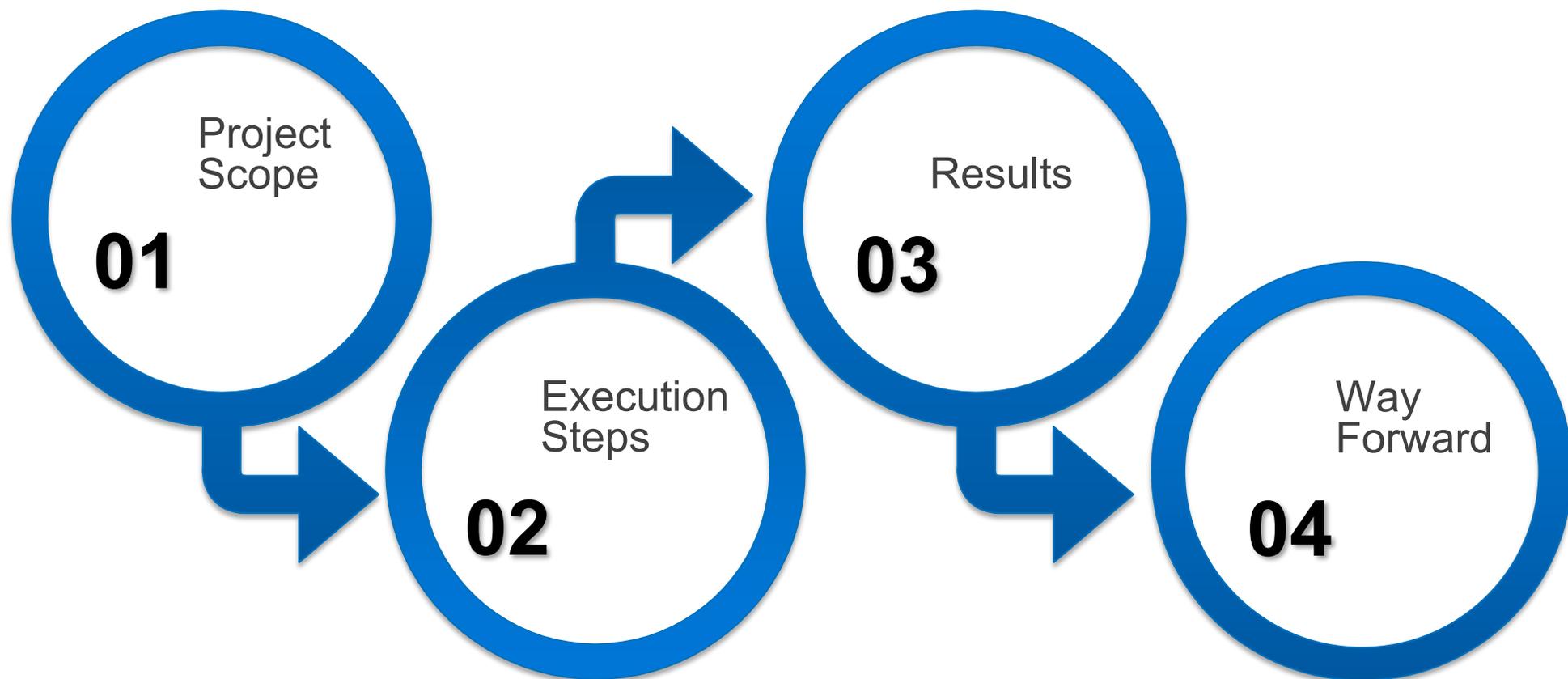


# Historical Gas Allocation and Reconciliation Study South & East Kuwait

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# Presentation Outline

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# Project Scope

RMC#59 entrusted E&P IM team to review gas allocation mismatch with measured data for South & East Kuwait.

Reconciliation of Measured Gas to the Wells and Reservoirs based on estimated well production.

Develop workflow for robust Gas back allocation process.

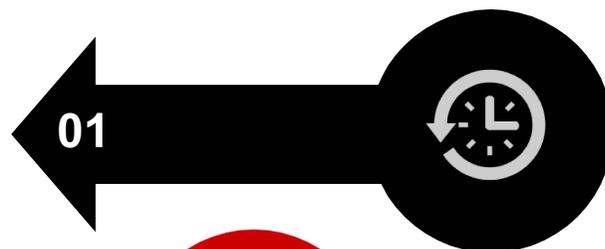


Check for discrepancies between Measured gas volumes as reported by Gas Operation Team(P2S/IMLIVE) versus Reported (Finder) Volumes.

