



water & sanitation

Department:
Water and Sanitation
REPUBLIC OF SOUTH AFRICA

VAAL RIVER ANNUAL OPERATING ANALYSIS

2018/2019

WRPM SCENARIO RESULTS

(PREPARATION MEETING FOR SYSTEM OPERATING FORUM)

27 JULY 2018

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Title: WRPM SCENARIO RESULTS
Authors: Study Team
Project Name: VAAL RIVER ANNUAL OPERATING ANALYSIS 2018/2019
DWS No: -
Status of Report: Draft Report
First Issue: 27 July 2018

Consultants: WRP Consulting Engineers

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Note that this document is enhanced with hyperlinks to information on the Department of Water and Sanitation and other related web sites as well as interactive maps using Google MyMaps and Open Street Map.

1 INTRODUCTION

1.1 Purpose of this document

Presents the scenario risk analysis results in preparation for the 8 August 2017 System Operating Forum for discussion with Department of Water and Sanitation officials. This document should be read in conjunction with the presentation slides.

1.2 Background

Operational planning and system management are performed annually by the Department of Water and Sanitation (DWS) in cooperation with stakeholders involved in the management of the Integrated Vaal River System (IVRS). The operation planning process revolves around the following sequential key activities:

- Collection, collation and verification of water use, system status and planned infrastructure maintenance programmes.
- Finalisation of the past 12 month's operation monitoring report to reflect the full year until the end of April.
- Selection of scenarios for risk analysis at the Scenario Definition Workshop.
- Carry out risk analysis of each scenario using the Water Resource Planning Model.
- Presentation of result by the Professional Service Provider to DWS in preparation for the System Operating Forum.
- Meeting of the System Operating Forum to discuss the scenario results and select the operating regime for the following 12 months.
- Compile reservoir risk projections for the selected scenario and target tracking information in graphical and tabular form.
- Monitor the system performance and distribute monthly monitoring reports. (The April 2018 monitoring report, that concludes the 2017/2018 monitoring cycle, can be viewed from the following [link](#).)

Further detail information on the operational planning process, description of the IVRS and the operating principles can be obtained in the report *Guidelines for Water Supply Systems Operation and Management Plans During Normal and Drought Conditions* ([RSA C000/00/2305](#)), October 2006. Volume 2, [Appendix C](#) of the report focuses on the Integrated Vaal River System.

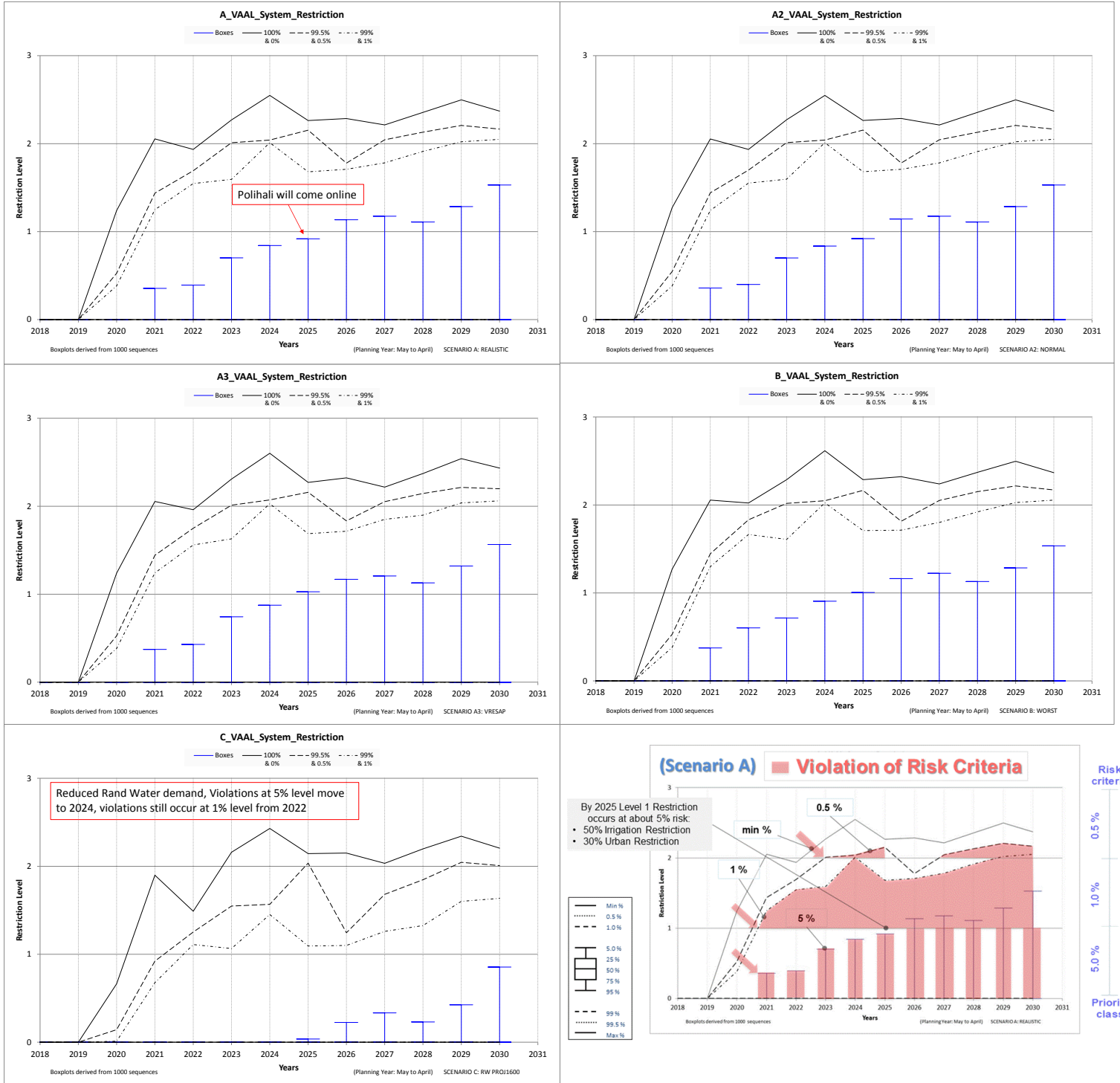
Other Integrated Water Resource Management activities of the Vaal River System are listed below with references to web links where more information can be obtained:

- Vaal River System Large Bulk Water Reconciliation Strategy [2009](#) as well as the latest Status Report presented to the Strategy Steering Committee held in [April 2018](#) provide information on the long term planning for the IVRS.

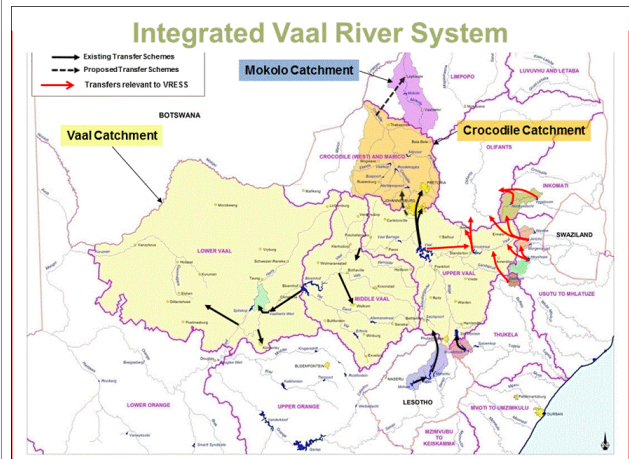
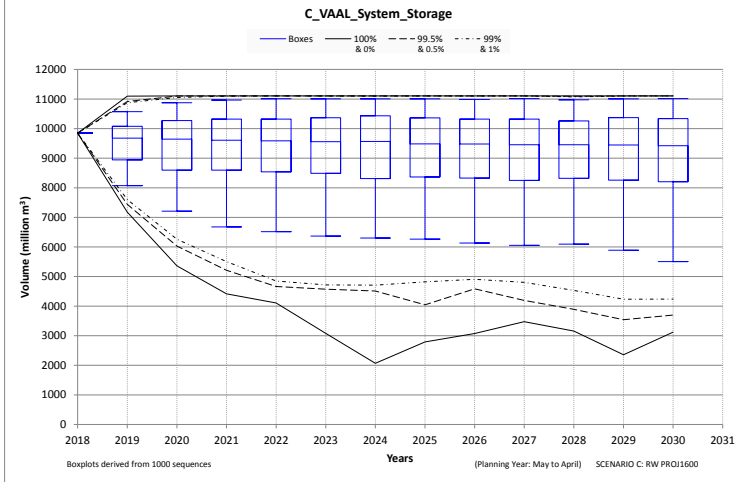
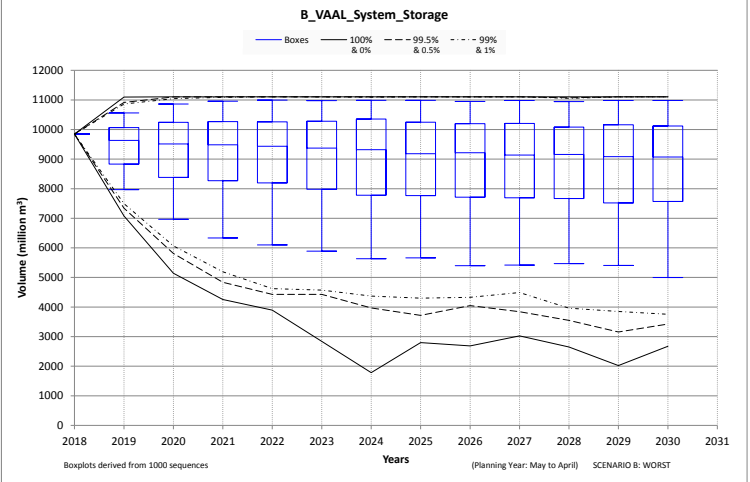
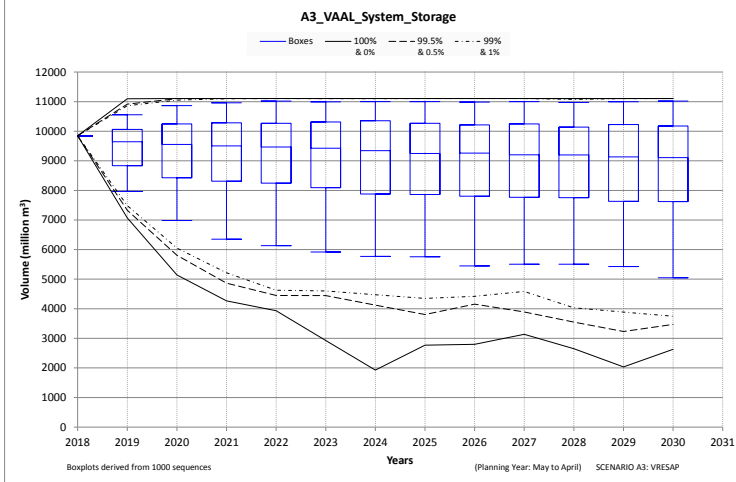
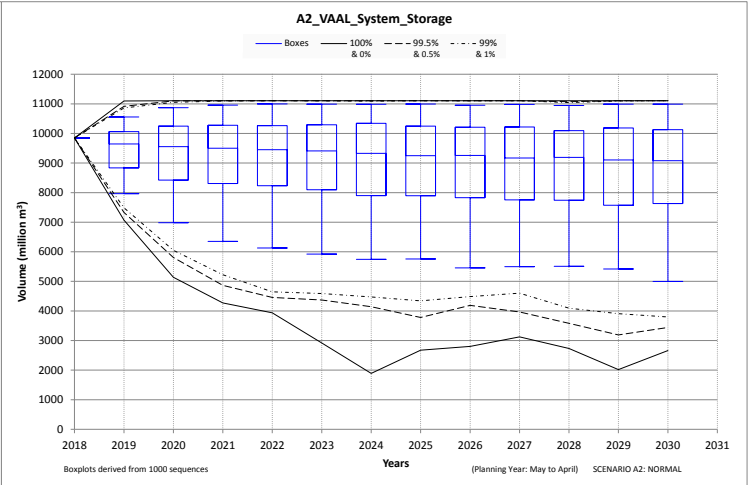
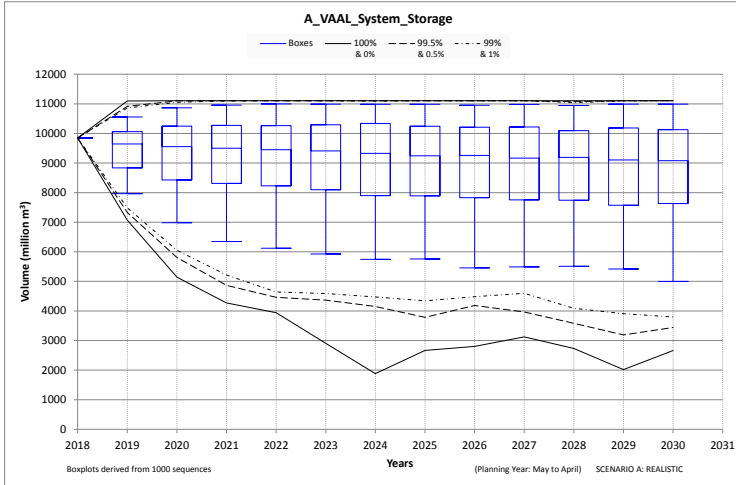
- Summary of the [hydrological](#) information and a description of the water resource [infrastructure](#) that is incorporated in the Water Resource Planning Model as applied for the risk analyses.

2 INTEGRATED VAAL RIVER SYSTEM

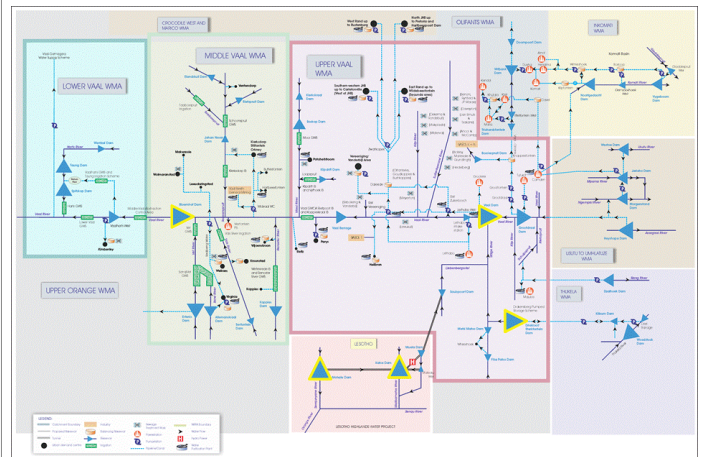
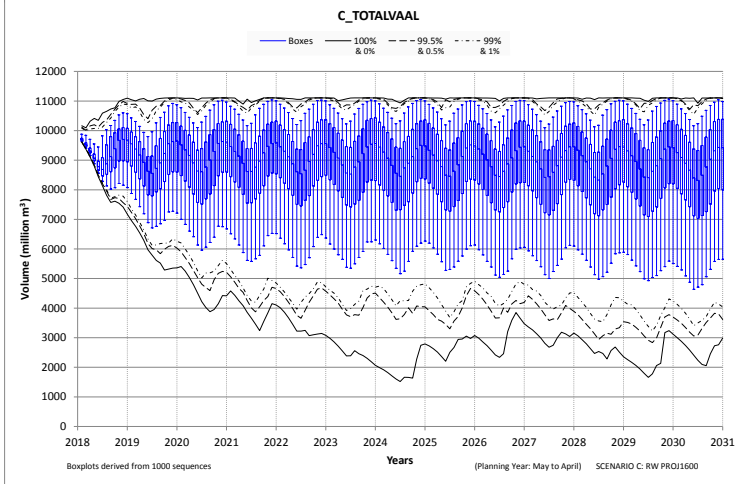
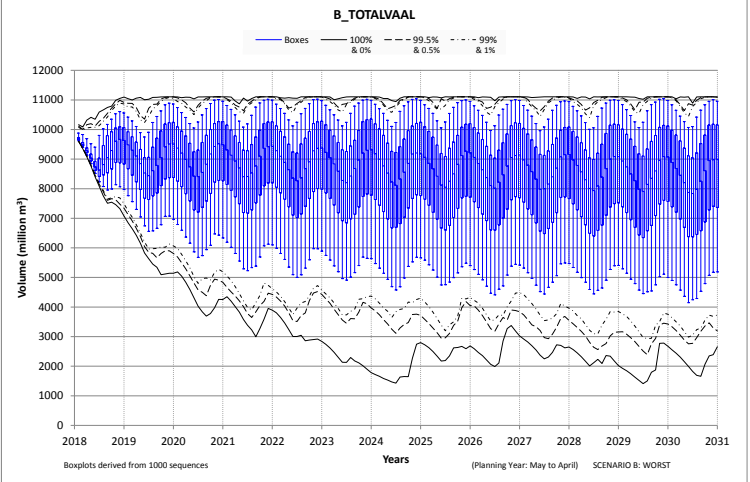
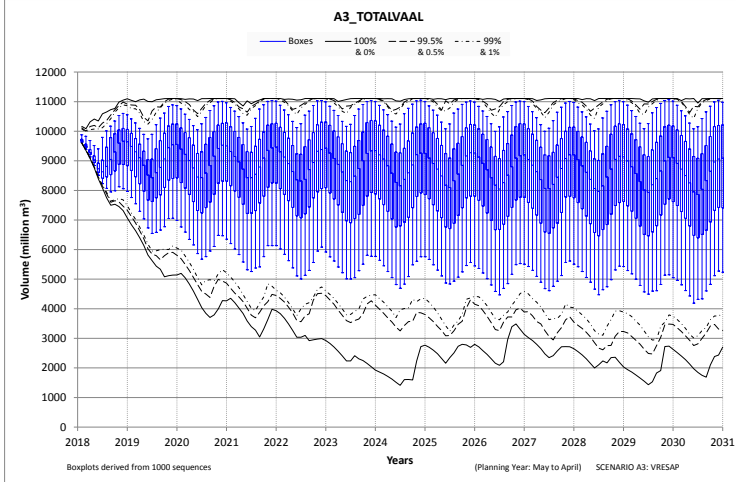
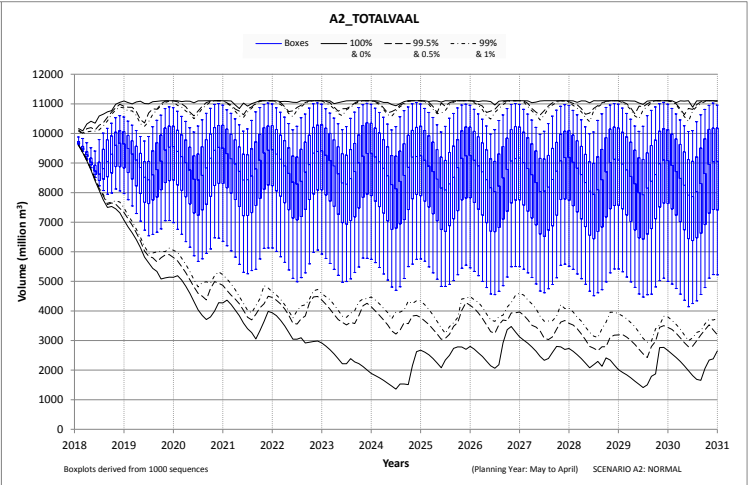
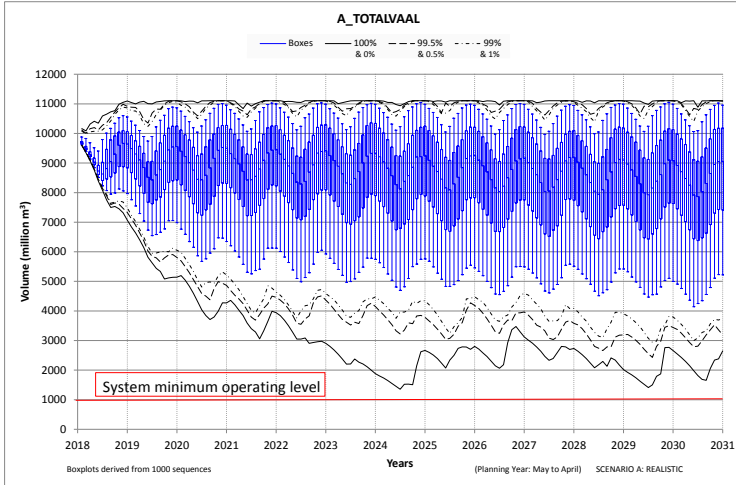
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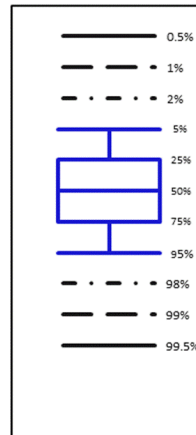
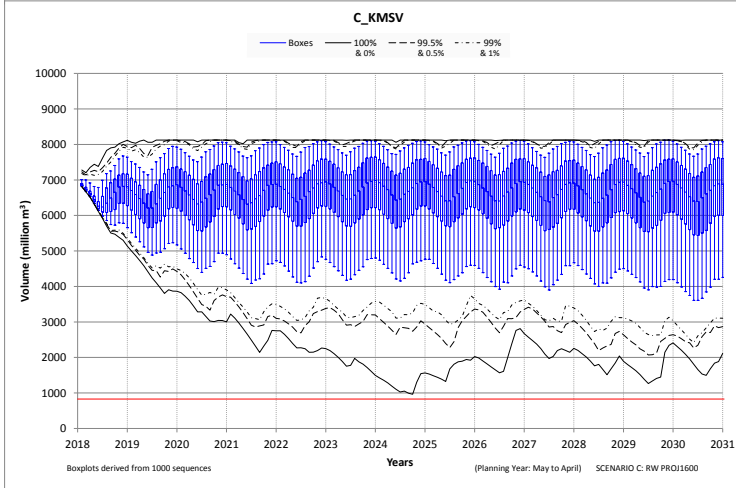
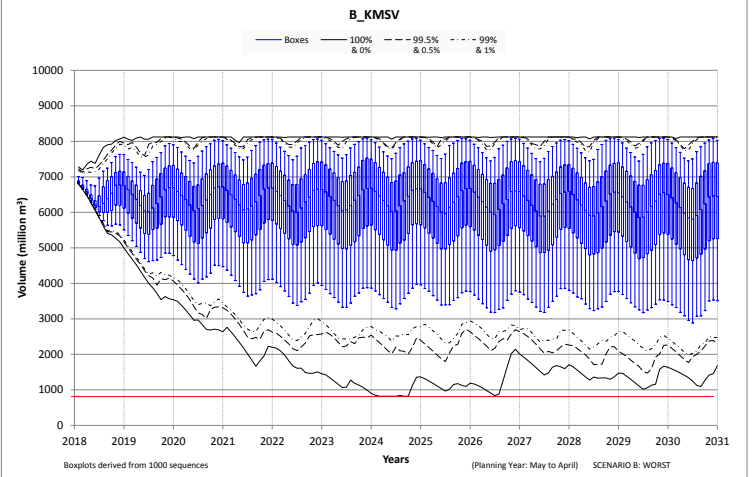
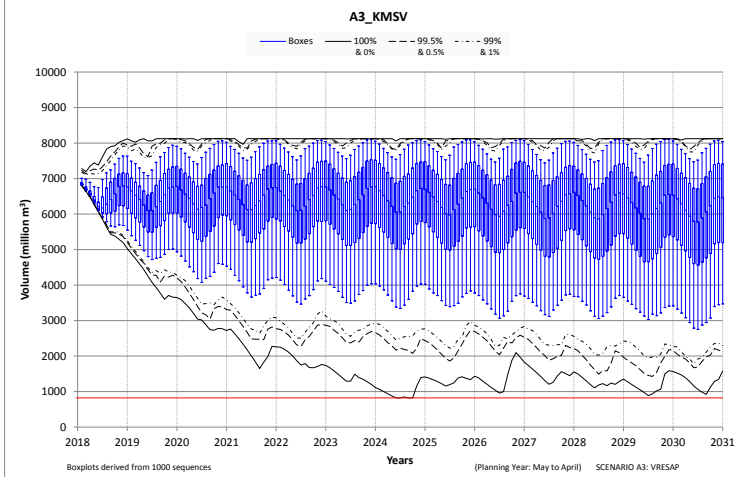
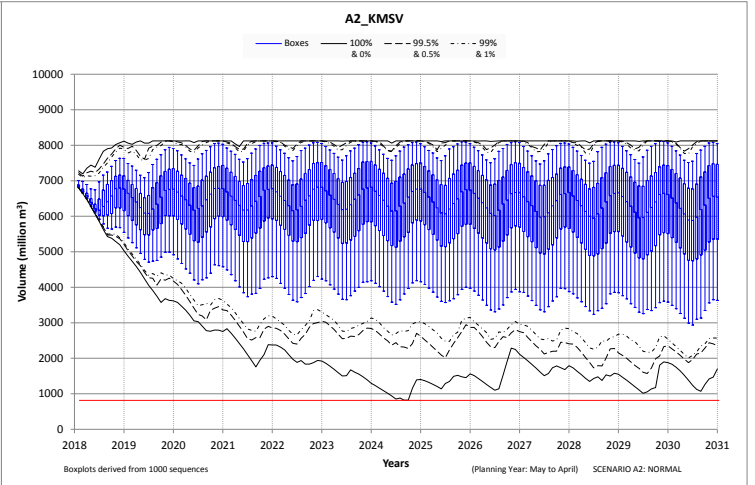
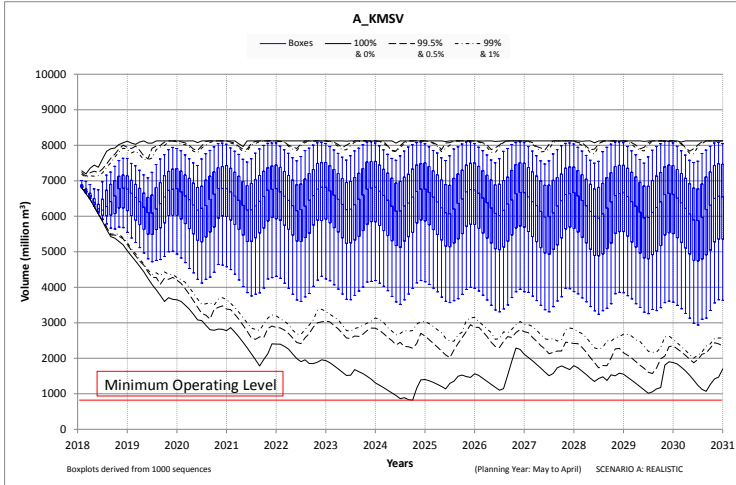
2.2 VAAL System Storage (First of May)



