



Florida Department of
TRANSPORTATION



Earthwork Records System
(ERS) Company Profile Nuclear
Density Gauge Maintenance

March 3, 2025

Contents

Updates	3
Chapter 1 – Gauge Maintenance on the Company Profile	4
A. Adding a New User to Company Profile Manager.....	4
B. Updating an Existing user to Company Profile Manager for Gauge Maintenance	
Functions	4
1. Reviewing the user roles on the User tab.....	4
2. Adding an existing user as a Company Profile Manager	6
C. Creating a Gauge.....	7
D. Updating a Gauge	8
E. Deleting a Gauge	9
Chapter 2 – Calibration Data	10
A. Adding a Calibration Date and Readings	10
B. Adding Another Gauge Calibration.....	12
C. Updating an Existing Gauge Calibration	13
D. Deleting a Gauge Calibration	14
Chapter 3 - Prime Company (QC or VT) and ERS subcontractors.....	15
A. Granting Access to Subcontractors to Select Company Gauges on ERS Projects	15
Option 1 – Grant Specific Contract / Specific User Access	15
Option 2 – Grant Global Access to Specific Users or all users in the Subcontractor’s	
Company	16
Option 3 – Add User to Prime’s User tab.....	17
Chapter 4 – Gauge Maintenance from the Earthwork Records System Gauges Option	18
Chapter 5 – Notifications	19

Updates

This section summarizes the updates in this document from the last posted version.

Update	Page(s)
Clarified how to make an existing user a company profile manager for gauge functions	4
Clarified how to grant access to gauges on ERS projects to subcontractors	15 - 19

Chapter 1 – Gauge Maintenance on the Company Profile

Company profile managers add nuclear density gauges (gauges) used on FDOT ERS projects on the company profile. If the company owns gauges that are not used for ERS projects, they do not need to include them on the Company Profile Gauge tab. For example, if the gauge is used exclusively for asphalt roadway process control or county projects not included in MAC, it doesn't have to be added to the company profile. The purpose of including gauges on the company profile is to make them available to be selected as a project gauge on an ERS project.

A. Adding a New User to Company Profile Manager

Company profile managers cannot add new users to the company profile. New users must be vetted by a system administrator or District Application Coordinator (DAC) to ensure that the user has not inadvertently created duplicate access accounts, etc. If someone who is not currently a user needs to be a Company Profile Manager for gauge maintenance, have them request access. If the person has an FDOT user id, have the user follow the instructions on creating an AARF for MAC Company roles in the [FDOT User ID Account Instructions](#). If the person has an Internet Subscriber Account (ISA), or does not have an access account (including an FDOT User Id) and needs one, have the user follow the instructions in the [Internet Subscriber Account Instructions](#). Once the user has access and is established as a company user on the Company Profile User tab, follow the instructions in Section B below.

B. Updating an Existing user to Company Profile Manager for Gauge Maintenance Functions

If the user you want to assign as a Company Profile Manager already exists, you can set up any user to be a company profile manager for the purpose of maintaining company gauges. The user will have ALL Company Profile functions, including assigning lab profile and production facility profile managers, managing user roles and gauge maintenance.

1. *Reviewing the user roles on the User tab*



1. Select the Facilities menu option.
2. Select the Companies submenu option.

You will be navigated to your company profile screen. For users who are company profile managers for more than one company, you may have to navigate to a different company. You can do so by selecting the My Companies option and selecting the appropriate company profile from

that list or by typing the company name in the Go To Company field and selecting the company from the returned list.

Company Profile for ABC Roads and Bridges, Inc. Go To Company Start typing Company name to get a list of

Name	Tax Id	Geographic District
ABC Roads and Bridges, Inc.		District 2

Profile Managers [1] Click to Expand

Users [216] Click to Expand

3. On the Company profile, click on the Users tab to expand it.

User	Data Entry User	Data Reviewer	Facility Profile Manager	Mix Design Reviewer	
Steven Taylor [RT519TS]	✓	✓			Update Remove User from Company
Susan Burnett [RT824SB]	✓	✓			Update Remove User from Company
Susan Musselman [RT820SB]	✓	✓			Update Remove User from Company

4. Find the existing user and review the roles. You may have to scroll through the list if your company has a lot of users.

a. If the user has the Facility Profile Manager check box, proceed to [2. Adding an existing user as a Company Profile Manager](#) below.

b. If the user does not have the Facility Profile Manager check box, select the Update option on the row of the user.

An Update User Roles dialog box with that user's name appears.

Update User Roles ✕

User
Susan Burnett

Company Contact Type

Data Entry User Data Reviewer Facility Profile Manager Mix Design Reviewer

Save

c. Check the Facility Profile Manager check box.

d. Select the Save option.

