```
surfaceScalarField rhorAUf("rhorAUf", fvc::interpolate(rho*permeability/mu));
surfaceScalarField phig("phig",(fvc::interpolate(rho)*rhorAUf * g) & mesh.Sf());
constrainPressure(p, rho, U, phig, rhorAUf);
while (pimple.correctNonOrthogonal()){
    fvScalarMatrix pEqn(
        porosity*rho*betaT*fvm::ddt(p) - fvm::laplacian(rhorAUf,p)
        -porosity*rho*alphaP*fvc::ddt(T) + fvc::div(phig)
    );
    pEqn.solve();
}
```