	Comments Template on CP-12-003 – Draft Technical Specifications QIS IORP II	Deadline 31 July 2012 18:00 CET
Name of Company:	Academic Community Group • Prof. David Blake (City University, London, United Kingdom) • Prof. Zvi Bodie (Boston University, United States) • Prof. Lans Bovenberg (Tilburg University, The Netherlands) • Prof. Magnus Dahlquist (Stockholm School of Economics, Sweden) • Prof. Pierre Colin-Dufresne (Columbia University, New York, United States) • Prof. Paul Embrechts (ETH Zurich, Switzerland) • Prof. Damir Filipovic (EPF de Lausanne, Switzerland) • Prof. Christian Gollier (University of Toulouse, France) • Prof. Frank de Jong (Tilburg University, The Netherlands) • Prof. Theo Kocken (Free University, Amsterdam, The Netherlands) • Prof. Ralph Koijen (University of Chicago, United States) • Prof. Robert Merton (MIT Sloan, United States) • Prof. Theo Nijman (Tilburg University, The Netherlands) • Dr. Bart Oldenkamp (Cardano, The Netherlands) • Prof. Antoon Pelsser (Maastricht University, The Netherlands) • Ir. Joeri Potters (Cardano, The Netherlands) • Prof. Josef Teichmann (ETH Zurich, Switzerland) • Prof. Rick van der Ploeg (University of Oxford, United Kingdom) • Prof. Sweder van Wijnbergen (University of Amsterdam, The Netherlands) • Prof. Luis Viceira (Harvard University, United States) • Prof. Bas Werker (Tilburg University, The Netherlands)	

	Comments Template on CP-12-003 – Draft Technical Specifications QIS IORP II	Deadline 31 July 2012 18:00 CET
Disclosure of comments:	Please indicate if your comments should be treated as confidential:	Public
	Please follow the following instructions for filling in the template: ⇨ Do **not** change the numbering in the column "reference"; if you change numbering, your comment cannot be processed by our IT tool ⇨ Leave the last column empty. ⇨ Please fill in your comment in the relevant row. If you have no comment on a paragraph or a cell, keep the row empty. ⇨ Our IT tool does not allow processing of comments which do not refer to the specific numbers below. **Please send the completed template, in Word Format, to CP-12-003@eiopa.europa.eu. Our IT tool does not allow processing of any other formats.** The numbering of the paragraphs refers to Consultation Paper 12-003.	
Reference	**Comment**	
General Comment		
Q1.		
Q2.		
Q3.		
Q4.		
Q5.		
Q6.		
Q7.		

Q8.		
Q9.		
Q10.		
Q11.		
Q12.		
Q13.		
Q14.		
Q15.		
Q16.		
Q17.		
Q18.		
Q19.		
Q20.		
Q21.		
Q22.		
Q23.		
I.1.1.		
I.1.2.		
I.1.3.		
I.1.4.		
I.1.5.		

I.2.1.		
I.2.2.		
I.2.3.	We support this point of view.	
I.2.4.		
I.2.5.		
I.2.6.		
I.3.1.	An adequate definition of (pure) defined contribution schemes is lacking. For instance, the proposed new Dutch real pension contract does not provide any guarantees. Logically the statement here would imply that the document does not apply for these hybrid schemes.	
I.3.2.		
I.4.1.		
I.4.2.		
I.4.3.		
I.4.4.		
I.4.5.		
I.4.6.	We fully agree.	
I.4.7.		
I.4.8.		
I.4.9.		
I.4.10.		
I.4.11.		
I.4.12.		
I.4.13.		
I.4.14.		

I.4.15.		
I.4.16.		
I.4.17.		
I.4.18.		
I.4.19.		
I.4.20.		
I.4.21.		
I.4.22.		
I.5.1.		
I.5.2.		
I.5.3.		
I.5.4.		
I.5.5.		
I.5.6.		
I.5.7.		
I.5.8.		
I.6.1.		
I.6.2.		
I.6.3.		
I.7.1.		
I.7.2.		
I.7.3.		
I.7.4.		

I.7.5.		
I.8.1.		
I.8.2.		
I.8.3.		
I.8.4.		
I.8.5.		
I.8.6.		
I.9.1.		
I.9.2.		
I.9.3.		
I.10.1.		
I.10.2.		
I.10.3.		
I.10.4		
I.11.1		
HBS.1.1.		
HBS.2.1.		
HBS.2.2.		
HBS.2.3.		
HBS.2.4.		
HBS.2.5.		
HBS.2.6.		
HBS.2.7.		