2. Adding an existing user as a Company Profile Manager

Now that you have confirmed that the user has the Facility Profile Manager company role or you have added it, they will be available for you to add them to the Company Profile Manager tab.

Name	Tax Id	Geographic District
ABC Roads and Bridges, Inc.		District 2

Profile Managers [1] Click to Expand

1. Click on the Profile Managers tab to expand it.

Profile Managers [1] Click to Collapse

User			Update
Susan Musselman			
Phone Type	Number	Is Primary	
Office	(352) 955-6669	<input checked="" type="checkbox"/>	
Email			
susan.musselman@dot.state.fl.us			
Add Profile Manager			

2. Select the Add Profile Manager option.

An Add Profile Manager dialog box appears.

Add Profile Manager ✕

User

+

PI Kelly Carmona
Susan Burnett

Number +

Extension

Is Primary +

Email

3. Click on the Users dropdown list. This list comes from all the users who have the Facility Profile Manager role on the Users tab (step 1) who are not already assigned as a Company Profile Manager.

4. Select the user.

Add Profile Manager

User: Susan Burnett

Phone Type: Office | Number: (555) 555-5555 | Extension: | Is Primary: +

Email: susanb@abcroads.com

Save

5. Enter the contact information (phone number(s); email address.
6. Select the Save option.

C. Creating a Gauge

Mix Designs [0]

Gauges [2]

Documents [0]

Comments [0]

1. Scroll down to the Gauges tab and click on it to expand it.

Click to Collapse

Create Gauge

2. Select the Create Gauge option.

An Add Gauge dialog box appears.

The 'Create Gauge' dialog box features the following elements:

- Manufacturer:** A dropdown menu with a blue circle '5' and a red asterisk.
- Model:** A text input field with a blue circle '6' and a red asterisk.
- Serial Number:** A text input field with a blue circle '7' and a red asterisk.
- Description:** A large text area with a blue circle '8'.
- Save:** A button at the bottom center.

3. **Manufacturer** – select the manufacturer’s name from the dropdown list.
4. **Model** – enter the manufacturer’s model.
5. **Gauge** – enter the gauge’s unique serial number.
6. **Description** – enter an optional description, if desired; for example, office location of the gauge.
6. Select the Save option.

The gauge will be added to the list. Continue creating gauges until all current gauges used on FDOT projects are listed.

	Manufacturer	Model	Serial Number	Calibrations	Expiration Date
1			12345678	+ Add Calibration	

Showing 1 to 1 of 1

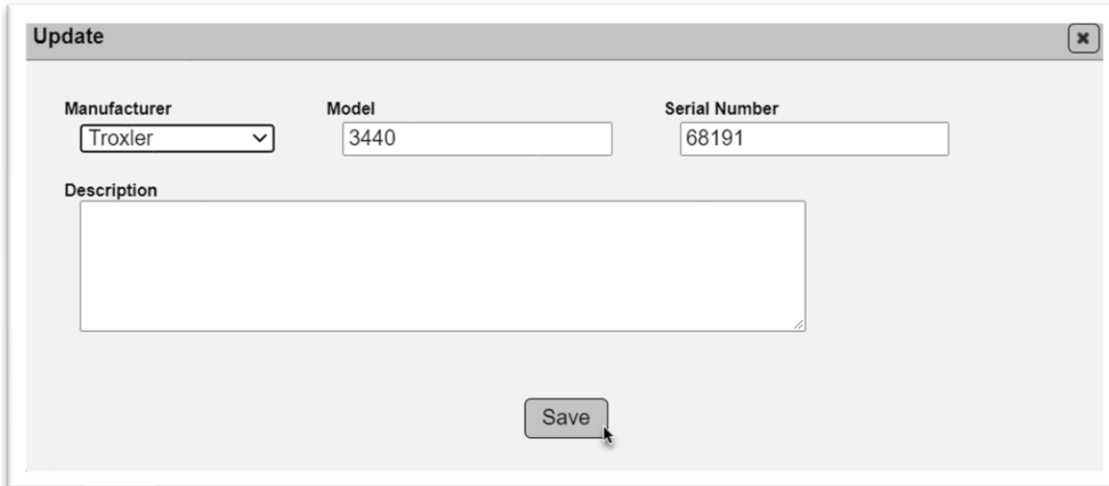
D. Updating a Gauge

	Manufacturer	Model	Serial Number	Calibrations	Expiration Date
1			12345678	+ Add Calibration	

Showing 1 to 1 of 1

1. Select the Update () icon on the row of the gauge you want to update.

An Update dialog box appears.

