

# Fiscal Year 2015

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## Closed Recommendations Follow-Up Report



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## Background

Section 13 of CSB Board Order 22, CSB Recommendation Program, requires the Office of Recommendations periodically to conduct a survey, or equivalent follow-up, of major closed recommendations to ascertain continued adherence by recipients to the recommendations' objectives, whether conditions have changed, and investigate other matters of interest to the CSB in relation to the effectiveness of its recommendations.

According to the Board Order, the follow-up of closed recommendations will:

- Be conducted every five years (the first survey was completed in FY2010 for the previous five years of closed recommendations);
- Focus on a sample of major recommendations, defined as those with a clear potential to reduce risks for issues of national importance;
- Ascertain by questionnaire and other relevant sources of information the extent to which recipients are adhering to CSB recommendations;
- Be used by the CSB to explore measures to improve adherence to recommendations as appropriate; and,
- Be made available to the public via the CSB website.

## Methods

A report containing a listing of all recommendations that the Board voted to close during the period of October 1st, 2009, through September 30<sup>th</sup>, 2014 (FY 2010-2014), was obtained from the CSB Recommendations database. The list contained a total of 201 closed recommendations. Closed recommendations were first categorized by their final status: acceptable action, exceeds recommendation action, reconsidered/superseded, no longer applicable or unacceptable action/no response received. Closed recommendations were then grouped into one of seven categories in by intended purpose: Communicate, Fix Corporate, Fix Site, Industry Guide or Recommended Practice, other, Regulation (Federal, State, Local) Regulatory Enforcement and Voluntary Consensus Standard. The breakdown of recommendations according to these categories is shown in Table 1 in order to assess the distribution of the recommendations type and ensure that follow up surveys included one type of each recommendation. The closed recommendations were also sorted by recipient type in order to assess the distribution of recommendations recipients to ensure that follow up surveys included one of each type of recipient, which is shown in Table 2.

Of the 201 closed recommendations, 25 were eliminated from the potential pool for follow-up as their closed status was listed as either: no longer applicable, or unacceptable action/no response received. Fourteen closed recommendations categorized as a voluntary consensus standard were eliminated as candidates to be selected for follow-up as it is unlikely that after successfully implementing changes to these standards, the standards development organizations who were responsible for implementing them would rescind the changes. CSB Recommendations staff confirmed separately that all fourteen of

these voluntary consensus standard recommendations remain unchanged from when they were closed acceptably by the Board. After eliminating these records from the analysis, there were 162 recommendations remaining. Approximately 10% (n=17) of the remaining closed recommendations were then selected for follow-up, based on the criteria described in Tables 1 and 2.

**Table 1:** Recommendations closed between 10/1/2009-9/30/2014 by recommendation purpose

<b>Recommendation Purpose</b>	<b>Number</b>	<b>Percentage</b>
Communicate	16	9%
Fix corporate	36	20%
Fix site	40	23%
Industry Guide or Recommended Practice	40	23%
Other	11	6%
Regulation - Federal	2	1%
Regulation - Local	4	2%
Regulation - State	8	5%
Regulatory Enforcement	5	3%
Voluntary Consensus Standard	14	8%
<b>Grand Total</b>	<b>176</b>	<b>100%</b>

**Table 2:** Recommendations closed between 10/1/2009-9/30/2014 by recipient type

<b>Recipient Type</b>	<b>Number</b>	<b>Percentage</b>
Academia/Training Institution	1	1%
Environmental/Labor Non-Governmental Organization	2	1%
Government - Federal	7	4%
Government - Local	18	10%
Government - State	16	9%
Industry - Corporate	59	34%
Industry - Facility	30	17%
Professional Organization	19	11%
Standards Development Organization	4	2%
Trade Association	17	10%
Union	3	2%
<b>Grand Total</b>	<b>176</b>	<b>100%</b>

The CSB used a mailed questionnaire<sup>1</sup>(“Survey”) as well as publicly available data. The criteria for selection of the recommendations for follow-up was based on the following guidelines in order to focus

