

Contents

1. Audit station	1
2. Level 1 Corrections	2
2.1 Manual Edit	2
2.1.1 Correct Data	3
2.1.2 Revert Correction	5
2.2 Bulk Edit.....	7
2.3 Period Review.....	9
3. Level 2 Corrections	10
3.1 Manual Edit	10
3.1.1 Correct Data	10
3.1.2 Revert Correction	11
3.2 Bulk Edit.....	14
3.3 Period Review.....	16
4. Level 3 Corrections	18
4.1 Manual Edit	18
4.1.1 Correct Data	18
4.1.2 Revert Correction	20
4.2 Bulk Edit.....	21
5. Reports	24
5.1 Month Overview.....	24
5.2 Completeness	25
5.3 Log	26
Appendix - Configuration	27
1. Site Configuration.....	28
2. Flag Configuration	29

Continuous Water Quality Data Collection

VISTA – DataVison - QAQC MANUAL

1. Audit station

QA/QC stations can be audited through the Quick View of the VISTA interface by the operator and system administrator.

When auditing a station, the auditor may select which level (1,2 or 3) they review and whether they wish to do a manual or bulk edit. Audits must be done in the correct order, which means that a time period must be selected as reviewed for Level 1 to be able to audit it for Level 2.

The screenshot shows the VISTA DataVison interface for an audit station. The top navigation bar includes 'Main Functions', 'Configuration', 'Alarm', and 'Information'. The site is identified as 'AQ station'. The interface displays the latest data timestamp and a 'Period Review' button. Below, three tables list corrections for Level 1, Level 2, and Level 3.

Level 1 Corrections

Time	User	Variable	Start	Stop	Note
2013-09-13 15:23:15	admin	H2S	2012-10-19 00:30:00	2012-10-19 00:30:00	Reverted one value that was corrected by mistake
2013-09-13 15:22:33	admin	H2S	2012-10-19 00:30:00	2012-10-19 02:30:00	Offset detected in the data
2013-08-29 17:48:12	hrund	NO	2012-10-20 00:30:00	2012-10-20 00:40:00	revert NO

Level 2 Corrections

Time	User	Variable	Code	Start	Stop	Note
2013-09-13 15:24:04	admin	NO	BD [Auto Calibration]	2012-10-20 01:00:00	2012-10-20 02:20:00	gfdgfd
2013-09-02 13:36:07	hrund	NO2	MC [Module End Cap Missing]	2012-10-20 00:10:00	2012-10-20 00:40:00	aa
2013-09-02 13:35:52	hrund	H2S	AE [Shelter Temperature Outside Limit]	2012-10-20 00:40:00	2012-10-20 00:50:00	aa

Level 3 Corrections

Time	User	Variable	Code	Start	Stop	Note
2013-09-13 15:24:53	admin	NO	IS [Volcanic Eruptions]	2012-10-19 00:30:00	2012-10-19 03:10:00	Eyjafjallajökull again!
2013-09-03 13:06:25	hrund	NO	Revert	2012-10-20 00:10:00	2012-10-20 00:40:00	revert NO + NO2
2013-09-03 13:06:25	hrund	NO2	Revert	2012-10-20 00:40:00	2012-10-20 00:40:00	revert NO + NO2

2. Level 1 Corrections

Level 1 corrections aim to locate erroneous data and either correct it or mark it as faulty record. The real time data stream is checked once daily by the operator to timely detect any sensor damage or malfunction. To ease the operator’s responsibilities 10 years of data has been combed through in an effort to establish a reliable alarm system, that would send real time warning as soon as an erroneous value is recorded. We found that for MERI’s continuous water quality data, following changes in standard deviation (STDV) for each the variables gives a reliable indication of sensor drift. If the daily STDV values fall below the established ranges, the system will send an alarm messages and the operator will check the data set and ultimately the sensor.

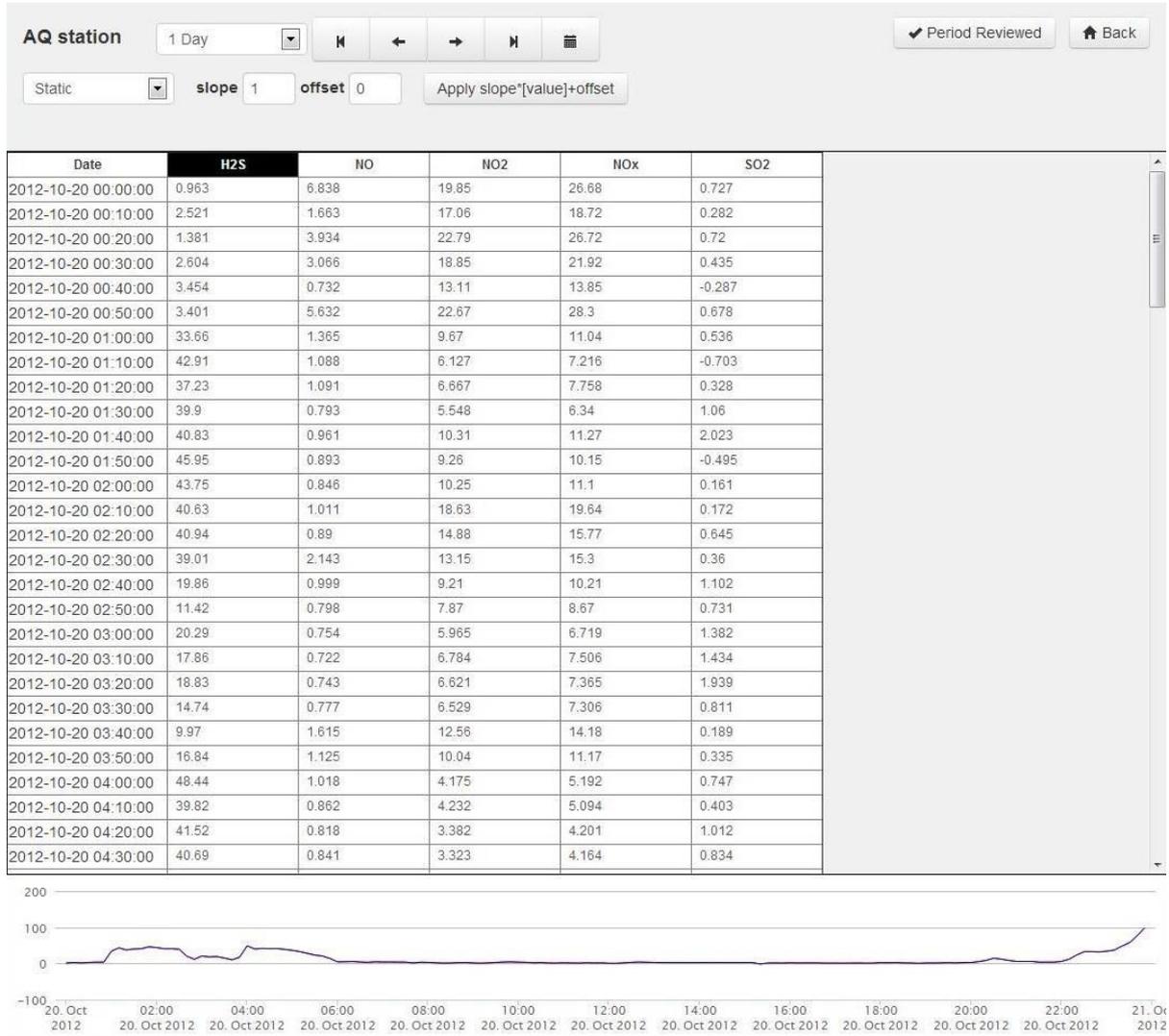
The established ranges are below:

