

**Analysis of selected portions of the 1,756 page Draft  
Risk Assessment Report for the National Emerging  
Infectious Diseases Laboratory (NEIDL) of Boston  
University (Biosquare Research Park, Roxbury,  
Massachusetts) as prepared for the public hearing of the  
NIH at Roxbury Community College on April 19, 2012**

**Dr Roy Lisker  
8 Liberty Street #306  
Middletown, CT 06457  
[www.fermentmagazine.org](http://www.fermentmagazine.org)  
[rlisker@yahoo.com](mailto:rlisker@yahoo.com)**

*To: The National Institutes of Health  
Attn: NEIDL Risk Assessment  
6705 Rockledge Drive, Suite 750  
Bethesda, MD 20892-7985*

From Dr. Roy Lisker:

Hello to the NIH: Around the beginning of March, 2012 I requested and received the complete (Draft) Supplementary Risk Assessment report of 1,756 pages. As it is impossible for one person without a staff to work through the report in detail, the decision was made to focus on specific sections, those in which I feel I might know something or have something to say. The greater number of pages are in the appendices anyway, which are filled with the facts and figures needed to support the material in the chapters. Thus, I was able to reduce the amount to about 200 pages, plus some relevant parts of the appendices

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The sections of the Draft Risk Assessment Report Boston University's National Emergent Infectious Diseases Laboratory (henceforth referred as the RA) that have been investigated for this commentary are:

- (1) Chapter 1: Introduction
- (2) Appendix B: Site Characteristics
- (3) Chapter 10: Environmental Justice
- (4) Chapter 4: Event Sequence Analysis
- (5) Appendix F (Pages 1-44)
- (6) Chapter 6: Threat Assessment

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Before beginning there is a general issue that needs to be addressed. Examining the table of contents of all the chapters and appendices in the RA , one gets had the impression that what it is concerned with are the technical aspects of the physical side of the proposal : biosafety, security, accessibility of medical care, scenarios of natural or man-made disasters. All of these are

relevant and I certainly do not doubt the thoroughness of the people and agencies that have put the RA together. However, although it evidences a heightened concern with the physical and environmental impact of the operations of the NEIDL, *one searches in vain for anything in this report which amounts to what one might call a "Sociological/Psychological Impact Assessment" , that is to say, one based on the issues revolving around the stigmatization of a neighborhood that is already feared and shunned by a majority of the population of Boston!*

Certainly, few neighborhoods in Boston have such negative reputations as the South End, Roxbury and Dorchester. All Residents of Boston, of whatever ethnic background, avoid it unless they are absolutely obliged to go there. Women are afraid of being raped, businesses of being vandalized, visitors of being mugged, school-children of being killed by stray bullets shot off by the drug gangs.

To this already high level of adverse reaction , Boston University intends to (gratuitously) load on a whole new burden of stigma: the fear, whether justified or not (*although the report is mostly concerned with showing that it is not justified* ) of being stricken by one or more of the most horrible diseases known to mankind, starting with, but not limited to, the 13 that are the object of this RA report ! How much more sinister does one have to make a district appear, already suffering as it is from rejection through the fear of violence and potentiality for serious injury?

Will the presence of the NEIDL encourage businesses to invest in this neighborhood? Will it not turn away more prospective owners, landlords, or renters? School children who are already cautious about attending classes? Will people who (perhaps unjustly) already shudder when they hear the name of "Roxbury", be more reassured when they learn that a kind of Frankenstein laboratory is being set up, not far from where (for example) a fatal shoot-out had perhaps occurred the month before?

These social and psychological issues, along with their attendant economic consequences, are every bit as serious as the actual threats to health.

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### *Chapter 1: Introduction*

Page 1-1 There is some confusion in this document about the date on which the current standing 7-story NEIDL plant was completed. From the articles in the newspapers articles one learns that was completed 4 years ago, around 2008. On Page 1 of the RA it is stated that the plant was completed in the 4<sup>th</sup> quarter of 2011

1-4 There is a certain amount of familiar yet misleading rhetoric on this page. It is stated here that the “wake up call” for more BSL-3 and BSL-4 labs was a function of two events (1) The terrorist attacks of 9/11 and (2) The subsequent anthrax crisis . However, in the catastrophe of 9/11 no weapons of biological or chemical warfare were employed. As for the anthrax scare, research on anthrax is done in BSL-3 labs, not BSL-4, and it is stated

somewhere there are over 1,300 laboratories in the US equipped to do research from BSL-1 to BSL-3 levels. So these arguments for the need for a new pair of BSL-4 laboratories are not valid.

