



Received 11-10-09
[Signature]



6 Nov 09

D. Scott Yon, Chief
Vehicle Integrity Division
Office of Defects Investigation
National Highway Traffic Safety Administration
1200 New Jersey Ave., S. E., Room W46-409
Washington, D.C. 20590

N090239

NVS-212Ihs
PE09-044

Dear Mr. Yon:

This letter is General Motors' (GM) response to your preliminary evaluation (PE), dated 18 Sept 09, regarding allegations of a laceration hazard resulting from sharp edges in the chrome plating on the interior door handles of MY 2007-2008 Chevrolet Tahoe, GMC Yukon and GMC Yukon XL vehicles.

Your questions and our corresponding replies are as follows:

1. **State, by model and any appropriate sub-group, the number of subject vehicles manufactured by GM for sale or lease in the United States. Separately, for each subject vehicle manufactured to date by GM, state the following:**
 - a. **Vehicle identification number (VIN);**
 - b. **Make;**
 - c. **Model;**
 - d. **Model Year;**
 - e. **Date of manufacture;**
 - f. **Date warranty coverage commenced; and**
 - g. **The State in the United States where the vehicle was originally sold or leased (or delivered for sale or lease).**

Provide the table in Microsoft Access 2000, or a compatible format, entitled "PRODUCTION DATA."

General Motors is providing the number of subject vehicles produced for sale or lease in the United States by make, model and model year in Table 1-1 below:

MAKE	MODEL	2007MY	2008MY	TOTAL
Chevrolet	Tahoe	250,623	114,511	365,134
GMC	Yukon, Yukon XL	182,762	81,674	264,436
Total		433,385	196,185	629,570

TABLE 1-1 SUBJECT VEHICLES



The production information requested in 1a-1g is provided on the ATT_1_GM disk; folder labeled "Q_01". Refer to the Microsoft Access 2000 file labeled "Q_01_PRODUCTION DATA".

2. **State the number of each of the following, received by GM, or of which GM is otherwise aware, which relate to, or may relate to, the alleged defect in the subject vehicles:**
 - a. **Consumer complaints, including those from fleet operators;**
 - b. **Field reports, including dealer field reports;**
 - c. **Reports involving a crash, injury, or fatality, based on claims against the manufacturer involving a death or injury, notices received by the manufacturer alleging or proving that a death or injury was caused by a possible defect in a subject vehicle, property damage claims, consumer complaints, or field reports;**
 - d. **Property damage claims, alleged to have resulted from alleged defect;**
 - e. **Third-party arbitration proceedings where GM is or was a party to the arbitration; and**
 - f. **Lawsuits, both pending and closed, in which GM is or was a defendant or codefendant.**

For subparts "a" through "c," state the total number of each item (e.g., consumer complaints, field reports, etc.) separately. Multiple incidents involving the same vehicle are to be counted separately. Multiple reports of the same incident are also to be counted separately (i.e., a consumer complaint and a field report involving the same incident in which a crash occurred are to be counted as a crash report, a field report and a consumer complaint).

In addition, for items "c" through "f," provide a summary listing of the alleged problem and causal and contributing factors, and GM's assessment of the problem with a summary of the significant underlying facts and evidence. For items "e" and "f," identify the parties to the action, as well as the caption, court, docket number, and date on which the complaint or other document was filed to initiate the action.

Table 2-1 below summarizes records that may relate to allegations of a laceration hazard resulting from sharp edges in the chrome plating on the interior door handle. GM has organized the records by the GM file number within each attachment. Refer to access database "Q_03_REQUEST NUMBER TWO DATA" for categories prescribed by the NHTSA.

Type of Report	GM Reports	Subcategories			
		Corresponding to NHTSA Reports	Number with Property Damage	Number with Crash	Number with Injuries*
Owner Reports	119	1	0	0	64
Field Reports	12	0	0	0	1
Not-In-Suit Claims	2	0	0	0	2
Subrogation Claims	0	0	0	0	0
Third Party Arbitration Proceedings	0	0	0	0	0
Product Liability Lawsuits	0	0	0	0	0
Total Reports (Including Duplicates)	133	1	0	0	67
Total Vehicles with Reports (Unique VIN)	129	1	0	0	63

TABLE 2-1: REPORT CLASSIFICATION - ALLEGATIONS OF LACERATION HAZARD
 * THERE WERE NO FATALITIES ASSOCIATED WITH THIS ISSUE

The sources of the requested information and the last date the searches were conducted are tabulated in Table 2-2 below.

