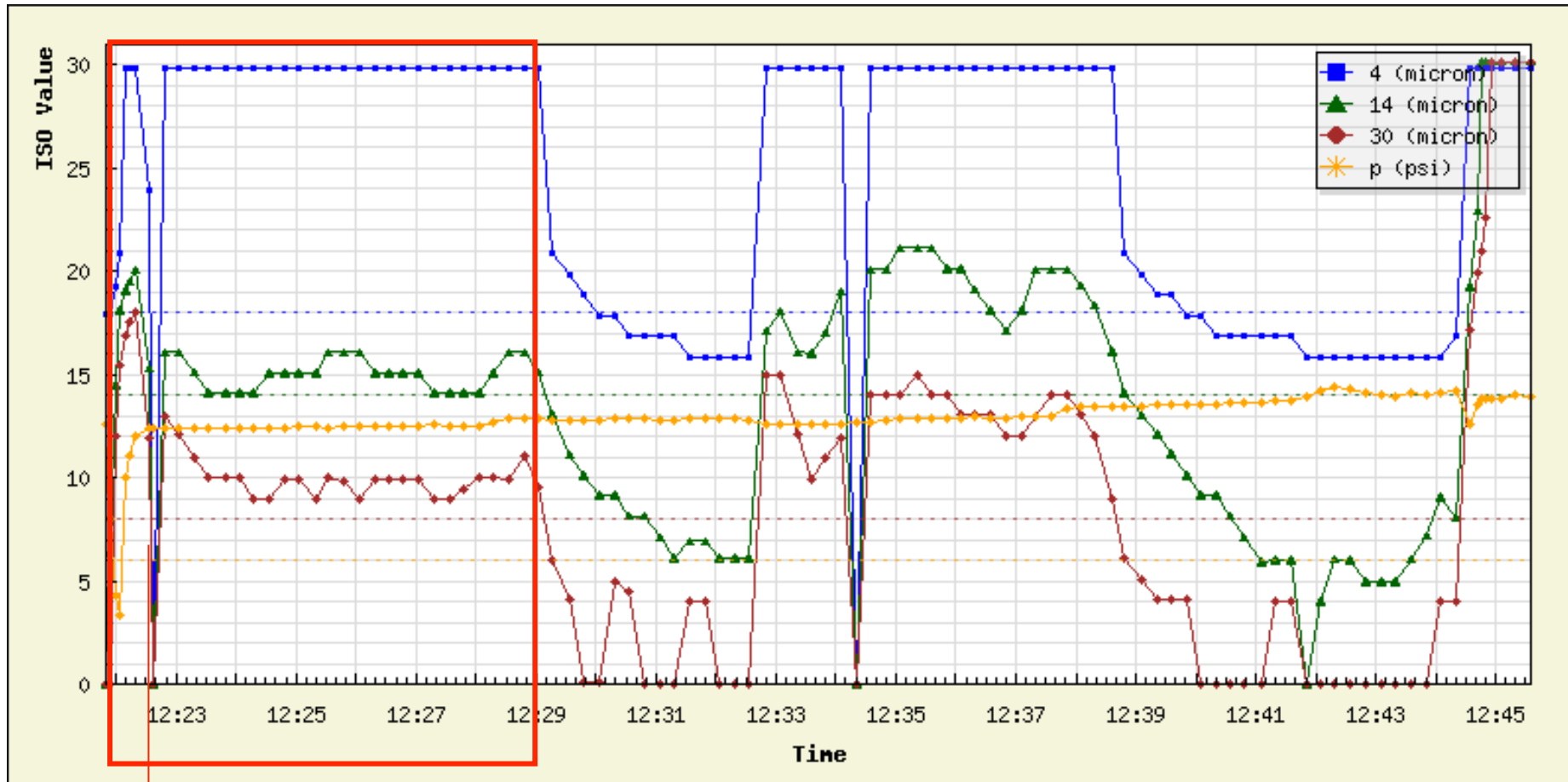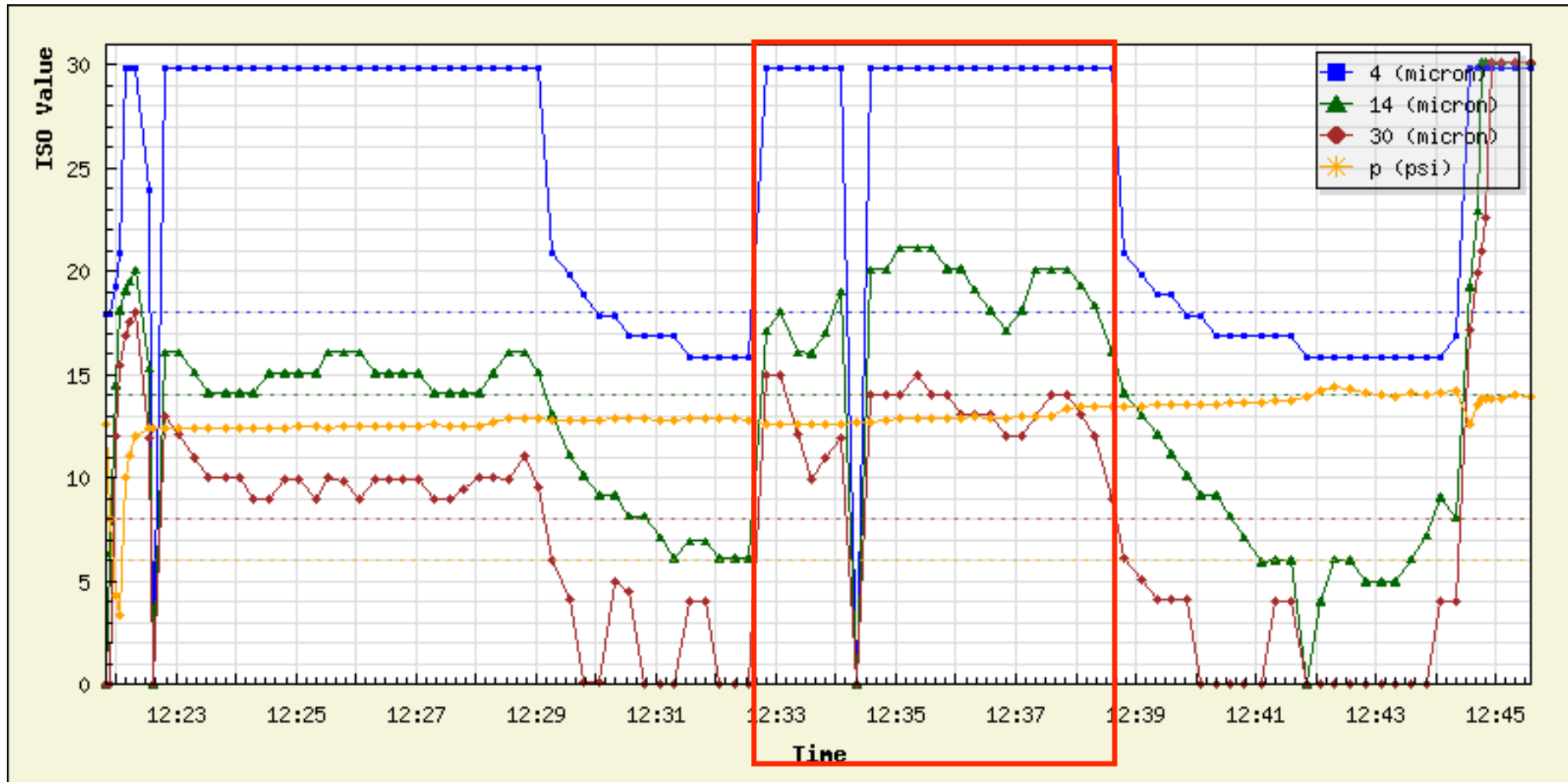