

# **U.S. CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD**



## **BUDGET JUSTIFICATION**

**Fiscal Year 2004**

# **FY 2004 Budget Request**

## **Summary**

The U.S. Chemical Safety and Hazard Investigation Board (CSB) dramatically increased its activity in the last year. President Bush appointed a full complement of Board members, and the agency hired a Chief Operating Officer and added seven people to its investigative staff. Since the appointments of Board members and hiring of staff, the agency has increased its investigations initiated from three per year to five in the past six months. Investigative reports have increased from one or two issued per year to five in the past year. The number of recommendations went from 15 per year to 67 in FY 2002. Most importantly, the agency is receiving excellent cooperation from industry, with only two negative responses to its 141 recommendations. Corporate process safety managers have told us that the information and messages delivered in our reports provide them significant help in preventing other major accidents.

In September 2002, the CSB issued its most significant report to date, a report on the hazards of reactive chemicals. The issues raised in the report received major attention in New Jersey, Delaware, and Texas, sites of major chemical industry incidents. Senators Lautenberg, Corzine, and Biden and Representative Castle spoke at Board meetings on this report and on an incident at Motiva Enterprises in Delaware, which occurred during the study. The report recommended that EPA and OSHA revise their rules to cover reactive hazards, and the report has been well received by industry, labor, and safety advocates.

For fiscal year (FY) 2004, the Board requests a budget of \$9 million to support this increased level of work. During FY 2004, CSB will conduct 12 new chemical accident and hazard investigations. The proposed FY 2004 budget of \$9 million represents an increase from the appropriation of \$7.85 million for FY 2002, reflecting necessary support for the full complement of staff and the increased investigation activity level.

## **Recent Progress – 2002**

During FY 2002, the agency achieved all of its principal performance goals for the year, completing four accident investigations and a special investigation on reactive hazards, and initiating four new investigations. The special investigation led to the Board's first major recommendations to EPA and OSHA for improvements to their process safety rules. Also during FY 2002, the CSB's recommendations program was formally inaugurated, patterned on a highly successful program at the NTSB. By year's end, over 30 CSB safety recommendations had been successfully closed through new safety actions by recipients.

Numerous internal management improvements were also instituted during FY 2002, in part as an outgrowth of work by the CSB Inspector General (IG). Ten management recommendations from a March 2002 IG report were all successfully implemented by

the agency by the end of the fiscal year. Among the changes, CSB developed new legal procedures for handling vacancies in the Chair; expanded delegation to the COO and the career staff; improved tracking of staff time and resources; and streamlined its strategic goals, office structure, and prevention promotion program. CSB also successfully petitioned OPM for special hiring authority to fill numerous vacancies in its investigations and recommendations programs. CSB also accepted six new IG recommendations to improve our human resources management and will fill a new position of human resources manager during FY 2003.

Following are brief summaries of our major work during the year.

### **Bethlehem Steel**

On February 2, 2001, two workers at the Bethlehem Steel Corporation Burns Harbor Division Mill in Chesterton, Indiana, were fatally burned when a pipe doused them with a highly flammable liquid. Four others were injured, one with serious internal burns. CSB responded immediately, ultimately sending seven investigators to the scene. Eleven months later, CSB issued its final report on the case, noting significant systemic problems in how the large facility planned and supervised hazardous maintenance operations. The report with its ten safety recommendations earned praise not only from survivors, but also from the Bethlehem Steel Corporation, which stated: "The Board's findings are both fair and accurate. We appreciate their help and expertise in response to the incident. Furthermore, we believe that all of the Board's Recommendations already have been implemented or are in the process of being implemented at Burns Harbor." This report was completed in less than one year, thereby achieving a goal we set for ourselves.

### **Concept Sciences Inc.**

An incident case study issued in 2002 examined an explosion involving hydroxylamine, a semiconductor manufacturing aid that is unstable in high concentrations. The massive blast occurred at a Pennsylvania start-up company, Concept Sciences, Inc., that was testing a new manufacturing process for the chemical. Although the explosive properties of hydroxylamine were known, the plant was sited in a light industrial park adjacent to unrelated businesses. Four workers were killed, as was an employee of the adjoining company. CSB issued a bulletin which drew attention to the importance of safely locating highly hazardous chemical manufacturing operations.