Source System	Last Date Gathered
Customer Assistance Center	28 Sept 09
Technical Assistance Center	1 Oct 09
Field Information Network Database (FIND)	7 Oct 09
Field Product Report Database (FPRD)	6 Oct 09
Company Vehicle Evaluation Program (CVEP)	1 Oct 09
Captured Test Fleet (CTF)	1 Oct 09
Early Quality Feedback (EQF)	1 Oct 09
Legal/Employee Self Insured Services (ESIS)/Product Liability Claims/Lawsuits	29 Sept 09

TABLE 2-2: DATA SOURCES

3. Separately, for each item (complaint, report, claim, notice, or matter) within the scope of your response to Request No. 2, state the following information:

- a. **The category of the item, as identified in Request No. 2 (i.e., consumer complaint, field report, etc.);**
- b. **Vehicle owner or fleet name (and fleet contact person), address, and telephone number;**
- c. **Vehicle's VIN;**
- d. **Vehicle's make, model and model year;**
- e. **Vehicle's mileage at time of incident;**
- f. **Incident date;**
- g. **Report or claim date;**
- h. **Whether a loss of vehicle control or crash is alleged;**
- i. **Whether property damage is alleged;**
- j. **Number, type and severity of alleged injuries, if any; and**
- k. **Number of alleged fatalities, if any.**

Provide this information in Microsoft Access 2000, or a compatible format, entitled "REQUEST NUMBER TWO DATA."

The requested information is provided on the ATT_1_GM disk; folder labeled "Q_03". Refer to the Microsoft Access 2000 file labeled "Q_03_REQUEST NUMBER TWO DATA". The assessment of injuries is based upon assessment criteria from the National Accident Sampling System Crashworthiness Data System - AIS - 90 Injury Coding Manual.

4. **Produce copies of all documents related to each item within the scope of Request No. 2. Organize the documents separately by category (i.e., consumer complaints, field reports, etc.) and describe the method GM used for organizing the documents.**

Copies of the records summarized in Table 2-1 are embedded in the file provided in ATT_1_GM disk; folder labeled "Q_03". Refer to the Microsoft Access file labeled "Q_03_REQUEST NUMBER TWO DATA". GM has organized the records by the GM file number within each attachment.

To date, GM's investigation of the alleged defect has not included an assessment of the cause(s) of each incident responsive to item No. 2. Some incident reports may not contain sufficient reliable information to accurately assess cause.

5. **State, by model and any appropriate sub-group, a total count for all of the following categories of claims, collectively, that have been paid by GM to date that relate to, or may relate to, the alleged defect in the subject vehicles: warranty claims; extended warranty claims; claims for good will services that were provided; field, zone, or similar adjustments and**

reimbursements; and warranty claims or repairs made in accordance with a procedure specified in a technical service bulletin or customer satisfaction campaign.

Separately, for each such claim, state the following information:

- a. GM's claim number.**
- b. Vehicle owner or fleet name (and fleet contact person) and telephone number;**
- c. VIN;**
- d. Repair date;**
- e. Vehicle mileage at time of repair;**
- f. Repairing dealer's or facility's name, telephone number, city and state or ZIP code;**
- g. Labor operation number;**
- h. Problem code;**
- i. Replacement part number(s) and description(s);**
- j. Concern stated by customer; and**
- k. Comment, if any, by dealer/technician relating to claim and/or repair.**

Provide this information in Microsoft Access 2000, or a compatible format, entitled "WARRANTY DATA."

For the subject vehicles, the regular warranty and goodwill warranty claims with allegations of peeling or separation of the chrome plating of the interior door handles are summarized by model and model year in Table 5-1. The vast majority (97.7%) of these claims only describe cosmetic issues such as peeling or separation of the chrome plating. The MIC and UWC extended service contract claims are summarized by model and model year in Table 5-2 and Table 5-3, respectively. A summary of the warranty claims, including the information requested in 5(a-k), is provided on the ATT_1_GM disk; folder labeled "Q_05": refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA". A list of the labor codes, customer complaint codes and trouble codes used to collect the warranty data is provided in response to item No. 6.

