

## **PART B**

### **1. SURVEY OBJECTIVES, KEY VARIABLES, AND OTHER PRELIMINARIES**

#### **1(a) Survey Objectives**

As part of its investigation into formaldehyde and pressed wood, EPA seeks to obtain a better understanding of the current and future levels of formaldehyde emissions from pressed wood; available technologies (including substitute resins) to control formaldehyde emissions from pressed wood; and the costs to reduce formaldehyde emissions from pressed wood products. In order to gather this data, EPA plans to survey all pressed wood manufacturers in the U.S. and collect information including general manufacturer identification, primary products manufactured, secondary products manufactured, past changes (and the associated costs) to reduce formaldehyde emissions, planned changes (and the associated costs) to reduce formaldehyde emissions, and issues that may affect the ability to further reduce formaldehyde emissions.

EPA's objective is to use the survey data to estimate the following:

- The levels of formaldehyde that will be emitted from pressed wood products in the absence of any Agency action;
- The types of resins that will be used to manufacture pressed wood products in the absence of any Agency action;
- The substitute resins likely to be used if the Agency took action to control formaldehyde emissions from pressed wood;
- The other likely changes to inputs, equipment, and processes if the Agency took action to control formaldehyde emissions from pressed wood; and
- The likely costs and other impacts if the Agency took action to control formaldehyde emissions from pressed wood.

EPA will use the data obtained through this survey to project baseline levels of formaldehyde emissions from pressed wood; understand the different generations of substitutes for formaldehyde-based resins (first generation, second generation, etc.); and estimate the incremental industry costs and small entity impacts of potential federal actions to control formaldehyde emissions from pressed wood.

#### **1(b) Key Variables**

The key information to be collected includes the following:

- The types and quantities of pressed wood products manufactured;
- Resin types used to manufacture pressed wood;
- Formaldehyde emission levels from pressed wood;
- Product or process changes that have been made, or that are anticipated to be made, to reduce formaldehyde emissions from pressed wood;
- Costs associated with recent and/or planned changes to inputs or processes to reduce formaldehyde emissions; and
- Issues that may affect the ability to reduce formaldehyde emissions.

### **1(c) Statistical Approach**

A census approach was selected for the data collection because the large number of variations in products, resins, equipment, processes, scale of operation and current and future levels of formaldehyde emissions as compared to the relatively small number of facilities in the population make it impractical to construct a sampling approach that will provide data of adequate reliability. This means that a concerted effort must be made to solicit the cooperation of each manufacturer within the population. The objective is to obtain completed surveys from at least 80 percent of the manufacturers within this population.

Support in conducting the survey will be provided by the following contractor:

Abt Associates Inc.  
55 Wheeler Street  
Cambridge, MA 02138

Abt Associates will be assisted by its subsidiary Abt SRBI, which specializes in public policy and opinion surveys. The contractor's roles include processing and analyzing the survey data, and preparing the survey documentation.

### **1(d) Feasibility**

A knowledgeable person at a manufacturing plant should be able to complete the survey, although he or she may need to review certain records and to consult with others within the company to compile some of this information and complete the survey. The survey instruments are designed for ease of completion by the respondents, and employ multiple choice answers, ranges, and pre-filled data where possible to limit the respondent burden in collecting and entering the information. The use of a written survey, instead of a telephone survey, allows the respondent to collect and enter information as it is obtained and at a time that is convenient for the respondent.

EPA has planned this data collection as part of its investigation of whether and what type of regulatory or other action might be appropriate to protect against risks posed by formaldehyde emitted from pressed wood products. EPA has planned for and allocated resources for the efficient and effective management of the information to be collected, and has a contract mechanism in place to provide logistical support.

## **2. SURVEY DESIGN**

### **2(a) Target Population and Coverage**

EPA has currently identified roughly 343 U.S. pressed wood manufacturing plants. Due to variations in products, resins, equipment, processes, and current and future levels of formaldehyde emissions across products within the industry, EPA will send the survey to the entire population of manufacturers.

EPA identified the universe of pressed wood manufacturing plants starting with a list EPA developed for a 1998 industry survey conducted for the PCWP NESHAP. EPA has updated the 1998 plant list to reflect the current universe of plants based on information from trade journals, company websites, press releases, trade association websites, and other sources to reflect plant closures, plant

openings, mergers and acquisitions, and similar changes that have occurred over the past decade. EPA will continue to update the list prior to sending out the questionnaires.

