

APPENDIX A

RESPONSIVENESS SUMMARY

INDUSTRI-PLEX SITE  
Woburn, Massachusetts

September 1986

INDUSTRI-PLEX, WOBURN, MASSACHUSETTS  
DRAFT RESPONSIVENESS SUMMARY

This community relations responsiveness summary for the Industri-plex site in Woburn, Massachusetts, is divided into the following sections:

- I. Overview - This section summarizes the cleanup alternative recommended by Stauffer Chemical Company for remedial action at the Industri-plex site, and summarizes briefly public support for that alternative. Comments from potentially responsible parties are also summarized.
- II. Background on Community Involvement and Concern - This section provides a brief history of community interest and concern regarding the Site.
- III. Summary of Major Comments Received during the Twelve Week Public Comment Period and EPA Responses to the Comments - This section categorizes both written and oral comments by the community; local, state and federal officials; and potentially responsible parties on the proposed cleanup approach. EPA responses to these comments are also provided.
- IV. Remaining Concerns - This section describes community concerns raised during the twelve week public comment period that EPA and the State should be aware of as they prepare to undertake remedial design and remedial action at the Industri-plex site.

In addition to the above sections, Attachment A, included as part of the responsiveness summary, identifies the community relations activities conducted by EPA during remedial response activities at the Industri-plex site.

## I. OVERVIEW

### The Cleanup Alternative

The draft feasibility study (FS) for the Industri-plex site, which examines the feasibility of various cleanup alternatives, was prepared for EPA by Stauffer Chemical Company. The FS recommends a remedial alternative that involves several separate actions designed to treat groundwater contamination, treat odors resulting from hide piles, and treat contaminated soils.

Stauffer's proposed treatment of groundwater would involve pumping all the groundwater that leaves the Site at the Site boundary, treating the groundwater with an air stripping process to ensure compliance with EPA criteria for drinking water, and discharging the treated groundwater to nearby Hall's Brook. This option will remove 99.9 percent of the benzene from the treated water before the water is discharged. The remaining contamination in the groundwater will disperse naturally in the underlying aquifer to a level three times lower than EPA drinking water standards.

Stauffer's proposed method of treating odors from hide piles would involve: a) lowering the water table around the East and West piles to reduce odor associated with wet hides; b) stabilizing and grading the sides and top of the East Pile, covering it with a twelve inch layer of gravel, a synthetic cover to prevent rain water from getting into the pile and prevent gases from escaping without first being treated, and twenty-four inches of soil; and c) installing a gas ventilation and collection system in the East Hide Pile to capture and treat gases created from the decay of wastes in the pile before releasing them into the air.

Stauffer's proposed method of treating contaminated soils would involve covering 43 acres of the most highly contaminated soil with thirty inches of soil and vegetation. About 200,000 cubic yards of soil are estimated to be necessary for this. The soil would be delivered in trucks to the Site over the course of about one year.

### Public Support for the Cleanup Alternative

Contaminated Soils: The CAC reported that it was not prepared to state a preferred alternative for treatment of contaminated soil and that two alternatives seem to have merit: 1) treating the soils where they have been found, and 2) excavating and consolidating the soils into one smaller area. With regard to treatment of contaminated soils, the North Suburban Chamber of Commerce and U.S. Representative Edward Markey prefer an action involving excavation and consolidation of soils, and relocation to other on-site locations.

The CAC, community members, the Chamber of Commerce, and local officials all expressed a great deal of concern regarding the long-term monitoring, maintenance, and use of the Industri-plex site.

Odors Resulting from Hide Piles: The comments received during the public comment period indicate that the Industri-plex Citizens' Advisory Committee (CAC), the North Suburban Chamber of Commerce, interested members of the community, and U.S. Representative Edward Markey concur with the proposed treatment of hide deposits.

Groundwater Contamination: Members of the Industri-plex CAC and members of the community also support the proposed treatment of groundwater contamination. The Water-Soil Subcommittee of the CAC suggests that treated groundwater be recharged upgradient into the aquifer rather than discharging it into Hall's Brook, as preferred by Stauffer. U.S. Representative Edward Markey prefers treating the water downgradient of the Site in an effort to reduce the pollutants released into surface water.

#### Comments from Potentially Responsible Parties

The Monsanto Company, a potentially responsible party, stated that the preferred alternative adequately addresses public health and environmental issues. The company elaborated on the preferred alternatives for treatment of hide piles and contaminated soils. The company presented a new approach to groundwater treatment which would involve pumping downgradient, off-site groundwater to a biological treatment system and reinjecting the effluent upgradient of the well system.

Section III below provides a more detailed discussion of individual preferences concerning the proposed cleanup approaches.

## II. BACKGROUND ON COMMUNITY INVOLVEMENT AND CONCERN

Community awareness of what is now known as the Industri-plex site goes back to 1863 when the Massachusetts Department of Public Health first conducted hydrogen sulfide testing in response to public complaints of odors emanating from the Site area. The Site was used for manufacturing chemicals and later for manufacturing glue which involved cooking animal hides to extract the glue. For nearly a century, the methane and hydrogen sulfide gases causing the "Woburn odor" were considered to be a public nuisance. Residents also claimed that the area was unsightly and was responsible for various health ailments.

In 1979, Site preparation for an industrial park revealed the presence of a variety of chemical wastes from industrial activities. At this time, the Massachusetts Department of Environmental Quality Engineering (DEQE) and the EPA began to investigate the Site actively. On April 23, 1980 in accordance with the Massachusetts Environmental Policy Act, the Massachusetts

Secretary of Environmental Affairs authorized the formation of a Citizens' Advisory Committee (CAC) to provide input to and review technical documents related to the Site.

As a result of this, a 14-member CAC was formed. Members included representatives from the cities of Woburn, Wilmington, Winchester, and Reading, as well as representatives from local ad hoc environmental groups. For the first three years of its existence, the CAC met on a weekly basis for the purpose of highlighting and attempting to resolve issues of community concern related to the Site. Non-voting representatives of EPA, DEOE, and the U.S. Army Corps of Engineers also attended the CAC meetings. After the CAC had been in existence for a few years, the North Suburban Chamber of Commerce and an area branch of the League of Women Voters also joined the CAC as voting members.

From 1983 to date, the CAC has met less frequently but has continued to provide substantial input to the Superfund cleanup process. The potentially responsible party conducting the RI/FS at the Site has actively cooperated with the group and has incorporated many CAC suggestions into the RI/FS.

The City of Woburn, surrounding communities, and the North Suburban Chamber of Commerce are all interested in promoting industrial development in an effort to stimulate the regional economy. However, a federal consent decree has been issued requiring cleanup of the Site before any development can take place. The City of Woburn and the Chamber of Commerce are concerned that the cleanup is taking too long and hindering the process of development. Several residents and the Citizens' Advisory Committee would prefer that the Site never be developed because hazardous wastes have been identified on-site. The Site development issue is one of serious community concern.

### III. SUMMARY OF MAJOR COMMENTS RECEIVED DURING THE TWELVE WEEK-PUBLIC COMMENT PERIOD AND EPA RESPONSES TO THE COMMENTS

Comments raised during the Industri-plex site public comment period are summarized briefly below. The comment period was held from May 14, 1985 to August 1, 1985 to receive comments from the public on the draft feasibility study. Comments are categorized by type of commentor, (e.g., the community, local officials, and potential responsible parties) and topic.

#### Comments from the Community

Each of the major community groups at Industri-plex expressed its preferences and concerns with the proposed remedial actions. Their comments are summarized below.

## Treatment of Groundwater Contamination

Stauffer's proposed treatment of groundwater would involve pumping all the groundwater that leaves the Site at the Site boundary, treating the groundwater with an air stripping process to ensure compliance with EPA criteria for drinking water, and discharging the treated groundwater to nearby Hall's Brook. Nearly all of the contaminants in the groundwater will be removed by the air stripping process. The remaining contamination in the groundwater will disperse naturally into the aquifer underlying the Site.

1. The Industri-plex CAC, with the exception of the Water-Soil Subcommittee, endorsed the proposed treatment of groundwater contamination but requested that a monitoring and maintenance program be implemented to ensure that the air stripping system operates reliably and that malfunctions are detected quickly.