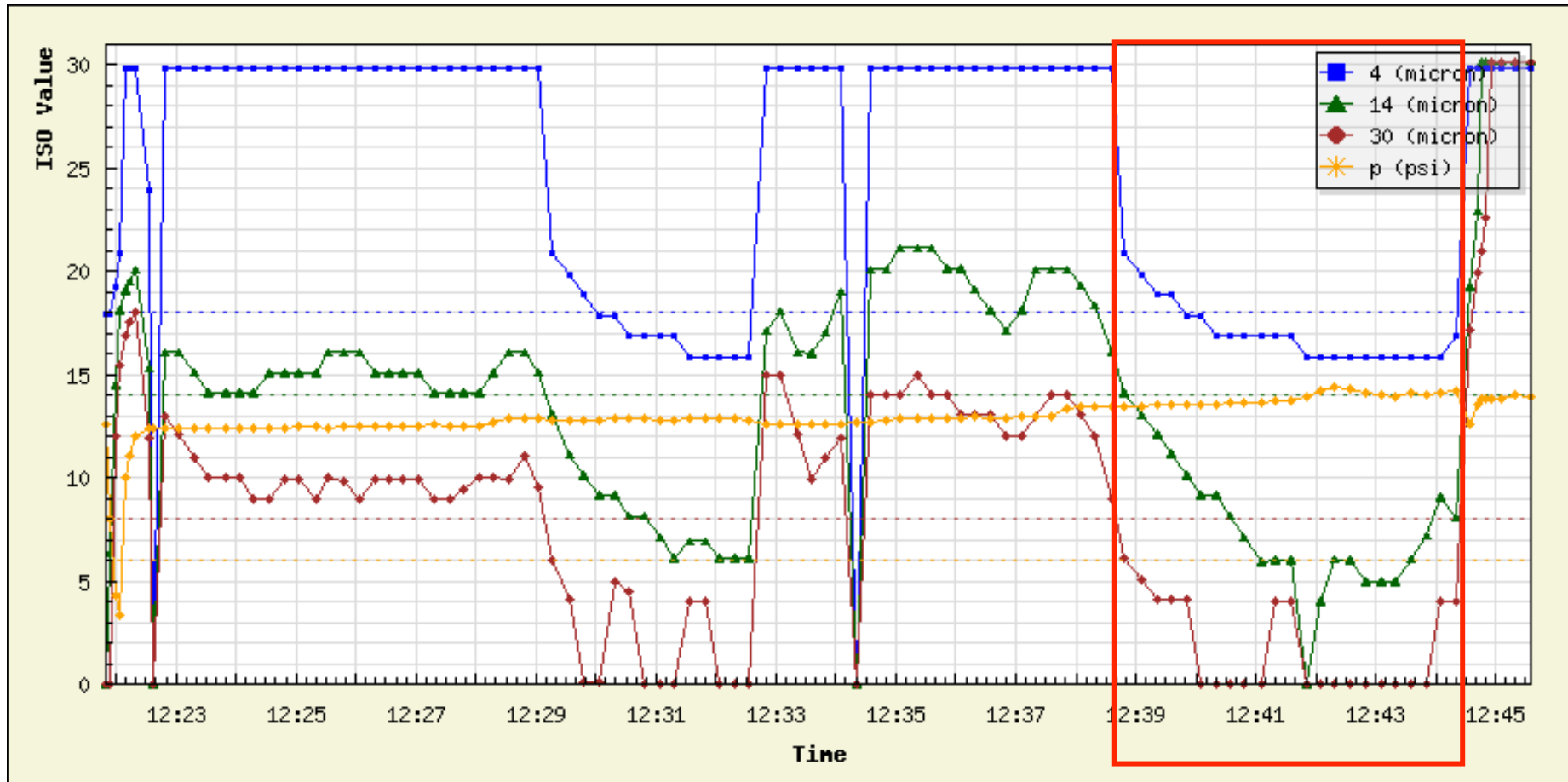Sample point at the Outlet of the Filter/Water Separator