Deliver a Cleaned and Reliable Operational Dataset to be used for Reserves Calculations , Reservoir Simulation, Field Performance and Forecasting

# Data Availability

The study was carried out for the period April 1988 up to Dec 2014.



Data before 1988 was not available in terms of portable test, measured gas volumes (Production Operations) etc.

The gas volumes from the two major databases before 2014 ( P2ES & IMLive) were compared in the overlap period (Jan 2000 – Oct 2003) for QC, the results show a good consistency.



Checked all the available data:

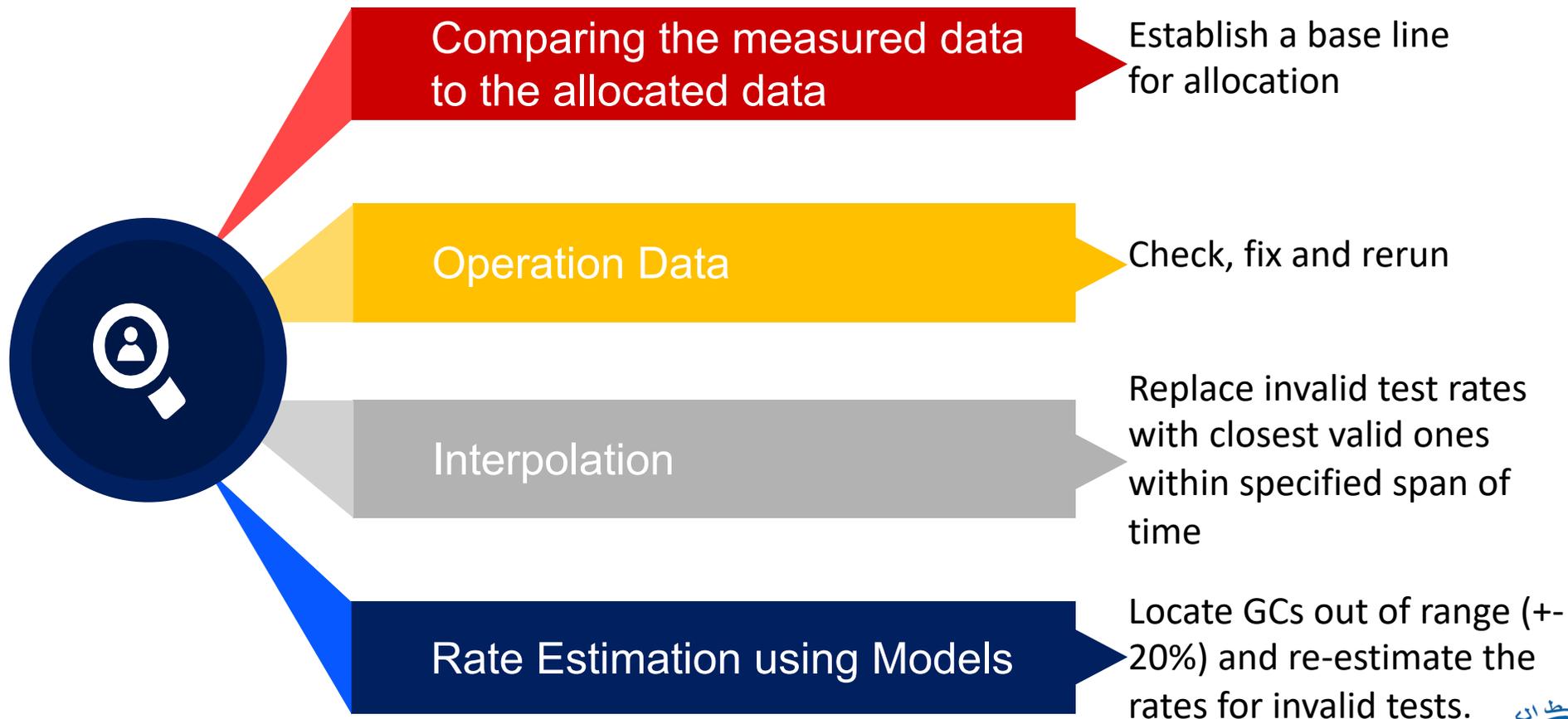
- Data center
- Well history
- P2ES, IMLIVE, Finder & Avocet

A number of meetings were held between E&P IM assets, PO and RM team to understand the flow of data.



