Utility Cloud Reporting

Updated: January 27, 2020

Contents

Overview

Utility Cloud can be configured to generate reports via Google Sheets and Microsoft Excel. The steps involved, for either option, are basically the same, but there are key differences outlined below.

Key differences

Google Sheets	• The completed report is automatically returned to Utility Cloud based on the report settings applied (asset attachments, stakeholders, print queue, etc.). • The completed report can be automatically emailed to other parties. • There is less control over formatting (margins, page breaks, etc.) when compared to Excel.
Microsoft Excel	• The completed report must be manually attached in Utility Cloud. • The completed report must be manually emailed to other parties. • Requires the Excel Add-in to be installed • There is more control over formatting (margins, page breaks, etc.) when compared to Google Sheets.

Creating Google Sheets Reports

The basic steps to creating a report with Google Sheets is as follows.

Steps using Google Sheets:

1. Link Google Account to Utility Cloud Account
2. Create the Google Sheet Report Structure
3. Connect the Workflow(s) to the Google Report
4. Run the Workflow on an Asset
5. Map the Fields on the Report
6. Uncheck “Don't copy the source spreadsheet during the publish process” option

The sections that follow provide details for creating Google Sheet Reports.

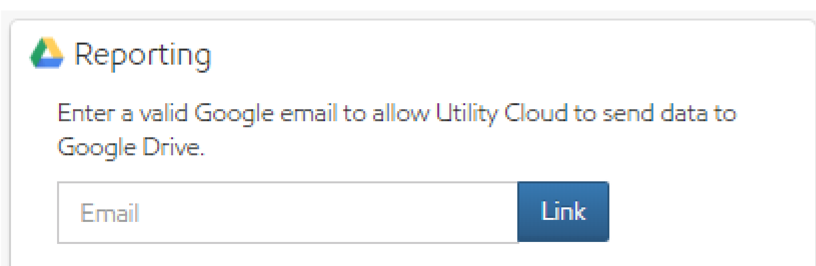
Link Google Account to Utility Cloud

Utility Cloud creates a Google account for each customer to support reporting, notifications, and administration. Implementation and Support can provide the login credentials to the Billing Account Administrator.

Select the **Account Tile** from the Dashboard.

Search for and select an **Account**.

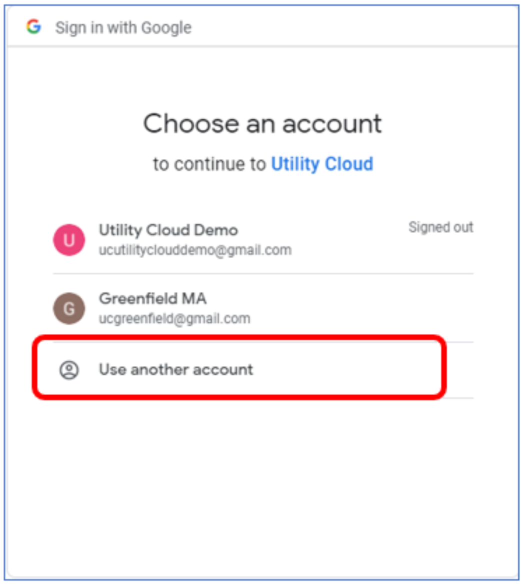
In the bottom right side of the screen, enter a valid Gmail address in the Email field and click **Link**.



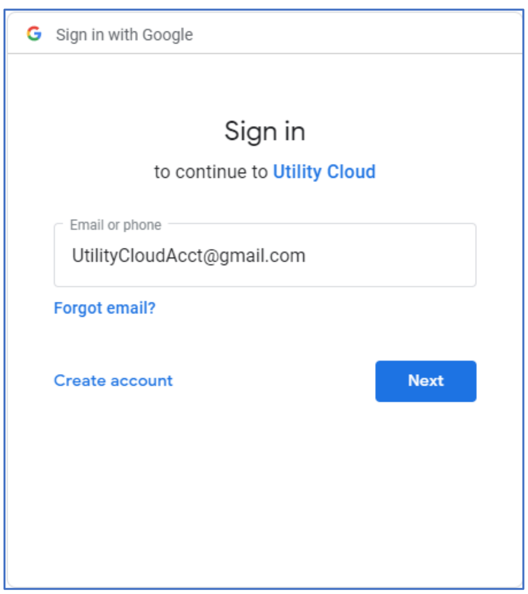
NOTE: Utility Cloud Implementation and Support provides login credentials.

Google prompts for the Google Account to link.

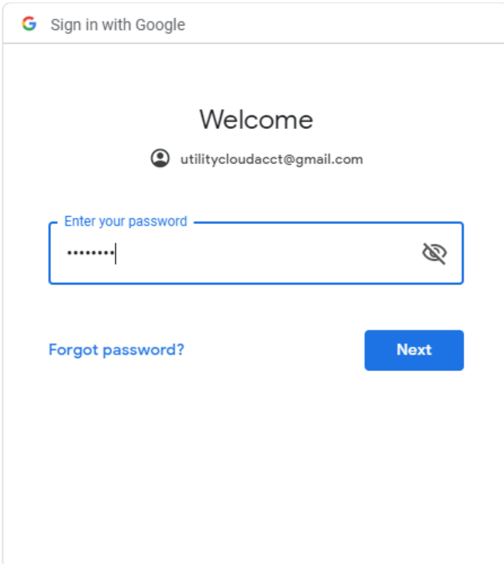
Choose **Use another account**



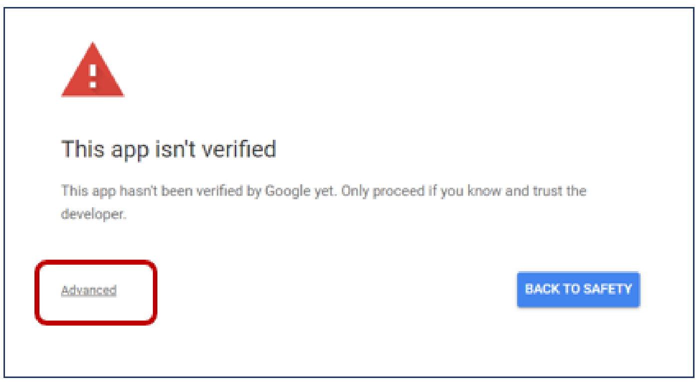
Enter the Google Account Email provided by Utility Cloud and click **Next**.



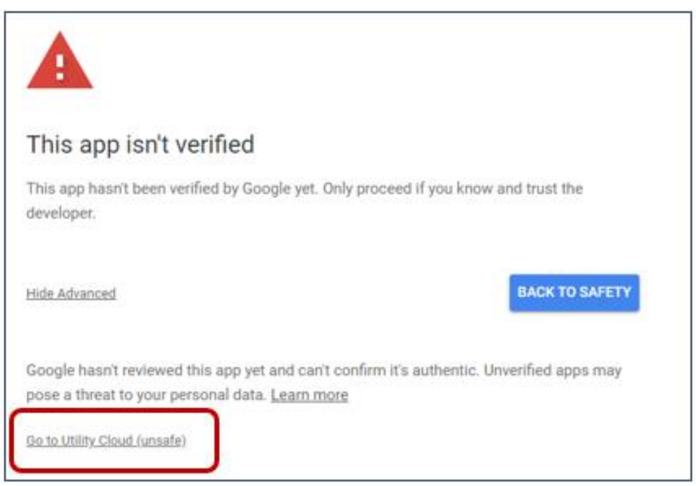
Enter the password provided by Utility Cloud and click **Next**.

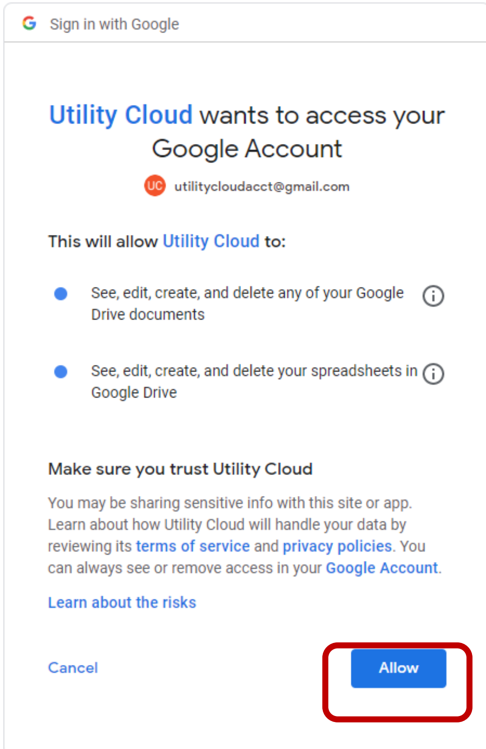


The following screen appears. Click **Advanced**.

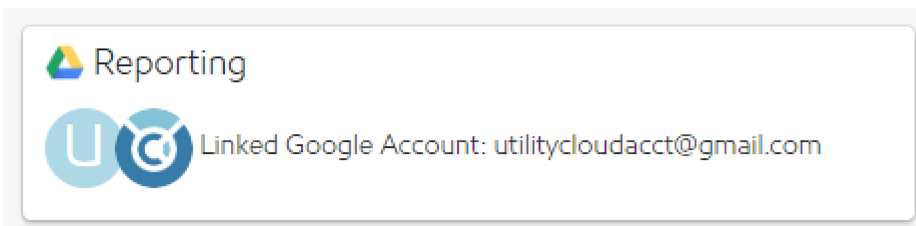


Click **Go to Utility Cloud**.





You are returned to Utility Cloud.



