

Analysis in muddyboots.online

muddyboots.online (MBO) has the functionality to receive automated analysis imports from a variety of laboratory companies through an SFTP server. This document will cover how to configure the analysis module, how to setup automated approval rules, how to setup imports, how to view and review analysis imports and errors, and how to link completed analysis reports to the correct equipment within muddyboots.online.

Configuring Equipment Required for Analysis

The first step in setting up the analysis module 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 take. i.e., wellheads or meters, separators, or any other applicable equipment.

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

- 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.
- 2. 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.

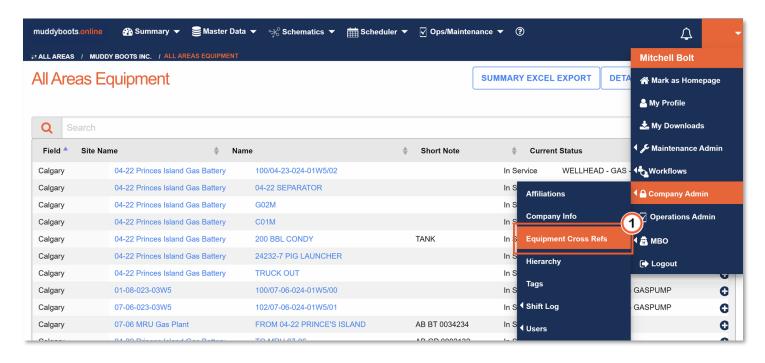


Configuring Cross References – Bulk Importing

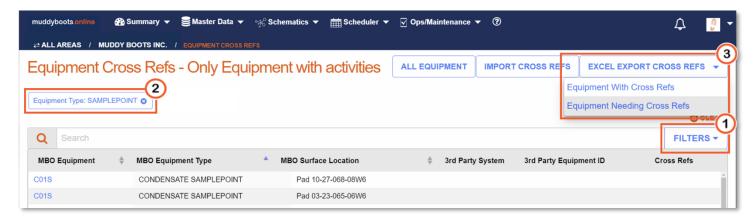
Navigate to the cross references pane to begin importing the analysis cross reference identification from a laboratory service provider. If the desired lab services provider is not available, please contact a MBO representative to discuss options for the creation of import/export file translations.

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.

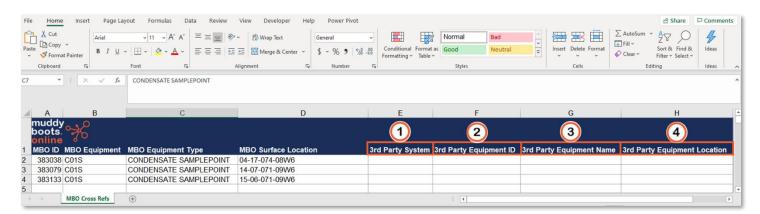
Note: A *Company Administrative* role is required to perform the following tasks. If the Company Admin tab is not present, contact the company administrator to be given the "Company Admin" role or to determine who is responsible for this task within your organization.



• 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



- 12 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
- 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



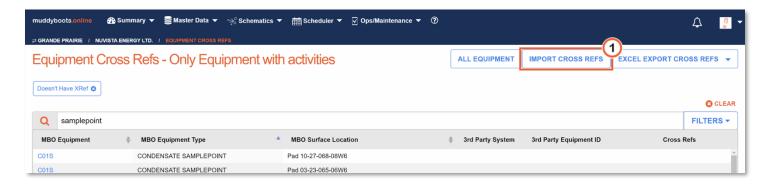
The excel export has 4 required fields to be populated prior to import:

- 3rd Party System: Laboratory Services Provider being utilized
- 2 3rd Party Equipment ID: Unique Identifier used on the analysis files to complete the link

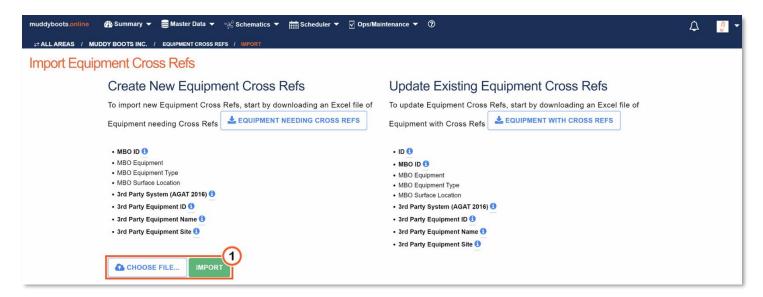
 Note: Ensure the identifier matches the identifier provided to the laboratory, any errors will result in
 mis-matched cross references increasing the manual linking process
- 3 3rd Party Equipment Name: Name / Number given to the laboratory to identify the equipment. If the 3rd party identifier is not 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
- 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.