1-5 . Here one learns that the other BSL-4 lab in the initial proposals of 2004 is in Galveston ,Texas. That plant was completed in 29008. It is hard for me to understand how one can build such a lab in the “Hurricane Alley” of the US. Two major hurricanes, Rita and Ike, occurred during construction, and the fact that the lab was unharmed does not guarantee that it will not be so from the next major hurricane. Furthermore, this is a part of the continental US where serious hurricanes are yearly occurrences.

1-6. Here it is explained that research on bioweapons is prohibited by international law. Thank goodness for that. One is led to ask: *Where, then, are the international inspection teams?* Surely we are not supposed to believe that, alone among nations, we in the US can simply take the word of our own government that no secret designer bioweaponry research will be done in these new

research installations! At this very moment the US is demanding inspection teams for nuclear facilities in countries all over the world. Why isn't it equally willing to allow inspection teams to periodically visit the Galveston site and the projected BU NEIDL site? Why doesn't the RA address this issue?

1-9 On this page this misleading impression is given that everything that needs to be known about safe workplace practices is already known, and that therefore biosafety reduces to a matter of implementing them properly. Yet basic research, which perennially sets new goals and new guidelines, will forever be throwing up new security and safety challenges. What one would therefore like to see is a discussion of *how much leeway* , either in terms of usable space or equipment, is being set aside for the inevitable development of directions in research that raise the spectre of new dangers yet to be considered.

1-10 In the list of "*principal hazardous characteristics of a biological pathogen ,used to determine the appropriate BSL* ", there



is no mention of *iatrogenic complications* , vaccines for example, with serious side effects; more generally, dangers presented to the staff, researchers and public by the research itself.

1-13. This page is concerned with bio-containment. The sections of this report that deal with the issues of toxic waste storage and disposal are much smaller. The irresponsible activities of some hospitals that have dumped their toxic wastes in landfills and rivers are well documented. How will the waste be stored? How will it be decontaminated? How will it be disposed of? These issues are discussed, but they are not given the in-depth analysis required. Such analyses in this report seem to be restricted to the possibilities of pathogen exposure.

1-14. I see no discussion in the RA of nuclear hazards. Wouldn't there be additional potential dangers from radioactive releases, of isotopes for example ? Or of toxic chemicals which happen not to be "biological" pathogens?

1-19 On this page one sees displayed a diagram of the “hazard identification process overview”. The progression of stages from *the identification of candidate events* through to the characterization of the risks, is portrayed as being undeviatingly linear, a 7-step process that leads, through a single chain of causation, to the desired result:

1. Identify candidate events →

2. Select events →

3. Analyze events →

4. Estimate initial infections →

5. Assess transmission potential →

6. Model secondary transmission →

7. Characterize risk

One knows however, that catastrophes are rarely, indeed I would say that they are never linear. In fact they are always the result of multiple causes that mutually interact. Rene Thom and EC Zeeman, the authors of so-called “Catastrophe Theory” knew this

very well. Thus, for example step 6 (Model Secondary Transmissions) is bound to affect step 4 (Estimate initial infections) ; step 2 (Select events), must be reviewed and reconsidered after the final characterization of risk. This chart gives a false picture of what really happens in a disaster, and is hardly reassuring to anyone who bothers to take a second look.

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*Commentary on Appendix B: Site Characteristics*

**B.1.3** The RA claims that there is no livestock in Suffolk County, where the “alternative site” of Tyngsborough is located. Therefore it is surprising there are no estimates or figures for the numbers of pets. An animal does not have to be livestock to be a potential victim or carrier of disease.

One would expect a more detailed treatment of waste water disposal than a vague reference to a sanitary sewer line in Suffolk Country.

