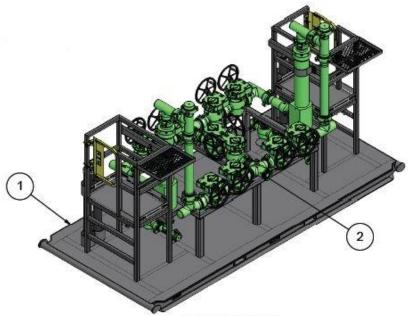
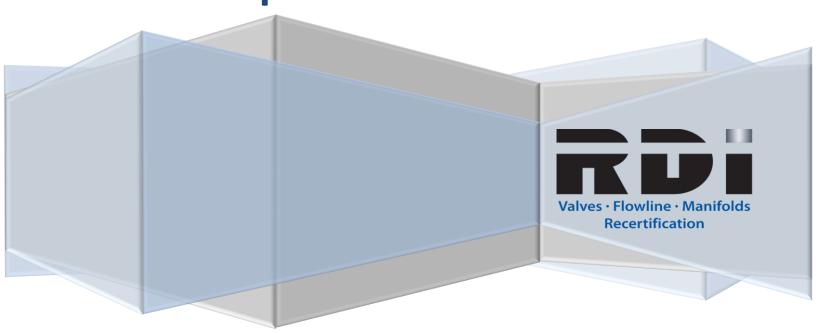
Red Deer Ironworks



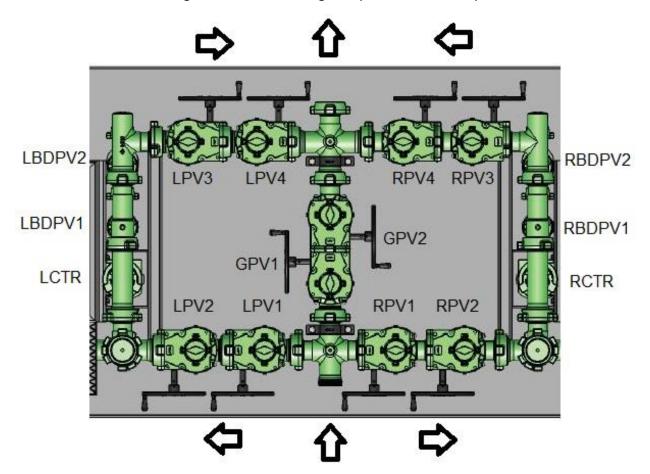
ISOMETRIC VIEW

MANDC0419-A001 Operation Manual



The dual barrel debris catcher is designed to catch debris flowing back from the well. The dual design allows the operator to switch flow to the opposite catcher when the barrel becomes full and clean out the catcher while flowing through the opposite side.

When operating the dual block plug valves always close the downstream valve first followed by the upstream valve, when opening always open the valves in the opposite order i.e. open the upstream valve first and then open the downstream valve. This will save the upstream valve from wear, as it will be opened and closed when there is no flow and allow you to always be able to replace or service the downstream valve under single block isolation using the upstream valve if required.



Procedure to operate catcher for one full cycle

- 1. Before opening flow to the catcher do the following steps:
 - 1.1. Close RPV4, RPV3, RPV2 & RPV1.
 - 1.2. Open LPV1, LPV2, LPV3 & LPV4.
 - 1.3. Ensure gutline plug valves are in the closed position (GPV2 & GPV1).
 - 1.4. Ensure blowdown valves on both sides are in the closed position (LBDPV2, LBDPV1, RBDPV2 & RBDPV1).
 - 1.5. Initiate flow through catcher, fluid will now be flowing through the left catcher (LCTR).

- 1.6. When it is time to clean out left catcher screen do the following steps.
- 1.7. Open RPV1, RPV3.
- 1.8. Open RPV2 and then open RPV4.
- 1.9. Close LPV4 and then close LPV2.
- 1.10. Close LPV3 and LPV1.
- 1.11. Flow is now through the right catcher and the left catcher is isolated.
- 1.12. See DWG MANDC0419-A001 Sheet 2 for cleaning instructions.
- 1.13. When it is time to clean out right catcher screen do the following steps.
- 1.14. Open LPV1, LPV3.
- 1.15. Open LPV2 and then open LPV4.
- 1.16. Close RPV4 and then close RPV2.
- 1.17. Close RPV3 and RPV1.
- 1.18. Flow is now through the left catcher and the right catcher is isolated.
- 1.19. See DWG MANDC0419-A001 Sheet 2 for cleaning instructions.
- 1.20. Repeat steps starting at 1.6.
- 2. Procedure to start flow through gutline:
 - 2.1. Open GPV1 and then open GPV2.
 - 2.2. Close LPV4 & RPV4 (if open) and then close LPV2 & RPV2 (if open).
 - 2.3. Close LPV3, LPV1, RPV3 & RPV1 (if open).
- 3. Procedure to shutdown flow through gutline:
 - 3.1. If you do not want to flow through catcher skip to step 3.4.
 - 3.2. Open LPV1, LPV3 (replace L with R for right side).
 - 3.3. Open LPV2 and then open LPV4 (replace L with R for right side).
 - 3.4. Close GPV2 and then close GPV1.
- 4. Procedure to blowdown catcher:
 - 4.1. Open LBDPV1 and then open LBDPV2 (replace L with R for right side).
 - 4.2. If required Close LPV4 and then close LPV3 (replace L with R for right side).
 - 4.3. Once blowdown operation is complete continue to next step.
 - 4.4. Open LPV3 and then open LPV4 (replace L with R for right side).
 - 4.5. Close LBDPV2 and then close LBDPV1 (replace L with R for right side).

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