<sup>1</sup> Surveys are collections of information subject to the requirements of the Paperwork Reduction Act (PRA) of 1995 (Pub.L. No. 104-13, 44 U.S.C. § 3501 et seq.) and OMB’s implementing regulations (5 C.F.R. § 1320, Controlling Paperwork Burdens on the Public). OMB approval is required before CSB may collect information from 10 or more members of the public in a 12-month period. The PRA also states that collection of information that is addressed to all or a substantial majority of an industry or sector in a 12 month period, that collection is considered to be addressed to ten or more persons (5 C.F.R. 1320.3(c)(4)(ii)). The CSB surveyed neither 10 or more members of the public nor a majority of any industry.

on those recommendations that were likely to have a major and continuing impact based on the criteria listed in Board Order 22:

- Recommendations that included ongoing action items.
- Recommendations where the CSB would not know if the recommendation continued to be implemented without contacting the recommendation recipient, because the recommendation was not readily available in a statute, policy or website. For those recommendations where information is publicly available, CSB completed the review of the recommendation's current status ("CSB Staff Review").
- Recommendations that involved regulatory enforcement, to determine if these regulations were still being enforced in a similar manner.
- Recommendations considered to have high impact on national chemical safety and health. High impact recommendations are those which, if implemented, would create long-term, industry-wide safety improvements.

Using these criteria, the following recommendations were selected for follow-up:

**Table 3:** Recommendations selected for follow-up

No.	Recommendation	Recipient	Category	Subject	Follow-up Method
1	2003-13-I-LA-R15	Honeywell International, Inc.	Fix corporate	Implement procedures so that hazardous materials are handled appropriately.	Survey
2	2003-13-I-LA-R16	Honeywell International, Inc.	Fix corporate	Implement corporate standards for safely handling hydrogen fluoride.	Survey
3	2006-7-I-MS-R1	Stringer's Oilfield Services	Fix corporate	Implement written procedures to ensure the use of safe work practices during hot work, tank cleaning, and work at elevated locations.	Survey
4	2004-2-I-AZ-R3	DPC Enterprises	Fix corporate	Train employees on the revised SOPs. Periodically review operator understanding.	Survey
5	2004-9-I-GA-R5	GP Chemicals, Inc.	Fix corporate	Implement written procedures for tolling agreements. Ensure that tolling agreements provide involvement in new process development.	Survey
6	2008-8-I-WV-R4	Bayer CropScience-Institute	Fix site	Ensure effective monitoring of potential releases of high-hazard chemicals at the perimeter of the facility.	Survey
7	2008-8-I-WV-R5	Bayer CropScience-Institute	Fix site	Commission an independent human factors and ergonomics study. Implement a plan to resolve all recommendations.	Survey

8	2005-4-I-TX-R13	BP Global Executive Board of Directors	Fix corporate	Ensure and monitor that senior executives use leading and lagging process safety indicators.	Survey
9	2010-6-I-WV-R12	E.I. du Pont de Nemours and Company	Fix corporate	Commission an audit to establish and identify the conditions that cause nuisance alarms at all DuPont facilities. Include refresher training as an integral part of this effort.	Survey
10	2008-5-I-GA-R6	AIB International	Industry Guide or Recommended Practice	Incorporate combustible dust hazard awareness into employee and member companies' training programs.	Survey
11	2008-5-I-GA-R10	Zurich Services Corporation	Industry Guide or Recommended Practice	Ensure that all risk engineers are trained in the hazards of combustible dust, and that refresher training occurs at regular intervals.	Survey
12	2007-1-I-NC-R1	U.S. Environmental Protection Agency (EPA)	Industry Guide or Recommended Practice	Ensure that 40 CFR 264.37 includes providing written information to state and local emergency response officials on the type, approximate quantities, and locations of materials within the facility. Ensure that permit holders periodically update this information throughout the ten-year permit period.	CSB Staff Review
13	2009-3-I-VA-R10	Fertilizer Institute, The	Industry Guide or Recommended Practice	Recommend to all member companies the incorporation of The Fertilizer Institute tank inspection guidelines into contracts for the storage of liquid fertilizer at terminals.	CSB Staff Review
14	2008-3-I-FL-R1	American Institute of Chemical Engineers (AIChE)	Other	Add reactive hazard awareness to baccalaureate chemical engineering curricula requirements.	CSB Staff Review
15	2005-3-I-NJ-R5	Occupational Safety & Health Administration	Regulation - Federal	Update the OSHA 1910.102 Acetylene Standard to remove the existing references to unavailable and obsolete Compressed Gas Association Pamphlets and consider incorporating NFPA 51A.	CSB Staff Review
16	2007-4-I-WV-R2	West Virginia Fire Commission	Regulation - State	Revise the Fire Commission rules and codes to require annual hazardous materials response refresher training for all firefighters in West Virginia.	CSB Staff Review

