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WE CLAIM:

1. A method of controlling pressure in a well, the method comprising:
transmitting an instruction to change flow through an annulus formed
radially between a drill string and a wellbore; and
5 adjusting a pressure setpoint in response to the transmitting.
2. The method of claim 1, wherein the adjusting is performed prior to
flow through the annulus changing.
3. The method of claim 1, wherein the adjusting is performed while
flow through the annulus changes.
- 10 4. The method of claim 1, wherein the flow change is caused by
diversion of flow from the drill string to a mud return line.
5. The method of claim 1, wherein the transmitting comprises
encoding information as a sequence of flow variations.
6. The method of claim 1, wherein the transmitting comprises
15 initiating a connection in the drill string.
7. The method of claim 1, further comprising predicting a change in
the flow based on measured well parameters.
8. The method of claim 7, further comprising predicting a downhole
pressure change due to the predicted change in the flow.
- 20 9. The method of claim 1, wherein the adjusting is performed prior to
the flow change being detected by sensors.
10. A well drilling system, comprising:
a flow control device which varies flow through a drill string; and
a control system which changes a pressure setpoint in response to an
25 instruction for the flow control device to change the flow through the drill string.
11. The system of claim 10, wherein the flow control device diverts
flow from a standpipe line to a mud return line.
12. The system of claim 10, wherein the flow control device diverts
flow from the drill string.
- 30 13. The system of claim 10, wherein the control system predicts a
pressure change which will result from the flow change.
14. The system of claim 13, wherein the pressure setpoint is adjusted by
the predicted pressure change, in response to the instruction.

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15. The system of claim 10, wherein the pressure setpoint corresponds to a desired pressure in a wellbore.

16. The system of claim 10, wherein the pressure setpoint corresponds to a desired pressure as measured in an annulus at or near the earth's surface.

5 17. A method of controlling pressure in a well, the method comprising: transmitting an instruction to divert flow from a drill string; and adjusting a pressure setpoint in response to the transmitting.

18. The method of claim 17, wherein the adjusting is performed prior to flow through the drill string being diverted.

10 19. The method of claim 17, wherein the adjusting is performed while flow through the drill string is diverted.

20. The method of claim 17, wherein the flow change is caused by diversion of flow from the drill string to a mud return line.

15 21. The method of claim 17, wherein the transmitting comprises encoding information as a sequence of flow diversions.

22. The method of claim 17, wherein the transmitting comprises initiating a connection in the drill string.

23. The method of claim 17, further comprising predicting a change in the flow based on measured well parameters.

20 24. The method of claim 23, further comprising predicting a downhole pressure change due to the predicted change in the flow.

25 25. The method of claim 17, wherein the adjusting is performed prior to the diverting being detected by sensors.

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(V D Gulwani)

Applicant's Patent Attorney
Dua Associates

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