2.3 Total Vaal Storage Monthly



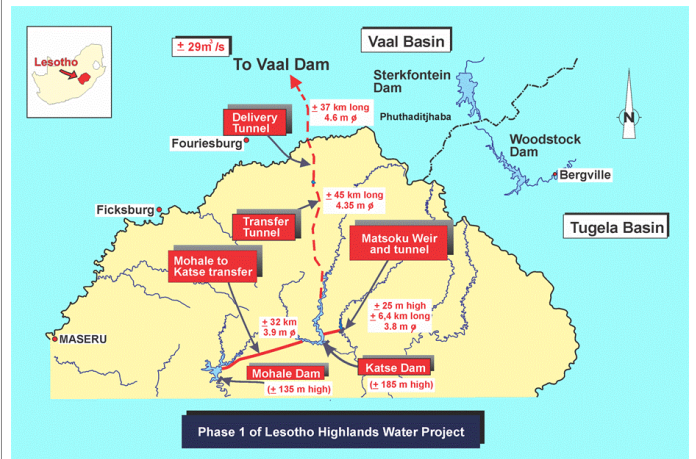
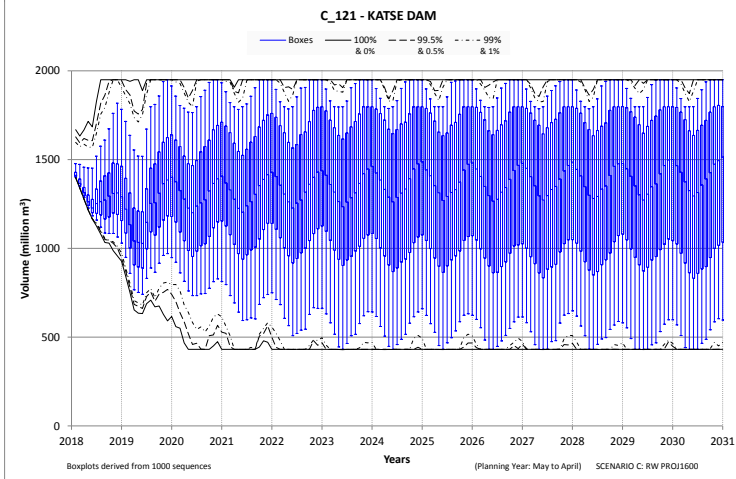
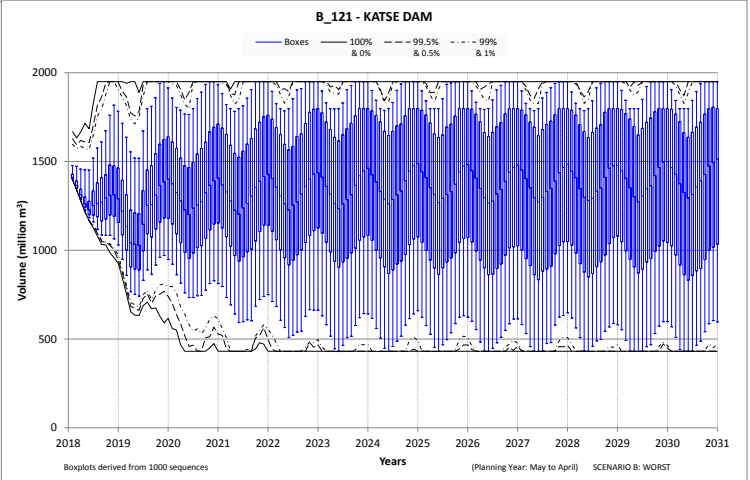
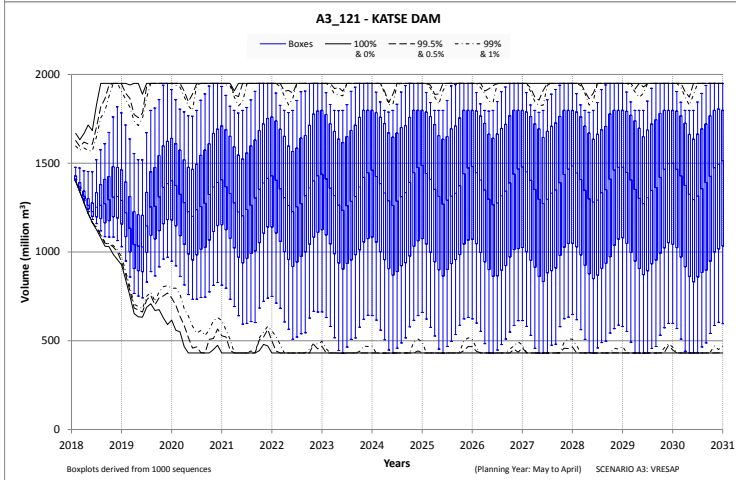
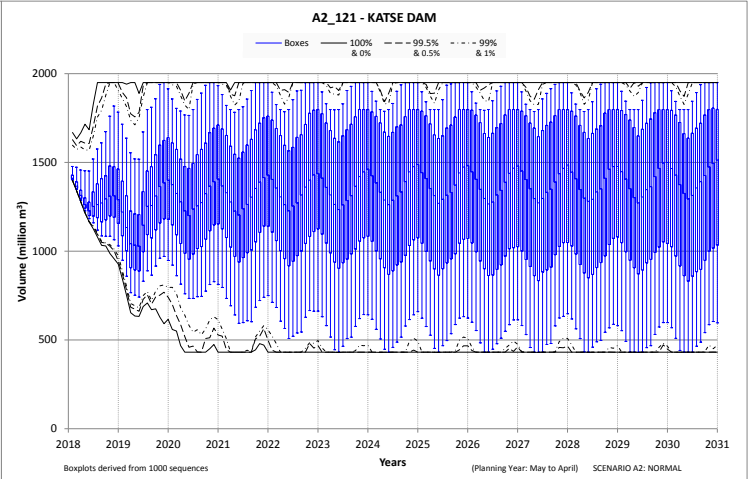
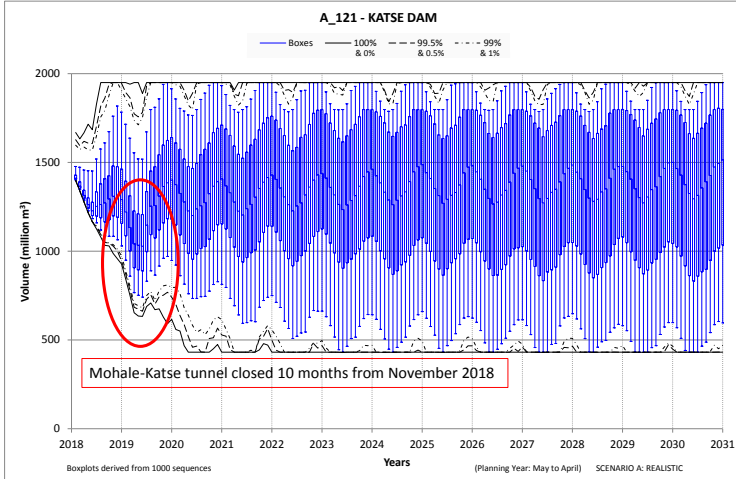
2.4 Katse, Mohale, Sterkfontein, Vaal



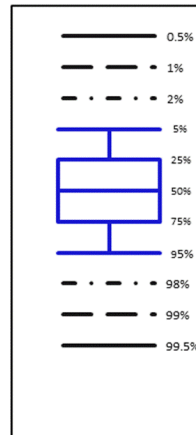
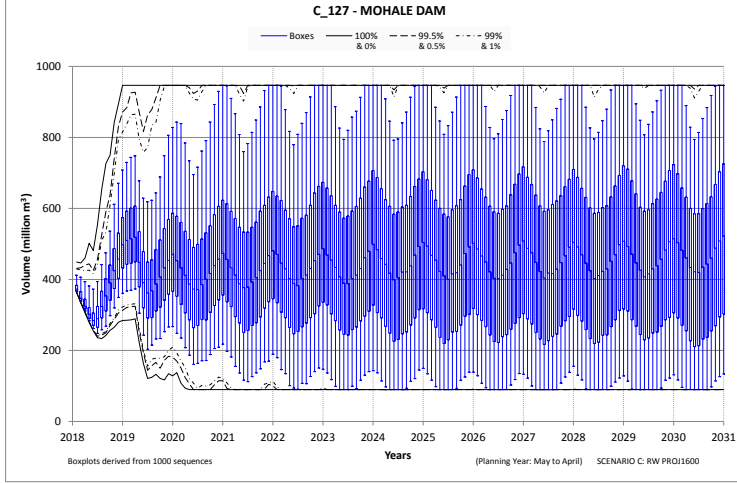
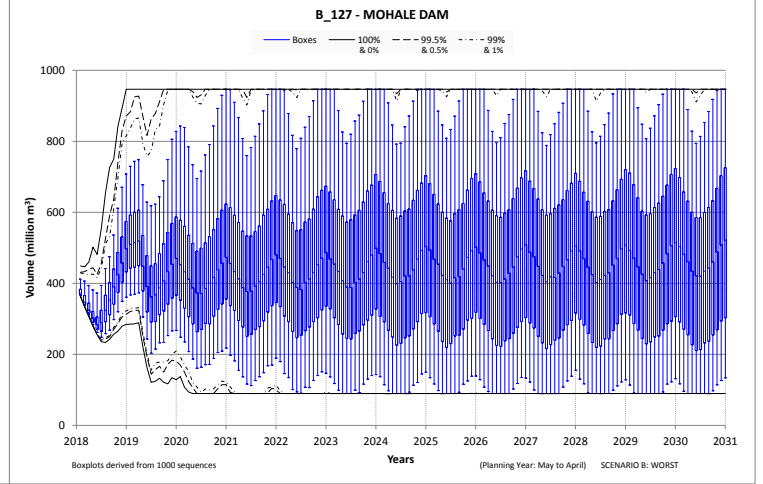
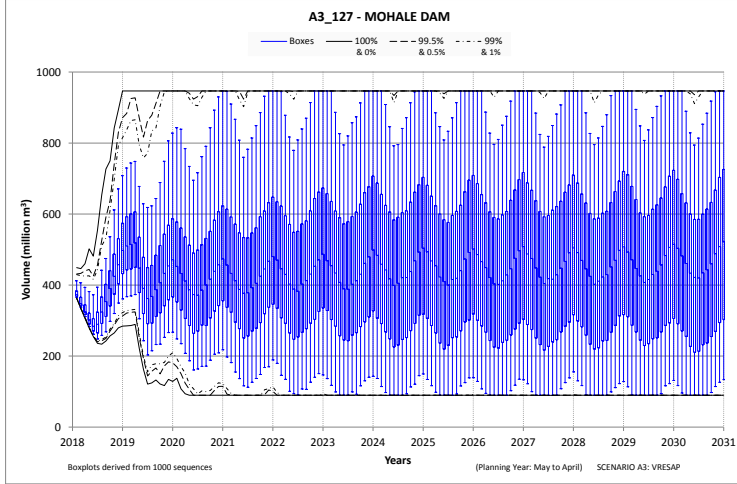
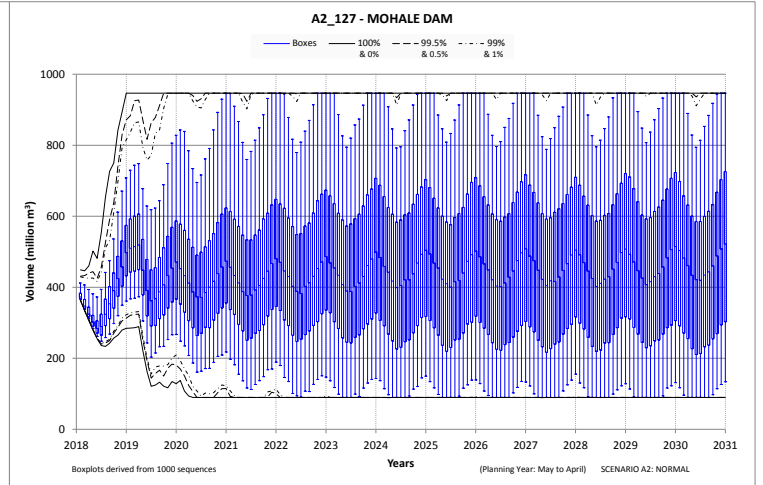
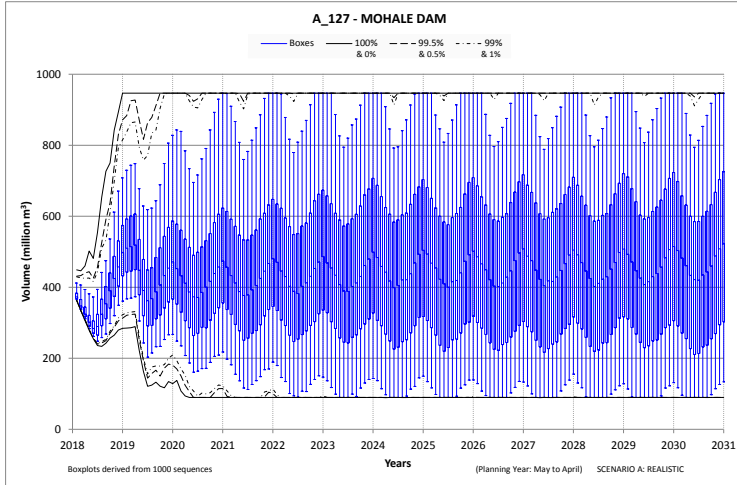
3 SENQU SUBSYSTEM (LHWP)

3.1 Katse Dam

D1R002:Senqu at Katse Dam	Graph	Data	Photo	?
C8H036:Ash at outlet from Katse Dam	Graph	Data	Photo	Map

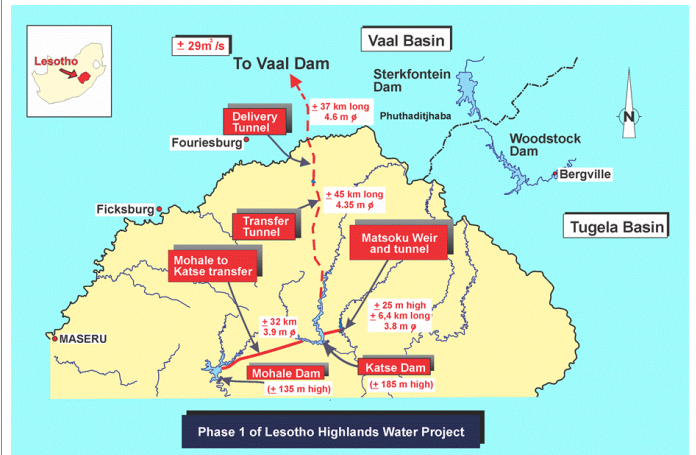
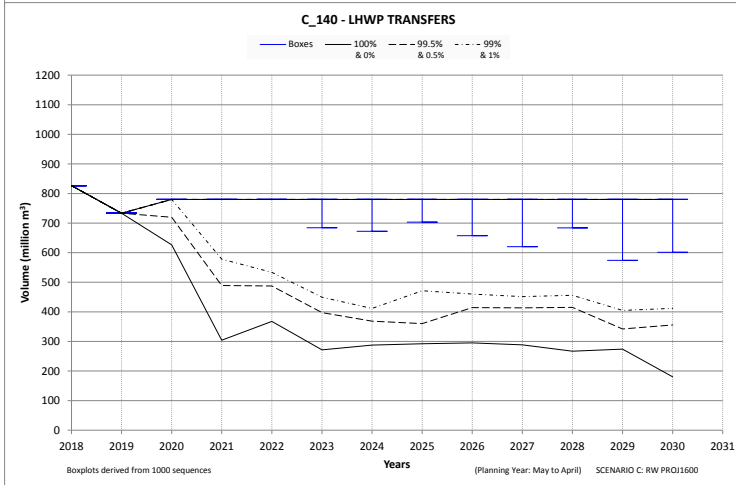
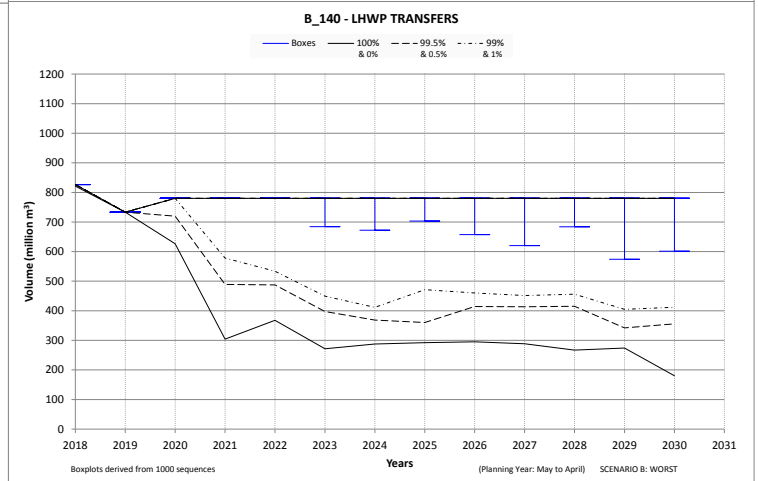
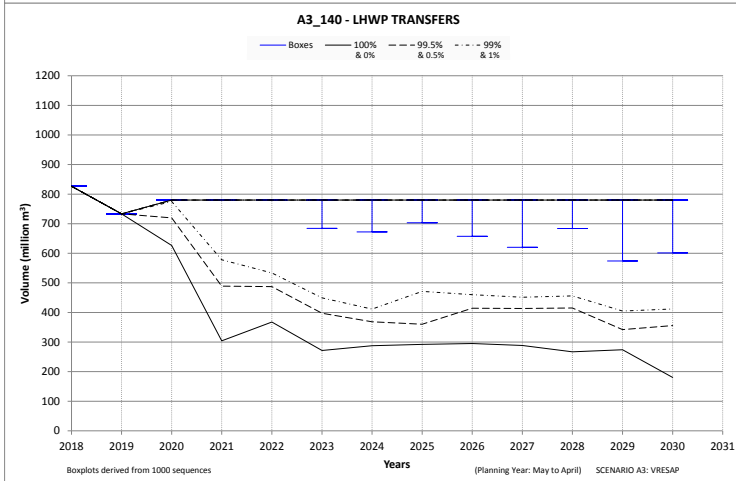
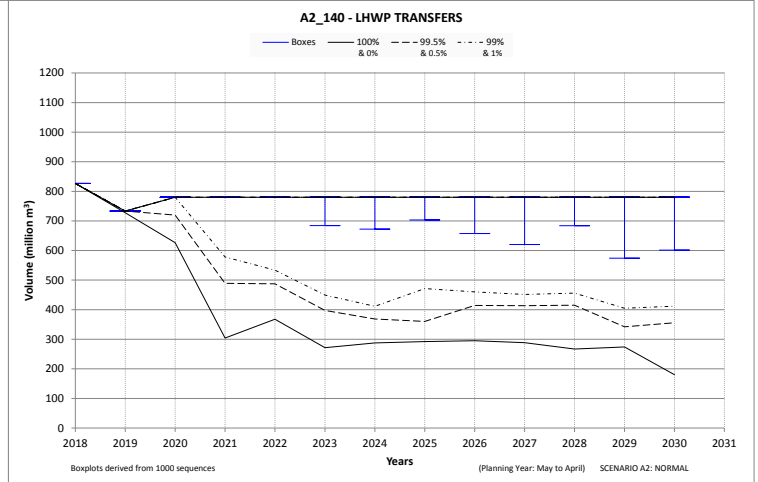
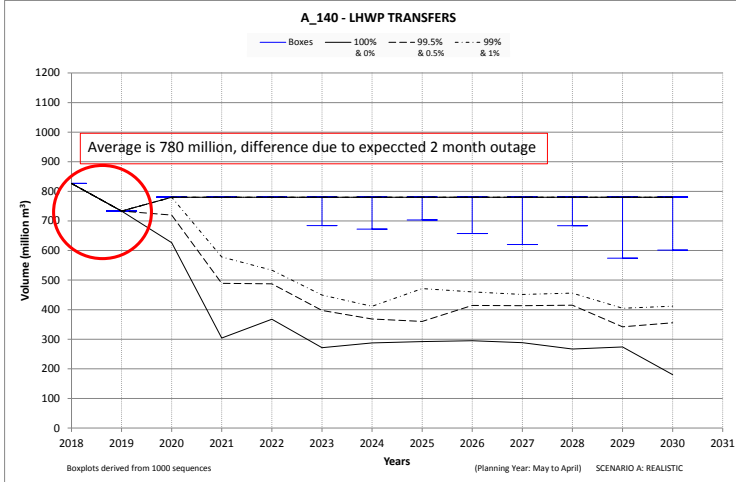