Security Role Right Required: Perform Custom Reporting, View Work Scheduler, View Accounts, Edit Accounts

Determine the type of Report

There are 2 types of reports you can create.

- One-to-One – reports on one workflow performed on one asset
  For example: A FOG Inspection workflow on a Food Service Establishment asset to create a FOG Inspection Report

- Many-to-Many (or Many-to-One) – reports on many workflows on many (or one) asset
  For example: Daily Well Collection on Well Assets to create a Monthly Chemical Addition Report

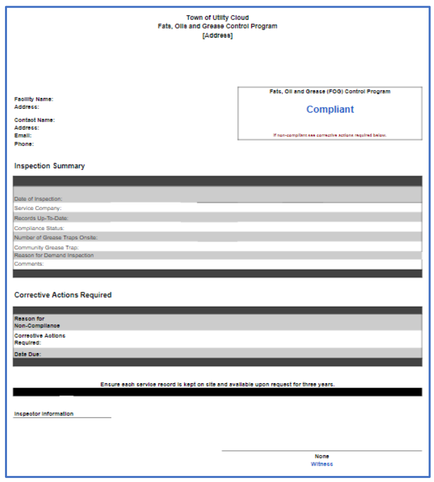
Create a One-to-One Report Structure

Log into the Gmail account that is linked to Utility Cloud:

1. From the Google Drive, create a new Google Sheet.
2. Create a tab labeled **Report**. This appears in a format of your choosing when a workflow is completed. This is the report that is returned to Utility Cloud when the workflow is completed. This tab has data linked to it from the **Data** tab or other sheet(s) with the workflow data.

   NOTE: The name of the tab can be anything. **Report** is used in this document for standardization.
3. Create a tab and labeled **Data**. The data tab is the sheet that the workflow data is sent to from Utility Cloud.

   NOTE: The name of the tab can be anything. **Data** is used in this document for standardization.
4. Run a report. Completing a workflow that has been scheduled via the Work Scheduler triggers a report to be run from Utility Cloud that is linked to the Google Sheet; this populates the data on the data sheet so that you know which fields to use from the data sheet to populate into your form on the report sheet.


Town of Utility Cloud
Fats, Oils and Grease Control Program
[Address]

Facility Name:
Address:

Contact Name:
Address:
Email:
Phone:

Fats, Oil and Grease (FOG) Control Program

Compliant

If non-compliant see corrective actions required below.

Inspection Summary

Date of Inspection:
Service Company:
Records Up-To-Date:
Compliance Status:
Number of Grease Traps Onsite:
Community Grease Trap:
Reason for Demand Inspection
Comments:

Corrective Actions Required

Reason for Non-Compliance
Corrective Actions Required:
Date Due:

Ensure each service record is kept on site and available upon request for three years.

Inspector Information

None
Witness

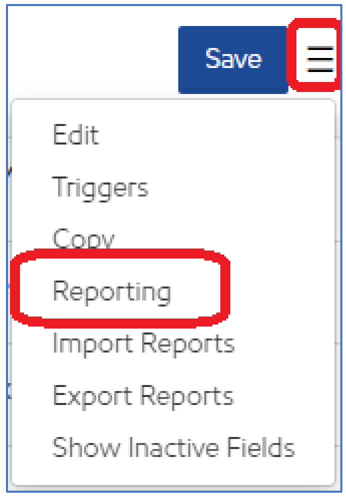
Example of formatted report

Connect the Workflow to Google Sheets via Workflow Class

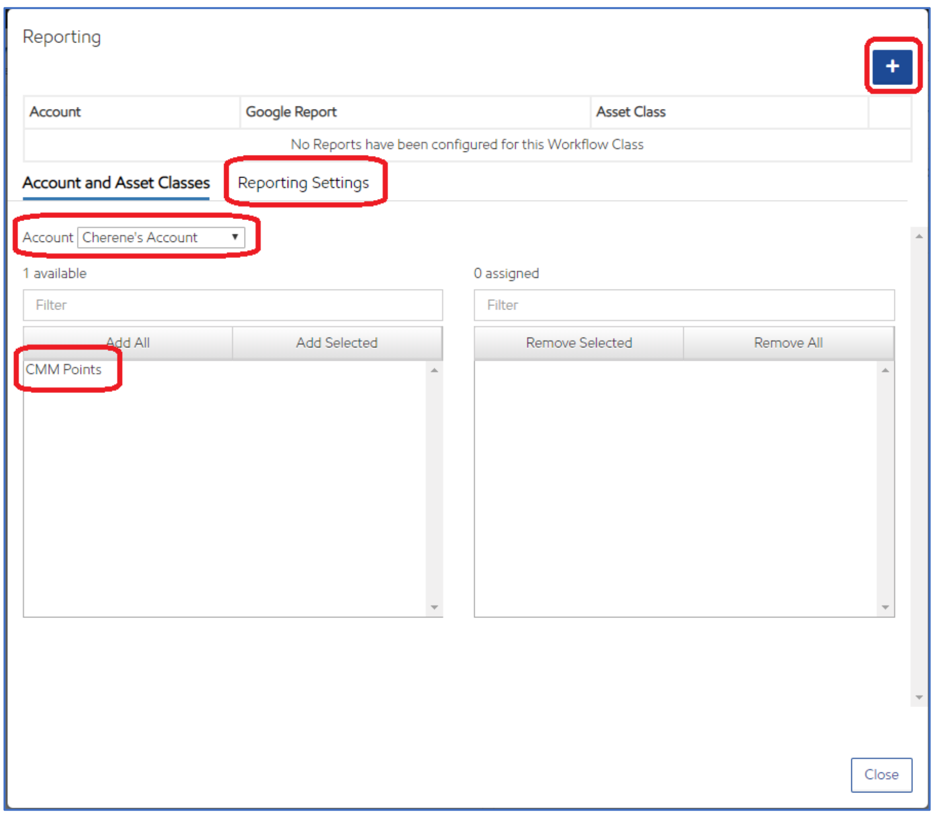
NOTE: The reporting feature is moving from Work Scheduler to Workflow Classes

Reports can be generated from a completed workflow. For example: the results of an inspection can trigger an Inspection Report to be generated. One workflow can be connected to several reports.

1. In the Workflow menu, select **Reporting**.



2. Click the plus sign **+** to add a new report to the workflow.



3. Identify the Account and Asset Class.

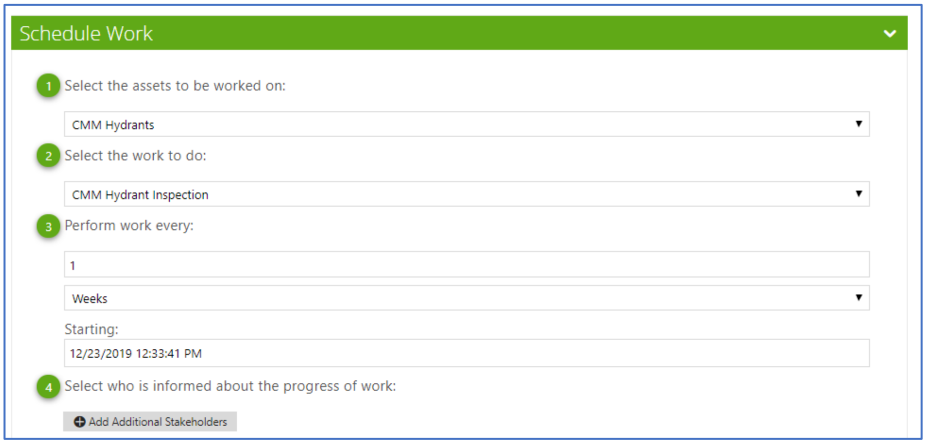
4. Click **Reporting Settings**.

Connect the Workflow to Google Sheets via Work Scheduler

NOTE: The reporting feature is moving from Work Scheduler to Workflow Classes

Reports can be generated from a completed workflow. For example: the results of an inspection can trigger an Inspection Report to be generated. One workflow can be connected to several reports.

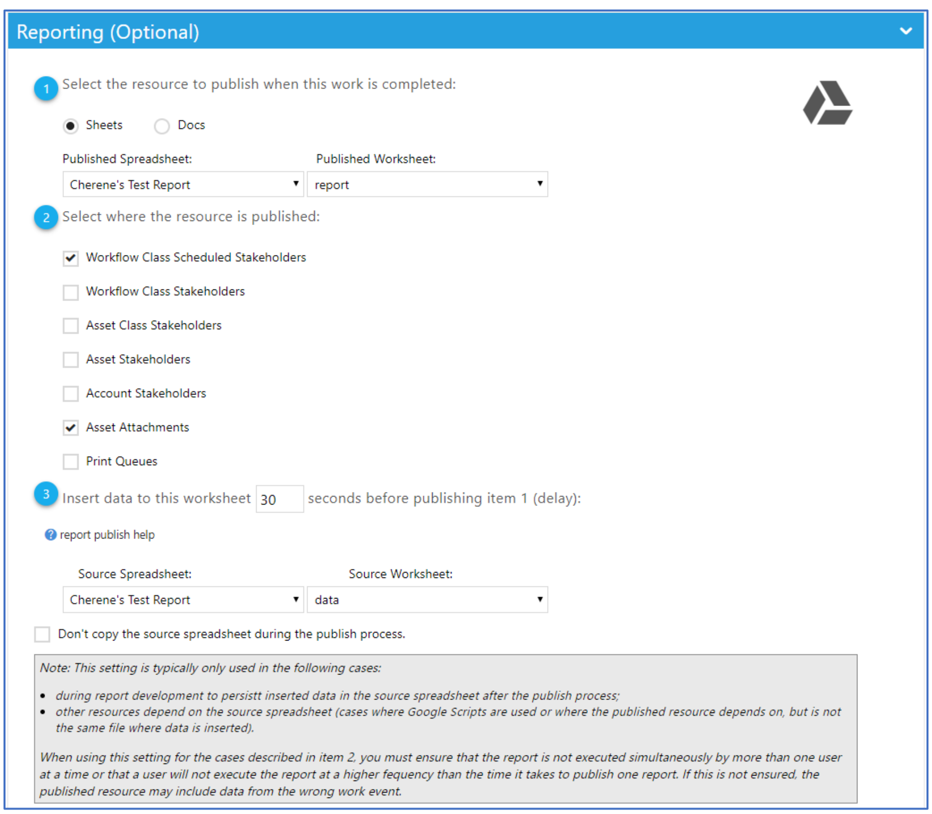
In the Work Scheduler, create a Work Schedule for the Asset Class/Workflow Combination. See Work Scheduler Help File for more information.

