U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

# Memorandum

Subject: Control Plan for the Defect Investigation Process

Date: AUG 15 1990

From: Michael B. Brownlee, Director
Office of Defects Investigation

Reply to
Attn of: NEF-121whr

To: All ODI Personnel

The attached updated document, which was last published in October 1988, is written with the intention of informing parties outside the Office of Defects Investigation (ODI) concerning its operating procedures. This edition does not include the various standard forms used by the office or its filing procedures.

It is intended to provide a broad outline of ODI's operations.

#


SAFETY BELTS SAVE LIVES

# CONTROL PLAN

# FOR THE

# DEFECT INVESTIGATION PROCESS

AUGUST 1990

Office of Defects Investigation
National Highway Traffic Safety Administration

## TABLE OF CONTENTS


| | | Page |
|---|---|---|
| I. | **Introduction** | 1 |
| | A. Investigative Process -- Work Flow (PE/Petition) | 2 |
| | B. Investigative Process -- Work Flow (EA) | 3 |
| | C. Investigative Process -- Work Flow (Case to Final Determination) | 4 |
| II. | **Procedures** | 5 |
| | A. Initial Data Collection | 5 |
| | B. Preliminary Evaluation (PE) | 6 |
| | C. Engineering Analysis (EA) | 7 |
| | D. Defect Review Panel | 9 |
| | E. Formal Defect Investigation (Case) | 9 |
| | F. Initial Determination of a Safety Defect | 12 |
| | G. Final Determination | 13 |
| III. | **Control Requirements** | 14 |

# I. INTRODUCTION

The purpose of the Office of Defects Investigation (ODI) defect investigative process is to develop the information necessary to carry out the defect correction requirements of the National Traffic and Motor Vehicle Safety Act of 1966 as amended (the Act). By using the investigative process described in this document, defects that present an unreasonable risk to motor vehicle safety can be identified. The process encompasses all aspects of investigative activity, including collecting, analyzing, and evaluating information necessary to determine whether a safety-related defect exists in a motor vehicle or item of equipment.

The process is normally conducted in three phases.

Phase I. Preliminary Evaluation (PE):

The primary purpose of the PE phase is to screen problems quickly that are alleged to be associated with safety-related defects. This screening is intended to discriminate between problems which are isolated in nature, do not represent a safety-related defect, or do not indicate an emerging defect trend, and problems which could be safety-related defects.

