ANALISIS PENGENDALIAN KUALITAS CACAT PRODUK TABUNG GAS LPG 3 KG MENGGUNAKAN METODE *SIX SIGMA*

Alfa Afnan Yazid., Yohannes Anton Nugroho
Program Studi Teknik Industri, Fakultas Sains dan Teknologi
Universitas Teknologi Yogyakarta

ABSTRAK

PT Petrogas Prima Services merupakan salah satu anak perusahaan PT Pertamina (Persero) yang bergerak dalam aktivitas niaga produk-produk non BBM dan mengoperasikan Stasiun Pengisian Bulk Elpiji (SPBE). Pada produk tabung LPG 3 kg terdapat beberapa kendala yang menyebabkan tabung LPG 3 kg menjadi *reject* seperti bocor *neckring*, bocor *circum*, bocor *body*, bocor *valve*, dan kurang kencang dengan total presentase *reject* sebesar 2,4 % dari *defect* sebanyak 2.440 unit dari 107.958 unit produksi selama bulan Oktober 2019. Akibatnya akan mengurangi *revenue* sebesar 65,06 % dari total *afkir* yang disediakan oleh Pertamina. Pengendalian kualitas dapat dijadikan tolak ukur kinerja sistem industri yang memungkinkan perusahaan melakukan peningkatan proses produksi menuju *zero defect* produk dengan analisis DMAIC *(Define, Measure, Analyze, Improve, Control*). Pengendalian kualitas yang perlu dilakukan adalah dengan tujuh alat bantu (*Seven Tools*) yang merupakan tujuh alat sederhana yang dipakai untuk membantu menganalisa masalah/fakta. Ketujuh alat ini adalah Lembar Pengumpul Data (*Check Sheet*), Stratifikasi, Grafik dan Bagan Pengendalian (Peta Kontrol), Diagram Pareto, Diagram Sebab-Akibat, Diagram Pencar, dan Histogram. Kemudian didapat hasil perhitungan DPMO selama satu bulan dengan tingkat rata-rata dapat diketahui bahwa kapabilitas proses sigma adalah 4,11 dengan kemungkinan kerusakan sebesar 4.712,74 untuk satu juta produksi. nilai *sigma* perusahaan PT Petrogas Prima Services termasuk kedalam rata-rata industry di USA.

Kata Kunci: *Six Sigma*, Seven *Tools*, kualitas, tabung gas

QUALITY CONTROL ANALYSIS OF DEFECTS IN THE PRODUCTS OF 3 KG LPG GAS TUBES USING SIX SIGMA METHOD

Alfa Afnan Yazid., Yohannes Anton Nugroho
Industrial Engineering Study Program, Faculty of Science and Technology
University of Technology Yogyakarta

ABSTRACT

PT Petrogas Prima Services is a subsidiary of PT Pertamina (Persero) which is engaged in trading activities of non-fuel products and operates an LPG Bulk Filling Station (SPBE). In 3 kg LPG cylinder products, there are several obstacles that cause 3 kg LPG cylinders to become rejects such as neckring leaks, circum leaks, body leaks, leaking valves, and not tight with a total reject percentage of 2.4% from the defect of 2,440 units from 107,958 units production during October 2019. As a result, it will reduce revenue by 65.06% of the total rejects provided by Pertamina. Quality control can be used as a benchmark for industrial system performance that enables companies to improve production processes towards zero defect products with DMAIC analysis (Define, Measure, Analyze, Improve, Control). Quality control that needs to be done is with seven tools (Seven Tools) which are seven simple tools used to help analyze problems / facts. These seven tools are the Data Collection Sheet (Check Sheet), Stratification, Control Charts and Charts (Control Maps), Pareto Diagrams, Causal Diagrams, Scatter Diagrams, and Histograms. Then the DPMO calculation results obtained for one month with an average level can be seen that the capability of the sigma process is 4.11 with a possible damage of 4,712.74 for one million production. PT Petrogas Prima Services' company sigma value is included in the industry average in the USA.

Keywords: *Six Sigma, Seven Tools, quality, gas cylinders*

DAFTAR PUSTAKA

[1] Ariani, D.W. 1999. *Manajemen Kualitas*. Jakarta: Erlangga.

Damayanti, R.W., & Lady, A.I. 2018. Pengendalian Kualitas Tas Tali Batik dengan Menggunakan Metode Six Sigma. Universitas Sebelas Maret.

[2] Garvin, D. 2001. *Manajemen Mutu Terpadu (Total Quality Management)*. Jakarta: Ghalia Indonesia.

[3] Gasperz, V. 2002. *Pedoman Implementasi Six Sigma*. Jakarta: PT Gramedia Pustaka Utama.

[4] Gasperz, Vincent. 2003. Metode Analisis Untuk Peningkatan Kualitas. Jakarta: PT Gramedia Pustaka Utama. [5] Ishikawa, K., & David, J.L. 1990. Pengendalian Mutu Terpadu (H.W. Budi Santoso, Penerjemah). Bandung: Prenhallindo.

[6] Jaiganesh, & Evanglyne, B. 2018. Realizing Improvement In Quality by Applying Six Sigma Methodology A Foundry Based Cased Study. International Journal of Engineering Research and Technology (IJERT), Vol. 7, No. 7.

[8] Novirani, D., Fakhrudin, F.D.F & Harsono, A. 2015. Usulan Perbaikan Peningkatan Kualitas Proses Pengisian Tabung Gas Elpiji 3 kg Menggunakan Metode Six Sigma. Jurnal Online Institut Teknologi Nasional (Itenas) Bandung, Vol. 3, No. 2.

[9] Retnaningsih, S.M., & Cahyani, F.I. 2015. Analisis Pengendalian Kualitas Proses Pengantongan Semen di PT Semen Indonesia (Persero) Tbk dengan Pendekatan Six Sigma. *Jurnal Teknik Industri*, Vol. 4, No. 2.

]10] Sanny, A. F., Mustafid & Hoyyi, A. 2015. Implementasi Metode Lean Six Sigma Sebagai Upaya Meminimalisasi Cacat Produk Kemasan Cup Air Mineral 240 ml (Studi Kasus Perusahaan Air Minum). Jurnal Teknik Industri, Vol. 4, No. 2.

[11] Srinivisari, K., Muthu, S., Devadasan, S.R., & Sugumaran, C. 2016. Enhancement Of Sigma Level In The Manufacturing Of Furnace Nozzle Through DMAIC Approach Of Six Sigma: a case study. Journal Production Planning & Control, p. 1-13.

[12] Sulistyarini, D.H., & Cahyawati, A.N. 2017. Analisis Pengendalian Kualitas Proses Pengantongan Semen. Jurnal Teknik Industri. Universitas Brawijaya.

[13] Valase, K., & Kankariya, P. 2017. Performance Improvement In Garment Industries By Reducing Defects Using Six Sigma Methodologies. International Journal of Scientific Research Engineering & Technology (IJSRET), Vol. 6, No. 3.