**B-3 : One does not doubt that there are more than enough Emergency Response agencies in the neighborhood. However, recall what happened at Three Mile Island. How many of the systems in and around Harrisburg collapsed when the real emergency hit?**

**B-5: This page discusses the synergy between the medical facilities at the Boston University Medical Center, located near the Biosquare Research Park and the NEIDL. One asks the question: is this synergy necessarily a good thing? There could be a real possibility that diseases and iatrogenic conditions would be carried back and forth between the two institutions.**

**B-6 More on Tyngsborough, Massachusetts. The animal census for 2002 is shown. Apart from the lapse of 10 years in this census, this approach has other problems:**

**(1) Unlike chemical and other toxic wastes, animals are organic, therefore proliferating objects. Census figures change yearly, monthly, even daily. What is even more relevant is the animal to**

human ratio. Once again there is no mention of pets, although there are descriptions of the local wild life (no figures or estimates). However there is no mention also of insects, microorganisms or archaea (fungi).

(2) I quote from the report itself:

- a. *Municipal sewer service is not available from Tyngsborough*
- b. *It might be possible to tie into municipal sewer service from the adjacent town of Chelmsford*
- c. *The Merrimack River Valley ... was shaped by the history of the region as a major site of American industrial development in the 19<sup>th</sup> century.*

Question :How much industrial sewage was left behind when the factories moved to China (Mexico, the Philippines?)

B-9 This page begins the examination of the site characteristics of the Boston University's Sargent Center for Outdoor Education in Peterborough, New Hampshire.

The famous MacDowell Colony for the Creative Arts is to the south. I was there for the summer of 1962. The artists and writers may turn out to be very vocal in opposing the emplacement of a BSL-4 lab nearby, with the north winds coming down on them from Canada.

B-11. As stated in the RA, access by roads is very poor. There would have to be considerable road construction in the area before a NEIDL could be sited there.

B-12 . This location is also a disaster area. Quoting from the RA:

*“Peterborough is one of the most flood-prone areas in the state and has been included in three disaster declarations since 1987. It is subject to a variety of natural hazards including riverine flooding, wildfires, ice storms and river ice jams. The town has more than 40 dams, two of which have been classified as high-hazard dams. Specifically, the rural site property is encompassed by a Special Flood Hazard Area designation as Zone A, a 100-year floodplain. ”*

I suspect that one can translate the information given about the alternative sites in the following way: *"We want to convince you that Roxbury is the only option!"* However, you have not convinced most of us that a new BSL-4 laboratory is even necessary!

In addition, the farcical nature of conducting a "comparative site analysis" *after* a \$200,000,000 plant has already been built, seriously undermines the credibility of the entire report!

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### *Chapter 10: Environmental Justice*

10-1 The environmental justice chapter does not discuss the psychological, political and other stigmas presented by the public perception of a laboratory like NEIDL in a neighborhood like Roxbury. As with the rest of this report (as I've understood it so far) it only deals with safety and (to a far lesser extend) security issues.

10-2 The "federal environmental justice criteria" are badly flawed. A minority is not a function of numbers alone: a minority is a vulnerable population disadvantaged by a more secure

population. Ethnicity is only one of many categories in this definition: "college students" would be a minority in a blue collar town; "alcoholics" are an important minority on New York's Skid Row; the "elderly" would be a minority in a town where most of the young people have moved away: paradoxically they become the "minority" because they are now the "majority" , but they are underserved!

It is indeed a historical misnomer to call the Afro-American civilization a minority. To continue to do so merely reinforces the institution of second-class citizenship. A large African population has been in the Americas continuously since the 16<sup>th</sup> century. It constitute 20% of the total population of the United States. Afro-Americans must therefore be as numerous as Irish or Poles, who are not normally considered minorities.

Their proper designation is that of an ethnicity which is a victim of prejudice, and thus a *disadvantaged sub-population* within in a multi-ethnic society. Alaskans and Native Hawaiians



may also be “minorities”, but are they more so than Vietnamese or Kosovars? A glaring omission is the lack of any discussion of the status of Moslems and the peoples of the Middle East as minorities, particularly with the exaggerated attention given to the threat of terrorism. . Not only are they a well defined minority, recent events have made them an “oppressed minority”: what one really means by the use of the word “minority”.

By quoting poverty statistics (from widely different years!) , the RA seems to miss the point: the real issue is resilience of the infrastructure. Take for example the most relevant category : *public health* . It doesn't matter all that much how low the median salary is, if the standards of public health are high. On page 10-3 you do in fact discuss public health but do not relate it to infrastructure.

*The degradation of the neighborhood* , in other words, quite apart from the median income, or educational level, or language proficiency, or ethnic profile, is the real issue, and it

is a gross over-simplification to assume that all these things are closely correlated.

