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Evaluation of the Internal Control System in Minimizing the Level of Water Production Loss in the Regional Drinking Water Company of Parepare City

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Abstract

An Internal Control System is an organizational structure, methods, and measures coordinated to safeguard organizational assets, check the accuracy and reliability of accounting, promote efficiency, and encourage compliance with management policies. To create internal control within a company, it is necessary to establish an organizational structure that clearly separates functional responsibilities. The elements that need to be designed are a system of authority and recording procedures that provide adequate protection for assets, debts, income, and expenses. The purpose ofThis research is to determine the evaluation of the internal control system in minimizing the level of water production loss at PDAM Parepare City. The data collection techniques used in this study were interviews, observation, and documentation. The informants in the study were six people, including PLT SPI, Customer Relations Manager, Engineering and Operations Manager, Assistant Production and Processing Manager, and two meter readers. The data analysis technique used in this study was qualitative analysis. After going through the analysis process, it was found that the internal control system implemented by PDAM Parepare City had been implemented according to the SPI indicators, namely organizational structure, authority system, recording procedures, healthy practices, and competent employees.

Keywords: *Internal Control System, Regional Drinking Water Company, Water Production Loss Level.*

INTRODUCTION

Water is a natural resource with a vital function and is a vital environmental component for the survival of humans and other living things. Without it, humans will die within a few days. Humans need clean, healthy water for their daily needs. To meet these needs, good water management is needed to serve the community. In accordance with the 1945 Constitution Article 33 paragraph (3), which reads as follows: "The land and water and the natural resources contained therein are controlled by the state and used as much as possible for the prosperity of the people." Therefore, water is a national resource that concerns the lives of many people, so its management is held by the government. Article 10 of Law No. 22 of 1999 concerning Regional Government states that regions have the authority to manage regional resources available in their areas, and are responsible for maintaining environmental sustainability in accordance with laws and regulations. The Parepare City Water Company is a company that aims to supply clean water to the people of Parepare. It is a company that has a monopoly on producing clean water for the needs of the community. While other goals are to participate in developing the economy to support regional development by expanding employment opportunities, as well as seeking profit as the main source of financing for the region. In order to achieve good service, companies are faced with determining strategies for managing their businesses.

Internal Control System is an organizational structure, methods, and measures that are coordinated to safeguard the organization's assets, check the accuracy and reliability of accounting, promote efficiency, and encourage compliance with management policies. To create internal control in a company, it is necessary to establish an organizational structure that clearly separates functional responsibilities and elements that need to be designed are a system of authority and recording procedures that provide adequate protection for assets, debts, income, and expenses. In the organization, every transaction only occurs on the basis of authorization from an official who has the authority to approve the transaction.

Therefore, an organization must establish a system that regulates the division of authority for authorizing each transaction. Good recording procedures will ensure that data recorded on forms is recorded in accounting records with a high degree of accuracy and reliability.

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METHODS

This research is qualitative in nature based on the characteristics to be studied by presenting an explanatory description of the data on the level of water loss by studying the results of interviews and documentation data obtained from PDAM Parepare City to understand the situation and condition of the research object, then analyzing and evaluating the problems that exist in the internal inventory control system at PDAM Parepare City from 4 (four) indicators, namely organizational structure, authority system and recording procedures, healthy practices, and competent employees.

This analysis is conducted continuously from the beginning of the research and throughout its duration. Therefore, from the time data is obtained, whether from the field or from observations, interviews, or documentation, it is studied, summarized, reviewed, and analyzed until the end. This involves several research steps, including data collection, data presentation, data reduction, and conclusion.

RESULTS AND DISCUSSION

An Organizational Structure that Clearly Separates Functional Responsibilities

Based on the decision of the Director of PDAM Parepare City Number 32/PDAM/X/2016, there is a transmission and distribution manager section, and a meter maintenance and repair section, which in terms of organizational structure, are under the engineering and operations manager.

