



PACE

Processing Assurance Control Equipment

Processing Assurance Control Equipment (PACE), PeroxyChem's real-time data technology, helps clients better understand and manage their antimicrobial program. Paired with the safety benefits of the Spectrum® system, PACE ensures that an intervention program is operating efficiently and effectively by capturing detailed information in one location.



www.peroxychem.com/poultry
513.305.3147

PACE provides remote intervention monitoring, range management with a variety of user permission levels and instant notifications via email, text message or local alarm when parameters are out of range. This touchscreen technology maximizes efficiency and product quality while meeting performance standards.

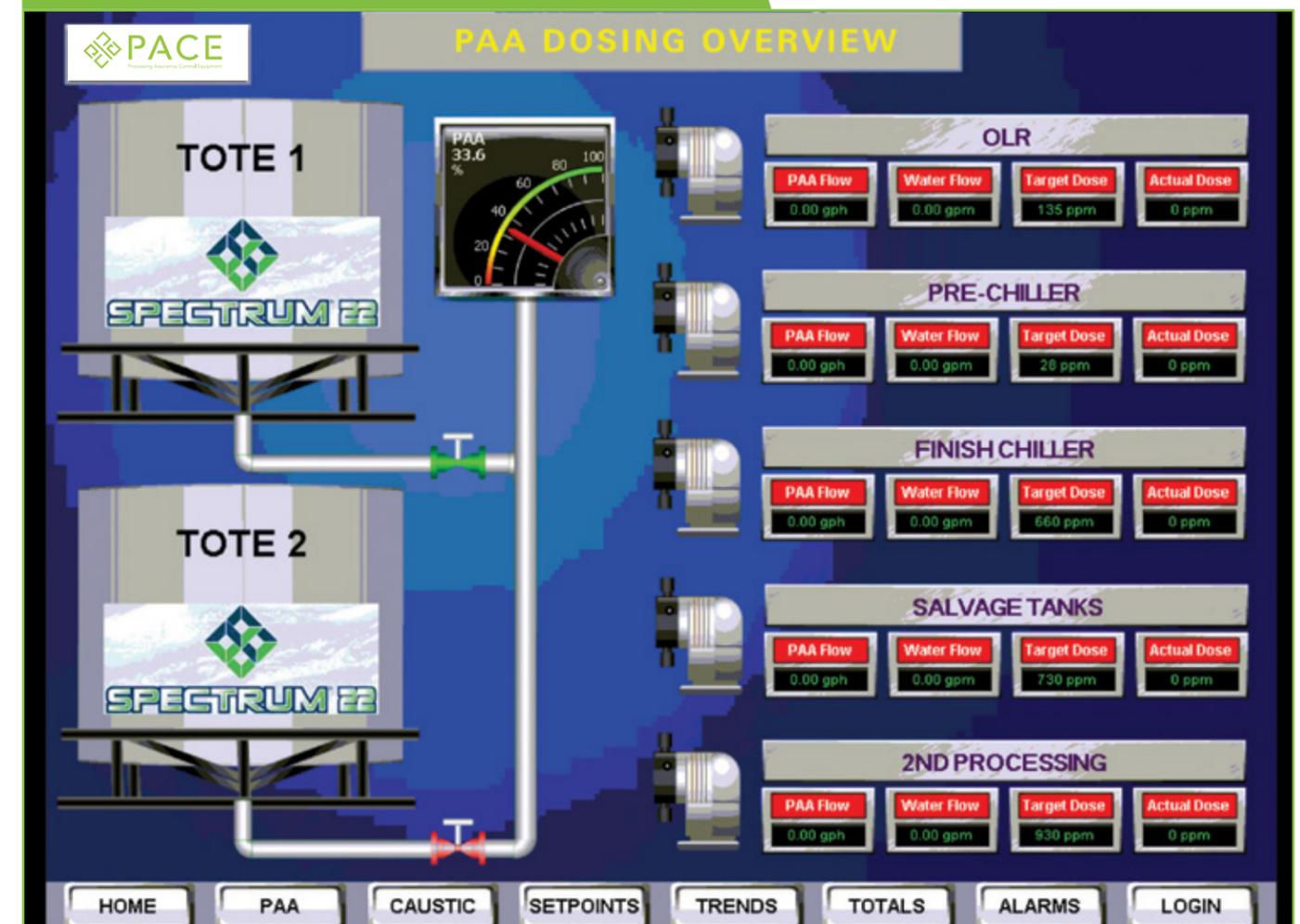
AUTOMATED DOSING

- Controlled dosage and dilution is managed through automated system
- System enables precise dosing and targeted concentrations
- Reduced manual adjustment results in less mistakes and fluctuations
- Secure login panel allows user to view the entire system prior to making changes
- Changes linked to individual user ensures proper personnel access and a record of adjustment

