Audit Master Pro Training

Water Reports

This tutorial will act as a guide to create and input all data required for the selected water studies.

Go to Index

Audit Master Pro Water Report Training

Click on each report name above to be taken directly to that section.

Audit Master Pro Training

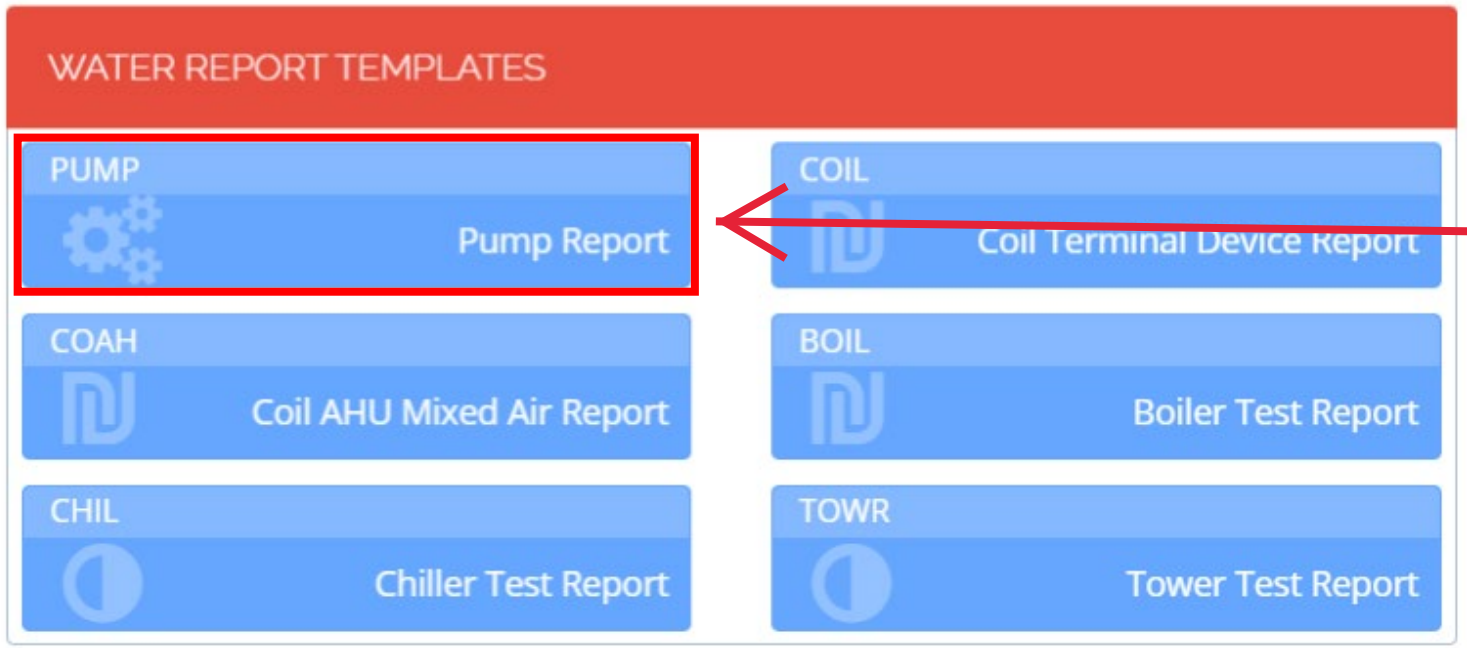
Pump Report

This tutorial will act as a guide to create and input all data required for the selected study.

Go to Index

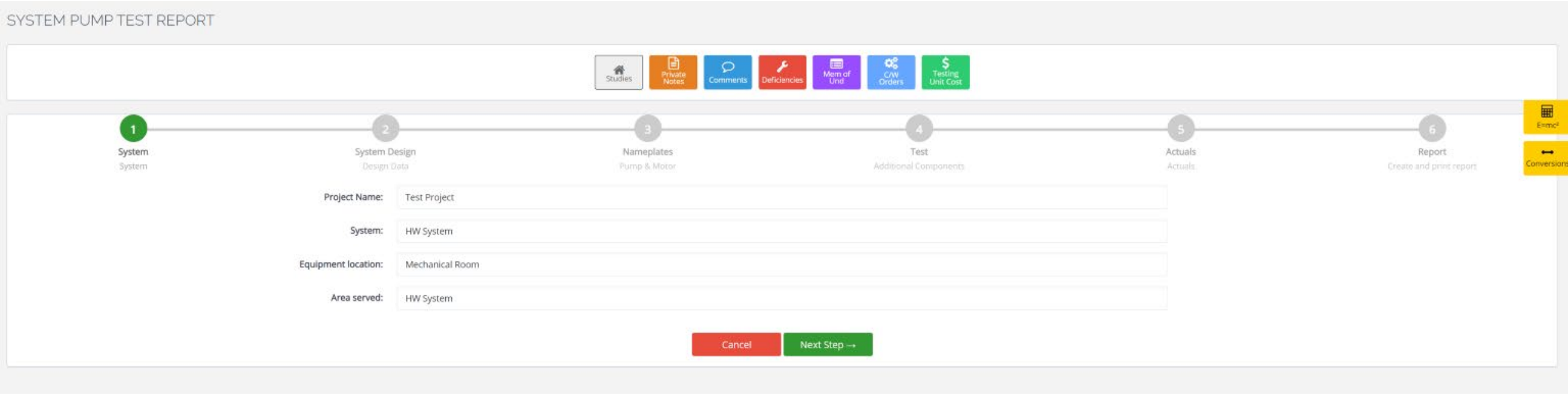
Audit Master PRO

Select the type of report



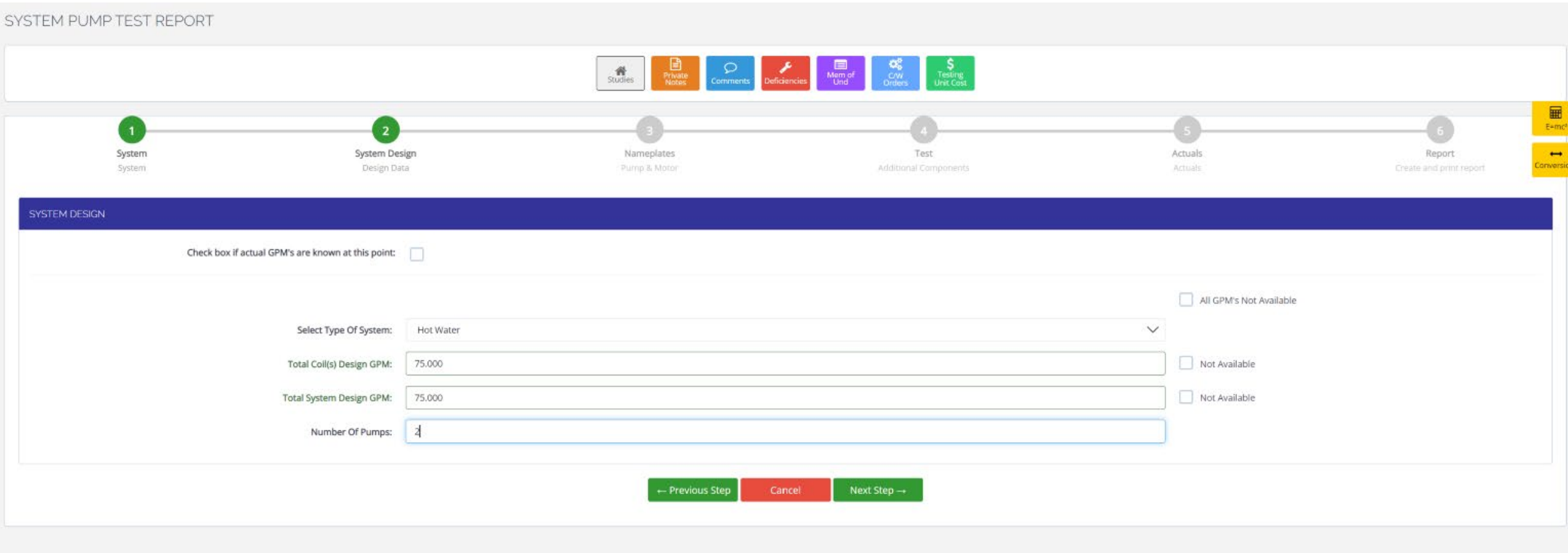
Click “Pump Report”

Audit Master PRO



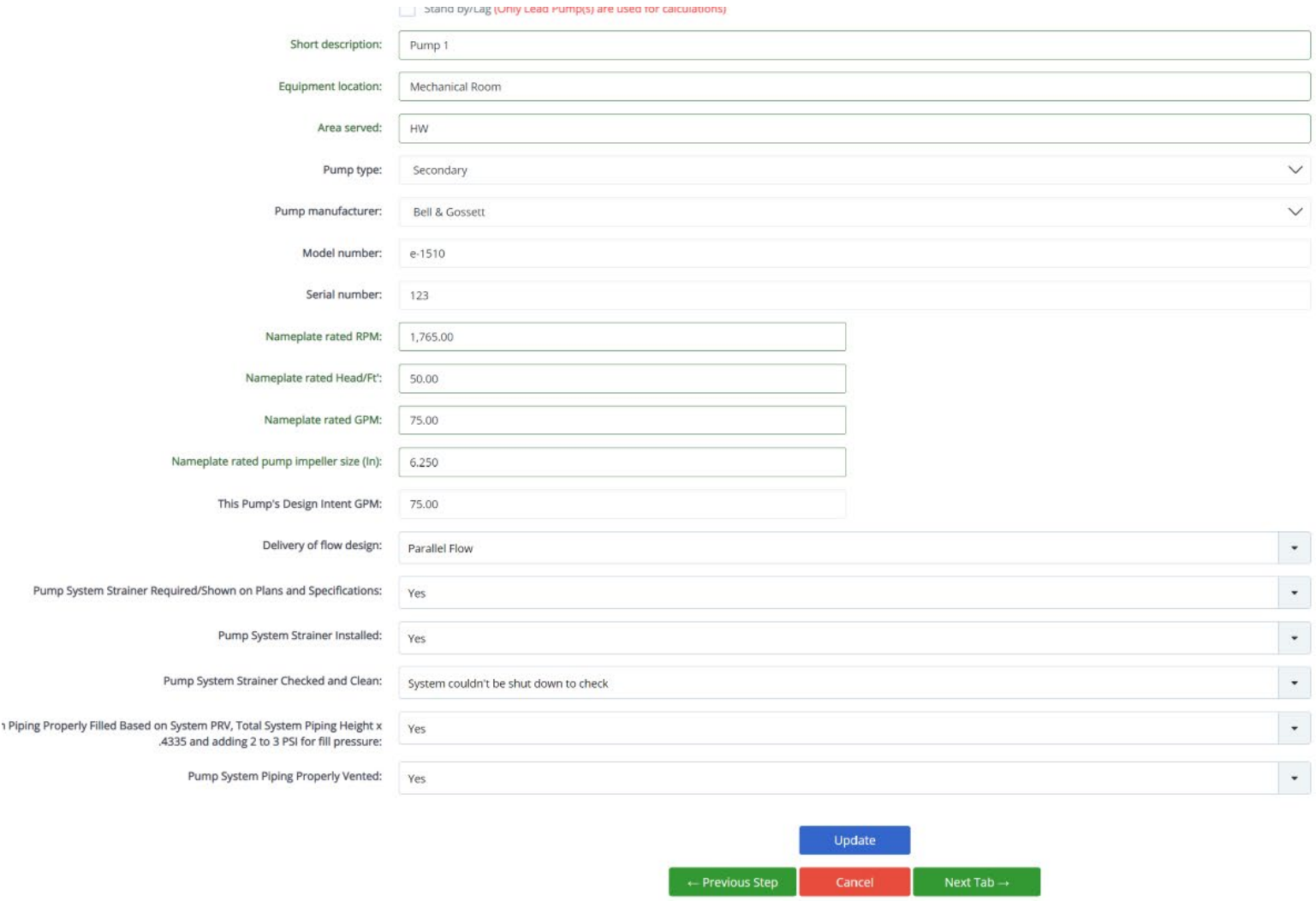
Enter all System Information

Audit Master PRO

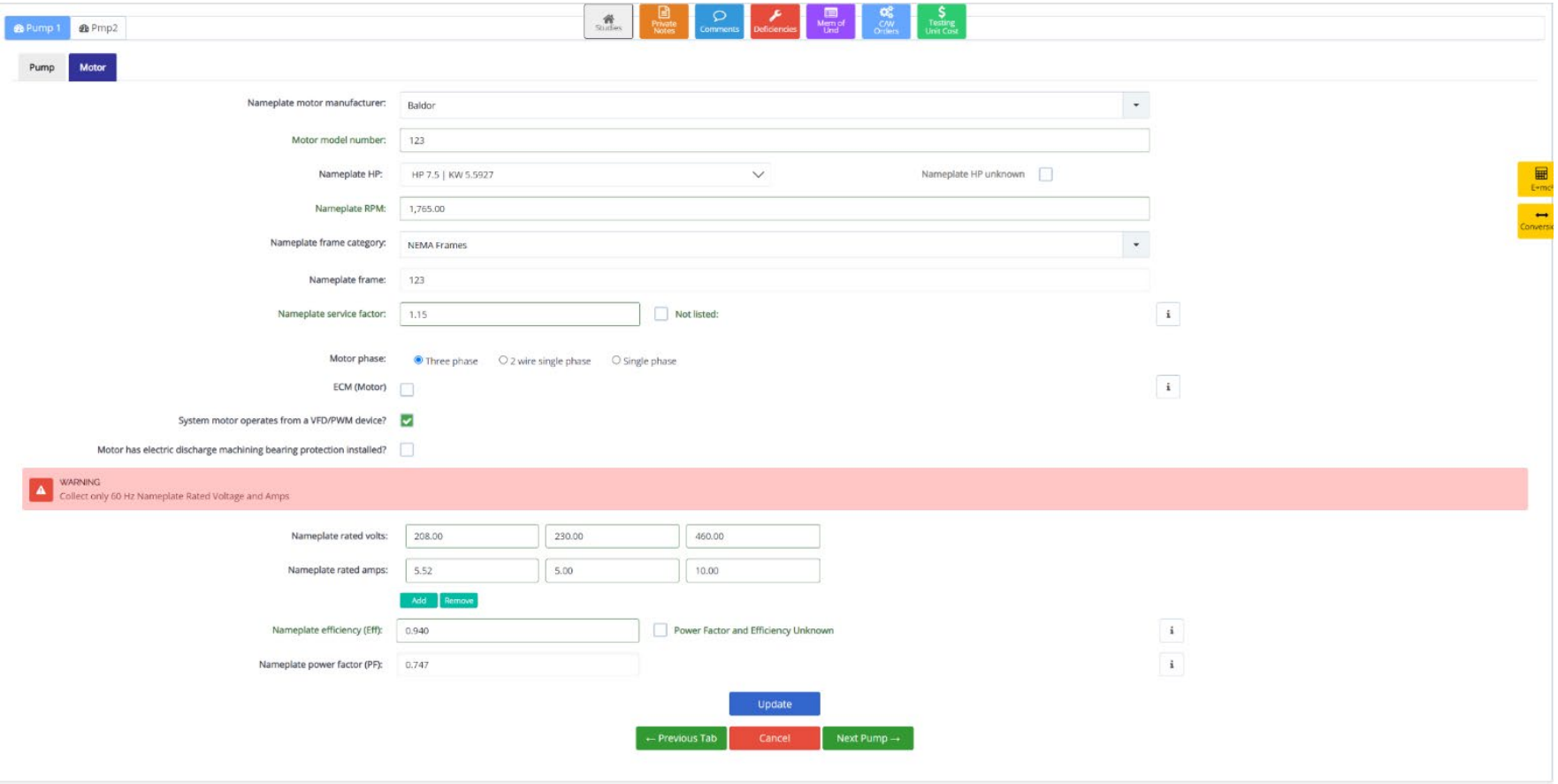


Enter Design Data

Audit Master PRO

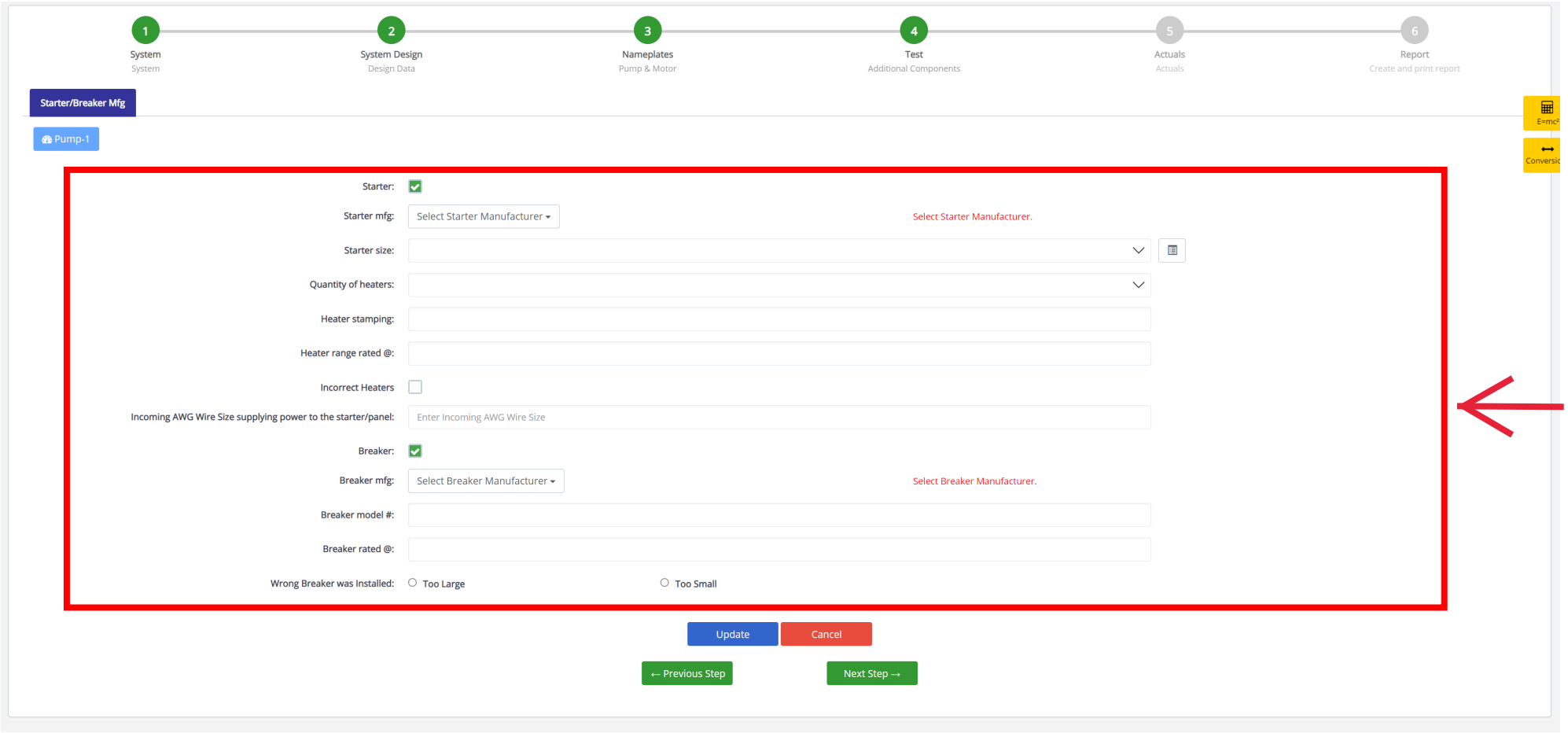


Enter Nameplate Data



Enter Motor Nameplate Data

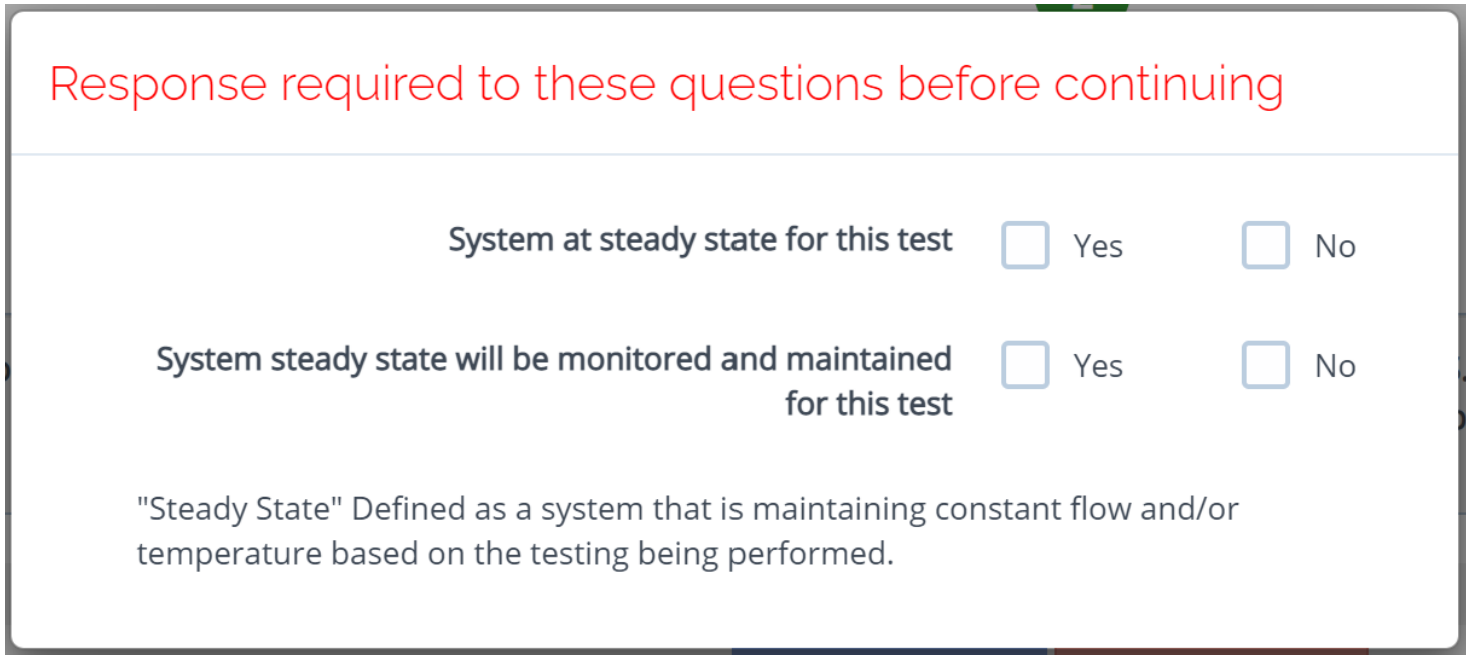
Select which value reflects actual operating motor Volts and Amps.



Additional components:

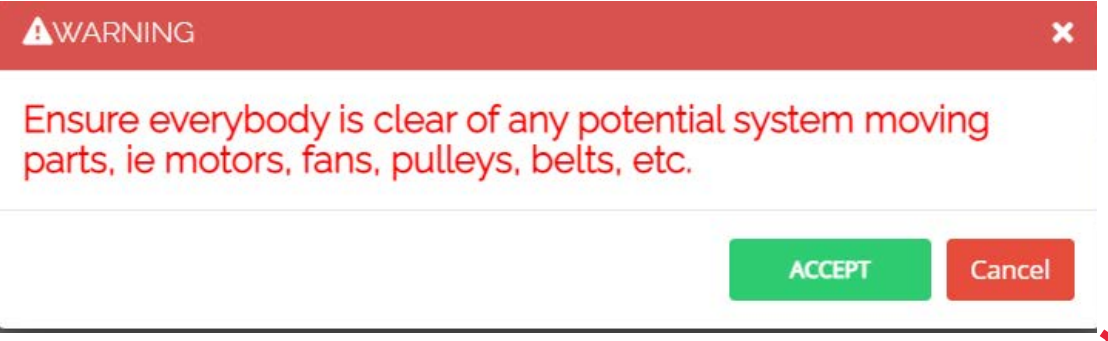
Enter Starter/ Breaker Information

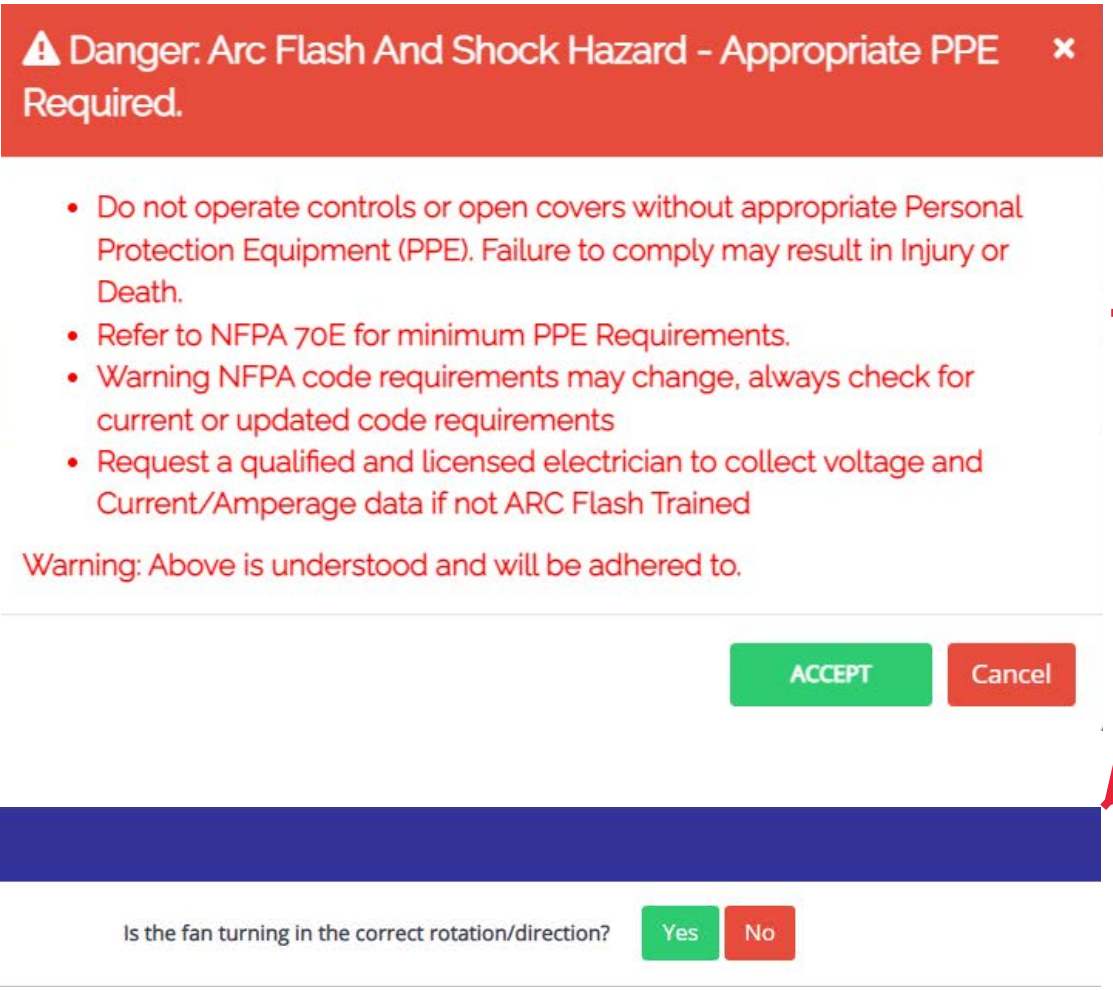
Note: If on the previous Step you selected that a VFD is controlling the motor, then this section will not populate.



Throughout the AMP software you will be required to verify that the system being tested is at steady state.

Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.

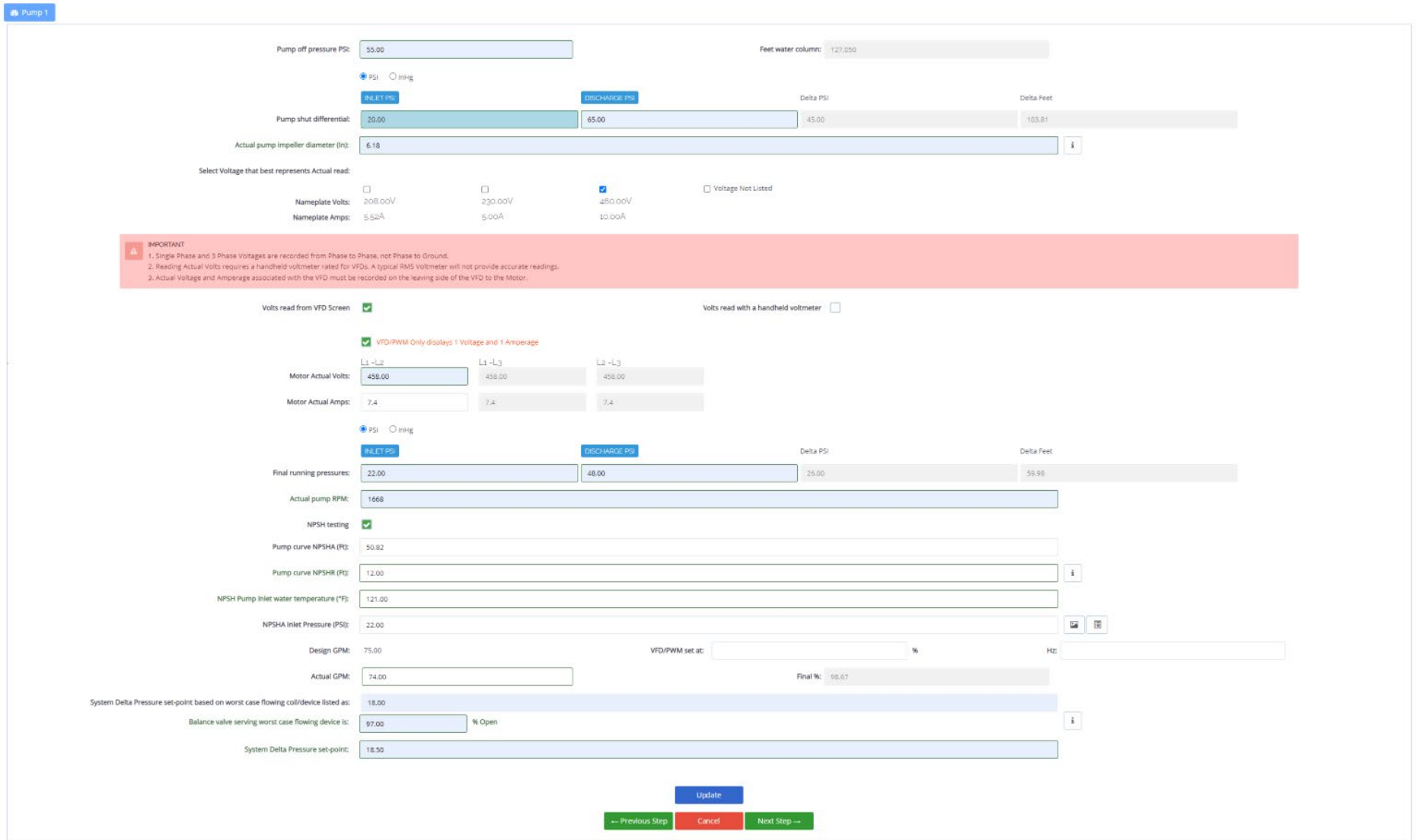




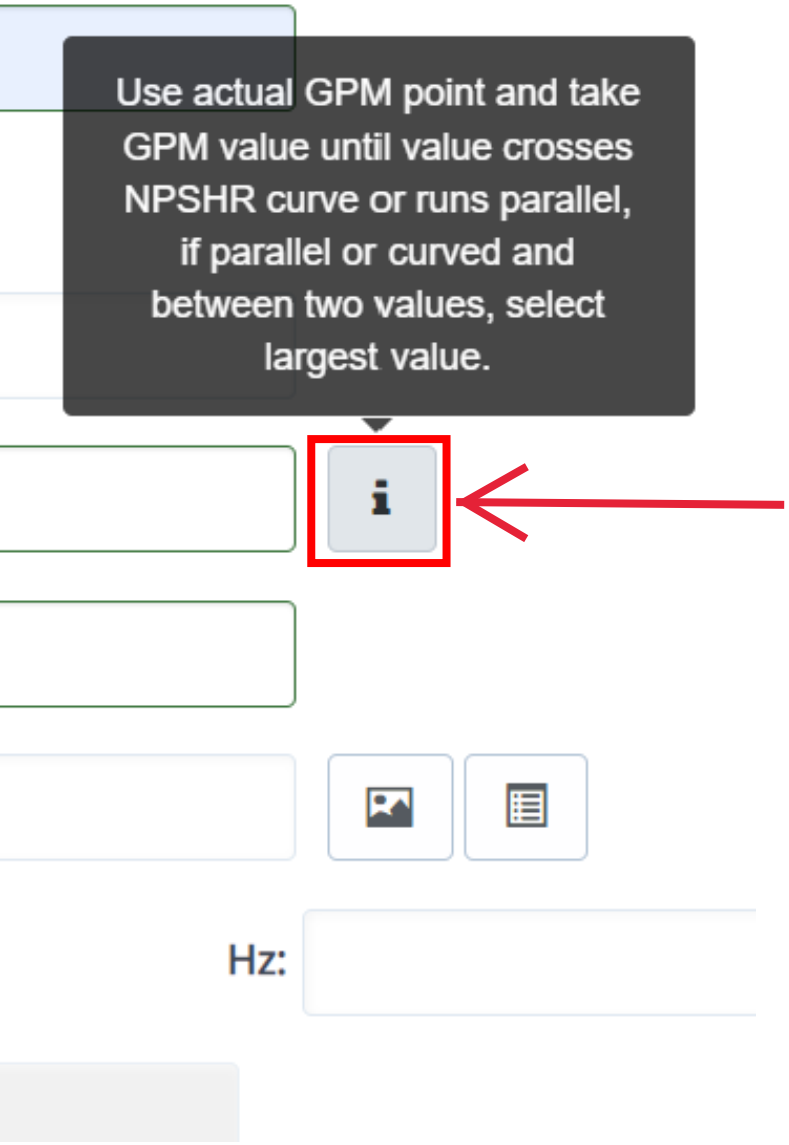
These are three of the most common safety warnings that will appear throughout AMPs software.

