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DESC Technical Work group

Seasonal Normal Review Update

15 October 2014

Background

- Current Seasonal Normal Basis (SNCWV) introduced in October 2010
 - Incorporated some outputs from Met Office EP2 Project – used estimated climate change increments
- UNC now states SNCWV should be based on output derived from ‘Climate Change Methodology’ (CCM)
- Requested outputs of CCM Project (*updated*)
 - 50+ years hourly historic data adjusted for estimated impacts of climate change v base year 2011/12
 - Predicted hourly average values for Gas Years 2012 to 2025
 - Predicted hourly increments – difference between base year and forecast year
- Stakeholder meeting on Nov 25th agreed how the outputs will be used in defining SNCWV for G.Yr 2015 onwards

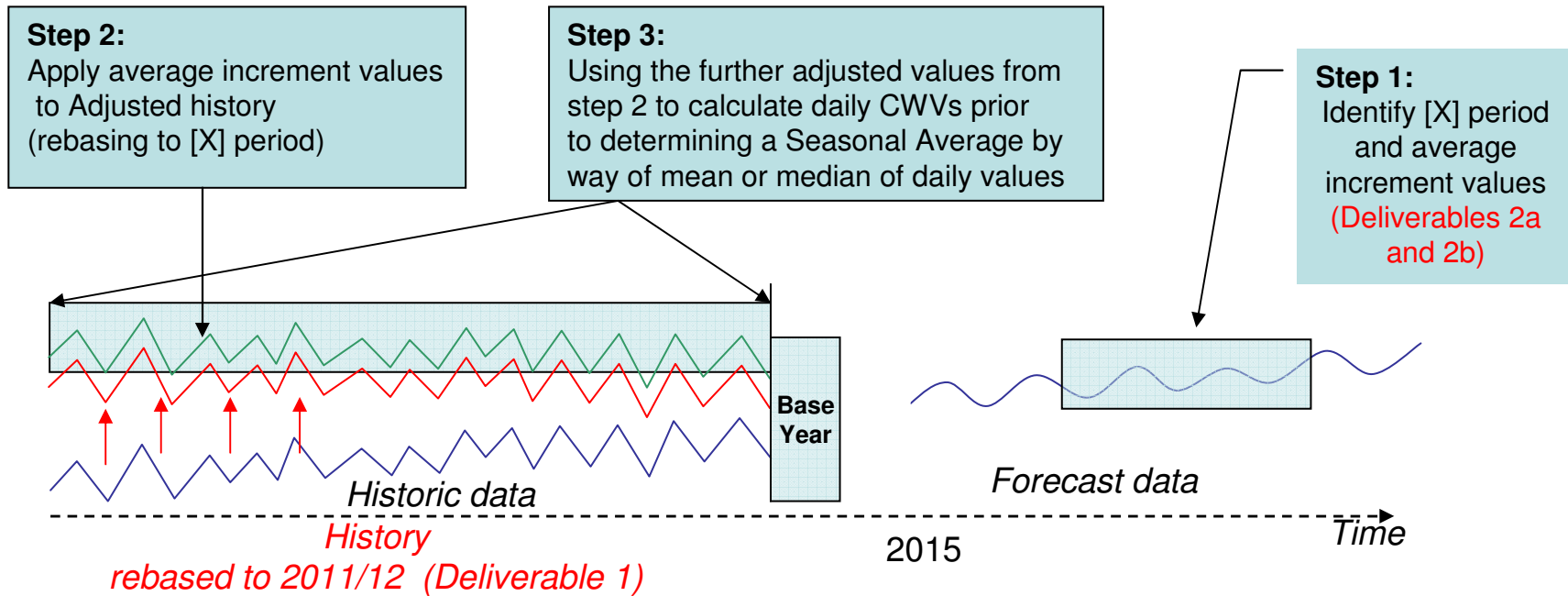
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Use of Project Deliverables

Not to Scale, for illustration only



Deliverables:

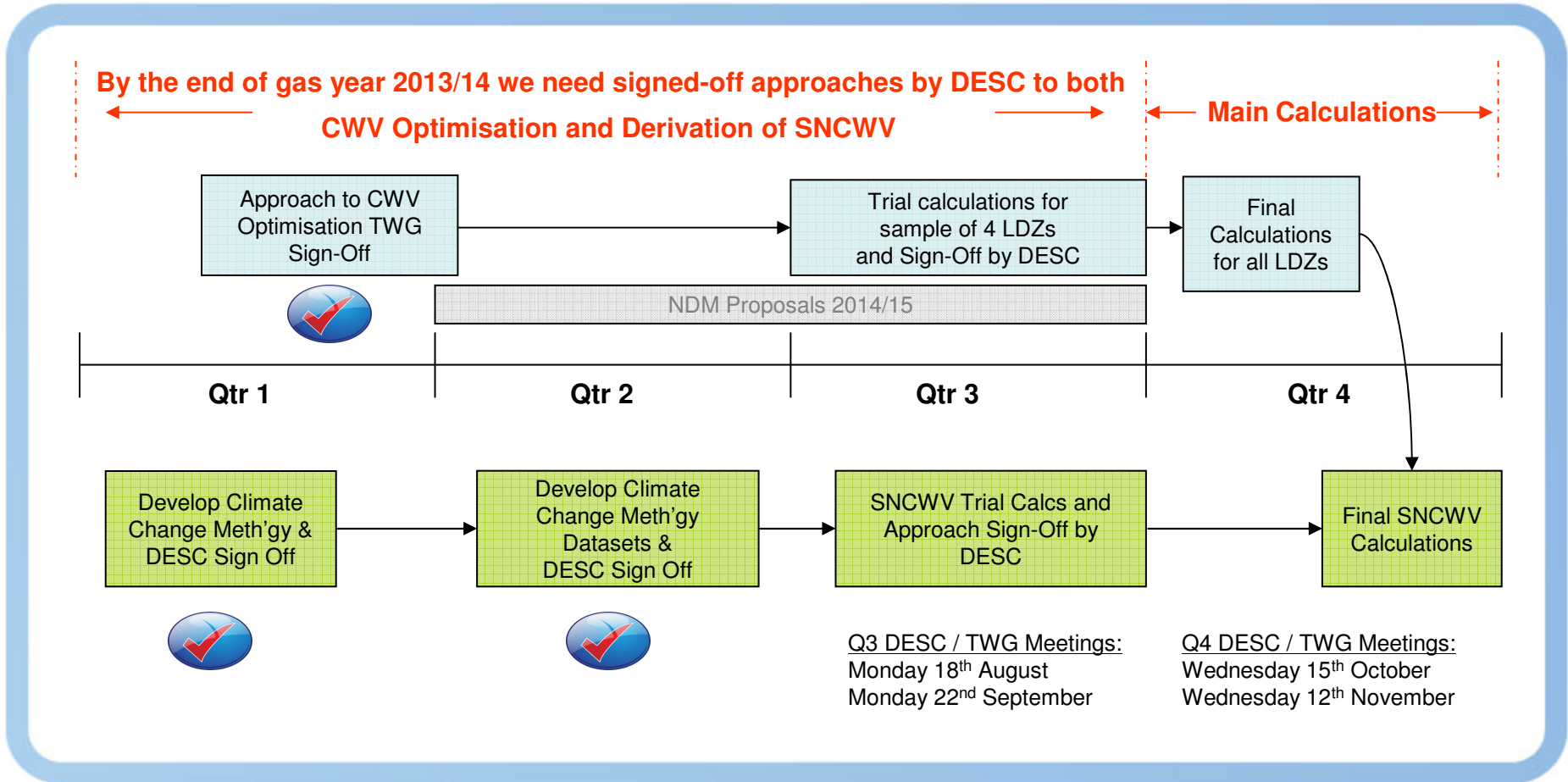
- 1) An adjusted view of historic hourly weather datasets (derived from WSSM) reflecting estimated impacts of climate change based on results from base year 2011/12
- 2)
 - a) Predicted hourly climatological average values for period 1st October 2012 to 30th September 2025 based on predicted impact of climate change trends for future period
 - b) Predicted hourly increments values – difference between predicted hourly climatological average values (i.e. from 2a) and base year (2011/12) averages

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Seasonal Normal Review & CWV Optimisation Timeline



KEY:

CWV Optimisation

Derivation of SNCWV

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Seasonal Normal Review Update

- Recap on previous meetings - 18th August:
 - TWG agreed to use 5 years for the average increment period (2015/16 to 2019/20) that needs to be applied to the adjusted history
 - TWG were satisfied with Xoserve's interpretation of the high level agreement on how the CCM data should be used to derive the SNCWV and Xoserve agreed to produce a draft approach document for deriving the SNCWV
 - TWG reviewed the draft SNCWV profile for NE (unsmoothed) and preferred the mean version over the median
 - Xoserve agreed to produce draft SNCWV profiles for the other trial LDZs, namely SC, WM and SW

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Seasonal Normal Review Update

- Recap on previous meetings – 22nd September:
 - Xoserve presented 1) unsmoothed draft SNCWV profiles for 4 trial LDZs and 2) published the first draft of the SNCWV methodology document
 - TWG agreed to review the methodology document and draft profiles and provide feedback to Xoserve
 - TWG suggested using 5 day centred moving average for smoothing technique as this is in line with the Met Office approach in the CCM project
 - Xoserve agreed to try this approach for 4 trial LDZs and publish results for TWG review

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Seasonal Normal Review – Q3 Objectives

- Proposed plan for developing Seasonal Normal approach document
- Follow agreed approach for using CCM output:
 - Identify [x] period and average increment values ✓ **Done**
 - Performed for 4 Trial LDZs ✓ **Done**
 - Apply increments to adjusted history ✓ **Done**
 - Using adjusted history with increments applied calculate a set of daily CWVs for period 1st October 1960 to 30th September 2012 ✓ **Done**
 - Q. SNCWV will be calculated using history no later than 30/09/2012?
A: DESC agreed this was correct at 30th July 2014 meeting ✓
 - During Q3 this will be done using EXISTING parameters ✓ **Done**
 - Select the Mean or Median for determining daily CWV values ✓ **Done**
- Review shape and confirm level of smoothing (if required) – **In progress – TBC at 15th October meeting**
- Document the approach to deriving the new Seasonal Normal basis and obtain DESC sign-off – **In progress – TWG currently reviewing**

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SN Methodology Document

- Xoserve have drafted an approach document for how the Seasonal Normal Composite Weather Variable (SNCWV) shall be calculated using the Climate Change Methodology (CCM) output
- The high level process diagram produced by the stakeholder group forms the foundation of the approach
- The approach ensures all parties are able to replicate the calculations using data available to all industry parties
- Note: The document is 90% complete as it does not include how any smoothing shall be applied to the final product
- The first draft of this document has been published on the JO website and is called: [Draft_Approach_to_Seasonal Normal Basis_2015_v0.1.doc](#)

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Draft SNCWV calculations

- Following the draft approach document Xoserve have calculated the SNCWV for the 4 trial LDZs – SC, NE, WM and SW using the EXISTING CWV parameters. The parameters are currently being reviewed as part of the CWV optimisation work with revised values expected later in the year
- As TWG discounted the median as an approach at the last meeting, only the mean value has been displayed
- For each LDZ there are 7 charts displaying SNCWV profiles:
 - *CCM Mean Unsmoothed vs Current SNCWV - Annual*
 - *CCM Mean Unsmoothed vs CCM Mean Smoothed: Annual*
 - *CCM Mean Unsmoothed vs CCM Mean Smoothed vs Current SNCWV: Oct to Dec*
 - *CCM Mean Unsmoothed vs CCM Mean Smoothed vs Current SNCWV: Jan to Mar*
 - *CCM Mean Unsmoothed vs CCM Mean Smoothed vs Current SNCWV: Apr to Jun*
 - *CCM Mean Unsmoothed vs CCM Mean Smoothed vs Current SNCWV: Jul to Sep*
 - *CCM Mean Smoothed vs Current SNCWV – Annual*
- The Smoothed profiles have been derived using a '5 day centred moving average', however the final smoothing technique to be applied remains open for TWG to decide upon

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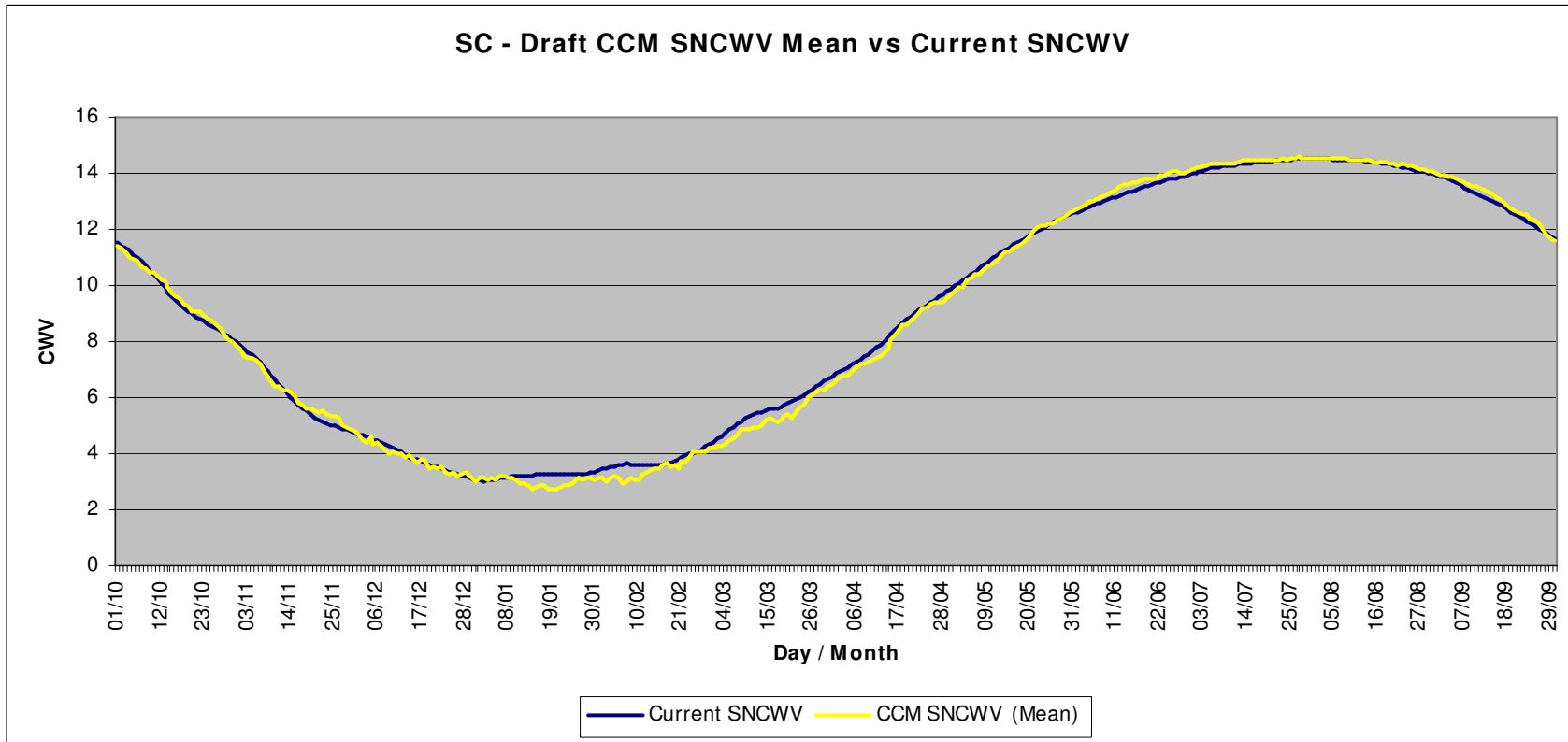
Trial LDZ – SC SNCWV Profiles

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Draft SNCWV for SC – Using MEAN of daily CWVs

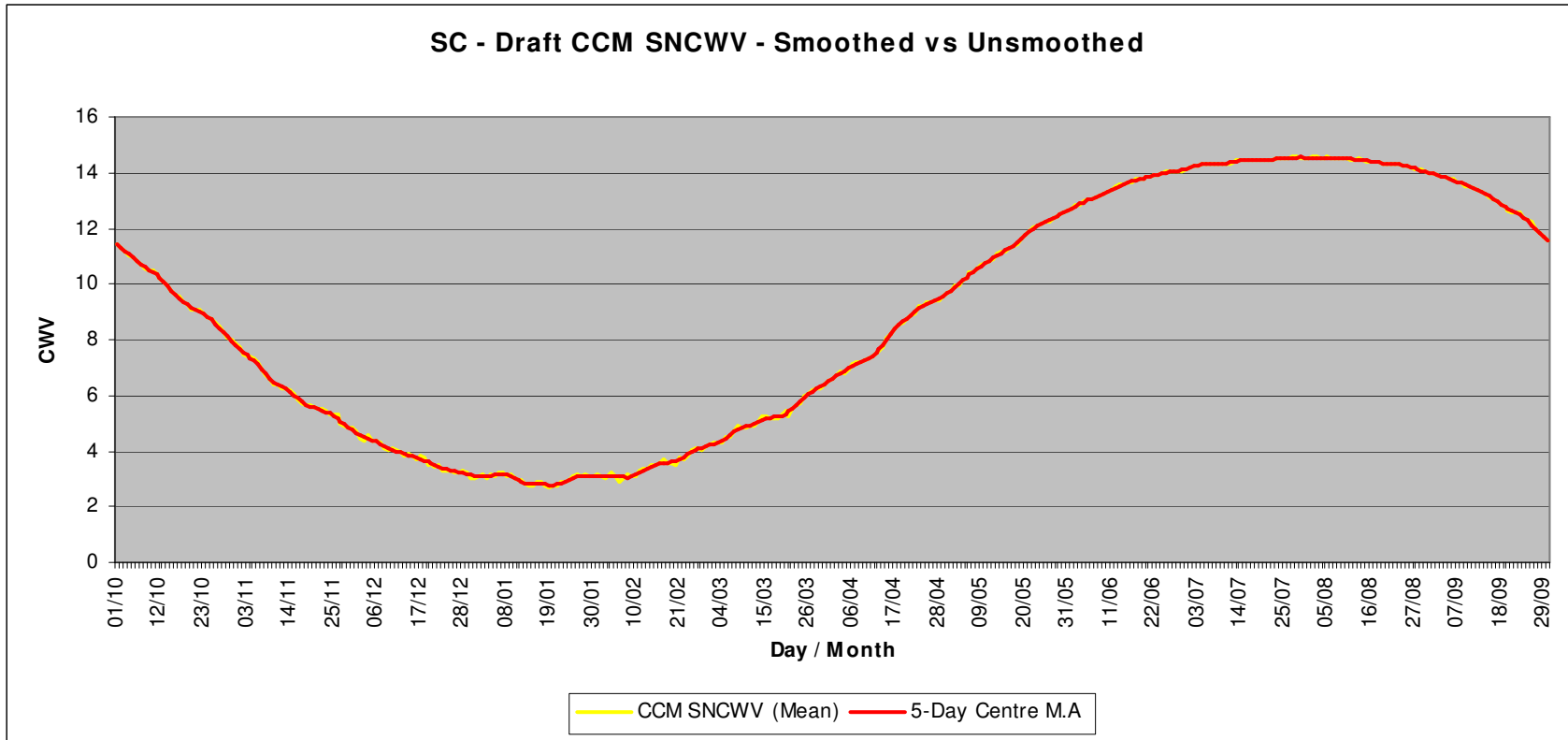


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Draft SNCWV for SC – MEAN vs 5 Day Moving Avge.

