SUMMARY

[0002a] A spring loaded indicator assembly coupled to a wellhead housing at a test port location. The goal of the indicator assembly is to determine whether or not a hanger has landed on the desired shoulder. The hanger is run through the housing. Once the hanger lands, a pin of the indicator assembly is depressed until it stops. If a single band on the side of the pin is visible, it can be assumed that the hanger has landed. If two bands are visible on the side of the pin, then the hanger has not be landed and should be retrieved.

[0002b] According to a first aspect, there is provided a system, comprising: an annular wellhead housing, comprising: a shoulder; and a first passage extending radially through the wellhead housing from an exterior surface of the wellhead housing to an interior surface of the wellhead housing; and an indicator assembly configured to extend through the first passage, wherein the indicator assembly, when actuated, is configured to indicate whether a hanger disposed within the wellhead housing has landed on the shoulder.

[0002c] According to another aspect, there is provided a method, comprising: coupling an indicator assembly to a wellhead housing of a wellhead assembly, wherein the indicator assembly comprises an indicator pin configured to extend radially through the wellhead housing, wherein the wellhead housing comprises an annular shoulder; running a hanger and a hanger running tool into the wellhead housing; depressing the indicator pin radially inward; determining whether the hanger has landed on the shoulder based on how far the indicator pin is depressed before contacting a surface of the wellhead assembly.

CLAIMS

1. A system, comprising:

an annular wellhead housing (22), comprising:

a shoulder (32); and

a first passage (102) extending radially through the wellhead housing (22) from an exterior surface of the wellhead housing (22) to an interior surface of the wellhead housing (22); and

an indicator assembly (100) configured to extend through the first passage (102), wherein the indicator assembly (100), when actuated, is configured to indicate whether a hanger (26) disposed within the wellhead housing (22) has landed on the shoulder (32).

2. The system of claim 1, comprising an annular indicator ring (114) disposed axially adjacent to the hanger (26), wherein the hanger (26) and the indicator ring (114) are configured to couple to a hanger running tool (34), and wherein the hanger running tool (34) comprises an annular recess (116) configured to receive a portion of the indicator assembly (100) when the indicator assembly (100) is actuated and the hanger (26) has landed on the shoulder (32).

3. The system of claim 2, wherein the indicator assembly (100) is configured to contact the indicator ring (114) when the indicator assembly (100) is actuated and the hanger (26) has not landed on the shoulder (32).

4. The system of claim 1, wherein the first passage (102) comprises an existing test port (102).

5. The system of claim 1, wherein the indicator assembly (100) comprises:

an annular housing (124) comprising a second passage (206);

an indicator pin (122) extending through the second passage (206) of the annular housing (124); and

a spring (138) configured to bias the indicator pin (122) radially outward;

wherein a tip (210) of the indicator pin (122) is configured to contact an annular recess (116) of a hanger running tool (34) when the indicator pin (122) is depressed radially inward and the hanger (26) has landed on the shoulder (32), and wherein the indicator pin (122) is configured to contact an indicator ring (114) or the hanger (26) when the indicator pin (122) is depressed radially inward and the hanger (26) has not landed on the shoulder (32).

6. The system of claim 5, wherein the housing (124) comprises:

a first indicator housing (124), comprising:

a conical surface (128) configured to form a first seal with the first passage (102) of the wellhead housing (22);

an exterior threaded surface (125) disposed adjacent to the conical surface (128) and configured to interface with an interior threaded surface (127) of the first passage (102) of the wellhead housing (22);

an annular seal (130) disposed adjacent to the exterior threaded surface (125) and configured to form a second seal with the first passage (102) of the wellhead housing (22); and

a pressure test port (132) in fluid communication with a volume (134) disposed between the first indicator housing (124) and the wellhead housing (22).

7. The system of claim 6, wherein the pressure test port (132) is configured to receive a pressure to determine whether the indicator assembly (100) is properly installed and sealed within the first passage (102) of the wellhead housing (22).

8. A method, comprising:

coupling (402) an indicator assembly (100) to a wellhead housing (22) of a wellhead assembly (14), wherein the indicator assembly (100) comprises an indicator pin (122) configured to extend radially through the wellhead housing (22), wherein the wellhead housing (22) comprises an annular shoulder (32);

running (412) a hanger (26) and a hanger running tool (34) into the wellhead housing (22);

depressing (414) the indicator pin (122) radially inward;

determining (416) whether the hanger (26) has landed on the shoulder (32) based on how far the indicator pin (122) is depressed before contacting a surface of the wellhead assembly (14).

9. The method of claim 8, comprising:

applying (404) a pressure to a pressure test port (132) of the indicator assembly (100); and

removing and reinstalling (402) the indicator assembly (100) if the pressure test port (132) does not hold the applied pressure.

10. The method of claim 8, comprising retrieving (420) and re-running (412) the hanger (26) and the hanger running tool (34) if the hanger (26) has not landed on the shoulder (32).

11. The method of claim 8, comprising:

coupling (408) an indicator ring (114) to the hanger running tool (34); and

coupling (410) the hanger (26) to the hanger running tool (34);

wherein the hanger running tool (34) comprises an annular recess (116) configured to receive a portion (210) of the indicator pin (122) when the indicator assembly (100) is actuated and the hanger (26) has landed on the shoulder (32), and wherein the indicator pin (122) is configured to contact the indicator ring (114) when the indicator assembly (100) is actuated and the hanger (26) has not landed on the shoulder (32).

12. The method of claim 8, wherein the indicator assembly (100) is coupled to an existing test port (102) of the wellhead housing (22).

13. The method of claim 8, wherein the indicator assembly (100) comprises:

an annular housing (124) comprising a passage (206);

the indicator pin (122) extending through the passage (206) of the annular housing (124); and

a spring (138) configured to bias the indicator pin (122) radially outward.