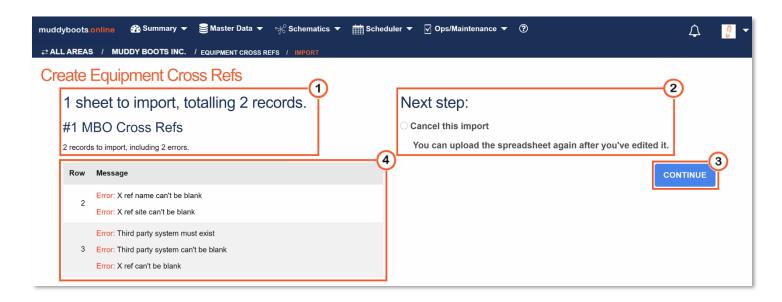




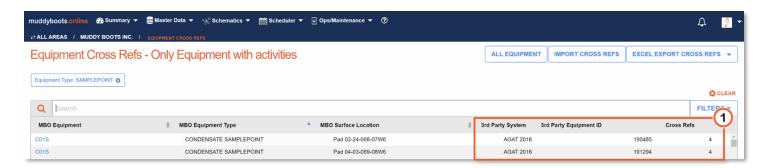
Click the button to open the importing page



- 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 Dutton
- Now click the converted Import button to import cross references (Ex.



- 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 to load the cross references into MBO.
- Note: If any file errors exist, they will be listed in this section, with the row # along with each independent error description.



 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 SAMPLEPOINT (ex. 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.

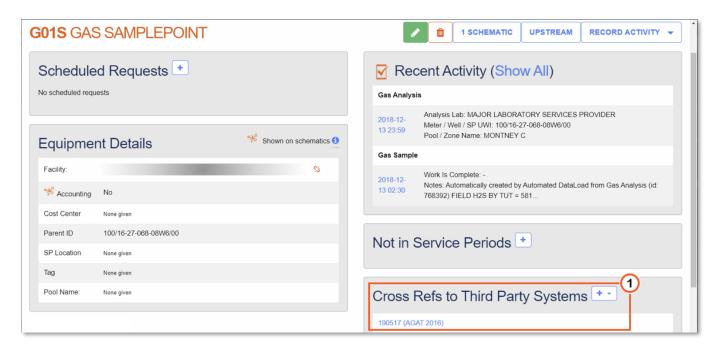


Configuring Cross References – Single Cross Reference Creation and Editing

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 the desired equipment page for the 'SAMPLEPOINT'

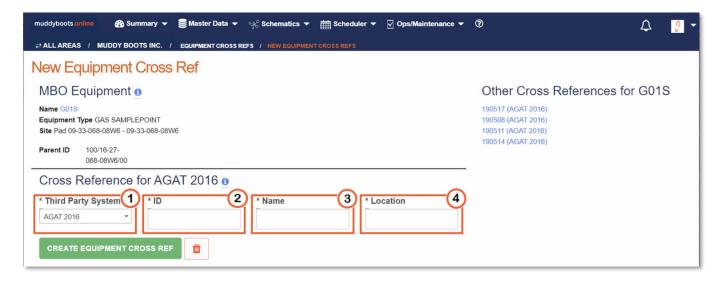


- Select to add a new reference or select the current 3rd Party Reference to edit or delete.

 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:



- 1 3rd Party System: Laboratory Services Provider being utilized
- 1D: Unique Identifier used by the analysis files to complete the link

 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
- Name: Name / Number given to the laboratory 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.
- Location: User defined, typically Surface Location (LSD), Plant Name, Process Area



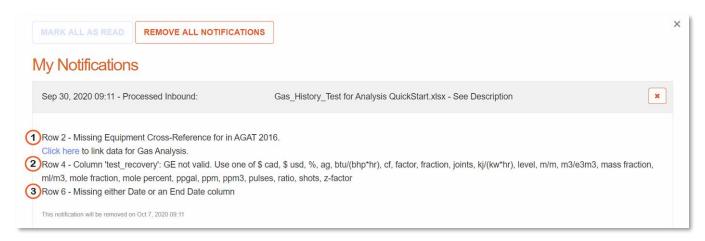
Possible Errors and Solutions with Lab Imported Analyses