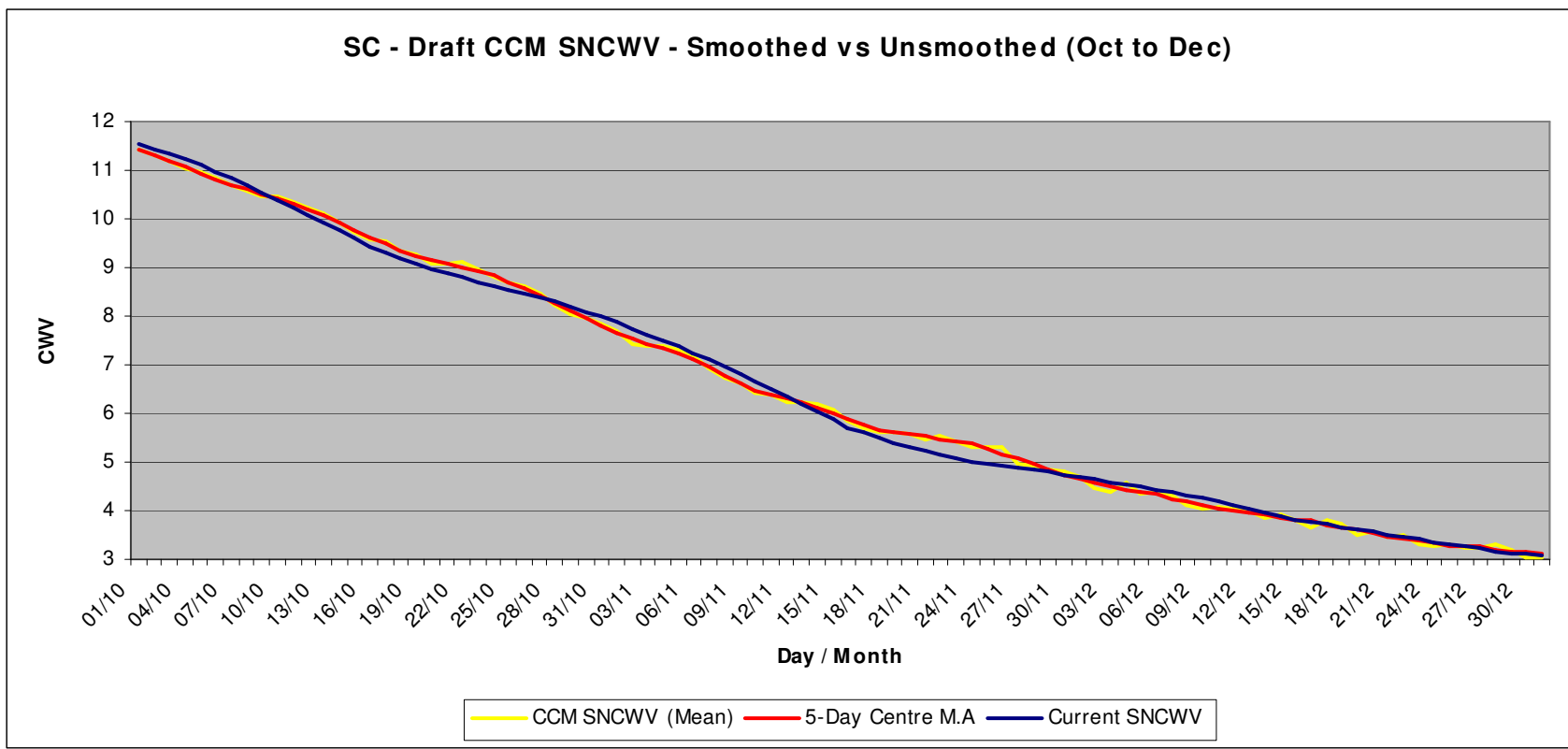


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13 Draft SNCWV for SC – MEAN vs 5 Day Moving Avege – Oct to Dec

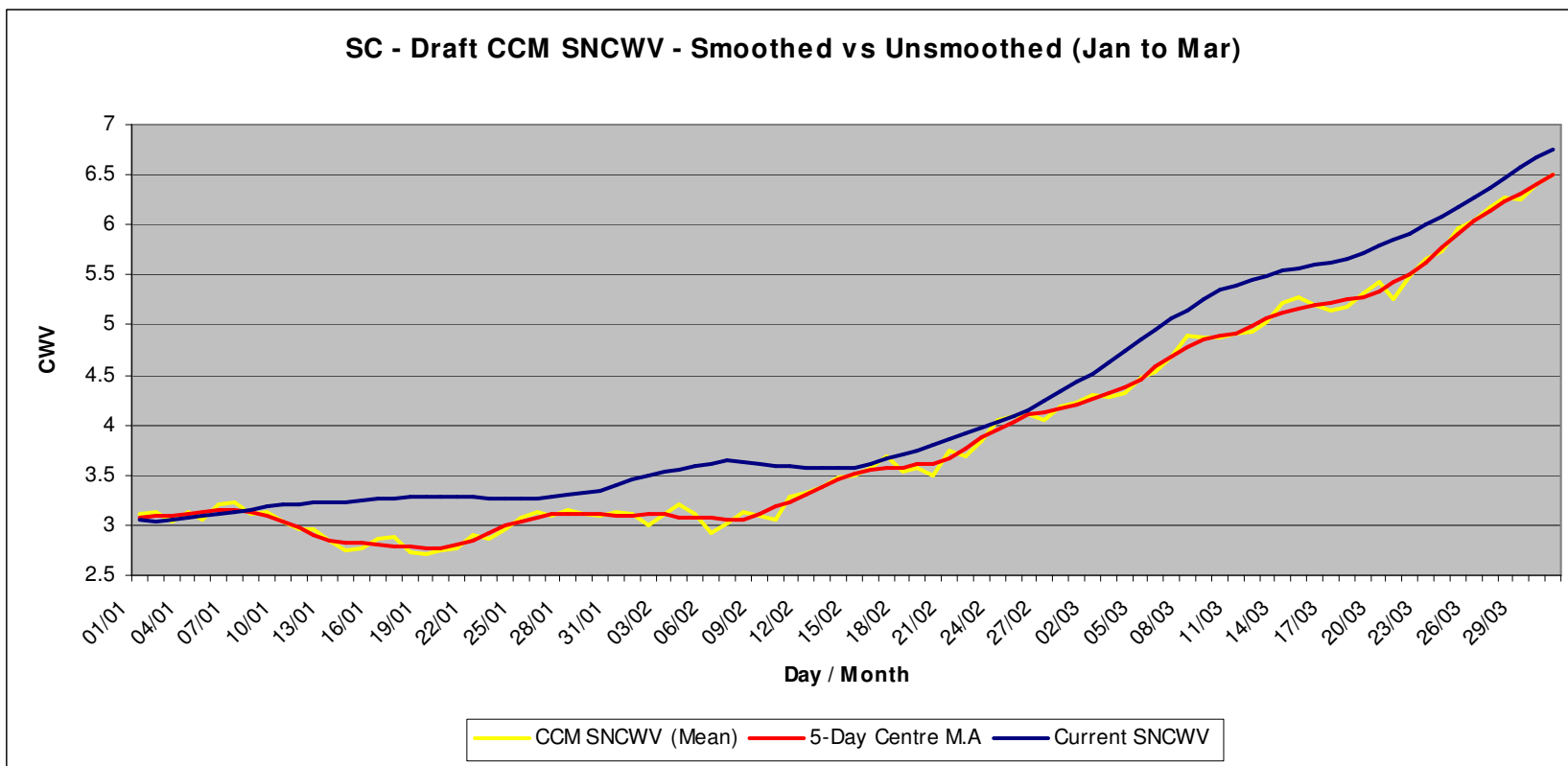


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14 Draft SNCWV for SC – MEAN vs 5 Day Moving Avge – Jan to Mar

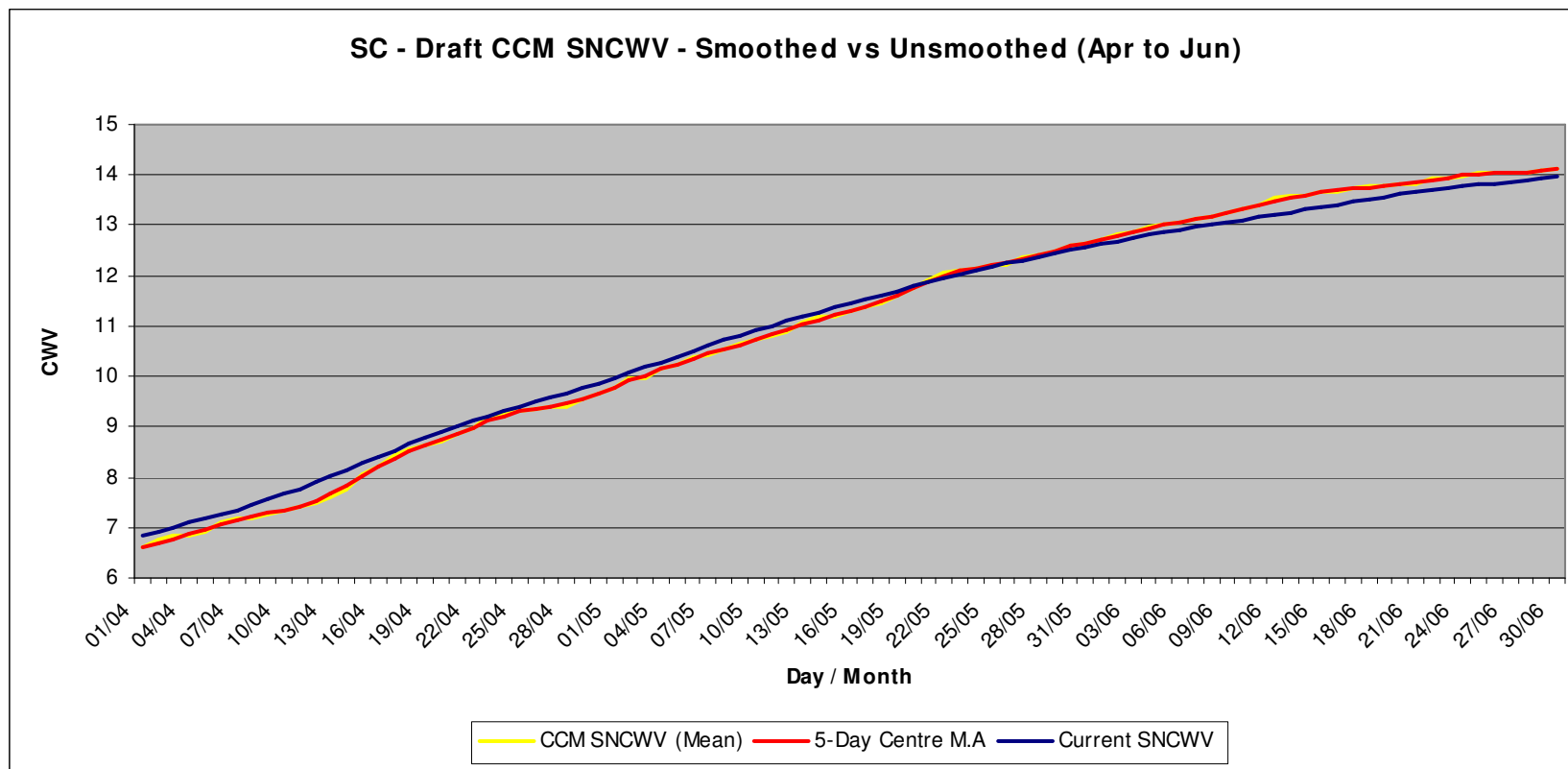


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15 Draft SNCWV for SC – MEAN vs 5 Day Moving Avge – Apr to Jun

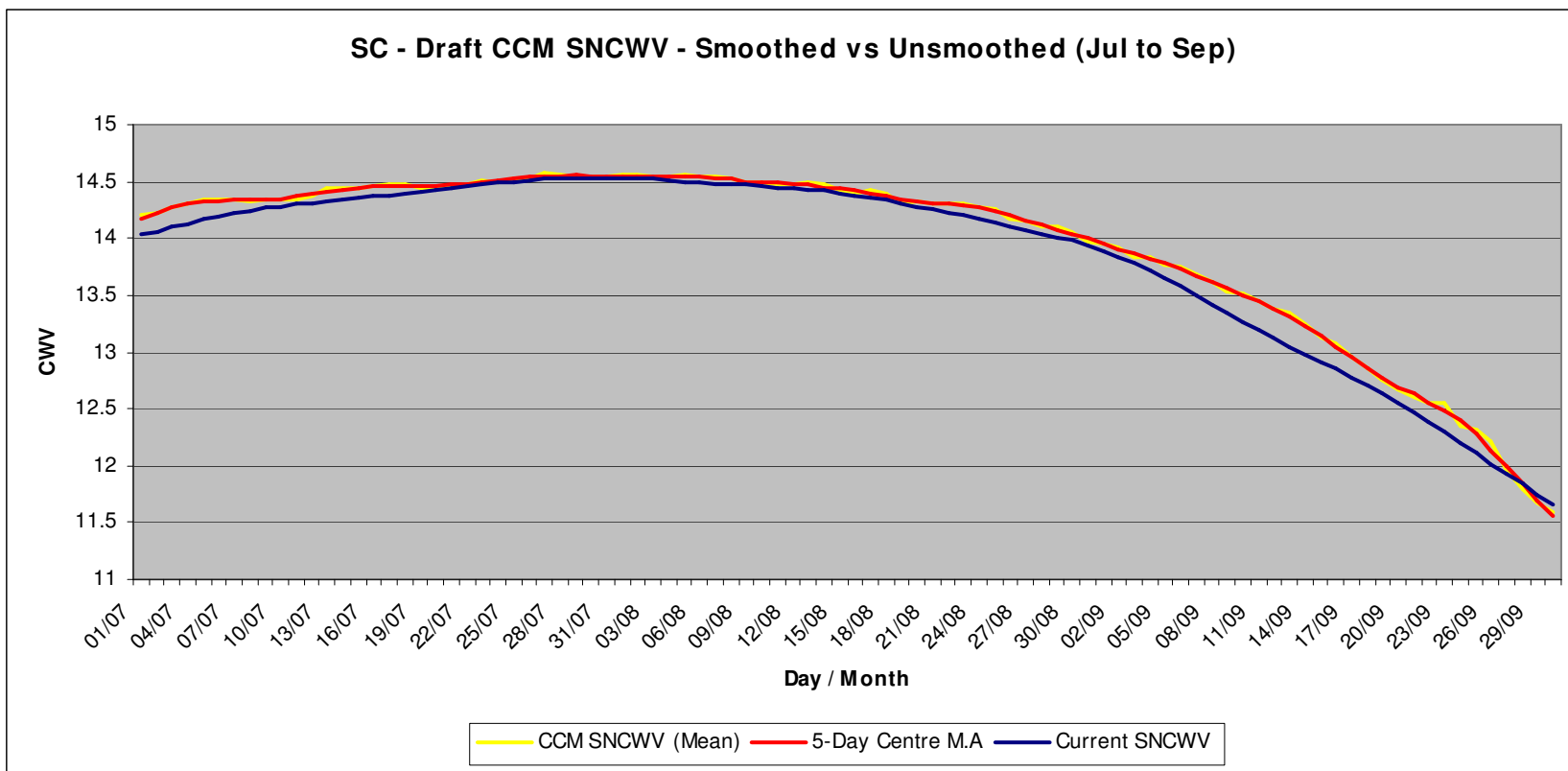


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16 Draft SNCWV for SC – MEAN vs 5 Day Moving Avge – Jul to Sep