You will be required to acknowledge each warning individually in order to proceed.

Audit Master PRO



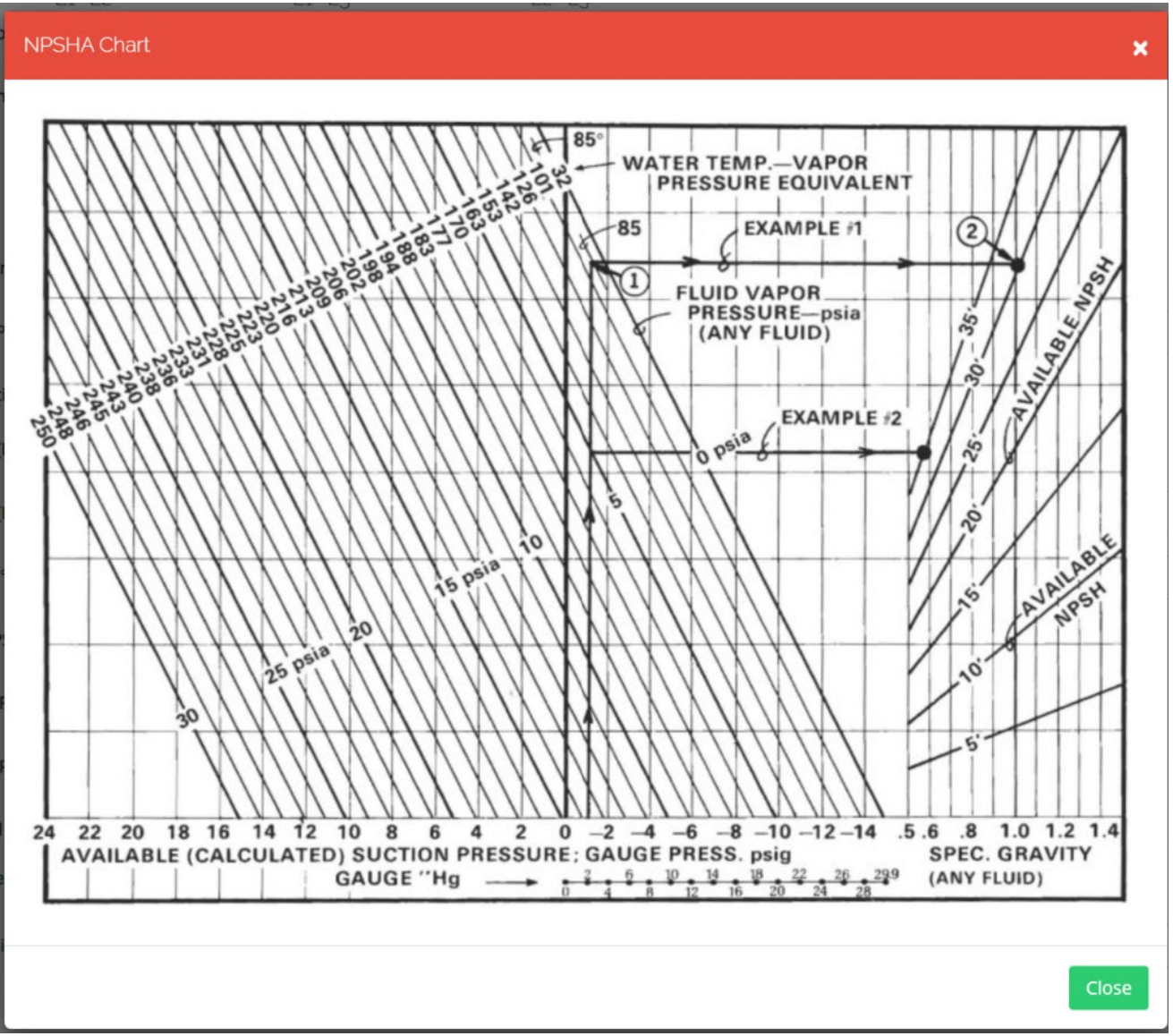
Enter Actual Pump Data



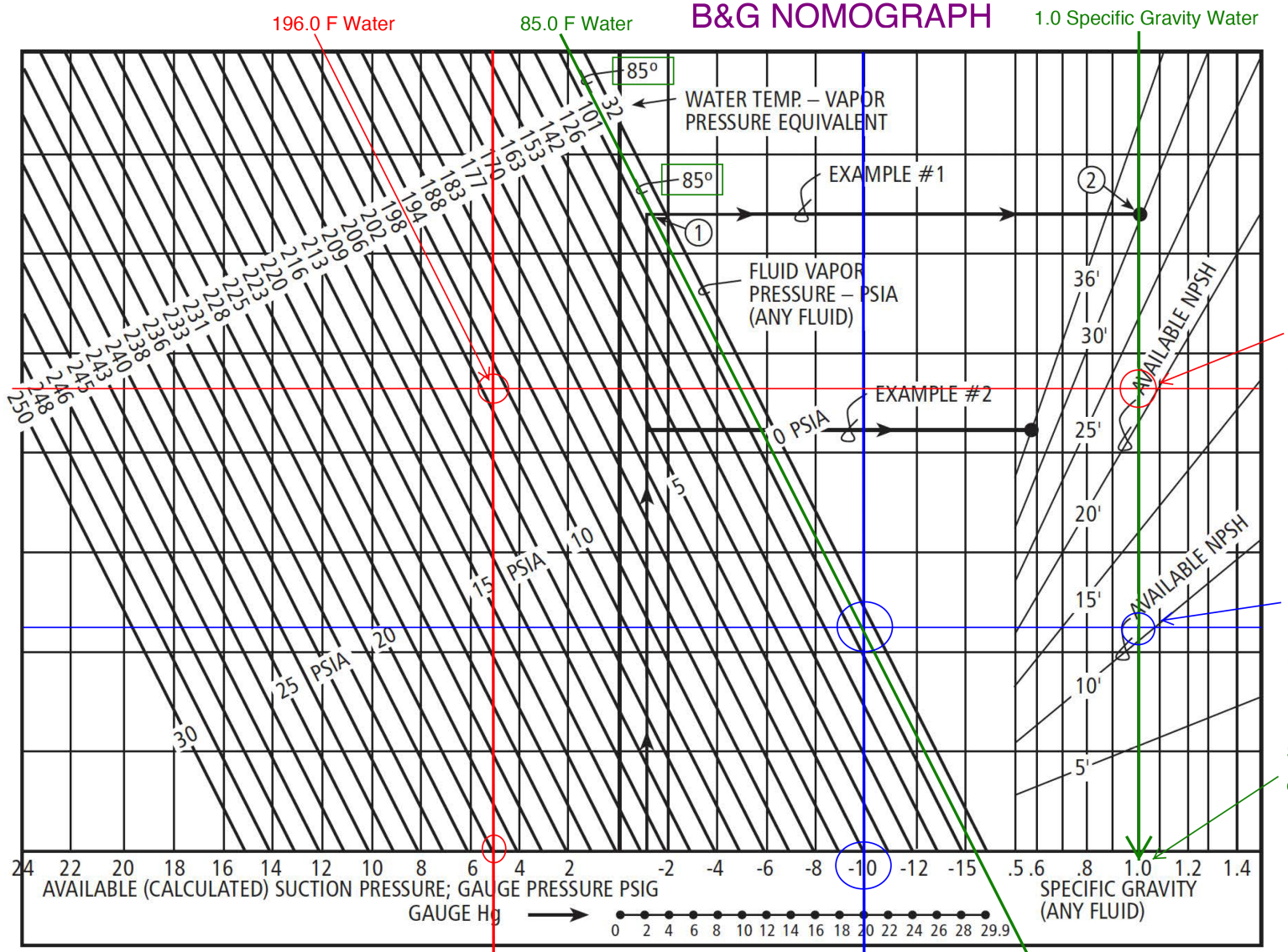
There are information icons throughout the study pages should additional understanding be needed.

Audit Master PRO

NPSHA Chart



NPSHA Chart



Cross Hairs
NPSHA = 22.5'
+ 5.0 PSIG
196.0 F Water

Cross Hairs
NPSHA = 10.5'
- 10.0 Hg
85.0 F Water

Specific Gravity of Water = 1.0

Point of 85.0 F Water Entering Pump Inlet / Suction

NPSHA Chart Example

Example to the Right:

2 Suction pressure values were used.

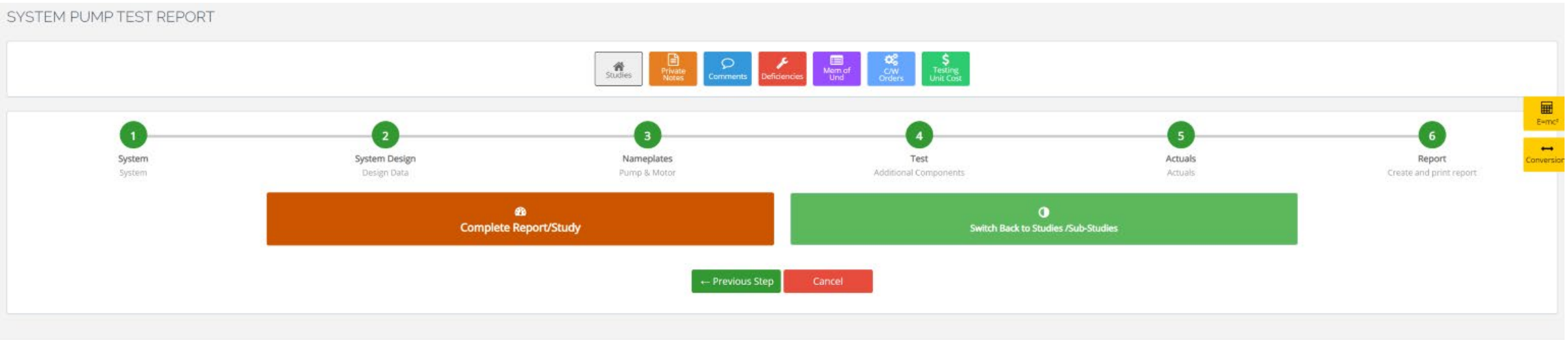
1 @ - 10.0 Hg (Vacuum) @ 85.0 F Water Temperature.

1 @ + 5.0 PSIG @ 196.0 F Water Temperature.

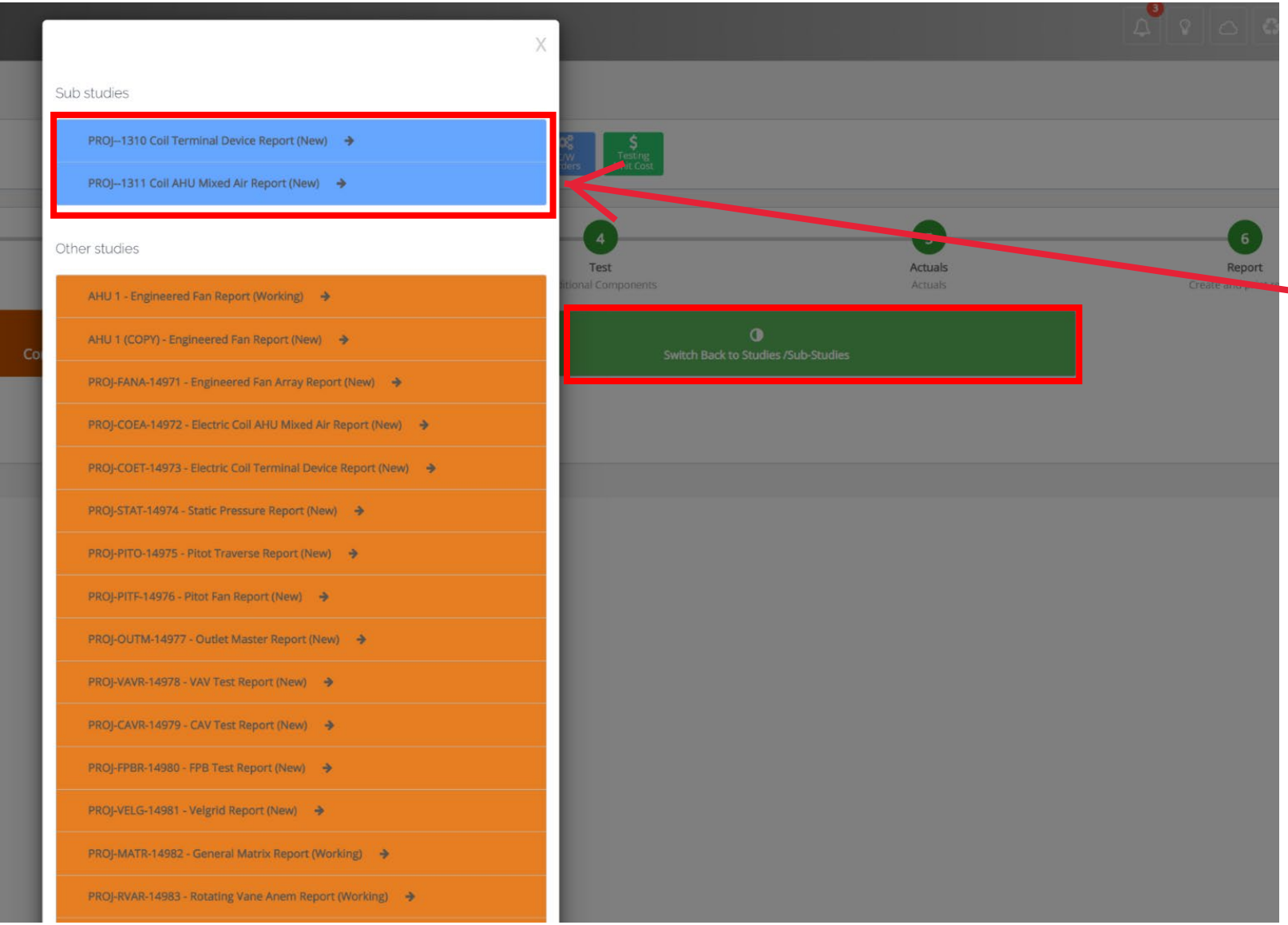
Fluid: Water specific gravity @ 1.0

+ 5.0 PSIG
Water SG @ 1.0
NPSHA = 22.5'
Water Temperature 196.0 F
To avoid pump cavitation
NPSHR Must be less than 22.5'

- 10.0 Hg
Water SG @ 1.0
NPSHA = 10.5'
Water Temperature 85.0 F
To avoid pump cavitation
NPSHR Must be less than 10.5'



Complete Report/Study



If you complete a main study before completing the Sub-Study under it, a pop up will show the Sub-Studies that need to be completed.

Audit Master Pro Training

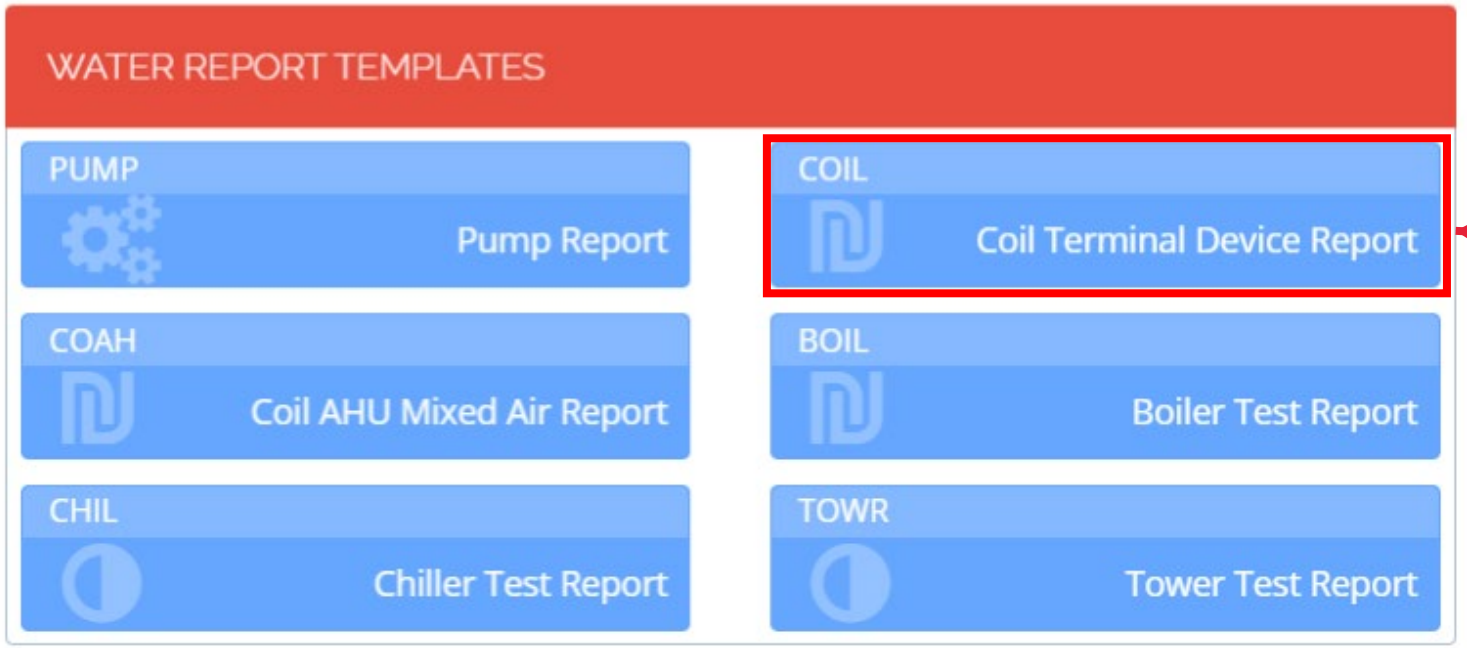
Coil Terminal Device Report

This tutorial will act as a guide to create and input all data required for the selected study.

Go to Index

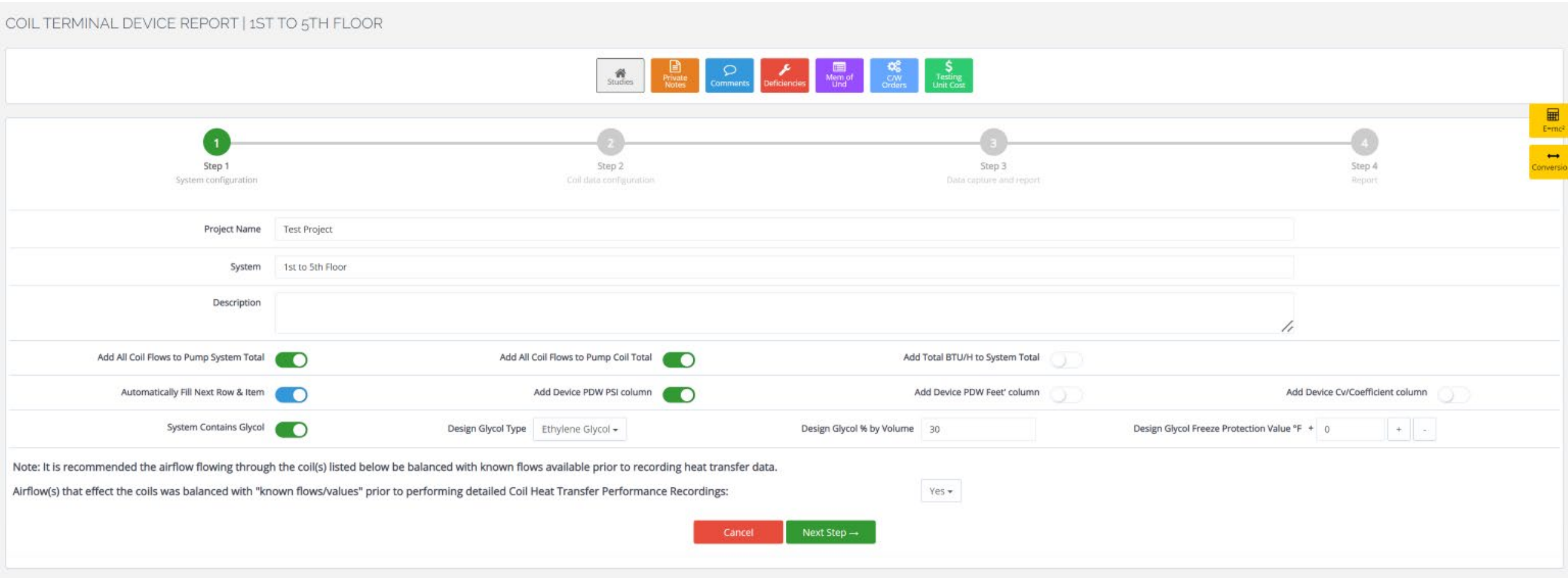
Audit Master PRO

Select the type of report



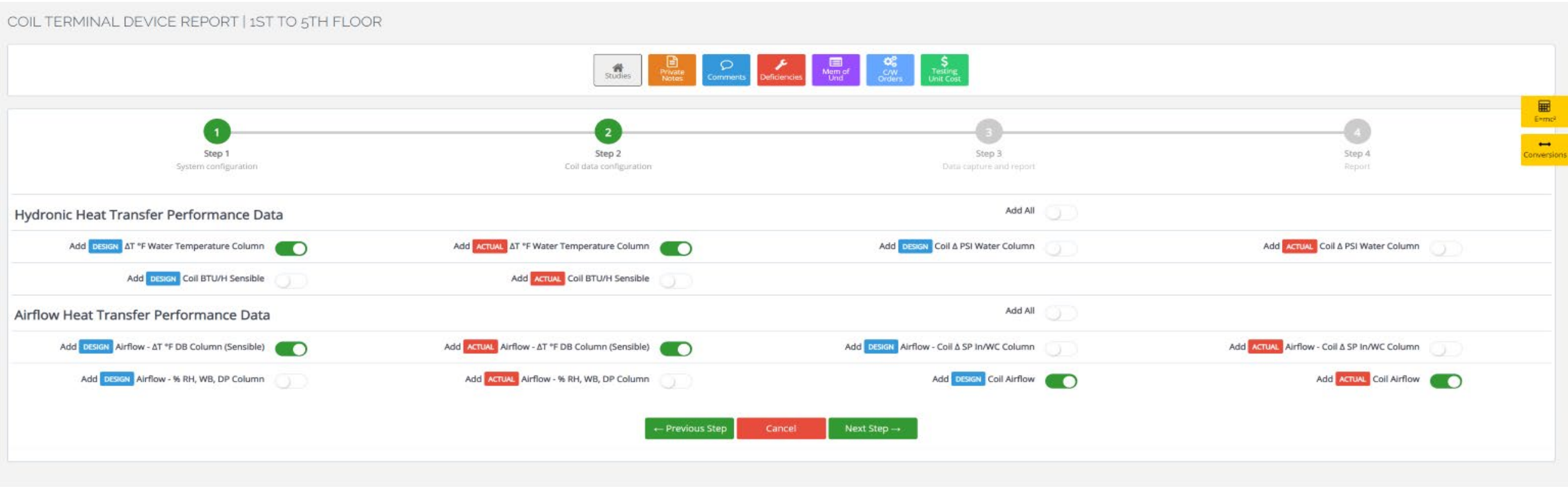
Click “Coil Terminal Device Report”

Audit Master PRO

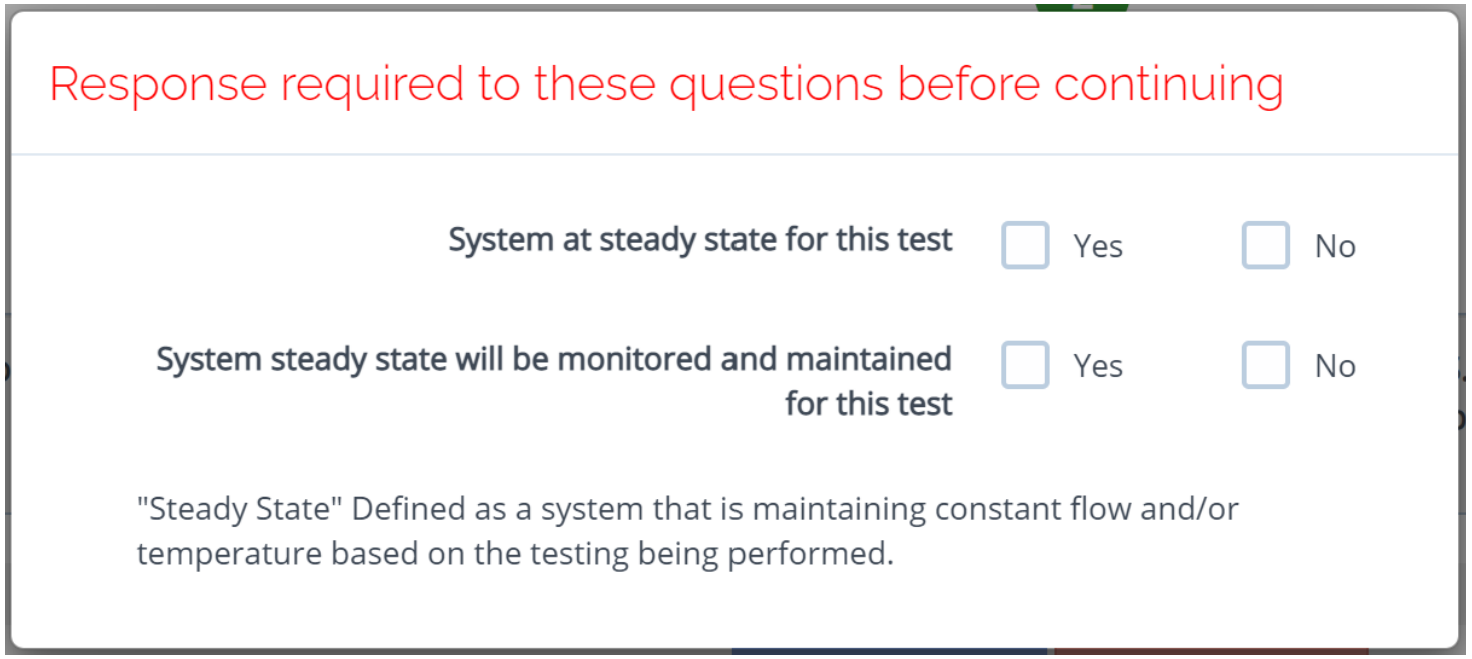


Enter system information and select the data to be collected.

Audit Master PRO

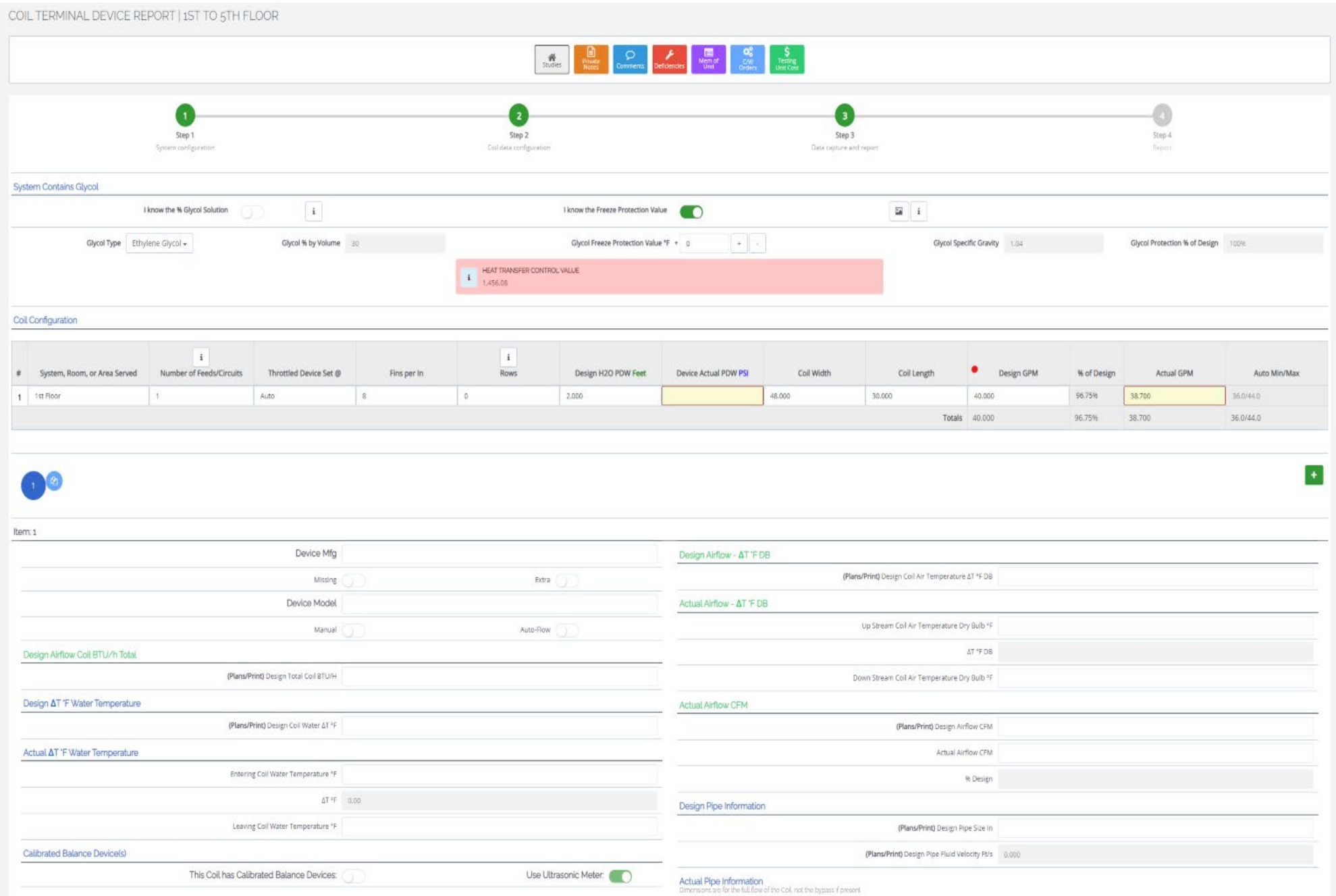


Select Coil Data to be collected



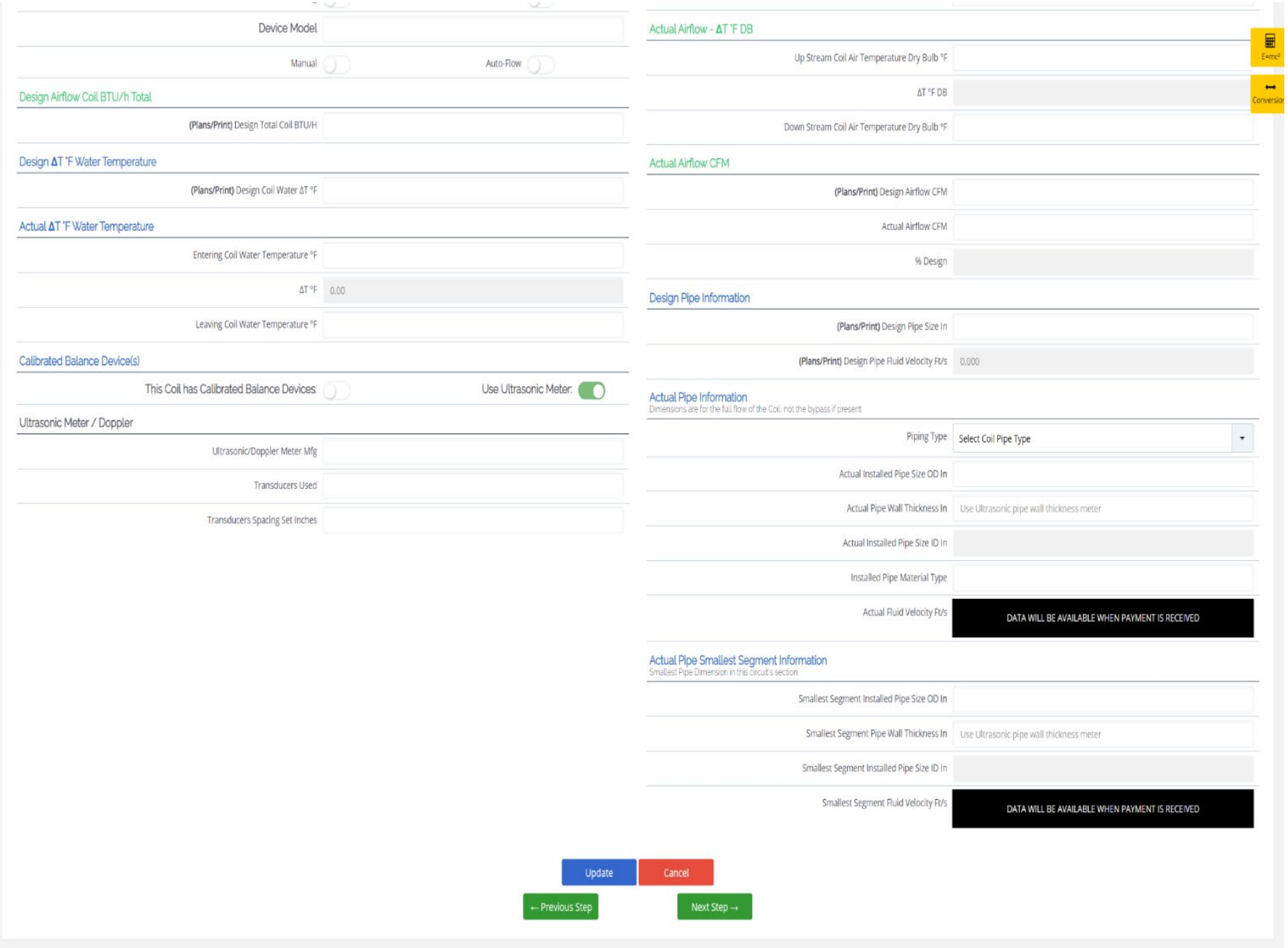
Throughout the AMP software you will be required to verify that the system being tested is at steady state.

Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.



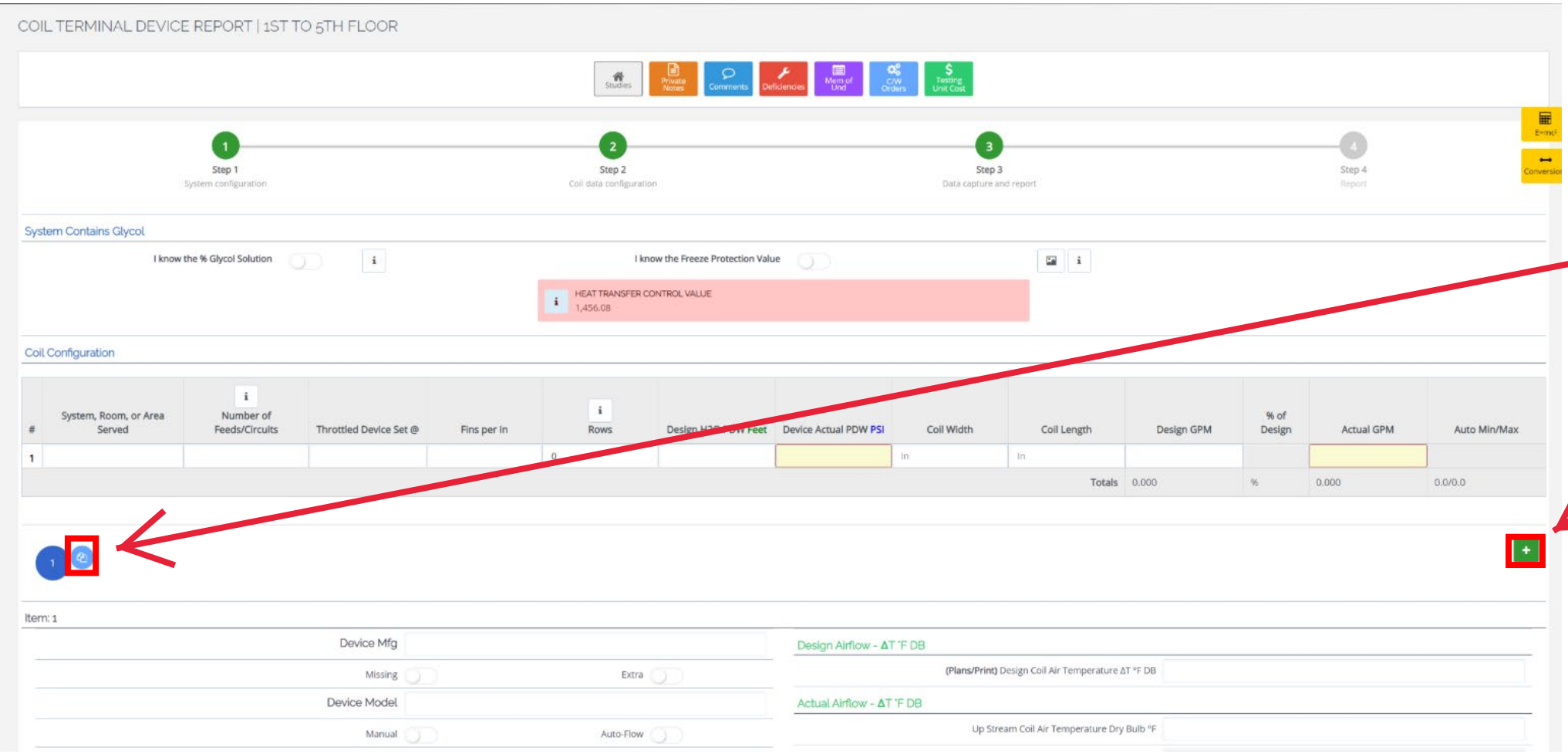
Audit Master PRO™

Enter Actual Coil Data



Audit Master PRO™

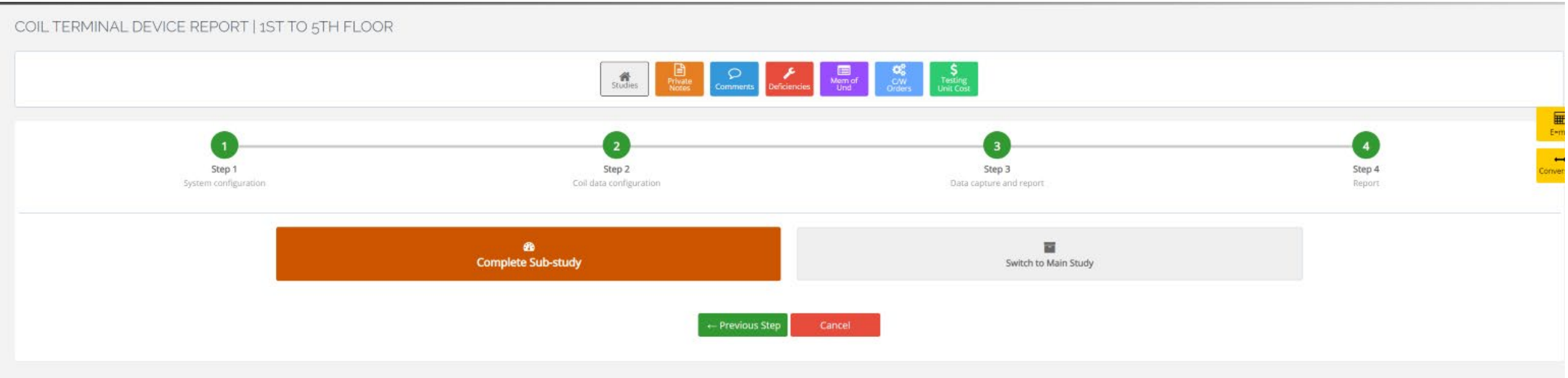
Enter Actual Coil Data Continued



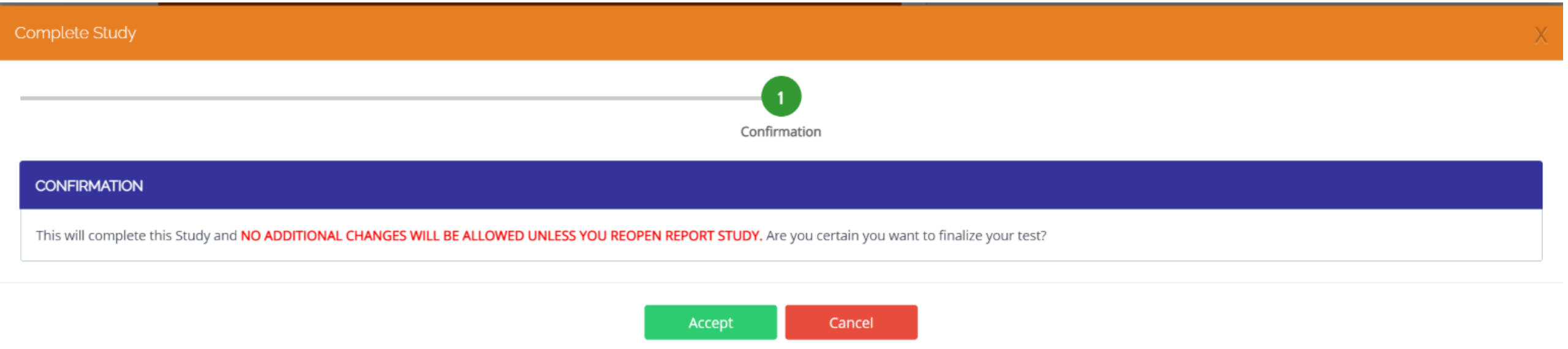
Note:

You can copy any coil along with its design data by clicking the “BLUE" Copy Icon.

Enter additional coils by clicking the "GREEN" + Icon.



Complete Sub-Study



Accept Confirmation

Audit Master Pro Training

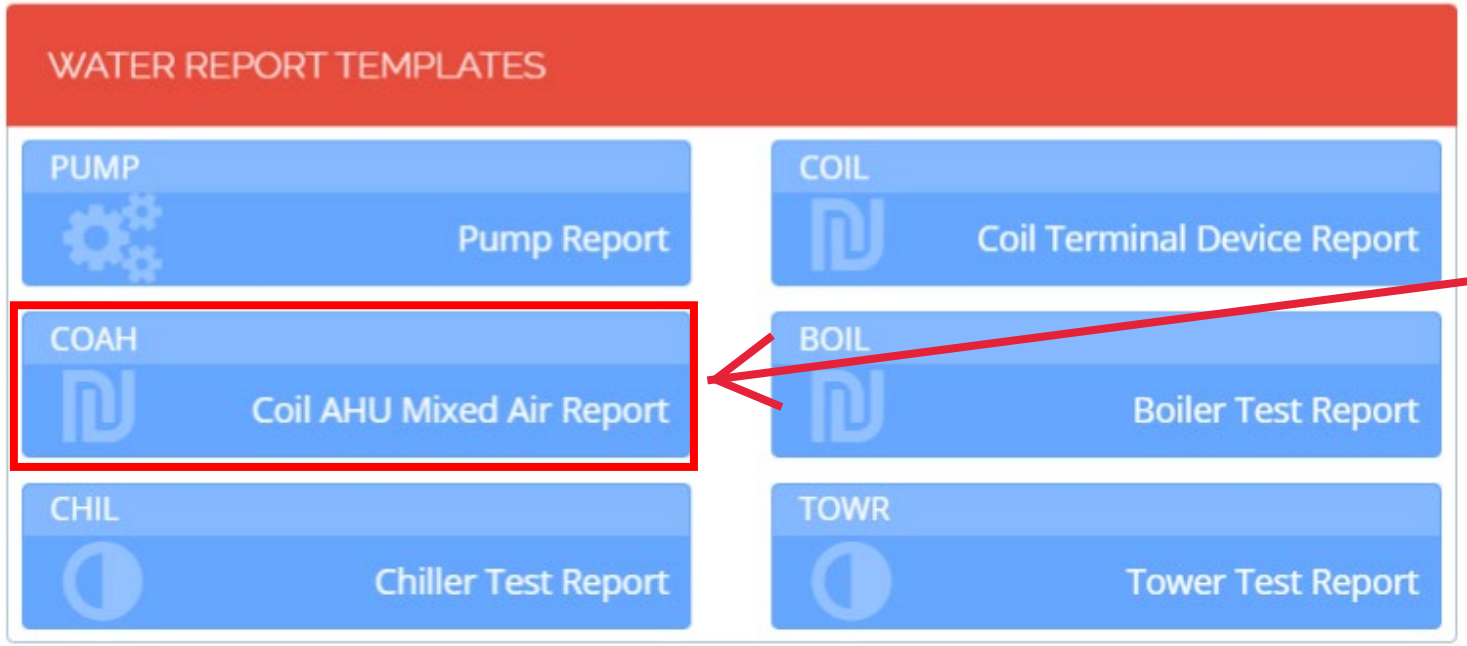
Coil AHU Mixed Air Report

This tutorial will act as a guide to create and input all data required for the selected study.

Go to Index

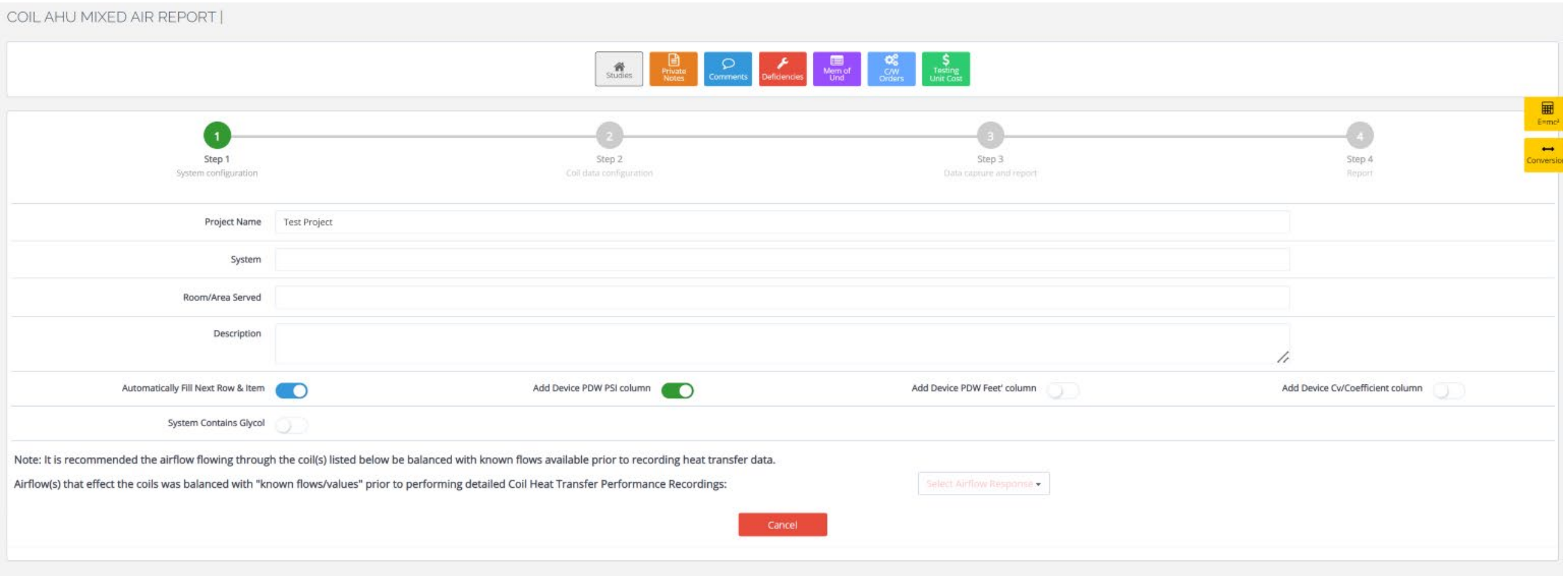
Audit Master PRO

Select the type of report



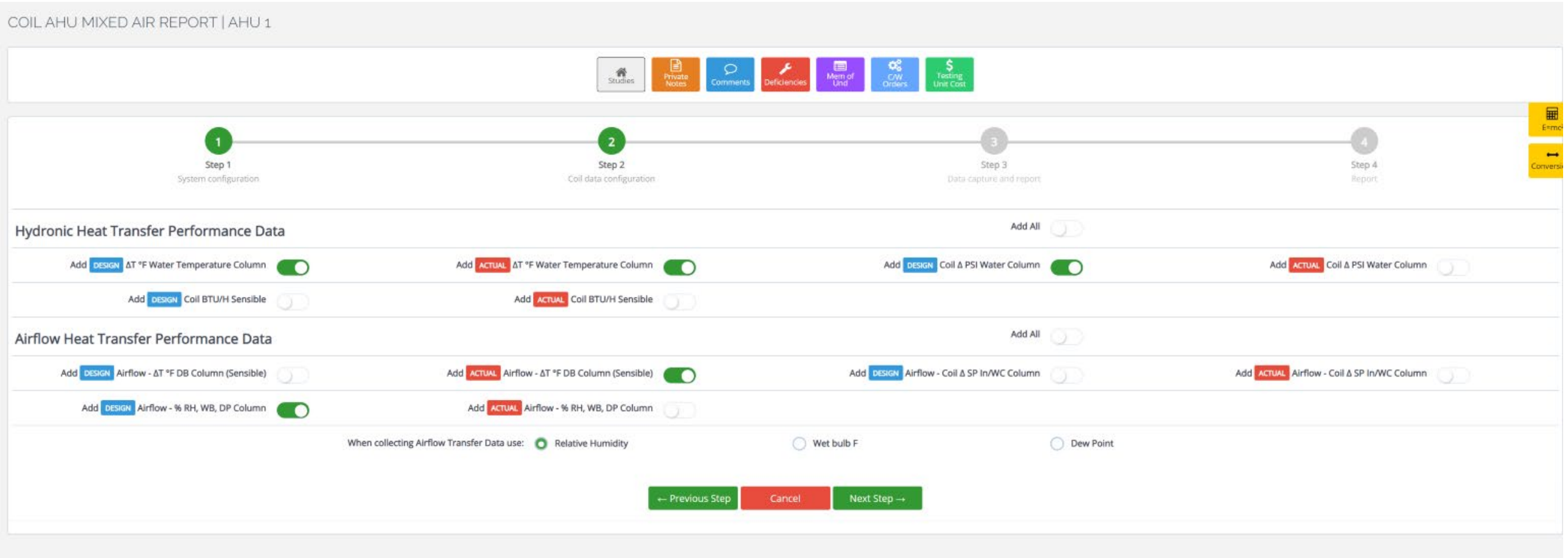
Click “Coil AHU Mixed Air Report”

Audit Master PRO

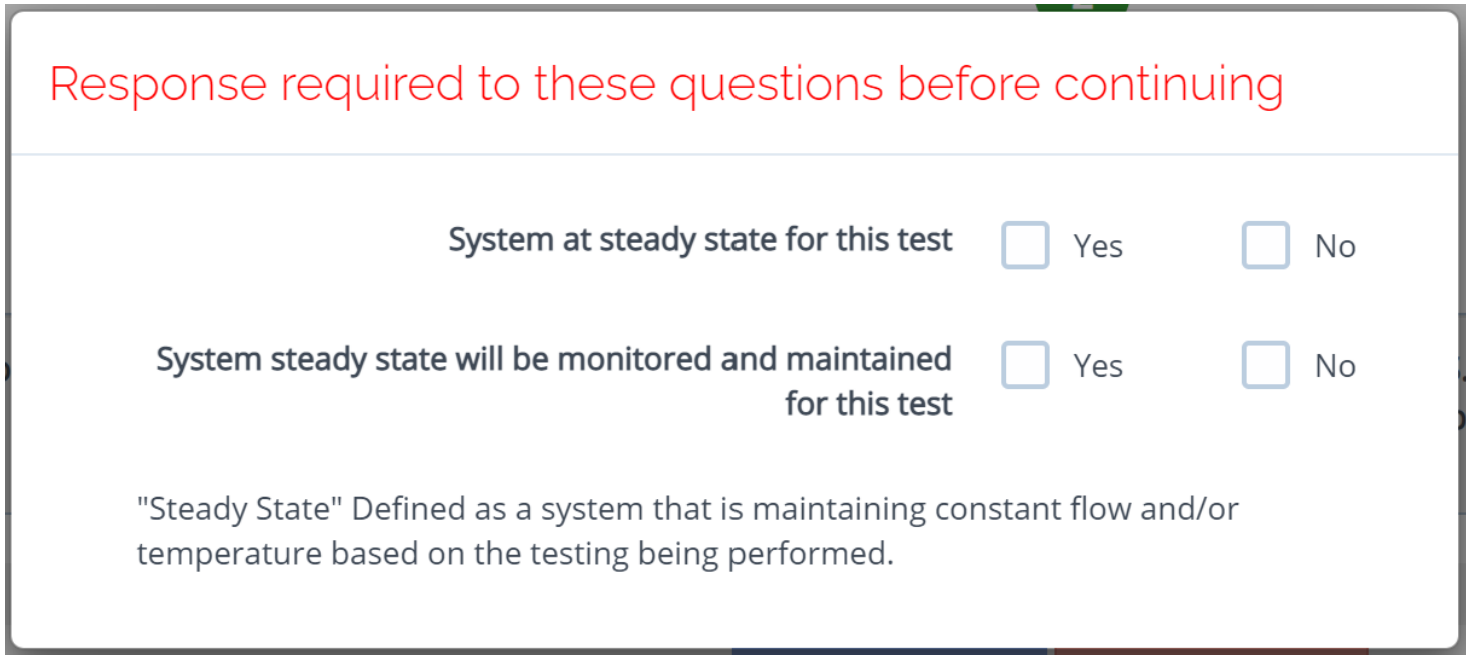


Enter System Information

Audit Master PRO



Select Coil data to be collected



Throughout the AMP software you will be required to verify that the system being tested is at steady state.

Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.

Audit Master PRO

1 Step 1 System configuration
2 Step 2 Coil data configuration
3 Step 3 Data capture and report
4 Step 4 Report

Coil Configuration

#	Number of Feeds/Circuits	Throttled Device Set @	Fins per In	Rows	Design H2O PDW Feet	Device Actual PDW PSI	Coil Width	Coil Length	Design GPM	% of Design	Actual GPM	Auto Min/Max
1	1	20	8	2	4.000	2.000	48.000	24.000	25.000	99.20%	24.800	22.5/27.5
								Totals	25.000	99.20%	24.800	22.5/27.5

E=mc² Conversion

Actual System Total Combined BTU/H 496,694.400

1

Item: 1

Device Mfg: Unit
Missing / Extra
Device Model: 123
Manual / Auto-Flow

Design Total Hydronic Coil BTU/H
(Plans/Print) Design Coil BTU/H Total: 500,000.000

Actual Total Hydronic Coil BTU/H
Actual Total Coil BTU/H: 496,694.40
% of Design: 99.34%

Design ΔT °F Water Temperature
(Plans/Print) Design Coil Water ΔT °F: 10.000

Design Hydronic/Water Coil Δ PSI Water
(Plans/Print) Design Coil Water Δ PSI: 1.734

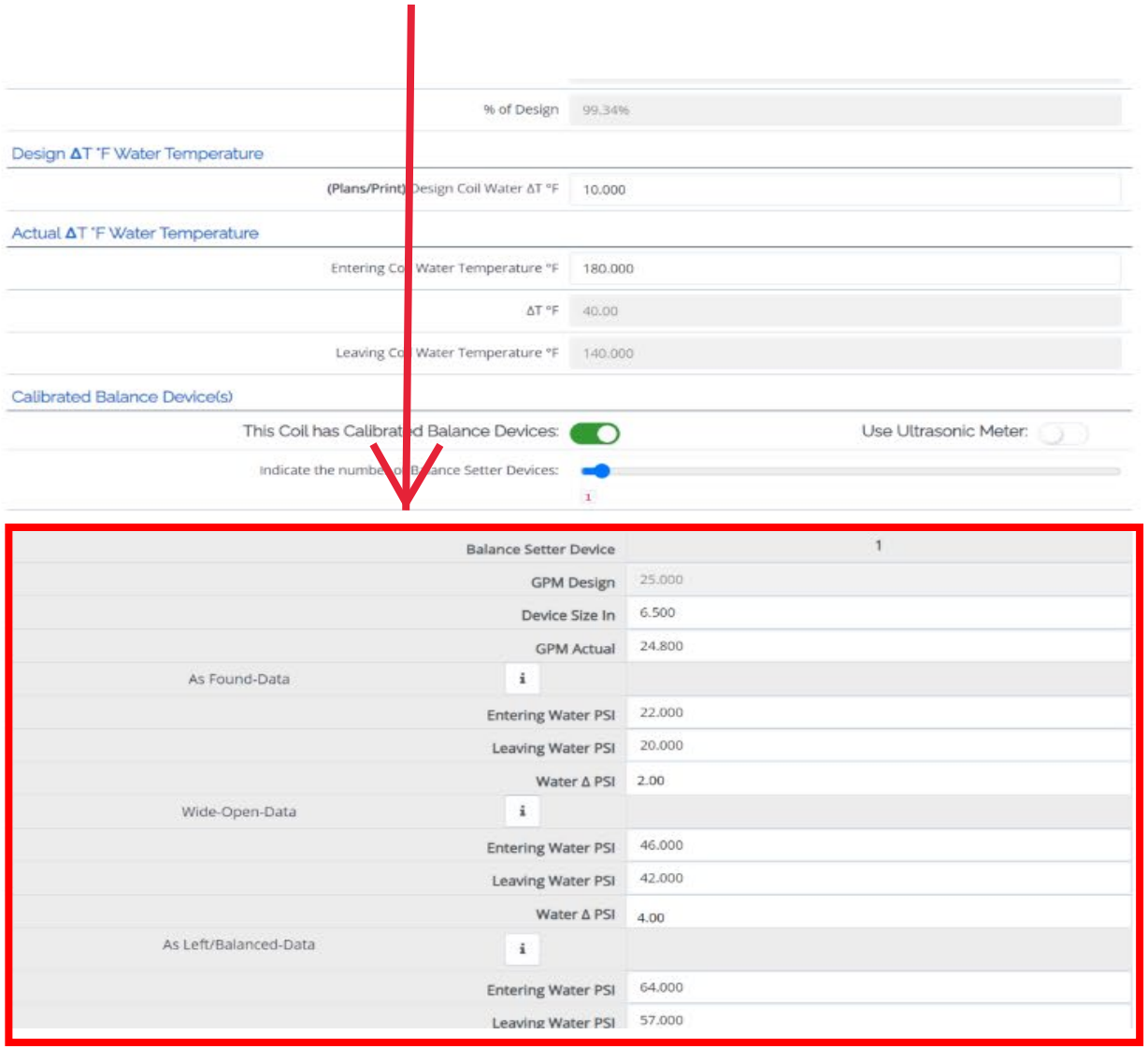
Actual (As Found) Hydronic/Water Coil Δ PSI Water
Entering Water PSI: 20.000
Δ PSI: 2.00
Leaving Water PSI: 18.000

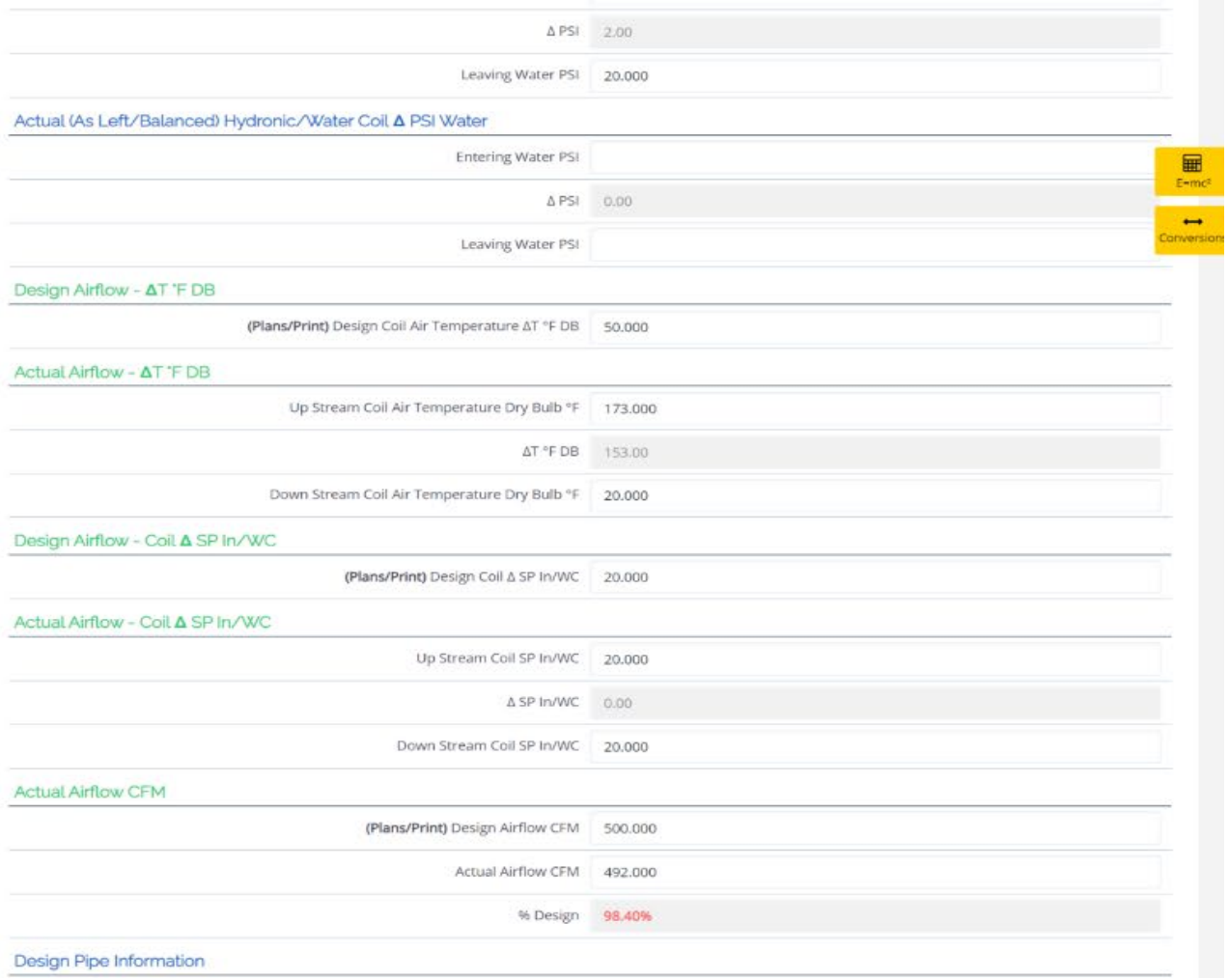
Actual (Coil Valvs wide open) Hydronic/Water Coil Δ PSI Water
Entering Water PSI: 18.000
Δ PSI: 2.00
Leaving Water PSI: 20.000

Actual (As Left/Balanced) Hydronic/Water Coil Δ PSI Water

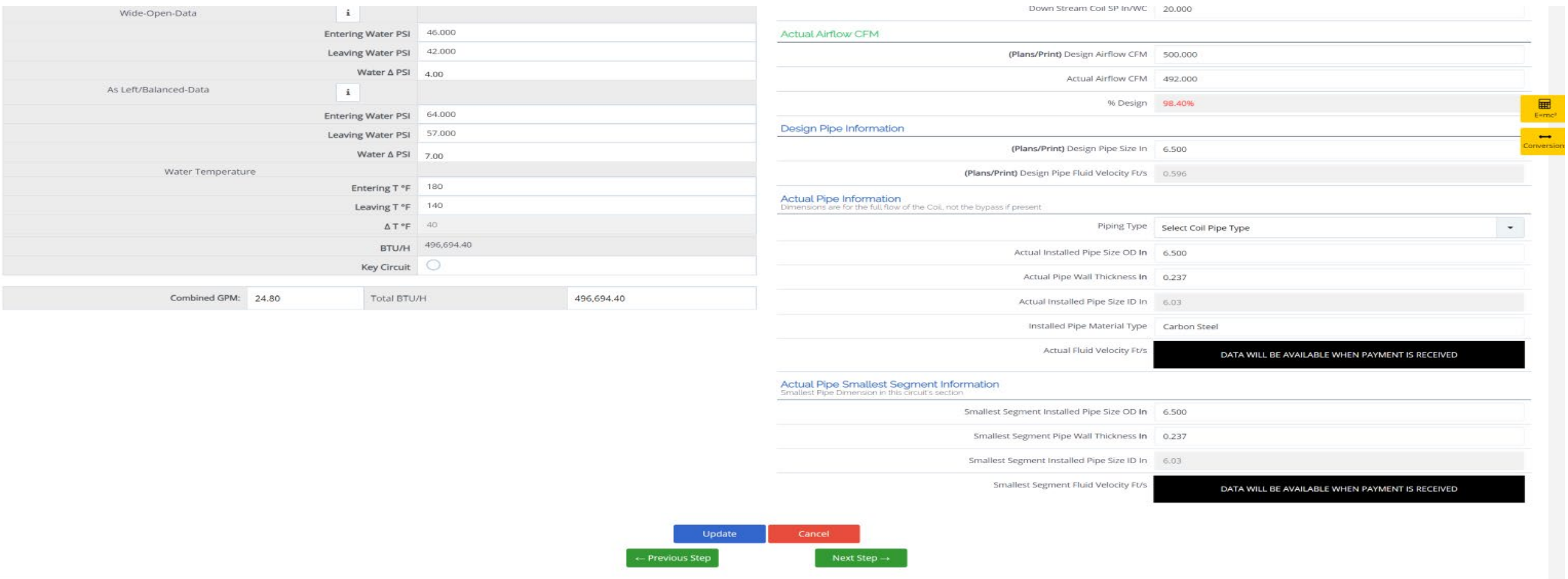
Enter Actual Coil Data

If a calibrated balancing device is selected, this box will appear.