MAKE	MODEL	2007MY	2008MY	TOTAL
Chevrolet	Tahoe	19,644	811	20,455
GMC	Yukon, Yukon XL	16,233	577	16,810
Total		35,877	1,388	37,265

TABLE 5-1: REGULAR WARRANTY CLAIMS WITH ALLEGATIONS OF PEELING OR SEPARATION OF THE CHROME PLATING OF THE INTERIOR DOOR HANDLES

MAKE	MODEL	2007MY	2008MY	TOTAL
Chevrolet	Tahoe	430	10	440
GMC	Yukon	450	1	451
Total		880	14	891

TABLE 5-2: MIC EXTENDED SERVICE CONTRACT CLAIMS WITH ALLEGATIONS OF PEELING OR SEPARATION OF THE CHROME PLATING OF THE INTERIOR DOOR HANDLES

MAKE	MODEL	2007MY	2008MY	TOTAL
Chevrolet	Tahoe	1	0	1
GMC	Yukon	1	0	1
Total		2	0	2

TABLE 5-3: UWC EXTENDED SERVICE CONTRACT CLAIMS WITH ALLEGATIONS OF PEELING OR SEPARATION OF THE CHROME PLATING OF THE INTERIOR DOOR HANDLES

SOURCE SYSTEM	LAST DATE GATHERED
GART - regular warranty	1 Oct 09
MIC – extended service contract claims	30 Sept 09
UWC – extended service contract claims	28 Sept 09

TABLE 5-4: DATES PULLED

GM searched the GM Global Analysis and Reporting Tool (GART-regular warranty), the Motors Insurance Corporation (MIC– extended service contract claims) and the Universal Warranty Corporation (UWC– extended service contract claims) databases to collect the warranty data for this response.

GM's warranty database does not contain the following information: vehicle owner's name, telephone number or customer concern statement. GM is providing a field labeled "Verbatim Text" in response to item 5K (dealer/technician comment). The verbatim text is an optional field in the GM warranty system for the dealer to enter any additional comments that may be applicable to the warranty claim. The verbatim text field is not required to be completed for every warranty claim.

The warranty data provided has limited analytical value in analyzing the field performance of a motor vehicle component. The warranty records do not contain sufficient information to establish the condition of the part at the time of the warranty correction; and service personnel may not consistently use the appropriate labor and trouble codes. Warranty numbers represent claims by our dealers for reimbursement for parts and labor costs incurred in performing warranty service for our customers.

A summary of warranty claims that may relate to the subject condition is provided on the ATT_1_GM disk; folder labeled "Q_05": refer to the Microsoft Access 2000 file labeled "Q_05_WARRANTY DATA".

- 6. Describe in detail the search criteria used by GM to identify the claims identified in response to Request No. 5, including the labor operations, problem codes, part numbers and any other pertinent parameters used. Provide a list of all labor operations, labor operation descriptions, problem codes, and problem code descriptions applicable to the alleged defect in the subject vehicles. State, by make and model year, the terms of the new vehicle warranty coverage offered by GM on the subject vehicles (i.e., the number of months and mileage for which coverage is provided and the vehicle systems that are covered). Describe any extended warranty coverage option(s) that GM offered for the subject vehicles and state by option, model, and model year, the number of vehicles that are covered under each such extended warranty.**

The GM Global Analysis and Reporting Tool (GART-regular warranty) regular warranty database and the Motors Insurance Corp (MIC) extended service contract claims database were searched using the labor codes, listed in Table 6-1, that may be related to the alleged defect of peeling or separation of the chrome plating of the interior door handles. All claims with those labor codes that also contained the customer codes listed in table 6-2 or trouble codes listed in table 6-3 were included. The verbatim comments for the remaining claims were searched using the key words "sharp," "cut," "hurt," "injur," "stitch," "lacera," "finge," "hand_," "jagged," "medic," "Peel," "crom," "chrom," "flak," or "delam." Verbatims associated with claims containing these key words were then read and included if they may be related to the alleged defect.

