PLAINTIFF'S EXHIBIT

UC-2323

UNION CARBIDE CORPORATION
SILICONES AND URETHANE INTERMEDIATES
Engineering
South Charleston, West Virginia

MEMORANDUM

February 11, 1985

TO: W. E. Ballard
J. A. Bowyer
[redacted]
C. R. Gillespie
J. G. Roy
T. G. Swanson
P. G. West

COPY TO: J. F. Dodd

FROM: W. L. Thomas

SUBJECT: Asbestos Insulation Replacement Project - Phase I

Please attend a meeting on Thursday, February 21, 1985 in Building 82-320 at 1:30 p.m. to plan this project. It is proposed that discussions center around the following:

- Select a scope that satisfies the $900M cash flow objective for 1985.
- Ascertain who does what work.
- Develop an action plan for WOR submittal by March 31, 1985.

Attached for your advance reading is a proposal by Jerry Roy.

W. L. Thomas

WLT:jjv

Attachment

48950

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UNION CARBIDE

UNION CARBIDE CORPORATION
P. O. BOX 8004, SOUTH CHARLESTON, W. VA. 25303
Silicones and Urethane Intermediates
South Charleston Plant

K cc Lamar McClure FYI
cc Joe Dodd FYI R.V/TCS
cc ORIG TCS
Done last 250M of approved cost and in 1985 budget for asbestos
J.G.R/TCS
Rigg Roy's memo 12/27/84 (250M) as an 1985 budget

To: Mr. T. G. Swanson

Copy to: Mr. W. E. Ballard
Mr. J. R. Dean
Mr. C. E. Fry
Mr. D. G. Moshier
Mr. R. A. Ream
ES Routing List 2

From: J. G. Roy

Date: December 27, 1984

Subject: No. 2 Steam Plant
Asbestos Insulation Replacement

RECEIVED
JAN - 9 1985
ENGINEERING DEPT.

One of my MOP's for the 4th Quarter is the development of a program to phase out asbestos from the steam plant. I understood from Bob Ream at the time I was given the assigment that special budget provisions were being made to kick this off in 1985. This apparently came about during budget presentations to SUI division management.

Attached is my proposal to accomplish the overall objectives. I've not attempted to quantify the project into monetary blocks (Bob indicated that guideline established was $250,000 expenditure per year) but have presented it in pieces as a control measure. I believe the approach outlined will provide the greatest return both from a health and economic standpoint.

By copy to the department staff I would appreciate their review of both the approach and the individual work list. The most successful projects are those with the most thorough and up front work.

Jerry

J. G. Roy

JGR:kab

Attachments

UCC 003130

ASBESTOS ELIMINATION PROGRAM

Building 151

General:

As an energy conversion facility constructed in large part during its first twenty years (1933-1953), the No. 2 Steam Plant insulation was originally all asbestos. While rebuilds of precipitators and 25 Boiler together with SCESUP additions incorporated non-asbestos materials the majority of the insulation is still asbestos. In reviewing the health related issues involved in steam plant operation asbestos exposure has to be viewed as one of the critical few.

There are several approaches which can be taken to the resolution of this problem. One is to continue the phasing out of asbestos by attrition i.e. repairs with non-asbestos material. Asbestos can also be rendered harmless by sealing the surface to prevent fiber migration into the atmosphere. The ultimate solution is a total replacement of all asbestos material.

The program outlined in this proposal is aimed at elimination rather than control. Realizing that the project cannot be accomplished overnight so to speak, a phased approach incorporating discrete pieces of work (shown on attached listing) is recommended to proceed in the following manner.

Schedule/Funding

The precautions and health monitoring required for asbestos related work is very intensive in comparison to other types of work. For this reason it's important that specific task be started and completed in a timely fashion. Full replacement of all asbestos

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has been roughly estimated to be in excess of one million dollars. The magnitude of the project almost dictates a phased approach not only from the monetary standpoint but to avoid chaos in the normal operation and maintenance activities. For this reason the attached list of work has been arranged in a quasi prioritized order. You will note that the first part deals with the removal only requirements. This of course offers the greatest return on expenditure. The remaining individual items are arranged to make significant contributions with emphasis on places where exposure is most likely. For instance the last item is the 25 Boiler feed water lines. These were fairly well sealed during SCESUP. Also work around the turbine generators should coincide with the scheduled overhaul of these machines.

Funding is visualized at a rate of 150-250M$ pwer year and becomes a budgeted item until the project is completed. I believe that the distribution of work outlined below will produce a high level of efficiency to keep the overall cost well below the original estimate.

Work Assignments

There's plenty of work for everyone! However keeping in mind the need for timely execution coupled with costs, the project segments can be best accomplished by various groups. I visualize the use of demolition contractors, insulation contractors, and UCC Construction as well as Plant Maintenance. Each of these work groups offers unique skills that can expedite as well as minimize the costs for various pieces of the project.

Demolition Contractors: These people are geared to removal work

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and can strip idle facilities very quickly at reasonable costs.

