

Environmental monitoring data sharing using web-based operator data portals: current Environment Agency initiatives

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“Information and Communications Technology for
Environmental Regulation: Developing a Research Agenda”

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Types and numbers of sites submitting environmental monitoring data

Landfill	1,100	Food & Drink	370
Waste Incineration	98	Cement & Minerals	47
Combustion	300	Metals	214
Refineries	84	Paper & textiles	90
Chemicals & pharmaceuticals	559	Waste storage, treatment and transfer	>6,000

Types of environmental monitoring data reported

- Emissions to air
- Ambient air
- Particulate matter
- Emissions to water
- Surface water
- Groundwater
- Leachate levels & quality
- Sewer
- Landfill gas
- Landfill volume
- Environmental impact
- Noise
- Annual production/
treatment
- Process waste
- Performance
- Waste returns
- Pollution Inventory

How much data?

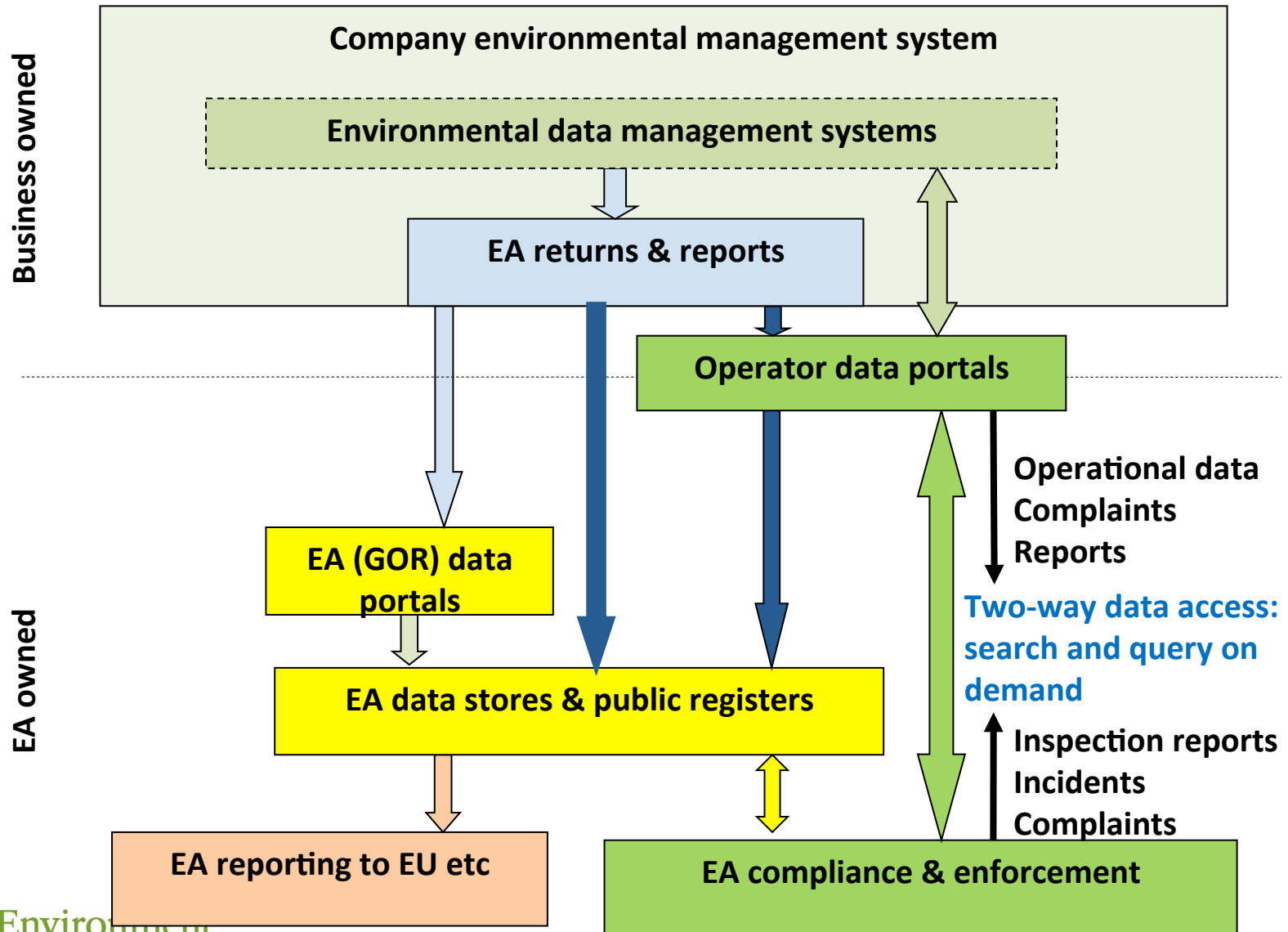
Typical landfill site operator per year (~100 sites, operational and closed)

