

March 27, 2003

HSA-10/B114

Mr. Howard Block  
President  
Welch Products, Inc.  
205 South Garfield (PO Box Z)  
Carlisle, Iowa 50047

Dear Mr. Block:

In your March 17 letter to Mr. Richard Powers of my staff, you sent him a copy of a test report prepared by the Midwest Roadside Safety Facility, dated March 16, and entitled "Performance Analysis of Welch Products Recycled Rubber Spacer Block" and a CD showing the bogie test that was conducted with your product. You requested a ruling on the acceptability of your product, presumably for use with strong steel-post w-beam guardrail on the National Highway System (NHS).

The Welch offset block is composed of approximately 40 per cent recycled rubber (natural and synthetic), 35 per cent carbon black, 11 per cent volatiles, and 5 per cent or less each of zinc oxide, ash, stearic acid and sulfur. Figure 9 in the test report shows the tested block to be 140-mm wide by 213-mm deep by 360-mm tall, with a 111-mm wide, 9.5-mm deep routing on the field side to fit over the steel post flange. Testing consisted of two bogie tests in which a 992-kg bogie first impacted a standard routed timber block (Test WB-1) and then your block (Test WB-2), both of which were mounted between a W150 x 13.5 (W6 x 9) post and a short section of w-beam guardrail. The steel posts were set in a rigid foundation that prevented any rotation in the soil prior to failure at the ground line. In both tests, the posts did fail at the ground line with the blocks remaining essentially intact. It was noted in the test report that the Welch block compressed approximately 76 mm as the post yielded, leaving an effective depth of 127 mm. While this could increase the likelihood of a wheel snagging on a post under some impact conditions, the compression was maximized by the 90-degree impact angle and the rigidity of the post at the ground line. Since the FHWA has accepted (but discouraged) the use of nominal 150 mm x 150 mm wood offset blocks based on crash testing, we do not believe it is necessary to conduct a full-scale test of the Welch block at this time.

Based on the results of the bogie test run using the Welch offset block, your product may be considered acceptable for use on the NHS with a strong-post w-beam guardrail when it conforms to the dimensions noted above, is composed of the same materials as the tested blocks, and is installed flush with the top of the post. As with all other alternative material offset blocks accepted for use on the NHS, this acceptance is based solely on the reported impact performance of the Welch block and is not intended to address the long-term performance or durability of the product. Field installations should be carefully monitored to verify expected performance and service life.

If your block is or will be patented, its use on Federal-aid projects, except exempt, non-NHS projects, is subject to the conditions listed in Title 23, Code of Federal Regulations,

Section 635.411, a copy of which is enclosed for your ready reference. If you have any questions, please call Mr. Powers at (202) 366-1320.

Sincerely yours,

(original signed by Michael S. Griffith)

Michael S. Griffith  
Acting Director, Office of Safety Design  
Office of Safety

Enclosure

Sec. 635.411 Material or product selection.

(a) Federal funds shall not participate, directly or indirectly, in payment for any premium or royalty on any patented or proprietary material, specification, or process specifically set forth in the plans and specifications for a project, unless:

(1) Such patented or proprietary item is purchased or obtained through competitive bidding with equally suitable unpatented items; or

(2) The State highway agency certifies either that such patented or proprietary item is essential for synchronization with existing highway facilities, or that no equally suitable alternate exists; or

(3) Such patented or proprietary item is used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes.

(b) When there is available for purchase more than one nonpatented, nonproprietary material, semifinished or finished article or product that will fulfill the requirements for an item of work of a project and these available materials or products are judged to be of satisfactory quality and equally acceptable on the basis of engineering analysis and the anticipated prices for the related item(s) of work are estimated to be approximately the same, the PS&E for the project shall either contain or include by reference the specifications for each such material or product that is considered acceptable for incorporation in the work. If the State highway agency wishes to substitute some other acceptable material or product for the material or product designated by the successful bidder or bid as the lowest alternate, and such substitution results in an increase in costs, there will not be Federal-aid participation in any increase in costs.

(c) A State highway agency may require a specific material or product when there are other acceptable materials and products, when such specific choice is approved by the Division Administrator as being in the public interest. When the Division Administrator's approval is not obtained, the item will be nonparticipating unless bidding procedures are used that establish the unit price of each acceptable alternative. In this case Federal-aid participation will be based on the lowest price so established.

(d) Appendix A sets forth the FHWA requirements regarding (1) the specification of alternative types of culvert pipes, and (2) the number and types of such alternatives which must be set forth in the specifications for various types of drainage installations.

(e) Reference in specifications and on plans to single trade name materials will not be approved on Federal-aid contracts.

ENCLOSURE 2