



## Oil Analysis Web Database User Guide

### Introduction

At STS/OAS our vision is for the online results database to become an essential daily tool for reliability and maintenance engineers and to link the end customer and the lab in a virtuous communication loop. This is why we insist on bespoke in-house software and dedicate significant resources to its development. There are many useful features in the software already and there are many new features in the development plan.

### Logging In, My Account, Messages, Navigation

You will find the database at [www.oasdb.net](http://www.oasdb.net). The site should then redirect you to the **Login page**, however if this does not happen automatically (some of the older browsers may not support this feature) please type <http://www.oasdb.net/system/default.php> instead. Once at the **Customer Access** screen please use your username and password to log in.

The next page will alert you of any messages that may have been issued for you. You can then read them under **My Account/View Messages** section. If this is your first time using the software you may find that some messages are already waiting for you with information on recently added features and other relevant information. Please note that if you access the database on several computers or share log in details with colleagues then new message tracking may not display new message notifications. *You will however now find the subjects of the latest three messages displayed on the welcome page, which will help track new announcements<sup>1</sup>.* It is *still* a good practice to check your inbox for new messages every now and then.

While at the **Welcome Screen** press continue and you will arrive at the **Quick Tasks** page. Here you can use **Navigation Icons** and links along the **Navigation Bars** at the top and bottom of the page to access sample reports and other key areas of the site. You can always return to the Quick Tasks page by clicking on the Quick Tasks link in the top navigation bar.

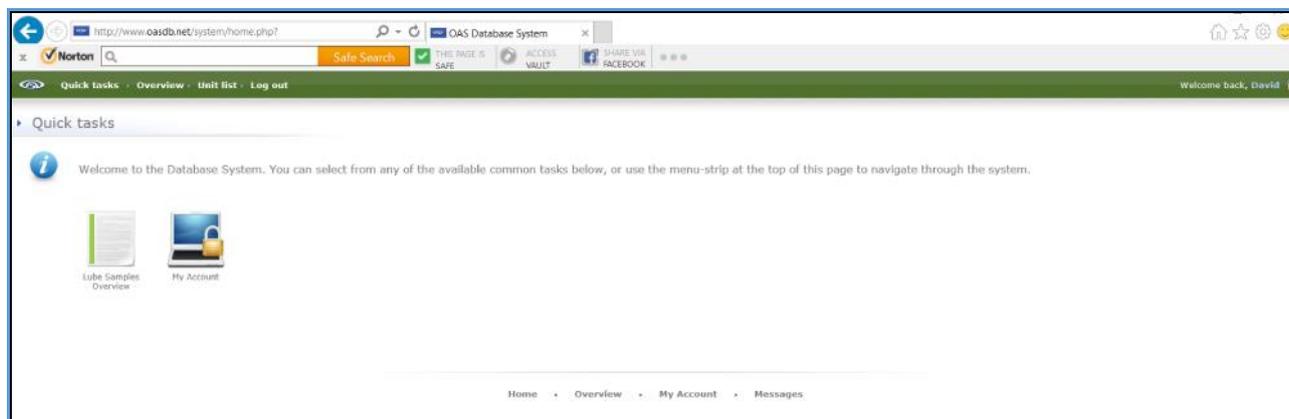


Figure 1 Quick Tasks Area

<sup>1</sup> Any updates from the previous version of this document will be inserted as italics to make catching up with the new features easier.



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**My Account** area contains various tools allowing you to update your company and personal details, change your password and certain preferences for export files as well as to read any messages.

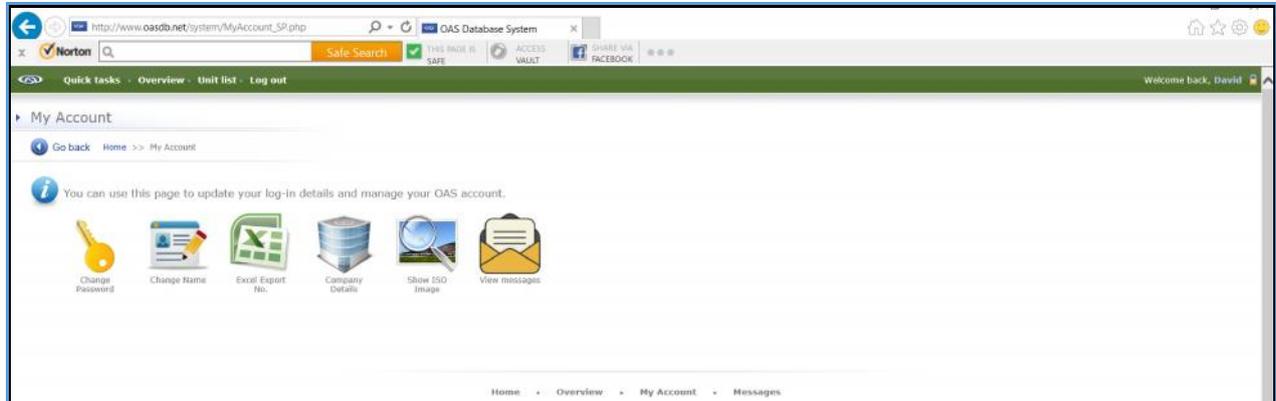


Figure 2 My Account Area

## Sample Overview, Unit List, Analysis Report, History Table

**Lube Sample Overview** icon and **Overview** navigation bar links take you to the list of samples tested. These are presented in a table and give you access to analysis reports, history tables, graphs, etc. They also summarise sample condition for a quick assessment of the situation.