3.2 Mohale Dam



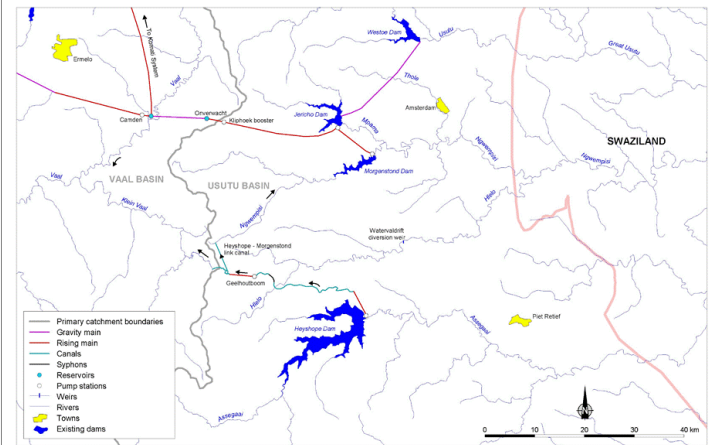
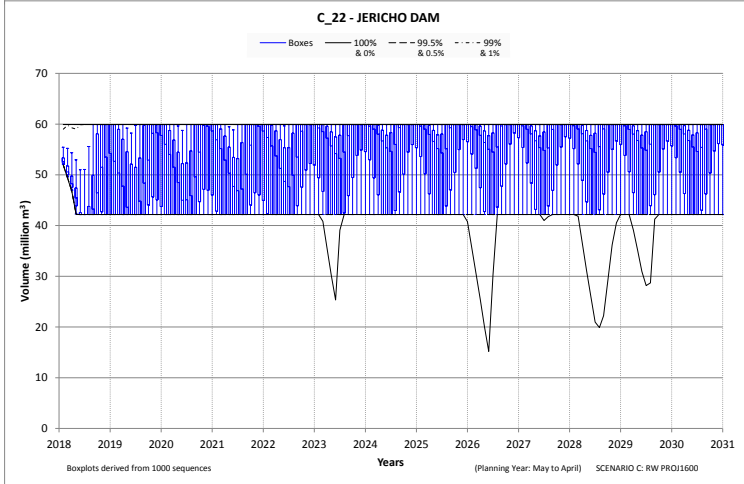
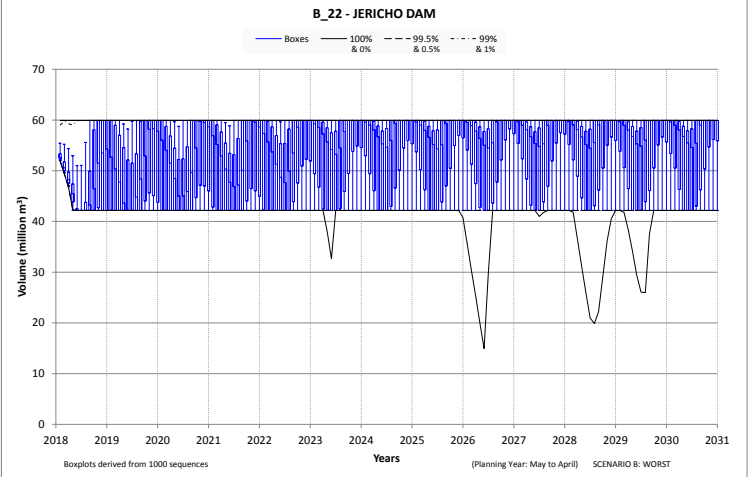
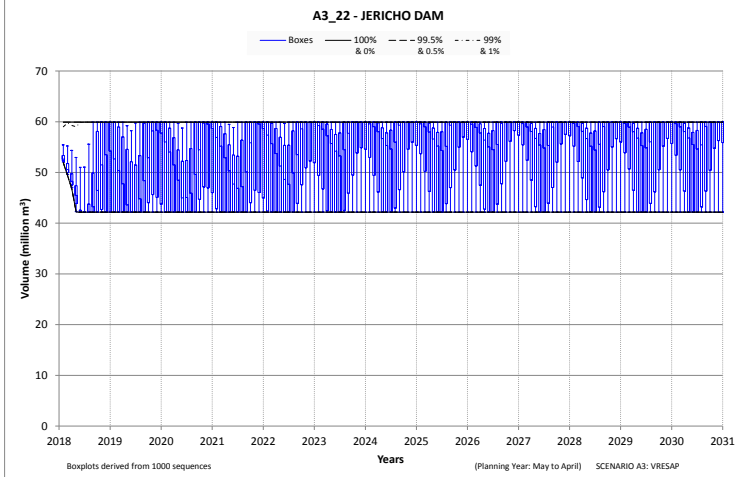
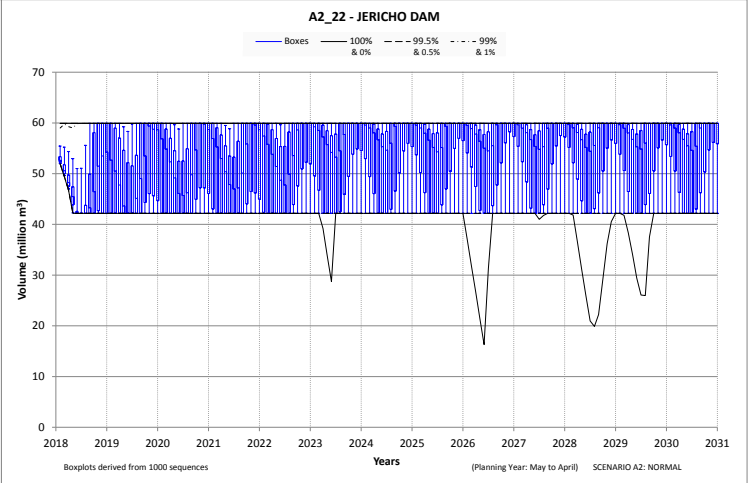
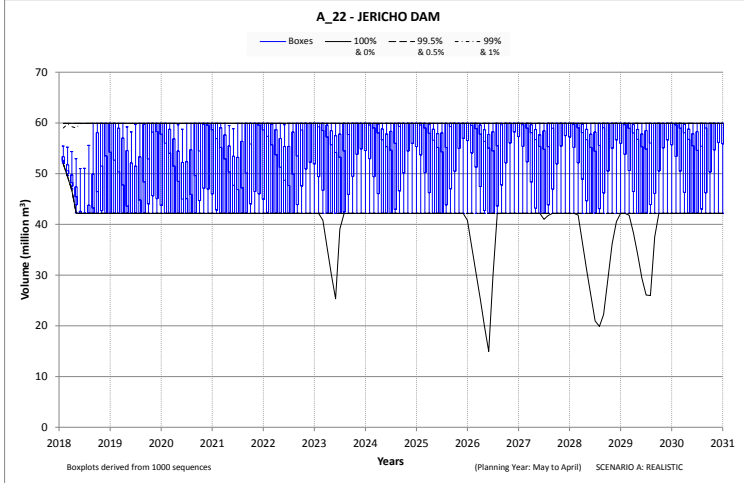
3.3 LHWP Transfer Volumes

D1R002:Senqu at Katse Dam	Graph	Data	Photo	?
C8H036:Ash at outlet from Katse Dam	Graph	Data	Photo	

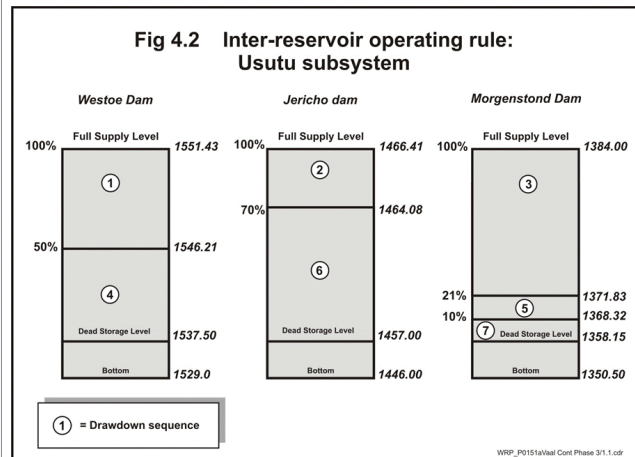
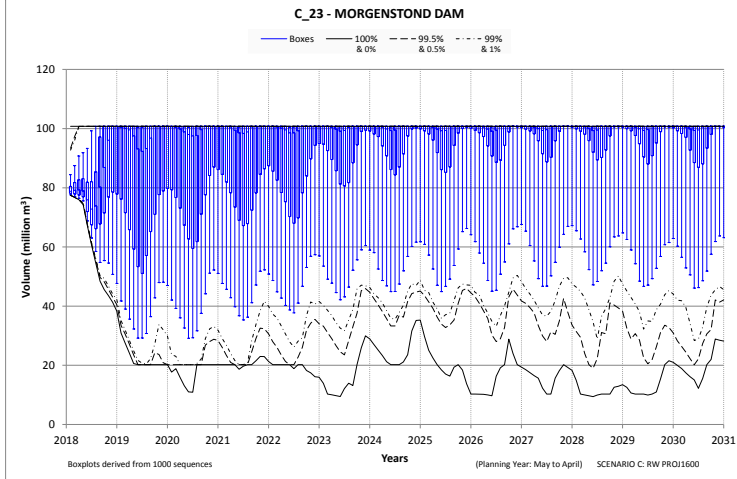
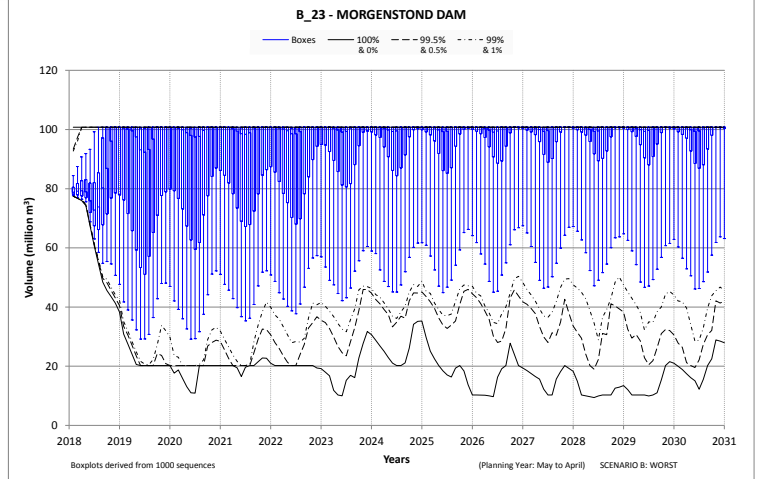
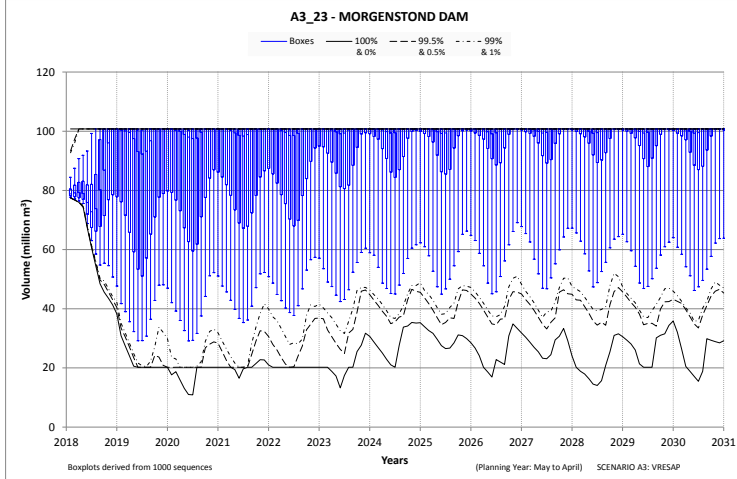
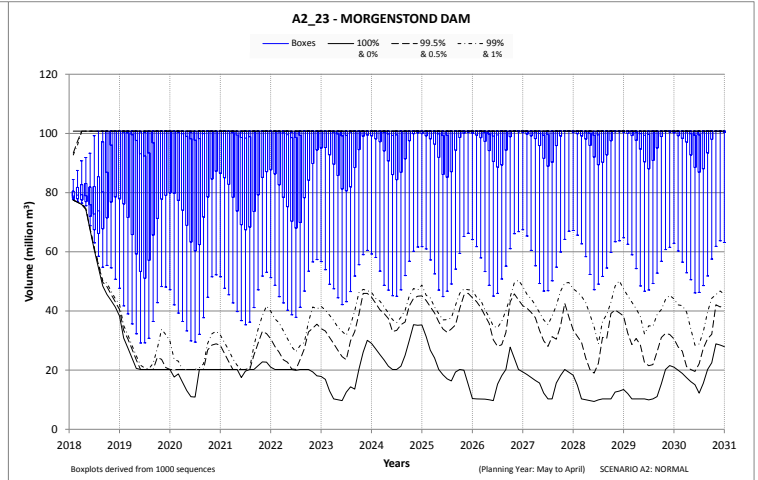
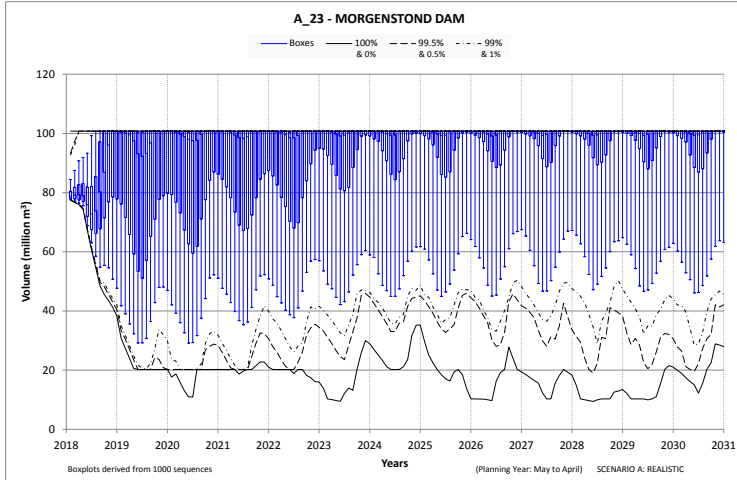


4 USUTU SUBSYSTEM

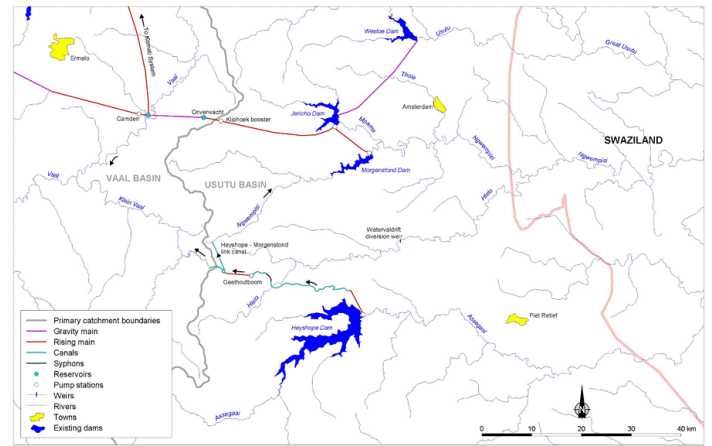
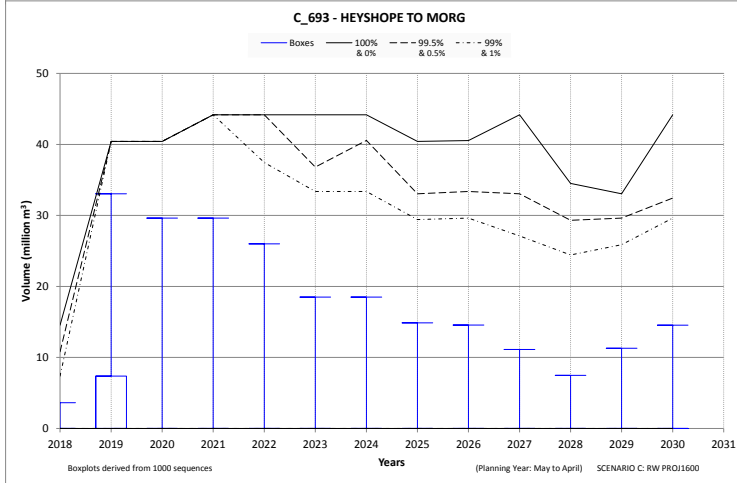
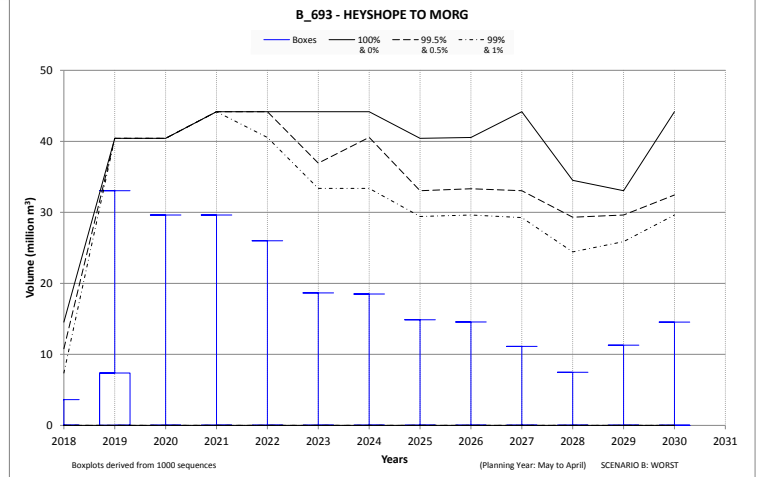
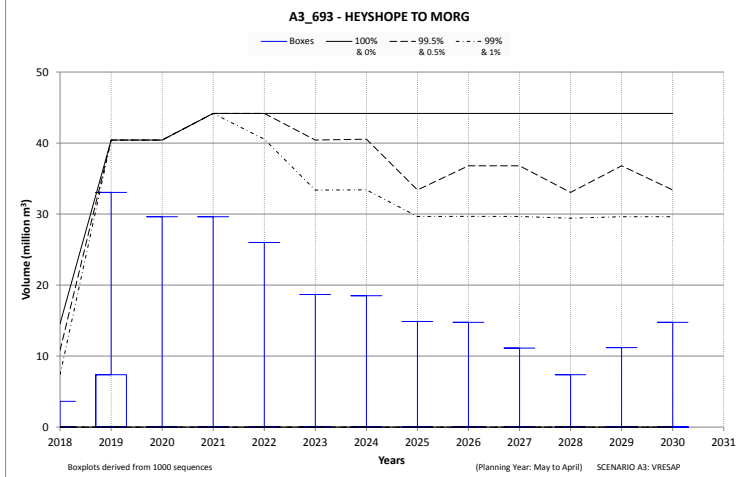
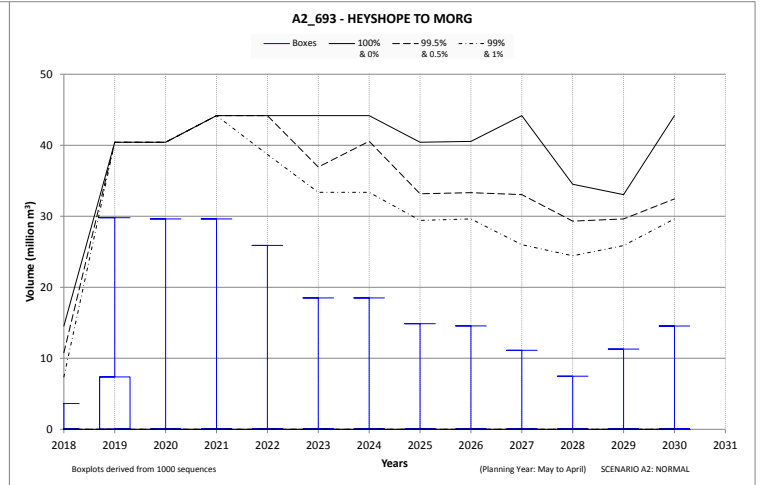
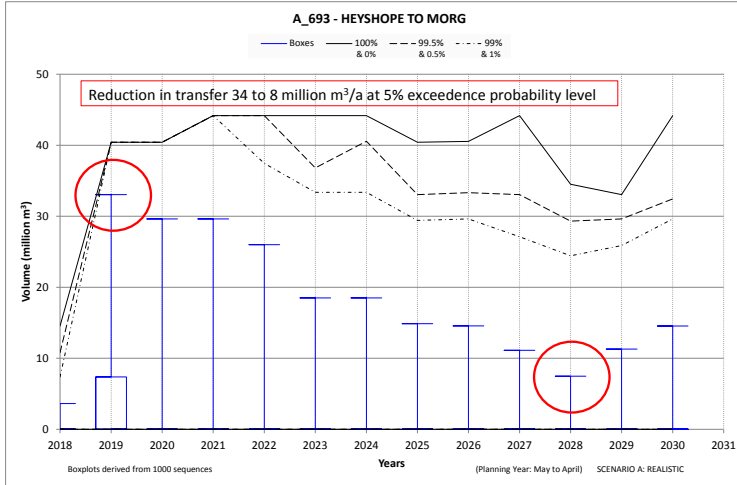
4.1 Jericho Dam



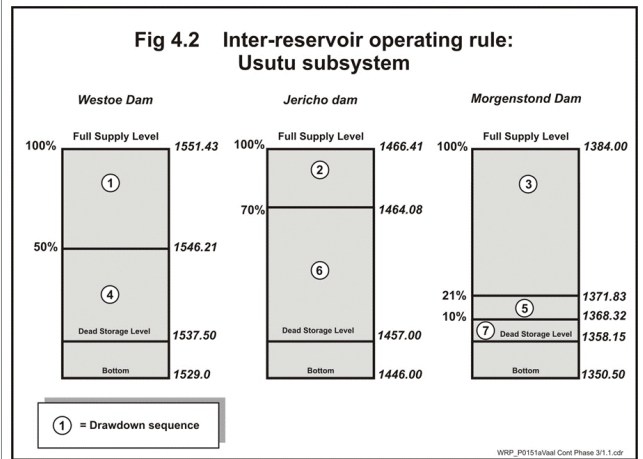
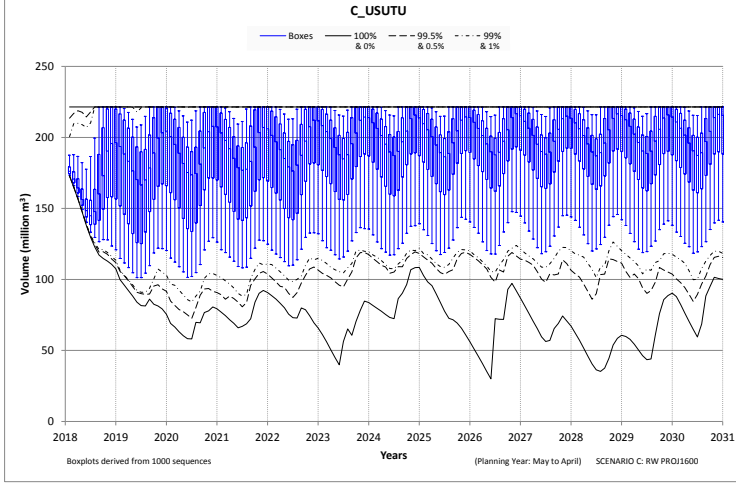
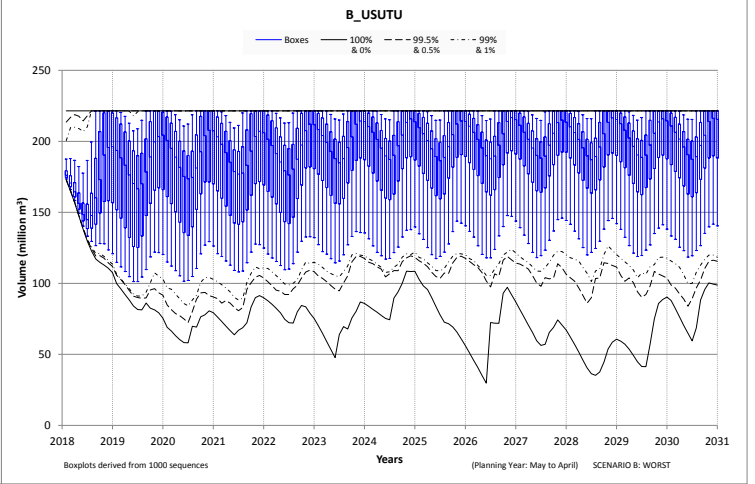
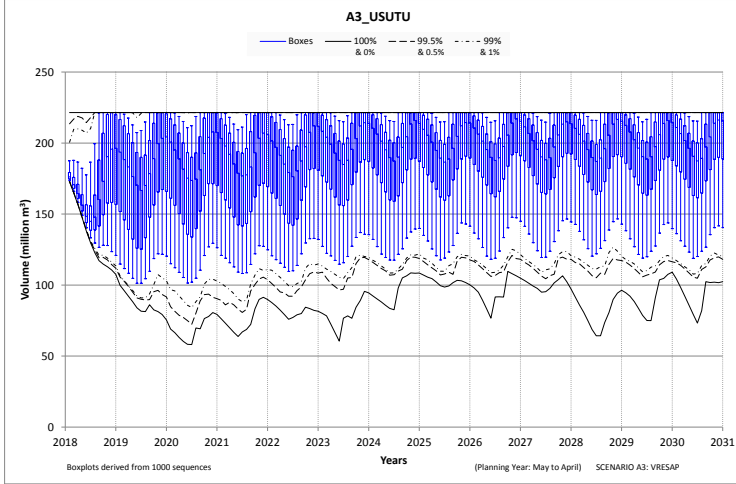
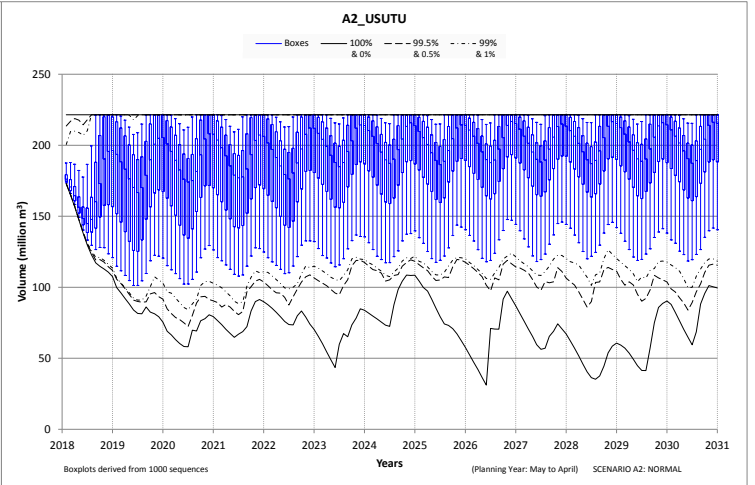
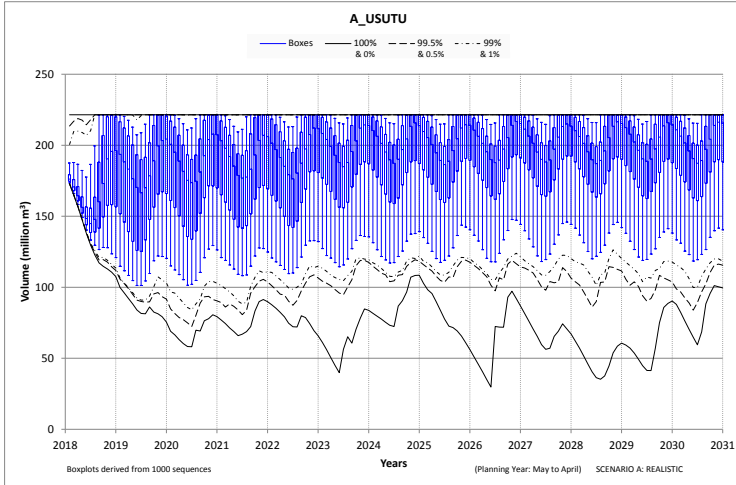
4.2 Morgenstond Dam