Variable	Dimension	Min	Max
<i>Dissolved Oxygen</i>	%	2.0	10.0%
<i>Dissolved Oxygen</i>	mg/L	0.1	1.0
<i>Conductivity</i>	mS/cm	1.0	7.0
<i>Temperature</i>	F	0.2	1.0
<i>Salinity</i>	ppt	1.0	4.0
<i>pH</i>		0.2	1.6
<i>Water level</i>	ft	1.0	3.0

2.1 Manual Edit

Manual edit lets the operator correct data manually. They can select one or more cells for one or more variables. The manual correction can be made statically or time varying. They need to fill out the slope and offset values for the correction.

To display data in the graph below the table, they can select the header of a field in the table by pressing on it.



The manual correction can be made statically or time varying.

AQ station 1 Day

Static slope 1 offset 0

Controls for Static corrections.

AQ station 1 Day

Time Varying slope0 1 slope1 1 offset0 0 offset1 0

Controls for Time Varying corrections.

2.1.1 Correct Data

To manually edit data, the operator needs to start by applying the changes (while editing, the selected cells appear blue)

AQ station 1 Day

Static slope 1 offset 10

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	3.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	5.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

- Select the cells you want to edit
- Select either Static or Time Varying type
- Fill out the slope(s) and offset(s)
- Press the Apply button

AQ station 1 Day

Static slope 1 offset 10 Note offset=10

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	13.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	10.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

The values in the selected cells are now shown updated but have not yet been saved. The updated values have a yellow background color until the changes have been committed.

If the changes are correct, then the next step is to save the changes.

- Fill out the Note field. A note must always be entered when committing changes.
- Press the Commit Changes button

AQ station

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	13.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	10.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

When the correction has been committed, a notification appears that your Modifications have been saved and the corrected cells appear green.

All corrections are logged. A new line for the committed correction appears at the main page

Level 1 Corrections

Time	User	Variable	Start	Stop	Note
2013-08-29 13:56:05	hrund	NO	2012-10-20 00:20:00	2012-10-20 00:50:00	offset=10

The log entry for the Level 1 correction.

2.1.2 Revert Correction

It is possible to undo changes and revert back to the raw value.

The screenshot shows the AQ station interface with a data table. The table has columns for Date, H2S, NO, NO2, NOx, and SO2. The data rows are as follows:

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	13.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	10.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

To revert edited cells

- Select the cells you want to revert. Note only corrected values (shown with a green background) can be reverted
- Press the Revert button

The screenshot shows the AQ station interface with a data table. The table has columns for Date, H2S, NO, NO2, NOx, and SO2. The data rows are as follows:

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

- Fill out the Note field
- Press the Commit Changes button

AQ station 1 Day Modifications have been saved

Static 1 0

Date	H2S	NO	NO2	NOx	
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.28
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536

- A notification appears that your modification have been saved

2.2 Bulk Edit

Bulk edit makes it possible to make corrections for a selected time period. As in manual edit, slope and offset needs to be set and it's possible to select between static or time varying editing. Additionally, time and date periods need to be defined.

AQ station QC Level 1 - Bulk Edit ✓ Period Reviewed [Back](#)

Start Stop Time Filter

<input type="checkbox"/>	Variable	Type	
<input type="checkbox"/>	H2S		
<input checked="" type="checkbox"/>	NO	Static	slope 1 offset 0
<input type="checkbox"/>	NO2	Static	
<input type="checkbox"/>	NOx	Time Varying	
<input type="checkbox"/>	SO2		

AQ station QC Level 1 - Bulk Edit ✓ Period Reviewed [Back](#)

Start Stop Time Filter

<input type="checkbox"/>	Variable	Type	
<input type="checkbox"/>	H2S		
<input type="checkbox"/>	NO		
<input type="checkbox"/>	NO2		
<input checked="" type="checkbox"/>	NOx	Time Varying	slope0 1 slope1 1 offset0 1 offset1 2
<input type="checkbox"/>	SO2		

To edit the data, you need to start by selecting variables and setting their slopes and offsets.