Universal Warranty Corporation (UWC) does not use labor codes or trouble codes.

The subject vehicles are covered by a bumper-to-bumper new vehicle warranty for three years or 36,000 miles, whichever occurs first. Many different extended warranty options are available through GM dealerships. They are offered at different prices and for varying lengths of time, based on customer's preference, up to 7 years from the date of purchase or up to a total of 100,000 vehicle miles.

Some of the VINs have multiple entries for various labor codes. The warranty claims reflect the number of labor operations used by dealers, which is higher than the number of actual visits to dealers for repairs.

LABOR CODE	DESCRIPTION:
B4281	FRONT SIDE DOOR INSIDE HANDLE REPLACEMENT – LEFT SIDE
B4280	FRONT SIDE DOOR INSIDE HANDLE REPLACEMENT – RIGHT SIDE
B4681	REAR SIDE DOOR INSIDE HANDLE REPLACEMENT – LEFT SIDE
B4680	REAR SIDE DOOR INSIDE HANDLE REPLACEMENT – RIGHT SIDE
B4300	HANDLE AND REMOTE CONTROL, FRONT DOOR LOCK – RIGHT
B4301	HANDLE AND REMOTE CONTROL, FRONT DOOR LOCK
B4700	HANDLE AND REMOTE CONTROL, FRONT DOOR LOCK
B4701	HANDLE AND REMOTE CONTROL, FRONT DOOR LOCK LEFT
B4517	HANDLE, REAR SIDE DOOR INSIDE RIGHT REPLACE
B4518	HANDLE, REAR SIDE DOOR INSIDE LEFT REPLACE
B5080	HANDLE SLIDING DOOR INSIDE RIGHT REPLACE
B5081	HANDLE SLIDING DOOR INSIDE LEFT REPLACE
C3240	FRONT SIDE DOOR PULL HANDLE REPLACEMENT – RIGHT SIDE
C3241	FRONT SIDE DOOR PULL HANDLE REPLACEMENT
C3440	REAR SIDE DOOR PULL HANDLE REPLACEMENT
C3441	HANDLE, REAR DOOR INSIDE PULL - LEFT - R&R OR REPLACE
C4440	REAR SIDE DOOR PULL HANDLE REPLACEMENT
C4441	REAR SIDE DOOR PULL HANDLE REPLACEMENT
C3348	FRONT SIDE DOOR TRIM PANEL REPLACEMENT RIGHT SIDE
C3358	FRONT SIDE DOOR TRIM PANEL REPLACEMENT LEFT SIDE
C4830	REAR SIDE DOOR TRIM PANEL REPLACEMENT RIGHT SIDE
C4831	REAR SIDE DOOR TRIM PANEL REPLACEMENT LEFT SIDE
Z1241	PRODUCT LIABILITY/INVESTIGATION REP PR (GOODWILL)
Z1242	PAR-REPAIRS/REIMBURSEMENT (GOODWILL)
Z1243	INSPECTION-PRODUCT ALLEGATION RESOLUTION

TABLE 6-1 LABOR CODES USED IN WARRANTY AND MIC SEARCH

CUSTOMER CODE	DESCRIPTION:
VV	PEELING
VC	CHIP/CHIPPED
VA	BLISTERED
VE	CRACKED
DV	WRINKLED/WAVY
VW	PITTED
VF	CUT
V4	SPLIT SEAM

TABLE 6-2 CUSTOMER CODES USED IN WARRANTY AND MIC SORTING

TROUBLE CODE	DESCRIPTION:
5C	CHROME PLATING DEFECTIVE
5L	PAINT- PEELING
4N	WARPED/WAVY/WRINKLED
5T	POOR METAL FINISH
1G	CHIPPED
1K	CRACKED
2J	BURRS
5M	CHROME PLATING DEFECTIVE
2L	CUT
4A	SCRATCHED

TABLE 6-3 TROUBLE CODES USED IN WARRANTY AND MIC SORTING

The number of extended service contracts on the subject vehicles that have been sold by MIC as of 21 Aug 09 and UWC as of 25 Sept 09 regardless of status (in-force, expired, cancelled) is contained in Tables 6-4 and 6-5.