HBS.2.8.		
HBS.3.1.	We fully agree.	
HBS.3.2.	We assume that EIOPA here refers to so-called risk-adjusted or risk-neutral probabilities. If the time-value of money is taken as not to include risk-premiums (which is the usual definition), these probabilities are the only ones that lead to market consistent valuation.	
HBS.3.3.		
HBS.3.4.		
HBS.3.5.		
HBS.3.6.		
HBS.3.7.		
HBS.3.8.		
HBS.3.9.		
HBS.3.10.		
HBS.3.11.		
HBS.3.12.		
HBS.3.13.	We agree with the Deep, Liquid and Transparent principles However, we don't see any link between these principles and the actual choices made (see HBS 8.7.)	
HBS.3.14.		
HBS.3.15.		
HBS.3.16.		
HBS.3.17.		
HBS.3.18.		
HBS.3.19.		
HBS.3.20.		
HBS.3.21.		

HBS.3.22.		
HBS.3.23.		
HBS.3.24.		
HBS.3.25.		
HBS.3.26.		
HBS.3.27.		
HBS.3.28.		
HBS.3.29.		
HBS.4.1.		
HBS.4.2.		
HBS.4.3.		
HBS.4.4.		
HBS.4.5.		
HBS.4.6.		
HBS.4.7.		
HBS.4.8.		
HBS.4.9.		
HBS.4.10.		
HBS.4.11.		
HBS.4.12.		
HBS.4.13.		
HBS.4.14.		
HBS.4.15.		
HBS.4.16.		
HBS.4.17.		
HBS.4.18.		

HBS.4.19.		
HBS.4.20.		
HBS.4.21.		
HBS.4.22.		
HBS.4.23.		
HBS.4.24.		
HBS.4.25.		
HBS.4.26.		
HBS.4.27.		
HBS.4.28.		
HBS.4.29.		
HBS.4.30.		
HBS.4.31.		
HBS.4.32.		
HBS.4.33.		
HBS.4.34.		
HBS.4.35.		
HBS.4.36.		
HBS.4.37.		
HBS.4.38.		
HBS.4.39.		
HBS.4.40.		
HBS.4.41.		
HBS.4.42.		
HBS.4.43.		
HBS.4.44.		

HBS.4.45.		
HBS.4.46.		
HBS.4.47.		
HBS.4.48.		
HBS.4.49.		
HBS.4.50.		
HBS.4.51.		
HBS.4.52.		
HBS.4.53.		
HBS.4.54.		
HBS.4.55.		
HBS.4.56.		
HBS.4.57.		
HBS.4.58.		
HBS.4.59.		
HBS.4.60.		
HBS.4.61.		
HBS.5.1.		
HBS.5.2.		
HBS.5.3.		
HBS.5.4.		
HBS.5.5.		
HBS.6.1.		
HBS.6.2.		
HBS.6.3.		
HBS.6.4.		

HBS.6.5.		
HBS.6.6.		
HBS.6.7.		
HBS.6.8.		
HBS.6.9.		
HBS.6.10.		
HBS.6.11.		
HBS.6.12.		
HBS.6.13.		
HBS.6.14.		
HBS.6.15.		
HBS.6.16.		
HBS.6.17.		
HBS.6.18.		
HBS.6.19.		
HBS.6.20.		
HBS.6.21.		
HBS.6.22.		
HBS.6.23.		
HBS.6.24.		
HBS.6.25.		
HBS.6.26.		
HBS.6.27.		
HBS.6.28.		
HBS.6.29.		
HBS.6.30.		

HBS.6.31.		
HBS.6.32.		
HBS.6.33.		
HBS.6.34.		
HBS.6.35.		
HBS.6.36.		
HBS.6.37.		
HBS.6.38.		
HBS.6.39.		
HBS.6.40.		
HBS.6.41.		
HBS.6.42.		
HBS.6.43.		
HBS.6.44.		
HBS.6.45.		
HBS.6.46.		
HBS.6.47.		
HBS.6.48.		
HBS.6.49.		
HBS.6.50.		
HBS.6.51.		
HBS.6.52.		
HBS.6.53.		
HBS.6.54.		
HBS.6.55.		
HBS.6.56.		