Processed Inbound analyses from third party systems 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



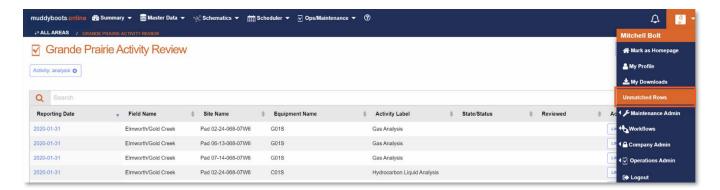
- 13 Empty Data Columns: For columns missing data in the import files, a note will be present to indicate which data row and column is incorrect or missing. Contact a muddyboots representative for the full error report and contact a laboratory services provider to fix the import and resubmit.
- Incorrect 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.



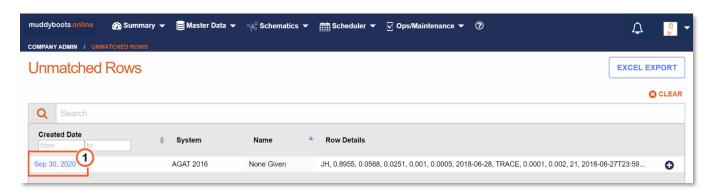
(b) Errors without Display Messages

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.

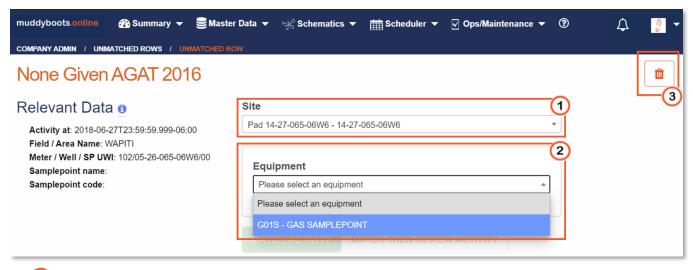


Note: Unmatched Rows will be unavailable if none exist



• Click the hyperlink of the Analysis that requires review to navigate to the analysis matching menu.





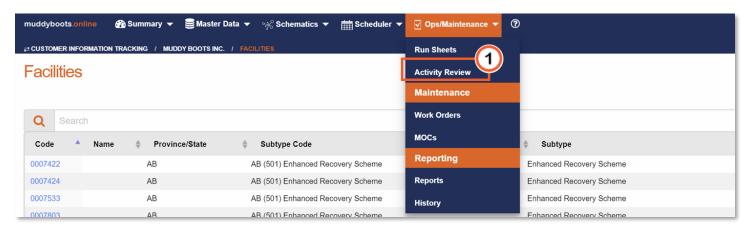
- 1 Select the applicable site (surface location) the analysis belongs to
- 2 Select the applicable SAMPLEPOINT to match the analysis
- Once the Site and Equipment have been selected, click

 MATCH ACTIVITY to finalize the match or

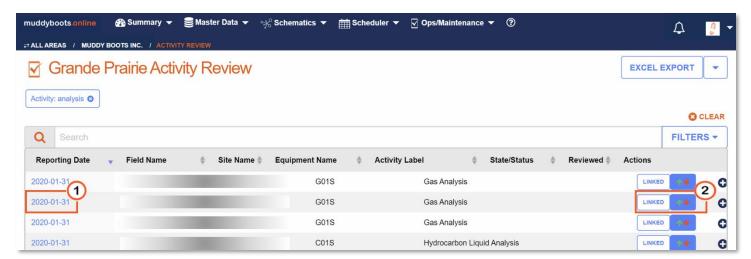
 MATCH THEN REVIEW ACTIVITY to finalize the match and advance to reviewing the analysis
- 13 The button can be used to delete the analysis if required due to incorrect information (i.e. well UWI, company, field, etc.) it can be deleted at this point. It can also be deleted/rejected upon final review after matching.