17	2009-3-I-VA-R5	Governor and Legislature of the Commonwealth of Virginia	Regulation - State	Require state regulation of 100,000-gallon and larger fertilizer storage tanks or authorize local jurisdictions to regulate these tanks.	CSB Staff Review
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The recommendations that were selected for follow-up involved a variety of important chemical safety and health issues, such as continued implementation of safe handling of hazardous materials, monitoring of potential chemical releases, preventive maintenance programs, resolution of human factors, use of leading indicators and refresher training for employees.

Following the selection of the recommendations, a survey questionnaire containing five questions was prepared and mailed to follow-up recommendations one through 11 in Table 3 (nine total surveys sent, as two surveys each inquired about two recommendations together). These recommendations were considered recommendations for which CSB Recommendations staff would not be able to ascertain the current status of implementation without directly contacting the recipient. Recommendations 12 through 17 were recommendations in which information was easily obtained through publicly available sources and CSB Recommendations staff was able to follow up by accessing and documenting this information.

An example of a Survey is attached as Appendix A. The first question of the survey asked if the recipient is continuing to implement the CSB recommendation. If not, the recipient was asked to provide a brief explanation as to why. The second question asked if the method of implementing the CSB recommendation had changed in any way since the Board informed the recipient that the recommendation had been closed. If any changes had been made, then the recipient was asked to explain them. The third question asked if the CSB recommendation had affected other operations or activities. Again, if it did, the recipient was asked to briefly describe how the recommendation had affected other operations or activities. The fourth question asked if the recipient understood the CSB recommendation upon initial receipt. If the recipient did not, he/she was then asked to explain. The fifth question asked if the CSB's expectations regarding the actions needed to successfully close the recommendation were clear. If not, the recipient was asked to explain.

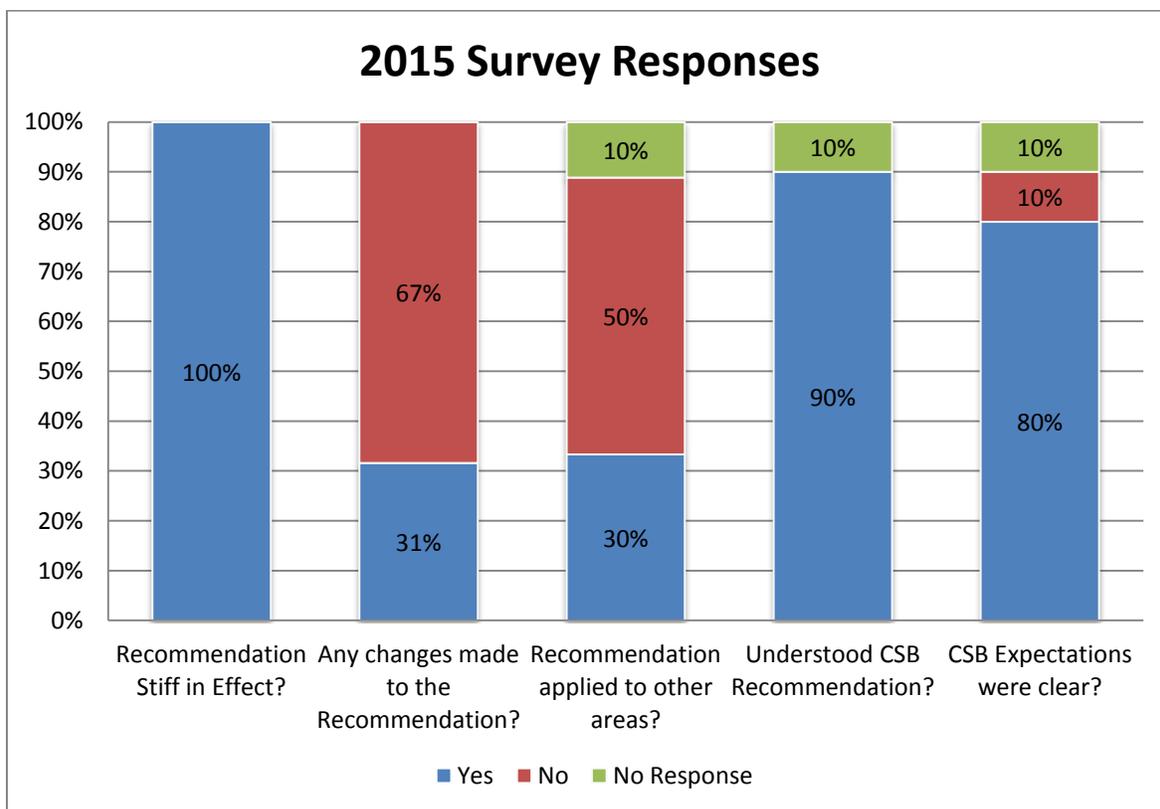
A cover letter signed by Dr. Susan Anenberg, the Managing Deputy Director for Recommendations, was enclosed with each survey. The cover letter explained the purpose of the survey and asked recipients to return it in a provided postage paid envelope within 30 days of receipt. Follow-up emails with the original cover letter and survey attached were sent to recipients who failed to return the survey within the 30 day response period reminding them to return the Survey.