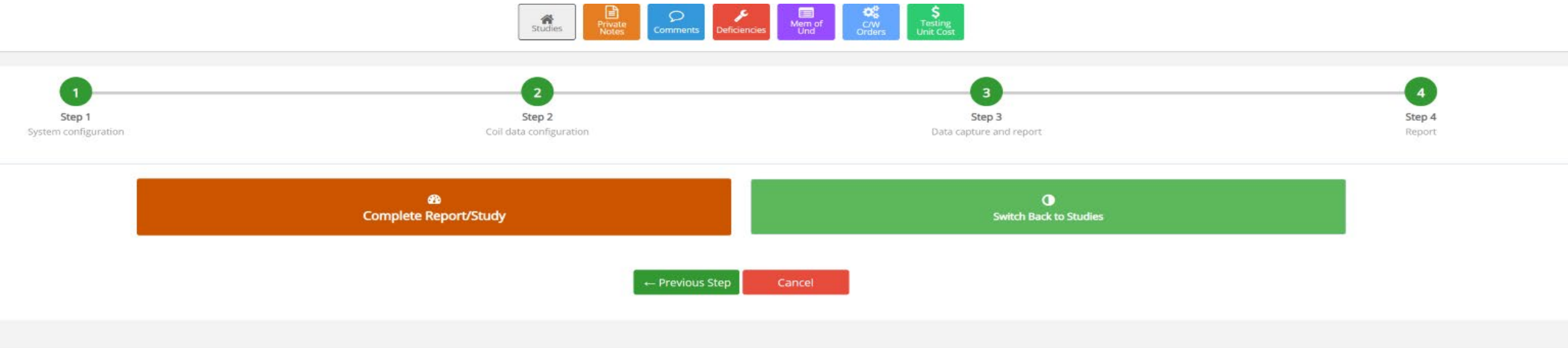




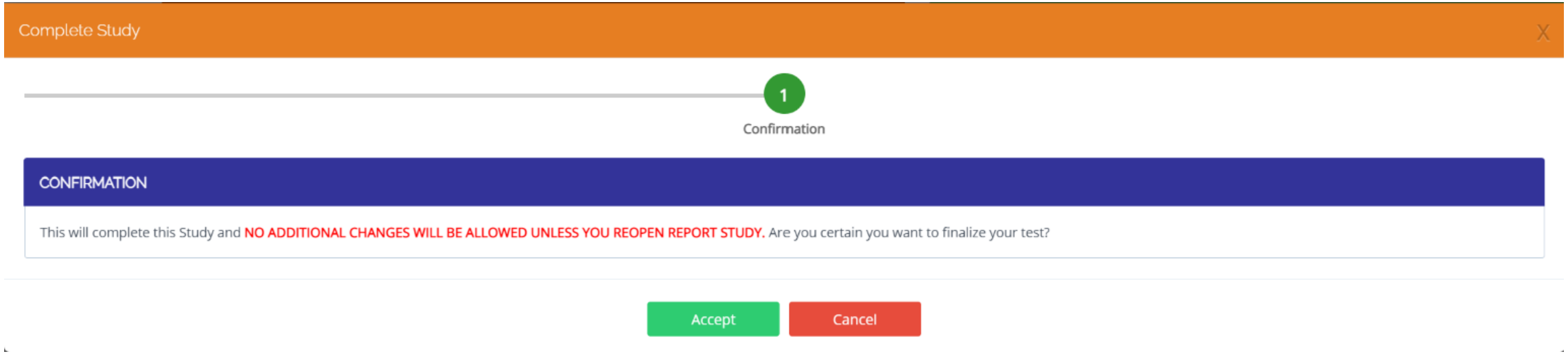
Enter Actual Coil Data Continued



Enter Actual Coil Data Continued



Complete Report/Study



Accept Confirmation

Audit Master Pro Training

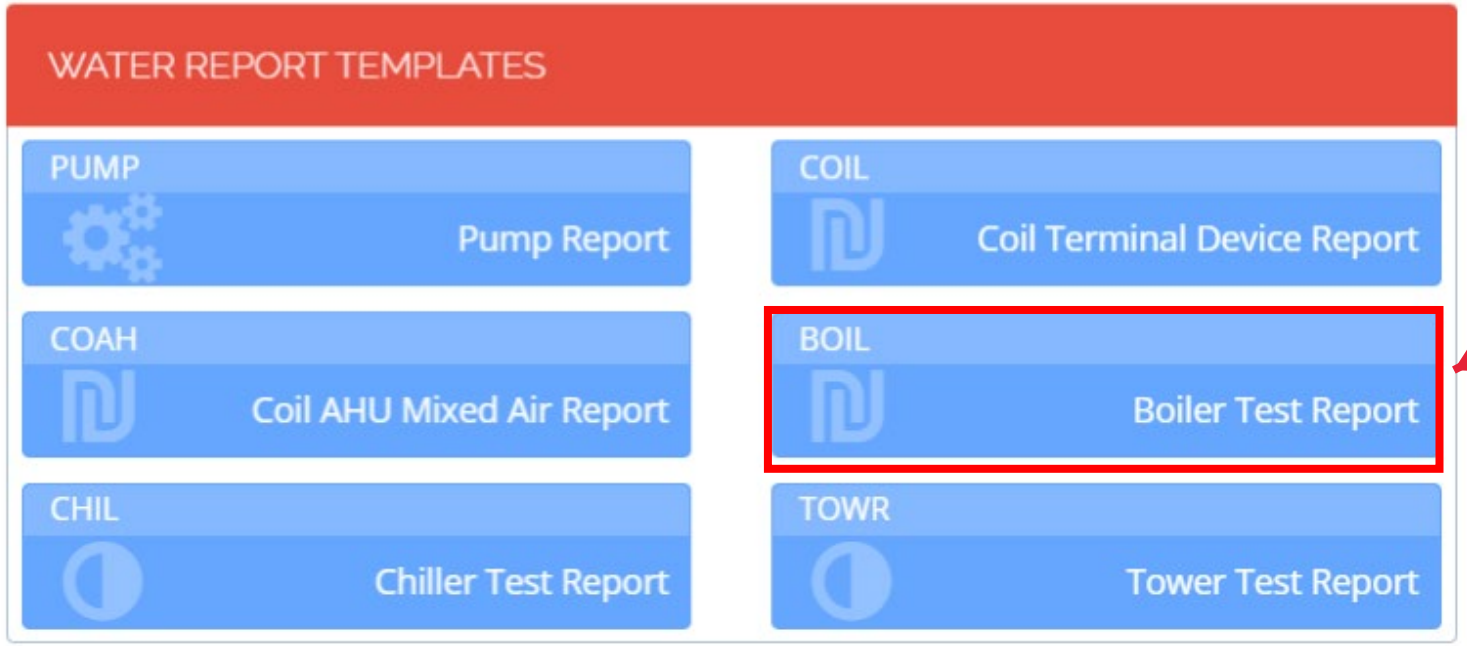
Boiler Test Report

This tutorial will act as a guide to create and input all data required for the selected study.

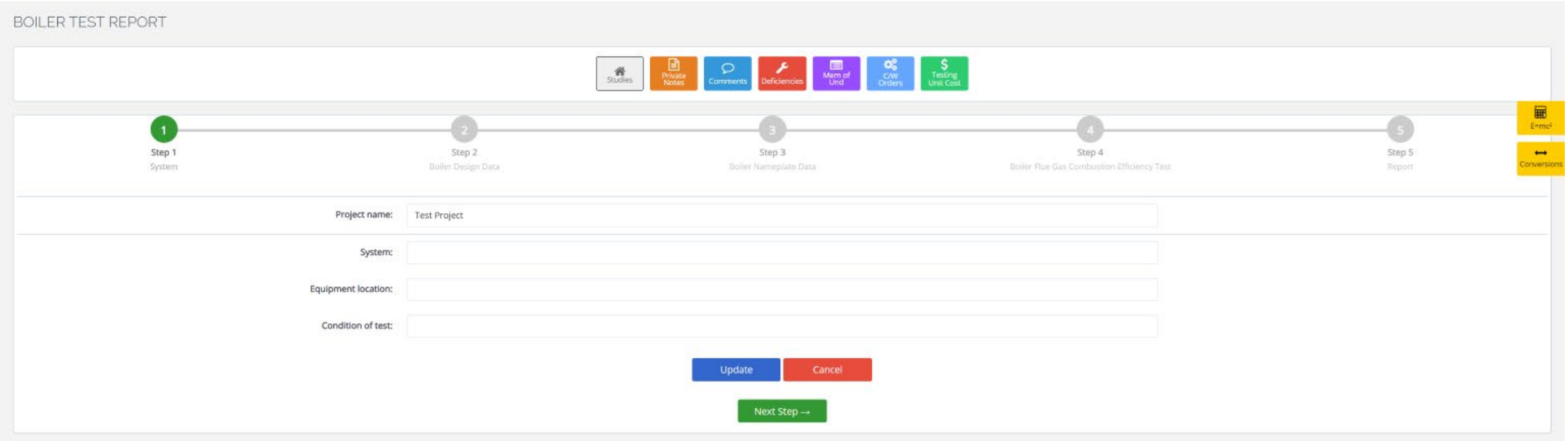
Go to Index

Audit Master PRO

Select the type of report



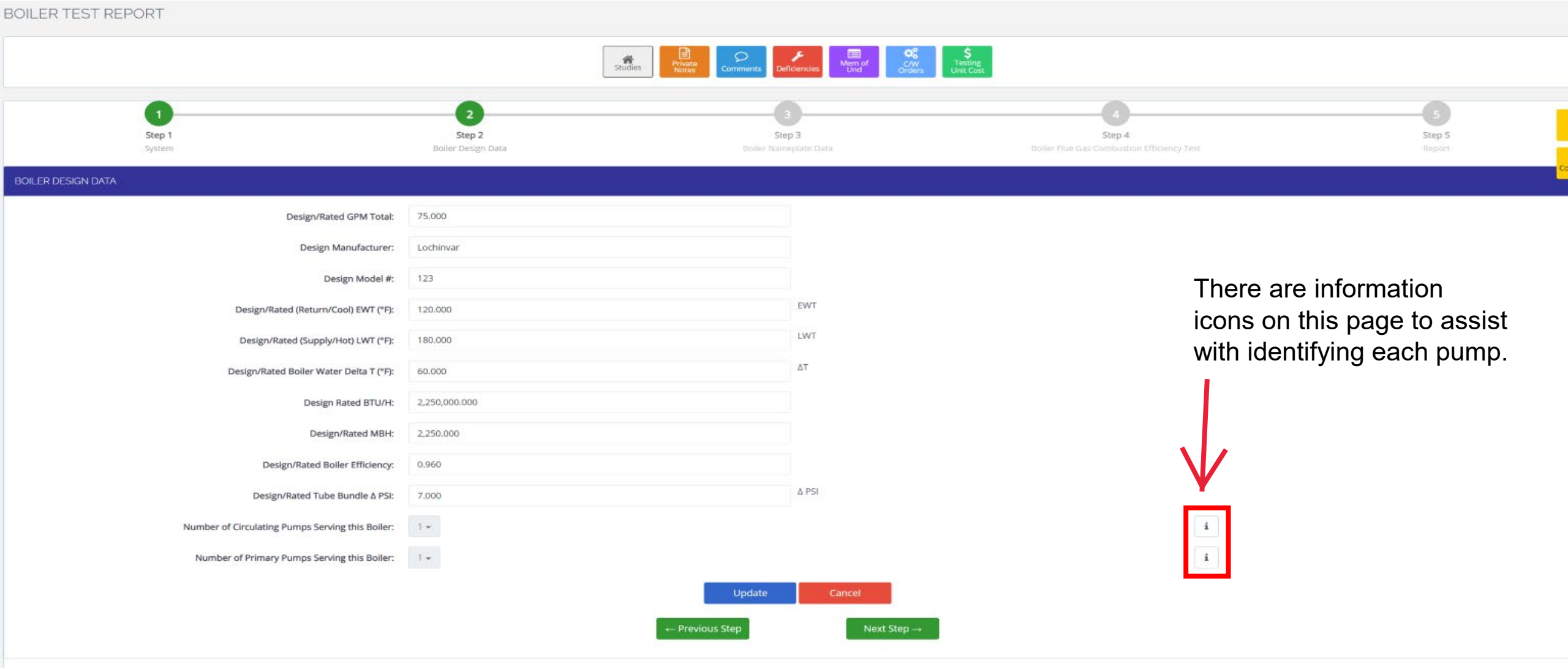
Select “Boiler Test Report”



Enter Boiler System Information

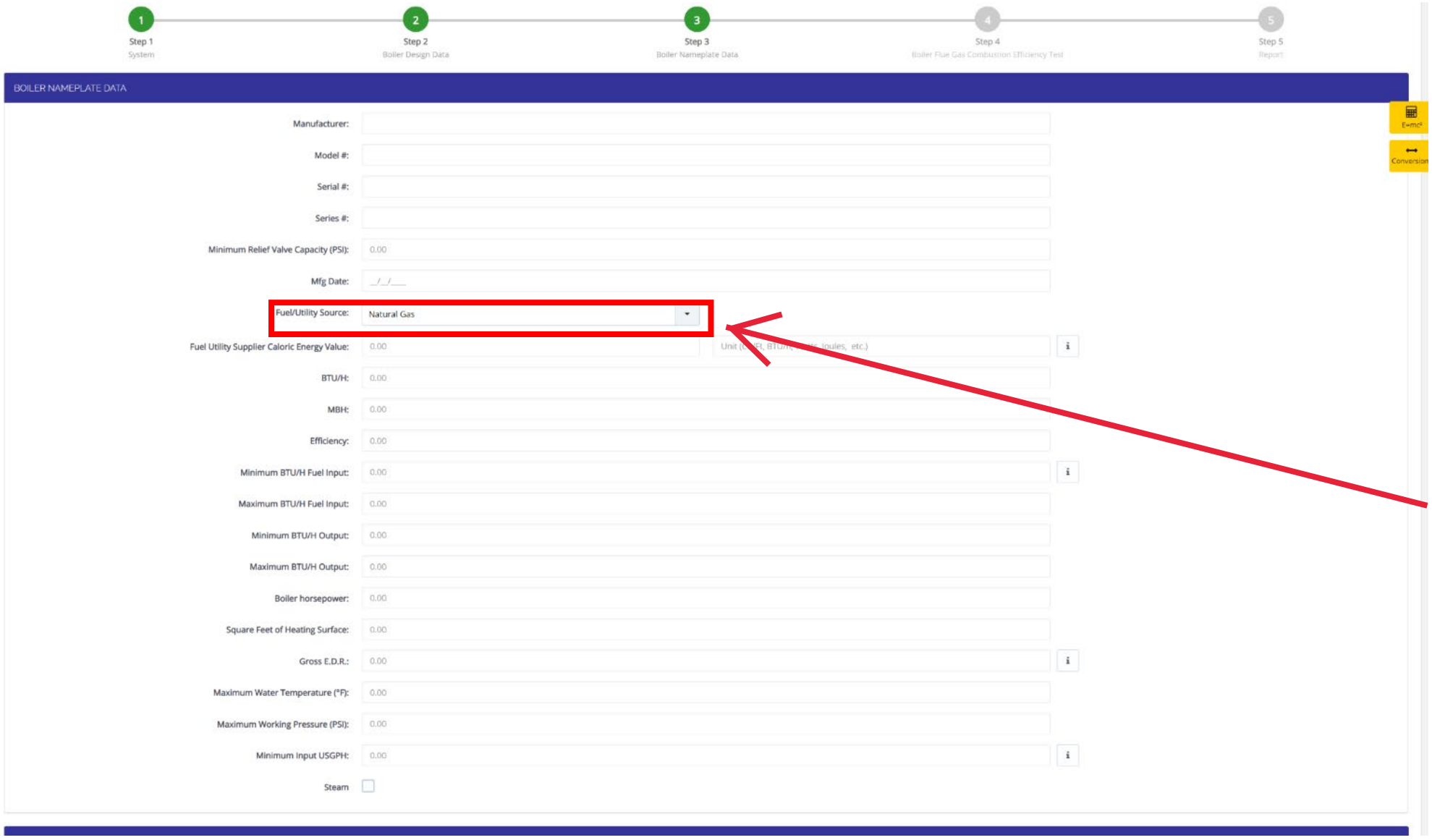
Audit Master PRO

BOILER TEST REPORT



There are information icons on this page to assist with identifying each pump.

Enter Boiler Design Data

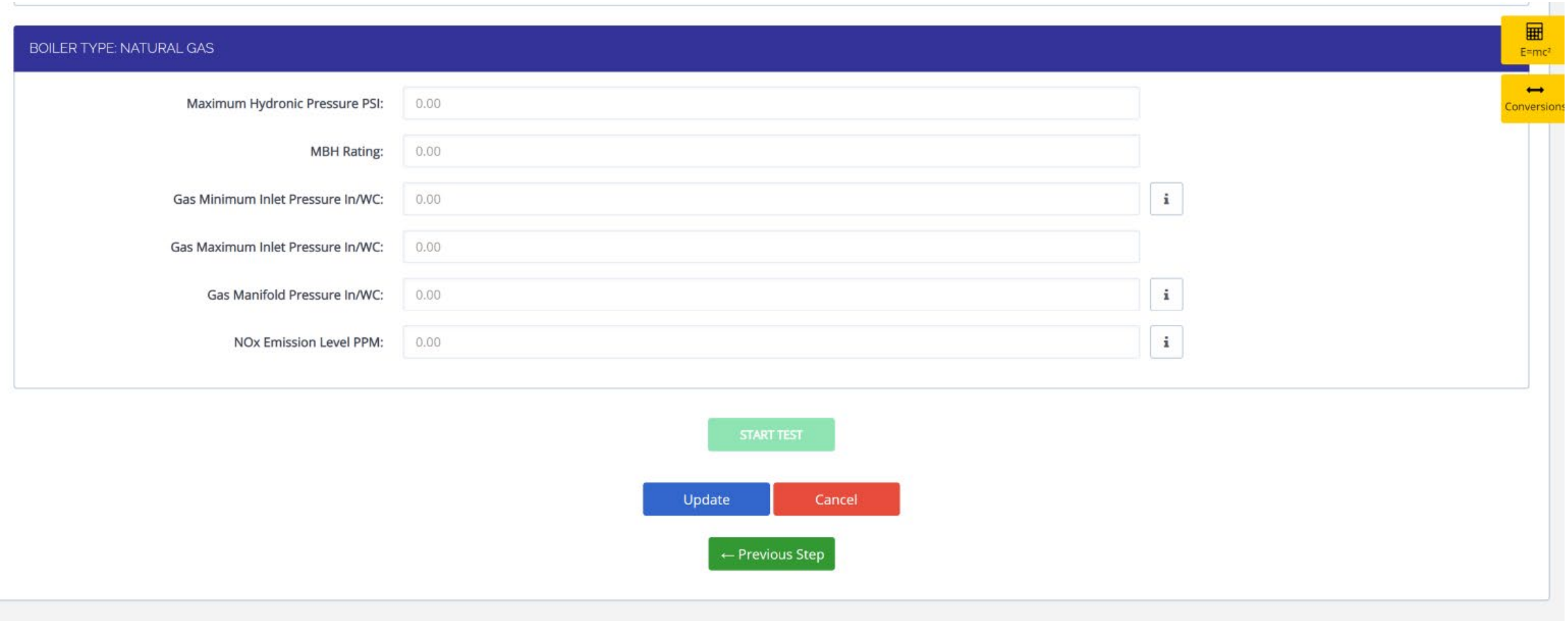


Audit Master PRO™

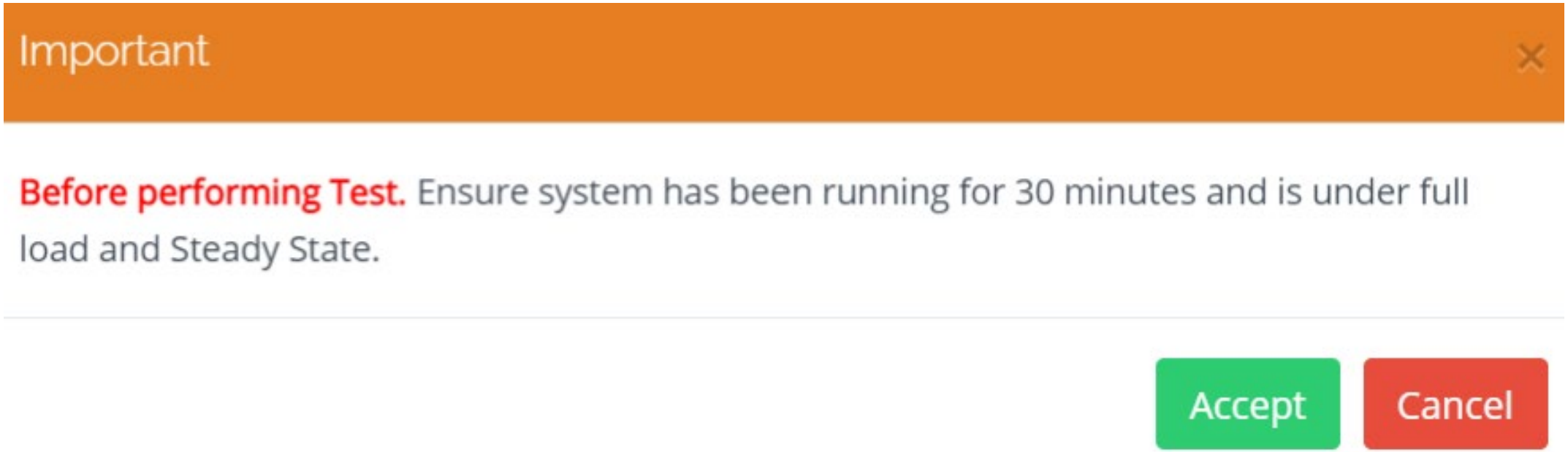
Enter Boiler Nameplate Data

Note: Ideal testing procedures is to run the boiler at full load for 30 minutes under steady state.

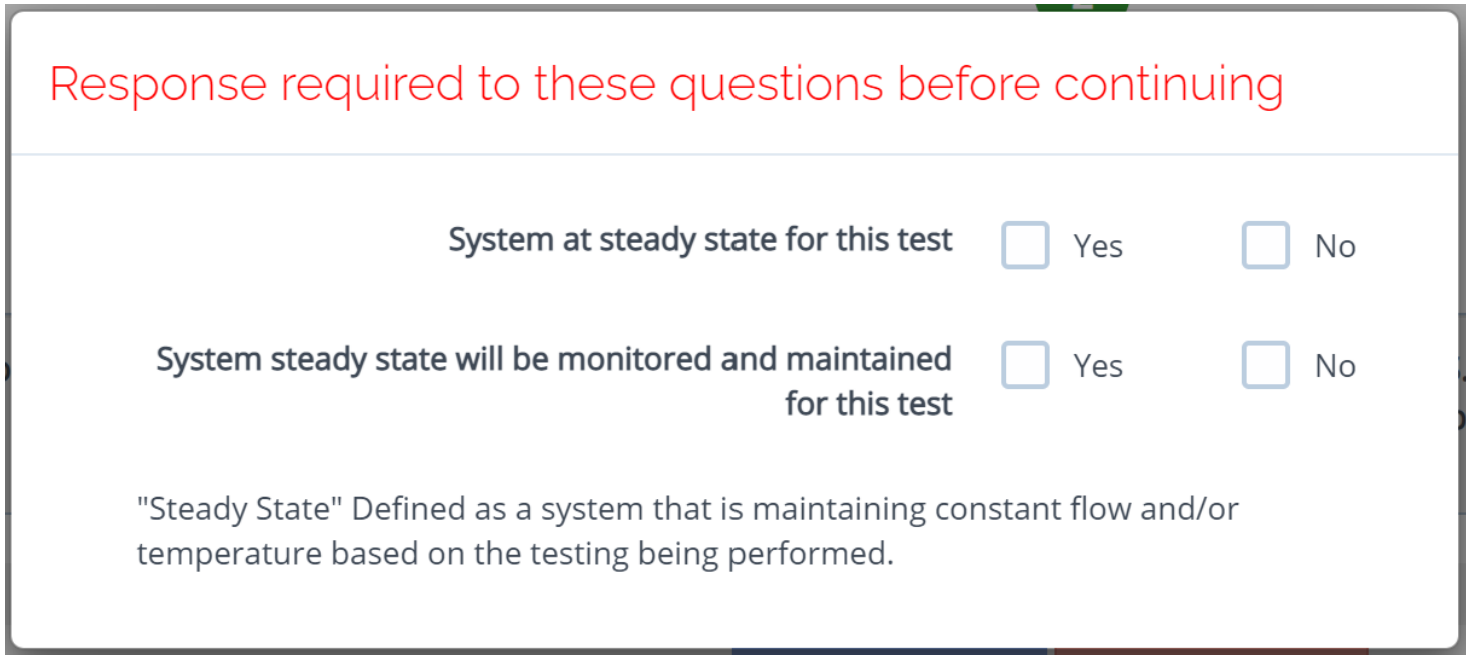
Select “Fuel/Utility Source”



Enter Fuel/Utility Source Data



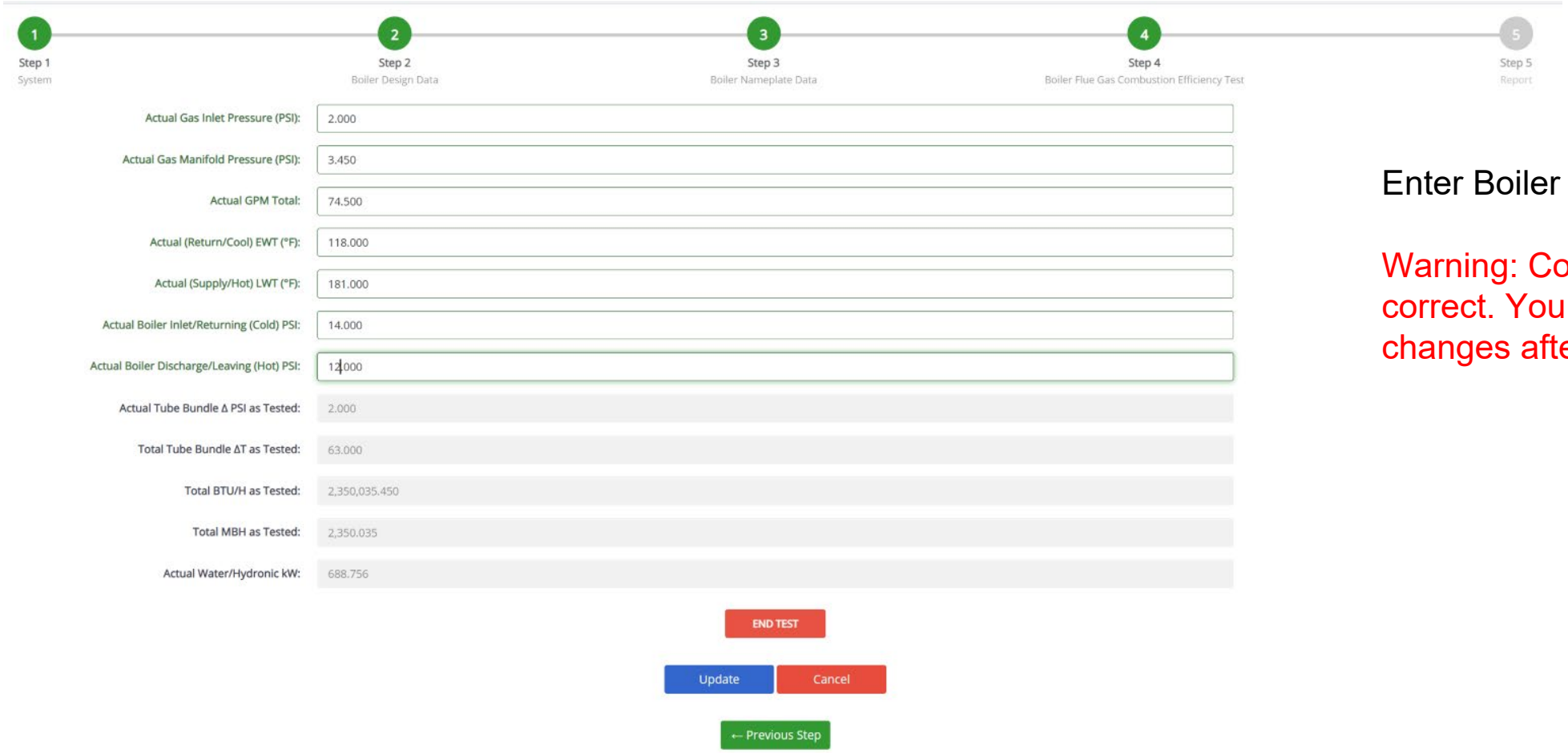
Recommended run time and steady state confirmation pop-up.



Throughout the AMP software you will be required to verify that the system being tested is at steady state.

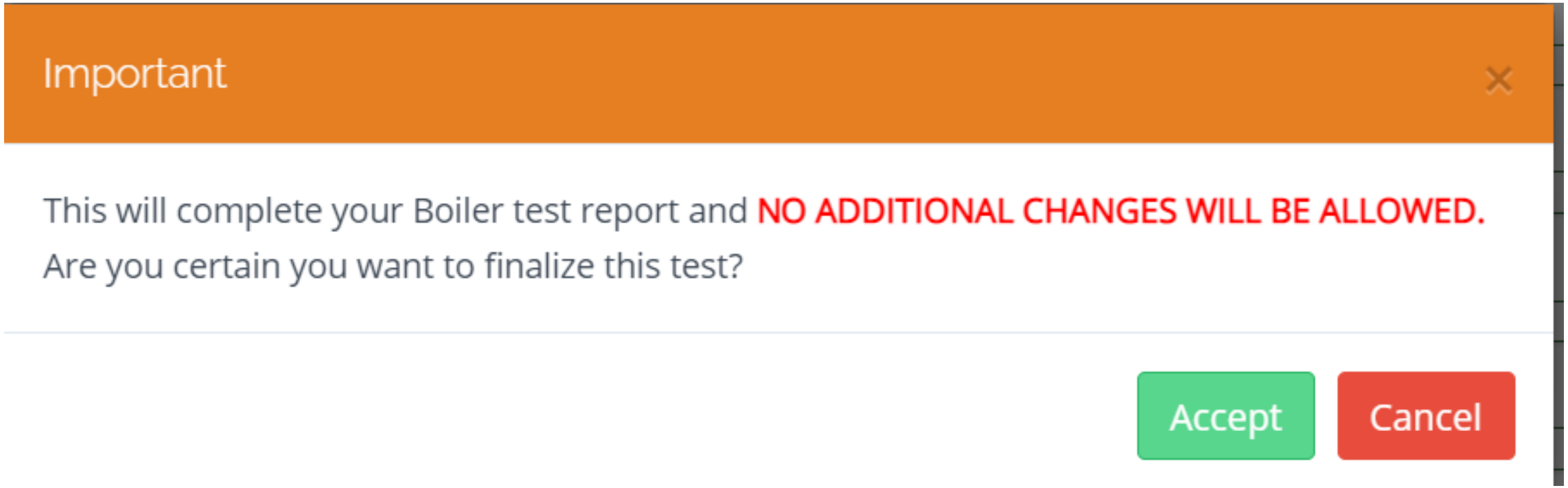
Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.