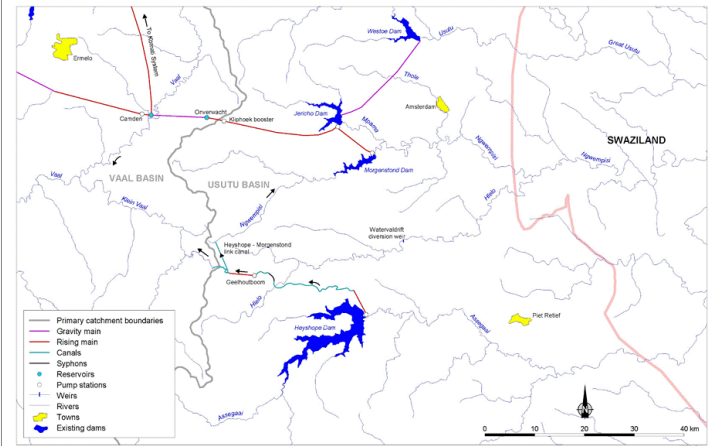
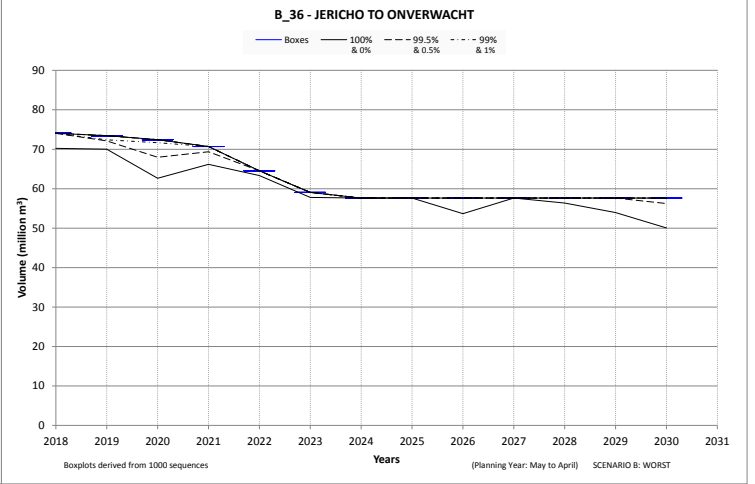
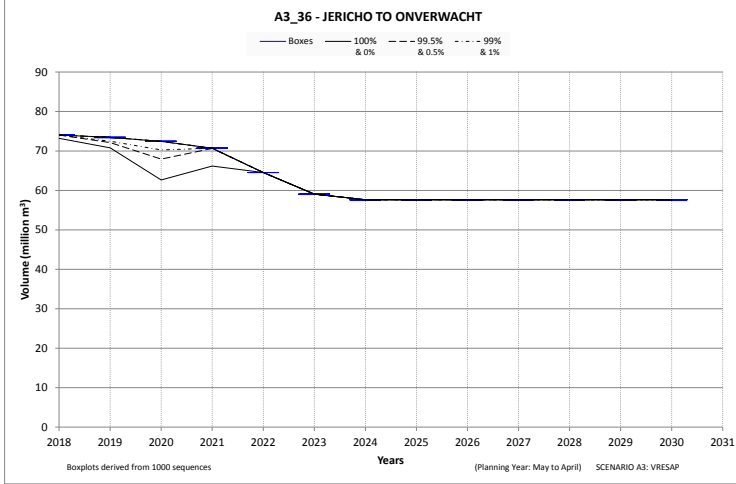
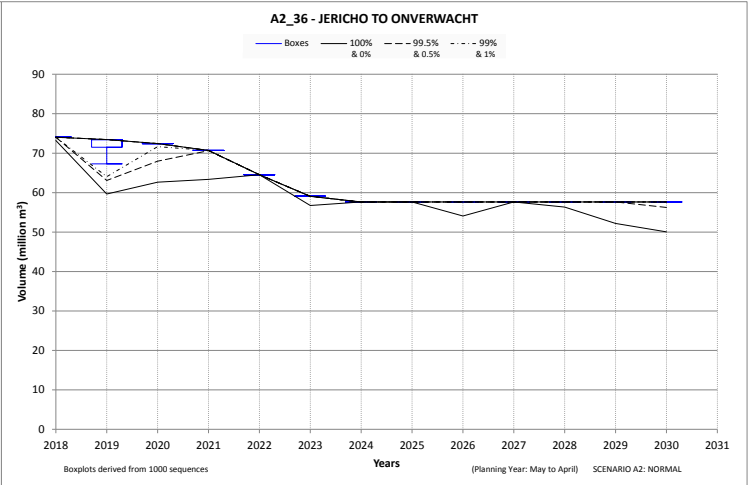
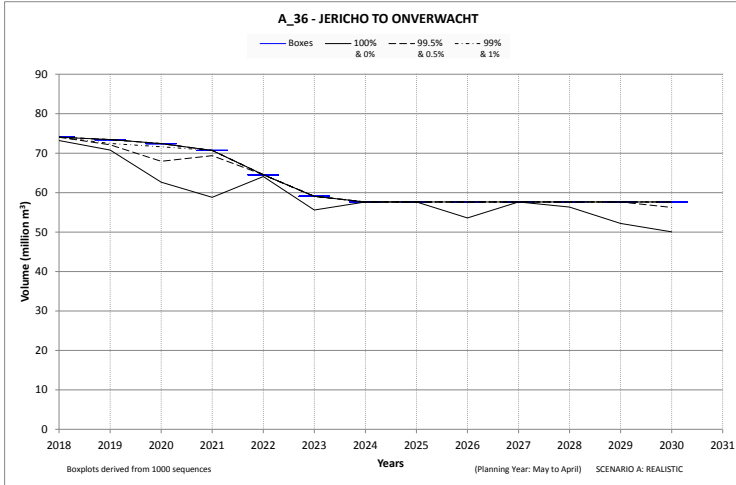
4.3 Heyshope to Morgensond Link



4.4 Usutu Subsystem



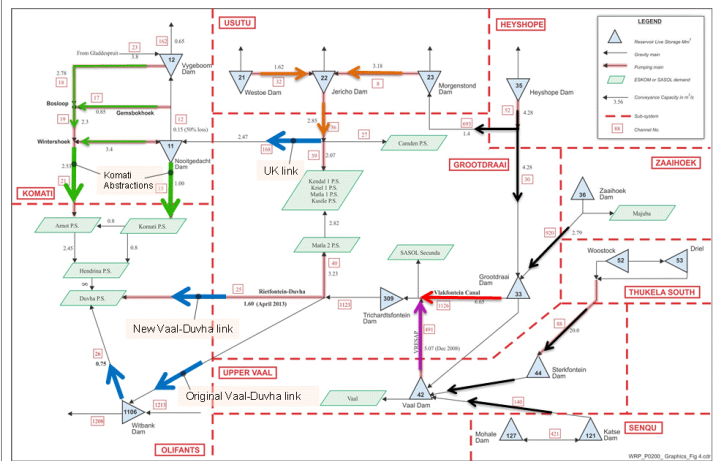
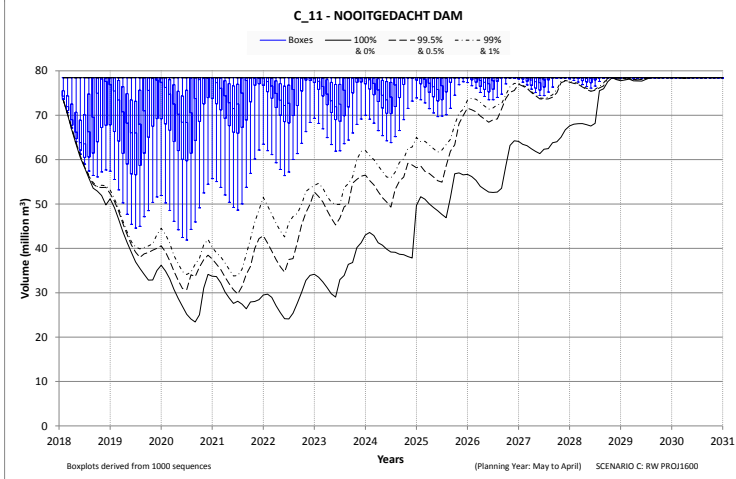
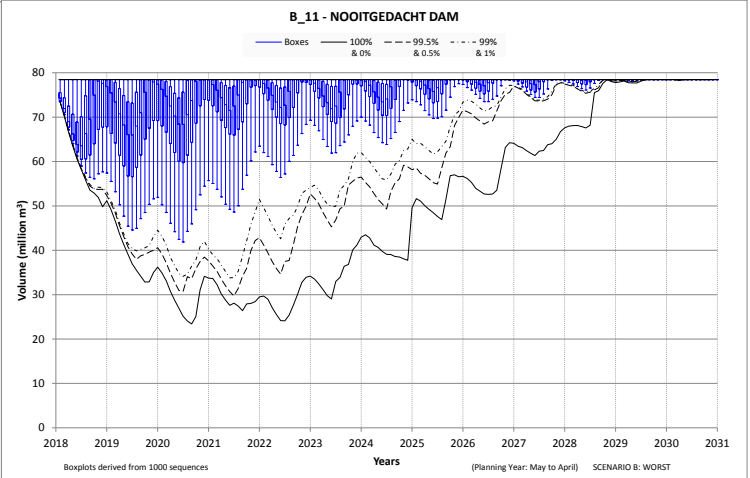
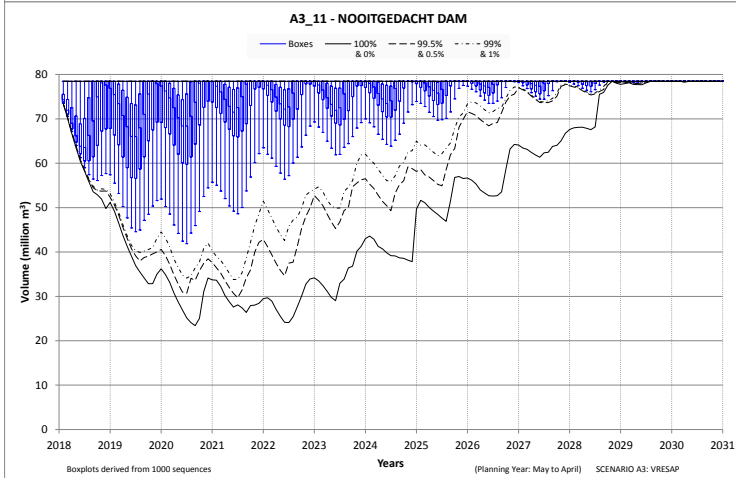
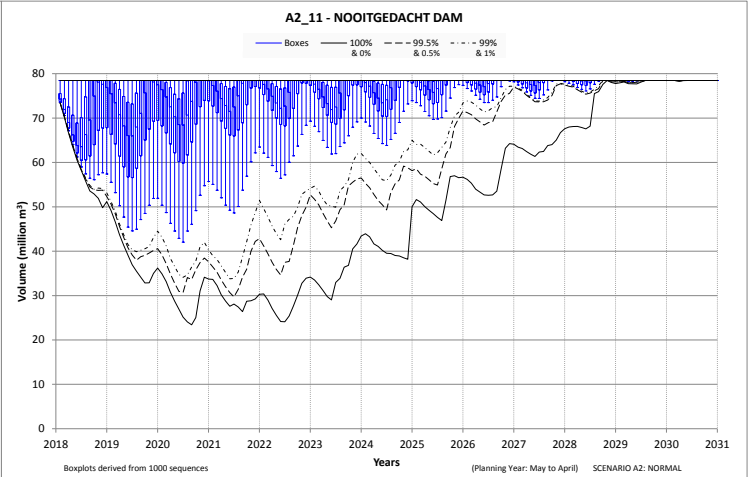
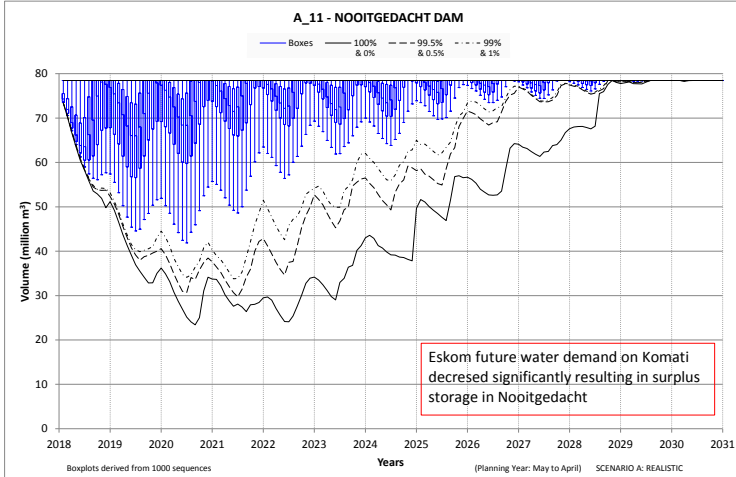
4.5 Jericho to Onverwacht



5 KOMATI SUBSYSTEM

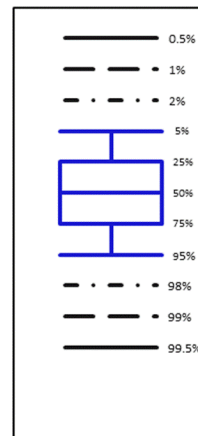
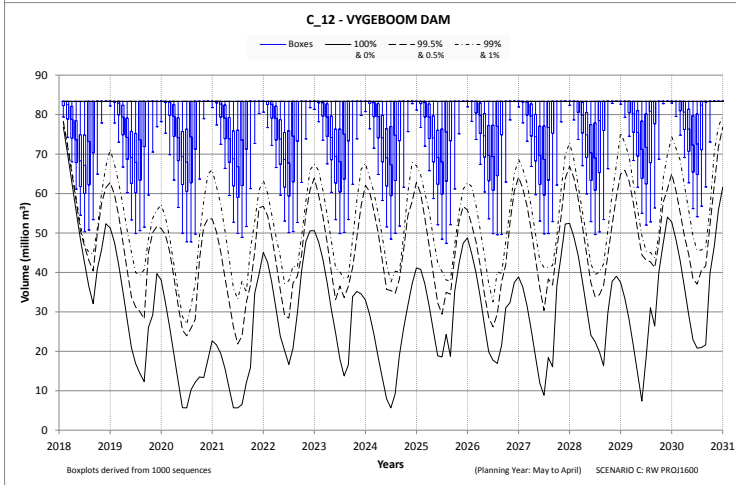
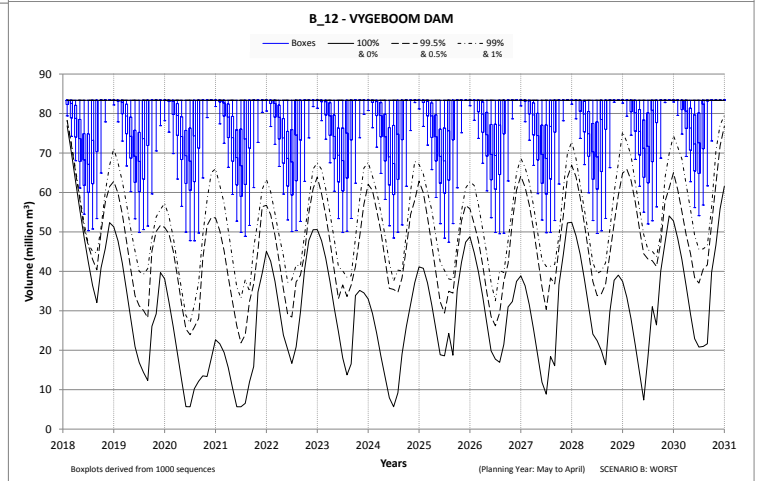
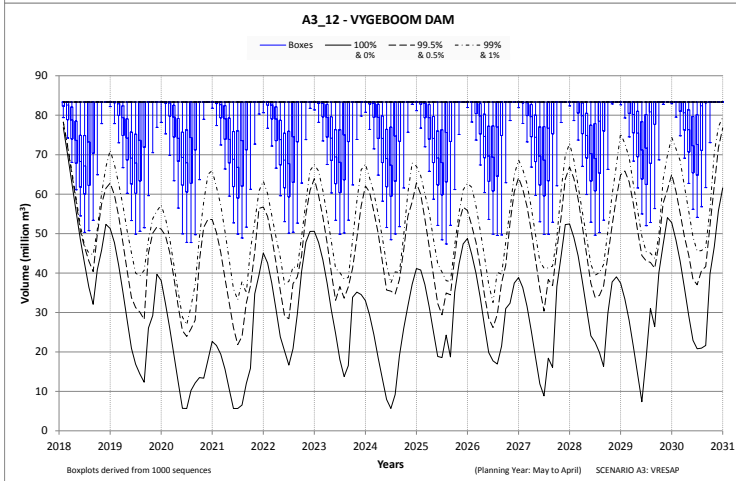
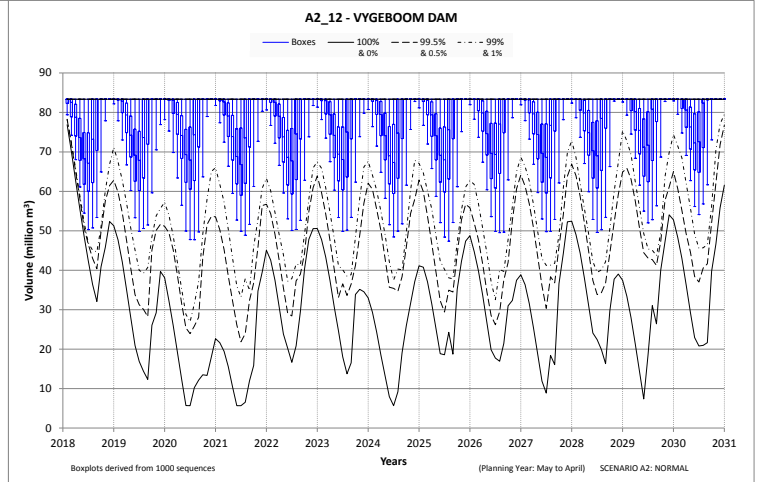
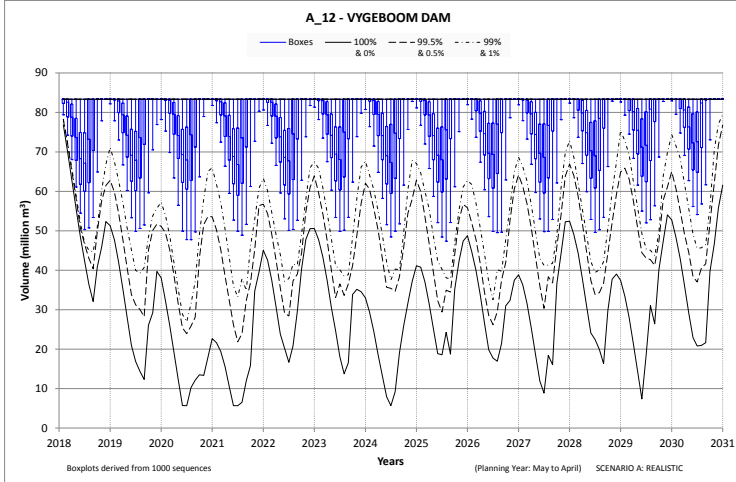
5.1 Nooitgedacht Dam

X1R001:Komati at Nooitgedacht Dam	Graph	Data	Photo	?
X1H018:Komati at Gemsbokhoek	Graph	Data	Photo	-

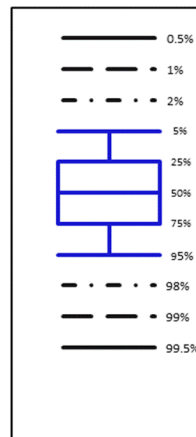
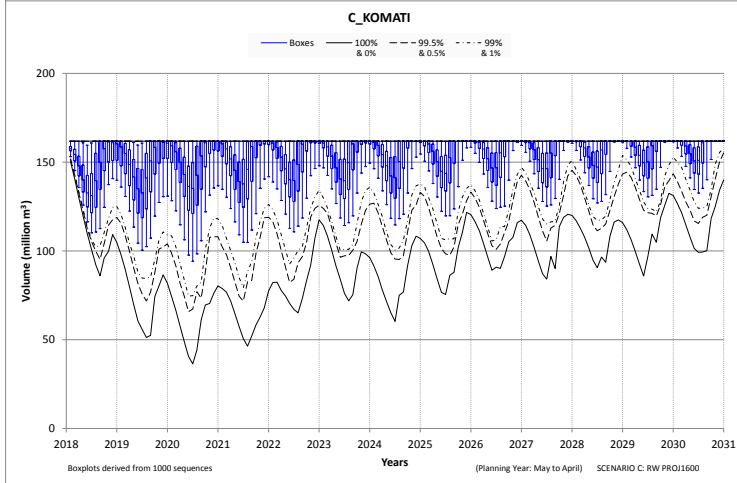
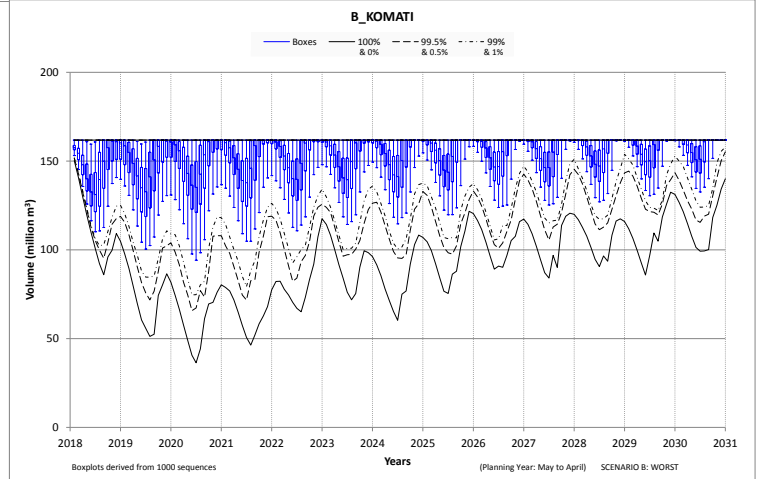
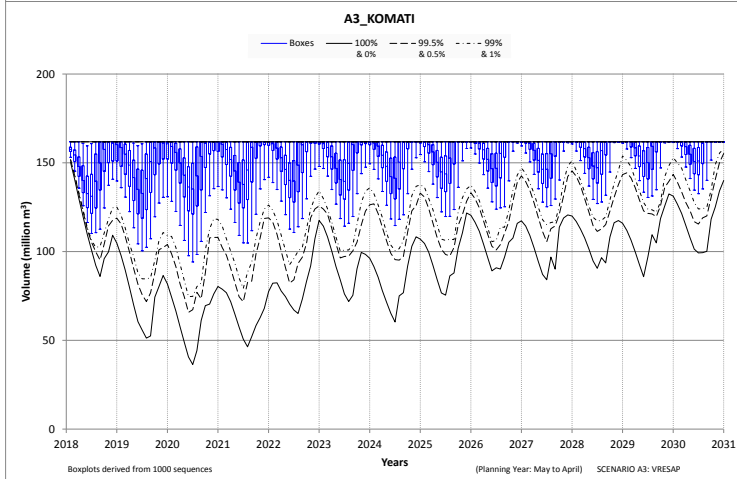
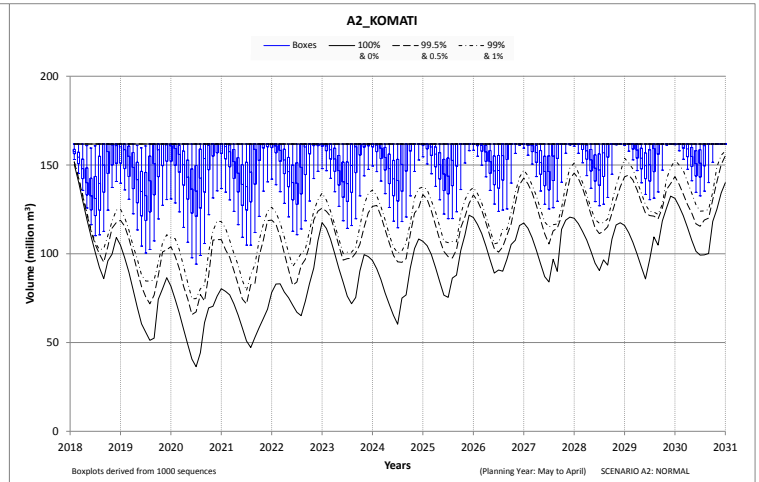
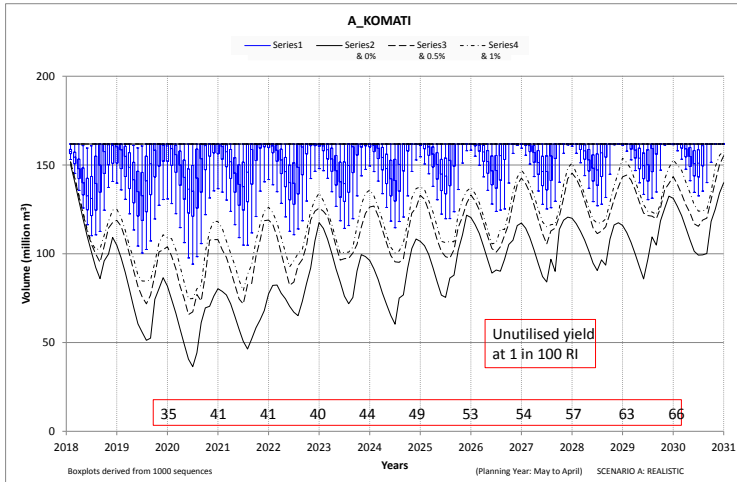


