

## EFFC Tremie Guide – FPS implementation of guide

The following is the plan for the implementation of the concrete testing as recommended by the EFFC guide for tremie concrete.

The essential changes surround the concrete testing to be undertaken prior to and during a contract and that needs to be specified to the supplier by the contractor.

### Pre-works tests

The required tests are contained in the following table taken from the EFFC guide.

TABLE 02		RECOMMENDATIONS FOR TESTING TREMIE CONCRETE			
	Test	Recommended Range for Target Value	Tolerance on Specified Target Value	Suitability & Conformity Testing	Frequency for Acceptance Testing**
A1.1	Slump Flow	400 - 550 mm	± 50 mm	Mandatory	Each load
A1.2	Slump Flow Velocity	10 - 50 mm/s	± 5 mm/s	Mandatory	At least 1/week
A1.3	VSI	0	-	Mandatory	Each load
A4	Modified Cone Outflow****	3 - 6 s	± 1 s	Recommended	As required
A6	Workability Retention	to be specified	- 50 mm	R/M*	As required
A7	Static Segregation	≤ 10%	+ 2%	R/M*	As required
A9	Bleeding	≤ 0.1 ml/min	+ 0.02 ml/min	R/M*	As required
A10	Bauer Filtration****	≤ 22 ml***	+ 3 ml	R/M*	As required

\* Based on the detailed engineering assessment.

\*\* Testing frequency may be reviewed once target values have been reliably and consistently achieved.

\*\*\* Higher filtration values may be acceptable based on previous experiences with similar mixes

\*\*\*\* Alternative tests are available as described in Appendix A 4.2 and Appendix A 10.2

The Specification issued to the Concrete suppliers should include the Target values for each of the tests listed in Table 02 and the EFFC guide shall be included in the Specification in addition to any of the other codes or standards to which the concrete is required to comply.

Prestart trials shall be undertaken by the supplier to demonstrate compliance of the mix with the specification.

A full suite of tests should be carried out to demonstrate compliance with the Specification issued to the concrete suppliers

For the VSI test the target should be VSI = 0. It has to be recognised that it is difficult to distinguish between VSI = 0 and 1 and both mixes are described as being stable. What is clearly not acceptable is for there to be signs of instability.

### Acceptance testing

In relation to acceptance testing the Mandatory tests in Table 02 shall be undertaken as listed. In addition all other listed tests should be undertaken at least once per week on delivered concrete.

### Notes:

- The above is a minimum requirement additional testing will probably be required where the concrete supplier is less experienced with tremie concrete or the plant is older. Some of the areas of potential further investigations required to ensure suppliers are competent are referred to in Section 5.5 of the EFFC guide.
- Whilst it has been common practise to only undertake Pre-works tests on new mixes it is proposed that on all projects these tests are undertaken (or demonstration provided that they have been undertaken in the last 4 weeks) as mix constituents and sources can change affecting the concrete performance.