Ultimately “environmental justice” has to encompass the entire society. The drug related problems of affluent teen-agers in the suburbs are just as bad, relative their context, as the drug related problems in the poor inner city neighborhoods. Prejudice knows no boundaries: if there were less prejudice in rural and suburban municipalities than in downtown Boston, there would be more “oppressed minorities” moving out to them!

10-5 There appears also to be an excessive flexibility in drawing the lines of the target area. A draft EIS, a Supplemental Draft EIS and a Final EIS are all described . In only one of them, the Final EIS, is there any attempt to draw the boundaries of the area under discussion. The way these boundaries are defined sounds suspiciously like gerrymandering to get a desired result. Thus:

- a. *The population is 25% minority (circa 2005)*
- b. *The median of household income in the South End (the whole South End or just the portion designated in the EIS) is greater than the median household income of the City of Boston. (How should that influence the placing of a BSL-4 infectious lab disease in the middle of the neighborhood?)*
- c. *Less than 25% are foreign-born.*
- d. *Less than 25% lack English language proficiency*
- e. *The final comment is, excuse me, outrageous: “It is unlikely that the Proposed Action would have proportionately greater impact on the disadvantaged (e.g. minority) population than any other population in the area (NIH 2005) “:*

1. Does one gauge the “proportion” on the degree of disadvantage already present?

2. If all populations are stricken with anthrax, is there any comfort in knowing that the rich suffered as much as the poor?

3. The vague buzz-words are in “disproportionate” number: ‘unlikely that’...‘proportionately greater’...‘disadvantaged’ ...”other populations in the area...” Is this statement really saying that it’s all right to go ahead with the creation of NEIDL because the amount of misery is already so high, that “proportionately”, even more won’t make all that much difference?

Finally, at the bottom of this page, you do discuss the degradation of basic physical health due to being a member of an oppressed minority: infant mortality, heart disease, diabetes, cancer, infectious diseases. HIV, tuberculosis and so on. The figures are thankfully up to date. Yet the conclusion is not that this population is far more susceptible to biolab induced infections. Rather the situation is ‘explained’ as *“the results of the complex interaction among genetic variations, environmental factors, and specific health behaviors.”*

10-7 The above paragraph is followed by affirming the existence of laws which, *in theory*, entitle everyone in

Massachusetts to adequate health care. This sidesteps the fundamental issue of how much health care are persons in the target population *actually receiving* and its adequacy. The proximity of the BMC and BUMC are mentioned. As I've suggested, the "synergy" between the BMC and NEIDL might increase the iatrogenic toxicity of both environments.

10-9. On this page there is a frank admission of lack of the most essential information. Quotes:

*"OSHA...publishes and permits Permissible Exposure Levels to protect workers against the health effects of exposure to hazardous substances ... PELs do not include biological agents"...*

*..."Unlike the chemical and nuclear industry, no government agency regulates or enforces worker or public exposure to biological agents. Nor is there legislation that has set occupational or public exposure limit values for biological agents."*

*..." A small amount of a micro-organism can grow considerably in a very short time under favorable conditions...."*

*...“Biohazards do not show a proportional answer of the human body to the exposure of risk, which makes it very difficult to determine universally valid evaluation criteria (Gorny 2007)”*

Those “proportions” again! One can use, as is done here in this report, “proportions arguments” to reach any conclusion.

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#### *Chapter 4: Event Sequence Analysis*

4-1. On this page a selection of “candidate events” for accidents and mishaps is proposed. These have been chosen to “represent” the full spectrum of possible dangers, either because they are *typical* or because they *bound* other accidents in the same category, that is, all the other accidents in that category would be less destructive, dangerous or containable.

The choice of the 5 representative events is very debatable:

These are:

- (1) Aerosol Release
- (2) Needlestick

(3) Earthquake

(4) Aircraft Crash

(5) Malevolent Acts.

The “aerosol releases” are assumed to be due entirely to centrifuge malfunction; likewise the “needlestick” incidents are taken to cover any kind of wound or injury caused by broken glassware, pre-existent bruises, knives, etc. The very unlikely disasters produced by severe or moderate earthquakes, and aircraft accidents of the 9/11 type were selected over the very much more likely damages caused by hurricanes, tornados and floods. This makes no sense to me. Why not gauge the safety of the installation on the basis of things that are *likely* to occur? The huge damage caused by a very rare earthquake in Massachusetts should not take preference over the severe, if not totally disabling, damages of a possible major flood? This is particularly relevant when considering the Peterborough alternative, officially list as a major disaster area for floods.