Addition of solids according to API/EI 1581 5th Edition + 150 ppm of water aprox.
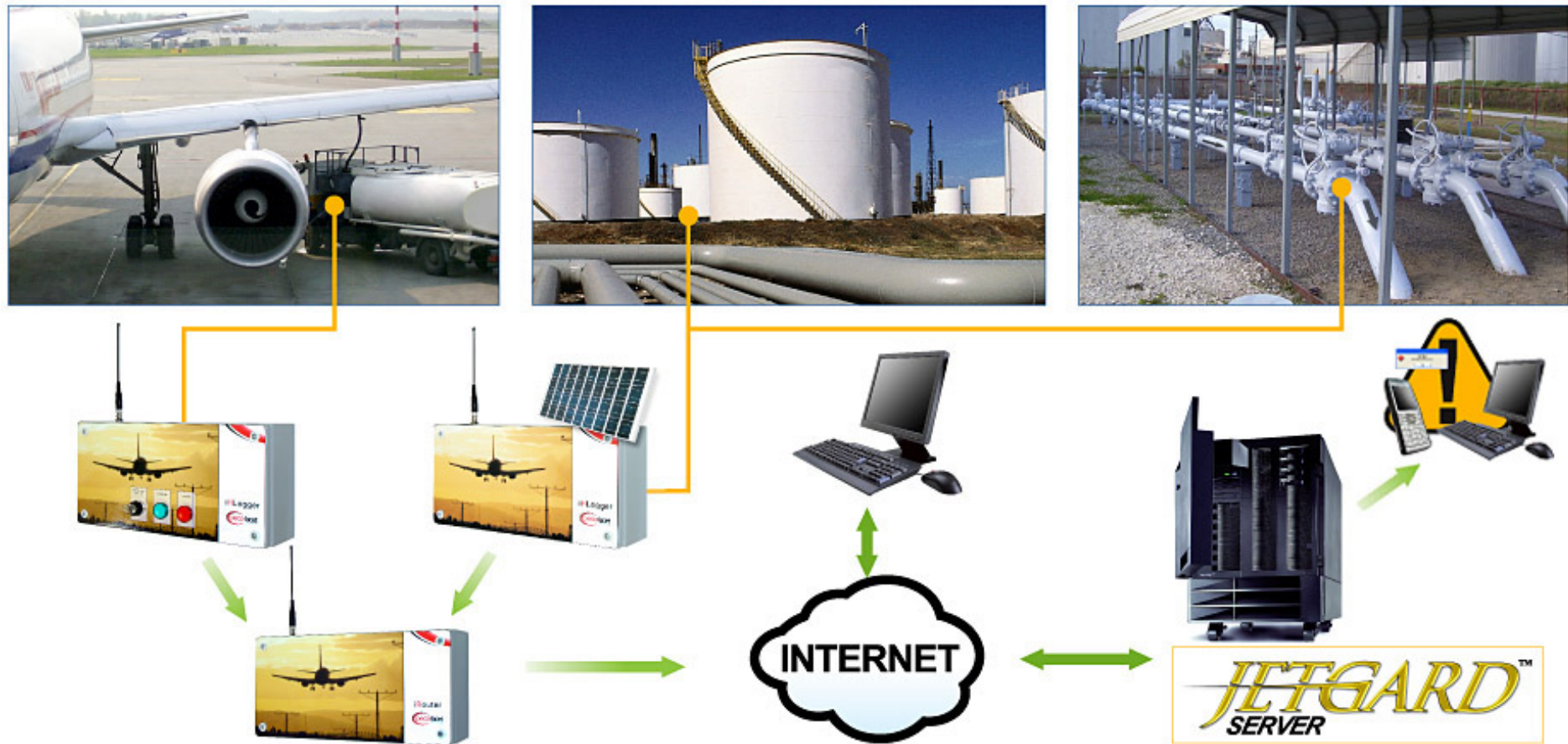
Flow Diagram (I)