### EPA Response:

A major component of any remedial action selected by EPA would be the development and implementation of a plan for monitoring and maintaining the efficiency of the remedial action. This plan is broken into two sections. The first section deals with designing and implementing a monitoring network to effectively evaluate the remedial action. This would include determining the number and location of monitoring wells to detect the effectiveness of the recovery wells. It would also include determining sampling locations throughout the treatment system to ensure that the system is operating as designed and to provide an early warning mechanism when and if a portion of the treatment system breaks down. The second portion of the plan deals with identifying areas within the remedial action that will require periodic or routine maintenance and to plan a course of action to provide that maintenance. Included in the costs are plant operator salaries. These plans are required for all remedial actions prior to their implementation.

2. The Water-Soil Subcommittee of the Industri-plex CAC differed from the majority of the CAC and requested a more detailed explanation as to why remedial Option I (pump "hot spots," air strip, recharge upgradient into aquifer) is unacceptable. The Subcommittee believes that the preferred Option II (intercept plume at Site boundary, air strip, discharge into Hall's Brook) may be overly-protective and expensive.

### EPA Response:

The Agency agrees in part with the Water-Soil Subcommittee and selected Option I (alternative GW-2 in Record of Decision) as an interim remedy instead of Stauffer's proposed Option II (GW-3 in Record of Decision). In the FS, Stauffer recommended the selection of GW-3 because they believed that it was the most cost effective alternative which is protective of the

public health, welfare and environment and met applicable or relevant and appropriate federal public health and environmental requirements. As a final long term decision the Agency would have to weigh very carefully alternatives GW-3 and GW-4 in order to make the same decision recommended by Stauffer. However, the Agency believes that, based on its knowledge of other existing and potential groundwater problems within the aquifer, it is not cost effective and it is inappropriate to make a final decision about on-site remediation without ensuring that it is consistent with the larger regional aquifer decision; hence the selection of GW-2. The pump and treatment of the "hot spot" areas will remove approximately eighty percent of the contaminants within six to nine months. The Agency believes that as an interim remedy the implementation of GW-2 is cost effective when compared to GW-3 which would remove an additional ten percent of the contaminants at a substantially increased cost and timeframe (10 years).

3. The North Suburban Chamber of Commerce proposed that contaminated groundwater detected in one off-site well (OW-17) be pumped and piped to the proposed treatment plant.

EPA Response:

The North Suburban Chamber of Commerce's proposed pumping of only one off-site well (OW-17) would be a modified version of GW-4, the most expensive alternative considered. The Agency believes that this alternative is neither cost effective nor capable of providing a significant increase in protection. The pumping of one well would not be capable of capturing all of the contaminants migrating off-site. The aquifer becomes significantly deeper and wider as it gets further downgradient of the Site boundary. As a result, the saturated thickness of water necessary to intercept the plume effectively becomes much larger and requires more wells or extraction capacity than the interception of groundwater at the Site boundary. Therefore, the pumping of one off-site well would not be practical or effective. Stated another way, this alternative is much more costly for only a marginal gain in protection.

In addition to the above reasons, the Agency has determined that the groundwater problems associated with the Site should be dealt with as an area-wide groundwater problem. As a result, the Agency will implement an interim remedy pending a final decision on the long term remedial action for the larger area-wide problem.

4. The Mystic River Watershed Association and the Industri-plex CAC suggested that the aquifer underlying the Site be rehabilitated for future use in private industrial processes and that some government authority be given responsibility for monitoring and sampling water quality.

EPA Response:

The aquifer underlying and downgradient of the Site is currently being used by several industries in the area. The water is being used as non-contact cooling water for air conditioning purposes. The volumes required for this purpose are not large; given the current and potential uses of the buildings within the area, it does not appear that there is a significant demand for large quantities of industrial process water. Therefore, the Agency questions the need to address this specific issue as part of the Record of Decision (ROD).

The issue of the long term uses and degree of cleanup within the aquifer will be resolved as part of the proposed Multiple Source Groundwater Response Plan (MSGWRP) outlined in the ROD. This MSGWRP is designed to address the potential impacts on the aquifer, determine the long term needs for the aquifer and how to obtain these goals in light of current Agency guidance and policies. Specifically, the answer to the question will be addressed as part of the MSGWRP.

5. Dundee Park Properties, an owner of land adjacent to the Site, is concerned that the Stauffer study has ignored data from a July 1982 study which indicated elevated levels of benzene and toluene in wells on Dundee Park property within the East and West Hide Pile. Dundee Park Properties and its engineering consultants anticipate that a number of areas within these piles may exceed the criteria which Stauffer used to define contaminated soil areas.

EPA Response:

The RI/FS evaluated the impacts to the groundwater resulting from the Site. The RI determined that the source of benzene and toluene originates much further south than the East Hide Pile. The RI did not detect any impact resulting from benzene or toluene in the hide pile. The RI determined that the shallow pond adjacent to the Dundee Park wells was a discharge zone for the local groundwater. As a result, the elevated level detected in the Dundee Park wells would most likely discharge to the pond. Water quality sampling within and downgradient of the pond did not detect the presence of these volatile organic compounds.

The recommended remedial action for the East and West hide Piles will address all areas mentioned in Dundee Park's comments. Specifically, the piles will be capped to minimize any additional leaching of material from the piles.

6. A community member suggested that no work be done at the Site until the Wells G and H Site in Woburn, Massachusetts had been tested for radiation; if any radiation is found, its source should be identified.

### EPA Response:

The Wells G and H Site, located in East Woburn, is a separate and discrete site currently listed on the National Priorities List (NPL) which is undergoing a separate remedial investigation/feasibility study to determine the nature and extent of contamination. While there exists a relationship between the two sites as a result of the Industri-plex 128 site being upgradient hydrologically from the Wells G and H site, the Agency believes that the issues relating to Wells G and H are most appropriately addressed during that investigation and not here.

In the Record of Decision the Agency has selected an interim groundwater remedy for the Industri-plex site. This decision to partially remediate the groundwater problems resulting from the Site was based on the knowledge of actual or potential groundwater impacts abutting the Site. Prior to selecting a permanent long term remedy, the Agency decided that the implementation of a Multiple Source Ground Water Response Plan (MSGWRP) to adequately address these other problems was the most efficient method to decide on the long term clean-up goals for that portion of the aquifer. This MSGWRP will address the general area around the Site and is not expected to specifically encompass Wells G and H, except in light of the potential impacts to Wells G and H from the decisions made relative to the MSGWRP study area.

### Proposed Remedial Actions

7. U.S. Representative Markey stated serious doubts as to whether the recommended method of removing benzene and toluene from groundwater will ensure that contaminated water is not endangering public health. As an alternative to the recommended method, Markey proposed treating the water downgradient of the Site and monitoring treated groundwater at its point of introduction into surface water. Markey also requested that Hall's Brook be tested regularly to ensure that contaminants are not being discharged from the Site.

### EPA Response

The Agency evaluated the various options for remediation of the contaminated groundwater. As described in the Record of Decision (ROD), the Agency choose to implement an interim remedial action while resolving the more widespread contamination or threat of contamination surrounding the Site. The Agency chose to implement an interim solution based on a number of factors which are detailed in the ROD. One of the primary reasons behind selection of an interim remedy was the belief that the public health, welfare and environment would not be impacted adversely during the period of time the regulatory agencies were designing a comprehensive cleanup plan for the groundwater. It should be noted that currently no one is consuming water

from the aquifer; in fact, the industrial uses are relatively limited as well.

The monitoring of Hall's Brook will be considered as part of the investigation during the Multiple Source Groundwater Response Plan.

#### Treatment of Odors Resulting from Hide Piles

Stauffer's proposed method of treating odors from hide piles would involve: a) lowering the watertable around the East and West Piles to reduce odor associated with wet hides; b) stabilizing and grading the sides and top of the East Pile, covering it with a twelve inch layer of gravel and a synthetic cover to prevent rain water from getting into the piles and to prevent gases from escaping without first being treated, and then covering this with twenty-four inches of soil; and c) installing a gas ventilation and collection system in the East Hide Pile to capture and treat gases created from the decay of wastes in the pile before releasing them into the air.

8. Industri-plex CAC concurs with the proposed treatment of hide deposits, but believes that the test period for evaluating alternative collection and treatment systems should be longer than the seven weeks proposed by Stauffer to ensure reliability and suitability in various weather conditions and throughout four seasons. The CAC also wants to ensure that the system design will prevent adverse environmental impact should the system malfunction and suggested that back-up systems be used to minimize that possibility.