5.2 Vygeboom Dam

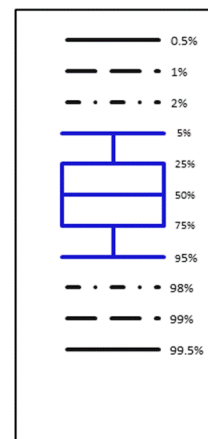
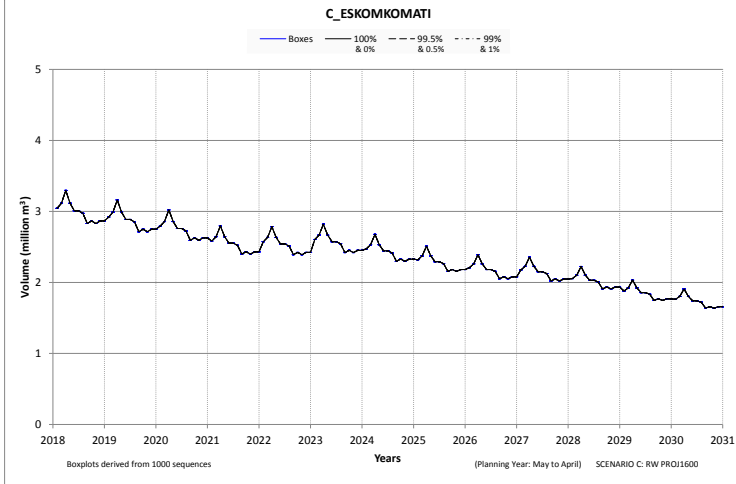
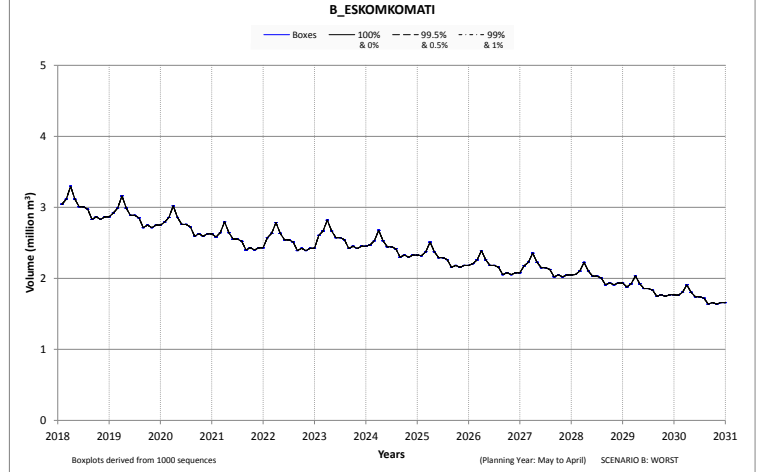
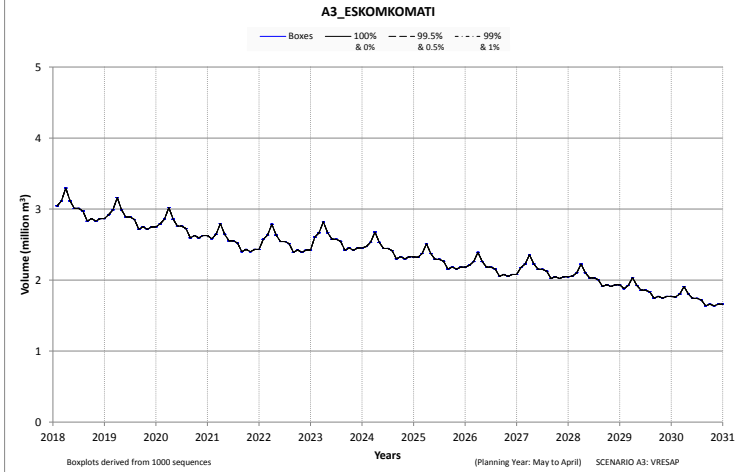
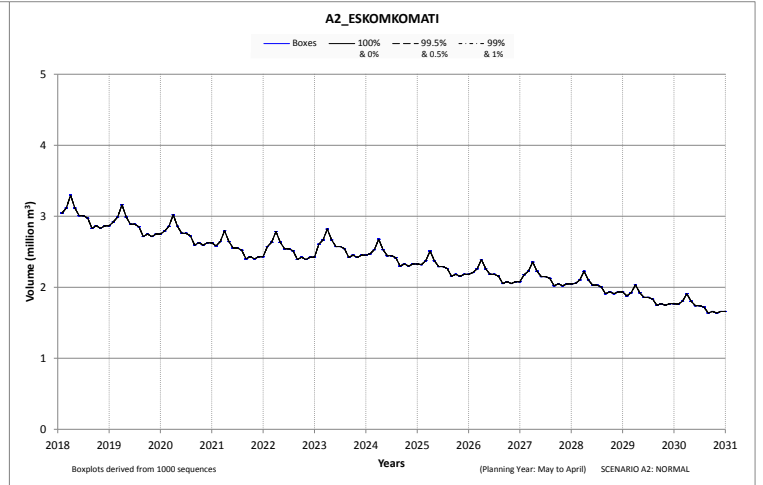
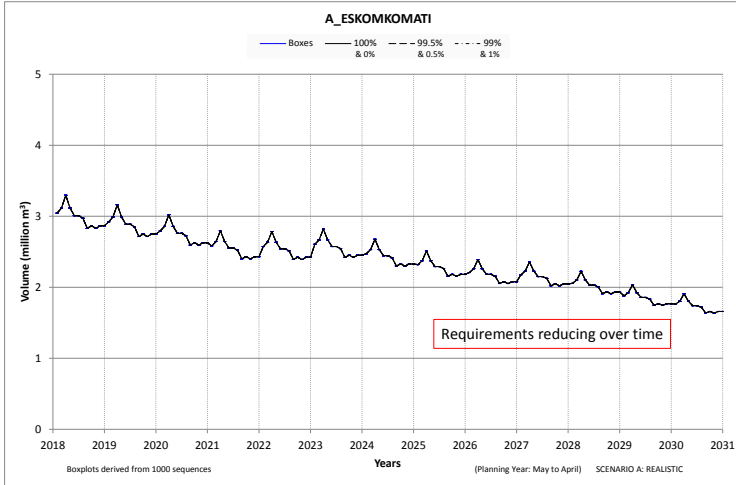
X1R003:Komati at Vygeboom Dam	Graph	Data	Photo	?
X1H036:Outflow from Vygeboom Dam	Graph	Data	Photo	-



5.3 Komati Subsystem

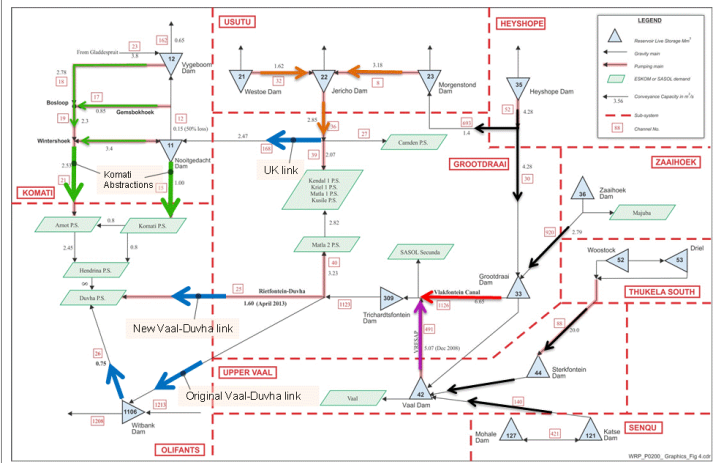
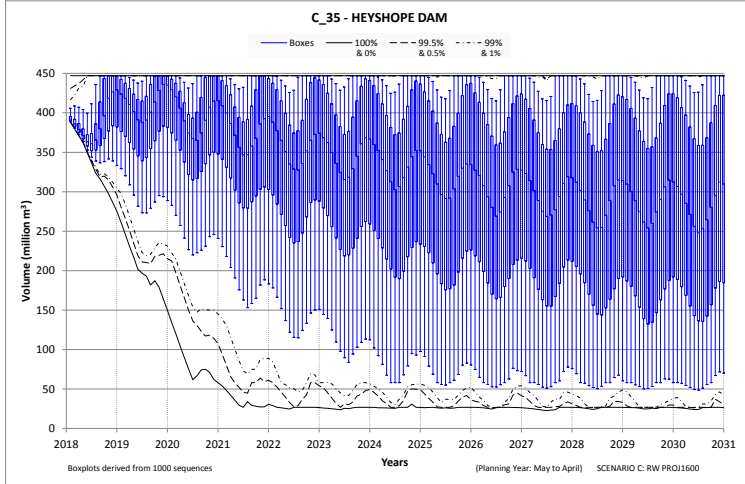
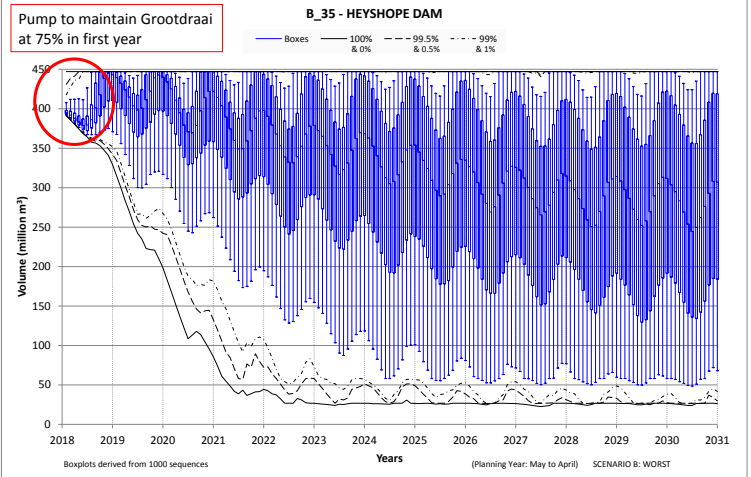
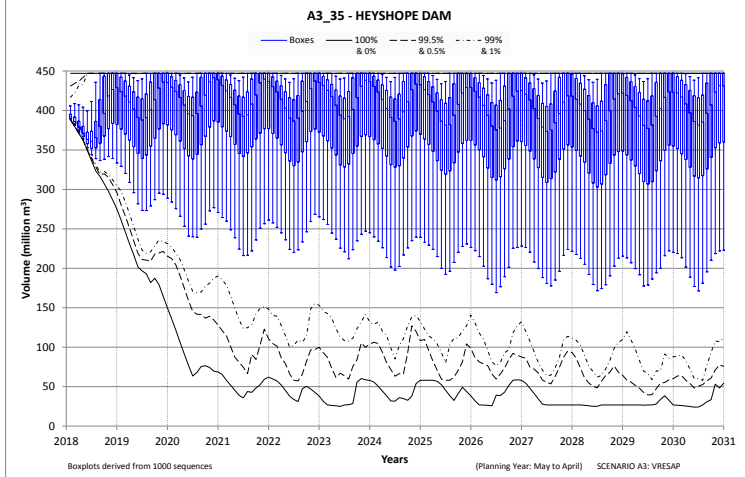
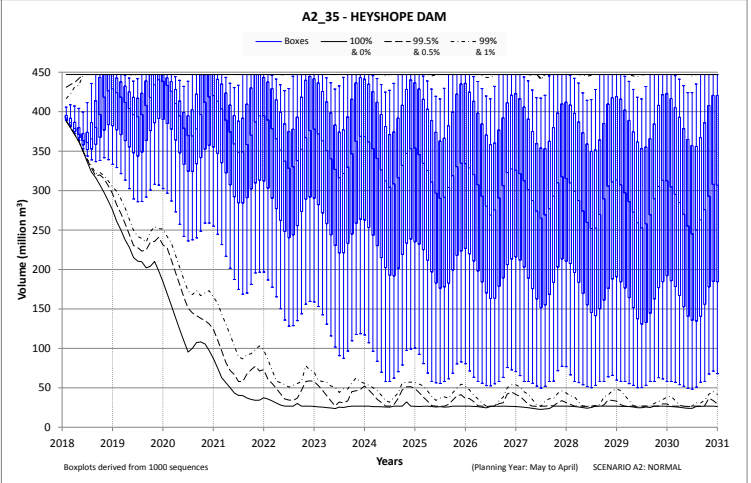
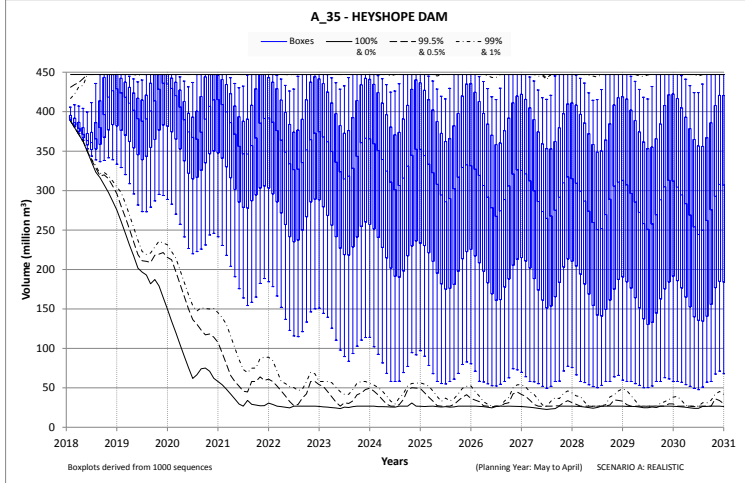


5.4 Eskom Komati



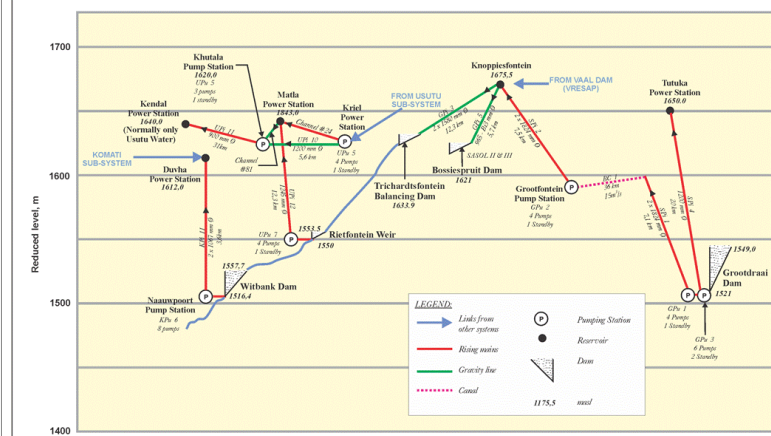
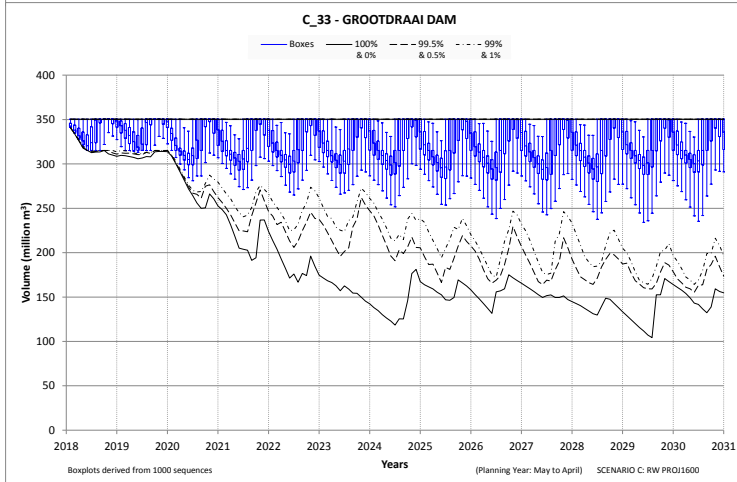
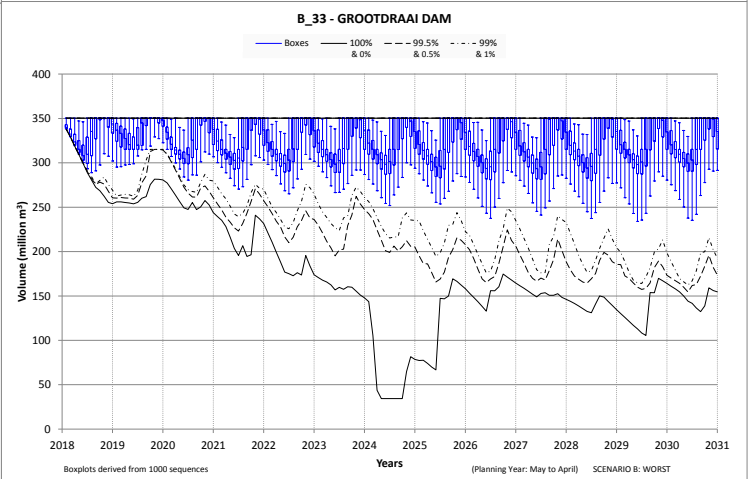
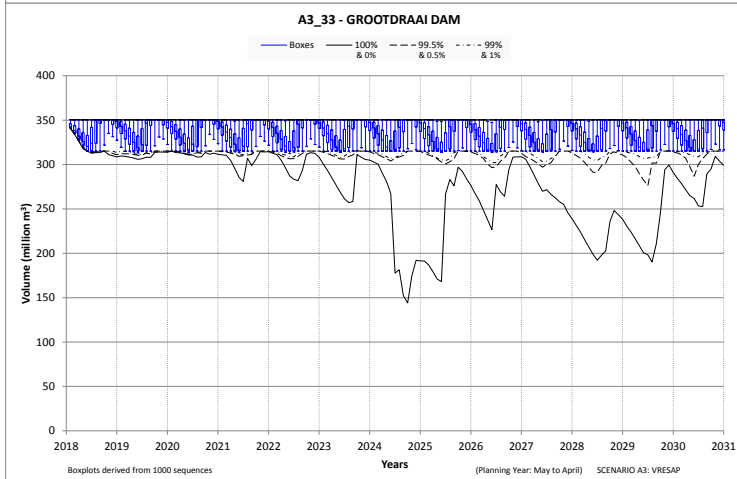
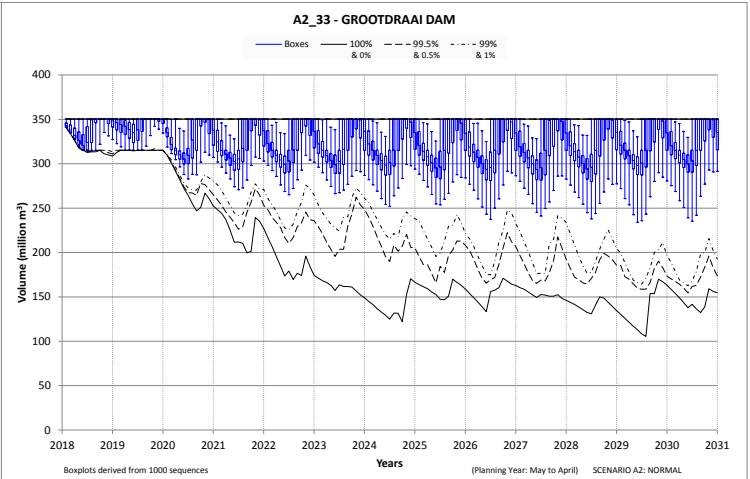
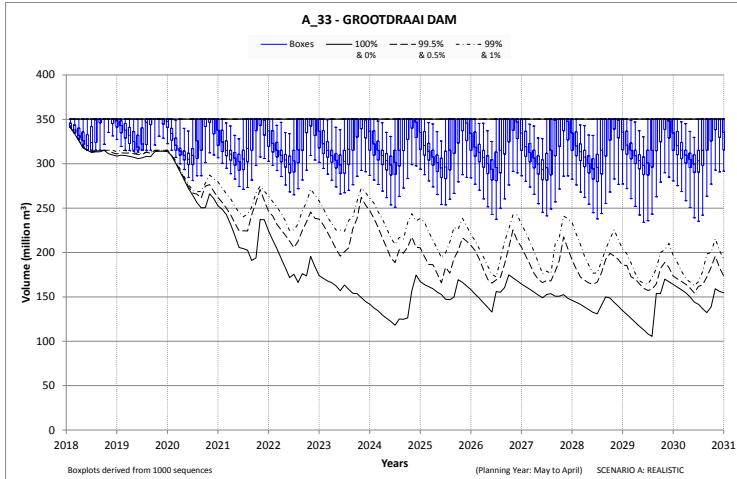
6 UPPER SYSTEM

6.1 Heyshope Dam



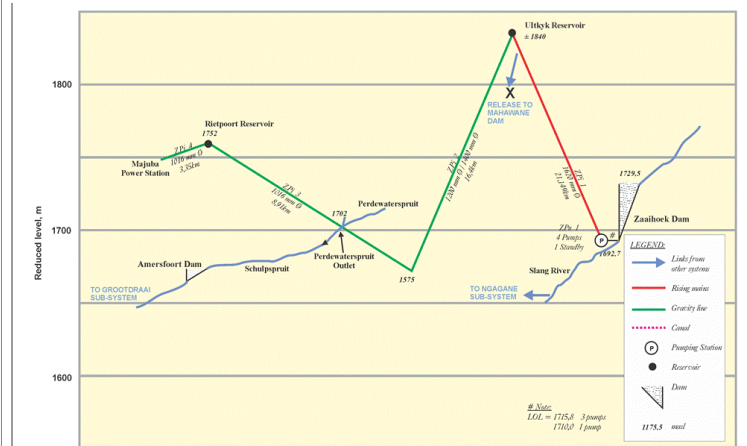
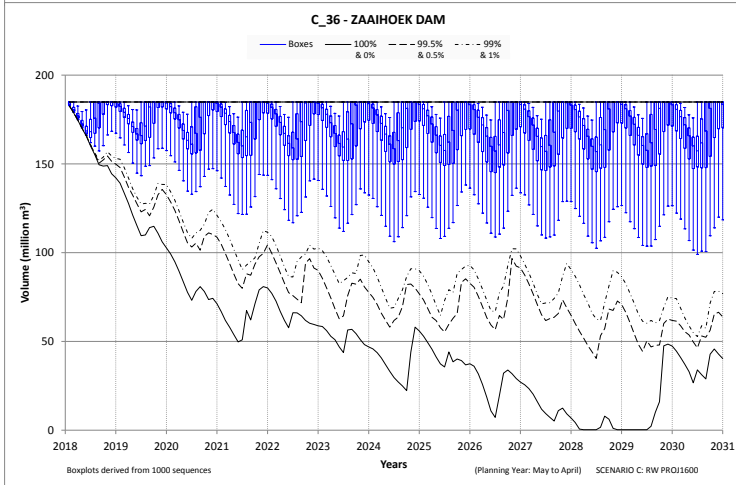
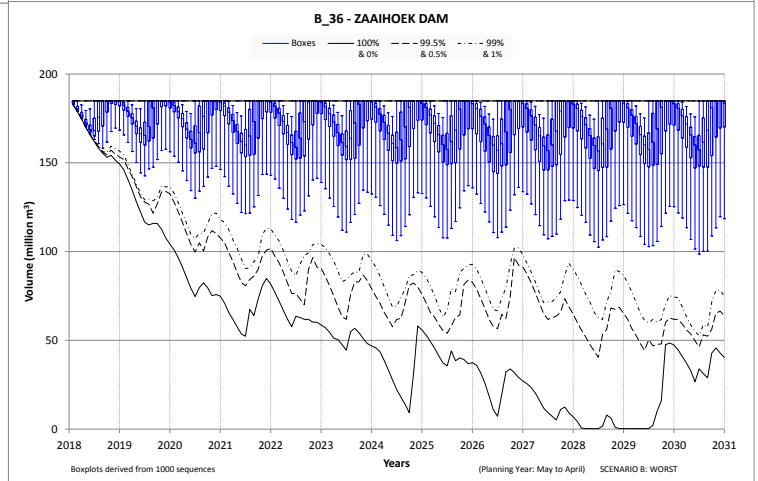
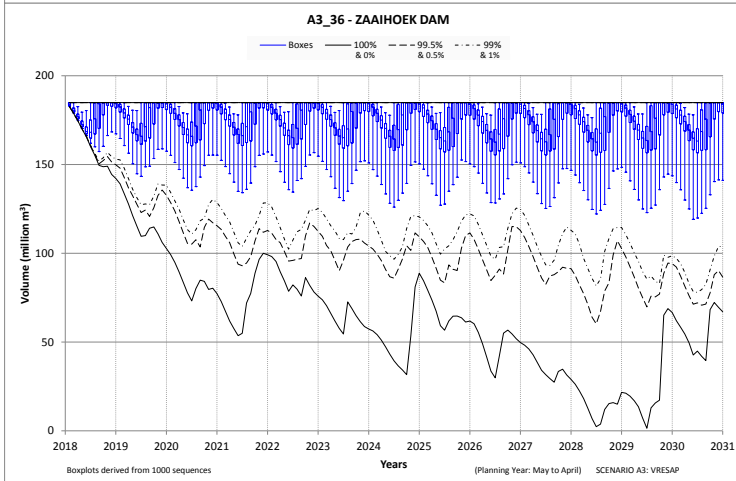
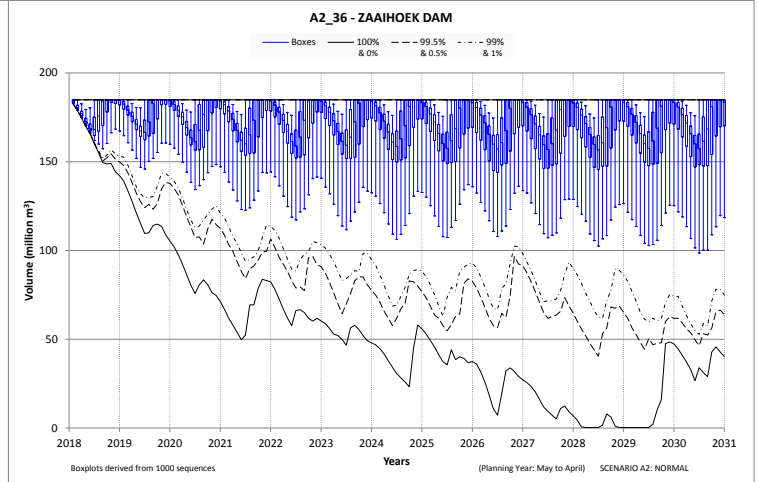
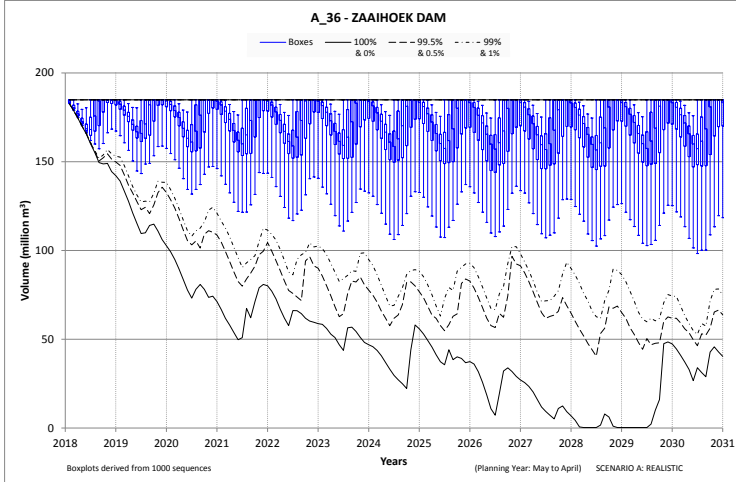
6.2 Grootdraai Dam

