

Appendix 11

EXECUTIVE SUMMARY THREAT AND RISK ASSESSMENT

EXECUTIVE SUMMARY

Applied Risk Management (ARM) used a four-step vulnerability assessment methodology as a framework for developing the Threat and Risk Assessment. The steps are as follows:

- Step One: Operational Analysis
- Step Two: Identify Critical Assets
- Step Three: Determine Threats, Countermeasures and Vulnerabilities
- Step Four: Assign an ARM Score and Plot the Scores

Below is a brief description of each step used and the key findings from each step.

Step One – Operational Analysis

Process: This process includes analyzing the facility and developing a detailed understanding of its mission, goals and objectives. In this step, an understanding of the organization's culture is developed, thus allowing the team to balance risk reduction, convenience, financial budgets and customer service.

Step Two – Identify Critical Assets

Process: This step includes a detailed analysis of the critical assets of the organization including people, property, information and credibility. ARM identifies the assets that are most critical to accomplishing the mission of the organization and evaluates the impact that would be created if the assets were damaged or destroyed.

Step Three: Determine Threats, Countermeasures And Vulnerabilities

Process: Step Three is broken down into two parts: determining threats and determining the effectiveness of existing countermeasures.

The team conducts a practical analysis of the threats against the organization based on qualitative, open source data obtained during the survey process and from industry specific analysis. All threats to the system are identified along with the likelihood of a threat occurrence. Threats are defined as acts that may result in undesired consequences and could include intentional acts such as an internal attack by a disgruntled employee, terrorist attack, damage caused by domestic or international organized groups, or vandalism.

Once all threats are identified, existing countermeasures are proposed that mitigate existing vulnerabilities. A review of existing policies, procedures, training and equipment helped to identify countermeasures that are currently providing system security throughout the BUMC Campus.

Step Four: Assign a Vulnerability Assessment Score

Process: Based on data from the initial three steps, the team categorizes the criticality and vulnerability of each asset.

The first step in this process consists of determining a Vulnerability Assessment score (VA) for each asset. The vulnerability score evaluates each asset taking into account many factors, such as how visible or recognizable an asset is as a target, historical threats, disgruntled employee issues, policies and procedures, existing technology used at the facility and other factors.

To determine the vulnerability score, a Threat Assessment score (TA score) and a Countermeasure/Recoverability Assessment (C/RA) score are calculated. The TA score takes into account local threats, outside business and internal threats, asset recognition and historical security issues. The C/RA score takes into account the existence of written policies and procedures, physical barriers that deter, delay and prevent security related incidents, human elements such as trained employees that prevent and respond to security related incidents, technological devices such as access control and intrusion alarm systems, and system redundancy.

The VA score is calculated as the difference between the TA score and C/RA score, which reflects the balance of threats against an asset as compared to the amount of countermeasures available to protect the asset. If the amount of countermeasures exceeds the amount of potential threats, the VA score will be low. Conversely, if there are few countermeasures in place and the threat potential is high, the VA score will be high.

The VA score is given as a grade designation from "A" through "D" where an "A" is given as a minimal vulnerability rating and a "D" is given as a highly vulnerable

Conclusion

The assessment team has conducted a thorough analysis of the risk and vulnerability of the planned BUMC National Biocontainment Laboratory. Throughout the process many factors, issues, and solutions have been introduced by the ARM team, BUMC team and others working on the project in an effort to create the most secure facility possible.

Based on the conclusions, the following synopsis has been developed:

- **Structures:** Structures have a minimal vulnerability score due to the extensive countermeasures planned. The various technologies used to protect the structures takes into consideration a multitude of threats.
- **BSL-4 Space:** BSL-4 space have a minimal vulnerability rating, and select agents have a low vulnerability category due to the potential associated with human interaction. The countermeasures planned for authorized access into

the laboratory is comprehensive and uses state –of- the- art technology to protect the extremely vital assets.

- **BSL-3 Space:** Similar to BSL-4 assets, the select agents are in the low vulnerability rating, while BSL-3 space has a minimal vulnerability. The countermeasures planned are similar in nature to the above grouping, and are well planned and designed.
- **Supporting Infrastructure:** All the assets in this group have been rated in the minimal vulnerability category. BUMC has developed excellent redundancy in its major systems; the planned coordination with city utilities and services will assure the most negligible of impacts during an emergency; the removal of waste, water and bio-hazardous materials is well thought out; the building automation system is designed to protect those inside in a well maintained environment; and exhaust systems and air handlers will protect those outside the facility through well designed engineering and technology.
- **Intangible Assets:** All intangible assets, including reputation, cost of lost research time and the like rated highly critical to the mission of the project or BUMC, and have a minimal vulnerability. These resources, although impossible to physically touch, have perhaps the most far-reaching impact on the future and success of the organization. With all of the planned countermeasures in place as defined in the body of this report, this group of assets will remain secure.

In the post-9/11 world, security and safety have new meanings. New threats emerge and new dangers frequently present themselves. As such, up-to-the-minute countermeasures, innovative ways of thinking and “outside the box” solutions must be created to combat these threats.

In ARM’s assessment of the facility, it was found that because of its mission, there are potentially dangerous external threats. However, the project has been designed and planned to incorporate strong countermeasures to mitigate these threats. The Public Safety Department of BUMC, because of its existing mandate to react to city-wide emergencies, has many security procedures, contingency plans and extensive knowledge already at hand. They have identified many external and internal risks and are actively taking steps to diminish them.

In the assessment process a multitude of concerns were raised from the community related to the construction and operation of this facility, both due to the potential for release of a biological agent and the potential for attack by external forces. It is encouraging to observe local community involvement in a project that could have far reaching implications. At the same time, one of the beneficiaries of the existing and planned defenses mentioned above is the surrounding community. BUMC management is keenly aware of the impact that the project engenders, and throughout this assessment, BUMC has kept the wellbeing of the community at the forefront of the process. BUMC has been active in community meetings and local

discussions about the project, and will continue to promote an open dialog with those impacted by this project.

Although BUMC is moving appropriately in the design and fulfillment of the NBL mission, it is necessary to see the planned countermeasures to fruition to reap the benefits of the desired results. Additionally, regular assessments such as this one, both planned and surreptitious, should be the conducted regularly to keep those involved thinking and acting “out of the box” and mindful toward the future.