REAL TIME MONITORING AND REMOTE ACCESS

- Modify applications and monitor in plant on the convenient, centralized HMI screen
- Remotely view usage and concentrations in real time using website or mobile app
- Receive alarms and notifications via text, email, or locally when parameters are out of range so that immediate action can be taken
- Make changes remotely to applications if desired (administrative level only)

HMI Screen showing overview of PAA dosing in plant



HMI Screen showing PAA usage totals by day

WEEK 1 PAA WEEK 2 WEEK 3 WEEK 4

	5/ 7	5/ 8	5/ 9	5/10	5/11	5/12	5/13
PRE CHILLER	0.0	34.6	35.0	36.6	36.2	34.9	0.0
MAIN CHILLER A	0.0	5.0	13.3	14.6	11.3	10.0	0.0
MAIN CHILLER B	0.0	5.0	13.3	14.6	11.3	10.0	0.0
MAIN CHILLER C	0.0	0.2	1.8	14.3	11.3	9.9	0.0
FINISH CHILLER	0.0	81.8	84.2	85.5	84.0	78.6	0.0
2ND PROCESSING	0.0	65.6	59.8	56.7	70.3	67.2	10.4
DAY'S TOTAL	0.0 gal	192.2 gal	207.2 gal	222.4 gal	224.3 gal	210.5 gal	10.4 gal
CURRENT DAILY TOTAL	14.7 gal	3.7 gal	3.7 gal	3.7 gal	25.6 gal	14.1 gal	

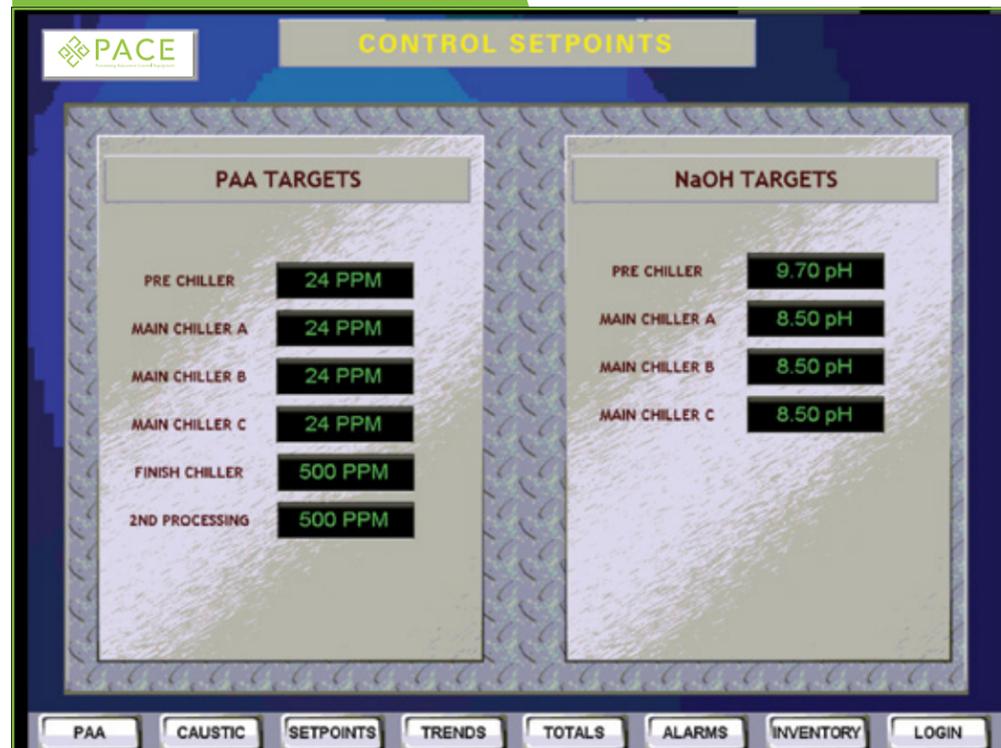
HMI Screen showing record of alarm output

