

Measurement in muddyboots.online

muddyboots.online (MBO) has the functionality to receive automated analysis imports from a variety of laboratory companies through an SFTP server along with creating outbound files for SCADA and other systems. This document will cover how to configure the Measurement module for analysis management, setup of automated approval rules, import configuration, viewing and review of analysis records, error management, and how to link approved analysis reports to the correct equipment within muddyboots.online for further distribution.

Measurement (Analysis) Process Summary:

1. Configure Equipment
 - a. Samplepoints, Meters, wellheads
 - b. Equipment Cross References (Lab, Scada, Other)
2. Load historical analyses
 - a. Completed via communication with your Muddyboots representative
3. Configure imports with the lab providers
 - a. Files are directly delivered to the MBO system at a defined frequency
4. Setup Activity Rules for managing activity review
5. Manage Analyses as they land in system
 - a. Match, Link, and Review
6. Export outbound system files
 - a. SCADA, DCS, Distributions

Configuring Equipment Required for Analysis

The first step in setting up the Measurement module for managing Analysis in muddyboots is to ensure the correct equipment has been loaded and is available for importing the references to a standard identifier from the laboratory analysis files.

The equipment types for analysis are the various 'SAMPLEPOINT's within the MBO system. The sample point type must be configured to match the primary analysis type, so for an 'oil' analysis the 'OIL SAMPLEPOINT' equipment must be utilized.

The analysis is then linked to the applicable equipment that the analysis sample was taken. i.e., wellheads or meters, separators, or any other applicable equipment.

Ensuring the correct available equipment can be handled in two ways:

7. If utilizing the schematics module, 'SAMPLEPOINT's can be included on the flow diagrams during initial setup, with Pad / Wellhead / Sampling location noted on the equipment for rapid matching and importing of the cross references. The **Schematic Quick Start** procedure is a helpful resource for configuring this equipment.
8. If schematics are not being utilized, or the analysis imports are not to be associated with the flow diagrams, a sampling location list should be provided to a muddyboots representative to import into the application. A muddyboots representative can also provide training and the **Equipment Upload Quick Start** Procedure for managing equipment imports.

Once the equipment has been identified and loaded into MBO, cross references can be configured and loaded.

Configuring Cross References

(a) Bulk Importing Cross References

Navigate to the cross references page to begin importing the analysis cross reference identification from a laboratory service provider and to create export file references for outbound systems (SCADA, other). If the desired third-party system or laboratory services provider is not available, please contact a MBO representative to discuss options for the creation of import/export file translations.

Note: Bulk importing of cross references is typically done during initial setup or during the addition on new fields. If setting up a new well or pad site, bulk importing may not be required and can be completed in app, see the next section to create cross references in app.

Note: A *Company Administrative* role is required to perform the following tasks. If the Company Admin tab is not present, contact the company administrator to be given the “Company Admin” role or to determine who is responsible for this task within your organization.

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance

ALL AREAS / MUDDY BOOTS INC. / ALL AREAS EQUIPMENT

All Areas Equipment

SUMMARY EXCEL EXPORT DETAILS

Search

Field	Site Name	Name	Short Note	Current Status
Calgary	04-22 Princes Island Gas Battery	100/04-23-024-01W5/02		In Service WELLHEAD - GAS
Calgary	04-22 Princes Island Gas Battery	04-22 SEPARATOR		In S
Calgary	04-22 Princes Island Gas Battery	G02M		In S
Calgary	04-22 Princes Island Gas Battery	C01M		In S
Calgary	04-22 Princes Island Gas Battery	200 BBL CONDY	TANK	In S
Calgary	04-22 Princes Island Gas Battery	24232-7 PIG LAUNCHER		In S
Calgary	04-22 Princes Island Gas Battery	TRUCK OUT		In S
Calgary	01-08-023-03W5	100/07-06-024-01W5/00		In S
Calgary	07-06-023-03W5	102/07-06-024-01W5/01		In S
Calgary	07-06 MRU Gas Plant	FROM 04-22 PRINCE'S ISLAND	AB BT 0034234	In S
Calgary	04-22 Princes Island Gas Battery	TO MRU 07-06	AB BT 0034234	In S

Affiliations
Company Info
Equipment Cross Refs
Hierarchy
Tags
Shift Log
Users

Mitchell Bolt

- Mark as Homepage
- My Profile
- My Downloads
- Maintenance Admin
- Workflows
- Company Admin
- Operations Admin
- MBO
- Logout

GASPUMP
GASPUMP

- ① To access the table for bulk configuration of the equipment cross references, click the Equipment Cross Refs category under the Company Admin header found within the personal dropdown

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance

ALL AREAS / MUDDY BOOTS INC. / EQUIPMENT CROSS REFS

Equipment Cross Refs - Only Equipment with activities

Equipment Type: SAMPLEPOINT

ALL EQUIPMENT IMPORT CROSS REFS EXCEL EXPORT CROSS REFS

Equipment With Cross Refs
Equipment Needing Cross Refs

Search

FILTERS

MBO Equipment	MBO Equipment Type	MBO Surface Location	3rd Party System	3rd Party Equipment ID	Cross Refs
C01S	CONDENSATE SAMPLEPOINT	Pad 10-27-068-08W6			
C01S	CONDENSATE SAMPLEPOINT	Pad 03-23-065-06W6			

- 1 2 Using the Filter dropdown, select the appropriate equipment type(s) and apply the filters to limit the equipment list. In this example 'SAMPLEPOINT' has been selected to encompass all SAMPLEPOINT types
- 3 Click the Excel Export Cross Refs dropdown and select Equipment Needing Cross Refs. This will download the correctly formatted excel template for uploading the cross reference identifiers

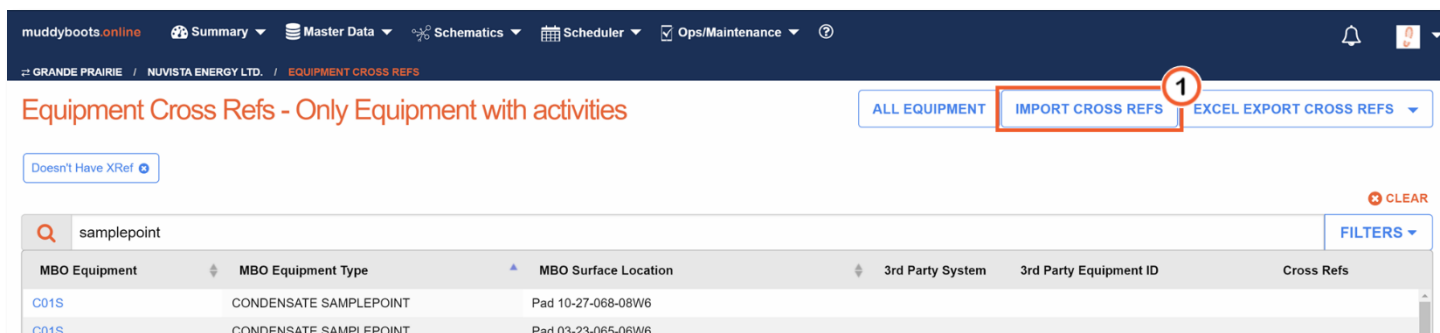
CONDENSATE SAMPLEPOINT

MBO ID	MBO Equipment	MBO Equipment Type	MBO Surface Location	3rd Party System	3rd Party Equipment ID	3rd Party Equipment Name	3rd Party Equipment Location
383038	C01S	CONDENSATE SAMPLEPOINT	04-17-074-08W6				
383079	C01S	CONDENSATE SAMPLEPOINT	14-07-071-09W6				
383133	C01S	CONDENSATE SAMPLEPOINT	15-06-071-09W6				