Copies of all letters, surveys (initial and completed) along with background preparation materials and this report have been entered into the recommendations database.

## Results

The CSB received responses from eight of nine (88%) surveys sent. This response rate exceeds historical response rates to mail surveys conducted of organizations (e.g., 35%).<sup>2</sup> A survey was sent to Zurich Services Corporation regarding CSB Recommendation No. 2008-5-1-GA-R10 of the Imperial Sugar investigation; however, CSB received no response. The CSB reviewed an additional six recommendations by consulting publicly available information. This section describes the results obtained from the survey responses received, as well as the CSB staff reviews of these additional six recommendations.

**Table 1: Summary of Survey Responses 2015**



**Question 1 – Are CSB Recommendations Still in Effect?**

Of the 16 recommendations for which the CSB received survey responses or surveyed through staff review, all 16 were found to still be in effect (100%).

**Question 2 – Any Changes Made to the Implementation of the Recommendation Since Closure?**

Of the 16 recommendations for which the CSB received survey responses or surveyed through staff review, five (31%) were found to have had changes made to the implementation of the CSB recommendation since it had been closed by the Board.

<sup>2</sup> Baruch Y and Holtom B. 2008. Survey response rate levels and trends in organizational research. *Human Relations*. 61(8):1139-1160.

The changes to these three recommendations were found to either improve or have no effect on the recommendation's implementation. In response to Recommendation No. 2004-2-I-AZ-R3 from the DPC Glendale Chlorine release investigation, for DPC enterprises to train employees on the updated standard operating procedures, DPC updated their training to include a test for employee knowledge. CSB Recommendations staff believes that incorporation of an employee knowledge test strengthens the recipient's response to the recommendation. In response to Recommendation No. 2005-4-I-TX-R13, made as a result of the BP Texas City refinery fire for BP Global Executive Board of Directors to ensure and monitor that senior executives use leading and lagging process safety indicators, BP Global Executive Board of Directors updated and expanded their leading and lagging process safety indicators to include the American Petroleum Institute's (API) Recommended Practice 754, *Process Safety Performance Indicators for the Refining and Petrochemical Industries*. CSB staff believes that incorporation of API 754 strengthens the recipient's response to the recommendation. In response to Recommendation No. 2003-13-I-LA-R15, regarding proper identification and handling of rejected hazardous materials, Honeywell International, Inc., stated that the Metropolis, Illinois, facility no longer uses chemical SF6 in its process, and therefore the procedures developed as part of this recommendation no longer apply. Honeywell stated that all facilities that receive these cylinders have the procedures still in place. In response to Recommendation No. 2003-13-I-LA-R16, Honeywell International, Inc., stated that they have updated and revised the hydrogen fluoride personal protective equipment procedures originally developed in response to this recommendation.

In regard to Recommendation No. 2009-3-I-VA-R5 made to the Governor and Legislature of the Commonwealth of Virginia as a result of the Allied Terminals investigation, sections of the fertilizer storage tank legislation had been moved to different sections in the Virginia Maintenance Code and Virginia Construction Code; however the language remains the same as when the Board closed the recommendation.

