ABSTRACT
Kurau (K) Field is located within the Padang Island of Malacca Strait Block, Riau Province, Sumatra. The field has already been producing oil for 23 years. The current well status is 33 producing wells and 15 shut in wells.

As a mature oilfield, production in the K Field declined rapidly due to an increase in water cut. To manage this production decline, additional infill wells are needed. Another way to improve production in the existing wells is through workover program consisting of squeeze cement, well integrity, fishing job, and zone isolation to optimize and maintain oil production. Before 2009, the workover program often failed as no risk factors were accounted for during the calculated economic analysis and additional CO log data.

This finding led to develop a method for selecting the best well candidates and to rank each candidate for workover. The input parameter method/criteria was based on Open Hole log, RST log, workover history, WO type, geological analysis, and chance of success. This method reduced workover failure and costs successfully and maintained oil production at 16% per year.

This paper will describe the method for selecting wells for workovers, including well candidate selection criteria, economic analysis, well economic limit calculation based on pump life, and well candidate ranking.

INTRODUCTION
The Kurau (K) Field is mature field located within the Padang Island of Malacca Strait Block, Riau Province, Sumatra (Figure 1). The field has already been producing oil for 23 years. The current well status is 33 producing wells and 15 shut-in wells.

Geologically, this formation consists of two parts (Lower and Upper Sihapas) of different reservoir characteristics separated by a thick shale break. Oil production has mostly been from Lower Sihapas, which is more prolific and exhibits a high productivity due to the thick productive sands with high permeability. Oil-bearing intervals in the Upper Sihapas are generally thin, shaly, lenticular, discontinuous, and exhibit low permeability.

In initial production, the K Field produced oil only from the Lower Sihapas Formation. After completing the integrated reservoir study in 2010, the Kurau team proposed opening the new formation in Upper Sihapas, which has a lower resistivity than the Lower Sihapas. Production from this formation has given a significant incremental of oil production of about 700 BOPD for K Field.

The K Field reservoirs have many zones for their formation, and the zones are distributed in a lens. Selecting workover candidates in the K fields became very challenging because the Kurau team had to select the workover well from many good candidates. The supporting engineering team and management decided the workover wells needed guidelines to make it easier to select the workover wells.

This paper describes the process to select a workover well in detail, covering data preparation to execution.

METHODS
The key to handling marginal field consists of collecting all the well history data and conducting reservoir monitoring. It is better to spend several