- Select the start and stop date
 - If time filter is needed, check the Time Filter and select the hours you want the corrections be made between
 - Time filter can also be used when editing needs to be done every x days
- Check the variables you want to edit
- Select either Static or Time Varying type
- Fill out the slope(s) and offset(s)
- Press the Commit button

Confirm Changes

Time Period: 2012-10-20 00:00 - 2012-10-20 23:59

NOx	Time Varying	1*[value]+1 ... 1*[value]+2
-----	--------------	-----------------------------

Note:

Next you need to confirm the correction of the data

- Fill out the Note field
- Press the Confirm button

A new line for the committed correction appears at the main page

Level 1 Corrections						Manual Edit	Bulk Edit
Time	User	Variable	Start	Stop	Note		
2013-08-29 17:25:29	hrund	NOx	2012-10-20 00:00:00	2012-10-20 23:59:00	offset0=1, offset1=2		
2013-08-29 13:56:05	hrund	NO	2012-10-20 00:20:00	2012-10-20 00:50:00	offset=10		

The log entry for the Level 1 correction.

2.3 Period Review

Reviewing a period, makes it possible to correct data on the next level. The colored bar displays the percentage of the data has been reviewed, red indicates unreviewed data but green reviewed data.

Review Period

AQ station Level 1

Reviewed Data (52.55%)

Review All

Start 2012-07-01 00:00 Stop 2012-10-20 23:50

Note Note

✓ Save Cancel

- Select the appropriate level
- Select the time period to review
- Fill out the Note field
- Press the Save button

3. Level 2 Corrections

Level 2 correction allow the operator to note the reason the error(s) occurred in the first place. Level 2 correction notes become part of the QA/QC-d data set and are downloaded along with the data table.

3.1 Manual Edit

When a period has been reviewed for Level 1, it's possible to make corrections for Level 2. Level 2 corrections consist of applying Flags to data.

The screenshot shows a software interface for applying Level 2 corrections. At the top, there is a section for 'AQ station' with a '1 Day' dropdown and navigation buttons. A 'Period Reviewed' checkbox is checked, and a 'Back' button is visible. Below this is a 'Select' dropdown menu with an 'Apply Code' button. The dropdown menu is open, showing a list of error codes and their descriptions:

- AA [Sample Pressure out of Limits]
- AB [Technician Unavailable]
- AC [Construction/Repairs in Area]
- AD [Shelter Storm Damage]
- AE [Shelter Temperature Outside Limits]
- AF [Scheduled but not Collected]
- AG [Sample Time out of Limits]
- AH [Sample Flow Rate out of Limits]
- AI [Insufficient Data (cannot calculate)]
- AJ [Filter Damage]
- AK [Filter Leak]
- AL [Voided by Operator]
- AM [Miscellaneous Void]
- AN [Machine Malfunction]
- AO [Bad Weather]
- AP [Vandalism]
- AQ [Collection Error]
- AR [Lab Error]
- AS [Poor Quality Assurance Results]

Below the dropdown is a table of data points. The table has columns for time and several numerical values, including SO2. The data points are as follows:

Time	Value 1	Value 2	Value 3	Value 4	SO2
2012-10-20 01:50:00	45.95	0.893	9.26	10.15	-0.495
2012-10-20 02:00:00	43.75	0.846	10.25	11.1	0.161
2012-10-20 02:10:00	40.63	1.011	18.63	19.64	0.172
2012-10-20 02:20:00	40.94	0.89	14.88	15.77	0.645
2012-10-20 02:30:00	39.01	2.143	13.15	15.3	0.36
2012-10-20 02:40:00	19.86	0.999	9.21	10.21	1.102
2012-10-20 02:50:00	11.42	0.798	7.87	8.67	0.731
2012-10-20 03:00:00	20.29	0.754	5.965	6.719	1.382
2012-10-20 03:10:00	17.86	0.722	6.784	7.506	1.434
2012-10-20 03:20:00	18.83	0.743	6.621	7.365	1.939

3.1.1 Correct Data

AQ station: 1 Day [Navigation icons] [Period Reviewed] [Back]

AO [Bad Weather] [Apply Code]

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703

- Select the cells you want to edit in the table
- Select the code to be applied
- Press the Apply Code button

AQ station: 1 Day [Navigation icons] [Commit Changes] [Back]

AO [Bad Weather] [Apply Code] Note: level2 manual

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	[AO] 3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	[AO] 3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703

After applying the changes, the cell color changes from blue to yellow and the appropriate code has been added in front of the value

- Fill out the Note field
- Press the Commit Changes button

AQ station 1 Day Modifications have been saved ✓ Period Reviewed 🏠 Back

AO [Bad Weather] Apply Code

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	[AO] 3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	[AO] 3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703
2012-10-20 01:20:00	37.23	1.091	6.667	7.758	0.328

When the changes have been committed the cell color changes from yellow to green

3.1.2 Revert Correction

The changes in Level 2 can be reverted manually like the changes in Level 1.

AQ station 1 Day ⏮ ⏪ ⏩ ⏭ 📅

Select Apply Code Revert

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	[AO] 3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	[AO] 3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703
2012-10-20 01:20:00	37.23	1.091	6.667	7.758	0.328

To revert edited cells

- Select the cells you want to revert (they should be colored green)
- Press the Revert button

AQ station 1 Day

Select Note revert H2S

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703
2012-10-20 01:20:00	37.23	1.081	6.667	7.758	0.328

The code in front of the value has been removed

- Fill out the Note field
- Press the Commit Changes button

AQ station 1 Day

Select Modifications have been saved

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	18.85	21.92	0.435
2012-10-20 00:40:00	3.454	0.732	13.11	13.85	-0.287
2012-10-20 00:50:00	3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703

A notification appears that your modification have been saved

3.2 Bulk Edit

Bulk Level 2 corrections consist of applying Flags to data for a selected time period. Bulk edit can be very useful when working with a station that uses periodic processes, for example running a span check every day between 11:00 and 12:00. It is then possible to select the variables, select the appropriate flag and then set the Time Filter to only updated values between 11:00-12:00.

