Best Management Practices

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EPA- Fugitive Dust Control

Dust control BMPs reduce surface activities and air movement that causes dust to be generated from disturbed soil surfaces. Construction sites can generate large areas of soil disturbance and open space for wind to pick up dust particles. Limited research at construction sites has established an average dust emission rate of 1.2 tons/acre/month for active construction (WA Dept. of Ecology, 1992). Airborne particles pose a dual threat to the environment and human health. First, dust can be carried offsite, thereby increasing soil loss from the construction area and increasing the likelihood of sedimentation and water pollution. Second, blowing dust particles can contribute to respiratory health problems and create an inhospitable working environment.

It Can Be Hazardous to Your Health

- **About half of fugitive dust particles (by weight) are big particles, larger than 10 microns in diameter (the average human hair is 70 microns in diameter). These larger particles settle out more quickly, on the ground and <u>in your upper airways.</u>**
- However, the other half are particles **10 microns or smaller, or PM10. Due to their very small size and weight, PM10 particles can remain airborne for weeks. When inhaled, PM10 particles can travel easily to the deep parts of the lungs and may remain there, causing respiratory illness, lung damage, and even premature death in sensitive individuals.**

Best Management Practices(BMP)

Prevention

Limit Surface Area Disturbed

Limit Work in Wind

Apply Suppressives as Needed

Clean up Spills Immediately

Occasional Use Areas

Grow Groundcover

Erect Windbreaks

Apply Crust Chemicals

Frequent Use Areas

Pave Roads

Enclose Storage Areas

Cover Storage Piles

Water/Sweep Often

Reduce Speed Limits

Minimize Trips

Limit Area Access

Prevent Carryout Offsite

Sources of Dust

TABLE 5-1. GENERIC OPEN DUST SOURCES ASSOCIATED WITH CONSTRUCTION AND DEMOLITION SITES

Construction Sites

- Pushing (land clearing and earthmoving)
- Drilling and blasting
- Batch drop operations (loader operation)
- Storage piles (soil and construction aggregates)
- Exposed areas
- Vehicle traffic on unpaved surfaces
- Mud/dirt carryout onto paved surfaces

Demolition Sites

- Explosive and mechanical dismemberment (blasting and wrecking ball operations)
- Pushing (dozer operation)
- Batch drop operations (loading debris into trucks)
- Storage piles (debris)
- Exposed areas
- Vehicular traffic on unpaved surfaces
- Mud/dirt/debris carryout onto paved surfaces

Control Efficiency

There are mathematical models to evaluate control efficiency.
Example of actual data cited below is from 1977 report.

The only specific control efficiency data which are available for construction and demolition involve the use of watering to control truck haulage emissions for a road construction project in Minnesota.[2] Using the geometric means of the important source characteristics (i.e., silt content, traffic volume, and surface moisture) and the regression equation developed from the downwind concentration data, a PM_{10} control efficiency of approximately 50 percent was obtained for a water application intensity of approximately 0.2 gal/yd^2/hour.

Some efficiency estimates in literature are in the range of 60-80%. Nowhere are higher estimates cited. There costs and times and water consumption (if used) associated with any control technique and all of these must be factored into environmental impact assessments.

Conclusion

- Fugitive dust is a major concern and the public should make sure it is adequately addressed in DOE EIS and DTSC EIR.
- Stating use of BMPs is insufficient to claim mitigation of environmental effects unless source terms are quantified and effectiveness of control measures is determined.