#### EPA Response:

EPA agrees with the CAC regarding the length of the monitoring period for determining what type of treatment, carbon adsorption or incineration, is appropriate for the East Hide Pile. EPA intends to monitor the volume and composition of the gases collected for a period of one year following the installation of the gas collection system and the cap on the hide pile. While this will delay the final solution of the "Woburn odor" problem, it will help ensure that the solution achieves its goals.

EPA also concurs with the CAC's concerns regarding the impact of malfunctions on the public and the environment. An essential element of a successful remedial action is ensuring that the action is well designed and constructed so that malfunctions are minimized. Equally essential is providing back-up on critical components of the system. For the incineration option, for instance, there will be two flame ignition systems and interlocking control devices to ensure that no gases from the hide pile enter the incinerator if there is no flame. These safety and back-up equipment specifications will be addressed during remedial design.

9. The Industri-plex CAC urged that EPA evaluate the benefits and problems of the proposal for using soil from the South Hide Pile to stabilize the East Hide Pile. The group is concerned that this action may release undesirable odors.

EPA Response:

The South Hide Pile is a comparatively small pile of wastes that contains some hide material. The RI indicates that only small deposits of glue manufacturing wastes are present in this pile. The test pits, borings logs and the personal experience of the field personnel conducting and supervising these activities indicate that the odor potential is low. The pile is bordered on two sides by developed properties and a portion of the drainage channel that will be needed to redirect the water from the pond between the East and West Hide Piles to the Hall's Brook storage area. The third side of the pile abuts an active railroad siding. Given these tight quarters, it would be extremely difficult to cap this pile in place without relocating the siding, the drainage channel and a portion of at least one building.

EPA believes that relocating this pile is the most practicable means of isolating it from the environment and public. EPA recognizes, however, that the potential exists for generating odors during the relocation. EPA does not believe that significant odors will be generated, but if they are, EPA will halt the relocation, reassess the size of the problem and develop a plan for dealing with the problem. The plan will be reviewed with the affected community. If the reassessment of the problem indicates, as currently believed, that the amount of hide material is small, work practices could be instituted that could minimize the intensity and duration of the odors. In this case, consulting with the community would be aimed at gauging to what extent it is willing to endure short-term odors in return for a long-term solution to the problem.

If the amount of hide material is large the Agency would have to reassess its decision and would likely cap the pile in place using sheet piling or other methods to protect the developed properties abutting the pile until such time as adequate equipment can be mobilized to complete the job as fast as possible while ensuring that odorous materials are limed and covered in transit. Additionally, relocating odorous materials will be accomplished between 9 a.m. and 4 p.m. only and all materials will be covered daily.

10. A community member proposed that the hide piles be covered with soil, rather than capped with a synthetic cover, and allowed to aerate and decompose naturally.

EPA Response:

As evidenced in the Arthur D. Little odor specialist's report, capping of the west and central hide piles has eliminated odor

emissions from these potential sources. Therefore, the community member's proposal has merit. Capping the East Hide Pile in itself might work. EPA is not convinced, however, that it will. EPA prefers to have the added assurance of trapping, collecting and treating the gases. If EPA approved this citizen's proposal and it proved ineffective, retrofitting the pile with the systems described in the ROD would be very expensive.

If, on the other hand, the systems are installed as described in the ROD and the volume of gas generated by this pile drops to the point where treatment proves unnecessary, then the collection system can be sealed and the treatment system shut off.

11. The Industri-plex CAC urged EPA to seriously question Stauffer's use of "limiting effect dose" levels (LEDs) as a measure of the release of odor because much lower levels than the specified LEDs would still be objectionable to the CAC. In addition, the CAC requested that further consideration and substantiation of appropriate concentration levels of contaminants be undertaken. They suggested that more than one set of limiting effect dose levels may be necessary since there are several distinctly different populations at risk in the area. For example, workers in a nearby building may be exposed to contaminants during a normal work day whereas residents some distance away from the Site may be exposed over a longer period of time.

EPA Response:

The FS did not use "limiting effect doses" (LEDs) to calculate the level of hydrogen sulfide and other reduced sulfur compounds at which the community would experience "objectionable odors". The LEDs were used to calculate the level below which there would be no health problems experienced by the community.

All decisions as to the level at which objectionable odors would be detectable are based on the data provided by the trained Odor Panel from Arthur D. Little, Inc. (ADL), respected authorities on odors and their perception. The ADL Odor Panel conducted surveys in field measurements and laboratory evaluations in support of their findings.

Based on ADL's findings Stauffer calculated the worst case odor levels based on either taking no action or implementing the carbon adsorption remedial action. With carbon adsorption, no detectable odors are anticipated based on Stauffer's air modelling.

In response to the comment suggesting that multiple LEDs may be needed for each contaminant in order to evaluate the impacts on the health of nearby workers as compared to residents some distance from the Site, the FS points out that for a given contaminant there is a lowest dose at which a toxic effect was noted. By definition, there can be only one LED for a given chemical. What Stauffer did to address the CAC's comment was

to postulate several exposure scenarios, both on-site and off-site, to address the various routes by which the public could be exposed to these chemicals. The Agency for Toxic Substances and Disease Registry (ATSDR) has reviewed these scenarios and considers them "worst case" exposures.

12. A community member requested that, at the Industri-plex site and in future work, EPA, rather than claim that hydrogen sulfide odor is not a health hazard, instead state that it is currently not known if hydrogen sulfide odor is a health hazard.

EPA Response:

The EPA does not now consider hydrogen sulfide odor a hazardous waste or hazardous substance. All of EPA's decisions on the hazards posed by chemicals are based on the latest reliable data. As in all cases, it is possible that new data will cause the Agency to re-evaluate the levels at which a chemical poses a problem. Thus, new information may arise that will force a re-evaluation of the Agency's opinion of the hazards posed by hydrogen sulfide. On the other hand, hydrogen sulfide is a common chemical, has been a factor in the workplace of numerous occupations and industries (notably petroleum refining and waste water collection and treatment) for a long time, and hence has a large data base on which EPA can base its assessment of the hazard posed.

13. Dundee Park Properties, an owner of land adjacent to the Site, agreed with the proposed remedial action for the East Hide Pile but requested that Stauffer take responsibility for covering all the hide piles on-site, not just the East Pile. The company requested that the East and West Piles be graded back from their property and that the displaced material be placed on the central or South Hide Piles and covered. The company also recommended that the soil area along the west side of the south pond be covered by thirty inches of soil and vegetation.

EPA Response:

The remedial action for the West Hide Pile, as well as the remaining deposits containing animal hide material, is to cover these areas with the 30-inch soil cover described in the S-11 alternative. The East Hide Pile will receive a separate remedial action. The purpose of covering the remaining hide deposits is the same as that for contaminated soils, which is to eliminate the potential for direct contact. In addition, the additional fill material will further reduce the odor potential.

In response to the second part of Dundee Park's question, the Agency believes that grading or removing significant portions of the East or West Hide Piles cannot be performed without creating a substantial odor problem. The Agency does not believe it is necessary or prudent to remove these deposits in order to implement an effective remedial action.

The Agency recognizes that there are exposed waste deposits along the west, south and east margins of the pond. These deposits will be addressed by the remedial action for contaminated soils and sludges. They will either be removed from the wetland or stream and capped or, in instances where excavation is not practicable, the streams will be isolated from the wastes by installing culverts.

14. The Industri-plex CAC requested that it be stated clearly that the gas collection/treatment program is intended to respond to any odors which may later develop in the West Hide Pile (which is not slated for treatment). The CAC states that such odor sources must be eliminated should they develop.

EPA Response:

The Agency is sympathetic to the concern articulated by the CAC that odors emanating from the Site be eliminated, regardless of the source. The data collected during the RI, including the results of the Arthur D. Little Odor Panel, indicate that the East Hide Pile is currently the only source of odors. Based on this determination, the Record of Decision (ROD) concluded that only the East Hide Pile required collection and treatment for the elimination of odors.

The Agency believes that controlling odor emissions from the East Hide Pile will protect the public health, welfare and environment and will restore the public's ability to enjoy the use of their property and to conduct their normal business. In addition, the Agency believes that by placing additional soil cover and institutional controls on the remaining hide deposits the potential for the release of odors is minimal. However, in the event that a remedial action is not effective or Site conditions change so that there is a release or threat of release, the Agency will revisit the problem and take appropriate actions to minimize or eliminate the threat.

