or other back problems to workers during removal and reinstallation of the covers.

Utility vault and pit covers are also made of plastic but these have limited application for use in areas where they are subjected to less load, i.e. green belt or yard applications. The problem with plastic lids is that because they cannot withstand substantial loads, they have limited applicability and plastic lids provide less coefficient of friction when wet versus polymer covers. Consequently a need exists for a new utility vault and pit cover design which is light in weight, yet is durable in that it can withstand substantial loads and provide improved slip resistance over currently available covers.

SUMMARY OF THE INVENTION

According to an aspect of the present invention, there is provided a fiber reinforced polymer material cover for an utility pit comprising: a substantially flat upper surface; a bottom surface having an outer perimeter rim with a recessed interior cavity; and at least one continuous support rib extending uninterrupted through the recessed interior cavity from opposite sides of the outer perimeter rim without intersection or abutting of any other support ribs to transfer load placed on the cover and minimize deflection under the load to the outer perimeter rim, wherein the at least one continuous support rib has a curved outer radius providing a height greater in the center than at a juncture with the outer rim.

There is disclosed an improved utility vault cover or lid which is manufactured from a fiberglass reinforced polymer matrix material producing a reduced weight and increased strength cover which is lighter, stronger, has improved UV characteristics and slip resistance and is less expensive to manufacture compared to existing cover designs. The lid or cover is used for vaults, pits, chambers or boxes and for

ease of presentation shall all be referred to herein as a vault. Vaults are used in a number of industries including utility, security, gas and rail, for example, where they are underground, buried or at grade level.

The fiberglass reinforced polymer matrix (FRPM) material is a fiber reinforced polymer material which consists of an unsaturated polyester thermosetting resin matrix, glass fiber reinforcement and inorganic or mineral filler. Additional ingredients are low-profile additives including a UV inhibitor, cure initiators, thickeners, process additives and mold release agents. The formulation undergoes a cross linking reaction when cured under heat and pressure. The fiber reinforced polymer material for the cover will retain its

WHAT IS CLAIMED IS:

1. A fiber reinforced polymer material cover for an utility pit comprising:

a substantially flat upper surface;

a bottom surface having an outer perimeter rim with a recessed interior cavity; and

at least one continuous support rib extending uninterrupted through the recessed interior cavity from opposite sides of the outer perimeter rim without intersection or abutting of any other support ribs to transfer load placed on the cover and minimize deflection under the load to the outer perimeter rim, wherein the at least one continuous support rib has a curved outer radius providing a height greater in the center than at a juncture with the outer rim.

2. The cover of claim 1 wherein the substantially flat upper surface is textured.

3. The cover of claim 2 wherein the cover comprises a UV resistant unsaturated polyester thermosetting resin matrix and fiber glass reinforcement wherein the textured upper surface includes protrusions into the upper surface creating a resin rich layer above the fiber glass reinforcement.

4. The cover of claim 3 wherein the textured upper surface is Corinthian texture.

5. The cover of any one of the preceding claims wherein the substantially flat upper surface includes a pattern of bosses extending above the substantially flat upper surface.

6. The cover of claim 5 wherein the bosses have a plurality of different heights.

7. The cover of any one of the preceding claims wherein the flat upper surface has a recess for the attachment of an identification tag.

8. The cover of any one of the preceding claims wherein the cover has means for securing the cover to the utility pit.

9. The cover of claim 8 wherein the means for securing the cover to the utility pit includes a bolt extending through a recess through the cover.

10. The cover of claim 8 wherein the means for securing the cover to the utility pit includes a self-latching locking assembly.

11. The cover of any one of the preceding claims further comprising a cover lift cup for removal of the cover from the utility pit.