Flow Diagram (II)

JETGARD System Assembly Diagram – Aviation Fuelling Operations
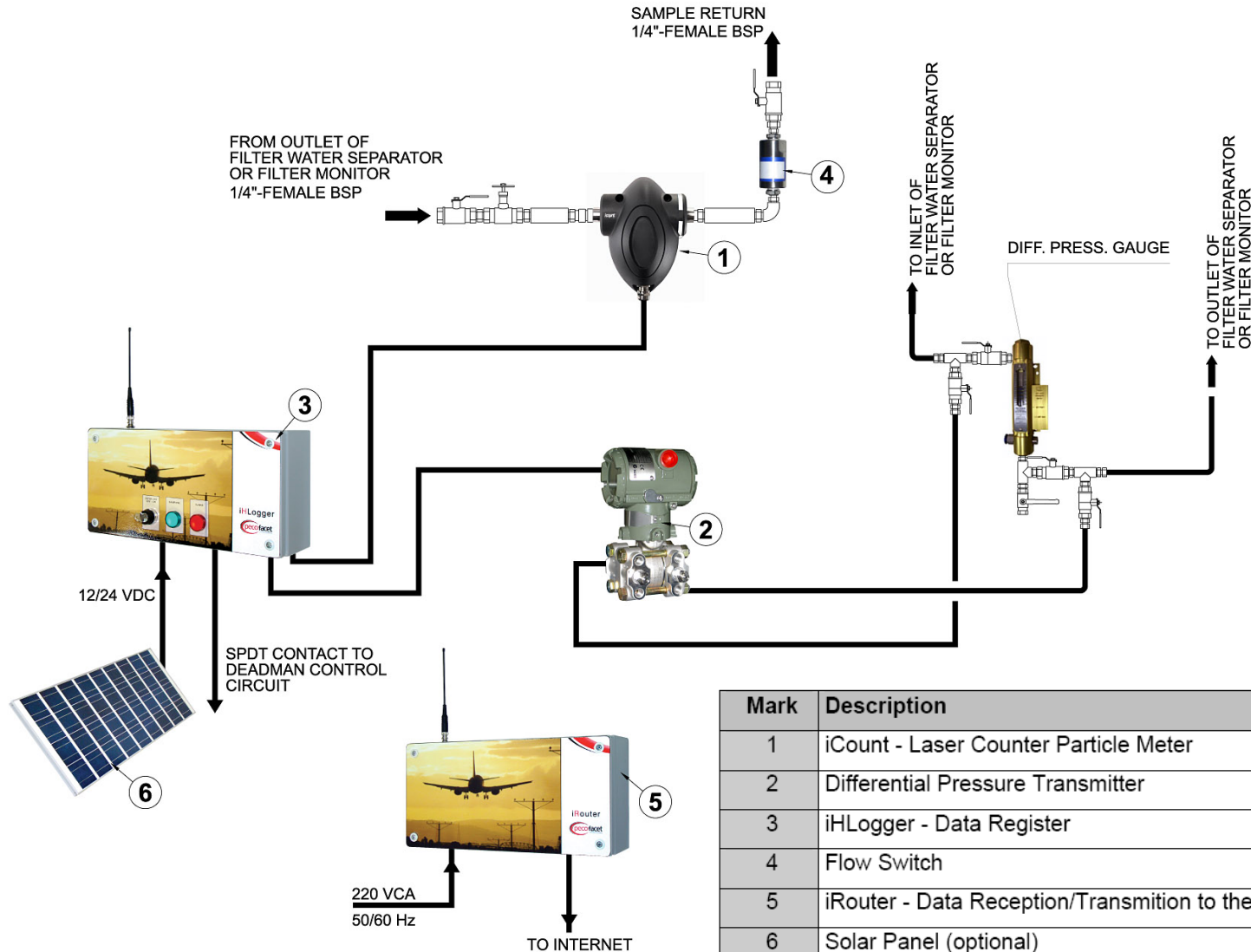
SAMPLE RETURN
1/4"-FEMALE BSP

FROM OUTLET OF
FILTER WATER SEPARATOR
OR FILTER MONITOR
1/4"-FEMALE BSP

TO INLET OF
FILTER WATER SEPARATOR
OR FILTER MONITOR

DIFF. PRESS. GAUGE

TO OUTLET OF
FILTER WATER SEPARATOR
OR FILTER MONITOR

4

1

3

iHLogger
pecofacet

12/24 VDC

SPDT CONTACT TO
DEADMAN CONTROL
CIRCUIT

2

6

iRouter
pecofacet

5

220 VCA
50/60 Hz

TO INTERNET

Mark	Description
1	iCount - Laser Counter Particle Meter
2	Differential Pressure Transmitter
3	iHLogger - Data Register
4	Flow Switch
5	iRouter - Data Reception/Transmition to the Internet
6	Solar Panel (optional)