HBS.6.57.		
HBS.6.58.		
HBS.6.59.		
HBS.6.60.		
HBS.6.61.		
HBS.6.62.		
HBS.6.63.		
HBS.6.64.		
HBS.6.65.		
HBS.6.66.		
HBS.6.67.		
HBS.6.68.		
HBS.6.69.		
HBS.6.70.		
HBS.6.71.		
HBS.6.72.		
HBS.6.73.		
HBS.6.74.		
HBS.6.75.		
HBS.6.76.		
HBS.6.77.		
HBS.6.78.		
HBS.6.79.		
HBS.6.80.		
HBS.6.81.		
HBS.6.82.		

HBS.6.83.		
HBS.6.84.		
HBS.6.85.		
HBS.6.86.		
HBS.6.87.		
HBS.6.88.		
HBS.6.89.		
HBS.6.90.		
HBS.7.1.		
HBS.7.2.		
HBS.7.3.		
HBS.7.4.		
HBS.7.5.		
HBS.7.6.		
HBS.7.7.		
HBS.7.8.		
HBS.7.9.		
HBS.7.10.		
HBS.7.11.		
HBS.7.12.		
HBS.7.13.		
HBS.7.14.		
HBS.7.15.		
HBS.7.16.		
HBS.7.17.		
HBS.7.18.		

HBS.7.19.		
HBS.7.20.		
HBS.7.21.		
HBS.7.22.		
HBS.7.23.		
HBS.7.24.		
HBS.7.25.		
HBS.7.26.		
HBS.7.27.		
HBS.7.28.		
HBS.7.29.		
HBS.7.30.		
HBS.7.31.		
HBS.7.32.		
HBS.7.33.		
HBS.7.34.		
HBS.7.35.		
HBS.7.36.		
HBS.7.37.		
HBS.7.38.		
HBS.7.39.		
HBS.7.40.		
HBS.7.41.		
HBS.7.42.		
HBS.8.1.		
HBS.8.2.		

HBS.8.3.		
HBS.8.4.		
HBS.8.5.	We suggest to add as a criterion that the determination of the risk-free term structure be such that market impact of the regulation is minimized. Also, the word 'prudent' needs clarification. As we will argue below, the proposed method is neither prudent nor does it minimize market impact. See HBS.8.7 and HBS.8.11.	
HBS.8.6.	We support the use of an ultimate forward rate for those interest rate points that do not meet the criterion of "deep, liquid and transparent" as defined in 3.13. We advise to revisit the use of a subjectively determined, off-market Ultimate Forward Rate. History shows that interest rates fluctuate considerably over time with no clear mean reversion patterns and at some future date these parameters will have to be adjusted. The fact that the UFR level of Japan is lower reveals that a sustained period of low interest rates may result in lowering the UFR level. It is worrisome that the procedures to decide on such changes are unspecified. The 4.2% is far from market consistent and in the current proposal, a very liquid 30 year bond on the asset side will be priced much higher than the same cashflow on the liability side, creating a entirely wrong view of the health of an insurance company. It violates the criteria of prudency (and objectivity) because at current low market rates, liabilities are valued much lower and so capital much higher than under liquid (e.g. 30 year) market rates would be the case. It creates serious amounts of basis risk: In case of sustained low interest rates, adjustments to the UFR level will come as a surprise and will be unhedged (compared to the current situation where insurance companies hedge their economic interest rate risk). These future changes are a kind of regulatory risk that replaces economic risk (in fact it is delayed economic information). The reduction in hedging due to the method chosen can be considerable (over 30% of total interest rate sensitivity). Such a procedure thus violates the criteria stated in HBS.8.5. The approach in fact increases economic risk for insurance companies that are seeking to	