15. U.S. Representative Markey agreed with Stauffer's proposal for treating odors from the hide piles but recommended that the discharged gas be monitored closely to ensure that it has been treated properly.

EPA Response:

The Agency will, as part of the Remedial Design process, develop and approve a comprehensive sampling and analysis plan for the air remedial action. This plan will not only document the efficiency of the treatment system but that the public health, welfare and environment are protected as well.

16. The Reading Board of Health had many concerns regarding the proposed remedial alternative for the hide piles. Specifically, the Board requested that: a) more consistent data be provided as to the toxicity of hydrogen sulfide and other potentially toxic substances; b) air monitoring stations be installed on-site and downwind (in Reading) during cleanup to provide data on hydrogen sulfide, toluene, benzene, other gases and particulate matter; and c) a contingency plan be developed, with Reading officials, to address treatment system malfunctions and measures for temporary relocation of residents with health problems.

EPA Response:

- a) The amount of health effects or toxicity data for a specific chemical varies widely and is very compound specific. For hydrogen sulfide (H<sub>2</sub>S) the available data indicates that H<sub>2</sub>S is primarily a respiratory irritant. H<sub>2</sub>S is a naturally occurring gas, the result of decomposition and typically found in dumps, swamps, sewer gases and natural gas. In high concentrations of 500-1000 parts per million (ppm), H<sub>2</sub>S acts as a systemic poison, potentially causing unconsciousness and death. H<sub>2</sub>S is heavier than air and will displace air in low lying or confined areas. At lower concentrations (less than 100 ppm) it tends to be a respiratory irritant and affects the eyes. For additional information on this compound and others found at the Site, the reader is referred to Appendix G of the FS.
- b) The use of ambient air quality stations during the implementation of the remedial action will be considered as part of the remedial design process. However it is important to point out that the detection of the compounds of concern using ambient monitoring techniques is very difficult, if not impossible at the expected concentrations. Instead the Agency intends to use industrial hygiene monitoring and closein monitoring to protect worker safety and to quickly detect and prevent any release from emanating off-site.

To illustrate the above noted point, H<sub>2</sub>S can be detected by the average individual at concentrations far lower than typically used analytical field instruments. As a result, a field inspector using this instrumentation will report none detected even through he or she may clearly smell the H<sub>2</sub>S odor.

Therefore, it is important and practical to use construction techniques which minimize the generation of odors in the first place and then try to contain these odors on-site as much as possible.

- c) As noted in a previous answer, the Agency intends to work closely with all interested parties to ensure that the implementation of the remedial action will not adversely impact the surrounding communities. The Agency will work with the CAC, local public health agencies, affected businesses and the general public to ensure that their concerns are addressed and incorporated to the extent practicable as the remedial design progresses.
17. The Reading Board of Health requested that: a) ample notification be given to the Board and other town officials regarding the construction and cleanup timetables, with specific dates when odors would predictably be strong and emission levels high; and b) data on the human health effects of hydrogen sulfide and other substances be made available to Reading residents.

EPA Response:

As noted in previous answers, the Agency believes that ample opportunities for input exist during the Remedial Design process. The Agency further believes that the specific answers to the Reading Board of Health will come as a result of the interactions during the design process.

Treatment of Contaminated Soils

Stauffer's proposed method of treating contaminated soils would involve covering 43 acres of the most highly contaminated soil with thirty inches of soil and vegetation. About 200,000 cubic yards of soil would be required for this, and the soil would be delivered to the Site in trucks over the course of about one year.

18. The Industri-plex CAC reported that it was not ready to state its preferred alternative for treatment of contaminated soils. The CAC agreed with the proposal to cover the contaminated soil but wants additional information about the excavation and consolidation alternative and the relative risks of the two options. The CAC had specific questions about the excavation alternative, namely: a) What methods will be used to remove, transport, backfill and consolidate contaminated areas? b) How will dust be minimized? c) How can it be ensured that all contaminated soil has been excavated?

EPA Response:

The Agency considered the consolidation options very thoroughly because they minimized the land area over which institutional controls would be required, reduced the amount of operation, maintenance and monitoring required, and restored presently contaminated land to full utilization. The Agency rejected the consolidation options proposed in the Feasibility Study because they would remove contaminants from undeveloped land only, leaving contaminants on already developed land. The Agency finds this distinction arbitrary.

Further, as proposed in the Feasibility Study, the result of the consolidation would be a capped landfill surrounded by a clean zone which would be, in turn, surrounded by a second, discontinuous contaminated zone. This situation does not add materially to the protection of the public health, welfare or the environment, but does add substantially to the costs of the remedial action.

The Agency cannot spend money from the Fund to aid the economic development of the industrial park. The only justifiable reason for consolidating these wastes is to minimize the accidental or intentional disturbance of the completed remedial actions by minimizing the land area that must be controlled in perpetuity.

Toward this end, a well-defined landfill is preferable to an amorphous collection of deposits. Therefore, if the Agency were to endorse a consolidation option, it would be one in which all outlying deposits were brought to a central location. This means removing contaminants from developed properties as well - including contaminants currently covered by buildings.

The Agency does not believe that the added protection provided by such a measure warrants the very large increase in cost. Since the Agency has not selected a consolidation option, there seems to be no need to discuss in detail the mechanisms by which such a plan would be implemented.

19. The North Suburban Chamber of Commerce disagrees with the proposed remedial action and, instead, prefers the excavation and on-site relocation of contaminated soils. The Chamber recommends capping the soils and then backfilling the excavated areas. The Chamber claimed that the FS did not address the long-term feasibility or reliability of the soil cover and its maintenance at a large industrially active Site.

EPA Response:

The Agency believes that it has adequately addressed the Chamber's concerns in the previous answer.

20. The Industri-plex CAC requested that work should stop immediately if unanticipated pockets of waste are discovered during implementation of the remedial action. This work should not begin again until an appropriate solution is implemented.

EPA Response:

The Agency believes that the nature and extent of the waste problems at this site are reasonably well defined and understood. As part of the remedial design process certain areas will receive additional work to better delineate the actual extent of the waste. This is a normal part of the design process, so that at the end of the remedial design the Agency will know and understand exactly what to expect once construction begins. However, during the actual course of events, situations frequently present themselves to the construction engineer

that he or she did not anticipate. If the situation is such that it does not present a particular problem, (i.e., more of the same waste than originally calculated), the engineer makes adjustments and the work proceeds. If, however, the situation is such that work should be stopped until such time that a satisfactory solution to the problem can be worked out, then the engineer will implement the contingency plan outlined in the remedial design to address the problem. The Agency believes that the type and nature of problems which require the use of the contingency plan will receive adequate discussion during the remedial design process. A number of copies of the design and contingency plan will be made available to the appropriate community officials and the public.

21. The Chamber of Commerce and a citizen requested that further soil and surface water sampling be carried out in those areas (both on- and off-site) most likely to be contaminated with highly-toxic hexavalent chromium.

EPA Response:

Additional sampling during the remedial design process will be necessary in order to adequately design the remedial actions. This sampling may include additional surface and groundwater, soil and air sampling. In addition, once the remedial action is completed, an ongoing monitoring program will be implemented to ensure the continued effectiveness of the remedial actions. Further, the RI did not detect any hexavalent chromium.

22. The Mystic River Watershed Association reported that some of its members felt that providing thirty inches of soil cover for the contaminated areas was too much soil.

EPA Response:

The Agency evaluated a number of soil covering alternatives, including the use of a thirty inch cover. The Agency selected the thirty inch cover for several reasons, detailed in the Record of Decision. The primary reasons for thirty inches was to eliminate the effects of the freeze-thaw cycle and to minimize the potential for exposing wastes to erosion. The Agency did note that there may exist alternatives to the use of thirty inches which are effectively equivalent to the recommended alternative. The Agency may, as a result of the design process, select some modified version of the selected alternative so long as the Agency believes that the modified version is equivalent or better than the existing alternative as proposed.

23. A physican from the community proposed that, rather than covering contaminated soils, chemicals should be injected into borings to form a gel blockage around the waste and that the area should be monitored.