Activity Review: Analysis



• 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



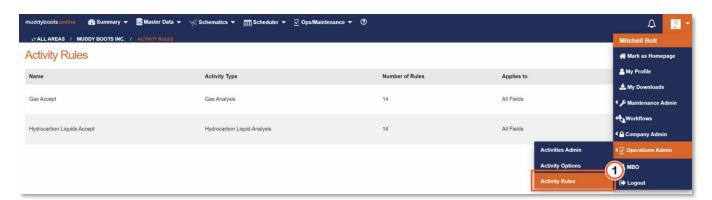
- Click the hyperlink to view the analysis
- Click the review button: to review the analysis (accept, reject, or reference)
- Analysis can be linked to equipment within the MBO system. Once linked, the analysis information will be displayed on the linked piece or pieces of equipment as well as the matched 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
 - o The button Indicates the analysis has been linked to equipment. Tapping the button allows the equipment link to be updated, removed, or the addition of multiple equipment links

Subsections for Activity Rules, Accept/Reject and Linking below:



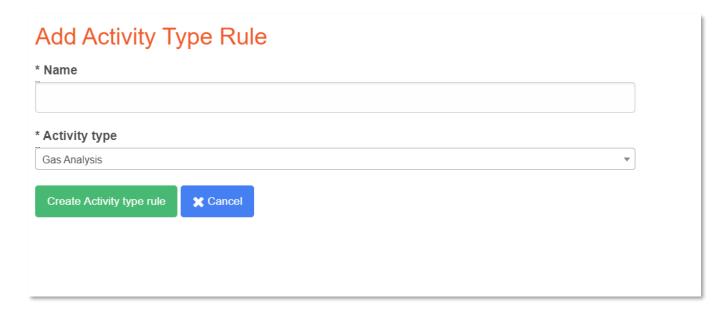
(a) Activity Rules

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.

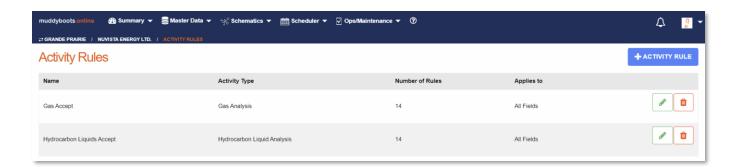


- Select the Activity Type Rules from Operations Admin in the profile drop down.

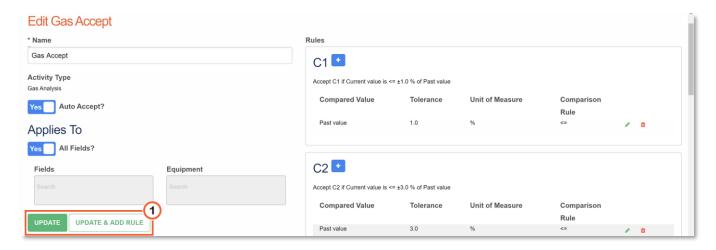
 Note: The Operations Admin role is required to make these Rules
- Click + ACTIVITY RULE to add a new Activity Type Rule (Activity Type Rules can apply to Gas Analysis, Hydrocarbon Analysis, Condensate Analysis and Water Analysis)







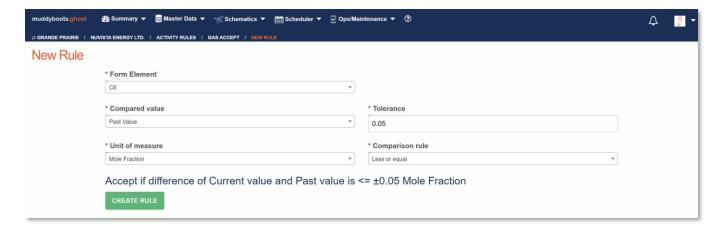
- Click to delete a previously created activity rule
- Click to edit a previously created activity rule



- 1 Select UPDATE & ADD RULE to add additional rules, once satisfied with the Activity Type Rule options that have been setup:
 - Auto Accept: Allows Auto Acceptance of the activity being received if the rules, to be setup, are met.
 - **Note:** This removes the human review process, and the use of auto acceptance should be carefully reviewed
 - Applies To: Rules can be setup based on Field or equipment. Selecting 'All Fields: Yes' will
 apply the activity rules across all operations.
 - Note: If conflicting rules have been setup, the most stringent version will be applied

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





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

- Compared Value
 - Current Value is the most common choice this refers to the value that was a part of the analysis in question
 - o Past Value refers to the previously recorded activity value accepted in the system
- Tolerance the allowable limit based on the chosen unit of measure
 - o In this photo the tolerance for the C6 is 0.05 Mole Fractions
- Unit of Measure this will most commonly be Mole Fraction other options are available in the drop down
- Comparison Rule Equal to, greater than etc...
 - In the example above, anything greater than 0.05 Mole Fractions over the previous value of C6 will be fail the rule as presented and be denoted with an X

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 analysis previously brought into the system will reflect the rules as they stood when the analysis was loaded. These can be referenced by viewing previously imported activity analysis

