CLAIMS

1. A vessel capable of holding and transporting high-purity and ultra-high-purity gases, comprising:

a shell defining an internal volume of the vessel; and

a valve box comprising

a hollow sleeve mounted on and extending through the shell; and

a cover permanently connected to an end of the sleeve and a valve or more than one valves mounted on said cover;

wherein the sleeve is welded to the shell or with the provision of a support, the sleeve is welded to the support that is welded to the shell;

~~2. The vessel of claim 1,~~ wherein the cover is welded to the end of the sleeve;

~~3. The vessel of claim 1 or 2,~~ wherein the end of the sleeve is located within an internal volume of the shell;

~~4. The vessel of any one of the claims 1 to 3,~~ wherein ~~the shell defines an internal volume of the vessel,~~ the sleeve defines a passage extending between the internal volume and the outside of the vessel~~, and the passage has a width or a diameter of approximately 2.5 feet or more~~;

~~5. The vessel of any one of the claims 1 to 4,~~ wherein the valve box isolates the internal volume from the ambient environment outside of the vessel; and

~~6. The vessel of any one of the claims 1 to 5,~~ wherein said valve box can be disconnected and removed from said shell when human access to the vessel is required.

2. The vessel of claim 1, wherein the passage has a width or a diameter of 2.5 feet (0.762 m) or more.

~~7~~3. The vessel of ~~any one of the~~ claims ~~1 to 6~~or 2, further comprising brackets mounted to said cover.

~~8~~4. The vessel of any one of claims 1 to ~~7~~3, ~~further comprising a~~wherein the support is attached to an outer surface of the sleeve and an outer surface of the shell.

~~95~~. The vessel of claim ~~84~~, wherein the sleeve is substantially cylindrical and the support is substantially ring shaped.

~~106~~. A method for accessing an internal volume of a vessel, capable of holding and transporting high-purity and ultra-high-purity gases, the vessel comprising:

a shell that defines the internal volume; and

a valve box comprising

a hollow sleeve mounted on and extending through the shell; and

_____a cover permanently connected to an end of the sleeve and a valve or more than one valves mounted on said cover, said sleeve is connected to the shell and defines a passage from outside of the vessel to the internal volume,

wherein the sleeve is welded to the shell or with the provision of a support, the sleeve is welded to the support that is welded to the shell;

wherein the cover is welded to the end of the sleeve;

wherein the end of the sleeve is located within the internal volume of the shell; and

wherein the valve box isolates the internal volume from the ambient environment outside of the vessel,

the method comprising:

disconnecting and removing the valve box from the shell; and

entering the internal volume by way of the passage.

~~117~~. The method of claim ~~106~~, wherein removing the valve box comprises lifting the valve box out of the shell.

~~128~~. The method of claims ~~10-6~~ or ~~117~~, further comprising using a lifting strap connected to the cover for removing said valve box.

~~139~~. The method of any one of ~~the~~ claims ~~10-6~~ to ~~128~~, further comprising exiting the internal volume by way of the passage.

~~1410~~. The method of any one of ~~the~~ claims ~~10-6~~ to ~~139~~, further comprising decontaminating the vessel after exiting the internal volume.

~~15~~11. The method of any one of ~~the~~ claims ~~10~~ 6 to ~~14~~ 10 wherein the ~~vessel, further comprises a~~ support is attached to an outer surface of the sleeve and an outer surface of the shell.

~~16~~12. The vessel of claim ~~15~~11, wherein the sleeve is substantially cylindrical and the support is substantially ring shaped.