

**Stanford  
Special Review on Health and Safety  
Phase II**

**A Report  
on Allegations**

**David M. Fetterman  
Internal Audit Department  
Stanford University  
August 1988**

## Table of Contents

I. Introduction .....	1
II. Methodology .....	3
III. John Doe's Allegations (1 through 3) .....	4
1. Cover-up and Falsification .....	4
2. Unethical Behavior .....	7
3. Intimidation .....	8
IV. Mismanagement and Waste .....	13
1. The Environmental Safety Facility Incinerator .....	13
a. The Administrative Context .....	14
b. Planning and Coordination .....	15
c. Electrical Problems .....	16
d. Miscellaneous Additional Problems .....	17
2. CARMA .....	18
3. Stanford University Medical School and Hospital Incinerators .....	20
a. The Medical School Incinerator .....	20
b. The Hospital Incinerator .....	21
4. Mismanagement and Waste at the Departmental Level (Health and Safety Department) .....	24
V. Recommendations .....	25
1. University Wide .....	25
2. Hospital .....	26
3. Environmental Safety Facility .....	26
4. Health and Safety Department .....	26
References .....	27
Appendix A .....	28
Appendix B .....	31

## I. INTRODUCTION

On December 10, 1987, a then Stanford employee delivered a letter to senior University officials alleging serious problems with Stanford's health and safety program, including "mismanagement," "unethical behavior," and "behavior which . . . unnecessarily endangers" Stanford personnel.<sup>1</sup> Stanford's President on that same day requested that the Director of Internal Audit conduct a full and independent investigation of the allegations and authorized the use of resources from outside the University as appropriate.

On January 13, 1988, Stanford publicly announced that the health and safety review was underway and that a Special Advisory Panel of prominent citizens to advise the President had been appointed. Stanford also made available to the public the protocol of the review prepared by the Director of Internal Audit. The protocol specified three distinct phases in the review: 1) an outside review of allegations of unsafe and unhealthy conditions in specific facilities, 2) an investigation of allegations of "waste, mismanagement, legal violations, unethical behavior, cover-up, [and] intimidation of employees," and 3) a review of long term issues, including institutional arrangements for organizing the health and safety function.

SRI International was hired to conduct the phase one review. SRI's report covered two broad areas -- site assessments of specific facilities and an overall assessment of Stanford's health and safety program.<sup>2</sup> With respect to the site assessments, SRI found no "clear and present danger" in any of the facilities examined, but SRI did make a number of specific recommendations for changes, improvements, or studies for some facilities. SRI also concluded that Stanford's overall program had serious weaknesses and made recommendations on those matters. The entire SRI report was made public on March 2, 1988; it has been published in Stanford's Campus Report and has been widely distributed.

This report constitutes phase two of the protocol of the health and safety review. It is not intended as a general appraisal of Stanford's health and safety program. A balanced review of the program would consider the achievements of the Health and Safety department, of which there are many, and assess the full range

---

<sup>1</sup> A copy of the letter, which is dated December 9, 1987, is attached as Appendix A. The former employee remains unwilling to have his or her identity disclosed, and is referred to in this report as "John Doe" to avoid confusion.

<sup>2</sup> SRI International. Review of the Health and Safety Program. Menlo Park, CA: SRI International, 1988.

of problems the department confronts; this report makes no attempt to do so. It is a focused review of the specific allegations -- "waste, mismanagement, legal violations, unethical behavior, cover up, and intimidation" -- complemented by a consideration of such other issues as arose in the course of that review.

John Doe's letter contains the following charges, which will be discussed below:

1. He was forced to resign because he would not "falsify or coverup genuine health and safety concerns as instructed;" and there were attempts to force him into "participating in the coverups;"
2. There was "continuing" "unethical behavior;"
3. He was subjected to "a great deal of intimidation [because his concerns] reflected adversely on the personal interests of certain administrators;"
4. There were "significant levels of waste and mismanagement which have cost Stanford millions of dollars and resulted in the unnecessary endangerment of Stanford's faculty, staff, students, and visitors as well as the violation of Federal, State and local laws."

As the text of the letter (Appendix A) shows, the charges are general in nature and lack specificity. I interviewed John Doe on six occasions, in an attempt to discover what concrete events these general charges referred to. I found, however, that in many cases he was using terms in ways that did not conform to their general meanings, as explained below. More particularly, I found no instances of cover-up, no instances of falsification, one case that raised ethical considerations, a single instance in which Doe was threatened with discharge, and many instances of mismanagement and waste. Some of the mismanagement and waste was identified by Doe, and other instances emerged in the course of my review.

Section II of this report describes my methodology. In Section III, I treat the allegations labeled 1 through 3 above. Those situations which Doe identified as concerning waste and mismanagement -- as well as those he identified otherwise but which I concluded are more accurately classified as waste or mismanagement -- are discussed in Section IV. Since the University's underlying purpose was not merely to respond to the particular allegations, but to conduct a broader review of Stanford's Health and Safety program, I expanded the project to include other issues as they emerged. These also fell into the category of mismanagement or waste, and I have accordingly dealt with them in Section IV as well. Section V contains my recommendations with respect to all problems considered.

## II. METHODOLOGY

This study relied primarily on confidential interviews and a review of relevant documentation. I interviewed and observed staff and faculty in numerous departments on both the academic and business side of the University and the Hospital, ranging from the senior executive level to clerical and technical staff. Offices included the University's and Hospital's Health and Safety and Risk Management departments, Facilities Project Management (FPM), Operations and Maintenance, General Counsel's Office (the Legal Department), the Personnel Department, News and Publications, the Provost's Office, the Dean of Research's Office, as well as the Hospital's senior administration, Materials Management, and Facilities departments. I also interviewed former employees, reporters, Fire Department and Bay Area Air Quality Management District officials, and members of the Palo Alto and Menlo Park communities. I also visited two other universities and a neighboring industry to acquire some context in which to evaluate our own efforts and to learn what organizational structures and communication patterns work effectively in similar settings.

I also reviewed thousands of sheets of information, ranging from electronic mail to newspaper stories. These included correspondence files, computer data bases and disks, billing records, budgets, personnel records, calendars, contracts, blueprints, incinerator manufacturer documentation, Health and Safety test results, reports, monographs, health and safety literature, and other documentation. I cross-checked information using a wide variety of sources. Due to the sensitive nature of this evaluation, special precautions were taken to safeguard all information and to protect the confidentiality of concerned staff. Sensitive interviews have been carefully coded to preserve anonymity.

As I conducted interviews and reviewed documents, I discussed my tentative conclusions with those people directly affected. I subsequently wrote internal memoranda on specific subjects and again shared those memoranda with the employees they concerned, encouraging them to provide corrections or supplementary information. This process afforded employees an opportunity to participate interactively in my study, and served as a useful quality check on my understanding of the issues. It also represented an effective manner of informing people of my thinking and progress as honestly and candidly as possible, particularly in cases when I had to communicate unpleasant news. Finally, I met with pertinent University staff to review drafts of this report, affording them with an opportunity to provide any insights and to verify or correct the factual assertions. Fieldwork began March

18, 1988, and data collection and analysis ended on June 29, 1988.<sup>3</sup>

### III. JOHN DOE'S ALLEGATIONS (1 through 3)

#### 1. COVER-UP AND FALSIFICATION

A cover-up requires a concerted effort to conceal illegal or unethical acts from being made public. When I explored with Doe what he meant by "coverup," he cited a number of items, none of which seemed to me to fit the term:

- a. Doe had been instrumental in establishing a database (Computer Assisted Risk Management Aid, referred to as CARMA) into which health and safety problems could be entered; these were printed out and sent to the relevant departments for action. Frequently, there was not follow-up to assure that the problems had been corrected. Doe viewed this lack of follow-up as a cover-up.