### **Question 3 – Impact of the Recommendation on Other Operations or Activities?**

Of the eleven recommendations surveyed via questionnaire, three (30%) stated that the recommendation does not have an impact on their other operations or activities, and five (50%) stated that they have applied the recommendation to other operations, facilities or activities. One survey did not answer this question.

### **Question 4 – Understanding of the CSB Recommendations upon Initial Receipt**

Of the eleven recommendations surveyed via questionnaire, nine (90%) stated that they understood the CSB's recommendation. One survey respondent did not answer this question.

### **Question 5 – CSB Expectations Clear Regarding Actions Needed for Successful Closure**

Of the eleven recommendations surveyed via questionnaire, eight (80%) stated that they understood expectations for successful closure of the recommendation. However, Honeywell International, Inc., in response to Recommendation No. 2003-13-I-LA-R15, stated that the CSB's expectations were initially unclear and that they required further explanation. Honeywell stated that for this recommendation,

which related to correctly identifying and handling materials in a rejected cylinder, that the circumstances in which a contractor would reject a Honeywell cylinder are infrequent. Honeywell's main focus in changing its receiving procedures was to ensure that the contents of the cylinder were identified and handled correctly, regardless of the source of the cylinder. One survey respondent did not answer this question.

## **Conclusions**

This audit of approximately 10% of recommendations closed between October 1, 2009, and September 30, 2014, shows that all of the CSB recommendations surveyed continue to be implemented after the recommendations were closed, and that recipients of CSB recommendations generally understood both the recommendation when issued and CSB's expectations for actions required for successful closure. The sample size and criteria for selecting the recommendations included in the audit allow CSB Recommendations staff to generalize that CSB recommendations remain in effect, and thus continue to have benefits for chemical safety beyond the time during which they are tracked by CSB Recommendations staff. The audit did not yield any new insights as to potential improvements that could be made in CSB recommendations development or follow-up programs.

This audit is intended to ensure that CSB recommendations closed by the Board remain in effect after closure, and is not intended or designed to determine the impact of CSB recommendations. Baseline data on the frequency of chemical accidents and ongoing data collection on chemical incidents would assist in determining trends in chemical incidents following the implementation of CSB recommendations. Such information is collected through the CSB's incident screening database, wherein incident information is collected from media sources; however, this database is not a complete registry of incidents, and relies upon information provided by media reports, which are often inaccurate. More reliable data on chemical incidents occurring in the United States would help the CSB to determine the efficacy and lasting effects of its recommendations.

**APPENDIX A – Sample survey**

**Thank you for completing the 2015 US Chemical Safety Board Recommendations Survey.**

Please kindly complete this survey and return within 30 days. For any questions, contact: Veronica Tinney, Recommendations Specialist, [veronica.tinney@csb.gov](mailto:veronica.tinney@csb.gov), 202-261-7642

<b>Recommendations Number:</b>	2010-6-I-WV-R12
<b>Recommendation Recipient:</b>	E.I. du Pont de Nemours and Company
<b>Recommendation Text:</b>	Commission an audit in consultation with operations personnel to establish and identify the conditions that cause nuisance alarms at all DuPont facilities. Establish and implement a corporate alarm management program as part of the DuPont PSM Program, including measures to prevent nuisance alarms and other malfunctions in those systems. Include initial and refresher training as an integral part of this effort.

**Please answer the following questions:**

Are employees still receiving refresher training on the corporate alarm management program?	<input type="checkbox"/> YES <input type="checkbox"/> NO If not, please explain:
Has the corporate alarm management program and employee training changed since the recommendation was first implemented?	<input type="checkbox"/> YES <input type="checkbox"/> NO If so, please explain:
Are all DuPont facilities implementing the alarm management program and employee training?	<input type="checkbox"/> YES <input type="checkbox"/> NO If not, please explain:
Did you understand the CSB recommendation clearly upon receipt?	<input type="checkbox"/> YES <input type="checkbox"/> PARTLY <input type="checkbox"/> NO If partly or not, please explain:
Were the CSB expectations regarding the actions needed to successfully close this recommendation clear to DuPont staff?	<input type="checkbox"/> YES <input type="checkbox"/> PARTLY <input type="checkbox"/> NO If partly or not, please explain: