myKomatsu
CMS User Manual

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1 Site Access

There are two (2) tasks required to be completed in order to be able to access our CMS oil samples in the myKomatsu portal:

1. Sign up to the myKomatsu website as either a:
    a. Komatsu Online account holder
    b. Komatsu Online Premium account holder
2. Have your myKomatsu account enabled for CMS access

Note: The Komatsu CMS team can complete both of these tasks for you.

1.1 myKomatsu Account

A myKomatsu account can be set up by following the instructions in the website. These can be accessed using the following links:

For Australia: https://my.komatsu.com.au/help/access-and-accounts

For New Zealand: https://my.komatsu.co.nz/help/access-and-accounts

A detailed procedure is also provided in the myKomatsu user guide, located here:

https://my.komatsu.com.au/-/media/project/komatsu/file/marketing/mykomatsu-user-manual.pdf

https://my.komatsu.co.nz/-/media/project/komatsu/file/marketing/mykomatsu-user-manual.pdf

Having a myKomatsu online account gives you access to be able to purchase parts online from Komatsu, along with viewing order history, managing delivery addresses and getting notifications about news and other promotions.

There is also an option to create a premium account, which will link to an existing Komatsu trade account. This will allow you access to parts books, purchasing parts online using your account at your trade price (if applicable).

1.2 Accessing myKomatsu Site

Once we have our myKomatsu account created, the CMS team will enable it for access to the CMS website. This will then allow us to access our CMS samples and results.

Now, when we visit the myKomatsu portal using the links below, you will be taken to the home page (Figure 1.1).

For Australia: https://my.komatsu.com.au/

For New Zealand: https://my.komatsu.co.nz/

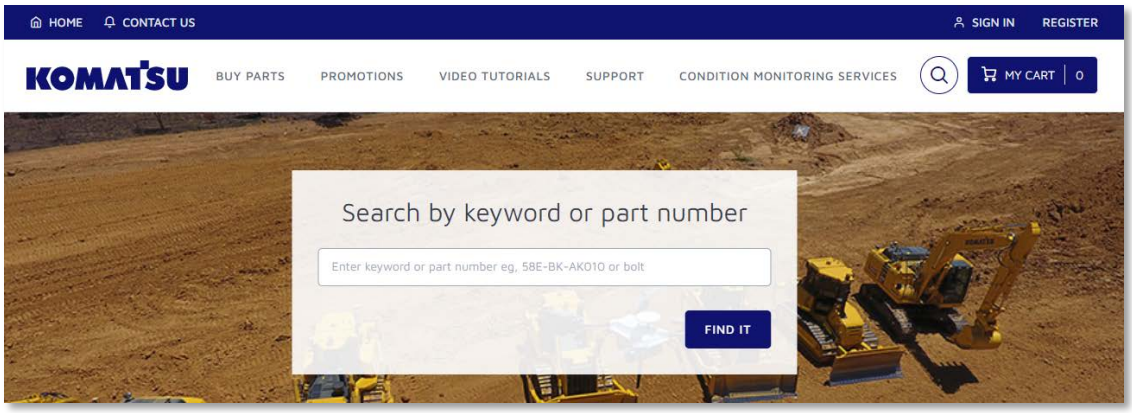


Figure 1.1 myKomatsu Portal Home Page.

When we hover over the **Condition Monitoring Services** menu item (① in Figure 1.2) we will note there are only basic options available.

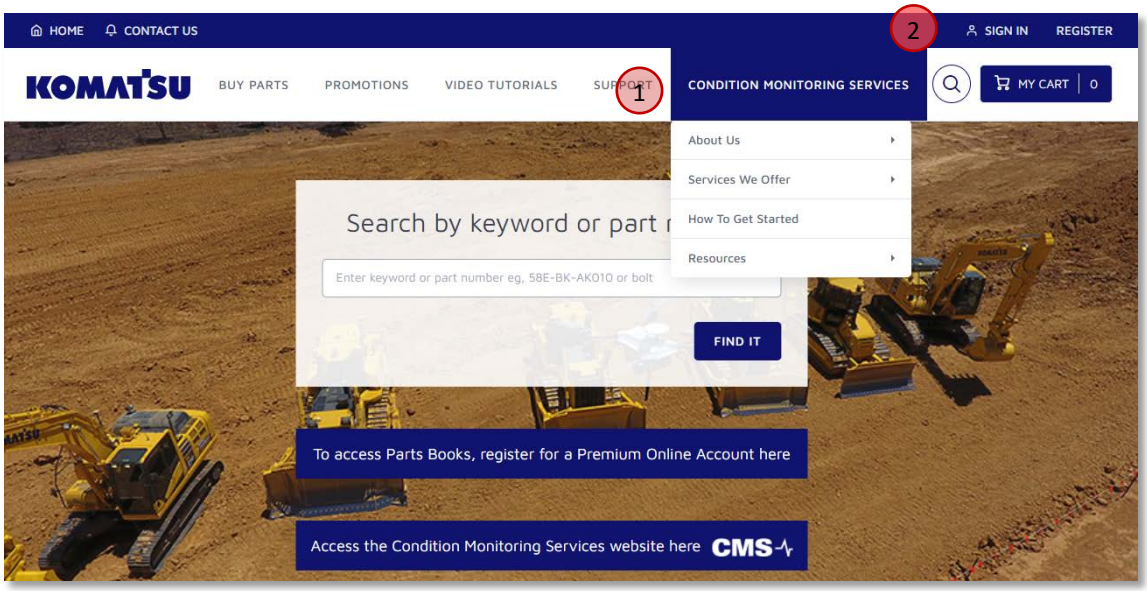


Figure 1.2 myKomatsu Portal Home Page - Condition Monitoring Services Menu

Once we click on the **Sign In** button (② in Figure 1.2), we will be asked to log in to our account (Figure 1.3). Once we enter the email address for our myKomatsu account (① in Figure 1.3) and associated password (② in Figure 1.3), we can click the **Login** button (③ in Figure 1.3).

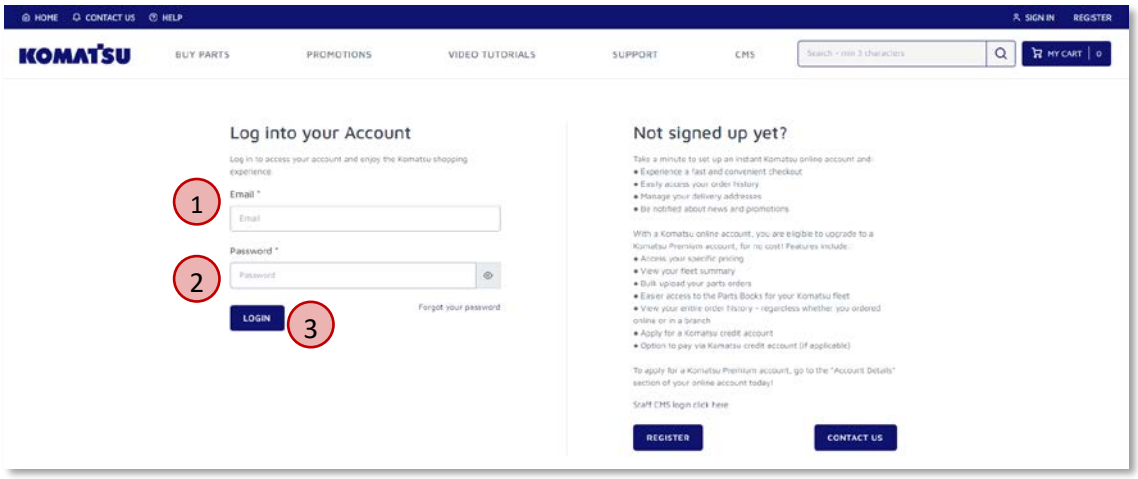


Figure 1.3 myKomatsu Portal Login

Once we login with an account enabled for CMS access using the sign in button (② in Figure 1.2), we will be provided with more options under the Condition Monitoring Services menu item (Figure 1.4).

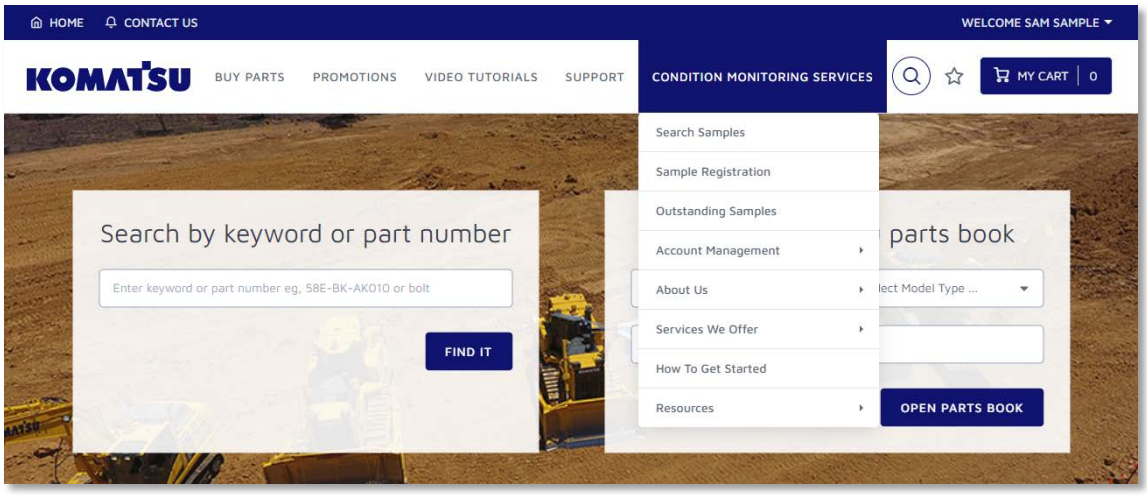


Figure 1.4 myKomatsu Portal Home Page - Condition Monitoring Services Menu Items After Login

2 Search for a Sample

There are 3 ways in which to search for samples that we are interested in. These are listed below and correspond to the numbers provided in Figure 2.1:

1. Simple Search (see section 2.1)
2. Advanced Search (see section 2.2)
3. Latest Samples (see section 2.3)

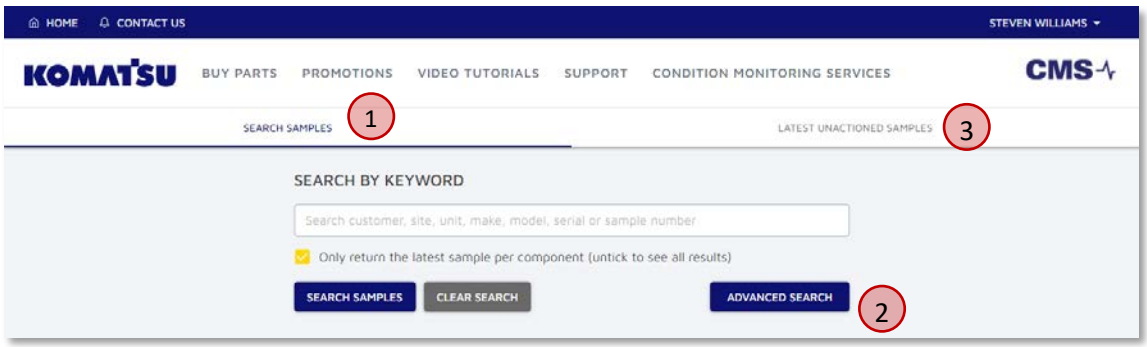


Figure 2.1 Search Function Locations

Each search function will allow us to apply different filters, in order to refine the search results to what we are looking for. Click on the type of search we would like to perform.

All 3 methods of searching will return the same search results, detailed in section 2.4.

2.1 Quick Search

Simple search is the default selection for our search when you visit the myKomatsu CMS website. Figure 2.2 shows the simple search layout.

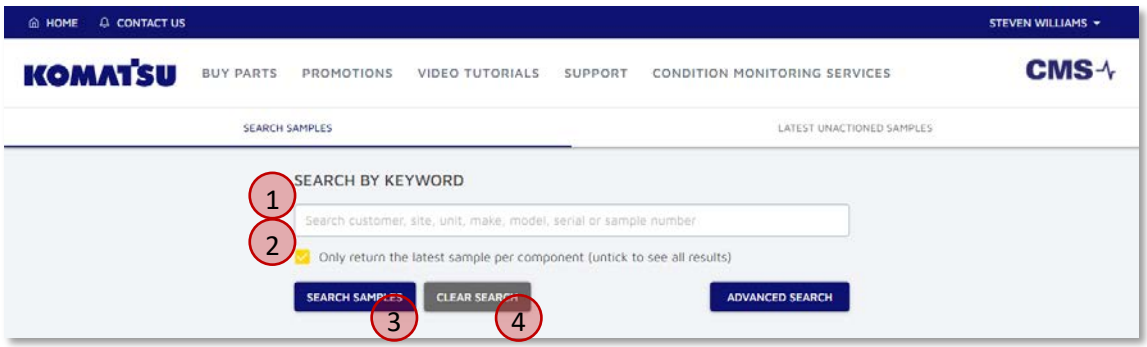


Figure 2.2 Simple Search Page

In order to search, we can type one or more keywords into the search box (① in Figure 2.2). Keywords available, including examples, are provided in Table 2.1.

Search Field	Example
Customer Name	ACME Earthmoving
Site Name	ACME Quarry
Unit Name/Number	HEX01
Brand	Komatsu
Model	PC200LC-8
Serial Number	12345
Component	Diesel Engine
Fluid Sample Number	20210203100101
Barcode Number	00012345

Table 2.1 Available Search Terms for Simple Search

Further, multiple search terms can be added into a single search, using space to delimit the terms. Each term is then searched through all of the data fields noted in Table 2.1, and return any sample that has a match on all criteria.

So, if we search for 'ACME PC200 Engine', the system will search and then return all samples that match one or more of these terms. In this case, we will be shown samples that have ACME, PC200 and Engine, so matching ACME in both the customer and site, PC200 in the model, and engine in the component name.

Partial matches are also available. For example, we can search for 'ACME', which will search and return results for both 'ACME Earthmoving' and 'ACME Quarry'.

The tick-box 'Only return the latest sample per component (untick to see all results)' (② in Figure 2.2) will default to ticked. This means that, if we have 10 fluid samples for a single unit's (machine's) engine, we will only be shown the latest sample for the engine. If we would like to view all historical oil sample results for this unit and component, untick this box.

Once we have entered our search criteria, click the **Search Samples** button (③ in Figure 2.2), or press ENTER on our keyboard.

The search will execute and display the results on the screen. See section 2.4 for more detail on search results.

If we need to clear our search criteria, click the **Clear Search** button (④ in Figure 2.2).

2.2 Advanced Search

If we are trying to search for specific samples, we may need to use the advanced search function shown in Figure 2.3. This will allow us to specify exactly what we are searching for in each field.

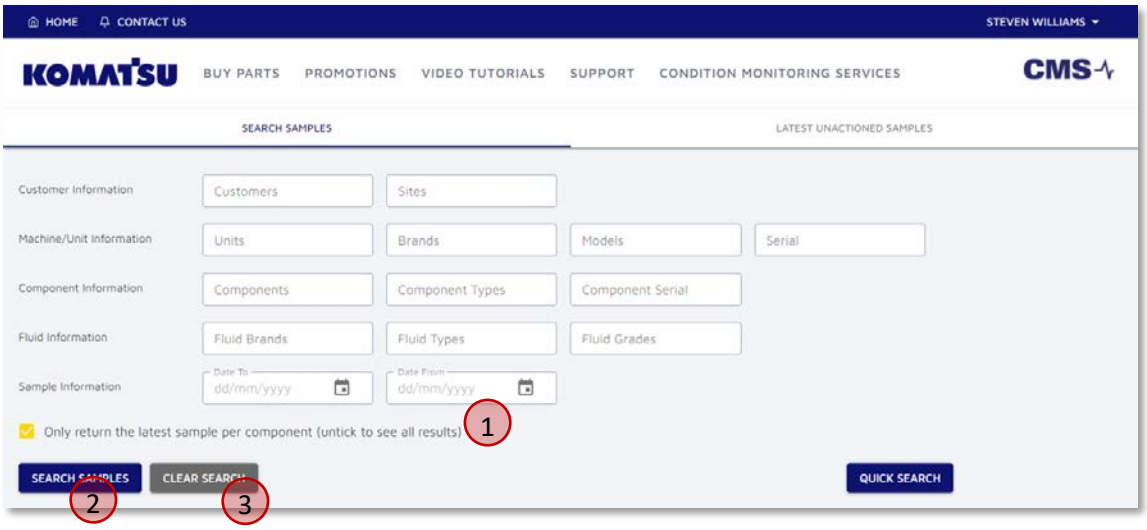


Figure 2.3 Advanced Sample Search Options

The fields available to us for searching are provided in Table 2.2, including a short description and example. Most of these fields are multi-select drop-downs (marked with ^ in Table 2.2). Once we click into the box, we can select none, one or multiple items from the items provided to us.

We can also refine the drop-downs, so that we can easily find what we are looking for. Simply click into the drop-down and start typing what we are looking for. For example, if we are trying to find HX101 in the units field, you can click into the units field, and then type 'HX101' (or some shortened version of this) in order to refine the drop-down list to select the unit we are looking for.

Search Field	Description	Example
Customer^	Customer name	Komatsu Rental NSW
Site^	Site name	Western Sydney Airport
Unit^	Unit number of a machine	HX101
Brand^	Manufacturer of machine	Komatsu
Model^	Model of machine	PC210LC-11
Serial	Serial number of machine	12345
Component^	Name of the component for a sample	Diesel Engine
Component Type^	Type of component	Engine
Component Serial	Serial number of component	456789
Fluid Brand^	Manufacturer of fluid sampled	Komatsu
Fluid Types^	Type of fluid being sample	AXO 80
Fluid Grades^	Grade of fluid being sampled	80W
Alert Statuses^	Alert status of an evaluated sample	Critical
Date From / To	Search between evaluated date ranges, in DD/MM/YYYY format	29/02/2020

Table 2.2 Advanced Search Fields

The tick-box (① in Figure 2.3) 'Only return the latest sample per component (untick to see all results)' will default to ticked. This means that, if we have 10 fluid samples for a single unit's (machine's) engine, we will only be shown the latest sample for the engine. If we would like to view all historical oil sample results for this unit and component, untick this box.

Once we have entered our search criteria, click the **Search Samples** button (② in Figure 2.3), or press ENTER on our keyboard.

The search will execute and display the results on the screen. See section 2.4 for more detail on search results.

If we need to clear our search criteria, click the **Clear Search** button (③ in Figure 2.3).

2.3 Latest Unactioned Samples

When a sample is evaluated, it will be added to our latest unactioned samples list, which is presented to us through this screen (Figure 2.4).

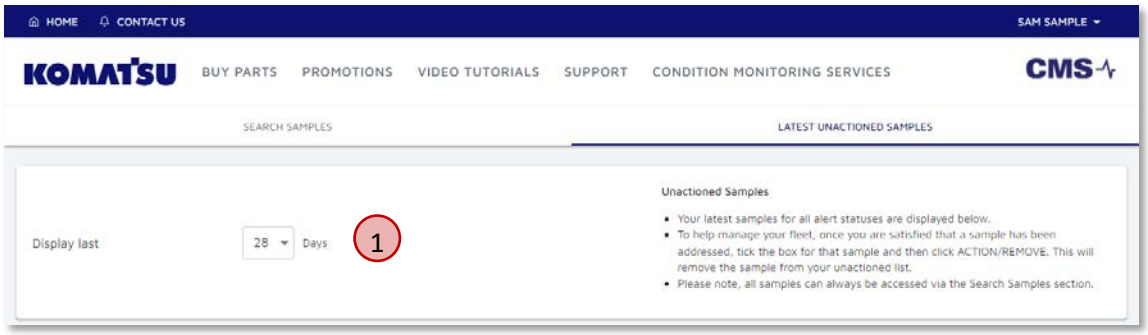


Figure 2.4 Latest Unactioned Samples Page

Note: The search will automatically return results to us when we land on the page. We don't need to click a search button.

The page will default to showing us samples which have been evaluated in the last 28 days; however, we can easily change this by using the drop-down to select a different number of days (① in Figure 2.4).

When we have reviewed the sample information, and taken any required action based on the recommendations in the report, we can mark the sample as actioned. Refer to section 2.4.5 (Action/Remove button for search results) or section 3.1.6 (for sample details page) for more information on this function.

Note: Actioning a sample will only remove it from your list in the current version of the website. There are planned updates to this functionality.

2.4 Search Results

Once we have performed a search (see sections 2.1, 0 or 0), our search results will be displayed below the search criteria.

Note: All search functions return the same search results.

An example set of search results has been provided in Figure 2.5.

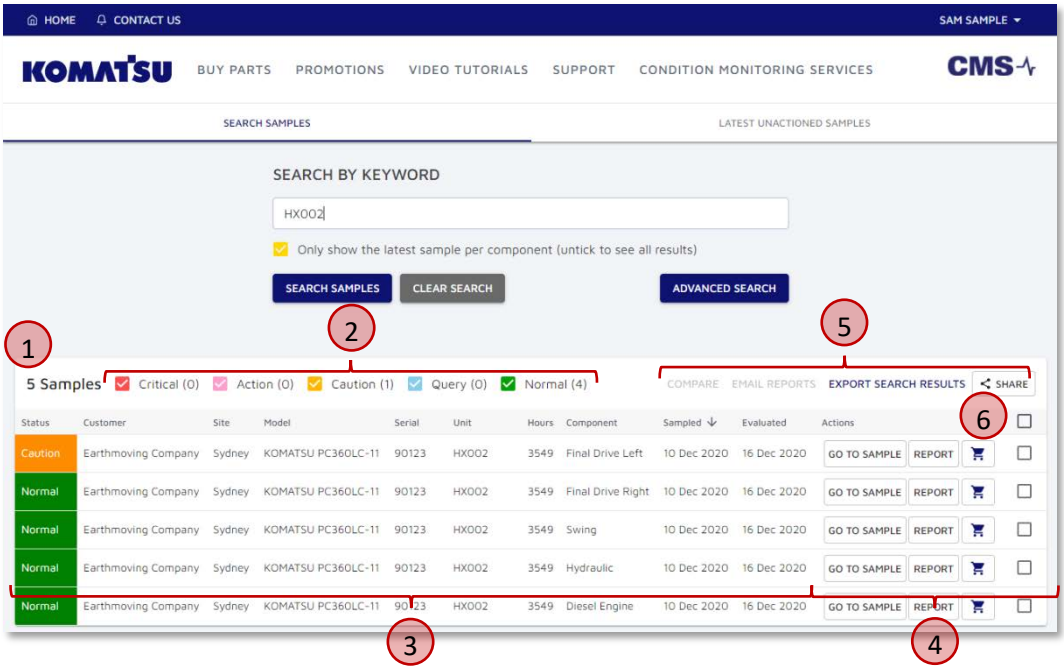


Figure 2.5 Example Sample Search Results

Let's look at the search results in more detail.

2.4.1 Sample Count

A count of sample results (① in Figure 2.5) is displayed, to provide us with an idea of how many results there are.

If there are less than 50 results, all will be displayed in the table.

If there are more than 50 results, the first 50 will be displayed, with more being shown as you scroll down towards the end of the sample results.

2.4.2 Sample Status Filtering

Each of the sample statuses are shown, along with a count of the number of sample results in each status (② in Figure 2.5).

We can use the tick boxes next to each status to hide or show the sample results of that status – very useful to understand the higher priority samples at higher statuses.

2.4.3 Sample Information

The sample information (③ in Figure 2.5) provides us with a number of rows of information, with each row representing a sample. The columns of data in the search results are explained in Table 2.3.

Result Column	Description
Status	Alert status of the sample, as evaluated by the Komatsu CMS Technician
Customer	The customer to which this unit and fluid sample has been assigned to
Site	The site to which this unit and fluid sample has been assigned to
Model	The brand and model of the unit which the sample was taken from (e.g. Komatsu PC360LC-11)
Serial	The serial number of the unit (machine) from which the sample was taken (e.g. 98521)
Unit	The unit number of the unit (machine) from which the sample was taken (e.g. HX002)
Hours	The reading of the hour meter on the unit (machine), giving an indication of age *Note: For some units, the unit of measurement may be kilometres (e.g. cars), or in months (e.g. some fixed plant). The appropriate reading will be provided in this column, despite the column name.*
Component	The name of the component on the unit (machine) from which the sample was taken (e.g. Diesel Engine)
Sampled	The date on which the sample was taken from the component.
Evaluated	The date on which the sample was evaluated, with the results and reports emailed to appropriate contacts

Table 2.3 Search Result Sample Information Explaination

2.4.4 Sample Buttons

To the right of the sample information are 3 buttons (④ in Figure 2.5):

1. **Go To Sample**
2. **Report**
3. (shopping cart)

These buttons will allow us to get more information regarding the sample in the row we have selected.

The **Go To Sample** button will take us to the sample details page, in which we will get details about the selected fluid sample. This is covered in section 3 in detail.

The **Report** button will allow us to download a report relating to this sample. Upon clicking the **Report** button, we will get 2 options, **Sample Report** and **Machine Report**, as shown in Figure 2.6. We must then select the type of report which we would like to download and view.

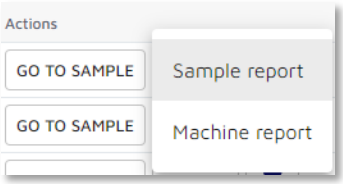


Figure 2.6 Report Button Options

These reports will provide:

- Sample report – Details of the selected sample, along with the previous 3 sample. Details provided includes evaluation, recommendations and test results, along with some charts of results. See section 11.2 for an example report and explanation.
- Machine report – Provides an overview of the machine, showing all sample components assigned to the machine displaying the last 4 samples. Some high-level information is displayed, including the sample alert status, evaluations and recommendations. See section 11.3 for an example report and explanation.

The shopping cart icon will provide a link across to myKomatsu parts purchasing, filtered to parts which might be of use for this sample.

2.4.5 Select and Action Buttons

From the search results, there are some actions we might want to take, without going to other screens. These can be taken using the buttons provided (⑤ in Figure 2.5).

The **Share** button will copy the current page address (URL) to your clipboard, so we can send the link to a colleague. This will take them to the same search results that we are seeing.

Note: In order to view the search results we are seeing, the person who we share the link with will need to have:

- *A myKomatsu user account,*
- *Access to the myKomatsu CMS section, and*
- *Have permissions to view the sample(s) you are seeing on your page.*

The **Export Search Results** button will export all of the search results to Excel, with columns showing as they are displayed on the screen. This will allow you to perform additional analysis on our computer in Excel as required.

The **Email Reports** button will email the sample reports for all selected samples to email addresses that we specify. First, we need to select one or more samples in the search results by using the tick-boxes for the samples (⑥ in Figure 2.5). The **Email Reports** button will now be available to select.

Once we click on the **Email Reports** button, we will be presented with a dialogue box (Figure 2.7). Enter the name and email address of the person we would like to send the report to, then click **Add Recipient.** We can add multiple names and email addresses if required. Once all emails added, add the name of the user(s), and then click **Send Reports** to send the email.

Note: These recipients do not need to have access to the CMS website to view these reports; they will be emailed as PDF attachments.

