BEST PRACTICE

LOCATION:	**Concrete products plant**	**ARTICLE YEAR**	**2013**
ACTIVITY:	**Occupational Health**	**COMPANY:**	**Stanton Bonna Concrete**
SUB ACTIVITY:	**Vibration**	**COMPANY LOCATION:**	**Stanton by Dale**
BEST PRACTICE No:	**BP853**	**COMPANY TEL:**	**0115 944 1448**
COUNTRY OF ORIGIN:	**United Kingdom**		

TITLE

Elimination and reduction of noise and vibration during pipe casting

ARTICLE

DESCRIPTION

Stanton Bonna Concrete was finding it difficult to control the noise of vibrations during the production of larger diameter pipes using a vertically cast concrete pipe machine. This process consists of gradually filling a mould with concrete to form a cylindrical pipe which is lifted clear of the core and outer mould before curing. During the fill and pressing process, vibration is applied by electric motors that operate at a constant speed. The noise emitted by the machine varied significantly, and at particular points, possibly due to resonance, operators could feel the noise energy as WBV.

Following reviews and meeting with operators, maintenance and production staff, it was concluded that a possible solution was the installation of a continuously variable speed drive to the vibrator. This could then be used to adjust the speed such that the noisy 'resonance frequencies' were avoided.

An inverter which allowed variable vibrator speeds was installed together with a control system which enabled both manual & automatic adjustment to achieve the required vibration at the lowest possible noise levels.

The operator is able to reduce the speed of the vibrator as he hears the noise building. Once sufficient data has been built up for the different products, it is envisaged that the control system will operate automatically.

BENEFITS

- A noise reduction of 10-15 dBA achieved in the loudest part of the cycle
- Over the whole cycle, an overall reduction in noise exposure of 5 dBA
- Operators report that the noise energy waves been eliminated or greatly reduced
- The system enables the fine tuning of the vibration for optimum product quality
- System being developed for automated application across all pipe sizes
- Reduced wear and increased life of the vibratory system.

ARTICLE IMAGES