C1R002:Vaal at Grootdraai Dam	Graph	Data	Photo	?
C1H019:Outflow from Grootdraai Dam	Graph	Data	Photo	Map

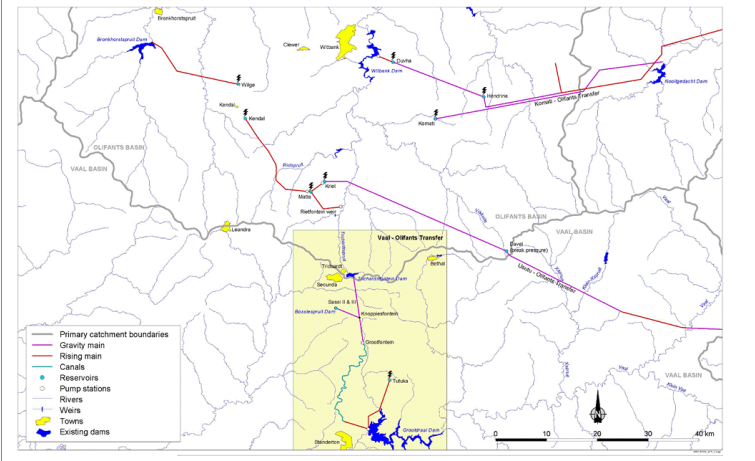
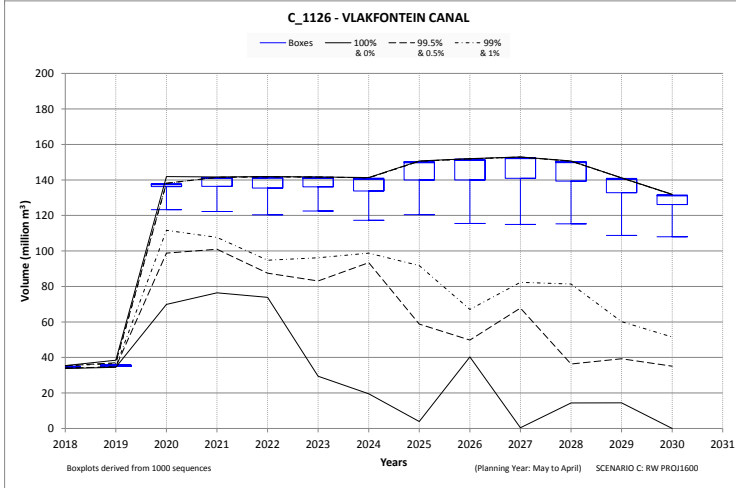
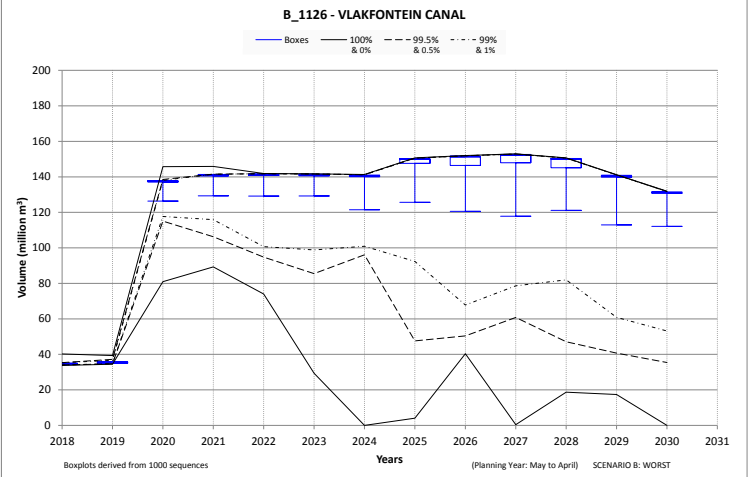
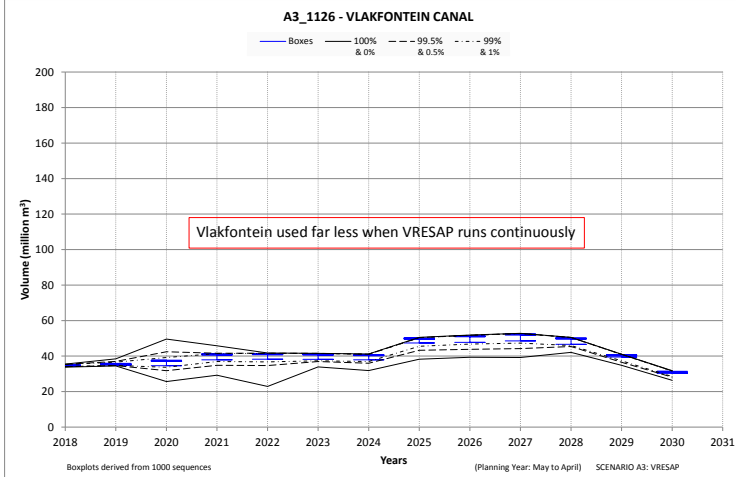
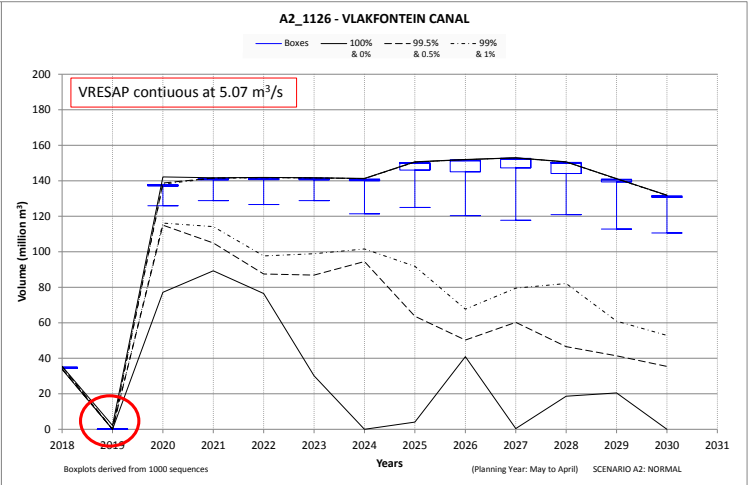
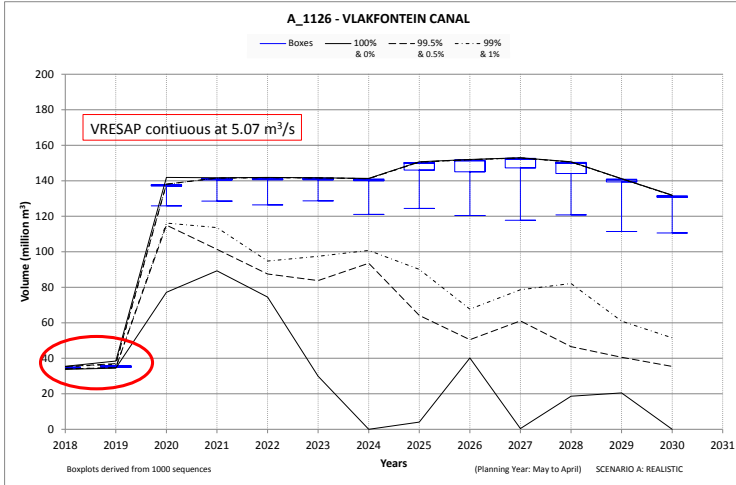


6.3 Zaaihoek Dam

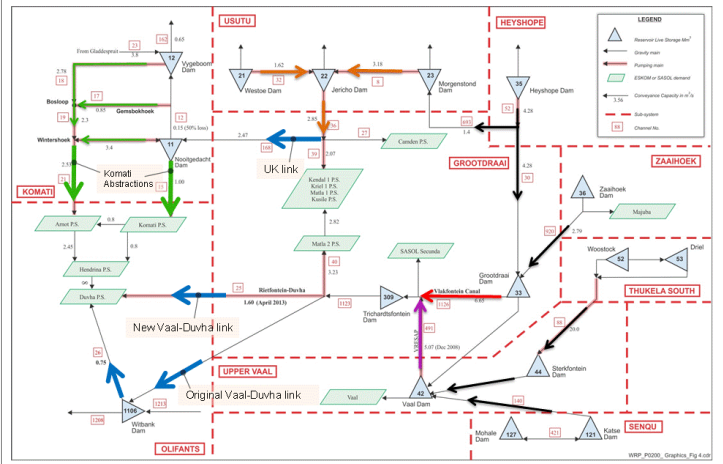
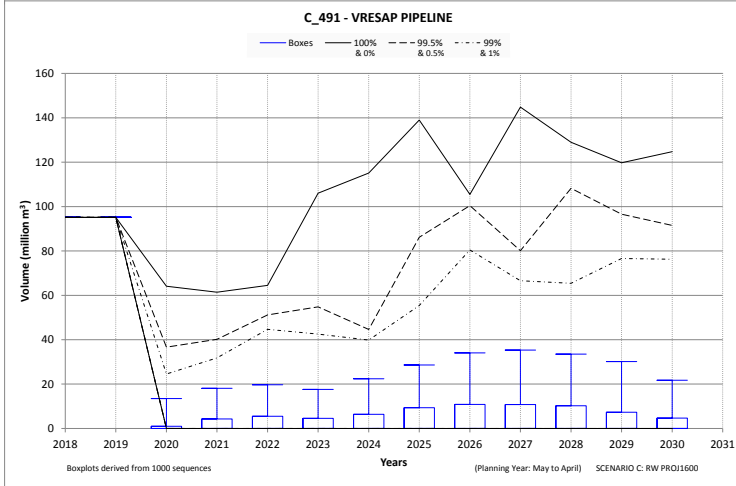
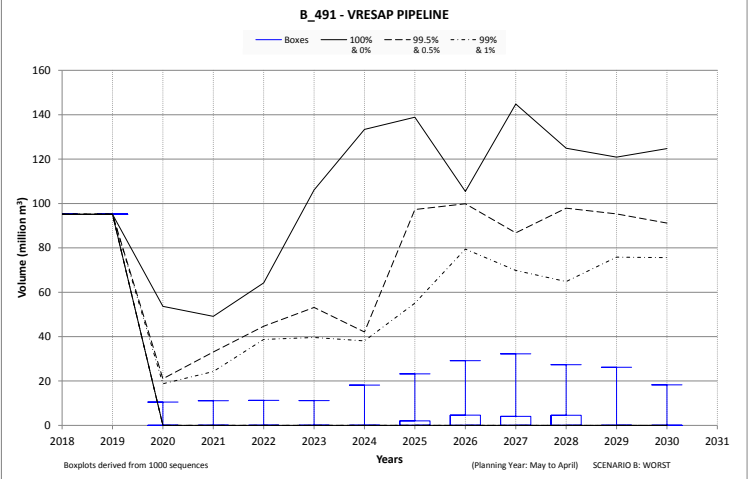
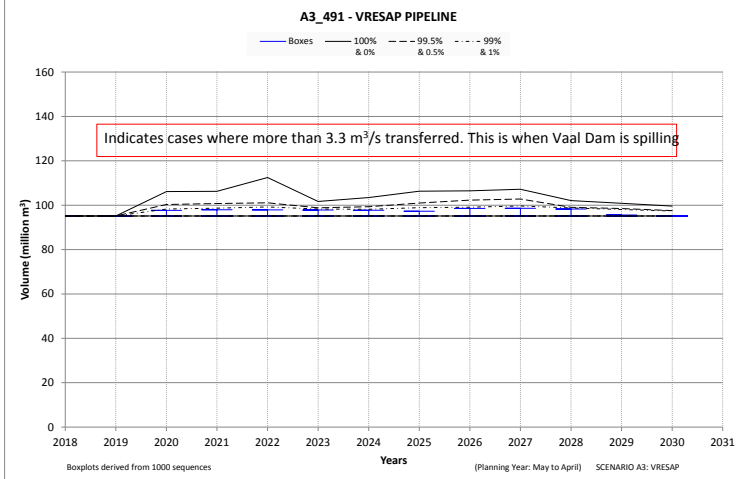
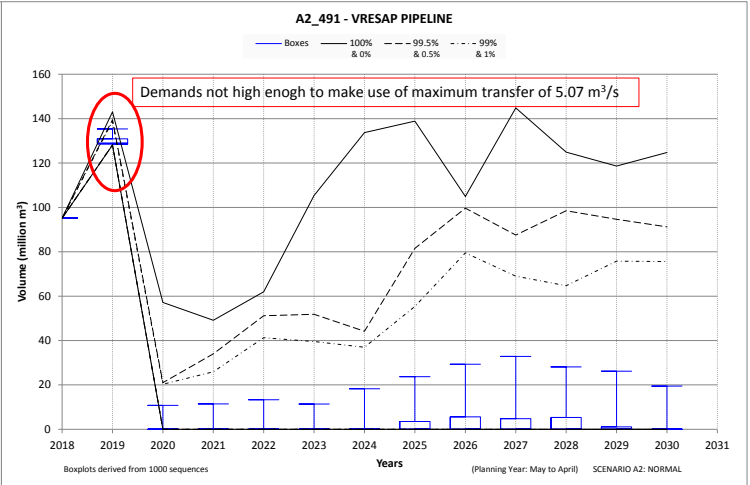
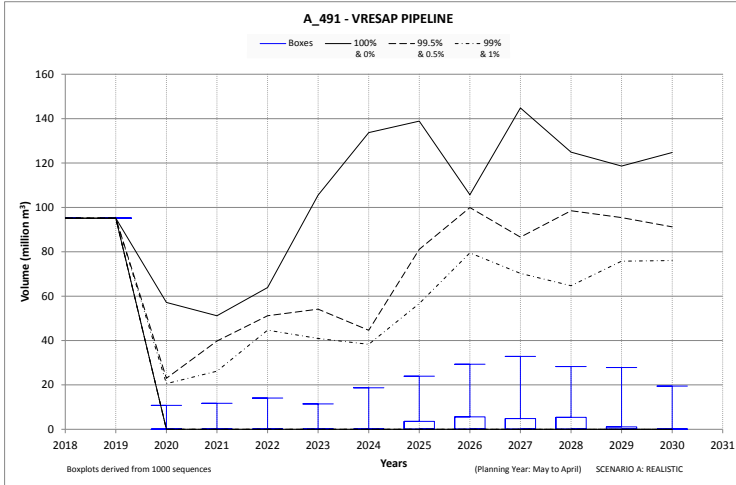
V3R003:Slang at Zaaihoek Dam	Graph	Data	Photo	?
V3H028:Slang River at Zaaihoek	Graph	Data	Photo	Map



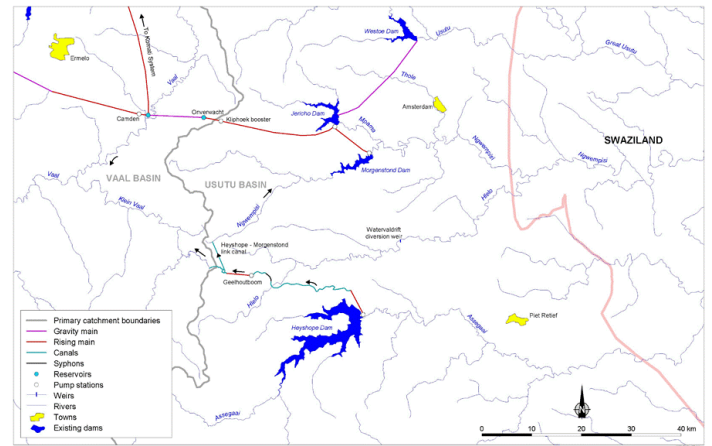
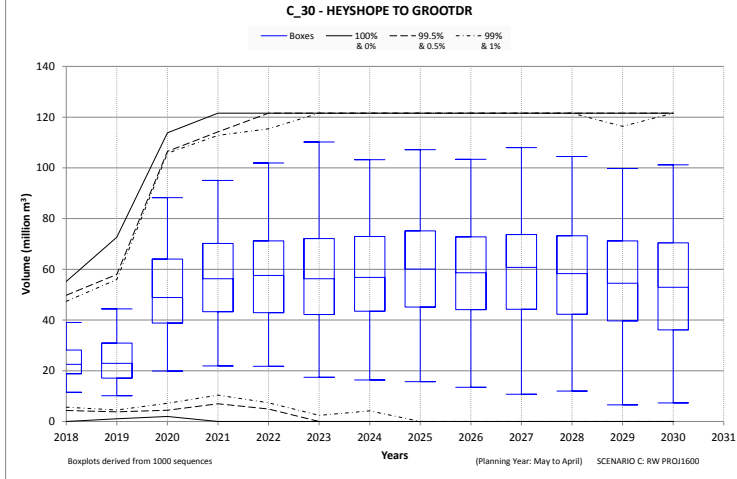
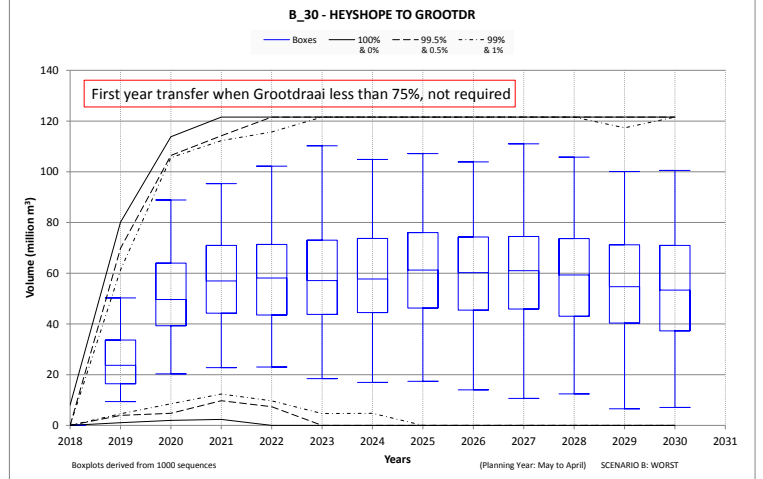
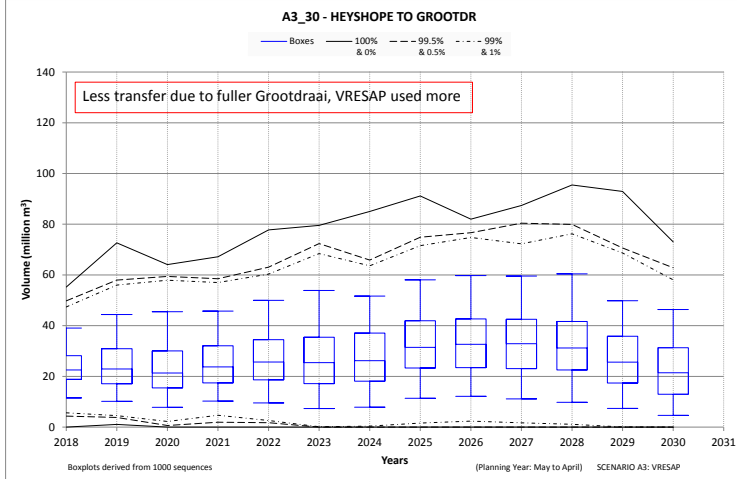
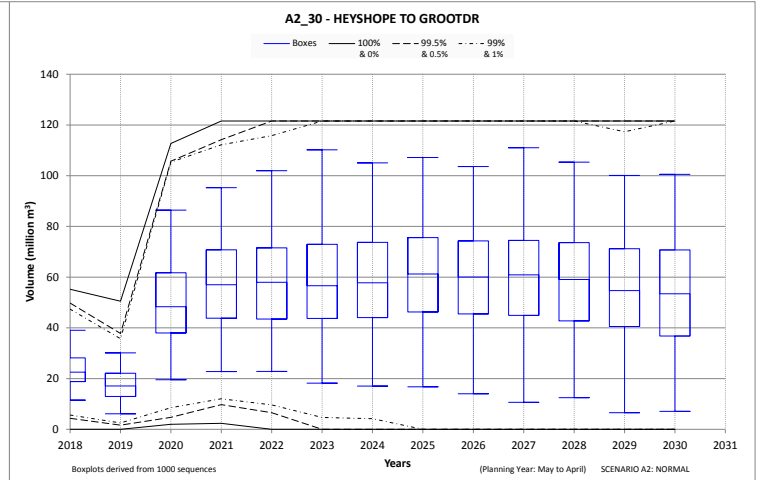
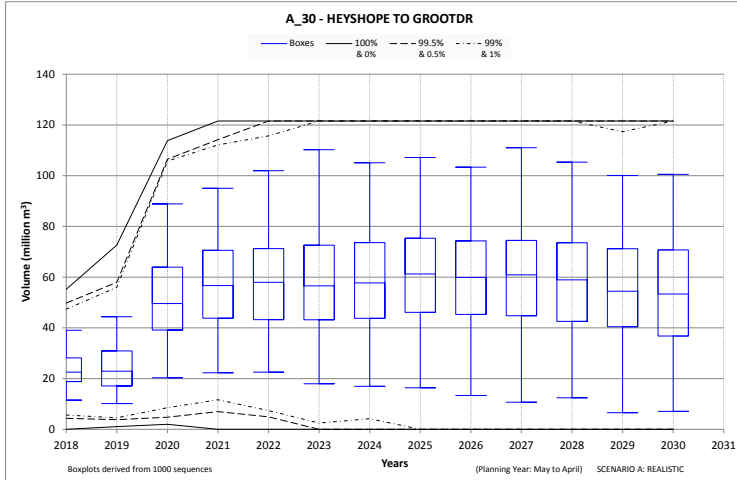
6.4 Vlakfontein Canal