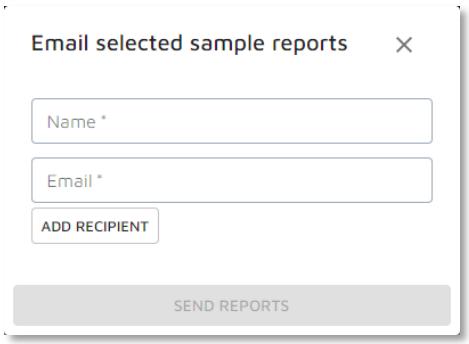


Figure 2.7 Email Sample Reports Form

The **Compare** button will allow us to do a side-by-side comparison of 2 or more selected samples. This will include in a table of results or using a chart. First, we need to select two or more samples in the search results

by using the tick-boxes for the samples (⑤ in Figure 2.5). The **Compare** button will then become available to select. Once clicked on, we will be taken to the compare samples page. See section 3.5 for more details on this page.

Note: If we are accessing the search results via the Latest Unactioned Samples, the compare button will be replaced with the Action/Remove button.

The **Action/Remove** button will allow a user to quickly mark multiple samples as being actioned, which will then remove them from the latest unactioned samples results (section 2.3). First, we need to select one or more samples in the search results by using the tick-boxes for the samples (⑤ in Figure 2.5). The **Action/Remove** button will then become available to select. Once clicked, the selected samples will be removed from your results.

Note: Actioning a sample will only remove it from your list in the initial version of the website. There are planned updates to this functionality.

Note: If we are accessing the search results via Simple or Advanced Search, the Action/Remove button will be replaced with the Compare button.

3 View Sample Details

Once we've selected a sample into which we would like to view more details, we are presented with the sample details page. The sample detail page has 4 main tabs (Figure 3.1), which will be looked at in the following sections:

- Overview (①in Figure 3.1) – Section 3.1
- Charts (②in Figure 3.1) – Section 3.2
- Notes (③in Figure 3.1) – Section 3.3
- Contact a Technician (④ in Figure 3.1) – Section 3.4

To navigate through each section, we can click on the respective tab headings.

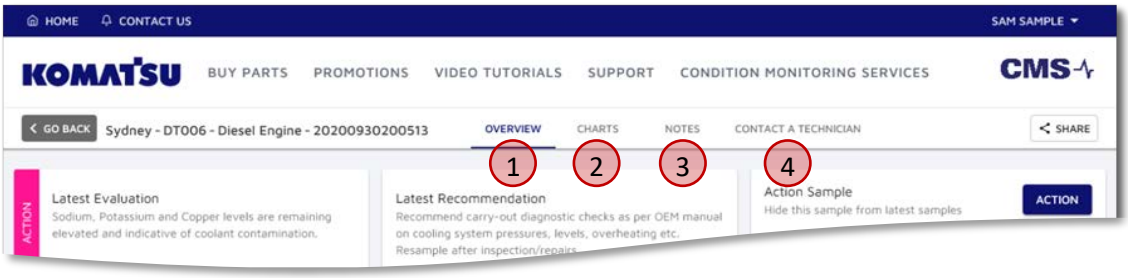


Figure 3.1 Sample Details Tab Headings

3.1 Overview

Let's break down the Overview tab into different sections and look at each separately.

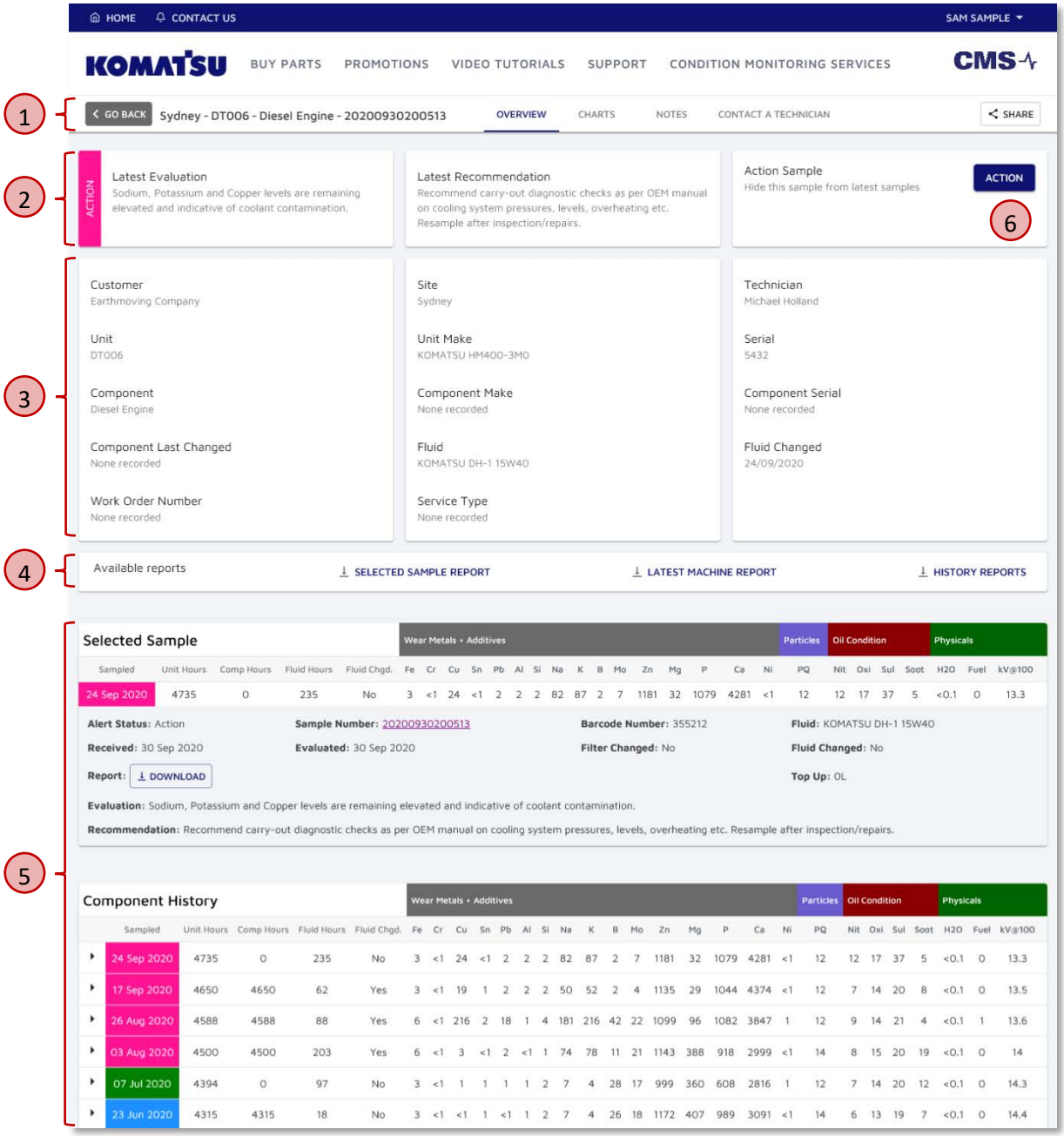


Figure 3.2 Sample Details Page

- Navigation - 3.1.1 (① in Figure 3.2)
- Latest Sample Summary – Section 3.1.2 (② in Figure 3.2)
- Sample Information – Section 3.1.3 (③ in Figure 3.2)
- Download Reports – Section 3.1.4 (④ in Figure 3.2)
- Sample Results and History – Section 3.1.5 (⑤ in Figure 3.2)
- Action Sample – Section 3.1.6 (⑥ in Figure 3.2)

3.1.1 Navigation

The navigation bar at the top of the page displays information about the unit we are viewing, along with some buttons to move to different pages (Figure 3.3).

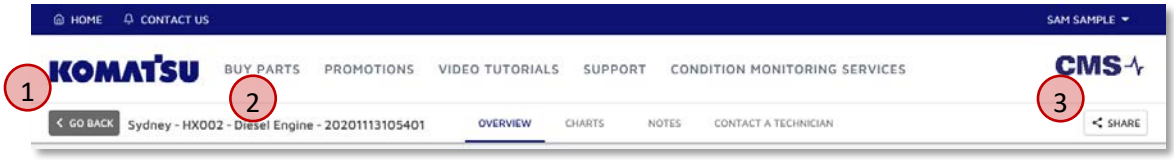


Figure 3.3 Sample Details – Navigation

We have a **Go Back** button (① in Figure 3.3), which will return us to the previous page we have come from.

There are also a number of pieces of information relating to this sample (②in Figure 3.3); namely the **Customer, Unit, Component and Sample Number**. These are all clickable links, and will take us to the sample page, searching for the item clicked on.

For example, if we click on the unit number (HX002 in Figure 3.3), it takes us to the search page, and provide the search results for all other samples for HX002.

Finally, on the right-hand side, we have a **Share** button (③ in Figure 3.3), which will copy the current page address (URL) to your clipboard, so we can send the link to a colleague. This will take them to the same search results that we are seeing.

Note: In order to view the information we are seeing, the person who we share the link with will need to have:

- *A myKomatsu user account,*
- *Access to the myKomatsu CMS section, and*
- *Have permissions to view the sample(s) you are seeing on your page.*

3.1.2 Latest Sample Summary

The next section down shows us a quick summary of the evaluation and recommendation for the latest sample for this component (Figure 3.4). In the example shown, this is showing the latest evaluation and recommendation for the diesel engine of DT006.

We are also provided an option to be able to 'Action' the selected sample. See Section 3.1.6 for more information.

Note: This will always show the latest evaluation and recommendation, regardless of what sample you have searched for or clicked through to the sample details page.

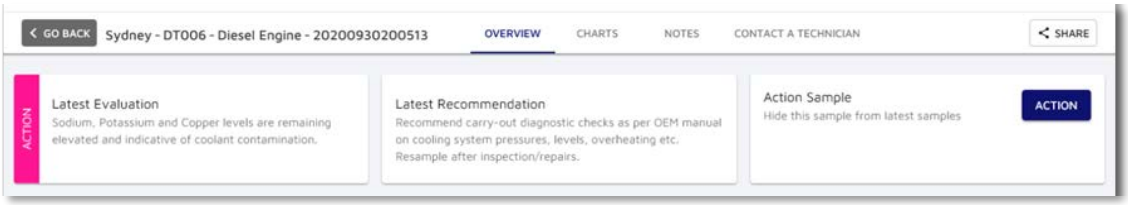


Figure 3.4 Sample Details - Sample Summary

3.1.3 Sample Information

The sample information section (Figure 3.5) shows us information relating to the unit and component.

This includes the **customer, site** and **unit** from which the sample was drawn, along with the **unit make, model** and **serial number** (as per the serial number plate).

Note: The information displayed in this table is based on the current condition of the unit and component. For example, it will show the unit's current customer, and not the customer at the time of a historic sample.

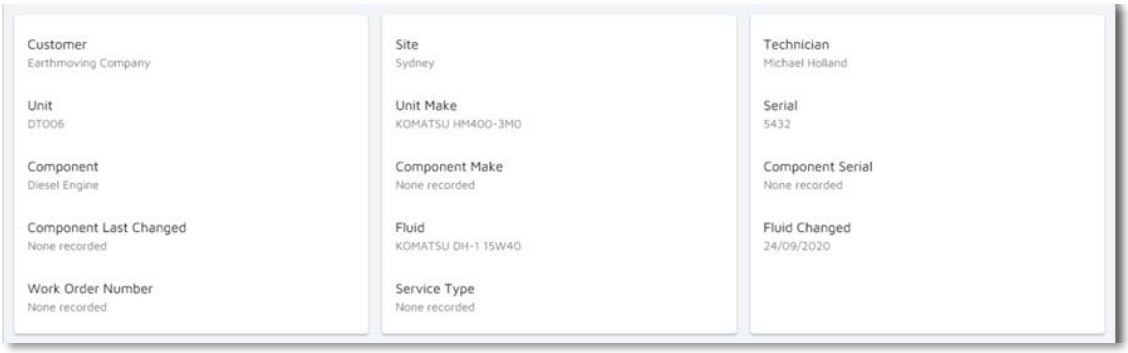


Figure 3.5 Sample Details - Sample Information

3.1.4 Download Report

We are also provided buttons which will allow us to download reports to our computer (Figure 3.6), in order to get more detail, or for future reference. These are:

- **Selected sample report** – download the sample report for the selected sample (selected sample information displayed below the report buttons). An example report is provided in section 11.2.
- **Latest machine report** - download the machine summary report for the unit from which the same has been drawn. This will summarise the latest 4 fluid samples from each component in a single report. An example report is provided in section 11.3.
- **History report** – download a report of the sample history of a component, unit, site or customer. Once we click on the **history report** button, we will be provided to select what level of history we want (Figure 3.7); click on the desired option, and the download will start. An example report is provided in section 11.7.

Note: If there is a significant amount of sample history, it may take some time to download the report. Consider downloading a smaller scope, like site instead of customer.

Figure 3.6 Sample Details – Download Reports

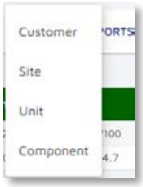
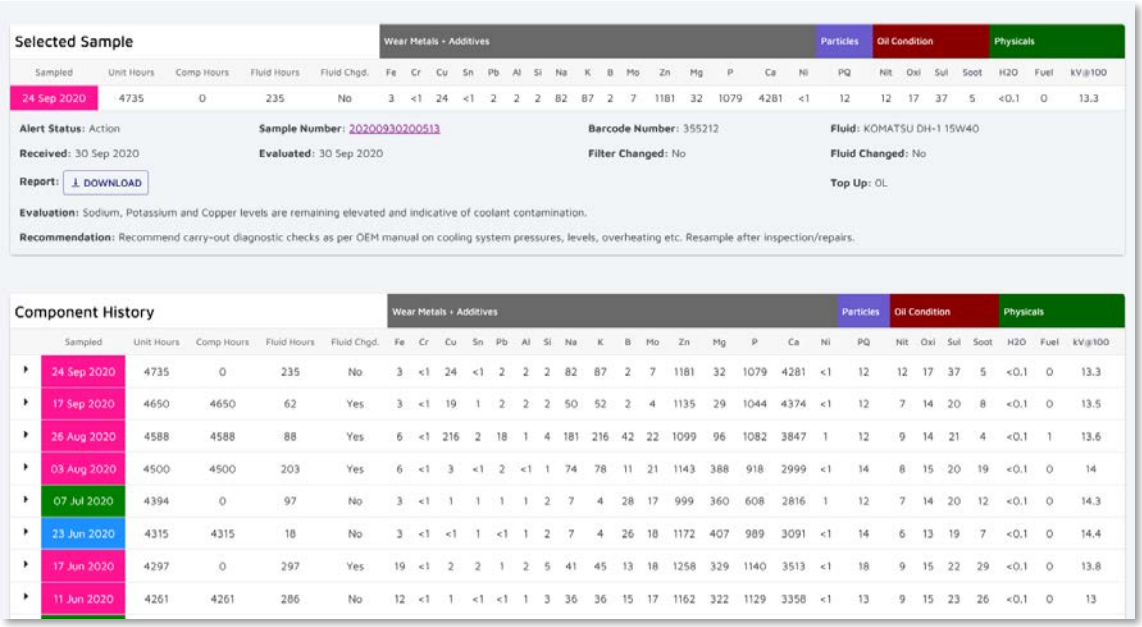


Figure 3.7 History Report Options

3.1.5 Sample Results and History

The last blocks we see on the page is the selected sample results, along with a sample history for this component (Figure 3.8).



Selected Sample

Sampled	Unit Hours	Comp Hours	Fluid Hours	Fluid Chgd.	Fe	Cr	Cu	Sn	Pb	Al	Si	Na	K	B	Mo	Zn	Mg	P	Ca	Ni	PQ	Nit	Oxi	Sul	Soot	H2O	Fuel	kV@100
24 Sep 2020	4735	0	235	No	3	<1	24	<1	2	2	2	82	87	2	7	1181	32	1079	4281	<1	12	12	17	37	5	<0.1	0	13.3

Wear Metals + Additives | Particles | Oil Condition | Physicals

Alert Status: Action
Sample Number: 20200930200513
Barcode Number: 355212
Fluid: KOMATSU DH-1 15W40
Received: 30 Sep 2020
Evaluated: 30 Sep 2020
Filter Changed: No
Fluid Changed: No
Report: DOWNLOAD
Top Up: OL

Evaluation: Sodium, Potassium and Copper levels are remaining elevated and indicative of coolant contamination.

Recommendation: Recommend carry-out diagnostic checks as per OEM manual on cooling system pressures, levels, overheating etc. Resample after inspection/repairs.

Component History

Wear Metals + Additives | Particles | Oil Condition | Physicals

Sampled	Unit Hours	Comp Hours	Fluid Hours	Fluid Chgd.	Fe	Cr	Cu	Sn	Pb	Al	Si	Na	K	B	Mo	Zn	Mg	P	Ca	Ni	PQ	Nit	Oxi	Sul	Soot	H2O	Fuel	kV@100
24 Sep 2020	4735	0	235	No	3	<1	24	<1	2	2	2	82	87	2	7	1181	32	1079	4281	<1	12	12	17	37	5	<0.1	0	13.3
17 Sep 2020	4650	4650	62	Yes	3	<1	19	1	2	2	2	50	52	2	4	1135	29	1044	4374	<1	12	7	14	20	8	<0.1	0	13.5
26 Aug 2020	4588	4588	88	Yes	6	<1	216	2	18	1	4	181	216	42	22	1099	96	1082	3847	1	12	9	14	21	4	<0.1	1	13.6
03 Aug 2020	4500	4500	203	Yes	6	<1	3	<1	2	<1	1	74	78	11	21	1143	388	918	2999	<1	14	8	15	20	19	<0.1	0	14
07 Jul 2020	4394	0	97	No	3	<1	1	1	1	1	2	7	4	28	17	999	360	608	2816	1	12	7	14	20	12	<0.1	0	14.3
23 Jun 2020	4315	4315	18	No	3	<1	<1	1	<1	1	2	7	4	26	18	1172	407	989	3091	<1	14	6	13	19	7	<0.1	0	14.4
17 Jun 2020	4297	0	297	Yes	19	<1	2	2	1	2	5	41	45	13	18	1258	329	1140	3513	<1	18	9	15	22	29	<0.1	0	13.8
11 Jun 2020	4261	4261	286	No	12	<1	1	<1	<1	1	3	36	36	15	17	1162	322	1129	3358	<1	13	9	15	23	26	<0.1	0	13

Figure 3.8 Sample Details – Sample Results and History

Both sections are provided in the same structure, although the selected sample section will always contain the information of the sample we have selected to view (to arrive at this page).

The sample history displays all samples for the selected sample's component, shown in reverse chronological order (latest to oldest) by sampled date. If we would like more information about a sample, click on the ▶ button in the first column, which will expand an additional section below the sample.

Note: Only the latest 20 samples for this component are loaded to the screen. If there are more samples available, a 'Load More' button will appear at the bottom of the table.

Prior to expanding a section, we are able to see information about when the sample was taken (**sampled date, unit hours, component hours**), along with an indication on whether the fluid has been changed at this sample (**fluid changed)**. Additionally, we are shown the detailed sample results, with numerical values for each of the tested items.

Note: The abbreviation for each test item is provided in the heading. We can hover our mouse over the heading to get the full title of the test item in a tooltip. For example, Fe = Iron, and V40 = Viscosity at 40°C.

Once we expand out a sample to see more details, we can view more information about the sample. This includes:

- Sample number – Laboratory unique reference for the sample
- Barcode number – Reference number on the sample card (both from website, and supplied with sample kit)
- Fluid – The fluid make, model and grade used in the component at this sample
- Received / Evaluated date – Date that the sample was evaluated by the laboratory
- Filter / Oil Changed – Indication on whether the filter and/or oil was changed when the sample was taken
- Report – Download the sample report for the sample in which we are viewing details

3.1.6 Action Sample

As noted in section 2.4.5, we are able to search for samples which have not been marked as actioned.

We can action a sample from within the sample details page, with the **Actioned** button (⑥ in Figure 3.2).

When the sample is unactioned, the button will display as **Actioned** in blue text (Figure 3.9). Once clicked, it will change colour to a light grey (Figure 3.10).

Figure 3.9 Currently Unactioned Sample Button

Figure 3.10 Currently Actioned Sample Button

Note: Actioning a sample will only remove it from your list in the current version of the website. There are planned updates to this functionality.

3.2 Charts

When we move to the charts tab, we are provided with a blank chart (Figure 3.11).

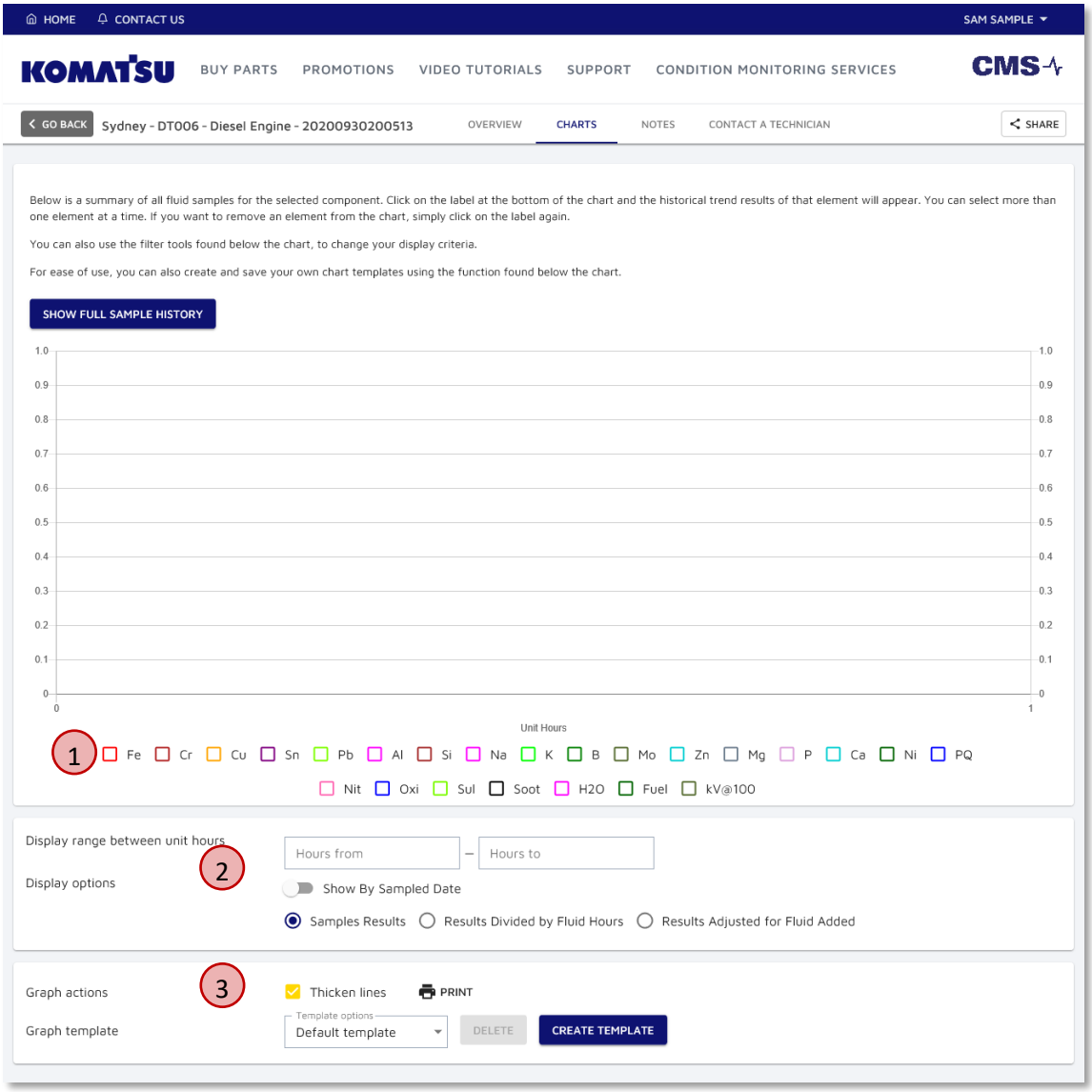


Figure 3.11 Sample Details – Charts

We are able to customise our chart with the test items that we are interested in, by ticking on the various test items in the legend below the chart (① in Figure 3.11). For example, we can tick the Fe and PQ boxes, which will give us the chart shown in Figure 3.12. We can now see the trend of the Fe & PQ readings over time, with the colour of the line corresponding to the legend item that we have ticked on (e.g. Fe is red, PQ is blue).

Note: Only the latest 20 samples for this component are loaded to the chart. If there are more samples available, a 'Show Full Sample History' button will appear at the top of the chart (③ in Figure 3.12). Click this button to get the full component history.

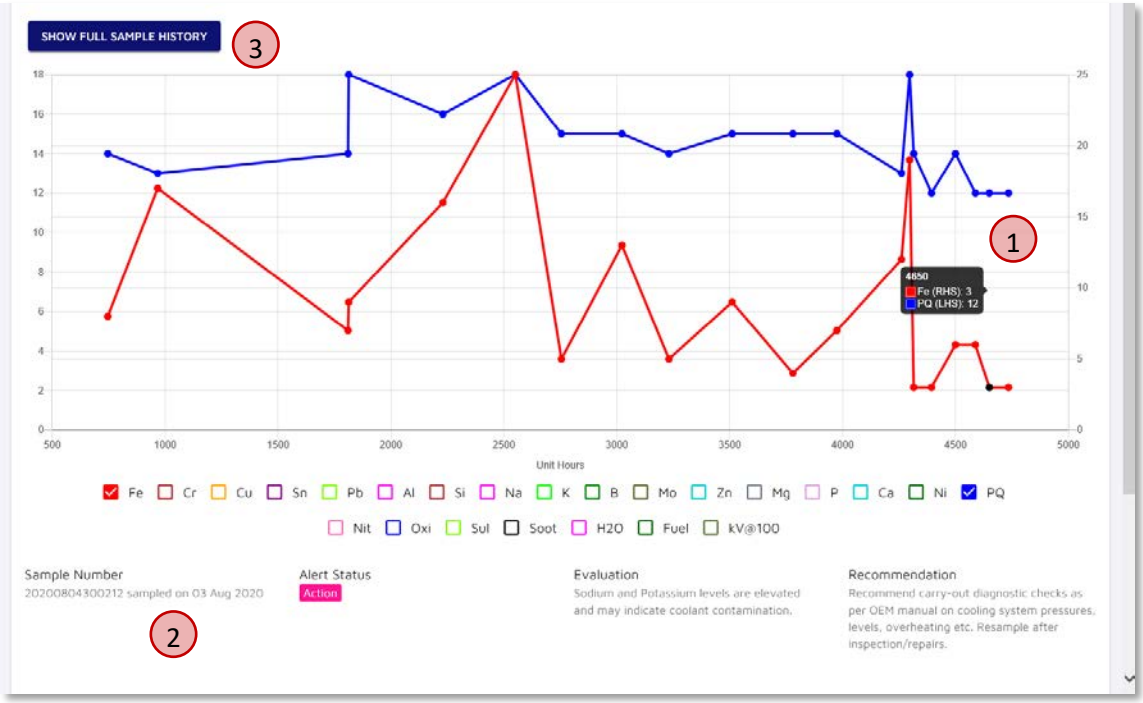


Figure 3.12 Sample Details - Chart with trends displayed

If we hover our mouse/cursor over one of the sample readings, we will be provided with 2 sections of information.

