

National Energy
Board



Office national
de l'énergie

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To: All Companies Under National Energy Board Jurisdiction
Canadian Energy Pipeline Association
Provincial Pipeline Regulators

**National Energy Board (the Board) Safety Advisory SA-2015-03
Power System Protection in Pipeline Facilities**

Please find attached Safety Advisory SA-2015-03.

The National Energy Board (NEB or Board) expects regulated companies to demonstrate a proactive commitment to continual improvement in safety, security and environmental protection, and to promote a positive safety culture as part of their management systems.

The Board has observed a number of electrical incidents in pipeline facilities due to ground faults and arcing faults. Through its investigations, the Board has identified some common causes of such incidents.

As these incidents have the potential to cause serious safety and integrity issues, the Board has issued the attached Safety Advisory, recommending a number of preventive actions.

Electrical incidents should be considered to be a hazard that is identified, assessed, managed and mitigated through the company's management system. The Board further expects that companies will adopt best engineering practices in the design, operation and maintenance of the electrical protection of their facility power systems.

The Board expects this Safety Advisory to be widely circulated to company personnel and contractors involved in the design, operation and maintenance of the protection systems required for the operation of the pipeline facilities of NEB-regulated companies.

If you have any questions regarding this advisory, please contact the Board at 1-800-899-1265.

Yours truly,

Original signed by S. Young

Sheri Young
Secretary of the Board

Attachment

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Electrical Protection for the Power System Required for Pumps and Compressor Stations in Pipeline Facilities

Background

Through past investigations, the National Energy Board (Board) has identified a number of electrical incidents connected to regulated pipeline facilities which were the result of one or more of the following:

- interrupting devices did not clear severe ground faults;
- ground faults that then migrated to arcing faults, which resulted in fire and damaged equipment;
- ground fault current exceeding design limits;
- reverse power feeding a fault from the stored energy of other motors running from the same bus; and
- lack of appropriate maintenance of the electrical protective devices.

Preventive Actions

Pipeline companies should implement management systems and programs that include:

- evaluation of the electric protection system reliability for their pipeline facilities;
- development and implementation of a fault protection program that includes:
 - an arc flash management program designed to clear ground faults before the faults can escalate to arcing faults;
 - measures for the prevention of ground fault currents exceeding the design limits of respective pipeline facilities;
 - measures for the prevention of the reverse flow of stored energy from other equipment feeding an electrical fault;
 - a maintenance program for protective devices, including grounding and bonding of equipment;
 - incorporation of best engineering practices, which may go beyond the current required CSA or other standards, in the design, operation and maintenance of protection systems to minimize the occurrence of electrical incidents.

Further Information

If you have any questions regarding this advisory please contact the NEB through our toll free number at 1-800-899-1265.