A very small section of the report is devoted to to malevolent acts. The following comment on page 4-12 is highly revealing:

*“Malevolent acts were not considered in the selection of the MRF (Maximum Reasonably Foreseeable) event. ‘because the potential number of scenarios is limitless and the likelihood of attack is unknowable (DOE 2002)’ ”*

I would respectfully submit that among the potentially malevolent events, one must include *the very siteing of a BSL-4 biodefense laboratory in the heart of a densely populated poor urban neighborhood !*

Why do I say this? Because before this lab is up and running, no terrorist organization is likely to look at Roxbury as a target for a catastrophic mission. Afterwards, the entire neighborhood automatically becomes more dangerous to live in.

4-2 Maximal Reasonably Foreseeable (MRF) incidents are defined here. This comment is made:



*“For this RA, the MRF event was defined solely in terms of the accident with the maximum pathogen release from the facility”*

The definition is fatally hampered by the lack of statistics for quantities of pathogens and durations of exposures to biological agents, in contrast to what one finds in the nuclear and chemical industries. As the report itself explains, there are no Permissible Exposure Levels (PELs) for most of these diseases. And diseases proliferate: the release of even a minute quantity of a virus (most notably RVFV) can provoke a full scale epidemic.

4-3 The RA does admit its own limitations : *“Therefore, past BSL-3 and BSL-4 experience was used to support the RA whenever appropriate, but they are not suitable for quantitative use.”*

4-4 Throughout the RA there is a strong emphasis on “biocontainment” . This must depreciate and deteriorate in time. I find no discussion of the decommissioning scheduled to take place after 50 years.

4-5 In this report we are often reminded that the exposure and impact criteria are based on the DOE NEPA Guidelines (DOE 2002). One must keep in mind that :

(a) Energy resources pose different risks and concerns.

(b) These guidelines were put in place 10 years ago.

4-7 The assignment of statistical categories is very controversial. These are:

A: Events one should assume will occur within the 50 years of the laboratories operation

B. Groups of those events which are likely to occur, with the occurrence of any specific event being less (100 to 10,000 years) This is impossibly vague.

C. Combinations of events which it is not reasonable to assume would occur, but which are reasonably foreseeable, though one cannot say which ones (10,000 to 1 million) This comes close to statistical double-talk

D. Not reasonably foreseeable events (more than 1 million years). My objection here is to wonder if we really know enough , given the short amount of time such laboratories have been in operation, to confidently make the prediction that some events would not occur even once in a million years

4-9 A number of tables are displayed on this page . As one must assume good faith on the part of the people who have prepared this report, I will not enter in a minute criticism of each category and each entry. This can, and should be done by more specialized monitors. I do wonder, however that, for example, in the category of "liquid waste release", the cell for animal wastes is left blank.

4-21 With respect to exposure levels for facility workers, to centrifuge aerosol releases, it is stated:

*"Facility worker: No reasonable mechanism for exposure of facility worker was identified and the facility worker exposure category for a centrifuge aerosol release event is NONE"*

***Objection*** : Who cleans up after the “event”? Isn’t it the janitors and cleaning staff?

**4-27** It seems to me that the discussion of the possible consequences of a major earthquake is very inadequate. Such an event of necessity triggers multiple secondary disasters, which can be even more severe than the event itself. For example:

- a. Collapse of neighboring buildings
- b. Fires
- c. Public panic
- d. Panic within the facility that could seriously delay the time for laboratory and facility workers to escape the building
- e. Break-down of evacuation plans
- f. Traffic jams
- g. “Needlesticks” and other wounds, bruises and injuries caused by the sudden impact of the earthquake

- h. The fact that, given the potential seriousness of outbreaks of disease from this laboratory, fire trucks, ambulances, rescue squads, National guard and police will be diverted from the rest of Boston to concentrate on this area, thus causing severe deprivation of these services to other neighborhoods.
- i. No one imagined that the World Trade Center would collapse until it was actually attacked.
- j. Tsunamis coming in from Boston harbor
- k. Aftershocks
- l. The costs to be borne by the neighborhood, the city and the American public.