In this case, the database was by no means an attempt to conceal but, just the contrary, an attempt to communicate problems to those who should deal with them. The failure to follow up is an example of ineffective institutional management: There was a lack of a systematic procedure for assuring that identified problems were corrected.

- b. Doe charged that the construction of the Environmental Safety Facility (ESF) incinerator/scrubber was a case of cover-up, in that it was poorly constructed in ways he believed endangered people and that management did not respond to his recommendations in a timely fashion.

Again, this was not a case of concealment; indeed, there was extensive staff discussion and correspondence about the problems. Later, there was extensive media coverage in both external news stories and University press releases. My interviews with campus and community citizens, as well as with University and external reporters, revealed widespread knowledge about defects in the incinerator and the scrubber. While I did conclude that Doe was correct in many of his substantive criticisms of the project, I consider this case another example of waste and mismanagement, and discuss it under that heading.

---

<sup>3</sup> See Fetterman, 1987, and Fetterman, in press, for a detailed discussion of the techniques used.

- c. Doe also characterized the continued use of the incinerators at the Stanford University Hospital and Medical School as cases of cover-up, in that they were operated for a substantial period after it became clear that they were burning infectious materials incompletely and that some of their exhausts might be entering the air supply systems.

Once again, however, the term "cover-up" is inapposite. Two incinerators were in question: one at the Medical School and one at the Hospital.<sup>4</sup> Complaints about illnesses had been lodged and, in 1983, an investigation of both incinerators was made by an engineer from Facilities Project Management (FPM). The Medical School incinerator's combustion was discovered to be incomplete, resulting in a recommendation from the Director of Health and Safety to limit its use to non-infectious wastes. With respect to the Hospital incinerator, reentrainment of smoke from incomplete combustion was discovered, and identified as a possible hazard. Furthermore, the Bay Area Air Quality Management District fined Stanford for air pollution coming from the Hospital incinerator.<sup>5</sup>

Repairs, modifications, and further study of the incinerator effluent were undertaken. Tests for reentrainment of asbestos, dust, radioactives, and metals were performed, but all were negative (that is, none indicated high concentrations of any of these materials). The air system was upgraded. The Office of Risk Management recommended that concerned staff arrange medical examinations at the University's expense. Plans for construction of a replacement incinerator system were already under way during this period.

None of this occurred in secret: this was no "cover-up" of the matter, but rather a case where correction took an inordinately long time.

Doe asserted that he was instructed to "falsify" health and safety problems and to "participat[e] in the coverups," presumably again by falsifying something. In our conversations, he gave two examples, neither of which seemed to me to be falsifications of anything.

---

<sup>4</sup> These matters are discussed in detail in part III.3 below.

<sup>5</sup> Fines were imposed five times during 1982 and 1983, for "visible emissions" from the Hospital incinerator.

- a. In the summer of 1987, the Air Resources Board (ARB) came out to Stanford to test incinerator emissions. The ARB reports the results of its tests to the Bay Area Air Quality Management District (BAAQMD). Doe had himself tested the emissions for hydrochloric acid with litmus paper; he asserts that three people told him not to report his findings to the ARB, and that this constituted falsification.

Since it is the ARB's function to perform the tests itself,<sup>6</sup> and since it was known to all that there was at the time some HCl in the emissions (the question for BAAQMD being whether the levels exceed acceptable standards), I cannot agree that the instruction, even if given, constitutes cover-up, falsification, or anything else improper. In the event, the HCl levels were not deemed unacceptable by BAAQMD.

- b. Doe had offered to be available to help in the preparation for a hearing before BAAQMD on the operation of the University's incinerator system, even though he had already resigned. When, in January 1988, the lawyer representing the University at the hearing phoned him to try to arrange to meet so that he could review the draft report, Doe refused to have anything further to do with the University. This phone conversation occurred shortly after Stanford's public release of the general allegations Doe had made and its announcement of the health and safety review. Doe erroneously believed that the Legal Office had revealed his identity to the press, contrary to his expressed wish.

He viewed this as unethical behavior and was very angry. Although Doe had not seen the draft report for the BAAQMD hearing, he assumed the report would be false and that legal counsel was directing him to acquiesce (although he acknowledges that the attorney said nothing to suggest this); he believed that having a conversation with a lawyer meant that any negative remarks he might make would be privileged and never made public. In any event, the report was an accurate description of problems with the

---

<sup>6</sup> John Doe states that he believes the ARB tests for toxins and not for HCl, and that he thought it was important to supplement its work by giving the information about HCl. The ARB's report, however, does include HCl.

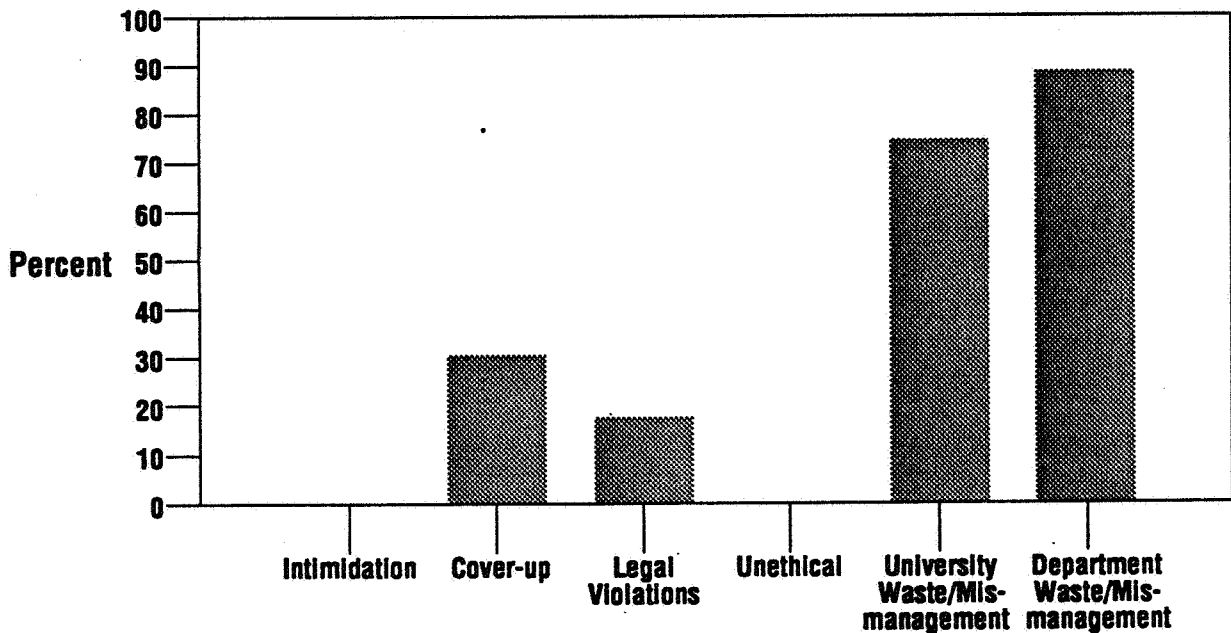


facility and steps taken to try to correct them. There was no falsification or attempt to falsify.

## 2. UNETHICAL BEHAVIOR

Doe felt so frustrated by what he perceived as Stanford's lack of responsiveness to problems he identified that he seemed to feel that the failure to accept his recommendations and act on them in the time frame he had recommended constituted "unethical behavior." I found this sweeping characterization unmanageable, and therefore investigated this allegation by interviewing all professionals and technicians in the Health and Safety Department. I asked each of them if they believed the University had engaged in any unethical behavior. Despite the fact that I had invited them to define "unethical behavior" as broadly as they wished, none of them knew of any case or believed that there were any cases where the University had acted unethically. Some of them, of course, disagreed with the University's priorities in particular cases. (See Figure 1, which shows that none of the professional staff believed the University acted unethically.)

