



U.S. Department  
of Transportation  
**Federal Highway  
Administration**

March 6, 2007

400 Seventh St., S.W.  
Washington, DC 20590

In Reply Refer To:  
HSSD/WZ-251

Mr. Marc-Andre Seguin  
Vice President, Barriere QMB Canada Inc.  
4295 Boul St-Elzear Ouest  
Laval, Quebec, H7P 4J3  
Canada

Dear Mr. Seguin:

Thank you for your letter of October 31, 2006, requesting the Federal Highway Administration (FHWA) acceptance of your company's QMBC Gate channelizing system as a crashworthy traffic control device for use in work zones and permanent installations on the National Highway System (NHS). Accompanying your letter was a report of the crash testing you conducted and video of the test. You requested that we find this device acceptable for use on the NHS under the provisions of the National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features."

### **Introduction**

The FHWA guidance on crash testing of work zone traffic control devices is contained in two memoranda. The first, dated July 25, 1997, titled "INFORMATION: Identifying Acceptable Highway Safety Features," established four categories of work zone devices: Category I devices are those lightweight devices which are to be self-certified by the vendor, Category II devices are other lightweight devices which need individual crash testing but with reduced instrumentation, Category III devices are barriers and other fixed or heavy devices also needing crash testing with normal instrumentation, and Category IV devices are trailer mounted lighted signs, arrow panels, etc. for which crash testing requirements have not yet been established. The second guidance memorandum was issued on August 28, 1998, and is titled "INFORMATION: Crash Tested Work Zone Traffic Control Devices." This later memorandum lists devices that are acceptable under Categories I, II, and III. Our new acceptance process was outlined in our memorandum, "FHWA Hardware Acceptance Procedures – Category 2 Work Zone Devices" dated November 11, 2005.

A brief description of the devices follows:

The QMBC Gate is a modular channelizer. It is designed to taper off or close lanes remotely, using RF signals or cellular phone commands. Each independent module is activated by an electrical actuator that pivots the Gate ninety degrees perpendicular to traffic. When used in



sequence, a required spacing of at least two Gate lengths is recommended to separate the Gate bases. Each plastic Gate is fabricated using two foot modular sections and an optional one foot end section made of high density polyethylene. Assemblies may vary in length from 2 to 24 feet. A drawing of the Gate configurations is enclosed.

### **Testing**

A full-scale automobile test was completed on your company's device. The NCHRP Report 350 recommended high speed (62 mph) test, 3-71, was successfully conducted and the summary of test results is enclosed. All occupant risk criteria passed.

### **Findings**

In summary, the QMBC Gate channelizer meets the appropriate evaluation criteria and may be used at all appropriate locations on the NHS when selected by the contracting authority, subject to the provisions of Title 23, Code of Federal Regulations, Section 635.411, as they pertain to proprietary products.

Please note the following standard provisions that apply to the FHWA letters of acceptance:

- Our acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance, designated as number WZ-251, shall not be reproduced except in full. As this letter and the documentation which support it become public information, it will be available for inspection at our office by interested parties.