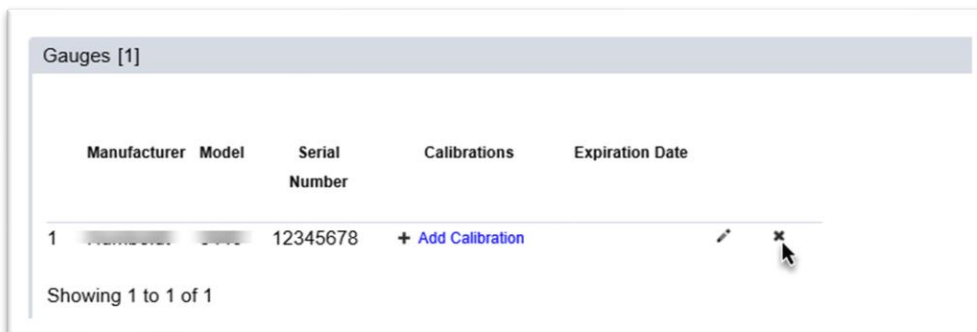


The 'Update' dialog box contains the following fields:

- Manufacturer:** A dropdown menu with 'Troxler' selected.
- Model:** A text input field containing '3440'.
- Serial Number:** A text input field containing '68191'.
- Description:** A large empty text area.
- Save:** A button at the bottom center.

2. Make changes to the data as needed.
3. Select the Save option.

E. Deleting a Gauge



Manufacturer	Model	Serial Number	Calibrations	Expiration Date
1		12345678	+ Add Calibration	

Showing 1 to 1 of 1

1. Select the Delete (x) icon on the row of the gauge you want to delete.

A Delete dialog box appears.



The 'Delete' dialog box contains the following text and button:

Are you sure you want to delete this Gauge?

Delete

2. Select the Delete option.

The gauge will be deleted from gauge list.

NOTE: This option may not be available depending on the gauge's use on an ERS project.

Chapter 2 – Calibration Data

In addition to listing the gauges in MAC, company profile managers must also enter and maintain information related to the gauges' comparison information. This allows for the information to be stored once and reused on every project the gauge is used on instead of having to submit the data for each project.

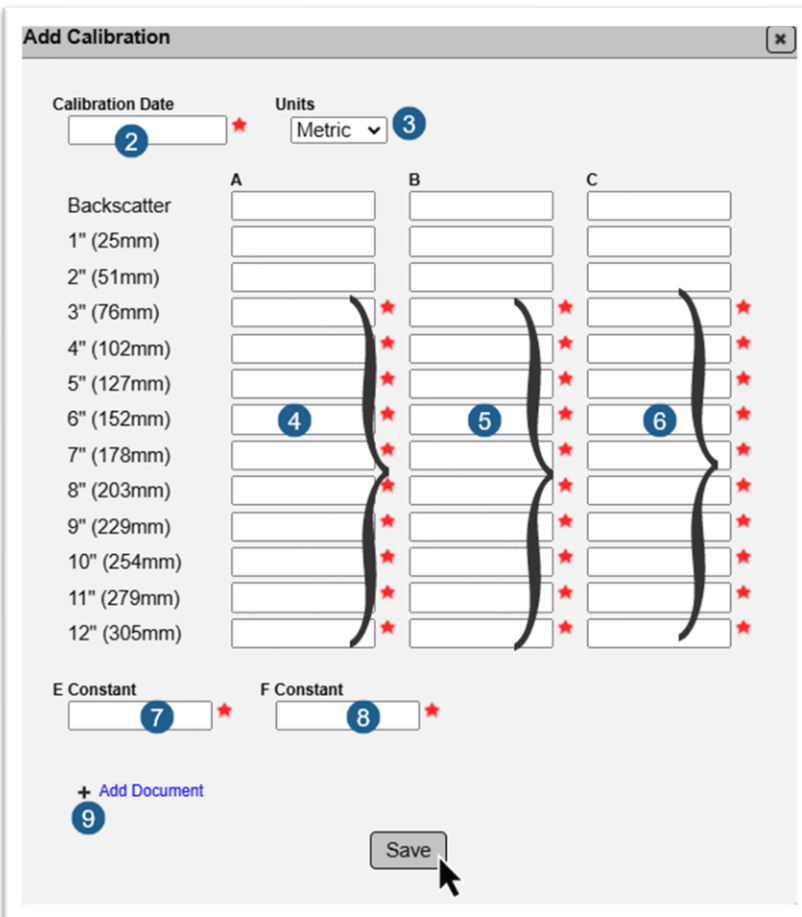
A. Adding a Calibration Date and Readings



The screenshot shows a table titled "Gauges [1]". The table has five columns: "Manufacturer", "Model", "Serial Number", "Calibrations", and "Expiration Date". The first row contains the following data: "1", a blurred manufacturer name, a blurred model name, "12345678", and a blue "+ Add Calibration" link. Below the table, it says "Showing 1 to 1 of 1".

