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Improving Operations Reliability Through Upset Management Controls

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ABSTRACT

Reliable operation of midstream processes is frequently challenged by a variety of disturbances from both external and internal sources. Many of these disturbances impair operations or result in partial or complete shutdowns. In manned facilities, these types of shutdowns result in reduced efficiency, downtime, and even safety hazards which may occur as a result of abnormal conditions. In unmanned facilities, callouts are required and some substantial delay usually occurs before an operator can begin rectifying the situation.

Upsets affect many types of process and transportation systems, including compression, gas treating, NGL recovery, condensate stabilization, and NGL fractionation. The following are some examples of upset conditions that are addressed in this paper:

- Rotating machinery trips
- Process heating system trips
- Refrigeration load trips
- Liquid slugs at facility inlets
- Pipeline pressure changes

These events may cause a cascade of events that can have a severe impact on production, equipment reliability, and safety if not handled correctly and in a timely manner. Automation strategies to mitigate upset effects can be complex or as simple as mimicking the actions of a very fast, very skillful operator. Specific control strategies are discussed that can help minimize the negative impact of these types of upsets.

(for further reading on this topic - contact Barry D. Payne & Associates, Inc. at www.bdpayne.com)