4-34 to 4-40 Tables of data. I assume these are accurate, but they should be checked by specialists and experts

*General observations:* In all these scenarios there appears to be a lack of imagination and their associated estimates. Even disaster movies show more of a sense of the unforeseen

possibilities than one finds in this report. The line of demarcation between “reasonable” and “unreasonable” is important, but it is a very fuzzy area, not a sharp boundary.

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*General remarks.* In reading the various chapters of this report, certain things stand out. *To begin with, there is no mention of costs.* This is directly relevant to public safety. One’s attention is drawn in particular to the senseless discussion about alternative sites for the NEIDL in Tyngsborough and Peterborough. The government has already invested \$200,000,000 in building the laboratory in Roxbury! The probability that there would be any recommendation after the hearings on April 19 that the plant which has already been built be demolished, and that *another* \$200,000,000 be invested in a new plant in Peterborough, is less than the probability that there of an exposure incident involving Ebola virus, which the RA estimates as less than once in a million years!

This being the case, all the procedures of meetings and public commentaries on the RA take on the characteristics of a farce. Why has so much money and labor been invested in working up the statistics for safety precautions in Tynborough and Peterborough, while no effort is being made to calculate the financial burden of maintaining the plant that is already stationed in Boston. It's just nonsense.

I will therefore ignore all of the impact assessments and calculations of risk and feasibility connected with these locations.

The purpose of the April 19<sup>th</sup> hearing then reduces to a simple all-or-nothing proposal: either the BUMC laboratory will become available for research at the BSL-3 and BSL-4 levels, or such plans will be abandoned and the building converted to other uses. Since I feel that there is no need for another BLS-4 laboratory, particularly in the Greater Boston area, I personally would applaud this outcome as a good thing.

However what I have discussed is only one dimension of the whole issue of costs. There are many indirect costs which would affect the population of the district around the plant that must also be looked at:

(1) The deployment of major security resources in and around the neighborhood of the plant is bound to deplete the current resources (police, fire, medical, military, etc.) available to the city of Boston

(2) Quite apart from any real dangers, the neighborhood will become further stigmatized as a dangerous one, beyond the current impressions maintained by the general public

(3) Further infrastructure will have to be built to guarantee the safe transportation of pathogens to the laboratory, and the safe disposal of wastes. This money could be better spent in building up the human infrastructure of the neighborhood

(4) The area comprised by Cambridge, Boston and



surrounding suburbs contains the highest density of top scientific minds in the country. It also has a huge student population, idealistic, intelligent and willing to take on difficult political struggles.

This means that lawsuits, challenges, protests and opposition will always be fierce in this particular region of the country, costing huge amounts in legal proceedings, hearings, reconstruction, resiteings, etc. Would it not have been more sensible to have located the NEIDL in a backward area filled with poorly educated people who would not be likely to realize the negative impact of its presence? This is perhaps a bit tongue-in-cheek, because I am very happy that there is such resistance. But it is difficult for me to understand why Boston University should have made such an unwise decision from their point of view.

(5) At the present moment it is difficult to imagine why any terrorist organization would want to launch an attack on Roxbury. Once this plant is fully operational however, it will immediately

become high on the list of possible targets for terrorist initiatives. Today the neighborhood is poor, but it is not under the cloud of any threat from the outside. This will change if BLS-3 and BSL-4 research is being pursued at NEIDL.

(6) In conclusion, I am quite surprised that a huge document of 1,756 does not devote any of its pages to the direct and indirect financial costs, to the people of Roxbury, Boston or the United States.

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*Appendix F, part 1 (pages 1-44)*

Page F-1 The topics to be covered in this appendix are listed:

- *Airborne dispersion analysis* . No mention of waterborne dispersion analysis or dust dispersion analysis
- *Population estimates*. Because, in biological disasters such as epidemics, one must take into account infection, propagation and transmission, these are of necessity fuzzy boundaries rather than precise statistical margins .

*-Representative events resulting in a potential loss of biocontainment.* The possibility of an earthquake was chosen, although the Boston area is not noted as being earthquake-prone. Violent weather events, such as hurricanes and floods are very much more likely, but not once considered. Peterborough itself is described as the greatest flood disaster area in New England; however, since the very consideration of alternative sites is fatuous, this has little bearing

*-Airplane crashes.* A crash into the building is essentially one form of "bombardment". Would it not have made more sense then just to consider "bombardments"?

