



Extended Work Shifts Equals Higher TWAs!

In these times of budgetary constraint and resulting staff cutbacks, many companies are asking employees to work extended shifts while still attempting to keep in step with unchanged or increasing product demand. It should be noted, however, that added work duration increases noise dose.

Extended work durations for employees not normally included in the Hearing Loss Prevention Program (HLPP) may result in their reclassification from non-actionable to OSHA actionable-requiring HLPP inclusion. Any knowledge of increased work duration requires a solid reassessment of your staff's noise doses, not only to determine actionable status, but more importantly to reduce their risk of incurring noise induced hearing loss and/or other physiological ill effects of noise (i.e. lesser attention span, high blood pressure, fatigue, mental distress, etc.).

The OSHA noise standard stipulates a permissible exposure level (PEL) of 90 dB(A) for an eight hour workday with a 5 dB exchange rate. For every 5 dB increase in noise, the permissible exposure duration is reduced by half. Thus a 95 dB(A) exposure is permissible for 4 hours; 100 dB(A), 2 hours; 105 dB(A) 1 hour, etc.

When an employee is asked to extend their work duration, you are in effect also increasing their noise dose. If an employee regularly works an eight hour work day and his/her noise exposure is 90 dB(A), their dose is 100%. A double work shift results in a noise dose of 200%. Do not make the mistake in thinking that as long the employee is working in noise at or below 90 dB(A) that, his/her noise dose will not exceed 100%.

For an employee who was not previously OSHA actionable, increasing his/her workday just two hours may change his/her OSHA status to actionable. A two-hour work extension of an 8-hour workday increases noise dose by 25%. Consider the example of the employee that normally puts in an eight-hour workday measuring an 8-hour time weighted average of 84.2 dB. Referencing Table A-1 in the OSHA noise standard, a time weighted 84.2 dB exposure equals a noise dose of 45% situating this employee *just under OSHA's ACTION LEVEL of a 50% dose (85 dB TWA)*. However, by increasing this employee's daily exposure at 84.2 dB an extra two hours per day, a noise dose of 56.2% results; this makes this employee actionable. How did we arrive at 56.2% you ask? It is improper to add 25 percentage points to the employee's 45% dose to arrive at an increased noise dose of 70%. Rather, we simply calculate the value that is 25% of the employee's customary 8-hour noise exposure and add that value to the employee's normal percentage dose. In this case, 25% of 45 gives us 11.2 percentage points. Adding 11.2 percentage points to the normally incurred 45% noise dose results in an increased dose equal to 56.2%.



For the fun of it, an increase to a 12-hour day adds 4 hours to an 8-hour day, resulting in a 50% increase in exposure duration resulting in a noise dose of 67.5% for a 12-hour shift.

It is easy to see by the above examples how a worker's noise dose can be underestimated or overlooked in times of temporary, short term, or extended increase in work patterns/durations. If your facility's work patterns have recently been extended, your employee's noise doses are worth a second look!

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