Sample Number	Sample Date	Company Name	Site Name	Plant ID	Unit Name	Sample Point	Lubricant Type	SR HT QR Status
40000000	22/05/2015	...	...	...	...	COMPRESSOR	MOBIL DTE HEAVY MEDIUM	[Green] [Q]
40000000	23/05/2015	...	...	...	...	COMPRESSOR	MOBIL DTE HEAVY MEDIUM	[Green] [Q]
40000000	23/05/2015	...	...	...	...	COMPRESSOR	MOBIL DTE HEAVY MEDIUM	[Green] [Q]
40000000	23/05/2015	...	...	...	...	COMPRESSOR	MOBIL DTE HEAVY MEDIUM	[Green] [Q]
40000000	05/01/2015	...	...	...	...	ENGINE	SW/0058A 015 2000 02 10W ASH FULLY SYNTHETIC OIL	[Green] [Q]
40000000	05/01/2015	...	...	...	...	NOT GIVEN	SW/0058A 015 2000 02 10W ASH FULLY SYNTHETIC OIL	[Green] [Q]
40000000	06/01/2015	...	...	...	...	GEARBOX	ISO VG 220	[Green] [Q]
40000000	06/01/2015	...	...	...	...	GEARBOX	ISO VG 220	[Green] [Q]
40000000	06/01/2015	...	...	...	...	GEARBOX	ISO VG 220	[Green] [Q]
40000000	06/01/2015	...	...	...	...	GEARBOX	ISO VG 220	[Green] [Q]
40000000	24/09/2015	...	...	...	...	GEARBOX	MOBIL 680 HP 150	[Green] [Q]
40000000	06/02/2015	...	...	...	...	CENTRIFUGAL COMPRESSOR	MOBIL DTE 797	[Green] [Q]
40000000	02/05/2015	...	...	...	...	COMPRESSOR	MOBIL DTE HEAVY MEDIUM	[Green] [Q]
40000000	28/09/2015	...	...	...	...	GEARBOX	NOT GIVEN	[Green] [Q]
40000000	05/01/2015	...	...	...	...	GEARBOX	NOT GIVEN	[Green] [Q]
40000000	28/09/2015	...	...	...	...	GEARBOX	NOT GIVEN	[Green] [Q]
40000000	05/01/2015	...	...	...	...	GEARBOX	NOT GIVEN	[Green] [Q]
40000000	06/02/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	06/02/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	08/03/2015	...	...	...	...	GEARBOX	NOT GIVEN	[Green] [Q]
40000000	08/03/2015	...	...	...	...	GEARBOX	MP 320	[Green] [Q]
40000000	10/05/2015	...	...	...	...	AIR COMPRESSOR	SHELLURE SYNTHETIC ISO 32	[Green] [Q]
40000000	10/05/2015	...	...	...	...	AIR COMPRESSOR	SHELLURE SYNTHETIC ISO 32	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]
40000000	17/09/2015	...	...	...	...	GEARBOX	FUCHS RENOLIN CLP 220 UNISYN	[Green] [Q]

Figure 3 Overview Page

In the **Overview** table samples are listed by invoice number with Sample Date, Customer Company Code, Site Name, Plant ID, Unit Name, Sample Point and Lubricant type displayed. Icons linking to Graphs, History Tables and a Quick Report function as well as a traffic light system for test group statuses are available on the right hand side of the table (as seen in Figure 4).

The **Quick Search** function covers Company, Site, Plant ID, Unit and Sample point fields and will help you find the results you need.



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Quick search:	<input type="text"/>	Go		
Set number of items to display:	200 <input type="button" value="v"/>	Go		
Lubricant Type	GR	HT	QR	Status
				E P A V L H C I I M Y Y S R
QUINTOLUBRIC 888-46				
QUINTOLUBRIC 888-46				

Figure 4 Overview table navigation with Quick Search and Icons for Graphs (GR), History Table (HT) and Quick Reports (QR). Also shown is a status summary for Elemental Analysis, Physical Tests, Acidity, Viscosity and where available FTIR.

A useful alternative to the Overview table is the **Unit List**, which is accessible through the top Navigation Bar and is arranged in a similar way to the overview table. The major difference is that for each unique Unit/Sample Point combination only the latest sample is shown (note this feature may initially display the oldest sample for certain units where no recent samples (after 2015) have been taken – this issue is resolved once a recent sample is entered into the system). This page can be used as a useful summary of your assets as it displays the latest oil sample status for each asset and helps track when samples were last taken.

The **Unit List** page comes with a number of additional features including its own search function and sorting feature, where the table can be arranged in ascending or descending order by Sample Number, Date, Site, Plant ID, Unit, Sample Point or Lubricant. Combination of Sorting, Quick Search and browser search will make it easy to narrow down and arrange results in the most convenient way.