ALARMS & EVENTS ACKNOWLEDGE ALARMS

DATE	TIME	DESCRIPTION	VALUE	STATE	OPERATOR
05/15	11:02	EAST MAIN CHILLER pH OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:59	2ND PROCESS WATER FLOW OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:58	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:55	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:54	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:47	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:46	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:45	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:45	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:44	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:44	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:42	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:41	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:40	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:40	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:34	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:26	EAST MAIN CHILLER pH OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:11	EAST MAIN CHILLER pH OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:10	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	10:09	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	10:08	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	09:55	2ND PROCESS WATER FLOW OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	09:54	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No
05/15	09:53	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	OFF	ACK_RTN	WONDERWAREIPC/No
05/15	09:52	EVIS DIPS PAA DOSING OUT OF RANGE ALARM	ON	UNACK	WONDERWAREIPC/No

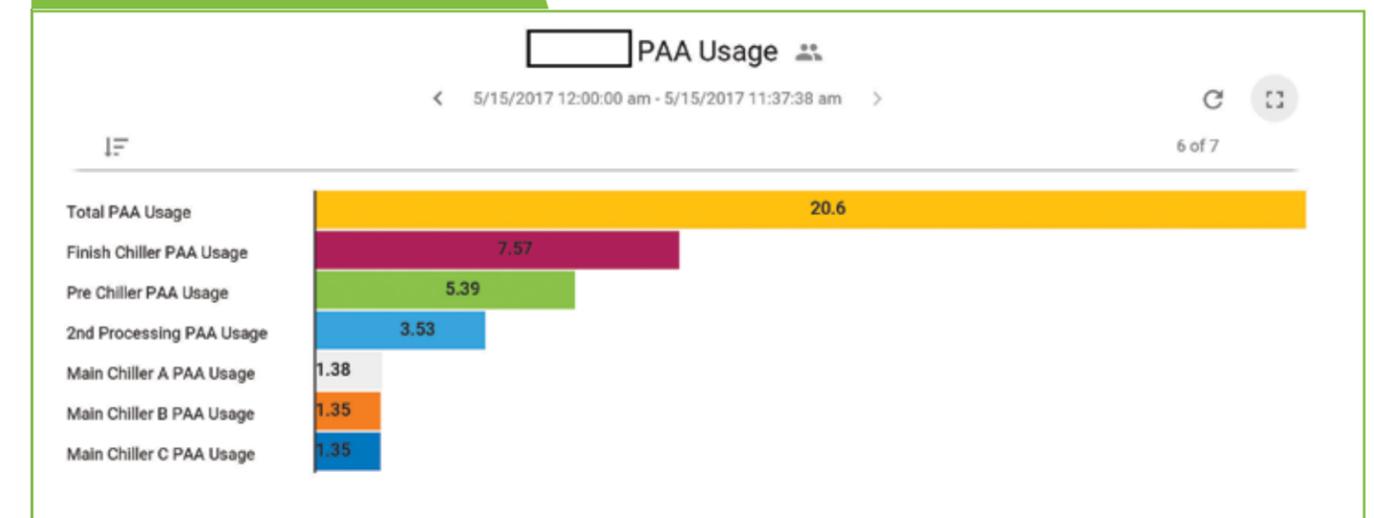
Update Successful Default Query

HMI Screen listing set points



PeroxyChem tailors the user's dashboard to a specific location or group of plants; from there, a selected plant can be examined in closer detail. The following screenshots are examples of the data that plants may find useful.