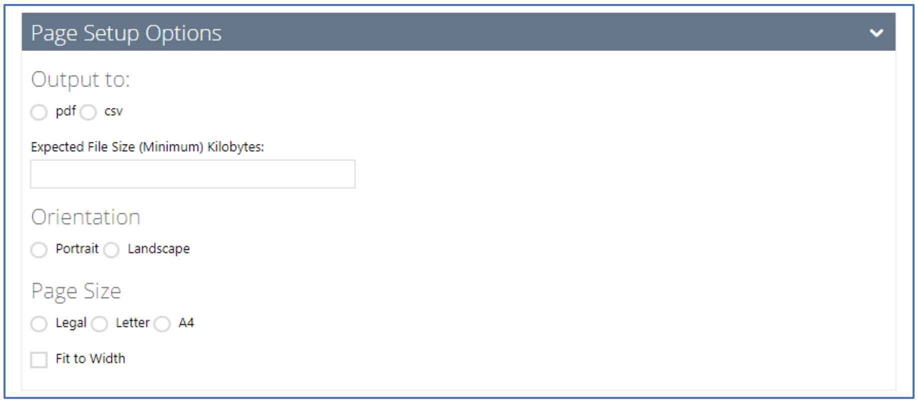


Common Reporting Settings

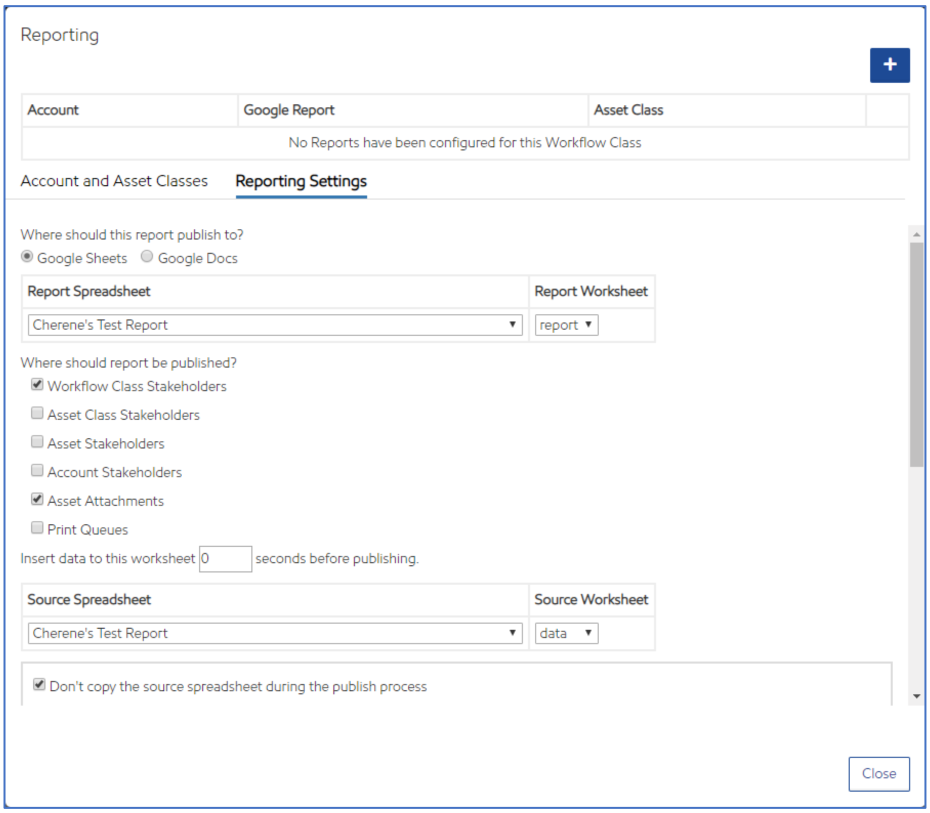
These settings are the same whether connecting the report via Workflow Classes or the Work Scheduler.

Work Scheduler





Workflow Class



Complete the Reporting page.

1. Identify where the report is published.

   Select **Google Sheets** to create the entire report in Google Sheets. Select **Google Docs** to create a report in **Google Docs**. Selecting **Google Docs** still requires a **Google Sheet** to be created to capture the data. The **Google Doc** then needs to be configured to read the data from the **Google Sheet**.

   Select the **Report Spreadsheet** (or Doc). The list displays all files that exist in the linked Google Sheets (or Google Docs) account. See Accounts for more information about linking to a Google Account.

   Select the **Source Worksheet** (if Sheets was selected above). The list displays all the tabs within the selected Spreadsheet. Select the tab that contains the formatted report to be returned. Typically, Utility Cloud recommends creating an empty tab in a Google Sheet and labeling it **Report**. Format this tab as desired to create a report.

2. Select where the resource is published.

   When the report is created, it can be automatically added to the Attachments section of any of the areas identified. **Asset Attachments** and **Workflow Class Stakeholders** are checked by default.

3. Insert data to this worksheet X seconds before publishing item 1.

   This is the length of time the system waits to send the report back to the selected resources. Sending large amounts of data to the Google Sheet can occasionally take longer and may return a blank report. If a report is returned without any data in it, increase this time accordingly. Typically 30 seconds is long enough to generate the average report. Increase this time in increments of 30 seconds (i.e. 60, 90, 120) until the report returns the expected data.

4. Select the **Source Spreadsheet** and the **Source Worksheet** to publish the data.

   Select a sheet to capture the completed workflow data and asset attribute data when the workflow is saved after work is completed. Typically, Utility Cloud recommends creating an empty tab in a Google Sheet and labeling it **Data**.

5. **Don't copy the source spreadsheet during the publish process** option.

   If this box is **unchecked**, when Utility Cloud generates the Report, it makes a copy of the original file, sends the data to the newly created copy of the report, processes the data in the copy, and sends the result back to Utility Cloud. This process supports the ability to have multiple workers complete work and generate reports without conflicting with each other.

If this box is **checked**, Utility Cloud does not create a copy of the original file. The data is posted directly to the original file. This is necessary when the report is being created for the first time to send the data so that it can be hooked up to the report. Once the data has been sent to the Google Sheet for the first time, this box can be **unchecked** again to avoid conflicts.

If any changes need to be made to the report in the future (i.e. fields have been added to the workflow or asset that need to appear in the report), this box needs to be checked again in order for the new fields to be sent to the original report. Once the edits have been made to the Google Sheet, this box can be **unchecked** again to avoid conflicts.

6. Identify the Page Options.
7. Click **Save**.

For more information regarding Google Drive see Accessing and Uploading to Google.

Connect the Data to the Google Report

Now that the report structure has been created and the data has been sent to the Data tab in the Google Sheet, the fields in the report can be mapped to the data.

The data sent to the Data tab includes all fields from the workflow as well as all fields from the asset on which the workflow was performed. The workflow data fields appear in the first set of columns, the asset data fields appear after the workflow fields.

The field titles are the same as the field title in the workflow or asset with "uc_" added as a prefix, and all spaces and special characters removed.

For Example: If the name of the field on the workflow is "Facility Name:", when the data is passed to the Google Sheet the name of the field becomes "uc_FacilityName". The spaces and colon are removed and uc_ is appended as a prefix.

It is important to note that if a field is added to the workflow after the report has been mapped, the new field appears at the end of the workflow fields, and *before* the asset fields, essentially moving all of the asset fields to the right. If the report was mapped directly to a specific cell (S2 for example) and a field was added to the workflow, the report is still mapped to cell S2, but the data in that cell may no longer be the data you want displayed in the report. To make the report more resilient, best practice is to refer to the field title using the HLOOKUP function to locate the column name instead of directly referencing a specific cell.

	A	B	C	D	E	F	G	H	I	J	K	L
1	uc_WorkflowDate	uc_WorkflowBy	uc_Signature	uc_WorkFlowReportID	uc_ReportDate	uc_FoodType	uc_Ifotherexplainthefoodtype	uc_PrimarySinkDrainSize	uc_IfOtherexplain	uc_Reasonforthisdemandinspection	uc_NumberofGarbageDisposals	uc_RenderingContaineronSite
2	10/2/2019 15:51:5(	Mark Lovitt	https://ucld.us/Get	818658737	10/2/2019 12:00:00 AM					Decant Permit Follow-up		
3												

****

HLOOKUP(search_key, range, index, [is_sorted])

search_key - The value to search for. The name of the column "uc_FacilityName"

range - The range to consider for the search. The first row in the range is searched for the key specified in search_key. The range needs to encompass all the columns with data.

index - The row number of the value to be returned, where the first row in range is numbered 1.

For example: =HLOOKUP("uc_FacilityName", Data!A1:T2, 2, False)

This function looks for the word “uc_FacilityName” in row 1 of columns A to T and returns the value found in row 2 of the column where “uc_FacilityName” is found in row 1.

is_sorted - **[**OPTIONAL - TRUE by default**]** - Indicates whether the row to be searched (the first row of the specified range) is sorted.

