



**IMPLEMENTATION OF PDCA METHOD TO
MINIMIZE THE CUSTOMER COMPLAINTS ON
MAINTENANCE AT PT AIR LIQUIDE INDONESIA**

UNDERGRADUATE FINAL PROJECT

**Submitted as one of the requirements to obtain Sarjana Teknik
(S.T.)**

**By
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004201900033**

**FACULTY OF ENGINEERING
INDUSTRIAL ENGINEERING STUDY PROGRAM
CIKARANG
JUNE, 2023**

PANEL OF EXAMINER APPROVAL

The Panel of Examiners declare that the undergraduate thesis entitled **“Implementation of PDCA Method to Minimize the Customer Complaints on Maintenance at PT Air Liquide Indonesia”** that was submitted by Najmia Latifarani majoring in Industrial Engineering from the Faculty of Engineering was assessed and approved to have passed the Oral Examination on June 7th, 2023.

Panel of Examiner



Johan Krisnanto Runtuk, S.T, M.T

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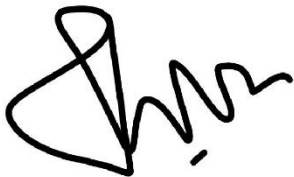
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Examiner I

THESIS ADVISOR
RECOMMENDATION LETTER

This final project entitled “**Implementation of PDCA Method to Minimize the Customer Complaints on Maintenance at PT Air Liquide Indonesia**” prepared and submitted by **Najmia Latifarani** in partial fulfillment of the requirements for the degree of Bachelor Degree in the Faculty of Engineering has been reviewed and found to have satisfied the requirements for a thesis fit to be examined. I therefore recommend this final project for Oral Defense.

Cikarang, Indonesia, June 22th, 2023



Ir. Andira Taslim, M.T

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In my capacity as an active student of President University and as the author of final project stated below:

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Study Program : Industrial Engineering
Faculty : Engineering

I hereby declare that my final project entitled “**Implementation of PDCA Method to Minimize the Customer Complaints on Maintenance at PT Air Liquide Indonesia**” is to the best of my knowledge and belief, and original piece of work based on sound academic principles. If there is any plagiarism detected in this final project, I am willing to be personally responsible for the consequences of these acts of plagiarism, and will accept the sanctions against these acts in accordance with the rules and policies of President University.

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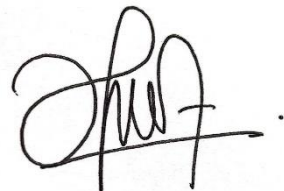
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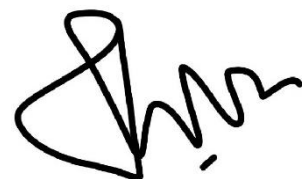
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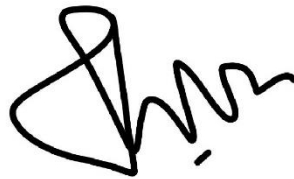
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MAINTENANCE AT PT AIR LIQUIDE INDONESIA**

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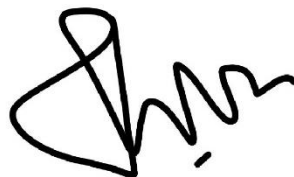
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ABSTRACT

PT. Air Liquide Indonesia provides a service namely corrective maintenance for every customer. There was an increasing corrective maintenance rate of 35% with an increase of 9 cases from January-March 2023. If these increases continue to occur, it will result in unexpected expenses and reduce customer trust. The objective of this study is to identify the root causes of corrective maintenance cases and develop effective strategies to reduce such occurrences and ultimately improve equipment reliability, operational efficiency, and customer satisfaction. This increasing occurred and three common problems were seen, namely reduction popping at PSV metering station, leak from top and bottom valve, and pressure building tank leak. These three problems become parameters for analysis of causes and consequences. This research uses the PDCA method by four stages of PDCA. The implemented improvements are spare part check with check sheet of spare parts and additional note for Work Instructions of shutoff valve. The result of the improvement is 17% reduction of customer complaints or corrective maintenance cases. With there is no repeating in three common problems, except in pressure building tank leak has one case after implementation of improvement. By this research, PT Air Liquide Indonesia saved the cost of IDR 29,720,376 in April 2023.

Keywords: PDCA method, corrective maintenance, customer satisfaction, preventive maintenance, continuous improvement, maintenance processes.

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7. Other than that, I cannot mention one by one. Thank you for all support, help, and attention that given to me.

Sincerely,

Najmia Latifarani

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LAR (Liquid Argon)	Gas in liquid form This form of liquefied gas, Argon (Ar), is generated in enormous numbers and volumes in air separation facilities that filter, split, and liquefy the air into the gas types Oxygen (O ₂), Nitrogen (N ₂), and Argon (Ar).
LIN (Liquid Nitrogen)	Nitrogen (N ₂) is a colorless, odorless, and tasteless gas that is frequently utilized as an inert gas due to its reactive tendency with many materials. Nitrogen (N ₂) gas is utilized in the chemical and petrochemical industries, the rubber and plastics sectors, polymer cooling and recycling processes, and electronic components.
LOX (Liquid Oxygen)	Oxygen (O ₂) is a chemical element that is used in the medical world, health and medicine is needed by patients who need breathing assistance. Oxygen does not burn but can help combustion (is an oxidizing agent), and is very necessary for the survival of living things.
Passing	There is a leak in the mainline
Pressure Safety Valve	A type of safety valve used to control or restrict system pressure.