Audit Master PRO

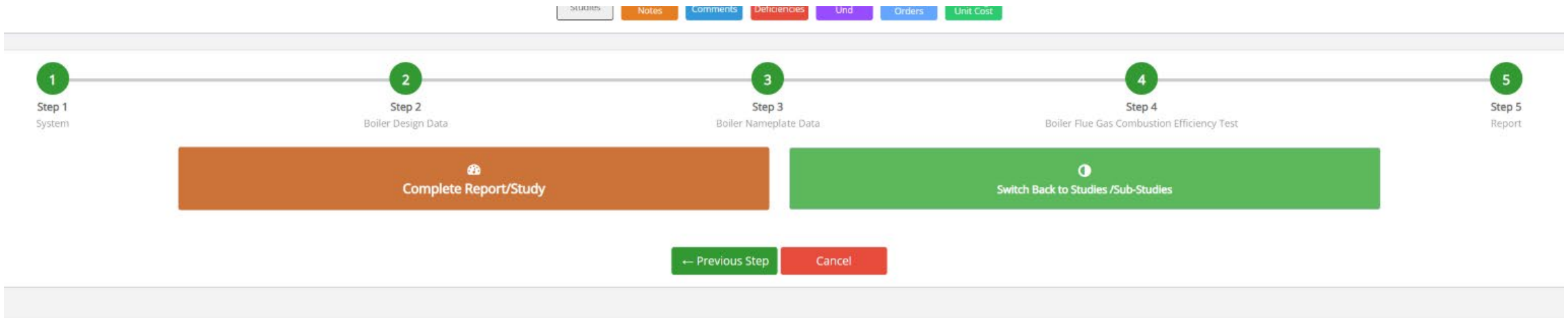


Enter Boiler Performance Test Data

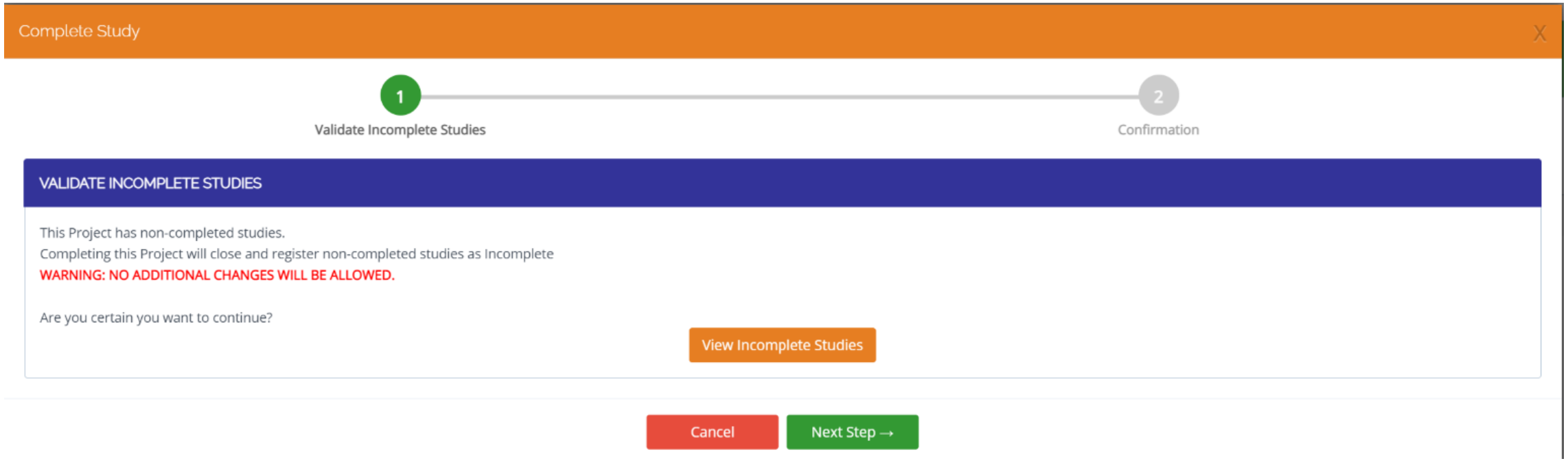
Warning: Confirm all data is correct. You can not make any changes after this data is finalized.



Accept Entered Data



Complete Report/Study



When entering boiler data, if you selected that a pump serves this boiler and is a part of the test, a Sub-Study will automatically be created for that pump.

The Sub-Study must be completed, otherwise it will show up as incomplete for the Boiler Study.

Audit Master PRO

Sub studies

PROJ--827 Pump Report (New) →

PROJ--828 Pump Report (New) →

Close

Begin Sub-Study

Audit Master Pro Training

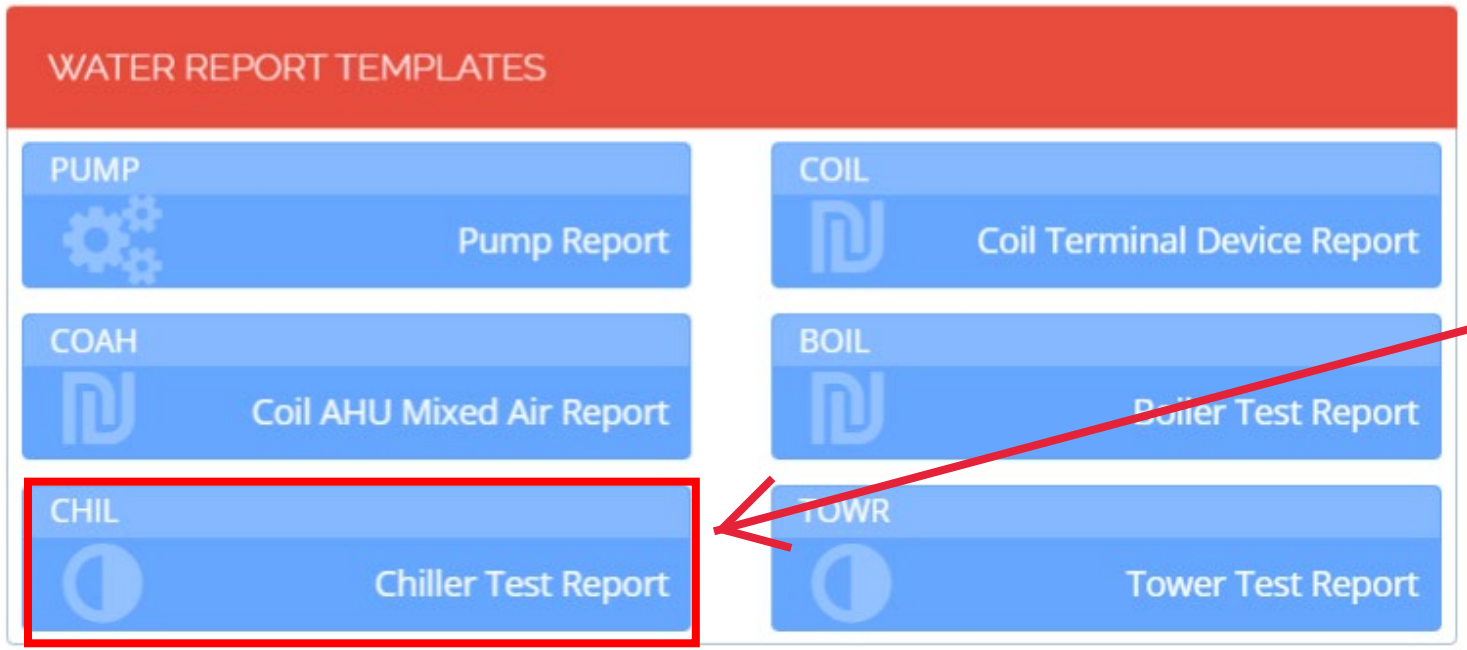
Chiller Test Report

This tutorial will act as a guide to create and input all data required for the selected study.

Go to Index

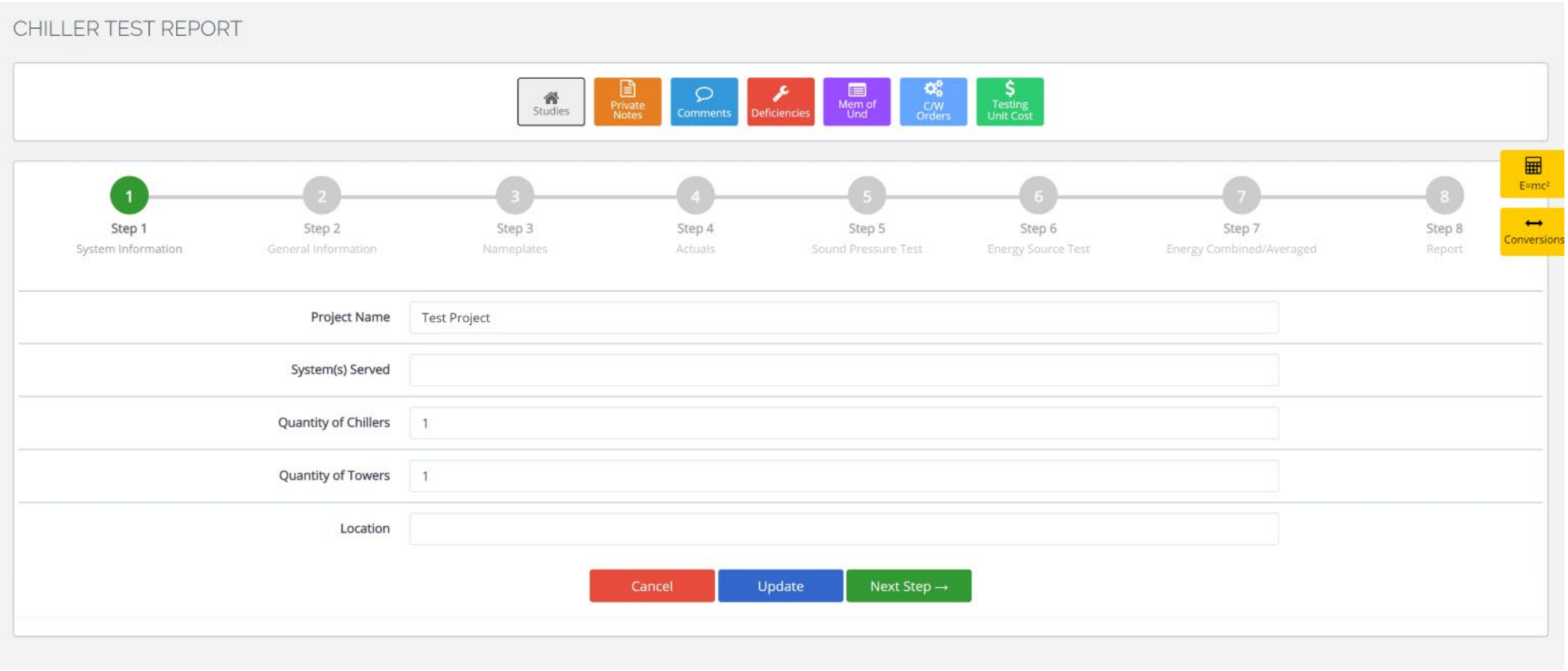
Audit Master PRO

Select the type of report



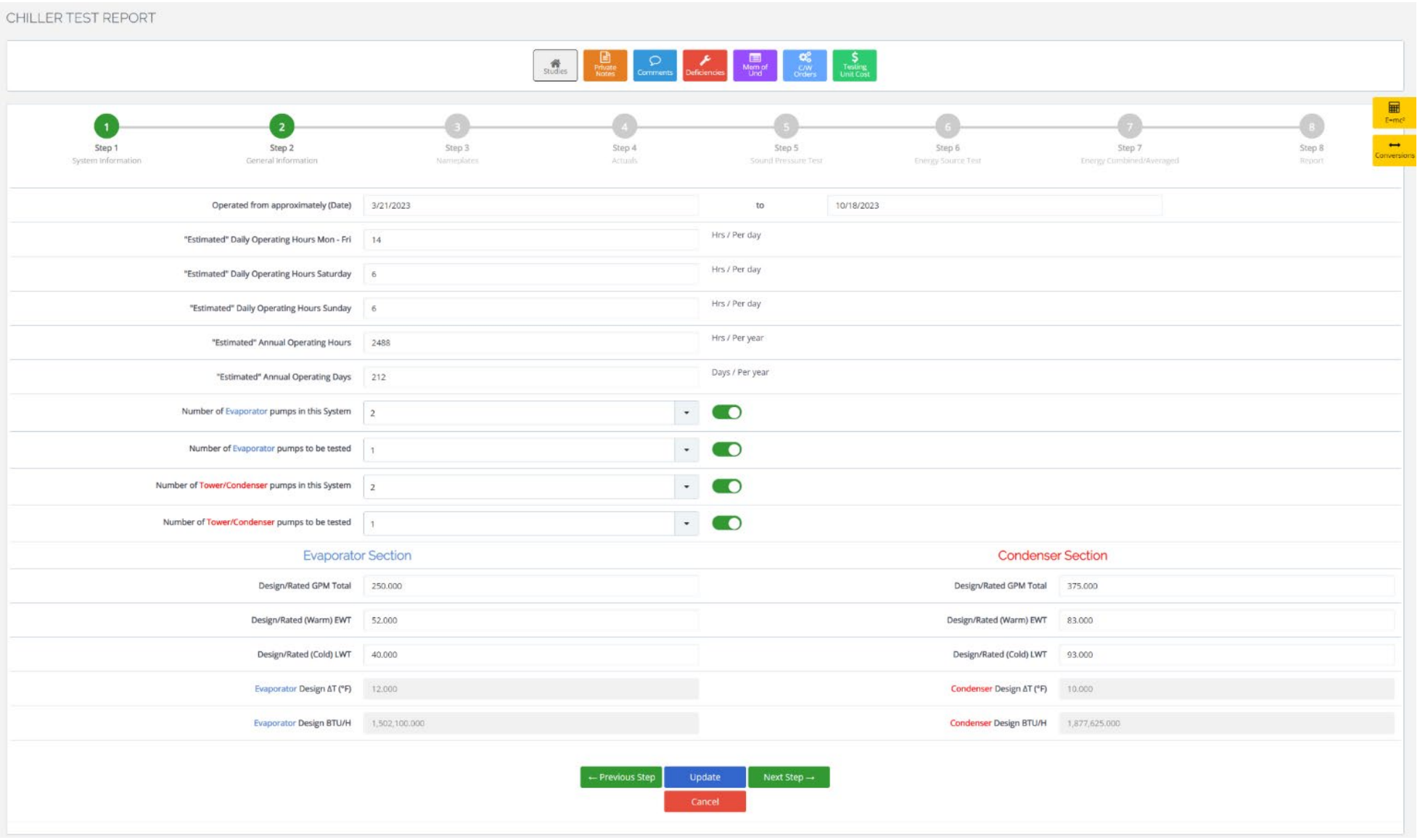
Select “Chiller Report”

Audit Master PRO

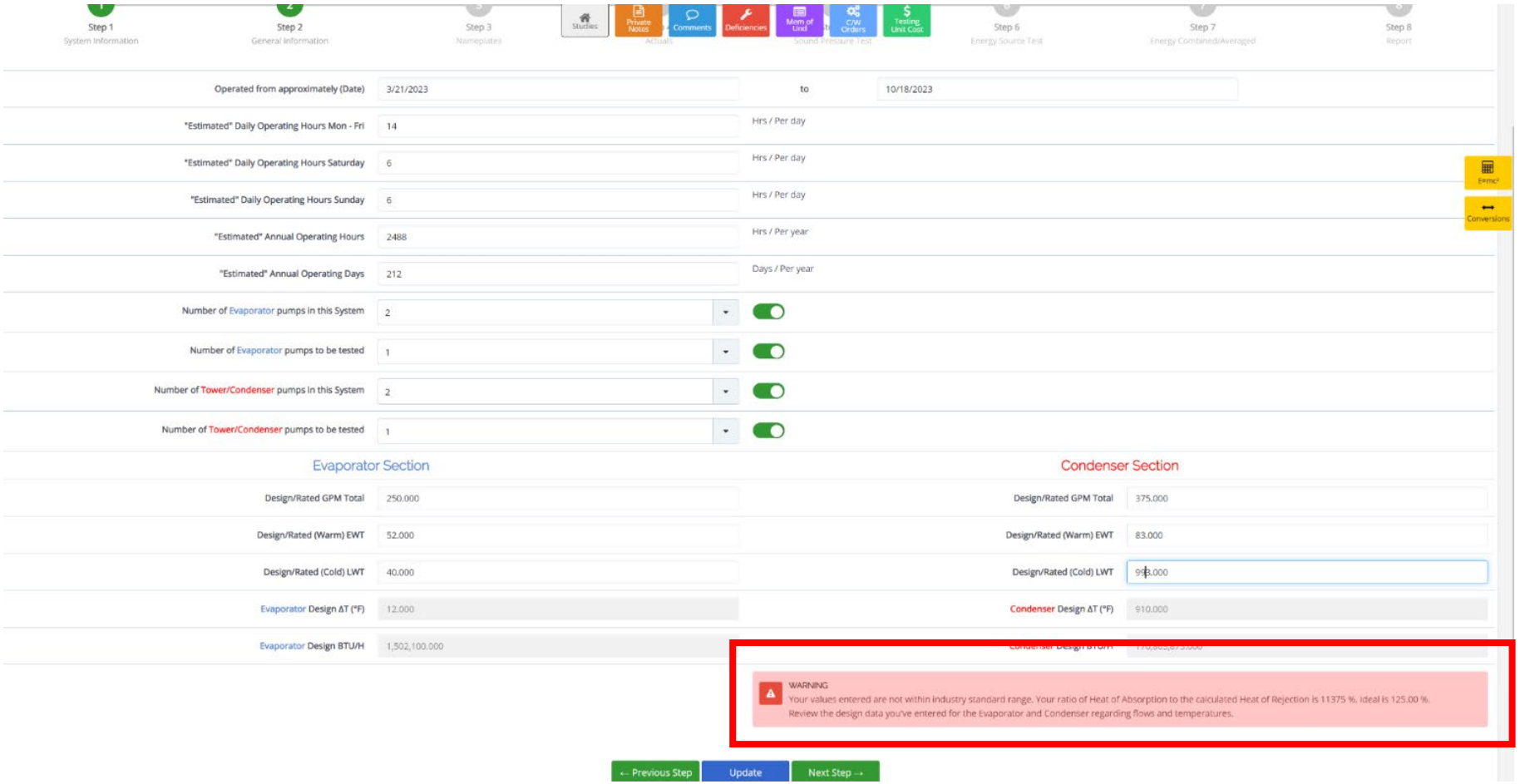


Enter Chiller System Information

Audit Master PRO™

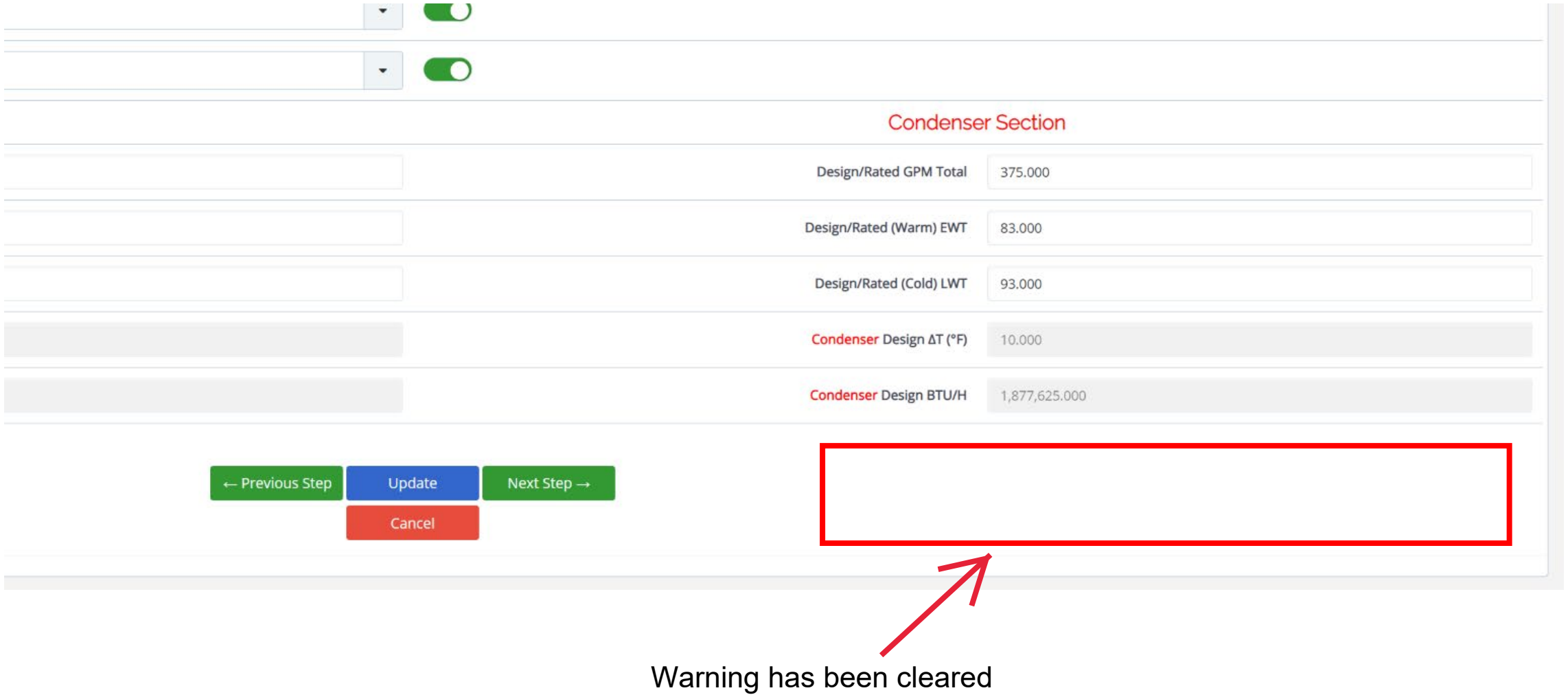


Enter Operating and Design Data

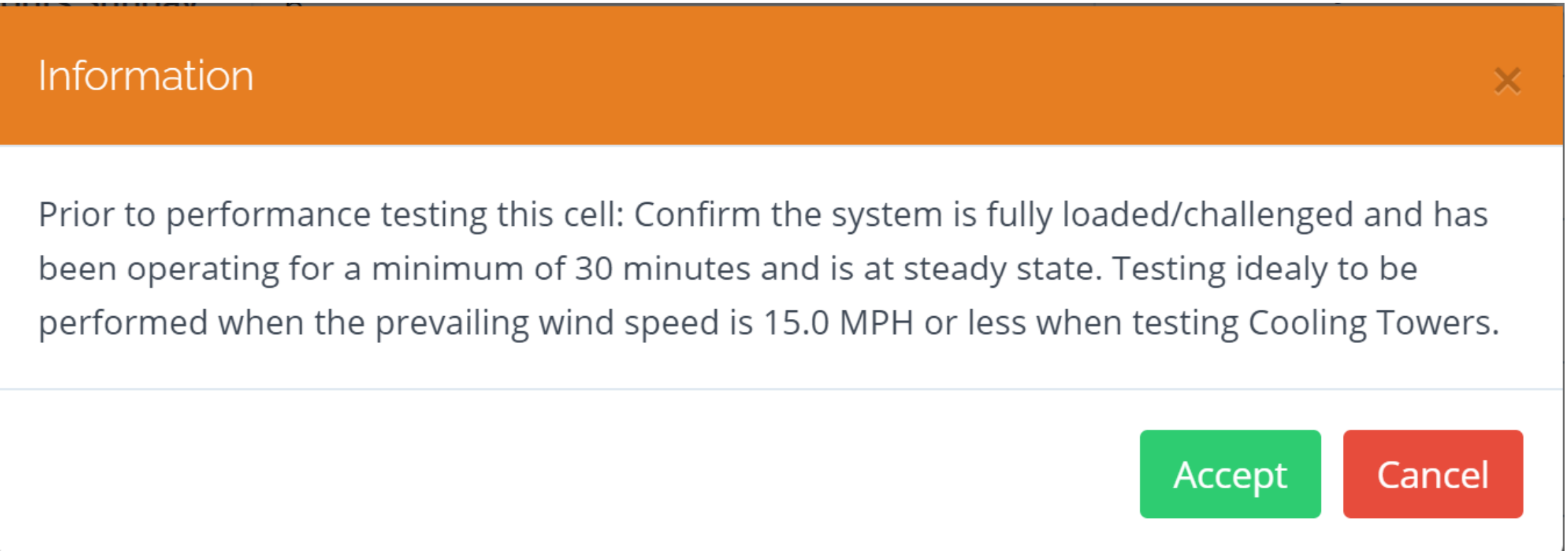


Warning: This message will appear if data entered exceeds industry standards.

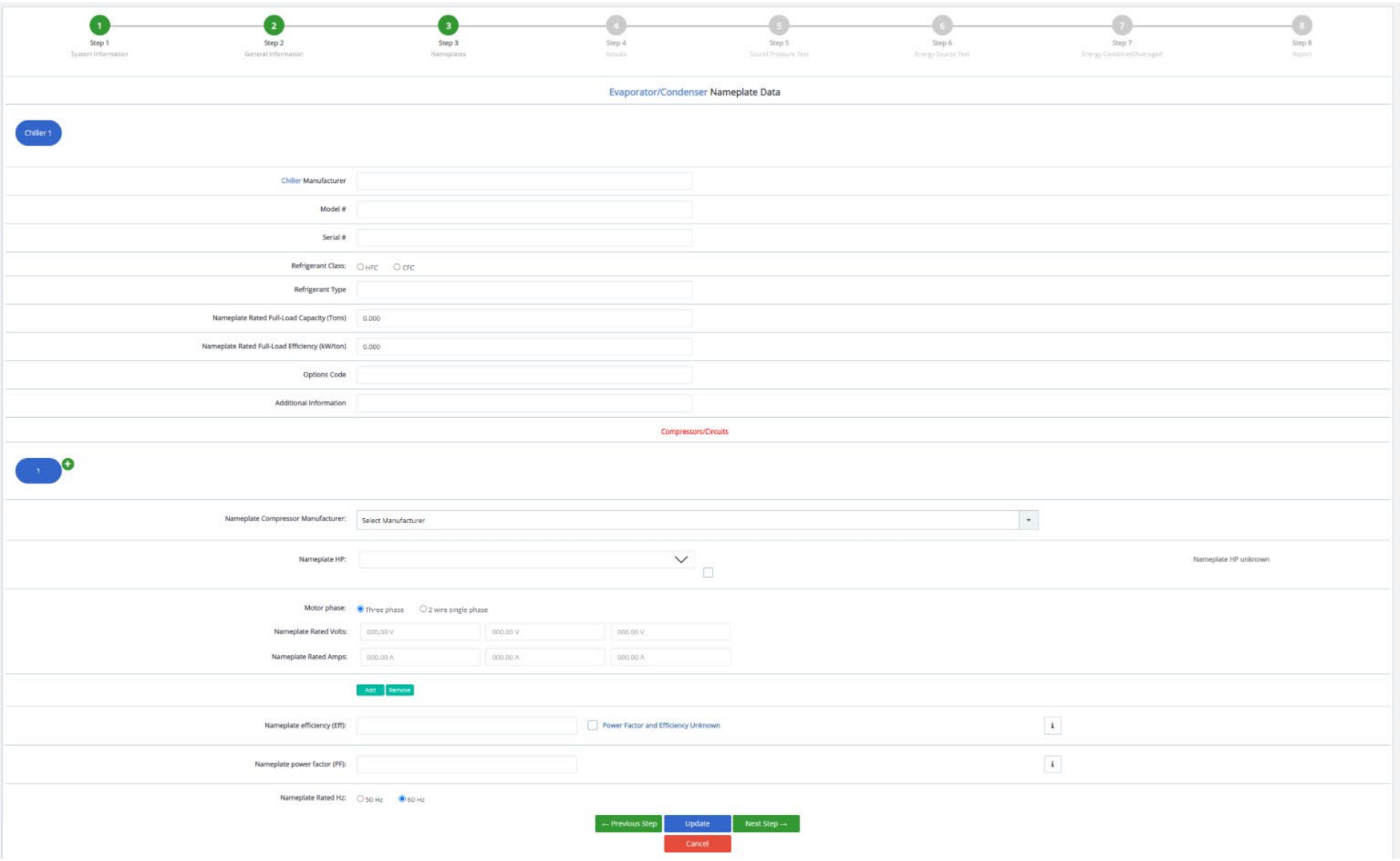
This warning will be removed once the data has been corrected.



