

Coal Tar DNAPL Well Design

Historically, Free Product recovery wells have been designed with Total Fluids recovery in mind. The historical problem with Free Product ONLY recovery is very low production rates. Xitech would like to present some new ideas that may increase Coal Tar production rates.

I. Change Well Annulus Material

Changing the well annulus material to washed pea gravel or small glass beads would increase pore spacing and reduce surface tension of the well annulus area. This can be accomplished because the removal rate of Coal Tar out of a well is much lower than water removal, thus the migration of suspended solids into the well are greatly reduced. This design resembles a French drain approach except we are using a vertical conduit instead of a horizontal trench.

II. Reduce The Well Boring Diameter

Reducing the well boring diameter will make it easier to develop and lowers drilling costs.

III. Increase Well Casing Slot Size

Typical slotted zones are usually 10-20 thousandths slot widths for holding back the #1 and #2 course sands. When pea gravel or small glass beads is placed in the well annulus wider slots like 60 thousandths slot width would lower surface resistance of the well screen.

IV. Use Continuous Wire Wrap Well Casing For High Viscosity Products

The typical slotted well casing material used for most Free Product recovery is Schedule 40 PVC pipe. The wall thickness of PVC casing is 1/4" wide and the small slot height create a high surface tension barrier for the Coal Tar to migrate through. A better choice would be continuous wire wrap stainless steel with 60 thousandths slot width.