ABSTRACT

CuNiFe is a product of many maritime application in the world as a good resistance to seawater corrosion, its applications are widely used in onboard bilga channels and also channels that deliver a substance that is chemically like the channels that contain foam extinguishers, as well as other gas lines. In this research material are used CuNiFe welded pipe circular pipe (5G) with a thickness of 2 mm pipe, 3 inch diameter pipe (76 mm), and the electrodes used was SG-CuNi10Fe (2.4 mm) with a strong flow of welding between 50 to 100 Ampere is based on Field Work Standards Property PT.PAL Indonesia (Persero). This study aimed to determine the results of welding pipes that led from CuNiFe outage WPS. But the authors analyzed only the results of the welding of the criteria accepted by the standard welding pipe welding, especially for those (ASME). To change the structure of the pipe before and after the welding deformation test used, and to know the existence of welding defects that occur in use radiography testing. Analysis of the toughness and the mechanical connections used tensile testing (Tension Test) and bending (Bending Test). From the test - a test that was done it was found that welding with a heat input pipe CuNiFe input 0.497 Kj / mm distortion angle 12.4° of the farthest distance of the straight line welding of 2.43 mm, 3 mm Porosity of (reject), so that was not chosen for mechanical testing connection. For the specimens welded with heat input 0.746 Kj / mm distortion angle 15.2° of the farthest distance of the straight line welding of 3.21 mm, there is no weld defects (porosity), 306.45 N/mm² Ultimate strength, there is also an open crack or defect the bending test. For the specimens welded with heat input 0.995 Kj/mm distortion angle 19.5° of the farthest distance of the straight line welding of 3.85 mm, porosity of 0.5 mm, and are not selected for mechanical testing.

Keywords: Pipe CuNiFe, Ampere, Heat Input, TIG, Deformation Testing, Radiography Testing, Mechanical Testing