

H₂O Cloud Reporter



Data Management | Report Generation
Wherever You Are

Chemical Feed Report Setup Instructions

In early September, DEP sent all Public Water Suppliers a copy of the new report with attached instructions (A populated copy of the new report at the end of this document). After reviewing the new report and instructions, the user will find that MADEP a number of changes. A new section, **II. Chemical & Operational Information** was added. In addition to chemical information that is included on the current chemical feed report, new fields were added for showing the Dilution Factor and the chemical's NSF Approval. Also, added to this section are fields for operational targets for residuals and dosages, and Alarm settings.

Special attention should be given to the "Purchased Strength (%)", "Purchased Density (lbs/gal)" and "Dilution Factor or Mixed Ratio" fields. These fields must include accurate information because they are now directly used in the dosage calculation where they may not have been in the past. For example, for 25% sodium hydroxide (NaOH) and 45% potassium hydroxide (KOH) we would previously determine the solution strength in Lbs/Gal based on the product's specific gravity and a manufacturer's solution preparation table. For the new Chemical Addition Report, MADEP wants the solution's active strength in Lbs/Gal to be determine by multiplying the Purchase Strength (%) by the Purchased Density (Lbs/Gal) or Product Weight. If the user dilutes the chemical, this value is then multiplied by the Dilution Factor as a decimal. For example, sodium hydroxide is delivered with a Purchase Strength of 25% and it has a Purchased Density (or Product Weight) of 10.7 Lbs/Gal. The solution strength is calculated as follows:

$$\begin{aligned}\text{Solution Strength} &= \text{Purchase Strength} \times \text{Product Weight} \times (\text{Dilution Factor -if diluted}) \\ &= 0.25 \quad \times \quad 10.7 \quad \times \quad 1 \text{ (not diluted)} \\ &= 2.67 \text{ Lbs/Gal}\end{aligned}$$

For most chemicals, the user will not see any difference in their calculated dosage. However, for sodium hypochlorite the reported dosage is going to be higher by a factor of about 1.18 for 12.5 % hypochlorite and 1.21 for 15% hypochlorite. On the new

Chemical Addition report, we will be reporting dosage by product weight. Previously, we were reported dosage as free available chlorine.

To incorporate these new requirements into the H₂O Cloud Reporter, we have made several changes to the Chemical, Chemical Delivery and Chemical Feed System setup pages. Also, a new Special Report setup page has been created for report Header and Footer information. These are all now available for review and update or setup. These changes were necessary for populating new fields on the chemical feed report, modifying chemical dosage calculations and modifying how water quality data is handled. See setup instructions below.

New fields include: Treatment Plant ID#, Dilution Factor, NSF Approved, Target Range/Min, Target Dose, Alarm Settings (Low), Alarm Settings (High), Grab (G) and Analyzer (A) identifiers, (3) Residual Column Descriptions. These fields, as well as the existing Purchased Strength (%), Purchased Density (lbs/Gal), Product Name, and Manufacturer fields and the Sample Type (Average, Maximum, Minimum, Single Point) identifier, all need to be properly set up in order for the Chemical Addition Form (C-ADD) to be completed. The following paragraphs describe how each of these fields are to be setup.

Treatment Plant ID# Field

The Treatment Plant ID# field is located on the Facility Setup page. Use the following steps to get to the Facility Setup page:

1. From your Home page, Click <Administration and Setup>. This will direct you to the Administration and Setup page.
2. Click <Facilities, Locations and Associated Data> to bring you to the Facility Setup page.
3. Select a Facility Name. A field will appear below the Facilities Name titled "Facility ID". Enter the Treatment Plant ID# into this field. Note: The Treatment Plant ID#'s may be found in your latest ASR, under Treatment Plants.

Grab (G) and Analyzer (A) identifiers and Sample Type (Average, Maximum, Minimum, Single Point) identifier

These identifiers are set up on the Chemical Setup page. Use the following steps to get to the Chemical Setup page and setting up these fields:

4. From your Home page, Click <Administration and Setup>. This will direct you to the Administration and Setup page.
5. Click <Facilities, Locations and Associated Data> to bring you to the Facility Setup page.
6. Select the facility (or first facility) that you need to set up.
7. Of the two options available, click <Chemical Setup>. This will bring you to the Chemical Setup page.

8. On the Chemical Setup page (see figure below) select your first chemical by clicking the dropdown menu next to the Chemical Name.

For each chemical, we identify up to three Residual(s) to be Monitored (1, 2, and 3). The residual selected under Residual to be Monitored 1 will populate the "Parameters Measured" Column a on the chemical feed report. The Residual to be Monitored 2 will populate the "Parameters Measured" Column b and Residual to be Monitored 3 will populate the "Parameters Measured" Column c. When a parameter is selected as a Residual to be Monitored field (1, 2 or 3), the field expands, requesting that the user enter the Collection Method and the Data Type.