Daily snapshot of plant usage



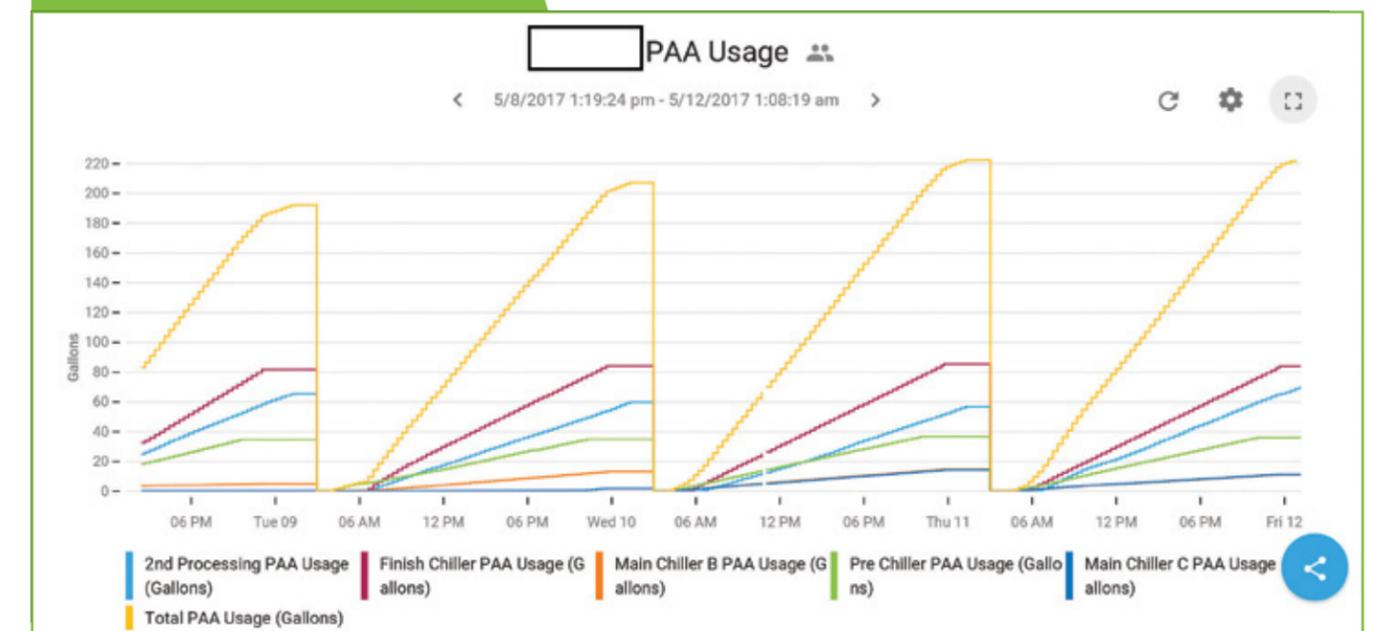
PACE ensures that intervention operating efficiently and effectively by capturing historical detailed information in one location.

HISTORICAL DATA

- The following standard graphs are provided for each location:
- PAA and Caustic Usage (hourly, daily, monthly and more)
- PAA concentration levels and dosing status
- pH levels and dosing status
- PAA flow (gph)
- Water flow to applications (gpm)
- Pump status
- Tote levels

Review the historical data to identify the concentration levels, verify pump operation and water flows, and correlate the data with the timepoint of interest. Usage data is beneficial in helping locations understand their patterns and improve efficiency.

Usage over past seven days



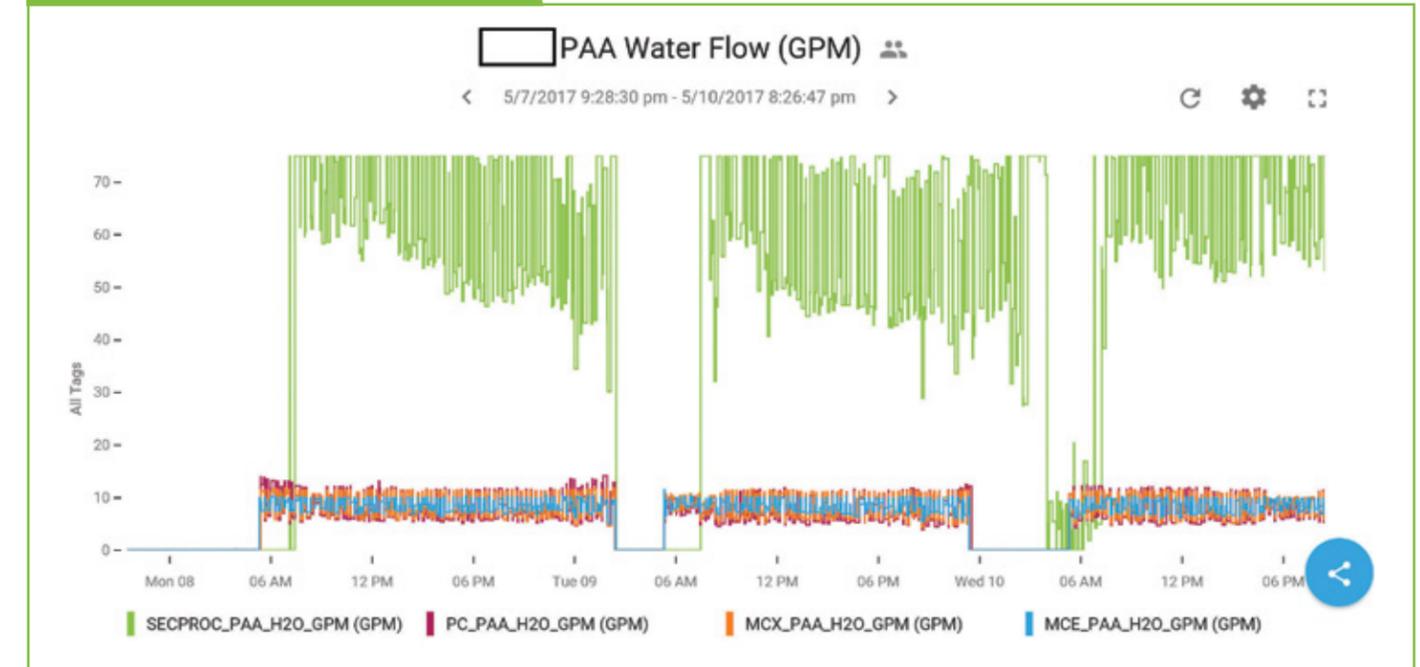
PAA concentration by application over hours, days, etc