1. Select the Add Calibration option on the row of the gauge you want to enter the calibration data.

An Add Calibration dialog box appears. A (★) indicates a required field.



The "Add Calibration" dialog box contains the following fields and options:

- Calibration Date:** A text input field with a red star (★) and a blue circle with the number 2 (2).
- Units:** A dropdown menu set to "Metric" with a blue circle with the number 3 (3).
- Backscatter:** A table with three columns labeled A, B, and C. The rows are labeled with distances: 1" (25mm), 2" (51mm), 3" (76mm), 4" (102mm), 5" (127mm), 6" (152mm), 7" (178mm), 8" (203mm), 9" (229mm), 10" (254mm), 11" (279mm), and 12" (305mm). Each cell in the table is an input field. Red stars (★) are placed to the right of each row. Blue circles with numbers 4, 5, and 6 are placed in the 6" row of columns A, B, and C respectively.
- E Constant:** A text input field with a red star (★) and a blue circle with the number 7 (7).
- F Constant:** A text input field with a red star (★) and a blue circle with the number 8 (8).
- + Add Document:** A blue link with a blue circle with the number 9 (9).
- Save:** A button with a mouse cursor pointing to it.

2. **Calibration Date** – enter the date the gauge was last calibrated.

3. **Units** – select English or metric, depending on the unit of measure used for the calibration. The field defaults to English.

NOTE: This information can typically be found on the calibration report. The unit of measure applies to the B & F values. A, C, and E values are unitless.

Here is an example from a report that describes B and F together. This is metric.

Moisture	Cal Counts	Gauge Constants		
23	433	0.03212	1.02898	0.30

All measurements are in pcf unless otherwise stated. B & F are in Kg/m³
Service Center: Atlantic Supply, Inc. 3740 Prospect Ave Unit 4 Riviera Beach, FL 33404

Here is an example from a report that has B and F separately. This is metric.

precision under a set of repeatability conditions of measurement (VIM Sec. 2.21.) Density precision is evaluated at 2002 kilograms per cubic meter. The calibration constant B*1000 is listed in units of cubic meter per kilogram.

texture imperfections and "Exerr" is the anticipated error from the combination of gauge imprecision and texture imperfections. The calibration constant F is listed in units of cubic meter per kilogram, and the precision and errors are listed in units of kilogram per cubic meter. The precision is evaluated at 250.0 kilograms per cubic meter.

Here is an example of the same information in English units, expressed in cubic feet per pound.

precision under a set of repeatability conditions of measurement (VIM Sec. 2.21.) Density precision is evaluated at 125.0 pounds per cubic foot. The calibration constant B is listed in units of cubic feet per pound.

of gauge imprecision and texture imperfections. The calibration constant F is listed in units of cubic feet per pound, and the precision and errors are listed in units of pounds per cubic foot. The precision is evaluated at 15.6 pounds per cubic foot.

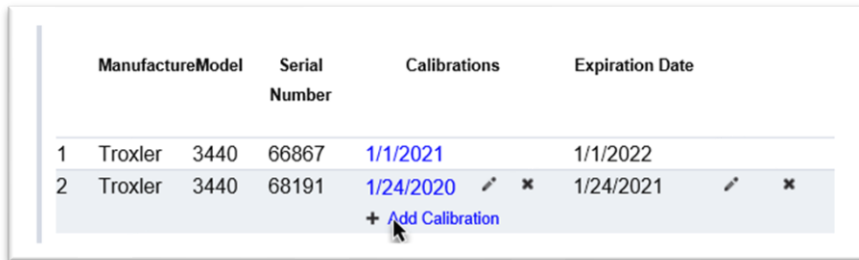
4. **A** – enter the A values for each measurement of rod extension, if desired. You may wish to only enter the most common depths performed by your company.
5. **B** – enter the B values for each measurement of rod extension.
6. **C** - enter the C values for each measurement of rod extension.
7. **E Constant** – enter the E constant value from the calibration information.
8. **F Constant** – enter the F constant value from the calibration information.
9. Select the Add Document option to get a file search dialog box to attach a copy of the calibration record to the gauge. This allows it to be stored one time and it does not have to be submitted on each project the gauge is used on.





NOTE: If the gauge model is a Troxler E-Gauge, the calibration record will not have an E constant and F constant value. These fields are required by MAC. If the gauge is a Troxler E-Gauge, enter the number 0 in both fields.

