Waters™

アプリケーションノート

Solvent and Waste Monitoring

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This is an Application Brief and does not contain a detailed Experimental section.

Abstract

Solvent management is vitally important in a purification system, especially when the system is operated in an Open Access environment by multiple users. Software-based solvent and waste monitoring provides an

accurate and easy way to manage information for system users. User-programmable alarms and automatic corrective actions provide greater confidence in running the system unattended. Alerting users of a potential problems before they occur increases system efficiency, saving both time and money. We describe an example of such software with the Waters AutoPurification System.

Introduction

Purification systems have multiple solvent containers, so each one must be uniquely identified. These containers can have different volumes and warning levels, and multiple pumps may draw solvent from the same reservoir.

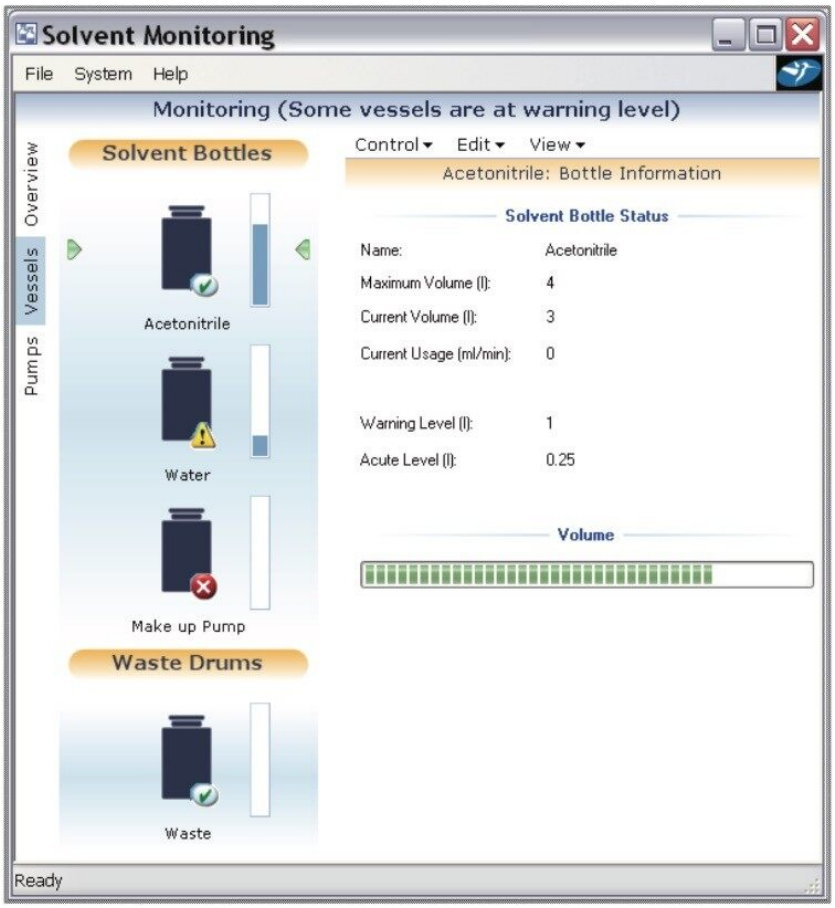

Figure 1. Each solvent container is identified. Initial and acute warning levels are entered in the vessel status page. The current volume of solvent in the 4L acetonitrile container is 3L, with an initial warning level of 1L and an acute level of 0.25L.

Once the various reservoirs have been set up, all of the solvent level information is conveniently available via a single screen in MassLynx Software.

