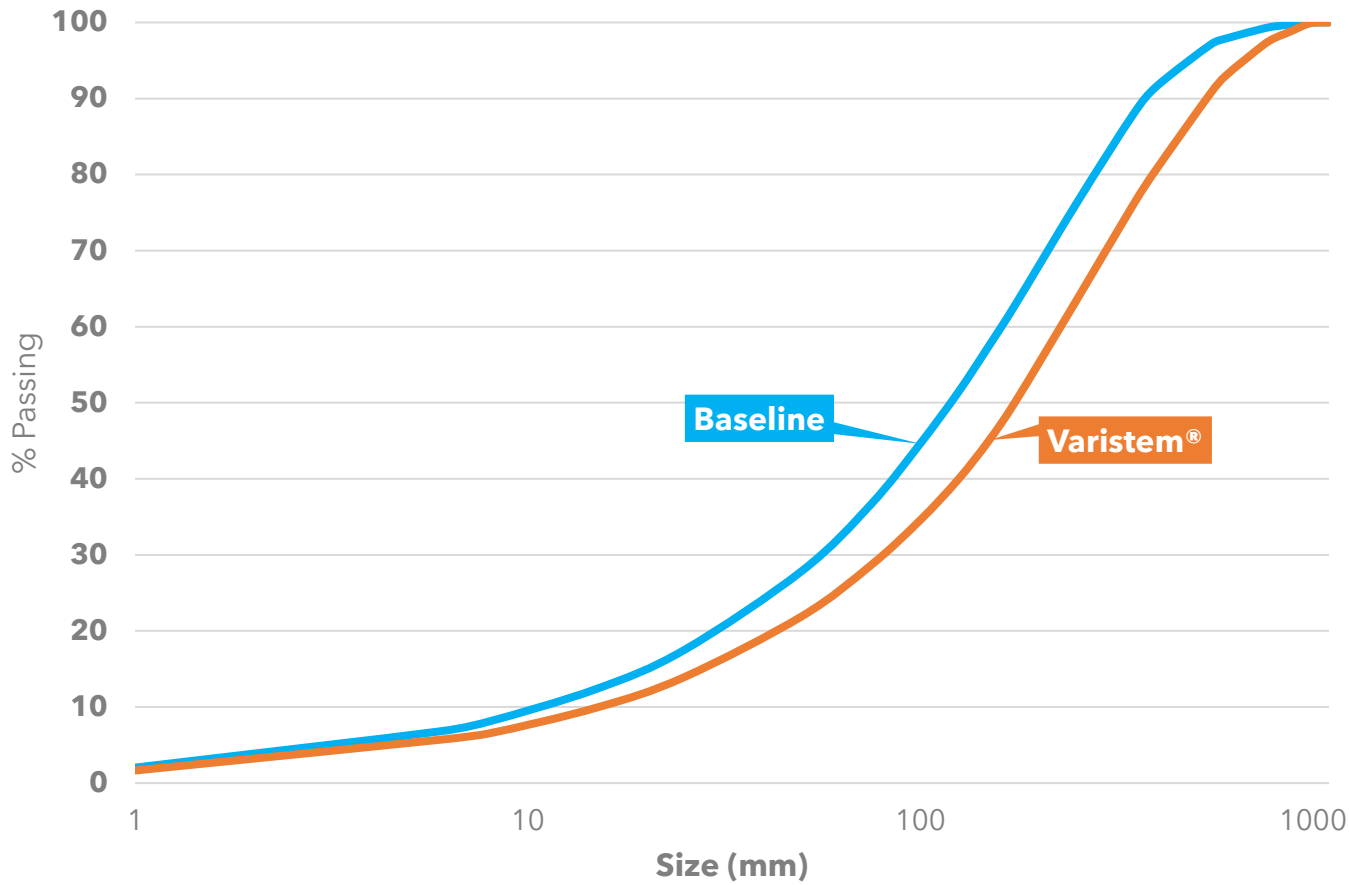
HOW A MINOR CHANGE TO BLAST DESIGN RESULTED IN AN ADDITIONAL +$10 MILLION PER YEAR IN VALUE

A CASE STUDY FROM A SOUTH AFRICAN MANGANESE MINE

BLASTING IS THE FIRST STEP IN THE MINING VALUE CHAIN. ANY POSITIVE IMPACTS MADE DURING BLASTING RESULTS IN EXPONENTIAL DOWNSTREAM GAINS