10. Select the Save option.

B. Adding Another Gauge Calibration

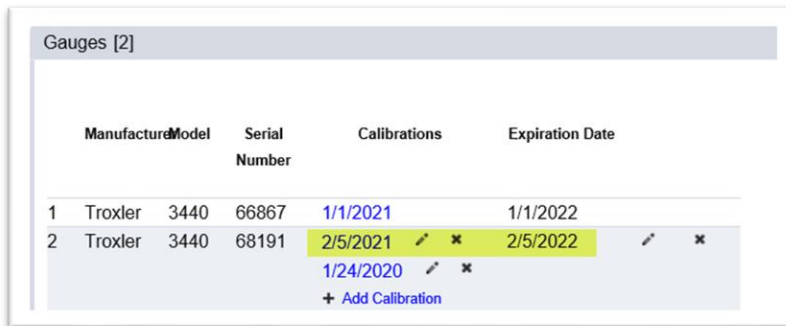
Since gauges need to be calibrated annually or whenever they are repaired, you will need to add other calibration records. Do not remove existing calibrations.









	ManufactureModel	Serial Number	Calibrations	Expiration Date
1	Troxler	3440 66867	1/1/2021	1/1/2022
2	Troxler	3440 68191	1/24/2020  	1/24/2021  
				+ Add Calibration

1. Select the Add Calibration option below the date of the previous calibration record.

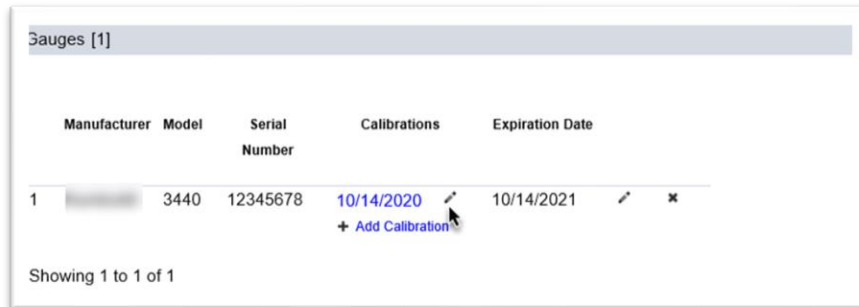
An Add Calibration dialog box appears. Once the new calibration record is saved, it appears as a hotlink date above the previous date so that the most recent calibration record is first, and the calibration due date is calculated from that date.




	ManufactureModel	Serial Number	Calibrations	Expiration Date
1	Troxler	3440 66867	1/1/2021	1/1/2022
2	Troxler	3440 68191	2/5/2021   1/24/2020  	2/5/2022  
				+ Add Calibration

C. Updating an Existing Gauge Calibration

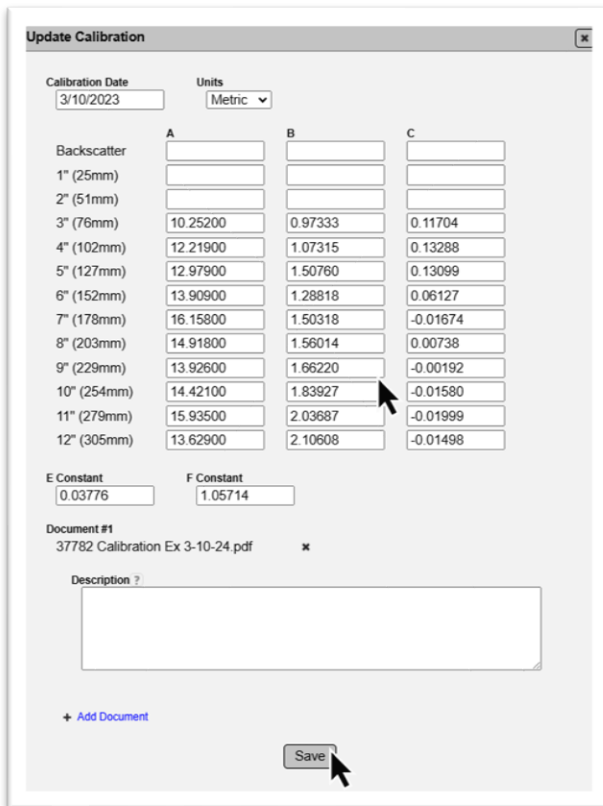
If you discover that a calibration entry has a data entry error in it, you can update the incorrect data up until a gauge is used in a gauge comparison and on an ERS sample.