## **2(b) Sample Design**

Sample design is the multi-step process used to select the individual “units,” or respondents, for a survey from among the covered population. Designing the sample typically involves selecting a sampling frame, an appropriate sample size, stratification variables, and the procedure for selecting the sample from the frame. Because the survey will be a census of the entire target population of U.S. pressed wood manufacturing plants, issues such as sample size and stratification are not relevant to the design of the information collection. Survey design issues that are relevant to this information collection are addressed elsewhere in this supporting statement.

## **2(c) Precision Requirements**

### ***2(c)(i) Precision Targets***

The survey objective is to obtain complete surveys from as many of the entire target population of 343 plants as is practicable within the allotted schedule. The responding companies’ data may be used to estimate values (e.g., proportions or means) for all the 343 plants. The precision of those estimates depends largely on the percentage of the population for which responses are received. Although the survey is not starting with a sample, non-response may result in fewer observations than the full set of 343, thereby affecting the precision of estimates just as if a sample had been drawn.

Some estimates (e.g., a mean value) can also be affected by the characteristics of the sample of responding companies. For example, if larger companies are disproportionately more likely to respond than smaller companies, and the value of some variable is positively related to company size, the mean for that particular variable may be underestimated. Consequently, it is difficult to disentangle the effects on precision of the (attained) sample size and of non-response bias (discussed in the next section).

For planning purposes, it is assumed that, in terms of precision, the attained sample behaves similarly to a simple random sample. That is, all plants have roughly the same response propensity. If an 80 percent response rate is achieved, the estimates will be based on 275 companies. The estimate of the value of a proportion, assuming a simple random sample, would have a standard error of no more than approximately +/- 5.5 percent, at the 95 percent confidence level. EPA judges that this level of precision is acceptable for the survey purposes.

The precision of estimates of means cannot as easily be approximated beforehand without some information about a statistic’s standard deviation in the population. The range of population values for a particular variable (e.g., cost) may be quite large, making the estimate of its mean less precise for a given sample size. However, given the size of the industry, the key variables of interest, and the analysis goals, EPA expects that the precision of these estimates will also fall in the acceptable range. After the survey responses are collected, standard errors or confidence intervals will be constructed and the precision of estimates will be taken into account when reporting findings.

### ***2(c)(ii) Nonsampling Error***

A potential source of non-sampling error for this study is non-response bias – i.e., that the non-respondents may differ from respondents. Non-response is best handled at the design stage of a survey,

rather than after the data have been collected. Therefore, the strategy to reduce non-response for this survey is to use a survey design that will minimize the incidence of non-response and to use a follow-up strategy to collect data from non-responders. Finally, the data collected under the survey will be analyzed to determine the extent to which non-response may bias the results. This non-response plan summarizes the approach to dealing with two forms of non-response: unit non-response (i.e., when a survey is not returned from a sampled facility) and item non-response (i.e., when a survey is returned, but some data elements are missing).

There are a number of reasons why selected facilities may not respond to the survey. The five major reasons for potential non-response are likely to be:

1. Mistrust of regulatory agencies—Some individuals contacted may not have responded because they have an inherent mistrust of regulatory agencies and a concern about the actions that they think EPA may take based on the data requested in the survey.
2. Sensitivity to disclosing technical and financial data—Some individuals contacted may be concerned about disclosing their plant's technical and financial data, which may result in their failing to respond.
3. Burden—Individuals contacted for the survey have limited time to respond. In most cases, the respondent will need to make time to respond to the survey. Thus, some non-response may occur because the contact person does not have the time to respond.
4. Inappropriate recipient—Individuals receiving the survey may fail to respond if they lack the technical and financial information to complete the survey.
5. Questions unclear—If the questions in the survey are unclear, then the individual receiving the survey may decline to respond.

The survey instruments have been designed to reduce the number of non-respondents while still gathering the information needed for the Agency's analysis and decisionmaking. Respondents are allowed to claim responses as CBI in order to protect confidential technical and financial data. The data requested should be readily available to a knowledgeable individual at the plant, requiring relatively little additional research on their part, and the survey employs the use of checkboxes where feasible to provide a set of potential responses for respondents to choose from. EPA will call companies prior to sending the questionnaire, in order to identify an appropriate recipient. And EPA has revised the survey, based on public comments and the result of the pretest, in order to clarify the questions.

