SUMMARY

[0004a] According to an aspect of the present invention, there is provided a reinforced seal for maintaining a pressure differential in a well bore, the reinforced seal comprising:

an elastomeric layer;

a backup layer between a drill pipe and the elastomeric layer, the backup layer having:

a first end portion and a second end portion, the first end portion having a larger inner diameter than the second end portion,

a tapered portion connecting the first end portion and second end portion, and

a plurality of slats arranged circumferentially about the perimeter of the drill pipe along an internal surface of the elastomeric layer such that a portion of each slat underlies a portion of an adjacent slat.

[0004b] According to another aspect of the present invention, there is provided a system for sealing a drill pipe proximate a wellhead; the system comprising:

an elastomeric layer; and

a backup layer between the drill pipe and the elastomeric layer to reinforce the elastomeric layer, the backup layer having a first end portion, a second end portion, and a tapered portion, wherein the first end portion has a larger inner diameter than the second end portion and the tapered portion connects the first end portion and second end portion, and wherein the backup layer comprises an expandable mesh layer.

[0004c] According to another aspect of the present invention, there is provided a method for sealing a drill pipe in a managed pressure drilling environment, the method comprising:

providing an elastomeric layer adjacent a wellhead in a wellbore;

providing a backup layer adjacent the elastomeric layer, wherein the backup layer comprises: a first end portion and a second end portion, the first end portion having a larger inner diameter than the second end portion, a tapered portion connecting the first end portion and second end portion, and a plurality of slats arranged circumferentially about the perimeter of the drill pipe along an internal surface of the elastomeric layer such that a portion of each slat underlies a portion of an adjacent slat; and

inserting a portion of the drill pipe into the wellbore.