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ADDENDUM

Date Addendum Issued:	08 July 2014
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	Originated by	Approved by
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Department	NE	NE
Date	June 2014	June 2014

ORIGINAL DOCUMENT DETAILS

DOCUMENT TITLE	Unit Feeder Main Protection
DOCUMENT NUMBER	TS 3.24.18
ISSUE NUMBER	1
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ADDENDUM DETAILS

The above document shall be read in conjunction with the following amendments:

Check appropriate boxes below

Addition	X	Replacement	X	Deletion	
Replace the following three clauses at the end of paragraph 4.7. A1. For current differential protection using digital communication, supervision of differential current is required. On operation of the supervision function, it shall alarm and block differential protection (latched and manually resettable only). The alarm shall have a time delay with a user adjustable setting of 1 – 5 seconds. The pickup value of the differential supervision function shall be at least 20% more sensitive than that of differential protection for a given bias current (i.e. the supervision function shall operate before the differential protection function), and it shall not operate during normal condition with a maximum load current specified in PS(T) 10.					

- A2. The current differential protection shall be capable of tolerating a maximum differential delay of 870 microseconds in non-GPS mode (i.e. without GPS synchronisation) for AIS enabled communication services. It shall remain stable in both steady state and transient out of zone fault condition for maximum differential delay.

Informative: During certain telecommunication network faults e.g. network synchronisation failures, the signalling channel delay may change over a time period which is governed by the frequency error between the master network clock and the faulty clock. This will introduce varying absolute delays in each signalling channel direction (maximum of 870 microseconds).

- A3 Where a communication service with AIS (Alarm Indication Signal) is provided, the current differential protection shall operate in the conventional telegram mode without the requirement of GPS synchronising. During the communication channel switching, the current differential protection shall be blocked. Following restoration of the channel, the protection shall automatically recover and unblock.

Informative: From July 2012, it is possible to provide a communication service with AIS on the core telecommunication networks. AIS (High binary bits i.e. 1s) is transmitted by the communication network for 4 seconds during path switching to inhibit the transmission of data until both ends of the communication service are on the same path. The new communication service with AIS will ensure that no split communication path can occur during switching.

- A4. Where a communication service with AIS is not provided, the current differential protection shall operate in GPS mode with GPS synchronising.

ADDENDUM

Date Addendum Issued:	03-07-2012
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	Originated by	Approved by
Name	Wen An	Ursula Bryan
Job Title	Protection Specialist	Asset Policy Manager
Department	ENI	ENI
Date	03-07-2012	

ORIGINAL DOCUMENT DETAILS

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ADDENDUM DETAILS

The above document shall be read in conjunction with the following amendments:

Check appropriate boxes below

Addition	X	Replacement		Deletion	
Insert the following four clauses at the end of paragraph 4.7.					
A1. For current differential protection using digital communication, supervision of differential current is required. On operation of the supervision function, it shall alarm and block differential protection. The alarm shall have a time delay with a user settable setting of 1 – 5 seconds. The pickup value of the differential supervision function shall be at least 20% more sensitive than that of differential protection for a given bias current (i.e. the supervision function shall operate before the differential protection function), and it shall not operate during normal condition with a maximum load current specified in PS(T) 10.					
A2. To improve differential protection stability during communication path switching, starters in the differential protection are required. Trip command shall only be initiated if both starters and differential protection element operate. The starters shall respond to all types of faults including high resistance earth faults. The pickup values of the starters shall be sufficiently sensitive to detect any high resistance earth faults specified in PS(T) 10, and it shall not operate under the worst system unbalanced condition with a maximum load current specified in PS(T) 10. The delta starters shall have a reset time not less than 500 ms.					
<i>Informative: acceptable starters are PPS, NPS current delta starters (i.e. step change of the PPS and NPS currents) plus threshold starters of PPS, NPS, ZPS currents. Operation of anyone of the starters shall arm the operation of the differential protection function.</i>					

- A3. Where a communication service with AIS (Alarm Indication Signal) is provided, the current differential protection shall operate in the conventional telegram mode without the requirement of GPS synchronising. The protection should be set to tolerate a maximum differential delay of 625 microseconds.

Informative: From July 2012, it is possible to provide a communication service with AIS on C&W's core networks. AIS (All 1s) is transmitted by the comms network for 4 seconds during path switching to inhibit the transmission of data until both ends of the comms service are on the same path. The new communication service with AIS will ensure that no split communication path can occur during switching.

- A4. Where a communication service with AIS is not provided, the current differential protection shall operate in GPS mode with GPS synchronising.



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**Unit Feeder Main
Protection**

NGTS 3.24.18
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