### **BP Amoco**

On March 13, 2001, three workers were killed as they opened a process vessel containing hot plastic at the BP Amoco (now Solvay Advanced Polymers, L.L.C.) plant in Augusta, Georgia. The workers were killed when the partially unbolted cover blew off the vessel, expelling hot plastic. The Board report, issued in May 2002, found that the accident could have been avoided if the firm had instituted safety procedures to monitor the chemical reaction that caused the ejection of the cover. The Board issued

eight specific recommendations to the company to prevent a similar incident in the future and urged other interested organizations to communicate the results of the investigation to their members.

## **Motiva**

On July 17, 2001, one employee was killed and eight others injured when a sulfuric acid storage tank exploded and collapsed at the Motiva Enterprises LLC Delaware City, Delaware, Refinery. The Board found that a spark from carbon-arc welding equipment ignited flammable vapors in the storage tank.

The Board identified significant deficiencies in Motiva's mechanical integrity program. The Board added that the incident likely would have been prevented if good safety management practices had been properly implemented at the refinery.

Among several recommendations to the Company, the American Petroleum Institute, and others, the Board urged OSHA to extend its Process Safety Management standard to cover atmospheric storage tanks connected to certain hazardous manufacturing processes.

Senator Biden and Congressman Castle attended the Board meeting in Delaware on August 28, 2002. In statements to the Board, they and Senator Carper expressed strong support for our report on the incident.

## **Reactive Chemicals**

Following the final report in August, 2000 on an incident at the Morton Chemical Plant in New Jersey, the Board began an intensive study of 167 serious reactive chemical incidents over a 20 year period from 1980 to 2001. On May 30, 2002, in Paterson, New Jersey, the Board held a hearing on the data in its study. The Board found serious gaps in both industry and government regulations. Senator Corzine and former Senator Lautenberg testified to the Board in support of our investigation into this important subject.

On September 17, 2002, in Houston, Texas, the Board issued its final report. In it the Board recommended that OSHA amend its Process Safety Management standard to achieve more comprehensive control of reactive hazards that have catastrophic consequences. It also asked EPA to revise its chemical Accident Prevention Programs to include certain reactive hazards. It further requested the National Institute of Standards and Technology to develop and implement a publicly available database for reactive hazard test information. There were also recommendations directed to several trade associations, unions, and other private organizations.

## **New Investigations**

The Board initiated four new investigations during FY 2002.

The first involved a hydrogen sulfide gas leak at the Georgia Pacific paper mill near Pennington, Alabama, on January 11, 2002, that killed two workers and injured a dozen others. On November 20, 2002, the Board held a public meeting and issued a final report. Again, the Board completed this investigation and issued its recommendations in less than a year.

The Board concluded that plant management had not followed good engineering and process safety practices when they earlier connected a drain from a tank truck unloading area into an acidic process sewer system. On the day of the incident, sodium hydrosulfide a process chemical that had spilled in the unloading area reacted to release deadly hydrogen sulfide gas when it contacted acidic material in the sewer. The toxic gas vented from the sewer through a nearby fiberglass manhole cover and engulfed the workers. The two deaths and all but one of the injuries occurred among employees of a contractor who were working in the vicinity on an unrelated construction project.