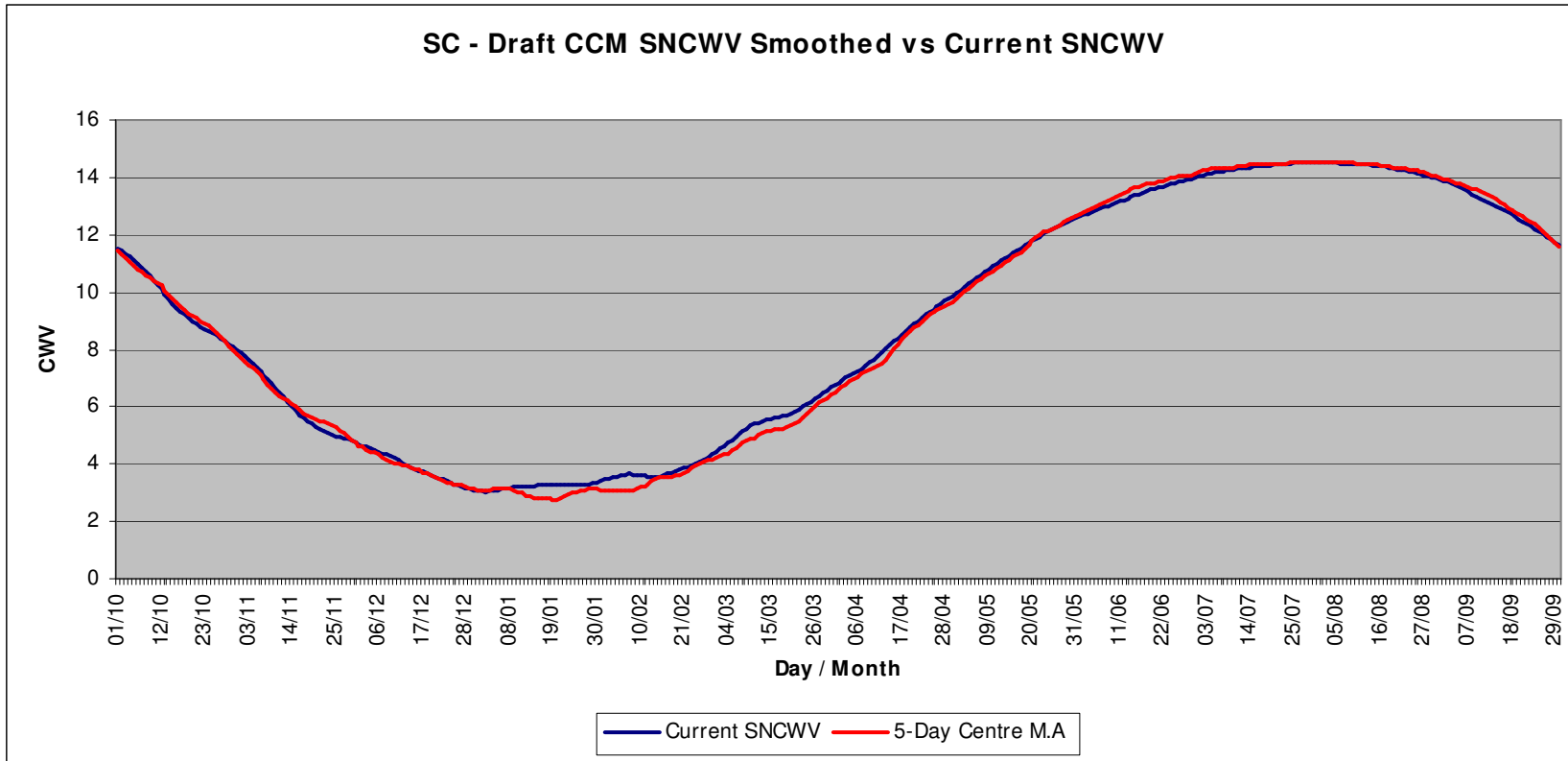


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Draft SNCWV for SC – 5 Day Moving Ave vs Current SNCWV



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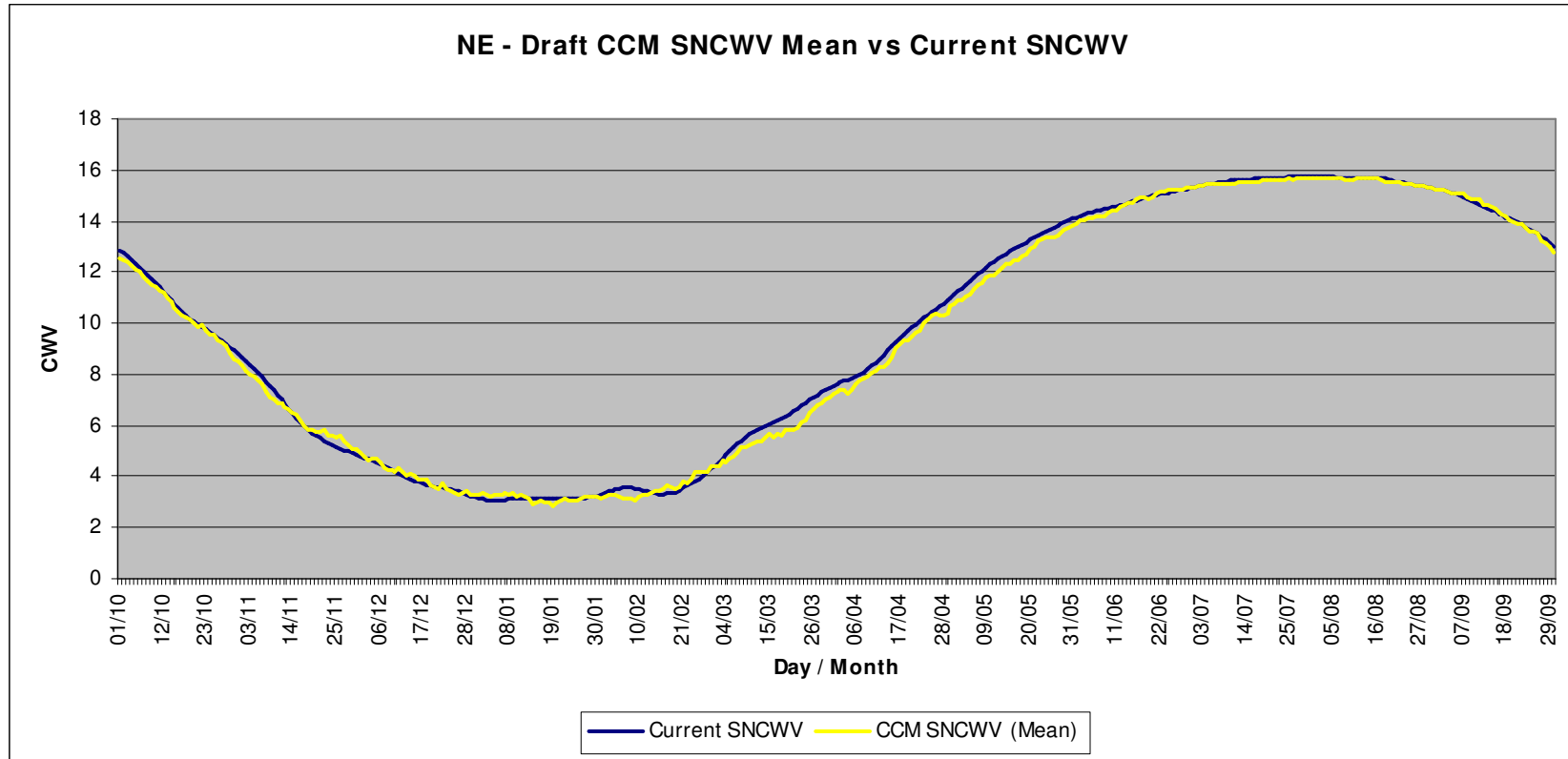
Trial LDZ – NE SNCWV Profiles

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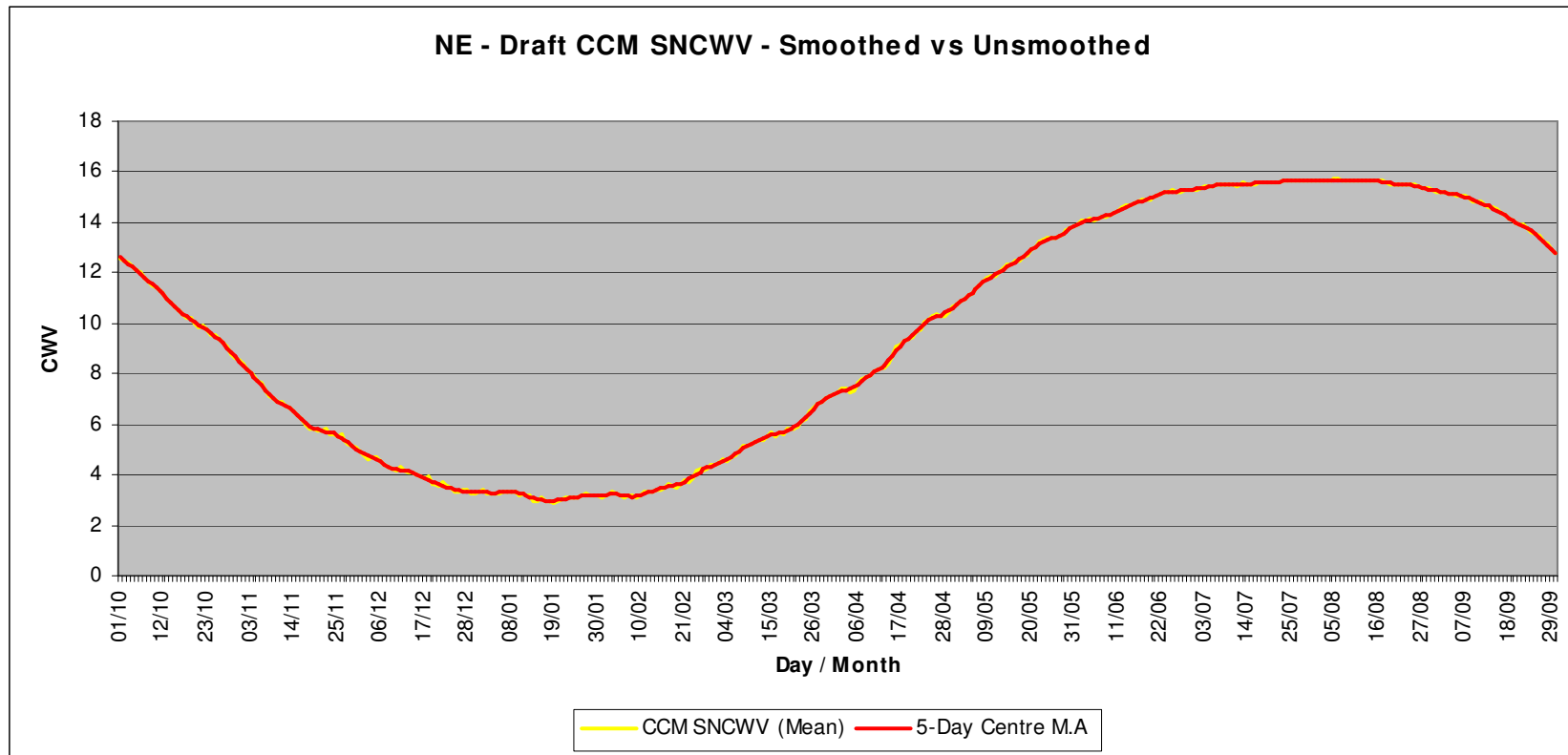


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Draft SNCWV for NE – Using MEAN of daily CWVs



Draft SNCWV for NE – MEAN vs 5 Day Moving Avge.

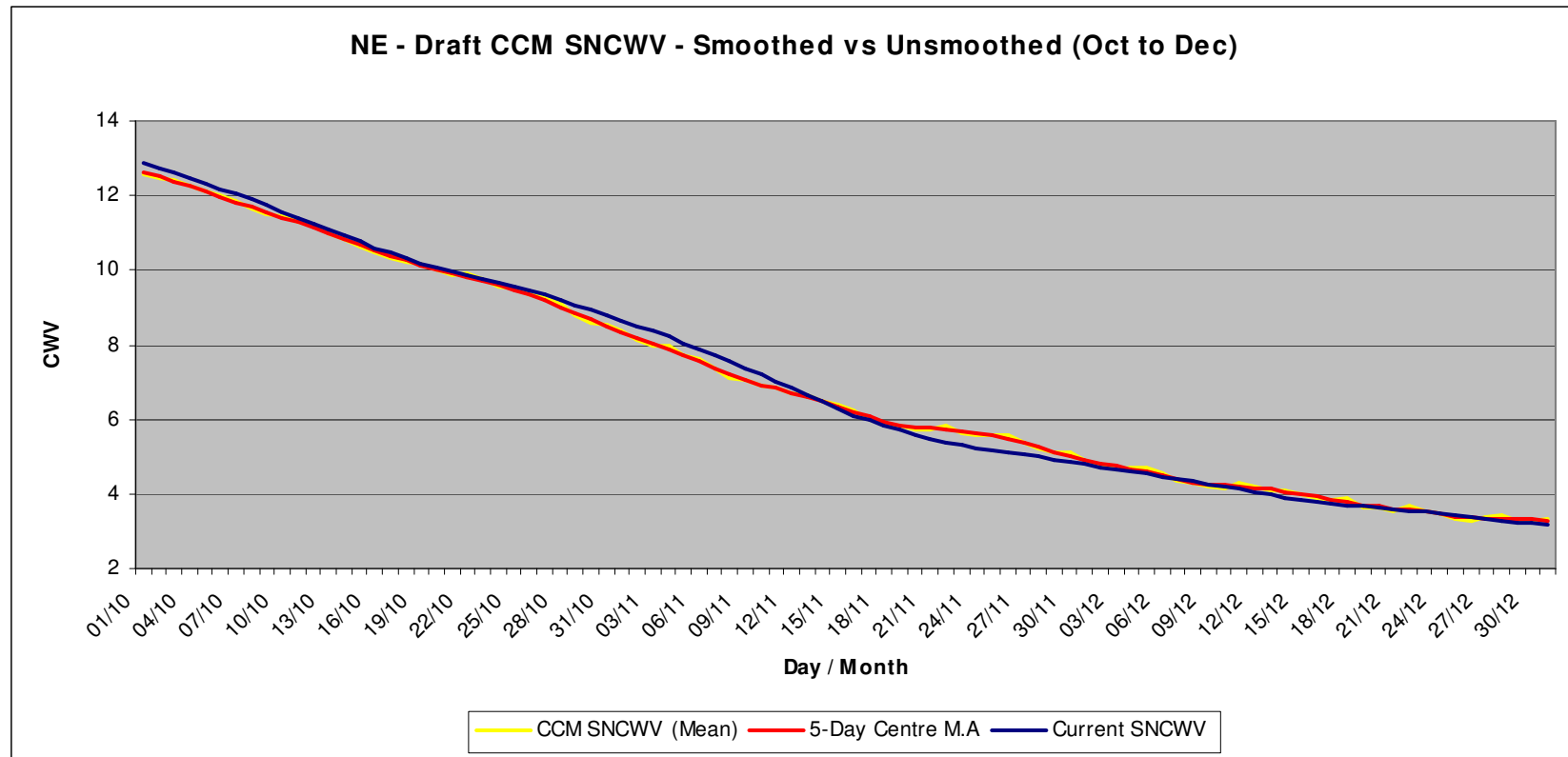


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21 Draft SNCWV for NE – MEAN vs 5 Day Moving Ave – Oct to Dec