	minimise their economic risk as much as possible. We propose a more prudent and objective procedure in HBS 8.7.	
HBS.8.7.	It is not clear why the 20 year interest rate is viewed as a last liquid point. It is obvious that there is a very limited market after 30 years. E.g. notionals outstanding in Euroswaps reduce to only a few percent of the outstanding amount in the range 10-20 years. However, the outstanding swaps in the range 20-30 years seem to be around 50-60% of the very liquid 10-20 years market. For the AAA Eurobond market, the observation is the same: AAA bonds in large liquid countries (Germany, Netherlands, France) show equal volumes outstanding and equal bid-offer spreads in the 10-20 years range as in the 20-30 years range. The plain Smith-Wilson procedure forces institutions to hedge their liabilities exceeding 20 years of maturity via the 20 years hedge instruments (bonds and swaps), concentrating large "buy" activities in this single point. This will automatically lead to illiquidity, volatile pricing and low yields around this point, and discontinuities in the swap and bond market after 20 years, The Last Liquid Point method also entails annual rebalancing of the hedge that is concentrated in the 20 year point. Every year this hedge will drift from the 20 year point (in the direction of the 19 year point), but the regulatory interest rate sensitivity will remain in the 20 years point causing mismatches and higher capital requirements. This will induce high annual rebalancing market transactions and therefore high unnecessary transaction costs A small but essential adjustment in the Smith-Wilson procedure, suggested below, will strongly reduce disruptive market impact, high rebalancing costs and support balanced supply and demand in long-maturity markets.	

	We advise to revise two parts of the process (see also document http://www.cardano.com/cms/upload/20120713_-_working_paper_-_UFR.pdf): 1) Replace the subjective (semi-)fixed 4.2% Ultimate Forward Rate by an automated, transparent, prudent and objective method that uses the liquid market information of, say, the 10-30 years points and possibly adds a (small) spread representing the (normally) upward sloping character of the long end of the yield curve. This spread parameter may vary somewhat between currencies. Concretely, the Ultimate Forward Rate would periodically be determined as a liquidity and maturity weighted average market yield of 10-30 years instruments, plus possibly the above-mentioned small spread at the long end of the curve. This leads to variability in the Ultimate Forward Rate that matches market movements and, thus, is truly market consistent. Also, changes in this Ultimate Forward Rate are hedgeable. It also avoids serious economic basis risk and material underhedging by insurance companies that violates prudency and good incentives for proper risk management. 2) Avoid working with a degenerated 20-years Last Liquid Point which will result in extreme "pin risk" in the market and serious market disruption. We suggest to use a Smoothed Smith-Wilson procedure, using available market data in a decreasing manner as liquidity decreases, but in such a manner that interest rate sensitivity is still linked to many more (liquid) maturities and not degenerated in one single point. The idea is that, rather than abruptly switching from fully relying on market data to fully discarding all market data beyond the LLP, we continue to rely on market data beyond the 20 year point (so it's the last fully used point, not last liquid point. The curve construction is again separated into two parts – before and after the LLP[1]. Before, the constructed curve again	

[1] Technically, 'Last Liquid Point' is not an appropriate name anymore, but we stick to it for the sake of explanation.

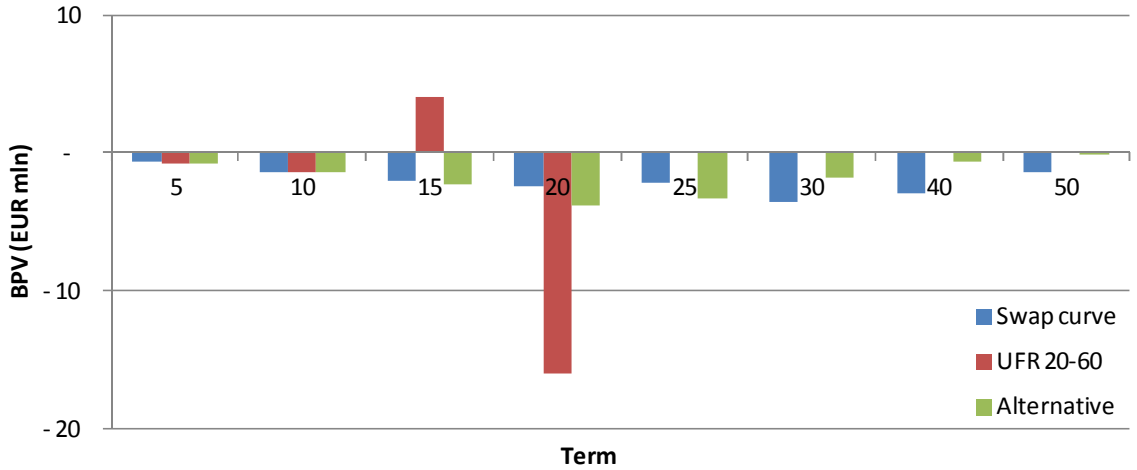
coincides with the market swap curve. After the LLP, curve construction is based on the forward curve which again converges to the UFR determined according to our proposal 1) above, using the speed of convergence in an identical manner.