When it comes to **viewing the results** there are two primary options – **Analysis Report** and **History Table**.

**Analysis Report**, accessible by clicking on the **Sample Invoice Number** will have all the available results for the chosen sample. It will also allow you to Add Comments (if enabled for your account), view the History Table and Graphs and generate export files in one or more predetermined formats depending on your account settings.

The **Add Comments** function is designed to enable a feedback mechanism between the client and the lab – you can use it to inform us and your colleagues of oil changes, maintenance activities, changes in usage patterns, feedback from other condition monitoring techniques and any other relevant information. This isn't enabled by default, so if you think you will find it useful please contact the lab and it will be enabled for you.



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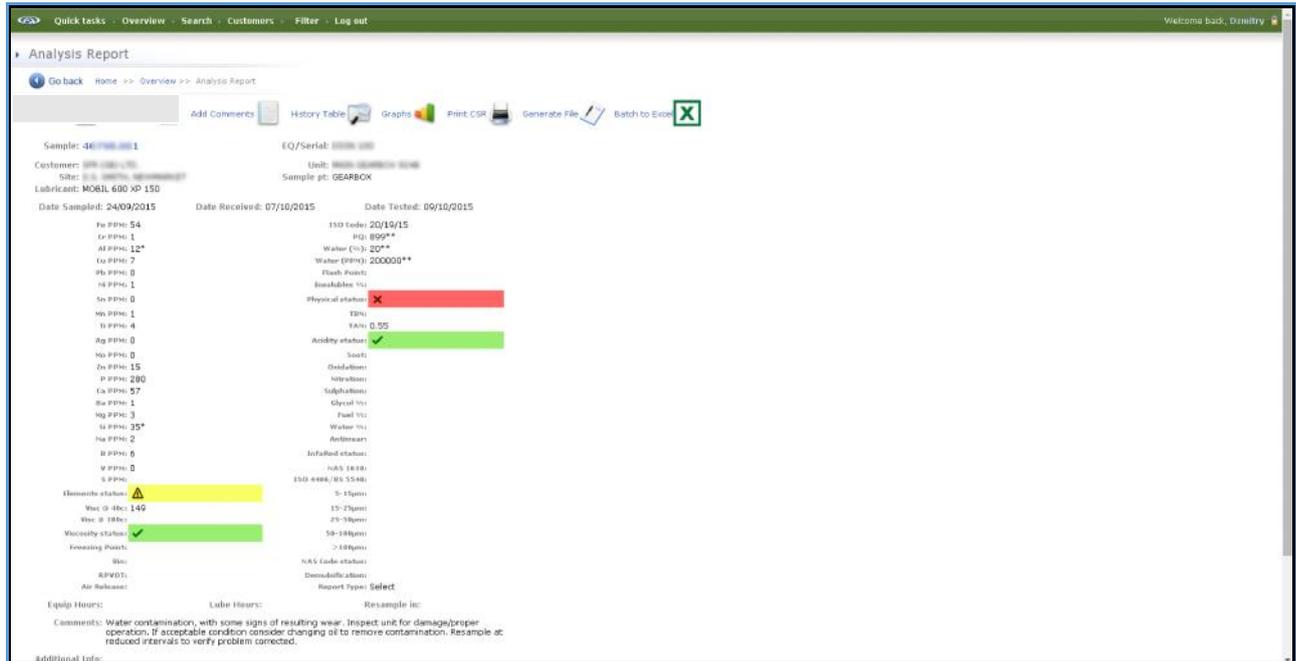


Figure 5 Analysis Report



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OAS - DB

https://oasdb.net/system/runprint\_hist\_cust.php?NewL=0&NewI=0

Bck 8 - Fwd 8 - Latest - Overview - Print report - Print Paperwork - Save as Excel - Export All