AQ station QC Level 2 - Bulk Edit ✔ Period Reviewed 🏠 Back

Start Stop Time Filter

<input type="checkbox"/>	Variable	Flag
<input type="checkbox"/>	H2S	Select
<input type="checkbox"/>	NO	Select
<input type="checkbox"/>	NO2	Select
<input type="checkbox"/>	NOx	Select
<input type="checkbox"/>	SO2	Select

Select

- AA [Sample Pressure out of Limits]
- AB [Technician Unavailable]
- AC [Construction/Repairs in Area]
- AD [Shelter Storm Damage]
- AE [Shelter Temperature Outside Limits]
- AF [Scheduled but not Collected]
- AG [Sample Time out of Limits]
- AH [Sample Flow Rate out of Limits]
- AI [Insufficient Data (cannot calculate)]
- AJ [Filter Damage]
- AK [Filter Leak]
- AL [Voided by Operator]
- AM [Miscellaneous Void]
- AN [Machine Malfunction]
- AO [Bad Weather]
- AP [Vandalism]
- AQ [Collection Error]
- AR [Lab Error]
- AS [Poor Quality Assurance Results]

To bulk edit data, you need to start by selecting variables and setting flag.

AQ station QC Level 2 - Bulk Edit ✔ Period Reviewed 🏠 Back

Start Stop Time Filter Between h m [and] h m Every day(s)

<input type="checkbox"/>	Variable	Flag
<input type="checkbox"/>	H2S	Select
<input type="checkbox"/>	NO	Select
<input type="checkbox"/>	NO2	Select
<input checked="" type="checkbox"/>	NOx	AJ [Filter Damage]
<input type="checkbox"/>	SO2	Select

- Select the start and stop date
 - If time filter is needed, check the Time Filter and select the hours you want the corrections be made between
 - Time filter can also be used when editing needs to be done every x days
- Check the variables you want to edit
- Select the flag you want to use
- Press the Commit button

Next you need to confirm the correction of the data

Confirm Changes

Time Period: 2012-10-20 00:00 - 2012-10-20 23:59, Between 04:00 and 06:00, Every 1 day(s)

NOx	AJ	[Filter Damage]
-----	----	-----------------

Note: AJ

Notice that the Confirm window lists all Variables that will be updated and the selected Time Period and the Time Filter if selected.

- Fill out the Note field
- Press the Confirm button

3.3 Period Review

The data needs to be reviewed for Level 2 to make it possible to correct the data for the same time period for Level 3. It's only possible to review the data for time period that is colored red because that data has been reviewed for Level 1. The colored bar displays the percentage of the data has been reviewed, black indicates the data that hasn't been reviewed in the previous level (Level 1), red indicates unreviewed data in Level 2 and green the data that has been reviewed in both Level 1 and Level 2.

Review Period

AQ station Level 2

Reviewed Data (0%)

Review All

Start 2012-09-01 00:00 Stop 2012-10-20 23:50

Note Note

Save Cancel

- Select the appropriate level
- Select the time period to review
- Fill out the Note field
- Press the Save button

Review Period

AQ station Level 2

Reviewed Data (23.46%)



