An Aggregates Producer’s Perspective of CAPP

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The Indiana Department of Transportation (INDOT) introduced the concept of the Certified Aggregates Producers Program (CAPP) in 1993. INDOT was looking for a way to increase the gradation consistency of the aggregate they were purchasing directly or indirectly. INDOT and its contractors and suppliers were not satisfied with the present system of testing and approval for use of aggregate. These factors were some of the reasons that CAPP was developed.

Although I was not involved in the development activity of CAPP, I recognized that the program could be beneficial for our company. Initially, this voluntary program seemed to provide a method for us to more timely serve the contractors that purchased aggregate from us for INDOT projects. The previous system required sampling, testing, and approval by INDOT personnel before any shipment could be made to INDOT contracts. This procedure required anticipation and good communication between the contractor, the aggregate producer, and INDOT testing. Delays in approval meant that contractors may have to adjust their work schedules. Changes in the weather always complicated this communication procedure. CAPP offered a method that allowed a producer to ship on demand. This ability to ship on demand is an improvement over the previous system.

Prior to 1993, INDOT had ceased testing and approving aggregate gradation for material that was supplied to bituminous mix plants. The bituminous contractor was responsible for determining what blend of aggregate he used to produce his product. His bituminous mixture had to meet the requirements and specifications set out by INDOT. This system demonstrated the need for an aggregate producer to furnish a consistent uniform product to the bituminous plant. The bituminous contractor and the aggregate producer must work together so that each knows what gradation product is required and that this material then remains consistent.

The relationship and methods that developed in the bituminous aggregate production demonstrated to INDOT that the aggregate industry was capable and proficient in their own gradation controls. INDOT then proceeded to formulate plans to place similar quality controls for concrete plants. Since the majority of aggregate used in INDOT contracts goes into either bituminous or concrete mixes, it seemed appropriate that aggregate producers could also produce, control, test, and document the remaining material necessary for INDOT purchases.

CAPP provides a method that an aggregate producer can use to demonstrate and certify that his product meets the gradation requirements of INDOT. Since INDOT specifications have historically been adopted and referenced by most public agencies in the State, CAPP will affect a large portion of the aggregate used in the future in the
construction of Indiana's infrastructure. Commercial aggregate users may be indifferent to CAPP's requirements. CAPP has been a voluntary program for producers, however INDOT has indicated that CAPP will be required for all aggregate producers furnishing material to INDOT after September 1997. This mandate will require most Indiana aggregate producers to follow a specific set of quality control specifications. This program will change the way many Indiana aggregate producers document their quality control.

Our company operates several quarries in Southern Indiana. Interstate 74 is being reconstructed in our area and large quantities of aggregate are being used. Our company felt that CAPP would benefit us in furnishing aggregate for this large INDOT project. We became one of the first quarries to be certified under CAPP one year ago. We now have supplied aggregate from one source for a complete construction season. We have been satisfied with the program and feel that it has merit.

From a producer's point of view, there are several aspects that have occurred. We have found it necessary to increase the time and effort devoted to quality control. We have added thousands of dollars in additional testing equipment and have added a full time quality control technician to our staff. These items have added an identifiable added cost to our finished product. As a general statement, I do not believe that our customers, including INDOT, are receiving a higher quality product now with CAPP than without CAPP. We now, however, do have additional testing results and documentation that we did not previously have. This increased testing has given us a better understanding of the many variables that can and do affect our crushing and screening plant. We have used this information to aid our efforts for increased plant efficiency.

We have benefited from the ship on demand concept that CAPP allows. As INDOT contractors become familiar with this system both the producer and the contractor will have less headaches. Contractors still will have to plan ahead for their transportation of material.

As a company that operates small plants that during some years have sold little or no aggregate for INDOT contracts, we preferred that CAPP remain voluntary. INDOT would still have to test and approve aggregate from non CAPP sources prior to shipment. Since INDOT will require that all aggregate sources become part of CAPP, our small operations will certainly have higher overhead costs. These costs will be passed along to all customers not just INDOT since most commercial sizes of aggregate are made to INDOT specifications. All aggregate that could be used for INDOT purposes would have to meet the CAPP requirements. The additional overhead costs for a small producer could boost the cost of his finished product by 5%.

We are planning to use our quality control technician to perform the required testing at more than one location. We will not have a full testing laboratory at each site. In this manner we hope to hold down our costs and still provide the necessary controls. Over the next year we plan to do the preparation that is required for our remaining plants to join CAPP.

CAPP uses statistics to assure that at least 95% of the samples will meet INDOT specifications. The maximum allowed standard deviation from the mean is 5% under CAPP. This has the effect of considerably reducing the current specification book gradation bands. This means that the finished aggregate must consistently be in a tighter
gradation band. This applies to sizes # 5, 8, 9, 11, and 12, that have critical sieves designated by INDOT. The gradation specification under CAPP are tighter than previous.

Smaller plants generally change production from one sized aggregate to another more frequently than larger plants. We have found that these frequent changes make it more difficult to recreate the same conditions that existed when a particular size was made before. Crusher settings, feed rates, and material moisture content can make considerable changes in the gradation of the finished product. The crushing plant operator is forced to adjust for any changes that have occurred since the last production of a specific size material.

There is no question that CAPP will change the quality control procedures for many aggregate producers. There will be some modifications as CAPP becomes more widely used in the next year. I feel that after all concerned parties get acquainted with this new system many benefits will occur.