

**M e m o r a n d u m****440.3045**

To: Out-of-Sate – Auditing

Date: September 28, 1984

From: Charles J. Graziano

Subject: H--- Corporation  
SY --- XX XXXXXXG--- P---, Inc.  
SR --- XX XXXXXX

This is in reply to your memo dated August 20, 1984. You request our opinion concerning the correct application of tax to the use of iron residual fines ("iron") in the manufacture of P--- Cement clinker.

We understand that during an audit of H--- Corporation ("H---"), it was determined that iron purchased by G--- P---, Inc., was a catalyst subject to tax because it was being used as an aid in the manufacture of P--- Cement clinker.

In support of their claim that the iron sold by H--- was not used as a catalyst, H--- has provided the Board a technical memorandum from their Research Manager dated May 3, 1984. In pertinent part, this memo states:

"P--- Cement is generally produced by blending together limestone, silica, high alumina clay and iron oxides; this mixture is then heated to the range of 1200-1450 centigrade. At these temperatures, some melting occurs which allows the blended material to intimately combine and form the complex hydraulic mineral components constituting P--- Cement clinker. The cooled mass of material issuing from the cement kiln constitutes what is classically called 'clinker'. This material is then ground until its surface area approximates 3000- 3600 CM<sup>2</sup> per gram of material."

"As iron oxides exist in steelmaking fines, the following forms are thought to predominate: (1) pure iron, (2) (Mn, Fe) O, Ca (Mn, Fe) O – S1O2, 2CaO – Fe2O3 and (Mg, Fe) O. In the process of clinker production, all iron is converted to highly oxidized (Fe2O3 or equivalent) forms. Further, mineralogical changes which occur convert the iron compounds to calcium alumino ferrites ranging in

composition from  $6\text{CaO} - 2\text{Al}_2\text{O}_3 - \text{Fe}_2\text{O}_3$  to  $6\text{CaO} - \text{Al}_2\text{O}_3 - 2\text{Fe}_2\text{O}_3$ . These compounds have not been identified in steelmaking slag due to the severe lack of alumina in most of these slags.

"The calcio-alumino ferrites are an integral part of the P--- Cement clinker. For those sources of lime, silica and alumina clay, which do not contain sufficient iron to satisfy the demand of the cement maker, outside iron sources must be purchased to satisfy this raw material demand. While the iron content ( $\text{Fe}_2\text{O}_3$ ) does not generally rise above 6%, it is a required raw material....."

From the information provided by H---, it appears to us that the iron fines are incorporated into the clinker as part of a class of compounds known as "calcium alumino ferrites," and these compounds comprise essential ingredients of the end product which is sold.

The iron fines do "aid" in the production of the cement. In that a certain required amount of iron must be present in the mixture prior to the heating stage to ultimately produce the desired amount of alumino ferrite compounds. Such action, however, does not constitute a taxable manufacturing aid under Regulation 1525, since the iron is a necessary ingredient which imparts a desired quality to the end product.

Therefore, it is our opinion that the iron was purchased primarily for the purpose of incorporation as an essential ingredient in P--- Cement Clinker which is resold, and that P---'s ex-tax purchases of this item are not subject to tax.

CJG:ge