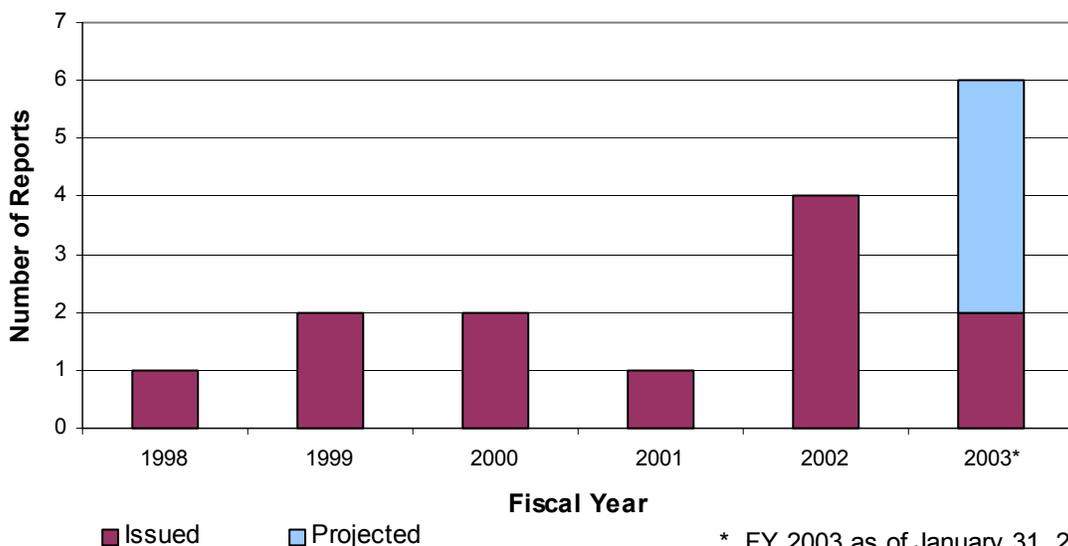
Another investigation concerned a chemical explosion that occurred in a building in the Chelsea section of New York City on April 25, 2002, that heavily damaged a 10-story loft building and injured over 40 occupants, 12 critically. The blast took place in a space leased to the Kaltech Company, a sign-manufacturing firm.

A third investigation involves a chemical plant fire that destroyed the facilities of the Third Coast Packaging Company near Houston, Texas, on May 1, 2002. The fire generated a cloud of thick, black smoke that required the evacuation of about 100 people within a one-mile radius of the plant.

The fourth concerns a substantial chlorine gas leak at the DPC Enterprises plant in Jefferson County, Missouri, about 30 miles south of St. Louis, on August 14, 2002. Following the incident, several people living near the facility complained of bronchitis and other respiratory ailments.

On December 4, as a result of the investigation into the incident at the DPC plant, near St. Louis, the Board issued a safety advisory to users of chlorine gas to check the construction of transfer hoses to assure they are manufactured with the proper material to prevent gas leaks.

### Number of Investigation Reports Issued by Fiscal Year As of January 31, 2003



### **A Strong Start in FY'03**

During FY'03 the Board plans to increase its investigation output significantly. The Board is off to a quick start.

On October 23, the Board initiated an investigation into a distillation tower explosion at the First Chemical Corporation plant near Pascagoula, Mississippi. On January 15, 2003, two Board members and a staff member gave an interim report to the community on the progress of our investigation into this incident.

As noted above, the Board issued a report and recommendations on the Georgia Pacific incident on November 20, 2002. It also made an interim report and issued a warning on construction of chlorine gas transfer hoses in October and December 2002, respectively.

Growing out of the Georgia Pacific incident, the Board voted to undertake two new hazard studies. One is of toxic gas releases from chemical facility sewer systems and a second involves the handling of sodium hydrosulfide, the chemical involved in the Georgia Pacific incident.

The Board has spearheaded government efforts at better interagency coordination on chemical safety. For example, the Board organized (with EPA and OSHA) a multi-stakeholder roundtable in Washington on November 14, 2002, to discuss ways to improve the timely reporting of chemical accidents to EPA. The day-long meeting ended

with widespread consensus on improving the existing system, which will allow government agencies and the industry to better measure progress in reducing accidents.

In another effort to improve coordination among agencies involved in chemical process safety, the Board co-hosted a meeting in December that included OSHA, ATF, EPA and NTSB to discuss handling legal and technical issues involving past chemical incidents and potentially safer designs for chemical facilities in the future.