Manufacturer	Model	Serial Number	Calibrations	Expiration Date
1	3440	12345678	10/14/2020 + Add Calibration	10/14/2021

1. Select the Update () icon next to the calibration date on the row of the gauge you want to update.

An Update Calibration dialog box appears.



Backscatter	A	B	C
1" (25mm)			
2" (51mm)			
3" (76mm)	10.25200	0.97333	0.11704
4" (102mm)	12.21900	1.07315	0.13288
5" (127mm)	12.97900	1.50760	0.13099
6" (152mm)	13.90900	1.28818	0.06127
7" (178mm)	16.15800	1.50318	-0.01674
8" (203mm)	14.91800	1.56014	0.00738
9" (229mm)	13.92600	1.66220	-0.00192
10" (254mm)	14.42100	1.83927	-0.01580
11" (279mm)	15.93500	2.03687	-0.01999
12" (305mm)	13.62900	2.10608	-0.01498

E Constant: 0.03776 F Constant: 1.05714

Document #1: 37782 Calibration Ex 3-10-24.pdf

Description ?

+ Add Document

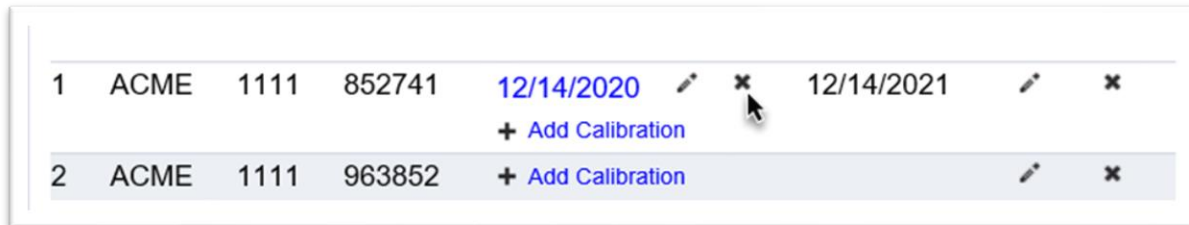
Save

2. Make changes to any data as needed.
3. Select the Save option.

If you do not have the option to update the gauge calibration record, contact the appropriate DMRO Earthwork Specialist.

D. Deleting a Gauge Calibration

You may need to delete a calibration record; for example, you entered the wrong data for a specific gauge. This option may not always be available depending on the use of the gauge on an ERS project. Deleting an existing calibration without adding it back will make a gauge ineligible to be used on ERS projects.



1	ACME	1111	852741	12/14/2020	+ Add Calibration	12/14/2021	+ Add Calibration
2	ACME	1111	963852	+ Add Calibration			

1. Select the Delete option (x) next to the calibration date on the row of the gauge.

A Delete Calibration dialog box appears.



2. Select the Delete option.

The calibration data is deleted. New data will need to be entered so the gauge can be validated as a project gauge.

If you do not have the option to delete the gauge calibration record, contact the appropriate DMRO Earthwork Specialist.

Chapter 3 - Prime Company (QC or VT) and ERS subcontractors

When the Prime Company (either QC or VT) employs a subcontractor for ERS project entries and the subcontractor uses the Prime Company's gauge(s), MAC will not allow the user in the subcontractor's company profile to select a gauge from the Prime Company's valid gauges on the samples. There are three ways to allow the subcontractor user(s) to be able to access the gauges on the Prime Company's company profile. All include some way of connecting the subcontractor(s) user to the Prime Company's company profile and allow the connected user(s) more than just access to ERS.

Financial Project(s)
440290-2-52-01: SAFETY IMPROVEMENTS WESTERN BELTWAY (SR429) (MP 5.5 TO 11) ORANGE CNTY

Companies
• ABC Roads and Bridges, Inc. [QC]
• Acme Road Construction [QC]
• XYZ Testing, Inc. [VT]
• State Materials Office [IA]

Logbooks
• Left Roadway ✓

Sub Prime

Gauges [6] Click to Collapse Add Gauge

	Gauge	Start Date	Company	End Date	Currently Valid to Use	Calibration Dates (Since Being Used on Project)		
1	123456 [Troxler - XYZ001]	6/1/2023	XYZ Testing, Inc. [VT]			3/13/2023	✓	✗
2	123457 [Troxler - XYZ002]	6/1/2023	XYZ Testing, Inc. [VT]			4/6/2022	✓	✗
3	123458 [Humboldt - XYZ003]	6/1/2023	XYZ Testing, Inc. [VT]			4/4/2022	✓	✗
4	234567 [Troxler - ABC001]	6/1/2023	ABC Roads and Bridges, Inc. [QC]			3/28/2023	✓	✗
5	236987 [Troxler - ABC002]	6/1/2023	ABC Roads and Bridges, Inc. [QC]			3/1/2022	✓	✗
6	3651264 [InstroTek - ABC003]	6/1/2023	ABC Roads and Bridges, Inc. [QC]			2/1/2023	✓	✗

Sub has no gauges

NOTE: If the subcontractor is using their own gauge(s), this is not an issue.