First, a tooltip is provided next to the points (① in Figure 3.12), providing us the resulting test item measurement and the axis to which the line is scaled against. For example, Fe (Iron) has a reading of 3, and is scaled to the right-hand side (RHS) axis.

Second, a brief summary of information relating to sample over which we are hovering is provided below the chart (② in in Figure 3.12). This includes the sample number, alert status, evaluation and recommendation.

As we move our cursor around the chart, both pieces of information will update to the sample that we are hovering over. Once we move our cursor off the chart, this information will disappear.

Below the chart, we are provided with two sections of information, which allow us to customise our charts further (② and ③ in Figure 3.11, repeated in Figure 3.13 and Figure 3.14 respectively).

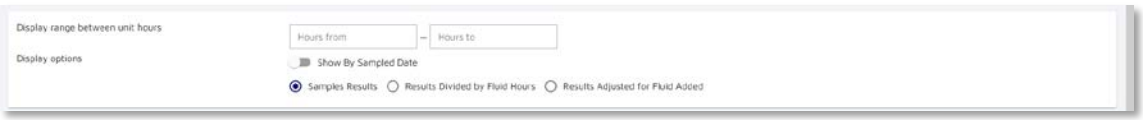


Figure 3.13 Sample Details – Chart X-Axis Filtering

The first area (Figure 3.13) provides us options to be change the x-axis (horizontal axis).

This includes filtering to only show certain samples, for example only show samples between 500 and 2000 hours. To do this, we can simply enter 500 and 2000 in the left and right text boxes respectively.

Also provided is the ability to change the x-axis from machine hours (or kilometres, depending on the machine) to the date that the sample was taken. This will also change the filter options (discussed in previous paragraph) to use date filtering.

Lastly, there is the option to manipulate the measurement values of the test items, to normalise for the number of hours (or kilometres) by the number of hours on the fluid, or by the amount of fluid added over time. The default option will always be 'Sample Results', which will display the recorded measurements in the laboratory.

Note: The accuracy of 'results divided by fluid hours' or 'results adjusted for fluid added' will be highly dependent upon information being provided for fluid change-outs and fluid top ups during sample registration online, or when filling out the sample card provided in the sample kit.

Figure 3.14 Sample Details – Other Options

Finally, the last section provides us a few more options to customise our chart (Figure 3.14).

The first option for **thicken lines** will default to ticked, and relates to the thickness (or weight) of the lines in the chart. If we unselect this option, the lines will become thinner. This can be useful if we are reviewing a larger number of trends on the chart.

The second option, **Print**, will provide us with a formatted page to be able to print a copy of the chart. This will utilise the print functionality of your internet browser/computer, so will vary from user to user.

Finally, we have the ability to save template charts. If we are constantly viewing the same trends on a chart, we can save this as a template. For example, let's say we want to pre-configure a chart to display Aluminium (Al), Silicon (Si), Fe (Iron) and PQ (PQ index), all representative of dirt and dust entry into a component.

1. On any chart, select the test items to display in the chart that we want to save as a template (Al, Si, Fe & PQ in this example)
2. Click on the **Create Template** button at the bottom of the page (① in Figure 3.15)
3. Type a name for the template (e.g. Dirt + Dust) into the **Template Name** field (② in Figure 3.16).
4. Click the **Save** button (③ in Figure 3.16).

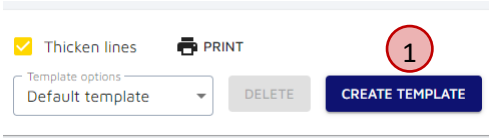


Figure 3.15

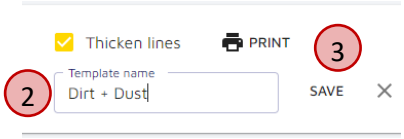


Figure 3.16

This option will now be available for us to quickly and easily configure the chart with these test items.

Note: Chart templates are available only on an individual's profile. This means that, if we create a chart template, no other user can see our template.

To recall a template:

1. Open any chart for a sample
2. Scroll to the bottom of the page, and click the **Default template** drop-down (Figure 3.17)
3. Select the template from the drop-down that we would like to use by clicking on it (Figure 3.18)

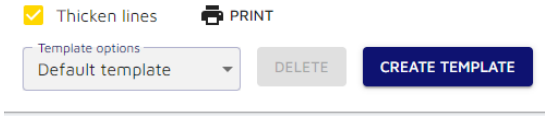


Figure 3.17

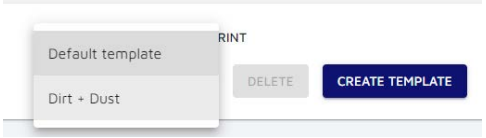


Figure 3.18

The chart will now update to use the template you have saved.

To delete a template:

1. Follow the above steps to recall a template
2. Once displayed, click the **Delete** button. This will remove the template from our profile.

Note: To edit a template, it is recommended that we delete the template, and create a new one.

3.3 Notes

If we move across to the **Notes** tab, we are able to both add and view notes relating to this component, and this unit.

To add a note, we need to decide if this is a note to do with the individual component, or to the unit. If we select **This Component** (① in Figure 3.19), the note will only be shown on samples relating to this component (in the case of Figure 3.19, the Diesel Engine of this machine). If we select **This Unit**, the note will be viewable against all components of this machine.

Once we select the scope of the note, we can then enter our note as text into the text box (② in Figure 3.19), and then click the **save** button (③ in Figure 3.19).

The note will then be displayed below, in the **Previous Notes** section (④ in Figure 3.19), along with any other applicable notes. The date and user that added the note is also displayed here as well.

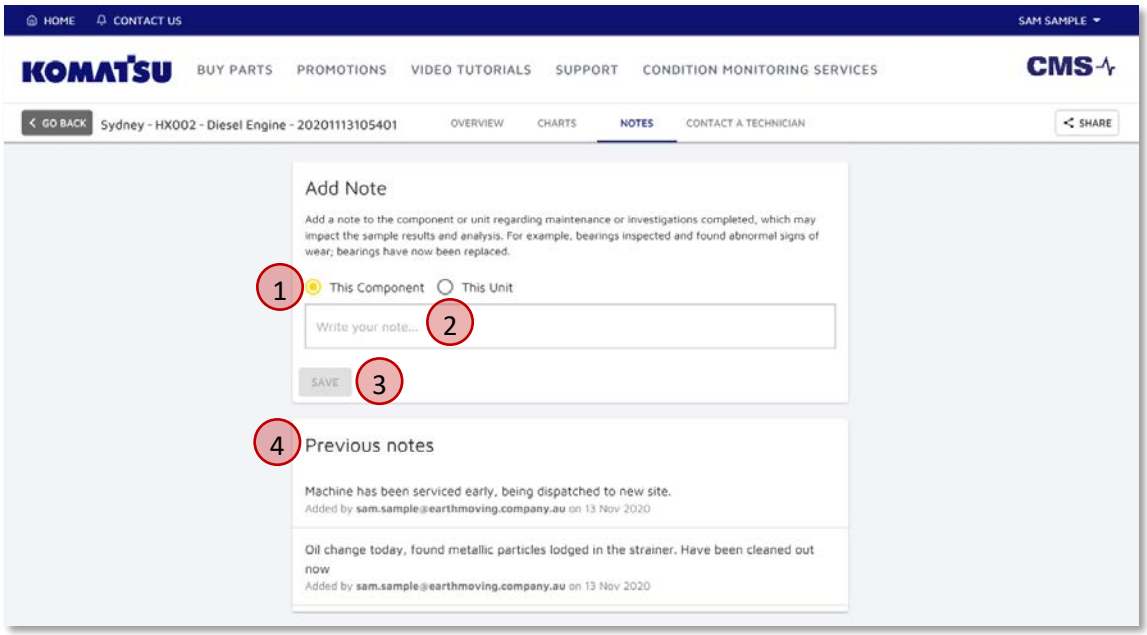


Figure 3.19 Sample Details - Add and View Notes

3.4 Contact A Technician

We are also able to get in contact with a technician via the **Contact A Technician** tab. This will send a note with your contact details to the CMS team, and they will be contact with you.

To help assist us quicker, we can add some text to our request. Pre-populated into the field is the customer, unit, component and sample number that we are currently reviewing. We are able to type in additional information to the text box (① in Figure 3.20), and then click **Save** (② in Figure 3.20).

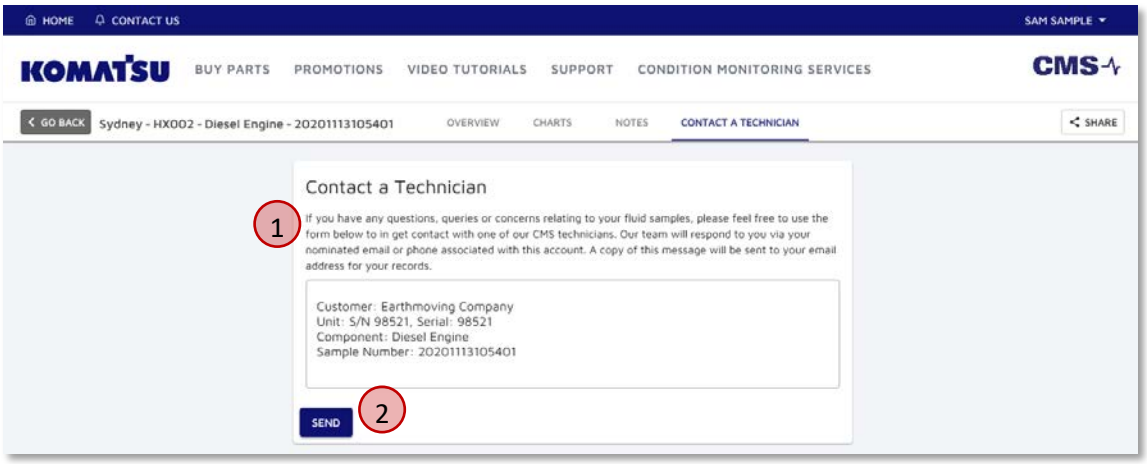


Figure 3.20 Sample Details - Contact A Technician

3.5 Compare Samples

In the search results, we are able to select multiple samples which we may want to compare the results. This may include comparing a component on the left and right side of the machine (e.g. final drives), to see if one is wearing quicker than others.

Selecting of multiple samples is discussed in section 2.4.5.

Once we are comparing samples, we are first shown the overview page, displaying our selected sample's information (Figure 3.21). This will show us 2 sections:

1. Details of each sample, including the site, unit and components (① in Figure 3.21)
2. Sample results, including numerical values for each test item (② in Figure 3.21).

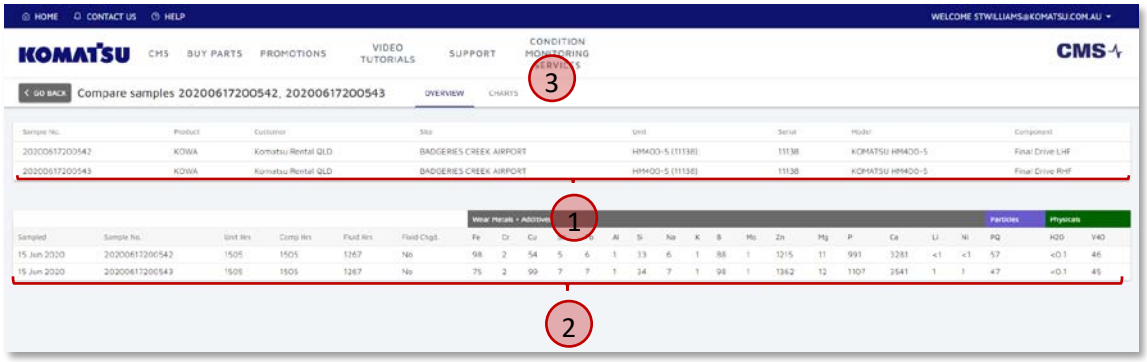


Figure 3.21 Compare Samples – Overview

We are also provided the option to chart the trends of these samples against each other. Click on the Charts tab (③ in Figure 3.21), which will then display us a page like Figure 3.22.

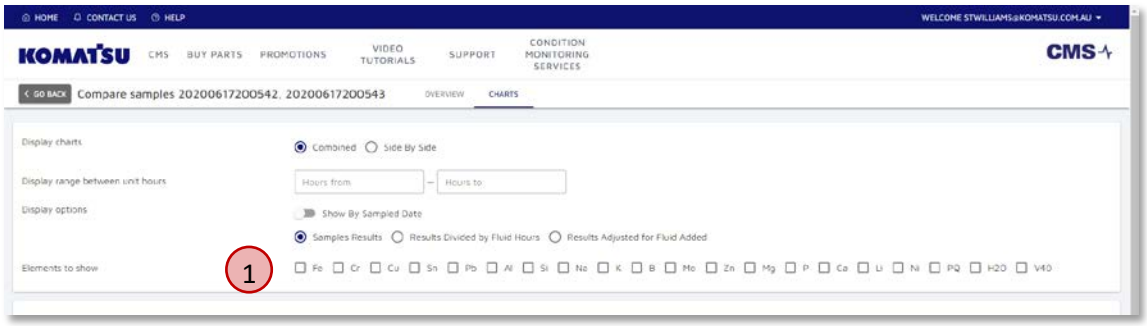


Figure 3.22 Compare Samples - Charts

The comparison charts function similarly to the charts for a single sample (see section 3.2). We can select one or more trends in the 'Elements to show' section (① in Figure 3.22), which will then display the items on the chart.

Once we tick on one or more test items, a trend will be displayed on the chart for each sample and each test item. Using Figure 3.23 as an example, we have 2 samples being compared and have selected Fe & PQ trends for display. This results in 4 trends being displayed, with the colours for each sample-trend combination displayed in the legend below the chart.

Note: The colour allocation is random for each trend, to ensure that each colour/trend can be identified. As you add or remove trends from the charts, the colours may update.

Figure 3.23 Compare Samples – Chart With Trends

As we hover over the chart, we will be shown tooltips with the numerical test item results (① in Figure 3.23). The label will include the unit name, component and test item (e.g. HX123 - Final Drive LHF – Fe: 12).

There are additional options above the chart, in order to configure how we see the results.

The first, **Display Charts** (② in Figure 3.23) will allow us to compare the two samples in a **combined** chart (i.e. in one chart, like Figure 3.23), or we can view them **side by side** (one chart per sample, with the charts one above the other, see Figure 3.24).

The other options, **Display range between unit hours** (② in Figure 3.23), and **Display options** (③ in Figure 3.23) function the same as charts for a single sample (refer to section 3.2).

Figure 3.24 Compare Samples - Side by Side Chart

4 Sample Registrations

Registration cards allow the laboratories to understand which customer, site, unit and component the sample has been taken from, as well as the meter readings of the machine, to help with analysis of the results.

Registration cards can be completed in 2 ways:

1. Completing the sample card provided with the sample kit (example in Figure 4.1)
2. Registering the samples through the website

The quickest and most reliable method is through the website, where we can fill in all relevant information and print out the sample card. This improves accuracy of data, and also allows us to track a sample from being printed, through to being evaluated and results released.

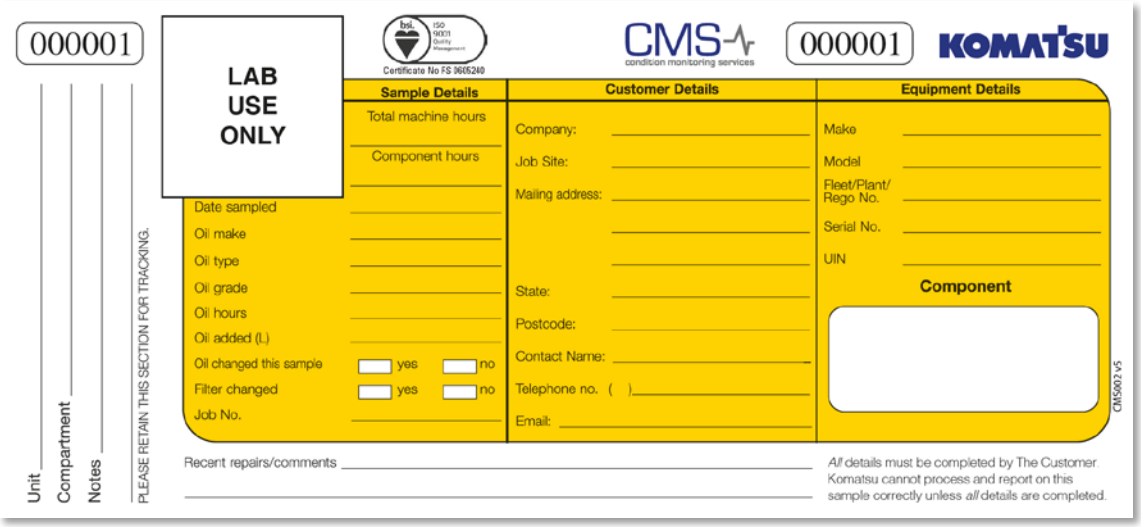


Figure 4.1 Supplied Sample Cards

4.1 Create Sample Registration

To create a registration card, we will need to navigate to the sample registration page. This can be accessed from any page by using the menu **Condition Monitoring Services → Sample Registration** (① in Figure 4.2), or by using the quick link on the home page (② in Figure 4.2).

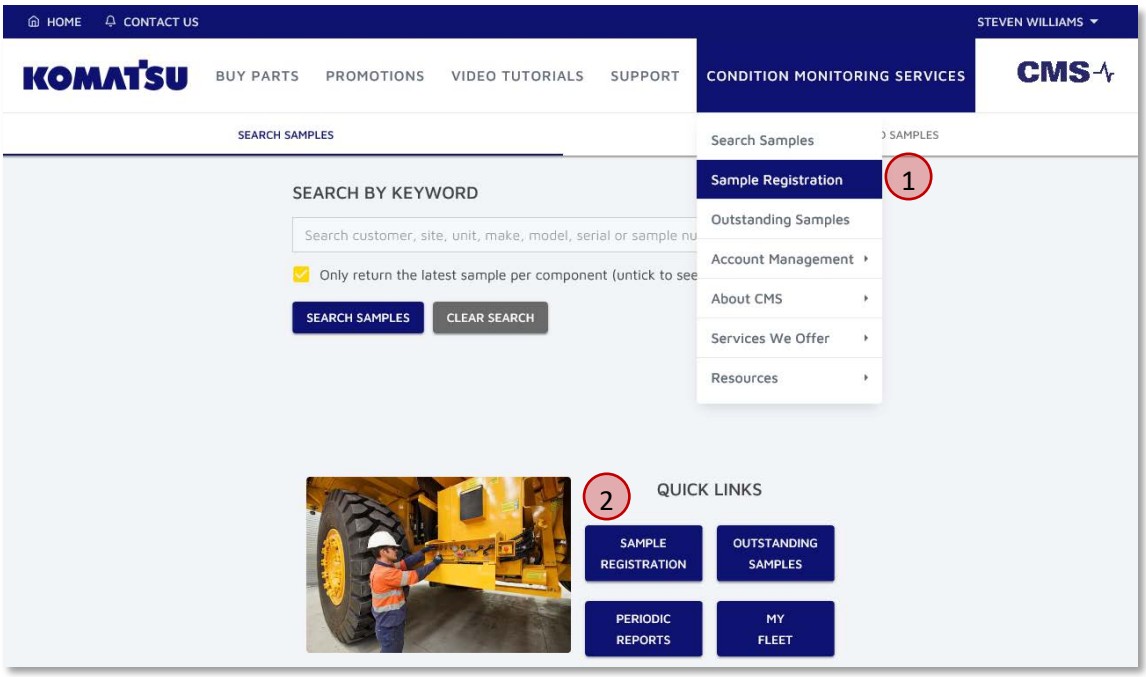


Figure 4.2 Navigating to sample registration page

We will then arrive at the sample registration page (Figure 4.3).

The flow of this page is that we:

1. Select the customer, site and unit the sample is being taken from
2. Confirm the unit information, and enter the unit hours/kilometres and date sample is taken
3. Select the component(s) we are sampling
4. Confirm/update the component information
5. Download the cards to PDF to print physical cards

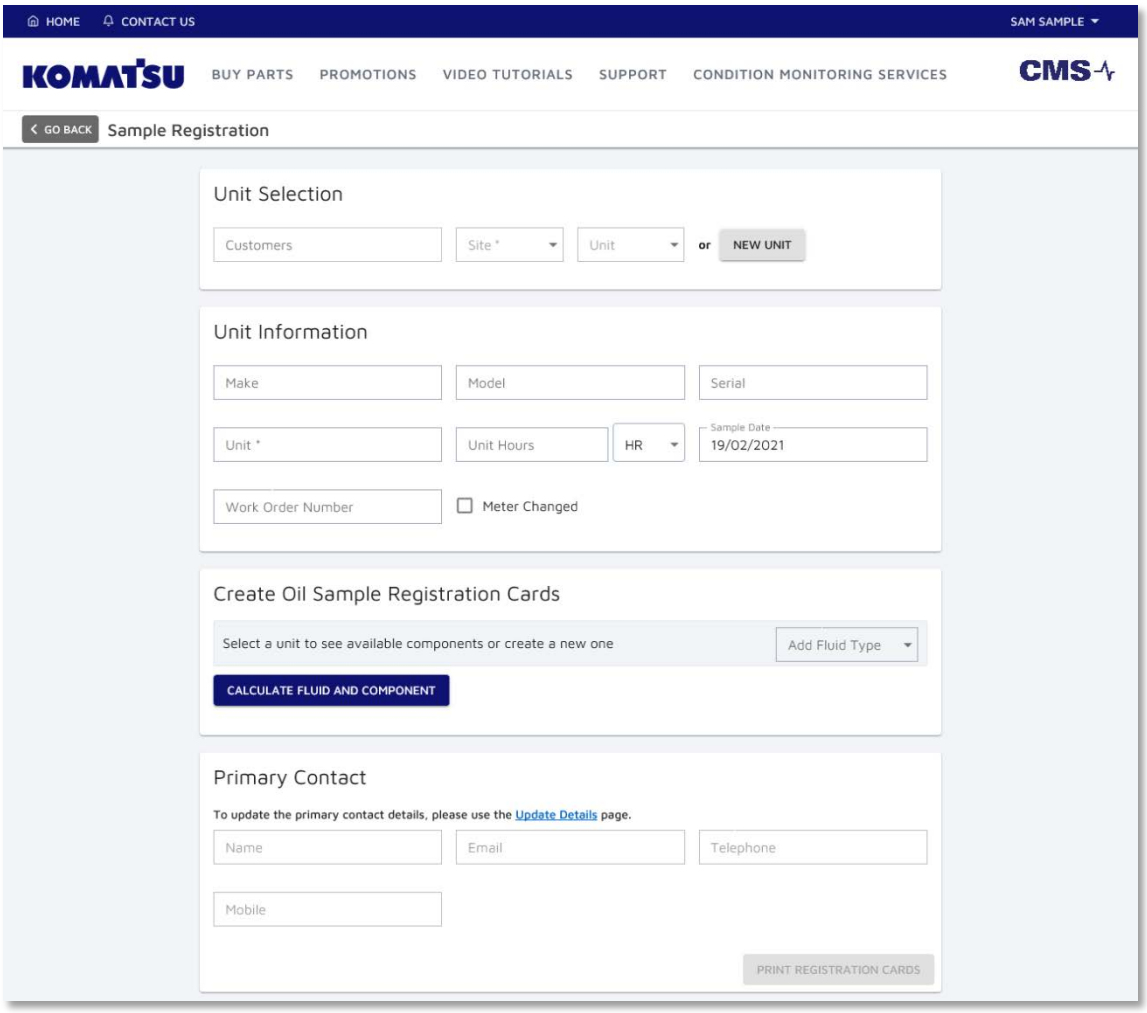


Figure 4.3 Sample registration page

4.1.1 Select Customer, Site & Unit

Our first step is to select the unit being samples. This starts by selecting the customer (① in Figure 4.4) by clicking into the **customer** text box and selecting the required customer from the values provided. Next, we can either:

- Select the unit from the **Units** drop-down (① in Figure 4.4), and select the unit being sampled; or
- Click into and select a **site** from the drop down (② in Figure 4.4), which will then filter the **units** drop-down (③ in Figure 4.4) for selection

If we are sampling a unit that is not in the lists provided, we can create a new unit by clicking the **New Unit** button (④ in Figure 4.4).

Note: If there are a large number of units under our customer, it may be beneficial to select a site first, to filter the units list down to something manageable.

Note: The site and unit fields can be searched through by selecting the drop-down, and then starting to type the first few letters of the site or unit.

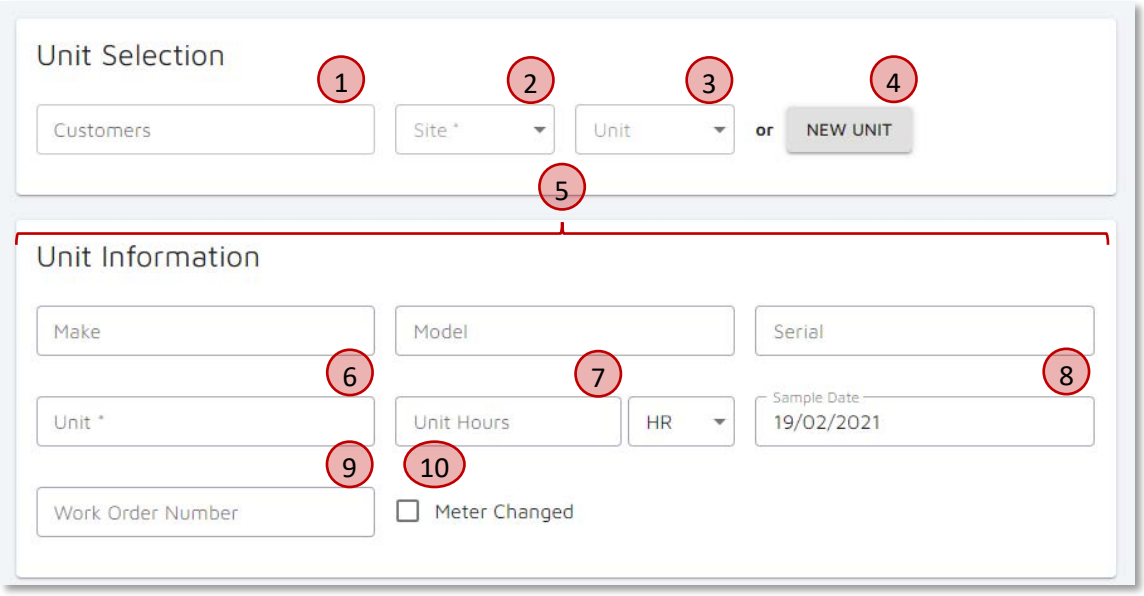


Figure 4.4 Sample Registration - Unit Selection and Information

4.1.2 Confirm Unit Information

Now that we have selected the unit we will be sampling, we need to check the details are correct in the Unit Information section. These will pre-fill once a unit has been selected. If we have selected to create a **New Unit**, these fields will be blank, and should be filled in as much as possible to assist with the laboratory analysing the results. Only the **Unit** field (⑥ in Figure 4.4) is mandatory.