Swansea Tribology Services

**OIL TEST RESULTS**

SITE: Site  
UNIT: UNIT ID  
SAMPLE POINT: COMPRESSOR  
LUBRICANT: Oil Type

DATE SAMPLED	21/10/2015	07/12/2015	04/05/2016	12/09/2016	17/10/2016	07/03/2017	26/06/2017	13/09/2017
DATE RECEIVED	29/10/2015	17/12/2015	18/05/2016	03/10/2016	31/10/2016	14/03/2017	07/07/2017	22/09/2017
DATE TESTED	04/11/2015	22/12/2015	20/05/2016	05/10/2016	08/11/2016	16/03/2017	13/07/2017	26/09/2017
EQUIP / LUB HRS								
IRON (ppm)	1	0	1	1	1	1	1	1
CHROMIUM (ppm)	0	0	0	0	0	0	0	0
ALUMINIUM (ppm)	0	0	0	0	0	0	0	0
COPPER (ppm)	0	0	0	0	0	0	0	0
LEAD (ppm)	0	0	0	1	0	0	0	0
NICKEL (ppm)	0	0	0	0	0	0	0	0
TIN (ppm)	0	0	0	0	0	0	0	0
MANGANESE (ppm)	0	0	0	0	0	0	0	0
TITANIUM (ppm)	0	0	0	0	0	0	0	0
SILVER (ppm)	0	0	0	0	0	0	0	0
MOLYBDENUM (ppm)	0	0	0	0	0	0	0	0
ZINC (ppm)	0	0	0	0	1	0	1	1
PHOSPHORUS (ppm)	0	0	1	0	1	0	0	0
CALCIUM (ppm)	1	0	0	0	1	0	1	0
BARIUM (ppm)	0	0	0	0	0	0	0	3
MAGNESIUM (ppm)	0	0	0	0	0	0	0	0
SILICON (ppm)	2	1	5	1	1	1	1	1
SODIUM (ppm)	0	0	0	0	1	0	0	0
BORON (ppm)	0	0	0	0	0	0	0	0
VANADIUM (ppm)	0	0	0	0	0	0	0	0
SULPHUR (ppm)								
ISO CODE	18/17/14	16/15/13	17/16/13	17/16/14	17/16/13	18/18/15*	18/17/14	17/16/13
PQ	33*	40*	520*	7	6	10	10	8
WATER (%)/ (ppm)	- / 34	- / 23	- / 16	- / 19	- / 18	- / 18	- / 19	- / 22
FLASH POINT (°C)								
INSOLUBLES (%)								
TBN (mgKOH/g)								
TAN (mgKOH/g)	0.15	0.08	0.14	0.08	0.06	0.33*	0.28*	0.18
VISC @ 40°C	66	67	63	65	66	66	66	63
VISC @ 100°C								
NAS 1638								
ISO								
BPVOT (min)								
DEMULSIFICATION (s)								
SAMPLE NUMBER	3.036	0.001	0.017	8.001	9.018	1.001	5.032	3.001

Normal. Continue in Service. Resample at regular intervals. (Comments refer to Sample No. 42443.001, as highlighted above.)

ISO Image for sample No. 3.036, ISO Image for sample No. 0.001, ISO Image for sample No. 0.017, ISO Image for sample No. 8.001, ISO Image for sample No. 9.018, ISO Image for sample No. 1.001, ISO Image for sample No. 5.032, ISO Image for sample No. 3.001.

Table 1

Figure 6 History Table, now showing up to 8 patch images where available

The **History Table** page for each unit is accessible from the Analysis Report as well as from the Overview and Unit List tables via the **HT Icon**. It gives you access to 8 of the latest sample results (where available) and for samples where ISO Cleanliness Code is reported to the corresponding **Patch Images** as well. The selected sample is highlighted by a light blue shade, with the patch photo *also highlighted*. Comments and lubricant information change depending on the selected sample. The software also highlights lines of results depending on the position of the mouse cursor making it easier to identify values and explore trends. You can select different samples by clicking on the sample date, which updates the comments and images displayed, and get back to the Analysis Report by clicking on the invoice numbers. An enlarged image of the filter patch will pop up in a new window if you click on the photo (where ISO Code is available). *Where additional comments have been left by either the customer or the lab, the sample number will be displayed in a green font to indicate that additional information is available.*

Where extended analysis history is available you can navigate to the previous results and back by clicking on the **Bck 8**, **Fwd 8** and **Latest** links at the top of the History Table page.



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## Graphs

Another useful tool for exploring the results and evaluating trends is the graph. *We have now completed a complete overhaul of the graphing engine, switching from Flash to HTML 5 and adding a host of new features in the process. One of the key features was a change to **true date spacing** for the horizontal axis instead of the previously used incremental equally spaced system. You can now see a true representation of the sampling frequency on the graphs. This can be used to review sampling frequencies, identify periods when no samples were taken and get an accurate representation of the rates of change in measured values.* You can find a selection of **graphs** by following a link from the Analysis Report page or by clicking on the graphs icon in the Overview or Unit List. *This will take you to the **Graph Overview**.*