JETGARD System Assembly Diagram – Aviation Fuelling Operations (onsite application)
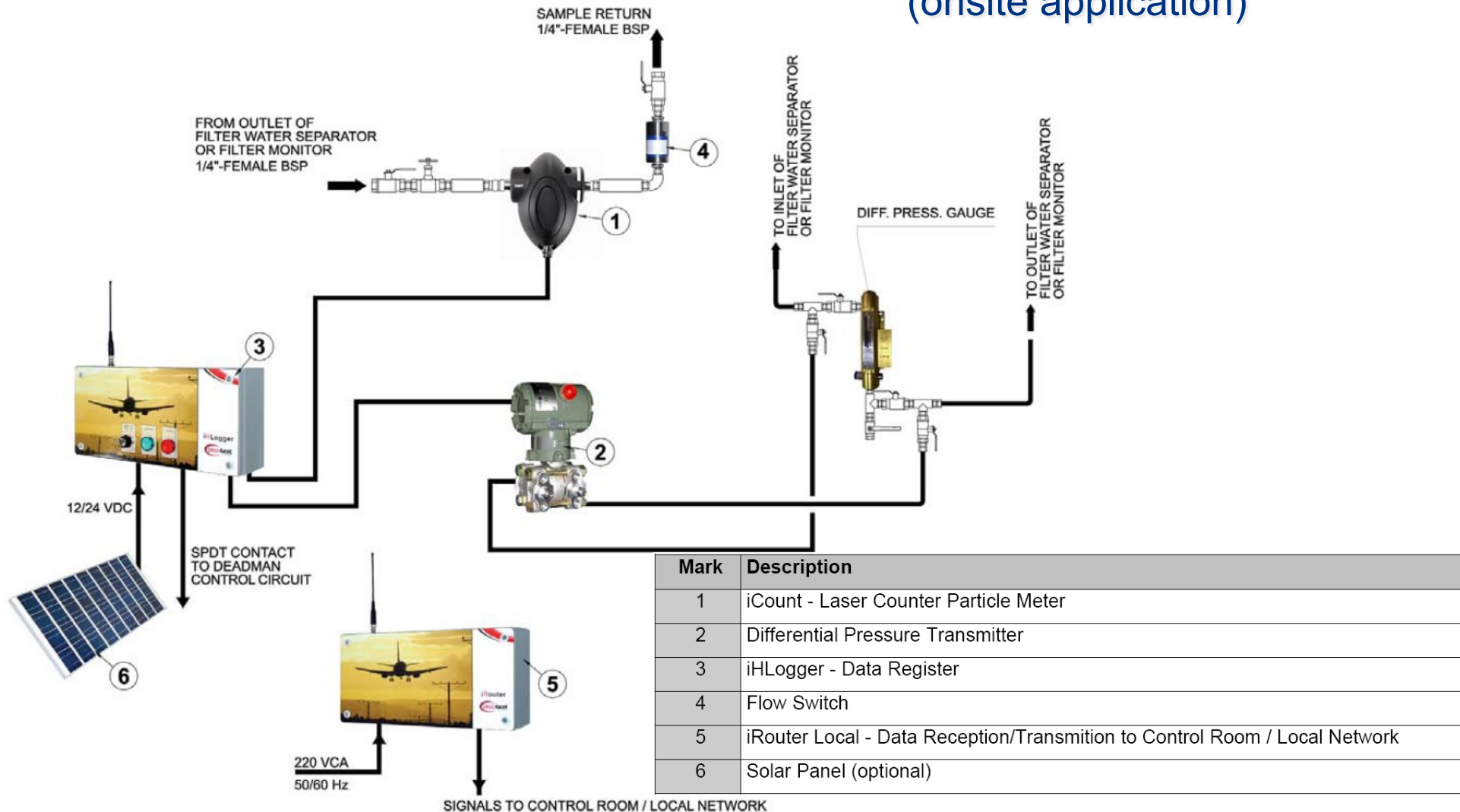
Mark	Description
1	iCount - Laser Counter Particle Meter
2	Differential Pressure Transmitter
3	iHLogger - Data Register
4	Flow Switch
5	iRouter Local - Data Reception/Transmition to Control Room / Local Network
6	Solar Panel (optional)