A. Granting Access to Subcontractors to Select Company Gauges on ERS Projects

MAC has restrictions that do not allow users from a different company to select another company's gauges on ERS samples. This is intended to ensure that the correct gauge is reflected in the data and other companies cannot access a record belonging to a specific company. When a prime contractor employs subcontractors who need to use the prime contractor's gauges, there are several ways to configure the access. However, there is currently no way to grant access to just the gauges. Below is a description of each option and the pros and cons of each approach.

Option 1 – Grant Specific Contract / Specific User Access

The best way currently is to grant access to a subcontractor for specific user(s) on a specific contract. This gives the subcontractor the least amount of access not related to ERS. The user(s) will still have more than ERS access, but it is limited to the user(s) and contract in the grant access. Follow the instructions in the [MAC Company Profile Manager Instructions](#), Chapter 8. The subcontractor's company profile manager must acknowledge the granted access on their company profile. This option is most beneficial if the Prime/Subcontractor relationship is only for a specific time frame and/or specific contract(s).

Grant Company Access On ABC Roads & Bridges Company Profile (Prime Contractor)

Grant Access to Company Subcontractor
Acme Road Construction *

Access Type
 Global By Contract

Contract
E8T12: DISTRICT CONSTRUCTION CON *

All Data Entry Users Selected Data Entry Users
Susan Burnett *

All Data Reviewers Selected Data Reviewers
Susan Burnett *

Select user entering ERS densities with Prime Contractor's gauge

Save

NOTE: If the Prime Company's relationship with the subcontractor covers more than one contract, repeat the process for each contract.

Option 2 – Grant Global Access to Specific Users or all users in the Subcontractor's Company

Grant Global Access can also be used; however this gives the subcontractor user(s) access to samples not on the ERS project's contract. This is an option a prime contractor may want to use when they have a long-term contract with their subcontractor that covers multiple contracts. This way you do not need to create a grant access request for each contract. It may be done for all the users in the subcontractor's company or specific users.

This is also covered in the [MAC Company Profile Manager Instructions](#), Chapter 8. The subcontractor's company profile manager must acknowledge the granted access on their company profile.

Grant Company Access On ABC Roads & Bridges Company Profile (Prime Contractor)

Grant Access to Company Subcontractor
Acme Road Construction *

Access Type
 Global By Contract

All Data Entry Users Selected Data Entry Users
[Dropdown]

All Data Reviewers Selected Data Reviewers
[Dropdown]

All users or specific user(s)