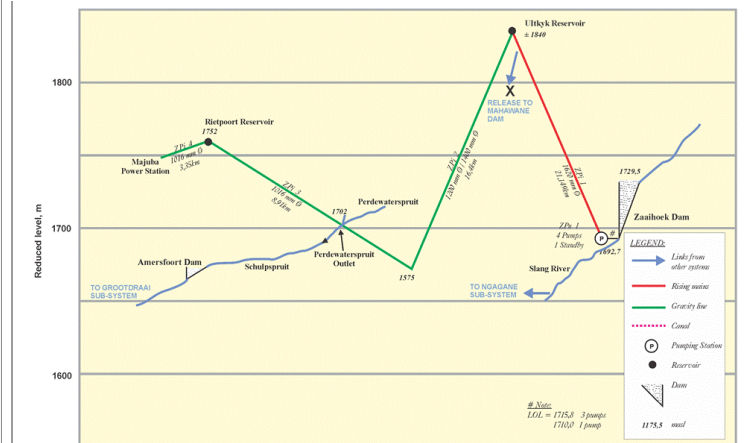
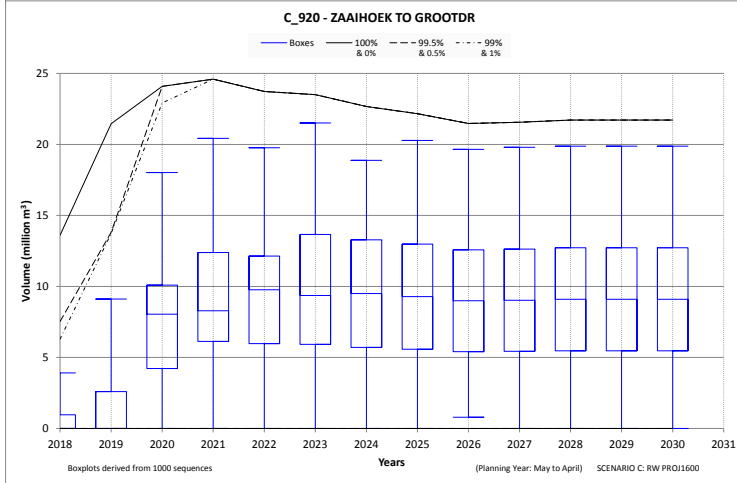
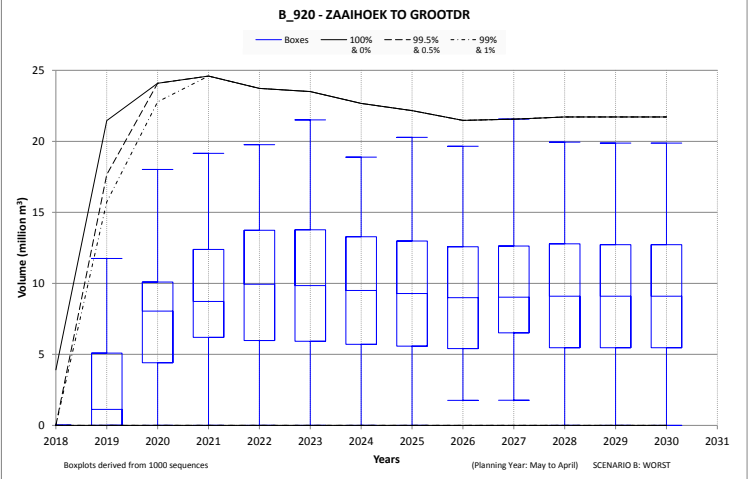
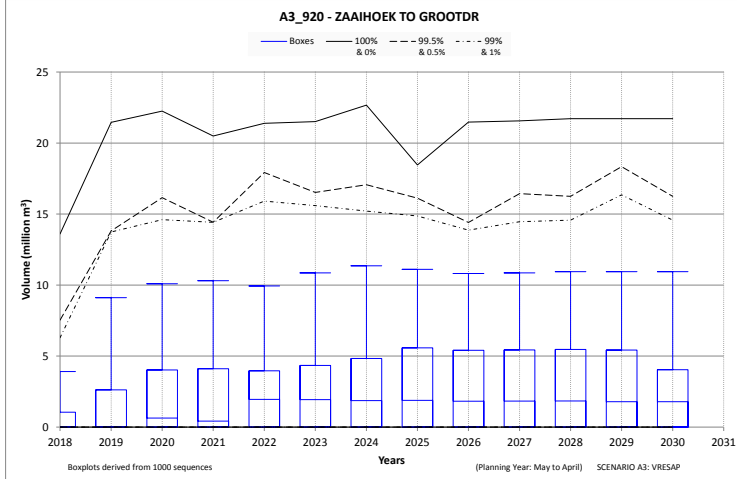
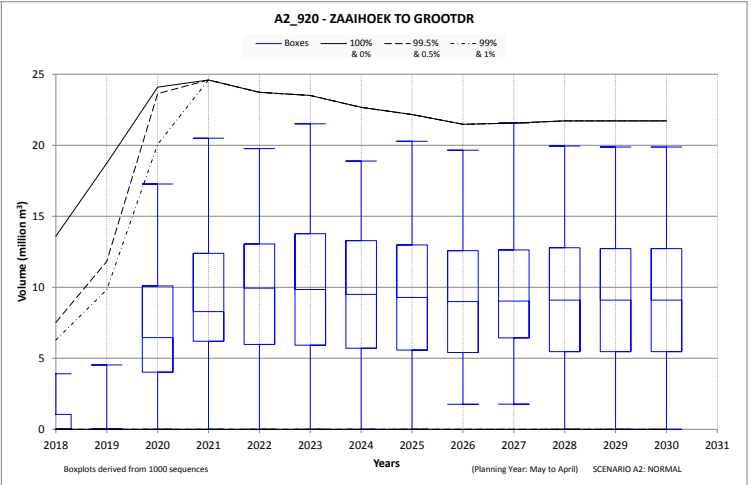
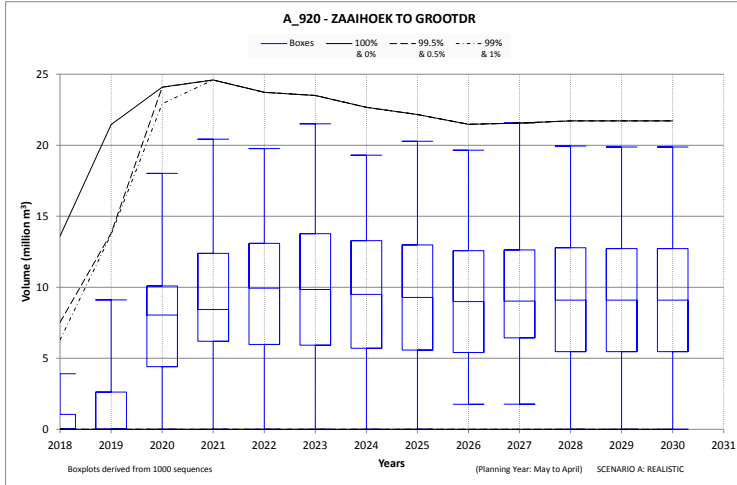
6.5 VRESAP Pipeline



6.6 Heyshope to Grootdraai Link



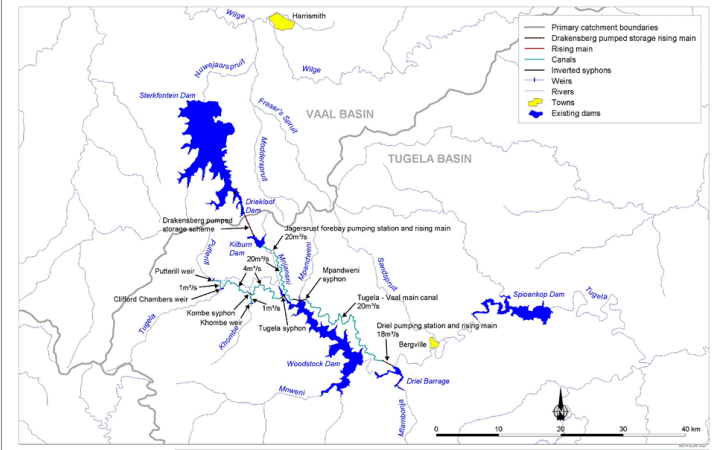
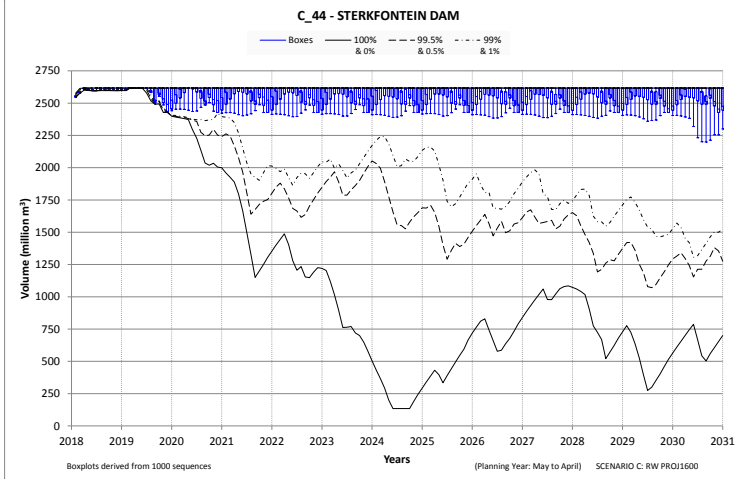
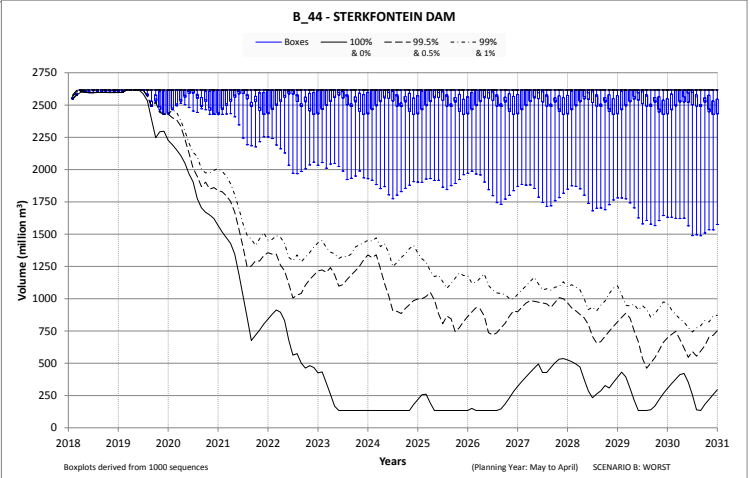
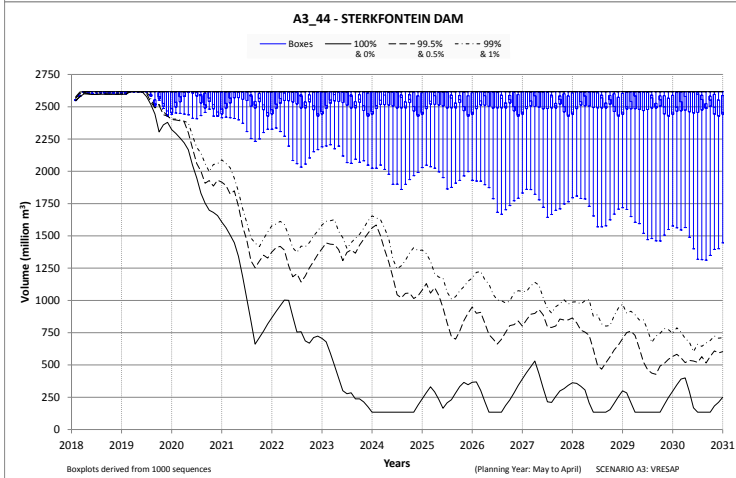
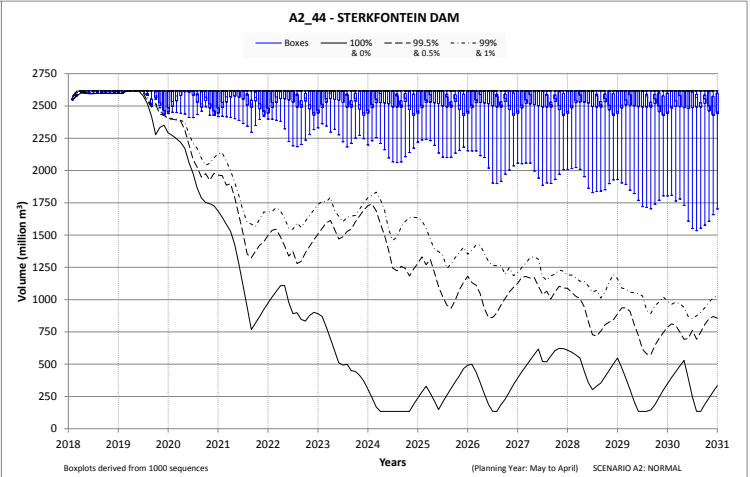
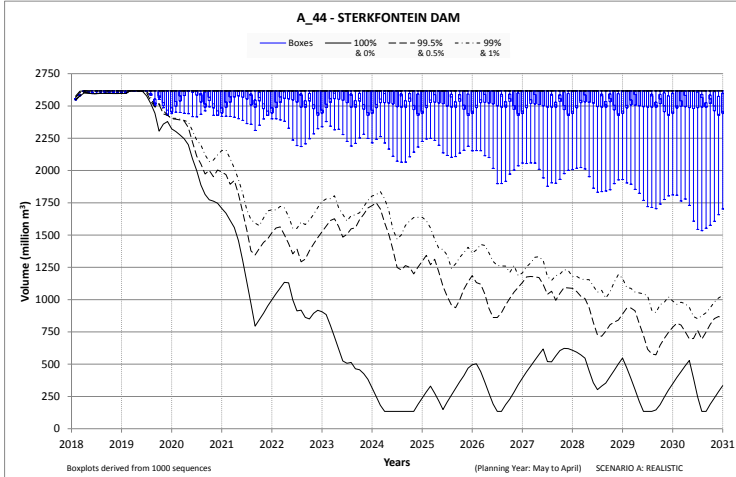
6.7 Zaaikoek to Grootdraai



7 VAAL TO BLOEMHOF SUBSYSTEM

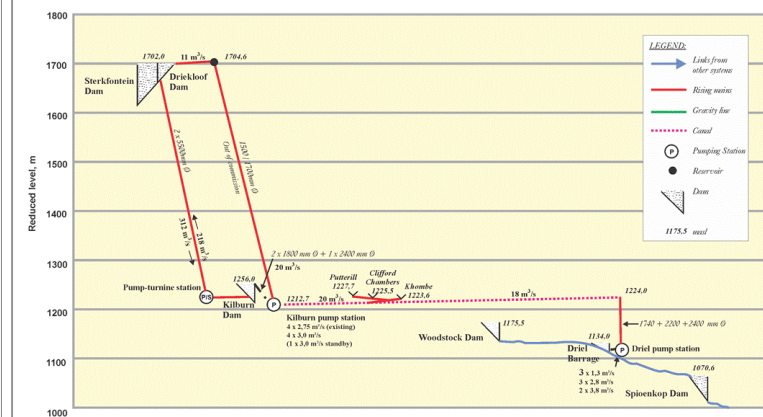
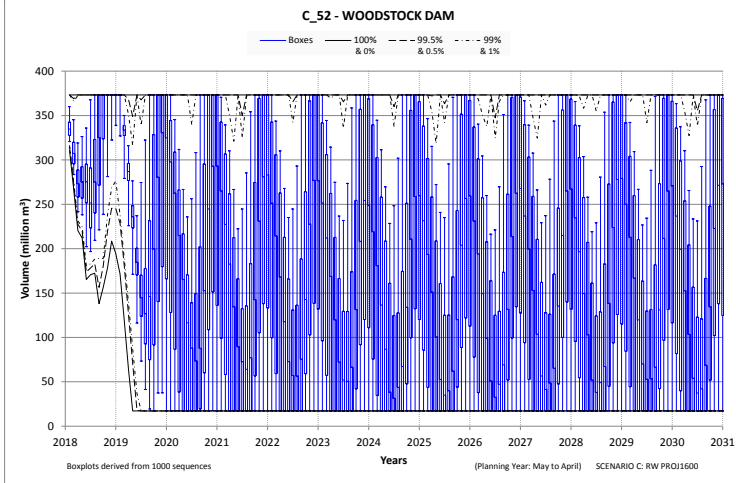
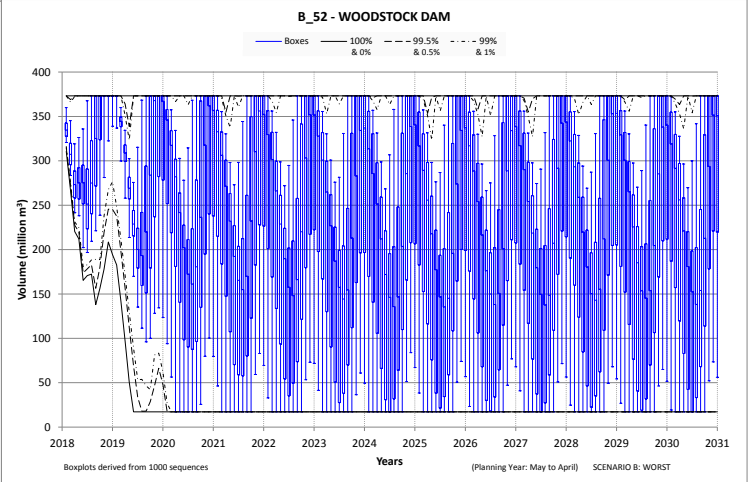
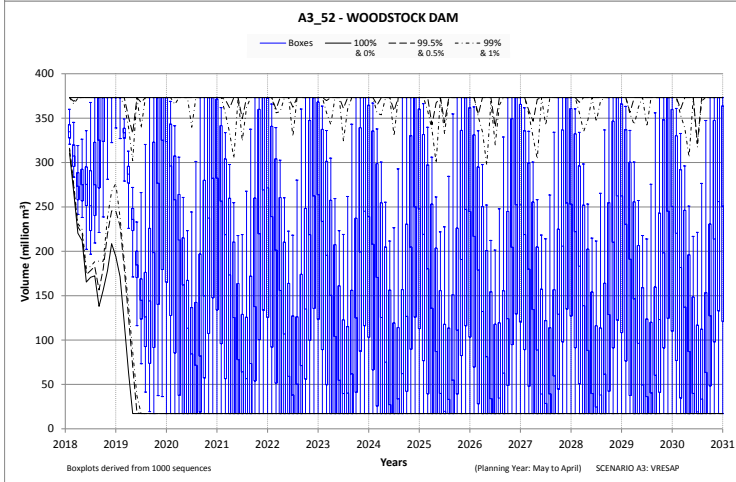
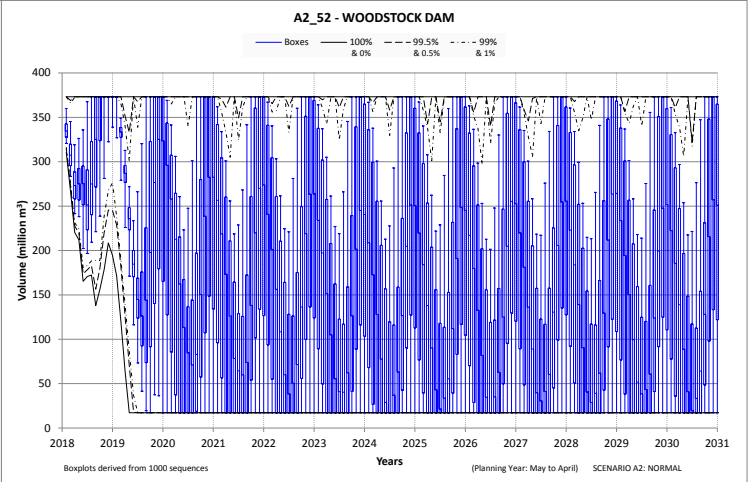
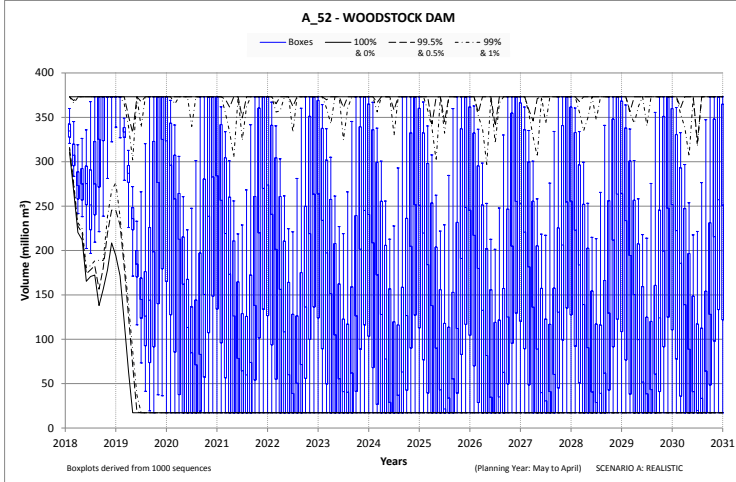
7.1 Sterkfontein Dam

C8R003:Nuwejaarspr at Sterkfontein Dam	Graph	Data	Photo	?
C1H002:Klip at Sterkfontein	Graph	Data	Photo	-

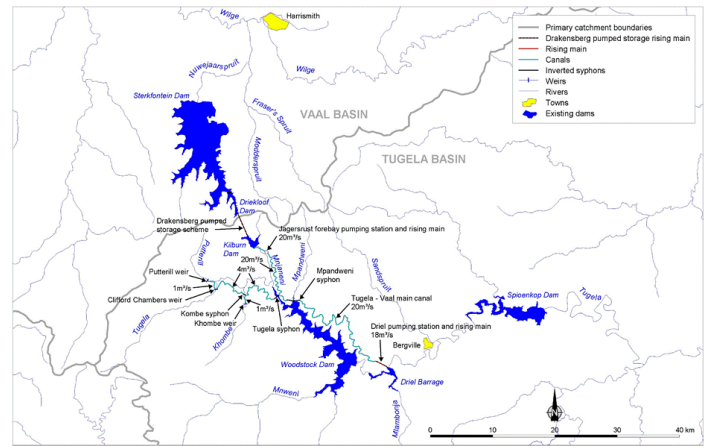
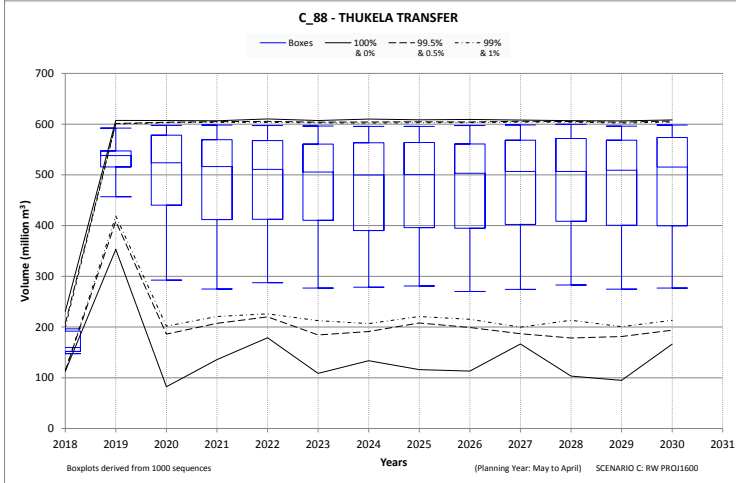
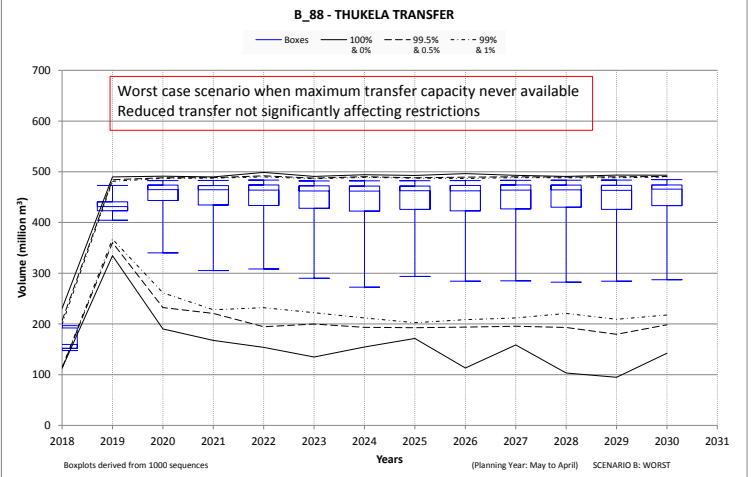
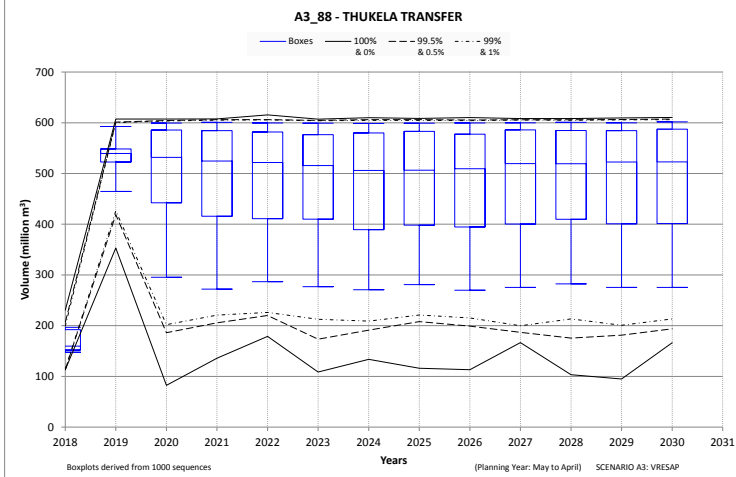
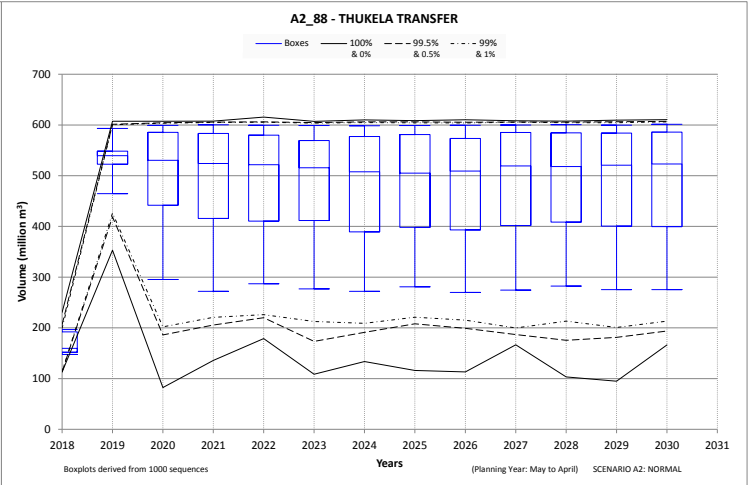
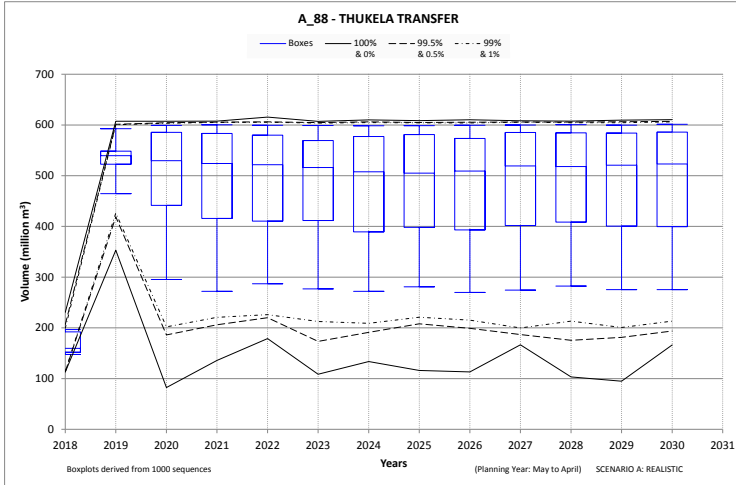


