

[54] METHOD AND APPARATUS FOR ELIMINATING NON-NATURALLY OCCURRING SUBSURFACE, LIQUID TOXIC CONTAMINANTS FROM SOIL

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[57] ABSTRACT

Apparatus for eliminating non-naturally occurring, sub-surface, liquid toxic contaminants from soil, includes a fracturing assembly for pneumatically fracturing the soil, the fracturing assembly including a tubular probe which receives a pressurized gas, the probe including a soil penetrating portion adapted to be inserted in a well in the soil and an above soil portion in fluid communication with the soil penetrating portion, the soil penetrating portion including a tube which receives the pressurized gas, first and second packers connected with the tube for pressing against walls of the well so as to provide a sealed area in the well between the first and second packers, a nozzle position in the sealed area in fluid communication with the tube for supplying the pressurized gas into the soil, the nozzle including at least one orifice therein which fluidly connects the soil with the tubular probe and an adjustment assembly which permits relative movement between the first and second packers in response to soil movement during a soil fracturing operation; and a pressurized gas supply which supplies the pressurized gas to the above soil portion of the tubular probe such that the pressurized gas travels through the at least one orifice into the soil to produce a fractured soil formation; and a transformation assembly which transforms liquid toxic contaminants in the soil into a different state, such as a vapor state or non-toxic state to decontaminate the soil, after creation of the fractured soil formation.

34 Claims, 7 Drawing Sheets