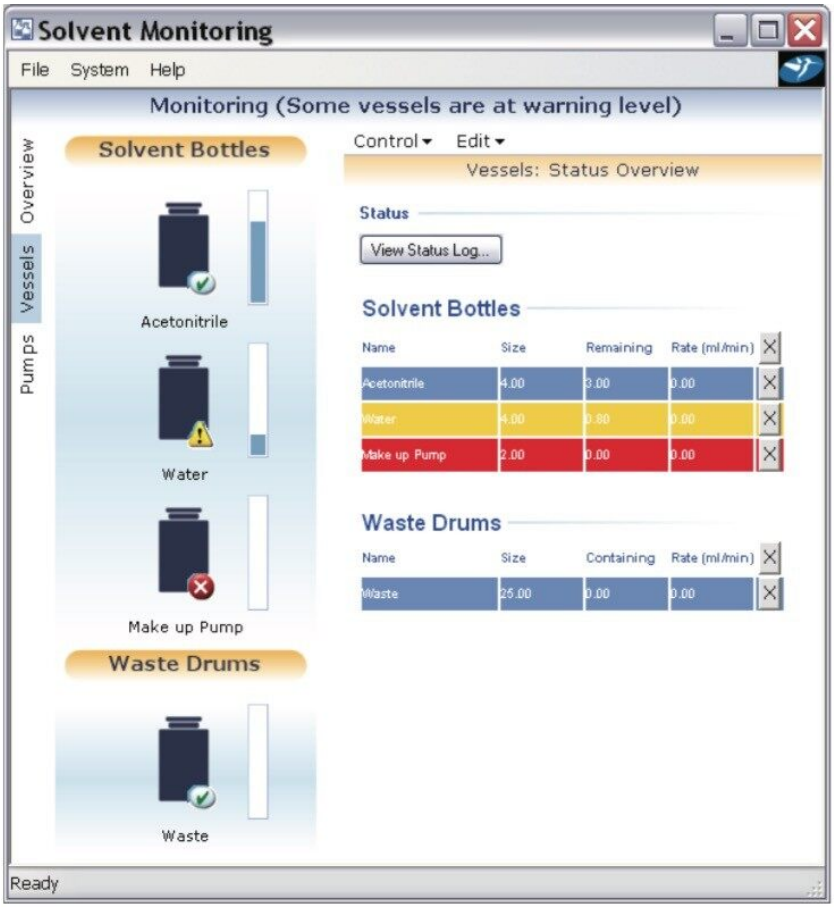

Figure 2. Individual containers indicate different status levels: "OK", "warning level" reached, and "acute level" reached.

Email notification is available when a status level has been reached. Two messages may be automatically sent: when the warning level is reached (1L), and when the acute level is reached (0.25L).

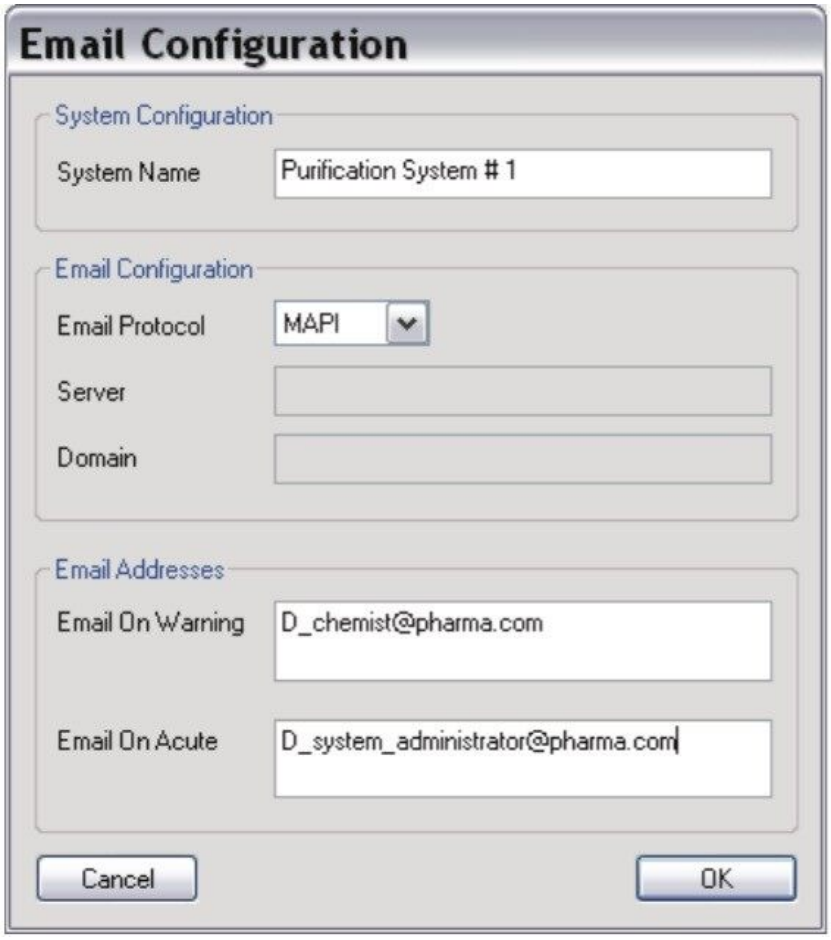

Figure 3. Email settings with different contact options, depending upon the solvent level status.

The administrator can then fill the reservoir or empty the waste container and reset the value as necessary.

