and meet the various local, state and federal environmental laws, rules and guidelines for these systems.

Artificial grass has been extensively used in sport arenas as well as airport runways and general landscaping. A primary consideration of artificial turf playing fields is the ability of the field to drain. Examples of prior art in synthetic grass drainage are U.S. Patent Nos. 5,876,745; 6,858,272; 6,877,932 and 6,946,181. However, these applications are generally only for field playing surfaces where the ground is substantially flat and the concern is only with the ability to improve field playing conditions.

The drainage use in the prior art deals principally with slow infiltration of flat surfaces to avoid inundation of the field, and such drainage use generally cannot handle the very large and rapid run-off that would occur on very large and steep sideslopes of landfills and mine stockpiles.

Therefore, a need exists for a more efficient cover system for a synthetic grass turf and a membrane assembly that can be installed on very steep surfaces while meeting the impermeability requirements of environmental closures.

SUMMARY OF THE INVENTION

Briefly described, embodiments of the present invention seek to provides a new and useful system for covering (i.e., closing) various types of waste sites where waste is deposited. According to a first aspect of the present invention, there is provided a cover system for waste sites, wherein the cover system comprises: A. a synthetic grass which

consists of a composite of one geotextile layer tufted or knitted with one or more synthetic yarns and B. an impermeable geomembrane which is comprised of a polymeric material, wherein the cover system is used in the absence of a vegetative soil support top cover and wherein the impermeable geomembrane is used with a synthetic drainage component. ~~More particularly, the cover system of this invention comprises (1) a composite of at least one geotextile which is tufted or knitted with one or more synthetic yarns and (2) an~~

~~impermeable geomembrane which is comprised of a polymeric material.~~ This cover system optionally includes a synthetic drainage component.

According to a second aspect of the present invention, there is provided a cover system for waste sites, wherein the cover system comprises: A. a synthetic grass which consists of a composite of one geotextile tufted or knitted with one synthetic yarn; B. an impermeable geomembrane which is comprised of a polymeric material; and C. a drainage system comprising a synthetic drainage component, wherein the cover system is used in the absence of a vegetative soil support top cover.

The cover system in embodiments of the present invention may eliminate~~s~~ or at least may reduce~~s~~ emissions from the waste and, in addition, either may reduce~~s~~ or may eliminate~~s~~ the infiltration of water into the underlying waste.

Embodiments of the~~This~~ invention relate~~s~~ to combining an impermeable liner with synthetic turf that provides a natural grass like appearance to the final cover. The cover system according to embodiments of this invention generally use a drain liner (such as that shown in U.S. Patent No. 5,258,217) to provide drainage of the system in very steep slopes. Embodiments of t~~T~~he invention also allow~~s~~ for other drainage systems (such as a high density polyethylene drainage net) to be used on top of a roughened textured geomembrane.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a view in cross-section of a typical final cover system as described in current EPA Federal Regulations and used in the covers of landfills and mines.

Fig. 2 is a view in cross-section of a cover system according to the present invention, with an encircled portion.

Fig. 2.1 shows the encircled portion of Fig. 2 in enlarged detail.

Fig. 2A is a view in cross section of a cover system according to the present invention, with an encircled portion of the cover using an alternative drainage geonet directly on top of the geomembrane as a drainage system.

Fig. 2B shows the encircled portion of Fig. 2A in enlarged detail.