In carrying out the division of responsibilities to the units to carry out the company's main activities well, the organizational units related to the internal control system in minimizing the level of loss of water production used in PDAM Parepare City are:

1. Transmission and Distribution Section, this section is responsible for:
   a. Maintain the entire transmission and distribution pipeline network.
   b. Implementing and regulating the even distribution of water through transmission and distribution pipes.
   c. Carrying out repairs to damaged (leaking) networks and regulating the functions of the pipe network and its valves.
   d. Carrying out disconnection/permanent closure for customers who are in arrears and commit violations.
   e. Ensure that orders for the construction of subscription connections can be carried out in accordance with the drawings and planned time.
   f. Organize, develop, evaluate, and assess the performance of direct subordinates;
   g. Establish coordination with related officials to support the implementation of their main duties and functions.
   h. Making reports and organizing all administration related to the implementation of main tasks and functions, including letters with copies.
   i. Provide advice and considerations to direct superiors.
   j. Carry out other tasks assigned by direct superiors.

2. Meter Maintenance and Repair Section, this section is responsible for:
   a. Prepare a routine maintenance/testing/cleaning schedule for all water meters installed at the customer's premises.
   b. Conduct water meter testing on subscribers who are testing meters or newly repaired water meters to find out whether they are functioning normally.
   c. Carrying out repairs to water meters that are damaged or not functioning normally (jammed, blurry, and not clearly legible) and supervising the installation of sealed water meters at the customer's location.
   d. Guarantee that every water meter functions normally.
   e. Organize, develop, evaluate, and assess the performance of direct subordinates;
   f. Establish coordination with related officials to support the implementation of their main duties and functions.
   g. Making reports and publishing all administration related to the implementation of the main tasks and functions, including letters with copies.
   h. Provide advice and considerations to direct superiors.
   i. Carry out other tasks assigned by direct superiors.

This means that the Parepare City Water Company (PDAM) has separated functions and assigned responsibility to one function to carry out all stages to minimize water production losses. This is as stated by research respondents.

Authority System and Recording Procedures

The Parepare City Water Company (PDAM) sometimes uses a "shoot-and-shoot" system during the monthly water billing process due to locked gates, aggressive sniffer dogs, lost meters, and buried meters. Therefore, the Parepare City PDAM implements internal controls by verifying data. Data verification aims to determine the accuracy of the meter reader's report results when recording the customer's water meter according to the photo and meter readings from last month.

Healthy Practices in Carrying Out the Duties and Functions of Each Organizational Unit

PDAM Parepare City carries out the duties and functions of each organizational unit well due to timely control activities carried out by employees, and conducting regular performance evaluations both by SPI and the company, providing rewards and sanctions to violators, completing tasks on time can help achieve company goals. However, in making decisions related to customers who commit violations, if there is no surprise inspection or evaluation of violations, it increases the opportunity for customers to commit fraud. As has happened with the loss of water production at PDAM Parepare City from 2022 to 2023 has increased. In 2024, the level of water production loss can be minimized.

As mentioned in the previous chapter, the level of water production loss can generally occur due to two factors, namely:

1. Physique

Loss of water production due to physical factors includes general theft, illegal pipes/connections, jammed meters, water meters, broken seals, meter reversals, leaking pipe equipment, holes or gaps in pipes and their connections, broken pipes in the distribution network, and poorly installed water meters so that the figures shown on the meter are smaller than the actual usage amount.

2. Non-physical

Non-physical water production losses occur due to errors in reading water meters, errors in recording/ inputting data from water meter readings, errors in transferring/creating water bills, and due to air flow from consumers' homes to distribution pipes, so that the figures shown by the water meter are reduced. The rate of water production loss in 2022 reached 40.14%, 43.56% in 2023, and 36.25% in 2024. Minimizing water production loss requires immediate action by establishing an internal control system aimed at reducing losses to acceptable limits.

Efforts made by PDAM Parepare City to minimize the level of water production loss by implementing an internal control system in the following ways:

a. District Meter Area Evaluation: The establishment of a DMA is one strategy to reduce the decline in water production losses, aiming to narrow down the search for both physical and non- physical water losses. Dividing the distribution system's service zones into smaller sections makes it easier to manage and monitor the areas.
b. To address the issue of DMAs still connected to other DMAs, the Parepare City Water Company (PDAM) implemented permanent DMA boundary measures, also known as blind valve installation. Blind valve installation was carried out by selecting priority locations.
c. PDAM Parepare City has a regular schedule for conducting searches and excavations on the distribution pipe network, so that the distribution pipe network in the network map matches existing conditions.
d. Test Bench