Make	Model	2007MY	2008MY	Total
Chevrolet	Tahoe	79,351	20,196	99,547
GMC	Yukon, Yukon XL	52,620	13,836	66,456
Total		131,971	34,032	166,003

TABLE 6-4: MIC EXTENDED SERVICE COVERAGE CONTRACTS SOLD
 (REGARDLESS OF STATUS; IN-FORCE, EXPIRED, CANCELLED)

Make	Model	2007MY	2008MY	Total
Chevrolet	Tahoe	12,384	4,481	16,865
GMC	Yukon, Yukon XL	21,794	9,873	31,667
Total		34,178	14,354	48,532

TABLE 6-5: UWC EXTENDED SERVICE COVERAGE CONTRACTS SOLD
 (REGARDLESS OF STATUS; IN-FORCE, EXPIRED, CANCELLED)

7. Produce copies of all service, warranty, and other documents that relate to, or may relate to, the alleged defect in the subject vehicles, issued by GM to any dealers, regional or zone offices, field offices, fleet purchasers, or other entities. This includes, but is not limited to, bulletins, advisories, informational documents, training documents, or other documents or communications, with the exception of standard shop manuals. Also include the latest draft copy of any communication that GM is planning to issue within the next 120 days.

There are no Technical Service Bulletins (TSBs) that may relate to the subject condition.

- 8. Describe all assessments, analyses, tests, test results, studies, surveys, simulations, investigations, inquiries and/or evaluations (collectively, "actions") that relate to, or may relate to, the alleged defect in the subject vehicles that have been conducted, are being conducted, are planned, or are being planned by, or for GM. For each such action, provide the following information:**
- a. Action title or identifier;**
 - b. The actual or planned start date;**
 - c. The actual or expected end date;**
 - d. Brief summary of the subject and objective of the action;**
 - e. Engineering group(s)/supplier(s) responsible for designing and for conducting the action; and**
 - f. A brief summary of the findings and/or conclusions resulting from the action.**

For each action identified, provide copies of all documents related to the action, regardless of whether the documents are in interim, draft, or final form. Organize the documents chronologically by action.

The information listed in Table 8-1 below is a summary of actions that have been conducted, are being conducted, are planned or are being planned by or for GM regarding the subject condition on the subject vehicles as of 17 Oct 09. Documents and additional supporting information are included in the Attachments as noted in the table.

Action 8-1: Design, Development and Validation of the handle system Start Date: 30 Mar 99 End Date: 30 Jan 07 Engineering Group: GM Engineering Attachments: ATT_2_GM_CONF disk; folder labeled "Q_08 GM Validation" Description: GM's engineering documents Summary: The handle system for the subject vehicles passed all validation tests.
Action 8-2: Design, Development and Validation of the handle system Start Date: 11 Aug 04 End Date: 5 May 06 Engineering Group: International Automotive Components Group (IAC) Engineering Attachments: ATT_3_IAC_CONF disk; folder labeled "Q_08 IAC Validation" Description: IAC's engineering documents Summary: The handle system for the subject vehicles passed all validation tests.
Action 8-3: Design, Development and Validation of the handle system Start Date: 4 May 06 End Date: 28 Mar 08 Engineering Group: Armada Toolworks Engineering Attachments: ATT_4_Armada_CONF disk; folder labeled "Q_08 Armada Validation" Description: Armada's engineering documents Summary: The handle system for the subject vehicles passed all validation tests.

<p>Action 8-4: Engineering changes Start Date: 26 Mar 04 End Date: 12 Jun 08 Engineering Group: GM Engineering Attachment: ATT_2_GM_CONF disk; folder labeled "Q_08 GM Engineering changes" Description: GM's engineering changes of the handle system on the subject vehicles. Summary: GM released information and engineering changes after start of production.</p>
<p>Action 8-5: GM Investigation Start Date: 19 Mar 07 End Date: Continuing Engineering Group: GM Engineering Attachment: ATT_1_GM disk; folder labeled "Q_08 GM Investigation" and ATT_2_GM_CONF disk; folder labeled "Q_08 GM Investigation" Description: Internal presentations and emails related to the alleged defect. Summary: GM's internal investigation of the handle system and its operation.</p>