The Board is conducting an initial investigation into an incident at the Catalyst Systems Division of U.S. Chemicals and Plastic Corporation in Ohio that occurred on January 3, 2003. An explosion blew the lid off a drier within the plant, sending the lid through a wall into another part of the plant. The explosion resulted in an injury and damage to the plant. At this time the initial investigation is continuing

On January 14, the Board initiated an investigation into an explosion and fire that killed two workers and injured two others at the BLSR Operating facility near Houston, Texas. The incident occurred at an oil field waste storage area.

On January 29, the Board launched an investigation into the explosion and fire at the West Pharmaceutical Services plant in Kinston, North Carolina. The Board team included the Chair, another Board member, the Chief Operating Officer and six accident investigators. Initial reports indicated the incident resulted in multiple deaths and injuries and destruction of the plant.

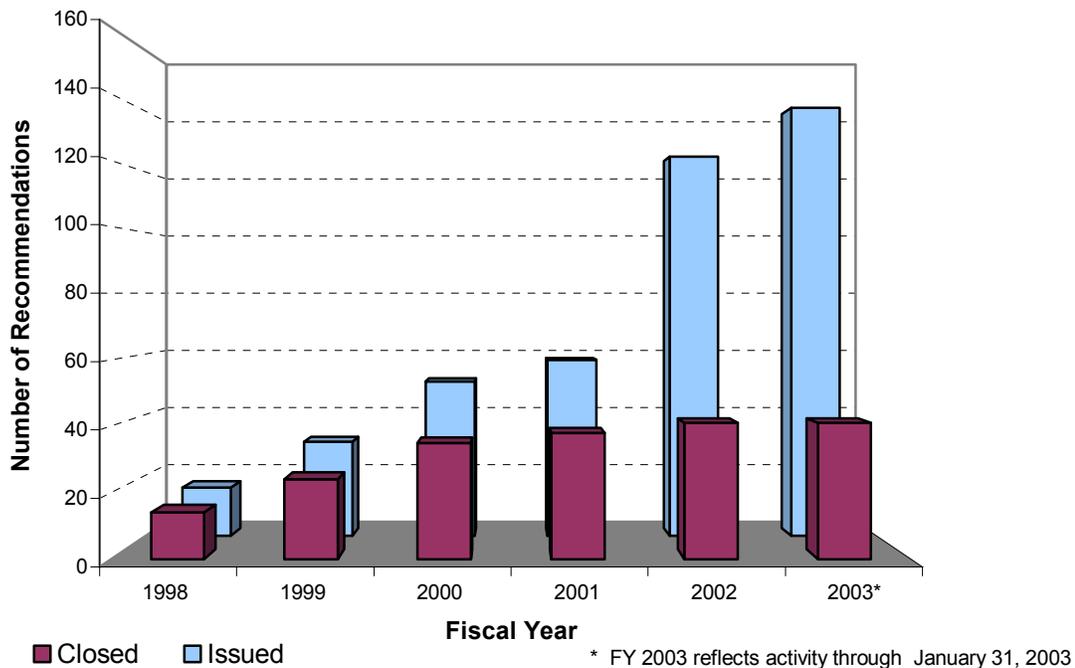
### **Implementing Recommendations**

Investigation report recommendations are CSB's principal tool for promoting chemical safety. Each recommendation has one or more specific recipients, who are the parties best able to carry out the recommended action to improve safety. Once CSB has issued a recommendation, CSB recommendations staff encourages implementation and tracks compliance. The staff ensures that the recommendation is effectively communicated to the recipient(s), together with any needed justification or explanation. In FY 2002, the CSB issued a total of 67 recommendations.

The staff meets periodically with recipients as appropriate to encourage positive action. In due course, staff evaluates recipients' compliance and advises the Board members concerning closure of the recommendations. In FY 2002, the CSB successfully closed 38 recommendations from prior year investigations. The CSB also began posting certain information on all recommendations on our website. Information includes the recommendations, recipients, and recommendation status.

The Board aims for 80 percent acceptance of our recommendations over a period of time. In the fifth year of our existence, we are well in the way to achieving that goal. We have received excellent cooperation in virtually every case, and have received only two negative responses to the 141 recommendations, which have been issued.