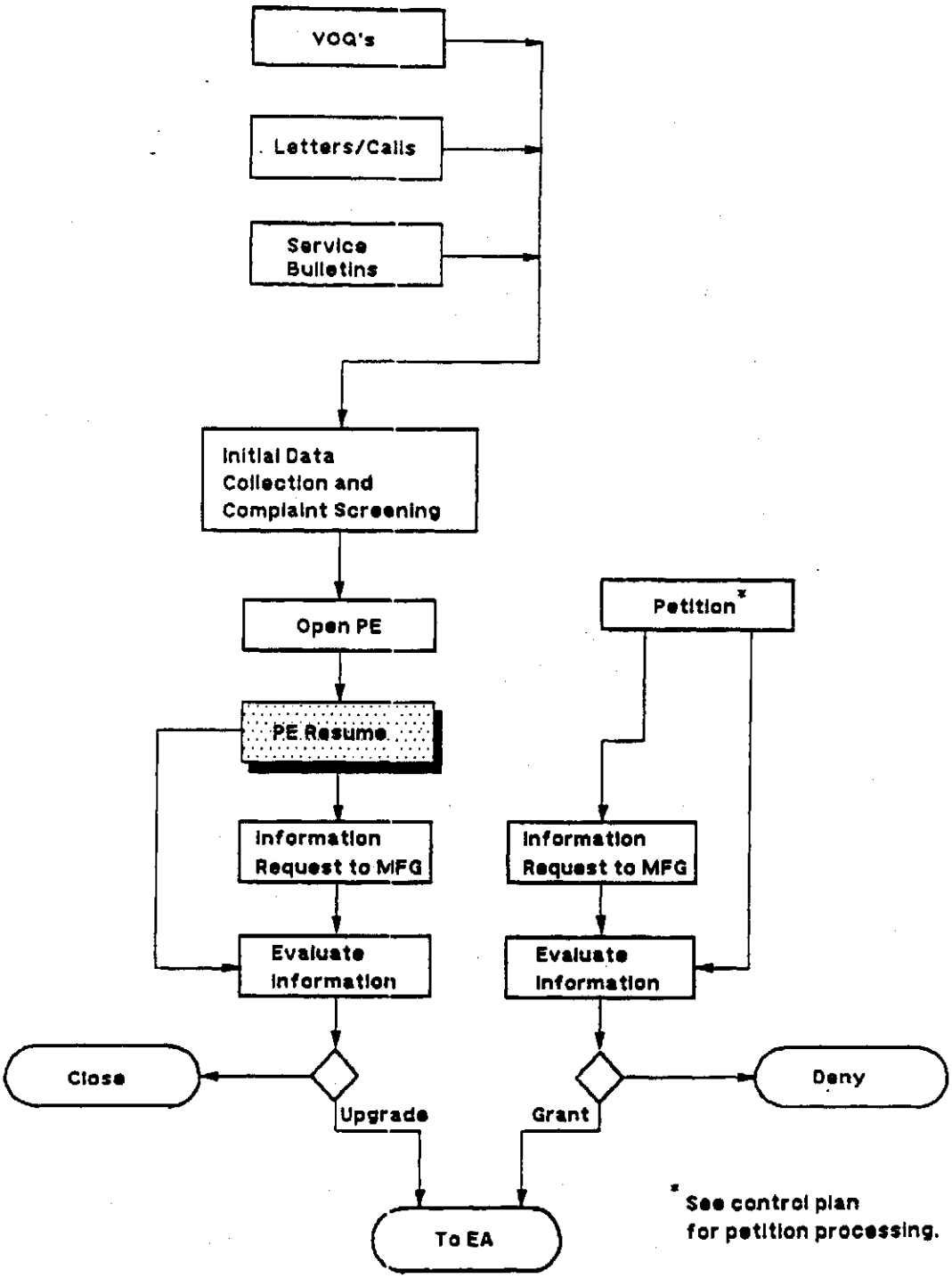
Phase II. Engineering Analysis (EA):

The goal of the EA is to determine the character and scope of the problem and to collect enough information to influence the manufacturer to conduct a voluntary recall where appropriate. The EA builds on information collected during the PE and supplements it with inspections, tests, surveys, and additional information from the manufacturer and/or suppliers. At this intermediate stage it is decided whether further effort is required. If so, apparent failure modes are identified and plans for additional work devised. An EA is normally opened as the result of PE action or a petition, but it can also be initiated without going through these preliminary stages if there are other strong indications that a safety-related defect exists.