These fields are:

- Machine's **Make**, **Model** and **Serial Number** (⑤ in Figure 4.4; should be available on machine serial plate)
- **Unit** name or number of the machine (⑥ in Figure 4.4), what we call the machine (e.g. DZ123)
- **Unit hours** (or kilometres) at the time of sample (⑦ in Figure 4.4)

Note: The units of measure will be displayed on RHS of text box for existing machines. A new machine will default to hours (HR)

Note: The last sample hours/kilometres, and date of this reading, are displayed below the text box. This helps us to provide a sanity check to ensure that the unit hours/kilometres are valid and correct.

- **Sample date** (⑧ in Figure 4.4), the date that the sample was drawn from machine

The work order number (or job number) that the sample has been taken under can be added (⑨ in Figure 4.4), which will then also be displayed in the sample details page and sample report, once the laboratory has processed and analysed the results.

Meter Changed (⑩ in Figure 4.4) allows us to specify that a machine hour meter / odometer has been changed. Once we tick the **Meter Changed** box, 2 additional fields will be displayed, **Meter Change Reading** (① in Figure 4.5; hours or kilometres on the old meter at time of change) and **Meter Change Date** (② in Figure 4.5; the date the meter was changed). Both of these fields are mandatory and should be entered as accurately as possible.

This function should be used when the new meter was not able to be reset to the previous value and will offset all future meter readings to ensure that the meter reading is continuous since manufacture. This is important to

ensure that laboratory evaluations of the sample are as accurate as possible, giving us the best recommendations for action to take on a sample.

For example, DZ004 had its hour meter fail, and was replaced at 6,543hrs on 19/02/2021. If the new hour meter was installed and started back at 0hrs, we need to provide an offset of 12,345hrs, so that we can still maintain a record of the number of hours on the machine since manufacture. This is where we would then enter the old reading value (6,543 hrs) and date (19/02/2021) into the meter changed boxes. All future unit readings will then be incremented by this value (12,345hrs); so if the new meter is showing 789hrs, this would mean the machine is at 13,134 hours since manufacture.

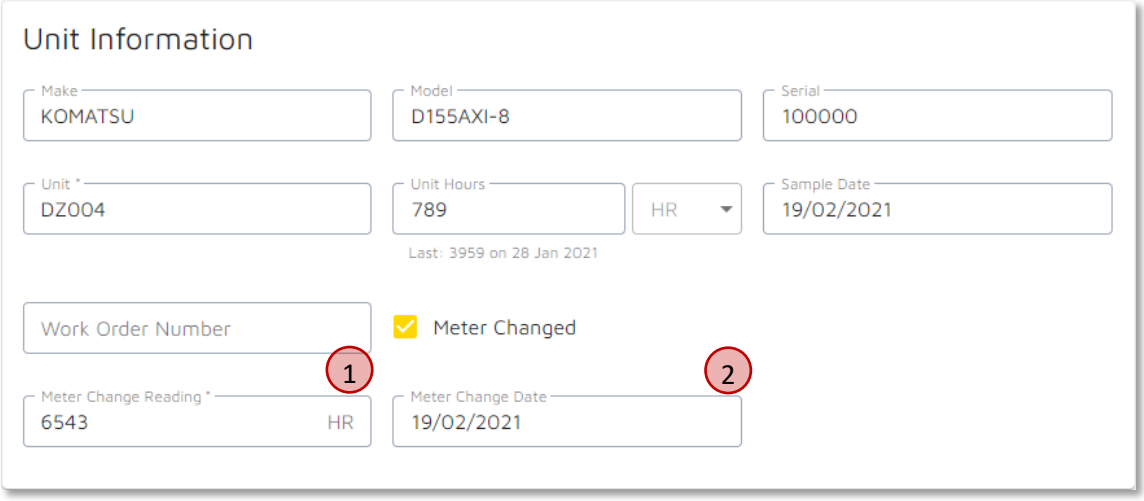


Figure 4.5 Sample Registration - Meter Change Options

4.1.3 Select Components

With the unit selected, we can now begin to select the components which will be sampled and require sample cards.

Where we selected an existing unit in section 4.1.1 and 4.1.2, the components which have previously been sampled are listed (① in Figure 4.6). Each component has a tick-box, which can be ticked to add the component information to the list below and prepare it for printing.

There is also a **Select All** button (② in Figure 4.6), which will select all available components for sampling.

If the component we are trying to sample is not shown, we can add it by using the new component drop-down (③ in Figure 4.6). Once we click into the drop-down, options will be provided for:

- Oil
- Coolant
- Grease
- Wastewater
- Diesel Fuel

By clicking one of the options in the drop-down, a new component will be added to the relevant section below.

Once you have selected the component(s) to be sampled, the **Calculate Fluid and Component** (④ in Figure 4.6) will pre-calculate the component and fluid hours based upon the unit hours we have entered in the Unit Information section.

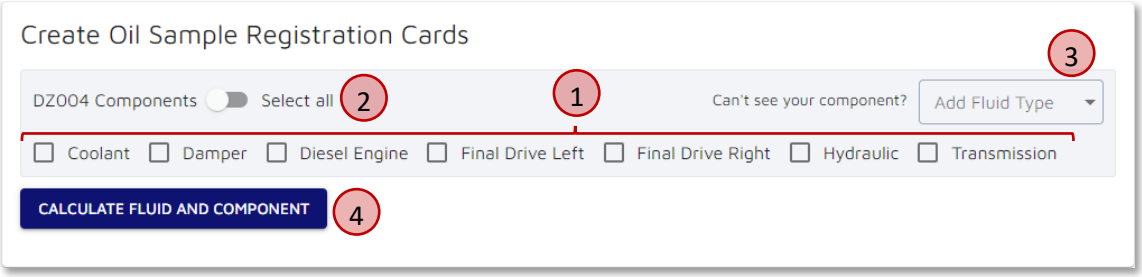


Figure 4.6 Sample Registration - Component Selection

4.1.4 Confirm and Update Component Information

With the components selected, we can now review and update the component information (① in Figure 4.7).

For a component that we have selected from the existing unit components (like shown in Figure 4.7 with a Diesel Engine), any information previously provided will be pre-populated into the fields. Fields are explained in Table 4.1.

If a component is no longer going to be sampled, we can click the **Remove** button at the bottom right of the component panel (⑨ in Figure 4.7).

We should check the information provided for each of the components to be sampled. Each has it's own section, indicated with the heading of the component name, along with a slightly different colour background.

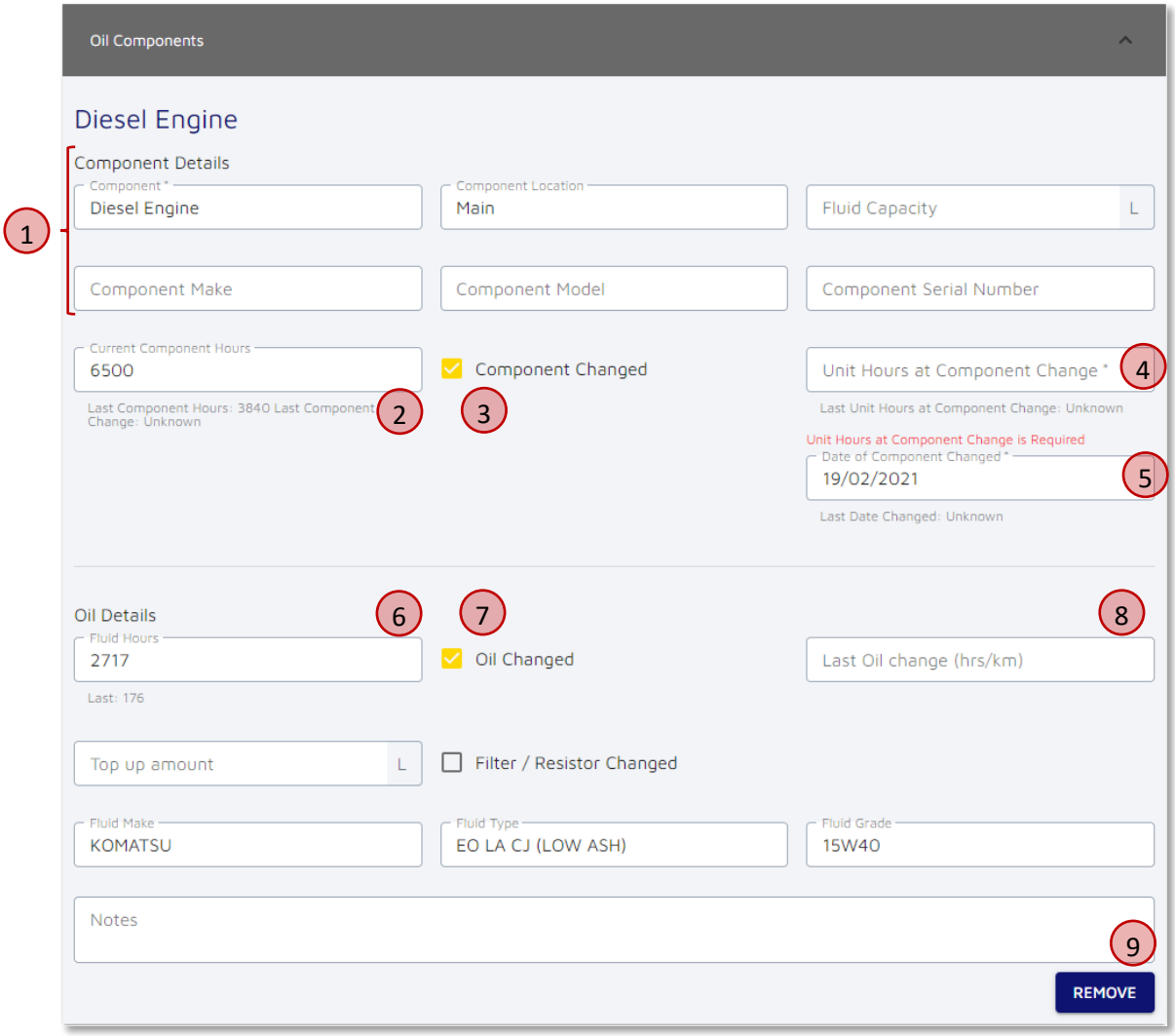


Figure 4.7 Sample Registration – Component Information

Field	Description
Component	Name of the component. *Note: This is a mandatory field and must be completed to allow the card(s) to be printed.*
Location	Location of the component (e.g. Left, Front Right etc.).
Fluid Capacity	Amount of fluid stored within component during normal operation.
Component Make	Manufacturer of component (e.g. Komatsu).
Component Model	Model of component (e.g. SAA6D125E-5).
Component Serial	Serial number of the component.

Current Component Hours (② in Figure 4.7)	Number of hours/kilometres on the component at the time of sample. The component hours at the last sample, and the last changeout of the component is displayed below the text box. This will be automatically calculated based on the current unit hours/kilometres (enter in section 4.1.2), and the last component change-out hours/kilometres. *Note: Any meter changes will influence this calculation. We should enter the number of hours showing on the hour meter/odometer of the machine at the time of the component change*
Component Change (③ in Figure 4.7)	By ticking this box, we can update the last component change-out value. If no update is necessary, then this box can remain unticked. *Note: by ticking this box, 2 additional input text boxes will show to specify when the component was changed*
Unit Hours at Component Change (④ in Figure 4.7)	The unit hours/kilometres (since manufacture) when this component was last changed out. This can be updated to indicate a newer change-out. *Note: This input is only available once the **Component Changed** tick-box is selected.*
Date of Component Change (⑤ in Figure 4.7)	The date when this component was last changed out. This can be updated to indicate a newer change-out. *Note: This input is only available once the **Component Changed** tick-box is selected.*
Fluid Hours (⑥ in Figure 4.7)	The number of hours/kilometres which the fluid has been in the component for. This will be pre-calculated for us using the current unit hours, and the last fluid change hours/kilometres. It can be overridden as required by typing over the existing value. The hours/kilometres of the last fluid change are displayed below the text box for reference.
Oil Changed (⑦ in Figure 4.7)	Checkbox to indicate that the fluid has been changed. *Note: by ticking this box, an additional input will show to specify when the fluid was changed*
Last Oil Change (⑧ in Figure 4.7)	Text box to allow us to update the last fluid change hours/kilometres. *Note: By updating this value, the fluid hours will be recalculated.* *Note: Any meter changes will influence this calculation. We should enter the number of hours showing on the hour meter/odometer of the machine at the time of the fluid change*
Top-up Amount	If any fluid has been added to the compartment during a service, the amount of fluid added can be indicated in this field. It may help to provide a more accurate analysis of our oil sample.
Filter Changed	Indicate if the filter has been changed at the service this sample was taken at.
Fluid Make	Manufacturer of the fluid being used in the component (e.g. Komatsu).
Fluid Type	Type or model of the fluid being used in the component (e.g. EO LA CJ).
Fluid Grade	Grade of fluid being used in the component (e.g. 15W40).

Notes	Any additional notes that we would like to add to the sample, which may be relevant to the laboratory (e.g. sample is pre kidney loop filtering).

Table 4.1 Sample Registration – Component and Fluid Information

4.1.5 Download Sample Cards

With all of the unit, component and fluid information completed, the last steps are to confirm the primary contact(s) and print the registration cards.

First, we are shown the primary contact details for the site that this unit is operating on. Note that we can't update this information on this screen, we should use the **Update Details** page (section 8).

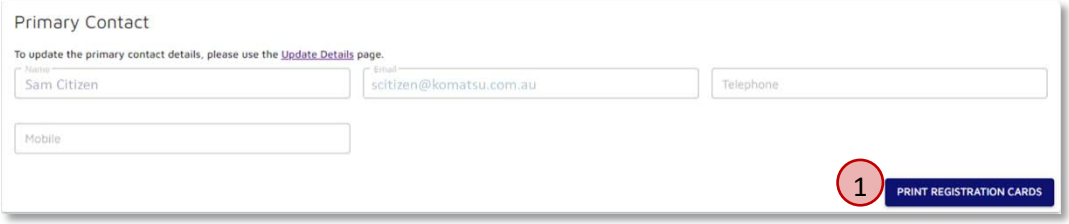


Figure 4.8 Sample Registration – Primary Contact & Card Download

Finally, the sample registrations are now complete, and can be printed by clicking the **Print Registration Cards** button (① in Figure 4.8). This will send all of the information we have entered on the page to the CMS team, and provide us with a PDF of all the sample registrations, including barcodes for sample tracking.

An example registration card is provided in Figure 4.9, which will provide a summary of the information we have entered.

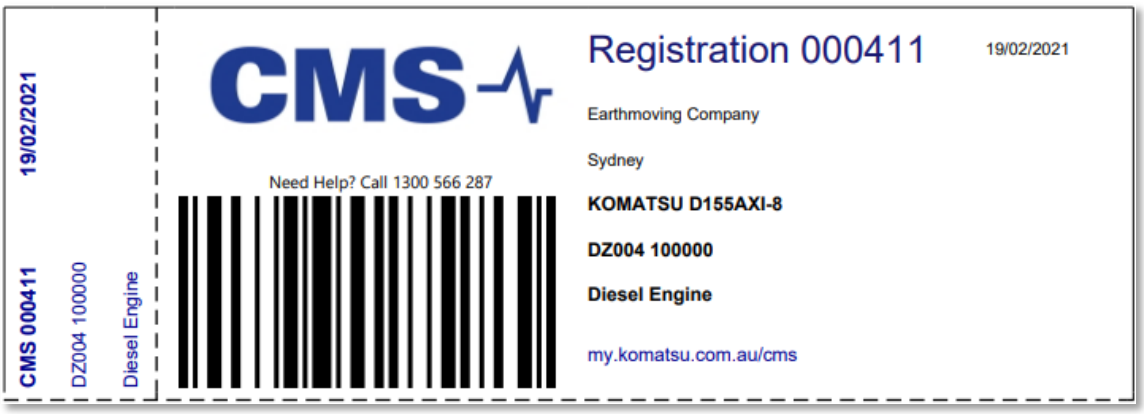


Figure 4.9 Sample Registrations - Example Registration Card

4.2 View Outstanding Samples

With registrations now sent through using the website, we can also view all of the currently outstanding samples. These are samples which have had registration cards printed from the website, but which have not yet been received by the laboratory. Once the sample has been received by the laboratory, they will not be shown on this page any longer.

This can be accessed from any page by using the menu **Condition Monitoring Services → Outstanding Samples** (① in Figure 4.10), or by using the quick link on the home page (② in Figure 4.10).

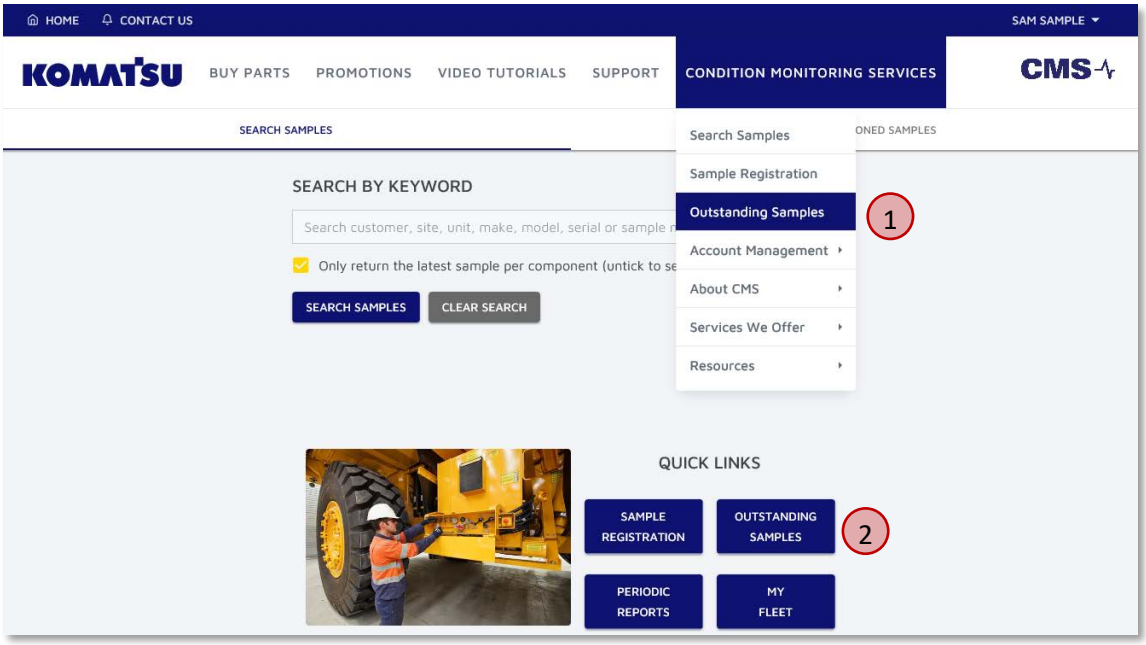


Figure 4.10 Outstanding Sample Registration Page Access.

This will take us to the outstanding sample registrations (Figure 4.11).

All sample registrations for components that we have permissions to view will be displayed in the table, with information relating to each of the samples.

If there are a large number of registrations outstanding, we can filter it down using filters (① in Figure 4.11). Click to show the filters, which will expand and show the fields available for filtering (Figure 4.12).

In the event that we need to re-print a sample registration, we can do this by selecting the tick box next in the row of the sample we want to re-print (① in Figure 4.11), and then click the **Reprint Selected** button (② in Figure 4.11).

We can also export outstanding registrations to an Excel spreadsheet, in case we need to do some analysis. The same table displayed will be exported. To do this, we should select the sample(s) of interest (① in Figure 4.11), and then click the **Export Selected** button (③ in Figure 4.11).

Finally, at some point we may want to delete some sample registrations. This could be because we have made an error on the registration, or another registration was created for the same sample. In this case, we can again select the sample(s) for deletion using the tick boxes (① in Figure 4.11), and then click the **Delete Selected** button (④ in Figure 4.11). A prompt will appear asking you to confirm the deletion (prompt will appear differently in each browser).

Note: When we delete a registration, it will be removed from this screen and from the CMS system. A copy will be kept in the database for a period of time.

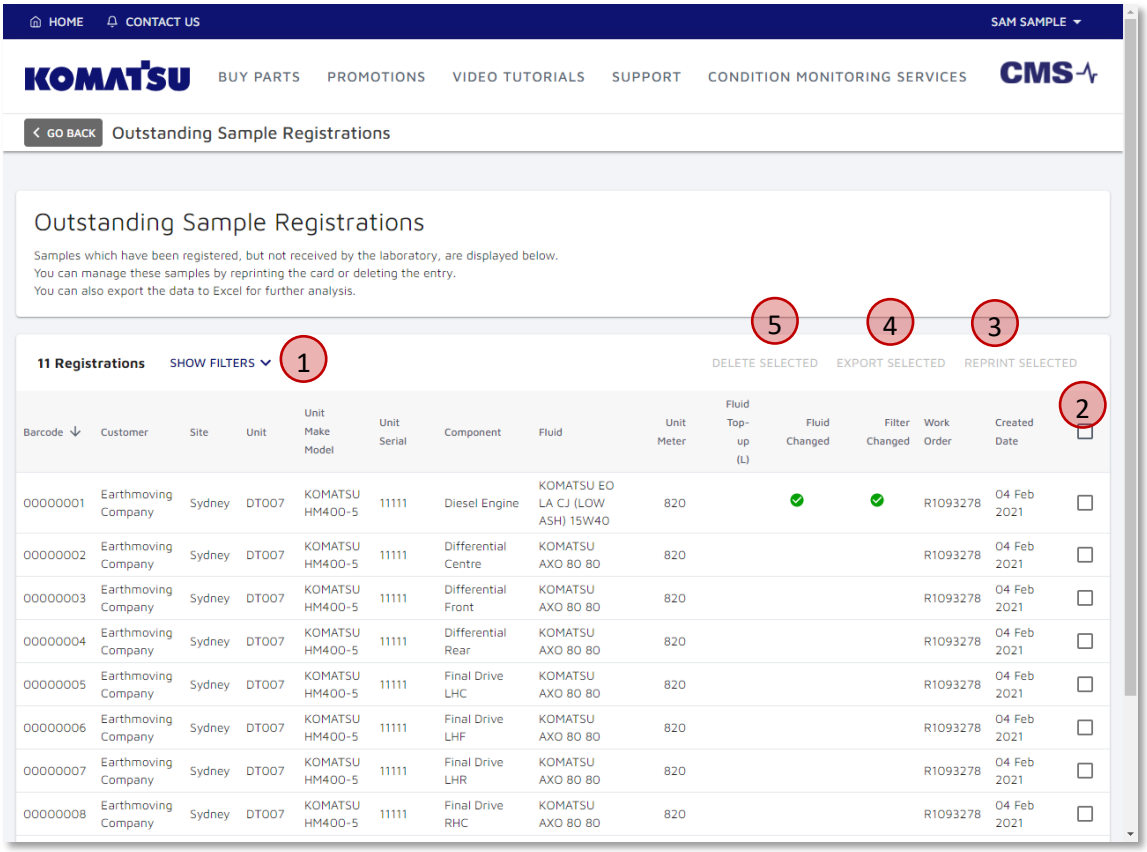


Figure 4.11 Outstanding Sample Registration Page.

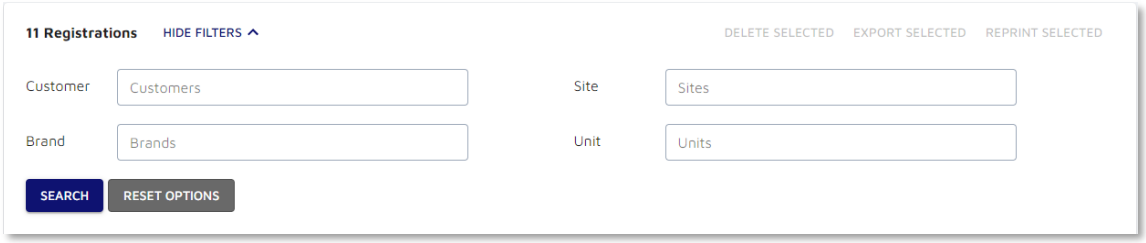


Figure 4.12 Outstanding Sample Registrations - Filtering Options.

5 View Historical Notes

Notes can be added against a unit and/or component by users, in order to provide information regarding machine conditions and other important information. The addition of notes is discussed in section 3.3.

All notes added to any unit or component we have access to can be viewed on the Notes page (see Figure 5.2), along with some filters that can help us view only relevant notes. To navigate to this page, we go to **Condition Monitoring Services → Account management → Notes** (① in Figure 5.1).

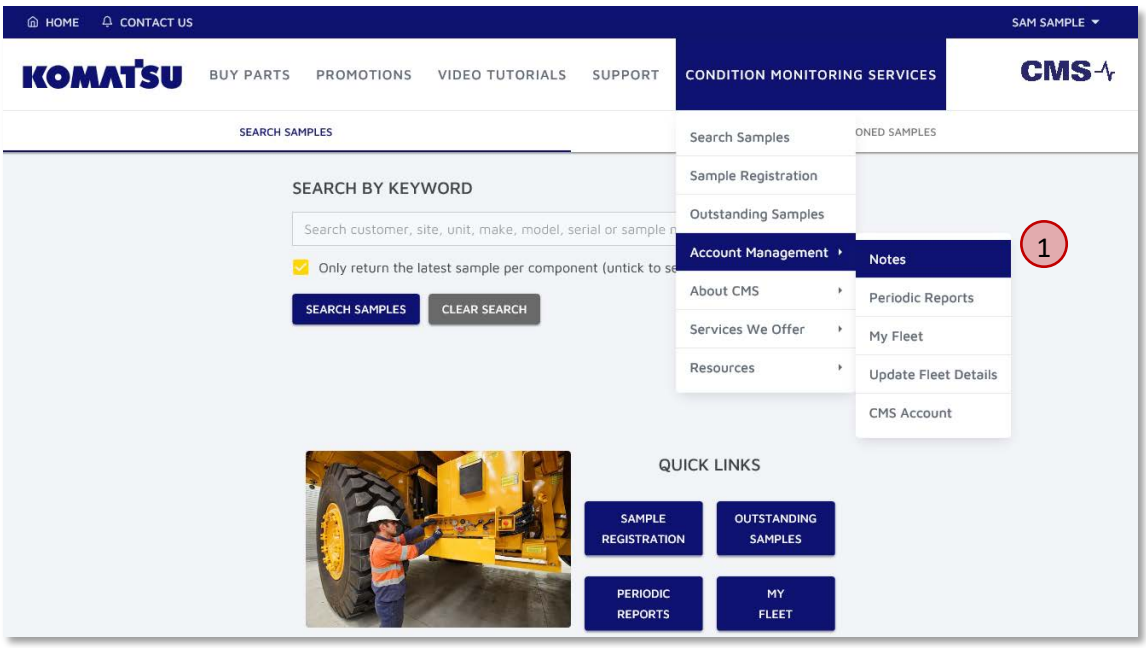


Figure 5.1 Navigating to Notes Page

The filters allow us to select a customer (① in Figure 5.2) along with a date range (② in Figure 5.2) to narrow the notes for us to view. Once we have selected our filters, press the **Search Notes** button (③ in Figure 5.2) to view notes that satisfy the criteria.