**Health and Safety Department  
Confidential Interviews**



*This graph is derived from interviews with all 16 members of the professional staff of the Health and Safety Department employed at the outset of this investigation. Staff hired subsequently are not included in the sample. The figure illustrates the perceptions of the professional staff about the allegations treated in this report: None had experienced institutional intimidation; 31% believed there might be a coverup; 19% believed there were existing legal violations; none believed that the University acted unethically; 75% believed there was University level waste and mismanagement; and 88% believed there was departmental waste and mismanagement.*

### Allegation Topics

**Figure 1**

As for myself, I do feel that in one case the University acted unethically, although it is a close call. I believe that some time after the medical school and hospital incinerator problems had been identified as serious, the University should have stopped using these incinerators altogether (and used off-campus facilities until the new ESF was operational) or, at very least, given written notice of the possible hazards to all employees working in areas that might have been affected (rather than relying on the haphazard communications that occurred).

### 3. INTIMIDATION

Intimidation is the act of compelling or deterring an individual by threat. Doe cited numerous examples of ways in which he believed he was "intimidated," (paragraph a below) but in my view, only one of them actually constituted intimidation (paragraph b below).

- a. Doe considered that he was being intimidated by having many of his responsibilities gradually removed from him. Clients and management, on the other hand, came increasingly to disregard his advice because they found it not useful in addressing their problems. He did identify many significant health and safety hazards, but he failed to set priorities as to degree of hazard. As a result, clients and management stopped listening to him, even to evaluate whether he had valuable information to transmit, and many of his responsibilities were indeed gradually removed.

This is not intimidation. It is the normal result of a perception that an employee was not communicating in an effective way. In view of Doe's professional competence in identifying health and safety problems, however, I believe he should have received counselling to improve his communication skills or moved to a position where his abilities could be utilized while others took over the communication tasks.

- b. He had been given to understand that he would be fired if he spoke to the press about health and safety problems.

As to this, it is true that, after being informed that Doe had contacted the press about problems with a Stanford incinerator, the late Associate Vice President said Doe should be told that he would be fired if he went to the press again. It is also true, however, that this message was countermanded. This case is unique: No other employee reported being threatened with discharge if he or

she were to disclose problems. (See Figure 1). Nevertheless, although this was an aberration, I did consider it a case of intimidation, and believe that it warrants extended discussion, which follows below.

John Doe viewed his job as one of problem identification and expected simple, rigid compliance with his recommendations. He viewed himself as an expert in his area who performed his job with precision and conformity to rules and regulations. Some of his colleagues viewed him as the consummate professional. According to other colleagues and clients, he had a tendency to "overreact," providing "the worst case scenario." For example, he informed management that the defects in the Environmental Safety Facility incinerator (described in section IV.1 below) would lead to a "meltdown;" in fact, failure of the incinerator would cause the system to shut itself down, creating expense and inconvenience, but not the catastrophic dangers suggested by Doe's use of the term "meltdown." Few people doubted Doe's technical precision, but even colleagues who admired his professional abilities questioned his manner of presenting his findings.

Doe identified many health and safety hazards, ranging from serious problems such as reentrainment and incinerator defects in design and construction to minor ones like absence of lips on storage shelves and too many plugs in an outlet. Unfortunately, he presented the problems without providing a sense of proportion. His presentation created the impression that all the problems he identified were of equal significance and priority. Clients who requested guidance in assigning priorities to the problems complained that little help was forthcoming. Doe agrees with this characterization, explaining that he was capable of setting priorities for safety problems but considered those judgments to be political decisions and said he was "not political."

This failure to establish priorities was compounded by incidents in which some faculty clients felt that Doe used "scare tactics" to communicate his findings. For instance, in pointing out unsatisfactory laboratory practices, Doe often told people that all members of the department faculty could go to jail. Doe had been criticized in the past for the manner of his communication with other University departments, which was perceived by the other departments as efforts to frighten them rather than to provide help and advice.

Moreover, some members of management felt that Doe was simply saying the same things over and over again and that he had "no new news" to report. Management felt it had taken Doe's advice into account, weighed the options along with other considerations, and made decisions accordingly.

These differences of opinion and fundamental outlook between Doe and University clients and management frustrated all involved. Clients and management stopped listening to Doe's "doomsday" news, even when he had valuable information to transmit. At the same time, Doe became increasingly frustrated at the lack of responsiveness to his complaints. During this period, Doe had many of his responsibilities gradually removed from him.

While the relations between Doe and University management and clients deteriorated, there were also problems with the University's News and Publications Department concerning the opening of the new Environmental Safety Facility. The Provost's Office (Office of Planning and Management) asked News and Publications to write a story about the opening of the new Facility. The Director of News and Publications went over to the new facility and interviewed together the Health and Safety Department Director, the Associate Director, and Doe,<sup>7</sup> who was at the time responsible for operating the incinerator. During the interview, Doe recited a list of problems with the facility and several other buildings, with which the Health and Safety Director generally agreed. After the interview, Doe asked the reporter not to communicate this information to other parties in management or to identify the source of the information.

The reporter was worried by what he had heard, especially the allegations that individuals were at risk in campus buildings, and informed Doe that the reporter could not be expected to keep this kind of information to himself. The reporter shared the information with the Vice Provost for Planning and Management and later a member of the Vice-Provost's staff. Having passed on this information, the reporter dropped the story because of 1) time pressures, 2) prior indirect criticism from senior managers for raising similar safety-related issues in news reports,<sup>8</sup> and his belief that management was handling the matter.

Shortly after this event, the Provost's Office asked the News and Publications Department to send a reporter to ESF again to do a story on the incinerator, including a review of some of its problems. An intern reporter was sent this time, and Doe, once again, provided a litany of problems with the incinerator. When the

---

<sup>7</sup> The Director had invited John Doe to the interview. Doe had told the Director that he did not want to participate in the interview, but that if he did, he would answer any questions honestly -- including "all of the problems that existed" at the time.

<sup>8</sup> The reporter explained to me that the criticism was part of general criticism he had received for "meddling in other people's affairs."

intern returned with the information, her supervisor decided to pursue the story himself. He wrote a detailed story about the incinerator including a long list of its faults. It was sent to the Provost's Office and the Legal Office for review. The Provost's Office initially thought the news story was not sufficiently descriptive of the problems. Later, after revisions that described other problems with the facility, the Provost's Office suggested the story was too negative, rejected it twice, and asked for more "balance." The reporter decided to drop the story because he felt that if he "toned it down" any further he would not be providing a truthful rendition of the facts.

At about this time, during a facilities-related meeting, a member of the Provost's staff informed the late Associate Vice President of Administrative Services and Facilities (AS&F) that John Doe had contacted the Stanford News Office about the incinerator. Believing that Doe was circumventing normal procedures by improperly seeking press coverage, she thought Doe was out of line. The Associate Vice President knew that Doe had previously been counseled to follow the chain of command, and that established protocol in the Health and Safety Department, codified in its policy handbook, required that all communications with the press should be cleared through the Director. She accordingly instructed the Director of Health and Safety to inform Doe that he would be fired if he went to the press again. The Associate Vice President stated that she did not want the message to come from her or be attributed to her because she wanted the incident handled by the local supervisor.

The Associate Vice President said she wanted the Director of the Health and Safety Department to tell this individual "if you talk to the press one more time, you are out of here." She said she knew this ultimatum was "a bit harsh but he needs to know he cannot do this one more time without consequences." Following the staff meeting, the Director of Health and Safety met with Doe. There is some dispute about precisely what was said at that meeting, but Doe certainly emerged with the understanding that the Associate Vice President had said that if he ever went to the press again Doe would be fired.