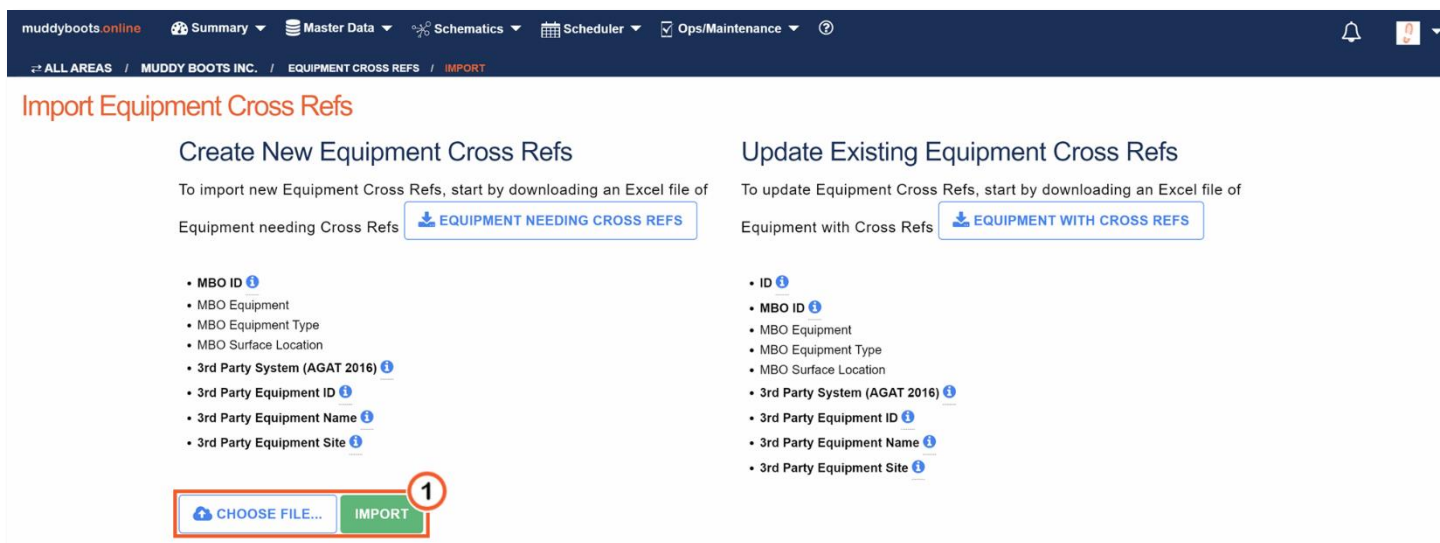
The excel export has 4 required fields to be populated prior to import:

- 1 3rd Party System: Laboratory Services Provider or other system being utilized
- 2 3rd Party XRef ID: Unique Identifier used on the analysis files to complete the link or the unique identifier used by the other system
Note: Ensure the identifier matches the identifier provided to the laboratory, any errors will result in mis-matched cross references increasing the manual linking process
- 3 3rd Party Equipment Name: Name / Number given to the laboratory or other system to identify the equipment. If the 3rd party identifier is not present, use the equipment name/identifier/tag. The UWI is typically part of the name on single wells, but this depended on the naming convention utilized
- 4 3rd Party Equipment Location: User defined, typically Surface Location (LSD), Plant Name, Process Area

Once the export file has been populated, it is ready to be imported into MBO.



- 1 Click the **IMPORT CROSS REFS** button to open the importing page



- 1 Click the **CHOOSE FILE...** button and select the previously prepared file from the local system's directory. This will add the name of the selected file to the **IMPORT** button
- Now click the converted Import button to import cross references (Ex. **IMPORT MBO - EQUIP NEEDING XREFS.XLSX**)

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance

ALL AREAS / MUDDY BOOTS INC. / EQUIPMENT CROSS REFS / IMPORT

Create Equipment Cross Refs

1 sheet to import, totalling 2 records.

#1 MBO Cross Refs

2 records to import, including 2 errors.

Next step:

☐ Cancel this import

You can upload the spreadsheet again after you've edited it.

Row	Message
2	Error: X ref name can't be blank Error: X ref site can't be blank
3	Error: Third party system must exist Error: Third party system can't be blank Error: X ref can't be blank

CONTINUE

- 1 Muddy Boots has processed this file but has not yet imported the resources to the system. The total number of records, along with an error count if applicable, will be displayed.
- 2 This is the final opportunity for canceling the import. This option will always be available, with or without errors. If the cross reference excel document requires additional changes, the import may be cancelled.
- 3 If the cross reference file(s) are acceptable, and no errors are listed, click **CONTINUE** to load the cross references into MBO.
- 4 **Note:** If any file errors exist, they will be listed in this section, with the row # along with each independent error description.

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ALL AREAS / MUDDY BOOTS INC. / EQUIPMENT CROSS REFS

Equipment Type: SAMPLEPOINT

ALL EQUIPMENT IMPORT CROSS REFS EXCEL EXPORT CROSS REFS

SEARCH

MBO Equipment	MBO Equipment Type	MBO Surface Location	3rd Party System	3rd Party Equipment ID	Cross Refs
C01S	CONDENSATE SAMPLEPOINT	Pad 02-24-068-07W6	AGAT 2016	190485	4
C01S	CONDENSATE SAMPLEPOINT	Pad 04-03-069-08W6	AGAT 2016	191294	4

- 1 Cross References have now been successfully loaded and can be seen populated on the cross references page or viewed on individual 'SAMPLEPOINT' equipment types

Note: Multiple Cross References can be imported on the same equipment (i.e., Test Separator sample points). This is accomplished by repeating the above process of adding cross references to the same set of equipment, for more information contact your muddyboots representative.

(b) Individual Cross Reference Creation and Editing

To minimize setup time, in-app changes are suggested for small datasets, individual cross reference additions or minor updates.