One of the causes of high water loss is abnormal water meters, most of which are over 5 years old. Seeing this phenomenon, the Parepare City Water Company (PDAM) routinely conducts customer water meter tests, both at customer request and unsolicited, due to the meter's age. These water meters are inspected and tested at the PDAM Parepare City Workshop Test Bench. Using this tool, the accuracy of the customer's water meter can be determined. And for customers whose water meters have been installed for more than 5 (five) years or whose meter readings show 2,000 m^3, a test will be carried out to determine the level of accuracy. If it is not normal, the customer's water meter will be replaced with a standard water meter without charging a fee, and the abnormal meter will be repaired until it is normal.

Customers who doubt the accuracy of their water meter can file a complaint at the Parepare Water Company (PDAM) office with the Assistant Manager

of Services and Complaints. Once the necessary paperwork is complete, a PDAM Parepare officer will remove the meter from the customer's home and perform a meter test using a test bench at the PDAM office, in the presence of the customer.

e. Providing punishment in the form of fines for customers who commit violations
f. Calibrate customer meter inaccuracies;
g. Improve meter reading accuracy
h. Public awareness raising regarding water meter placement. This is intended to ensure that water meters are placed in locations easily accessible to meter readers.
i. Estimating and reducing the volume of water used as much as possible for operational needs, for example, reducing water use for washing tanks and reservoirs, as well as water used for flushing distribution pipe networks.

Efforts made by PDAM Parepare City to minimize the level of water production loss still have weaknesses, where PDAM Parepare City has not been able to minimize the level of water production loss caused by leaks in the ground that do not spray water to the ground surface, because PDAM Parepare City does not yet have leak detection tools, such as ground microphones.

Ground microphone. This device can detect underground water flow, thus identifying the location of water loss in the DMA. Ground microphones can be used to detect leaks in various types of pipes. However, this device has several drawbacks, including poor performance on large-diameter plastic pipes. The quality of a ground microphone depends on the type and diameter of the pipe. Essentially, when used on steel or similar pipes, the smaller the diameter, the better the sound captured by the ground microphone. Conversely, if the detected pipe is made of plastic or similar materials, the results obtained will be less satisfactory.

Employees Whose Quality Matches Their Responsibilities

PDAM Parepare City uses a recruitment policy in recruiting employees, where recruitment is based on the company's needs and according to the competencies possessed. Companies not only need competent employees, but also honesty and responsibility. Therefore, prospective employees' personalities should also be considered, including their kindness, loyalty, and honesty. A company with competent and honest employees can operate smoothly and deliver reliable results.

The Parepare City Water Company (PDAM) has a policy regarding career paths. Career paths are crucial for employees to develop their abilities, skills, and competencies. In the long run, the company will benefit from having a qualified workforce that can make maximum contributions, ultimately enabling the company to achieve its mission and profit targets as planned. Based on the results of the interviews, it can be seen that the Parepare City Water Company (PDAM) has employees whose qualities align with their responsibilities.

CONCLUSION

1. An organizational structure that clearly separates functional responsibilities
   The organizational structure responsible for minimizing water production losses has been clearly separated according to functional responsibilities. Those responsible for this are the transmission and distribution division and the meter maintenance and repair division.
2. Authority system and recording procedures
   The recording carried out by PDAM Parepare City sometimes uses a “shooting game” system during the recording of customer water bills once a month, so PDAM Parepare City carries out internal control by verifying data.
3. Healthy practices in carrying out the duties and functions of each organizational unit.
   PDAM Parepare City, in carrying out the duties and functions of each organizational unit, has been running well due to the control activities carried out on time by employees, and conducting regular performance evaluations both by SPI and the company, giving awards and sanctions to violators. Completing tasks on time can help achieve company goals. However, in making decisions related to customers who commit violations, if there is no surprise inspection or evaluation of violations, it increases the opportunity for customers to commit fraud.
4. Employees whose quality matches their responsibilities
   The Parepare City Water Company has found that its employee recruitment policy is based on the company's needs and competencies. The company not only requires competent employees but also

honesty and responsibility. Therefore, prospective employees' personalities should also be considered, including their good character, loyalty, and honesty. A company with competent and honest employees can operate smoothly and produce reliable results.

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