Shortly after the Associate Vice President's outburst, the Vice President for Business and Finance learned of it and instructed the Associate Vice President to retract the threat. It is not known whether she ever formally did so.<sup>9</sup> A series of

---

<sup>9</sup> The threat was certainly retracted, explicitly and on the President's authority, when the President learned in January, 1988, that Doe still considered himself under orders not to speak to the press.

written and oral communications between Health and Safety management and Doe followed, circumscribing Doe's duties (he was taken off the emergency response team) and instructing him to follow office protocol about communication to the press. A month later, Doe submitted his December 9 letter of resignation (attached as Appendix A) which contained the allegations considered in this report.

As noted above, Doe characterized not only the threat of being dismissed but also the responses to dissatisfaction with his performance as "intimidation." He believes that being ignored and having his professional responsibilities diminished constituted "intimidation" for his "speaking out" and responding in what he perceived to be a "professional" manner, rather than a response to his rigidity and his not providing the kind of assistance his clients felt they needed. Doe's characterization may be understandable in light of his perception that he had pursued conventional channels apparently to no avail: There was no feedback loop to inform him about what had been done with his information. (I regard this as a serious communication problem and address it in my recommendations). He also felt a personal and professional duty to make sure no one was unnecessarily endangered. Finally, he claims that in a litigious environment, he also felt at personal legal risk if he did not make the information public and anyone was harmed.

An assessment of this situation requires some discussion about the role of a health and safety officer. This role is filled with a variety of obligations that may be in tension with, or even conflict with, one another. A Health and Safety Officer is charged with identifying, documenting, cataloging, and responding to problems. Management, however, is responsible for establishing priorities and time lines to respond to identified hazards. Management's response is based on the severity of the problem, availability of resources, and systemwide plans and activities. A difference of opinion often exists between management and a health and safety officer about the urgency required to respond to a given hazard. Arguments abound between the Health and Safety Department, Administrative Services and Facilities, the Provost's Office, and individual clients, each playing its part in a process in which resources are not adequate to respond to all needs.

No organization can function effectively under siege -- in fear of its own employees appealing to the press every time they feel problems are not being resolved in the way they have recommended and within their personal time lines. In this case, the Associate Vice President, rightly or wrongly, believed that Doe was attempting to circumvent the organization's decision-making processes. But threatening to fire him was nonetheless an act of intimidation.

## IV. MISMANAGEMENT AND WASTE

### *Overview*

I did find mismanagement and waste on both the University and Health and Safety Department levels. This finding results from the entire investigation, including not only the allegations of Doe, but other matters that emerged in the course of the study. I interviewed all sixteen of the Health and Safety professional staff, and their responses provide a useful barometer with which to gauge how broadly these concerns are shared: As Figure 1 shows, 75% believed there was university level mismanagement and waste (focusing on Facilities Project Management and the Health and Safety Department), and 88% stated there was departmental mismanagement and waste.

Management decision making, rather than technical examinations, were the focus in most of the topics in this review. A variety of Internal Audit findings, in combination with SRI site findings, formed a baseline for exploring management decision making in the area of health and safety.<sup>10</sup> This review makes a series of recommendations designed to provide a greater measure of accountability and to suggest some guidelines for the institution's health and safety agenda in the future.

On the university level, the most visible example of waste and mismanagement concerns the Environmental Safety Facility incinerator/scrubber. I studied this case most fully because there was a consensus that it was the most glaring example of the problems resulting from poor coordination between Facilities Project Management and the Health and Safety Department. The ESF incinerator/scrubber is the product of poor design, coordination, and installation, as evidenced by the abnormal number of problems associated with the construction effort.

Mismanagement and waste also occur within the Health and Safety Department. The problems, which range from minor to serious, display a pattern that has implications for institutional liability and productivity.

### *Specific Case Studies*

#### 1. THE ENVIRONMENTAL SAFETY FACILITY INCINERATOR

The incinerator cost the University \$1.5 million dollars. It is less than one year old. However, basic construction problems with the incinerator are apparent to the most casual observer. For example, one of the legs supporting the incinerator is approximately 4 inches off the ground. The bolt in the leg dangles in the air between the leg and the concrete slab below it, providing absolutely no support.

---

<sup>10</sup> See Fetterman, 1986, and SRI International, 1988.

Electrical conduit and gas lines are held up by bailing wire, plastic straps, and electrical tape. Galvanized steel pipes are connected to copper pipes. The corrosion resulting from these combinations is visually apparent. In addition, most of the bolts are rusted and conduit fittings around the scrubber are severely corroded. They are not made out of plastic or plastic coated.

The Health and Safety department made a number of recommendations to Facilities Project Management (FPM) designed to prevent some of these problems during the planning stage of the incinerator, but many of them were not adopted. In addition, weaknesses in the review process allowed inferior construction which exacerbated design problems.

**a. The Administrative Context**

FPM manages the construction of new facilities on campus -- from the initial planning stages to the completion of a project. The Health and Safety Department has a major role to play at each stage.

In most cases, FPM builds a facility for a University "client" that will use or occupy it: for instance, the Chemistry and Biological Sciences Departments were the clients when the Keck Building was built. In the case of the ESF project, the Health and Safety Department was itself the client, in addition to having its regular role as reviewer for health and safety matters.

Ideally, during the planning stages of construction, Health and Safety reviews are proactive, ensuring that safety is built into the construction process: Identifying safety hazards before a building is completed saves time and money in correcting problems after the fact. In fact, however, FPM is accountable for construction costs, which are measured against the approved budget for the project. Once construction is deemed completed, the cost of correcting problems is passed on to the client -- Health and Safety, in this case -- as part of the operation and maintenance of the facility. The interest of the University as a whole in efficiency and economy over the life of the facility may be overlooked in the parochial differences between FPM and the client about whose budget will be charged.

There is also a difference in focus between those responsible for construction (FPM) and those responsible for health and safety. FPM staff are strongly driven by pressures to meet deadlines and stay within budgets negotiated with the Provost's Office. Health and Safety staff identify problems and recommend solutions. The identification of problems can slow down construction and the solutions cost money. The role of the Provost's office is to mediate client needs and budget and scheduling pressures.



Structurally, FPM and Health and Safety are both parts of Administrative Services and Facilities (AS&F), the umbrella organization responsible for planning, building, operating, and maintaining University facilities. The late AS&F Associate Vice President once headed FPM, and many Health and Safety professionals viewed her as biased toward FPM concerns. Doe referred to this relationship as "the fox guarding the hen house."

**b. Planning and Coordination**

After extensive research, FPM selected Ecolaire Combustion Products, an incinerator manufacturer, to undertake the project. Brown and Caldwell (B&C) was hired as a consultant to assist in the preparation of applications and specifications for various permits to construct and operate the incinerator. B&C informed FPM that pollution control equipment -- wet scrubber, dry scrubber, or bag houses (that is, structures filled with bags to filter the material or effluent) -- would be needed. A wet scrubber was selected. It was state-of-the-art equipment, never before installed on a hospital-type incinerator on the west coast: it had the best pollutant-removing capability, and not only met, but exceeded, existing requirements. However, as the Director of FPM explained, "The major error which was made [at that time] was insufficient emphasis in the performance specifications by B&C on the operational, maintenance, and quality assurance aspects of the project. . . ."<sup>11</sup>

In any case, B&C prepared a performance specification for the incinerator/scrubber system, and FPM asked Ecolaire to submit a proposal for a "turnkey" project: a complete plan in which the same party is responsible for the design, procurement, fabrication, and installation of an entire system. This approach did not go smoothly, however. For one thing, Ecolaire did not have a California construction license. Consequently, Stanford contracted with Lloyd Aubry Company to handle the installation. Aubry in turn subcontracted with Contra Costa Electric to complete the electrical work. FPM treated this as a project for procuring and installing a piece of equipment; as such, the normal construction process for buildings was not applied. As a result, FPM

---

<sup>11</sup> Although the system is most effective when the scrubber is working, the incinerator alone is an extremely efficient burner, and was sufficient without the scrubber to meet all requirements extant when it was installed. Since certification was obtained on the basis of the incinerator and scrubber together, however, breakdowns of the scrubber constitute violations of the permit to operate.

was less effective in coordinating the supplier and installer than it should have been.