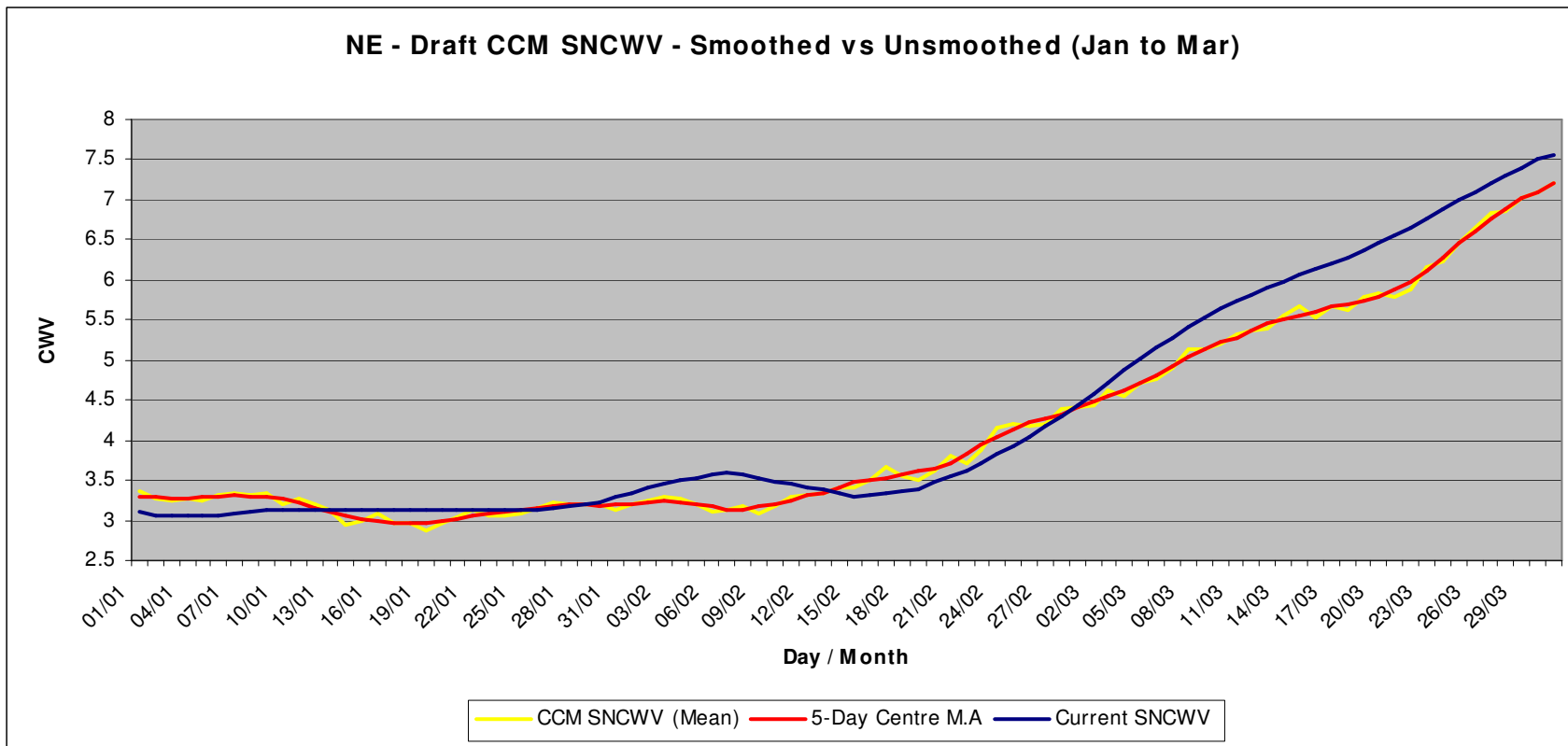


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22 Draft SNCWV for NE – MEAN vs 5 Day Moving Avge – Jan to Mar

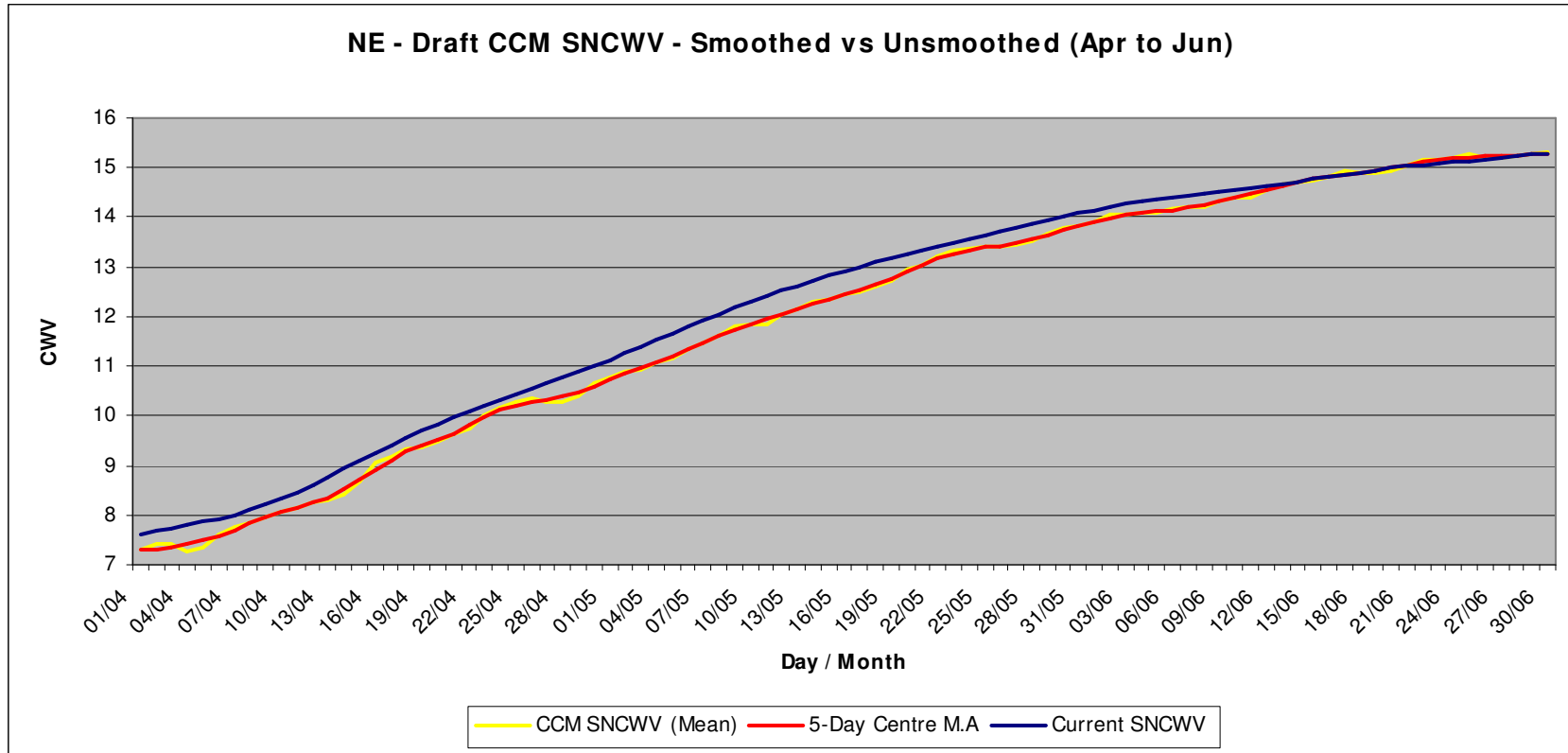


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23 Draft SNCWV for NE – MEAN vs 5 Day Moving Avge – Apr to Jun

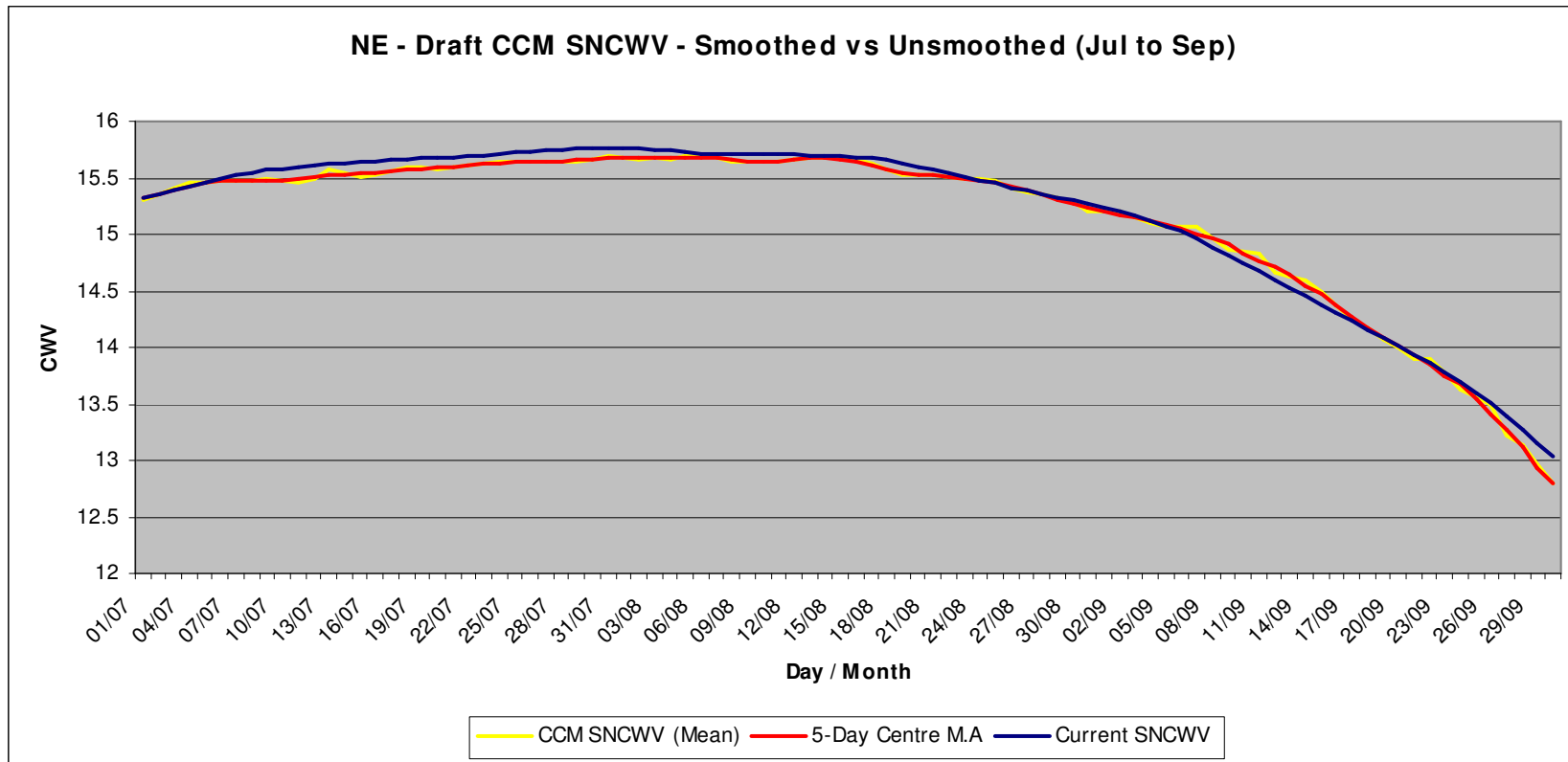


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24 Draft SNCWV for NE – MEAN vs 5 Day Moving Avge – Jul to Sep

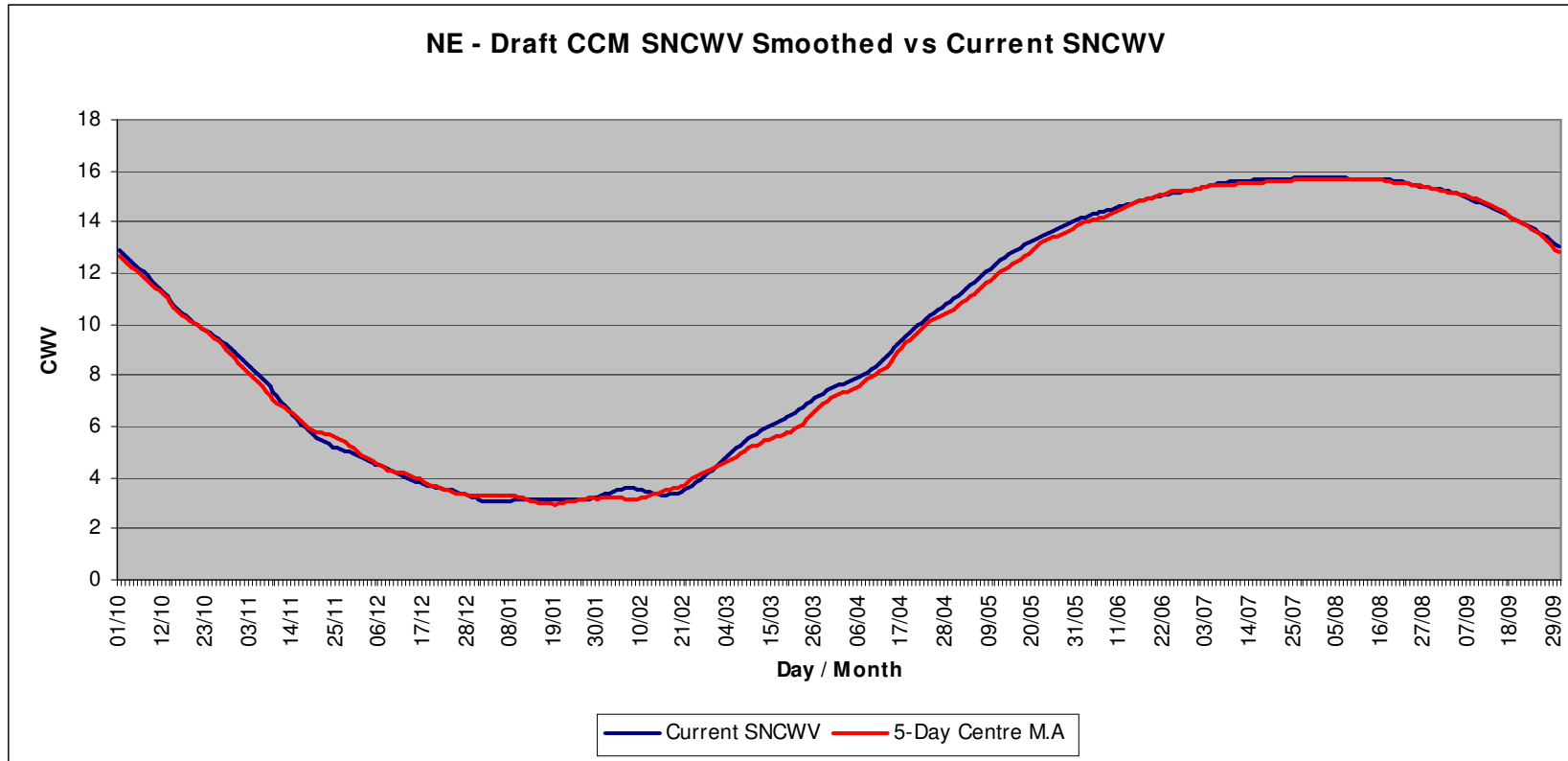


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Draft SNCWV for NE – 5 Day Moving Ave vs Current SNCWV



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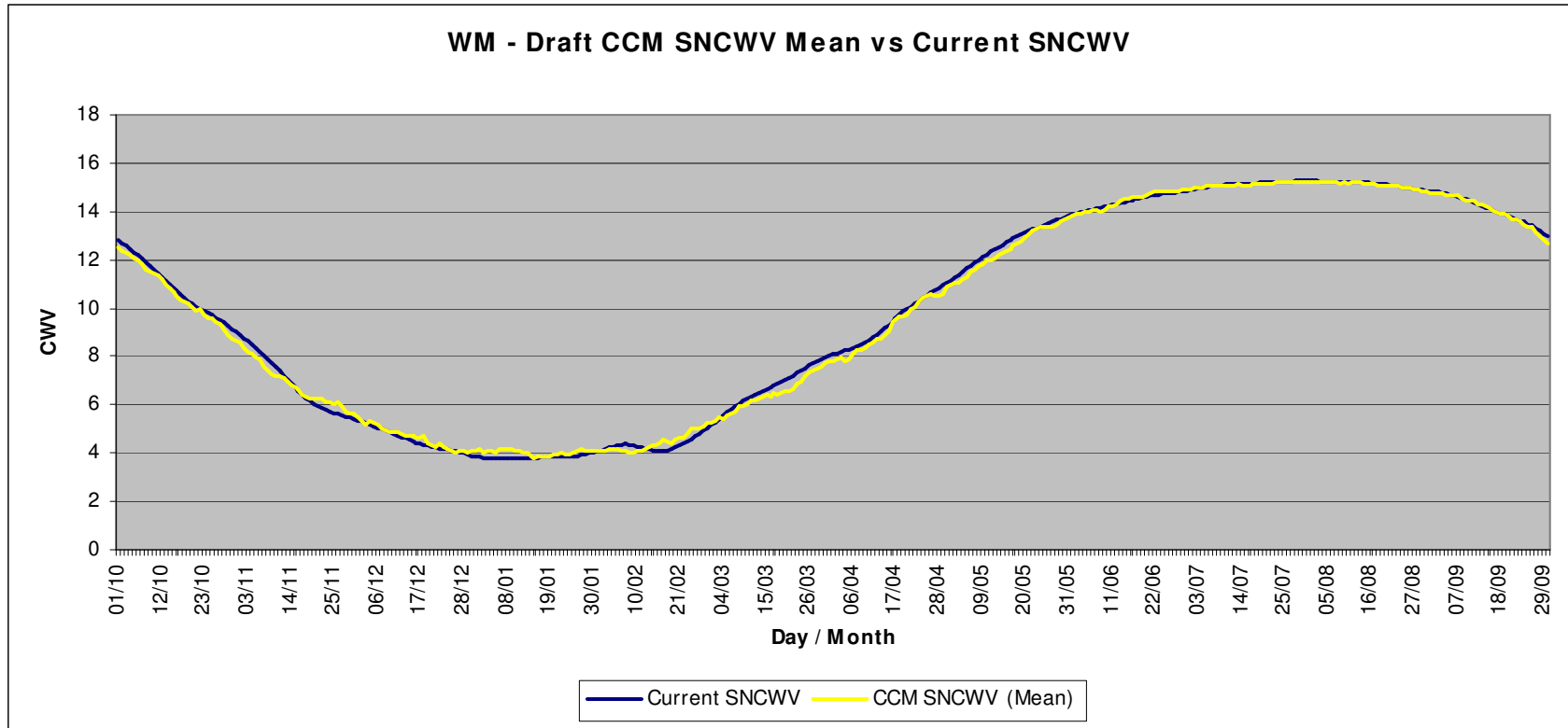
Trial LDZ – WM SNCWV Profiles