Review All

Start Stop

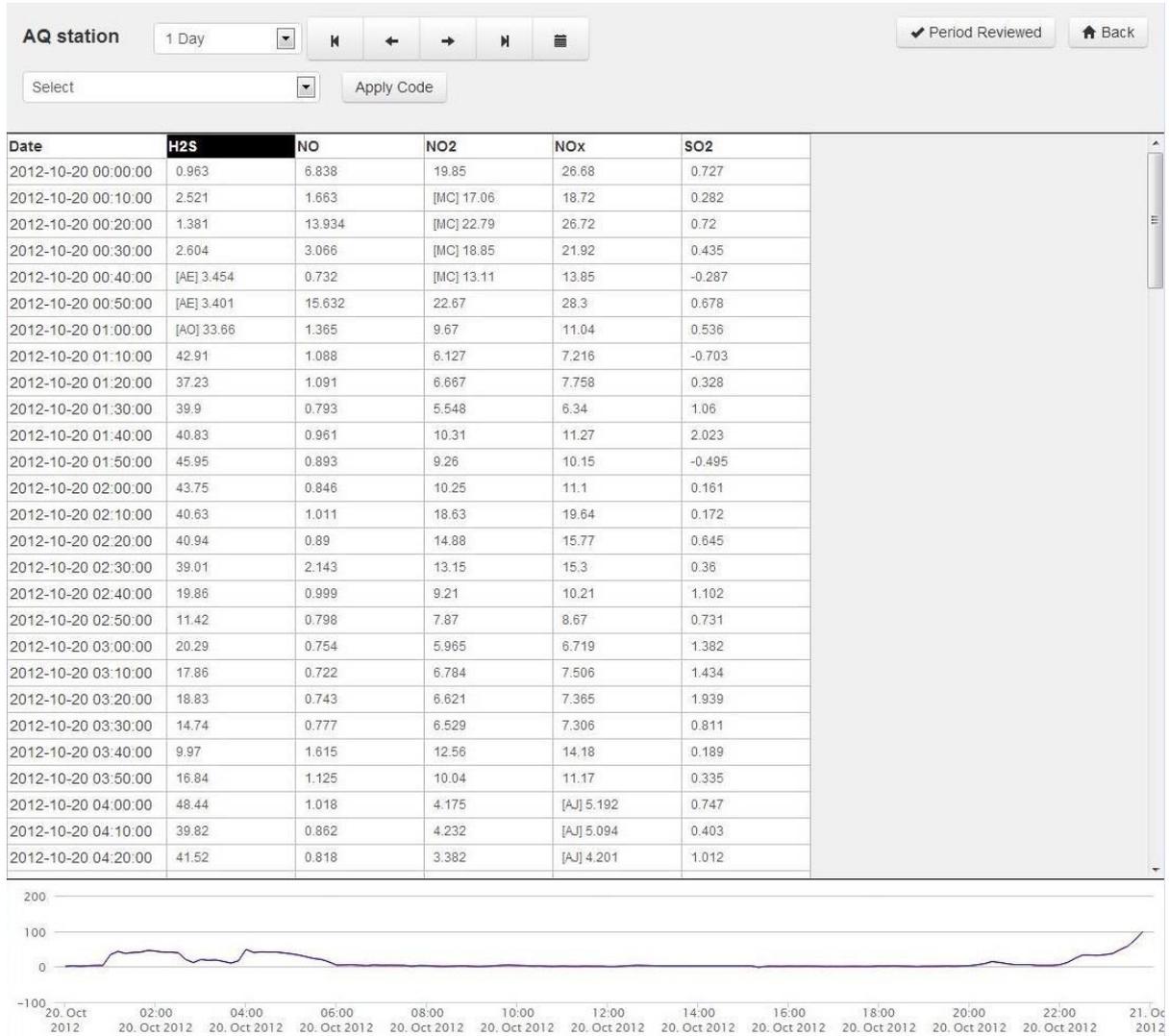
Note

After the Save button has been pressed the selected reviewed period is now shown green.

4. Level 3 Corrections

4.1 Manual Edit

After period has been reviewed for previous levels, it's possible to make corrections for Level 3. A flag is applied to the values being edited. When manually editing Level 3, it's possible to see the values that have been corrected for Level 2.



4.1.1 Correct Data

The screenshot shows the AQ station interface. At the top, there is a dropdown for 'AQ station' set to '1 Day'. Below it, a dropdown menu shows 'J [Construction/Demolition]' and an 'Apply Code' button. The main table has columns for Date, H2S, NO, NO2, NOx, and SO2. The NO2 column has several cells highlighted in blue, indicating they are selected for editing. The values in the NO2 column are 19.85, [MC] 17.06, [MC] 22.79, [MC] 18.85, [MC] 13.11, 22.67, 9.67, and 6.127.

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	[MC] 17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	[MC] 22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	[MC] 18.85	21.92	0.435
2012-10-20 00:40:00	[AE] 3.454	0.732	[MC] 13.11	13.85	-0.287
2012-10-20 00:50:00	[AE] 3.401	15.632	22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703

- Select the cells you want to edit in the table
- Select the code to be applied
- Press the Apply Code button

The screenshot shows the AQ station interface after applying changes. The 'Apply Code' button is now disabled. A 'Note' field is visible with the text 'level3 manual'. The cells in the NO2 column that were previously highlighted in blue are now highlighted in yellow, indicating they have been successfully updated. The values in the NO2 column are now [MC][J] 18.85, [MC][J] 13.11, [J] 22.67, and [J] 9.67.

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	[MC] 17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	[MC] 22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	[MC][J] 18.85	21.92	0.435
2012-10-20 00:40:00	[AE] 3.454	0.732	[MC][J] 13.11	13.85	-0.287
2012-10-20 00:50:00	[AE] 3.401	15.632	[J] 22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	[J] 9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703

After applying the changes, the cell color changes from blue to yellow and the code has been added in front of the value and the code from Level 2 if it exists.

- Fill out the Note field
- Press the Commit Changes button

AQ station 1 Day Modifications have been saved ✓ Period Reviewed Back

J [Construction/Demolition] Apply Code

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	6.838	19.85	26.68	0.727
2012-10-20 00:10:00	2.521	1.663	[MC] 17.06	18.72	0.282
2012-10-20 00:20:00	1.381	13.934	[MC] 22.79	26.72	0.72
2012-10-20 00:30:00	2.604	3.066	[MC] [J] 18.85	21.92	0.435
2012-10-20 00:40:00	[AE] 3.454	0.732	[MC] [J] 13.11	13.85	-0.287
2012-10-20 00:50:00	[AE] 3.401	15.632	[J] 22.67	28.3	0.678
2012-10-20 01:00:00	[AO] 33.66	1.365	[J] 9.67	11.04	0.536
2012-10-20 01:10:00	42.91	1.088	6.127	7.216	-0.703
2012-10-20 01:20:00	37.23	1.001	6.667	7.758	0.398

When the changes have been committed the cell color changes from yellow to green.

4.1.2 Revert Correction

AQ station 1 Day Period Reviewed Back

Select Apply Code Revert

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	[IM] 6.838	19.85	26.68	[9] 0.727
2012-10-20 00:10:00	2.521	[IM] 1.663	[MC] 17.06	18.72	[9] 0.282
2012-10-20 00:20:00	1.381	[IM] 13.934	[MC] 22.79	26.72	[9] 0.72
2012-10-20 00:30:00	2.604	[IM] 3.066	[MC] [J] 18.85	21.92	[9] 0.435
2012-10-20 00:40:00	[AE] 3.454	[IM] 0.732	[MC] [J] 13.11	13.85	[9] -0.287
2012-10-20 00:50:00	[AE] 3.401	[IM] 15.632	[J] 22.67	28.3	[9] 0.678
2012-10-20 01:00:00	[AO] 33.66	[IM] 1.365	[J] 9.67	11.04	[9] 0.536

To revert edited cells

- Select the cells you want to revert (they should be colored green)
- Press the Revert button

AQ station 1 Day Commit Changes Back

Select Apply Code Undo Note revert NO + NO2

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	[IM] 6.838	19.85	26.68	[9] 0.727
2012-10-20 00:10:00	2.521	1.663	[MC] 17.06	18.72	[9] 0.282
2012-10-20 00:20:00	1.381	13.934	[MC] 22.79	26.72	[9] 0.72
2012-10-20 00:30:00	2.604	3.066	[MC] [J] 18.85	21.92	[9] 0.435
2012-10-20 00:40:00	[AE] 3.454	0.732	[MC] 13.11	13.85	[9] -0.287
2012-10-20 00:50:00	[AE] 3.401	[IM] 15.632	[J] 22.67	28.3	[9] 0.678
2012-10-20 01:00:00	[AO] 33.66	[IM] 1.365	[J] 9.67	11.04	[9] 0.536