### Number of Recommendations Issued and Closed Cumulative as of January 31, 2003



We have received numerous responses from recommendation recipients in which they have demonstrated that they have already taken action or plan to take action to comply with our recommendations. Adoption of our recommendations demonstrates that the recipient agrees that the actions we suggest will make their organizations, facilities, and constituencies safer and they are willing to invest resources to do so. Some specific accomplishments follow:

Out of the Union Carbide investigation, OSHA issued a Technical Information Bulletin on the hazards associated with temporary work enclosures. The Bulletin describes previously unrecognized safety hazards that need to be considered for enclosures that may not meet the regulatory definition of a confined space.

In response to our investigation and subsequent recommendation from the fatal incident at the Sierra Chemical Company, the Institute of Makers of Explosives (IME) developed screening guidelines. The guidelines not only met the intent of the recommendation to provide guidance on screening reclaimed explosive material, but also included guidelines on screening raw material. The Board voted to assign the designation of *Closed - Exceeds Recommended Action*,

which was the first time this designation was approved by the Board. In response to another CSB recommendation, the IME also developed training guidelines for personnel involved in the manufacture of explosives.

In response to our investigation and subsequent recommendation from the fatal incident at the Sonat facility, the American Petroleum Institute developed the first edition of guidelines that govern onshore oil and gas production operations. These guidelines address safe work practices, design, training, maintenance, and emergency response issues. Prior to the CSB recommendation, there were no consensus safety standards for operations of onshore oil and gas production.

Morton International Chemical Company addressed several CSB recommendations based on our investigation into the incident at the Paterson, New Jersey, facility. Actions taken included re-evaluating hazards, adding additional safety alarms, revising operating procedures, and implementing an investigation and near-miss program.

Out of recommendations from the Herrig Brothers incident, the National Propane Gas Association and the Fire Service Institute of Iowa revised their fire fighting training materials to address proper response procedures for Boiling Liquid Vapor Explosions, or BLEVEs.

Several organizations responded to our recommendation to communicate the findings from our investigations to their members so that they can take preventive measures to prevent a similar incident occurring in their facilities. Such organizations include the Center for Chemical Process Safety (CCPS), the Synthetic Organic Chemical Manufacturer's Association (SOCMA), the American Chemistry Council (ACC), the American Petroleum Institute (API), and the Paper, Allied-Industrial, Chemical & Energy Workers International Union (PACE).

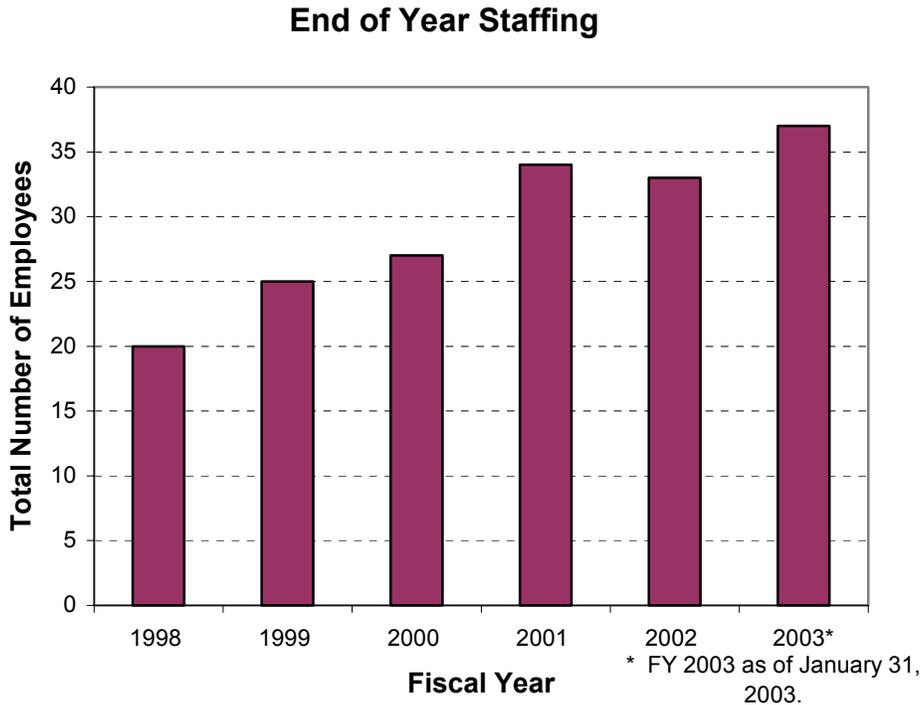
A number of recipients such as Bethlehem Steel, Conoco Phillips (Tosco) and Solvay Advanced Polymers have indicated that they intend to take action to address CSB recommendations from those investigations. The issues include reactive hazard management, corporate auditing, contractor safety, updating safety, and updating safety information