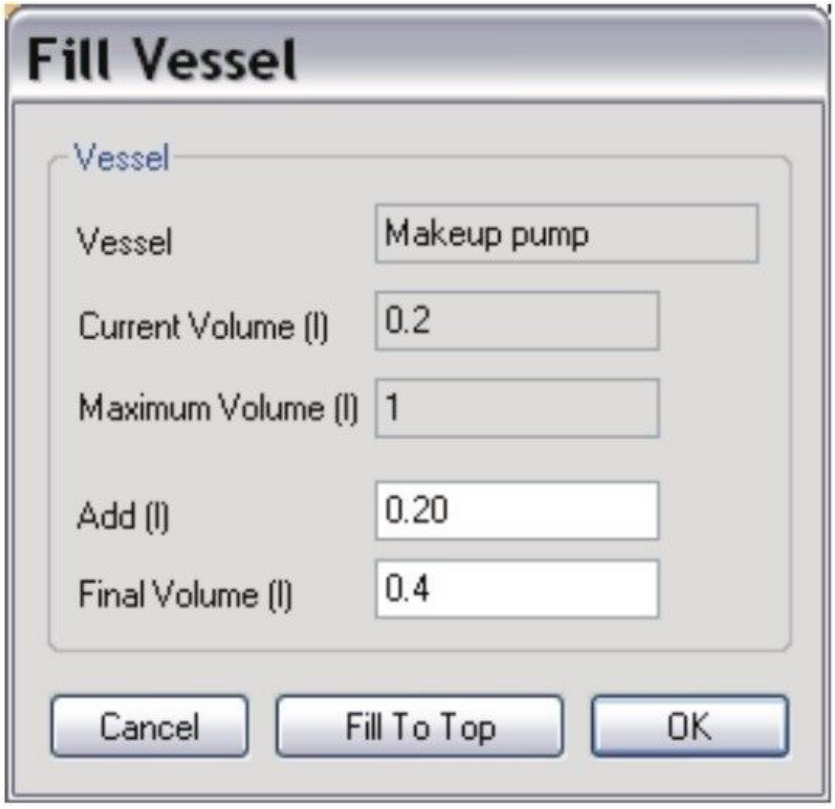

Figure 4. The reservoir refill page for the makeup pump that has reached the acute warning level.

In addition to sending an email message, the software can also automatically initiate the shutdown process determined by the administrator.

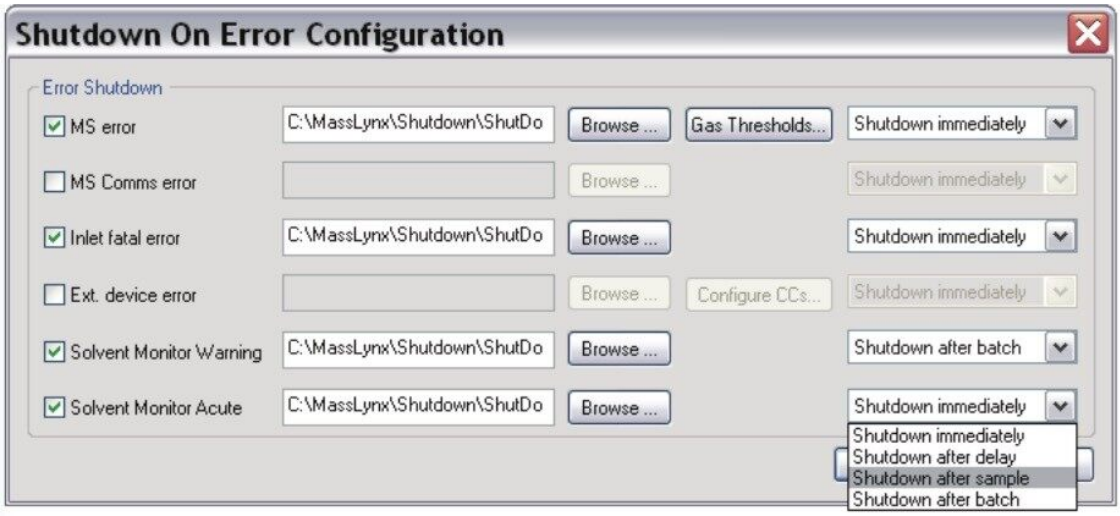

Figure 5. Shutdown can initiate "shutdown after batch" at the warning level and, "shutdown after injection" or "shutdown immediately" at the acute level.