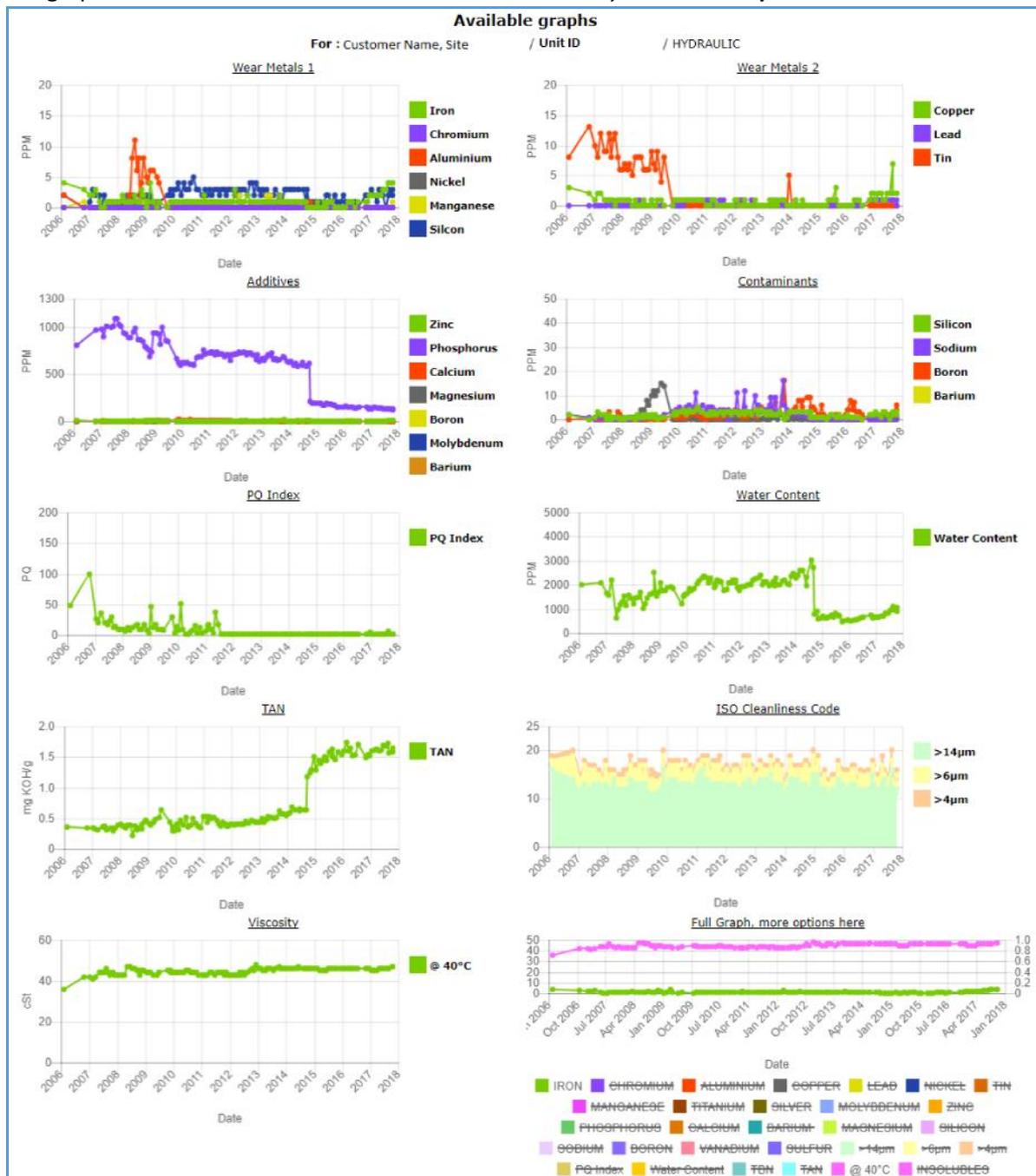


Figure 7 Graph Overview



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The Graph Overview page is home to a collection of pre-set graphs grouped into several categories. The first set covers Elemental Analysis results, with two Wear Metal plots, a graph for common Additives and another for Contaminants. These are followed by PQ Index and Water Content, TAN/TBN, ISO Cleanliness Code, Viscosity and the customisable Full Graph.

Clicking on individual legend names will disable/enable the relevant parameter (the page will be reloaded). This may lead to a change of scale, allowing for previously suppressed detail within the trends of remaining elements to become apparent.