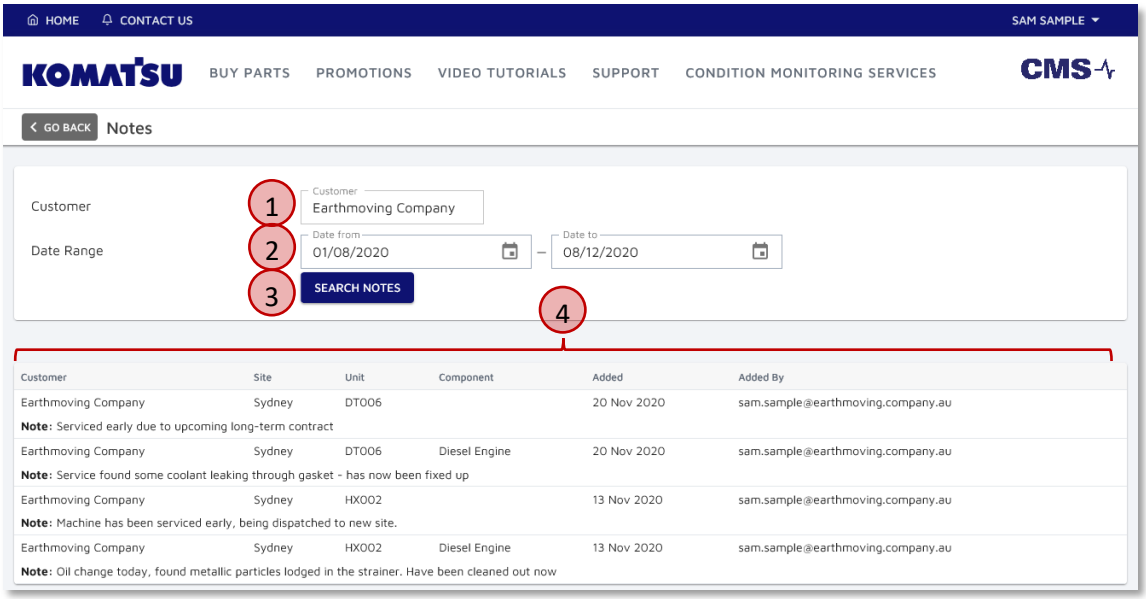


Figure 5.2 View All Notes.

Notes are displayed in a table form (④ in Figure 5.2), with information surrounding each of the notes.

The information relating to the **Customer, Site, Unit and Component** fields will display the information to which the note relates to. This will be the current customer and site to which the machine is assigned to. If the component is displaying with no value, this will indicate that the note has been added against the unit (not a specific component)

Note: This means that, if a site or customer allocation has been updated, the note will always display with the latest site or customer allocation. If you do not have permissions to view the new site, you will not be able to view the notes.

Note: Privacy is always maintained. If you sell or otherwise dispose of a unit, the new customer will not be able to view any notes you have made against the unit.

The **Added** and **Added By** fields show when and by whom the note was added, based on who was logged in to the website to make the note.

6 My Fleet

With our machinery loaded into the CMS system, it is useful for us to be able to get an overview of our fleet, understanding their location and last sampled date. The My Fleet page allows us to get this understanding quickly and easily.

The My Fleet page can be accessed by selecting **Condition Monitoring Services → Account Management → My Fleet** (① in Figure 6.1). Alternatively, this is also available as a quick link on the home screen (② in Figure 6.1).

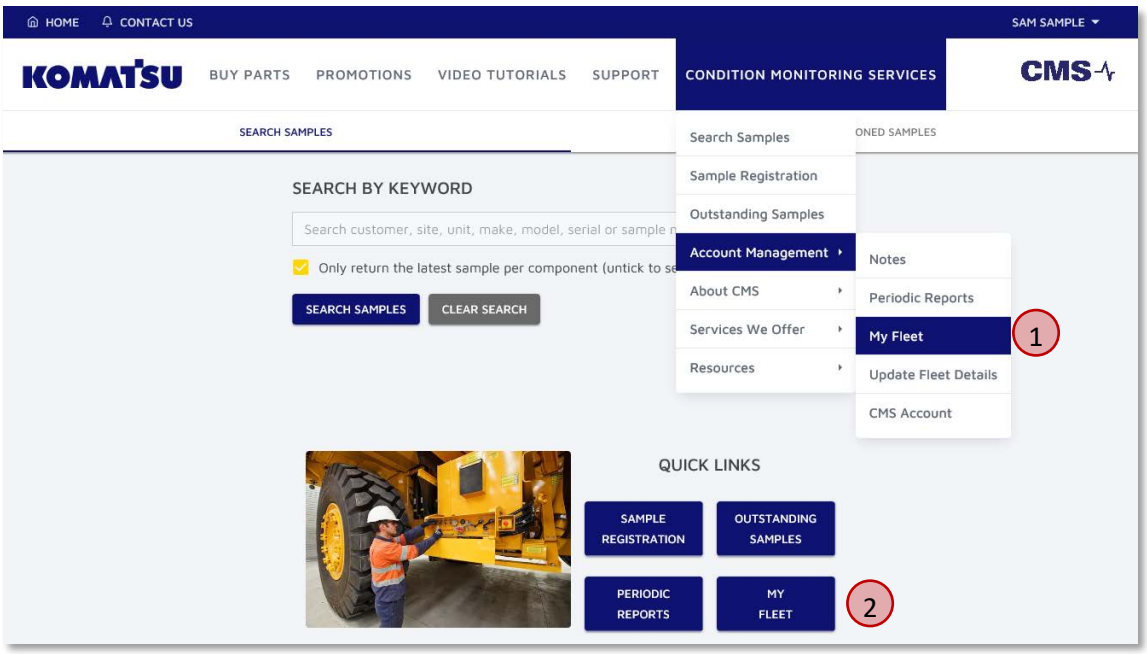


Figure 6.1 Accessing the My Fleet Page

We then arrive at the My Fleet page (Figure 6.2) and provided some options for choosing which fleet we would like to view.

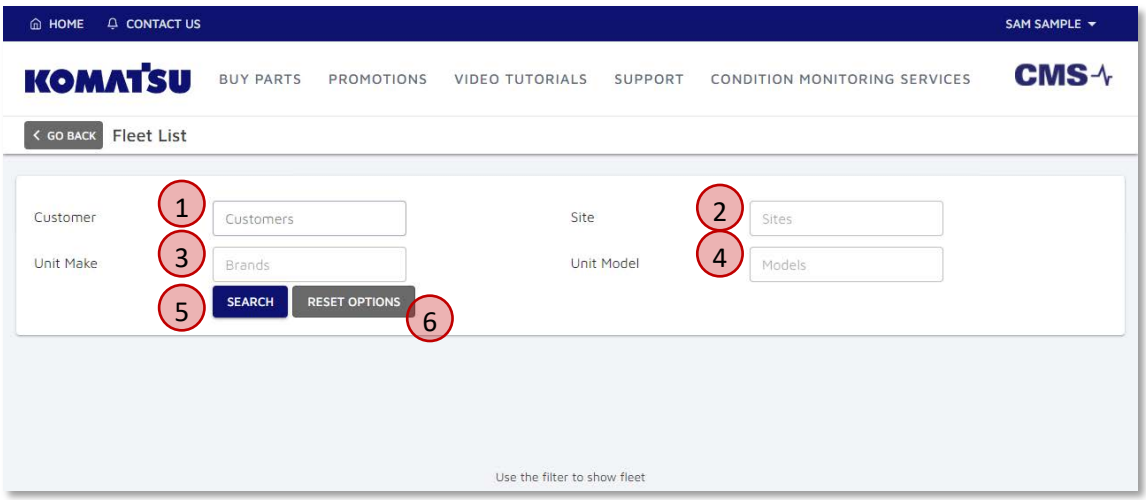


Figure 6.2 My Fleet Page

First, we should select one or more customers (① in Figure 6.2) that we want to view the fleet for. Once we click into the box, we can select one or more items from the items provided to us.

Note: We can also refine the drop-downs, so that we can easily find what we are looking for. Simply click into the drop-down and start typing what we are looking for.

Once we select a customer, we can either:

- Refine the search further using the other filters:
  - Site (② in Figure 6.2),
  - Unit Make (③ in Figure 6.2), and/or
  - Unit Model (④ in Figure 6.2)
- Show the search results by clicking the **Search** button (⑤ in Figure 6.2),

If we need to clear our filters, click the **Reset Options** button (⑥ in Figure 6.2).

Once we execute the search, we are shown our list of units that satisfy the search criteria (Figure 6.3). Here, we have selected a single customer, and showing all units under the account.

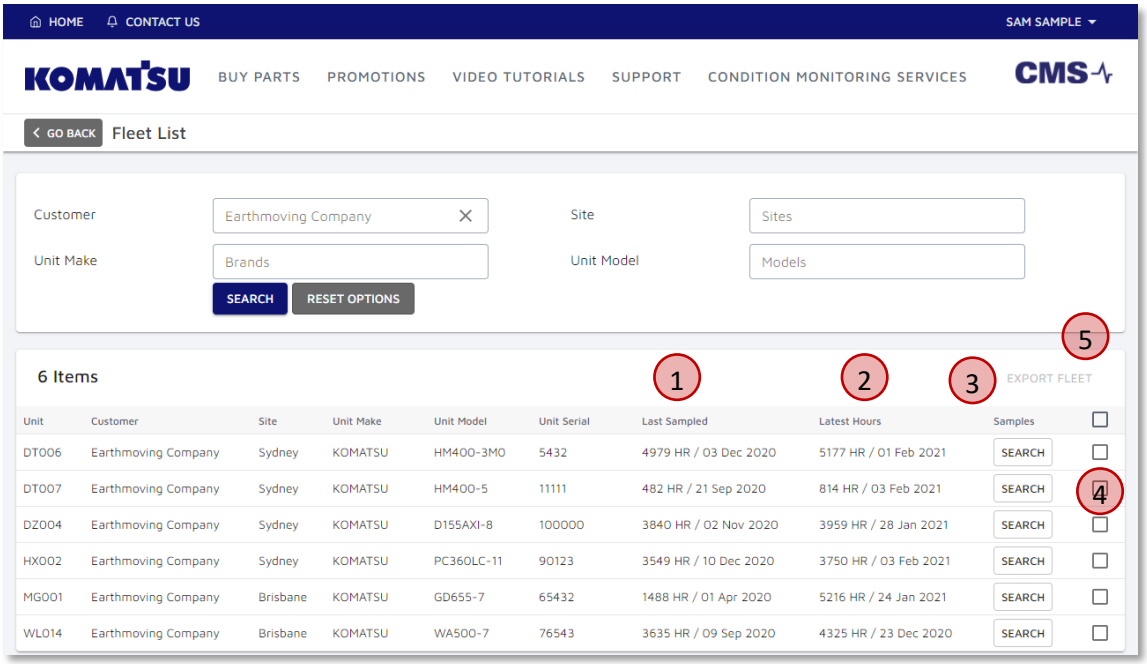


Figure 6.3 My Fleet Results.

The results display information about the unit, along with:

- The latest sample hours/kilometres and date (① in Figure 6.3)
- The latest unit hours/kilometres and date (② in Figure 6.3)

Note: For Komatsu machines, the latest unit hours and date is pulled from a variety of data sources, including machine telemetry platforms like KOMTRAX. These are updated overnight with the latest data available on the machine.

Additionally, we have the option to show the latest samples for a machine, by clicking on the **Search** button (③ in Figure 6.3). This will take us across to the search results (see Section 2.4 for more details).

Finally, we can select one or more units, which we can export to Excel for further analysis. First, select the desired units (④ in Figure 6.3), and then click the **Export Fleet** button (⑤ in Figure 6.3).

7 Download Summary Reports

In addition to the sample reports, which provide us an in-depth look at an individual sample, we may also want to look at some higher-level trends, on a more aggregated level. This may include the trend of samples over time or understanding all of the samples submitted in a given month.

Reports at these higher-levels are available through the menu, by selecting **Condition Monitoring Services → Account Management → Reports** (① in Figure 7.1). Alternatively, this is also available as a quick link on the home screen of the page (② in Figure 7.1).

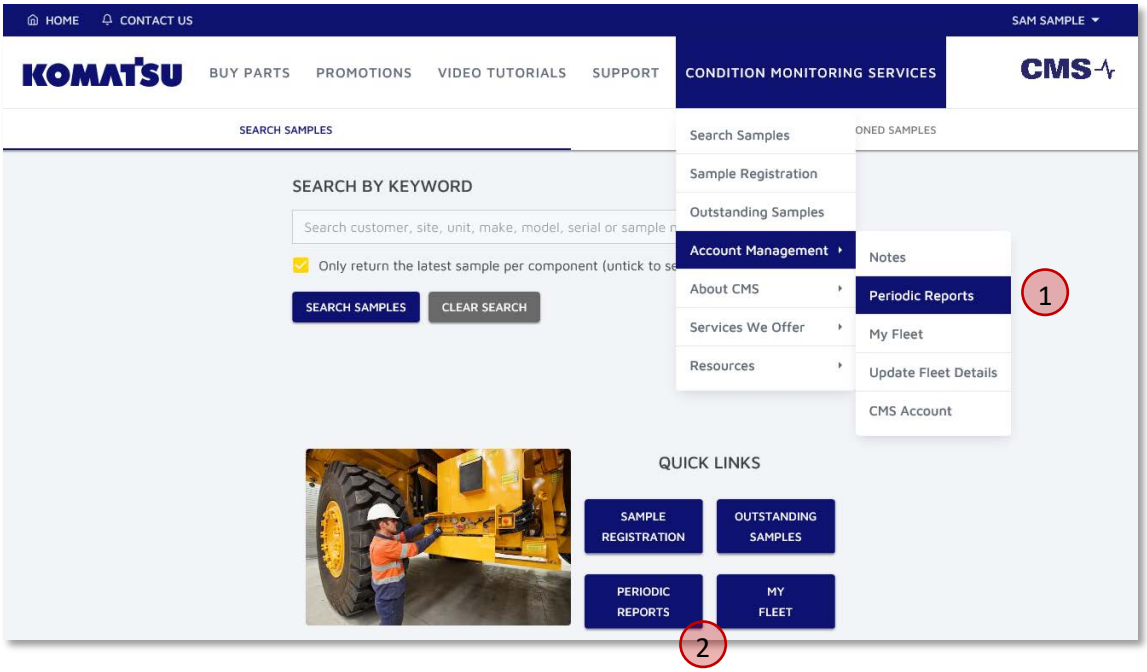


Figure 7.1 Accessing the Summary Reports Page

Once we arrive at the reports page, we are provided some options to choose the scope of the report (what to include in the report, ① in Figure 7.2), but also the type of report we would like (② in Figure 7.2).

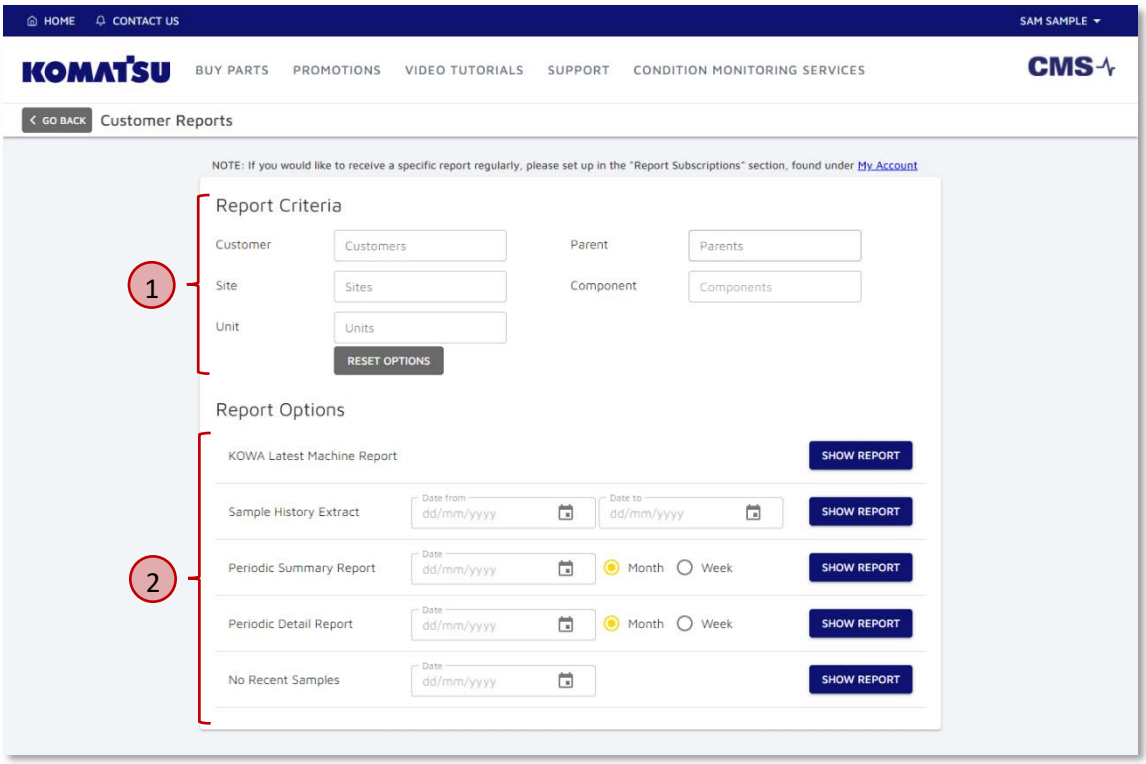


Figure 7.2 Summary Reports Page

First, we need to select the scope of the report, using the supplied filters. We can select from:

- Parent Customers
- Customers
- Sites
- Units
- Components

Prior to selecting other options, we will need to select a customer from the drop-down (① in Figure 7.3). The list will be pre-populated with all customers that we have access to.

Once we have selected a customer, we can add more filters if we require them. This includes:

- Sites (② in Figure 7.3)
- Units (③ in Figure 7.3)
- Components (④ in Figure 7.3)

Note: Only customer is a mandatory field; all others are optional.

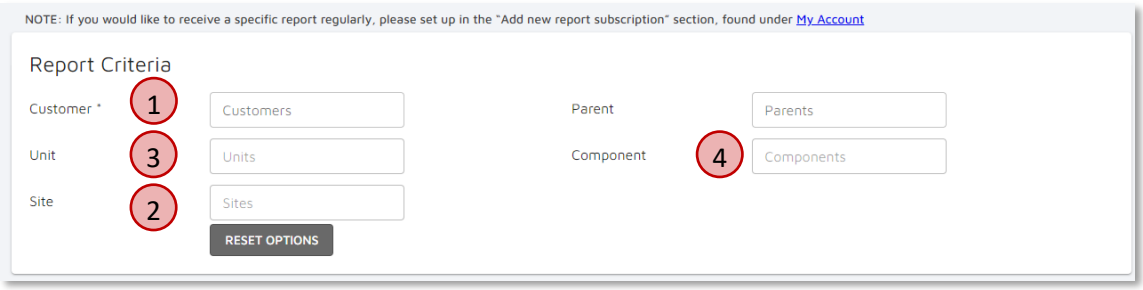


Figure 7.3 Periodic Reports – Filters

If we would like to clear the filters we have applied, click the **Reset Options** button.

With the filters now chosen, we can select the report we would like to generate (Figure 7.4). Available options are:

1. Latest Machine Report (example in section 11.3)
2. Sample History Extract (example in section 11.7)
3. Periodic Summary Report (example in section 11.5)
4. Periodic Detail Report (example in section 11.6)

For the periodic summary report and periodic detail report, we need to select a date, along with either **month** or **week**. We should choose a date within the month or week we are interested in. For example, if we want a report for:

- The month of December 2020; we can select any date within December 2020
- The week of Mon 4th January 2021; we can select any date from 4/1/2021 through to 10/1/2021

Note: Weeks start on a Monday in this application.

Each report has it's own **Show Report** button. Once we have completed all required fields, click the corresponding button to the report you would like to download and view.

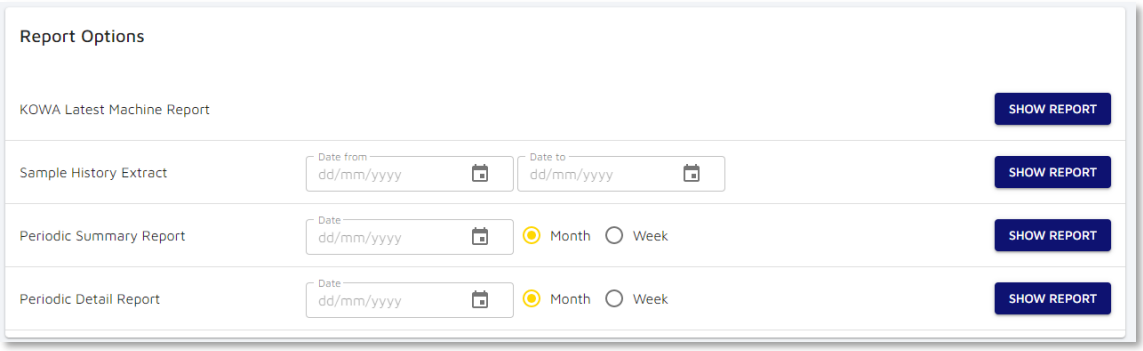


Figure 7.4 Periodic Reports - Reports Available

7.1 Subscribe to Reports

If we would like to have a specific report emailed to us on a periodic basis, we can set up a report subscription. This is managed through the My Account section, detailed in Section 9.3.

8 Update Unit Details

Machine fleets change over time, so we need a way to be able to request an update to their information. This could include a change in site or unit number, or a new site primary contact.

These changes can be requested through the **Fleet Management page**, which can be accessed by selecting **Condition Monitoring Services → Account Management → Fleet Management** (① in Figure 8.1).

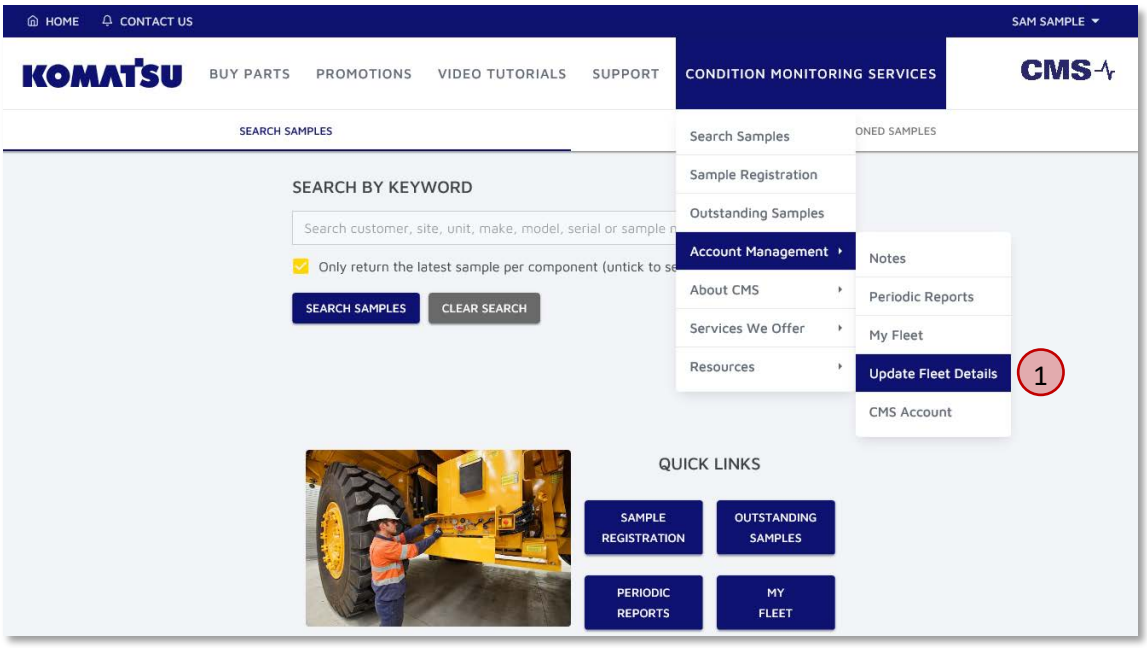


Figure 8.1 Accessing the Fleet Management Screen

We are then presented with the Update Fleet Details page (Figure 8.2). Here, we will need to select the appropriate customer, site, unit and component using the drop-down boxes (① in Figure 8.2).

First, selection of a customer is required. When we click into the **customer** drop-down, we will be shown all the customers to which we have access. Select a customer by clicking on the customer name.

Note: To help find the customer we are wanting to select, we can start typing any part of the customer name, which will then filter the list down.

If the change relates to a site, unit or component, we can follow the same process of selecting the appropriate site, unit and component in order, from the available options in the drop-down.

Once we have selected the appropriate items we would like to change, we now need to select what kind of change we would like to make using the tick boxes (② in Figure 8.2). For example, if we would like to change some of the details relating to the site and primary contact, then select the **site and primary contact details** tick-box.

Note: If we have selected only a customer from the dropdowns, then only the customer can be changed. Similar functionality is provided for the site, unit and component.

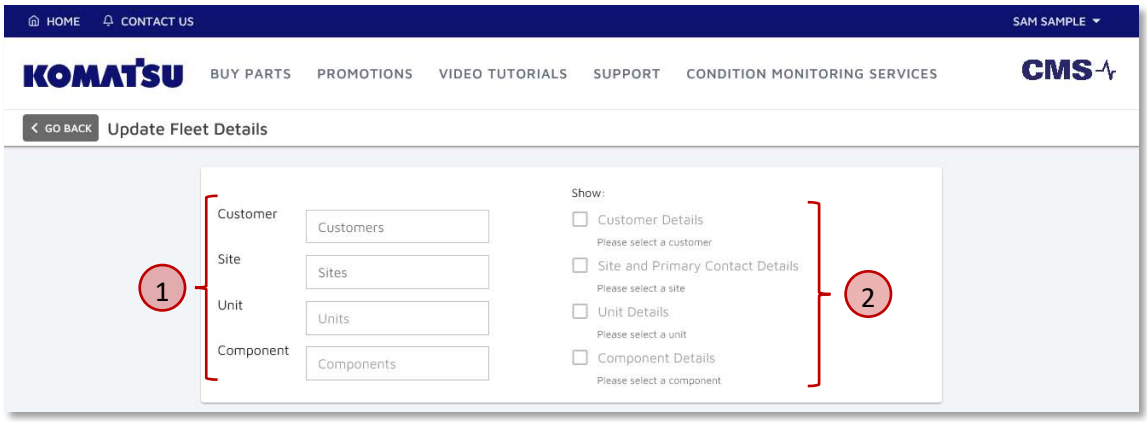


Figure 8.2 Update Fleet Details Page

This will then present some additional boxes below, with the values for each of the fields prefilled.

8.1 Update Customer Details

Customer details relating to customer name and address is available for update (① in Figure 8.3). We can update any fields as required. If the postal address is the same as the physical address, we can select the **same as physical address** button (② in Figure 8.3), which will copy all information across.