TABLE 8-1 SUMMARY OF ACTIONS THAT HAVE BEEN CONDUCTED

- 9. Provide a complete engineering description and appropriate engineering specifications of the subject component installed in the subject vehicles, specifically including the materials and processes relating to the coating applied to the door handles. Identify by MY, make, and model, all other vehicles equipped with identical subject components, manufactured for sale or lease by GM in the United States. For each other MY, make and model of vehicles equipped with identical subject components, provide separate counts of the numbers of consumer complaints, field reports, and warranty claims received by Hyundai to date.**

These chromed levers are made of acrylonitrile butadiene styrene and polycarbonate (ABS+PC) plastic in accordance with GMP.ABS+PC.012 and are coated in accordance with GM4373M. This specification requires that the part be coated with a minimum of 10 µm of copper, 8 µm of nickel, 0.25 µm of chromium, and 20 µm total coating thickness. Applicable engineering specifications and drawings are provided on the ATT_1_GM disk and ATT_2_GM_CONF disks; folders labeled "Q_09".

Table 9-1 below summarizes counts of the numbers of consumer complaints, field reports, and warranty claims received by GM to date for each other MY, make and model of vehicles equipped with the identical subject components. The sort criteria for this item are the same as for items 2 and 5 of this response.

Model Year	Make	Model	Population	Consumer Complaints	Field Reports	Warranty Claims
2007	Cadillac	Escalade, Escalade EXT, Escalade ESV	97,219	28	4	9,812
2008	Cadillac	Escalade, Escalade EXT, Escalade ESV	51,259	0	0	380
2009	Cadillac	Escalade, Escalade EXT, Escalade ESV	22,972	0	0	14
2007	Chevrolet	Avalanche	87,297	22	1	8,045
2008	Chevrolet	Avalanche	41,761	0	0	255
2009	Chevrolet	Avalanche	15,415	0	0	3
2007	Chevrolet	Silverado	64,473	2	0	2,224
2008	Chevrolet	Silverado	68,919	0	0	525
2009	Chevrolet	Silverado	35,085	0	0	21
2007	Chevrolet	Suburban	117,877	36	4	12,449
2008	Chevrolet	Suburban	69,659	1	0	498
2009	Chevrolet	Suburban	36,087	0	0	5
2009	Chevrolet	Tahoe	65,187	0	0	22
2007	GMC	Sierra	34,858	1	0	1,158
2008	GMC	Sierra	49,733	1	0	373
2009	GMC	Sierra	25,993	0	0	13
2009	GMC	Yukon, Yukon XL	39,919	0	0	15
Total			923,713	91	9	35,812

TABLE 9-1 COUNTS OF CONSUMER COMPLAINTS, FIELD REPORTS AND WARRANTY CLAIMS

10. Provide two samples of the subject component; one sample of a new interior door handle and one sample of a door handle exhibiting separation or peeling of the chrome coating.

Enclosure 10 contains a field return sample of the subject component exhibiting the subject failure mode for the inside door handle and a new interior door handle. Some of the design versions installed in the subject vehicles are no longer produced for production or service.

11. Describe all modifications or changes made by, or on behalf of, GM in the design, material composition, manufacture, quality control, supply, or installation of the subject component, from the start of production to date, which relate to, or may relate to, the alleged defect in the subject vehicles. For each such modification or change, provide the following information:

- a. The date or approximate date on which the modification or change was incorporated into vehicle production;
- b. A detailed description of the modification or change;
- c. The reason(s) for the modification or change;
- d. The part number(s) (service and engineering) of the original component;
- e. The part number(s) (service and engineering) of the modified component;
- f. Whether the original unmodified component was withdrawn from production and/or sale, and if so, when;
- g. When the modified component was made available as a service component; and
- h. Whether the modified component can be interchanged with earlier production components.

Also, provide the above information for any modification or change that GM is aware of which may be incorporated into vehicle production within the next 120 days.

GM is providing a summary table of the changes and associated Engineering Work Orders (EWOs) that occurred to the subject vehicles inside door handle system in the ATT_2_GM_Conf disk; folder labeled "Q_11".