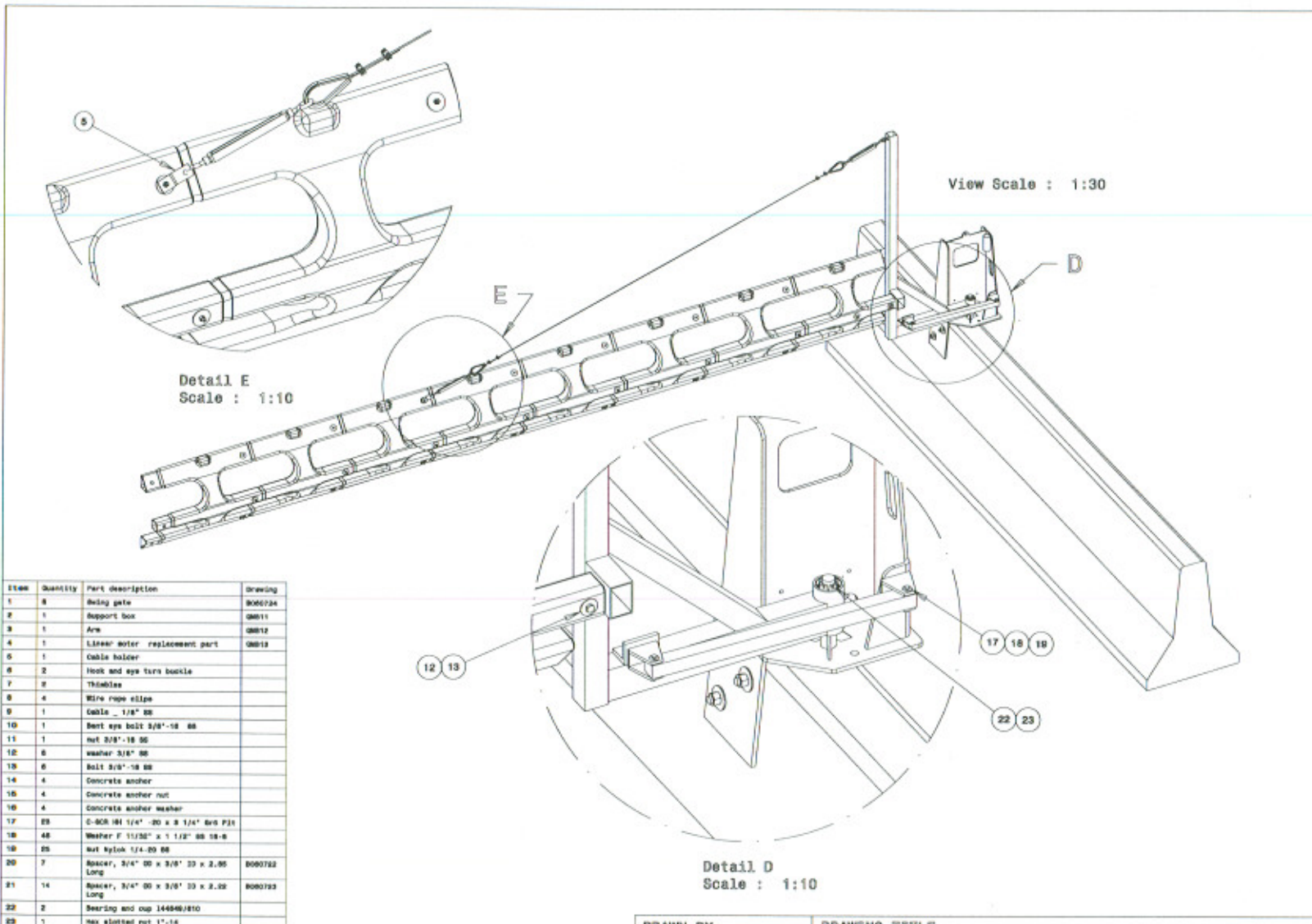
Sincerely yours,



John R. Baxter, P.E.  
Director, Office of Safety Design  
Office of Safety

Enclosure

**Illustration D-4**



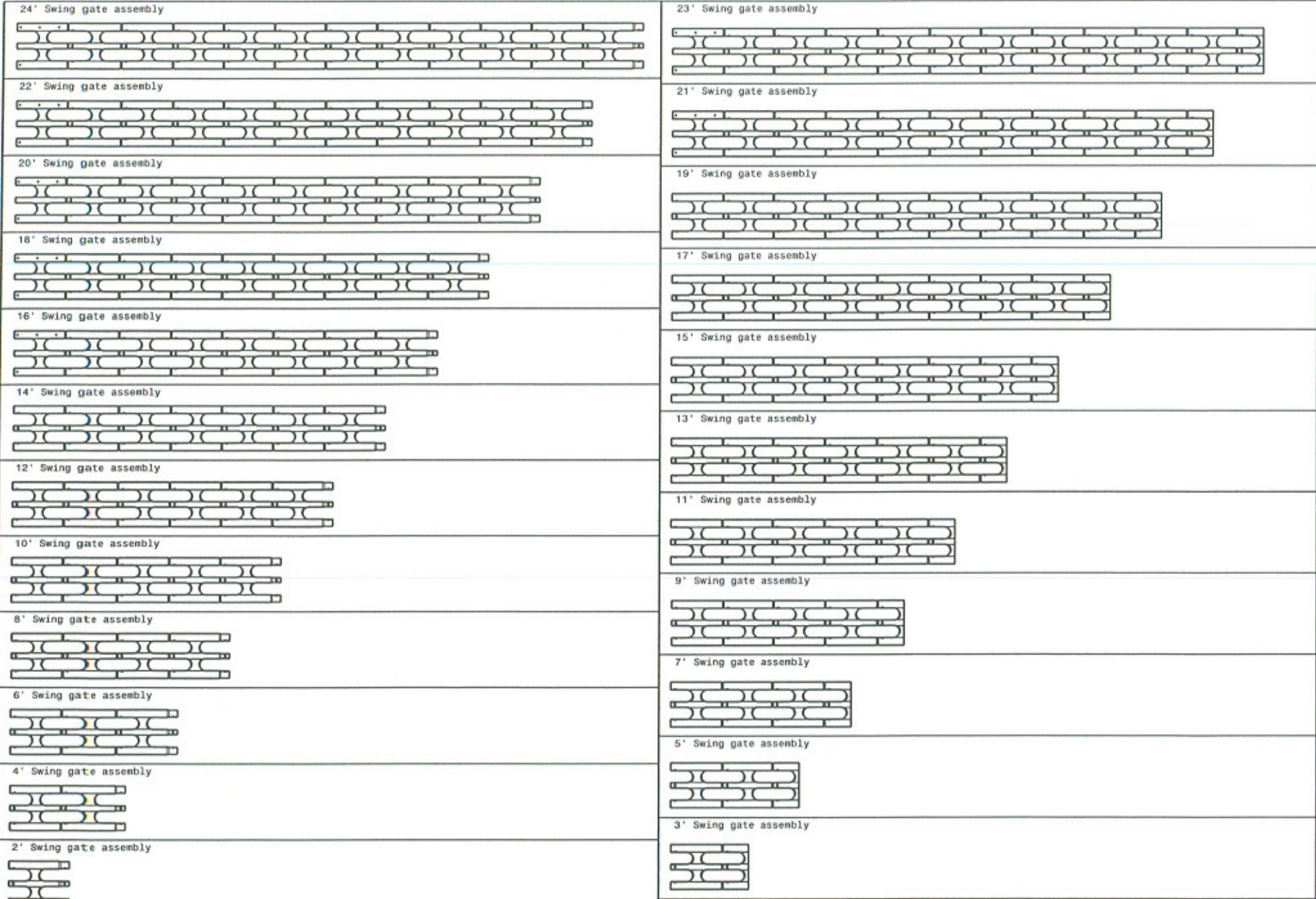
Item	Quantity	Part description	Drawing
1	8	Swing gate	QMB0724
2	1	Support box	QMB11
3	1	Arm	QMB12
4	1	Lubricator replacement part	QMB13
5	1	Cable holder	
6	2	Hook and eye turn buckle	
7	2	Thimbles	
8	4	Wire rope clips	
9	1	Cable, 1/2" SS	
10	1	Nut eye bolt 3/8"-18 SS	
11	1	nut 3/8"-18 SS	
12	6	washer 3/8" SS	
13	6	Bolt 3/8"-18 SS	
14	4	Concrete anchor	
15	4	Concrete anchor nut	
16	4	Concrete anchor washer	
17	29	C-808 181 1/4" -20 x 3 1/4" 800 P31	
18	48	Washer F 1 1/32" x 1 1/2" 88 18-8	
19	25	nut Nylok 1/4-20 88	
20	7	Spacer, 3/4" 00 x 3/8" 33 x 2.95 Long	QMB0722
21	14	Spacer, 3/4" 00 x 3/8" 33 x 2.22 Long	QMB0723
22	2	Sealing end cup 144846/810	
23	1	hex slotted nut 1"-14	