Note: Most fields are self-explanatory, however some are not:

- *Physical Address – the location of the customer; this could be a head office or other central location*
- *Postal Address – The address something could be posted to you; could be a street address or PO Box*
- *Address 1 – The first (and primary) line of an address block, usually the street address; may also be used for a unit number, floor number or other identifying information*
- *Address 2 – The second line of an address block; can be used for street address if the first line is used for other identifying information*

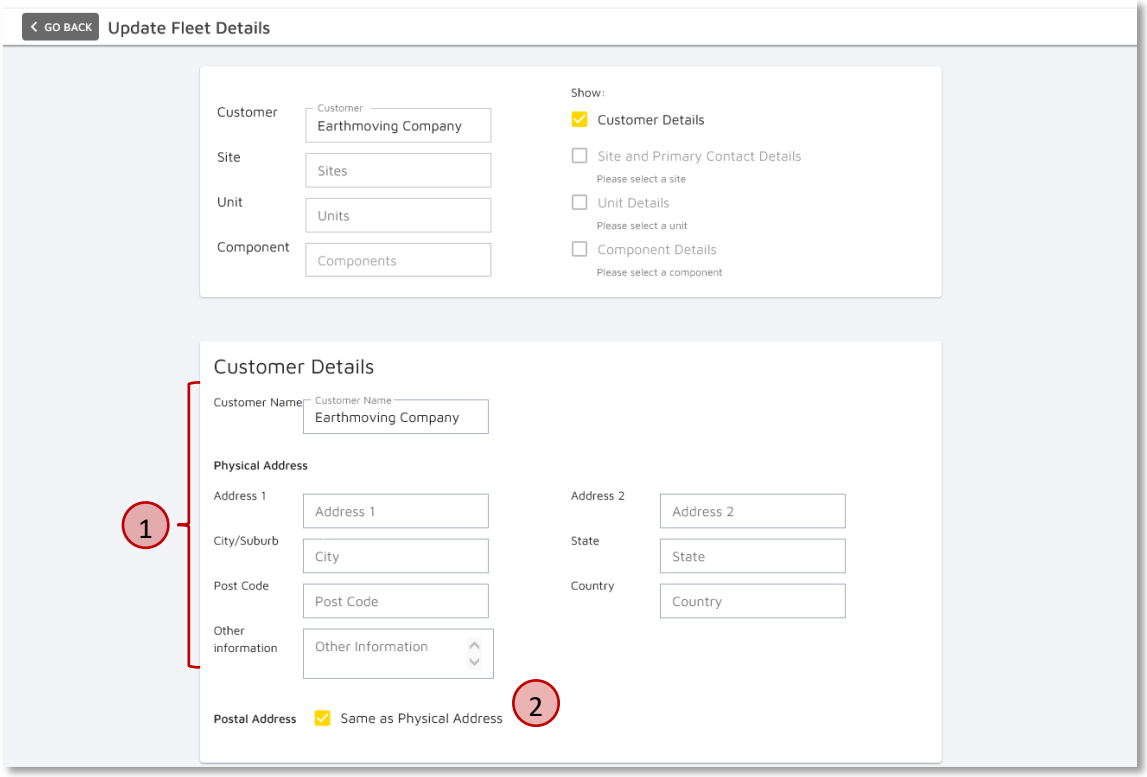


Figure 8.3 Update Details – Customer

8.2 Update Site and Primary Contact Details

Moving through to the **site and primary contact details** (shown if we tick the box at the top of the page), we will be presented with the options that we can update. All values will be pre-filled to their current values.

The site details section is very similar to what we saw for the customer (Figure 8.3), although this will relate to the operating site of the machine.

There is, however, an additional section at the bottom, relating to the primary contacts (① in Figure 8.4).

A primary contact is a person who is designated to receive a phone call from the Komatsu CMS team if a sample result comes back requiring urgent attention (a critical sample status). Typically, this could be a site supervisor, maintenance supervisor, or business owner, depending on the size of the organisation.

Given the time-sensitive nature of these phone calls, it is very important that this information is kept up to date with at least one (1) phone number.

Note: On sites or locations where mobile phone reception can be poor, it is recommended that both a mobile phone and landline/office phone number is provided as well.

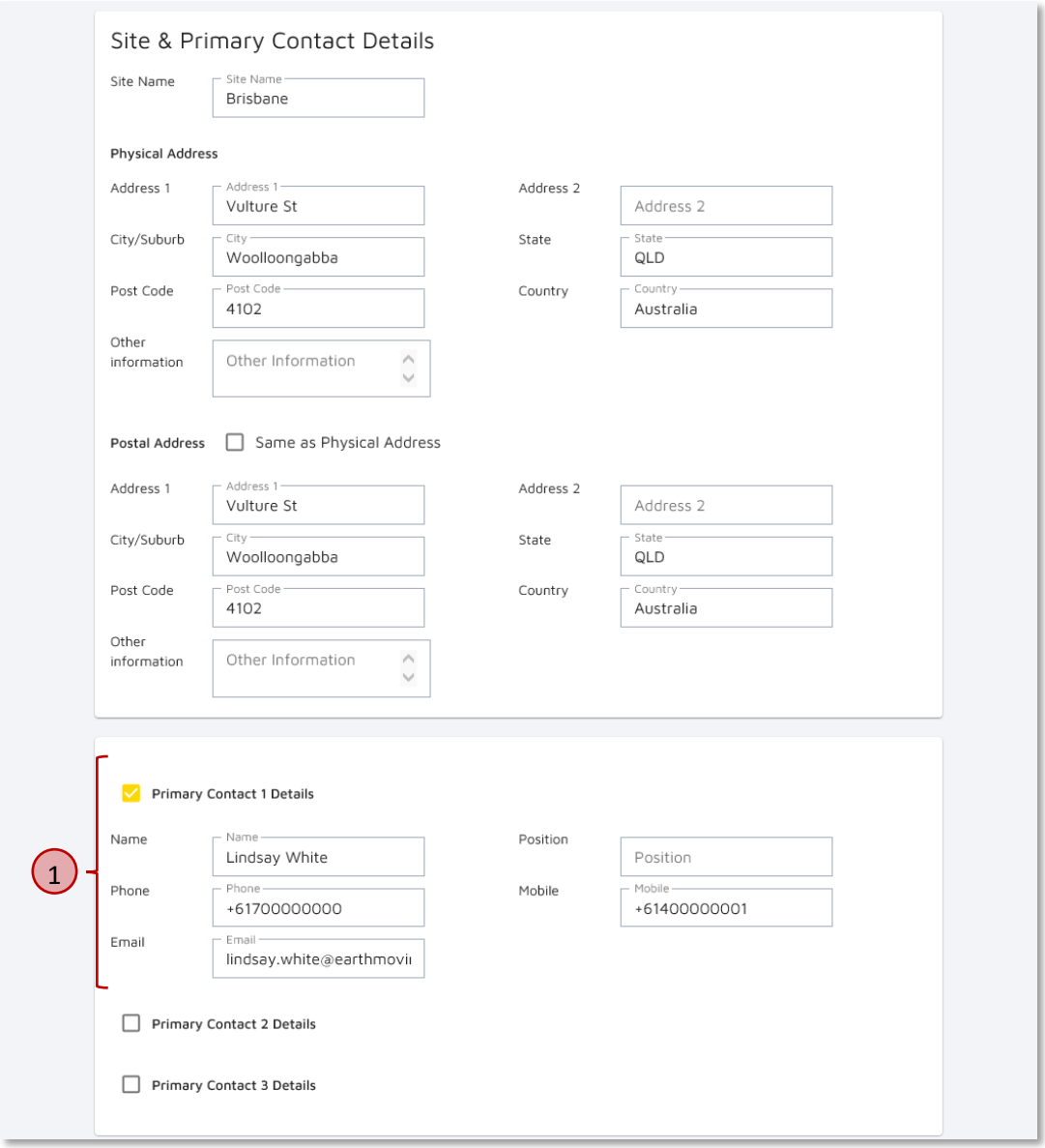


Figure 8.4 Update Details - Site and Primary Contact

8.3 Update Unit Details

Next is the **unit details** section (Figure 8.5), which will allow us to update the information for a unit/machine.

This will allow us to request changes the unit numbers, make model or serial adjustments, and the site allocation.

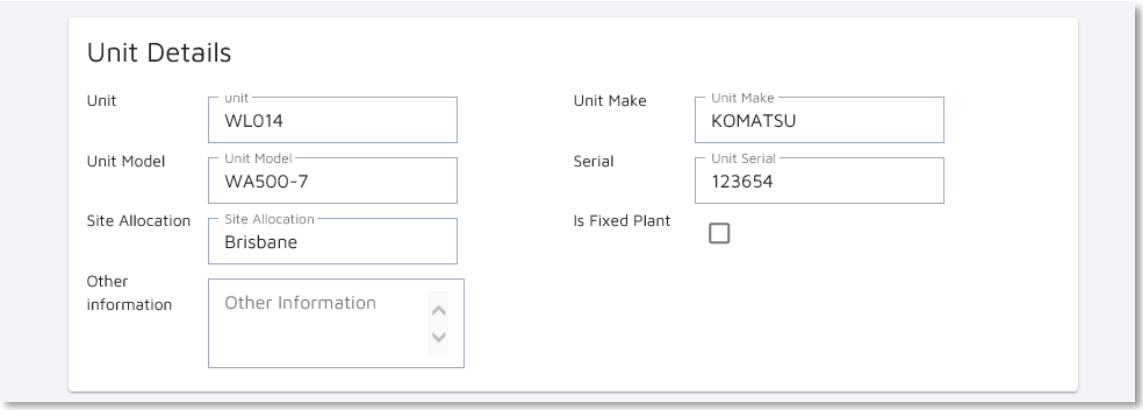


Figure 8.5 Update Details – Unit

8.4 Update Component Information

The last section which may be applicable is for updating a component under a machine/unit (Figure 8.6).

Here, we can update the various aspects of a component, relating to it's identification (make, model and serial number), along with information relating to the amount of fluid held within the component etc.

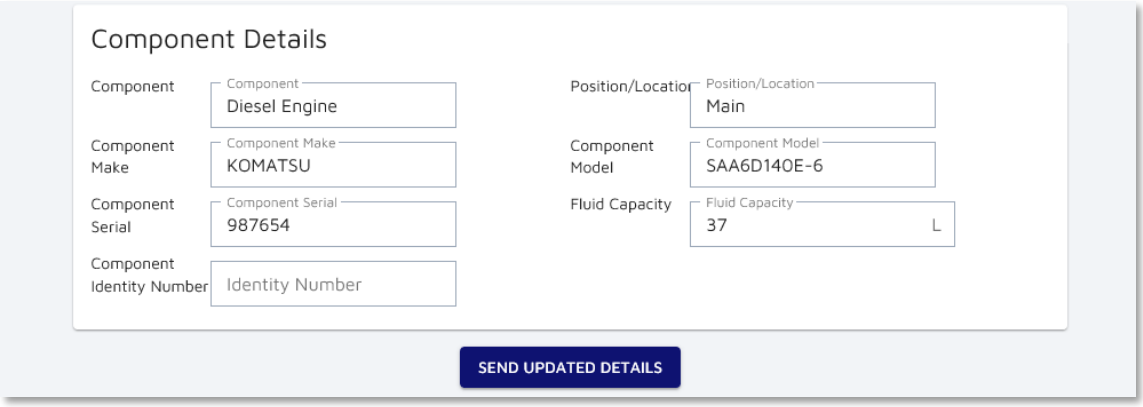


Figure 8.6 Update Details – Component

8.5 Submission

Once we have made updates to the information about our customer, site, unit or component, we should scroll to the bottom of the page, and press the **Send Updated Details** button.

This will send the details for action by the Komatsu CMS team. If we have any questions, the CMS team will reach out to us.

9 Manage My Account

Our user account contains important information, in case the Komatsu CMS team needs to get in contact with you. It also allows some user preferences to be updated, including how and what sample reports get emailed to us.

We can view and update these details and preferences through the **CMS Account** page, which can be accessed by selecting **Condition Monitoring Services → Account Management → CMS Account** (① in Figure 9.1).

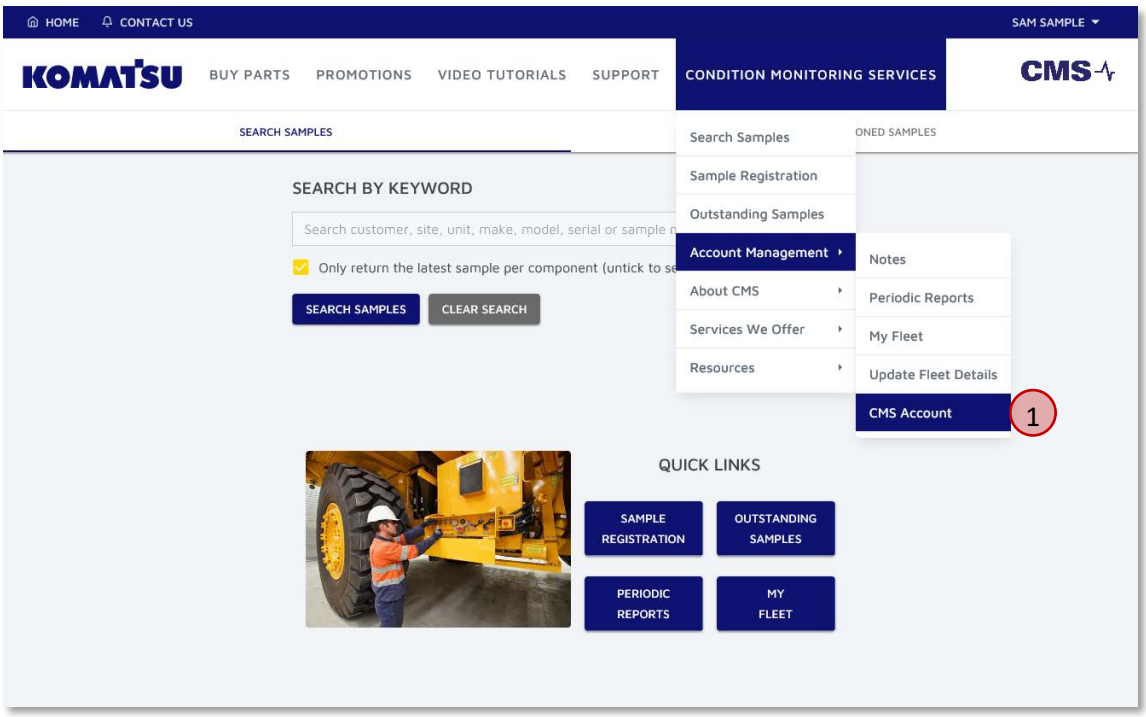


Figure 9.1 Accessing My Account

The CMS Account page is then displayed (Figure 9.2). We have 4 pages, arranged into tabs, which provide us the ability to update and configure our account. These tabs are discussed in the following sections:

1. User Profile (① in Figure 9.2) – Section 9.1
2. Sample Reports (② in Figure 9.2) – Section 9.2
3. Report Subscriptions (③ in Figure 9.2) – Section 9.3
4. Customer Filters (④ in Figure 9.2) – Section 9.4

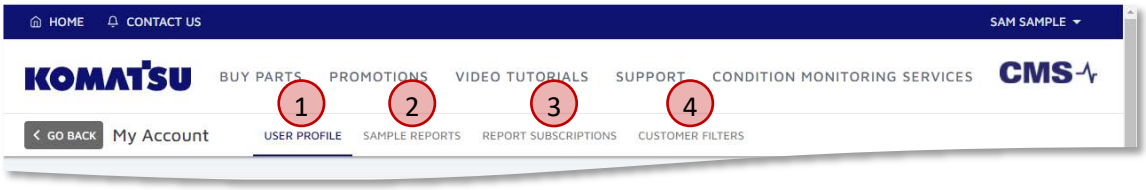


Figure 9.2 CMS Account Page

9.1 User Profile

The first section relates to our user profile, containing our contact details (Figure 9.1). All fields can be updated, with the exception of our **display name, email address and country.** To update these three (3) values, please get in contact with the CMS team, who will be able to update these for you.

To update any of the values, add or remove text as necessary from the various fields. Then click the **Save** button (① in Figure 9.3)

Notes:

- *The telephone numbers are used to get in contact with us, should a sample come back as critical status. It is extremely important that this is kept up to date.*
- *On sites or locations where mobile phone reception can be poor, it is recommended that both a mobile phone and landline/office phone number is provided as well.*
- *Phone numbers should include the country code:*
    - *Australia: +61*
    - *New Zealand: +64*
    - *New Caledonia: +687*

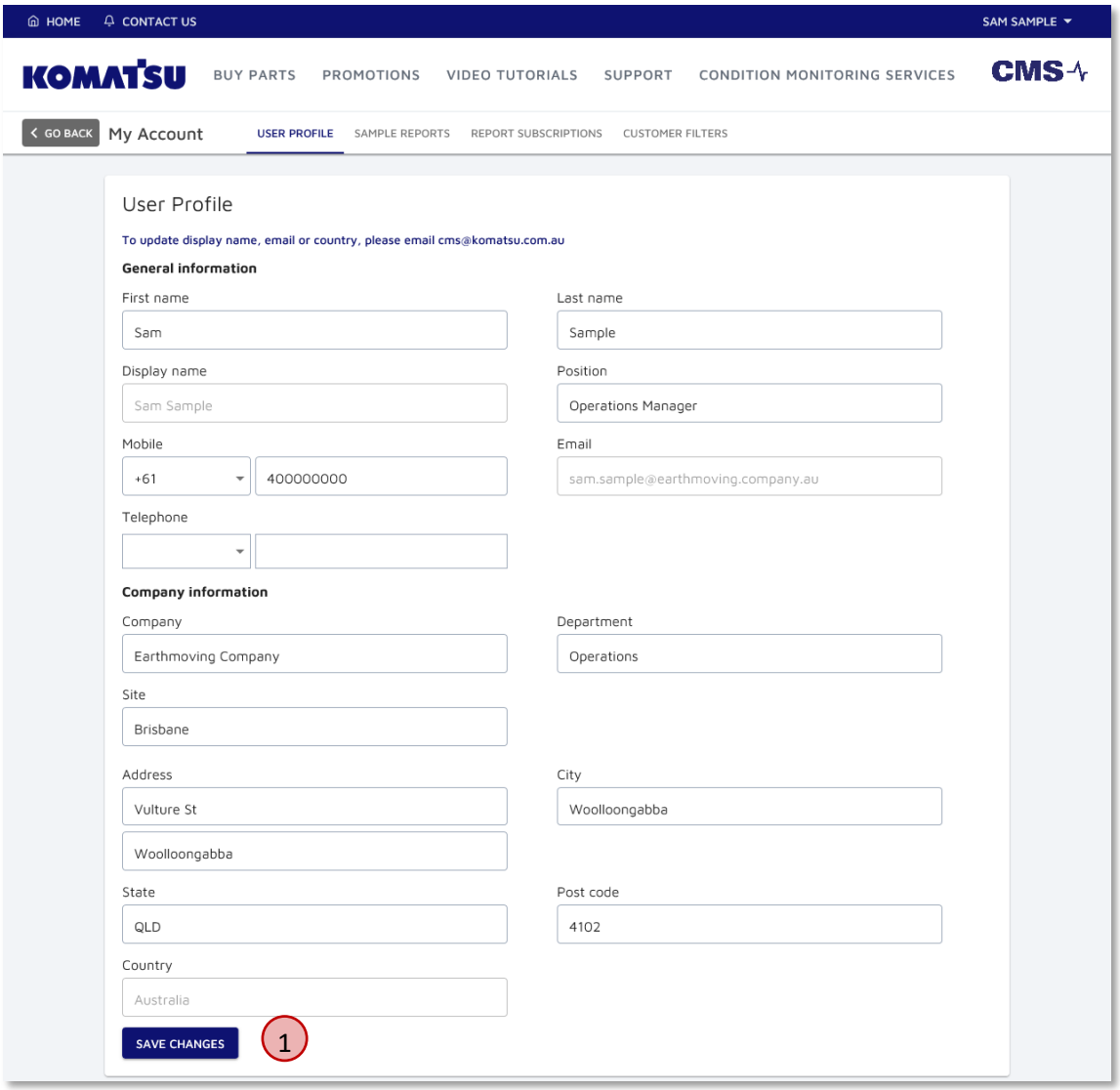


Figure 9.3 CMS Account – User Profile Information

9.2 Sample Reports

The next tab, **Sample Reports**, will allow us to configure what sample results are emailed to us, along with the reports that are to be attached. This is broken in to 2 areas:

- **Sample Result Communications** (① in Figure 9.4) – Section 9.2.1
- **Reporting and Email Settings** (② in Figure 9.10) – Section 9.2.2

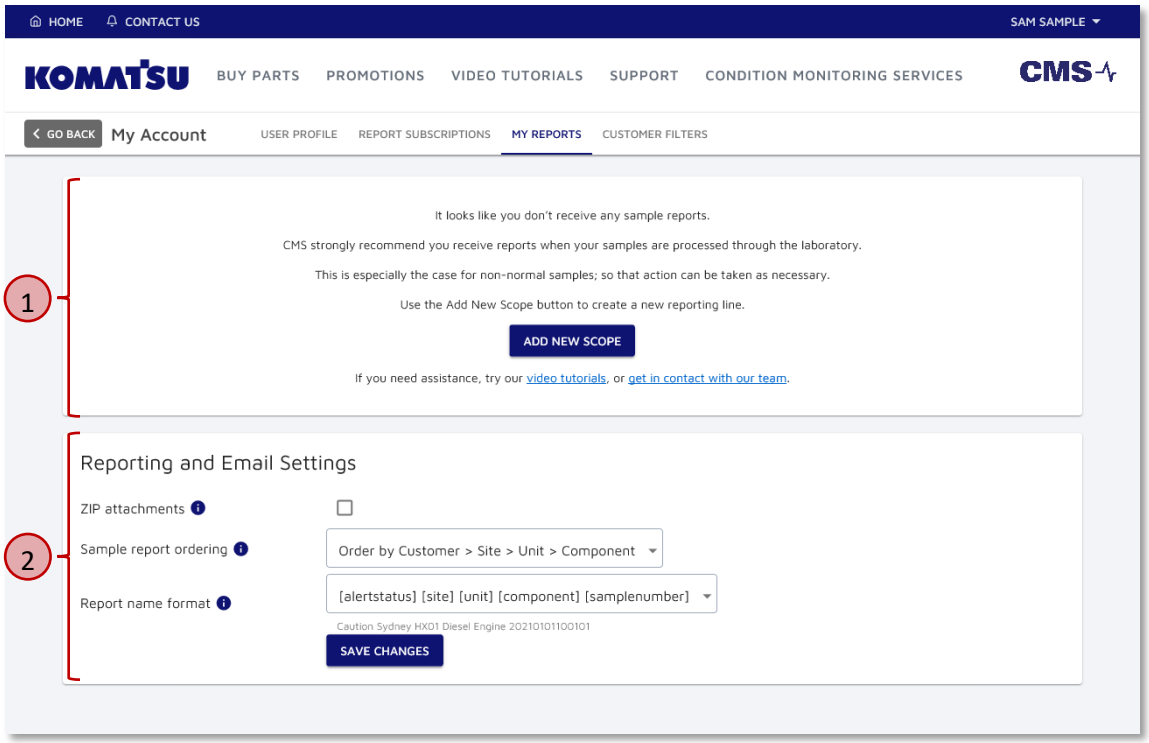


Figure 9.4 My Account – Sample Reports Page

9.2.1 Sample Result Communications

The sample result communications section will display what reports and emails you will receive, following samples being processed by the laboratory.

If you have no reports configured, the screen shown in Figure 9.5 will be displayed.

If we have already configured our reporting scope, or the CMS team has done this for us, we will be able to see each report scope (Figure 9.6). The table columns are explained further in Table 9.1.

We can also make the following actions from this screen:

- Add a new reporting line (① in Figure 9.5 or ① in Figure 9.6 - section 9.2.1.1)
- Edit an existing reporting line (② in Figure 9.6 - section 9.2.1.2)
- Delete an existing reporting line (③ in Figure 9.6 - section 9.2.1.3)

Note: The CMS team strongly recommends that we receive some level of reporting, so that we are made aware of any non-normal sample results quickly and take action.

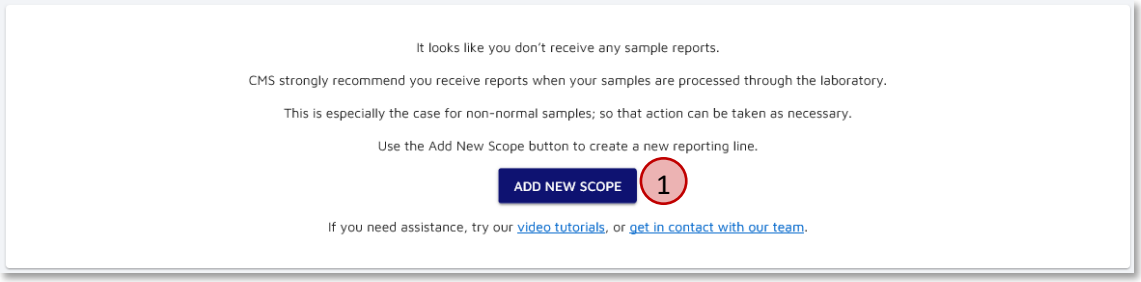


Figure 9.5 Sample Result Communication – No Active Reporting Scope

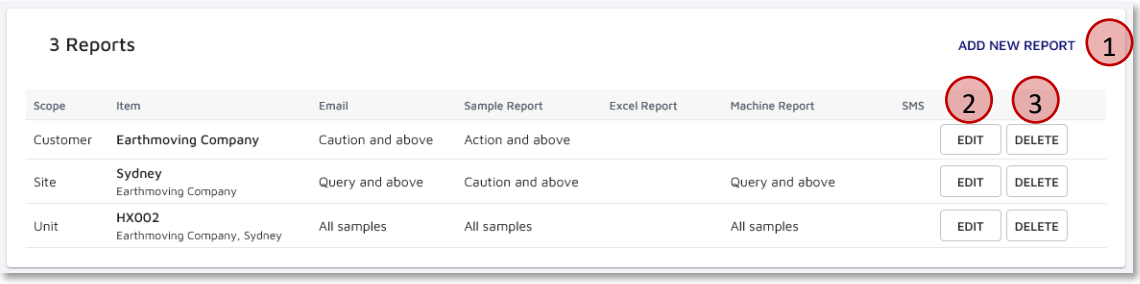


Figure 9.6 Sample Result Communication – Active Reporting Scope

Heading	Description
Scope	The level at which the reporting line is applied. This will usually be Customer, Site, Unit or Component.
Item	The value of the Customer, Site, Unit or Component to which this line relates. Where the scope is at a lower level than customer, the higher levels of the hierarchy are noted below. For example, line 1 of Figure 9.6 relates to all samples for customer Earthmoving Company. Line 3 of Figure 9.6 relates to unit 'HX002', which for customer 'Earthmoving Company', and site 'Sydney'
Email	At what sample status do we get an email, that will include a summary of the results in the email body. An example email body is provided in Section 11.1. *Note: This only configures the email to be sent; reports are added as attachments using the columns below.*
Sample Report	At what sample status do we receive the sample report as an attachment to the email. An example sample report is provided in Section 11.2. *Note: The sample status for sample reports must be equal to or higher than the Email sample status*
Excel Report	At what sample status do we receive an excel report of the sample results as an attachment to the email. An example excel report is provided in Section 11.3.