The code in front of the value has been removed

- Fill out the Note field
- Press the Commit Changes button

AQ station 1 Day Modifications have been saved ✓ Period Reviewed 🏠 Back

Select Apply Code Undo

Date	H2S	NO	NO2	NOx	SO2
2012-10-20 00:00:00	0.963	[IM] 6.838	19.85	26.68	[9] 0.727
2012-10-20 00:10:00	2.521	1.663	[MC] 17.06	18.72	[9] 0.282
2012-10-20 00:20:00	1.381	13.934	[MC] 22.79	26.72	[9] 0.72
2012-10-20 00:30:00	2.604	3.066	[MC] [J] 18.85	21.92	[9] 0.435
2012-10-20 00:40:00	[AE] 3.454	0.732	[MC] 13.11	13.85	[9] -0.287
2012-10-20 00:50:00	[AE] 3.401	[IM] 15.632	[J] 22.67	28.3	[9] 0.678
2012-10-20 01:00:00	[AO] 33.66	[IM] 1.365	[J] 9.67	11.04	[9] 0.536

A notification appears that your modification have been saved and the flag of the reverted cells has been removed.

4.2 Bulk Edit

Similar to bulk edit for Level 2, there are flags that are set for variables during a selected time period.

AQ station QC Level 3 - Bulk Edit ✔ Period Reviewed 🏠 Back

Start Stop Time Filter

<input type="checkbox"/> Variable	Flag
<input type="checkbox"/> H2S	Select <input type="text"/>
<input type="checkbox"/> NO	Select <input type="text"/>
<input type="checkbox"/> NO2	1 [Deviation from a CFR/Critical Criteria Requirement] 2 [Operational Deviation] 3 [Field Issue] 4 [Lab Issue] 5 [Outlier] 6 [QAPP Issue] 7 [Below Lowest Calibration Level] 8 [QA/QC Unknown] 9 [Negative value detected - zero reported] A [High Winds] B [Stratospheric Ozone Intrusion] C [Volcanic Eruption] CB [Values have been Blank Corrected] CC [Clean Canister Residue] CL [Surrogate Recoveries Outside Control Limits due to analytical interferences] D [Sandblasting] E [Forest Fire] EH ["Estimated Exceeds Upper Range"] F [Structural Fire]
<input type="checkbox"/> NOx	
<input type="checkbox"/> SO2	

AQ station QC Level 3 - Bulk Edit ✔ Period Reviewed 🏠 Back

Start Stop Time Filter

<input type="checkbox"/> Variable	Flag
<input type="checkbox"/> H2S	Select <input type="text"/>
<input checked="" type="checkbox"/> NO	IM [Prescribed Fire] <input type="text"/>
<input type="checkbox"/> NO2	Select <input type="text"/>
<input type="checkbox"/> NOx	Select <input type="text"/>
<input checked="" type="checkbox"/> SO2	9 [Negative value detected - zero reported] <input type="text"/>

To bulk edit data, you need to start by selecting variables and setting flag.

- Select the start and stop date
 - If time filter is needed, check the Time Filter and select the hours you want the corrections be made between
 - Time filter can also be used when editing needs to be done every x days
- Check the variables you want to edit

- Select the flag you want to use
- Press the Commit button

Confirm Changes

Time Period: 2012-10-20 00:00 - 2012-10-20 23:59

NO	IM	[Prescribed Fire]
SO2	9	[Negative value detected - zero reported]

Note:

Next you need to confirm the correction of the data

- Fill out the Note field
- Press the Confirm button

5. Reports

The reports can be accessed through the Quick View. They can all be downloaded to a text file.

[Overview](#)
[Level 1](#)
[Level 2](#)
[Level 3](#)
[Month Overview](#)
[Completeness](#)
[Log](#)