### **FY 2004 Budget Request**

The Congress has urged the Board to undertake more investigations and hazard studies. We want to produce more work. We ask your support for the funds necessary to reach the result we both seek.

FY 2002 represented a year of major transition for the Board. With the swearing in of a new Chairman, a fifth Board member, and a full-time Chief Operating Officer, the agency reached full operating strength for senior management for the first time in its history. In September 2002, the agency significantly increased its investigative capacity by hiring seven new senior level investigators and technical specialists. With almost 40

personnel, the CSB is poised to achieve its statutory mission of protecting lives and property by investigating and preventing chemical accidents. The agency has pledged to produce up to 12 investigation reports in FY 2004, up from a rate of just three a year in FY 2002.



The expansion of the investigation and safety programs and the additional personnel have had a significant budgetary impact. During FY 2001 and 2002, CSB consistently spent less than its full appropriation, resulting in significant carryover sums. At the end of FY 2002 CSB had \$1.4 million in unspent two-year funds, out of an appropriation of \$7.85 million. However, depending upon the cost of investigations, we estimate the CSB will spend approximately \$8.7 million in FY 2003, including current year appropriations, carryover funds, and prepaid contract items.

While CSB is in satisfactory financial condition for FY 2003 owing to carryover funds, the agency expects those funds to be exhausted by September 30, 2003. At the beginning of FY 2004, CSB will need to be funded entirely from new appropriations. The Board plans to increase output to 12 investigations and studies per year, which will impose additional travel and contract costs. Moreover, positions filled during the course of FY 2003 will need to be funded and the agency will have to fund an expected January 2004 cost-of-living increase. Accordingly, the CSB requests \$9 million in new appropriations for FY 2004.

An examination of the following chart showing our year-to-year cost changes demonstrates that with an \$8 million budget, we will be almost \$1 million short of covering total employment and necessary services costs.

In FY'04 the Board will have a full complement of five Board members and an adequate staff to meet our objectives. We intend to prove that we can accomplish the mission Congress gave us - to protect workers, the public, and the environment by investigations and recommendations to prevent future chemical accidents.

## **FY 2004 APPROPRIATION LANGUAGE**

### CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD Federal Funds

#### General and Special Funds

### CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD SALARIES AND EXPENSES

For necessary expenses in carrying out activities pursuant to section 112(r)(6) of the Clean Air Act, as amended, including hire of passenger vehicles, uniforms or allowances therefore, as authorized by 5 U.S.C. § 5901 – 5902, and for services authorized by 5 U.S.C. § 3109 but at rates for individuals not to exceed the per diem equivalent to the maximum rate payable for senior level positions under 5 U.S.C. § 5376, \$9,000,000, \$8,500,000 of which is to be available until September 30, 2004 and \$500,000 of which is to be available until September 30, 2005: Provided, that the Chemical Safety and Hazard Investigation Board shall have not more than three career Senior Executive Service Positions.