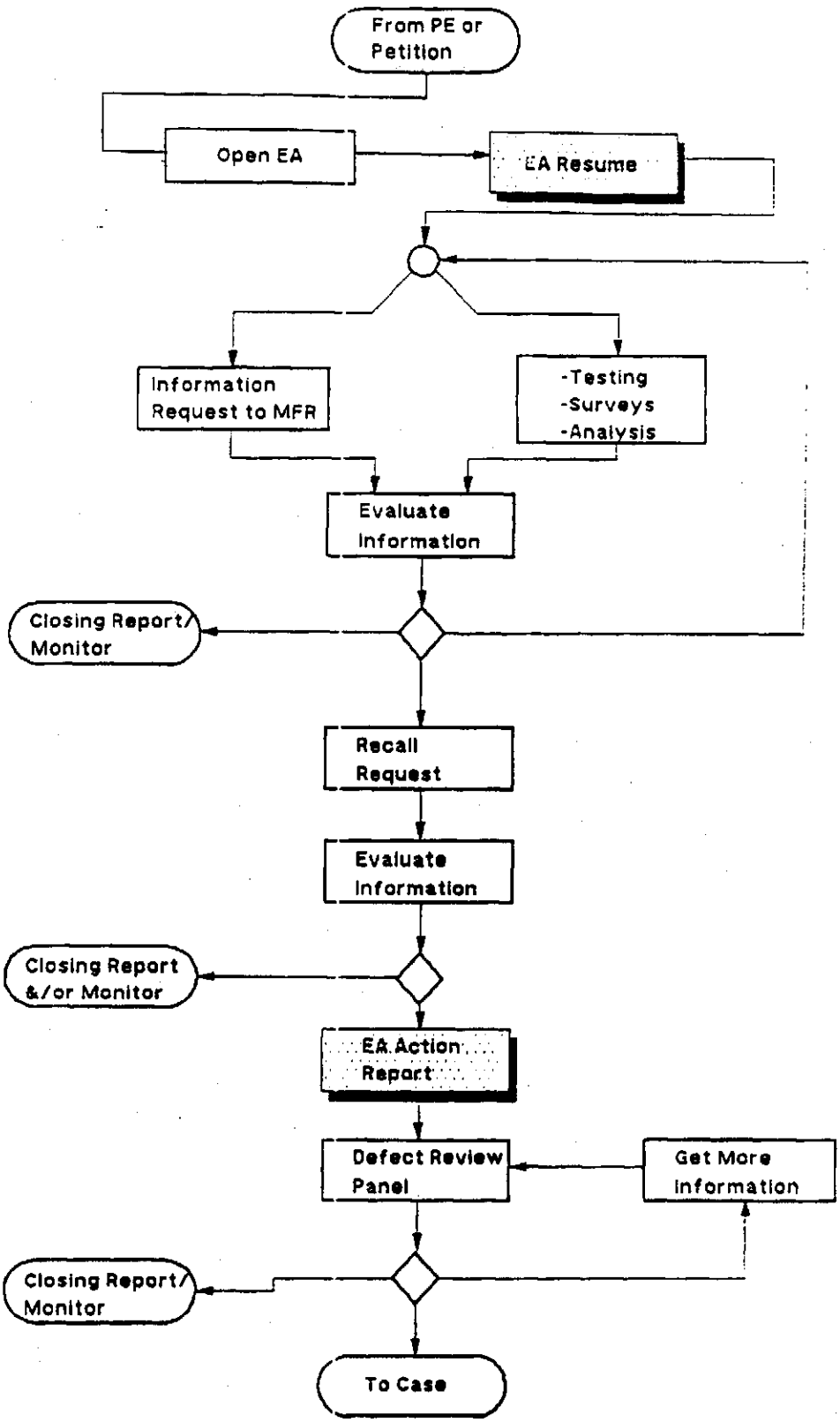
Phase III. Formal Investigation (Case):

Upon completing the EA phase, if the information gathered warrants a formal investigation, the manufacturer is requested in writing to conduct a voluntary recall. If no recall occurs, and the information continues to support a recall, the matter is presented to a Defect Review Panel with a recommendation that a Case be opened. Investigative work during this Case phase involves gathering enough information to support a decision to either close the Case or to make an Initial Defect Determination. The work should be sufficiently thorough to support subsequent litigation. If the Case results in a Final Determination of a safety-related defect, the manufacturer is ordered to conduct a recall in accordance with 15 U.S.C. §§553-555 and implementing agency regulations.