If is_sorted is TRUE or omitted, the nearest match (less than or equal to the search key) is returned. If all values in the search row are greater than the search key, #N/A is returned.

If is_sorted is set to TRUE or omitted, and the first row of the range is not in sorted order, an incorrect value might be returned.

If is_sorted is FALSE, only an exact match is returned. If there are multiple matching values, the content of the cell corresponding to the first value found is returned, and #N/A is returned if no such value is found.

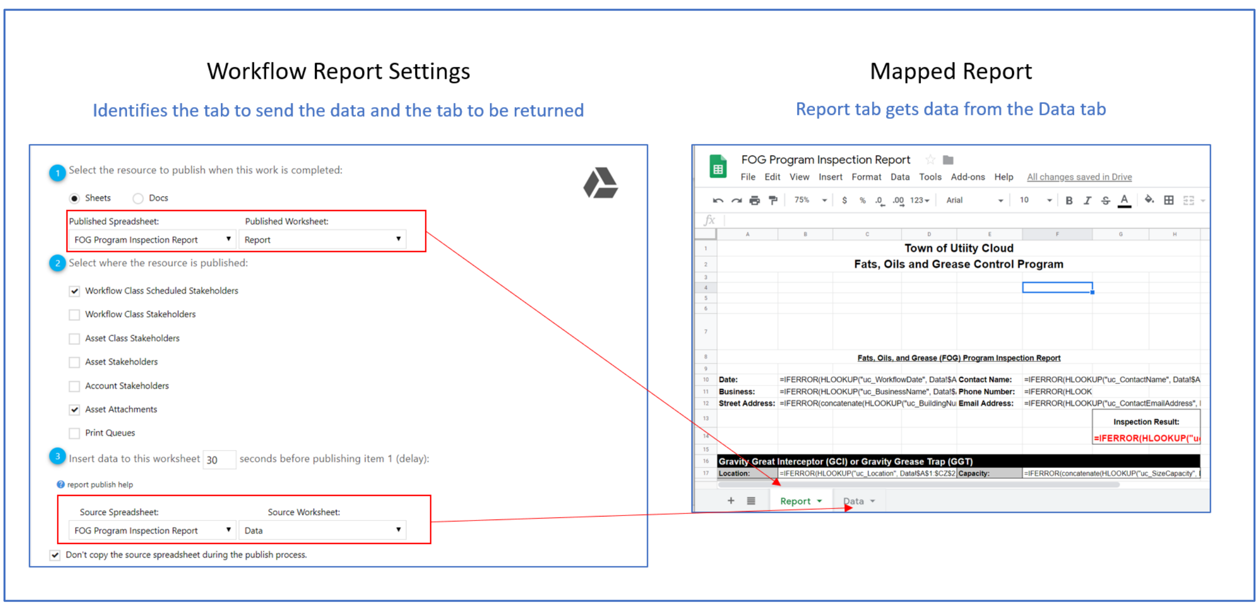
=IFERROR(HLOOKUP("uc_columnheader", Data!A1:T2, 2, False), "")

If index is not between 1 and the number of rows in range, #VALUE! is returned.

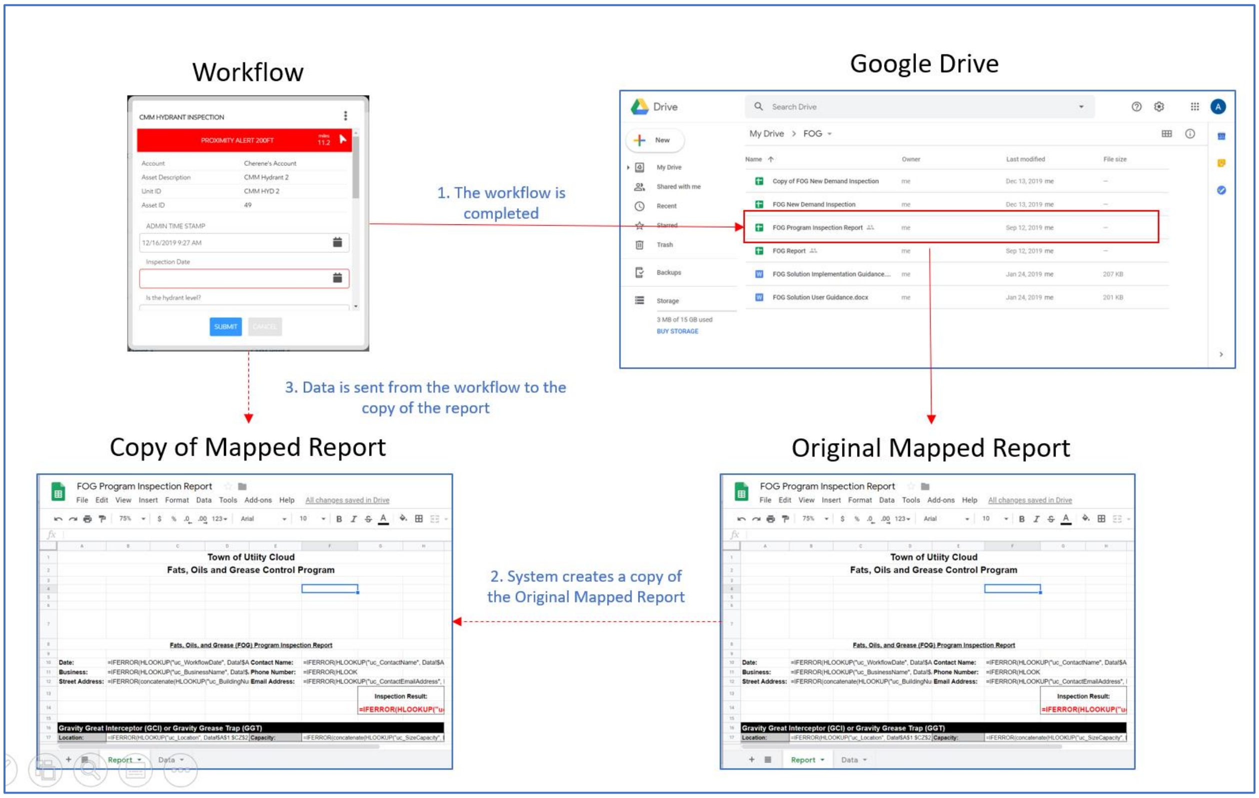
Once the report has been mapped to the data, from the workflow report settings screen uncheck the **Don't copy the source spreadsheet during the publish process** option.

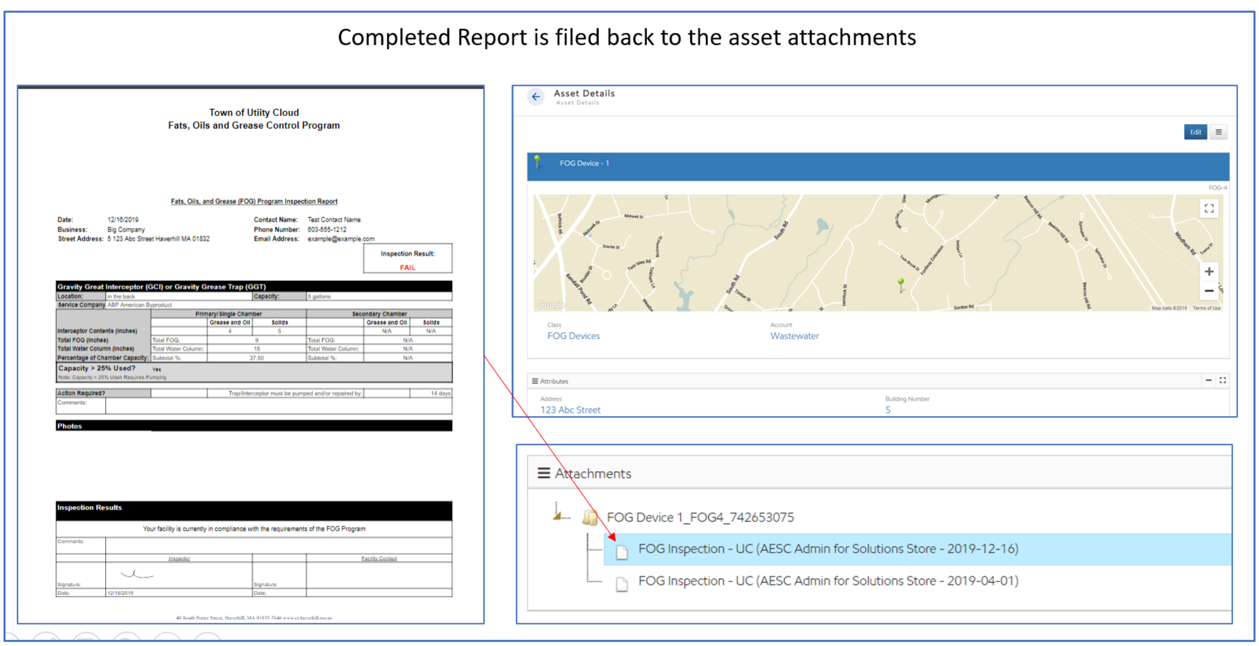
Overall Process of Report Creation using Google Sheets

In the Workflow Report Settings, identify the Google Sheets tab where the data (Data tab) is sent, and the tab of the finished report (Report tab) which is returned to the asset.



When the workflow is completed, the system creates a copy of the original mapped report and sends the data to the copy of the report. This is done so that when multiple workflows are completed at the same time, the data from the two workflows do not collide creating an inaccurate report.