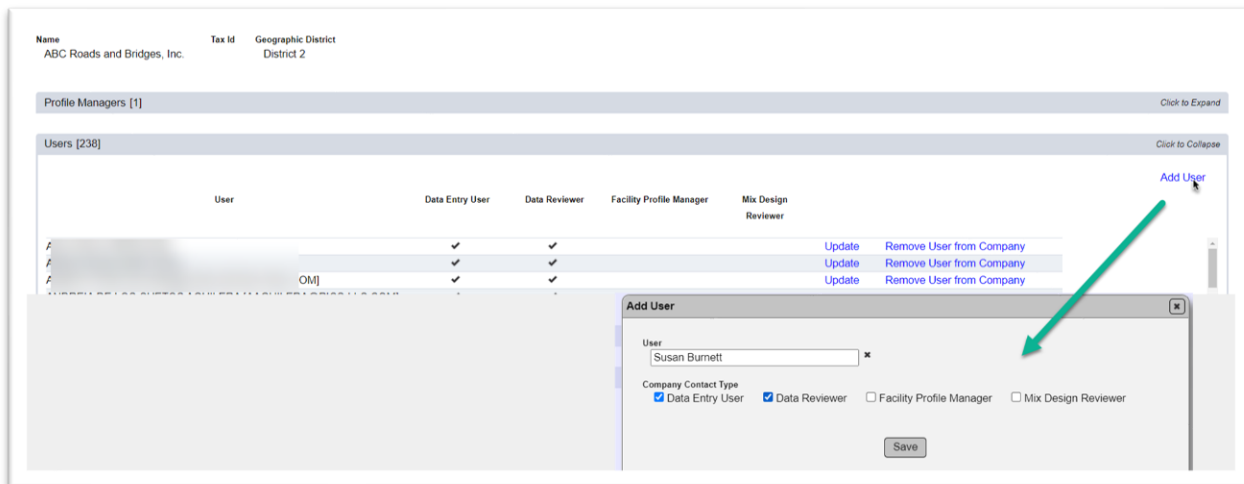
Save

Option 3 – Add User to Prime’s User tab

There is no restriction in MAC for a user to only be assigned to one company profile. In many cases, users in related companies are listed on both profiles, not just for ERS. Request a DAC to add the subcontractor user(s) on the Prime Company’s User tab with the company roles of Data Entry and Data Reviewer. No AARF (FDOT user ids) or Create Access Request (ISAs) are needed. The assignment must be done by a DAC or system administrator because company profile managers cannot add new users. The person may not be a new user in MAC, but from a company profile perspective, they are a new user to your User tab and you don’t have an Add User option.

Be aware, the user(s) have the same access and rights as any company user or any user in a Global Access grant. This option is also beneficial if the Prime/Sub relationship is long term and covers all ERS Projects because the subcontractor’s company profile manager does not have to acknowledge.

Only DACs and system administrators have the Add User option.



In this option, the user(s) has/have multiple role sets and must select the company that has the gauges on the ERS project before creating or updating ERS samples that include the Prime Company’s gauge(s).

Chapter 4 – Gauge Maintenance from the Earthwork Records System Gauges Option

All the functions described in Chapters 1 and 2 are also available on a Gauge screen which can be found under the Earthwork Records System menu list.



1. Select the Earthwork Records System menu option.
2. Select the Gauges submenu option.

The Gauge Screen appears. On this screen the gauges are grouped by Manufacturer, not company. This makes it more difficult for company profile managers to isolate the gauges that belong to a specific company.

The functions for creating a new gauge, updating, or deleting an existing gauge, adding, updating, or deleting calibration records appear by the gauges that belong to a specific company if you are a company profile manager for that company or a Program Maintenance user. They work the same as described in Chapters 1 and 2. You can use filters to narrow down the list of all gauges.

Owned By		Serial Number	Expires on or after	Expires before			
Start typing Company name to get a list of							
Manufacturer	Model	Serial Number	Owned By	Calibrations	Expiration Date	Description	
Troxler							
1	3440	01020304	Turnpike Materials Office	5/4/2021	5/4/2022		
2	3440	098765		7/1/2021 3/15/2019	7/1/2022	Best gauge ever	
3	3440	11111	District 1 and 7 Materials Office	6/1/2021	6/1/2022		
4	3440	111111		6/1/2021	6/1/2022		
5	3440	1234		4/1/2021	4/1/2022	Test Gauge TPK	
6	3521	12345	District Training	8/4/2021	8/4/2022		
7	3440	123456	ABC Roads and Bridges, Inc.	6/22/2021 7/2/2020	6/22/2022	Tampa	
				+ Add Calibration			
8	3440	123987	ABC Roads and Bridges, Inc.	+ Add Calibration		Gainesville	
9	3440	1239987	ABC Roads and Bridges, Inc.	+ Add Calibration		test	

Chapter 5 – Notifications

There are two notifications available for company profile managers related to gauge maintenance. Because Program Maintenance Users, DACs or system administrators can create, and update delete gauges on the company profile and the gauge maintenance screens, MAC will send notifications when the actions are performed by a system user. These roles are all MAC system roles. The notifications are **not** triggered when any user in the role of Company Profile Manager creates or updates a company gauge. The purpose of the notification is to let the company profile manager(s) know that someone other than a company user has added or updated a company record. This is only for emergency purposes when not having the gauge created or updated would impede the entry of gauge comparisons and/or samples.

	Subject	Opt In/Opt Out	Will Receive Notification	Filter	Method
Company has granted access					
7	{DisplayCompanyGrantedAccess} Grant Access to {DisplayCompanyGrantingAccess}	Can Opt Out #	✓ #		Email/Dashboard Update
Company Profile has been added					
8	New Company Profile	Can Opt In	⊗		Update
Gauge has been created by System Role User					
9	Company Gauge Created	Can Opt In #	⊗ #		Update
Gauge has been updated by System Role User					
10	Company Gauge Updated	Can Opt In #	⊗ #		Update

Showing 1 to 10 of 10

- Gauge has been Created by a System User
- Gauge has been Updated by a System User

These notifications can be found by selecting Companies from the Notification Event Type Group dropdown list on a user's My Notification Subscriptions screen. Company profile managers are set as Can Opt Out which means if you are a company profile manager, you will automatically receive the notifications. It is already filtered on company name. If you don't wish to receive the notifications, you can opt out. See MAC [Notification Basic Instructions](#) for directions on opting out or applying filters other than company name.