

Initial Experience with the
COMPRESSED-AIR ENERGY STORAGE (CAES) PROJECT
of Nordwestdeutsche Kraftwerke AG (NWK)
at Huntorf/West Germany

Presented to
THE SOLUTION MINING RESEARCH INSTITUTE
Mexico City, January 1979

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6. Summary

The behavior of the caverns at the world's first compressed air storage gas turbine peaking plant at Huntorf can now be evaluated in the light of one year's operating experience. All of the evidence to date shows that the caverns are entirely capable of bearing the stresses imposed by rapidly changing pressure and temperature. More than 100 changes of load application have been run so far.

The predicted temperature variation in caverns is in such good accord with the measured variations of a total fill and withdrawal caverns cycle, that it justifies permanent full load operation of the power plant from its upper to its lower rated operating pressure.

Salinity analyses of the air emerging from the caverns seem to confirm that it contains practically no salt. This measuring program is continuing and will provide essential information concerning the more detailed dynamics of cavern operation.

Cavern closure or changes in the cavern bottom were not of detectible magnitude.

The suspended tubing strings which are not covered by any corrosion-preventative layer, are still in excellent condition after one year of operation.

In conclusion: the compressed air storage caverns fully satisfy their design requirements. It is now practical to generate peak power by this new technology in areas with adequate geological conditions.