Create a Many-to-One (or Many-to-Many) Report Structure

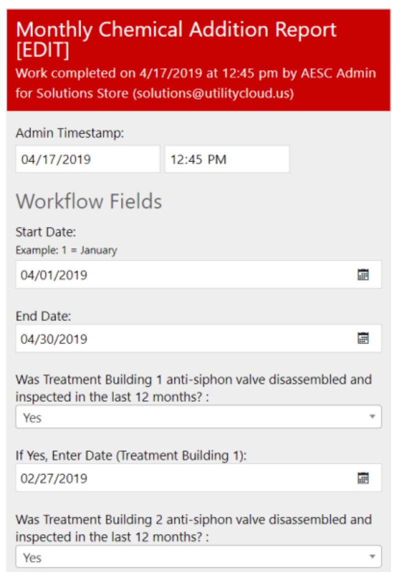
The MA DEP Chemical Addition Report is an example of a many-to-many report as these report on many treatment locations where chemical tests are performed on a daily basis. Once per month these reports are submitted to the MA DEP. This requires a slightly different approach to creating the report.

The initial setup of the report follows the same process as creating a One-to-One Report. Since this type of report uses data from multiple work orders from multiple assets, a Summary Type asset needs to be used to run the report. Create a File Cabinet asset class to serve as the supporting asset to run the reports on multiple assets.

Explanation of File Cabinet asset.

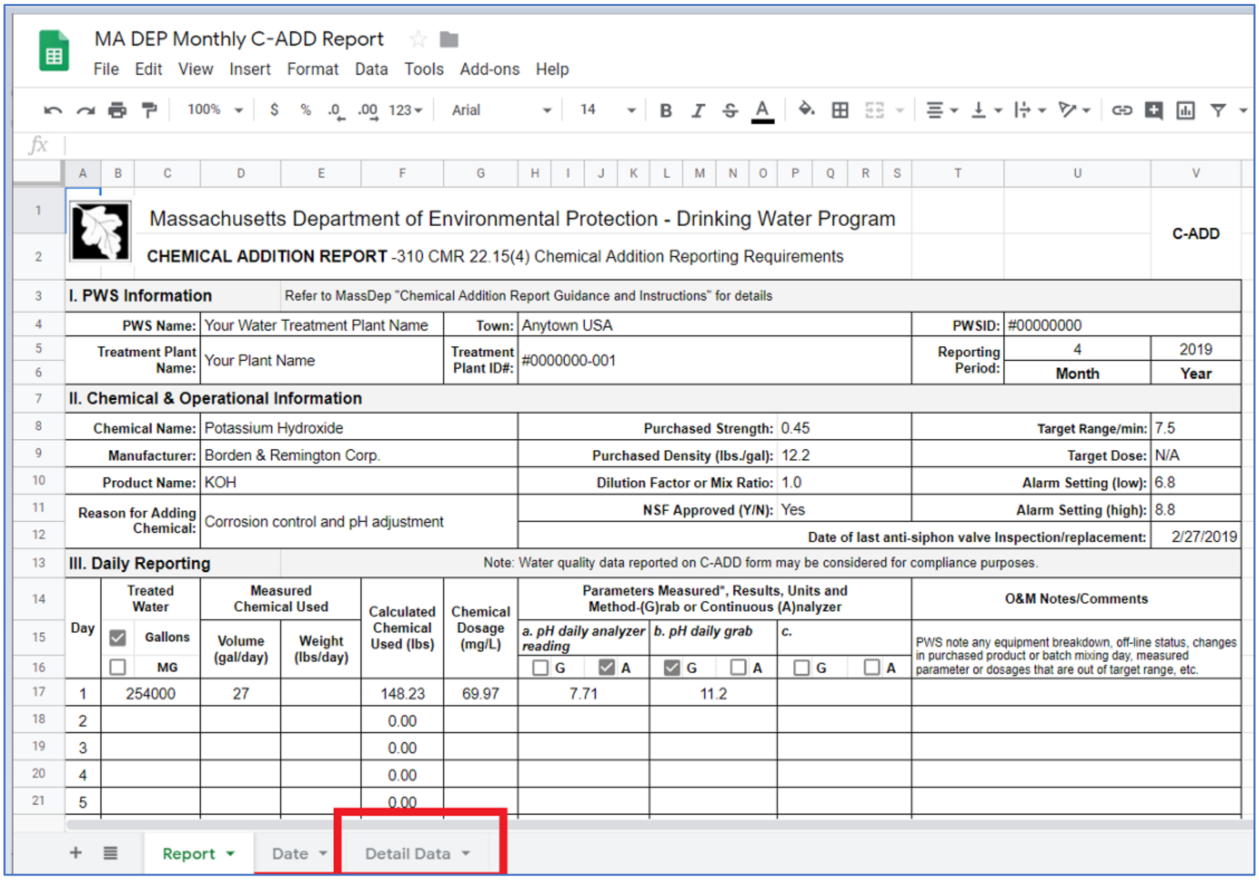
A workflow requires an asset in order to perform the work. In a Summary Report such as the MA DEP Chemical Addition Report, it contains data from work performed on multiple assets so the report cannot be run on a single Well or Treatment Location. It must contain all of them. In order to avoid running a report on several individual assets, a File Cabinet is created to assist in running a single report on multiple assets. A specific workflow must also be created to run the report itself to populate the Data tab. Quite often, the workflow contains only a Starting Date and an Ending Date used to limit the data on the Detailed Data tab but it can contain other data points to capture other data to support the overall report.

Since a workflow report requires an asset to run that workflow, a File Cabinet asset is used to run workflows and store Summary Reports.

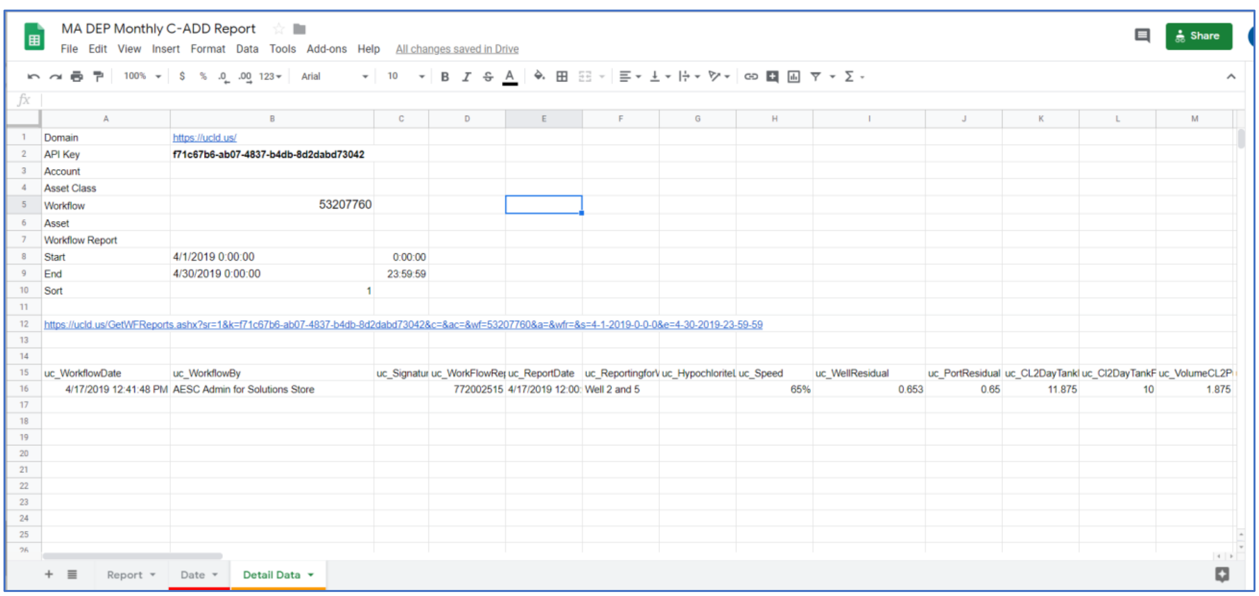


Set up the report to handle multiple work orders and assets.

This requires another tab to capture the data regarding the multiple work orders (Detailed Data).



This tab is set up differently and requires some assistance from UC resources.

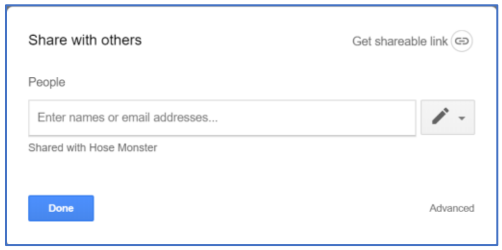


This tab has specific features that cannot be copied simply by copying the cells from one tab to another. The tab needs to be copied in its entirety. Utility Cloud can provide access to a starter files that contains this tab to allow for easier copying.

Steps to provide starter sheet

From the Solutions Library, select the “Report Detail Data Starter Spreadsheet”.