– Clean Water Samples	6,800
– Leachate Samples	3,200
– Landfill Gas Measurements	33,700
– Particulate Samples	810
– Asbestos Samples	380
– Bioaerosol Samples	200

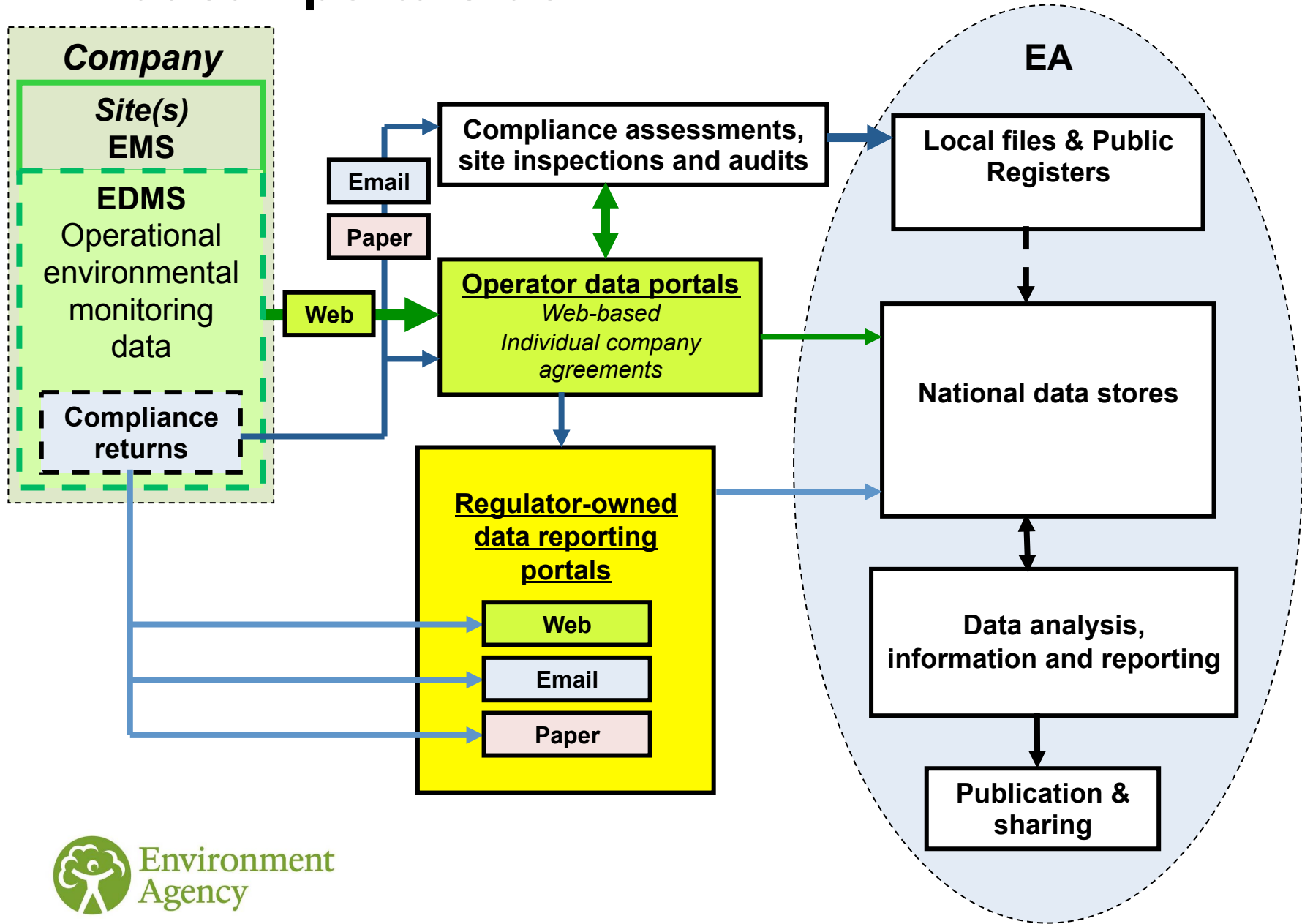
Data handling and management activities

- **Collection, management and QA, storage, analysis, information, reporting**
- **Multiple sites**
- **Multiple emissions**
- **Costs: systems and hardware, time and resource, 3rd party services, e.g. laboratory analyses**

Data portals – options



What can portals do?