9. If you haven't already, select a parameter to be monitored. The field will expand, requesting that the user enter the Collection Method and the Data Type.
10. Under Collection Method, the user will select either PWS Staff (For Grab (G) sample) or Analyzer. If PWS Staff is selected, the "G" for grab sample in the respective "Parameter Measured" column (a, b, or c) will be checked. If Analyzer is selected, the "A" for analyzer will be checked. The data populated in columns a, b, or c will be water quality data that was respectively collected by PWS Staff or by an Analyzer.
11. Under Data Type, the user will select one of the following: Average, Maximum, Minimum or Single Point. It will identify whether the columns are populated with a daily single (data) point value or a daily Avg, Max, Min of many samples.

Note: The H₂O Cloud Reporter's Water Quality Data table has been modified to include Average, Maximum and Minimum columns. When data is either manually entered or uploaded from SCADA, each column will be populated.



Water Department Chemical Setup

New Record

Chemical Attributes

Facility:

Chemical Name:

Formula:

Delivery Date:

Residual to Monitor 1

Residual:

Collection Method:

Data Point:

Residual to Monitor 2

Residual:

Collection Method:

Data Point:

Residual to Monitor 3

Residual:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Disinfectant | <input type="checkbox"/> Corrosion Control |
| <input type="checkbox"/> Coagulant | <input type="checkbox"/> Sequestrant |
| <input type="checkbox"/> pH Control | <input type="checkbox"/> Fluoride |
| <input checked="" type="checkbox"/> Oxidant | <input type="checkbox"/> Taste and Odor Control |

[Chem Feed System Setup](#)[Chemical Delivery Data](#)

Purchased Strength (%), Purchased Density (lbs/Gal), Product Name, Manufacturer, and NSF Approved fields

These fields, as well as others, all relate to the Chemical, however may vary with each delivery. They are set up on the Chemical Delivery page as seen in the figure below. This data is used to both populate fields on the Chemical Feed report and may be used in part of the chemical dosage calculations.

Use the following steps to get to the Chemical Delivery page and setting up these fields:

1. From your Home page, Click <Administration and Setup>. This will direct you to the Administration and Setup page.
2. Click <Facilities, Locations and Associated Data> to bring you to the Facility Setup page.
3. Select the facility (or first facility) that you need to set up.
4. Of the two options available, click <Chemical Setup>. This will bring you to the Chemical Setup page.
5. On the Chemical Setup page select your first chemical by clicking the dropdown menu next to the Chemical Name.
6. Next, Click <Chemical Delivery Data>. This will bring you to the Chemical Delivery page.

The screenshot shows the H2O SOFTWARE interface with a navigation bar at the top containing 'HOME', 'ABOUT', 'CLOUD REPORTER', 'FORUM', 'REVIEWS', 'SUPPORT', and 'CONTACT'. The main content area is titled 'Water Department Chemical Delivery' with a date of '2002-01-01'. Below this is a 'New Record' button. The form contains the following fields:

Facility:	Gordon Thompson Water Filtration Pl	Purchased Strength (%):	12.5
Chemical Name:	Sodium Hypochlorite	Specific Gravity:	1.18
		Product Density (Lbs/Gal):	9.84
		Product Name:	Sodium Hypochlorite
		Product Manufacturer:	Harcros Chemicals Inc.
		Matrix:	Liquid
		Amount Delivered:	1000
		NSF Approved:	<input checked="" type="checkbox"/>

Reason for Adding Chemical, Dilution Factor, Date of Last Anti-siphon Valve Inspection/Replacement

The Dilution Factor and Date of Last Anti-siphon Valve Inspection/Replacement relate directly to specific chemical feed system and are set up on the Chemical Feed System Settings page, under Tab 2.

Use the following steps to get to the Chemical Feed System Settings page for setting up these fields:

1. From your Home page, Click <Administration and Setup>. This will direct you to the Administration and Setup page.
2. Click <Facilities, Locations and Associated Data> to bring you to the Facility Setup page.
3. Select the facility (or first facility) that you need to set up.
4. Of the two options available, click <Chemical Setup>. This will bring you to the Chemical Setup page.
5. On the Chemical Setup page select your first chemical by clicking the dropdown menu next to the Chemical Name.
6. Next, Click <Chemical Feed System Setup>. This will bring you to the Chemical Feed System Setup page.
7. From the dropdown menu next to the Chemical System field, select the chemical system to be set up. In most cases there will only be one chemical feed system per chemical. However, many facilities have pre and post treatment systems such as Pre-Hydroxide and Post-Hydroxide. In these cases, both systems will need to be set up.
8. Next, click <System Settings> to bring you to the Chemical Feed System Settings page. By default, the page will open on Tab 1. On this page the user selects the point of application and the sample site locations. See figure below.