Two navigation pathways can be taken to add, update, or delete cross references:

1. Navigate to page of the desired equipment

The screenshot displays the 'G01S GAS SAMPLEPOINT' interface. At the top, there are navigation tabs: '1 SCHEMATIC', 'UPSTREAM', and 'RECORD ACTIVITY'. The main content area is divided into several sections:

- Scheduled Requests:** A section with a '+' icon and the text 'No scheduled requests'.
- Equipment Details:** A section with a '+' icon and the text 'Shown on schematics'. It contains a table with the following data:

Field	Value
Facility:	
Accounting	No
Cost Center	None given
Parent ID	100/16-27-068-08W6/00
SP Location	None given
Tag	None given
Pool Name:	None given
- Recent Activity (Show All):** A section with a checkmark icon. It contains two sub-sections:
 - Gas Analysis:** A table with the following data:

Date/Time	Details
2018-12-13 23:59	Analysis Lab: MAJOR LABORATORY SERVICES PROVIDER Meter / Well / SP UWI: 100/16-27-068-08W6/00 Pool / Zone Name: MONTNEY C
 - Gas Sample:** A table with the following data:

Date/Time	Details
2018-12-13 02:30	Work Is Complete: - Notes: Automatically created by Automated DataLoad from Gas Analysis (id: 768392) FIELD H2S BY TUT = 581...
- Not in Service Periods:** A section with a '+' icon.
- Cross Refs to Third Party Systems:** A section with a '+' icon and a red circle '1' next to it. It contains a table with the following data:

Reference
190517 (AGAT 2016)

- **1** Select to add a new reference or select the current **3rd Party Reference** to edit or delete.
Note: The current **3rd Party Reference** is a hyperlink
- Both selections will direct to the screen shown below.

2. Select the Equipment Name from the Equipment Cross Refs page. This will open the pane for creating new cross references. The same selections are required as those from the excel equipment cross reference export:

muddyboots.online Summary Master Data Schematics Scheduler Measure Operations

ALL AREAS / MUDDY BOOTS INC. / EQUIPMENT CROSS REFS / EDITING EQUIPMENT CROSS REFS BT0123036 HILL 03-19

Editing Equipment Cross Ref for PAS PA

MBO Equipment

Name 03-19 Bt Vent Gas
Equipment Type METER - ORIFICE, EFM
Site 03-19-084-12W6 - 03-19-084-12W6
Short Note: 21582G

Other Cross References for 03-19 Bt Vent Gas
21582G (Generic 2023)

Cross Reference for PAS PA

* Third Party System 1	* XRef ID 2	* Name 3	* Location 4
PAS PA	21582G	BT0123036 HILL 03-1	BT 0123036 VENT

5

XRef ID: UWI (F)

Name: UWI w/ no for (PAS PA Export File)

Location: GAS-PRO (PAS PA Export File)

UPDATE EQUIPMENT CROSS REF

- **1** 3rd Party System: Laboratory Services Provider or other system being utilized
- **2** XRef ID: Unique Identifier used on the analysis files to complete the link or the unique identifier used by the other system
Note: Ensure the identifier matches the identifier provided to the laboratory, any errors will result in mis-matched cross references increasing the manual linking process
- **3** Name: Name / Number given to the laboratory or other system to identify the equipment. If the 3rd party identifier is not present, use the equipment name/identifier/tag. The UWI is typically part of the name on single wells, but this depended on the naming convention utilized
- **4** Location: User defined, typically Surface Location (LSD), Plant Name, Process Area
- **5** System Description: Depending on the *Third Party System* chosen, a description may be available with instruction on the information to provide in three system categories if it differs from the standards noted above.

Load Historical Analyses

Reach out to your MBO representative to define your historical import needs. Muddyboots will provide an import template and review the data requirements prior to backloading the legacy data.

Configure Imports with Laboratory Service Providers

Reach out to your MBO representative to determine the configuration process with your Laboratory Service provider(s) of choice. As Muddyboots has the labs deliver data directly to our system, configuration points will be conducted between Muddyboots and the Service providers directly, with input required on the types, frequency, and richness of data required.

Configuring Activity Rules

Activity rules can be setup to manage the approval process as activities are recorded or imported through an automated data load by a third party. These rules can be used as a visual reference or to allow for auto-acceptance of the activity where the rule is applied.

The screenshot shows the 'Activity Rules' page in the muddyboots.online application. The page has a dark blue header with navigation links: Summary, Master Data, Schematics, Scheduler, and Ops/Maintenance. Below the header, there's a breadcrumb trail: ALL AREAS / MUDDY BOOTS INC. / ACTIVITY RULES. The main content area is titled 'Activity Rules' and contains a search bar. Below the search bar is a table with the following data:

Name	Activity Type	Number of Rules	Applies to
Gas Accept	Gas Analysis	24	All Fields
Hydrocarbon Liquid Accept	Hydrocarbon Liquid Analysis	16	All Fields
Meter - Liquid Meter Proving Acceptance Rules	Liquid Meter Proving Report	9	All Fields
Meter - Orifice Chart Acceptance Rules	Orifice Meter Calibration Report	17	All Fields
Meter - Orifice EFM Acceptance Rules	EFM Orifice Meter Calibration	24	All Fields
Meter - Static and Temperature EFM Acceptance Rules	EFM Static and Temperature Calibration	11	All Fields
Meter - V-Cone EFM Acceptance Rules	EFM V-Cone Meter Calibration	21	All Fields

On the right side of the page, there's a user profile dropdown menu for 'Mitchell Bolt'. The menu includes options like 'Mark as Homepage', 'My Profile', 'My Downloads', 'GraphQL query tool', 'Unmatched Rows', 'Maintenance Admin', 'Workflows', 'Company Admin', 'Operations Admin', 'MBO', and 'Logout'. A red circle with the number 1 highlights the 'Activity Rules' option in the dropdown menu.

- 1 Select the Activity Type Rules from Operations Admin in the profile drop down.

Note: The *Operations Admin* role is required to make these Rules

- Click [+ ACTIVITY RULE](#) to add a new Activity Type Rule

Note: Activity Rules can apply to Any activity but may need to be made configurable by your MBO representative.

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance ?

ALL AREAS / MUDDY BOOTS INC. / ACTIVITY RULES

Add Activity Rule

* Name 1

Gas Accept

* Activity type 2

Gas Analysis

☐ No Auto Accept? 3

Applies To 4

Yes ☐ All Fields?

Fields

Search

Equipment

Search

- 1 2 Activity Rules require both a Rule Name and an Activity Type to be chosen. The list of activities available can be expanded, please request changes here via Support.
- 3 Auto Accept: Activities will be auto accepted if this option is toggled 'Yes' and all the created activity rules are in a 'pass' state. When toggled 'No', activities will need to be manually reviewed.
Note: Any activity that does not meet all the rule criteria will need to be reviewed, no automatic 'Fail' state will be generated.
- 4 Activity Rule scoping can be completed with scoping options by Field or individual piece of equipment.
Tip: Create a generic version for the whole company first before getting into the fine tuning of fields or specific equipment types.

Existing Activity Rules can be edited or deleted follows:

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance ?