	Note: The sample status for excel reports must be equal to or higher than the email sample status
Machine Report	At what sample status do we receive a machine report of the latest sample results of all machine fluid compartments as an attachment to the email. An example machine report is provided in Section 11.3. *Note: The sample status for excel reports must be equal to or higher than the email sample status*
SMS	At what sample status do we receive an SMS text message to notify of an action or critical sample status. *Note: Not all users have the ability to configure SMS text messages. If you need this ability, please contact the CMS team.* *Note: SMS text messages can only be configured at Action and/or critical levels*

Table 9.1 Sample Result Communication Explanation

9.2.1.1 Add New Reporting Line

When we add a new reporting line, we are presented with a form, as shown in Figure 9.7. This is split into 2 areas; selecting the scope to which the reporting line will apply to (① in Figure 9.7), and the communications and reports which we would like to receive for this scope (② in Figure 9.7).

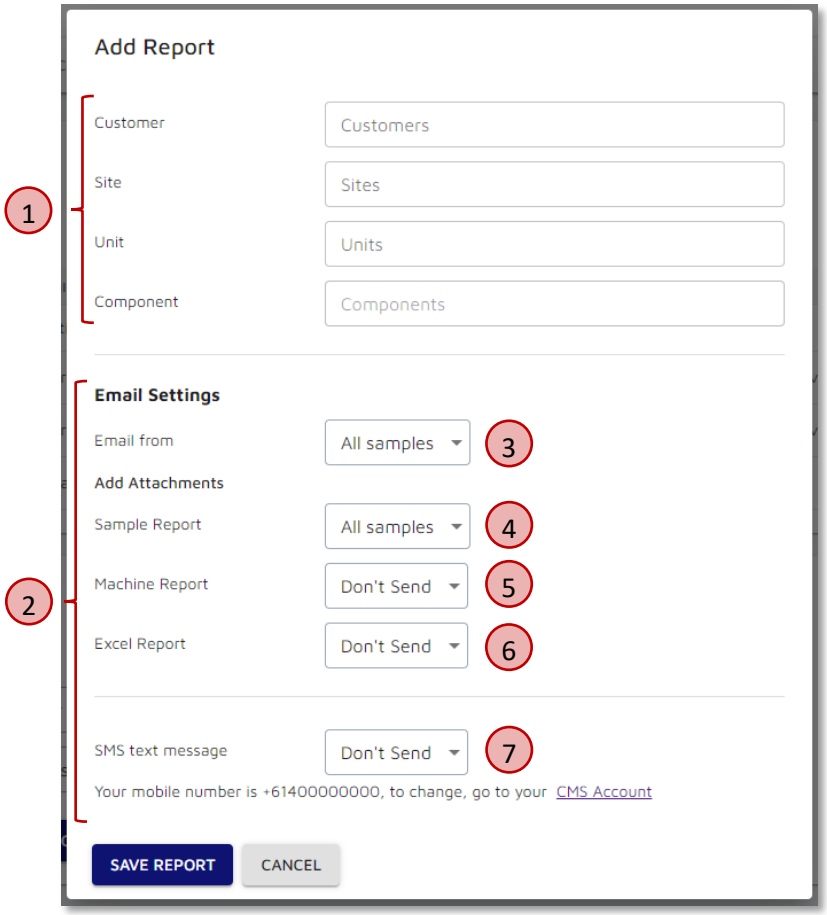


Figure 9.7 Sample Result Communication – Adding A New Reporting Line

First, we need to select the scope to which this line will apply. We can scope it to:

- A customer; all samples assigned to this customer will have these reporting configurations
- A site; all samples that are assigned to units on the selected site will have these reporting configurations
- A unit; all samples assigned to the unit will have these reporting configurations
- A component; all samples assigned to the component will have these reporting configurations

Once we select a customer, the site will become available for selection etc. All boxes are single select drop-downs, which we can type to search through all items available to us.

With the reporting line scope selected, we now need to specify what communications we would like to receive.

First, we should select if we would like to receive an email with a summary of the results in the email body (③ in Figure 9.7). An example of this is provided in section 11.1.

We are given a drop-down to select what sample results we would like to receive, based on the sample alert status. For example, if we select 'Caution and above', this means we will receive an email with all samples processed that have a sample status of caution, action or critical, but not for samples that are normal or query status.

Note: If we specify a value for 'Email From' only, we will only receive an email with no attachments. Once a selection is made for the 'Email From', the sample report will also be selected at the same level by default.

With the emails now configured, we can add attachments with sample results. Available reports to be attached are:

- Sample reports (④ in Figure 9.7 – see section 11.2 for an example report)
- Machine reports (⑤ in Figure 9.7 – see section 11.3 for an example report)
- Excel reports (⑥ in Figure 9.7 - section 11.4 for an example report)

Each of these reports can be configured to only be sent for certain sample statuses, using the drop-downs.

Note: The sample statuses above which reports will be attached to the emails must be equal to or higher than the email from setting.

Finally, we can select if we would like to receive an SMS text message with alerts (⑦ in Figure 9.7). This is only available for action and/or critical samples, and we must have a valid mobile phone number added against our account (see section 9.1 to update).

9.2.1.2 Edit Existing Reporting Line

If we would like to edit an existing reporting line, we click on ③ in Figure 9.6. We are then presented with a form to make the changes (Figure 9.8). This edit reporting line form is very similar to Figure 9.7, although we are not able to change the reporting scope (customer, site etc.), only the settings on what reports we get at what sample levels.

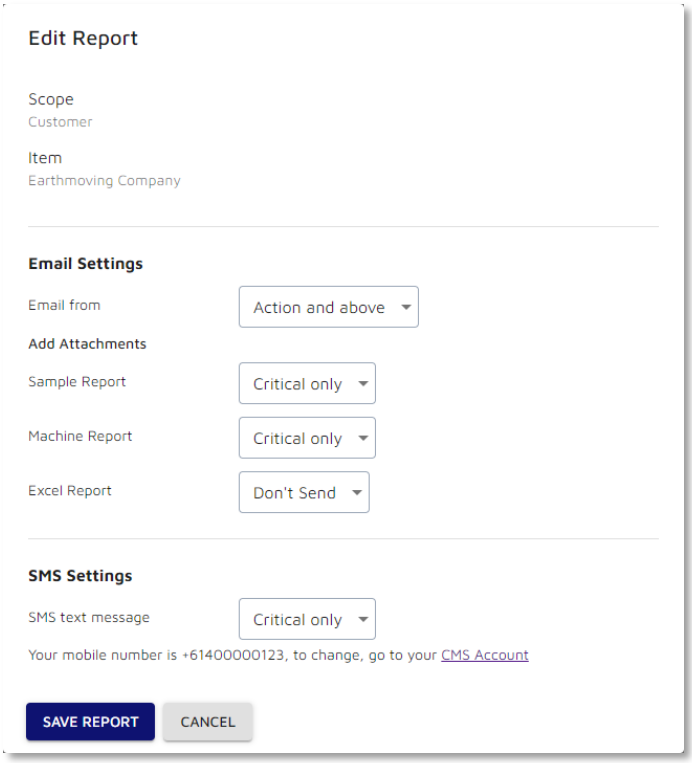


Figure 9.8 Sample Result Communication – Editing An Existing Reporting Line

9.2.1.3 Delete Existing Reporting Line

If we no longer want to receive sample result communications under a certain reporting line, we can delete it using the associated **Delete** button (③ in Figure 9.6) against this line.

Once we click delete, we are provided a confirmation box with information about the reporting line we are about to delete (Figure 9.9). Here we should check to confirm that this is the correct line we no longer want to receive communications from, and if correct, click the **Delete** button (① in Figure 9.9). If we wish to keep the reporting line, click the **Cancel** button (② in Figure 9.9) to close the dialogue box without making changes.

If we do delete the reporting line, an email confirmation will be sent to the email associated with your user account, notifying you of the deletion.

Note: The CMS team strongly recommends that we receive some level of reporting, so that we are made aware of any non-normal sample results quickly and take action.

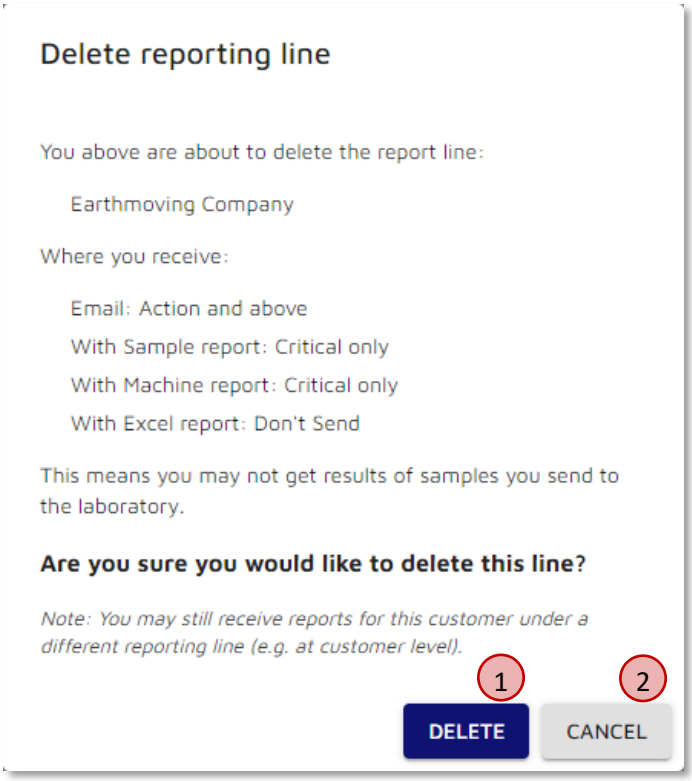


Figure 9.9 Sample Result Communication – Delete An Existing Reporting Line

9.2.2 Reporting and Email Settings

The first item, **ZIP attachments** (① in Figure 9.10) will zip all reports together into a single compressed file, to both save space in mailboxes, but also improve attachment management when receiving large numbers of reports. The default selection is unselected, which will not zip/compress the reports together but attach each individually. Tick the box to receive the reports zipped together.

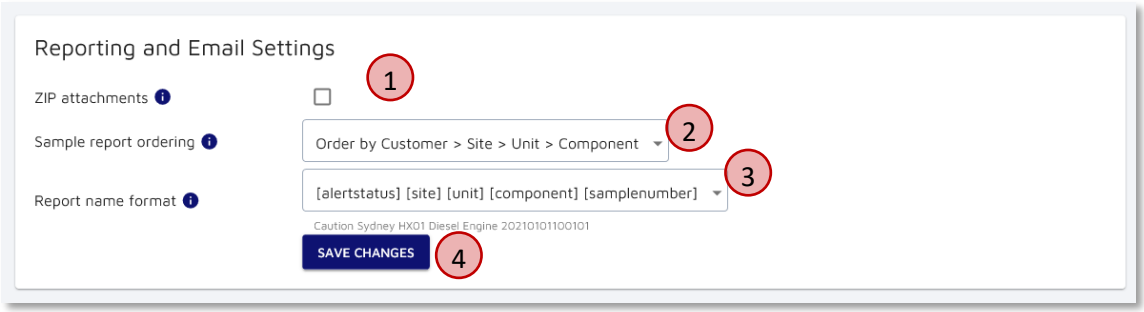


Figure 9.10 My Account - Reporting and Email Settings

The second item, **Sample report ordering** (② in Figure 9.10) specifies the order in which the reports are added to the email as attachments. The default ordering is alphabetical by:

- Customer, then
- Site, then
- Unit, then
- Component

Other options exist, including ordering by the alert status, so critical samples are shown first. Use the drop-down to select the desired option.

Finally, the **Report name format** (③ in Figure 9.10) will provide options for the file name of sample reports that are emailed to us. An example report formatting is displayed below the drop-down; Figure 9.10 shows selection and example:

[Alert Status] [Site] [Unit] [Component] [Sample Number]

Caution Sydney HX01 Diesel Engine 20200101100101

Select the desired option by using the drop-down.

Once we have selected our desired options, click the **Save Changes** button (④ in Figure 9.10). This will make the changes on our profile.

9.3 Report Subscriptions

As discussed in Section 7.1, we can subscribe to a periodic report to receive it via automated email. The **Report Subscriptions** section (Figure 9.11) will allow us to create new subscriptions (① in Figure 9.11) and remove unwanted ones (③ in Figure 9.11).

Note: These periodic report subscriptions are different to the sample reports, sent once a sample has been evaluated by the laboratory. See section 9.2 for information about sample result communications.

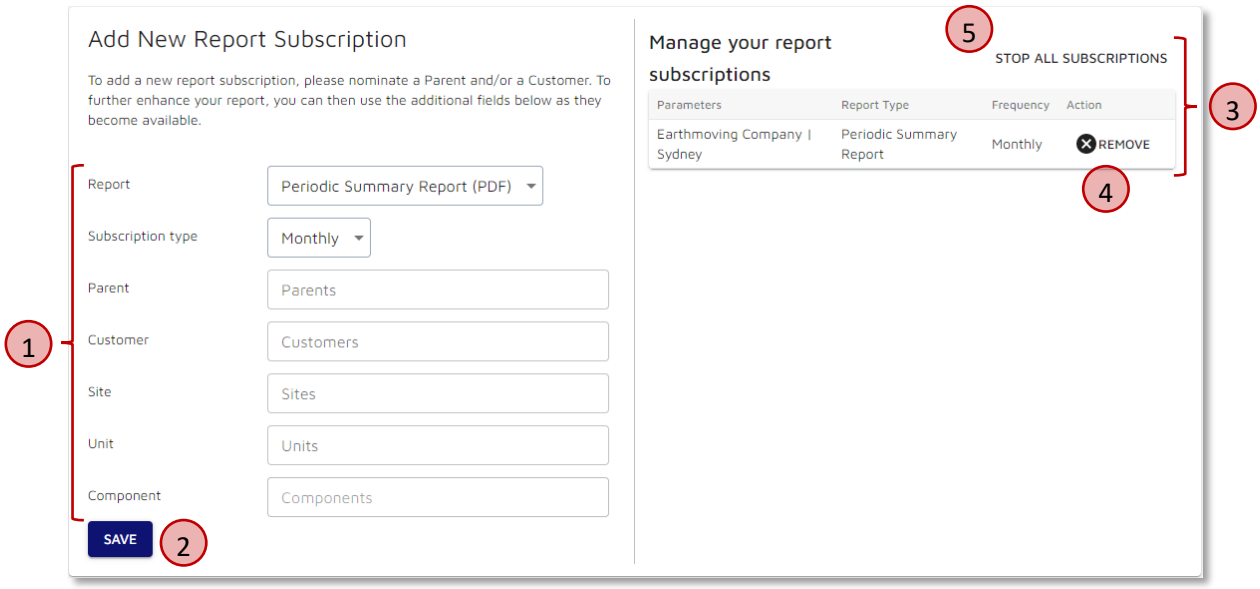


Figure 9.11 Manage Account - Report Subscriptions

Considering addition of new subscriptions first, we need to select the type of report using the **Report** drop-down, which will refer to the report names provided in Section 6. The **Subscription Type** will determine the rate at which we receive the reports; weekly or monthly.

Once we have specified what report and how often we want it, we then move into the scope of the report. This is discussed in section 6 in detail.

With the report type, frequency and scope all set, we can click the **Save** button (② in Figure 9.11) to complete the subscription. This report subscription will then be shown in the manage report subscription section (③ in Figure 9.11).

All of our current subscriptions are shown in the table at the top of the section (③ in Figure 9.11). This will show the input **parameter** (scope) for the report, along with the **report type** and **frequency**. Finally, a button is provided for each report if we want to **stop subscription** (④ in Figure 9.11). Alternatively, we can stop all subscriptions by using the **stop all subscriptions** button (⑤ in Figure 9.11).

9.4 Customer Filters

If we have a large number of customers that we have access to view, we are able to narrow this down for a period of time through a customer filter, to help keep a more focused view. This affect both search (Section 2.1 and 0) and also the latest unactioned samples (Section 2.3).

This can be controlled through **Customer Filters** (Figure 9.12).

To apply a filter, click in the **Search for Customers** box and we will be presented with a list of customers to which we have access (① in Figure 9.12). We can tick on one or more customers in the list by using the checkboxes next to each one (② in Figure 9.12), which will then appear in the filter list (③ in Figure 9.12).

Figure 9.12 My Account – Customer Filters

If we would like to remove a customer from our filter list, we can click the **remove** button (③ in Figure 9.12) in the list of customers.

10 Other Useful Content

10.1 myKomatsu User Manual

A full user guide for the myKomatsu website is available here:

- Australia: https://my.komatsu.com.au/-/media/project/komatsu/file/marketing/mykomatsu-user-manual.pdf
- New Zealand: https://my.komatsu.co.nz/-/media/project/komatsu/file/marketing/mykomatsu-user-manual.pdf

10.2 Video Tutorials

Video tutorials have been put together for the CMS site, providing an explanation of how certain aspects of the site work. These can be accessed under the **Video Tutorials** menu (Figure 10.1), or by using the links below:

- Australian website: https://my.komatsu.com.au/video-tutorials/cms
- New Zealand website: https://my.komatsu.co.nz/video-tutorials/cms

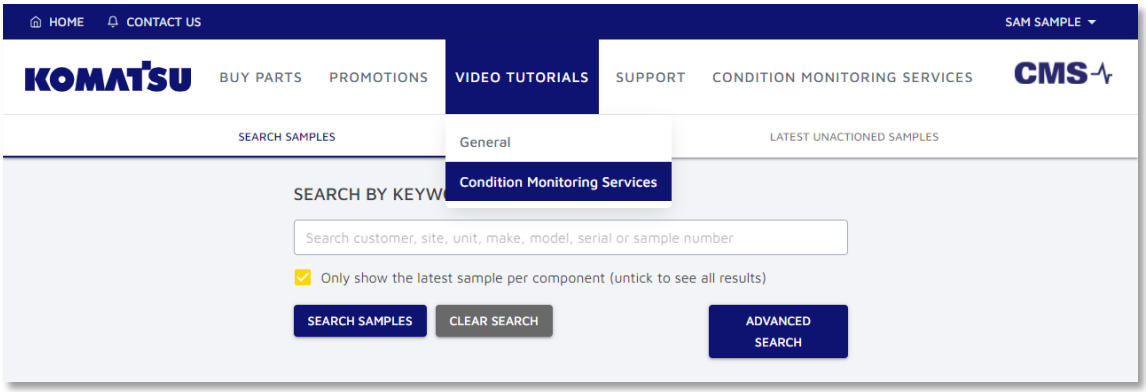


Figure 10.1 Video Tutorial Menu Link.

11 Report Examples

There are a variety of reports which are available from CMS, either via the website for download, or received via email once our samples have been processed. Examples of each report are provided here.

11.1 Sample Result Email Body

When sample results are emailed to us, the email body now provides a summary of the results, with an example provided in Figure 11.1.

SAMPLE REPORTS

CMS

Hi Steven Williams,

Please find attached your KOWA sample report. Sent 2020-10-29 07:41:12

Earthmoving Company

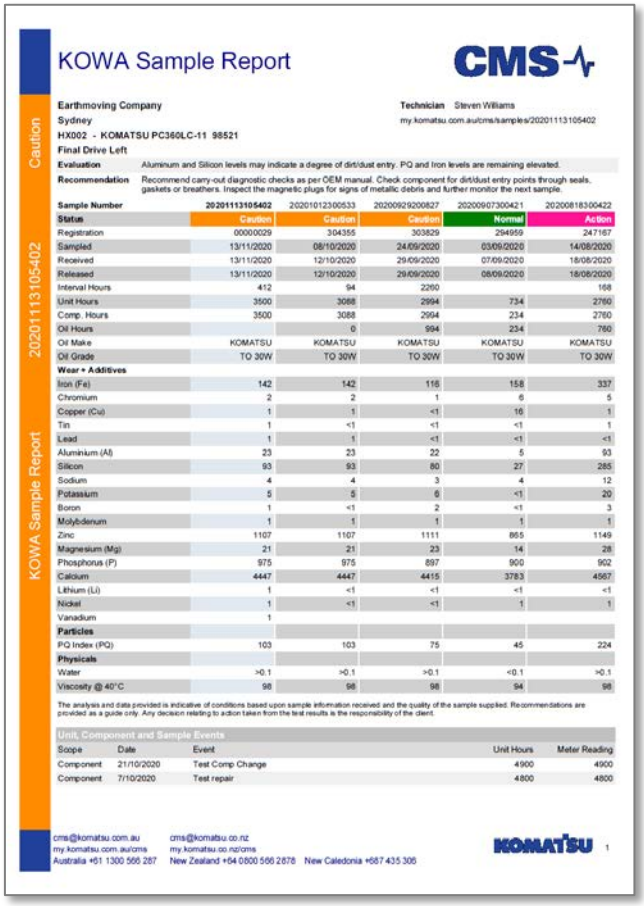
Status	Unit	Component	SampleNumber	Sampled	Unit Hours	Registration
Action	DT006	Diesel Engine	20200930200513	24/09/2020	4735	355212
Evaluation: Sodium, Potassium and Copper levels are remaining elevated and indicative of coolant contamination.						
Recommendation: Recommend carry-out diagnostic checks as per OEM manual on cooling system pressures, levels, overheating etc. Resample after inspection/repairs.						
Normal	DT006	Differential Centre	20200804300233	03/08/2020	4500	1227094
Evaluation: All tests on this sample appear acceptable, continue to sample at the normal rate.						
Normal	HX002	Diesel Engine	20200929200912	24/09/2020	2994	311968
Evaluation: Readings appear to be satisfactory, keep sampling at the normal rate						
Recommendation: KAL Job R1262237						
Caution	HX002	Final Drive Left	20200929200827	24/09/2020	2994	303829
Evaluation: Aluminium and Silicon levels may indicate a degree of dirt/dust entry. Dirt can increase wear rates.						
Recommendation: KAL Job R1262237 Recommend an investigation into possible dirt ingress. Check breathers, seals and plugs for possible dirt entry points. Check magnetic plugs. Some metallic fuzz is normal but chips & flakes are abnormal.						
Caution	HX002	Final Drive Right	20200929200828	24/09/2020	2994	303882
Evaluation: Aluminium and Silicon levels may indicate a degree of dirt/dust entry. Dirt can increase wear rates.						
Recommendation: KAL Job R1262237 Recommend an investigation into possible dirt ingress. Check breathers, seals and plugs for possible dirt entry points. Check magnetic plugs. Some metallic fuzz is normal but chips & flakes are abnormal.						
Normal	HX002	Hydraulic	20200929200801	24/09/2020	2994	311819
Evaluation: Viscosity appears high for stated oil type. Wear results appear to be acceptable, sample at the next sample interval.						
Recommendation: KAL Job R1262237 Please confirm oil type used in the component.						
Normal	HX002	Swing	20200929200829	24/09/2020	2994	355304
Evaluation: All tests on this sample appear acceptable, continue to sample at the normal rate.						
Recommendation: KAL Job R1262237						
Click on the sample numbers to go directly to the KOWA website						

KOMATSU

Condition Monitoring Services | Condition Monitoring Services New Zealand | Komatsu Australia | Komatsu New Zealand

Figure 11.1 Sample Result Email Body.

11.2 Sample Report



KOWA Sample Report

CMS

Caution

KOWA Sample Report 20201113105402

Earthmoving Company
Sydney
HX002 - KOMATSU PC360LC-11 98521
Final Drive Left

Technician Steven Williams
my.komatsu.com.au/cms/samples/20201113105402

Evaluation Aluminum and Silicon levels may indicate a degree of dirt/dust entry. PQ and Iron levels are remaining elevated.

Recommendation Recommend carry-out diagnostic checks as per OEM manual. Check component for dirt/dust entry points through seals, gaskets or breathers. Inspect the magnetic plugs for signs of metallic debris and further monitor the next sample.

Sample Number	20201113105402	20201012300533	20200929200827	20200907300421	20200818300422
Status	Caution	Caution	Caution	Normal	Action
Registration	00000029	304355	303829	294959	247167
Sampled	13/11/2020	08/10/2020	24/09/2020	03/09/2020	14/08/2020
Received	13/11/2020	12/10/2020	29/09/2020	07/09/2020	18/08/2020
Released	13/11/2020	12/10/2020	29/09/2020	08/09/2020	18/08/2020
Interval Hours	412	94	2260		168
Unit Hours	3500	3088	2994	734	2760
Comp. Hours	3500	3088	2994	234	2760
Oil Hours		0	994	234	760
Oil Make	KOMATSU	KOMATSU	KOMATSU	KOMATSU	KOMATSU
Oil Grade	TO 30W	TO 30W	TO 30W	TO 30W	TO 30W
Wear + Additives					
Iron (Fe)	142	142	116	158	337
Chromium	2	2	1	6	5
Copper (Cu)	1	1	<1	16	1
Tin	1	<1	<1	<1	1
Lead	1	1	<1	<1	<1
Aluminum (Al)	23	23	22	5	93
Silicon	93	93	80	27	285
Sodium	4	4	3	4	12
Potassium	5	5	6	<1	20
Boron	1	<1	2	<1	3
Molybdenum	1	1	1	1	1
Zinc	1107	1107	1111	865	1149
Magnesium (Mg)	21	21	23	14	28
Phosphorus (P)	975	975	897	900	902
Calcium	4447	4447	4415	3783	4567
Lithium (Li)	1	<1	<1	<1	<1
Nickel	1	<1	<1	1	1
Vanadium	1				
Particles					
PQ Index (PQ)	103	103	75	45	224
Physicals					
Water	>0.1	>0.1	>0.1	<0.1	>0.1
Viscosity @ 40°C	98	98	98	94	98

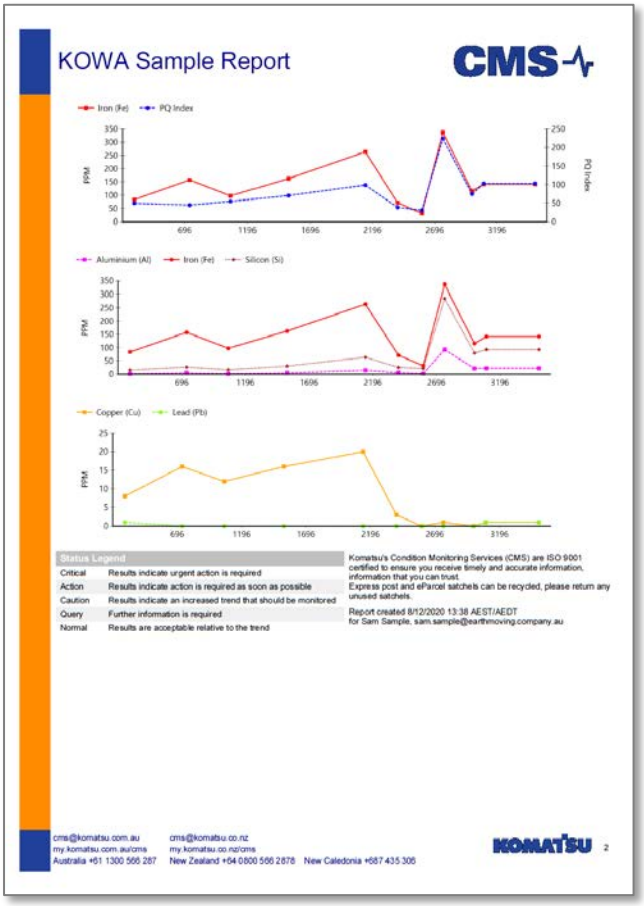
The analysis and data provided is indicative of conditions based upon sample information received and the quality of the sample supplied. Recommendations are provided as a guide only. Any decision relating to action taken from the test results is the responsibility of the client.