EPA Response:

The FS evaluated the feasibility of this alternative as part of the initial screening process. The alternative was eliminated

APPENDIX B

Statement of Findings

Industri-plex Site  
Proposed Remedial Response Action  
Soils Contamination

September 1986

In accordance with EPA policy and Executive Orders 11988 and 11990 concerning Floodplains and Wetlands, the following Statement of Finding has been prepared. The Statement of Finding is part of the Record of Decision (ROD) for the Industri-plex Site and further serves to notify the general public and affected agencies that proposed remedial response actions for areas within the Site are in or may potentially affect a base (100 year) floodplain and/or a wetlands. The Statement of Findings includes the following:

1. The reasons why the proposed action must be located in or affect the floodplain or wetlands.
2. A description of significant facts considered in making the decision to locate in or affect the floodplain or wetlands including alternative sites and actions.
3. A statement indicating whether the proposed actions conform to the applicable State or local floodplain protection standards.
4. A description of the steps taken to design or modify the proposed action to minimize potential harm to or within the floodplain or wetlands.
5. A statement indicating how the proposed action affects the natural or beneficial values of the floodplain or wetlands.

The proposed remedial response action at the Site consists

of site grading, capping and removal/relocation of contaminated soils and sludges over a seventy acre Site. Portions of the Site contain wetlands which may be impacted by the proposed remedial action - specifically, the wetlands located along the northern border of the Site between the East and West Hide Piles. In addition, two small former waste lagoons, now considered a wetlands, may be impacted. The decision process leading to the selection of this action and a detailed discussion of the action are documented in the ROD. The reason why the proposed action must be located in or affect a floodplain or wetlands is that the area of contamination and contaminant migration pathway is so located. The proposed site grading, capping and removal/relocation actions are not located in a base (100 year) floodplain; however, portions of these actions are located in a wetlands and the actions could affect the same.

The decision to locate in or affect the wetland was based on the fact that a portion of the area of contamination and contamination pathway is so located. The decision to propose remedial action in these areas rather than take no action was based on the public health, welfare and environmental risks associated with this area of contamination. The health risks related to the potential for direct contact of soil contaminated with hazardous substances, i.e. arsenic, chromium and lead, was a significant factor considered in making this decision. The action to grade and cap the Site is considered necessary to protect the public health and environment.

The migration of toxic metals to the wetlands and surface water resulting from precipitation and overland flow has had an adverse impact on the surface water and sediments in the pond. The release or threat of release presents a potential hazard to public health and the aquatic species in the pond. Material will be excavated from the wetlands and pond to eliminate the potential for direct contact and to reduce the potential health risk associated with contaminants in and migrating to these water bodies.

The proposed action at the Site is consistent with the applicable or relevant and appropriate Federal public health and environmental requirements. Proposed actions would also be consistent with State (310 CMR 10.00 Parts I and III) and local wetland standards.

Design and construction activities related to the implementation of the remedial response action proposed will include the best practical measures to minimize potential harm to or within the wetlands. Initial design has considered the need to control adverse impacts; erosion, sediment and contaminant migration, both during construction and resulting from topographic and subsurface drainage changes necessary to the implementation of this action. Control and mitigative measures will be considered in more detail during the final design phase of this action.

Using the best practical measures to control potential adverse impacts will reduce possible harm to the wetlands

from siltation and further degradation from contamination. Successful implementation of this action will eliminate the potential risk of surface water and sediment contamination in the wetlands, pond and discharge stream, potential adverse effects on aquatic species and will allow, when coupled with other proposed site remedial actions, for the long term protection of the public health, welfare and environment.

APPENDIX C

Statement of Findings

Industri-plex Site

Proposed Remedial Response Action

East Hide Pile

September 1986

In accordance with EPA policy and Executive Orders 11988 and 11990 concerning Floodplains and Wetlands, the following Statement of Finding has been prepared. The Statement of Finding is part of the Record of Decision (ROD) for the Industri-plex Site and further serves to notify the general public and affected agencies that proposed remedial response actions for areas within the Site are in or may potentially affect a base (100 year) floodplain and/or a wetlands. The Statement of Findings includes the following:

1. The reasons why the proposed action must be located in or affect the floodplain or wetlands.
2. A description of significant facts considered in making the decision to locate in or affect the floodplain or wetlands including alternative sites and actions.
3. A statement indicating whether the proposed actions conform to the applicable State or local floodplain protection standards.
4. A description of the steps taken to design or modify the proposed action to minimize potential harm to or within the floodplain or wetlands.
5. A statement indicating how the proposed action affects the natural or beneficial values of the floodplain or wetlands.

The proposed remedial response action at the Site consists

of site grading, slope stabilization, installation of an impermeable cap, gas collection system and the construction and operation of a gaseous emission treatment system on the East Hide pile. The decision process leading to the selection of this action and a detailed discussion of the action are documented in the ROD. The reason why the proposed action must be located in or affect a floodplain or wetlands is that the area of contamination and contaminant migration pathway is so located. The proposed remedial action is not located in a base (100 year) floodplain; however, the area requiring implementation of a remedial action is located in a wetlands and, as a result, any action taken could impact said wetlands.

The decision to locate in or affect the wetland was based on the fact that the area of contamination and contamination pathway is so located. The decision to propose remedial action in these areas rather than take no action was based on the public health, welfare and environmental risks associated with this area of contamination. The health risks related to the potential for direct contact of soil contaminated with hazardous substances, i.e. arsenic, chromium and lead, was a significant factor considered in making this decision. The continued degradation of the pile, including the sloughing of the sides of the pile into the wetlands and the release of a substantial odor impacting the public's welfare were also significant factors considered. The

action to grade and cap the Site is considered necessary to protect the public health and environment.

The migration of toxic metals to the wetlands and surface water resulting from precipitation and overland flow, slope stability problems and release of odors has had an adverse impact on the surface water and sediments in the pond. The release or threat of release presents a potential hazard to public health and the aquatic species in the pond. To reduce the potential health risk associated with contaminants in and migrating to the wetlands and pond, sheet piling will be driven at the toe of the slope to stabilize the side slopes of the pile; regrading and installation of an impermeable membrane will eliminate the potential for direct contact.

The proposed action at the Site is consistent with the applicable or relevant and appropriate Federal public health and environmental requirements. Proposed actions would also be consistent with State (310 CMR 10.00 Parts I and III) and local wetland standards.

Design and construction activities related to the implementation of the remedial response action proposed will include the best practical measures to minimize potential harm to or within the wetlands. Initial design has considered the need to control adverse impacts; erosion, sediment and contaminant migration, both during construction and resulting from topographic and subsurface drainage changes necessary to the implementation of this action. Control and mitigative

measures will be considered in more detail during the final design phase of this action.

Using the best practical measures to control potential adverse impacts will reduce possible harm to the wetlands from siltation and further degradation from contamination. Successful implementation of this action will eliminate the potential risk of surface water and sediment contamination in the wetlands, pond and discharge stream, potential adverse effects on aquatic species and will allow, when coupled with other proposed site remedial actions, for the long term protection of the public health, welfare and environment.



STATE OF CONNECTICUT  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



June 24, 1988

Mr. Michael R. Deland  
Regional Administrator  
U.S. EPA Region I  
JFK Federal Building  
Boston, Massachusetts 02203

Dear Mr. Deland:

I am writing to inform you that Connecticut has reviewed the draft Record of Decision for the Laurel Park Landfill and concurs with the selected remedy.

I am looking forward to the implementation of remedial measures at this site which as you know is the State's highest priority site on the National Priority List.

Sincerely yours,

A handwritten signature in cursive script that reads "Leslie A. Carothers".

Leslie A. Carothers  
Commissioner

LA:et

Phone:

165 Capitol Avenue • Hartford, Connecticut 06106

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based on costs and technical impracticability for a site of this magnitude. It should be noted that these types of in-situ treatment technologies are innovative processes that have not been field tested extensively. As a result, the usefulness of some of these techniques has been limited to very specific chemicals and Site conditions as well as small and carefully controlled situations. As more experience is gained with these technologies over a wider operating range, their use at sites such as Industri-plex may become routine and cost-effective.

Furthermore, these grout curtain technologies are used in conjunction with, not in place of, covers. A grout curtain will not protect the public against the potential for coming into contact with wastes at the surface of the ground. A cover is required to accomplish this.