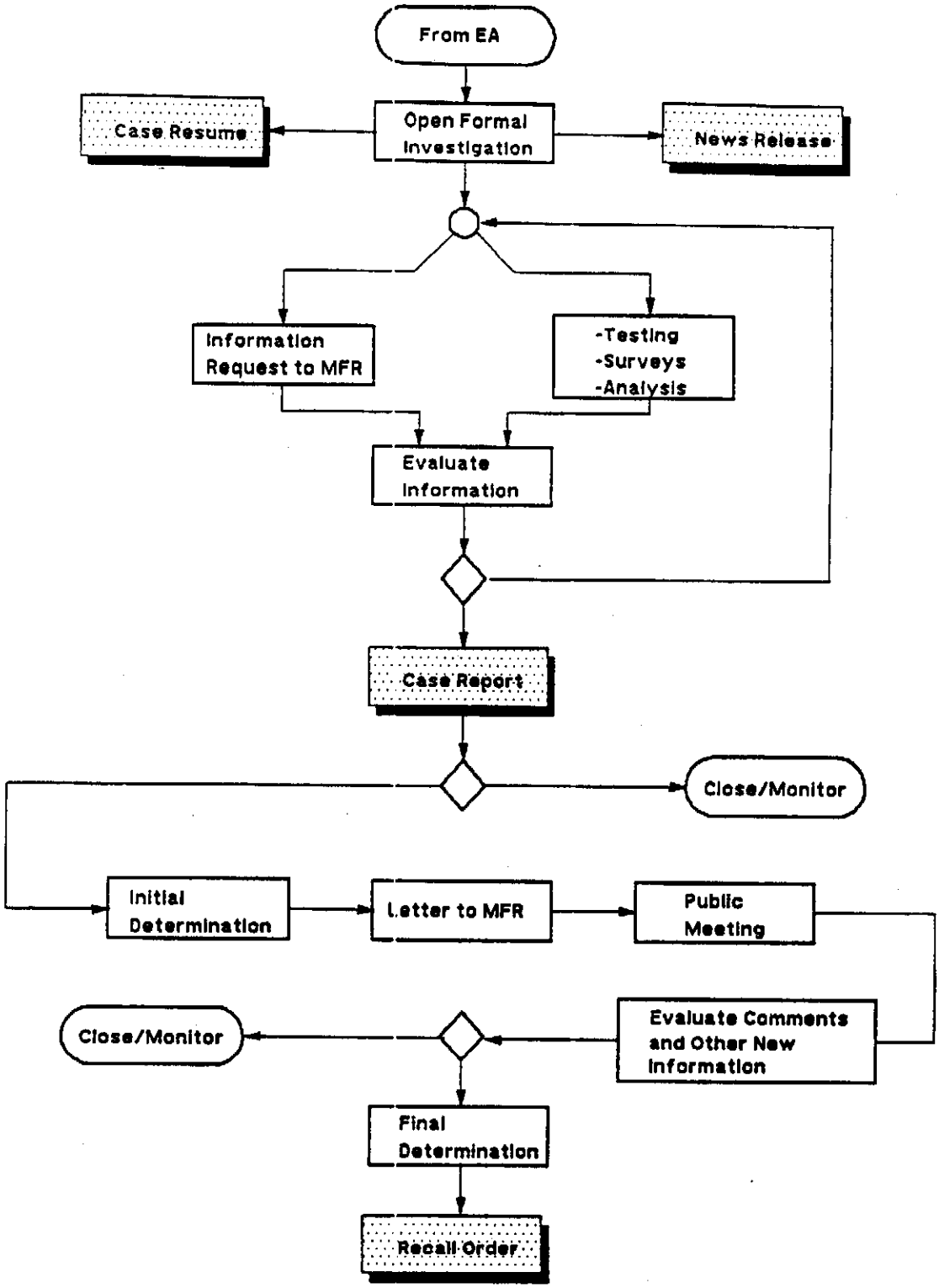
Charts A, B, and C outline the key elements of the investigative process and illustrate the major documents produced during investigations. A recall can occur at any point during this process.




**A. Investigative Process--Work Flow (PE/Petition)**




**B. Investigative Process--Work Flow (EA)**




**C. Investigative Process Work Flow (Case to Final Determination)**

# II. PROCEDURES

This section describes the procedures to be used in conducting each phase of the investigative process.

## A. INITIAL DATA COLLECTION

The investigative process starts with the compilation of consumer complaint reports and other information concerning potential safety problems. The main source of this information is the Vehicle Owner's Questionnaire (VOQ)[1], which is distributed in response to calls to the agency's Auto Safety Hotline or other contacts, and which is completed and returned to the agency for processing. In addition to the VOQ reports, ODI receives Congressional correspondence; letters and phone calls directly from the public or consumer groups; and information from state and local governments, other Federal Agencies, the Canadian Ministry of Transport and from fleets. This information is regularly reviewed so that potential safety-related defects can be quickly identified and existing investigations updated.

Additional sources of information routinely reviewed are manufacturers' Technical Service Bulletins (TSB). The TSB is a means of formal communication from the manufacturer to its dealers. Each manufacturer is required by 49 CFR Part 573.8 to furnish NHTSA monthly with a copy of all notices, bulletins, and other communications sent to dealers (and others) regarding any defect in the manufacturer's vehicles or items of equipment, regardless of whether such defects are considered safety-related. These documents are reviewed and those that appear to indicate a potential safety-related defect are considered for further action by the agency.

After all available information on an alleged problem has been gathered and analyzed by the Technical Analysis Branch, the issue is presented to ODI management and those matters which appear to have the most significance are chosen for further attention. When action is appropriate, a PE is opened. Information requests to a manufacturer, based on TSB's and/or consumer complaints, are included in a PE, which is assigned a PE number and conducted in accordance with PE guidelines.