Unit, Component and Sample Events

Scope	Date	Event	Unit Hours	Meter Reading
Component	21/10/2020	Test Comp Change	4900	4900
Component	7/10/2020	Test repair	4800	4800

cms@komatsu.com.au my.komatsu.com.au/cms Australia +61 1300 566 287
cms@komatsu.co.nz my.komatsu.co.nz/cms New Zealand +64 0800 566 2878 New Caledonia +687 435 306

KOMATSU 1



KOWA Sample Report

CMS

Iron (Fe) PQ Index

Aluminium (Al) Iron (Fe) Silicon (Si)

Copper (Cu) Lead (Pb)

Status Legend	
Critical	Results indicate urgent action is required
Action	Results indicate action is required as soon as possible
Caution	Results indicate an increased trend that should be monitored
Query	Further information is required
Normal	Results are acceptable relative to the trend

Komatsu's Condition Monitoring Services (CMS) are ISO 9001 certified to ensure you receive timely and accurate information, information that you can trust.
Express post and eParcel satchels can be recycled, please return any unused satchels.

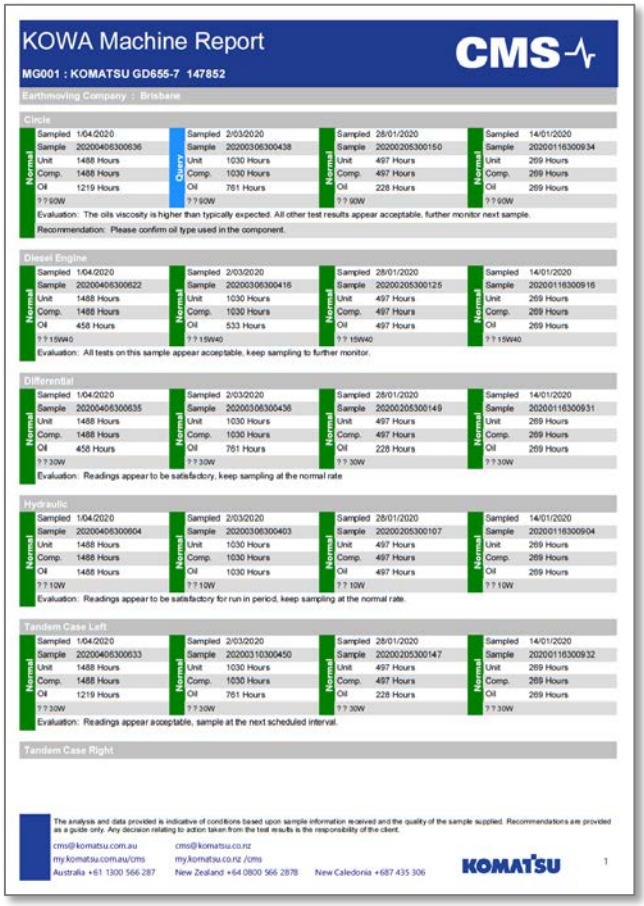
Report created 8/12/2020 13:38 AEST/AEDT
for Sam Sample, sam.sample@earthmoving.company.au

cms@komatsu.com.au my.komatsu.com.au/cms Australia +61 1300 566 287
cms@komatsu.co.nz my.komatsu.co.nz/cms New Zealand +64 0800 566 2878 New Caledonia +687 435 306

KOMATSU 2

Figure 11.2 Sample Report Example

11.3 Machine Report



KOWA Machine Report

CMS

MG001 : KOMATSU GD655-7 147852

Earthmoving Company : Brisbane

Circle

Normal	Query	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300636	Sample 20200306300438	Sample 20200205300150	Sample 20200116300934
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 1219 Hours	Oil 761 Hours	Oil 228 Hours	Oil 269 Hours
? ? 90W	? ? 60W	? ? 90W	? ? 90W

Evaluation: The oils viscosity is higher than typically expected. All other test results appear acceptable, further monitor next sample.

Recommendation: Please confirm oil type used in the component.

Diesel Engine

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300622	Sample 20200306300416	Sample 20200205300125	Sample 20200116300916
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 458 Hours	Oil 533 Hours	Oil 497 Hours	Oil 269 Hours
? ? 15W40	? ? 15W40	? ? 15W40	? ? 15W40

Evaluation: All tests on this sample appear acceptable, keep sampling to further monitor.

Differential

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300635	Sample 20200306300436	Sample 20200205300149	Sample 20200116300931
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 458 Hours	Oil 761 Hours	Oil 228 Hours	Oil 269 Hours
? ? 30W	? ? 30W	? ? 30W	? ? 30W

Evaluation: Readings appear to be satisfactory, keep sampling at the normal rate

Hydraulic

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300604	Sample 20200306300403	Sample 20200205300107	Sample 20200116300904
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 1488 Hours	Oil 1030 Hours	Oil 497 Hours	Oil 269 Hours
? ? 10W	? ? 10W	? ? 10W	? ? 10W

Evaluation: Readings appear to be satisfactory for run in period, keep sampling at the normal rate.

Tandem Case Left

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300633	Sample 20200310300450	Sample 20200205300147	Sample 20200116300932
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 1219 Hours	Oil 761 Hours	Oil 228 Hours	Oil 269 Hours
? ? 30W	? ? 30W	? ? 30W	? ? 30W

Evaluation: Readings appear acceptable, sample at the next scheduled interval.

Tandem Case Right

The analysis and data provided is indicative of conditions based upon sample information received and the quality of the sample supplied. Recommendations are provided as a guide only. Any decision relating to action taken from the test results is the responsibility of the client.

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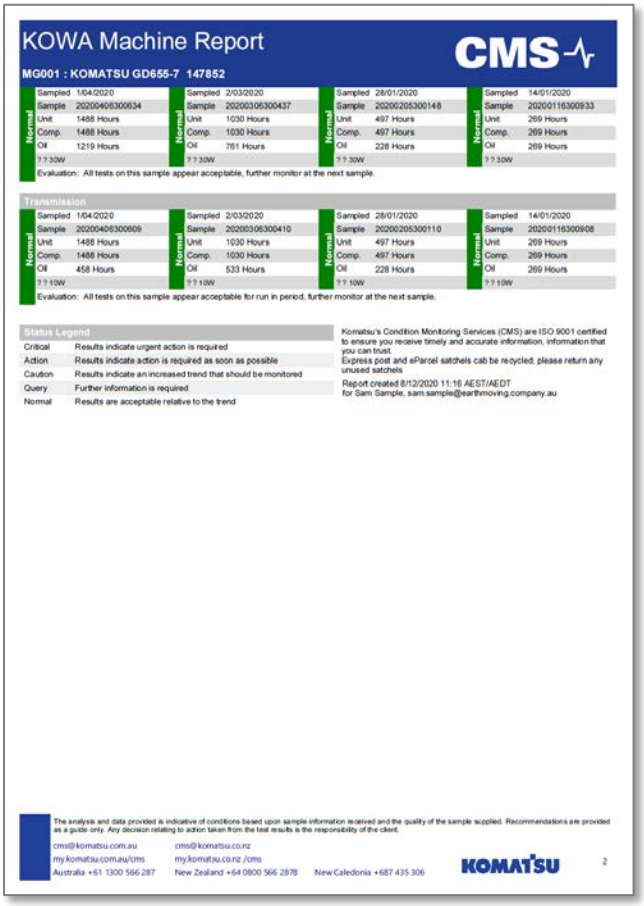
KOMATSU 1



KOWA Machine Report

CMS

MG001 : KOMATSU GD655-7 147852

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300634	Sample 20200306300437	Sample 20200205300148	Sample 20200116300933
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 1219 Hours	Oil 761 Hours	Oil 228 Hours	Oil 269 Hours
? ? 30W	? ? 30W	? ? 30W	? ? 30W

Evaluation: All tests on this sample appear acceptable, further monitor at the next sample.

Transmission

Normal	Normal	Normal	Normal
Sampled 1/04/2020	Sampled 2/03/2020	Sampled 28/01/2020	Sampled 14/01/2020
Sample 20200406300609	Sample 20200306300410	Sample 20200205300110	Sample 20200116300908
Unit 1488 Hours	Unit 1030 Hours	Unit 497 Hours	Unit 269 Hours
Comp. 1488 Hours	Comp. 1030 Hours	Comp. 497 Hours	Comp. 269 Hours
Oil 458 Hours	Oil 533 Hours	Oil 228 Hours	Oil 269 Hours
? ? 10W	? ? 10W	? ? 10W	? ? 10W

Evaluation: All tests on this sample appear acceptable for run in period, further monitor at the next sample.

Status Legend

Critical	Results indicate urgent action is required
Action	Results indicate action is required as soon as possible
Caution	Results indicate an increased trend that should be monitored
Query	Further information is required
Normal	Results are acceptable relative to the trend

Komatsu's Condition Monitoring Services (CMS) are ISO 9001 certified to ensure you receive timely and accurate information, information that you can trust.
Express post and eParcel satchels cab be re-cycled, please return any unused satchels

Report created 8/12/2020 11:16 AEST/AEDT
for Sam Sample, sam.sample@earthmoving.company.au

The analysis and data provided is indicative of conditions based upon sample information received and the quality of the sample supplied. Recommendations are provided as a guide only. Any decision relating to action taken from the test results is the responsibility of the client.

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KOMATSU 2

Figure 11.3 Machine Report Example

11.4 SMS Text Message Results

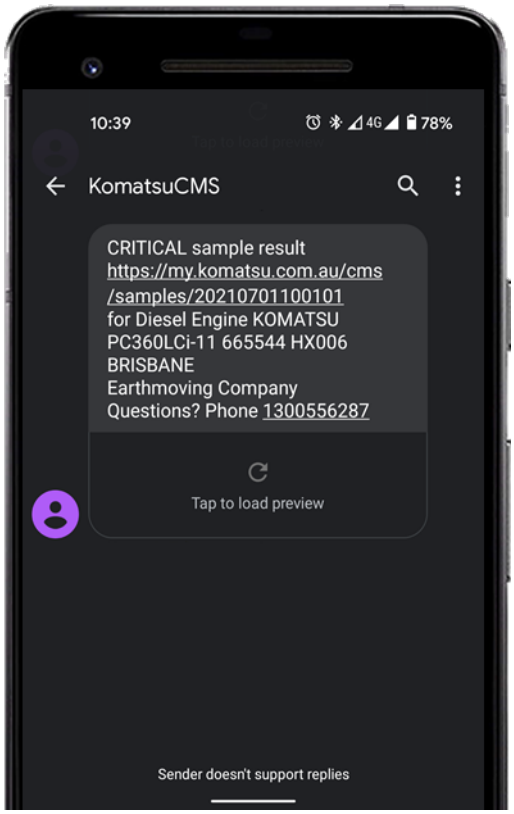
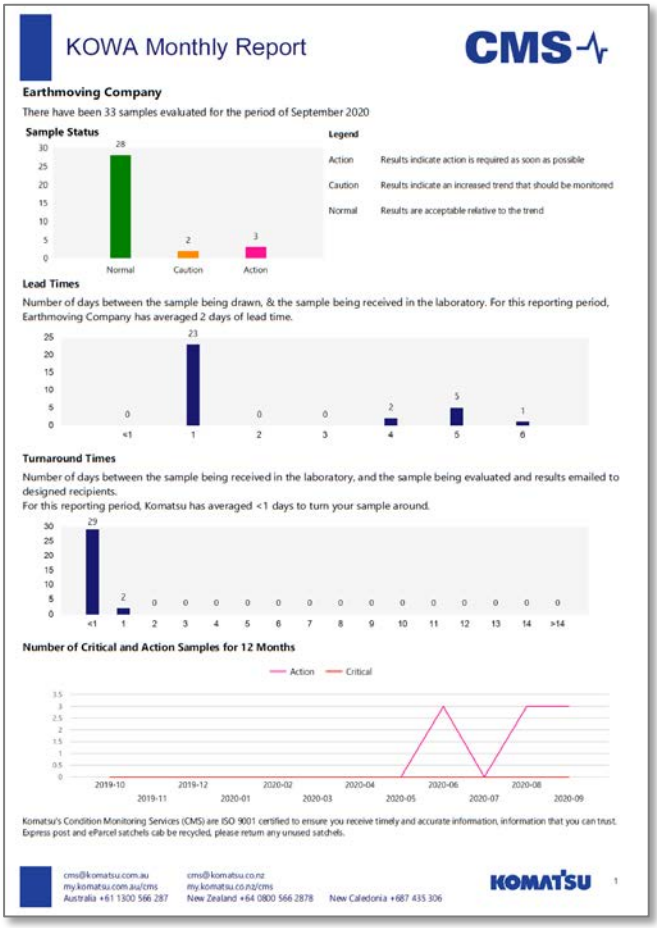


Figure 11.4Sample Results - SMS Text Message Alert

11.5 Periodic Summary Report



KOWA Monthly Report

CMS

Earthmoving Company

There have been 33 samples evaluated for the period of September 2020

Sample Status

Legend

Action	Results indicate action is required as soon as possible
Caution	Results indicate an increased trend that should be monitored
Normal	Results are acceptable relative to the trend

Lead Times

Number of days between the sample being drawn, & the sample being received in the laboratory. For this reporting period, Earthmoving Company has averaged 2 days of lead time.

Turnaround Times

Number of days between the sample being received in the laboratory, and the sample being evaluated and results emailed to designed recipients.

For this reporting period, Komatsu has averaged <1 days to turn your sample around.

Number of Critical and Action Samples for 12 Months

Komatsu's Condition Monitoring Services (CMS) are ISO 9001 certified to ensure you receive timely and accurate information, information that you can trust. Express post and eParcel satchels can be recycled, please return any unused satchels.

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KOMATSU 1

KOWA Monthly Report

CMS

Unit	Component	Sample Number	Sampled	Received	Evaluated	Alert Status
WL014 : KOMATSU WA500-7 123654						
	Diesel Engine	20200909100813	8/09/2020	9/09/2020	9/09/2020	Normal
	Differential Front	20200909100824	8/09/2020	9/09/2020	9/09/2020	Normal
	Differential Rear	20200909100827	8/09/2020	9/09/2020	9/09/2020	Normal
	Final Drive LHF	20200909100822	8/09/2020	9/09/2020	9/09/2020	Normal
	Final Drive LHR	20200909100825	8/09/2020	9/09/2020	9/09/2020	Normal
	Final Drive RHF	20200909100823	8/09/2020	9/09/2020	9/09/2020	Normal
	Final Drive RHR	20200909100826	8/09/2020	9/09/2020	9/09/2020	Normal
	Hydraulic	20200909100801	9/09/2020	9/09/2020	9/09/2020	Normal
	Transmission	20200909100811	8/09/2020	9/09/2020	9/09/2020	Normal
DT006 : KOMATSU HM400-3M0 5678						
	Diesel Engine	20200930200513	24/09/2020	30/09/2020	30/09/2020	Action
		20200918300718	17/09/2020	18/09/2020	18/09/2020	Action
		20200901300815	26/08/2020	1/09/2020	1/09/2020	Action
DT007 : KOMATSU HM400-5 14589						
	Diesel Engine	20200922300214	21/09/2020	22/09/2020	22/09/2020	Normal
	Differential Centre	20200922300226	21/09/2020	22/09/2020	22/09/2020	Normal
	Differential Front	20200922300223	21/09/2020	22/09/2020	22/09/2020	Normal
	Differential Rear	20200922300229	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive LHC	20200922300224	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive LHF	20200922300221	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive LHR	20200922300227	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive RHC	20200922300225	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive RHF	20200922300222	21/09/2020	22/09/2020	22/09/2020	Normal
	Final Drive RHR	20200922300228	21/09/2020	22/09/2020	22/09/2020	Normal
	Hydraulic	20200922300201	21/09/2020	22/09/2020	22/09/2020	Normal
	Transmission	20200922300208	21/09/2020	22/09/2020	22/09/2020	Normal
DZ004 : KOMATSU D155AXI-8 123456						
	Diesel Engine	20200901300814	31/08/2020	1/09/2020	1/09/2020	Normal
	Hydraulic	20200904300809	3/09/2020	4/09/2020	4/09/2020	Normal
HX002 : KOMATSU PC360LC-11 98521						
	Diesel Engine	20200929200912	24/09/2020	29/09/2020	29/09/2020	Normal
	Final Drive Left	20200929200827	24/09/2020	29/09/2020	29/09/2020	Caution
		20200907300421	3/09/2020	7/09/2020	8/09/2020	Normal
	Final Drive Right	20200929200828	24/09/2020	29/09/2020	29/09/2020	Caution
		20200907300422	3/09/2020	7/09/2020	8/09/2020	Normal
	Hydraulic	20200929200801	24/09/2020	29/09/2020	29/09/2020	Normal
	Swing	20200929200829	24/09/2020	29/09/2020	29/09/2020	Normal

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KOMATSU 2

Figure 11.5 Periodic Summary Report

11.6 Periodic Detail Report

CMS Periodic Report

KOMATSU
Driven by your success

Report Period : September 2020

Report Run : 8 Dec 2020, 11:27 AEST/AEDT

Customer	State	Site	Make	Model	Serial	Unit (Asset)	Unit Hours	Component Hours	Fluid Hours	Component	Sampled	Evaluated	Alert Status	Prev Sampled	Prev Sample Status	2nd Prev Sampled	2nd Prev Sample Status
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-3M0	5678	DT006	4735	0	235	Diesel Engine	24/09/2020	30/09/2020	Action	17/09/2020	Action	26/08/2020	Action
Earthmoving Company	NSW	Sydney	KOMATSU	PC360LC-11	98521	HX002	2994	2994	994	Final Drive Left	24/09/2020	29/09/2020	Caution	3/09/2020	Normal	14/08/2020	Action
Earthmoving Company	NSW	Sydney	KOMATSU	PC360LC-11	98521	HX002	2994	2994	994	Final Drive Right	24/09/2020	29/09/2020	Caution	3/09/2020	Normal	14/08/2020	Action
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	482	Diesel Engine	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Differential Centre	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Differential Front	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Differential Rear	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive LHC	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive LHF	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive LHR	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive RHC	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive RHF	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Final Drive RHR	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	482	Hydraulic	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	HM400-5	14589	DT007	482	482	232	Transmission	21/09/2020	22/09/2020	Normal	27/07/2020	Normal		
Earthmoving Company	NSW	Sydney	KOMATSU	D155AXI-8	123456	DZ004	3710	0	1	Hydraulic	3/09/2020	4/09/2020	Normal	13/08/2020	Caution	14/11/2019	Caution
Earthmoving Company	NSW	Sydney	KOMATSU	PC360LC-11	98521	HX002	2994	2994	494	Diesel Engine	24/09/2020	29/09/2020	Normal	14/08/2020	Normal	16/07/2020	Normal
Earthmoving Company	NSW	Sydney	KOMATSU	PC360LC-11	98521	HX002	2994	2994	2994	Hydraulic	24/09/2020	29/09/2020	Normal	16/07/2020	Normal	11/06/2020	Query
Earthmoving Company	NSW	Sydney	KOMATSU	PC360LC-11	98521	HX002	2994	2994	994	Swing	24/09/2020	29/09/2020	Normal	16/07/2020	Normal	11/06/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	543	Diesel Engine	8/09/2020	9/09/2020	Normal	23/07/2020	Normal	1/06/2020	Caution
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	1568	Differential Front	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	3635	Differential Rear	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	3635	Final Drive LHF	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	3635	Final Drive LHR	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	3635	Final Drive RHF	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	1568	Final Drive RHR	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	1568	Hydraulic	9/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal
Earthmoving Company	QLD	Brisbane	KOMATSU	WA500-7	123654	WL014	3635	3635	543	Transmission	8/09/2020	9/09/2020	Normal	1/06/2020	Normal	21/03/2020	Normal

Figure 11.6 Periodic Detail Report Example (1/2)

Figure 11.7 Periodic Detail Report Example (2/2)

11.7 History Report

Earthmoving Company Sample History

Report Run : 8 Dec 2020, 11:19 AEST/AEDT

Parent	Customer	Site	Unit	Make	Model	Serial	Component	SampleNumber	Sampled	Received	Released	Laboratory	Alert Status	Fluid	Unit Hours	Comp Hours	Fluid Hours	Kidney Loop	Evaluation	Recommendation
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200406300636	1/04/2020	6/04/2020	6/04/2020	CMS Newcastle	Normal	? ? 90W	1488	1488	1219		The oils viscosity is higher than typically expected. All other test results appear acceptable, further monitor next sample.	Please confirm oil type used in the component.
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200306300438	2/03/2020	6/03/2020	6/03/2020	CMS Newcastle	Query	? ? 90W	1030	1030	761		The oils viscosity is higher than typically expected. All other test results appear acceptable, further monitor next sample.	Ensure the correct oil grade is used as per OEM manual.
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200205300150	28/01/2020	5/02/2020	5/02/2020	CMS Newcastle	Normal	? ? 90W	497	497	228		Readings appear to be satisfactory, keep sampling at the normal rate	
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200116300934	14/01/2020	16/01/2020	17/01/2020	CMS Newcastle	Normal	? ? 90W	269	269	269		All tests on this sample appear acceptable, further monitor at the next sample.	
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200406300622	1/04/2020	6/04/2020	6/04/2020	CMS Newcastle	Normal	? ? 15W40	1488	1488	458		All tests on this sample appear acceptable, keep sampling to further monitor.	
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200306300416	2/03/2020	6/03/2020	6/03/2020	CMS Newcastle	Normal	? ? 15W40	1030	1030	533		The Copper level has increased although this may be related to a recent change in the oil types. All other test results appear acceptable, further monitor next sample.	
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200205300125	28/01/2020	5/02/2020	5/02/2020	CMS Newcastle	Normal	? ? 15W40	497	497	497		All results appear acceptable, continue sampling at the normal rate.	

Figure 11.8 History Report (1/2)

Fe	Cr	Cu	Sn	Pb	Al	Si	Na	K	B	Mo	Zn	Mg	P	Ca	Li	Ni	V	PQ	ISO3	04µm	06µm	14µm	21µm	Nit	Oxi	Sul	Soot	Colour	Clarit	VisSol	H2O	Fuel	kV@100	kV@40	pH	Cond	NO2
20	<1	151	3	<1	14	5	1	2	158	7	267	4	1071	791	<1	5		24													<0.1			295			
14	<1	99	1	<1	9	5	1	2	125	5	283	4	1026	858	<1	4		24													>0.1			295			
7	<1	46	<1	<1	5	1	1	1	212	3	12	<1	1030	34	<1	2		18													<0.1			310			
8	<1	77	1	<1	7	2	1	2	2	6	16	<1	1229	15	2	3		19													>0.1			136			
22	1	36	4	<1	1	6	5	3	31	42	1106	913	944	1012		<1		15						8	15	19	19				<0.1	0	14.3				
23	1	236	1	<1	1	5	2	4	3	4	979	82	801	2145		<1		15						8	13	20	21				>0.1	0	13.4				
27	1	13	<1	<1	1	10	5	1	40	43	1128	985	896	976		1		13						8	16	19	16				<0.1	0	14.4				

Figure 11.9 History Report (2/2)

11.8 Excel Report

Earthmoving Company Sample History

Report Run : 8 Dec 2020, 11:19 AEST/AEDT

Parent	Customer	Site	Unit	Make	Model	Serial	Component	SampleNumber	Sampled	Received	Released	Laboratory
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200406300636	1/04/2020	6/04/2020	6/04/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200306300438	2/03/2020	6/03/2020	6/03/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200205300150	28/01/2020	5/02/2020	5/02/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Circle	20200116300934	14/01/2020	16/01/2020	17/01/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200406300622	1/04/2020	6/04/2020	6/04/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200306300416	2/03/2020	6/03/2020	6/03/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200205300125	28/01/2020	5/02/2020	5/02/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Diesel Engine	20200116300916	14/01/2020	16/01/2020	17/01/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Differential	20200406300635	1/04/2020	6/04/2020	6/04/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Differential	20200306300436	2/03/2020	6/03/2020	6/03/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Differential	20200205300149	28/01/2020	5/02/2020	5/02/2020	CMS Newcastle
	Earthmoving Company	Brisbane	MG001	KOMATSU	GD655-7	147852	Differential	20200116300931	14/01/2020	16/01/2020	17/01/2020	CMS Newcastle

Figure 11.10 Excel Sample Report (1/2)

Alert Status	Fluid	Unit Hours	Comp Hours	Fluid Hours	Kidney Loop	Evaluation	Recommendation	Fe	Cr	Cu	Sn	Pb	Al	Si	Na	K
Normal	? ? 90W	1488	1488	1219		The oils viscosity is higher than typically expected. All other test results appear acceptable, further monitor next sample.	Please confirm oil type used in the component.	20	<1	151	3	<1	14	5	1	2
Query	? ? 90W	1030	1030	761		The oils viscosity is higher than typically expected. All other test results appear acceptable, further monitor next sample.	Ensure the correct oil grade is used as per OEM manual.	14	<1	99	1	<1	9	5	1	2
Normal	? ? 90W	497	497	228		Readings appear to be satisfactory, keep sampling at the normal rate		7	<1	46	<1	<1	5	1	1	1
Normal	? ? 90W	269	269	269		All tests on this sample appear acceptable, further monitor at the next sample.		8	<1	77	1	<1	7	2	1	2
Normal	? ? 15W40	1488	1488	458		All tests on this sample appear acceptable, keep sampling to further monitor.		22	1	36	4	<1	1	6	5	3
Normal	? ? 15W40	1030	1030	533		The Copper level has increased although this may be related to a recent change in the oil types. All other test results appear acceptable, further monitor next sample.		23	1	236	1	<1	1	5	2	4
Normal	? ? 15W40	497	497	497		All results appear acceptable, continue sampling at the normal rate.		27	1	13	<1	<1	1	10	5	1
Normal	? ? 15W40	269	269	269		All tests on this sample appear acceptable, continue to sample at the normal rate.		19	1	8	<1	<1	<1	11	2	1
Normal	? ? 30W	1488	1488	458		Readings appear to be satisfactory, keep sampling at the normal rate		69	1	3	2	<1	<1	14	1	1
Normal	? ? 30W	1030	1030	761		All tests on this sample appear acceptable, continue to sample at the normal rate.		192	4	10	1	<1	<1	21	3	1
Normal	? ? 30W	497	497	228		All tests on this sample appear acceptable, continue to sample at the normal rate.		103	2	5	<1	1	1	16	3	1
Normal	? ? 30W	269	269	269		Results appear to be acceptable, sample at the next sample interval.		161	4	11	<1	1	1	25	1	1

Figure 11.11 Excel Sample Report (2/2)

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