The difference between our proposed method and the original method relates to the model which determines the one year forward rates beyond the 20 year point:

$$\text{fwd}^{SW}_{t-1,t} = (1 - w(t))\ \text{fwd}_{t-1,t} + w(t)\ \text{UFR}$$

This model continues to use new market forward rates beyond the 20 year point, rather than focusing on the 20-year forward rate only. Because we basically choose the same recipe, both the constructed curve itself and the valuation effect on the liabilities are largely similar to the original SW method. Yet, there is a pronounced difference in terms of sensitivity to various segments of the interest rate curve. There is no longer a concentration (degeneration) of interest rate sensitivity in the 20 year point. The interest rate sensitivity is still significant - but lower than is the case without the UFR method - in the maturities between 20 and 30 years. This avoids concentration in the 20 year point, market disruption, and high annual rebalancing costs

The figure below shows how interest rate sensitivities vary according to the current use of
1) the risk free rate (called "swap curve"; can also be the AAA gov curve),
2) the UFR proposed in HBS 8.7 (UFR 20-60) and,
3) the alternative presented above using the forward rates in year 21, 22, etc but with a decreasing weight in line with the convergence parameter in SW .



The UFR 20-60 shows a concentration of hedge activities in the 20 year point. It also reveals an opposite sensitivity in the 15 year bucket. This latter phenomenon is due to the fact that if the interest rate in the 15 year point goes up and 20 year remains the same, the forward rate in year 20 will go down and thereby the market value of the liabilities increases. (This is based on a world in which people hedge themselves with very liquid 10, 15, 20, 25 and 30 year swaps and we linearly interpolate the rates in between, but the same applies if annual buckets are used) This is another unintended consequence of using a Last Liquid Point. This is a huge concern to risk managers at insurance companies.

The assumption that for the euro interest rate curve the 20 years point is the Last Liquid Point (LLP) is not an observation we recognize. The AAA government bond market has higher volumes outstanding in the 20-30 year segment than in the 10-20 years segment. For Germany, Netherlands and France, around 3 thousand billion Euro of the AAA bonds is in the 20-30 year segment versus 2.5 thousand in the 10-20 years segment. The OTC derivatives market is even

	bigger and has slightly lower volumes in the 20-30 year market than in the 10-20 year market. From non-public information we received from London Clearing House (LCH) we see that liquidity in the 20-30 year Euro market is not much different from the 10-20 years Euro market (Figures may be provided by LCH). In addition to that data, the publicly available report of Trioptima also shows that beyond the 20 years point there is a voluminous and liquid market, especially up to the 30 years point. http://www.trioptima.com/uploading_images/pdf/Rates_Repository_Industry_Report_20120420.pdf) The Trioptima report shows aggregated data from all major currencies and the euro denominated derivatives contracts account for approximately 35% of the total. From this report the 10-30 year euro swapmarket is estimated to be approximately 10 thousand billion Euro. In the 20-30 years segment, the volumes are 65% of the outstanding volumes in the 10-20 years segment. The number of trades is equally high in the 20-30 segment as the 10-20 segment. Of course the Euro data cannot be derived exactly from this public set but non-public information reveals roughly similar profiles. More specific figures may be provided by the DTCC (the successor of TriOptima in maintaining the OTC Trade Repository Database, per April 2012). After the 30 years point, the outstanding volumes and traded volumes are less than 10% of the 10-30 year market, indicating low liquidity that gave rise to the UFR discussion. In summary, the outstanding swap volumes are big in the 10-30 years segment compared to the (roughly) 1 to 2 thousand billion Euro of insurance and pension liabilities in the 10-30^{+} year segment that are (potentially) being hedged with swaps (a high percentage of the interest rate hedge at insurance companies is implemented with Government Bonds via the investment portfolio). The 20-30 years Euro bond and swap market doesn't show any sign of being significantly less liquid than the 10-20 years Euro bond and swap market. The discussion should concentrate on the 30+ year segment as it comes to replacing this with a UFR interest rate.	