24. Dundee Park Properties, an owner of land adjacent to the Site, proposed that waterlines be replaced and contaminated soils removed.

EPA Response:

The FS evaluated the feasibility of excavating contaminated material from around the water, sewer, gas and electric lines, and concluded that it was not necessary as part of these remedial actions. In the course of any emergency or routine maintenance on these utilities, special care must be taken and excavated material must be replaced with clean fill. The Agency, in evaluating the various pros and cons of each option (containment versus complete removal), had to consider the reasons for immediate excavation as opposed to excavation and removal as needed. The Agency ultimately concluded that the costs and benefits associated with immediate removal were not sufficient to warrant such an action. Instead, the Agency proposes to leave the existing utilities intact and implement a strict set of requirements in the event that the utilities are disturbed. Under present conditions, the deposits surrounding the utilities do not pose a threat to the public health, welfare or environment. This determination would not hold true in the event that excavation occurred around the utilities. The direct potential contact would increase significantly as well as the potential for release to the environment as a result of the excavation. However, these issues can be adequately addressed prior to beginning the excavation. The Agency believes that, as part of the remedial design, procedures and associated contingencies can be adequately developed and implemented to address the issue of utility excavation.

25. The North Suburban Chamber of Commerce believes that Stauffer's proposal to cover and leave contaminated soils in place on-site may result in reduced property values for many parcels of land on the Site thereby creating financial hardship for some firms. Therefore, the Chamber prefers that contaminated soils be excavated and relocated to another portion of the Site.

EPA Response:

The North Suburban's Chamber of Commerce concern was evaluated as part of the selection of the remedial alternative. The agency ultimately rejected the consolidation option for several reasons summarized below and detailed throughout the Record of Decision (ROD).

The RI/FS determined that the contaminated sludges and soils only posed a potential for direct contact threat if allowed to remain exposed. If the material was covered to a sufficient depth to eliminate the potential for future exposure resulting from the effects of the freeze-thaw cycle or erosion, then the objectives of the remedial actions would be achieved. The ROD indicated that the existence of structures such as buildings or parking lots were equivalent to thirty inches of clean cover material. As a result, the need to consolidate in order to implement an alternative that was protective of the public health and welfare and the environment was not necessary. As a practical matter even under the consolidation options illustrated in the Feasibility Study (FS) the financial hardship would still exist for the property owners. This is because the Agency has data which indicates that waste material may still be buried under existing buildings, parking lots and roadways. In those instances, removal of the waste material is not practical unless the structure is physically removed to obtain access to the waste. As a result, the waste material is likely to remain buried under the structure. Because the waste material will remain under the structure, this fact will be documented and controlled through the use of institutional controls to prevent its disturbance during any future building modification or like circumstances; hence, the current property has a liability under current federal and state statutes.

26. U.S. Representative Markey believes that Stauffer's proposal to cover forty acres of waste deposits ignores over thirty additional acres of potentially toxic deposits on-site. Markey proposed excavating the waste deposits and then consolidating and disposing them in an on-site secured landfill.

EPA Response:

The Stauffer proposal as outlined in the FS indicates that, based on their calculation, only forty acres of the seventy acres required the application of a soil cover in order to protect the public health, welfare and environment against the potential for direct contact.

The recommended remedial action selected in the Record of Decision (ROD) is consistent with the initial Stauffer recommended alternative. It is important to note that the proposal addresses remedial actions which address the entire Site but that only approximately forty acres would require

some additional cover material in order to place the waste deposits below the effects of the freeze-thaw cycle and minimize the effects of erosion. Irrespective of the depth below grade, the ROD requires, as part of the remedial action, that all waste deposits containing any contaminant above the action level have restrictive institutional controls placed on the area. The purpose of these controls is to contain the wastes in place, eliminate the potential for accidental disturbance and control how the wastes will be handled in the future. The Agency believes that this method is equally protective of the public health, welfare and environment as any consolidation alternative and far less disruptive.

27. During the remedial investigation, no suitable analytical method could be identified or developed for accurately measuring the amount of hexavalent chromium in samples containing high levels of trivalent chromium. The North Suburban Chamber of Commerce (NSCC) is concerned that this may have caused hot spots of hexavalent chromium in soils to have gone undetected.

#### EPA Response

When EPA became aware that the analytical methods used to detect the presence and concentrations of hexavalent chromium in soils were inadequate and producing misleading results, the Agency evaluated alternative methods. Several different methods were employed to overcome the deficiency; however, none produced satisfactory results. As a result, the Agency used an indirect method to determine if hexavalent chromium could be of significant concern at the Site. First, it is important to note that, under conditions typically found in the environment, hexavalent chromium quickly reduces to the less toxic trivalent form of chromium. The other important factor to note is that hexavalent chromium is relatively soluble in water. Hence, if a deposit containing hexavalent chromium were leaking to the groundwater, the presence of the hexavalent chromium would quickly be detected since the analytical problems experienced with analyzing soils are not present for aqueous analysis.

Therefore, if groundwater monitoring wells are located near areas of suspected chromium deposits, they would detect any hexavalent chromium leaking from the soils. Wells OW-12, OW-13, OW-18 and OW-18a were so located and did not detect any hexavalent chromium.

28. The North Suburban Chamber of Commerce is concerned with the reliability of a 30-inch cap as a barrier between the public, specifically construction and maintenance workers, and the waste deposits in the developed areas of the Site. The NSCC feels institutional controls will be an inadequate guarantee that the cover will not be penetrated by these workers. The NSCC recommends instead the removal of wastes from these areas and their consolidation on undeveloped portions of the Site.

### EPA Response

The Agency has discussed the consolidation issue elsewhere in this document and in the ROD. Here the Agency will address the adequacy of the cap and institutional controls in preventing workers from coming into contact with the wastes.

The NSCC's concern is valid. If the institutional controls, which could include zoning by-laws and easements in addition to deed restrictions, cannot be put in place in such a way that the Agency, DEOE, the City of Woburn and the public can rely on them, then the proposed remedial action may not be feasible.

The Agency intends to work with all parties involved to establish adequate legal protection of the cap to prevent the kind of exposures about which the NSCC is concerned. As discussed in the ROD, the Agency will use the type of restrictions mandated by the Resource Conservation and Recovery Act (RCRA) as the model for at Industri-plex.

If such controls are unobtainable or otherwise prove unsatisfactory, the proposed remedial action will have to be reconsidered and alternatives, such as complete consolidation or removal, re-evaluated. Any changes in the planned remedial actions for the Site will be discussed with all parties and the changes will be described in a supplemental ROD issued by the Regional Administrator.

29. The North Suburban Chamber of Commerce (NSCC) is concerned that the action levels (allowable levels) proposed in the FS and accepted by the Agency will not protect the public health.

### EPA Response

The Agency disagrees with the NSCC on this issue. The Endangerment Assessment in the FS calculated the limiting effect doses (LED's) based on the EPA drinking water standards for organic lead and chromium. These drinking water standards have been reviewed and endorsed by the National Academy of Sciences. Using these LED's, the FS postulated exposure scenarios by which the public might come in contact with the wastes. The conclusions of this process were reviewed by the Agency and by the Department of Health and Human Services Agency for Toxic Substances and Disease Registry (ATSDR). Both found the levels protective of the public health. ATSDR, in fact, concluded that, for an industrial park, the levels could be ten times higher and remain protective of the public health. The Agency decided to accept the more protective levels proposed in the FS based on the uncertainty of the future use of the Site.

### Public Health and Safety Issues

30. A community member suggested that area residents be checked periodically for possible health impacts on a regular and continuing basis.

EPA Response:

The questions of potential health impacts and, as an outgrowth of this concern, a request for a community health monitoring program, are very common and legitimate issues raised during the course of any Superfund investigation. The need for such a study is evaluated on a Site by Site basis. In this regard the EPA requests from the appropriate state public health agency and the Department of Health and Human Services' Agency for Toxic Substances and Disease Registry (ATSDR) assistance in the determination of need. EPA provides its knowledge of Site conditions and environmental expertise while the health agencies provide the expertise about the potential for health impacts resulting from the Site.

