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BHOPAL SITE REHABILITATION AND ASSETS RECOVERY PROJECT

In the final stage for conducting feasibility studies and detail engineering, it will be necessary to appoint a reputable Indian firm who will also be associated in the final clean-up operations.

PRIMARY OBJECTIVES

- Rehabilitation of plant site to a condition suitable for future use of land and building as a light industrial site.
- Rehabilitation of evaporation pond site to a condition suitable for returning to State Govt for setting-up an industrial estate.
- Realisation of best value from the sale of movable assets.

DISCUSSIONS

There is no precedent in India of a plant site, at which operations for manufacturing chemicals were carried out, rehabilitated to a condition safe for use as light industrial site. This entails thorough investigation of soil and ground water for possible contamination in addition to inspection of all pipelines, reaction vessels and storage tanks, and finally to develop suitable mitigating remedial actions. This process gets further complicated due to set standards not being available for decontaminating soil and ground water. These are normally developed in a 'US' Situation by first conducting a risk assessment study followed by series of discussions with environment pollution control authorities to develop mutually acceptable set of standards.

In view of the above, it would be necessary to seek assistance and advice of an expert organisation having first-hand experience in this field. Since no Indian organisation has had similar exposure, it has been decided to appoint M/s A D Little & Co. of USA which has considerable experience in this field. In addition to above, it is necessary to carry out detailed investigations entailing sampling, analysis of samples, defining of permissible limits and carrying out risk assessment where necessary and finally to prepare an Environmental Management Plan. At the instance of M.P. State Govt, it is proposed to appoint National Environmental Engineering Research Institute (NEERI) for carrying out the above investigation under the overall guidance of M/s A D Little & Co.

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In the final stage for conducting treatability studies and detail engineering, it will be necessary to appoint a reputable Indian engineering consultancy firm who will also be associated in the final clean-up operations.

State Govt has already set up a team comprising of technical experts from public sector units to inspect the pipelines, reaction vessels and storage tanks and recommend suitable action for decontamination/neutralisation. In this case after decontamination/neutralisation, it is proposed that a contractor is appointed for safely dismantling the plant before disposal.

PROPOSAL

As is evident from the foregoing discussions the activities relating to the rehabilitation project have no synergy with the Company's main stream business operations and as such, can best be handled by isolating the project from the ongoing business operations. It is for this and the following reasons, we propose that all these activities are undertaken by a subsidiary of UCIL to be formed at a convenient time:

- Sensitivity of the community will be less if Union Carbide name is not associated with rehabilitation operations and such operation is likely to attract less attention from media.
- Asset disposal through this route will be more focused resulting in higher realisation.
- This will facilitate positive interactions with the concerned authorities for developing the standards for decontamination and detoxification.
- Accountability for rehabilitation cost will be more focused.

The rehabilitation activity will be undertaken on a turn-key basis by the subsidiary company in terms of contract to be awarded by UCIL. The Company will also undertake to dismantle and dispose of the assets. UCIL will advance funds from time to time for the execution of the turn-key project.

ACTION PLAN

1. ACTIVITY CHART

ENVIRONMENT MANAGEMENT & INVESTMENT RECOVERY OF BHOPAL PLANT

	<u>1990 - 1991</u>				<u>1991 - 1992</u>				<u>1992 - 1993</u>			
	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>
1.	-	NEERI study										
	-	A. D. LITTLE Study										
	-	Clean up of Site										
	-	Decontamination of Evaporation Pond										
2.	-	Inspection, Decontamination & Dismantling of plant, machinery & pipelines										
	-	Investment Recovery										

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2. CASH FLOW PROJECTION

	AMOUNT - Rs '000															
	1990 - 1991					1991 - 1992					1992 - 1993					90-91/ 92-93
	QI	QII	QIII	QIV	YTD	QI	QII	QIII	QIV	YTD	QI	QII	QIII	QIV	YTD	TOTAL
<u>CASH OUTFLOW</u>																
1. - Standing Charges	990	990	990	990	3960	1090	1090	1090	1090	4360	1200	900	600	400	3100	11420
- Separation Cost												500	500	700	1700	1700
2. - NEERI Study			1045	45	1090	1045	45	545	-	1635						2725
- A.D.Little Study			900	450	1350					115	115					1465
- Cleanup of site						925	925	925	925	3700						3700
- Decontamination of Evap. pond		625	625	625	1875	625	625	625	625	2500	625	5000	5000		10625	15000
3. - Inspection Decontamination & Dismantling of Plant, Machinery & Pipelines			830	830	1660	830	830	830	830	3340						5000
TOTAL CASH OUTFLOW	990	1615	4390	2940	9935	4515	3515	4015	3605	15650	1825	6400	6100	1100	15425	41010
<u>CASH INFLOW</u>																
4. - Invmt. Recovery			2500	2500	5000	7500	7500	7500	7500	30000						35000
NET CASH OUTFLOW	990	1615	1890	440	4935	(2985)	(3985)	(3485)	(3895)	(14350)	1825	6400	6100	1100	15425	6010

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2. CASH FLOW PROJECTION

AMOUNT - USD '000

	<u>1990 - 1991</u>					<u>1991 - 1992</u>					<u>1992 - 1993</u>					<u>90-91/ 92-93 TOTAL</u>
	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>	<u>YTD</u>	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>	<u>YTD</u>	<u>QI</u>	<u>QII</u>	<u>QIII</u>	<u>QIV</u>	<u>YTD</u>	
CASH OUTFLOW																
1. - Standing Charges (Incl. separation Cost)	75	75	75	75	300	80	80	80	80	320	80	80	60	60	280	900
2. - NEERI Study			60	5	65	60	5	30	-	95						160
- A.D.Little Study			55	25	80				5	5						85
- Cleanup of Site						55	55	55	55	220						220
- Decontamination of Evap. Pond		125	125	125	375	125	125	125	125	500	125	500	500		1125	2000
3. - Inspection Decontamination & Dismantling of Plant, Machinery & Pipelines			180	180	360	185	185	185	185	740						1100
4. - Contingency																355
TOTAL CASH OUTFLOW	75	200	495	410	1180	505	450	475	450	1880	205	580	560	60	1405	4820
5. - Invmt. Recovery			145	145	290	440	440	445	445	1770						2060
NET CASH OUTFLOW	75	200	350	265	890	65	10	30	5	110	205	580	560	60	1405	2760

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