HBS.8.8.	In view of HBS.8.7 the relevant parameters are: 1) The starting point of "less liquid points" 2) The speed of convergence from these less liquid points to the UFR 3) The parameters used to average the liquid yield points in order to determine the UFR 4) The spread on top of the average liquid long-maturity yields to determine the UFR	
HBS.8.9.		
HBS.8.10.		
HBS.8.11.	See HBS 8.7 with respect to the liquidity up to 30 years and the advice not to use one single Last Liquid Point.	
HBS.8.12.	We advise to be very cautious using a 50 basis points spread. Funding pension or insurance promises with illiquid assets leads to illiquidity risk mismatch that is generally fully on the balance sheet of the IORP and thus should lead to a capital reserve, not to a lower valuation of the promises. Furthermore, situations of liquidation may entail that the illiquidity premium cannot be collected and the insurance company ends up with a deficit. It is questionable if this approach is prudent. We do not see empirical evidence to use a Counter Cyclical Premium (CCP) in default-free interest rates. Market consistent valuation should not use future expected interest rates but current market interest rates for the relevant maturity. These represent the market price for buying (deferred) annuities, which is exactly the product that the supervisor is trying to secure.	
HBS.8.13.		
HBS.8.14.		
HBS.8.15.		
HBS.8.16.		
HBS.8.17.		

HBS.8.18.	It is important to adjust the expected return on bond portfolios if interest rates change. We assume therefore that the reference to December 2011 is for completeness only and that this date is automatically adjusted when the regulation will be implemented. As an alternative to approximating the expected return using interest rates at specific maturities, one can also set the expected return for a n-maturity bond equal to the prevailing n-maturity default-free interest rate. This effectively assumes unpredictable changes in the interest rates which is consistent with empirical results. In case of lower-rated bonds, credit spreads may be added to expected returns, but these should be based on market data (i.e. be frequently adjusted) and not set deterministically.	
HBS.8.19.		
HBS.8.20.		
HBS.8.21.		
HBS.8.22.		
HBS.8.23.	We favour market rates (Break Even Inflation in Inflation-linked bonds), possibly with adjustments for local inflation characteristics.	
HBS.8.24.	We favour market rates (Break Even Inflation in Inflation-linked bonds), possibly with adjustments for local inflation characteristics.	
HBS.9.1.		
HBS.9.2.		
HBS.9.3.		
HBS.9.4.		
HBS.9.5.		
HBS.9.6.		
HBS.9.7.		
HBS.9.8.		
HBS.9.9.		

SCR.1.1.		
SCR.1.2.		
SCR.1.3.		
SCR.1.4.		
SCR.1.5.		
SCR.1.6.		
SCR.1.7.		
SCR.1.8.		
SCR.1.9.		
SCR.1.10.		
SCR.1.11.		
SCR.1.12.		
SCR.1.13.		
SCR.1.14.		
SCR.1.15.		
SCR.1.16.		
SCR.1.17.		
SCR.1.18.		
SCR.1.19.		
SCR.1.20.		
SCR.1.21.		
SCR.1.22.		
SCR.1.23.		
SCR.1.24.		
SCR.1.25.		
SCR.2.1.		

SCR.2.2.		
SCR.2.3.		
SCR.2.4.		
SCR.2.5.		
SCR.2.6.		
SCR.2.7.		
SCR.2.8.		
SCR.2.9.		
SCR.2.10.		
SCR.2.11.		
SCR.2.12.		
SCR.2.13.		
SCR.2.14.		
SCR.2.15.		
SCR.2.16.		
SCR.2.17.		
SCR.2.18.		
SCR.2.19.		
SCR.2.20.		
SCR.2.21.		
SCR.2.22.		
SCR.2.23.		
SCR.2.24.		
SCR.2.25.		
SCR.2.26.		
SCR.2.27.		

SCR.2.28.		
SCR.2.29.		
SCR.2.30.		
SCR.2.31.		
SCR.2.32.		
SCR.2.33.		
SCR.2.34.		
SCR.2.35.		
SCR.3.1.		
SCR.3.2.		
SCR.3.3.		
SCR.3.4.		
SCR.3.5.		
SCR.3.6.		
SCR.4.1.		
SCR.4.2.		
SCR.4.3.		
SCR.4.4.		
SCR.5.1.		
SCR.5.2.		
SCR.5.3.		
SCR.5.4.		
SCR.5.5.		
SCR.5.6.		
SCR.5.7.		
SCR.5.8.		