ALL AREAS / MUDDY BOOTS INC. / ACTIVITY RULES

Activity Rules

Search

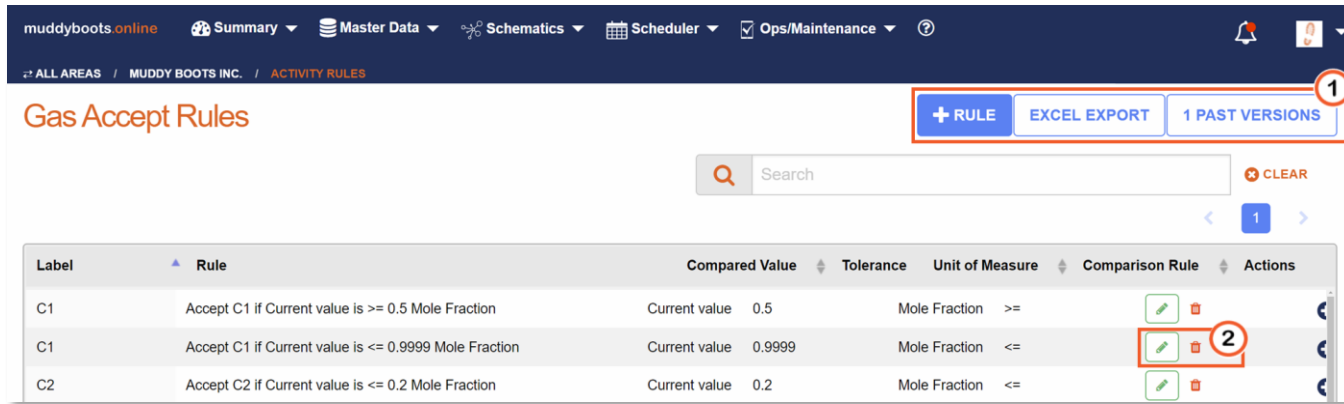
1







Name	Activity Type	Number of Rules	Applies to	Actions
Gas Accept	Gas Analysis	24	All Fields	<input type="button" value="edit"/> <input type="button" value="delete"/>
Hydrocarbon Liquid Accept	Hydrocarbon Liquid Analysis	16	All Fields	<input type="button" value="edit"/> <input type="button" value="delete"/>


- Click to delete a previously created activity rule.
- Click to edit a previously created activity rule template.
- Click to edit the individual rules within the rule template.

(a) Viewing Individual Rules within a Rule Template

Click  to add or edit individual rules within the rule template



Label	Rule	Compared Value	Tolerance	Unit of Measure	Comparison Rule	Actions
C1	Accept C1 if Current value is \geq 0.5 Mole Fraction	Current value	0.5	Mole Fraction	\geq	 
C1	Accept C1 if Current value is \leq 0.9999 Mole Fraction	Current value	0.9999	Mole Fraction	\leq	 
C2	Accept C2 if Current value is \leq 0.2 Mole Fraction	Current value	0.2	Mole Fraction	\leq	 

- 1 Use the three navigation buttons to:
 - Add a rule: 
 - Export the list of rules for this rule template to excel for review.
 - View Past Versions of the rules datatable (with an option to export).
- 2 Individual rules can be edited or deleted.

(b) Adding / Editing Individual Rules within a Rule Template



New Rule

* Rule Type:

* Form Element:

- When adding a new rule, the form element needs to first be chosen prior to being presented with the rule options.
 - Text and String form elements will have limited 'Match Text' or 'Match Previous' options
 - Float / data value form elements will have compare previous, percent differences, standard deviation, amongst other options
- Click Continue once Rule Type and The Form Element are selected.

New Rule

H2S

* Compared value

Current Value

* Comparison rule

Equal to

Tolerance

2

Unit of measure

%

✕ BACK

CREATE RULE

New Individual element rules have several options available to meet operational requirements:

- Compared Value
 - Current Value is the most common choice: Refers to the value that was a part of the analysis in question
 - Past Value: Refers to the previously recorded activity value accepted in the system
 - Standard Deviation – Standard Deviation is based on the last 3 analyses. These will also fail where there is not enough historical data available
- Comparison Rule: Equal to, greater than etc.
 - In the example above, anything outside of 2 percent of the previous value of H2S will fail the rule as presented and be denoted with an X
- Tolerance: The allowable limit based on the chosen unit of measure
 - In this photo the tolerance for the H2S is 2 %
- Unit of Measure – This will typically be the UOM of the current form element or percent – other options are available in the drop down

Note: The rules for an activity do not need to encompass all recorded elements, and can be left as reference data only

Note: Rules can be edited at anytime, however, any Activity Report previously brought into the system will reflect the rules as they stood when the Activity was initially created was loaded. These can be referenced by viewing previously created activities

Activity Review: Analysis

The screenshot shows the 'Facilities' table with columns: Code, Name, Province/State, Subtype Code, and Subtype. The 'Ops/Maintenance' dropdown menu is open, showing options: Run Sheets, Activity Review (highlighted with a red circle and the number 1), Maintenance, Work Orders, MOCs, Reporting, Reports, and History.

Code	Name	Province/State	Subtype Code	Subtype
0007422		AB	AB (501) Enhanced Recovery Scheme	Enhanced Recovery Scheme
0007424		AB	AB (501) Enhanced Recovery Scheme	Enhanced Recovery Scheme
0007533		AB	AB (501) Enhanced Recovery Scheme	Enhanced Recovery Scheme
0007803		AB	AB (501) Enhanced Recovery Scheme	Enhanced Recovery Scheme

- ① All analyses, without errors or matched utilizing the **Unmatched Rows** table, will now appear in the Activity Review data table. Activity Review can be selected through the Ops/Maintenance dropdown

The screenshot shows the 'Grande Prairie Activity Review' table with columns: Reporting Date, Field Name, Site Name, Equipment Name, Activity Label, State/Status, Reviewed, and Actions. The first row is highlighted with a red circle and the number 1. The 'Actions' column for the first row shows a 'LINKED' button and a review button (highlighted with a red circle and the number 2).

Reporting Date	Field Name	Site Name	Equipment Name	Activity Label	State/Status	Reviewed	Actions
2020-01-31			G01S	Gas Analysis			LINKED [Review Button]
2020-01-31			G01S	Gas Analysis			LINKED [Review Button]
2020-01-31			G01S	Gas Analysis			LINKED [Review Button]
2020-01-31			C01S	Hydrocarbon Liquid Analysis			LINKED [Review Button]

- ① Click the hyperlink to view the analysis
- ② Click the review button: [Review Button] to review the analysis (accept, reject, or reference)
- ② Analysis can be linked to equipment within the MBO system. Once linked, the analysis information will be displayed on the linked piece or pieces of equipment as well as the matched SAMPLEPOINT.
 - The **NOT LINKED** button Indicates there are no linked pieces of equipment for this analysis. Click the **NOT LINKED** button to open the linking window
 - The **LINKED** button Indicates the analysis has been linked to equipment. Tapping the **LINKED** button allows the equipment link to be updated, removed, or the addition of multiple equipment links

Subsections for Linking and Validations (Accepting / Rejecting / Reference Only):

(a) Activity Review: Linking

When the **NOT LINKED** / **LINKED** button has been selected, a linking page will open:

Linking for Gas Analysis on Jun 6, 2017

Activity Details

Gas Analysis by Automated DataLoad, Jun 6, 2017 06:00
Accepted by Automated DataLoad, Jun 21, 2017 14:20