The incinerator system was built as if it were an ordinary commercial building rather than a heavy industrial, performance-driven system. The FPM manager assigned to the project lacked the industrial experience to coordinate and integrate all the contractors. Many building systems specifications were not appropriate for a hazardous waste facility (Building C).

FPM's organizational structure compounded the problem. FPM units are isolated and compartmentalized. There are three separate groups (engineering, construction, and project management), each reporting to separate managers without sufficient coordination of the effort as a whole. The three group managers are supposed to coordinate with the project manager, but because of changes in personnel during the course of the ESF project, no single party maintained overall authority, responsibility, and accountability.

#### **c. Electrical Problems**

Because of the number of electrical problems with the facility (in addition to the lack of weatherproofing mentioned above), they are listed in this separate section. Other, non-electrical, problems are listed in the next section.

i. One electrical box is mounted on a wall where rainwater flows directly over it. The box is severely corroded and will need to be replaced.

ii. Some electric wires are not labeled and do not lead anywhere. There is no accurate electrical schematic to identify the purpose of each wire.

iii. During a recent animal rights demonstration, the electric gate to the entrance of the incinerator area was damaged. When the incinerator manager attempted to shut the electricity off to fix the gate, he discovered that the circuit breaker for the gate also served the exhaust fan over chemicals. He could not shut the electricity off because the technicians rely on the exhaust fans to protect them from the fumes.

iv. There are two power lines going into the incinerator building. When one power line is shut off, it may appear that all the electricity coming into the building is off. In fact, however, the electricity to the scrubber remains on. This is a potentially dangerous condition that

should be corrected.<sup>12</sup>

v. Through a failure to consider all the programmatic functions the ESF would have to perform, the number of power lines provided for originally was insufficient. A decision was made not to run additional lines, but to use the same line for more than one task. As a result, if electricity is needed for the trash compactor, it is necessary to shut the cold storage room off. This configuration is like having to turn off your freezer in order to turn on your garage door opener.

vi. The sump pump control cabinet is rusted, and internal condensation is visible.

vii. The emergency power system has never been evaluated (tested under actual load conditions).

**d. Miscellaneous Additional Problems**

i. The auxiliary burner works only intermittently. Technicians use cardboard boxes and lighter fluid to light the incinerator burner.

ii. The magnehelic air flow meter, which informs technicians whether there is adequate air flow to prevent exposure to fumes, has never been connected because it is not compatible with the system requirements.

iii. There are several recognized and long-standing problems with the ram. The ram is used to clean out the incinerator chamber. It appears to have a variety of significant design flaws, including the fact that it does not extend far enough to clear the chamber. Moreover, the ram has routinely failed to function properly. Finally, when the ram is inoperative, the chamber cannot be cleaned, and new material cannot be burned. This situation leads to a hazardous waste backlog, which is unhealthy and potentially costly to clients in terms of substantial fines.

iv. As noted above, the scrubber is a technically sophisticated piece of equipment, the only one of its kind on a hospital-type incinerator on the west coast, and theoretically exceeds current pollutant-removing requirements. However, novel tools do not have a track record, and this one has had numerous difficulties, including poor workmanship. The wet scrubber was poorly assembled, which resulted in a series of breakdowns.

v. Concerning the stack, a decision was made to go with the least expensive substance -- replaceable carbon steel -- despite recommendations to select ceramic-lined stacks or, as a second choice, stainless steel alloy stacks. Use of carbon steel did significantly reduce construction costs. However, the savings to the University may be

---

<sup>12</sup> Several Stanford staff members informed me that this condition was in fact a violation of the National Electrical Code. But in checking the matter out with the cognizant county inspector, Stanford was informed that the condition was not and is not a code violation. This confusion among staff who are generally knowledgeable about electrical and engineering standards illustrates the complexity of these issues.

short-lived: The stack, less than one year old, already displays severe corrosion. This problem was foreseeable, although it may have been accelerated because the incinerator has not performed as anticipated. After-the-fact modifications and corrections represent an inefficient use of University resources. In addition, advice from Health and Safety as well as Hospital engineering staff during the planning stage to build a 60-foot stack was also not heeded. Instead a stack of approximately 40 feet was installed.

While many of the difficulties with the internal ram, the scrubber, and the stack could not have been foreseen, many others were identified as potential problems during the planning stage, and in at least some cases the decision not to accept alternative options was short-sighted.

This discussion is not intended as an exhaustive list of incinerator faults, nor, of course, is it a complete list of construction problems throughout campus. It is a case study to illustrate the problems that can arise when the department in charge of construction, the office responsible for health and safety, and the client, do not work together effectively. Already pressured to meet time lines and budgets, FPM complains that some clients do not know, or do not adequately communicate, all the functions they expect a facility to serve, and that the Health and Safety department only lists potential problems without providing reliable advice about their likelihood, their seriousness, or feasible solutions. Health and Safety feels that it is viewed as an obstacle rather than a participant, that its advice is ignored, and that it has responsibility without authority. Some clients complain that FPM "bulldozes" projects through, leaving them with inferior products full of problems that have to be corrected out of operating budgets when they should have been part of the construction costs.<sup>13</sup>

## 2. CARMA

As discussed above, one of Doe's cover-up allegations bears directly on the CARMA management decision-making activity. Although I determined that it was not a case of cover-up, it does show a management failure and is accordingly discussed here.

In 1984, the Health and Safety department created a computer data base (CARMA) in which its staff can enter any health and safety problems they identify. In principle, after completing an inspection, a Health and Safety professional enters the data, including a description of the problem, its location, and its severity, as

---

<sup>13</sup> A few Health and Safety professionals and FPM staff members have volunteered to me that institutional communication and cooperation have dramatically improved since the beginning of my investigation in March.

well as the University department believed to be responsible for correcting the condition. The entries are printed out and sent to the responsible department, and there is a field in each record for entering the date when the department corrects the problem. The individual entries in CARMA range from minor housekeeping problems such as storing paper on the floor to serious ones, including code violations.

John Doe was instrumental in designing this system, and most of the entries were made by him. A number of other professionals, including the University Fire Marshal, diligently recorded problems as well, but others did so only intermittently or not at all. There has been, moreover, very little follow-up on the identified hazards: the Health and Safety staff have not checked with the departments to find out what, if anything, has been done (19% of the professional staff were aware of code violations, primarily those in CARMA, that were being ignored; see Figure 1) -- nor have the departments, typically, reported back to Health and Safety. Of almost 5,300 entries in CARMA, only 173 record completion dates.<sup>14</sup> And although CARMA has been used to establish some health and safety priorities, University management has greatly underutilized its potential. This is a significant weakness in Stanford's health and safety system -- and was a source of considerable frustration for Doe.

There are many causes for the lack of responsiveness to identified problems. One, of course, is want of resources. Many departments simply do not have funds available to take the recommended steps -- to purchase expensive safety cabinets, for instance. Sometimes, even if the correction is affordable, it is not clear who is responsible for carrying it out and, if Health and Safety does not follow up, nothing gets done. There is no effective management structure for ensuring that departments either comply, or justify noncompliance, with Health and Safety's recommendations. Moreover, a cautious, skeptical, and at times adversarial faculty environment significantly impedes Health and Safety's mission on the academic side in particular. Steps have been taken to create a more responsive environment, including the promulgation of an interim health and safety policy statement by the President, a commitment to establish a university-wide health and safety committee, and efforts to make laboratory safety committees more effective. However, these efforts are still in the developmental stages.

---

<sup>14</sup> Others have certainly been corrected as well, but the numbers are unknown due to lack of follow-up.