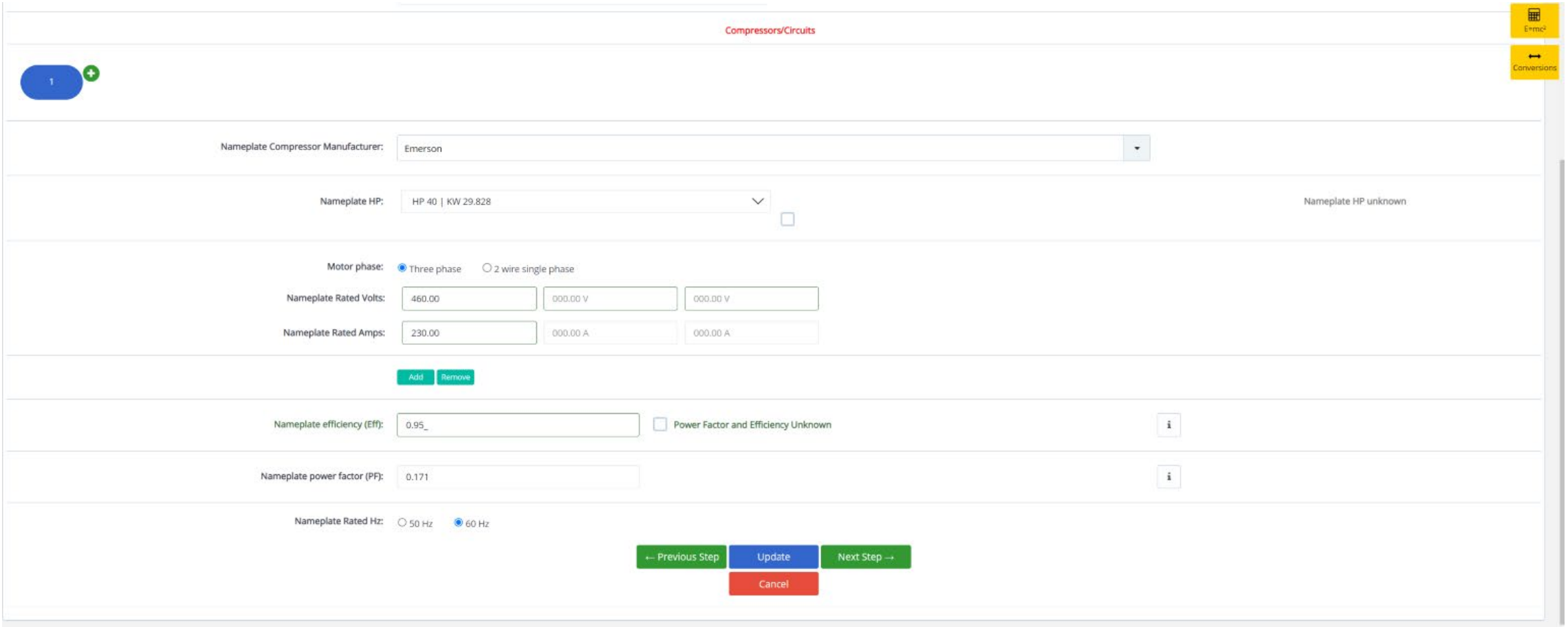
Warning has been cleared



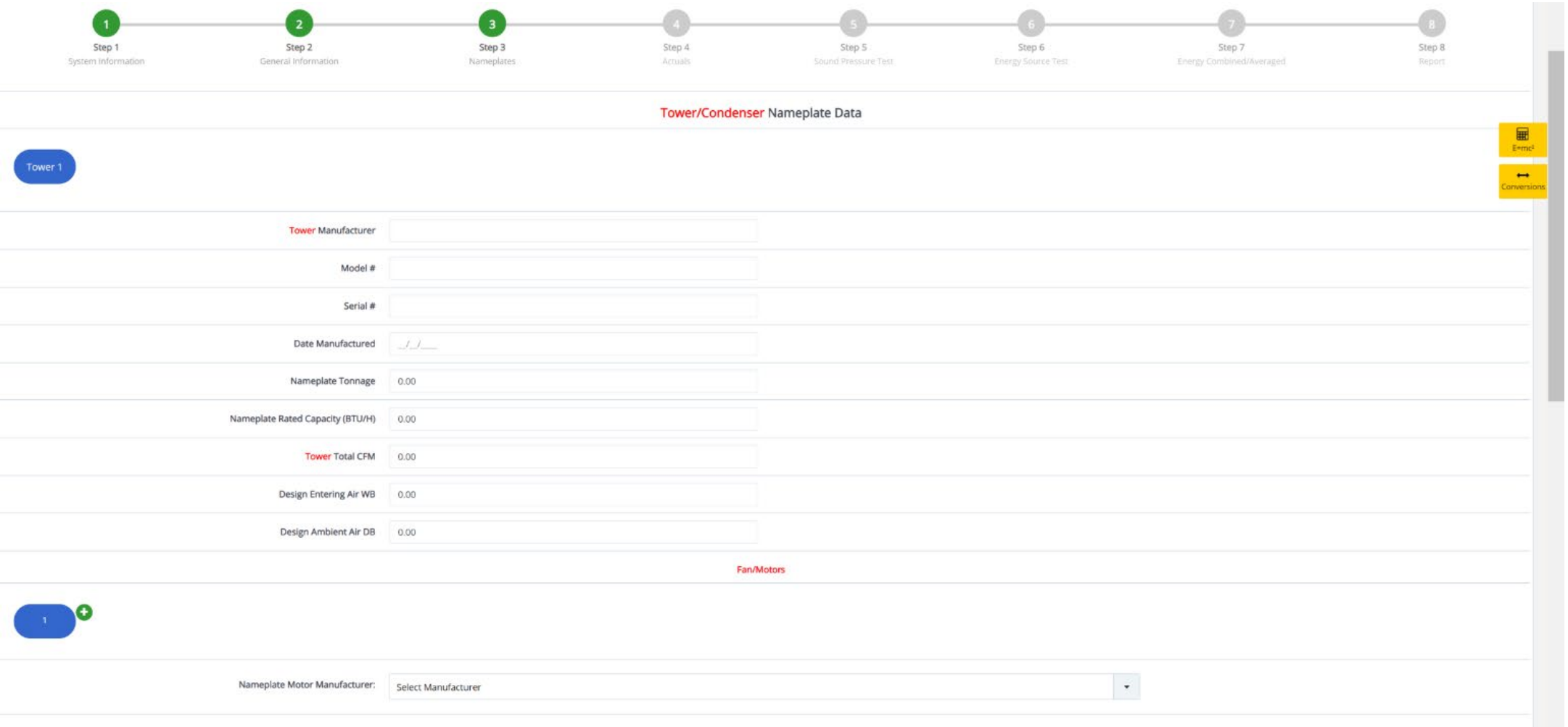
A pop up box will appear to explain ideal testing conditions.



Enter Chiller Nameplate Data

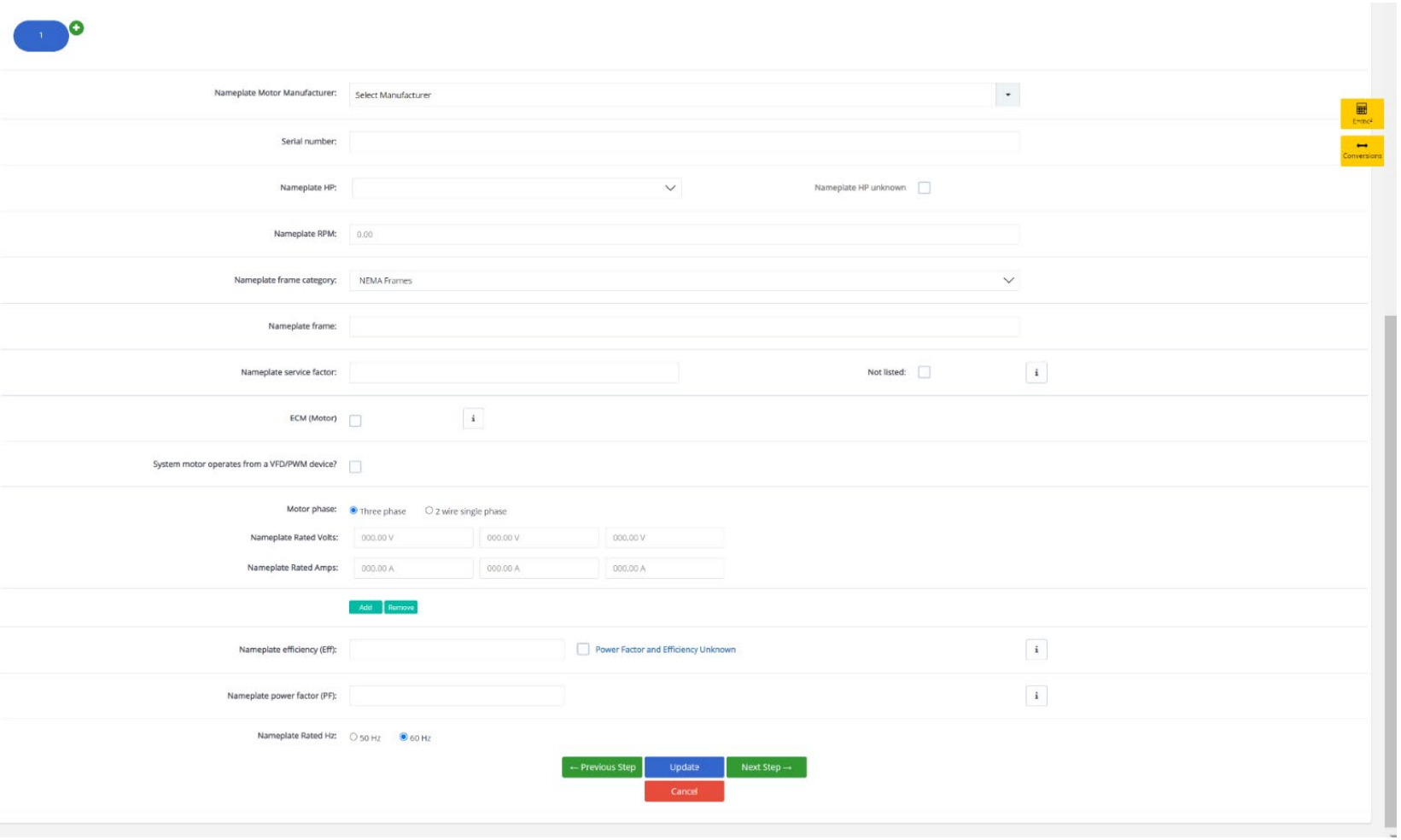


Enter Compressor Nameplate Data

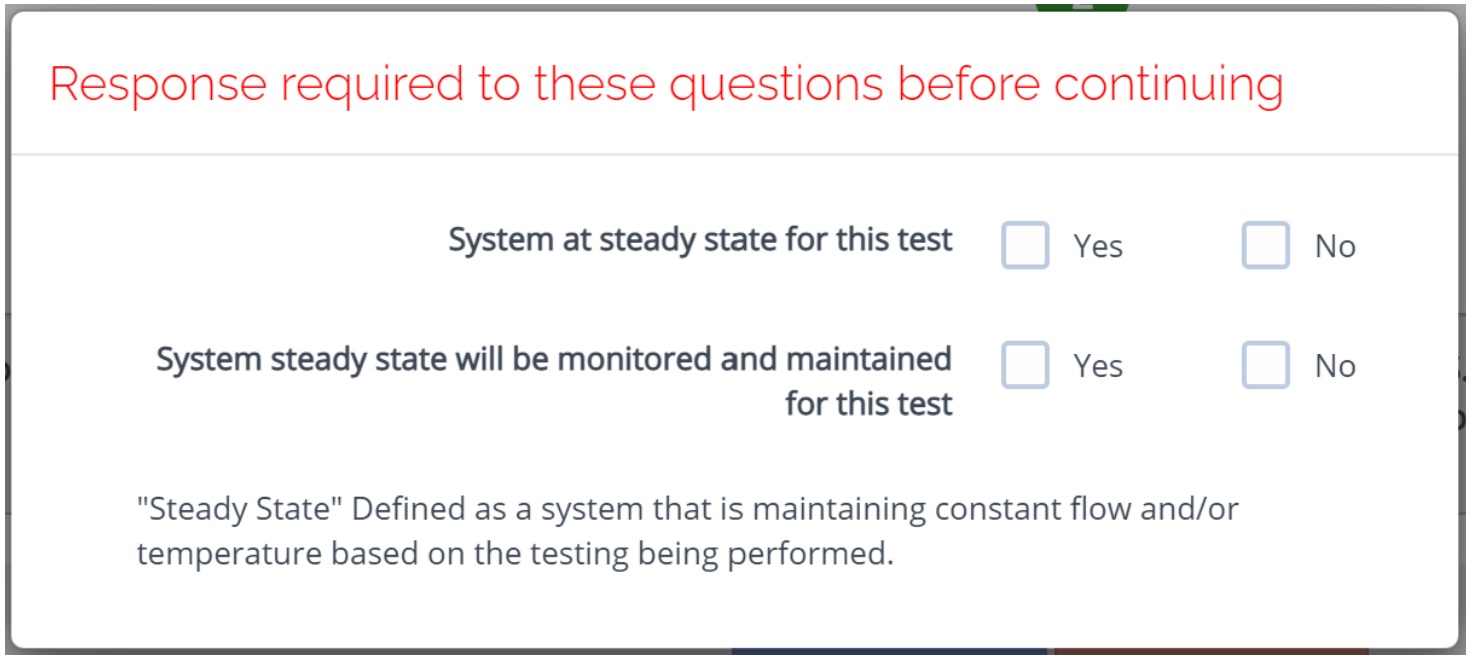


Enter Tower/Condenser Nameplate Data

Audit Master PRO

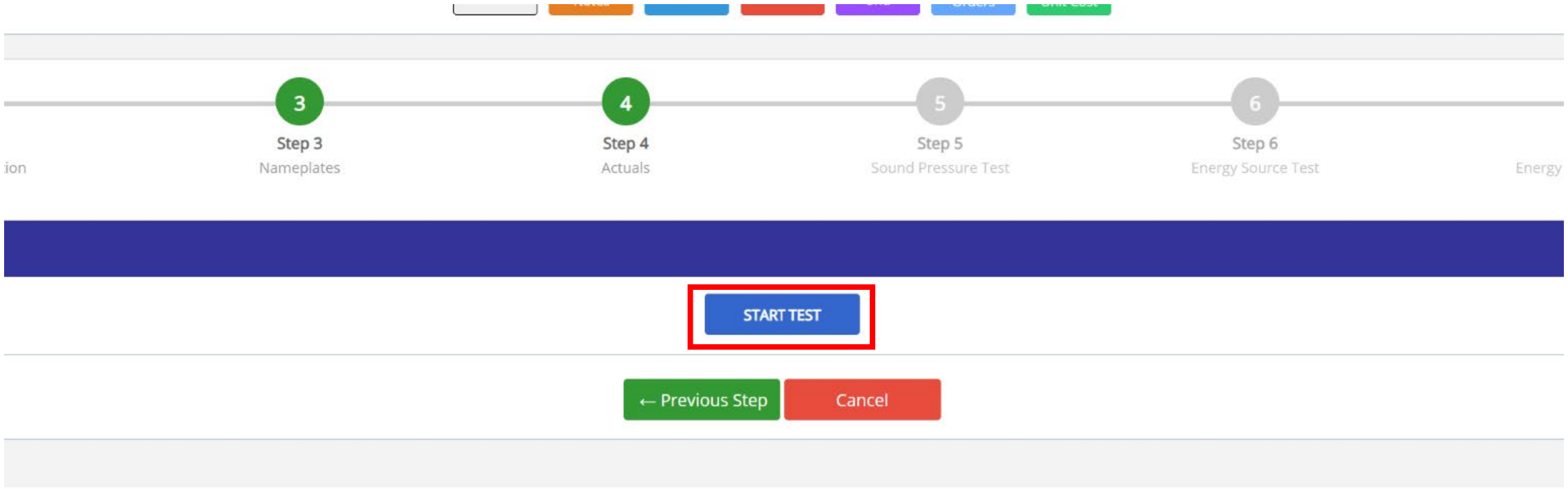


Enter Tower Motor Nameplate Data

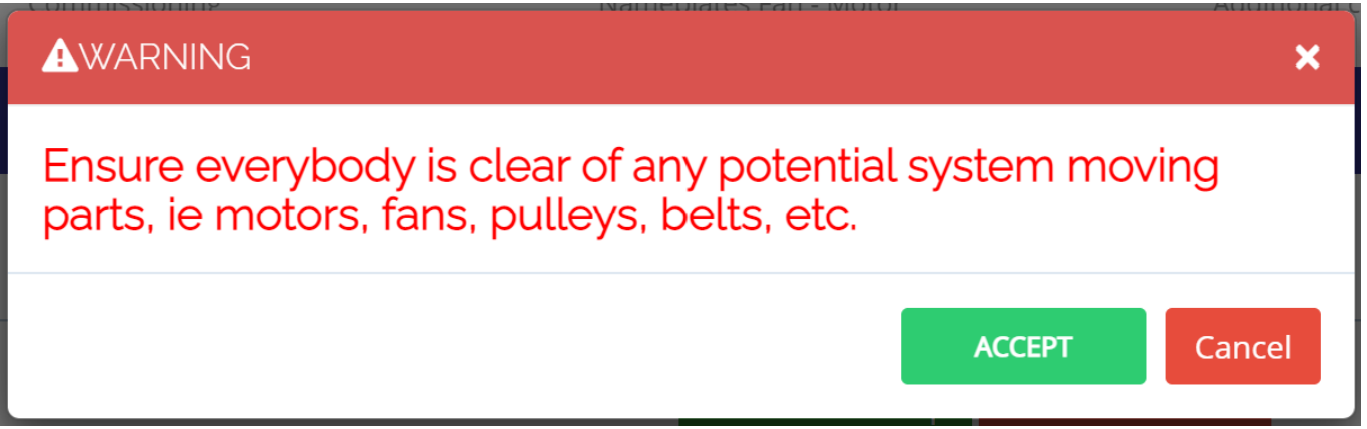


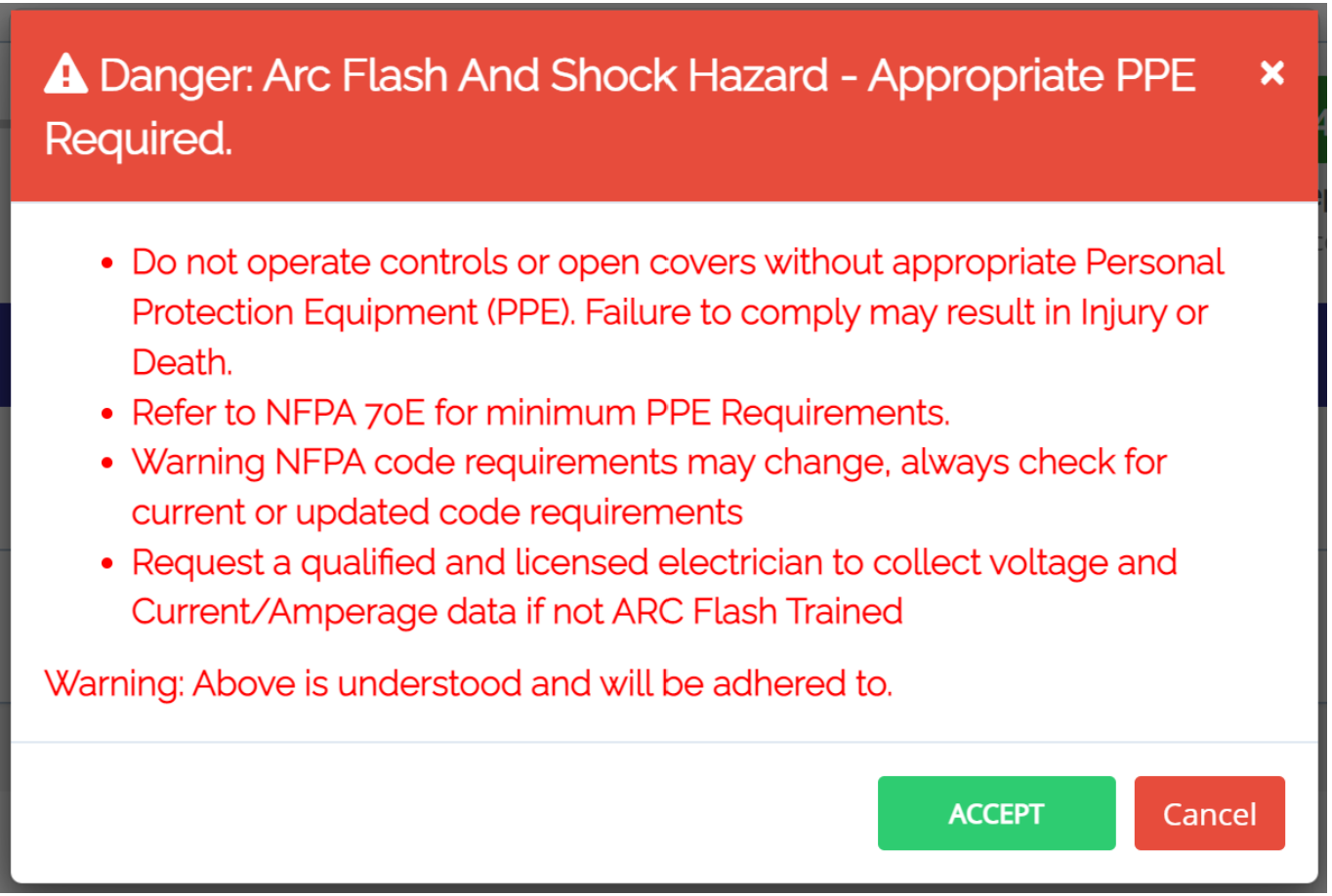
Throughout the AMP software you will be required to verify that the system being tested is at steady state.

Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.


3
Step 3
Nameplates
4
Step 4
Actuals
5
Step 5
Sound Pressure Test
6
Step 6
Energy Source Test
START TEST
← Previous Step
Cancel

Start Test





Audit Master PRO

These are two of the most common safety warnings that will appear throughout AMPs software.

You will be required to acknowledge each warning individually in order to proceed.

Enter Actual Chiller Data

Audit Master PRO™

1 Step 1 System Information
2 Step 2 General Information
3 Step 3 Nameplates
4 Step 4 Actuals
5 Step 5 Sound Pressure Test
6 Step 6 Energy Source Test
7 Step 7 Energy Combined/Averaged
8 Step 8 Report

Chiller Actuals

Record Chilled water supply and return temperature readings.

Compare data to digital readout on chiller control panel.

Actual Chilled Water Delivery GPM: 0.000

Actual Chiller/Cooler Refrigerant Sump Temp °F: 0.000

Need Chiller Refrigerant Pressures

Chiller 1

	Actual (°F)	Display (°F)	Δ Comparison	Design Δ °F	Actual Δ °F	Δ °F % of Design
Chilled Water Supply Temp (°F)	0.00	0.00	0.00	12.00	0.00	0.00
Chilled Water Return Temp (°F)	0.00	0.00	0.00			

Compressors/Circuits

Comp-1

Compressor Number: 0

Compressor Type:

Select Voltage that best represents Actual Value: ☐ ☐ ☐ ☐ Voltage Not Listed

Nameplate Volts: 460V V V

Nameplate Amps: 230A A A

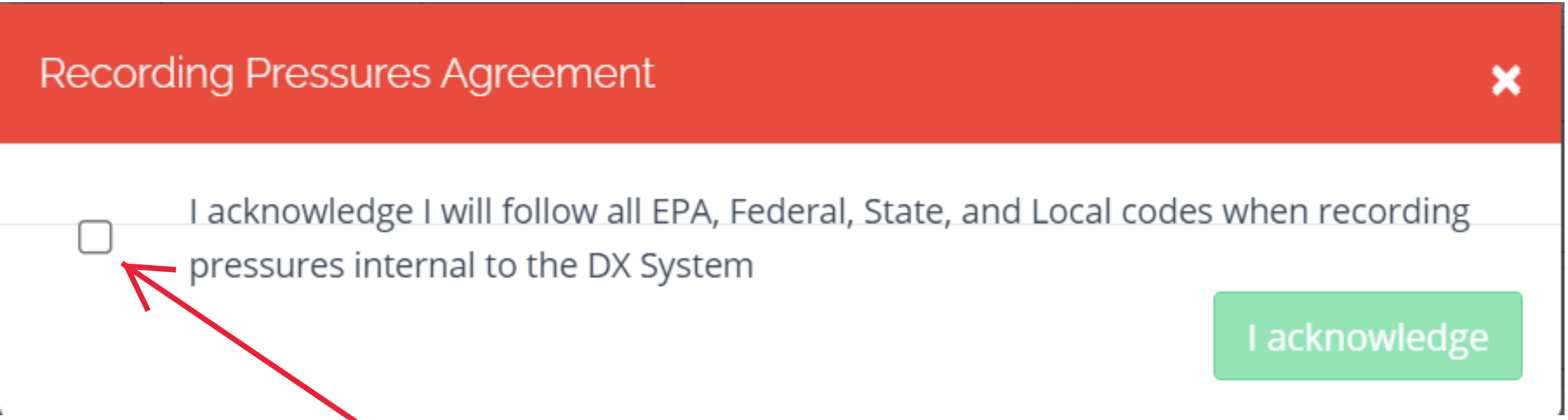
	L1 -L2	L1 -L3	L2 -L3
Compressor Actual Volts:	0.00	0.00	0.00
Compressor Actual Amps:	0.00	0.00	0.00

Chiller Results

Actual BTU/H	Actual kW	Kw/Ton	C.O.P.
0.00	0.00	0.00	0.00

← Previous Step | Update | Next Step →

Switch for required recording of refrigerant pressures.



2nd Confirmation check box confirming all rules and regulations will be followed.

Audit Master PRO™

CHILLER TEST REPORT

Studies | Private Notes | Comments | Deficiencies | Mem of Und | C/W Orders | Testing Unit Cost

E=mc² | Conversions

1 Step 1 System Information — 2 Step 2 General Information — 3 Step 3 Nameplates — 4 Step 4 Actuals — 5 Step 5 Sound Pressure Test — 6 Step 6 Energy Source Test — 7 Step 7 Energy Combined/Averaged — 8 Step 8 Report

Chiller Actuals

Record Chilled water supply and return temperature readings.

Compare data to digital readout on chiller control panel.

Actual Chilled Water Delivery GPM: 248.000

Actual Chiller/Cooler Refrigerant Sump Temp °F: 84.000

Need Chiller Refrigerant Pressures

Chiller 1

	Actual (°F)	Display (°F)	Δ Comparison	Design Δ °F	Actual Δ °F	Δ °F % of Design
Chilled Water Supply Temp (°F)	40.20	40.10	0.10	12.00	10.60	88.33
Chilled Water Return Temp (°F)	50.80	50.70	0.10			

Compressors/Circuits

Comp-1

Compressor Number	1			
Compressor Type	Centrifugal			
Low Side Suction Pressure PSI	26.100			
High Side Discharge Pressure PSI	75.600			
Select Voltage that best represents Actual Value:	☑	☐	☐	☐ Voltage Not Listed
Nameplate Volts:	460V	V	V	
Nameplate Amps:	230A	A	A	
	L1 -L2	L1 -L3	L2 -L3	
Compressor Actual Volts:	402.00	0.00	0.00	
Compressor Actual Amps:	100.00	0.00	0.00	

Chiller Results

Actual BTU/H	Actual kW	Kw/Ton	C.O.P.
1,316,240.16	1.33	0.01	291.03

Enter Actual Chiller Data

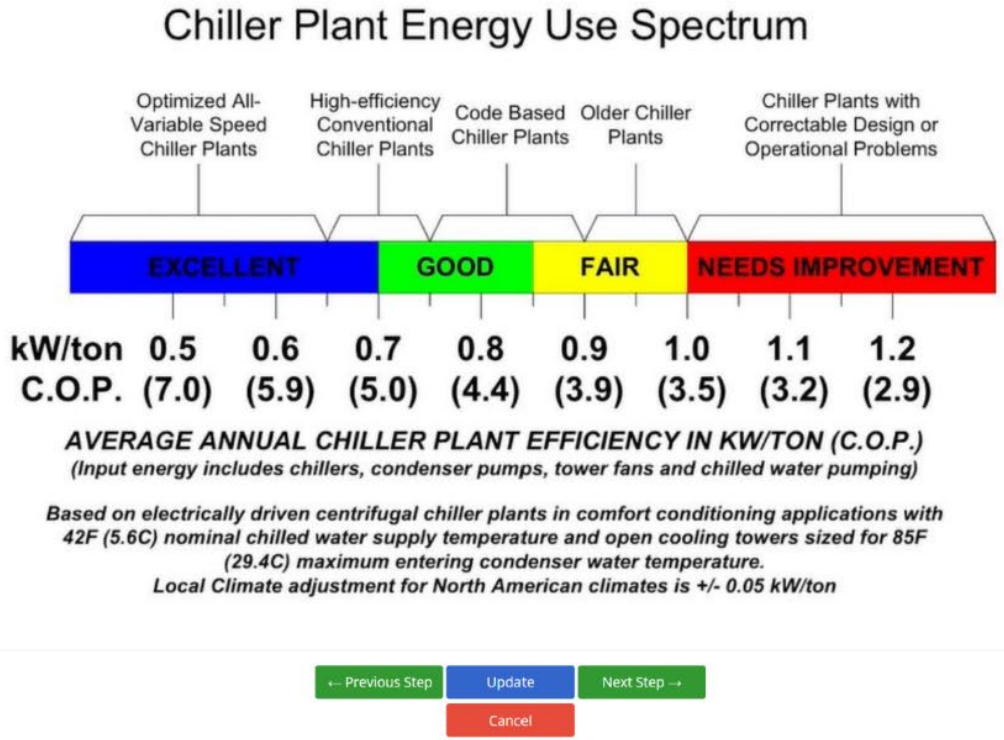
Compressor Actual Amps: 100.00

Studies | Private Notes | Comments | Deficiencies | Mem of Und | C/W Orders | Testing Unit Cost

Chiller Results

Actual BTU/H	Actual kW	Kw/Ton
1,316,240.16	1.33	0.01

C.O.P. EVALUATION RESULT: EXCELLENT



← Previous Step | Update | Next Step →

Cancel

Chiller Results:

An evaluation of your chiller will be shown based on actual BTU/h, kW, kW per ton, and COP.

This chart will indicate ideal performance.

Audit Master PRO™

CHILLER TEST REPORT

Studies | Private Notes | Comments | Deficiencies | Mem of Und | C/W Orders | Testing Unit Cost

1 Step 1 System Information — 2 Step 2 General Information — 3 Step 3 Nameplates — 4 Step 4 Actuals — 5 Step 5 Sound Pressure Test — 6 Step 6 Energy Source Test — 7 Step 7 Energy Combined/Averaged

Condenser/Tower Actuals

Record Condenser water supply and return temperature readings.

Compare data to digital readout on chiller control panel.