On the basis of the staff's experience and engineering judgment, and in light of judicial decisions, ODI may choose not to expend limited resources to investigate certain kinds of reported problems. These are matters that may be aggravating to owners but usually have minimal safety-related implications. Some examples include:

1. Routine engine or transmission malfunctions which provide ample warning of failure through noise, vibration, fluid leakage, etc.;

2. Nonstructural body panel rust; and

3. Routine maintenance-related problems, such as tire wear, vibration, premature brake pad wear, disc brake rotor warpage, etc.

However, depending upon the circumstances, any failure or malfunction which might represent an unreasonable risk to motor vehicle safety is subject to investigation.

---

[1] HS Form 350.

## B. PRELIMINARY EVALUATION (PE)

The PE is usually the first public step taken by ODI in reaction to information concerning a potential defect. A PE may be opened when the possibility exists that a design, material, manufacturing, or performance defect may pose an unreasonable risk to motor vehicle safety. Particularly at this early stage, a low number of consumer complaints may be sufficient to justify opening a PE, especially when the safety consequences of the potential defect are considered. Normally, some combination of two essential ingredients, frequency and severity, is needed to initiate investigative action, although in some cases, a PE will be opened at an early stage when information about frequency and severity is still quite limited.

Specifically, a PE may be opened when any of the following occurs:

1. A number of complaints of the same problem (especially on a late model vehicle) are received within a short period of time.

2. A single report is received indicating severe safety consequences with a possibility that other similar failures will occur; for example, an instrument panel that shatters when struck by an occupant's head.

3. The number of complaints currently being received about a general problem, and the number already existing in the data base, are judged to warrant further inquiry. For example, "my brakes failed" or "my headlights went out."

4. A few complaints of a unique or specific nature are received. For example, "the left front brake hose rubbed on a bracket causing all the brake fluid to leak out" or "my headlights failed because relay XYZ burned-out."

5. Reports are received from the Canadian Ministry of Transport concerning a problem that is likely to show up in the United States at some later time. For example, a corrosion problem discovered in the Maritime Provinces, where severe weather conditions exist, might well develop later in the Northeastern and Middle Western United States.

6. The review of a TSB reveals a problem which appears to have safety-related implications.

7. A fleet reports an identical problem in more than one vehicle.

When a PE is opened, a PE Resume is prepared by the engineer or investigator. The PE usually involves a letter to the manufacturer containing a brief description of the basis for the PE and a request for information concerning vehicle population, complaints, accidents, injuries, fatalities, and lawsuits received by the manufacturer.

Additional questions may be asked concerning technical service bulletins, warranty data, production changes, and other information when appropriate. Questions are usually held to the minimum necessary to decide whether to upgrade to an EA. Copies of relevant consumer complaints received by ODI are also enclosed for review by the manufacturer.

The manufacturer is notified by phone that a PE has been opened and that an information request is being prepared. Based on the analysis of the manufacturer's response, and all other available information, the PE may then be: (1) closed, (2) continued in order to seek clarification of information in the first response, or (3) upgraded to an EA.

Ordinarily, the average duration of a PE should be about four (4) months. During the PE process, if the manufacturer conducts a voluntary recall which is consistent with the vehicle population and the problem identified, the PE is closed. If a recall does not occur or questions remain, the PE Resume is updated in preparation for opening an EA. If all items in the letter from the manufacturer are answered, no questions remain, and no safety defect trend appears to exist, the PE resume is updated to reflect the latest information and the PE is closed.

## C. ENGINEERING ANALYSIS (EA)

When a PE suggests the possibility of a defect and the manufacturer does not initiate a recall, or if more information is needed to decide whether to make a determination of a defect, an EA is opened. An EA may be opened without conducting a PE if available information strongly suggests the existence of a possible safety-related defect. An EA is also opened when a petition for a safety defect investigation is granted.

When an EA is opened, some or all of the following actions may be taken:

1. An EA Resume is prepared by the engineer or investigator. The manufacturer is notified by telephone that the investigation has been raised to the EA level and that an additional information request may be forthcoming.

