

CASE STUDY #1

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BMGT 317

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March 24, 2013

CASE STUDY #1

Identify the Symptoms

Since ceiling springs a leak, I assume that water leak from a pipe above the ceiling. According to an article (Scott Cornell, n.d.), water leakage symptoms appeared as ceiling stains, and that leads to fungi or mold growth, which darkens the stain from a brownish to black color. He also points out that damp carpeting, typically found near the walls is also a sign. In addition, an effective method to detect an invisible water leaks is introduced in a guid from Anglian Water Services Ltd ("A quick guide on how to detect a leak", n.d.), which if you suspect an invisible water leak, you check your water meter if the reading differs or does not after turning off all appliances that use water. In other words, when your monthly water bill is quite different from usual, that suggests the potential of water leaks.

Identify the Potential Root Causes and Explain Your Reasoning

The first question is why ceiling springs a leak from a pipe above the ceiling? There are two possible reasons: A pipe breaks by aging or by a human error. I think aging is more likely to happen because in case of a human error such as by a water supply work upper floor, it would affect a larger area, and people would hear a sound of breaking a pipe. The second is why the pipe gets older? The reason can simply be lack of periodical checkouts and replacement plans. The third is why they are lack? I think this is because people had never addressed risk assessments at their place of work. The fourth is why there is no risk assessment? I guess people had accepted this problem without risk assessments because any similar incidents never happened before. The fifth is why a similar incident had never happened before. Maybe the building is not so old, so this problem had never been exposed. However, since this incident just has happened, it is quite possible that the second time occur after this.

Define the Decision Problem

As temporary measures, people should move the working papers and electronics to safe place, and then repair the water pipe as soon as possible. In addition to that, I recommend making a risk assessment as permanent measures. Therefore, the decision problem is what action plans are included in the risk assessment.

Apply Concepts Learned in the First Week to Support Your Reasoning

As mentioned earlier, I enhanced the professor's sample code, and I took sort of code snippets from Hello Audio and Hello Physics in jME tutorials ("jMonkeyEngine Tutorials and Documentation," n.d.). Furthermore, some videos on YouTube explains usage demo of jME components and methods. For example, a video I saw shows how to use Arrow class clearly (Wesley Shillingford, 2012).

I propose to make a checkout plan and a replacement plan. The checkout plan is decided to check out once a month or every two months by stopping all appliances and checking the reading of the water meter. The replacement plan is decided to replace water pipes in turn once in several years. These plans are based on PrOACT model as follows. Problems are no detection system and restoration plan exist now. Objectives are to decrease the frequency of occurrence and to be detected earlier so that it will be much less impact on future incidents. A possible alternative is to adopt sonic leak-detection equipment introduced by Developed by the Georgia Environmental Protection Division as an effective method ("Leak Detection and Repair Programs", 2007). But, introduction of such equipment is not inexpensive, so making an assessment system by people is a priority. Consequences are to accomplish the objectives. A

CASE STUDY #1

tradeoff is extra expenses are needed to operate the system. However, as Lucky7, Teresa, Flickety, Davjohn and 10 others (n.d.) say that a water leak can also be very costly, so you can avoid the unexpected wasting money instead of the extra expenses.

CASE STUDY #1

References

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