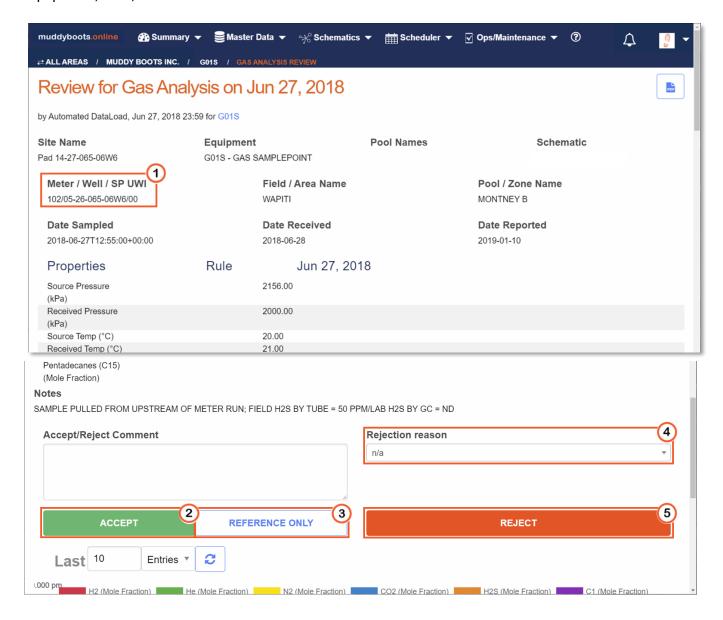
Tip: Create a generic version for the whole company first before getting into the fine tuning of fields or specific equipment types.



(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.





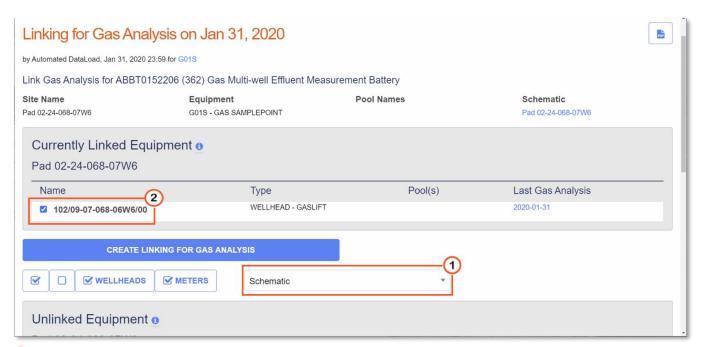
- 1 Analysis details will be visible on this page, highlighted is the Meter / Well / SP UWI information which will help with linking in the following subsection.
- After reviewing the analysis details, clicking will create a historical record and these data points will be utilized in data trends, as 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, REFERENCE ONLY should be selected as this keeps the record, but does not include the data in trends or for rules
- A *Rejection reason* should be selected to note the issues with the analysis, these canned notes are setup by your muddyboots representative.
- 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



(c) Activity Review: Linking

When the NOT LINKED / LINKED button has been selected, a linking menu will be presented:



- 1 The analysis from a SAMPLEPOINT can be linked to one of the three groupings of equipment:
 - 1. Facility: Equipment belonging to and linked with the same facility code
 - 2. Pool: Equipment belonging to and linked with the same formation Pool
 - 3. Schematic: Equipment on the same schematic

Once one of these three categories of equipment are selected, the unlinked equipment list will be populated.

Select all applicable equipment for the analysis, and click: CREATE LINKING FOR GAS ANALYSIS

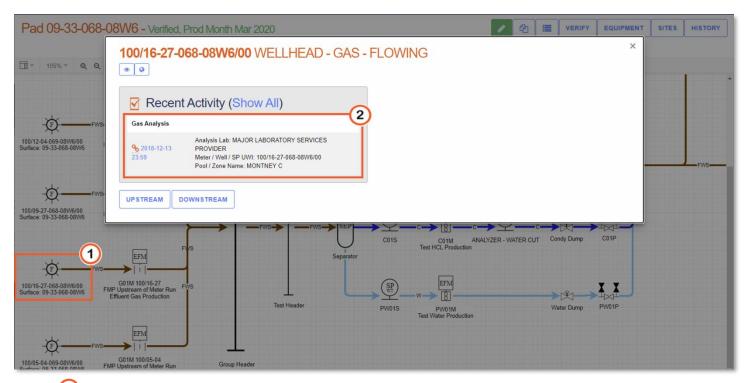


Viewing Analysis on Schematics

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.
- 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)