

August 2017, Jakarta

GEOHERMAL POWER PLANT OPERATION

Course: Operators of Geothermal Power Plant

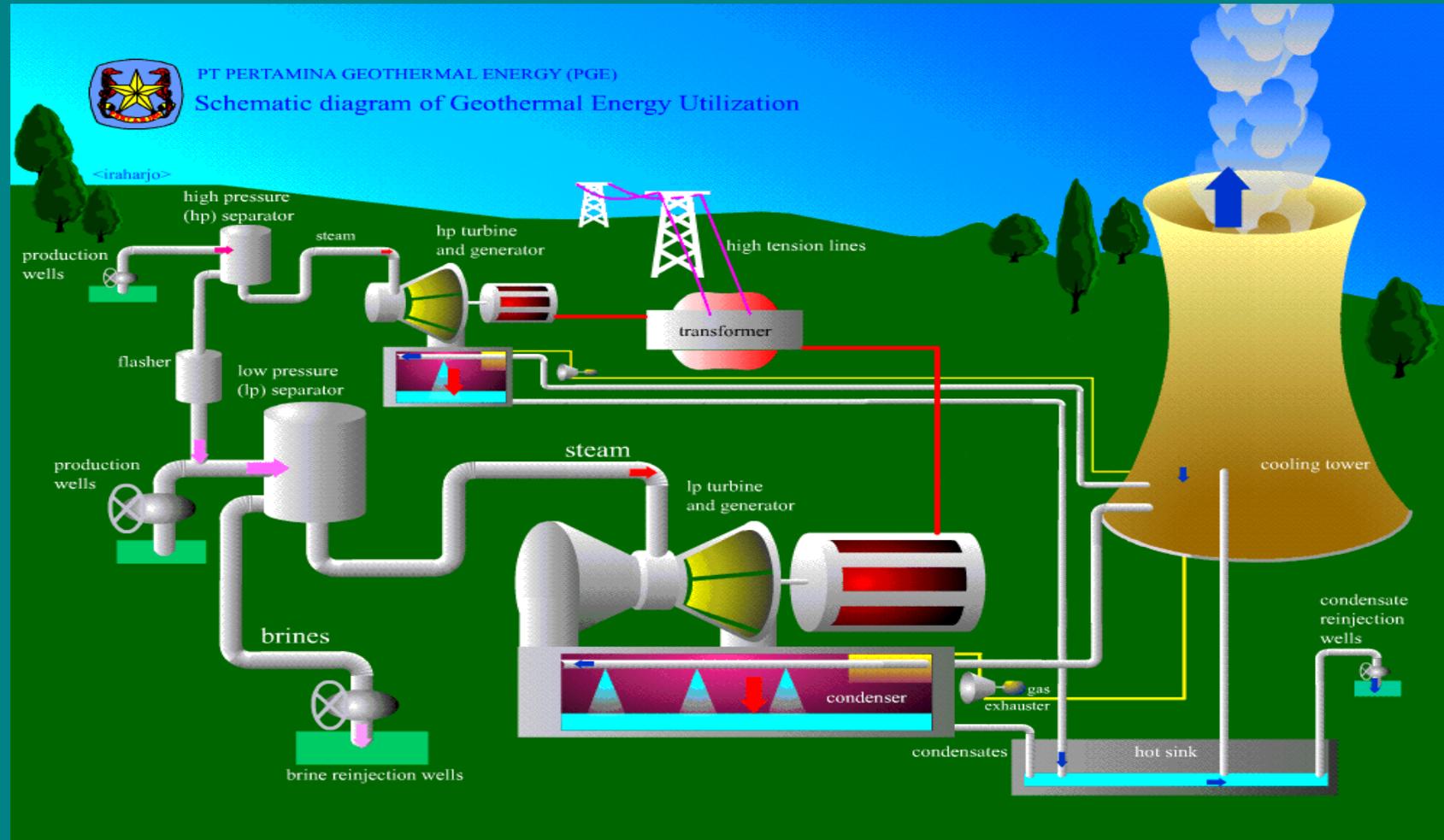
Hosting by: PPSDM EBTKE, Jakarta

NANANG KURNIAWAN

Overview

- Normal Operation
- Start Up/Shut Down Procedure
- Start Up/Shutdown Curve
- Performance Test
- Permit to Work
- Operation Driven Reliability