**BARRIÈRE QMB CANADA INC**

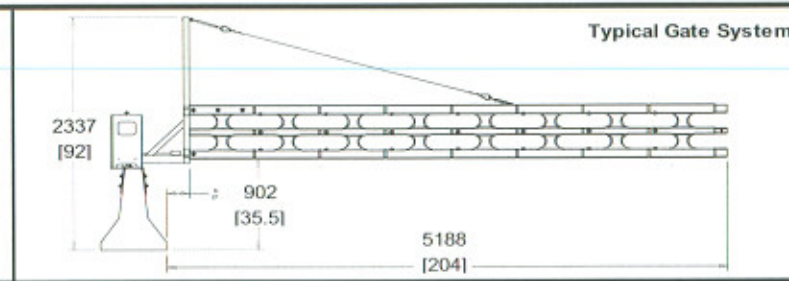
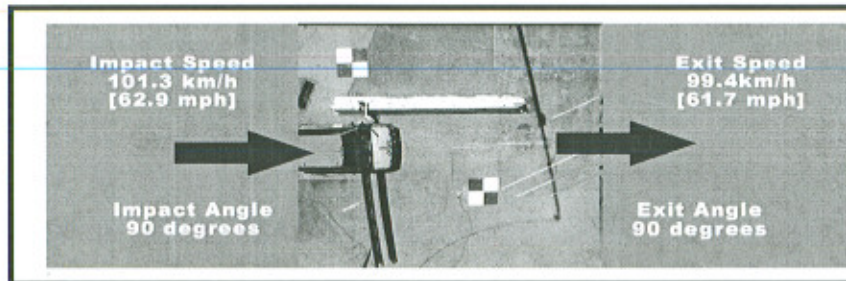
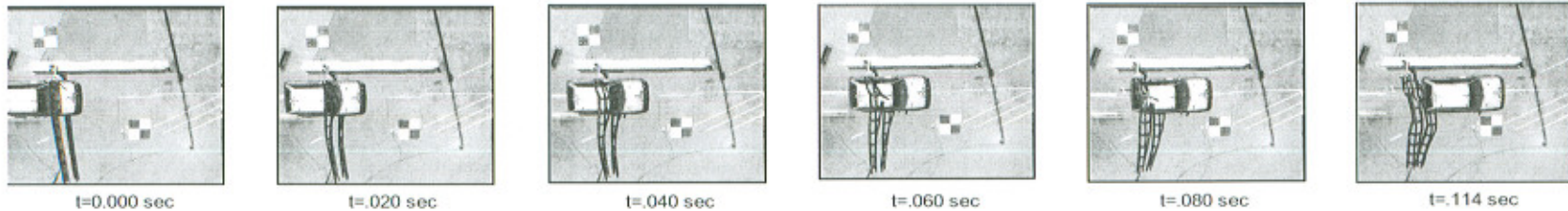
Standard Tolerance  
 Angular: : 1/2°  
 Fractional: : 1/16"  
 Decimal: : 0,002

This drawing is the property of Barrière QMB. It can't be reproduced or communicated without our written agreement.

<b>DRAWN BY</b> Vincent Loisel		<b>DRAWING TITLE</b> SWING GATE ASSEMBLY - B			
<b>VERIFIED BY</b> Marc-André Séguin		<b>DATE</b> 2006-08-31	<b>SCALE</b> ----	<b>DRAWING NUMBER</b> QMB80602	<b>REV</b>  
					<b>SHEET</b> 2/2



	This drawing is the property of Barrière QMB. It can't be reproduced or communicated without our written agreement.	DRAWN BY		DRAWING TITLE			
		Vincent Loisel		Configuration matrix			
		VERIFIED BY	DATE	SCALE	DRAWING NUMBER	REV	SHEET
		Marc-André Séguin	2006-10-11	1:60	QMB60604		1/1



**General Information**

Test Agency.....SAFE TECHNOLOGIES, INC.  
 Test Designation.....NCHRP Report 350 3-71  
 Test No.....STI Test #QMBC1  
 Date.....7/28/2006

**Test Article**

Type.....QBMC Gate Lane Closure System

**Installation Length**

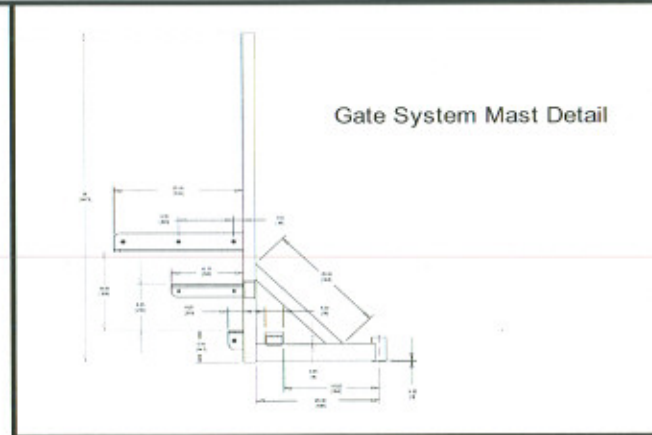
Gate Length : 5.2 meters (17')  
 Size and/or dimension and material of key elements Gate Height: 902 mm (35.5")  
 Width 213 mm (8.4")

**Test Vehicle**

Type.....Production Model  
 Designation.....820C  
 Model.....1987 Ford Festiva  
 Mass (kg)  
 Curb.....839.5  
 Test inertial.....830.5  
 Dummy(s).....75 kg sand bags  
 Gross Static.....907

**Impact Conditions**

Speed (km/h).....101.3  
 Angle (deg).....90  
 Impact Severity (kJ).....329 kJ



**Exit Conditions**

Speed (km/h).....100.3  
 Angle (deg).....90

**Vehicle Damage**

Exterior  
 VDS.....FD-1  
 CDC.....12FDAW1  
 Interior  
 OCDI.....AS0000000

Figure 1. Summary of Results