The Maritimes and Northeast Pipeline Project: geological applications and environmental impacts

Kirsten J. McLaughlin

Department of Geology, University of New Brunswick, Fredericton, NB E3B 5A3

The Maritimes and Northeast Pipeline (M&NP) was constructed as a distribution network for Sable Offshore Energy natural gas to consumers in Nova Scotia, New Brunswick, and the United States, and is scheduled to be in service by November 1, 1999, during peak consumer interest. The mainline extends from Goldboro, Nova Scotia, to Boston, Massachusetts. On completion, projected laterals in New Brunswick will transport gas to Saint John, Belledune, and Edmundston. A range of geological applications was used in the preliminary studies of the proposed Right of Way (RoW), including petrology, geochemistry, and geophysics.

The entire length of the RoW was probed for rock identification and overburden depth. These samples were also analyzed in areas where the bedrock geology indicated the possibility of generating acid-rock drainage (ARD). High acid potential units include the Digdeguash and Kendall Mountain formations, outcropping in southwestern New Brunswick, and the Sunbury Formation in eastern central New Brunswick.

The Digdeguash Formation is composed of grey shale, siltstone, and greywacke. Diagenetic pyrite in the shale is the primary acid generator; the shale comprises over 40% of the formation. The Kendall Mountain Formation is composed of quartz arenite and pyrite-bearing black shale. Although the shale make up less of the Kendall Mountain Formation than the Digdeguash Formation, the concentration of pyrite is higher in the former unit, causing equal concern (KP 520 to 536.5 km). The Sunbury Formation (KP 393 to 425 km) is coarse-grained quartz arenite sandstone and polymictic conglomerate, with elevated concentrations of pyrite. Sections of the RoW in the formations above have >0.3% sulphur and a