What should a portal offer?

- **The data we need**
- **Simple**
- **Clear**
- **Accessible**
- **Easy to use**
- **Flexible**
- **Understanding of data**
- **Understanding of what is going on**
- **Understanding what is to be done**

Screenshots 1

The screenshot shows the Viridor OpenSpace web application interface. At the top, there is a green header with the Viridor logo on the left and the text "Welcome to Viridor OpenSpace" on the right. Below the header is a navigation bar with a "Home" link on the left and "Logout cdussek | Language English (UK)" on the right. The main content area is titled "Site: Trigon" and features a series of tabs: "Scheduling", "Data Tables", "Graphical Reports", "Schedule 6 Notifications", "Commentary", "Reports", and "EP Thresholds". The "Data Tables" tab is active, displaying a table with monitoring data. The table has four columns: "Monitoring Type", "Short", "Trigger", and "Permit". Each row represents a different monitoring type, and each cell in the "Short", "Trigger", and "Permit" columns contains a radio button. To the right of the table, there is a "Date Range:" label followed by a dropdown menu with options: "Current Quarter", "Current Quarter", "Last Quarter", and "Last 12 Months". A "Get Data" button is located to the right of the dropdown menu.

Home Logout cdussek | Language English (UK) ▾

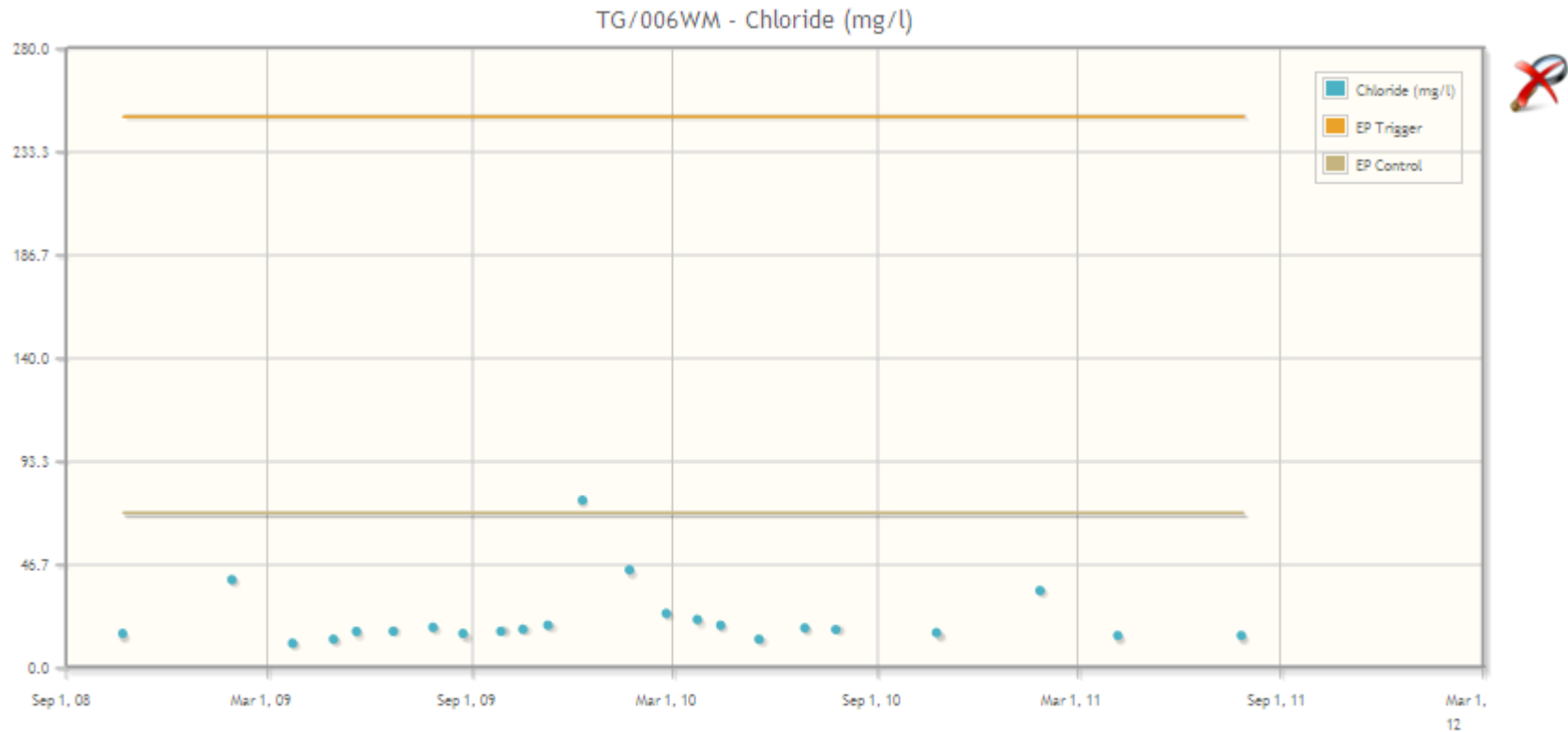
Site: Trigon

Scheduling | Data Tables | Graphical Reports | Schedule 6 Notifications | Commentary | Reports | EP Thresholds

Monitoring Type	Short	Trigger	Permit
Perimeter Gas Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leachate Level Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leachate Quality Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Surface Water Quality Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
FID Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Groundwater Brankesome Sands Quality Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Groundwater Brankesome Sands Level Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Groundwater Poole Formation Level Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Groundwater Poole Formation Quality Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Deposited Dust Measurements	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Date Range: Current Quarter ▾ Current Quarter Last Quarter Last 12 Months Get Data

Screenshots 4



Sample Point Comments

[Purpose: GW] [Boundary: SOUTH] [Descriptor: Down Gradient]



Screenshots 6

EPP 6 - Notification

Part A

Form Code	Broadpath Landfill : EPP6 : 19
Incident ID	11577
Permit Number	RP3530BC
Name of Operator	Viridor Waste Management Limited
Location of Installation	Broadpath Landfill
Location of emission	BP/108WM,