F-2 The RA admits that DOE recommendations for analyzing human health effects are limited to exposure to radiation and chemicals. Why then it is stated, without supporting evidence, that these are also relevant to pathogen exposures?

**F-3. If nothing else, this page is to be commended for its honesty. The RA lists 5 major limitations to identifying the nature and frequency of critical events:**

- (1) The historical data does not always reflect the actual situation at the current NEIDL**
- (2) The reporting of incidents may be biased by the fear of reprisals.**
- (3) For as many as 82% of all reported incidents, the sources of exposure are unknown.**
- (4) The numbers of operational hours in which reported incidents have taken place is not known.**
- (5) As a general rule, the descriptions in the reports of these incidents are not given in sufficient detail.**

**F-6. "Training" is listed as one of the administrative controls to ensure safety, but there is no mention of the average period between compulsory re-trainings.**

In the catalog of items of safety equipment, there is no mention of waste disposal. Waste disposal is discussed in other parts of the RA, though without the depth of detail one would like to see. This is an important issue owing to the fact that the toxicity inside the laboratory reaches the public primarily through these processes.

F-9 Item 14 of the list of biocontainment features details the alarms and communication systems inside the laboratory, but there is no discussion of alarms and communication systems in the surrounding neighborhood, or on the large super-highways to the south of the Massachusetts Avenue Connector.

F-15 Working Stock. There is a over-emphasis here on "average concentrations". Quote:

*"Active research is likely to be collected on only a fraction of the viruses at any given time..... the instances at which a working stock exceeds 150 ml are roughly offset by the times when the*

*working stock is less than 150; therefore the average volume is about 150ml":*

- (a) How could such a statistic be derived for research that has not begun?
- (b) Crises and disasters do not happen under average conditions but under singular conditions. It does not restore one's confidence to know that conditions "on the average" are safe. This is true almost everywhere at most times, even during a war.

**F -17 Infected Animals. There are many routes by which animals could infect human beings, none of them discussed:**

- (1) Scratches
- (2) Bites
- (3) Wastes
- (4) Diseases which do not come from the research
- (5) Hostility

F-24 Vehicle Occupants. I was unable to find any admission or discussion in the RA about the very specific population density of the vehicular flows along the large highways that bound the southern rim of the NEIDL (The “Massachusetts Avenue Connector”). Figures for this area must necessarily be much higher than the stated “national average occupancy ranges” (1.12 for trucks, 2.35 for vans)

F-28. There is a site map on this page. The legends beneath it are virtually unreadable, though they can be recovered from a GPS Mapquest on the Internet.

However the Massachusetts Avenue Connector is clearly shown as being located *directly south* of the NEIDL (Biosquare Research Park) ! In addition to the potential harm to their occupants, the vehicles could continue on Interstate 695 and carry disease all across the city and state.

Figure F.4-2 appears to be missing from the text

F-30 to 44 For reasons stated above, I am not examining

the data on the rural or suburban sites. They serve as an embarrassingly transparent smokescreen.

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*.General Observations:* In the course of selecting and studying various sections of the 1,756 page Risk Assessment report, I've built up a picture of how Boston University has proceeded in this project, and how it intends to continue. In a few words I find its course of action in this matter totally incomprehensible!

(1) The very need for a new BSL-4 laboratory in the United States is debatable. Granted that, when after 2003, federal money became available for the construction of 6 new facilities, the big universities would naturally compete for their part of the share. A more astute administration might have perceived that, once the hysteria surrounding the 9/11 attacks had died down, the demand for these facilities would have also diminished, leaving Boston University with a white elephant that would, for the most part, sit



idle until it was time to be demolished. (The projected lifetime for the laboratory is only 50 years.)

(2) Once Boston University had received its' grant to build the NEIDL, it is very difficult for me to understand why it would then choose to locate the plant right in the downtown of a major American city. Clearly, no matter how slight the risk of a serious pathogen release, locating the laboratories in Boston would so magnify the dangers to a very large population as to turn a serious emergency (as in, for example, the release of poison gas in the Dugway sheep kill of 1968) into a world level catastrophe. The convenience of placing the NEIDL on the grounds of the Boston University Medical Center could scarcely overshadow the risks to the populations of a major city, the cloverleaf Massachusetts Avenue Connector highways and the adjacent neighborhoods of Roxbury and the South End.

