EG 2401A Engineering Professionalism

Tutorial 2 (Semester I 2021/22)

Question 1

1(a). Apply the analysis of the "Ethics Line Diagram" methodology, in the case of the Challenger disaster [Fleddermann 4th Ed pages 7-12], to the "action" of:

- Morton Thiokol recommending the launch of Challenger to proceed, noting "Lund (of Thiokol) reversed his previous decision and recommended that the launch proceed." [Fleddermann 4th Ed page 11]; and additionally noting that Thiokol were already aware of problems with the O-rings; and
- NASA did not want to postpone the launch, noting "NASA didn't want to antagonize [Vice-President] Bush, a strong NASA supporter, by postponing the launch due to inclement weather after he had arrived." [Fleddermann 4th Ed page 10]; and additionally noting that NASA was already informed that the predicted temperatures (in the low 20's degF) was lower than the lowest 53 degF of previous launches where there was already "blow-by" problems of the O-rings.

Use one Line-Drawing each for the Point-of-View of each of the two Parties, for their respective problems under consideration/ points under study. Include at least 3 intermediate points (comprising either Pi, points under study, and/or SCi scenarios).

1(b). For the same "actions" above, apply the analysis of the "Ethics Decision Flow-Charting" methodology for each of the two Parties, for their respective necessary actions/ recommendations under consideration. In each case, include at least two "decision diamonds".

Note: Students should not merely state their answers, but provide suitable analysis/ observations/ assessments. Wherever possible, they should make reference to more detailed documents such as the "Challenger disaster" article, available as a free download from Wikipedia©, and also placed in the "Assigned Readings" IVLE Folder.

Question 2

2(a). Apply the analysis of the "Ethics Line Diagram" methodology, in the case of the "Aberdeen Three" [Fleddermann 4th Ed pages 51-52; Harris et al 4th Ed pages 234-235], to the "action" of:

- Managers Gepp, Dee and Lentz --- managing and operating the facility, but having "hazards… left in open containers; chemicals that can become lethal when mixed together stored in the same rooms; barrels of toxic chemicals that were leaking; … an external tank used to store sulfuric acid that had leaked 200 gallons of acid into a local river." [Fleddermann 4th Ed page 51]; and
- Workers at the Aberdeen Proving Ground facility --- working at the facility, but having to face the situation of being "exposed to hazardous and toxic chemicals." [Fleddermann 4th Ed page 51]

Use one Line-Drawing each for the Point-of-View of each of the two Parties, for their respective problems under consideration/ points under study. Include at least 3 intermediate points (comprising either Pi, points under study, and/or SCi scenarios).

2(b). For the same "actions" above, apply the analysis of the "Ethics Decision Flow-Charting" methodology for each of the two Parties, for their respective necessary actions/ recommendations under consideration. In each case, include at least two "decision diamonds".

Note: Students should not merely state their answers, but provide suitable analysis/ observations/ assessments. Wherever possible, they should make reference to more detailed documents such as the "Aberdeen Proving Ground Facility" article, available as a free download from Wikipedia©, and also placed in the "Assigned Readings" IVLE Folder (and other on-line documents).