JETGARD System Assembly Diagram – Storage Tanks / Pipelines / Pump Stations

SAMPLE RETURN
1/4"-FEMALE BSP

SAMPLE INLET
1/4"-FEMALE BSP

① ② ③ ④ ⑤

12/24 VDC

220 VCA
50/60 Hz
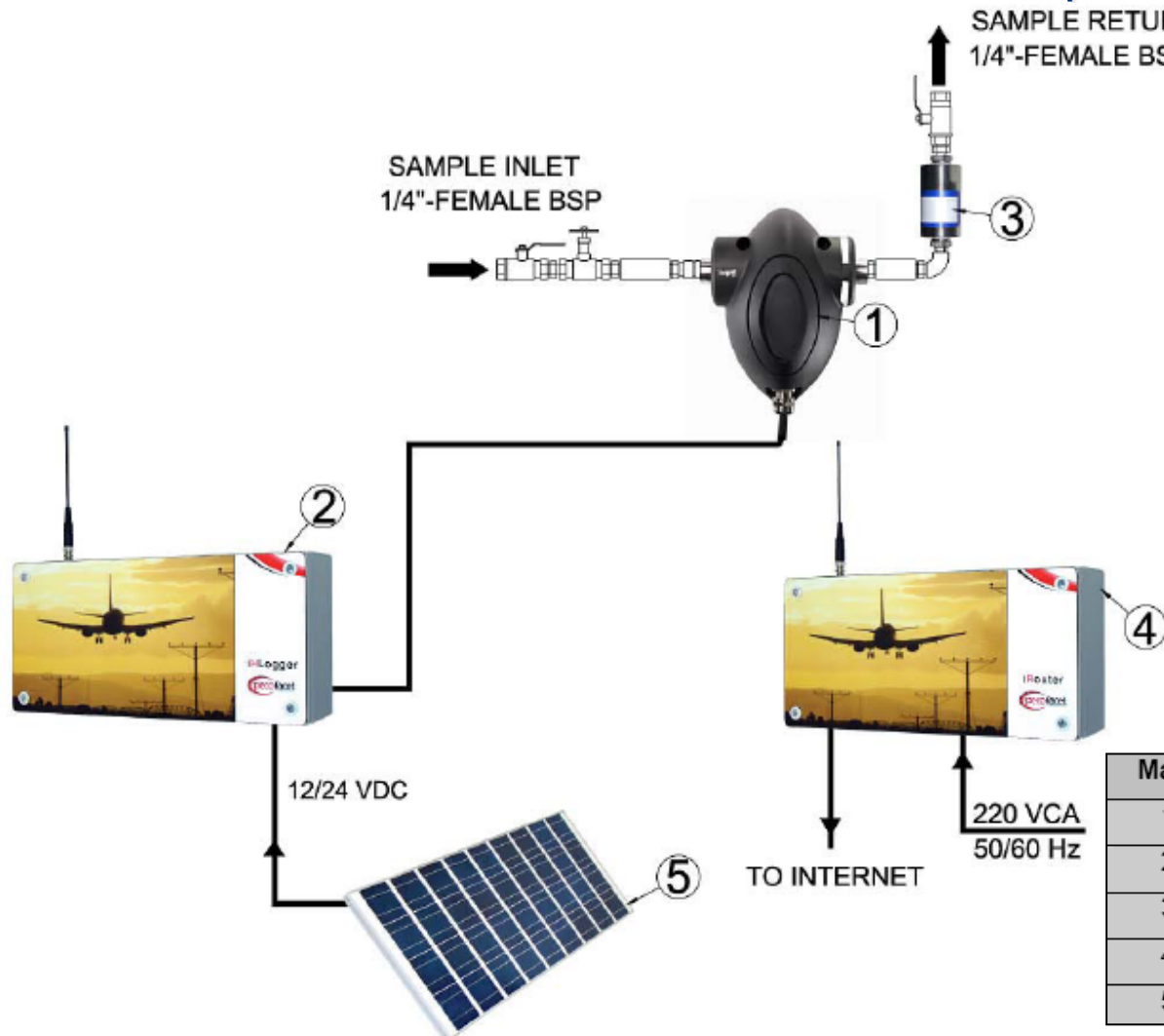
TO INTERNET

Mark	Description
1	iCount - Laser Counter Particle Meter
2	iHLogger - Data Register
3	Flow Switch
4	iRouter - Data Reception / Transmition to the Internet
5	Solar Panel (optional)