Normal Operation



Start Up/Shutdown Procedure

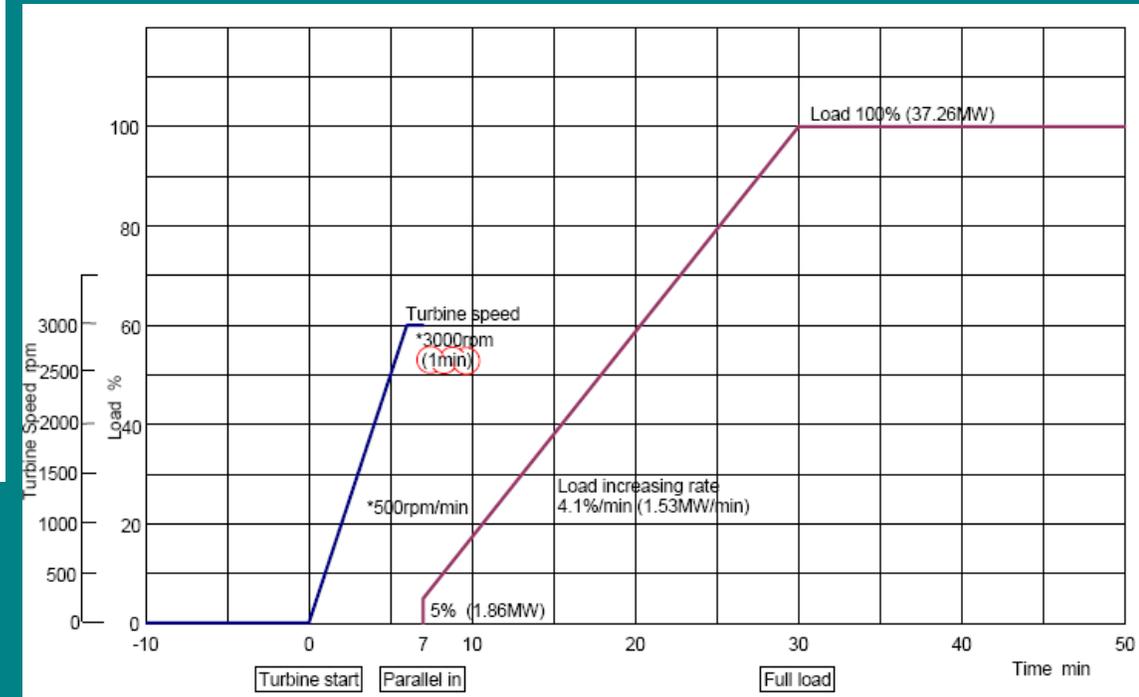
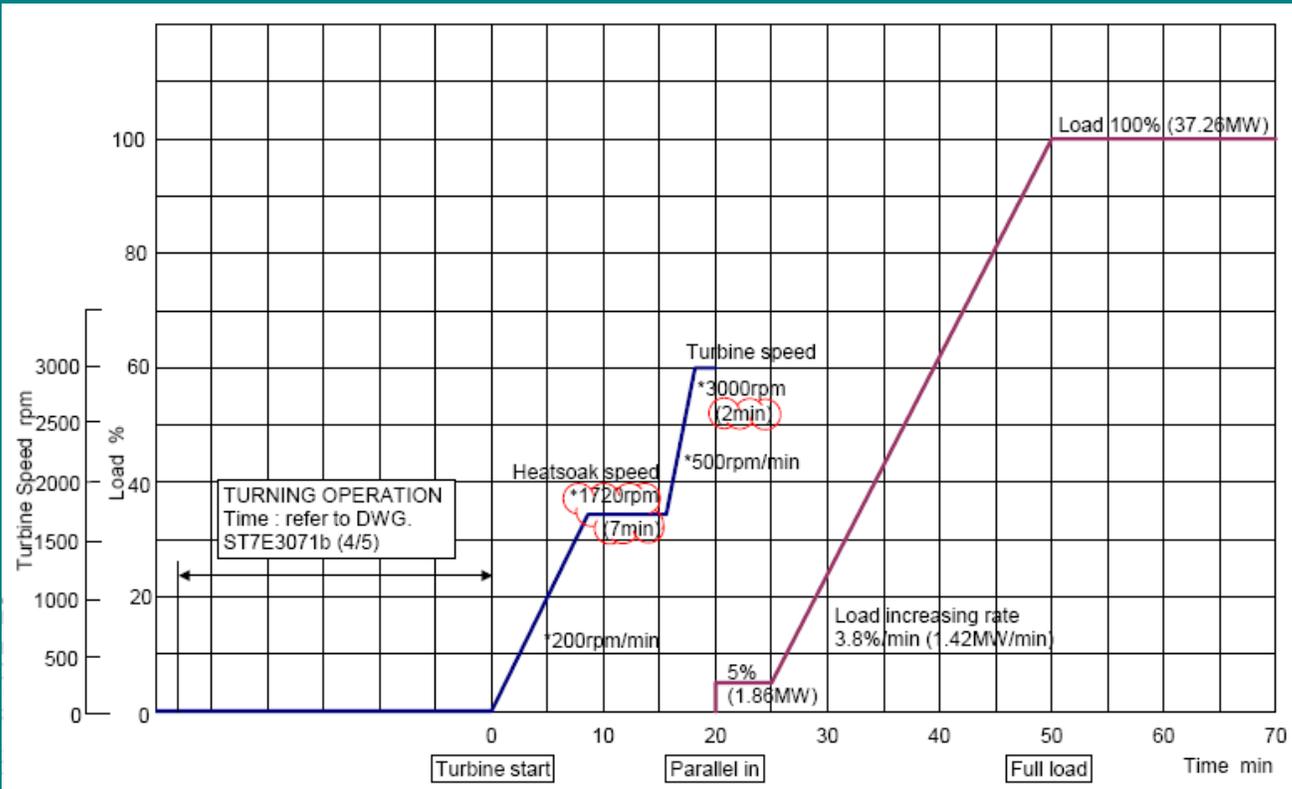
START UP

