

file
CSHA re study

ST. JOE

LEAD COMPANY
7733 FORSYTH BOULEVARD
CLAYTON, MISSOURI 63105
TELEX NO. 44-7636

GARY E. WELCH
VICE PRESIDENT
HUMAN AND ENVIRONMENTAL RESOURCES
DIRECT DIAL (314) 726-9515

7 April 1982

Mr. Knowlton J. Caplan
Industrial Health Engineering Assoc., Inc.
7340 Washington Avenue South
Minneapolis, MN 55440

Dear Cap:

Enclosed are a copy of the letter and the excerpts we sent to Charles River Associates of the IHE study on in-plant airborne lead controls for our Herculanum smelter.

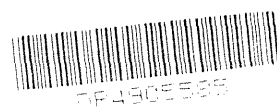
Best regards.

Very truly yours,

Gary E. Welch
Gary E. Welch

GEW/dc
Enclosures

cc: ~~_____~~



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6 April 1982

Mr. Ken Wise
Charles River Associates
1050 Massachusetts Avenue
Cambridge, MA 02138

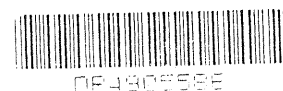
Dear Mr. Wise:

In June, 1981, St. Joe Lead Company retained Industrial Hygiene Engineering (IHE) to conduct a study of additional in-plant airborne lead controls that could be implemented to help reduce worker exposure at St. Joe's Herculanum Primary Lead Smelter. Excerpts of that study (which exclude community air lead control projects, layout drawings, etc.) have been attached to this letter. The excerpt provides project descriptions, costs, and estimates of ultimate worker exposures when all projects are completed.

As can be seen from the table which describes the final worker exposures, IHE has not projected that either a 50 or 150 ug/m³ workroom air exposure will be achieved in all situations in the plant, even with all of the potential "reasonable" projects that they can think of to reduce exposure. Consequently, even with an expenditure of over \$20,000,000 over a 10 or 12 year period (which is the most rapid reasonable period to avoid massive operational upsets), neither of the OSHA study air lead levels will be achieved.

In order to consider achieving such levels, it is our opinion that alternative technologies to classical sintering-blast furnace reduction must be considered.

No new technologies have been demonstrated on full scale at this time and serious questions remain concerning costs and the degree to which low lead exposures can be achieved.



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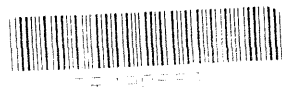
Nonetheless, there is a considerable research effort underway in the international arena to develop alternative processes. There are currently approximately 60 primary smelters worldwide-five of which are in the United States. (The sixth smelter in Idaho shut down early this year under economic and long-range regulatory pressures.) Of the 60 primary smelters, 47 use sintering/smeltering, 7 use the Imperial Smelting Furnace which also produces zinc and several are electric furnaces. All of these existing technologies expose workers to high air lead levels. There are several new approaches being developed seriously.

Kaldo Top Blown Rotary Converter
Outokumpu Flash Furnace-electric slag treatment
Kivcet furnace
QSL Process
Various Hydrometallurgical refining schemes utilizing either aqueous or molten bath electrowinning.

In the course of business, St. Joe has reviewed many of these installations where pilot plants exist, and/or studied the efficacy of the theoretical proposals. From a very preliminary point of view the range of capital costs to construct any of these processes ranges from \$750-\$1125 per metric ton per year capacity. To replace the Herculanum capacity, this means a \$150 to \$225 million investment would need to be made.

At today's interest rates (say 20%), this means that for a 20 year write-down, the plant would add approximately \$30 to \$45 million a year to the cost of lead produced due to capital charges or 7.5 to 11.25 cents a pound of lead. This compares to 1 cent a pound for the projects proposed by IHE.

This price tag for new technology is so significant that it is unlikely to be considered until new capacity or replacement capacity is planned for production reasons.

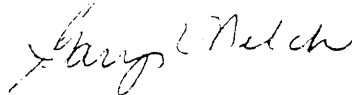


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Furthermore, while full scale demonstrations of some of these technologies may be under construction within the next few years internationally where new replacement capacity is desired, no representative of any of these technologies has demonstrated satisfactorily that a 50 ug/m³ maximum daily value can be achieved for all job classifications in a projected facility. In the case of pyrometallurgical technology, many of the feed and refining operations will remain similar to the current technology.

In summary, it is St. Joe's position that it is economically infeasible to replace current U.S. smelting capability with a new technological process for the sole purpose of complying with the current OSHA Lead Standard requiring the achievement of a 150 ug/m³ or 50 ug/m³ air lead level.

Yours truly,



Gary E. Welch

GEW/dc

cc: R. E. Peppers
D. L. Vornberg