2. Owners who have reported the problem to ODI may be contacted to better identify the scope and nature of the matter under study.

3. An EA information request, with copies of additional consumer complaints, is sent to the manufacturer. This request may ask for clarification of previous responses; updated information regarding consumer complaints, lawsuits, and sales figures; warranty experience; material changes; component modification history; manufacturer's test results; and other detailed, technical questions pertaining to the alleged problem and its causes. The manufacturer's assessment of the problem is usually requested at this time.

4. The ODI databases are re-checked for additional consumer complaints; manufacturer bulletins; previous pertinent ODI investigative files including PE's, EA's, petitions, and Cases; and pertinent recalls (both for the subject vehicle manufacturer and peer vehicle manufacturers).

5. Accident data (FARS, CARDfile, etc.) may be requested from NHTSA's National Center for Statistics and Analysis (NCSA), and a literature search may be requested from NHTSA's Technical Reference Division (TRD).

6. A test program or survey may be conducted to simulate the failure, identify the defect, and/or determine the safety-related consequences. Test procedures and results are not released to the public until the investigation is closed.

7. If the alleged problem involves the design or manufacture of a specific component or assembly, information requests may be sent to the supplier(s) of the part(s). Similarly, information requests may be sent to other vehicle manufacturers who use the allegedly defective component(s) on their products.

After the information gathering phase is completed, the information is analyzed to determine the extent and severity of the alleged problem. The engineer or investigator may consider such factors as:

1. Failure history and projections, based on parts sales, mileage, time-to-failure, and vehicle population.

2. Safety-related implications, including cause of failure, failure modes, risk (in terms of frequency and severity), and warning of failure (if any).

3. The engineering relationship or correlation between design, material, or manufacturing changes and the failure history.

4. The effect of vehicle characteristics (including engine type, transmission type, air conditioning, power steering, cruise control, power brakes, body style, etc.) and manufacturing information such as assembly plant and VIN sequence.

5. Possible contributing and causal factors, such as environmental conditions including road surface treatment (salt), temperature, altitude, geographical location, vehicle maintenance, vehicle usage, etc.

6. The role of "Human Factors" and driver/vehicle interaction, including physical characteristics of both the vehicle and driver.

7. Comparison with peer groups. How does this problem compare with related problems on contemporary peer group vehicles and/or components, with previous ODI investigations, and with problems that led to voluntary recalls by other manufacturers?

8. Type of failure. Is it a purely performance-related matter or have failed parts been discovered? Can vehicle population and the suspect component be defined? Do objective performance standards exist? Does testing show a substandard system performance when compared to peer groups?

After the information has been analyzed, the engineer or investigator should have enough insight into the problem to allow an evaluation of safety consequences with a recommendation for action. A report is then drafted by the engineer or investigator and one of three recommendations is made: (1) close, (2) leave open to monitor for emerging trends or to collect additional information, or (3) send a recall request letter.

When an EA is closed, an Engineering Analysis Closing Report and a closing resume are prepared.

The conclusions in the report should include statements as to the cause, scope, and risk to motor vehicle safety of the alleged defect. The conclusions must be consistent and logical with respect to the observations and facts from which they are drawn.

If, during the EA process, a manufacturer initiates a voluntary recall which is consistent with the vehicle population and the problem identified, the EA may be closed with a closing resume that discusses the important facts concerning the recall.

If it appears that the investigation should be upgraded to a Case, a Recall Request Letter is prepared. This letter states the reasons why ODI believes that there may be a safety-related defect and informally requests the manufacturer to conduct a voluntary recall campaign. The manufacturer is provided an opportunity to submit any additional pertinent information if it decides not to conduct a recall. After careful study of the manufacturer's response to the recall request, a decision is made on whether to present the matter to the Defect Review Panel.

## D. DEFECT REVIEW PANEL

The Defect Review Panel is composed of representatives from the offices of the Administrator, Chief Counsel (NCC), and ODI. Representatives from Public and Consumer Affairs also attend for informational purposes. The engineer or investigator prepares and conducts a briefing for the Defect Review Panel, which must include a clear presentation of all relevant facts.

Following the briefing, the Panel decides whether the matter should be the subject of a formal Defect Investigation, continued as an EA for additional analysis, or closed. If the Panel agrees that the matter merits a formal investigation, preparations are made to open a Case.