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Draft SNCWV for WM – Using MEAN of daily CWVs

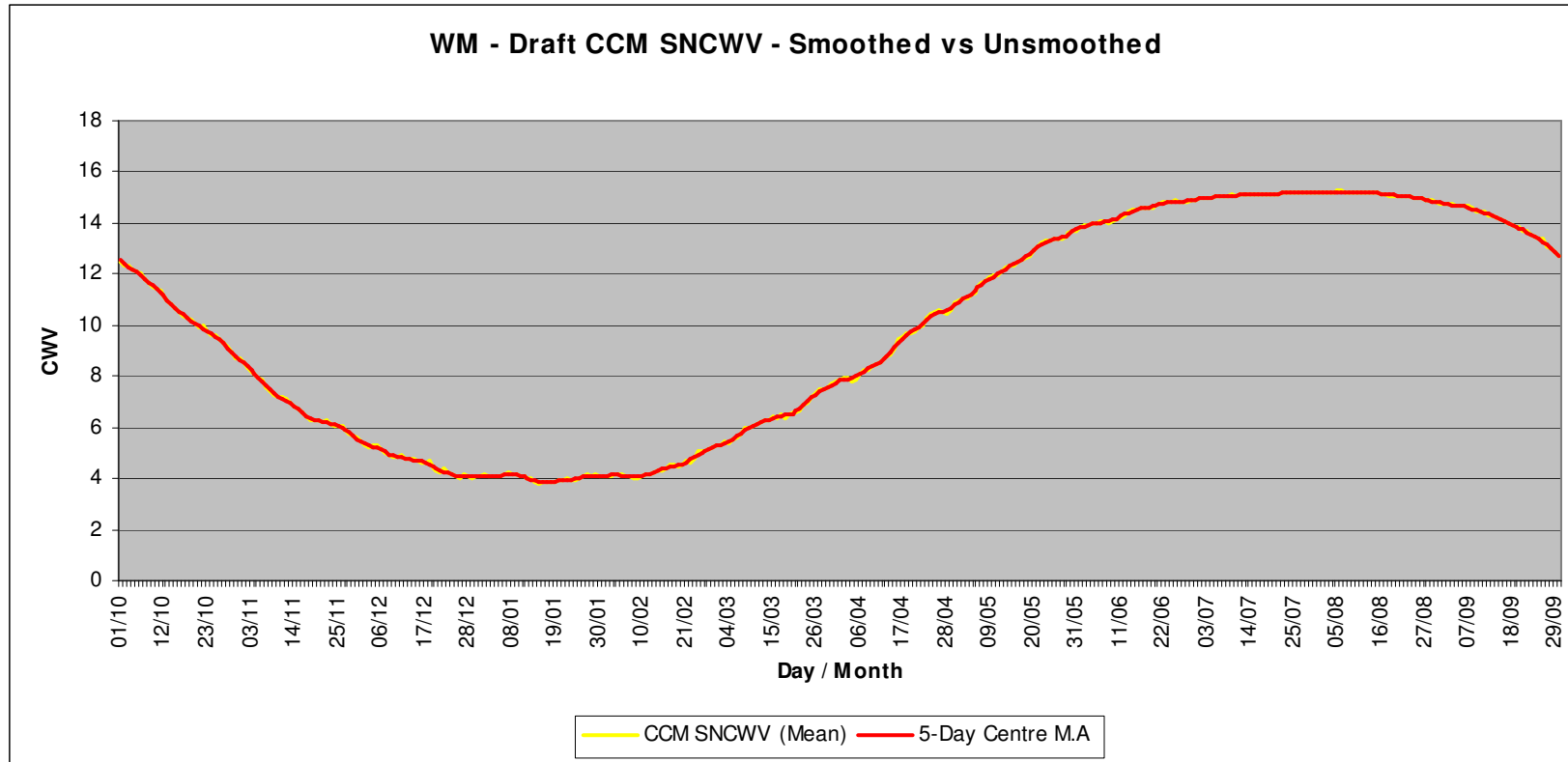


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Draft SNCWV for WM – MEAN vs 5 Day Moving Avge.

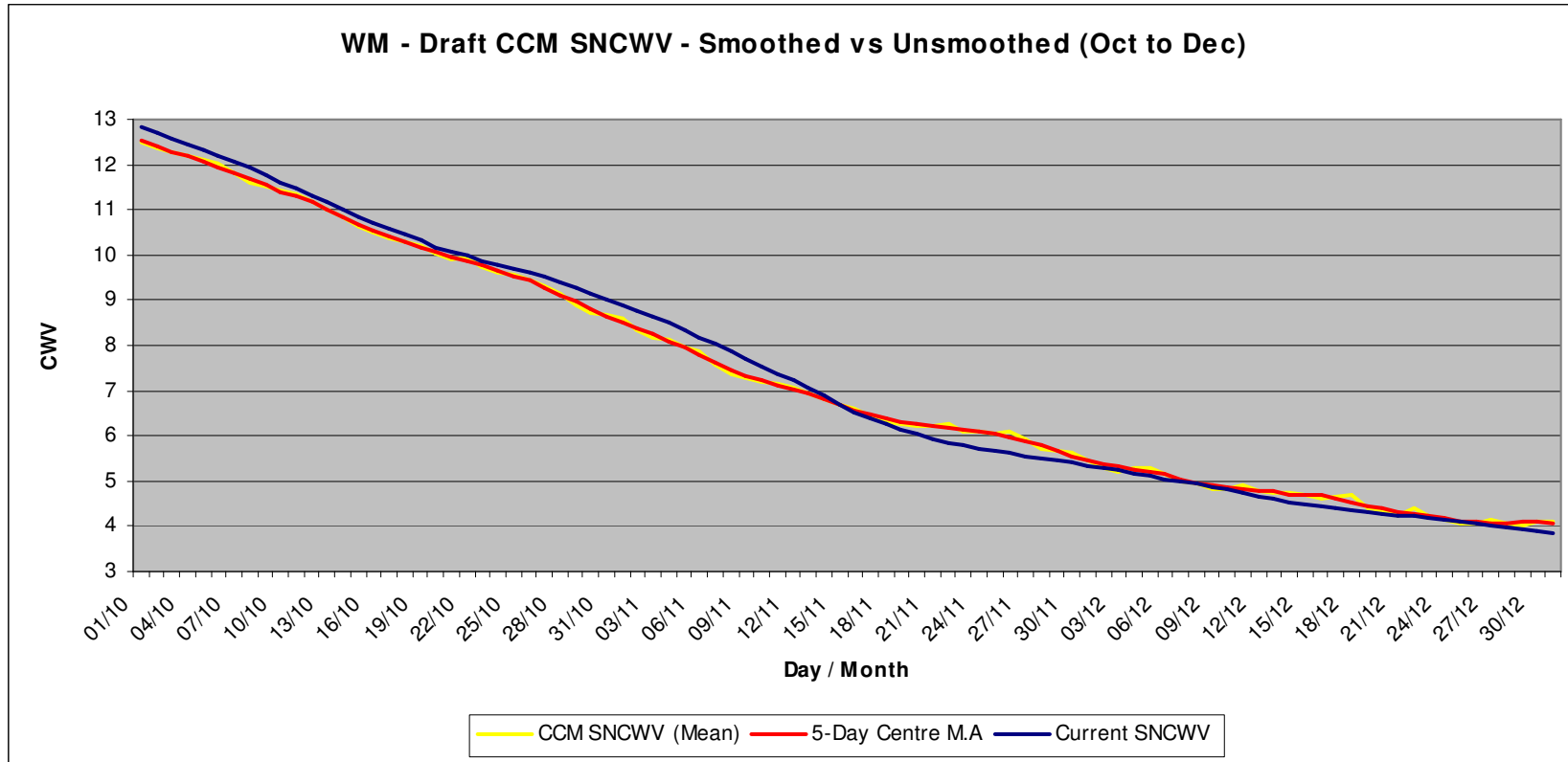


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29 Draft SNCWV for WM – MEAN vs 5 Day Moving Avge – Oct to Dec

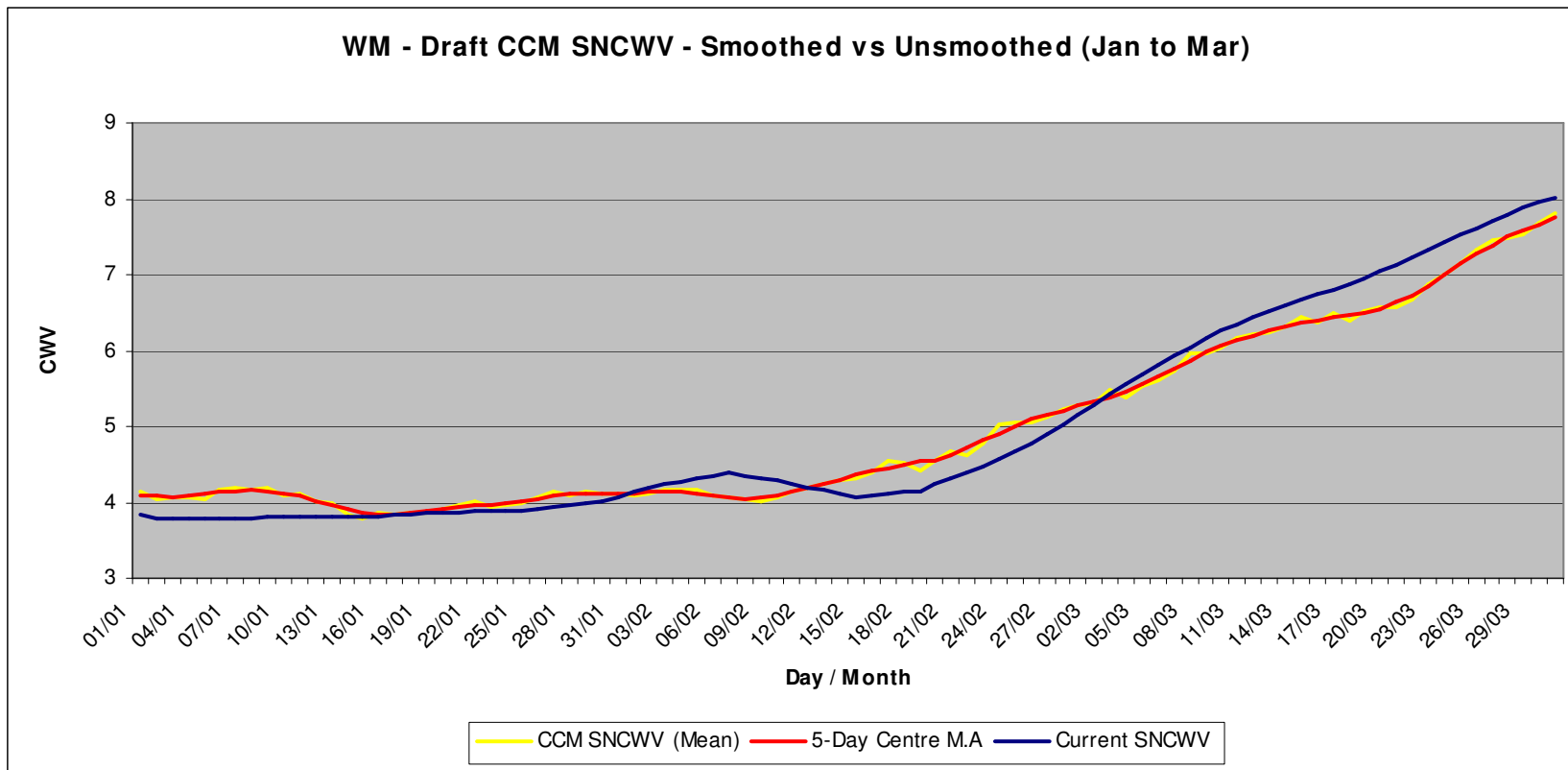


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30 Draft SNCWV for WM – MEAN vs 5 Day Moving Avge – Jan to Mar

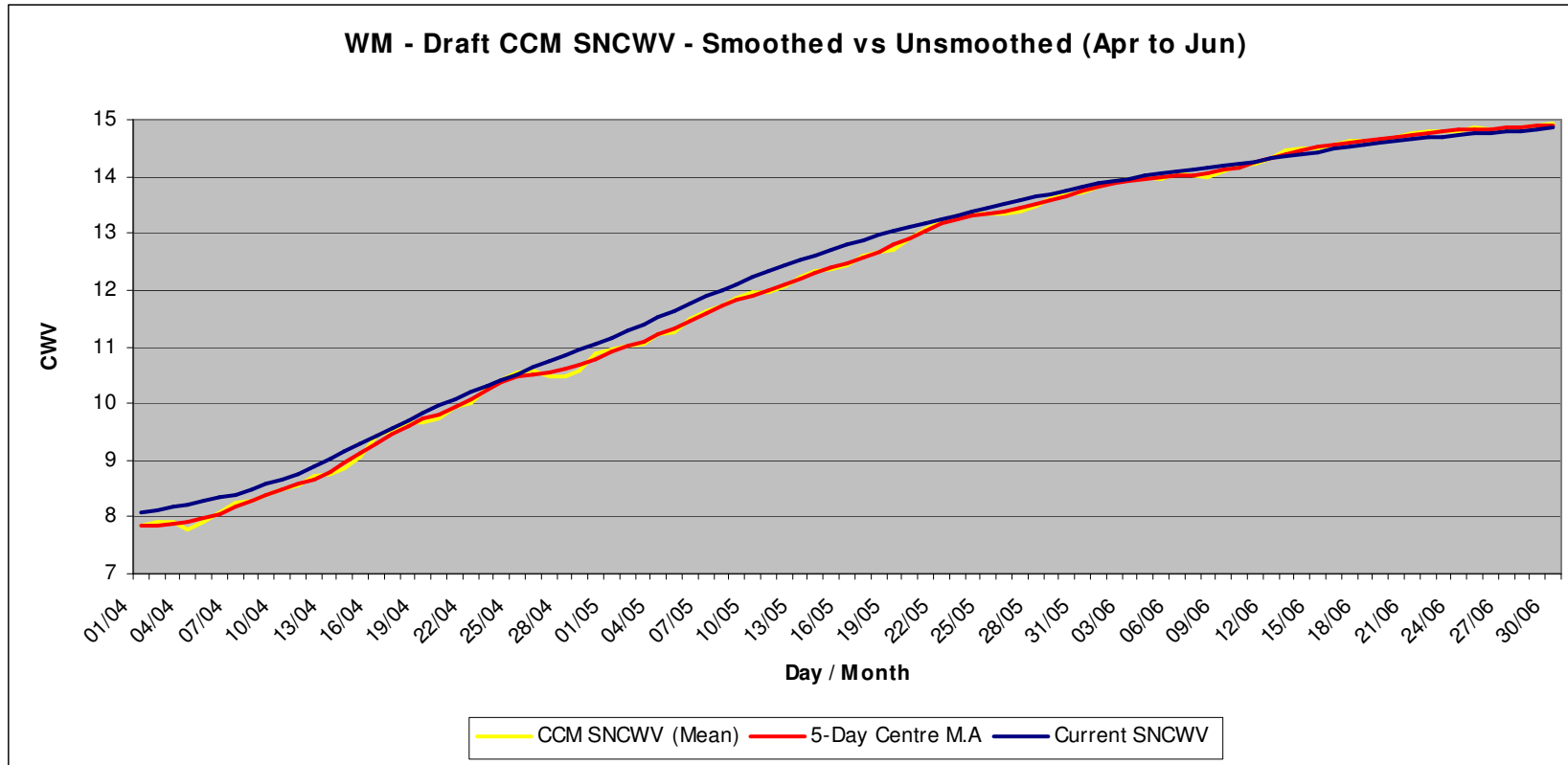


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31 Draft SNCWV for WM – MEAN vs 5 Day Moving Avge – Apr to Jun