Actual Condenser Water Delivery GPM: 0

Actual Entering Air WB Temp °F: 0

Actua

Tow/Cond 1

	Actual (°F)	Display (°F)	Δ Comparison	Design Δ °F	Range / Δ T
Condenser Water Supply Temp (°F)	0.00	0.00	0.00	10.00	0.00
Condenser Water Return Temp (°F)	0.00	0.00	0.00		

Ambient WB Temperature at Condenser/Tower	Condenser/Tower Approach	% Cooling Tower Efficiency	Cooling Tower BTU/H
0.00	0.00	0.00	0.00

Fan Motors

FnMt-1

Fan Motor Number: 0

VFD Operating Hertz: 0.00

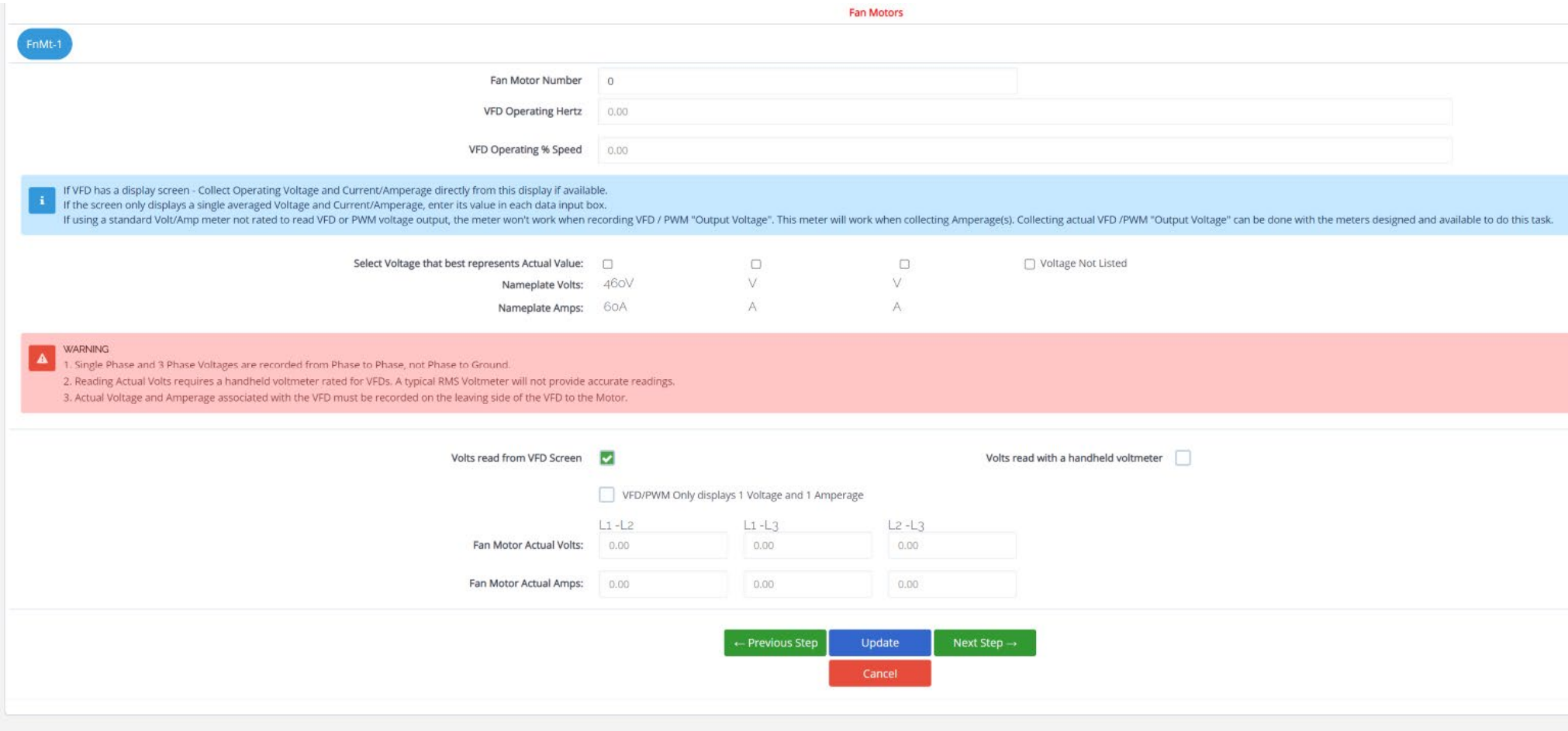
VFD Operating % Speed: 0.00

If VFD has a display screen - Collect Operating Voltage and Current/Amperage directly from this display if available.
If the screen only displays a single averaged Voltage and Current/Amperage, enter its value in each data input box.
If using a standard Volt/Amp meter not rated to read VFD or PWM voltage output, the meter won't work when recording VFD / PWM "Output Voltage". This meter will work when collecting Amperage(s). Collecting actual VFD /PWM "Output Voltage" can be done with the meters designed and availabl

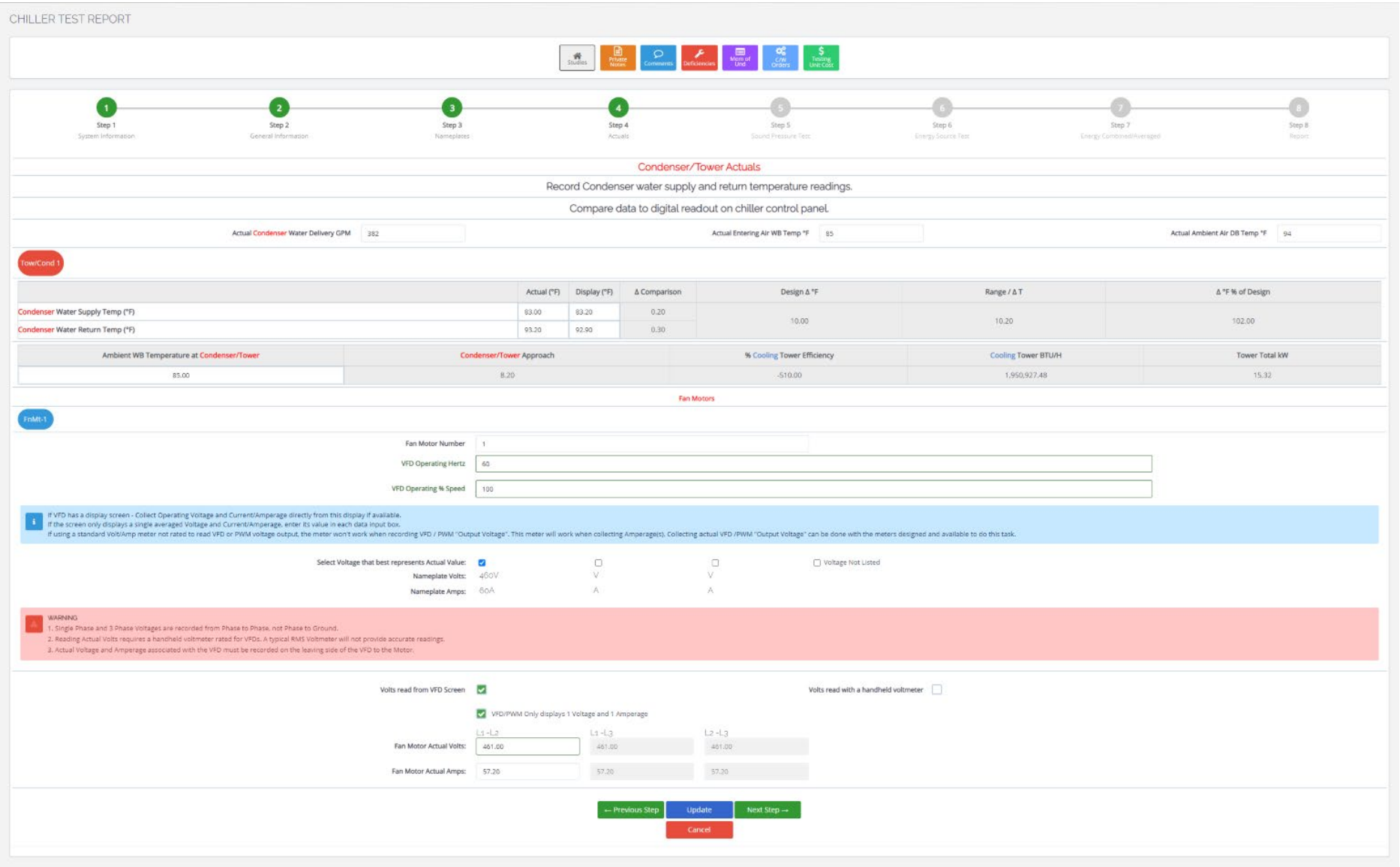
Select Voltage that best represents Actual Value:	☐	☐	☐	☐ Voltage Not Listed
Nameplate Volts:	460V	V	V	
Nameplate Amps:	60A	A	A	

Enter Actual Tower and Motor Data

Audit Master PRO



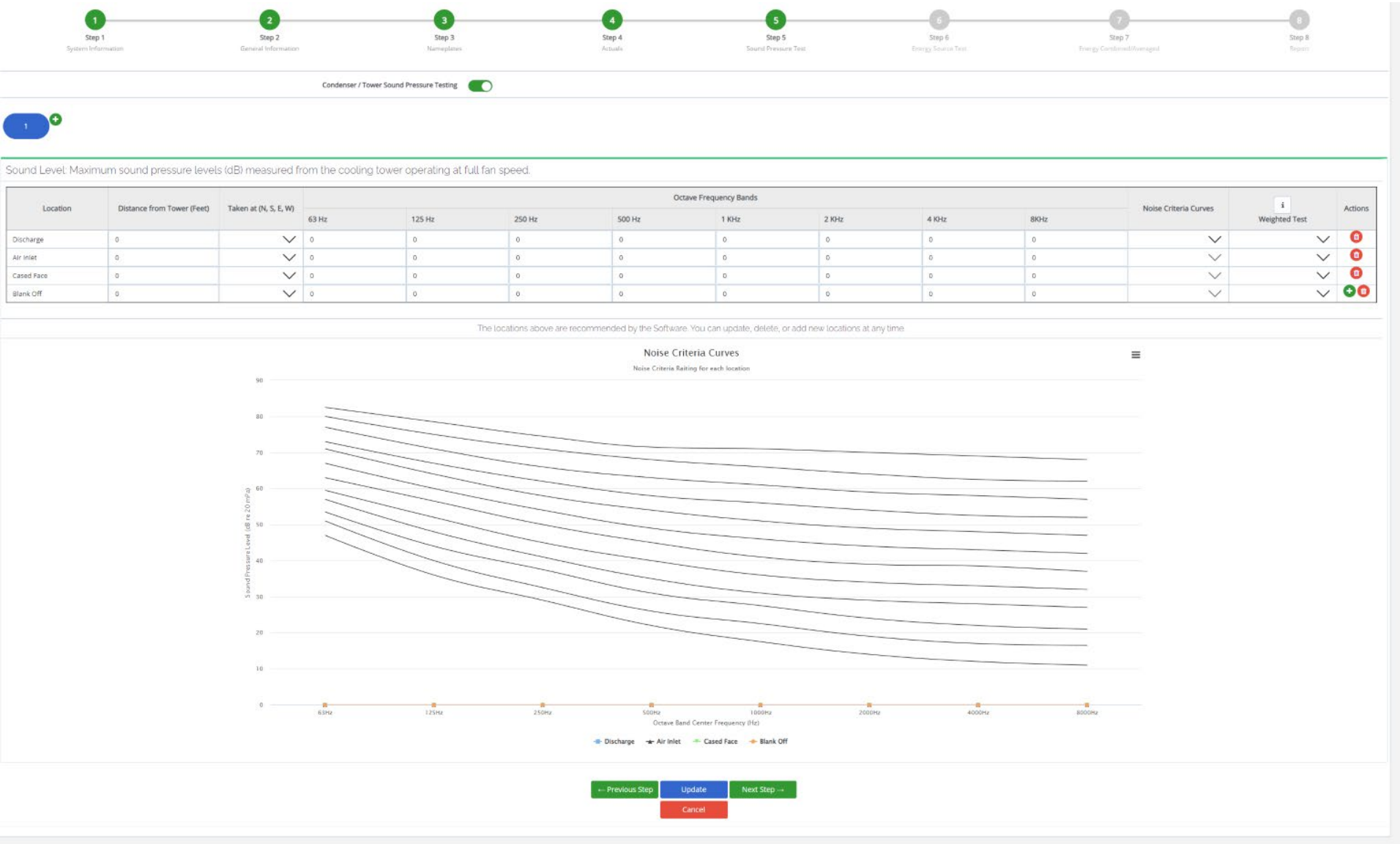
Enter Actual
Fan Motor Data

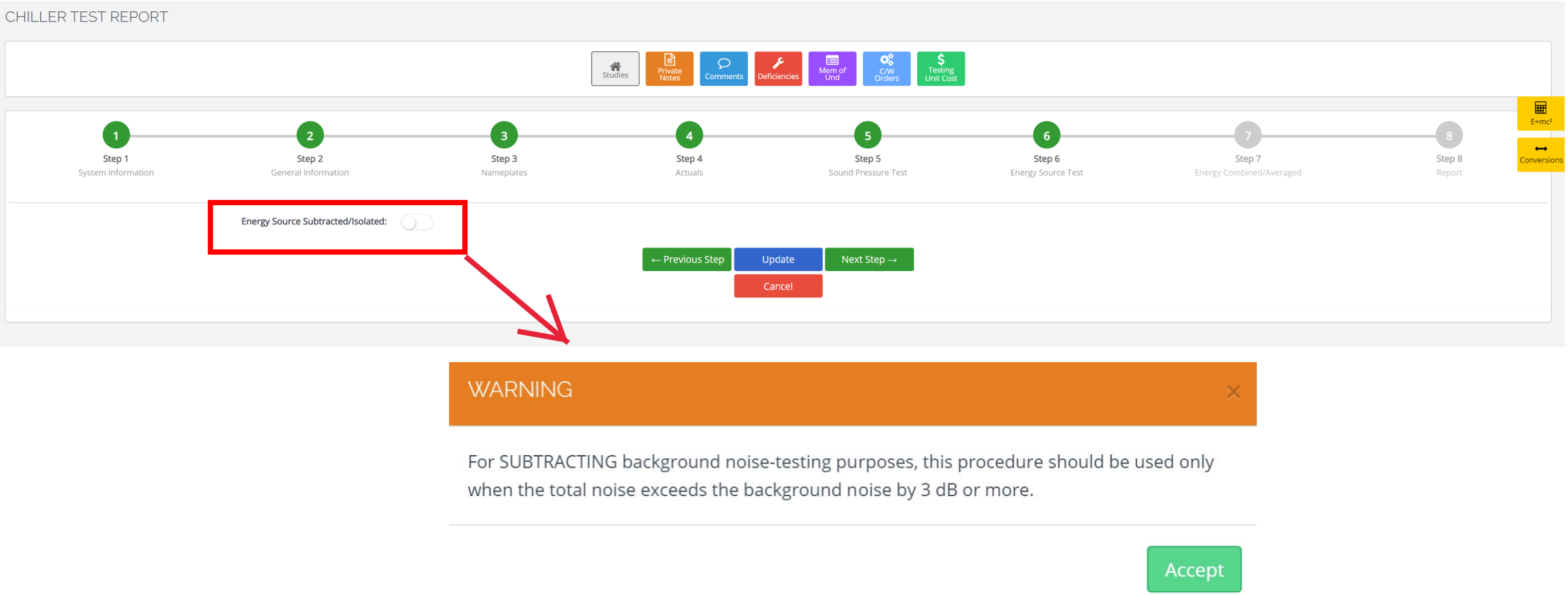


This is the full page view of Step 4.

Audit Master PRO™

Enter Sound Pressure Test Data





Warning: This is a recommendation indicating when step (6) should be performed.

Enter Energy Source Test Data

Audit Master PRO™

John Doe
Your Company
Wheaton, Illinois
United States (USA)

CHILLER TEST REPORT

Studies | Private Notes | Comments | Deficiencies | Mem of Und | C/W Orders | Testing Unit Cost

E=mc² | Conversions

1 Step 1 System Information
2 Step 2 General Information
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4 Step 4 Actuals
5 Step 5 Sound Pressure Test
6 Step 6 Energy Source Test
7 Step 7 Energy Combined/Averaged
8 Step 8 Report

Energy Source Subtracted/Isolated: ← Isolating background noise from subject target.

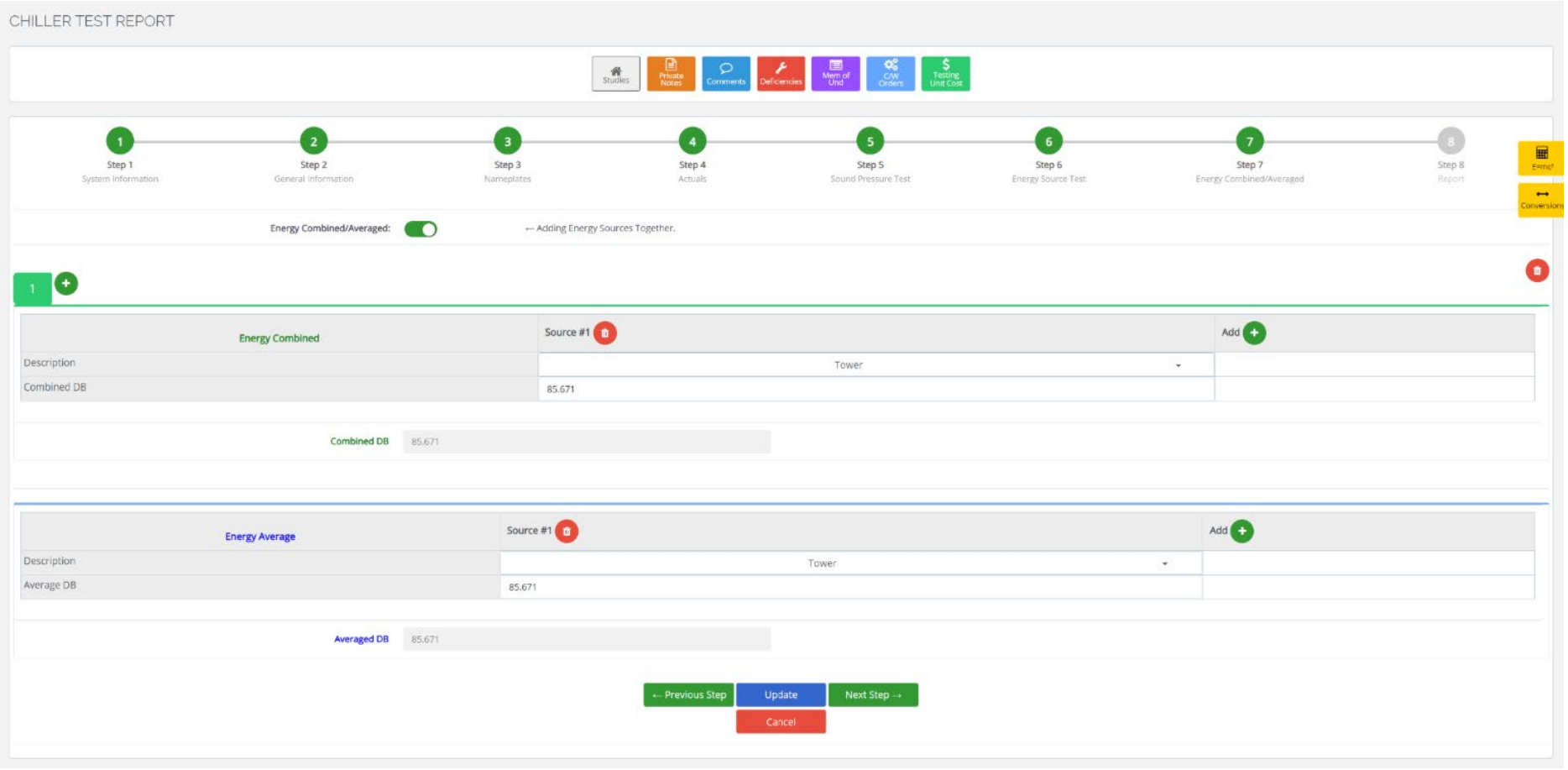
1 +

#	Source	Tested Source On	Tested Source Off	Tested Source dB	Add
1	Tower	90	88	85.67	+

Recommend All Sources On/Off and add Description.

← Previous Step | Update | Next Step →

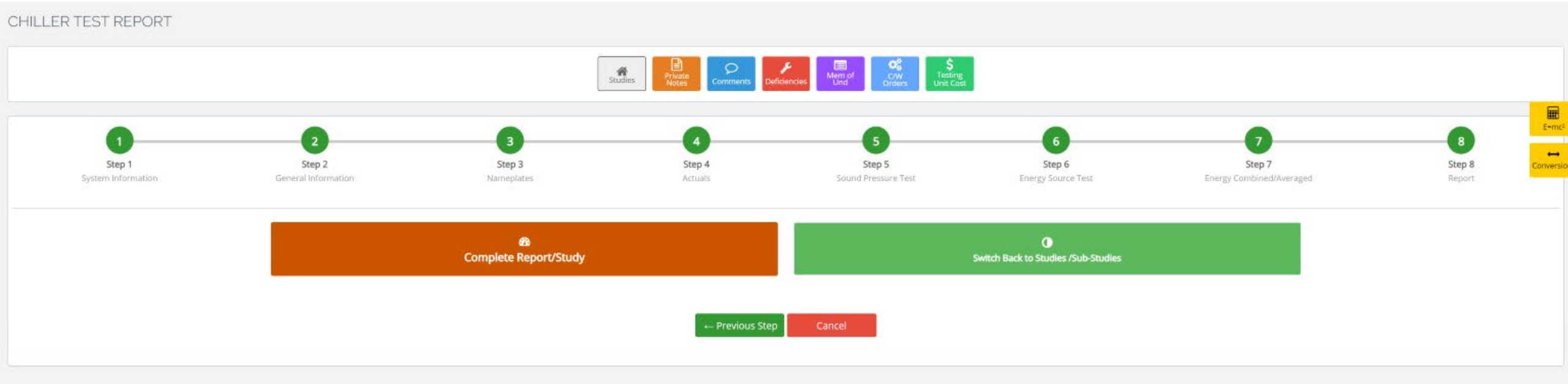
Cancel



Energy Combined and Energy Averaged Data is entered here.

Fill out all of the information you would want to see on your final combined Energy Source Test.

For example, suppose you ran five sound pressure tests on five different cooling towers, three of which were the same larger size. For a cooling load degree day, only the three largest towers would be used. You would now only include the three larger cooling towers in the Energy Source Test because that is all that would be used on a cooling load degree day.



Complete Report/Study

Audit Master Pro Training

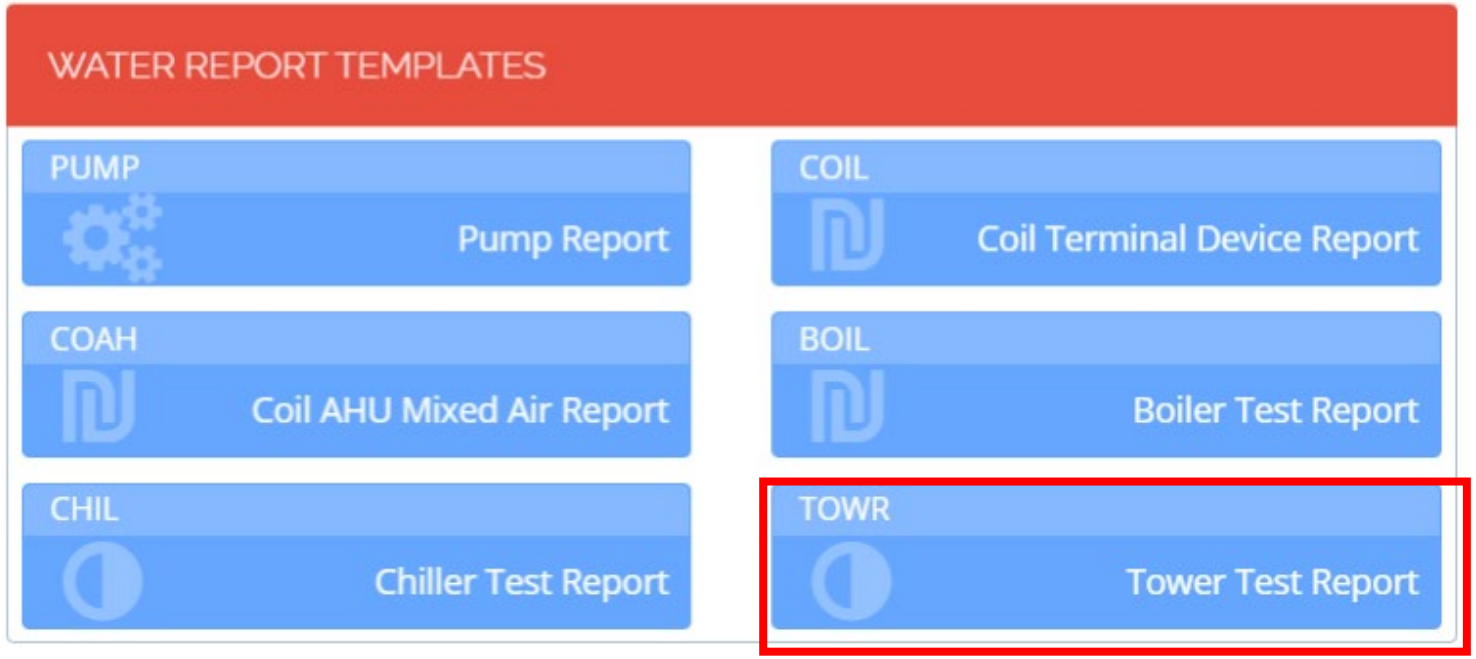
Tower Test Report

This tutorial will act as a guide to create and input all data required for the selected study.

Go to Index

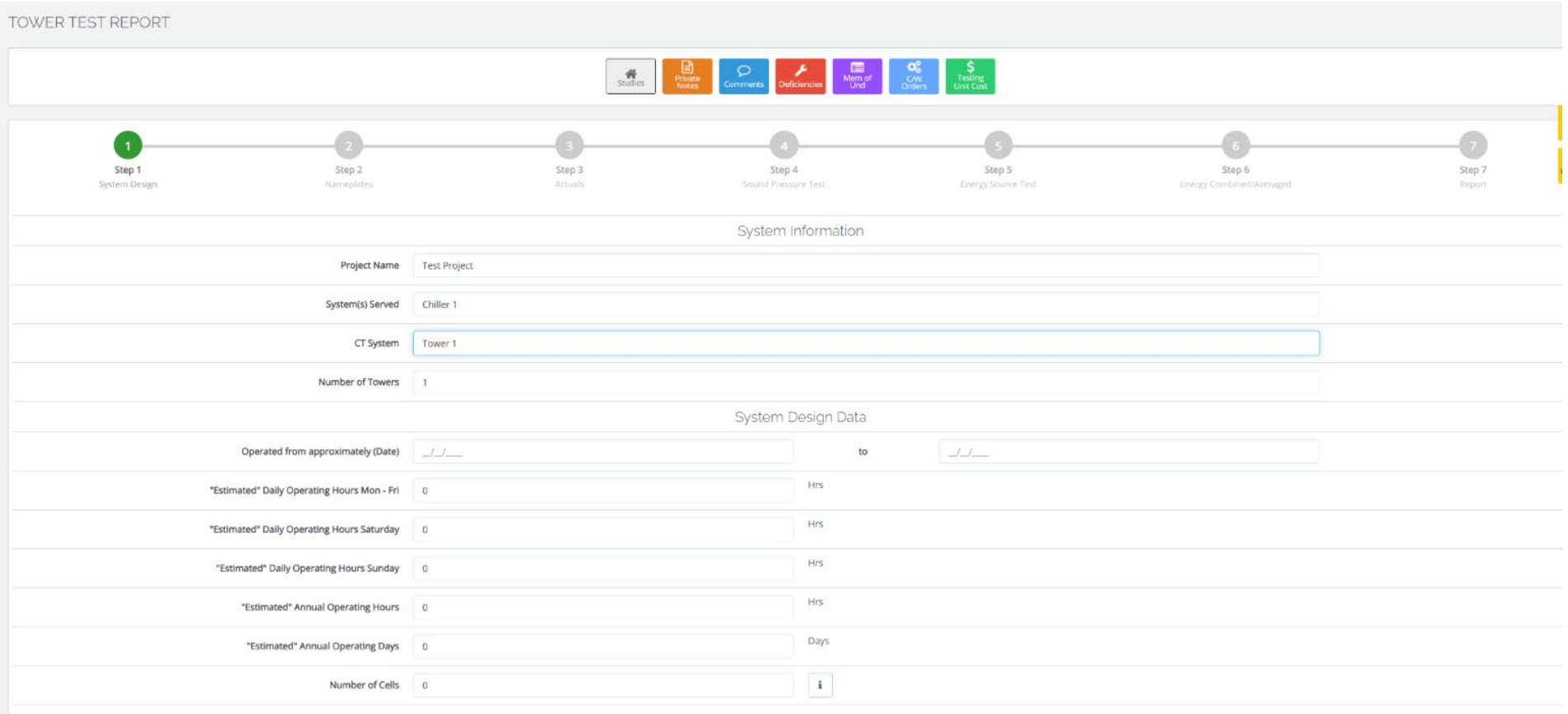
Audit Master PRO

Select the type of report

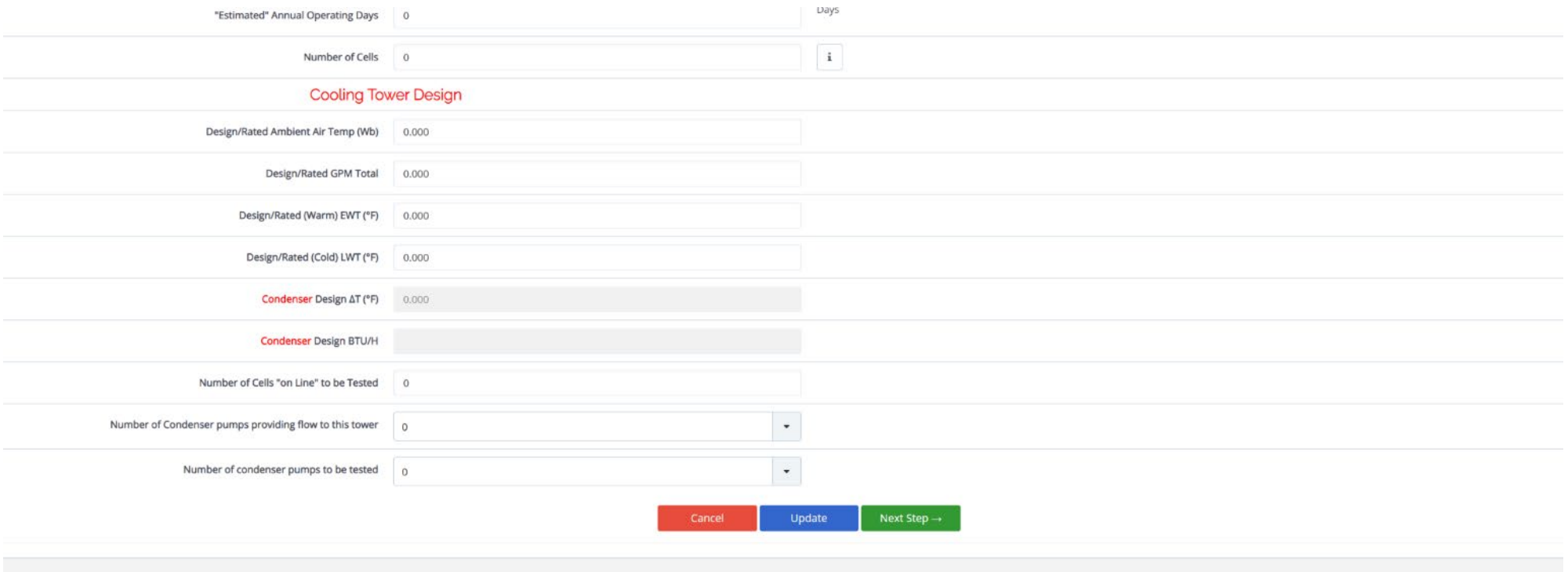


Click "Tower Test Report"

Audit Master PRO

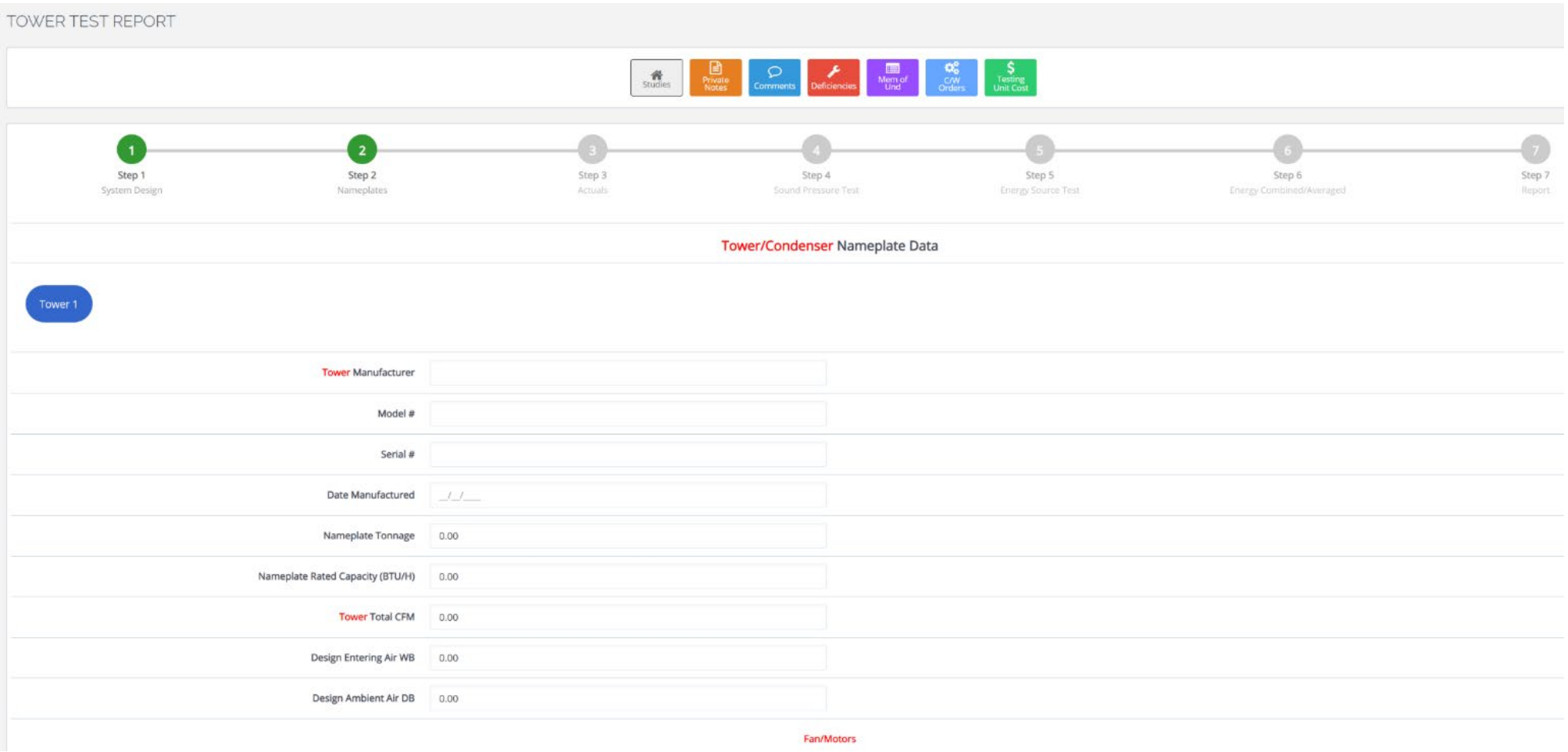


Enter System Operating Information



Enter Cooling Tower Design Data

Audit Master PRO



Enter Cooling Tower Nameplate Data

Audit Master PRO

1

Nameplate Motor Manufacturer: Select Manufacturer

Serial number:

Nameplate HP: Nameplate HP unknown

Nameplate RPM: 0.00

Nameplate frame category: NEMA Frames

Nameplate frame:

Nameplate service factor: Not listed:

ECM (Motor)

System motor operates from a VFD/PWM device?

