

# Engineering Ethics: The Volkswagen Scandal

## Senior Project Class Assignment

Fall 2017 (October 11, 2017)

### Background

The **Volkswagen emissions scandal** (also called "**emissionsgate**" or "**dieselgate**") started in September 2015, when the United States Environmental Protection Agency (EPA) issued a notice of violation of the Clean Air Act to German automaker Volkswagen Group. The agency had found that Volkswagen had intentionally programmed turbocharged direct injection (TDI) diesel engines to activate some emissions controls only during laboratory emissions testing. The programming caused the vehicles' NO<sub>x</sub> output to meet US standards during regulatory testing but emit up to 40 times more NO<sub>x</sub> in real-world driving. Volkswagen deployed this programming in about eleven million cars worldwide, and 500,000 in the United States, during model years 2009 through 2015.

Full details of how it worked are sketchy, although the EPA has said that the engines had computer software that could sense test scenarios by monitoring speed, engine operation, air pressure and even the position of the steering wheel.

When the cars were operating under controlled laboratory conditions - which typically involve putting them on a stationary test rig - the device appears to have put the vehicle into a sort of safety mode in which the engine ran below normal power and performance. Once on the road, the engines switched out of this test mode. What has been VW's response?

"We've totally screwed up," said VW America boss Michael Horn, while the group's chief executive at the time, Martin Winterkorn, said his company had "broken the trust of our customers and the public". Mr. Winterkorn resigned as a direct result of the scandal.

"My most urgent task is to win back trust for the Volkswagen Group - by leaving no stone unturned," Mr. Mueller said on taking up his new post.

With VW recalling millions of cars worldwide from early next year, it has set aside €6.7bn to cover costs. That resulted in the company posting its **first quarterly loss** for 15 years of €2.5bn in late October.

From Wikipedia description of Volkswagen emissions scandal at [https://en.wikipedia.org/wiki/Volkswagen\\_emissions\\_scandal](https://en.wikipedia.org/wiki/Volkswagen_emissions_scandal) and also from <http://www.bbc.com/news/business-34324772>

### Assignment 1:

**Using the IEEE Code of Ethics (list of ten ethical principles); identify which of the ten IEEE principles were violated by Volkswagen in the emission scandal.**

You can find the IEEE Code of Ethics at <http://www.ieee.org/about/corporate/governance/p7-8.html> or from the slide set on Engineering Ethics; D. B. Estreich.

Please submit your assignment through Moodle AND give a **hardcopy** to your instructor.