### 3. STANFORD UNIVERSITY MEDICAL SCHOOL AND HOSPITAL INCINERATORS

Two incinerators are involved in this example, one on the 4th floor of the Boswell building (Medical School) and the other in the Central Core building (the Hospital incinerator). Neither is in operation any longer. As mentioned above, however, it is my personal opinion that maintaining them in operation for as long as we did raises ethical problems.

#### a. The Medical School Incinerator

There had been a history of intermittent complaints about foul odors emanating from the incinerator in the Boswell building. The complaints reached their height in late 1982, and in response the University Health and Safety Department investigated the problem. In December, 1982, Health and Safety found that the smell was a result of overloading the incinerator with too much waste material. The smell was traveling from the incinerator stack through the air supply system in the science building. This finding led to a much more significant question: Given that the incinerator was used to burn infectious materials, might incompletely burned material be entering the air supply system?

The emergence of this question led to a further investigation of the situation by FPM and Health and Safety, although the University's response was influenced by the fact that it had already made plans to replace the existing incinerator with a new facility (the ESF incinerator described above) within two years (that is, in 1984). Unfortunately, as a result of permit and construction problems, the ESF incinerator did not begin operating until 1987.

In May of 1983 the investigator, an FPM engineer, made a strong recommendation to Health and Safety: "discontinue incineration of infectious waste in [the] medical school at ONCE." He had found that the incinerator was burning infectious materials at half the residence time recommended by an external consultant for complete destruction. He acknowledged that he was not a safety expert, but noted that his recommendation was based on information from conversations with a representative of the incinerator manufacturer, the consultant's recommendations, and his own engineering experience. His report stated "It is my opinion, based upon the present information, that this incinerator might not be suitable for disposing of a certain class of hazardous 'infectious' waste." The medical school incinerator was not in fact designed to burn infectious material.

Based on this information and recommendation, the following steps were taken that same month (May, 1983): (1) the Director of the Health and Safety Department recommended to Medical School management that only non-infectious waste be incinerated, "until the Health and Safety Office determines the exact level of infectivity that can be safely handled by this type of equipment." Although records no longer exist, it appears that this directive was communicated, but that it may not have been uniformly observed; (2) various repairs and modifications of the equipment were recommended and completed; and (3) a consensus was reached to recommend to the Hazardous Materials Quintet (an ad hoc group formed to address new hazardous materials regulations) that "the management and incineration of animal waste disposal be centralized and included in the ESF project." As noted, the ESF was expected to be in operation in 1984.

**b. The Hospital Incinerator**

Also in May of 1983, while these short and long-range plans were being established to resolve the problem with the medical school incinerator, the project engineer documented a number of mechanical and operational problems with the Hospital incinerator. One of the most serious involved "smoke flowing back into the room." The engineer was concerned that "this situation could be hazardous due to the material carried with the smoke." The problem was probably the result of old and deteriorated equipment, compounded by poorly trained operators who stuffed the incinerator with too much material at one time, lowering the temperature. This produces incomplete combustion which in turn results in smoke and contamination. The engineer recommended various modifications of the equipment and its operation. Although again, there is little written record remaining after so many years and so many personnel changes, I did manage to interview some of those who were responsible for the incinerator at that time. It appears that minor repairs and modifications were made as short-term solutions.

Complaints about illnesses attributed to the ventilation system and "incinerator soot fallout in the patio area" were lodged with the offices of Health and Safety and Operations and Maintenance from 1983 to 1985. Little appears to have been done about these complaints; again, the ESF was expected to be operational soon, although the anticipated date kept receding. In September 1985, however, Health and Safety received several complaints from the departments of Respiratory Medicine and Neurology, which are

located in the vicinity of the incinerator stacks; University Risk Management, to which Health and Safety then reported, responded to these complaints. The Director accurately characterized their concerns as complaints "about the possible existence of airborne contamination which may manifest itself in the form of respiratory distress and elevated levels of illness." Risk Management's response to them was clear and to the point: "While other sources of the problem may exist, research thus far identifies the most probable cause to be due to reentrainment of the Hospital's incinerator smoke and fume hood effluent off the roof. . . . Lastly, you should be aware that both incinerators in the Medical Center [i.e., the Hospital and the Medical School incinerators] will be discontinued as soon as the Environmental Safety Facility incinerator is operational in the fall of 1986." The memorandum from the Director of Risk Management also said, "personnel from these areas [Neurology and Respiratory Medicine] may arrange with their own physician for a medical checkup at Stanford's expense."

In further response to these complaints, beginning in September of 1985, Health and Safety met with various Hospital and University personnel, undertook another internal investigation into the complaints, and commissioned a proposal from an independent consultant. (The study he proposed was not funded because of a dispute between the University and the Hospital -- which is a separate corporation -- about who would pay for it.) Also in September, 1985, Health and Safety conducted tests for asbestos, dust, radioactives, and metals; their results did not indicate high concentrations of any of these materials. The Bay Area Air Quality Management District recommended some repairs and modifications to improve combustion, and the Hospital followed these recommendations as they were made. In addition, in November, 1985, the air system was upgraded to improve its operational efficiency.

Complaints continued, however, and in August 1986, Health and Safety held another meeting with Respiratory Medicine and Neurology to discuss employee symptoms experienced in the "work environment over the last couple of years." They also met with Pulmonary Physiology and other departments. The University Health and Safety department recommended to the Hospital Health and Safety department that there be additional study of the air quality in the area of the incinerator. Some further investigation was in fact done at this time, but once again in the context of expectations that the new incinerator would finally be operating shortly.



The ESF incinerator did begin operating in about February 1987. The Hospital incinerator was closed down at that time, although it was used once during problems with the ESF scrubber. After that experience, Hospital management notified ESF management that the Hospital incinerator would not be used again under any conditions.

As indicated above, the Bay Area Air Quality Management District was aware of the Hospital incinerator problem; it fined Stanford Hospital five times in 1982 and 1983 for air pollution -- "visible emissions."

Apart from the air pollution issue, however, there was the problem of reentrainment. The Hospital incinerator, unlike the one at the Medical School, was designed to burn infectious waste; but it was old and badly deteriorated. Despite many modifications made in an attempt to meet increasingly stringent standards, it did not completely destroy infectious wastes or the by-products of technological advances such as the plastics increasingly used in medical research. Although the tests performed by Health and Safety did not isolate any specific agents or organisms that could be linked to the reported symptoms, management knew of the reentrainment, and knew that it might have contributed to those symptoms.

In short, Stanford attempted to address the incinerator problems by investigating complaints, by making repairs, and by building an appropriate (and centralized) incinerator facility. The lengthy duration of the problems can be explained only by the continued expectation, constantly proved false, that the new incinerator would soon be operating. Regardless of good intent, however, the process took much too long.

I think that after it became apparent that the problems existed and would not be solved for some time, all employees working in the affected areas (rather than just those who complained) should have been informed in writing about the problem; while Stanford did not make a concerted effort to conceal, it did not make a concerted effort to reveal.

More fundamentally, however, after the first few years, other alternatives should have been considered. Although no one could have anticipated how long it would take to get the new incinerator into operation, and although the Hospital's decision not to make major and expensive repairs on an antiquated piece of equipment seems correct, it might have been possible to shut the facility down and ship wastes to an off-campus disposal plant. The Hospital should have searched for such possibilities rather than looking only to band-aid solutions. It is troubling and

worthy of self-reflection that wishful thinking about the time line for operating the new incinerator superseded concern for the well-being of the campus community.

#### 4. MISMANAGEMENT AND WASTE AT THE DEPARTMENTAL LEVEL (Health and Safety Department)

My entire investigation has led me to conclude that the Health and Safety department is plagued with difficulties resulting from mismanagement and waste (in the sense of suboptimal use of available resources). My conclusion is based on findings that are not limited to one or two individuals, but are pervasive throughout the department. The details, which range from very minor lapses to serious problems, concern the performance and assignments of particular individuals. Some of the specific problems were corrected as soon as they were identified, but all have been reported to the employees involved and to management for consideration and appropriate action.