- 1. The plant drain system operation
- 2. Water filling
- 3. Component cooling water system operation
- 4. Auxiliary cooling water system operation
- 5. Steam drain trap bypass valve
- 6. Lube oil system operation
- 7. Control oil system operation
- 8. Turning operation
- 9. Steam warming
- 10. One hot well pump in service
- 11. Vacuum up operation
- 12. Main cooling water increase to 50% flow
- 13. Hot well pump(B) parallel operation
- 14. Starting the turbine
- 15. Synchronizing & Online
- 16. Increasing load

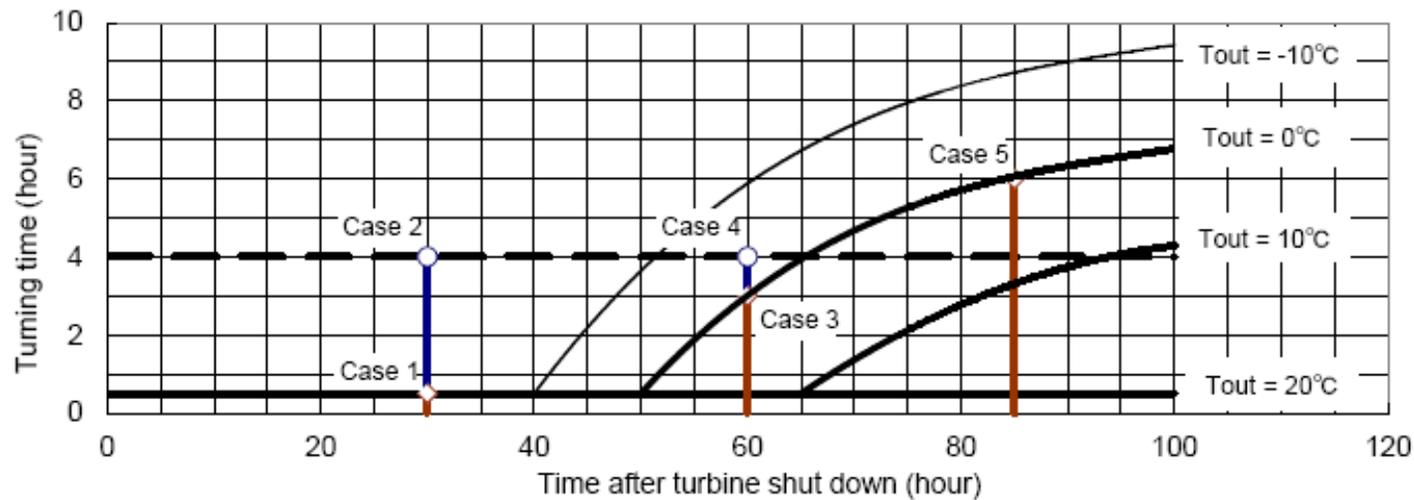
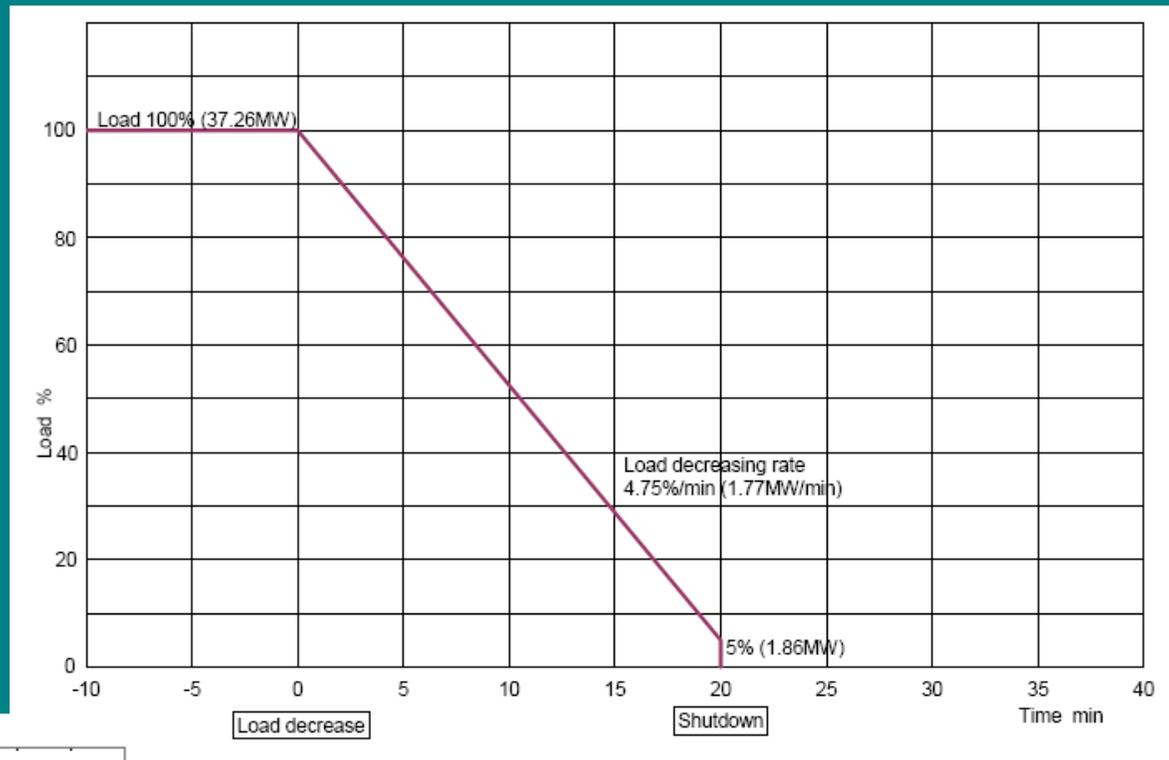
SHUT DOWN

- 17. Decreasing load
- 18. Shutdown unit
- 19. Stopping turbine
- 20. Turning operation
- 21. Stopping hot well pump(B)
- 22. Vacuum breaking
- 23. Stopping cooling tower fan
- 24. Stopping hot well pump(A)
- 25. Turning stop