Meter / Well / SP UWI: 03-19-084-12W6
Source Description: GAS LEG

Equipment
Name: 00/03-19-084-12W6/02 GAS PROD - GAS SAMPLEPOINT
Short Note: 1158G
Site: 03-19-084-12W6

Schematics

Ref #: 1834615




Currently Linked

03-19 BT VENT GAS (2352G) GAS SAMPLEPOINT 2017-06-06 Accepted 

Search FILTERS CLEAR


Site Name	Name	Short Note	Current Status	Equipment Type	
<input checked="" type="checkbox"/>	03-19-084-12W6	03-19 BT VENT GAS	2352G	Not in Service	GAS SAMPLEPOINT
<input type="checkbox"/>	03-19-084-12W6	BIRCHCLIFF 3-19-84-12 SWB 03-19 FUEL GAS	2667G	Not in Service	GAS SAMPLEPOINT
<input type="checkbox"/>	03-19-084-12W6	00/03-19-084-12W6/02 GAS PROD	1158G	Not in Service	GAS SAMPLEPOINT
<input type="checkbox"/>	03-19-084-12W6	00/03-19-084-12W6/02 OIL PROD	1159O	Not in Service	OIL SAMPLEPOINT
<input type="checkbox"/>	03-19-084-12W6	03-19 Bt Vent Gas	21582G	Not in Service	METER - ORIFICE, EFM
<input type="checkbox"/>	03-19-084-12W6	Birchcliff 3-19-84-12 Swb 03-19 Fuel Gas	21581G	Not in Service	METER - ORIFICE, EFM

Showing 1 to 6 of 6 entries 1 row selected Show 100 entries

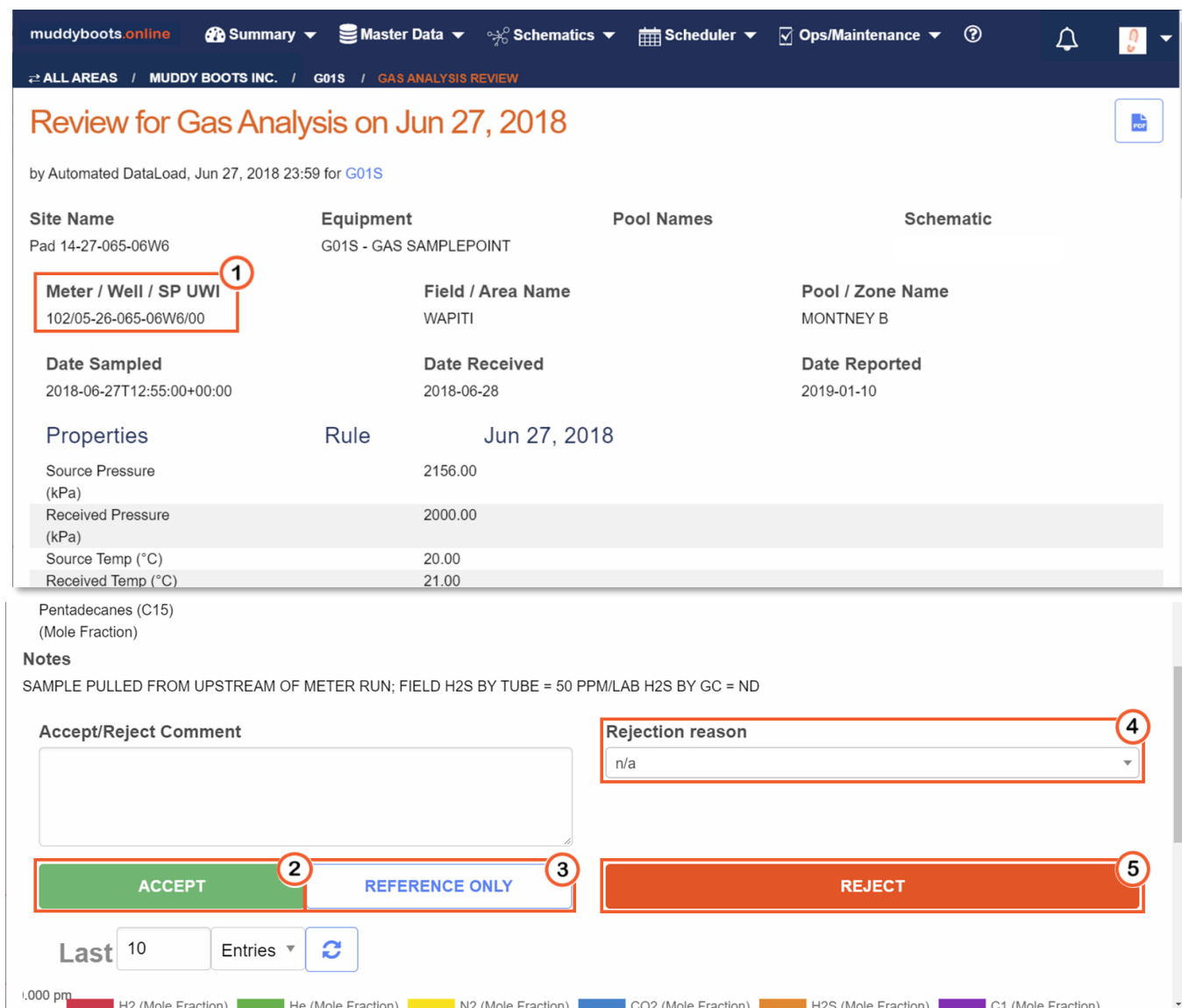
- 1 Use the search filters to find the appropriate equipment to link the analyses to
 - Typically Wellheads and Meters
- 2 Select all applicable equipment for the analysis using the available checkboxes and click  to link the analyses to the applicable equipment.
- Currently Linked on Historically linked assets will appear above the data table if any exist, these can be linked() on unlinked() using the buttons presented on the righthand side.

Note: Once linked, subsequent analyses reports will automatically link to the same assets as the previous analyses record where matching details are provided on the report.

(b) Activity Review: Accept / Reject

Once the  (review button) has been selected, the Review process is initiated, and the current analysis being reviewed will be displayed. The current analysis being reviewed, the previously recorded analyses for trending, and Activity Rules (Automatic Acceptance of Analysis if this has been enabled) can now be compared.

Note: The analysis the user see are in the MBO format, all data imported is from the laboratory. The details provided by the muddyboots application are details from the SAMPLEPOINT: Site Name, Equipment, Pool, and Schematic.



muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance ?