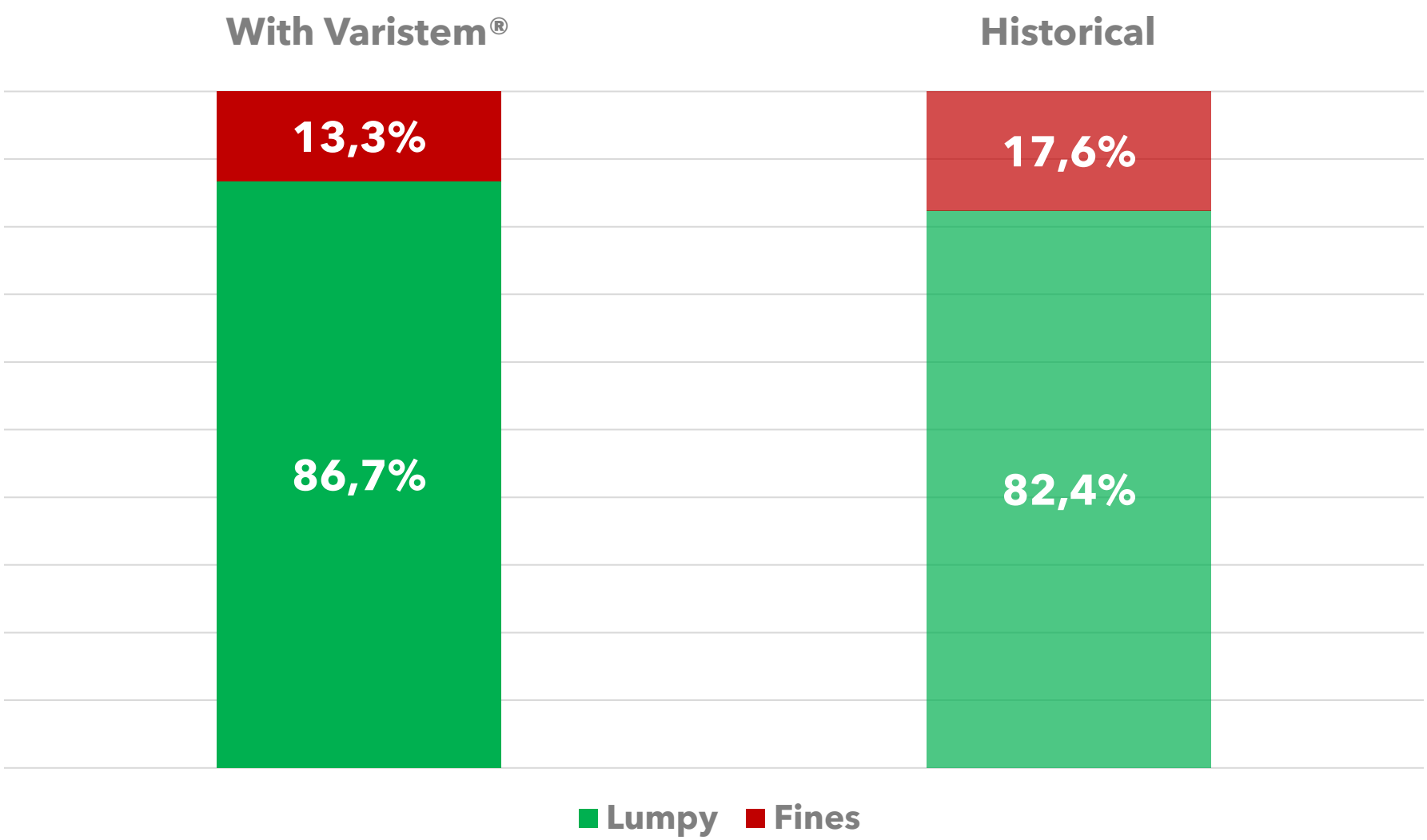
IN THE CASE OF MANGANESE MINING, THE DOWNSTREAM GAINS CAN BE ASTRONOMICAL IF YOU ARE ABLE TO REDUCE THE AMOUNT OF FINES PRODUCED DURING BLASTING

