Analisis beban (stress) sistem pipa pengendali volume dan kimiawi (CVS) pendingin reaktor pada PLTN AP600

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Abstrak

ABSTRACT
The stress analysis on the chemical and volume control piping system of the reactor coolant for the AP600 nuclear power plant has been done. By using CAEPIPE computer code version 3.32 revision 0, the first step of analysis has shown that CVS-APGOO piping system would be over stress if the piping supports were not used in the piping system. Furthermore the displacement of the piping system were larger and the piping would be deflected and /or ruptured. The second step of analysis has shown that the piping system would be in accordance with the limit stress of ASME Code Section III Subsection ND , 1980 Edition, providing the piping supports are placed in the proper location. In addition the displacement of the piping system would be very small, both on the nuclear power plant operation condition or during seismic event. Therefore, the CVS-APGOO piping system, that has been completed with the supports in the proper location is feasible to be fabricated and constructed.

<h>ABSTRAK
Telah Dilakukan analisis beban (stress) sistim pipa pengendali volume dan kimiawi (CVS) pendingin reaktor pada PLTN AP600. Dengan menggunakan paket Computer Code "CAEPIPE" versi 3.32 revisi 0, hasil analisis pendahuluan menunjukkan bahwa sistim pipa CVS-APGOO akan mengalami tegang berlebih bila alat penunjang pipa tidak dipergunakan didalam sistim pipa. Selain itu sistim pipa akan bergeser terlalu besar yang memungkinkan pipa akan melengkung atau pecah. Bila alat penunjang pipa ditempatkan pada lokasi yang tepat pada sistim pipa CVS-APGOO, hasil analisis kedua menunjukkan bahwa sistim pipa memenuhi kriteria batas tegangan ASME Code Seksi III Subseksi ND Tahun 1980. Selanjutnya analisis kedua menunjukkan bahwa sistim pipa CVS-AP600 pergeserannya amat kecil baik pada saat sistim pipa dioperasikan ataupun pada saat mengalami gempa bumi dikemudian hari. Dengan demikian sistim pipa CVS-APGOO yang telah dilengkapi dengan alat penunjang pipa pada setiap lokasi yang diperhitungkan layak untuk di fabrikasi dan dikonstruksi.