ALL AREAS / MUDDY BOOTS INC. / G01S / GAS ANALYSIS REVIEW

Review for Gas Analysis on Jun 27, 2018

by Automated DataLoad, Jun 27, 2018 23:59 for G01S

Site Name	Equipment	Pool Names	Schematic
Pad 14-27-065-06W6	G01S - GAS SAMPLEPOINT		

Meter / Well / SP UWI	Field / Area Name	Pool / Zone Name
102/05-26-065-06W6/00	WAPITI	MONTNEY B

Date Sampled	Date Received	Date Reported
2018-06-27T12:55:00+00:00	2018-06-28	2019-01-10

Properties	Rule	Jun 27, 2018
Source Pressure (kPa)		2156.00
Received Pressure (kPa)		2000.00
Source Temp (°C)		20.00
Received Temp (°C)		21.00

Pentadecanes (C15)
(Mole Fraction)

Notes
SAMPLE PULLED FROM UPSTREAM OF METER RUN; FIELD H2S BY TUBE = 50 PPM/LAB H2S BY GC = ND

Accept/Reject Comment

Rejection reason




n/a

ACCEPT **REFERENCE ONLY** **REJECT**

Last 10 Entries

1.000 ppm

H2 (Mole Fraction) He (Mole Fraction) N2 (Mole Fraction) CO2 (Mole Fraction) H2S (Mole Fraction) C1 (Mole Fraction)

- ① Analysis details will be visible on this page, highlighted is the Meter / Well / SP UWI information which will help with linking in the following subsection.
- ② After reviewing the analysis details, clicking  will create a historical record and these data points will be utilized in data trends, as well as for Activity Rules (if applicable)
- ③ If the analysis is not to be accepted, but the data needs to be kept for historical reporting purposes,  should be selected as this keeps the record, but does not include the data in trends or for rules
- ④ A *Rejection reason* should be selected to note the issues with the analysis, these canned notes are setup by your muddyboots representative.
- ⑤ Where an analysis report is deemed unacceptable,  deletes the record from the trend calculations, while retaining the information in the muddyboots database. This allows for the resubmission by the laboratory of an amended report.

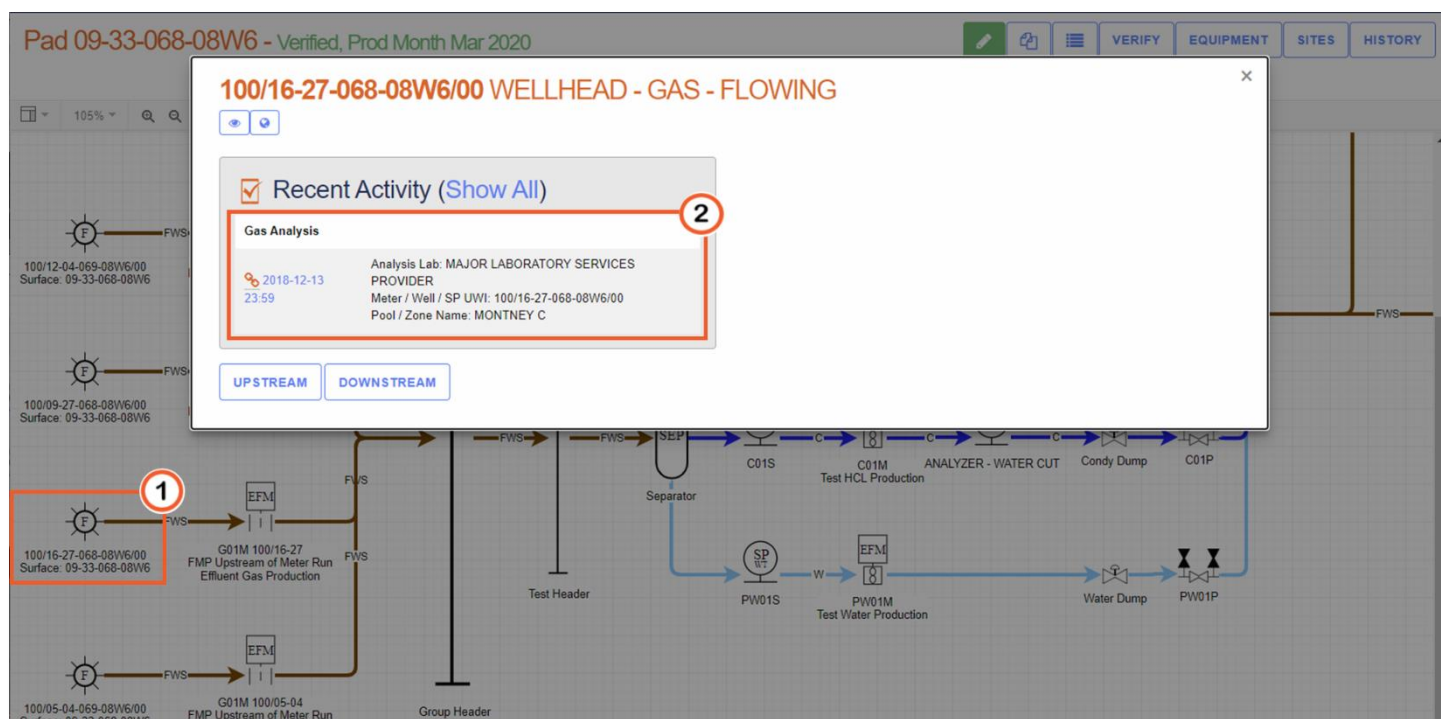
Note: If the functionality is being utilized, rejecting the analyses will also reschedule a sample to be taken

Viewing Analysis on Schematics

Once an analysis has been linked to a wellhead or other applicable equipment, it can now be viewed on the muddyboots schematics, provided the equipment is present on a schematic.

Note: The analysis will also be available to view on the sample point that it has been loaded to when viewing the schematic.

Navigate to a schematic to view all the available analyses for each piece of equipment:



- 1 Double click on a piece of equipment to open the details and activities pane.
- 2 Click on the analysis hyperlink to view in detail.

Note: To view all details and information for the equipment click: 

Note: To view all previously recorded activities associated with the equipment click: [\(Show All\)](#)

Optional Analysis Features

(a) Generating Measure Exports

Measure Exports can be broken into 2 categories: System and Distribution List exports

- System Exports: Outbound Scada and PA Systems
- Distribution Lists: External Groups requiring zipped reports from MBO

(i) System Exports

System Export records used for SCADA, PA, and other external systems are generated when the following conditions have been met:

1. Analyses Data has landed in Muddyboots
2. Landed Analyses data has been 'Accepted'
3. Accepted Analyses have been linked to meters, wells, or other equipment that have Third Party System Cross References created for these systems

- Navigate to your Dashboard (Typically set as your homepage on initial training)
- Select the appropriate Export System to move to the export page.
- The system selected from the dashboard will be the pre-selected File Export on the Analysis Exports: System page
- **1** Select the Effective Date for the Export being generated.
- **2** Select the File Export desired (may pre-selected as noted above if navigating from Dashboard)
- Select the following options as applicable.
 - Only Latest Records
 - Mark as Exported (Requires the system Security role: Analysis – Exports)
- Click **EXPORT FILE**
 - Your file will now be processing and you can leave this page
- All background files will land in **My Downloads** as found under your personal dropdown.