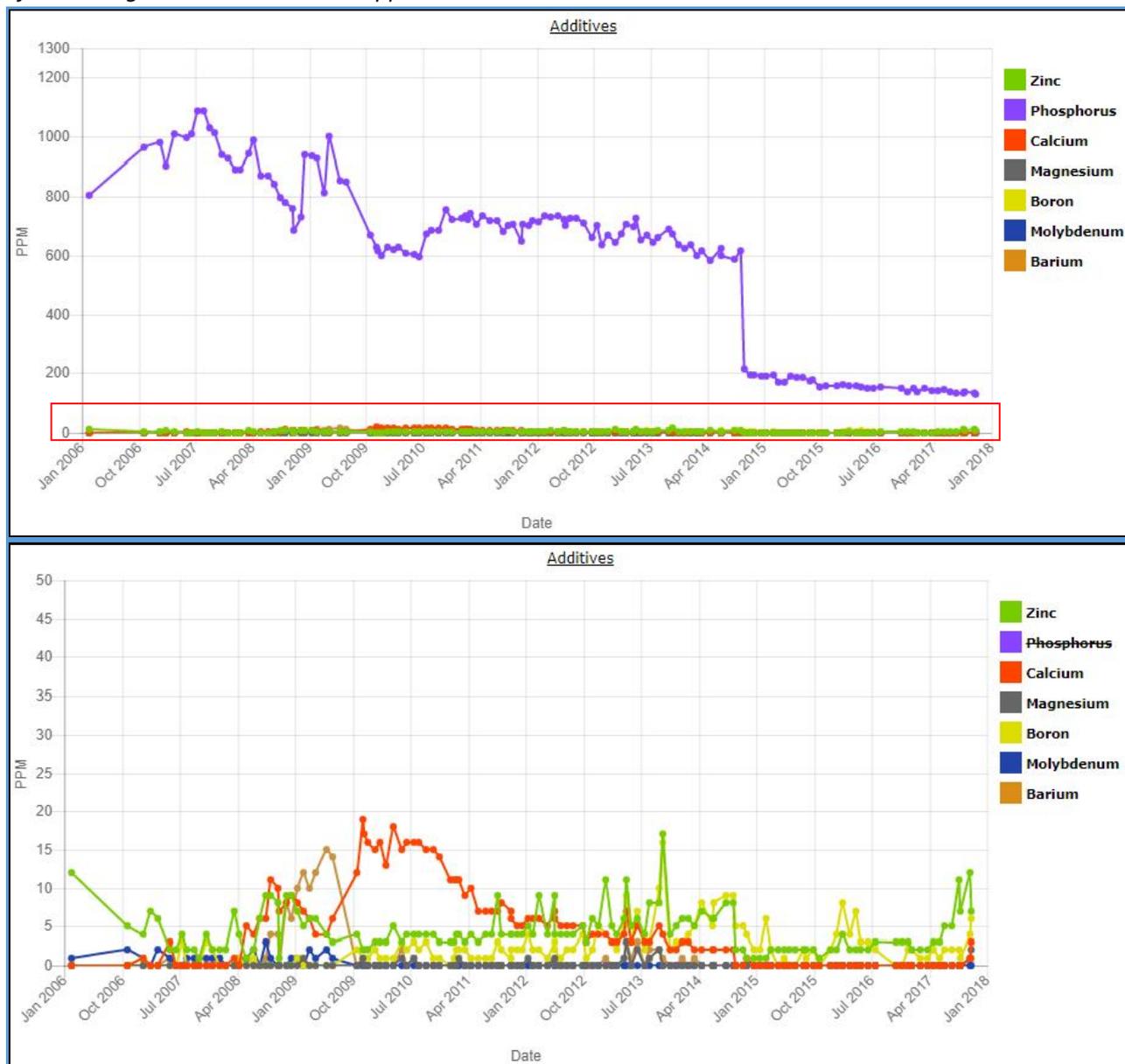


Figure 8 Scale adjustment following deselection of Phosphorus

Further adjustments to both horizontal and vertical axis scales can be accessed on the individual graph pages. Click on the desired graph title to proceed to a dedicated page for the specific graph. From each of the individual graphs you can navigate to any of the other graphs or back to the Graph Overview. You can adjust the horizontal axis scale by using the mouse wheel and pan across the graph by holding the left



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mouse button and moving the mouse. You can also choose to display a set number of years, which will adjust the scale accordingly, see Figure 10.