7.2 Woodstock Dam

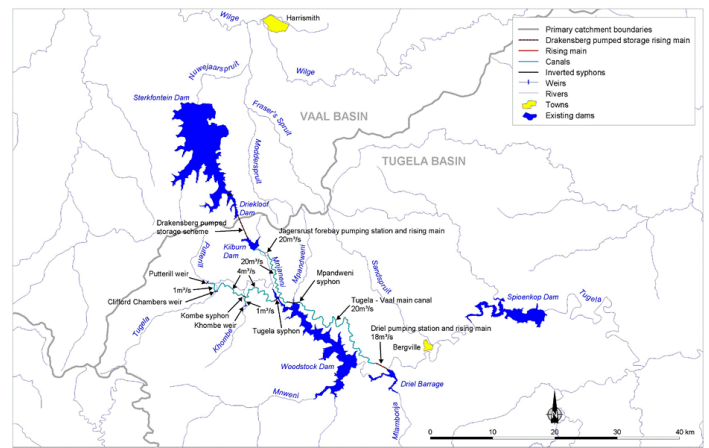
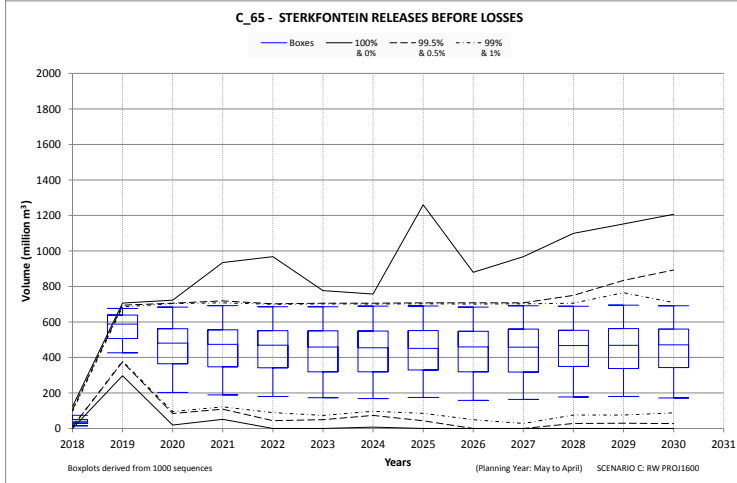
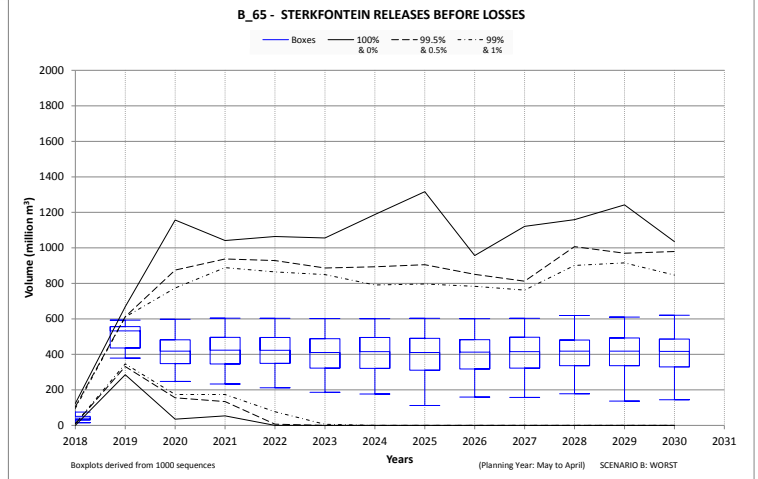
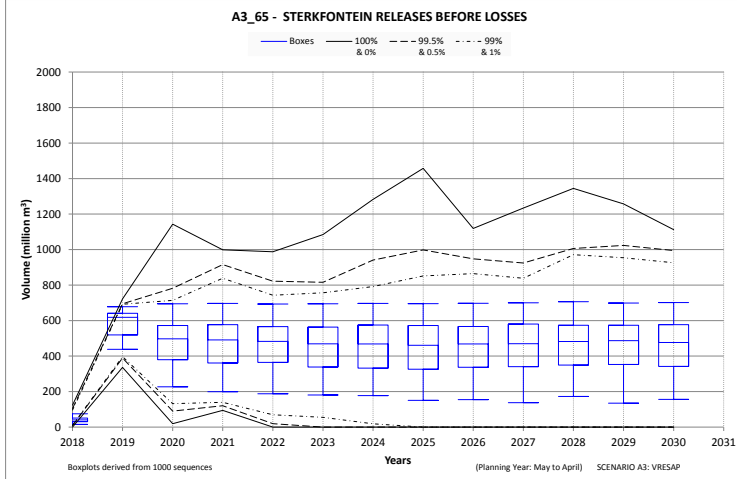
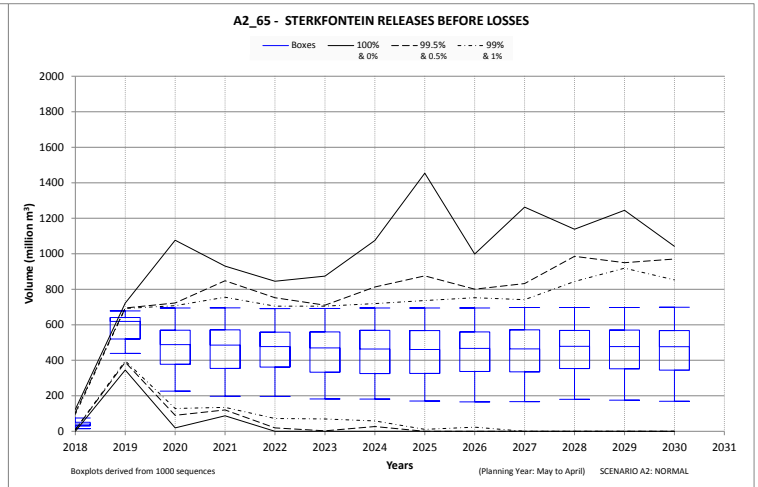
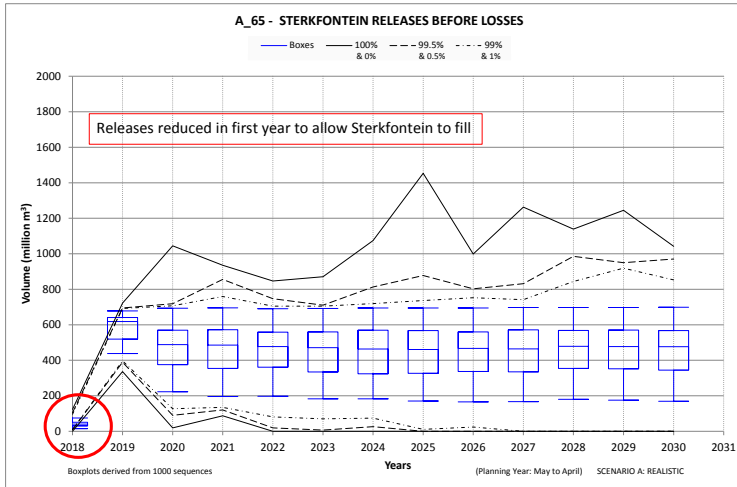
V1R003:Tugela at Woodstock Dam	Graph	Data	Photo	?
V1H040:Tuva canal at Woodstock	Graph	Data	Photo	-



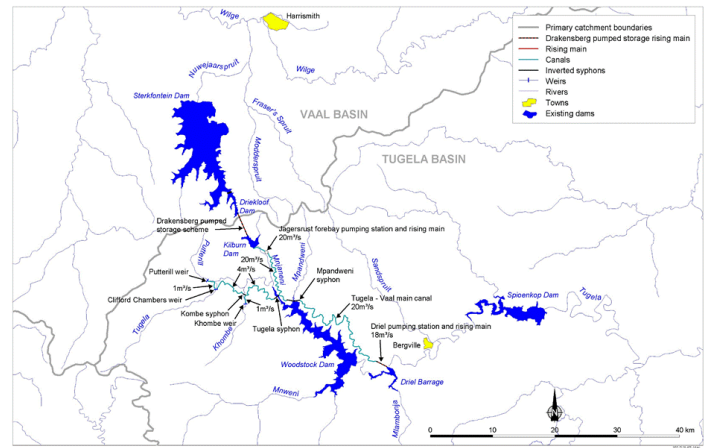
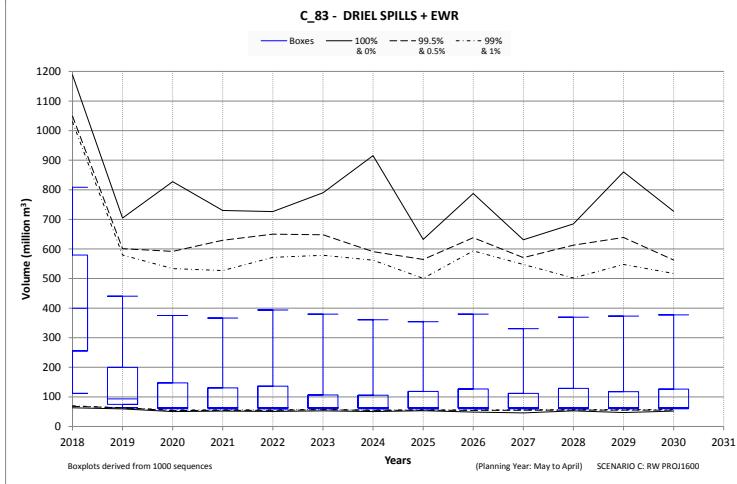
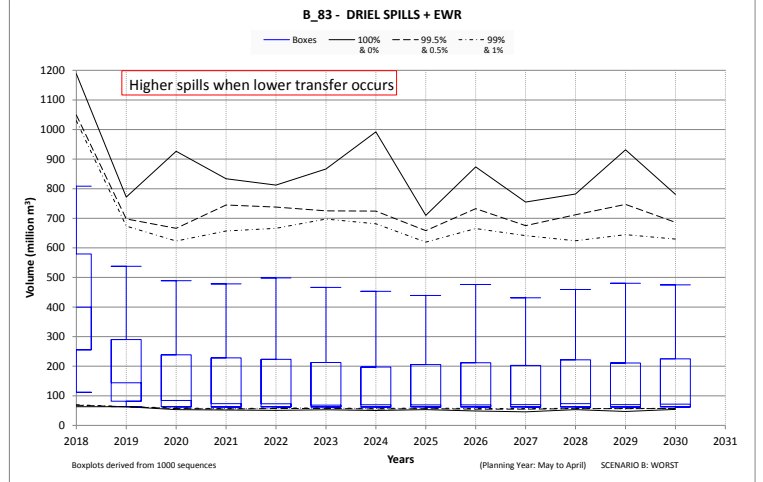
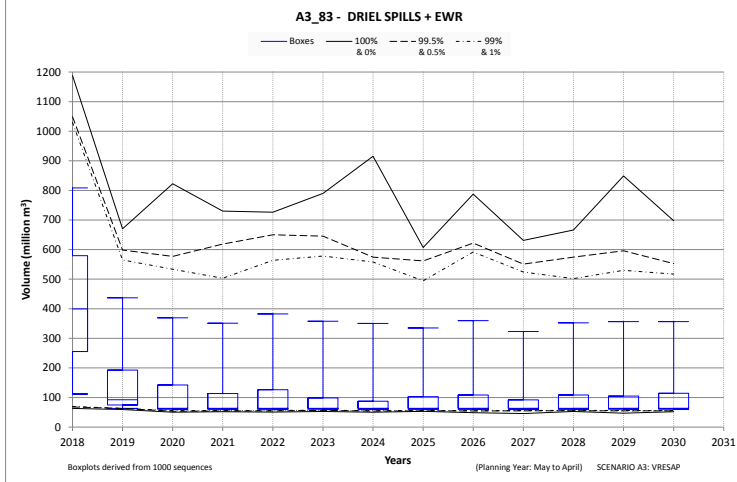
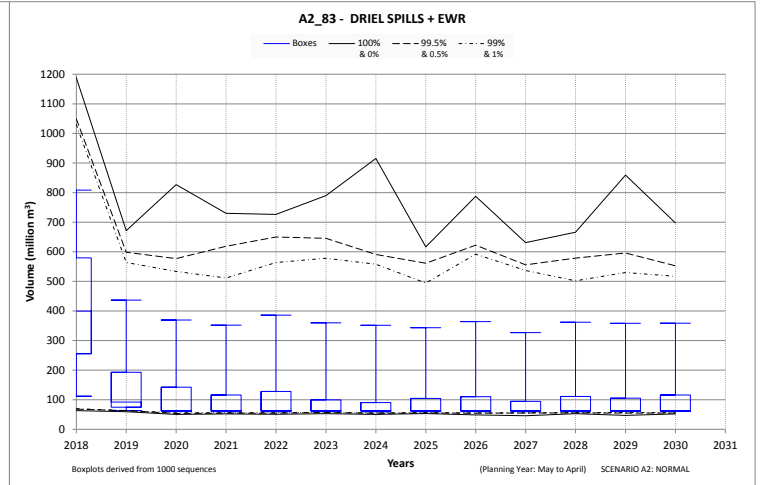
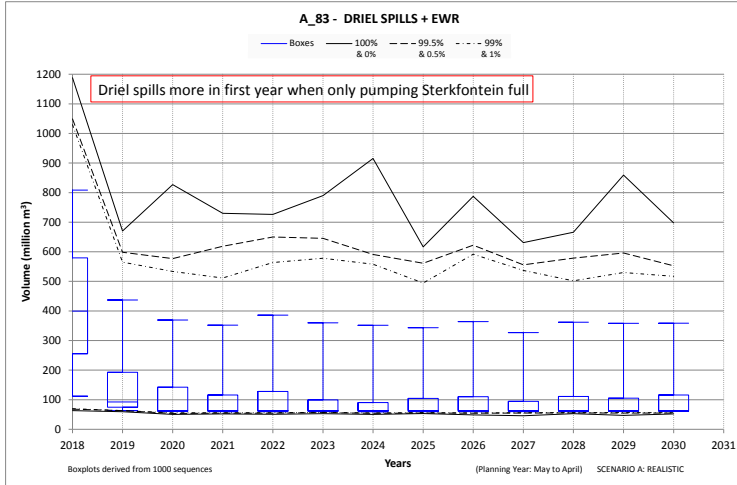
7.3 Thukela - Vaal Transfer



7.4 Sterkfontein Releases Before Losses

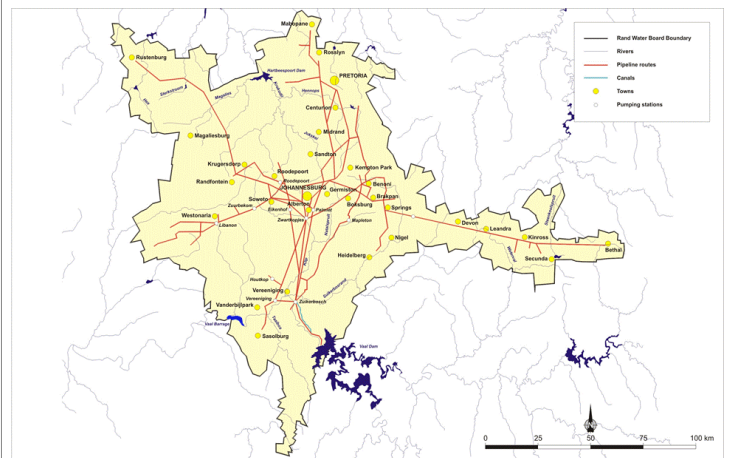
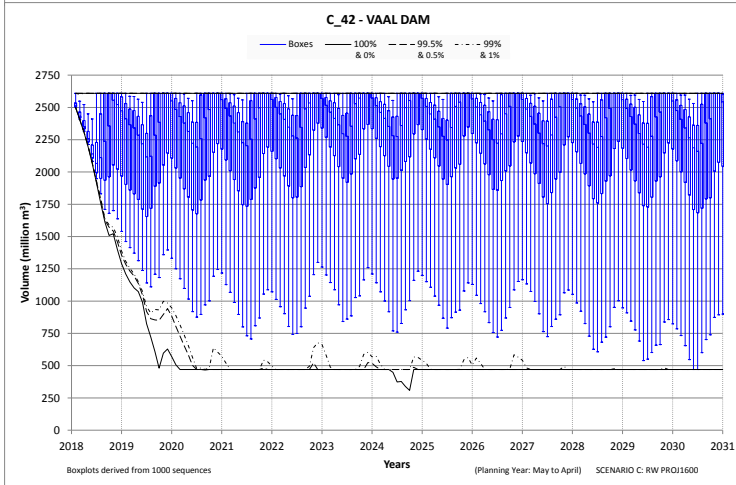
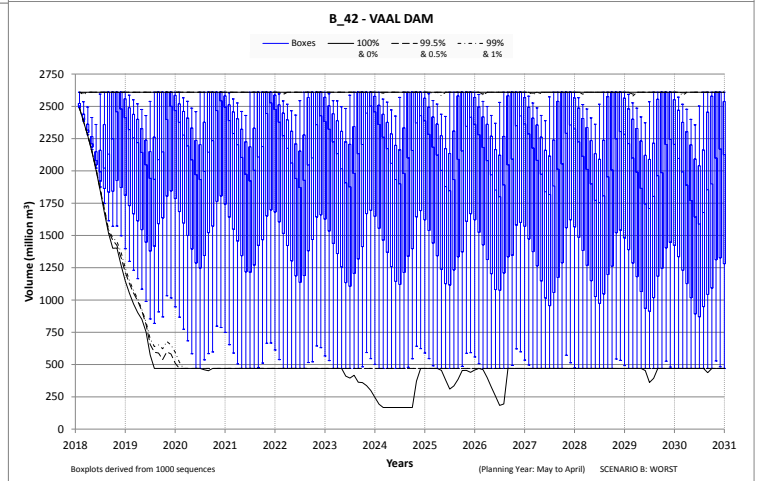
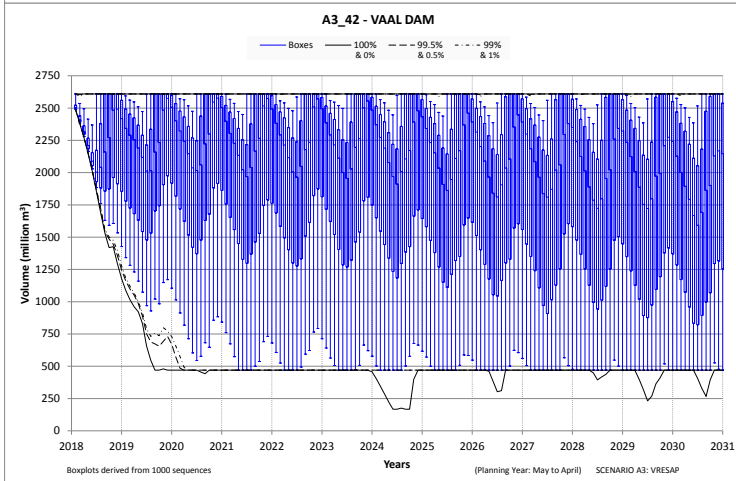
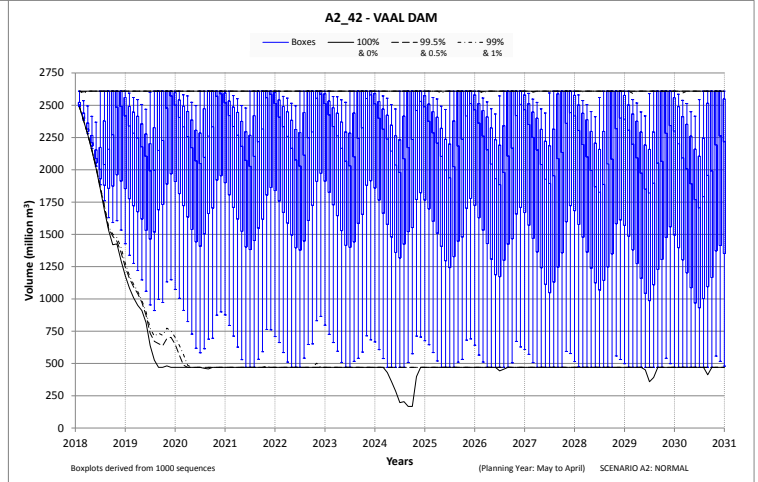
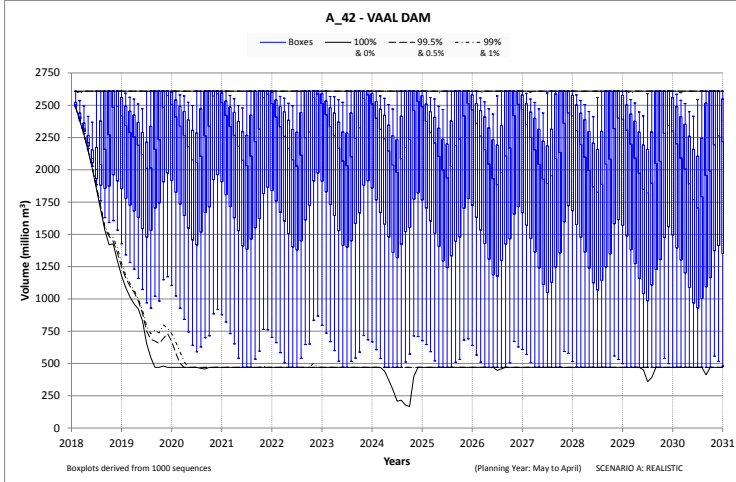


7.5 Driel Spills with Compensation Releases



7.6 Vaal Dam

C1R001:Vaal at Vaal Dam	Graph	Data	Photo	?
C2H122:Outflow from Vaal Dam	Graph	Data	Photo	Map



7.7 Bloemhof Dam

C9R002:Vaal at Bloemhof Dam	Graph	Data	Photo	?
C9H021:Outflow from Bloemhof Dam	Graph	Data	Photo	Map

