PLAINTIFF'S EXHIBIT

UC-4249

UNION CARBIDE

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

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

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 011550

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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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UNION CARBIDE

FROM THE DESK OF
J. G. ROY

Bldg. 151 747-2588
South Charleston Plant
1/8/84

Charlie:

Im so pleased that I ran into you today and had a chance to discuss asbestos replacement. I agree that handing you a million bucks to spend on projects in which you have no direct control is a problem. You mentioned that justification is not difficult but that project definition is thorny. This is where I can help! As you can see on the attached (which you previously received) Dive outlined what could consume way more than half of your funds. Between No 2 stm plant and No 1 stm. plant rewards Dave a comprehensive program which I could put together for distribution steam lines we could get a lot of results in the most permanent facilities in the plant. Lets take care of SUI facilities first.

ENERGY SYSTEMS

Jerry

UCC 011558

~~ELF~~
GLW
Wly - File

I gave the same PPE to Shift Supers and placed the items on the Rescue Vehicle two.

UNION CARBIDE

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

To: Mr. D. L. Burger
ES Supervisors

Copy to: Mr. J. E. Barron
Mr. L. D. Diggs
Mr. E. O. Lewis
Mr. G. F. Painter
Mr. T. G. Swanson
Mr. A. E. Thompson
Mr. C. L. Thompson
Mr. W. C. Young
ES Routing Lists 2 & 5

From: J. G. Roy

Date: April 4, 1985

Subject: Entry Into No. 1 Steam Plant
During Asbestos Removal Project

A locker stocked with paper coveralls, disposable 3M resiprators and cotton gloves has been placed in Building 40. There are two keys to this locker, one with D. L. Burger and the other with the E.S. Shift Supervisor.

The above mentioned equipment is minimum approved protection gear for entry into asbestos work areas and must be worn any time the work zone is penetrated whether or not the work is in progress. The harmful asbestos fibers remain in the air long after the activities cease!

A trash can has been provided along side of the locker to dispose of used masks, coveralls, and gloves. Please make sure the lid stays on.

Jerry
J. G. Roy

JGR:kb

UCC 011559

AFFILIATED ENVIRONMENTAL SERVICES, INC.

219 Fremont Avenue
Sandusky, Ohio 44870
(419) 627-1976

TO UNION CARBIDE PERSONNEL:

J. C. Cogar
L. T. Brannon
B. P. Johnson
T. G. Swanson
J. G. Roy
H. L. Wise
G. M. Robertson
W. C. Young
C. E. Fry
C. R. Gillespie
J. D. Myres

FROM: Jack Dauch - AFFILIATED ENVIRONMENTAL SERVICES, INC.

Gentlemen,

The removal of the asbestos containing insulation will be performed in full compliance with OSHA and EPA regulations. The following is an outline of items to be included to ensure the removal personnel and Union Carbide personnel are provided a safe working environment.

I. The building shall be posted off limits to all personnel not assigned to work in it. This shall be done by Union Carbide placement of "safety ribbon" with written tags plus the contractor shall post warning signs at all entrances.

a. The pump room shall be kept out of the asbestos removal area until the inside of the building from the top level to the basement has been cleared of asbestos. The pump room area will be completed in a single 8-hour shift after discussing the actual date with Union Carbide.

b. The steam reducing area and possible electrical work will require access by Union Carbide personnel. When Union Carbide personnel must enter these areas, the removal contractor shall minimize actual removal operations in the vicinity.

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I. (continued)

c. The use of air cleaning systems (HEPA filtration) will be used during the removal. Note: when work in the pump room is performed, one (1) unit (120,000 cfh) shall be set up on this area to reduce the air levels as rapidly as possible.

d. The contractor has set up two (2) 2-room change areas. Entrance shall be into the clean change area. Street clothing is removed at this point and disposable coveralls, gloves and boots are put on as well as a respirator. The contractor checks his respirator (both positive and negative pressure checks). Upon entry into the dirty side change room, the zone side shoes and boots are put on. When leaving the work area, the contractor removes all clothing in the dirty change area. Then, still wearing the respirator, proceeds to the shower. After showering, the employee re-dresses in street clothing or if on break into new disposable clothing.

e. Air monitoring shall be performed in/on the following:

1. Workers - at least 2 persons daily for first five (5) days. Then at least 1 person/day.

2. Clean room - daily.

3. HEPA exhaust units shall be monitored the first two days then weekly.

4. Pump room - daily first week then once/week.

5. Steam reduction area - daily first week then once/week.

Note: #4 & 5 will be terminated when removal in the building is complete.

f. To minimize asbestos contaminated air from the removal operation becoming a hazard, the following is required.

1. Minimize dust by wetting material and by removal technique.

2. Reduce levels of asbestos in air by use of HEPA units.

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I f. (continued)

3. Drape plastic curtain over openings in building (broken) windows.

4. Work on top of building requires construction of enclosure (will require combination of frame, plywood and plastic).

5. Protective clothing and respirators in the zone.

g. Action limits for asbestos concentrations in air.

1. The current OSHA 8-hour time weighted average permissible exposure limit is 2-fibers/cc. The type of respirator required is dependent on the air concentration. The use of a 1/2 face respirator is required if levels exceed 2-fibers/cc (if over 20-fibers/cc, the use of full face powered air or air line is required).

2. The action level in the various cages shall be:

a.	workers	2.0 fibers/cc
b.	clean room	0.1
c.	pump room	0.1
d.	outside of bldg	0.04

Note: Respirators will be required in the work area no matter how low the level was on previous measurements.

3. Analysis of air samples taken by the contractor during the week of April 1, 1985 shall be analyzed prior to the next day's work.

h. Asbestos waste shall be placed in bags provided by Union Carbide, loaded into containers provided by Union Carbide and disposed of by Union Carbide.

i. Water (including showers) shall be filtered prior to exit from building.

j. Emergency

a. Contractor shall immediately shut down work and come to clean change area if area 1 alarm. In an emergency, personnel will not shower and change clothing, but if time permits, removal of boots and gloves shall be performed.

Jack Dauch 4/2/85

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C. P. FRY
[illegible]

UNION CARBIDE

UNION CARBIDE CORPORATION
SILICONE AND URETHANE INTERMEDIATES
P.O. BOX 8004 SOUTH CHARLESTON, W. VA. 25303

MATERIALS MANAGEMENT DEPARTMENT

APRIL 3, 1985

TO: PLANT PERSONNEL

FROM: J. C. COGAR

SUBJECT: INSULATION REMOVAL AT MAINLAND POWERHOUSE

AS OF WEDNESDAY, APRIL 10, IRELAND BROWN WILL BE REPLACING JOE MYRES AS DEMOLITION SAFETY WATCH FOR THE REMOVAL OF INSULATION AT THE MAINLAND POWERHOUSE FACILITIES BUILDINGS 47, 56 & 78.

MAILING LISTS: A-1, A-2, A-3, M-1, M-2

UCC 011563

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ESTIMATE FOR ASBESTOS REQUIREMENTS

DEPARTMENT Name	ASBESTOS REPAIR REQUIREMENTS Hrs. Req.	Rep.	Mfg $	ASBESTOS MAINTENANCE PER YEAR Hrs Req.	Rep.	Mfg $	JANUARY ASBESTOS REMOVAL Hrs Req.	Rep.	Mfg $
Water Treatment Plant	225	8	800	8	8	800	225	8	800
Steam Plant	9,000	45	4,500	32	32	3,200	2,000	10	1,000
Util. Dist.	1,000	40	4,000	32	32	3,200	2,000	10	1,000
Mixing	380	10	3,800	8	8	800	380	10	3,800
Maintenance	1,320	30	10,800	8	8	800	1,320	30	10,800
Upper Island	5,400	30	27,000	15	15	1,500	1,080	30	10,800
Paper Mills	720	30	3,600	48	48	4,800	720	30	3,600
Solution Vinyl	3,600	50	18,000	28	28	2,800	1,400	50	14,000
Specialty	1,350	15	7,500	15	4	1,500	1,080	30	10,800
Polyol	1,500	30	7,500	40	4	400	0	0	0
Silicones II	0	0	0	-	-	-	0	0	0
Mobile Isl.	1,440	12	7,200	8	8	800	720	30	10,800
Oxide Addns	1,440	12	7,200	8	8	800	720	30	10,800
Distribution	1,440	12	7,200	8	8	800	720	30	10,800
Bulk Terminal	1,440	12	7,200	8	8	800	540	30	5,400
Maintenance	1,440	12	7,200	8	8	800	360	30	3,600
TOTAL PLANT	30,845	287	144,300	284	224	22,800	12,545	387	96,900

UCC 0011564

Glenn 1/7/85

CEF

Charlie you have guys to work up the proposal for asbestos upgrading for a WOL. How is it coming.

WSJ

EL 1/8/85

Slowly I've met with Jim Dodd. Glenn is to get with Jim Dean and work out a description of the work. Terry represents work. The project to be mine - even tho most of the work is to be done on his equipment. Doesn't make sense to me. I can supply justification for the health aspects of asbestos removal but the guy running the project should be the guy who owns the property.

I need resolution from you, DGM and SR. I'm not staffed to control the work on a million $ project.

CEJ.

CC
SR
DGM
GNW

Total Scope
① Condition
② what this year
③ Traffic / personal exp

UCC 011565

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