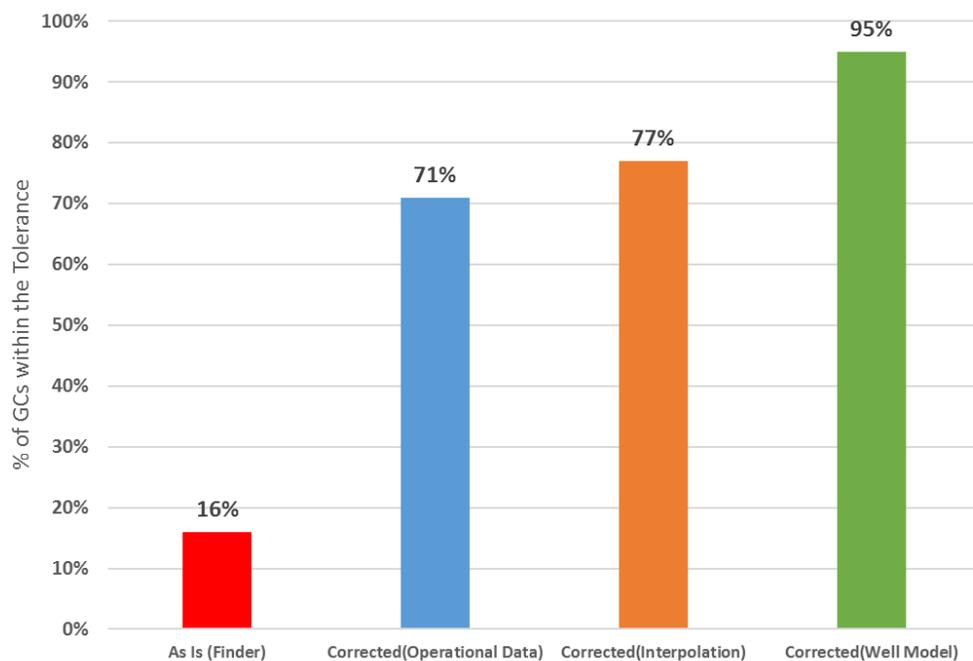
# Review and Results of Back Allocation

## Back Allocation Workflow

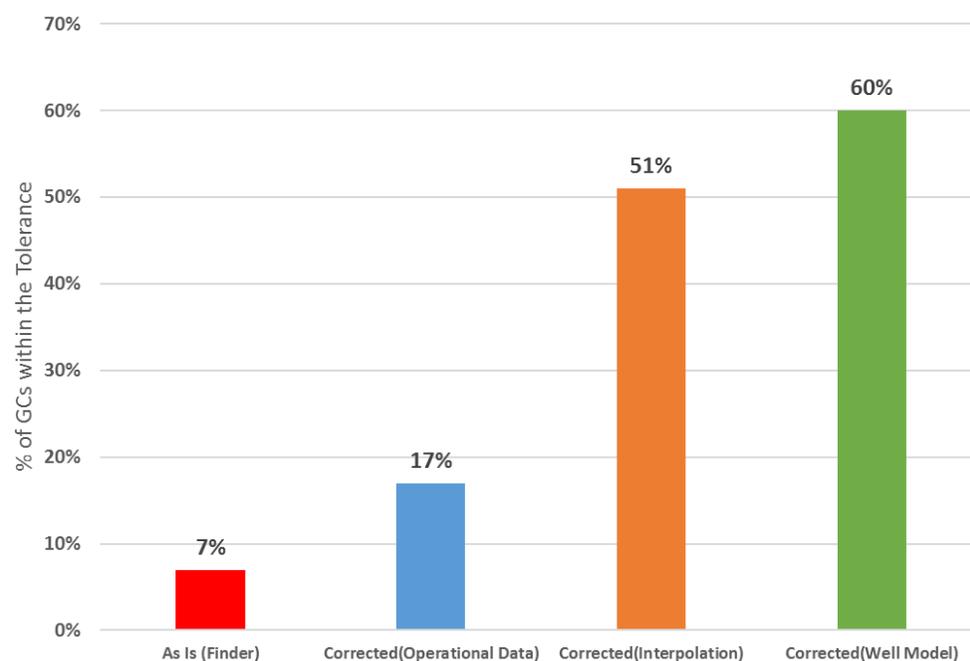


# Total Gas Allocation Accuracy

Improvement of Gas Allocation Accuracy  
Period 2000 - 2014



Improvement of Gas Allocation Accuracy  
Period 1988 - 1999



# Study Results

## Gas reconciliation Accuracy Improvement:

	From	to
1988 – 1999	7%	60%
2000 - 2014	16%	95%

## Results will improve decision making in:

Reserves Calculations



Improvement in the Back Allocation process

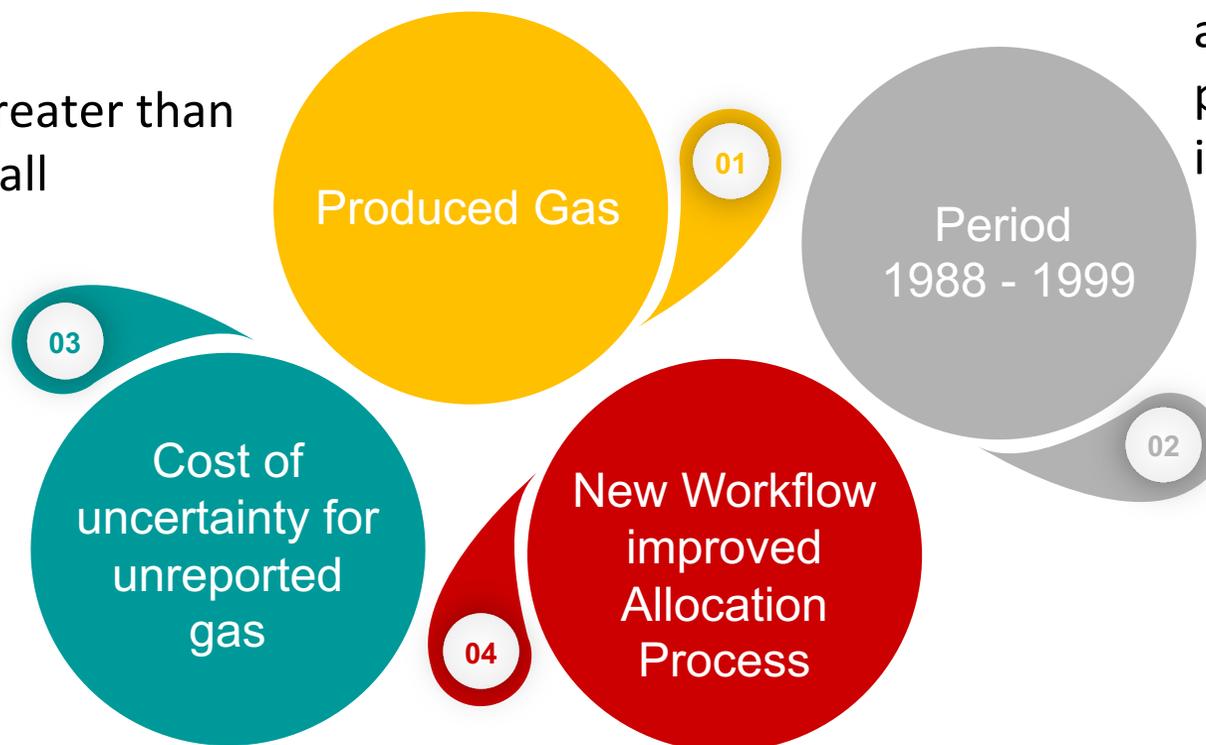


Simulation model for a better history match of the field production



# Findings

Volumes is greater than reported for all reservoirs



23 % of the actual gas produced by SEK is not reported

Volumes as per natural gas price today (\$2.72/MMBtu or Mcf) is roughly 1.5 billion USD.

Increased the number of GCs within acceptable range of reconciliation tolerance (+/- 20%) from 7 % to 60% for the period 1988 – 1999 and from 16% to 95% for period 2000 – 2014.

# Way forward

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Extend SEK study for the period prior to April 1988

After the successful implementation of the Project for the period 1988 -2014; the study was extended to the Period from 1946 to 1987 (since the start of the production).

After Finalizing the Study for S&EK; the project has been extended to West Kuwait and North Kuwait Fields

Study completed for KOC areas (SEK, NK, WK) on June 2019.

A white, hand-drawn style speech bubble sticker is pinned to a corkboard. The text 'Thank you!!' is written in a bold, black, sans-serif font. The word 'Thank' is on the top line, and 'you!!' is on the bottom line, slightly indented to the right. The corkboard background has a natural, textured appearance with various shades of brown.

Thank  
you!!