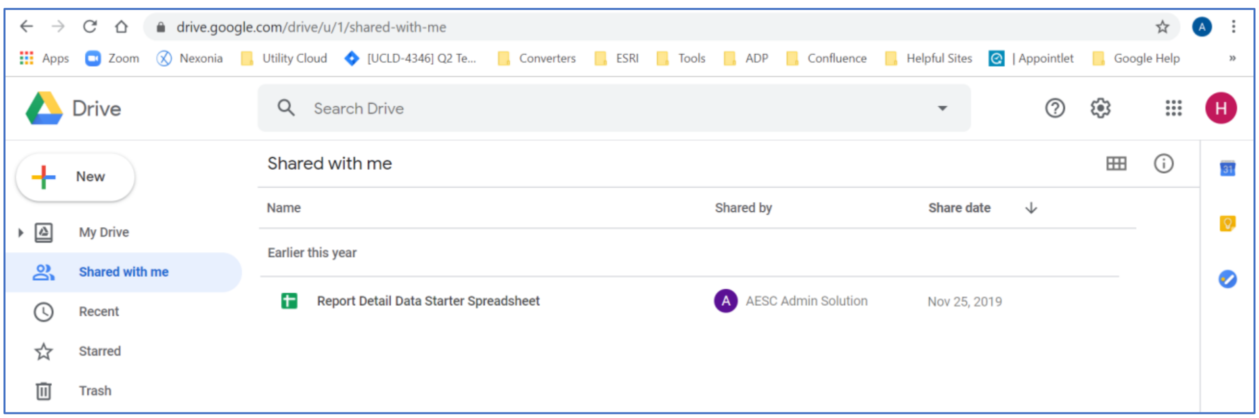
Right click on this file and click **Share**.



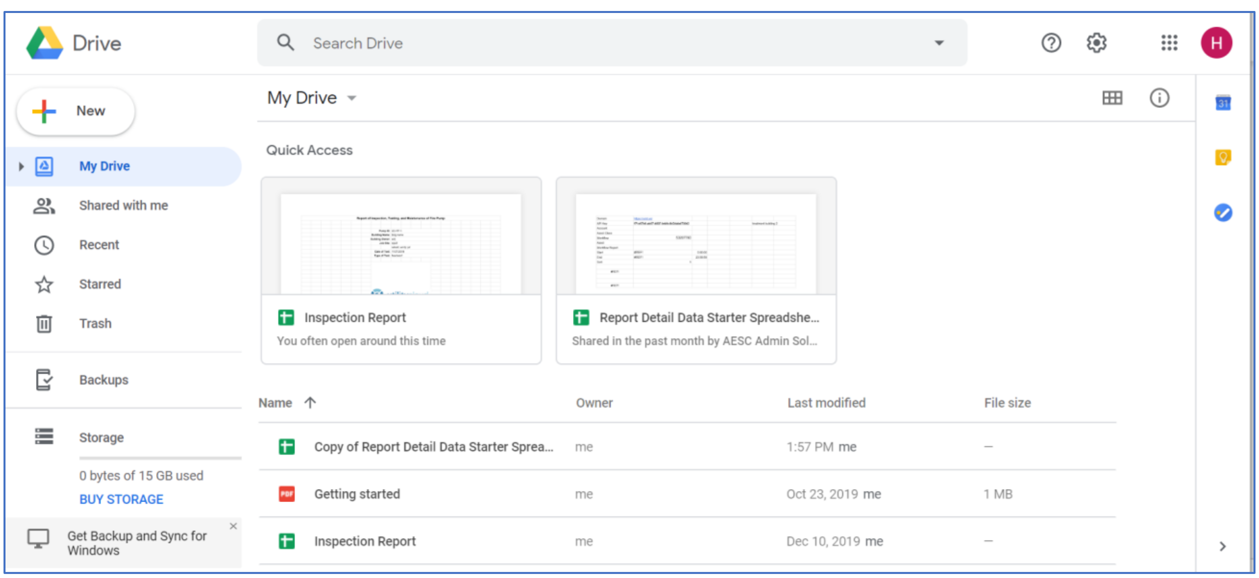
Enter the Google mail address of the account to share this sheet.

Once Shared, log into the destination account (the account you shared with).

Under “Shared with Me”, right click on the “Report Detail Data Starter Spreadsheet” file.



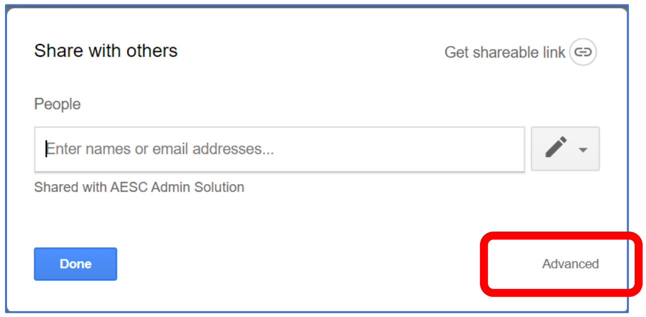
Select **Make a copy** – this makes a copy and puts it in **My Drive**.



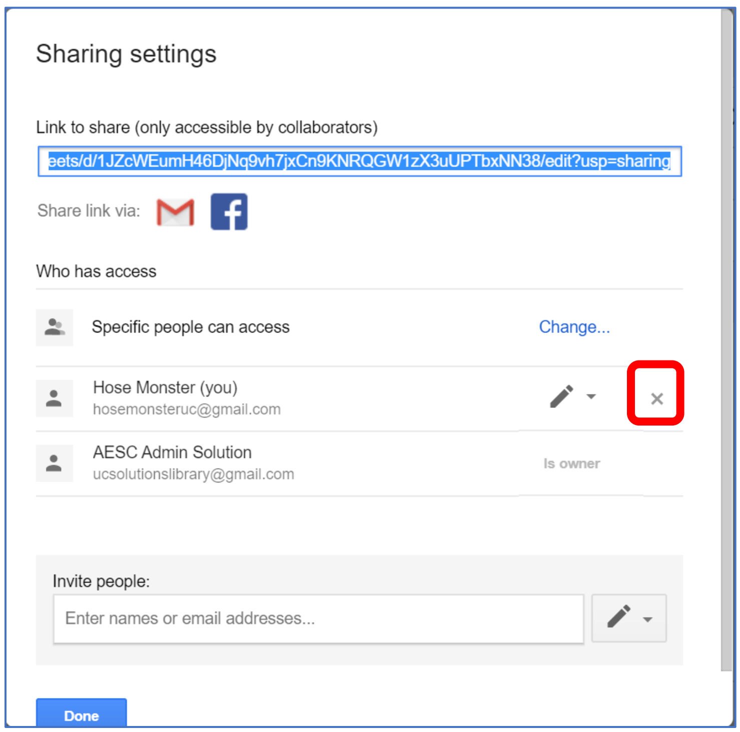
Once this copy has been made, the original sheet that was shared must now be unshared to avoid making changes to the original sheet.

Return to “Shared with me” and right click on the file again.

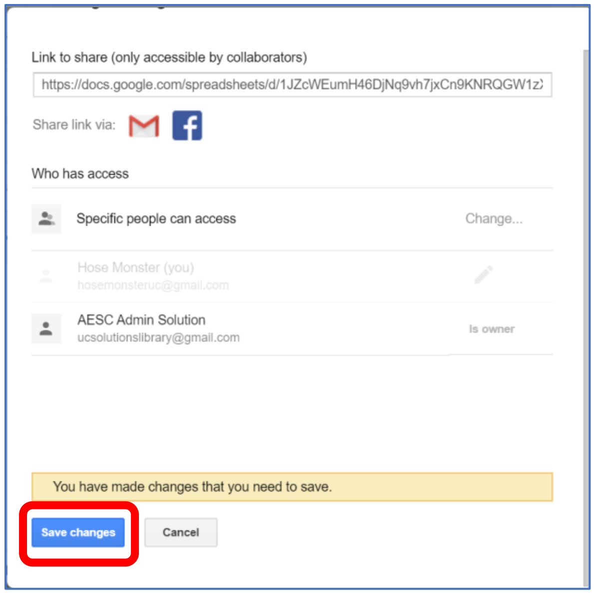
Select **Share**, and then select **Advanced**.



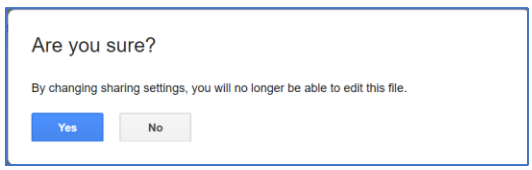
Click the **X** next to the Google address of the current account.



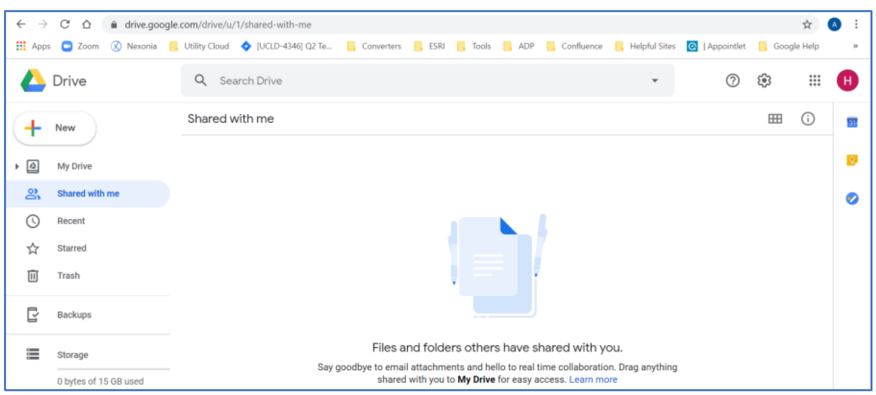
Click **Save Changes**.



Click **Yes**, and then click **Done**.