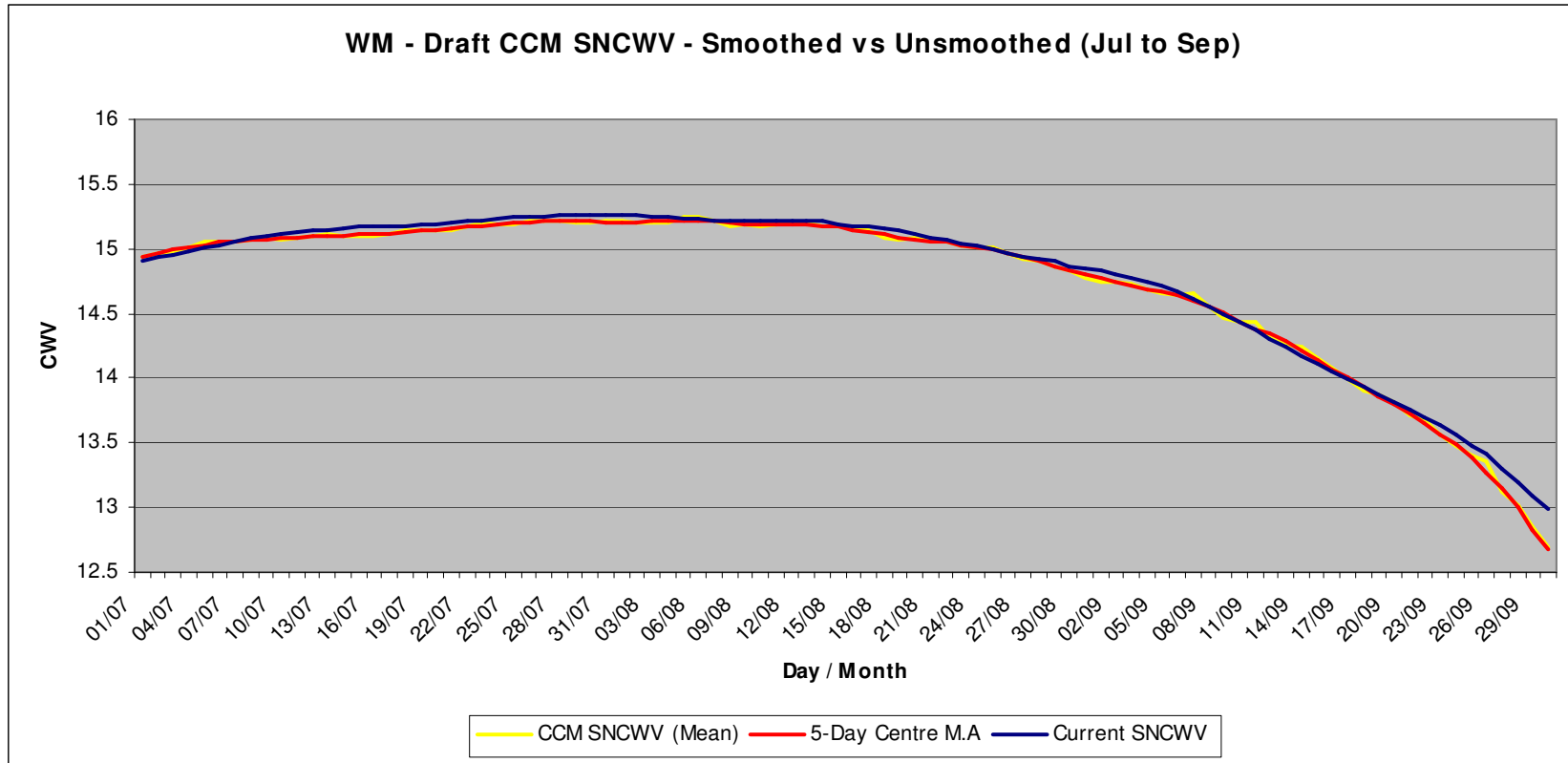


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32 Draft SNCWV for WM – MEAN vs 5 Day Moving Avge – Jul to Sep

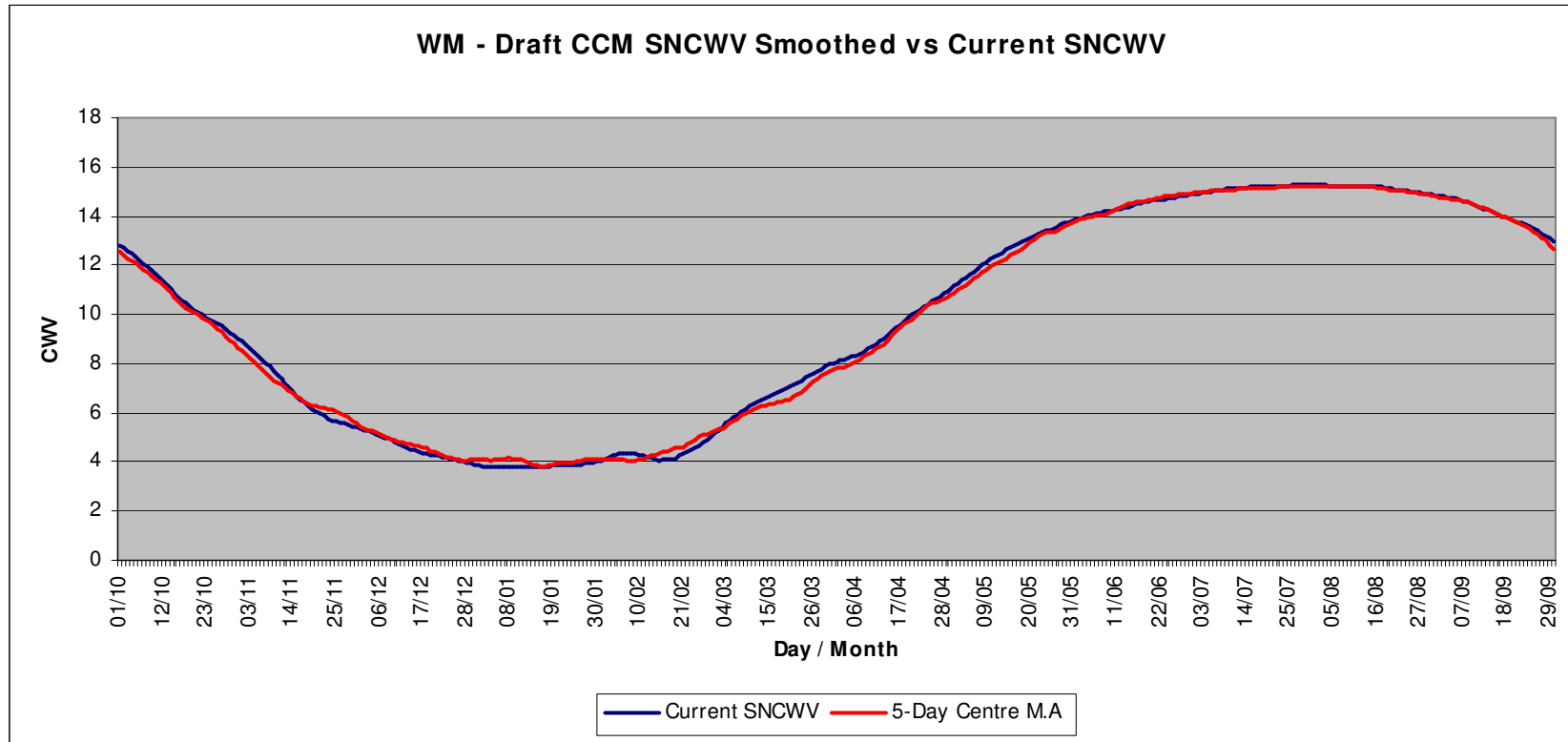


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Draft SNCWV for WM – 5 Day Moving Ave vs Current SNCWV



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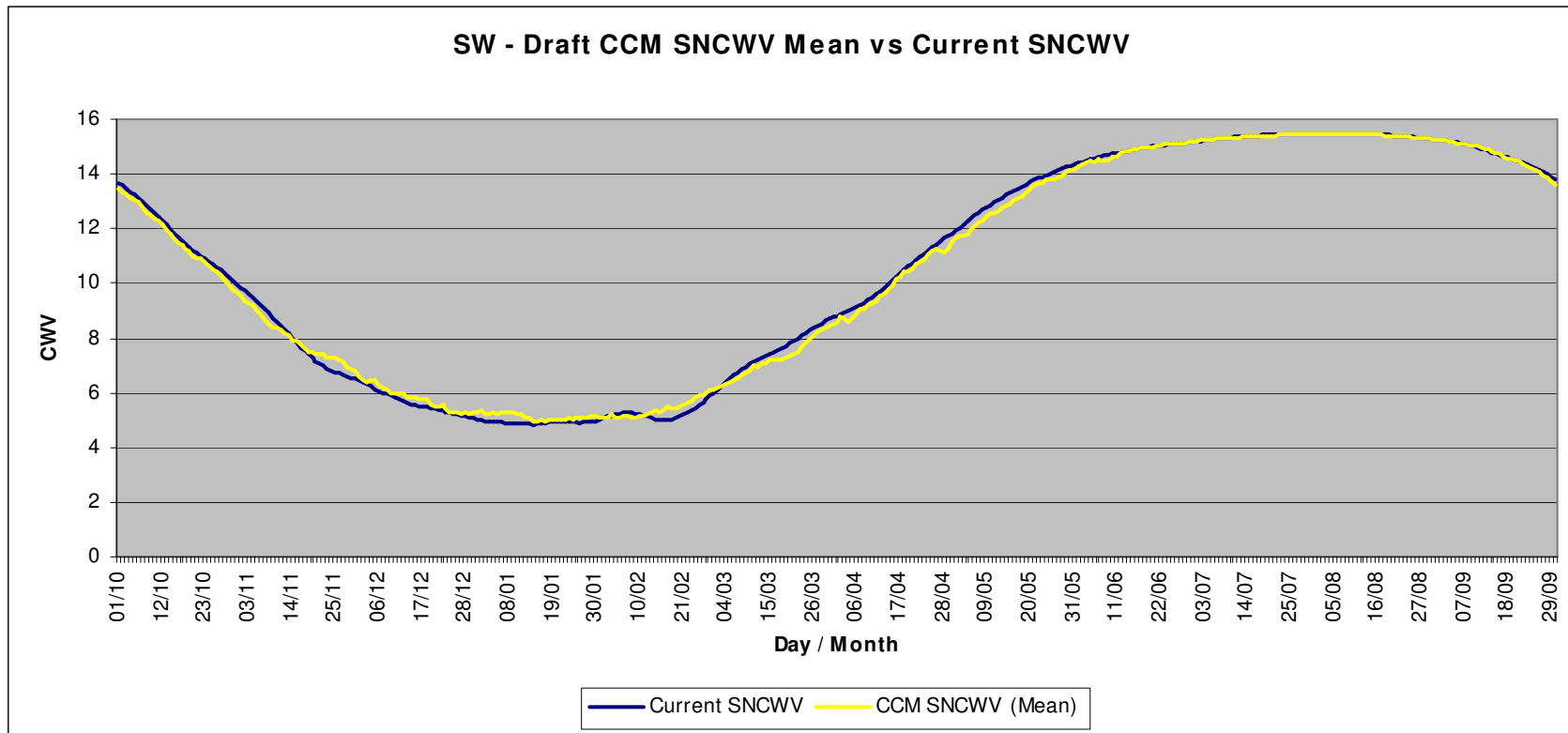
Trial LDZ – SW SNCWV Profiles

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Draft SNCWV for SW – Using MEAN of daily CWVs

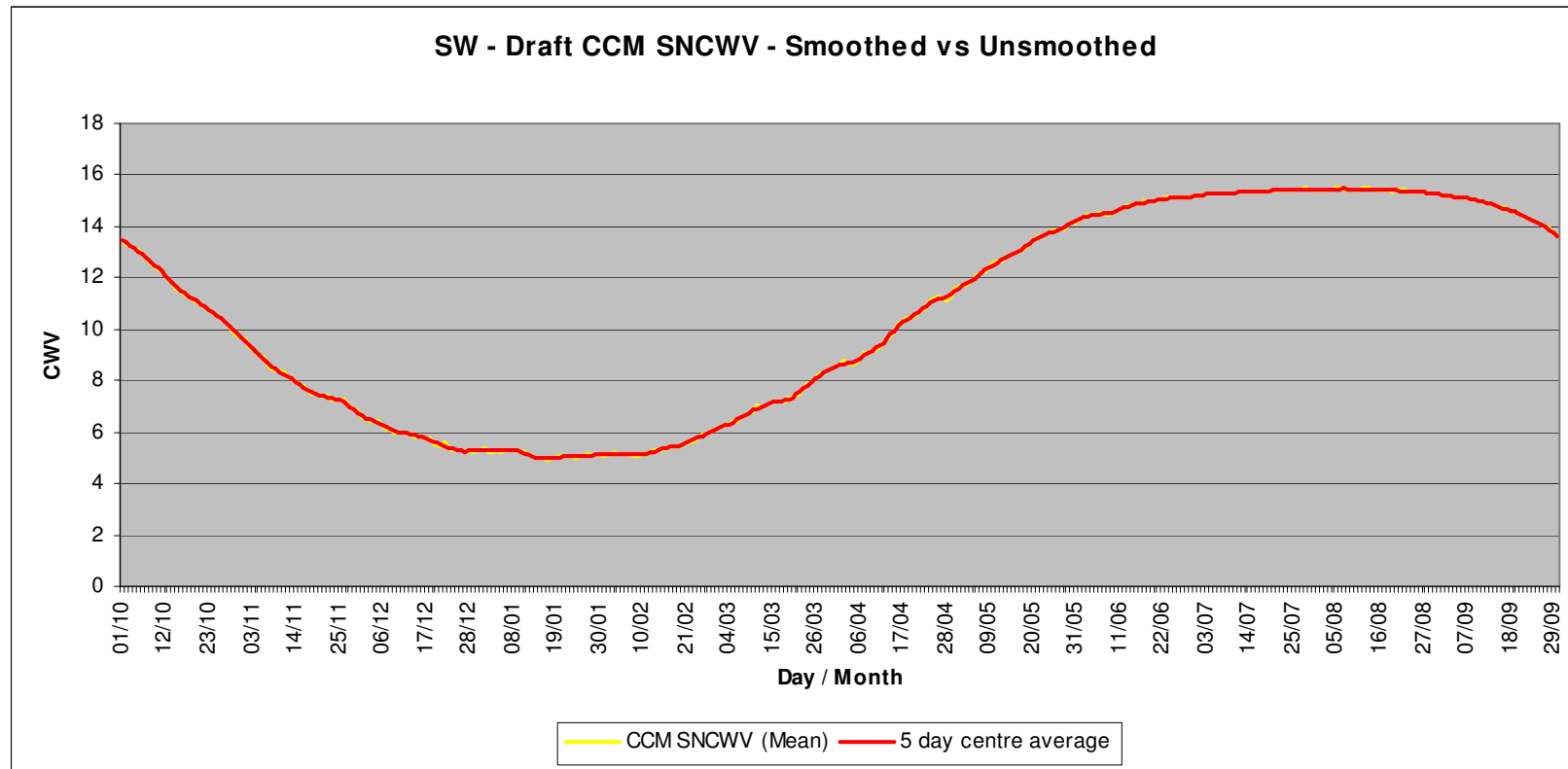


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Draft SNCWV for SW – MEAN vs 5 Day Moving Avge.