5.1 Month Overview

HR-BEG HR-END DAY	00 01	01 02	02 03	03 04	04 05	05 06	06 07	07 08	08 09	09 10	10 11	11 12	12 13	13 14	14 15	15 16	16 17	17 18	18 19	19 20	20 21	21 22	22 23	23 24	AVG	MAX	MIN	
1	2.94	0.36	0.68	0.26	0.29	1.58	1.83	21	37.5	15.2	11.6	4.52	2.74	1.33	1.5	1.52	1.9	1.83	3.28	11.6	10.6	9.47	4.57	3.59	6.32	37.5	0.26	
2	1.43	1.33	1.05	1.05	0.34	0.66	1.53	5.17	11	8.03	7.11	4.89	6.13	5.58	6.61	6.34	11.6	8.65	11	7.64	6.56	5.9	3.5	2.42	5.23	11.6	0.34	
3	0.68	0.92	0.15	0.11	0.15	1.74	1.8	9.84	35.2	11.8	2.97	1.64	0.74	1.74	2.33	2.23	6.24	8.79	7.68	5.52	4.67	5.27	2.97	2.56	4.91	35.2	0.11	
4	1.09	1.37	0.34	1.29	0.14	0.63	1.76	7.38	21.3	8.94	5.36	6.87	5.99	7.45	7.33	8.34	7.59	6.95	5.98	5.42	3.55	3.03	1.98	1.27	5.06	21.3	0.14	
5	1.57	1.04	1.06	0.65	0.43	0.45	1.14	0.88	1.73	1.96	4.93	4.25	4.16	5.77	8.94	2.06	1.74	2.57	6.78	4.52	3.51	2.68	1.69	1.5	2.74	8.94	0.43	
6	3.53	1.28	1.26	0.37	0.17	0.094	0.72	3.44	0.67	0.6	1.5	1.17	0.22	0.53	3.09	0.48	0.59	0.46	0.39	1.42	8.86	16.2	7.05	6.7	2.53	16.2	0.094	
7	1.07	5.6	7.66	1.65	0.69	4.11	2.65	15.4	61.3	7.98	1.5	1.3	0.3	0.97	0.38	0.91	1.02	1.13	0.77	0.19	0.18	6.99	13.9	8.99	6.11	61.3	0.18	
8	3.54	5.45	11.1	0.98	0.59	3.25	18.9	24.8	93.5	32.6	24.1	15	7.4	1.39	0.94	1.14	1.53	1.67	1.67	0.41	0.068	0.019	-0.032	-0.032	10.4	93.5	-0.032	
9	[BL]	[BL]	[BL]	[BL]	[BL]																							
10	[BL]	[BL]	[BL]	[BL]	[BL]																							
11	[BL]	[BL]	[BL]	[BL]	[BL]																							
12	[BL]	[BL]	[BL]	[BL]	[BL]																							
13	2.65	0.26	0.97	0.15	0.16	0.25	0.19	0.029	0.17	0.29	0.51	2.15	1.62	1.4	2.12	2.85	2.52	2.39	2.48	1.16	1.91	1.24	0.64	0.34	1.19	2.85	0.029	
14	0.13	0.048	0.016	-0.031	0.017	0.12	0.51	2.88	7.14	4.1	2.55	3.86	3	3.85	3.95	3.66	6.99	4.06	2.36	1.51	1.48	0.96	0.65	0.75	2.27	7.14	-0.031	
15	0.23	0.05	0.076	0.035	0.013	0.02	0.12	1.03	1.88	0.88	0.57	0.5	0.4	0.57	0.92	0.79	0.68	-0.014	0.0097	0.15	0.047	0.28	0.64	1.58	0.46	1.68	-0.014	
16	1.09	0.17	1.26	0.018	0.14	0.068	0.29	4.61	9.21	3.62	4.46	3.43	4.39	4.99	5.44	6.39	9.31	5.86	4.89	4.55	2.69	1.46	1.86	1.08	3.39	9.31	0.018	
17	0.52	0.068	0.06	0.035	0.17	0.15	0.23	4.09	14.7	14.2	8.79	4.44	6.84	6.34	3.2	1.32	1.46	1.75	4.57	6.81	6.88	2.86	4.64	3.09	4.05	14.7	0.035	
18	[AJ]	[AJ]	[AJ]	[AJ]	[AJ]	[AJ]	1.68	6.71	38.7	15.6	7.34	9.02	8.06	5.79	7.14	10.6	5.83	10.1	2.6	2.95	8.82	8.48	10.3	7	9.26	38.7	1.68	
19	5.49	3.12	1.6	1.25	2.16	1.71	1.57	2.76	6.53	9.6	6.31	3.51	4.37	1.29	1.69	1.53	5.89	1.5	1.63	5.26	6.97	3.44	1.95	5.26	3.6	9.6	1.25	
20	3.55	1.92	1.53	1	0.3	0.54	0.36	0.28	0.32	1.2	1.53	2.77	2.4	3.61	4.25	3.08	1.43	6.66	4.6	1.94	0.72	0.1	0.079	0.19	1.85	6.66	0.079	
21	0.056	0.054	0.023	0.075	0.056	0.053	0.07	0.062	0.7	0.2	0.34	0.25	0.12	0.91	1.57	2.82	0.54	0.48	0.44	0.22	3.72	0.46	0.29	0.1	0.57	3.72	0.023	
22	0.091	0.059	0.055	0.042	0.049	0.051	0.042	0.37	19.9	9.91	7.46	5.83	4.89	9.82	2.96	1.24	1.4	9.02	11.1	25.8	16	6.61	5.75	2.19	5.86	25.8	0.042	
23	1.48	0.27	0.32	0.21	0.47	0.82	1.13	8.84	38.7	41.6	9.55	5.97	2.33	1.23	0.78	1.32	1.53	2.59	4.95	1.82	8.41	5.15	2.57	3.35	6.06	41.6	0.21	
24	2.82	0.72	0.53	0.14	0.16	0.32	0.3	0.65	1.88	1.02	0.75	0.2	0.19	0.13	0.42	0.2	0.44	0.34	0.8	10.5	11.3	6.01	6.68	3.55	2.08	11.3	0.13	
25	0.66	0.13	0.093	0.068	0.07	0.11	0.067	0.075	0.22	0.18	0.42	0.96	1.3	0.85	0.99	0.95	[RS]	[RS]	[RS]	[RS]	0.68	0.34	0.33	0.28	0.44	1.3	0.067	
26	0.14	0.14	0.092	0.15	0.082	0.068	0.11	0.18	0.22	1.79	1.78	0.93	0.73	1.08	0.65	0.81	0.46	0.44	0.4	0.12	0.059	0.16	0.14	0.041	0.45	1.79	0.041	
27	0.07	0.0047	0.0028	0.0005	0.029	-0.029	-0.08	-0.09	-0.042	-0.028	[IH]	[IH]	[IH]	[IH]	0.32	0.11	0.051	0.11	0.064	0.0048	-0.016	0.055	0.047	0.02	0.03	0.32	-0.09	
28	-0.0085	-0.007	0.0012	0.11	0.13	0.53	4.45	23.6	70.9	42.5	[IH]	[IH]	[IH]	[IH]	2.25	1.73	0.47	1.29	4.83	39	94.9	65.2	54.6	44.6	22.6	94.9	-0.0085	
29	25.8	3.51	0.95	2.09	0.54	2.28	2.78	11.3	32.5	27.1	12	4.02	2.44	1.61	1.1	0.93	0.91	0.71	0.48	0.55	0.12	0.17	0.15	0.13	5.59	32.5	0.12	
30	0.11	0.12	0.13	0.11	0.12	0.15	0.78	1.81	35.8	33.7	5.17	2.68	5.55	1.1	1.21	0.95	0.6	0.59	4.13	14.2	13.9	12.6	12.2	8.7	6.52	35.8	0.11	
AVG	2.43	1.12	1.24	0.47	0.3	0.79	1.73	6.03	20.8	11.3	5.36	3.76	3.18	2.89	2.77	2.47	2.91	3.2	3.52	6.13	8.33	6.35	5.35	4.2	3.9			
MAX	25.8	5.6	11.1	2.09	2.16	4.11	18.9	24.8	93.5	42.5	24.1	15	8.06	9.82	8.94	10.6	11.6	10.1	11.1	39	94.9	65.2	54.6	44.6	94.9			
MIN	-0.0085	-0.007	0.0012	-0.031	0.013	-0.029	-0.08	-0.09	-0.042	-0.028	0.34	0.2	0.12	0.13	0.32	0.11	0.051	-0.014	0.0097	0.0048	-0.016	0.019	-0.032	-0.032			-0.09	

