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Quest CCS Project

Quest Heat Integration Report 2017

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Summary

This document summarizes heat recovery between the Quest CCS project and the Scotford Upgrader, and documents any updates to heat integration schemes associated with the Quest facility.

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		Add name	Actual signature
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Heat Integration Report

2017 GoA Knowledge Share Report

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1. QUEST HEAT INTEGRATION SUMMARY

Installed heat integration within the Quest CCS capture unit is as per the BDEP. As-built process engineering flow schemes and utilities engineering flow schemes (P&IDs) have been included in the detailed report submission for reference.

Heat integration with the base Scotford Upgrader comprises of demin water heaters, pre-heating demin water from tankage, upstream of the de-aerator. This is accomplished via cross exchange with the CO₂ stripper reboiler LP steam condensate stream. The installed process line-up reduces the stripping steam requirement in the de-aerator.

Heat recovered in 2017 amounted to 98554 MWh, equivalent to ~159,200 tonnes of LP steam savings over the year (~18 t/h). This was 12% of the total LP steam utilized in the Quest capture unit to drive amine regeneration and local heating.

Table 1-1 Heat Recovery Summary Since Commissioning

Savings	Cumulative			2015 only	2016 only	2017 only
	2015	2016	2017			
Total heat recovered (MWh)	33,617	129,877	228,431	33,617	96,260	98,554
Total heat recovered (tonnes equivalent LP Steam)	54,275	209,695	368,907	54,275	155,421	159,211
Total heat recovered (average rate in tonnes equivalent LP Steam per hour)	17	18	18	17	18	18
Total heat recovered (% Quest plot LP steam demand)	13%	13%	12%	13%	12%	12%

2. HEAT INTEGRATION CHANGES FROM DESIGN SINCE START-UP

No changes were made to the original heat integration design as specified in the BDEP.

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