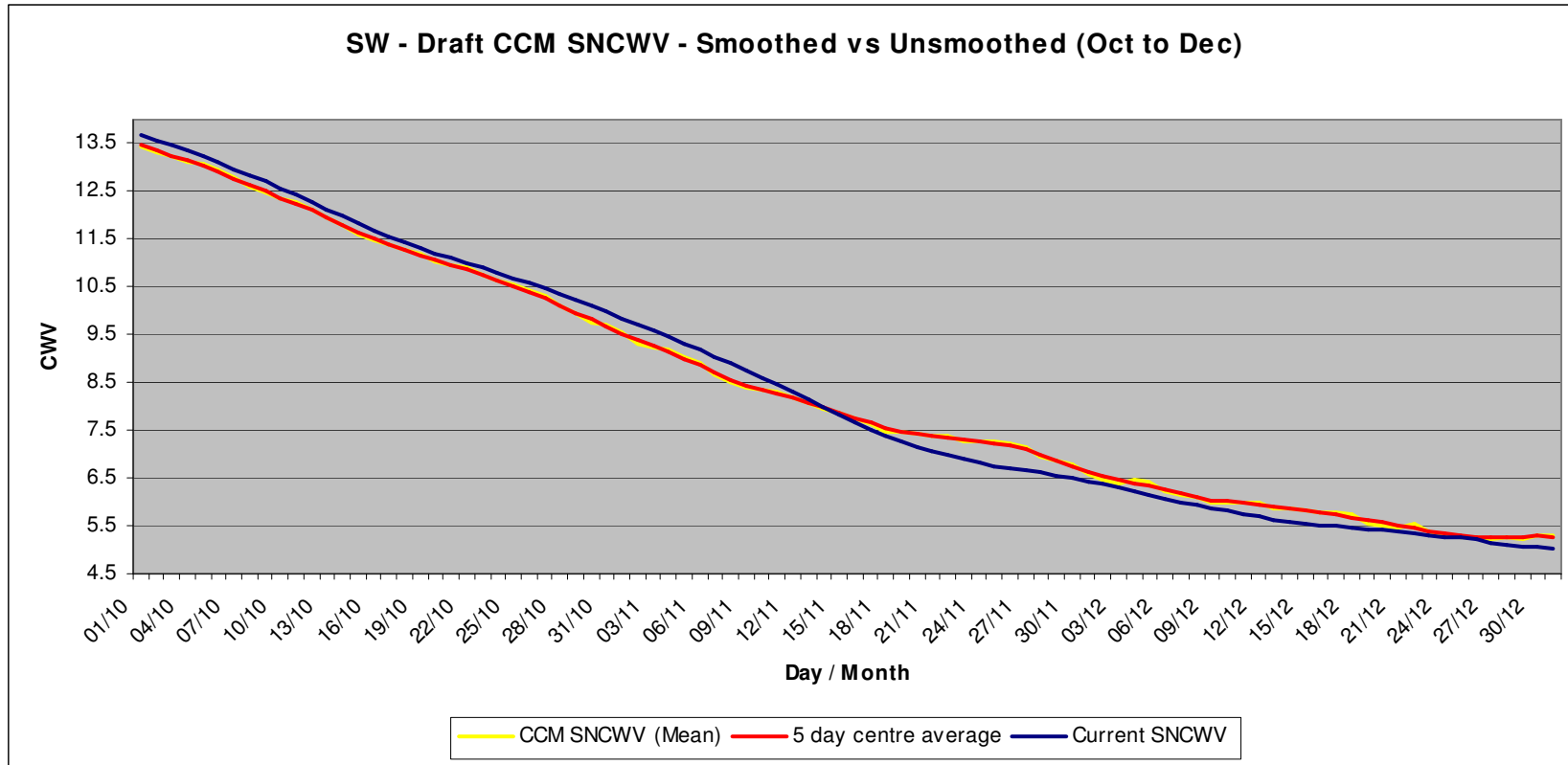


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37 Draft SNCWV for SW – MEAN vs 5 Day Moving Avge – Oct to Dec

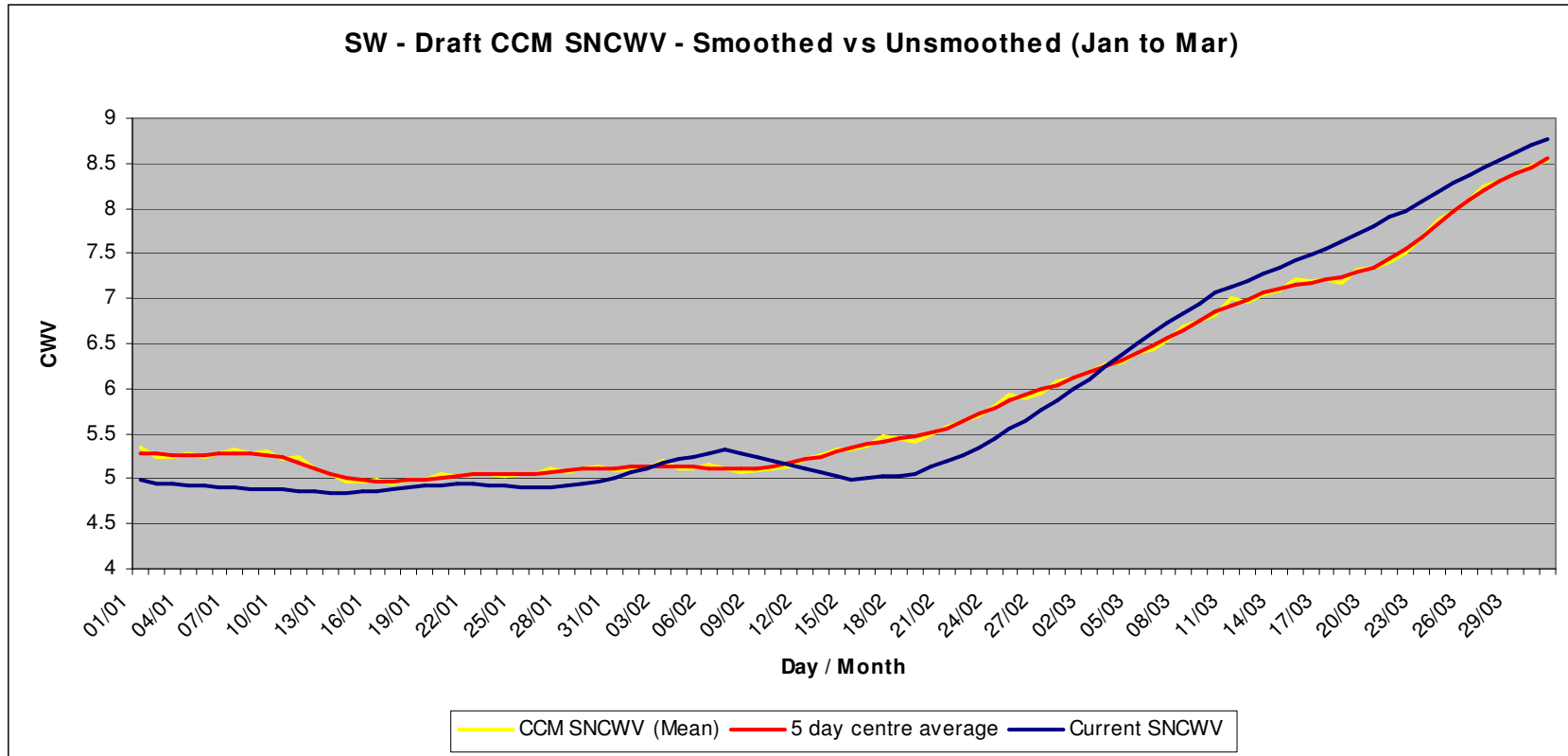


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38 Draft SNCWV for SW – MEAN vs 5 Day Moving Avge – Jan to Mar

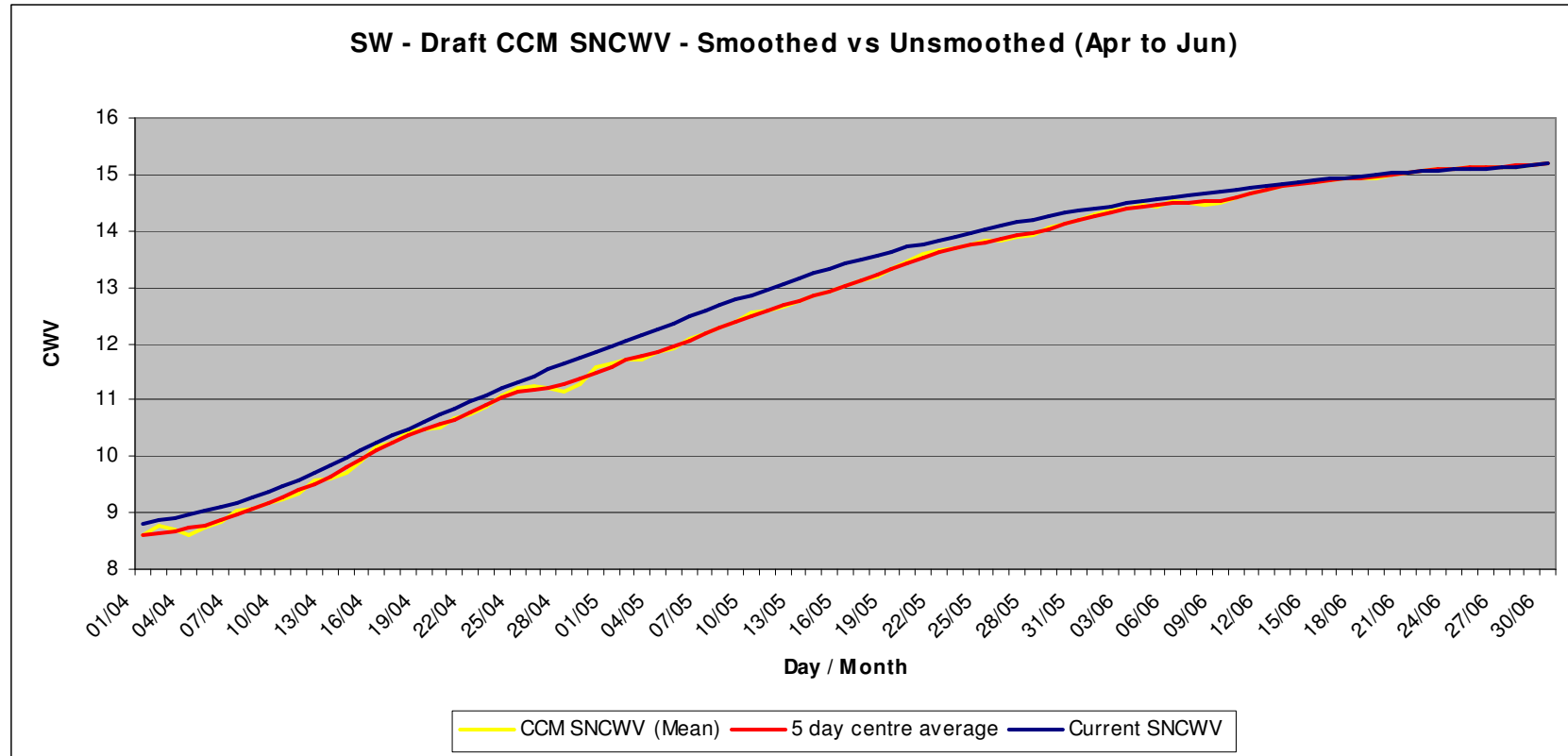


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39 Draft SNCWV for SW – MEAN vs 5 Day Moving Avge – Apr to Jun

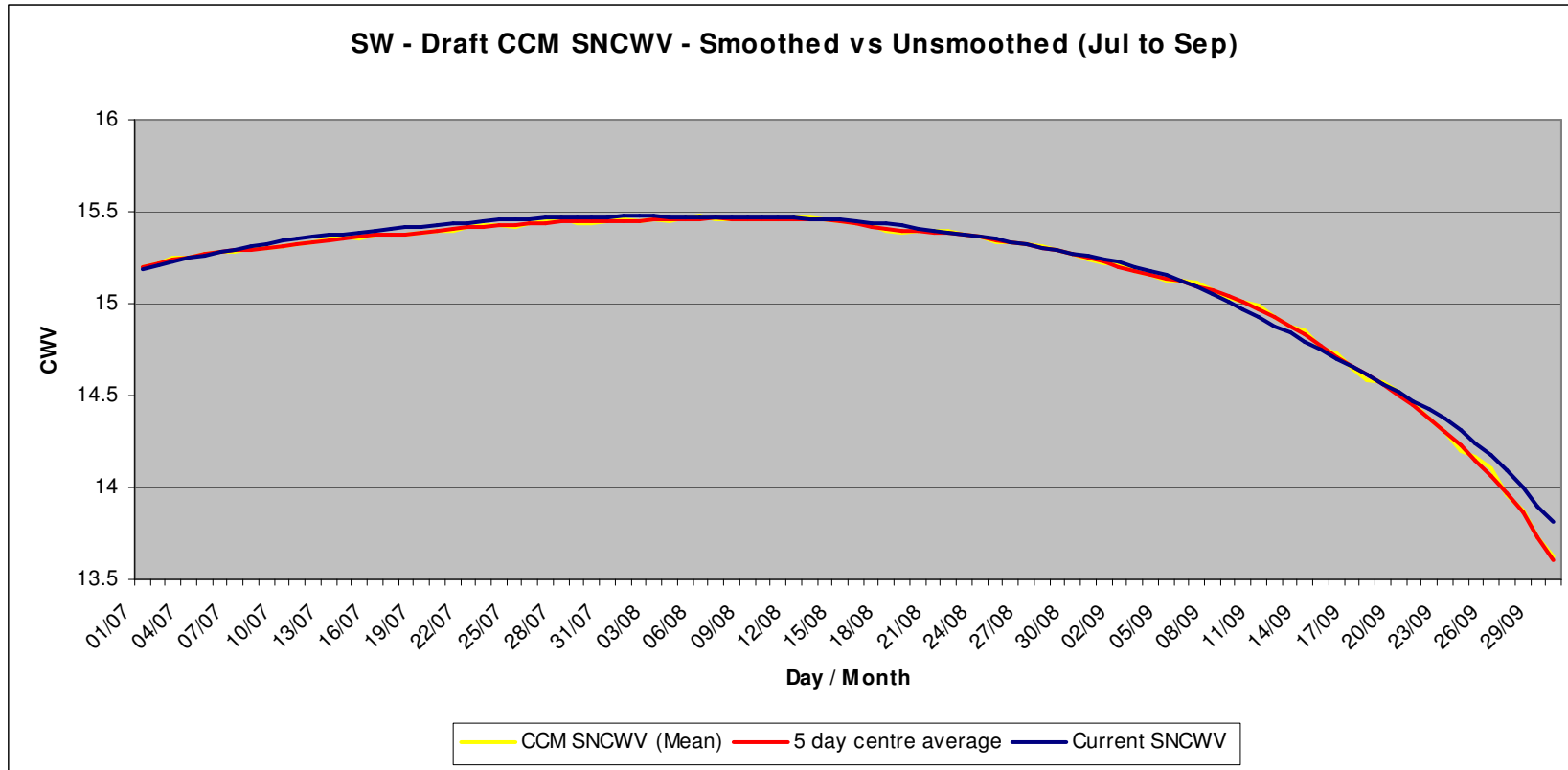


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40 Draft SNCWV for SW – MEAN vs 5 Day Moving Avge – Jul to Sep

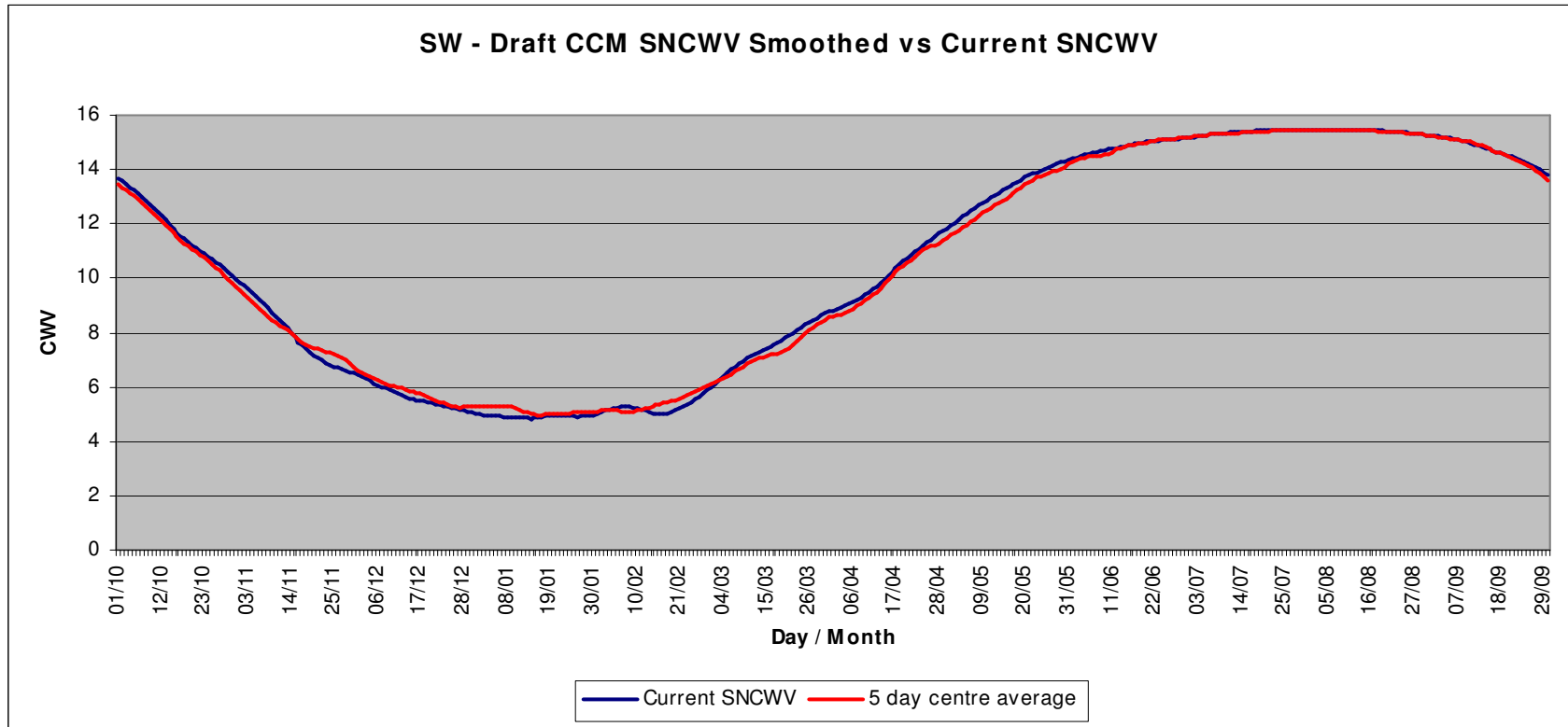


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Draft SNCWV for SW – 5 Day Moving Ave vs Current SNCWV