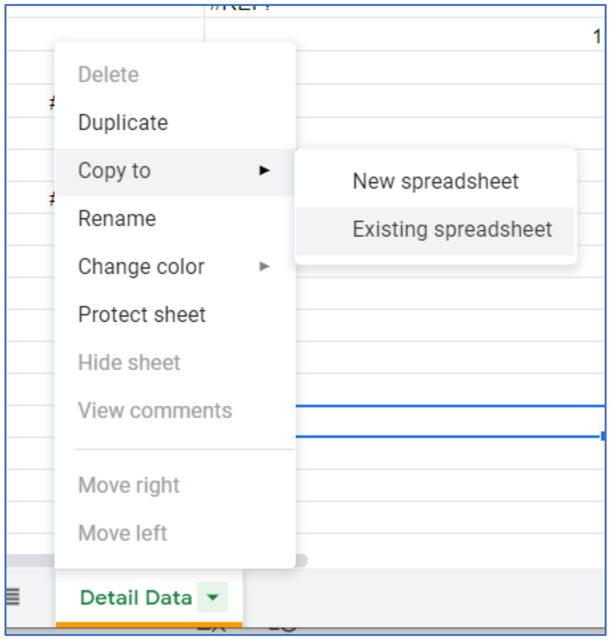
The file is no longer in the "Shared with me folder".



Copy the tab from the "Copy of Report Detail Data Starter Spreadsheet".

Open the "Copy of Report Detail Data Starter Spreadsheet".

Right click on the "Detail Data" tab, select **Copy to > Existing Spreadsheet**.



Select the report file where the tab is copied to.

The “Copy of Report Detail Data Starter Spreadsheet” can now be deleted.

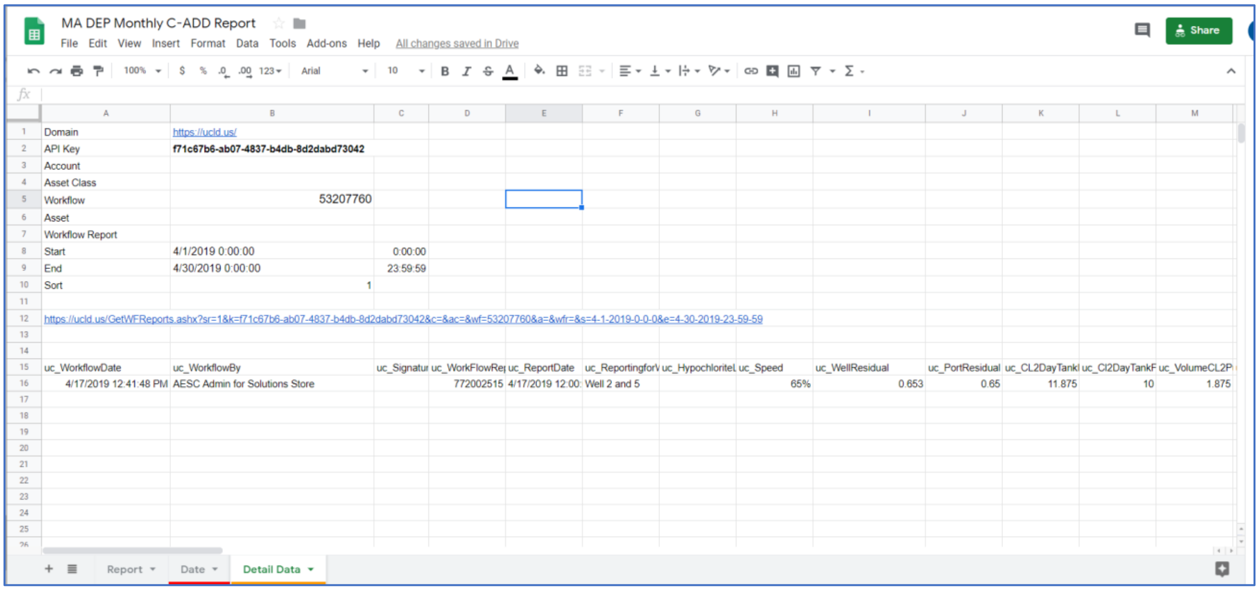
Once the new tab is within the desired report file, rename it from **Copy of Detail Data** to **Detail Data**.

NOTE: The name of the tab can be anything. **Detail Data** is used in this document for standardization.

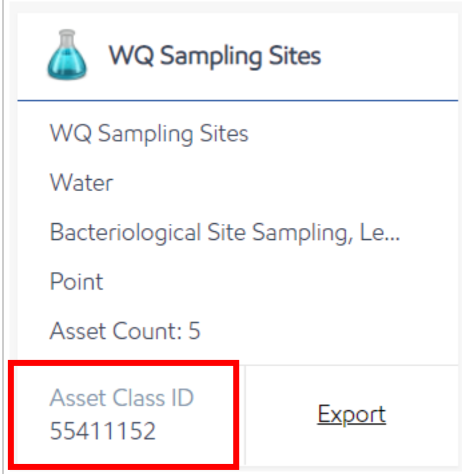
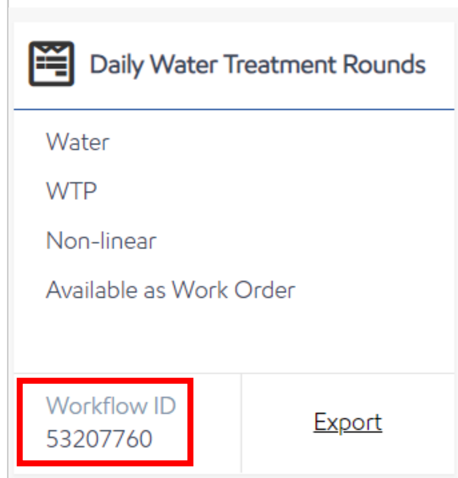
This tab can now be configured for your purposes.

Configure the Detailed Data tab

On this tab, there is the ability to limit the data returned by identifying various parameters.

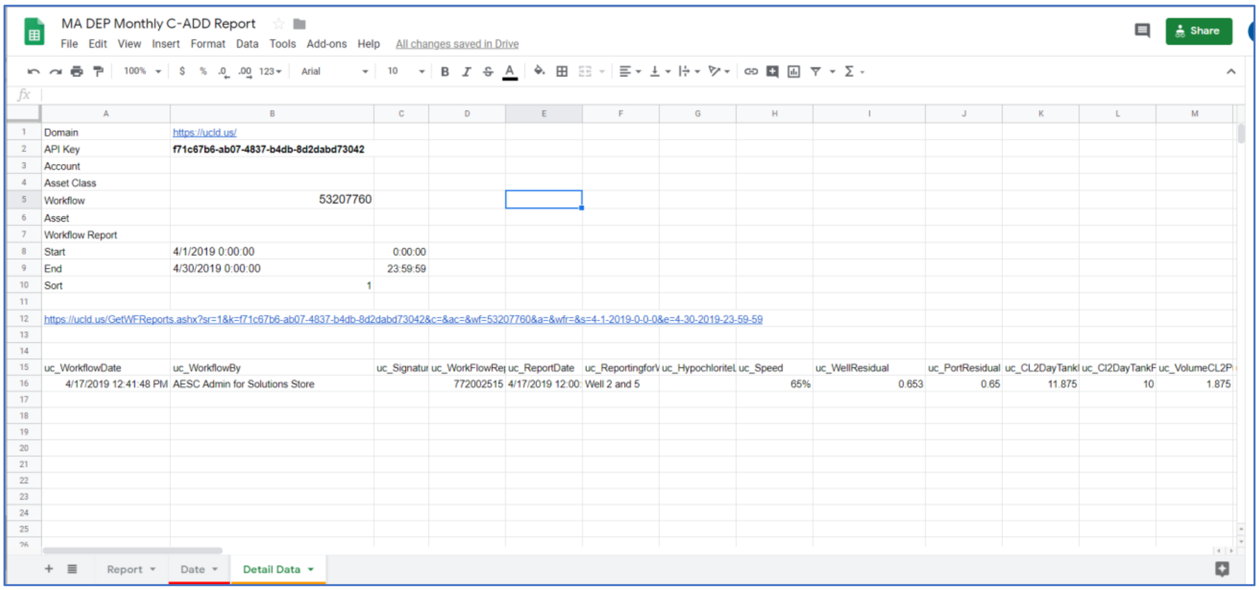


Domain	https://ucld.us/	This must remain as is
API Key	**f71c67b6-ab07-4837-b4db-8d2dabd73042**	This is the API Key for the Admin user. 
Account		Enter the Account ID to limit data returned to a specific account. To return data from all accounts, leave blank.
Asset Class		Enter the Asset Class ID to limit data returned to a specific asset class. To return data from all asset classes, leave blank.

		
Workflow	53207760	Enter the Workflow Class ID to limit data returned to a specific workflow class. To return data from all workflow classes, leave blank. NOTE: Returning all workflow classes only returns the basic workflow datapoints but not all fields within all workflows. 
Asset		Enter the Asset ID to limit data returned to a specific asset. To return data from all assets, leave blank.
Workflow Report		Enter the Workflow Report ID to limit data returned to a specific workflow report. To return data from all workflow reports, leave blank.
Start	4/1/2019 0:00:00	Refer the start and end dates to the Data tab start and end dates. =Date!F2

End	4/30/2019 0:00:00	Refer the start and end dates to the Data tab start and end dates. =Date!G2
Sort	1	Enter 1 if the data is sorted by workflow report date or 0 if it does not need to be sorted.

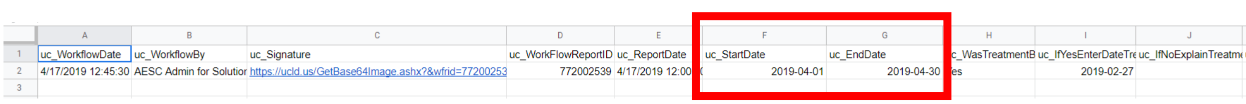
Hook up the Starting and Ending Dates.



In the Start and End fields on the Detailed Data tab, reference the Start and End Dates on the Data tab.