(1) Beyond that, Boston is not only a major city, it is the

center of a hub of scientific research centers and educational institutions without parallel in the world. How could the administrators at BU have imagined that there would be no organized resistance to this plan, nor that it would swell to the level it has reached today?

(2) It is also very difficult to understand how the comparative examination of 2 alternate sites (clearly a requirement for a federally-funded project of this magnitude) was not made at the beginning, that is, before spending \$200,000,000 on the current laboratory! Holding a hearing to examine the comparative merits of these sites is so patently ridiculous that it amazes me that it has been proposed with a straight face, and that the NIH has compiled a 1,756 page draft report to address this proposal!

(3) Summarizing, one comes away with the impression that Boston University has, right from the beginning, blundered and bungled every aspect of this project. It first tried, in 2004, to foist the laboratory onto the city without consulting anyone. They

were caught by, among other agencies, the Committee for Responsible Genetics at Tufts University, the ACE and other grassroots organizations.

It then followed up this essentially illegal action by making all sorts of promises that it had no intention of fulfilling, such as additional jobs for the residents of Roxbury, clinics to treat victims of serious epidemics (strictly ruled out by the terms of the NIH grant) and so on.

Then it proceeded to build the laboratory without bothering to make the comparative assessment that is to be “debated” on April 19<sup>th</sup>. Every single thing it has done indicates a policy of continually pushing its intentions, plans and building activities onto the city in the hope that it won’t be caught, with little attention to following procedural guidelines prescribed by law.

The result seems to have been a catastrophe for BU, but perhaps a good thing for the country. By stumbling over itself time and again, BU has strengthened the hand of the growing opposition to

such an extent that there is a good chance that the NEIDL will never be used for BSL-4 research, or even for BSL-3 research. Let's breather a sign of relief: what is the waste of \$200 million taxpayer dollars relative to the potential extermination of Greater Boston by epidemics of Biblical proportions?

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### *Chapter 6: Threat Assessment*

This is the slimmest chapter of all in the 1756 page report, a mere 19 pages. This is consistent with the general tone of the RA, which is focused on biosafety, with relatively little on biosecurity, and nothing at all about cost effectiveness.

Page 6-1 There are numerous reasons why people might be inspired to commit malevolent actions, but the RA lists only 3: disgruntled lab worker, unbalanced lab worker, terrorist action. The words "terrorist action" for example, covers a wide range of motives, resources and strategies. A member of PETA might decide to free the lab animals; or simply conceal cameras to film activities

that could disgust the general public; an angry driver on the highway might ram a truck delivering pathogens to the lab, without realizing that his “road rage” could ignite a biomedical disaster; a paramilitary operation could surround the entire 7 story building, holding everyone hostage and causing a shootout that could, in theory, shatter glassware holding infectious germs.

Some of these scenarios are fanciful, others less so. The point is that, in a document of 1756 pages, biosecurity deserves more than a barren 19 page sketch.

Page 6-3 Equation:  $Risk = P \times C$  (Probability times Consequences) . Are we expected to take this seriously?

6-5: *The CAP Index Analysis* . This measures the “criminality” (whatever that is), of a particular context, neighborhood, municipality, etc. I suppose that one ought to consider the “statistics of street crime” in Roxbury, in comparison to the same things in Tyngsborough and Peterborough, but it is hard to see how this has much to do with the real issues of biosecurity at the

NEIDL plant. We certainly appreciate the anxieties of the senior researchers who may be afraid of being mugged on the way home at night!

The rest of Chapter 6 is basically routine, consisting largely of technical definitions, explications of the “philosophy of security”, technical meanings of the words “threat”, “vulnerability” and “security”. The tables merely continue this listing of scenarios, adversaries and so on. What is notable is a lack of concrete applications to the specific situation at the NEIDL or anywhere else.

All of this is consistent with the intention of deflecting attention from “biosecurity” onto “biosafety” as if they were the same thing, which they are not.

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### Bibliography

Draft Supplementary Risk Assessment Report for the Boston University National Emerging Infectious Diseases Laboratories. February 2012,. Volumes 1 and 2 available free of charge from the National Institutes of Health.

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