This section illustrates the pattern that emerged from my study. I do not include the details reported to management, since assessments of individual performance should not be included in a public report.

On the most general level, the issues involve the inconsistent application of department and university policies and regulations; defects in supervision leading to poor morale,<sup>15</sup> poor performance, and uneven productivity; lack of agreement on department goals and insufficient participation in establishing them; lack of training; and ineffective marshalling of the talents of the staff. More specifically:

a. The staff accountability system is poorly designed and inconsistently followed.

b. Screening practices used to hire staff members have been haphazard. Some individuals do have the appropriate background and experience to handle their tasks; but others lack some of the skills requisite to function effectively in their positions.

c. In making specific assignments, staff are sometimes assigned to tasks that demand skills they do not have and fail to take advantage of the skills they do have. In other cases, assignments overlap unnecessarily. There is no mechanism for identifying these inefficiencies and correcting them.

---

<sup>15</sup> For example, inconsistent direction, poor communication, overbearing manners, and destructive rather than constructive criticism, were all complained of. These were perceived, in some cases, as both intimidating and demeaning, but I did not consider this "intimidation" as defined in Section III.3. above, nor in the sense the word was used by Doe who, indeed, was among those felt by some staff members to behave in an intimidating manner.

d. There is little feedback to the staff concerning responses to their recommendations, or time lines for correcting problems they identified. Thus, having heard nothing of steps taken or planned, some employees believed there might be a cover-up concerning the ESF, Medical School, and Hospital incinerators. (See Figure 1).

e. There is also a lack of supervised training and counselling, and a lack of clarity and stability in the department structure.

As noted above, in the course of the evaluation, I conducted confidential interviews with 100% of the professional staff. The results were very consistent with the outline of problems presented above. (See Figure 1).

## V. RECOMMENDATIONS

### 1. UNIVERSITY WIDE:

- a. A management system should be established which reconciles programmatic objectives, health and safety requirements for achieving those objectives, and budgetary and scheduling concerns in light of the University's overall interests. This will entail clear assignment of accountability.
- b. The functions performed by the Health and Safety Department and Facilities Project Management must be coordinated in a cooperative manner. A team effort should replace the current adversarial approach.
- c. An effective communications mechanism should be developed to assure the timely exchange of pertinent information among the staff in the Provost's Office, the Health and Safety Department, and Administrative Services and Facilities. Health and Safety staff members should be informed if their recommendations are going to be adopted; if not, why not; and what priority specific problems will receive. There should be structural provision for appeals to senior levels of University management in the event that agreement is not reached at the working level.
- d. Senior Health and Safety officials should have formalized access to the President on matters of urgency and importance that in their judgement cannot be resolved expeditiously through normal channels.
- e. Attention should be given to coordinating the efforts of departments with related concerns, such as Health and Safety and the Health Physics department.
- f. The University should develop clear health and safety policies and procedures and provide for their ongoing review.
- g. Management should undertake a thorough internal review of Facilities Project Management.

2. HOSPITAL:

- a. The Hospital administration should improve its communication within management and with other Hospital employees about health and safety matters.
- b. The Hospital and the University need to develop a method for assuring that disputes about the source of funding do not prevent or delay health and safety initiatives.

3. ENVIRONMENTAL SAFETY FACILITY:

- a. A plan should be developed for the prompt correction of defects in the ESF incinerator/scrubber system, the monitoring of staff performance, provision of any training necessary to operate the new equipment, and review of ESF staff assignments with particular attention to incinerator operation and emergency response system.
- b. In anticipation of periods when the incinerator may be inoperable, alternative strategies for waste disposal should be developed.

4. HEALTH AND SAFETY DEPARTMENT:

- a. Health and Safety should develop a reliable internal system of staff accountability.
- b. Senior management should take appropriate action to restore a climate conducive to productive activity. This would include improvement of the hiring process, selection of employees for technical competence as well as cooperativeness and proper communication skills, and provision of better technical and managerial training for staff.
- c. If CARMA is to be continued in operation, the database should be updated and kept current, and unresolved problems should be followed up on a routine basis.

## REFERENCES

- Fetterman, D.M. *Health and Safety Department Audit*. Stanford, CA: Stanford University Internal Audit Department, 1986.
- Fetterman, D.M. Ethnographic Educational Evaluation. In G.D. Spindler (ed.) *Interpretive Ethnography of Education: At Home and Abroad*. Hillsdale, NJ: Lawrence Erlbaum Associates, Publishers, 1987.
- Fetterman, D.M. *Ethnography: Step by Step*. Newbury Park, CA: Sage Publications, in press.
- Peterson, D. *Techniques of Safety Management*. New York, NY: McGraw-Hill Book Company, 1978. (This book provides a useful discussion of health and safety committees.)
- Peterson, D. *Analyzing Safety Performance*. New York, NY: Garland Publishing, Inc., 1980.
- SRI International. *Review of the Health and Safety Program. Prepared for: Stanford University Internal Audit Department*. Menlo Park, CA: SRI International, February 17, 1988.

## APPENDIX A

[This is the text of the letter from a then Stanford employee that prompted the Health and Safety Review. The name of the author of this letter has been withheld at the author's request.]

December 9, 1987

I have been a dedicated and very hardworking Stanford employee for nearly five years. The objective of my work was the protection of Stanford's assets and interests. By virtue of both experience and education, it is work for which I was reasonably well qualified.

As part of my work, I have identified significant levels of waste and mismanagement which have cost Stanford millions of dollars and resulted in the unnecessary endangerment of Stanford's faculty, staff, students, and visitors as well as the violation of Federal, State, and local laws.

Attempts to address these concerns within the system have for the most part been a failure. If the consequences of these concerns were not so serious, perhaps this would be acceptable. However, this is not the case. While neither I nor anyone else can fully assess the adverse effects of these concerns on the University I think it is reasonable safe to say they are significant.

Since many of my concerns reflected adversely on the personal interests of certain administrators and my responsibilities to the University and my profession prohibited me from participating in the cover-ups, I have been the subject of a great deal of intimidation. Although I did not like such an adversarial relationship, as a safety professional I was required to act in the best interest of all concerned regardless of the personal consequences.

While I have had to accept these conditions in order to fulfill my professional responsibilities, I can no longer accept the continuing mismanagement and unethical behavior which both wastes Stanford's resources and more importantly unnecessarily endangers the health and welfare of its personnel.

Accordingly, since I cannot ethically, morally, or legally condone many of Stanford's current facility, services, or safety practices, and I will not falsify or cover-up genuine health and safety concern as instructed, I am hereby forced to submit my resignation (effective February 29, 1988).

Although I deeply regret having to resign, I can no longer participate in an organization which demonstrates such a careless disregard for the law, its own resources and the welfare of its own personnel.

Stanford has some good people. Unfortunately, there are those who place personal gain and political opportunism above their professional and moral responsibilities. Regrettably, it appears as if both the University and many of its personnel will pay a high price for this mismanagement.

In Stanford's best interest, I offer the following suggestions for consideration and evaluation to help reduce some of the concerns I have noted.

When serious health and safety concerns are uncovered (i.e., leaking poison gas under the swim stadium, Stauffers' reinstatement of hazardous chemical effluents or potentially infectious waste discharges over the Medical Center), actions to mitigate the hazards should be taken as soon as possible instead of waiting years. If this is not possible, exposed personnel should at least be advised of the hazard

Departments (i.e., Health and Safety) which have evaluation responsibilities should not report to the department they are supposed to evaluate (i.e., Facilities and Services). Not only is this a conflict of interest, but it promotes cover-ups (i.e., instructions from my supervisor not to discuss serious building design deficiencies with other Stanford departments or "I will be fired"). Pursuant to generally accepted safety management principles, the Health and Safety Department should report to the President or Provost.