Example: the formula in the Detailed Data tab reads:

- cell B8 reads =Date!F2
- cell B9 reads =Date!G2



Using this technique, the Detailed Data tab updates with the dates provided from the Report Summary workflow on the File Cabinet, limiting the detailed data to the same date range.

Creating Microsoft Excel Reports

The basic steps to creating a report with Microsoft Excel is as follows.

Steps using Microsoft Excel:

1. Install the Excel Add-in tool from the link provided

https://utilitycloud.atlassian.net/wiki/spaces/UCH/pages/79626309/Excel+Add-in+Access+and+update+Utility+Cloud+data+using+Excel

2. Gather the data to be used in the report via the Excel Add-in on one worksheet (users can report on Asset Details or Workflow Details)
3. Create the report structure on another worksheet
4. Map the fields on the Report worksheet to the Data worksheet

The sections that follow provide details for creating Microsoft Excel Reports.

Create a One-to-One Report Structure

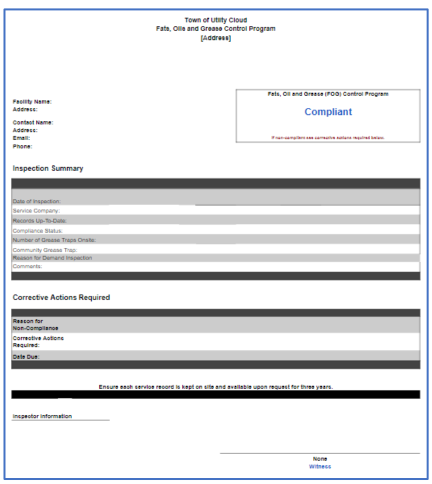
1. From the Microsoft Excel, create a new workbook.

2. Create a tab labeled **Report**. This appears in a format of your choosing. This tab has data linked to it from the **Data** tab or other sheet(s) with the workflow data.

   NOTE: The name of the tab can be anything. **Report** is used in this document for standardization.

3. Create a tab labeled **Data**. The data tab is the sheet that the workflow data is retrieved from the Excel Add-in.

   NOTE: The name of the tab can be anything. **Data** is used in this document for standardization.



Example of formatted report

Connect the Data to the Excel Report

Follow the instructions in Connect the Data to the Google Report.

Create a Many-to-One (or Many-to-Many) Report Structure

The MA DEP Chemical Addition Report is an example of a many-to-many report as these report on many treatment locations where chemical tests are performed on a daily basis. Once per month these reports are submitted to the MA DEP. This requires a slightly different approach to creating the report.

The initial setup of the report follows the same process as creating a One-to-One Report. The creation of separate tabs to capture the relevant data is required.

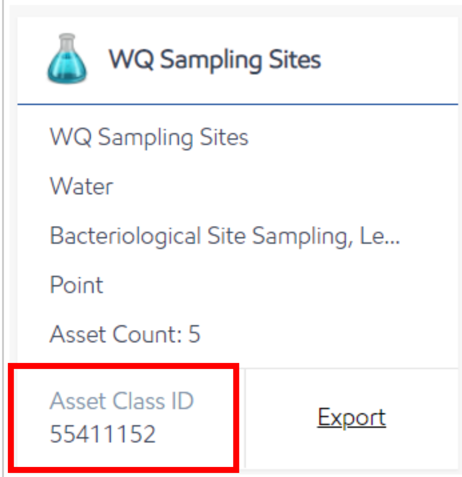
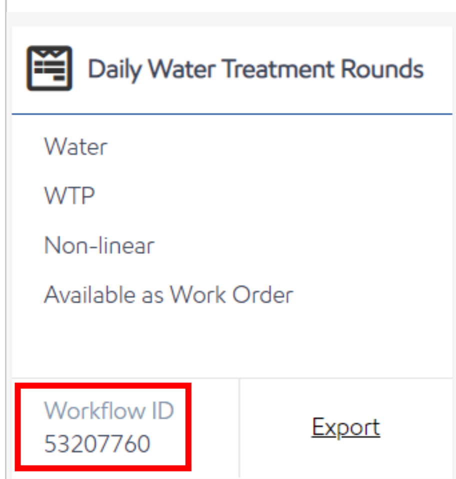
When reporting on Assets, each time the user updates the report with current Asset data, you must 'Get Assets' to refresh the list of assets.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1														CMM Hydrants	CMM Hydrants	CMM Hydrants
2	InternalSystemID	AssetID	Is Active	AccountName	AssetClass	UnitID	AssetDescription	ParentAssetKey	ParentUnitID	AssetTag	StakeholderEmail	Lat	Lon	My field name	Manufacturer	Color
3	650512619	49	Y	Cherene's Account Test	CMM Hydrants	CMM HYD 2	CMM Hydrant 2					42.783701	-71.534396		Bosch	Red
4	650512624	51	Y	Cherene's Account Test	CMM Hydrants	CMM HYD 3	CMM Hydrant 3					42.769942	-71.249609		Bosch	Green
5	650512629	52	Y	Cherene's Account Test	CMM Hydrants	CMM HYD 4	CMM Hydrant 4					42.6824353983863	-71.89453125		Klineright	White
6	650640866	59	Y	Cherene's Account Test	CMM Hydrants		my test hydrant					42.774871	-71.249449		Klineright	
7	696866223	61	Y	Cherene's Account Test	CMM Hydrants		CMM Point 6					42.799289	-71.53669		Bosch	
8	789128464	117	Y	Cherene's Account Test	CMM Hydrants		CMM Hydrant 11					42.782232	-71.226635		Klineright	Brown
9	835257003	121	Y	Cherene's Account Test	CMM Hydrants		my test					42.778415	-71.24958		Klineright	
10	835257004	CMM-99	Y	Cherene's Account Test	CMM Hydrants		CMM-99					42.7784194295822	-71.2495598834324		Bosch	
11	835257005	CMM-100	Y	Cherene's Account Test	CMM Hydrants		CMM-100					42.778415	-71.24958		Klineright	
12	650512618	45	N	Cherene's Account Test	CMM Hydrants	CMM HYD 1	CMM Hydrant 1	650550360				42.791827	-71.45666		Klineright	Orange
13	650512623	50	N	Cherene's Account Test	CMM Hydrants	CMM HYD 3	CMM Hydrant 3	696877733				42.802304	-71.53859		Bosch	Green

When reporting on Workflows, once the data tab has been created, the user only needs to revise the criteria then click Refresh Current Sheet (or Refresh All Sheets if multiple workflows are being reported on).

	A	B	C	D	E	F	G	H	I
1									
2	Account								
3	Asset Class								
4	WorkFlow Class	53207175	CMM Hydrant Inspection						
5	Asset								
6	WorkFlow Report								
7	StartDate	1/30/2019 0:00							
8	EndDate	12/30/2019 23:59							
9	Count	5							
10	https://api.ucld.us/env/prd/getwfreports?sr=0&k=5177a8cd-34d2-486f-a930-95465d968111&c=&ac=&wf=53207175&a=&wfr=&s=01-30-2019-00-00-00&e=12-30-2019-23-59-00								
11									
12									
13									
14									
15									
16									
17	uc_WorkflowDate	uc_WorkflowBy	uc_Signature	uc_WorkFlowReportID	uc_ReportDate	uc_InspectionDate	uc_Isthehydrantlevel	uc_Whatistheconditionofthehydrant	uc_TestdatefldwithSL
18	10/22/2019 2:34:13 PM	Cherene Morrissey		818806435	10/22/2019 12:00:00 AM	2019-10-22	No	Needs Painting	2019-10-23
19	9/10/2019 9:02:14 AM	Cherene Morrissey		818494553	9/10/2019 12:00:00 AM	2019-09-10	Yes	OK	
20	4/9/2019 11:23:31 AM	Cherene Morrissey		771932040	4/9/2019 12:00:00 AM	2019-04-09			
21	4/2/2019 7:54:50 AM	Cherene Morrissey		771872362	4/2/2019 12:00:00 AM	2019-04-05	No	Repair Needed	2019-04-02
22	2/21/2019 2:56:54 PM	Cherene Morrissey		725728237	2/21/2019 12:00:00 AM	2019-02-19			

Similar to the Google Sheet setup, this sheet can be revised to suit the needs of the report.

Account		Enter the Account ID to limit data returned to a specific account. To return data from all accounts, leave blank.
Asset Class		Enter the Asset Class ID to limit data returned to a specific asset class. To return data from all asset classes, leave blank. 
Workflow Class	53207760	Enter the Workflow Class ID to limit data returned to a specific workflow class. To return data from all workflow classes, leave blank. NOTE: Returning all workflow classes only returns the basic workflow datapoints, and not all fields within all workflows. 

Asset		Enter the Asset ID to limit data returned to a specific asset. To return data from all assets, leave blank.
Workflow Report		Enter the Workflow Report ID to limit data returned to a specific workflow report. To return data from all workflow reports, leave blank.
Start Date	4/1/2019 0:00:00	Refer the start and end dates to the Data tab start and end dates. =Date!F2
End Date	4/30/2019 0:00:00	Refer the start and end dates to the Data tab start and end dates. =Date!G2
Count		Returns a count of the number of records returned.

After making changes to the criteria data, click "Refresh Current Sheet" to update the data returned. Multiple tabs can be created for the various workflow data needed to support the report.

Helpful Functions and Formulas

Google Sheets Function List: https://support.google.com/docs/table/25273?hl=en

Overview of Excel Formulas: https://support.office.com/en-us/article/overview-of-formulas-in-excel-ecfdc708-9162-49e8-b993-c311f47ca173

Excel Function List: https://support.office.com/en-us/article/excel-functions-by-category-5f91f4e9-7b42-46d2-9bd1-63f26a86c0eb