TOTAL HOURS = 720, NUMBER OF GOOD HOURS = 606, NUMBER OF MISSING HOURS = 114, DATA_CAPTURE = 84.2 (PERCENT)

Variable: Year: Month: Level:

- Select variable, year, month and level
- Year will show a list of all the years where the selected Site has data
- It is possible to download the data to a delimited text file

5.2 Completeness

[Overview](#)
[Level 1](#)
[Level 2](#)
[Level 3](#)
[Month Overview](#)
[Completeness](#)
[Log](#)

Variable	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Q1	Q2	Q3	Q4	Year
H2S	32.6%	100%	100%	100%	100%	100%	100%	63.8%	11.1%	100%	100%	21.5%	58.2%
NO	32.6%	100%	100%	100%	100%	100%	84.2%	60.8%	11.1%	100%	94.8%	20.5%	56.6%
NO2	32.6%	100%	100%	100%	100%	100%	100%	64.2%	11.1%	100%	100%	21.6%	58.2%
NOx	32.6%	100%	100%	100%	100%	100%	100%	61.3%	11.1%	100%	100%	20.7%	58.0%
SO2	32.6%	100%	100%	100%	100%	100%	100%	61.3%	11.1%	100%	100%	20.7%	58.0%

Year:
 Month:
 Level 3
 details

All months selected.

Variable	September	Total	Valid
H2S	100%	4320	4320
NO	84.2%	4320	3636
NO2	100%	4320	4320
NOx	100%	4320	4320
SO2	100%	4320	4320

Year:
 Month:
 Level 3
 details

One month and details selected.

- Select year, month, level and details
- Year will show a list of all the years where the selected Site has data
- Details will show the counts behind the percentages
- It is possible to download the data to a delimited text file

5.3 Log

Overview Level 1 ▾ Level 2 ▾ Level 3 ▾ Month Overview Completeness Log

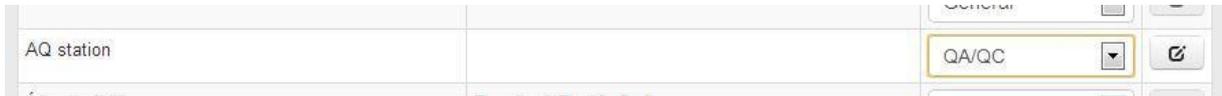
Date Range	Parameters Affected	Flag Descriptor
2012-08-05 00:00:00 - 2012-08-08 23:59:00	NO, NO2	AA-Sample Pressure out of Limits
2012-08-08 00:00:00 - 2012-08-10 23:59:00	NO, NO2	MC-Module End Cap Missing
2012-08-22 00:00:00 - 2012-08-29 23:59:00	H2S, NO	AJ-Filter Damage

Variable: ALL ▾ Start: 2012-08-01  Stop: 2012-08-31  Level 2 ▾ 

- Select variable, start and stop time and level

Appendix - Configuration

The Quality Control only needs to be configured once in the beginning which can only be done by users who have access to QC site setup. The configuration is accessed through the Quick View Setup configuration.



On the main QC site, the sites can be configured. For the station you wish to configure, select QA/QC from the select list and press the Edit button.

1. Site Configuration

AQ station

Level 2 Flags Level 3 Flags

Display All Variables

Display	Name
<input type="checkbox"/>	230 V bilun
<input checked="" type="checkbox"/>	H2S
<input type="checkbox"/>	H2S_Max
<input type="checkbox"/>	H2S_Min
<input type="checkbox"/>	Hamount_Avg
<input type="checkbox"/>	Hduration_Avg
<input type="checkbox"/>	Hintensity_Avg
<input type="checkbox"/>	Hiti í sól
<input type="checkbox"/>	Hurð opin
<input type="checkbox"/>	Hurð opnuð
<input type="checkbox"/>	Innihiti
<input type="checkbox"/>	Lofthiti
<input type="checkbox"/>	Loftraki
<input type="checkbox"/>	Lofþrýstingur
<input type="checkbox"/>	Loggerhiti
<input checked="" type="checkbox"/>	NO
<input checked="" type="checkbox"/>	NO2
<input type="checkbox"/>	NO2_Max
<input type="checkbox"/>	NO2_Min
<input checked="" type="checkbox"/>	NOx
<input type="checkbox"/>	NOx_Max
<input type="checkbox"/>	NOx_Min
<input type="checkbox"/>	NO_Max
<input type="checkbox"/>	NO_Min
<input type="checkbox"/>	PM 10

- Select the Level 2 and Level 3 flags
- Select which variables you wish to be able to correct. For example maintenance variables such as battery voltage would not be selected.

2. Flag Configuration

QC Flag Configuration

Flag Groups

- EPA [Level 2]
- EPA [Level 3]

Codes

Code	Description		
AA	Sample Pressure out of Limits		
AB	Technician Unavailable		
AC	Construction/Repairs in Area		
AD	Shelter Storm Damage		
AE	Shelter Temperature Outside Limits		
AF	Scheduled but not Collected		
AG	Sample Time out of Limits		
AH	Sample Flow Rate out of Limits		
AI	Insufficient Data (cannot calculate)		
AJ	Filter Damage		

+ Add **Edit** **Delete**

+ Add Code

Close

Users that have the QC flag setup access, can edit the Flag Configuration.

EPA is the default flag. It's possible to add new flag groups if necessary.