



PACIFIC SOUTHWEST REGION ≡ AMERICAN CEMENT CORP., 1500 RUBIDOUX BLVD., P.O. BOX 832, RIVERSIDE, CALIF. 92502 • (714) 683-3660

April 8, 1969

Mr. L. D. Miles
Miles Associates
P. O. Box 4740
Washington, D. C. 20020

Dear Larry:

Enclosed is a memo regarding your visit with us.

The time spent with you was most enjoyable to everyone here and we know it will prove beneficial.

Sincerely,

Pacific Southwest Region
AMERICAN CEMENT CORPORATION

C. W. Bush
Chief Engineer

enc.



PACIFIC SOUTHWEST REGION AMERICAN CEMENT CORPORATION,

cc. IDMiles
File

April 1, 1969

To:	P. Boserup (2)	L. D. Walker (2)	D. H. Kishpaugh
	R. C. Entorf	A. Azimi	E. J. LeBeane
	G.J.C. Frohnsdorff	R. S. Flynt	R. S. Sanghvi
	R. B. Peterson (2)	W. Fowlie	R. W. Searle
	B. G. Preston (2)	F. C. Hamilton	W. W. Smith
	M. D. Smith (2)	J. A. Herring	File

From: C. W. Bush

Subject: Visit of Larry Miles Regarding Value Analysis

Most of you had an opportunity to spend some time with Mr. Miles while he visited with us during the week of March 17, 1969. At that time he presented us a set of techniques for problem solving that have evolved from the original concepts of Value Analysis and Value Engineering. Since I feel that these techniques can be extremely valuable for us I have outlined my understanding of what Larry Miles was presenting while he was here. I would welcome any comments or omissions on items I might have overlooked. The value of using these techniques is not that we may come up with a solution to a given problem, but that we have a better chance of coming up with the best solution to the problem.

Attached are copies of notes that Larry took while he was demonstrating his techniques to us. Most of this material relates primarily to getting a proper start or the first stages of problem solving, and it is noticeably limited in the area of obtaining factual information on the problem. None of the examples on the notes are complete for in no case was the problem solved using these techniques. This is because the purpose of Larry's visit was to teach us and to demonstrate, not to solve our problems. However I think you will find these notes interesting since they relate to our actual problems, and getting a proper start on problem solving is often a prerequisite to solution.

Perhaps the most important part of the problem-solving technique is the concept of disciplined thinking. This is a major portion of every step listed below, and the most discipline must be applied to keep from thinking about solutions to the problem before we are in the creative or the judgment step. Less total time is needed to come up with the best possible solution if we concentrate our thinking on one step at a time. It is very tempting to present one solution to the problem and then relax. However this may not be the best possible solution, even though it may be workable.

The other point that Larry made that very few of us follow is to write everything down. You can see how strongly he believes in this by the copious notes he took during his stay here. The reason for writing things down is that Larry believes new ideas do not spring out of nowhere, but instead are germinated from two or three other seemingly unrelated bits of information. Therefore by keeping good notes we give our minds more opportunity to work on these bits and so we may come up with more and better ideas.

The size of the group to work on a problem can be as small as one person, but an optimum size has been found to be three to five people. With fewer than three you might not get the desired interplay of ideas, while it is very difficult to keep many more than five people all working and thinking on the same subject. In larger groups the problem of maintaining disciplined thinking becomes acute.

STEP 1 - Selecting the Problem. The problem needs to be of a proper size for the techniques to work. If you think of these techniques as a tool (and they are just that) then it becomes a matter of matching the size job with the size tool. A good example of how to do this is the problem of the stockhouse at Oro Grande. This total problem is too general with too many different functions involved (customer service, storage, filling, emptying, quality, etc.) and so it could not be readily handled by these methods. However the sub-problem of how do we get cement out of the stockhouse can be handled nicely. On the other hand the problems must not become too small or trite, and must be important and capable of giving a good return on the time spent. An emergency is not the time for these techniques, for then any workable solution is sufficient.

STEP 2 - Defining the Problem. The task group assigned to the problem should meet and spend about an hour of concentrated thought on just what they are trying to do. Some commonly expected answers might be to reduce costs, or to reduce downtime. This should produce several different ways of looking at the problem, and they all should be written down. At this point redundancy is to be encouraged as what is desired is to restate the problem in many different words.

STEP 3 - Collect Information. At this step the group of 3 to 5 should be expanded to include everyone that might have information relating to the problem. The time required might be as short as a couple of hours, or it might take a couple of weeks, depending on the complexity of the problem. The information desired includes almost everything, including historical information on what has happened, what is happening now, how other people are doing similar functions, what are the costs. The information step has three parts, a) the listing of all available information, b) a list of information that is needed and is available, but which we don't have, and c) a separation of the information into fact and assumption.

STEP 4 - Analysis. The information is critically reviewed to determine which specific areas appear to be most fruitful for further study. For example, a project to reduce maintenance costs on a piece of equipment might be simplified to a bearing that has been failing, plus a cleanup problem. This step is accomplished by organizing, grouping and reorganizing the information until it is obvious which areas of the problem should be tackled first. It may be necessary to go back and get some additional information.

STEP 5 - Creativity. As used here, creativity is defined as the combining of heretofore seemingly unrelated bits of information into a new pattern that might have an application to the problem. Two things are needed, namely the bits of information and people who can reorganize these bits into a new form. At this step it may be helpful to enlarge the group to include people knowledgeable about the problem and also people who are not experts in the problem

Step 5 - Creativity, continued

area but who are "creative". This creative step is what is commonly known as a "brainstorming" session, and the rules are: a) no more than 12 people, b) each session is no longer than 20 minutes, c) start the session off with "how might we. . .", d) no negative comments or judgments permitted, and e) write everything down. A second session may be scheduled if sufficient ideas were not produced.

STEP 6 - Judgment. This step is not done by the group, but by the one man who has the responsibility for the successful completion of the project. On some occasions this might be two persons. Every idea produced in the creative step is critically reviewed to see if any part of it might have some application to this problem. The man doing the judging will select one or perhaps several ideas for further study by the group or for implementation. It may happen that a particular idea has considerable merit except for one serious reservation, and in this case another creative step might be employed to eliminate the reservation.

STEP 7 - Implementation. The problem has not been eliminated until the solution has been put into effect. This will be done through our regular channels.