Insulation Contractors: Traditionally, UCC insulation projects have been overdone in the sense that we do a better job than is needed. Of course our costs are higher as a result. We almost universally use the block and wire approach with fabric coatings on large flat surfaces when other systems such as mineral wool on impaling wires and metal lagging are much more prevelent in the industry. Contractors having to meet stiff competition have developed systems that are sufficiently sturdy but minimize both material cost and labor. A case in point is the system we bought from Riley Stoker for the No. 25 Boiler rebuild. This project scoffed at by a number of construction people at the time, appeared to be flimsy. The entire insulation and lagging is supported on the impaling wires with no use of stand-offs and angle iron frames to mount the metal lagging. The bottom line is that it works and the cost is lower. For this reason I recommend that major equipment such as boiler ducts and breechings be insulated by contractors.

UCC Construction: For the most part it will be virtually impossible to isolate steam and hot boiler feed water headers for stripping and reinsulation. From a health, safety and economic standpoint, it is important that long segments of header be stripped with reinsulation following closely. Construction's manpower availability is suited to this kind of activity.

Maintenance: There is a definite need to address miscellaneous lines and equipment that while limited in scope are more time consuming. The nature of work it lends itself to an intermittent progression of this type of work and should aid in the overall plant

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scheduling of this manpower short craft.

The following is a suggested assignment of the attached items to the various resources described above.

Demolition Contractors - 1 through 10

Insulation Contractors - 11 through 18

UCC Construction - 19 through 37

514 Maintenance - 38 through 49

Project Control

Unless tight control is exercised for a project of this type monies have a way of being spent without a whole lot to show for it. It is important that all changes accrue to a single account and be reviewed on a monthly basis. Additionally a file must be maintained to measure progress of the overall effort.

Some time ago a program was undertaken to identify all asbestos with stickers. I understand that stickers were placed on just about every insulated surface and I've heard insulators say that many non-asbestos surfaces were eroneously labeled. Also due to dirt conditions many stickers failed to stay in place.

Perhaps a more effective way to start the project would be to identify all of the insulation that is non-asbestos. There has been a lot of insulating done since 1972 and with our knowledge of project timing etc. it should not be difficult to pin down the majority of non-asbestos material. Identification with a stencil and spray paint would be a good first step leading into the overall project.

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ASBESTOS ELIMINATION PROGRAM

Building 151

Removal From Idle Factilities

1. No. 14 I.D. fan and breeching to the south stack.
2. Nos. 12 and 13 precipitator hoppers
3. No. 12 I.D. fan
4. No. 14 Boiler air ducts, drum heads, feed water lines, and steam header to the main header isolation valve
5. No. 12 precipitator inlet breeching and duct
6. No. 12 Boiler air heater, ducts, feed water lines, drum heads, and steam header to the isolation valve at the main header
7. No. 12 bubar ash collector
8. No. 12 pulverizer coal ducts from feeders
9. No. 13 pulverizer coal ducts from feeders
10. No. 13 hot air ducts to the coal feeders

Remove and Replace With Non-Asbestos

11. South stack breeching serving Boilers 15 and 16
12. No. 15 I.D. fan and precipitator hoppers
13. No. 16 I.D. fan and precipitator hoppers
14. No. 16 precipitator inlet breeching
15. No. 16 Boiler air heater, ducts, drum heads, feed water piping, boiler headers and steam header to isolation valve at the main header
16. No. 15 Boiler, air heater, air ducts, drum heads, feed water piping, boiler headers and steam header to isolation valve at main header
17. No. 15 precipitator inlet breeching
18. No. 13 Boiler air heater, air ducts, feed water piping, drum heads, and steam header to the isolation valve at the main header

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Remove and Replace With Non-Asbestos (Continued)

19. No. 25 atmospheric flash tank

20. No. 25 deaerator

21. No. 25 high pressure heater

22. South end 10 psi flash tank and associated headers

23. No. 3 deaerator

24. 200 psi flash tank and headers

25. 10 psi steam header from north end to No. 3 deaerator, south end feed water pumps and on to the 200-10 psi reducer; section behind 14 Boiler is OK

26. No. 2 deaerator and headers on that level

27. North 600-200 psi (Hagen) reducing station and all steam headers in that area

28. All deaerated boiler water lines below No. 2 deaerator on operating level

29. North end 200-10 psi reducing station and associated headers

30. South end blowdown recovery heat exchanger and associated piping

31. South end high pressure feed water heater and associated piping

32. All steam and feed water piping associated with Nos. 4 and 5 boiler feed water pumps

33. Ducts between the coal feeders and pulverizers serving Boilers 15 and 16.

34. Boiler feedwater headers serving all boilers

35. Main 200 and 600 psig headers through basement

36. West process steam header

37. North end boiler feedwater pump steam and water lines

38. Atmospheric flash tank and associated piping at No. 8 turbine generator

39. No. 8 turbine generator inlet and exhaust steam headers

40. All remaining miscellaneous lines and equipment at the basement level

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Remove and Replace With Non-Asbestos (Continued)

41. All remaining miscellaneous lines and equipment on the operating level

42. All remaining miscellaneous lines and equipment at the 3rd level

43. All remaining miscellaneous lines and equipment at the 4th level

44. All remaining miscellaneous lines and equipment in the bunker and east roof level

45. All remaining miscellaneous lines and equipment on the main precipitator platform

46. All remaining miscellaneous lines and equipment on the 25 precipitator platform and I.D. fan area

47. Steam header serving 25 high pressure heater and all water piping associated with both the high pressure heater and the deaerator

48. All remaining miscellaneous lines and equipment in the structure located on the north side of 25 Boiler

49. All water lines and miscellaneous steam tracer supply headers in the north yard area and around the north residue manifold

JGRoy:kab

12/28/84

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