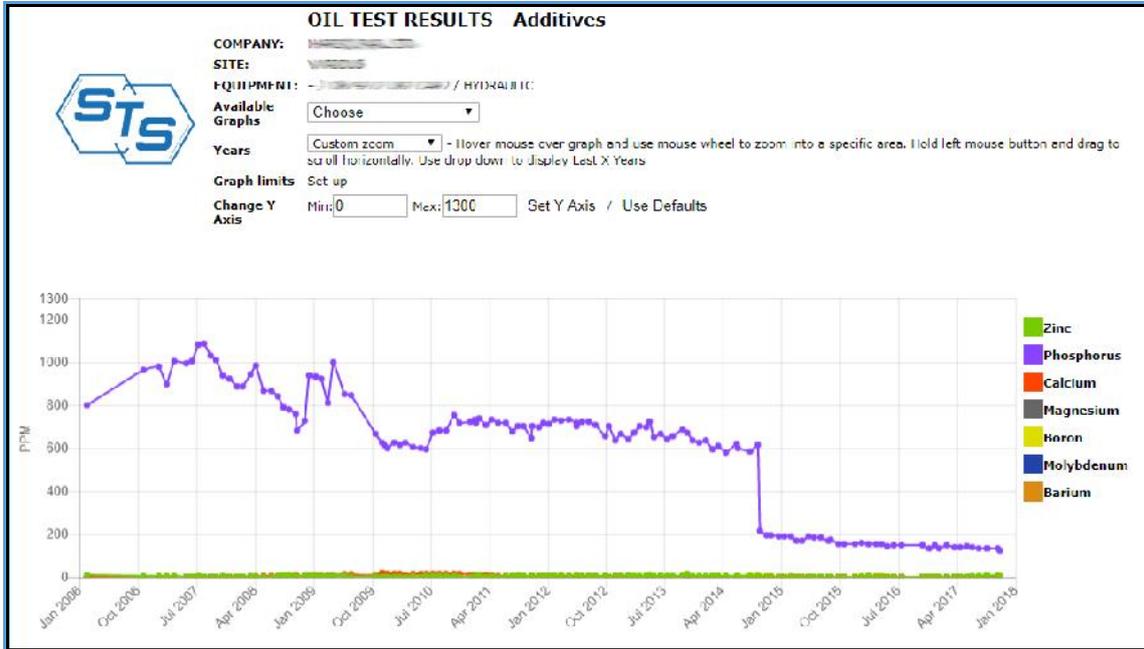


Figure 9 Additives Graph Page, default view



Figure 10 Additives Graph Page, last 5 years





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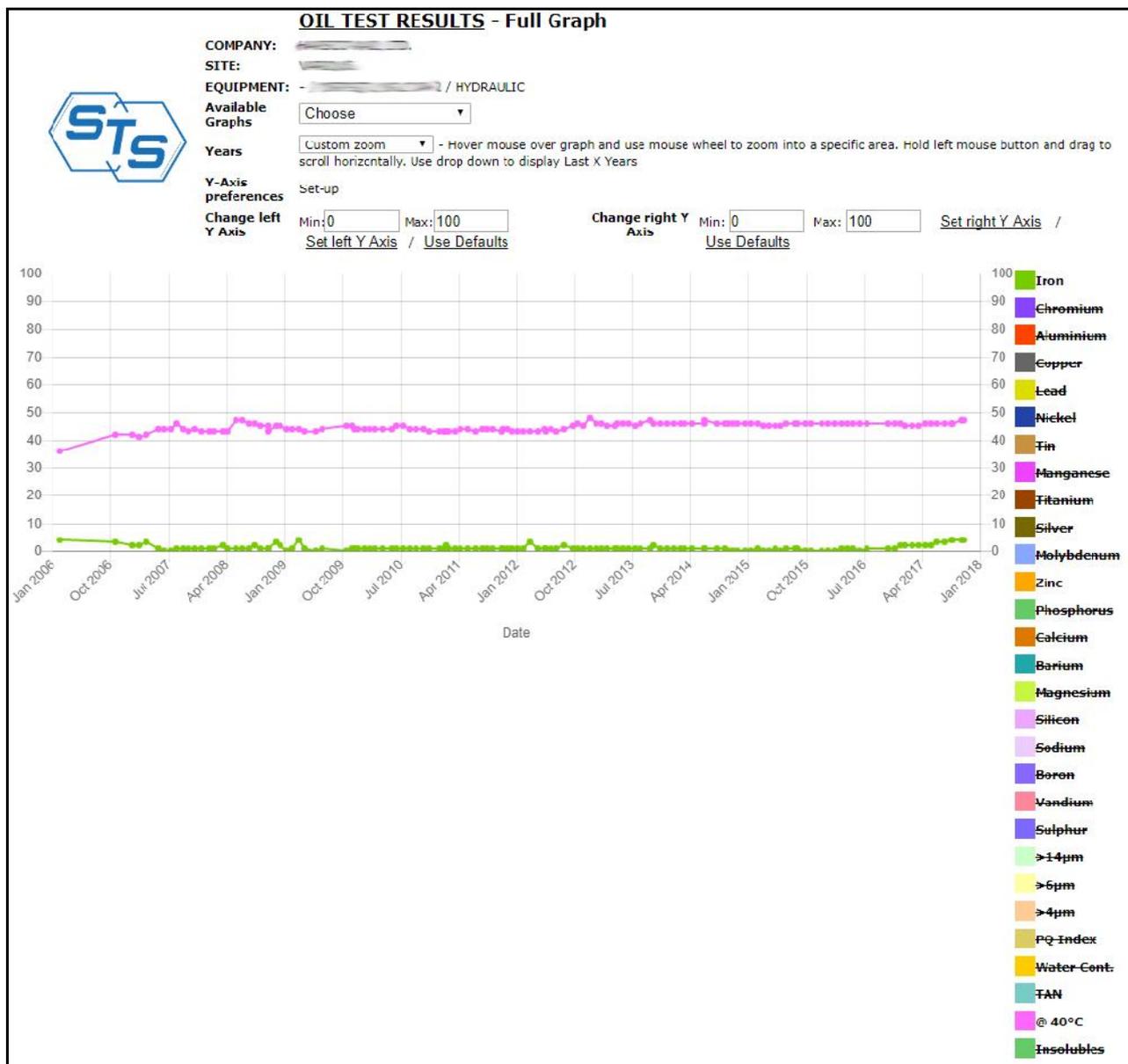


Figure 11 Additives Graph Page, 0-250 Y axis range

By default the Y axis is set up to scale in line with the largest value in the dataset. It can also be adjusted manually, allowing a more detailed examination of the minor or trace elements, which can give important information about the metallurgy of a wearing component. Set the desired minimum and maximum values and click Set Y Axis to adjust. You can return to the default scaling by clicking on Use Defaults.

In some cases it may be desirable to plot different properties against each other. For this purpose we have created a fully customizable **Full Graph**. There you can select a number of different parameters to plot against each other. To allow for very disparate scales two Y Axis have been provided with full customisation options available for each axis, see Figure 13. The choice of axis for each parameter can be made using the Y-Axis Preferences Set-up dialogue, as seen in Figure 14. The standard adjustments to the scale of the horizontal axis are also available on the Full Graph.

Combination of these options will allow for a thorough interrogation of data and a deep understanding of the system being monitored.