A system of accountability for facilities, services and safety should be established whereby individuals who knowingly and unnecessarily endanger personnel or repeatedly demonstrate a significant degree of professional incompetence can be held accountable (i.e., permitting the use of the Environmental Safety Facility's hazardous waste incinerator, knowing full well that scores of design and manufacturing defects made it unsafe to operate. Such actions not only caused over 200 malfunctions and a near melt-down, but came very close to costing a man his life in an explosion. Failure to implement such a system not only jeopardizes personnel's health and welfare, but Stanford's financial and public interests as well.

If purely political appointments for technical positions can not be avoided, individuals for such positions should at least be technically literate or experienced. Such a requirement would help serve as a check on in house staff, consultants and special interests and avoid the significant waste and mismanagement of Stanford has experienced over the last few years (i.e., the Environmental Safety Facility, Keck Chemistry and the Center for Integrated Systems Buildings). It is estimated that this recommendation alone might have saved Stanford in excess of \$10 million dollars.

Stanford should employ a qualified systems engineer to establish real standard for building systems and equipment. Such an individual could significantly reduce the waste so prevalent in designing and outfitting new buildings (i.e., lighting, heating, cooling, ventilation).

Internal debate should be facilitated instead of stifled (i.e., excluding a safety engineer from biological sciences building design meetings because he voiced justified concerns over the building intake and exhaust systems. It might be added that if he had been listened to a reported one million dollars in redesign expenses might have been saved.)

While I bear no ill will toward the University, I feel it is incumbent of me as the only Certified Safety Professional on the staff to at least make the University aware of the full extent of my concerns.

Accordingly, I respectfully request the opportunity to give a confidential presentation consisting of about 250 slides and documents to Stanford's Board of Trustees detailing some of the facility, service, and safety concerns I have recorded over the last five years.

Sincerely,



## APPENDIX B

The following is a summary of the actions being undertaken or already completed to address the problems identified in Part IV, Section 1:

### General Problems

o Problem:

One of the legs supporting the incinerator is approximately 4 inches off the ground.

Status:

The leg in question supports part of the ram assembly for the incinerator. It has been adjusted so as to provide the support required. In addition, the entire ram assembly will be replaced during a major shutdown in November.

o Problem:

Electrical conduit and gas lines are held up by bailing wire, plastic straps, and electrical tape.

Status:

A contractor is under contract to provide proper support for conduits and pipes. Work should be completed by August 2, 1988.

o Problem:

Galvanized steel pipes are connected to copper pipes.

Status:

In most cases this condition will not result in significant corrosion problems. In cases where it is considered to be a problem, modifications will be accomplished.

o Problem:

Around the scrubber, most of the bolts and conduit fittings are severely corroded.

Status:

Bolts and conduit fittings will be replaced as required.

## Electrical Problems

o Problem:

One electrical box is mounted on a wall where rainwater flows directly over it. The box is severely corroded and will need to be replaced.

Status:

A contractor is under contract to relocate the box and to replace all damaged components. This work should be completed by August 2, 1988.

o Problem:

Some electric wires are not labeled and do not lead anywhere. There is no accurate electrical schematic to identify the purpose of each wire.

Status:

A major shutdown of the facility is scheduled for November when ECP will properly identify all wiring and will remove any wires that are not being used.

o Problem:

During a recent animal rights demonstration, the electric gate to the entrance of the incinerator area was damaged. When the incinerator manager attempted to shut the electricity off to fix the gate, he discovered that the circuit breaker for the gate also served the exhaust fan over chemicals. He could not shut the electricity off because the technicians rely on the exhaust fans to protect them from the fumes.

Status:

There is a properly installed electrical disconnect adjacent to the gate which is to be used to disconnect the gate while work is being done.

o Problem:

There are two power lines going into the incinerator building. When one power line is shut off, it may appear that all the electricity coming into the building is off. In fact, however, the electricity to the scrubber remains on. This is a potentially dangerous condition that should be corrected.

Status:

A program to install all the proper labels is underway. Because some modifications of the wiring are anticipated during the November shutdown, some interim labeling will be required.

o Problem:

Through a failure to consider all the programmatic functions the ESF would have to perform, the number of power lines provided for originally was insufficient. A decision was made not to run additional lines, but to use the same line for more than one task. As a result, if electricity is needed for the trash compactor, it is necessary to shut the cold storage room off. This configuration is like having to turn off your freezer in order to turn on your garage door opener.

Status:

During the construction phase, an electrical outlet for a compactor was inadvertently deleted. This compactor is supplied and used by a vendor on a periodic basis in Building C. Due to a shortage of extra power in Building C, a decision was made in concurrence with Health and Safety to use an existing circuit knowing that this one circuit was not sized to handle both the refrigerator and compactor at the same time. While this situation is cumbersome, it is not a major operating issue.

o Problem:

The sump pump control cabinet is rusted, and internal condensation is visible.

Status:

A contractor is under contract to relocate the box and to replace all damaged components. This work should be completed by August 2, 1988.

o Problem:

The emergency power system has never been evaluated (tested under actual load conditions).

Status:

The system was tested two times but failed to pass. Corrective action is being taken at this time. In November when the performance test plan is executed, the emergency power system will be tested and its correct operation verified.

### Miscellaneous Additional Problems

o Problem:

The auxiliary burner works only intermittently. Technicians use cardboard boxes and lighter fluid to light the incinerator burner.

Status:

In November, ECP will install a push button system to light the burner.

o Problem:

The magnehelic air flow meter, which informs technicians whether there is adequate air flow to prevent exposure to fumes, has never been connected because it is not compatible with the system requirements.

Status:

The system has been redesigned and the necessary repairs are being completed by a plumbing contractor.

o Problem:

There are several recognized and long-standing problems with the ram. The ram is used to clean out the incinerator chamber. It appears to have a variety of significant design flaws, including the fact that it does not extend far enough to clear the chamber. Moreover, the ram has routinely failed to function properly. Finally, when the ram is inoperative, the chamber cannot be cleaned, and new material cannot be burned. This situation leads to a hazardous waste backlog, which is unhealthy and potentially costly to clients in terms of substantial fines.

Status:

During the shut down in November, it is intended to install a new, redesigned ram.

o Problem:

As noted above, the scrubber is a technically sophisticated piece of equipment, the only one of its kind on a hospital-type incinerator on the west coast, and theoretically exceeds current pollutant-removing requirements. However, novel tools do not have a track record, and this one has had numerous difficulties, including poor workmanship. The wet scrubber was poorly assembled; which resulted in a series of breakdowns.

Status:

For the past four months, the scrubber has been functioning satisfactorily. Its reliability is still in question, therefore, it is constantly being monitored and contingent plans are being investigated.

o Problem:

Concerning the stack, a decision was made to go with the least expensive substance -- replaceable carbon steel -- despite recommendations to select ceramic-lined stacks or, as a second choice, stainless steel alloy stacks. Use of carbon steel did significantly reduce construction costs. However, the savings to the University may be short-lived: The stack, less than one year old, already displays severe corrosion. This problem was foreseeable, although it may have been accelerated because the incinerator has not performed as anticipated. After-the-fact modifications and corrections represent an inefficient use of University resources. In addition, advice from Health and Safety as well as Hospital engineering staff during the planning stage to build a 60-foot stack was also not heeded. Instead a stack of approximately 40 feet was installed.

Status:

The accelerated corrosion of the stack was caused by reheat burner malfunction and an internal liner that was used to reduce the plume. The liner experiment failed and was therefore removed. A Form I is being generated to look at a method of reducing the heat exposure to the scrubber and exhaust stack. By reducing the amount of heat, there is the potential to use a non-metallic type of stack.

A new steel stack has been installed as an interim solution for safety reasons.

A tracer gas test has been implemented to determine if there are any ambient air problems in the area. When the results are available in late August, the stack height will be re-evaluated.