## E. FORMAL DEFECT INVESTIGATION (Case)

When the continuing study of the problem during the EA phase fails to produce a voluntary recall by the manufacturer, and the Defects Review Panel concludes that the matter merits additional effort, it is elevated to the status of a formal Defect Investigation.

Formal Defect Investigations expand on the information gathered during the PE and EA phases. The formal defects investigation process may lead to a voluntary recall or an Initial Determination of safety defect, or the investigation may be terminated without corrective action.

During the investigation the following actions are taken, as appropriate:

1. At the outset, a meeting is held between ODI and NCC to identify those items of investigatory information which need to be gathered or strengthened in order to complete the case in both a timely and efficient manner.

2. The manufacturer is advised of the opening of a Formal Defect Investigation by phone. A confirming Case Opening letter is also sent to the manufacturer, enclosing a copy of the Case Resume.

3. A press release announcing the opening of a Formal Defect Investigation is issued by the Office of Public and Consumer Affairs. The announcement may include a copy of the Case Resume and it may be sent to the media, consumer interest groups, and others, advising them of the alleged defect and soliciting additional information.

4. Monthly Case Briefs are prepared.

5. An information request, which includes copies of any previously untransmitted consumer reports, is usually sent to the manufacturer. This request may ask for clarification of previous manufacturer responses; updated information regarding consumer complaints, accidents, and lawsuits; sales and warranty figures; the submission of engineering drawings and blueprints; design, production, assembly, or material modification history; and manufacturer test results to supplement those covered during the EA process. Questions may be posed on issues or areas not previously covered during the EA phase.

6. Owner surveys may be conducted covering representative vehicle populations, consisting of both subject vehicles and peer group vehicles. The resulting data analysis may provide an additional measure of the scope and seriousness of the problem.

7. In-depth interviews may be conducted with owners of affected vehicles to obtain additional insight as to modes and consequences of failure. Contacts pertaining to fatal accidents may be made with survivors, relatives, or other knowledgeable parties.

8. Existing test programs may be continued and additional test programs may be initiated to further define causal and contributory factors and their possible effect on safety.

9. ODI files are searched for new manufacturer bulletins issued since the EA was closed and the Case opened.

10. Updated accident data may be requested from the agency's National Center for Statistics and Analysis and relevant literature may be requested from TRD.

11. Updated information may be solicited from the Canadian Ministry of Transport.

After the above actions have been completed, the data concerning the existence, nature, extent and severity of the alleged defect must be analyzed. The investigator considers the following, as appropriate:

1 Public contributions. Does the file contain significant consumer contributions that help establish the scope and severity of the problem? What do they show?

2. Owner surveys. What insight as to the scope and gravity of the problem does analysis of the survey results yield?

3. Manufacturer information. Did the manufacturer submit information which further refines or augments previously acquired data? What does that information tend to establish?

4. Owner interviews. Did the owner interviews provide clarification of the nature and extent of the problem?

5. Comparison with similar previous investigations. How does the information concerning this alleged defect compare with that gained in other investigations or recalls?

6. Does the accumulated information now indicate the presence of a safety-related defect?

Analysis of available information is an ongoing effort throughout the investigation. At any juncture in the above process, one or more engineering meetings with the manufacturer may be held by ODI for presentation and discussion of material bearing on the subject problem.

All factual information, correspondence, physical exhibits, and other documentation used to reach a decision must be included in the case file, with exception of the engineer's or investigator's working papers and notes. After all data have been analyzed and evaluated, the investigator should have sufficient insight into the problem to be able to recommend one of two courses of action: (1) terminate the investigation or (2) proceed with an Initial Determination of defect. However, in some instances, the investigator may conclude that additional investigative work should be done before recommending a course of action.

In the event that the manufacturer conducts a voluntary recall of the subject vehicles and ODI concludes that the parameters of the recall are consistent with the subject vehicle population and the problem identified in the investigation, the case is closed. A short recall memorandum is prepared by the investigator. Further investigative action is suspended.

If the manufacturer does not elect to conduct a voluntary recall, the investigator prepares a briefing and drafts a Case Investigative report that details the results of the investigation and makes a recommendation to the Director of ODI and the Associate Administrator for Enforcement for disposition of the Case.