SCR.5.9.		
SCR.5.10.		
SCR.5.11.		
SCR.5.12.		
SCR.5.13.		
SCR.5.14.		
SCR.5.15.		
SCR.5.16.		
SCR.5.17.		
SCR.5.18.		
SCR.5.19.		
SCR.5.20.		
SCR.5.21.		
SCR.5.22.		
SCR.5.23.		
SCR.5.24.		
SCR.5.25.		
SCR.5.26.		
SCR.5.27.		
SCR.5.28.		
SCR.5.29.		
SCR.5.30.		
SCR.5.31.		
SCR.5.32.		
SCR.5.33.		
SCR.5.34.		

SCR.5.35.		
SCR.5.36.		
SCR.5.37.		
SCR.5.38.		
SCR.5.39.		
SCR.5.40.		
SCR.5.41.		
SCR.5.42.		
SCR.5.43.		
SCR.5.44.		
SCR.5.45.		
SCR.5.46.		
SCR.5.47.		
SCR.5.48.		
SCR.5.49.		
SCR.5.50.		
SCR.5.51.		
SCR.5.52.		
SCR.5.53.		
SCR.5.54.		
SCR.5.55.		
SCR.5.56.		
SCR.5.57.		
SCR.5.58.		
SCR.5.59.		
SCR.5.60.		

SCR.5.61.		
SCR.5.62.		
SCR.5.63.		
SCR.5.64.		
SCR.5.65.		
SCR.5.66.		
SCR.5.67.		
SCR.5.68.		
SCR.5.69.		
SCR.5.70.		
SCR.5.71.		
SCR.5.72.		
SCR.5.73.		
SCR.5.74.		
SCR.5.75.		
SCR.5.76.		
SCR.5.77.		
SCR.5.78.		
SCR.5.79.		
SCR.5.80.		
SCR.5.81.		
SCR.5.82.		
SCR.5.83.		
SCR.5.84.		
SCR.5.85.		
SCR.5.86.		

SCR.5.87.		
SCR.5.88.		
SCR.5.89.		
SCR.5.90.		
SCR.5.91.		
SCR.5.92.		
SCR.5.93.		
SCR.5.94.		
SCR.5.95.		
SCR.5.96.		
SCR.5.97.		
SCR.5.98.		
SCR.5.99.		
SCR.5.100.		
SCR.5.101.		
SCR.5.102.		
SCR.5.103.		
SCR.5.104.		
SCR.5.105.		
SCR.5.106.		
SCR.5.107.		
SCR.5.108.		
SCR.5.109.		
SCR.5.110.		
SCR.5.111.		
SCR.5.112.		

SCR.5.113.		
SCR.5.114.		
SCR.5.115.		
SCR.5.116.		
SCR.5.117.		
SCR.5.118.		
SCR.5.119.		
SCR.5.120.		
SCR.5.121.		
SCR.5.122.		
SCR.5.123.		
SCR.5.124.		
SCR.5.125.		
SCR.5.126.		
SCR.5.127.		
SCR.5.128.		
SCR.5.129.		
SCR.5.130.		
SCR.5.131.		
SCR.6.1.		
SCR.6.2.		
SCR.6.3.		
SCR.6.4.		
SCR.6.5.		
SCR.6.6.		
SCR.6.7.		

SCR.6.8.		
SCR.6.9.		
SCR.6.10.		
SCR.6.11.		
SCR.6.12.		
SCR.6.13.		
SCR.6.14.		
SCR.6.15.		
SCR.6.16.		
SCR.6.17.		
SCR.6.18.		
SCR.6.19.		
SCR.6.20.		
SCR.6.21.		
SCR.6.22.		
SCR.6.23.		
SCR.6.24.		
SCR.6.25.		
SCR.6.26.		
SCR.6.27.		
SCR.6.28.		
SCR.6.29.		
SCR.6.30.		
SCR.6.31.		
SCR.6.32.		
SCR.7.1.		

SCR.7.2.		
SCR.7.3.		
SCR.7.4.		
SCR.7.5.		
SCR.7.6.		
SCR.7.7.		
SCR.7.8.		
SCR.7.9.		
SCR.7.10.		
SCR.7.11.		
SCR.7.12.		
SCR.7.13.		
SCR.7.14.		
SCR.7.15.		
SCR.7.16.		
SCR.7.17.		
SCR.7.18.		
SCR.7.19.		
SCR.7.20.		
SCR.7.21.		
SCR.7.22.		
SCR.7.23.		
SCR.7.24.		
SCR.7.25.		
SCR.7.26.		
SCR.7.27.		