PAA Dosing (PPM)

5/11/2017 12:00:00 am - 5/11/2017 11:46:14 am

5/11/2017 4:00:00 am	0	0	0	0
5/11/2017 5:00:00 am	0	0	15.308	13.975
5/11/2017 6:00:00 am	0	290.1	29.411	26.921
5/11/2017 7:00:00 am	299.7	517.8	29.51	27.014
5/11/2017 8:00:00 am	485.3	518.1	29.544	26.794
5/11/2017 9:00:00 am	485.5	518.2	29.551	26.805
5/11/2017 10:00:00 am	485.7	518.4	29.537	23.675
5/11/2017 11:00:00 am	486	518.5	29.429	19.719

Water flow to application (GPM)



Caustic concentration



PeroxyChem is committed to safety and standard features of the Spectrum system that remain the cornerstone of the antimicrobial intervention program.

PACE AUTOMATION

- Automated system greatly reduces manual operation, virtually eliminating visits to pumps
- Alarms alert users when applications are out of range
- Automated tote change function allows a plant to switch to a full tote automatically without handling the tote valve again after the initial hookup

REMOTE EQUIPMENT PLACEMENT

- Concentrated chemical is mixed and diluted before delivery to application points, preventing workers from being exposed to chemistry at high concentrations
- Locate totes and dispensing equipment remotely outdoors or in well-ventilated indoor non-production areas

CONTAINMENT

- Place pumping cabinets and totes in-use on appropriate containments with large enough capacity to handle full tote volume

CHEMICAL DISPENSING

- Enclosed cabinets
- Contained system
- Dedicated pumps for application(s)
- Flow sensor on every pump provides alarm tie-in option to customer for each application

MULTIPLE TOTE HEADER MANIFOLD

- Safer tote changes with less time constraints
- More effective dosing of multiple pumps with one tote

INJECTION MANIFOLD

- Centralized dosing location where concentrated chemical is diluted with water to target application concentrations
- Proper water pressure regulation
- Proper water flow settings
- Standardized location to turn ON/OFF water supply

MATERIALS OF CONSTRUCTION

The proper materials of construction **MUST** be used with the concentrated product; otherwise chemical leaks will occur in time and create hazardous and costly situations. The list of approved materials is extensive, and we take care to ensure that our equipment and delivery systems comply.

AIR QUALITY MONITORING

Upon installation or the addition of new applications, the Spectrum team takes air samples to ensure that air quality is not negatively impacted and that levels are within acceptable ranges.

As one component of the Spectrum Intervention Program—which includes installation and startup, product supply, technical support and on-site maintenance, among other services—PACE delivers features beyond the standard automation systems currently available on the market.

For more information, contact a Spectrum Sales Representative or Technology Development Manager at 513-305-3147, or visit PeroxyChem.com/Poultry.