A multi-staged respondent contact process will be used to reduce the number of initial non-respondents, and to follow up with initial non-respondents in order to convert them to respondents.

**Stage 1—Notification Letter.** EPA will send every pressed wood manufacturer a letter on EPA letterhead notifying them that the survey is taking place and telling them that EPA's contractor will contact them by telephone to determine an appropriate contact person. The letter will be short and will describe the type of data that EPA is collecting, explain why EPA is collecting the data, note that respondents will have the opportunity to claim information on the survey as confidential, and state EPA's appreciation for their participation in the survey.

**Stage 2—Technical Contact Identification Call.** EPA's contractor will call every pressed wood manufacturer to determine the identity and contact information for a knowledgeable person who can complete the survey. During the call, the interviewer will reiterate the purpose of the survey.

Stage 3—Survey Mail-out. EPA will mail the survey during the two weeks following the notification letter. The survey packet will contain a cover letter reiterating the information in the notification letter, the survey instrument, instructions for completing the survey instrument, contact information for technical support, and a pre-paid, pre-addressed return envelope to reduce the burden of returning the survey. The letter will request that a response be sent within five weeks.

Stage 4—Initial Reminder Phone Call. EPA's contractor will make a reminder phone call to recipients who have not returned the survey three weeks after the survey mail-out. This phone call will reiterate the importance of a response, attempt to alleviate any concerns the contact person may have (such as the confidentiality protections that are available), and attempt to answer any questions.

Stage 5—Second Reminder Phone Call. EPA's contractor will make a second reminder phone call (similar to the first one) to recipients who have not responded five weeks after the survey mail-out.

All interviewers will be trained to identify and avert potential refusals and attempt to convert non-respondents. Interviewers will record information about refusals, which may facilitate subsequent interview attempts if refusal conversion is deemed possible. The combination of a well-designed and well-executed survey with a highly capable staff of interviewers should minimize the magnitude of non-response and ensure the reliability of the survey results.

Despite efforts to design effective survey instruments, however, some level of non-response is expected. As a final stage in the non-response plan, the data will be analyzed for potential non-response biases. To assess the possibility of non-response bias, the characteristics of respondents and non-respondents will be examined in terms of size, geography, category of pressed wood products manufactured, etc., to determine whether there could be any significant differences in responses between the two groups. A common procedure in surveys to reduce the bias because of non-response is to adjust the sampling weights of respondents to account for non-respondents after forming weighting classes. The assumption is that respondents and non-respondents within a weighting class are similar. This is a more reasonable assumption than assuming that the total sample of respondents is similar to non-respondents.

For example, if the response rates differ by size of plant and the percentages of interest (i.e., how they answered a question) also differ by size of plant, then size groups can be formed as weighting classes. Within each size group, the weights of respondents can be adjusted to account for non-respondents. There will be a reduction in the bias in the estimate if there is reason to believe that the respondents and non-respondents are similar within a size group. It is worth noting however, that the weighting approach may be only partially successful, since some of the responses may not be closely correlated with plant size or other available characteristics.

A second potential source of nonsampling error is measurement error. If respondents have difficulty interpreting a question, they may provide inconsistent answers, leading to inaccurate responses. Information provided from memory may also be inaccurate. The survey includes instructions and sample responses to clarify the questions so that respondents are able to interpret them correctly. The survey instruments are designed to use broad categories and ranges wherever possible to minimize the need for exact figures when these figures are not needed for subsequent analysis. The survey will be conducted by mail (instead of by telephone) so that respondents will be able to refer to their files or records when completing the survey instead of providing information from memory.

## **2(d) Survey Instrument Design**

The survey instruments are provided in Appendices D and E, and an item-by-item justification is found in Part A, Section 4(b)(i) of this supporting statement. The survey instruments were designed to balance EPA's need for information (which it will use to predict a baseline and estimate benefits and costs of changes in formaldehyde emissions) with the need to limit the burden on respondents to complete the survey instruments. Because respondents may need to look up some of the information asked in the survey in their records, the survey instruments will be administered in a written format rather than through a telephone interview. Where possible, questions were designed to allow the respondent to mark a checkbox or fill in a code to select an answer from among the choices provided (e.g., geographic regions where products are sold; type of resin system used; certification standards that are met).