9. Next, select Tab 2 to bring you to the second page of the Chemical Feed System Settings page. See the figure below.

In addition to the Reason for Adding Chemical, Dilution Factor and Date of Last Anti-siphon Valve Inspection/Replacement fields, on this page, the user will find the Solution (lbs/Gal) field. In this field the user will enter the product of multiplying the Purchased Strength (%) X Product Density (Lbs/Gal) See figure above, the Chemical Delivery Setup page.

$$\text{Solution (lbs/Gal)} = \text{Purchased Strength (\%)} \times \text{Product Density (Lbs/Gal)}$$

Therefore, for the example shown in the figures above and below:

$$\begin{aligned} \text{Solution (lbs/Gal)} &= \text{Purchased Strength (\%)} \times \text{Product Density (Lbs/Gal)} \\ &= 0.125 (\% \text{ as decimal}) \times 9.84 \text{ Lbs/Gal} \\ &= 1.23 \text{ Lbs/Gal} \end{aligned}$$

This value is entered into the Solution (lbs/Gal) field as shown below.

correct. If they are not, the user must go to the Chemical Feed Special Report Setup page. The most recent month will appear. (An example is shown in the figure below). Edit the information as required on the page for the current month. Note: User must remember that the next month's Special Report information will be replicated from this edited current report.

H₂O SOFTWARE **Lawrence** ▼

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Report Setup
2018-10-01

|< < **New Record** ▲ ▼ > >|

<p>Chemical System: <input style="width: 100%;" type="text" value="Hypochlorite - WTP Finished"/></p> <p>Target Range (Low): <input style="width: 100%;" type="text" value="0.5"/></p> <p>Target Range (High): <input style="width: 100%;" type="text" value="1.0"/></p> <p>Target Range (Min): <input style="width: 100%;" type="text" value="0.2"/></p> <p>Target Dose (Low): <input style="width: 100%;" type="text" value="5.0"/></p> <p>Target Dose (High): <input style="width: 100%;" type="text" value="7.5"/></p> <p>Alarm Setting (Low): <input style="width: 100%;" type="text" value="0.2"/></p> <p>Alarm Setting (High): <input style="width: 100%;" type="text" value="2.0"/></p>	<p style="text-align: center;">Residual 1</p> <p>Residual 1 Label: <input style="width: 100%;" type="text" value="Cl2 (Free) - mg/L"/></p> <p>Residual 1 Result Description: <div style="border: 1px solid #ccc; padding: 5px; font-size: small;">Average Daily Free Cl₂ residual @ POE (100-Ft tap) using Hach <input style="width: 50px;" type="text" value="CL2"/> Analyzer.</div></p> <p style="text-align: center;">Residual 2</p> <p>Residual 2 Label: <input style="width: 100%;" type="text" value="Cl2 (Free) - mg/L"/></p> <p>Residual 2 Result Description: <div style="border: 1px solid #ccc; padding: 5px; font-size: small;">Daily Free Cl₂ residual Grab Sample @ POE (100 Ft tap).</div></p> <p style="text-align: center;">Residual 3</p> <p>Residual 3 Label: <input style="width: 100%;" type="text"/></p> <p>Residual 3 Result Description: <div style="border: 1px solid #ccc; padding: 5px; height: 40px; font-size: small;"></div></p>
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CHEMICAL ADDITION REPORT - 310 CMR 22.15(4) Chemical Addition Reporting Requirements

I. PWS Information - Refer to MassDEP "Chemical Addition Report Guidance and Instructions" for details.												
PWS Name ¹ :		Riverdale Water Department			Town ¹ :		Riverdale		PWSID ¹ :		9999000	
Treatment Plant Name ² :		Riverdale Water Treatment Facility			Treatment Plant ID# ² :		9999000-01T		Reporting Period ³ :		Jan 2018	
									Month		Year	
II. Chemical & Operational Information												
Chemical Name ⁴ :		Sodium Hypochlorite - NaOCl - Clearwell			Purchased Strength (%) ⁵ :		13		Target Range/min ¹² :		1.0 - 2.5/0.2	
Manufacturer ⁶ :		Borden and Remington			Purchased Density (lbs/gal) ⁹ :		9.883		Target Dose ¹³ :		4.0 - 5.0	
Product Name ⁶ :		Sodium Hypochlorite			Dilution Factor or Mix Ratio ¹⁰ :		1		Alarm Setting (low) ¹⁴ :		0.8	
Reason for Adding Chemical ⁷ :		Disinfection			NSF Approved (Y/N) ¹¹ :		N		Alarm Setting (high) ¹⁴ :		2.8	
					Date of last anti-siphon valve inspection/replacement ¹⁵ :						01/16/2018	
III. Daily Reporting												
Note: Water quality data reported on C-ADD form may be considered for compliance purposes.												
Day	Treated Water ¹⁶		Measured Chemical Used		Calculated Chemical Used (lbs) ¹⁸	Chemical Dosage ¹⁹ (mg/L)	Parameters Measured*, Results, Units and Method ²⁰ - (G)rab or Continuous (A)nalyzer ²¹			O&M Notes/Comments ²²		
	<input type="checkbox"/> Gallons	<input type="checkbox"/> MG	Volume ¹⁷ (gal/day)	Weight ¹⁷ (lbs/day)			a. Cl ₂ (Free) mg/L @ Clearwell	b. Cl ₂ (Free) mg/L @ FW	c. Cl ₂ (Total) mg/L @ FW			
	<input type="checkbox"/> G	<input type="checkbox"/> A	<input type="checkbox"/> G	<input type="checkbox"/> A	<input type="checkbox"/> G	<input type="checkbox"/> A	<input type="checkbox"/> G	<input type="checkbox"/> A	PWS note any equipment breakdown, off-line status, changes in purchased product or batch mixing day, measured parameters or dosages that are out of target range, etc.			
1	3,748,000		1097.1	142.6	4.56	2.055		2.188				
2	4,976,000		1446.5	188.0	4.53	2.085		2.263				
3	4,586,000		1334.2	173.4	4.53	2.059	2.330	2.238				
4	3,727,000		1081.4	140.6	4.52	1.956		2.167				
5	3,906,000		1125.6	146.3	4.49	2.223		2.400				
6	3,903,000		1084.5	141.0	4.33	2.131		2.230				
7	4,340,000		1281.0	166.5	4.60	1.955		2.173				
8	4,057,000		1199.6	156.0	4.61	1.935		2.237				
9	4,100,000		1207.2	156.9	4.59	2.030	2.290	2.231				
10	4,362,000		1107.9	144.0	3.96	1.940		2.170				
11	4,019,000		1184.0	153.9	4.59	1.960		2.155				
12	4,061,000		1244.0	161.7	4.77	2.125		2.301				
13	4,032,000		1235.6	160.6	4.78	2.168		2.260				
14	4,143,000		1257.7	163.5	4.73	2.133		2.291				
15	3,906,000		1207.0	156.9	4.82	2.047	2.290	2.216				
16	3,920,000		1243.7	161.7	4.95	2.075		2.280				
17	3,725,000		1115.0	145.0	4.67	2.205		2.398				
18	3,893,000		1129.4	146.8	4.52	2.157		2.362				
19	3,949,000		1099.3	142.9	4.34	2.031		2.260				
20	3,678,000		1010.8	131.4	4.28	2.079		2.169				
21	3,877,000		1055.4	137.2	4.24	2.075		2.216				
22	3,768,000		1045.2	135.9	4.32	2.015		2.219				
23	3,746,000		1096.8	142.6	4.56	2.100	2.220	2.227				
24	3,732,000		1093.7	142.2	4.57	2.131		2.333				
25	3,797,000		1093.2	142.1	4.49	2.140		2.342				
26	3,717,000		1054.9	137.1	4.42	2.105		2.293				
27	3,625,000		1024.4	133.2	4.40	2.115		2.290				
28	3,483,000		980.5	127.5	4.39	2.187		2.364				
29	3,658,000		998.5	129.8	4.25	2.175		2.361				
30	3,641,000		938.4	122.0	4.02	2.106		2.298				
31	3,529,000		670.8	87.2	2.96	2.032		2.365				
Total		121,604,000	34,743.2	Indicate total # of days the residual was off-target for the month (from Section II) Monthly Target Summary²³:								
*Describe result (daily average, min/max, instantaneous reading, grab, etc), sample location (entry-point, before/after filters, tanks, etc.) and instrumentation used (SCADA, chart recorder, test kit, bench, etc.) ²⁰ :										I certify under penalties of law that I am the person authorized to fill out this form and the information contained herein is true, accurate and complete to the best extent of my knowledge. PWS Authorized Person - Signature & Date ²⁴ :		
a.	Average Daily Free Cl ₂ residual @ clearwell Eff using a Hach Cl17 Analyzer											
b.	Daily Free Cl ₂ residual Grab sample @ Clearwell Eff using a Hach DPD Chlorine Test kit											
c.	Daily Total Cl ₂ residual Grab sample @ Finished water using a Hach DPD Chlorine Test kit									Print Name:	Title:	

Submit to your MassDEP Regional Office within 10 days after the reporting month.