

## Filthy 15 Causes of Errors and Accidents for Pipeliners

Studies show that human error contributes to 80–90% of accidents. Even skilled, well-intentioned individuals can make mistakes due to misinterpretation, limited information, or poor decision-making under pressure.

The “Filthy 15” highlights the common human factors that influence how individuals think, act, and respond in both work and home environments, helping individuals recognize and manage these risks before they lead to errors.

### What are the Filthy 15?

The “Filthy 15” represent the most common human factors that contribute to errors and incidents:

1. Stress
2. Fatigue
3. Inability to Admit Limitations
4. Lack of Professionalism
5. Complacency
6. Distractions
7. Lack of Assertiveness
8. Lack of Communication
9. Norms
10. Lack of Awareness
11. Lack of Knowledge
12. Lack of Resources
13. Lack of Teamwork
14. Lack of Operational Integrity
15. Pressure

The Filthy 15 training is grounded in decades of human factors research and lessons learned from high-consequence industries such as aviation, nuclear, and pipeline operations. These industries have consistently demonstrated that the majority of incidents are not caused by a lack of technical skill, but by breakdowns in non-technical skills such as communication, situation awareness, decision-making, and teamwork.

Over time, the Filthy 15 has evolved into a simple but powerful model that helps individuals recognize the underlying human factors that contribute to errors.

The Filthy 15 serves as a practical foundation for improving human performance, strengthening team effectiveness, and reducing error across both routine and high-consequence operations.



## Pipeline Performance Group, LLC (PPG)

PPG developed the Filthy 15 course by translating well-established human factors principles into a practical, relatable framework tailored specifically for pipeline operations and control room environments. The course reflects real-world challenges observed through hundreds of control room visits, workload assessments, and control room management (CRM) engagements.

## Course Objectives

- Introduce the “Filthy 15” and their role in human factors and human performance
- Explain how the Filthy 15 integrate into safety management systems and control room team training, aligning with the non-technical skills required for Controllers and supporting personnel
- Demonstrate practical application, using real-world examples from PPG’s experience to show how these concepts can be implemented effectively
- Equip participants with a simple, actionable risk management tool applicable to both operational environments and everyday situations

These objectives ensure participants can recognize, understand, and actively manage the human factors that influence performance and risk.

## Filthy 15 Training Formats

We deliver Filthy 15 training through multiple formats, including in-person classroom sessions, interactive instructor-led virtual training, and an upcoming online self-paced course, providing flexibility to meet operational needs.

The program incorporates a range of engaging learning methods, including instructor-led presentations, printed reference materials (for live sessions), real-world scenarios and case-based discussions, video content, and knowledge assessments designed to reinforce understanding and promote practical application.

## Contact

**Michele Terranova, Ph.D.**, Principal, [info@pipelineperformancegroup.com](mailto:info@pipelineperformancegroup.com)

