identified. Reports from mass and electronic media present a solution to this problem. Previous pipeline accidents that were the most heavily reported by the media are the best way to track the variation in company reputation as it fluctuates over time, depending on the reported news and criticality of the event (Dunbar and Schwalbach, 2000; Bie, 2006). Furthermore, the understanding of reputation’s ups and downs can be enriched by constant observation of the media and analyst reports (Firestein, 2006).

A major accident impact is obvious, as it frequently involves all categories of stakeholders, either directly or indirectly. The selected case studies of onshore pipeline damage included at least one of the following characteristics (OGP, 2010): multiple fatalities (10 or more); approximately USD 100 million property damage; and 1000 barrels of oil split. Regardless of the products transported by the pipeline, the size of the pipeline, or cause of the pipeline explosion (third-party damage, corrosion, natural s, or other factors), any pipeline explosion should fulfill the characteristics of a major onshore oil and gas pipeline accident suggested by the aforementioned International Association of Oil and Gas Producers (OGP).

3. Methodology

A comprehensive review of the current literature on reputation was conducted using journals, conference proceedings, magazines, books and online resources. The retrieval of reports by mass and electronic media related to pipeline explosion accidents begins with accidents that occurred within the past 50 years (1965–2014) to overcome the inadequacy of pipeline accident reports available in the databases (Zardasti et al., 2015). This range of time is selected in conjunction with the commonly assumed 40-year design life for new gas transmission pipelines (Nasr and Connor, 2014); and the frequency of energy accidents has increased gradually starting in the years between 1958 and 1967, as shown in Fig. 2 (Sovacool, 2008). Table 3 helps explain the details shown in Fig. 2.

From the selected onshore pipeline case studies, the event facts and other negative perceptions of the stakeholders of the oil and gas pipeline operators were observed via available online resources, e.g., online databases, journalist reports and newspaper websites. Some of the case study reports provide only the tangible facts of the event. As reputation is an intangible asset that reacts with perceptions, any case studies that contain no reports concerning stakeholders’ opinions were neglected in this study. For the purpose of identifying factors that influence the reputation loss of pipeline owners, it is then further specified that the selected pipeline accident case study must consist of these characteristics: onshore pipeline; accident involving an explosion; and multiple fatalities (10 or more) and/or more than 1000 barrels of oil split.

4. Results and discussion

A number of 30 case studies consisting of the characteristics of major onshore pipeline accidents related to explosion within the past 50 years (1965–2014) were selected as shown in Table 4.

In Table 4, 60% of the pipelines transport natural gas, while the other 40% were oil pipelines. A total of 37% of the case studies occurred in America, 30% in Africa, 20% in Asia and another 13% in European countries. The highest frequency of accidents occurred within the years 2005–2014, at 33%, followed by accidents in 1995–2004 at 30%, 20% of the cases between 1965 and 1974, 10% in the years 1975–1984 and 7% in 1985–1994. The reputation loss indicators were identified through in-depth study on each of the selected cases discussed below.

4.1. Pipeline explosion cases in the years 1965–1974

On March 1, 1965, in the city of Montreal, Quebec in Canada, a