Time and date of the emission	04 August 2011 14:52,
Time and date of the detection	04 August 2011 17:01
Date of Issue Part A	05 August 2011 by Siân Moon

(b) Notification requirements for the breach of a limit.	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/source	As Listed in Table T1 (below)
Parameters	As Listed in Table T1 (below)
Limit	As Listed in Table T1 (below)
Measured value and uncertainty	As Listed in Table T1 (below)
Date and time of monitoring	As Listed in Table T1 (below)
Measures taken, or intended to be taken, to stop the	Monitoring carried out as part of the full site monthly compliance schedule returned the trigger level breaches detailed within Table T1 below. Viridor will re-monitor these locations as part of the on-going monitoring carried out in-line with the agreed Contingency Action plan (Ref: RP CAP July 2011 1.2) submitted to the Environment Agency on 12th July 2011. As part of the

Results so far

- Initiated by Viridor
- Successful proof of concept, national trial and formal agreement
- Opening of offer to other operators and sectors
- Standard, open technical criteria
- Popular with users
- Delivering benefits

Lessons?

- Options rather than single solutions.
- Cooperation and partnership agreements work through dialogue, understanding and empathy with each others perspective.
- Don't require the metadata more than once. Only download what you will use, and use what you download.
- Provided we use the data, customers do not care about what our systems look like behind the portal/interface.
- The boss is not the one going to be filling in the returns for larger organisations. It's got to be easier for them than the postage stamp route.

Lessons?

- Operator data portals are attractive to the operator and meet their needs because they are the owners of their data and the portal.
- Who enjoys filling in forms? Portals could reduce reliance on forms as the effective data interface.
- Access on-screen is not download, but may be downloadable.
- Download is submission. Download means storage. Data standards are basic.
- Future proof, e.g. Open Data Standard, and be ready for transfer in the future into a centralised government data portal.

What now?

- An on-line 'environmental data returns portal'
- Operator data portals download directly into our portal and store.
- Companies we regulate are ready for this and interested in extending its utility
- Technology is well in advance of this development
- Commercial IT packages are already linking data and portals to GPS and mapping through smartphone links
- Extending operator data portals to include all data reports
- Sharing operator data portals with other regulators
- Making tailored webpages/portals publicly available
- Government initiatives

Thank you