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Trial LDZ Draft Annual Load Profiles (ALPs)

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Draft ALP calculations

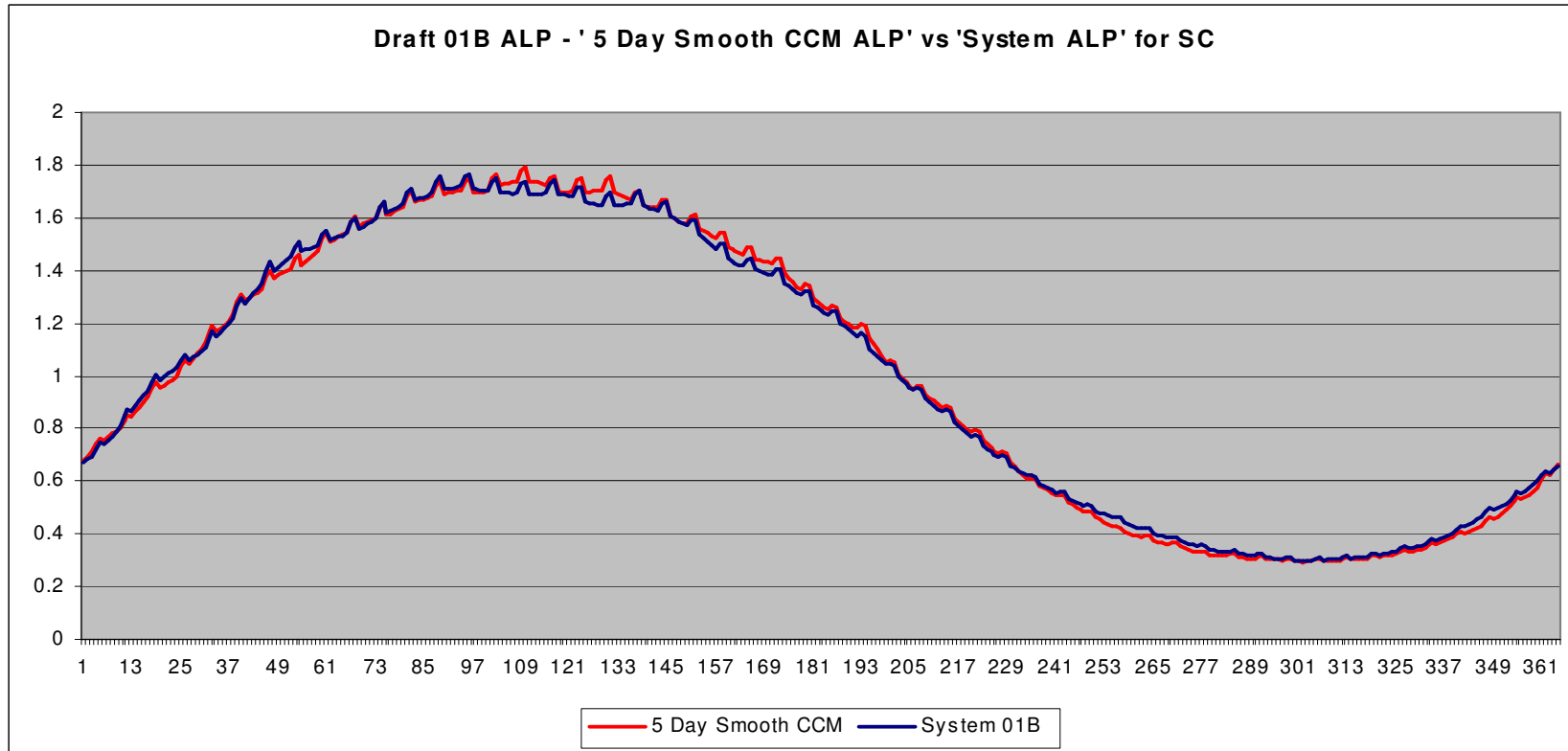
- One of the main parameters which uses the SNCWV is the Annual Load Profile (ALP)
- In order to appreciate the impacts of the draft SNCWV using the CCM data, an ALP for gas year 2014/15 for EUC 01B has been calculated for each of the Trial phase LDZs
- The current system ALPs, which have been calculated using the current SN basis, have been added to the chart for comparison purposes

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Draft 01B ALP for SC – 5 Day Smooth vs Current System

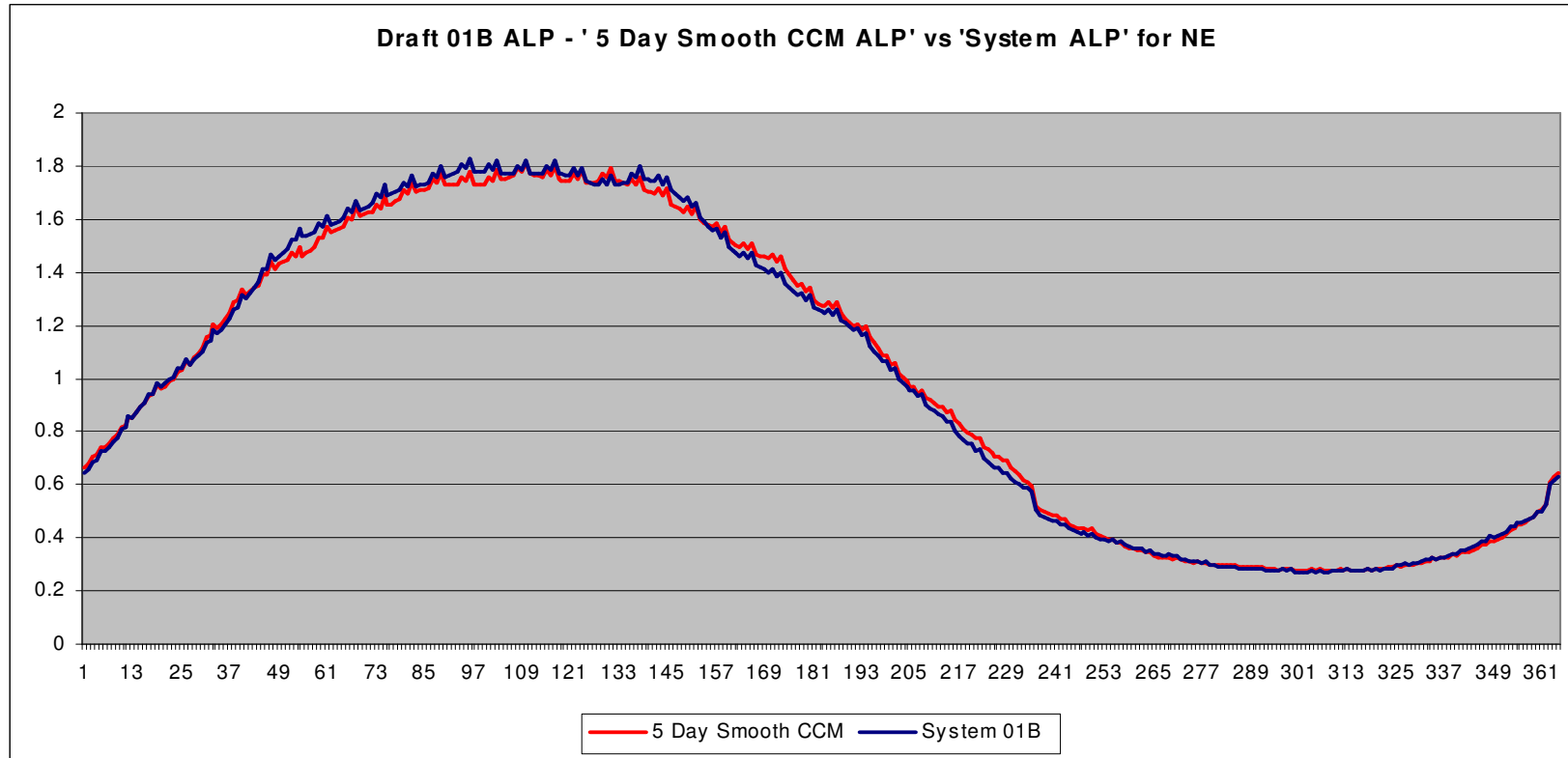


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Draft 01B ALP for NE – 5 Day Smooth vs Current System

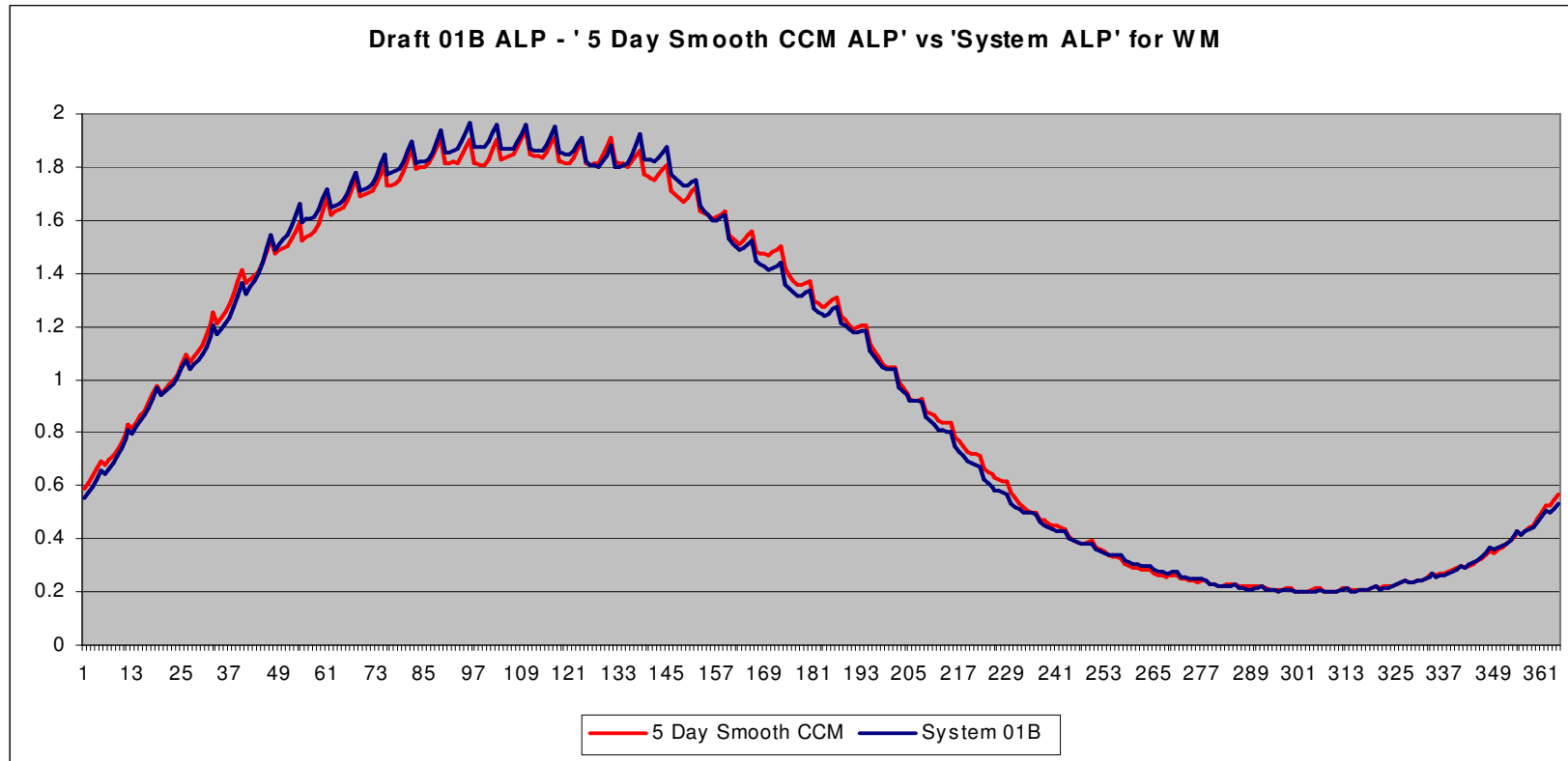


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Draft 01B ALP for WM – 5 Day Smooth vs Current System

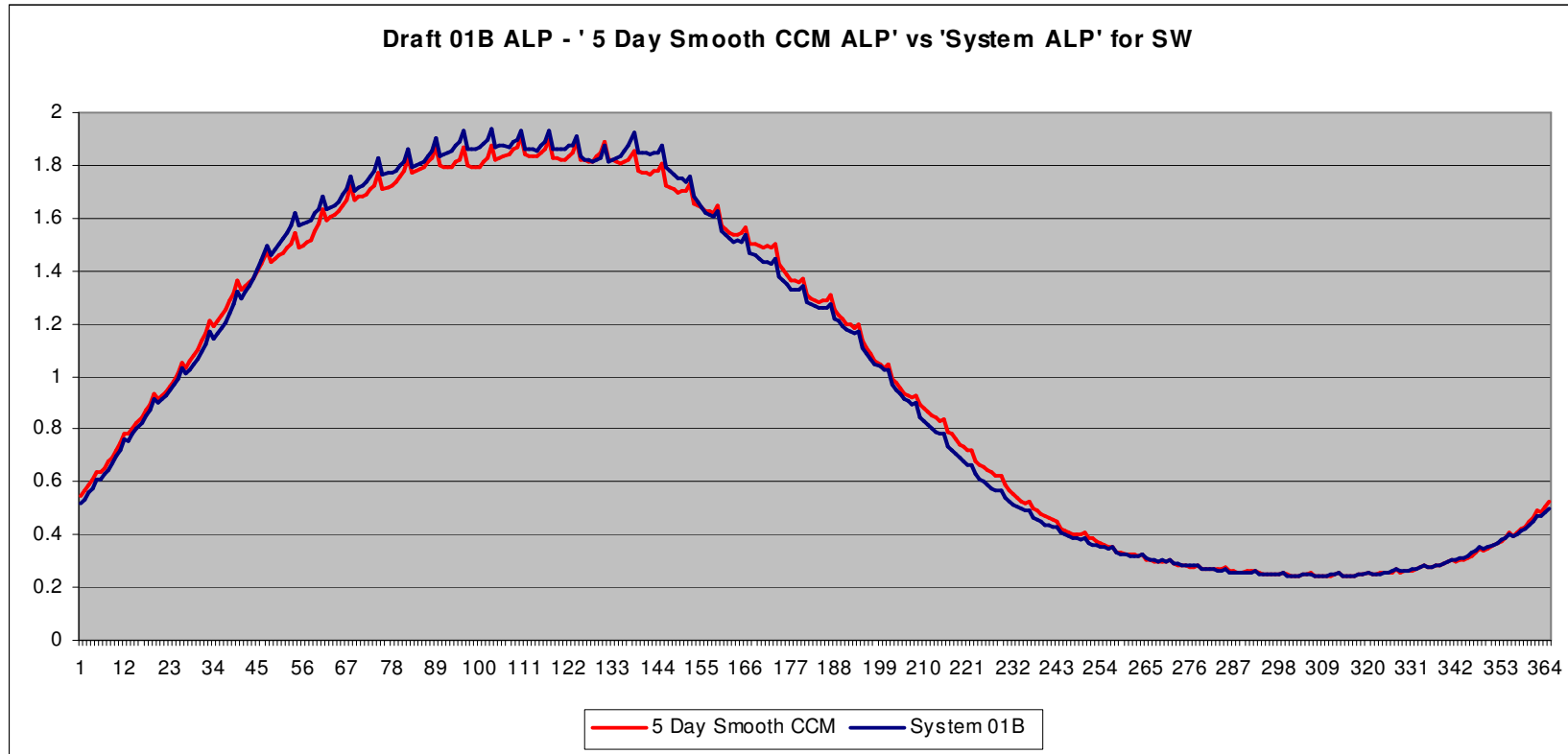


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Draft 01B ALP for SW – 5 Day Smooth vs Current System



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Options & Next Steps

- Xoserve have requested feedback on the draft approach document and profiles generated for Trial LDZs
- TWG comments welcome on smoothing techniques / options available for final SNCWV profile
- Xoserve investigating use of Loess method for smoothing
- Xoserve would like to finalise the principles of the approach to the derivation of the Seasonal Normal Composite Weather Variable at Octobers DESC meeting
- Are TWG now happy to provide a recommendation to DESC ?

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