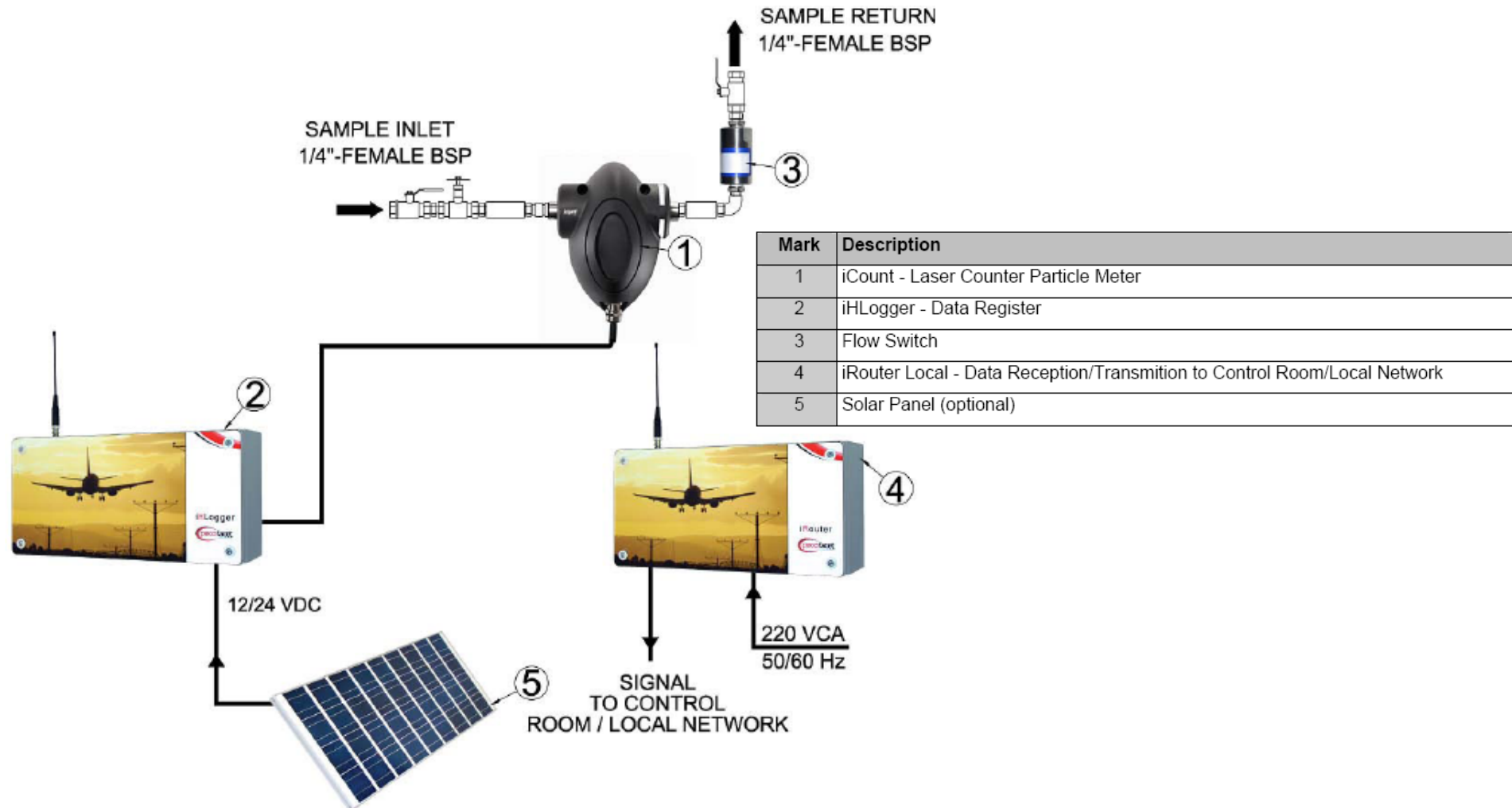## JETGARD System Assembly Diagram – Storage Tanks / Pipelines / Pump Stations (onsite application)
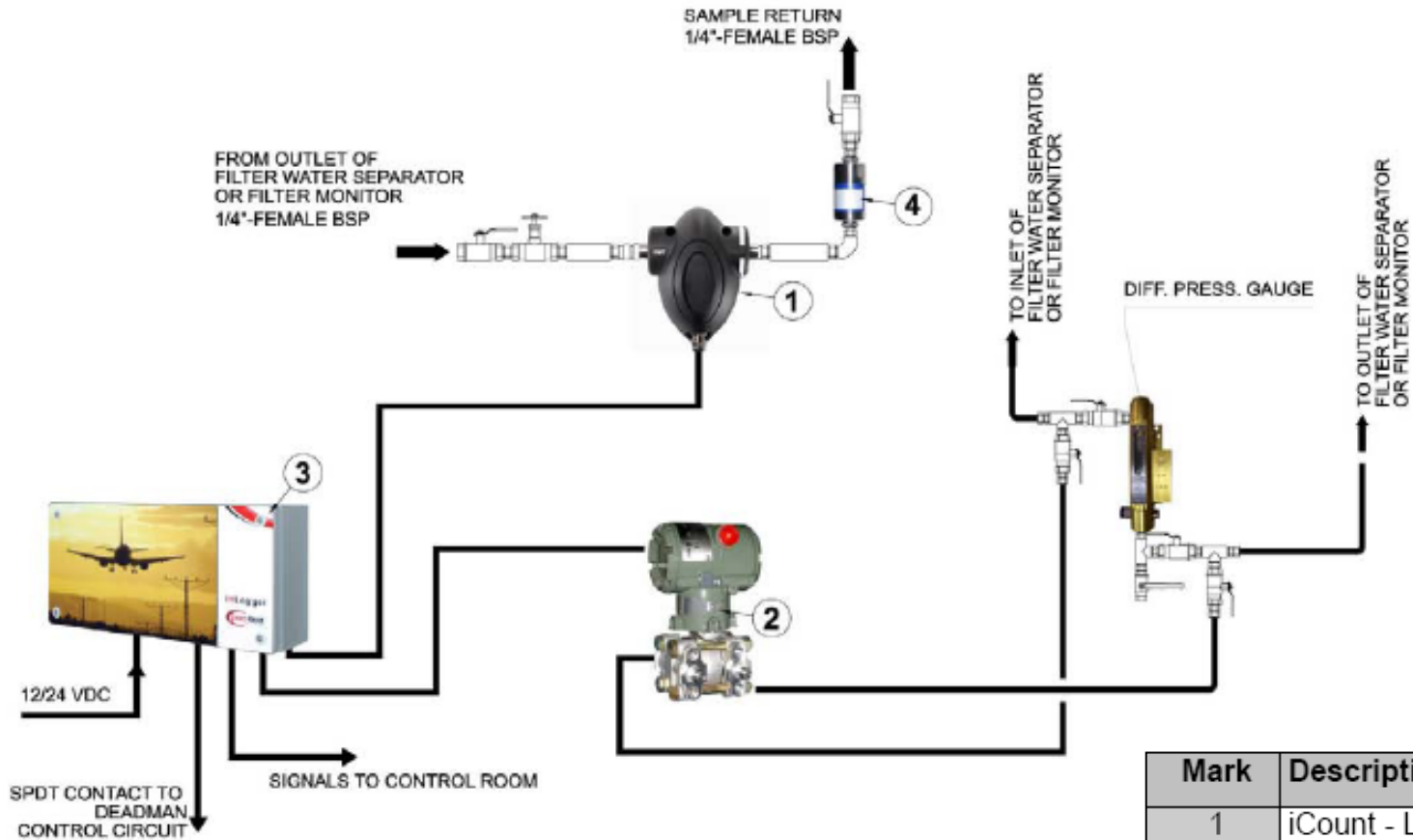
SAMPLE RETURN
1/4"-FEMALE BSP