## **3. PRETESTS AND PILOT TESTS**

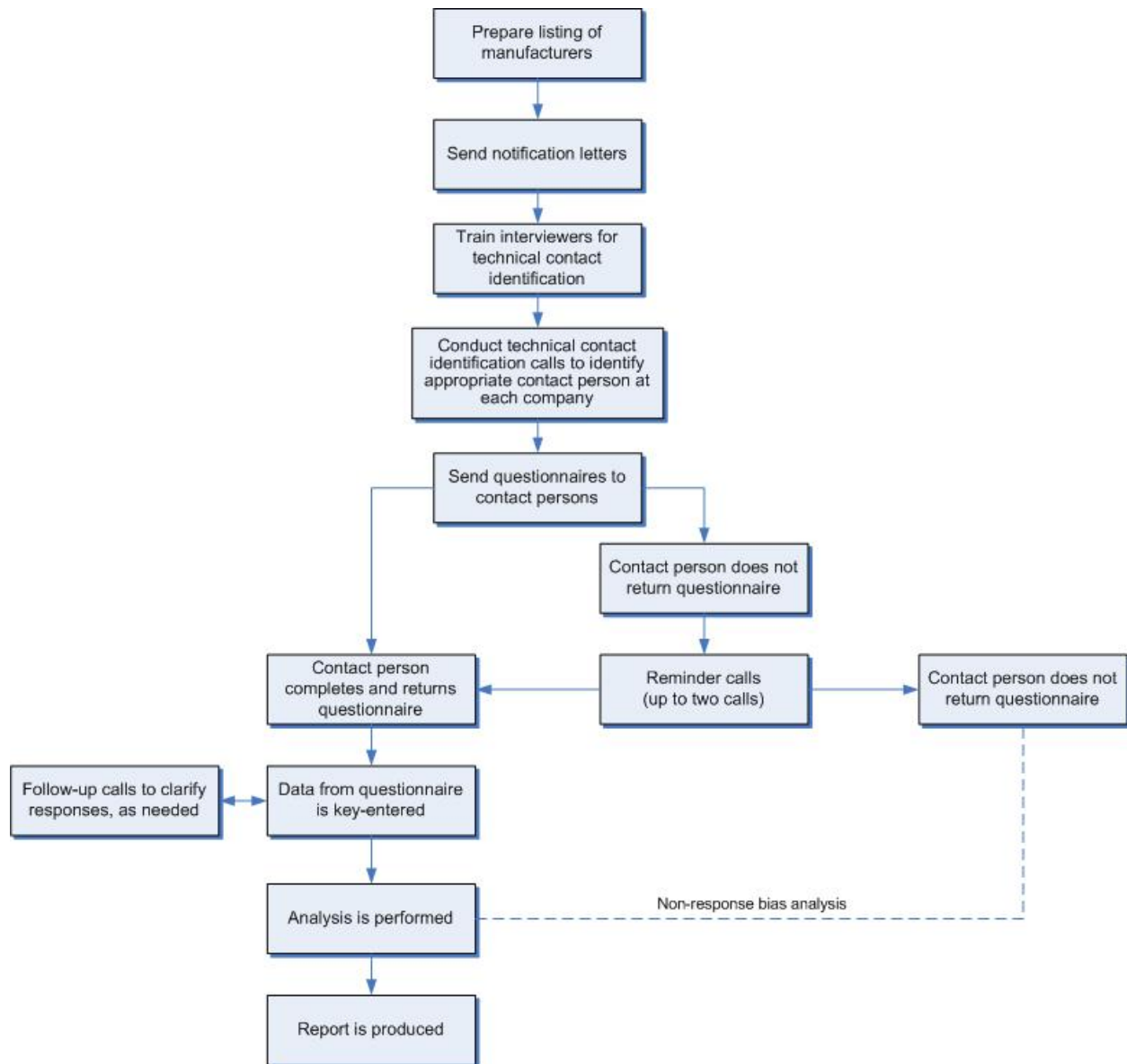
EPA sent surveys to pressed wood manufacturers for pretesting in order to identify potential changes to improve the survey instrument, including the survey format, the wording of the instructions and the questions, and the information being requested in the questions. Five pretest respondents completed the survey and participated in a pretest debriefing. EPA made changes to the survey both in response to the pretesting and the public comments submitted during the initial comment period for this information collection request

## **4. COLLECTION METHODS AND FOLLOW UP**

### **4(a) Collection Methods**

The process to conduct this information collection is illustrated in Exhibit 1.