Early in the Site investigation, EPA worked closely with the Massachusetts Department of Public Health (DPH) and the Federal Center for Disease Control (CDC) to evaluate the need for public health assessment as a result of possible exposure from the Industri-plex 128 site. The conclusion was that the nature of the waste and Site characteristics made it unlikely that the surrounding community was at risk from the Site. Subsequent on- and off-site data and the Endangerment Assessment conducted during the Feasibility Study support the DPH and CDC conclusions. As a result, the Agency does not believe that such a monitoring program is either necessary or warranted.

31. A representative of the group For a Cleaner Environment (FACE) questioned: a) the ability of access roads to handle the proposed high traffic volume if trucks were to operate during the day; b) the safety of the heavy trucks carrying soil cover over unstable ground during late evening hours; and c) whether measures would be taken to protect against equipment vandalism in isolated parts of the Site.

EPA Response:

The questions FACE raised are all questions which are most appropriately resolved during the Remedial Design (RD) process. It is well known that the existing road system is at peak capacity during certain portions of the day. This fact has a significant impact on the ability to implement most of the remedial actions considered in the Feasibility Study (FS). The selected remedial action seeks to minimize any additional impacts on the overworked road system by minimizing the amount of off-site fill material necessary to adequately cover the areas requiring remedial action. When compared to the majority of other alternatives, the recommended remedial action requires relatively small quantities of off-site material. While it is premature to provide a definitive answer to the first part of this question until the RD process has accurately identified specific areas and amounts of fill required for those areas, several options which are being considered are: trucking during off peak hours only, bringing fill in only on weekends, bringing fill on-site using rail cars, or constructing special access roads to bring materials on site.

Again, as part of the RD process, steps involving standard and prudent engineering practices will be incorporated into the design to ensure that the remedial action is implemented efficiently and safely. There are a number of techniques available to provide a stable platform for heavy equipment to work from. For example, techniques such as the placement of soil stabilization fabrics followed by fill material can create a stable base. Another technique would involve the placement of cover material on a stable base, trucking material over the cover and stable base to the interface, depositing the fill and, working from the already placed cover, slowly extending the cover using the already placed cover as a base.

In response to the last part of the question, most of the monitoring equipment will not be permanently located in the field but instead brought into the field by the personnel performing the sampling. For those monitoring points (i.e., monitoring wells) which permanently remain on-site, techniques involving construction of protective housings are usually enough to protect the equipment.

The Agency would like to conclude its response to this question by noting that questions similar to the one above will be discussed in more detail with the public as the RD proceeds. The Agency is committed to implementing the necessary remedial actions while minimizing adverse impacts to the surrounding community. It believes that this goal is best reached by substantial interaction with the affected community through a community relations plan.

32. A community resident requested that, given the presence of toxic chemicals in the area, EPA consider how to protect the public from acts of terrorism and sabotage.

EPA Response:

EPA, whenever it becomes involved at a hazardous waste Site, places the protection of the public health, welfare and environment from any sudden releases from the Site as its highest priority. The potential for a sudden release from the site which poses an imminent and substantial threat to the public health, welfare and environment usually results from the deteriorating conditions of barrels, lagoons or tanks as the result of vandalism, not acts of terrorism or sabotage. Site conditions at the Industri-plex 128 site do not indicate that the potential for a sudden release is very high and, as a result, the Agency feels that special steps to address these issues are not necessary. As Site conditions change during the remedial action the Agency will take the necessary steps to ensure that a sudden release does not occur, irrespective of the cause.

## Site Closure and Post-Closure Activities

33. The Industri-plex CAC, the North Suburban Chamber of Commerce, and a few residents raised several questions regarding planning and preparation for Site closure and post-closure activities:
- a) How and by whom will it be determined that remedial action is completed?
  - b) Will a certificate of compliance, or similar document, be issued to affected property owners?
  - c) What agency will oversee Site closure?
  - d) What are the procedures and legal bases for monitoring and enforcing compliance with any restrictions that may be in place?
  - e) What will be the procedure for alerting the public to potential danger from disturbing covered areas? (The CAC suggested that the Federal government acquire sealed Site areas and turn the title over to the City of Woburn.)

### EPA Response:

- a) It is the responsibility of the United States Environmental Protection Agency (EPA) to ensure that the remedial actions undertaken at a CERCLA site are properly designed, effectively implemented and remain protective of the public health, welfare and environment. Once a Record of Decision (ROD) has been signed by the Regional Administrator, the Army Corps of Engineers (ACE) typically oversees the remedial design and construction process, ensuring that it is completed to specifications. As part of the CERCLA requirements, the Commonwealth of Massachusetts agrees to ensure that the remedial action is properly operated and maintained.
- b) The use of institutional controls are an integral part of the remedial action to ensure that the remedial action is not inadvertently disturbed and remains effective. While the general form of these institutional controls will follow those required under the Resource Conservation and Recovery Act (RCRA) it is premature to specifically state what exact form of post-closure restrictions will be required for property owners at the Site. However, one method would be through a court enforced Consent Decree.
- c) As noted in the answer to Part a, CERCLA requires that the Commonwealth of Massachusetts be responsible for assuring that proper operation and maintenance (O&M) is undertaken at the Site. CERCLA does not specifically require that the Commonwealth pay for or physically undertake the O&M responsibilities themselves, only that they are properly and effectively implemented. As a result, the Commonwealth may utilize whatever mechanism it deems appropriate to provide that degree of assurance to the EPA. Typically, a state may, through a Consent Decree with a responsible party, require the party to pay for and implement the O&M, or may develop an agreement with a local community or existing property owner. Presently, at this Site the agencies are negotiating with a number of parties on this as well as a number of other issues.

- d) There are a number of alternatives available to the federal and state agencies to ensure that the remedial action continues to be effective. One such alternative is a court enforced Consent Decree between the agencies and property owner or responsible parties. It is premature to indicate what the final form of effective controls will be.
- e) Currently there is no adequate answer to this question, however, the Agency believes that the contaminated soils (not Hide Deposits) can be disturbed in a carefully controlled manner so as not to pose any potential adverse impact to the public health, welfare and environment. These procedures will be developed as part of the Remedial Design process, at which time the potential exposure/health impacts will be detailed. As these procedures evolve there will be substantial opportunity for public input.
34. The Mystic River Watershed Association requested that EPA and DEQE not label the fenced-off hazardous waste areas of the Site "conservation land" because this would be misleading.

EPA Response:

The EPA and DEQE presently have no plans which would label the property as "conservation land."

35. A community member requested that future development of the Site be forbidden in the areas of hide deposits (in an effort to mitigate odors) and contaminated soils (in an effort to control contaminated dust). In the event that development is permitted in the areas of contaminated soil, the resident requested that the "track record" of the developer as well as monitoring and enforcement procedures be considered carefully before development is allowed.

EPA Response:

The Agency believes that the citizen's request that no future Site development be permitted is unnecessary and not warranted. The Agency believes that portions of the Site may be developed in some limited fashion so that the effectiveness of the implemented remedial action is not compromised. The Agency proposes to control future Site development through the use of institutional controls. These institutional controls are designed to prevent the unauthorized disturbance of the remedial action.

The Agency is aware of the community's concern about the potential release of odors and contaminants and would modify any development proposal to ensure that there were no release of odors or other contaminants during the development.

A process to ensure consistency and public input prior to any permission being granted will be developed as part of the Remedial Design Process.

36. The Industri-plex CAC suggested that Stauffer's fifteen-year monitoring plan include a regulatory process for reviewing proposals to alter the Site. The CAC proposed that DEOE file a monitoring program with appropriate officials and agencies five years before the end of Stauffer's fifteen year monitoring period. The CAC proposed that the program require the filing of annual reports by the monitoring party to provide details on maintenance, security, and landowner alterations at the Site.

EPA Response:

The CAC comments are appropriate and will be incorporated in detail as part of the Remedial Design process.

37. A citizen requested that an "odor and particulate notification plan," including provisions for emergency evacuation and voluntary relocation, be in place during cleanup activities and during any possible future development activity at the Site.

EPA Response:

The Agency believes that such a plan is unnecessary and unwarranted. Techniques to minimize and contain any release or threat of release during and after the construction of the remedial action shall be incorporated as part of the remedial design. The Agency will continue to work with the Citizen's Advisory Committee, community leaders, representatives of business and the general public to ensure that their concerns are adequately addressed during the remedial design phase.

38. The Industri-plex CAC stated that it wishes to review specific remedial design plans and any plans for monitoring the Site during the fifteen-year period for which Stauffer has monitoring responsibility.