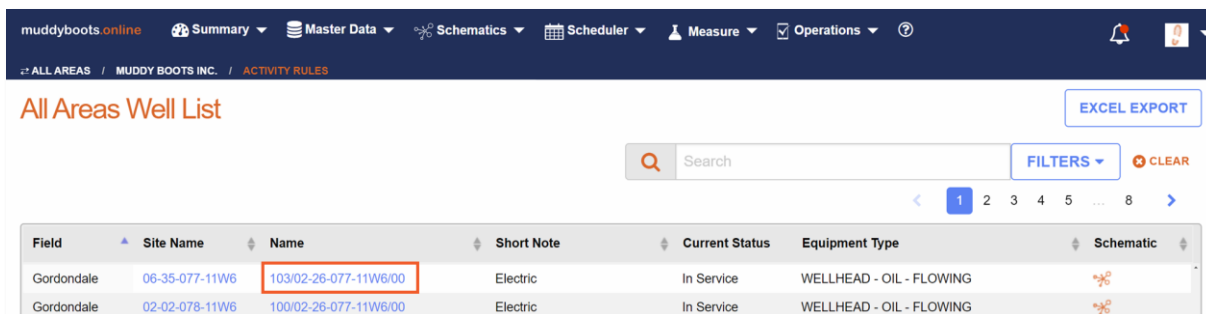
(b) Creating Recombined Gas Analyses

Requirements for generating a recombined gas analysis in Muddyboots:

1. Available Gas and HCL Analysis reports must exist for the same sampling date
2. Gas and HCL Analysis reports must be 'Accepted'
3. Both Gas and HCL Analysis reports must be linked to the same Wellhead
4. User generating the Recombined Gas Analysis must have the following Security Roles: **Operations** and **Measure – Analysis**

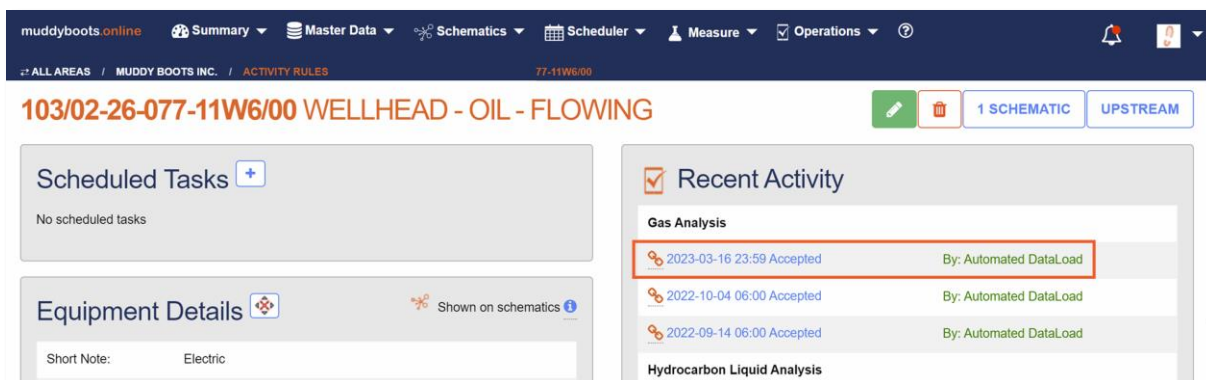
Generating a Recombined Gas Analysis:

1. Navigate to the Well List



Field	Site Name	Name	Short Note	Current Status	Equipment Type	Schematic
Gordondale	06-35-077-11W6	103/02-26-077-11W6/00	Electric	In Service	WELLHEAD - OIL - FLOWING	
Gordondale	02-02-078-11W6	100/02-26-077-11W6/00	Electric	In Service	WELLHEAD - OIL - FLOWING	

2. Use the Search Box to find the desired Wellhead
3. Click on the desired Well Name to view the equipment



103/02-26-077-11W6/00 WELLHEAD - OIL - FLOWING	
Scheduled Tasks +	Recent Activity
No scheduled tasks	Gas Analysis
	2023-03-16 23:59 Accepted By: Automated DataLoad
	2022-10-04 06:00 Accepted By: Automated DataLoad
	2022-09-14 06:00 Accepted By: Automated DataLoad
Equipment Details	Hydrocarbon Liquid Analysis
Short Note: Electric	

4. Select the Desired Gas or HCL Analysis

Note: The Green Text indicates the report has been Accepted; Red Text = Rejected; Black Text = Not yet reviewed

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance

ALL AREAS / MUDDY BOOTS INC. / ACTIVITY RULES

Gas Analysis for GDO 03/02-26-077-11W6 GAS PROD on Mar 16, 2023

by Automated DataLoad, Mar 16, 2023 23:59 Ref #: 1919510

Accepted by Apr 3, 2023 15:49

Container ID 07000674D Lab Number 23GF006059D

5. Click **+ RECOMBINED** to initiate the recombined analysis

muddyboots.online Summary Master Data Schematics Scheduler Ops/Maintenance

ALL AREAS / MUDDY BOOTS INC. / ACTIVITY RULES

Record Recombined Gas Analysis for 103/02-26-077-11W6/00

DATA ENTRY

Short Note: Electric
Public Status: Flowing

Fluid Type (01) Oil
Well License Number 504367

Producing Zone MONTNEY FM

Recorded for 2023-08-11 15:28

* Total Gas Volume (E³m³) * Total Liquid Volume (m³)

Gas Analysis for 103/02-26-077-11W6/00 on Mar 16, 2023 23:59

Hydrocarbon Liquid Analysis for GDO 03/02-26-077-11W6 LIQUID PROD on Mar 16, 2023 23:59

Container ID 07000674D Lab Number 23GF006059D

Container ID 12000077D Lab Number 23CF006059D

Analysis Lab Name of Sampler

6. Update / Enter the following values:
- Recorded for:** Typically the first date of the month
 - Total Gas Volume**
 - Total Liquid Volume**
7. Review the associated Gas and HCL reports to be used for the Recombined
8. Add any additional Notes
9. Click **RECORD**

(c) AER D017 Density Exemption Exports

Density Exemption Overview

Muddyboots provides an export for gas and liquid analyses to determine if the following criteria are met:

1. Three consecutive Analyses have a Relative Density within 1.0% of the average and
2. The three consecutive Analyses must not be taken within 90 days of one another.

Note: The report also includes the current analysis sampling schedule applied to the Samplepoint for reference. This will be blank for those not utilizing the scheduling functions within Muddyboots.

Note: This export does not provide insight into additional criteria that may be required to qualify for a density exemption. Determining a Density Exempt qualification status should be completed by a SME (Subject Matter Expert).

Density Exemption Process

Exporting a Density Exemption Report

- a. Navigate to the Reports page within Muddyboots.
 - i. Add any applicable search criteria to the data table and set your hierarchy to the appropriate level.
- b. Click **Detailed Excel Export** and choose **Density Exemption**. An export will be generated.

Optional Items: Updating a Samplepoint to note that density exemption criteria is met

- a. Navigate to the Samplepoint Equipment in Muddyboots
- b. Edit the Samplepoint equipment and check 'AER Density Exempt'
 - i. This will remove the Samplepoint from future Density Exemption Exports
- c. Edit the schedule if applicable with an end date. When saving choose: *Update this and future Tasks*
- d. Add any Notes to the Samplepoint as desired

Reference: Directive 017: Measurement Requirements for Oil and Gas Operations (March 2022) 8-15

Licensees are not required to update the well gas and condensate analyses if three consecutive calculated and recombined RD determinations conducted at the specified sample frequency or no more than once per year are all within ± 1.0 per cent of the average of the three RDs (see example 8.1). Specifically, the RDs would be those of the gas plus gas equivalent of the recombined liquid condensate. After the well has fallen below the critical lift velocity as determined using the Turner Correlation calculation described in section 7.4.1.1, one final gas and condensate analysis must be obtained.