The included Remote Status Monitor software tracks the sample queue, instrument and solvent status from any networked PC. This allows for greater efficiency as the user doesn't have to physically return to the system for status checks.

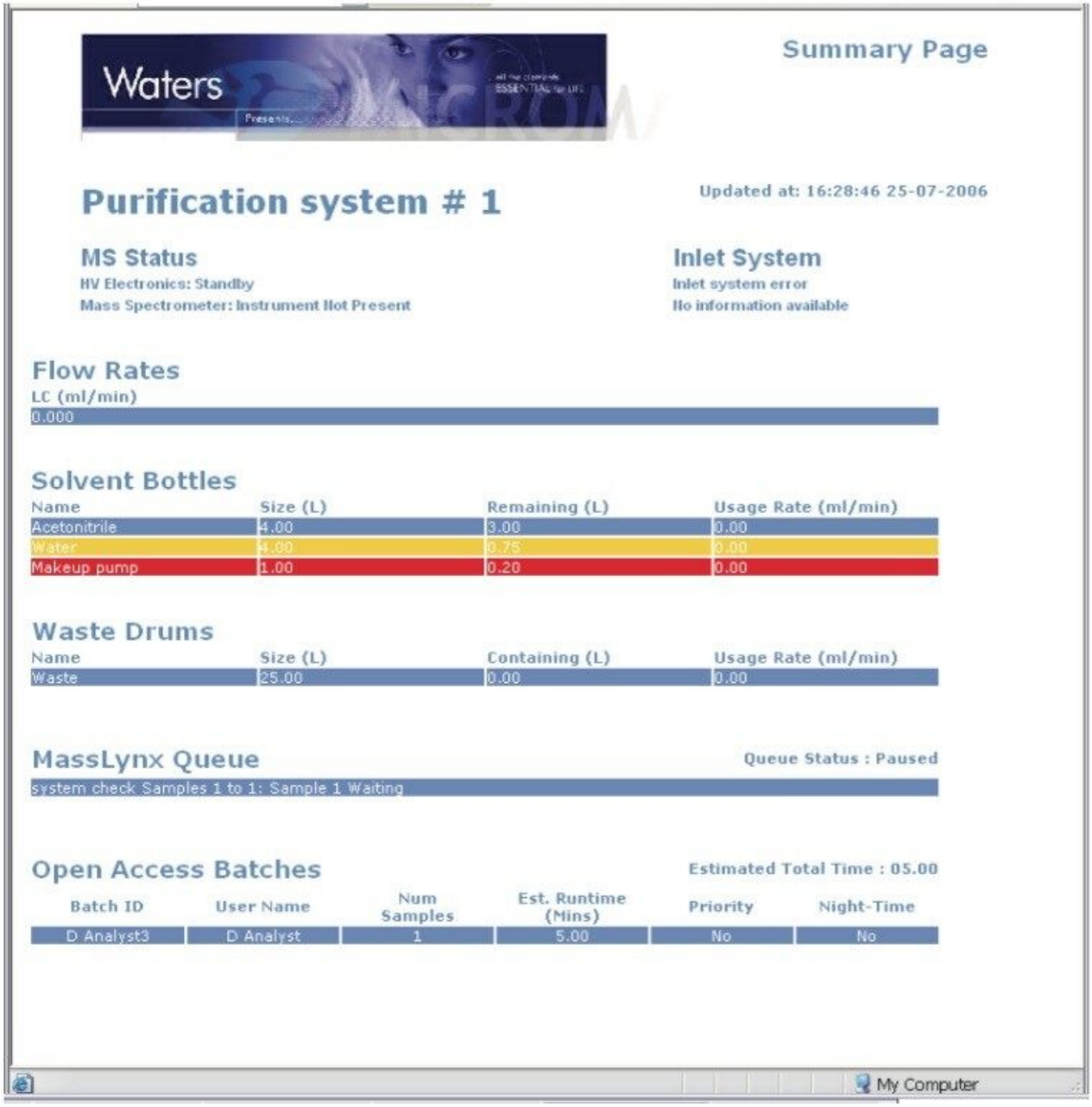

Figure 6. Remote Status Monitor provides users access to instrument status information remotely.

Conclusion

Solvent and waste monitoring should be an integral part of any purification system. As demonstrated, real-time solvent and waste monitoring, and the ability to automatically implement corrective action can prevent

costly interruptions and the loss of valuable samples.

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AutoPurification System <https://www.waters.com/10007147>

MassLynx MS Software <https://www.waters.com/513662>

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