Turbine Start Up Curve



Turbine Shutdown Curve & Turning Time



Plant Performance Test

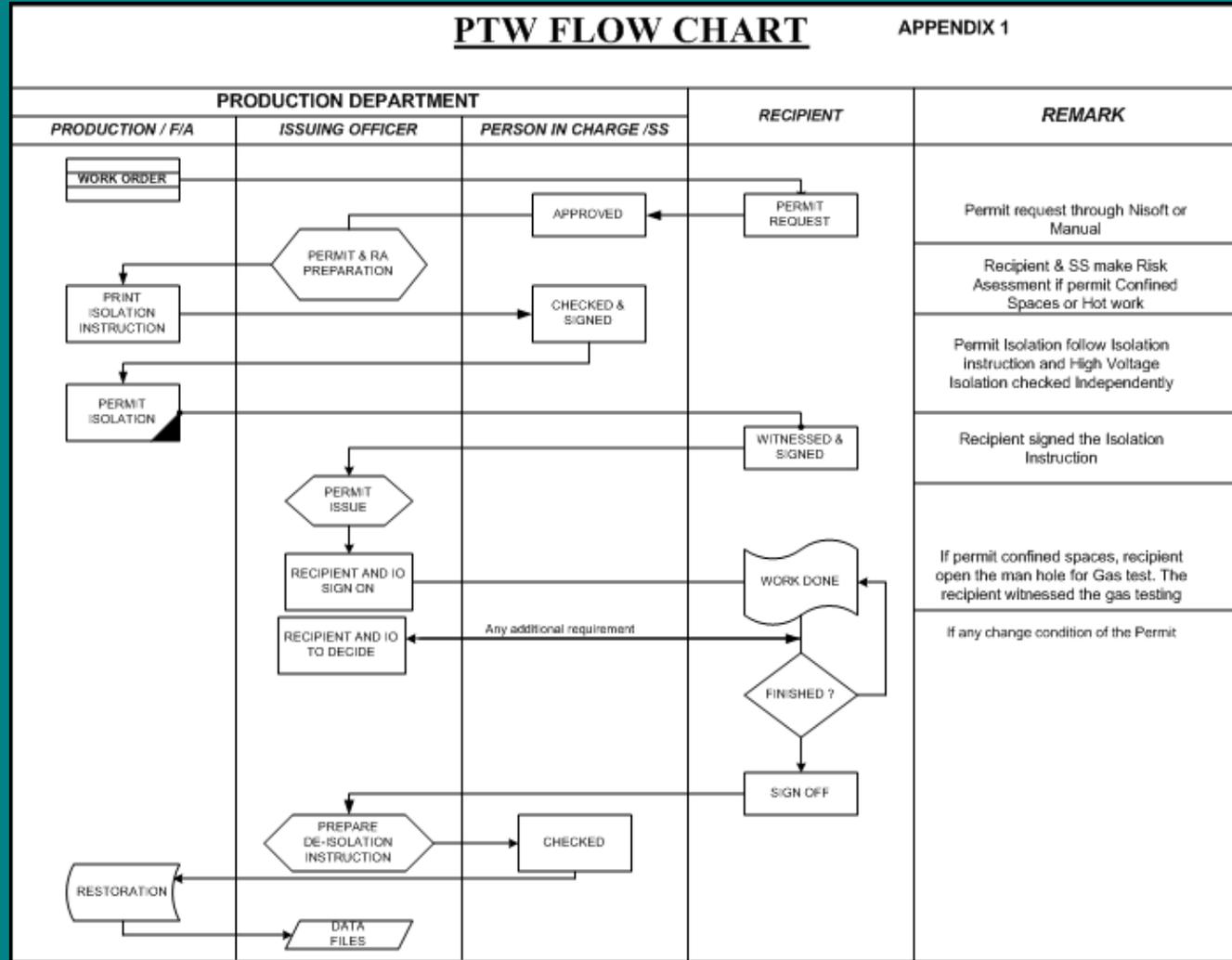
Plant system has been designed for a limited range of operating conditions which will give a limited range of outputs. The change in operating condition will not only affect the value of the output but will also change the characteristic of the system which governs input/output relationship.

Purpose:

- -contractual agreement(guarantee).
- -assessing the change of plant system performance or change in its characteristic.

Tested at several load points(25%, 50%, 75%, 100%)

Permit to Work



Operator Driven Reliability (ODR)

- ODR is the process that involves specific tasks which are reassigned from maintenance to operations
- Also known as First Line Maintenance
- A basic equipment care which could reduce or eliminate the defect of equipment by expanding skills, knowledges, and sense of operators on the condition of equipment



THANK YOU

