## Reduced Displacement

Assume cylindrical wavefronts (surface waves)
Let conduit radius increase from to to to + ur,
where ur, « r.
This means the cross-sectional area of the conduit, A, has

This means the cross-sectional area of the conduit, A, has increased from

A = TTG2 to A + AA = TT(0 + Uro) = TT(02 + 2010 Uro)

Therefore

 $\Delta A = 2\pi r_o u_{r_o}$ 

Now assume the same volume is displaced at all distances from the source (as in the Mogi model — this is a new point source). Hence at a badial distance of from the conduit, that point moves to or, + Ur, , where ur, satisfies:

$$\pi(r_1 + ur_1)^2 = \pi r_1^2 + \Delta A$$

i. Q .

$$u_{r_{i}} = \frac{\Delta A}{2\pi r_{i}}$$
 again for  $u_{r_{i}} \ll r_{i}$ 

This is a decay law which holds for all points outside of the conduit (source region).

So in the definition of reduced displacement, ur is just the area change of the conduit, divided by 2tr. \*

Is a near field law applicable? Need to know work speed, station distances, source frequency etc.

Do Vent diameters
correlate with tremer among

<sup>\*</sup> the problem is, of course, complicated by many other effects.

252 pout 2 pout 2 pout 2 ( NOC 13) THE WAS NOT - AL + A 252 reduced to ms Therefore AA = 270 Co. Us. more consisted to to besigned uporton and all amores well a source from the second to tring light this constant burn of the sould LOS AND PRINCE OF A PARTY OF BUCK 4RD = U10 10 1/2 (1017) 7 Ur = AFTAT is a not sope a some = , it This is a decay law which holds for all points outside. So in the definition of reduced displacement, u. T is portion area change of the conduit, divided by 20.

the problem is, of course, conditioned by many other effects