Attitude

Over the years, I have worked with some very talented people that were also either lazy, unfocused or unengaged. These folks are not going to positively contribute to your organization. I’m looking for responsibility and maturity. When interviewing candidates, I don’t focus on resumes. I simply have a discussion and listen for conversational keys that tell me if this individual will wake up wanting to come to work, to learn and grow, to contribute to the team and to share their enthusiasm with others. As a long adherent to the saying, “Do something you love and you will never work a day in your life,” I’d rather do without than to hire people that lack passion and focus. Remember that some express enthusiasm more quietly, but it’s none the less there to see.

Trust

For me, trustworthiness is a game breaker. A brilliant and highly motivated candidate that can’t be trusted will, at some point, become a malignancy in your organization. Whether it’s an ego that takes priority over the organization’s goals or someone likely to slip their hand in the till, the interviewer needs to be the gatekeeper. When a devious or self-centered person gets into your workplace, the cost of exercising them is sure to be high. Therefore, it is imperative that the interviewer use the art of communication to get a sense of each candidate’s innate character traits. Assess how they match up with your organization’s needs and personality, and judge your comfort in picturing them acting on behalf of your organization.

Aptitude

To work in the engineering field, whether as an engineer, geologist, CAD professional, resident project representative or other role, it is imperative to have an aptitude for the business. There is just not much that can be done, even with good and otherwise talented people, if they don’t have a basic mentality that is compatible with mathematics, scientific principles and computer applications. Being technically bright is the price of admission to be considered for a technical position. Perhaps your business has other key competence factors that need to be met, but the fact is they need to be met.
FLOOD PASSAGE AT DAMS - PMPs and PMFs

What are the PMP and PMF?

PMP = Probable Maximum Precipitation
- The greatest rainfall considered to be reasonably possible to occur at a given location, over a given area, for a given duration

PMF = Probable Maximum Flood
- The flood that is caused by a PMP rainfall

Need to know...
- PMP – Probable Maximum Precipitation
- PMF – Probable Maximum Flood

- What are the PMP and PMF?

Floods are commonly linked to storm precipitation. However, the PMP is not limited to storms occurring over a single location. The PMP reflects the largest flood stage of memory for its drainage area.

In 1942, rainfall in Smethport, Pennsylvania was estimated to be nearly 31 inches in less than 5 hours. This estimate exceeds the hypothetical PMP. The flood waters picked up and moved this water tank well downstream.

For Ball Park PMFs, see: http://www.schnabel-eng.com/Resources/WaterWire7.aspx

How did these values get established?

Over the past century, the hydrologic sciences have evolved from estimates based on the largest flood stage of memory to more analytical approaches that connect runoff to rainfall, soil conditions, stream slope, roughness and other characteristics, basin size and shape, and other influencing factors.

For more detailed background info, see: (PMPs Never Happen - Or Do They?)

Can a reasonable estimate of the PMF be developed without detailed analysis?

Similar to development of extreme rainfall values, various authors have investigated maximum discharges that could be anticipated for streams in various regions. Crippen and Buc (1977) developed envelope curves for 17 hydrologically-similar regions in the United States. Other authors have used maximum observed discharges to extrapolate to other drainage basins. Schnabel personnel have combined maximum observed discharges with PMF estimates for drainage basins in the Northern and Central Appalachian Regions to produce the following PMF Estimate Curves.

Rainfall from storms in Georgia in September 2009 was estimated to exceed 50 percent of the PMP, causing activation of auxiliary spillways like these at Snake Creek Dam.

Why such a large rainfall? What’s the risk?

A dam failure can be a lot like a plane crash - sudden, unanticipated and potentially devastating. Would we be happy with a one in a hundred thousand annual chance of a US commercial plane crash (hint: one in a hundred thousand translates to about 120 commercial aircraft crashes per year)! Similar logic is at work in establishing acceptable performance standards for dams. Dams judged to present a high hazard potential are those where a failure would likely result in loss of human life and extensive property damage. These dams typically need to safely pass from 1/6 of a PMF to a full PMF depending on state regulations.

Because dam safety is regulated at the state level, there is more variance in the application of dam design standards and, therefore, more variability in risk sensitivity. Also relative probabilities of PMPs vary for different areas of the country. For areas along the Pacific Coast of the US, the 100-year rainfall corresponds to about 25 to 50 percent of the PMP. In Ohio, the 100-year rainfall is generally about 15% of the PMP (Ohio is not located close to an ocean and doesn’t have mountains to stall weather patterns) indicating that the probability of a PMP varies with geography.

Current extreme rainfall values were based upon a combination of atmospheric physics that define maximum moisture content and precipitation rates for cyclonic, frontal storm and thunderstorm events, together with the inclusion of significant historical extreme rainfall events used for validation.

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