(d) Generating AER .pas Export files

Requirements for Generating AER .pas Exports

There are no limits on who can generate Exports, however there is control on whom can modify the wellheads to update any incorrect well details that may be required to successfully submit a .pas file.

Requirements to update Wellhead Equipment details in Muddyboots:

- User must have the following Security Role: **Site admin**

Wellhead Equipment Detail Requirements on Wellhead:

- Fluid Type
 - (01) Oil, (02) Gas, (06) Water, or (17) Crude Bitumen
- Interval Top KB (m)
- Interval Base KB (m)
- License Number
- Producing Zone
- Drilling Leg
 - Note: If not populated, 01 will be assumed. AER Submission requirement note:

Must be 01, 02, 03...09 (Cannot be 0 or NULL)

Drilling Leg (Event or Occurrence). Together with the UWI, this is to help define the bottom of the specific drill hole.

Generating AER .pas Exports

The screenshot shows the Muddyboots online interface. The top navigation bar includes links for Summary, Master Data, Schematics, Scheduler, Measure, and Operations. The 'Master Data' dropdown menu is open, showing options for Fields, Sites, Equipment, and Well List. The 'Well List' option is highlighted with a red circle and the number 1. The main content area displays the 'All Areas Well List' table, which includes columns for Field, Site Name, Short Note, Current Status, Equipment Type, and Schematic. The table shows several rows of well data, including 'Pouce Coupe' wells with various site names and equipment types.

- ① Navigate to the Well List

muddyboots.online Summary Master Data Schematics Scheduler Measure Operations

ALL AREAS / MUDDY BOOTS INC. / ALL AREAS EQUIPMENT

All Areas Well List

EXCEL EXPORT

100/16-34-076-12W6/00 FILTERS 1 CLEAR

Field	Site Name	Name	Short Note	Current Status	Equipment Type	Schematic
Pouce Coupe	15-34-076-12W6	100/16-34-076-12W6/00		In Service	WELLHEAD - GAS - ELECTRICPUMP	

- 1 Use the Search Box to find the desired Wellhead.
- 2 Click on the desired Well Name to view the equipment.

muddyboots.online Summary Master Data Schematics Scheduler Measure Operations

ALL AREAS / MUDDY BOOTS INC. / POUCE COUPE / 15-34-076-12W6 / 100/16-34-076-12W6/00

100/16-34-076-12W6/00 WELLHEAD - GAS - ELECTRICPUMP

1 SCHEMATIC UPSTREAM

Scheduled Tasks +

No scheduled tasks

Equipment Details + Shown on schematics

Recent Activity

Gas Analysis

- 2022-11-28 05:00 Accepted By: Automated DataLoad
- 2021-10-01 06:00 Accepted By: Automated DataLoad

- 1 Select the Desired Gas, Oil, or Water Analysis
Note: The Green Text indicates the report has been Accepted; Red Text = Rejected; Black Text = Not yet reviewed

muddyboots.online Summary Master Data Schematics Scheduler Measure Operations

ALL AREAS / MUDDY BOOTS INC. / POUCE COUPE / 16-34-076-12W6 / PCS 00/16-34-076-12W6 GAS PROD / GAS ANALYSIS

Gas Analysis for PCS 00/16-34-076-12W6 GAS PROD on Nov 28, 2022

REVIEW LINKED .PAS

by Automated DataLoad, Nov 28, 2022 05:00 Ref #: 1837222

Accepted by

Container ID	Lab Number
13000904S	22GG974227S


- Click .PAS to initiate the .pas Export
 - Select the associated Wellhead to be used for the .pas file and the download will commence.
- A zip file containing both the Analysis pdf and the .pas file of the desired analysis will be delivered in your browser.

Possible Errors and Solutions with Lab Imported Analyses

Processed Inbound analyses from third party systems (i.e., Laboratory Service Providers) may have erroneous data that will not be accepted by muddyboots. A number of these error types are covered below.

Note: For any other inbound error, please contact a muddyboots representative.

(a) Errors with Display Messages

Import errors are displayed in the notification window and can be viewed any time by clicking the  icon in the top righthand corner of the application



- **1 3** Empty Data Columns: For columns missing data in the import files, a note will be present to indicate which data row and column is incorrect or missing. Contact a muddyboots representative for the full error report and contact a laboratory services provider to fix the import and resubmit.
- **2** Incorrect Units: For columns with incorrect unit types, the correct and available units will be presented. This error typically occurs due to text being entered into this data location. Contact a muddyboots representative for the full error report and contact a laboratory services provider to fix the import and resubmit.

(b) Errors without Display Messages / Unmatched Rows

Incorrect File Format - No Analysis Received: If expected analyses do not arrive in the MBO system, an incorrect analysis file format may have been submitted to the server. This will not result in errors visible to the users.


- 'Unmatched Rows': Unmatched Rows do not display an error message and are imports that have been loaded into the system but do not have a viable cross reference. Muddyboots contains an Unmatched Rows tool to link 3rd party imports to the correct SAMPLEPOINT location even if a cross reference has not been established. To Access the full list of **Unmatched Rows**, select Unmatched Rows from the personal dropdown in the top right corner.

Reporting Date	Field Name	Site Name	Equipment Name	Activity Label	State/Status	Reviewed	Action
2020-01-31	Elmworth/Gold Creek	Pad 02-24-068-07W6	G01S	Gas Analysis			Link
2020-01-31	Elmworth/Gold Creek	Pad 06-13-068-07W6	G01S	Gas Analysis			Link
2020-01-31	Elmworth/Gold Creek	Pad 07-14-068-07W6	G01S	Gas Analysis			Link
2020-01-31	Elmworth/Gold Creek	Pad 02-24-068-07W6	C01S	Hydrocarbon Liquid Analysis			Link

Note: Unmatched Rows will be unavailable if none exist

Created Date	System	Name	Row Details
Sep 30, 2020	AGAT 2016	None Given	JH, 0.8955, 0.0568, 0.0251, 0.001, 0.0005, 2018-06-28, TRACE, 0.0001, 0.002, 21, 2018-06-27T23:59...

- **1** Click the hyperlink of the Analysis that requires review to navigate to the analysis matching menu.

- ① Select the applicable site (surface location) the analysis belongs to
- ② Select the applicable SAMPLEPOINT to match the analysis
- Once the Site and Equipment have been selected, click **MATCH ACTIVITY** to finalize the match or **MATCH THEN REVIEW ACTIVITY** to finalize the match and advance to reviewing the analysis
- ③ The  button can be used to delete the analysis if required due to incorrect information (i.e. well UWI, company, field, etc.) it can be deleted at this point. It can also be deleted/rejected upon final review after matching.