THE TYPICAL MANGANESE MINE SELLS TWO CATEGORIES OF PRODUCTS, ALBEIT AT DIFFERENT GRADES: LUMPY AND FINES

ON AVERAGE, FINES ARE PRICED AT A DISCOUNT OF AROUND 30% TO LUMPY

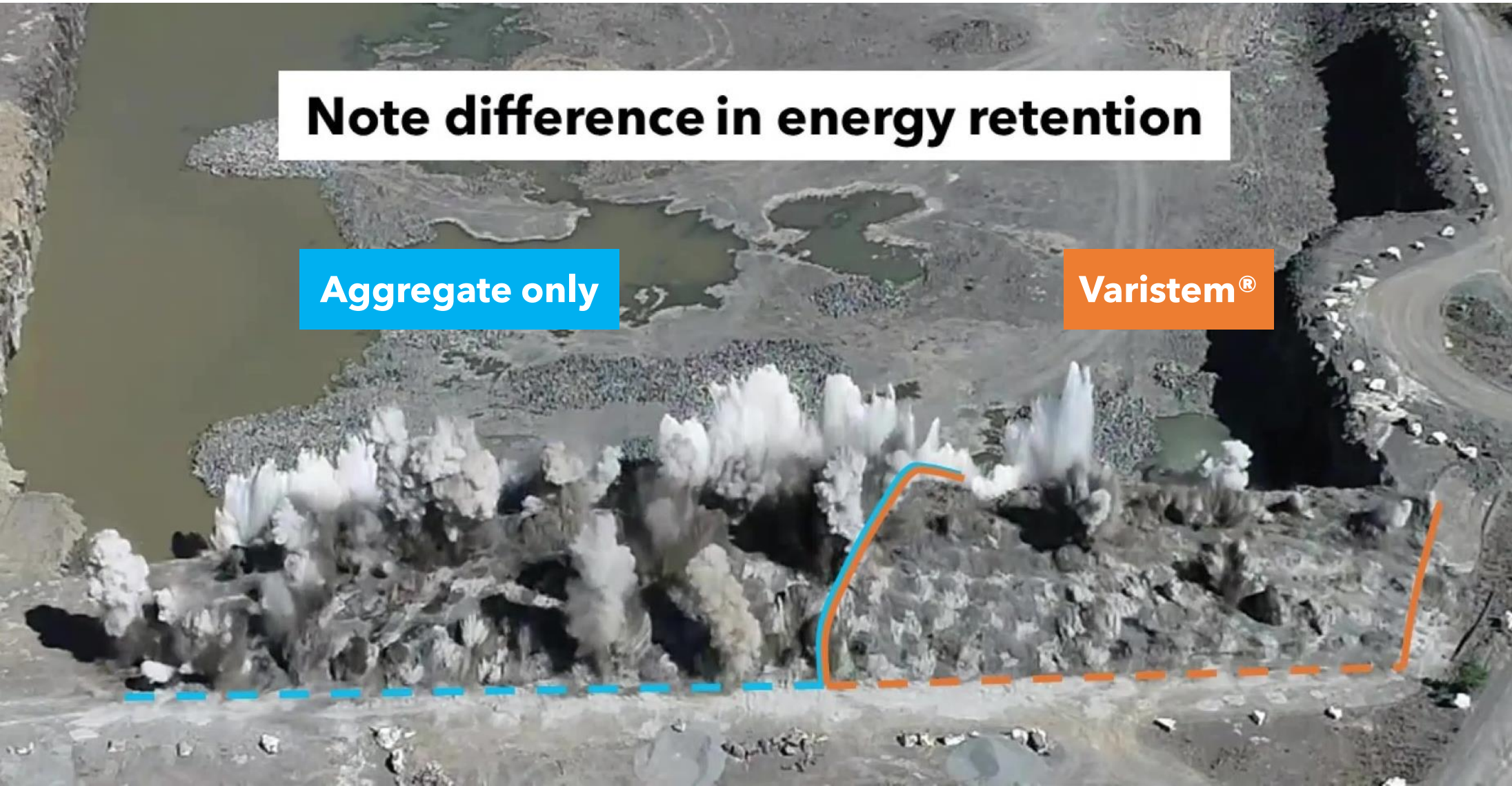
SO, IF YOU ARE ABLE TO REDUCE FINES THROUGH BLASTING, YOU ARE LEFT WITH MORE LUMPY TO SELL AT A HIGHER PRICE

AND THIS IS EXACTLY WHAT WE WERE ABLE TO ACHIEVE AT MANGANESE MINE X IN SOUTH AFRICA. REDUCING FINES AND INCREASING LUMPY



WE DID THIS BY FOCUSING ON IMPROVED ENERGY RETENTION AND DISTRIBUTION DURING BLASTING, USING VARISTEM® STEMMING PLUGS AS THE KEY TOOL TO EFFECT THIS CHANGE

MANGANESE MINE X BLASTS APPROXIMATELY 6.9 MILLION TONS OF MANGANESE PER YEAR, AT DIFFERENT GRADES AND CORRESPONDING PRICES



CONSIDERING THE REDUCTION IN FINES AND CORRESPONDING INCREASE IN LUMPY, THE NET FINANCIAL GAIN PER YEAR ON HIGH GRADE MANGANESE IS +$6.7 MILLION, AND ON LOW GRADE MANGANESE +$3.3 MILLION FOR MANGANESE MINE X

RELATING THIS BACK TO TONNAGES: FOR HIGH GRADE MANGANESE THE EFFECTIVE INCREASE IN VALUE PER IN-SITU TON IS +$1.6/TON & FOR LOW GRADE, THE INCREASE IS +$1.25/TON

AND THAT IS HOW, WITH A SIMPLE CHANGE IN BLASTING DESIGN AND THE USE OF VARISTEM® STEMMING PLUGS, LESS FINES ARE PRODUCED, RESULTING IN SOME INCREDIBLE NET FINANCIAL GAINS