12. Provide GM's assessment of the alleged defect in the subject vehicles, including:

- a. The causal or contributory factor(s);
- b. The failure mechanism(s);
- c. The failure mode(s);
- d. The risk to motor vehicle safety that it poses;
- e. What warnings, if any, the operator and the other persons both inside and outside the vehicle would have that the alleged defect was occurring or subject component was malfunctioning; and
- f. The reports included with this inquiry.

GM believes the predominant cause of the alleged defect, peeling or separation of the chrome plating, is due to plating over an irregular mold parting line rather than a smooth, uninterrupted surface. Plating over an inconsistent mold parting line can result in uneven thickness of the copper/nickel substrate and the chrome layer. Thinner sections of plating are susceptible to fracture. Variation in parting line quality is attributable to a tool mismatch of the molding core to cavity which may be compounded by adjustments in the molding process parameters. This may result in variation in the degree of parting line irregularities and only certain handles with the more

severe irregularities, and subsequent thinner plating sections, may begin to fracture.

If a fracture initiates, continued exposure to thermal stress and mechanical loads may cause the initial crack in the plating to propagate. Delamination of the plating may eventually result in visible peeling or flaking. The parting line is located on the top surface of the handle which is visible in the static (door closed) position. Peeling or flaking of the plating may be evident to the vehicle operator or occupants.

Two part suppliers were used for Chevrolet Tahoe, GMC Yukon and GMC Yukon XL interior chrome handles for the 2007 through 2008 model years. The original supplier provided all handles from 2007 model year start of regular production until the mold tools were transferred to a new supplier and put back into service on 28 Aug 06. The original and replacement supplier also utilized a prototype tool which continued in operation until Oct 06. Parts made from the prototype tool do not contain a tooling mark for identification. An additional mold with four cavities was procured on 16 Aug 06 with parts produced from this new tool beginning on 31 Aug 06. All tools used by the replacement supplier, transferred and new, were updated with a unique alpha-numeric tooling mark for identification as having been molded by the replacement supplier. In Jun 07 the replacement supplier replaced all of the original supplier tools as well as the tool procured in Aug 06 with new tools.

A significant decrease in warranty claims is identifiable following 31 Aug 06. The improvement is believed to be due to several factors.

When the molding tools were transferred to the replacement supplier, the parting lines were inspected and found to not meet requirements to the replacement supplier and GM. Parting lines in the tool were not reworked, however the molding process and material flow were controlled to compensate for the tool condition. Key molding parameters include fill and hold time, material and tool temperature, fill pressure, tool hold pressure and tool maintenance. Process control records for the molding process from the original supplier are unavailable, however, the replacement supplier was able to produce handles minimizing parting line irregularities using the same mold tools.

At the time of mold tooling transfer, a bank of chromed handles remained from the original supplier. These were used by the replacement supplier to supplement their production of parts in order to meet capacity requirements.

The transferred bank of chromed handles from the original supplier as well as parts produced with the prototype mold were used up by 31 Oct 06.

The number of unique GM VINs for which there are injury reports for all 2007-2008 Tahoe, Yukon and Yukon XL is 63. Injury reports for the subject population describe the injuries as minor or superficial with only 8% (5 of 63) of claimants stating that they sought professional medical treatment. Of the 63, 55 (87%) injury reports are within the population of all handles molded and chromed by the original supplier for 2007-2008 Tahoe, Yukon, and Yukon XL produced from 2007 model year start of regular production through 31 Aug 06. Although the population of subject vehicles limited to build dates through 31 Aug 06 represents 34% of the 2007-2008 Tahoe, Yukon and Yukon XL production, it accounts for 87% of injury claims.

The rate of injury in GM's reports for all 2007-2008 Tahoe, Yukon and Yukon XL is low (0.08 IPTV @ 36 months exposure). When applied to all 2007 Tahoe, Yukon and Yukon XL with production dates through 31 Aug 06, the injury rate remains low (0.32 IPTV @ 36 months exposure).

The vast majority (97.7%) of warranty claims only describe cosmetic issues such as peeling or separation of the chrome plating.

Warranty data for subject vehicles for the period of 2007 model year start of regular production through 31 Aug 06 vehicle production dates identify warranty rates greater than 150 IPTV at 36 months exposure in ten western states. The warranty claim rates are substantially lower in all other states (see ATT_1_GM disk; folder labeled "Q_12"; file "Tahoe Yukon door handle warranty by state.pptx").