## CHEMICAL SAFETY AND HAZARD INVESTIGATION BOARD

### FISCAL YEAR EXPENSES

(in thousands of dollars)

	FY 2002 Actual <sup>1</sup>	FY 2003 Budget	FY 2004 Request
<b>Personnel Compensation &amp; Benefits</b>	\$ 3,632	\$ 5,357	\$ 5,738
<b>Contract Employees</b>	683	304	710
<b>Fixed Costs</b>			
Rent, Communications, & Utilities	697	689	700
Interagency Services	401	141	310
Maintenance	25	25	25
<b>Total Fixed Costs</b>	<b>1,123</b>	<b>855</b>	<b>1,035</b>
<b>Variable Costs</b>			
Travel & Transportation	98	295	305
Rent, Communications, & Utilities	14	77	85
Printing	25	49	70
Other Services	543	643	845
Supplies	153	151	159
Equipment	146	119	53
<b>Total Variable Costs</b>	<b>979</b>	<b>1,334</b>	<b>1,517</b>
<b>Total Costs</b>	<b>\$ 6,417</b>	<b>\$ 7,850</b>	<b>\$ 9,000</b>

<sup>1</sup> The CSB's actual FY 2002 obligations were lower than anticipated due to several factors: (1) two Board Member seats were vacant for most of the fiscal year; (2) investigations were completed at a lower cost than was budgeted; and (3) a number of positions were filled near the end of FY 2002 or early in FY 2003.

## **ANALYSIS OF CHANGE**

(in thousands of dollars)

**FY 2003 Appropriation .....\$ 7,850**

### **Summary of Adjustments to Base and Built-In Changes:**

#### ***Personnel Cost Increases<sup>1</sup>***

Additional costs for FY 2003 hires.....	124
Additional costs for CSRS/FEHB.....	29
Estimated cost of January 2004 pay increase .....	228
<b><i>Total increase to personnel costs.....</i></b>	<b><i>381</i></b>

***Contract Employee Cost Increases .....406***

#### ***Fixed Cost Increases***

Rent, Communications, & Utilities.....	11
Interagency Services .....	169
<b><i>Total increase to fixed costs.....</i></b>	<b><i>180</i></b>

#### ***Variable Cost Increases***

Travel & Transportation .....	10
Rent, Communications, & Utilities.....	8
Printing and reproduction .....	21
Other services.....	202
Supplies.....	8
Equipment.....	(66)
<b><i>Total increase to variable costs.....</i></b>	<b><i>183</i></b>

**Total Adjustments to Base .....1,150**

**FY 2003 Appropriation Request .....\$ 9,000**

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<sup>1</sup> Benefits are calculated at 27 percent of base pay.

<sup>2</sup> FY 2004 pay increase estimated at 4.0 percent of base pay.

## **ANALYSIS OF CHANGE**

(Significant Adjustments)

***Personnel Costs:*** Although no new positions will be filled in FY 2004, the CSB must recognize an increase of \$124,000 for the full year costs of positions filled in FY 2003. We needed more investigators to increase the volume of our work, so we hired seven new senior level investigators and technical specialists late in FY 2002 and in early FY 2003. Our plan for this year is to hire two more investigators and two support staff in order to reach our goal of 12 investigations and hazard studies in FY 2004. In addition, based on a recommendation from our Inspector General, we will be hiring a human resource manager in FY 2003. Finally, an increase of \$228,000 is required to fund a projected January 2004 pay increase, and an additional \$29,000 is needed to cover the increased cost of the Civil Service Retirement System and Federal Health Benefits.

***Contract Employees:*** The increase of \$406,000 is needed to fund contract employee positions that for FY 2003 were funded by FY 2002 two year appropriation. The funding increase for FY 2004 will allow the CSB to maintain its current level of service.

***Interagency Services:*** The increase of \$169,000 is needed to fund several interagency service agreements for FY 2003 that were funded by FY 2002 two year appropriation. The funding increase for FY 2004 will allow the CSB to maintain its current level of service

***Other Services:*** The increase of \$202,000 is a result of the following: six additional investigations in FY 2004 will require an increase of \$78,000 for investigational consultants; legal support that for FY 2003 was funded by the FY 2002 two year appropriations requires an increase of \$130,000 to maintain the current level of service; and training support requires an increase of \$34,000. Administrative contracts have been reduced by \$40,000.

***Equipment:*** The decrease of \$66,000 in equipment is a result of: no new hires in FY 2004 who would require additional equipment; and in FY 2003 the CSB purchased security enhancements that are not budgeted for FY 2004.