Usulan perbaikan manajemen persediaan material MRO (Maintenance, Repair & Operation) dengan pendekatan model pengendalian probabilistik pada industri migas di Indonesia = A proposed improvement to the inventory management of MRO (Maintenance, Repair & Operation) materials with probabilistic method approach in oil and gas industry in Indonesia

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Abstrak

Penelitian ini membahas mengenai manajemen persediaan material MRO pada salah satu industri minyak dan gas di Indonesia. Permasalahan terkait persediaan yang terjadi pada perusahaan tersebut adalah tidak tercapainya target stock out level sebesar 0,50% di mana dapat berakibat pada menurunnya service level serta mengganggu jadwal kegiatan produksi akibat kekurangan material MRO.
Penelitian ini bertujuan untuk mendapatkan sistem manajemen persediaan material MRO yang optimal untuk meminimalisasi stock out serta mendapatkan peningkatan service level dan penurunan total biaya persediaan yang dihasilkan.
Penelitian ini mencakup tiga tahapan besar, yaitu klasifikasi material, peramalan konsumsi material, dan pengendalian persediaan material MRO dengan model pendekatan pengendalian probabilistik. Model pengendalian probabilistik terdiri atas continuous review system dan periodic review system di mana penentuannya akan berdasar pada hasil analisis terhadap kategori material dan pola data historis konsumsinya.
Penelitian ini juga dilengkapi dengan analisis perbandingan pencapaian service level serta total biaya persediaan aktual dan hasil penelitian dengan pendekatan Time Phased Order Point (TPOP). Hasil penelitian ini menunjukkan bahwa pencapaian service level dapat ditingkatkan sebesar 69,03% dan dimaksimalkan pada setiap periode serta penurunan total biaya persediaan sebesar 46,23% juga dapat diperoleh.
.....This research discusses about the inventory management of MRO materials in one of oil and gas company in Indonesia. Inventory-related issue occuring in the company is yet to achieve their stock out level target of 0,50% which may result in a service level reduction and production schedule disruption due to lack of MRO materials.
This research aims to obtain an optimal inventory management system of MRO materials that minimizes stock out and derive an improved service level as well as a reduction in the total inventory cost.
This research includes three major phases which are materials classification, materials consumption forecasting, and materials inventory control with probabilistic model approach. Probabilistic model consists of continuous review system and periodic review system that the decision will strongly be based on the analysis of materials categorization and consumption pattern.
This research also comes with a comparative analysis of service level and total inventory cost derived between actual and research with Time Phased Order Point (TPOP) approach. The results show that service level can be increased by 69,03% and maximized at each period, while a decrease in total inventory cost amounted to 46,23% also can be obtained.