The ten western states with warranty rates greater than 150 IPTV are AZ, CA, CO, ID, MT, NM, NV, OR, UT and WY. The cumulative warranty rate for these ten states is 265 IPTV at 36 months in service. The cumulative warranty rate for the balance of the country is significantly lower at 85 IPTV at 36 months in service. This significant difference is also reflected in the injury rates. The current injury rate for the ten high warranty states (based on GM reports) is 0.4 IPTV at 36 months exposure. At the same exposure the injury rate for the remaining states is 0.14 IPTV.

The distribution of warranty claims correlates with Annual Average Solar Data (see ATT_1_GM disk; folder labeled "Q_12"; file "Annual Average Solar Data.pptx"). The metallic handle plating transfers solar loads to the base molded part. Thermal cycling and expansion may cause stress concentration on the plating at the surface of an irregular parting line. These stresses may result in fracture of the plating and subsequent peeling or flaking.

As manufactured, the chromed handle is either right or left side, however, it may be assembled into either a front or rear door. Most (89%) of subject vehicle warranty claims are for front door handles, with front right and front left

handle replacements being approximately equal. The front door handles will receive more sunlight exposure than the rear handles since they are closer to the windshield. In addition, the tint of glass on the rear doors is greater than the front doors which will minimize sunlight exposure.

The incident narratives provided with six (6) Vehicle Owner's Questionnaire associated with PE09-044 are consistent with GM's assessment of the condition. Of the four vehicles for which VINs were provided, all were built prior to 31 Aug 06.

In summary, GM does not believe that this condition poses an unreasonable risk to motor vehicle safety because:

- The rate of injury in GM's reports for all 2007-2008 Tahoe, Yukon and Yukon XL is low (0.08 IPTV @ 36 months exposure). When applied to all 2007 Tahoe, Yukon and Yukon XL with production dates through 31 Aug 06, the injury rate remains low (0.32 IPTV @ 36 months exposure).
- The reported injuries are predominantly minor or superficial and nearly all did not require professional medical treatment.
- Peeling or flaking of the plating may be evident to the vehicle operator or occupant.
- The vast majority (97.7%) of warranty claims only describe cosmetic issues such as peeling or separation of the chrome plating.

General Motors requested assistance and documents from suppliers in responding to item 8 and this response includes those documents received from suppliers.

GM claims that certain information, in documents that are part of lawsuit and claims files maintained by the GM Legal Staff, is attorney work product and/or privileged. That information includes notes, memos, reports, photographs, and evaluations by attorneys (and by consultants, claims analysts, investigators, and engineers working at the request of attorneys). GM is producing responsive documents from claims files that are neither attorney work product nor privileged, and withholding those that are attorney work product and/or privileged.

This response is based on searches of General Motors Corporation (GM) locations where documents determined to be responsive to your request would ordinarily be found. As a result, the scope of this search did not include, nor could it reasonably include, "all of its divisions, subsidiaries (whether or not incorporated) and affiliated enterprises and all of their headquarters, regional, zone and other offices and their employees, and all agents, contractors, consultants, attorneys and law firms and other persons engaged directly or indirectly (e.g., employee of a consultant) by or under the control of GM (including all business units and persons previously referred to), who are or, in or after calendar year 1998, were involved in any way with any of the following related to the alleged defect in the subject vehicles:

- a. Design, engineering, analysis, modification or production (e.g. quality control);
- b. Testing, assessment or evaluation;
- c. Consideration, or recognition of potential or actual defects, reporting, record-keeping and information management, (e.g., complaints, field reports, warranty information, part sales), analysis, claims, or lawsuits; or
- d. Communication to, from or intended for zone representatives, fleets, dealers, or other field locations, including but not limited to people who have the capacity to obtain information from dealers."

This response was compiled and prepared by this office upon review of the documents produced by various GM locations, and does not include documents generated or received at those GM locations subsequent to their searches.

Please contact me if you require further information about this response or the nature or scope of our searches.

Sincerely,



Gay P. Kent,
Director, Product Investigations
and Safety Regulations

Attachments