SCR.7.28.		
SCR.7.29.		
SCR.7.30.		
SCR.7.31.		
SCR.7.32.		
SCR.7.33.		
SCR.7.34.		
SCR.7.35.		
SCR.7.36.		
SCR.7.37.		
SCR.7.38.		
SCR.7.39.		
SCR.7.40.		
SCR.7.41.		
SCR.7.42.		
SCR.7.43.		
SCR.7.44.		
SCR.7.45.		
SCR.7.46.		
SCR.7.47.		
SCR.7.48.		
SCR.7.49.		
SCR.7.50.		
SCR.7.51.		
SCR.7.52.		
SCR.7.53.		

SCR.7.54.		
SCR.7.55.		
SCR.7.56.		
SCR.7.57.		
SCR.7.58.		
SCR.7.59.		
SCR.7.60.		
SCR.7.61.		
SCR.7.62.		
SCR.7.63.		
SCR.7.64.		
SCR.7.65.		
SCR.7.66.		
SCR.7.67.		
SCR.7.68.		
SCR.7.69.		
SCR.7.70.		
SCR.7.71.		
SCR.7.72.		
SCR.7.73.		
SCR.7.74.		
SCR.7.75.		
SCR.7.76.		
SCR.7.77.		
SCR.7.78.		
SCR.7.79.		

SCR.7.80.		
SCR.7.81.		
SCR.7.82.		
SCR.7.83.		
SCR.7.84.		
SCR.7.85.		
SCR.7.86.		
SCR.7.87.		
SCR.8.1.		
SCR.8.2.		
SCR.8.3.		
SCR.8.4.		
SCR.8.5.		
SCR.8.6.		
SCR.8.7.		
SCR.9.1.		
SCR.9.2.		
SCR.9.3.		
SCR.9.4.		
SCR.9.5.		
SCR.9.6.		
SCR.9.7.		
SCR.9.8.		
SCR.9.9.		
SCR.9.10.		
SCR.9.11.		

SCR.9.12.		
SCR.9.13.		
SCR.9.14.		
SCR.9.15.		
SCR.9.16.		
SCR.9.17.		
SCR.9.18.		
SCR.9.19.		
SCR.9.20.		
SCR.9.21.		
SCR.9.22.		
SCR.9.23.		
SCR.9.24.		
SCR.9.25.		
SCR.9.26.		
SCR.9.27.		
SCR.9.28.		
SCR.9.29.		
SCR.9.30.		
SCR.9.31.		
SCR.9.32.		
SCR.9.33.		
SCR.9.34.		
SCR.10.1.		
SCR.10.2.		
SCR.10.3.		

SCR.10.4.		
SCR.10.5.		
SCR.10.6.		
SCR.10.7.		
SCR.10.8.		
SCR.10.9.		
SCR.10.10.		
SCR.10.11.		
MCR.1.1.		
MCR.2.1.		
MCR.2.2.		
MCR.2.3.		
MCR.2.4.		
MCR.2.5.		
MCR.2.6.		
MCR.2.7.		
MCR.2.8.		
MCR.2.9.		
PRO.1.1.		
PRO.2.1.		
PRO.2.2.		
PRO.2.3.		
PRO.2.4.		
PRO.2.5.		
PRO.2.6.		
PRO.3.1.		

PRO.3.2.		
PRO.3.3.		
PRO.3.4.		
PRO.3.5.		
PRO.3.6.		
PRO.3.7.		
PRO.3.8.		
PRO.3.9.		
PRO.3.10.		
PRO.3.11.		
PRO.3.12.		
PRO.3.13.		
PRO.3.14.		
PRO.3.15.		
PRO.3.16.		
PRO.3.17.		
PRO.3.18.		
PRO.3.19.		
PRO.3.20.		
PRO.3.21.		
PRO.3.22.		
PRO.3.23.		
PRO.3.24.		
PRO.3.25.		
PRO.3.26.		
PRO.3.27.		

PRO.3.28.		
PRO.4.1.		
PRO.4.2.		
PRO.4.3.		
PRO.4.4.		
PRO.4.5.		
PRO.4.6.		
PRO.4.7.		
PRO.4.8.		
PRO.4.9.		
PRO.4.10.		
PRO.4.11.		
PRO.4.12.		
PRO.4.13.		
PRO.4.14.		
PRO.4.15.		
PRO.4.16.		
PRO.4.17.		