Motor phase: Three phase 2 wire single phase

Nameplate Rated Volts: 000.00 V 000.00 V 000.00 V

Nameplate Rated Amps: 000.00 A 000.00 A 000.00 A

Add Remove

Nameplate efficiency (Eff): Power Factor and Efficiency Unknown

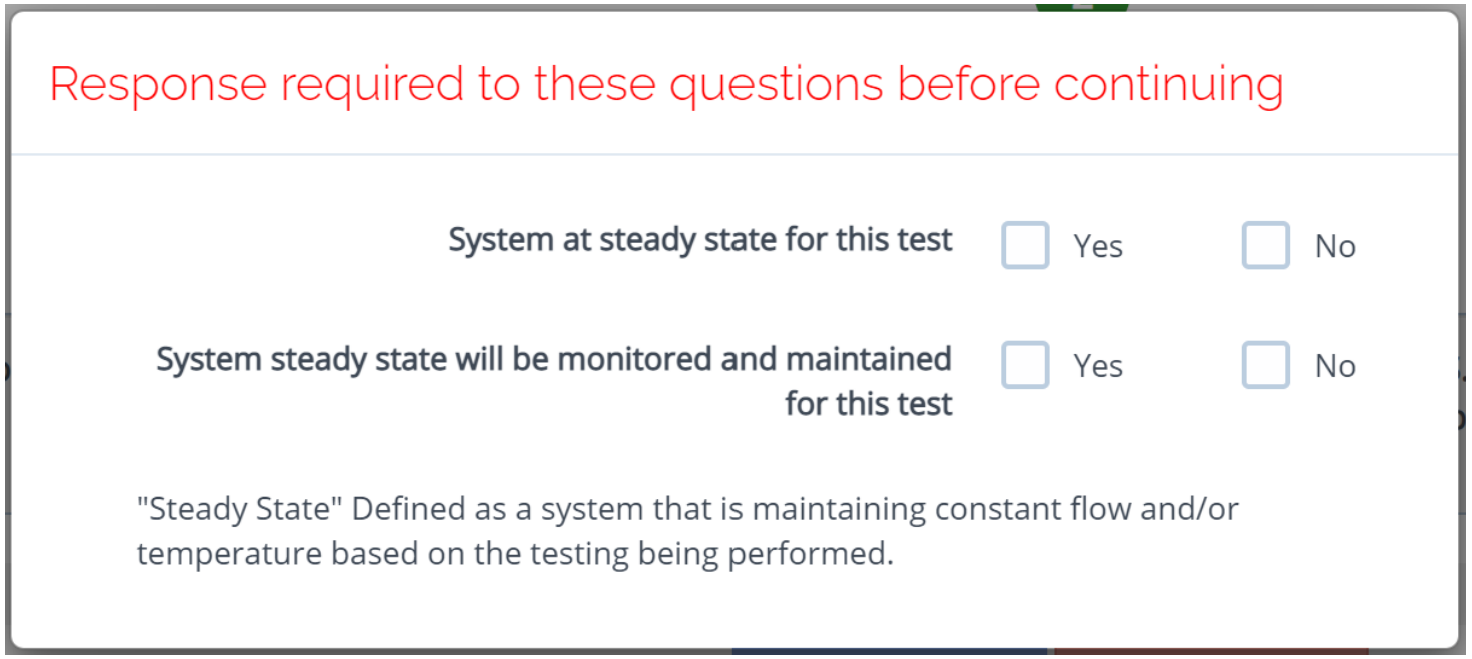
Nameplate power factor (PF):

Nameplate Rated Hz: 50 Hz 60 Hz

← Previous Step Update Next Step →

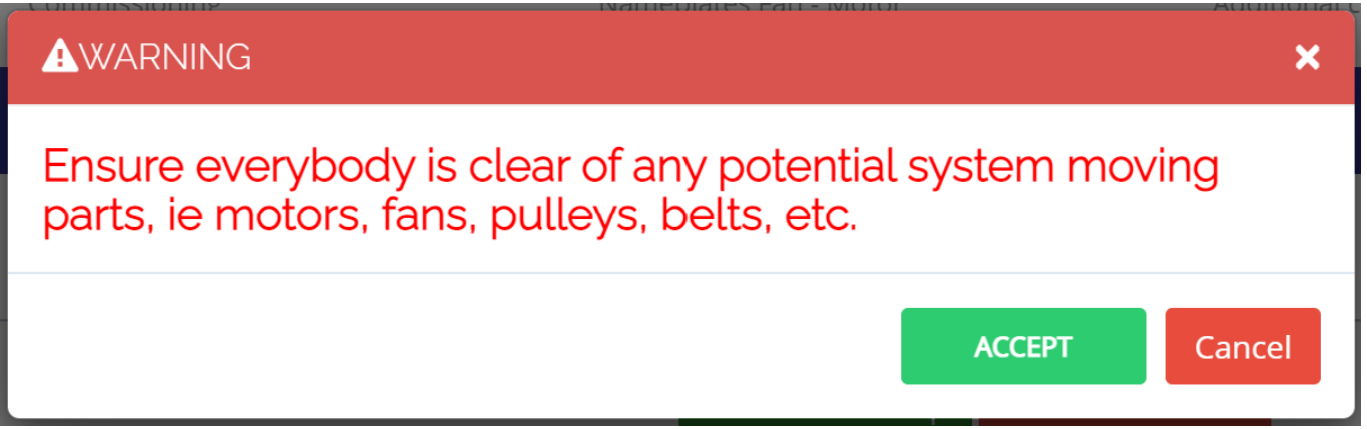
Cancel

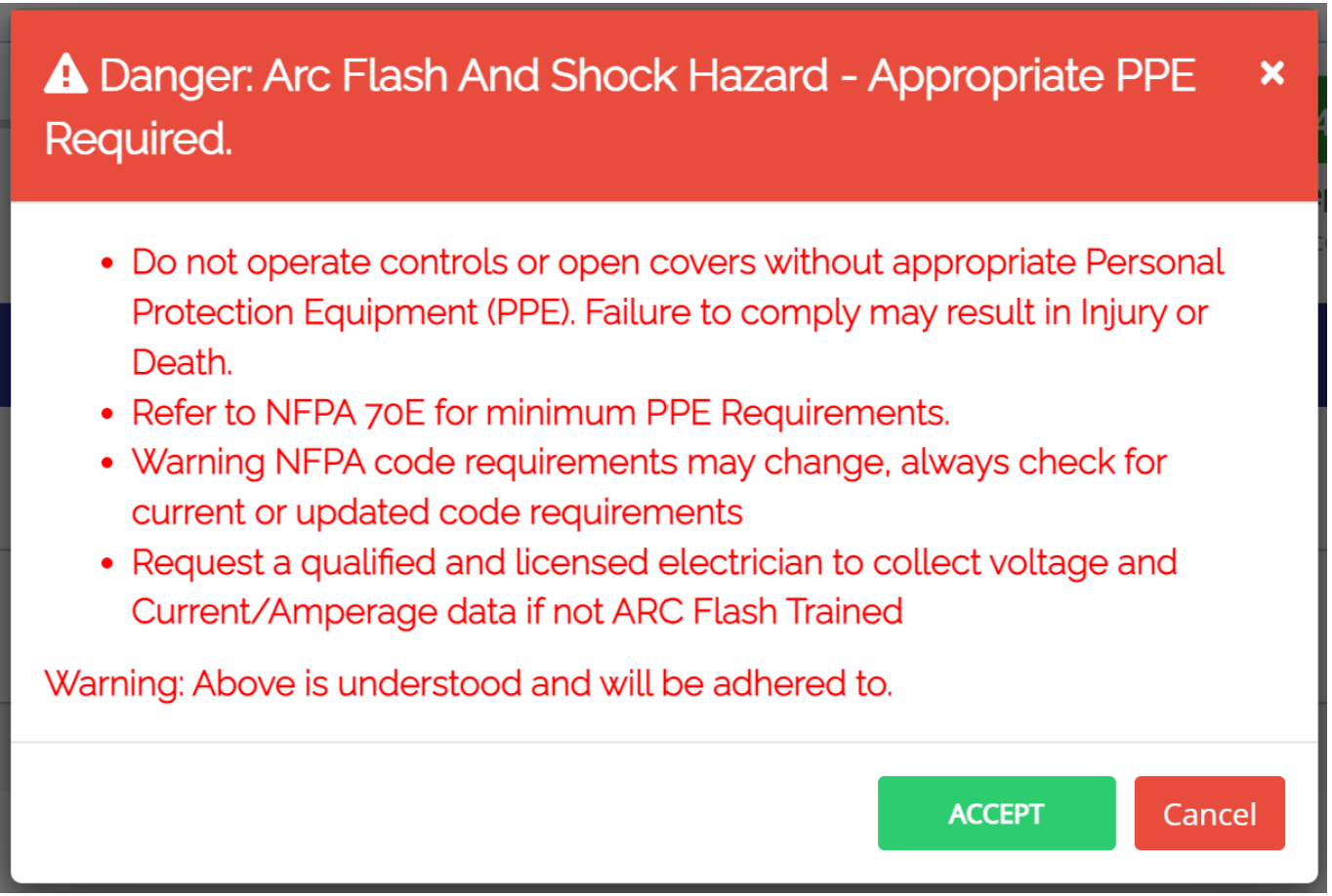
Enter Tower Motor Nameplate Data



Throughout the AMP software you will be required to verify that the system being tested is at steady state.

Steady state is critical to testing as it ensures that any readings or calibrations are repeatable.



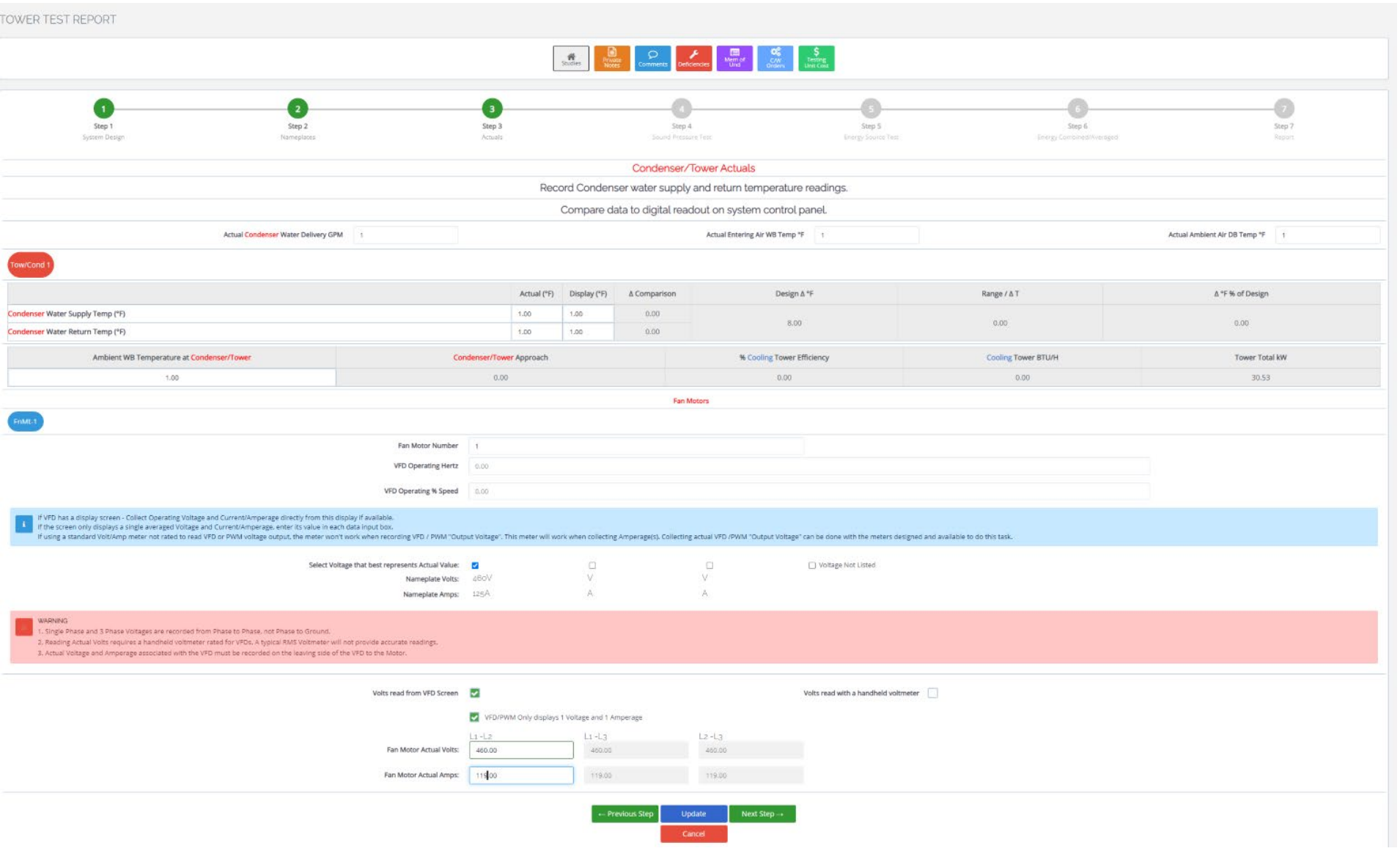


Audit Master PRO

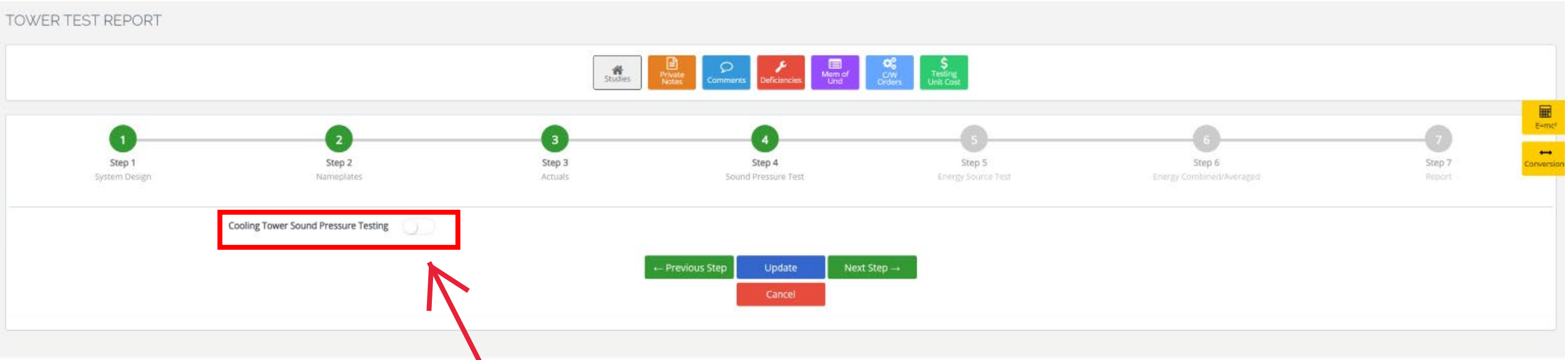
These are two of the most common safety warnings that will appear throughout AMPs software.

You will be required to acknowledge each warning individually in order to proceed.

Audit Master PRO™

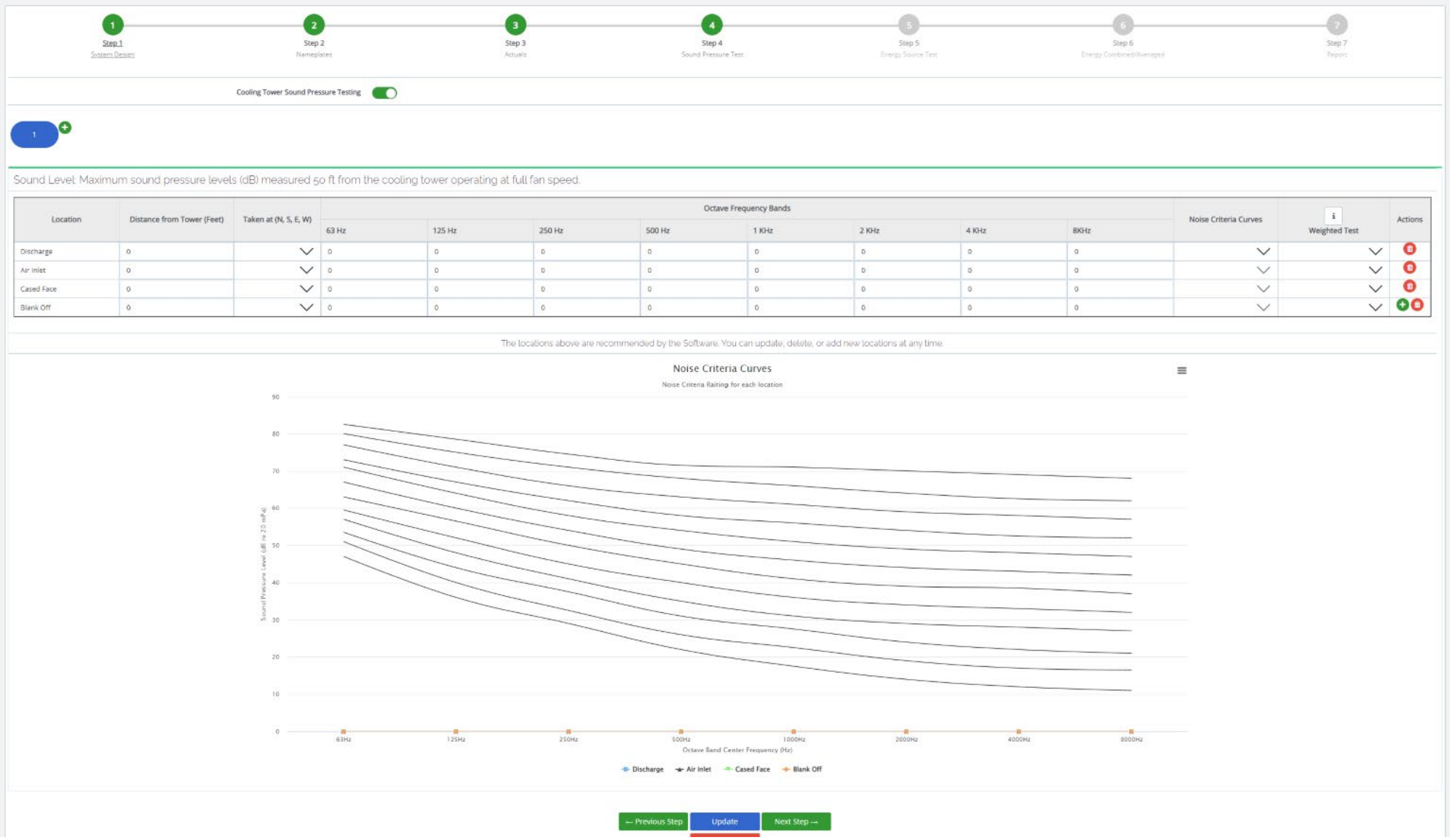


Enter Actual Tower and Motor Data

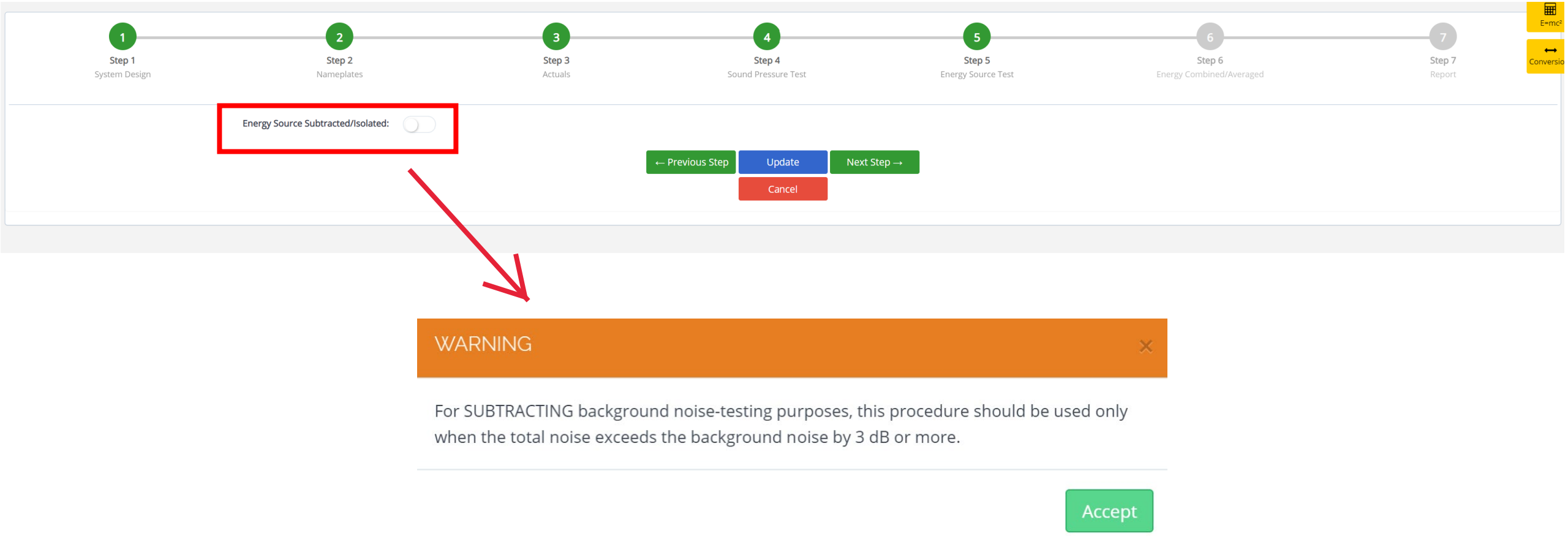


Select switch if Sound Pressure Testing is required.

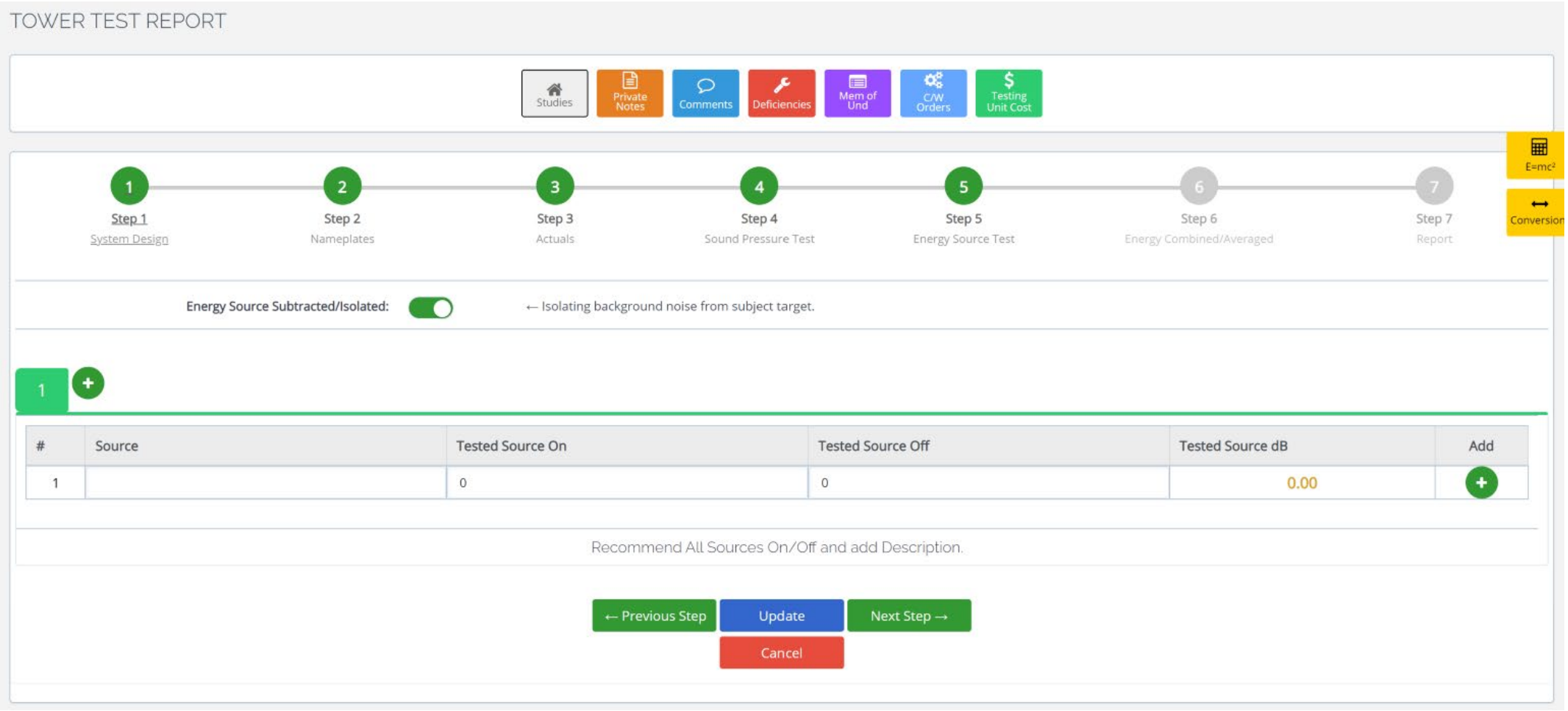
Audit Master PRO



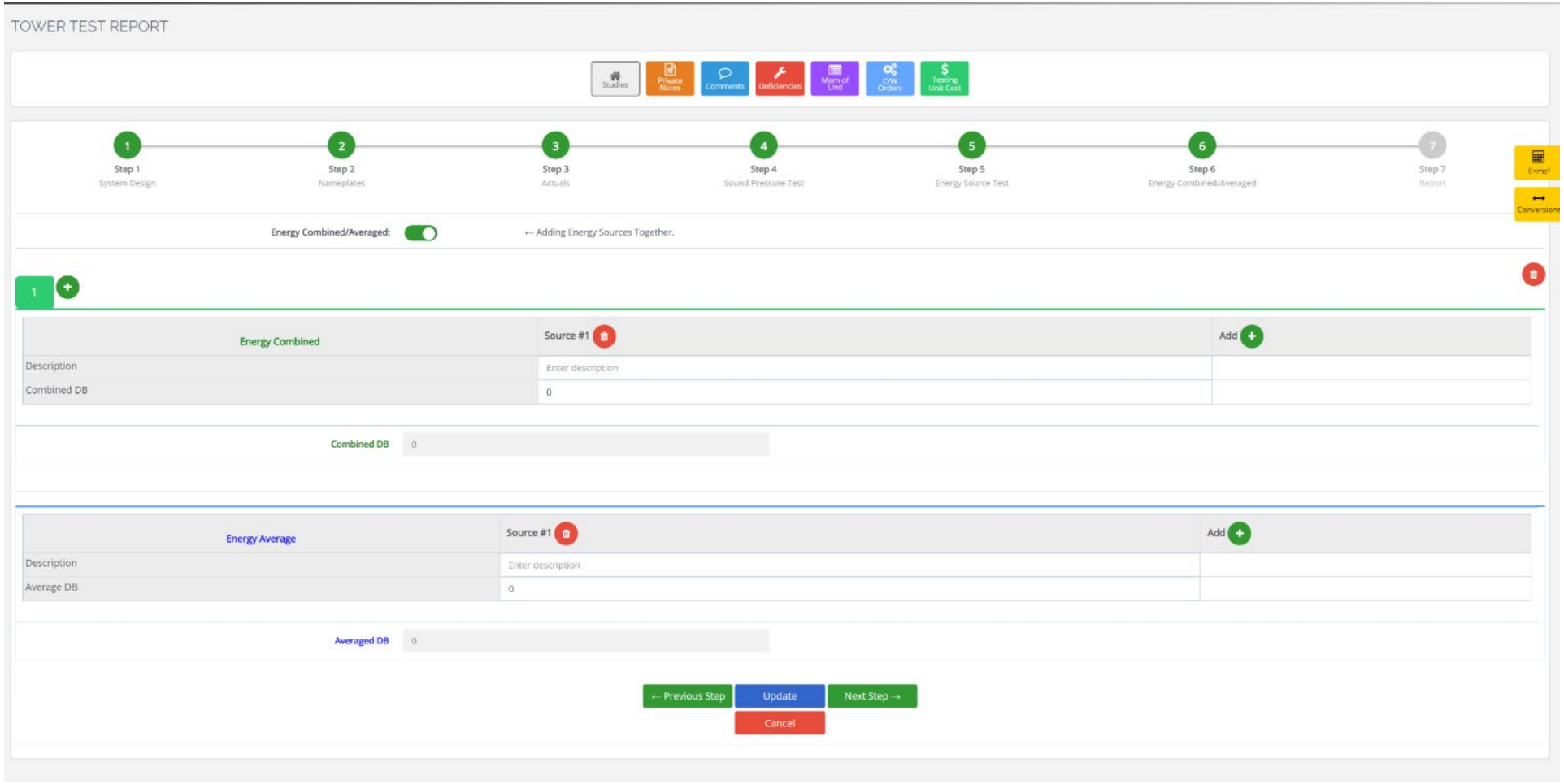
Enter Sound Pressure Test Data



Warning: This is a recommendation indicating when step (5) should be performed.



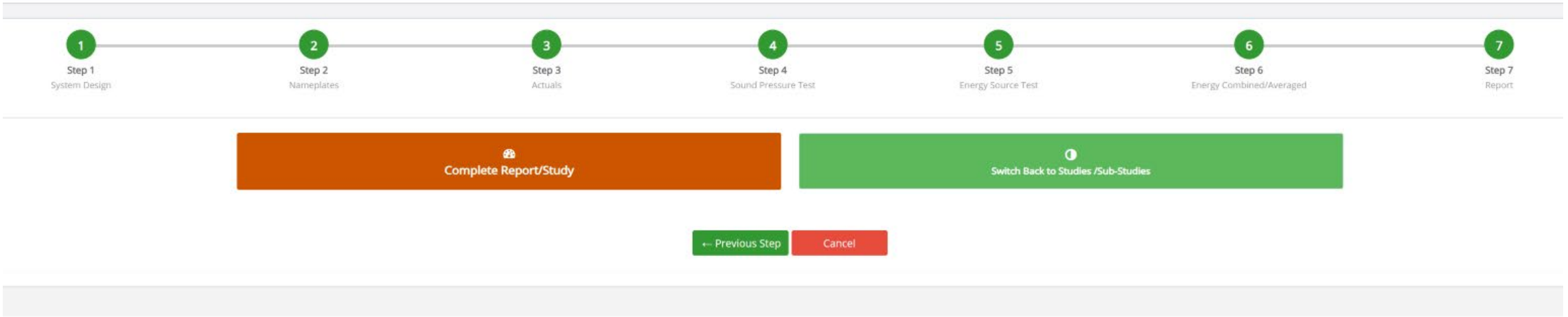
Enter Energy Source Test Data



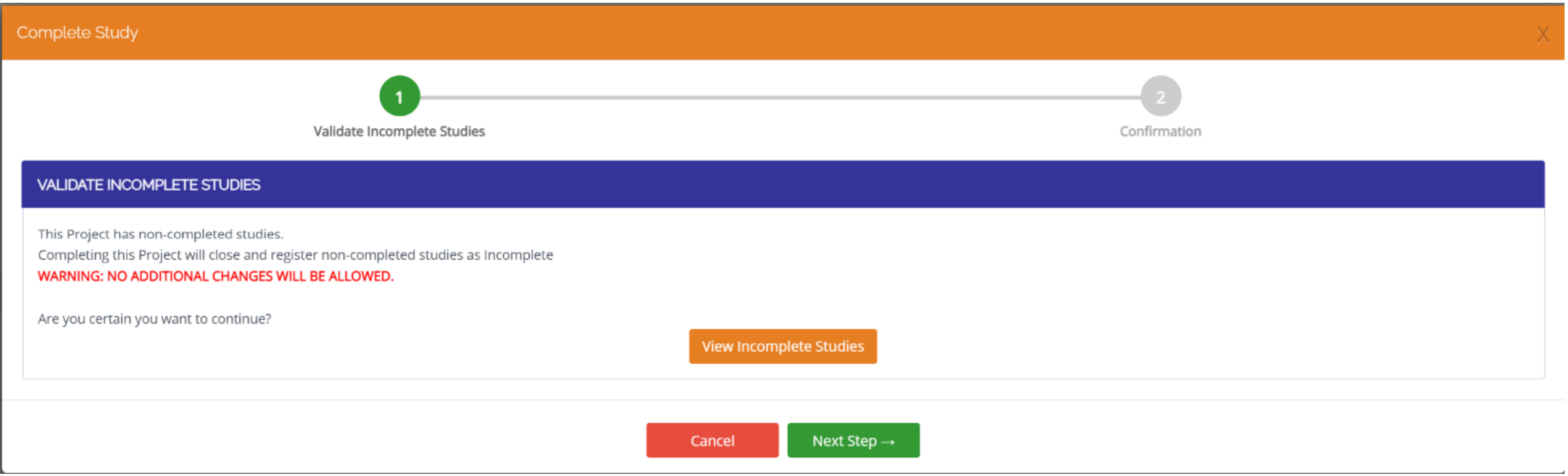
Energy Combined and Energy Averaged Data is entered here.

Fill out all of the information you would want to see on your final combined Energy Source Test.

For example, suppose you ran five sound pressure tests on five different cooling towers, three of which were the same larger size. For a cooling load degree day, only the three largest towers would be used. You would now only include the three larger cooling towers in the Energy Source Test because that is all that would be used on a cooling load degree day.



Complete Report/Study



To complete the main study, all Sub-Studies must be completed.