**Exhibit 1. Pressed Wood Industry Manufacturing Survey process flow chart.**



Data collection will begin with a telephone call to each company to identify the appropriate contact person at the company to complete the survey. These calls will be conducted by interviewers employed by EPA’s contractor who are experienced in conducting large-scale national surveys of business populations.

All interviewers involved with the technical contact identification telephone calls will have been previously trained in effective interviewing techniques as a condition of their employment. In addition, all interviewers have extensive experience in conducting interviews with business populations on a variety of topics. The contractor will conduct a training session specific to this study with all interviewers

prior to their conducting any interviews. Technical contact identification calls will be conducted on a schedule designed to facilitate successful contact with targeted businesses during normal business hours in the geographic region where the plant is located. Interviewers will make up to five attempts to identify an appropriate contact person at each manufacturer.

When calling each manufacturing plant, the interviewer will use a systematic procedure to identify an appropriate contact person and will then ask to speak to that person. If the contact person is not available to talk, the interviewer will probe for an appropriate callback time or set up an appointment to talk. When telephone contact is made with voicemail, the contractor will leave a message encouraging survey participation; providing information that the manufacturing plant can use to verify the legitimacy of the survey; and offering a toll-free number that the contact person can use to call the contractor back. If contact is made with the appropriate contact person but he or she refuses to participate, the interviewer will provide information to attempt to convince the individual to participate. If the contact person still refuses to participate, the interviewer will record that information and the reasons given.

When the contact person agrees to participate, the interviewer will ask whether they prefer to receive the survey electronically (by USB flash drive) or in hardcopy. Respondents will be encouraged to submit their completed survey on an electronic medium whenever possible to minimize errors and necessary follow-up arising from the use of hardcopy responses. The survey will then be sent to the respondent, along with instructions for returning the survey. The instructions will provide a telephone number and an email address that respondents can use to receive answers to questions or concerns that may arise in completing the survey.

#### **4(b) Survey Response and Follow-up**

EPA's target response rate is 80 percent, or a total of approximately 275 completed surveys. As described above, EPA will make up to five attempts to identify the appropriate respondent at each manufacturer. Each respondent will be given five weeks to return their completed survey instrument. After the survey is initially sent to the respondent, if a completed survey is not received within three weeks, EPA's contractor will make up to two reminder telephone calls encouraging the respondent to complete the survey.<sup>1</sup> Survey recipients will be provided with a telephone number and an email address they can use if they have any questions about completing the survey.

If EPA does not receive a sufficient response rate to accurately characterize the industry, the Agency will consider whether to issue subpoenas requiring non-respondents to complete and return the survey. EPA has the authority under TSCA § 11(c) to issue subpoenas, including the ability to require the production of reports, papers, documents, answers to questions, and other information that the Administrator deems necessary.

EPA will review the completed surveys to determine if respondents should receive a follow-up telephone call to resolve any unlikely or inconsistent responses.

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<sup>1</sup> Additional mailings of the survey questionnaire are not expected to prompt additional responses since all potential respondents will have been contacted at least once already.



## **5. ANALYZING AND REPORTING SURVEY RESULTS**

### **5(a) Data Preparation**

A project spreadsheet used to collect, store and organize the data will be prepared, reviewed, edited and validated. All data will be double key-entered to ensure accuracy, and several data processing steps will create files suitable for analysis and tabulations. The contractor staff working on this project will be supervised by a senior-level Project Manager who will be responsible for ensuring that all staff who work on the survey are fully trained and using identical assumptions and procedures. EPA expects that respondents will claim some of the information reported as CBI. All EPA and contractor staff with access to the survey data will have TSCA CBI clearance, and will adhere to all of EPA's procedures for handling, storage, and transfer of TSCA CBI.

### **5(b) Analysis**

The data will be analyzed using a statistical software package. Data analysis will include both descriptive statistics (e.g., frequencies of survey variables) and relationship analysis (e.g., regression analysis).

### **5(c) Reporting Results**

EPA will use the information collected through the survey for analysis and decisionmaking about formaldehyde emissions from pressed wood products. EPA expects that respondents will claim some of the information reported as CBI. EPA will follow its procedures for the reporting and presentation of TSCA CBI data. Both CBI and non-CBI versions of reports may be generated for EPA review and decisionmaking purposes. Information claimed as CBI by respondents will not be publicly reported in a manner that will disclose confidential information. This confidential information will only be reported in published results at an aggregate level, to protect the confidential information.