SAMPLE INLET
1/4"-FEMALE BSP

Mark	Description
1	iCount - Laser Counter Particle Meter
2	iHLogger - Data Register
3	Flow Switch
4	iRouter Local - Data Reception/Transmition to Control Room/Local Network
5	Solar Panel (optional)

12/24 VDC

220 VCA
50/60 Hz

SIGNAL
TO CONTROL
ROOM / LOCAL NETWORK

JETGARD System Assembly Diagram – Marine Fuelling Operations

Mark	Description
1	iCount - Laser Counter Particle Meter
2	Differential Pressure Transmitter
3	iHLogger - Data Registrer
4	Flow Switch

JETGARD System Assembly Diagram – Marine Fuelling Operations

Mark	Description
1	iCount - Laser Counter Particle Meter
2	iHLogger - Data Register
3	Flow Switch
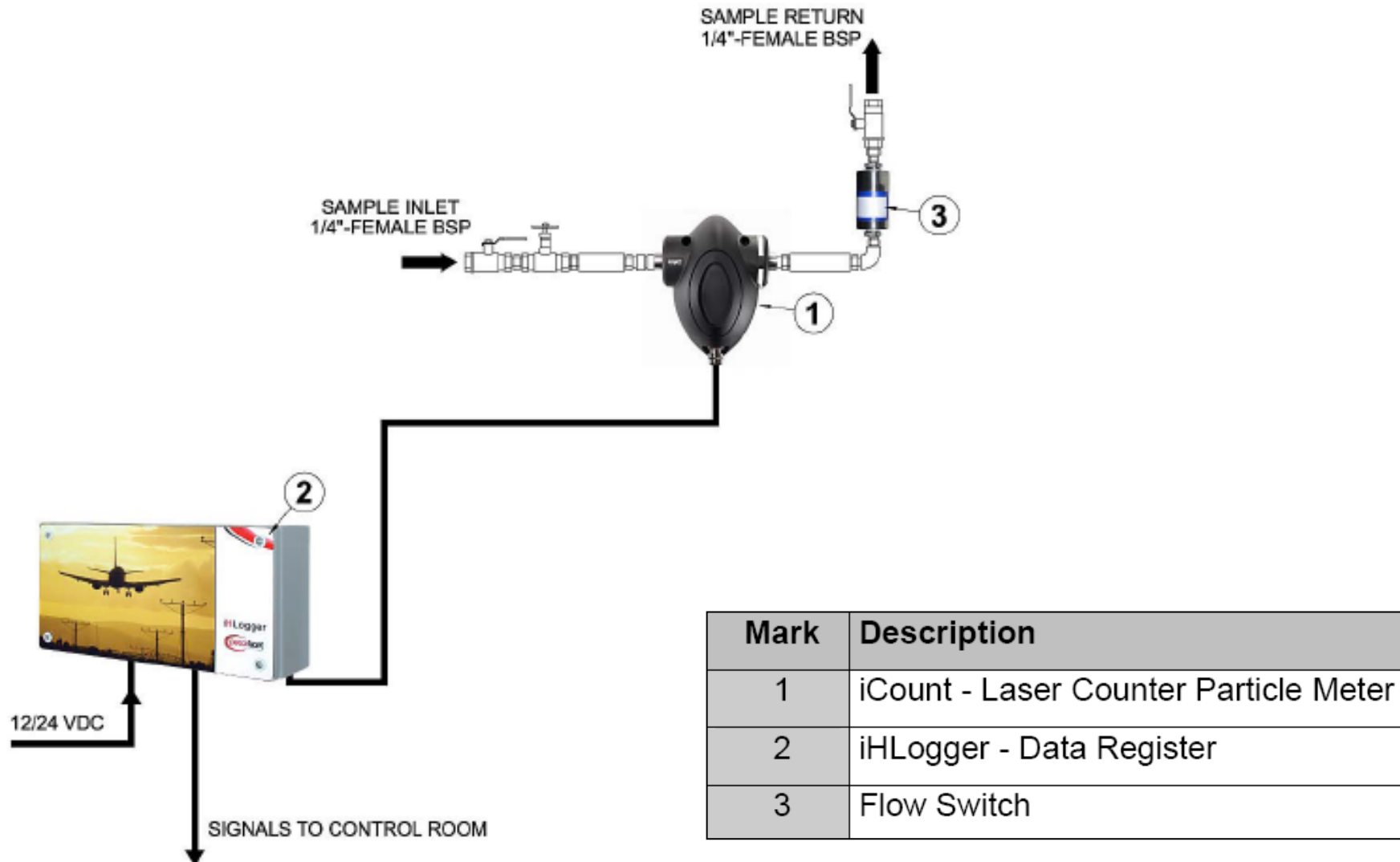
Thanks for your attention

www.jetgard.com

www.facetinternational.com