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Figure 12 Full Graph Page, default view

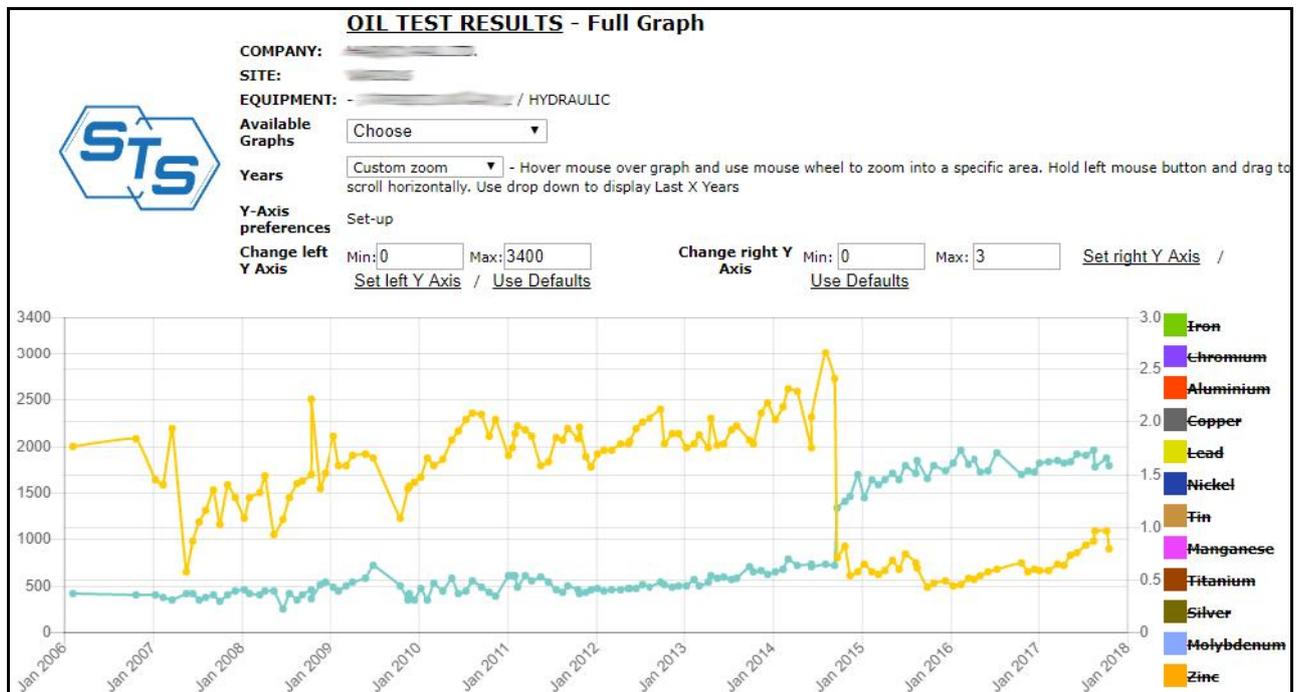


Figure 13 Full Graph Page, Water (left axis, 3400ppm maximum scale, orange) vs TAN (right axis, 3mg KOH/g maximum scale, light blue)

Elements		Physical	
Fe - Iron	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	ISO Code	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis
Cr - Chromium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	PQ Index	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis
Al - Aluminium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	Water	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis
Cu - Copper	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis	<b>Acidity</b>	
Pb - Lead	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	TBN	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis
Ni - Nickel	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	TAN	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis
Sn - Tin	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	<b>Viscosity</b>	
Mn - Manganese	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	Viscosity @ 40°C	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis
Ti - Titanium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	Viscosity @ 100°C	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis
Ag - Silver	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	<b>Insolubles</b>	
Mo - Molybdenum	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis	Insolubles	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis
Zn - Zinc	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
P - Phosphorus	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis		
Ca - Calcium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
Ba - Barium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
Mg - Magnesium	<input type="radio"/> Left Axis <input checked="" type="radio"/> Right Axis		
Si - Silicon	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
Na - Sodium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
B - Boron	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
V - Vanadium	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		
S - Sulphur	<input checked="" type="radio"/> Left Axis <input type="radio"/> Right Axis		

[Change setup](#)

Figure 14 Full Graph Axis selection dialogue



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## Change Log and Feature List

*We are very proud of our Web Database and are putting a lot of thought into making it a useful tool for our customers. Here you will find a simple list of some of the key features including those added recently and also a brief list of things to come. If you feel that something is missing or should be prioritised, please get in touch and let us know. Ultimately we wish that the software is useful to you in achieving your reliability goals.*

*In no particular order:*

*Sample Overview*

*Unit List*

*Analysis Report*

*History Table with access to full historical results*

*Up to 8 Patch Images with Click to View*

*Graph Overview*

*Individual Graphs*

*Customisable Full Graph*

*Text outputs in various formats*

*Excel data dumps*

*Customer Comments System*

*Internal Messaging*

*Help Section with Guide Documents*

*Tiered Customer Access by Site/Sample for 3<sup>rd</sup> Parties*

*In the pipeline:*

*Integrated Ferrography Reports*

*Attachment of Additional Reports*

*Email Notifications*

*Schedules and Interval Tracking and Notifications*

*Printable Labels*

*Various minor improvements*