All decisions with respect to the conclusion of Cases in which the manufacturer has not conducted a voluntary recall must have the concurrence of all relevant levels of ODI management, the Office of Chief Counsel, and the Associate Administrator for Enforcement. If the ODI Office Director decides to close the Case, the case investigative report prepared by the engineer becomes the Case Closing Report. The engineer prepares a memorandum for the signature of the Office Director, closing the case, and transmitting the Case Closing Report to the file.

If the staff recommends an Initial Determination, the engineer or investigator presents a briefing to the Associate Administrator for Enforcement. The Associate Administrator for Enforcement decides whether to make the Initial Determination after reviewing the Case Investigative Report and the investigative file, and after consultation with the Office of Chief Counsel.

## F. INITIAL DETERMINATION OF A SAFETY DEFECT [2]

The following procedure is to be followed when the Associate Administrator for Enforcement makes an Initial Determination:

1. The case investigator ensures that the complete investigative file has been indexed, reviewed by NCC under FOIA and reclassified as appropriate, assembled and photocopied with sufficient copies for the manufacturer and the public. The investigator drafts a letter to the manufacturer and prepares a notice for the Federal Register to notify the public of the Initial Determination.

2. The manufacturer is notified of the Initial Determination in a letter, signed by the Associate Administrator for Enforcement, which includes the Case Investigative Report and provides or states the location of all information upon which the Initial Determination is based. The letter advises the manufacturer of its right to present data, views, and arguments to establish that there is no defect or that the alleged defect does not affect motor vehicle safety. The letter also specifies the time and place of a public meeting for the presentation of arguments and sets a date by which written comments must be submitted. Submission of all information, whether at a public meeting or in written form, is normally scheduled approximately 30 working days after the Initial Determination. The deadlines for the submission of information or for the public meeting can be extended at the discretion of the Associate Administrator for Enforcement.

4. Public notice of an Initial Determination is made in a Federal Register Notice, signed by the Associate Administrator for Enforcement, that:

   a. Identifies the motor vehicle or item of equipment and its manufacturer;

   b. Summarizes the information upon which the initial determination is based;

   c. Gives the location of all information available for public examination; and

   d. States the time and place of the public meeting and the deadline for written submissions in which the manufacturer and interested persons may present data, views, and arguments respecting the Initial Determination.

5. The public meeting is an informal proceeding at which manufacturers and interested members of the public make oral presentations of data, views, and arguments with respect to the Initial Determination. There is no formal examination or cross examination of speakers, but presiding agency officials may ask clarifying questions. A transcript of the public meeting is kept and exhibits may be offered by the manufacturer or members of the public.

---

[2] Also see 49 C.F.R. Part 554.

## G. FINAL DETERMINATION [3]

If the Initial Determination does not lead to a "voluntary" recall, a Final Determination may be made by the NHTSA Administrator. The administrator receives a transcript of the public and is also briefed by NCC concerning the matter. If the Administrator determines that a safety-related defect exists, the manufacturer is ordered to furnish the notification specified in the Act and to elect a remedy for the defect as specified in the Act. If the Administrator does not determine that a safety-related defect exists, the investigation is closed and the manufacturer is notified of the closing in a letter signed by the Administrator.

A statement of the reason(s) for each decision appears in the completed public file.

---

[3] Also see 49 C.F.R. Part 554

## III. CONTROL REQUIREMENTS

### A. REVIEW AND APPROVAL AUTHORITY

Reviews and approvals required for actions occurring during the investigative process are as shown below.

| ACTION | Engineer or Staff | Branch Chief | Division Chief | Office Director | NCC | AA/ ENF | Admin-istrator |
|---|---|---|---|---|---|---|---|
| Initial Data Search | X | | | | | | |
| Open/Close Preliminary Evaluation | R | C | C | A | | | |
| Open/Close Engineering Analysis | R | C | C | A | | C* | |
| Recall Request Letter | R | C | C | A | | C | |
| Convene Defect Review Panel | R | C | C | A | | C | |
| Open/Close Formal Investigation | R | C | C | A | C | C | |
| Initial Determination | R | C | C | C | C | A | |
| Final Determination | R | C | C | C | C | C | A |

X - Initiate/Perform

R - Recommend and/or Prepare

C - Review/Concur

A - Approve/Sign

* Close only without recall