EPA Response:

The agencies have welcomed the past involvement of the Industri-plex CAC. They have been continually impressed with the CAC's degree of professionalism, dedication to the task and positive suggestions for improvement in the products produced. The agencies look forward to continued interaction with the CAC and public. The agencies believe that the CAC will have ample time to review and have input into all aspects of the remedial design process, including the fifteen year monitoring program.

39. The Industri-plex CAC requested that the land area on which the piles are currently located not be available for development, for other land uses or for any type of alteration once the remedial action is completed.

## EPA Response

The Agency is cognizant of the CAC's concern that future Site activities will adversely impact the implemented remedial actions. The Agency agrees with the basic intent of the CAC's proposal but not the manner in which to accomplish the goal.

Subpart G, Closure and Post-Closure of the Resource Conservation and Recovery Act, will govern how the Site is to be maintained once the remedial action is completed. Specifically, § 264.117(c) states that post-closure use of the property shall not disturb the integrity of the final cover, liner(s), or any other components of any containment system unless the Regional Administrator finds that the disturbance is necessary to the proposed use of the property and will not increase the potential hazard to human health or the environment. As can be seen from the above section, RCRA requires careful consideration by the Regional Administrator prior to allowing modification of the remedial action. Presently the Agency can see conditions under which certain Site development would be permitted under specific guidelines and controls. A draft of these guidelines and conditions will be developed and included as part of the remedial design process.

Again, as part of the RD process, steps involving standard and prudent engineering practices will be incorporated into the design to ensure that the remedial action is implemented efficiently and safely. There are a number of techniques available to provide a stable platform for heavy equipment to work from. For example, techniques such as the placement of soil stabilization fabrics followed by fill material can create a stable base. Another technique would involve the placement of cover material on a stable base, trucking material over the cover and stable base to the interface, depositing the fill and, working from the already placed cover, slowly extending the cover using the already placed cover as a base.

## Public Participation Process and Miscellaneous Concerns

40. The CAC asked EPA and DEOE to legitimize the CAC process by formally incorporating it into the administration of both the Federal and Massachusetts Superfund programs.

### EPA Response:

The formation of the Citizens Advisory Committee (CAC) was done under the Massachusetts Environmental Policy Act (MEPA) as a method for citizens to advise the Secretary of Environmental Affairs, who in turn submits his or her concern to the DEOE. The DEOE and EPA believe that the CAC under MEPA has been and will continue to be an effective forum for citizens to have significant input into the process.

The EPA community relations plan, while recognizing the usefulness of specialized groups, such as the CAC, prefers to solicit public input from all facets of the community and not limit itself to the formal designation of one particular group. As a practical matter, the DEQE and EPA intend to use the CAC as a primary forum to hold informal discussions with the general public in addition to the formal public hearing process.

41. Boston Edison Company, which has two major transmission rights-of-way (ROW) on the Site, is concerned that the proposed remedial actions will have adverse effects on the operation and maintenance (O&M) of ROWs and the reliability of electric service in the area. The Company requested specifically that: a) provisions be taken for proper O&M of ROWs in areas where soil has been covered; b) existing utility poles be replaced with those that can withstand the effects of contaminated soil; c) the remedial action plan take into account all requirements of the National Electrical Safety Code and provide financially for maintaining utility services; and d) a specification of work plan practices for access to and maintenance of transmission structures be provided to the company.

The Company was concerned that the FS only considered a 250-acre area (Part A in the May 1982 RI Plan). It was Boston Edison's understanding that the Industri-plex Superfund Site included both Areas A and B.

#### EPA Response:

The EPA and the Massachusetts Department of Environmental Quality Engineering (DEQE) have been responsive to the particular needs of Boston Edison Company as a public utility company. Pending completion of the Remedial Design, the procedures currently in place will remain in effect.

The agencies expect to work closely with Boston Edison during the remedial design phase to ensure that the respective organizations are able to implement the necessary plans with a minimal impact on either's project. The agencies will make every effort to allow Boston Edison easy access to its ROWs for the purposes of routine operation and maintenance.

Boston Edison is correct in stating that the RI/FS only addressed in detail areas specifically identified in the May 1982 Consent Order with Stauffer Chemical Company. The Phase II study did identify areas outside the original 250 acres, however, not in the same level of detail as for those areas within the 250 acres. The Agency intends, with the signing of the Record of Decision (ROD), to address all areas of contamination associated with the original Site, irrespective of the original Consent Order. The exact size of this additional area is not known at present; however, during the initial phases of the Remedial Design process additional soils investigations will be conducted not only to

better define those areas outside the initial scope of the Consent Order but the developed areas within the original area as well. The Agency believes that these additional areas, including ROW #9, can easily be incorporated into and made a part of the Remedial Design process.

42. The North Suburban Chamber of Commerce requested a thirty day extension of the public comment period (the original public comment period was from May 14 to July 1, 1985), from August 1, 1985, to August 31, 1985, in order to identify property owners at the Site and encourage them to comment.

EPA Response:

The Agency extended the close of the public comment period from July 1, 1985, to August 1, 1985. It respectfully declined to extend it until August 31, 1985.

43. State Representatives Geoffrey Beckwith and Nicholas Paleologos and U.S. Representative Edward Markey requested that the public comment period for the proposed remedial action be extended from July 1 to August 1, 1985 so that public groups and individuals would have more time to study Stauffer's proposed cleanup approach.

EPA Response:

The Agency agreed with the State and Federal representatives and increased the length of time for public comment from July 1, 1985 to August 1, 1985.

44. Mayor Rabbitt of Woburn stated that citizens and the administration of Woburn want to be part of the decision-making process at the Site.

EPA Response:

The Agency believes, as a result of the substantial interaction between the city, the Citizens Advisory Committee, ad hoc groups, the general public and the agencies, that the public and City of Woburn have been part of the decision making process. The formal public comment period concluded the first portion of the public's involvement. At the close of this period, the EPA sifted through all the information available to it and made a decision which is not only protective of the public health, welfare and environment, but consistent with applicable or relevant and appropriate federal public health and environmental requirements as well. This decision is summarized and articulated in the ROD. Once the ROD is signed, the Remedial Design process will begin, and along with it the public's opportunity to have input in the outcome of the Remedial Design.

### Comments from Monsanto

Comments by Monsanto Company were entered into the public record at the July 17, 1985 public hearing as part of the formal public hearing process. At this hearing, Monsanto reported that it agreed in general that Stauffer's proposed cleanup adequately, and in some cases more than adequately, addresses the public health and environmental concerns associated with the site. Monsanto Company supports a "reasonable cost-effective remediation of the Site which addresses the safety of the community and the desire that the Site be returned to commercial/industrial use as soon as possible." Monsanto submitted two detailed documents for the record.

45. The objective of Monsanto's first document was to determine the maximum safe concentrations of arsenic, chromium, and lead in the soil which would allow unrestricted use of the restored land in the future.

The findings of Monsanto's study were consistent with the conclusion reached by Stauffer concerning maximum safe soil metals' concentrations. In addition, Monsanto calculated values for an industrial setting which they believed to be protective of the public health, welfare and environment.

### EPA Response

EPA believes that this is more a statement than a question and therefore will not respond except to note that the Agency concurs with Monsanto's conclusion.

46. Monsanto's second document presented the company's recommendations for remedial actions to be undertaken at the Industri-plex site. In particular, Monsanto claimed that its remedial action plan would provide:
- a. A quicker return of a large portion of the site to commercial and industrial use;
  - b. A soil cover with an average coverage depth of twelve inches that is both sufficient and practical for isolation of heavy metals;
  - c. An innovative, cost-effective approach to groundwater cleanup; and
  - d. A complete long-term solution to the East and West Hide Piles that addresses existing and future surface water problems.

The Agency would note that the document referred to above was an unsolicited Feasibility Study (FS) by Monsanto Chemical Company, a major responsible party at this Site. The Agency would further note that it believes that it has satisfactorily addressed Monsanto's concerns within the body of the ROD. However, a brief answer is summarized below.

- a. The objective of any remedial action undertaken at a CERCLA site is to take the necessary remedial responses to be protective of the public health, welfare and environment. While it is not the intent of the Agency to unnecessarily adversely impact abutting property owners, the Agency will not permit personal and private interests to prevent implementation of the most cost-effective long-term remedy for a site. As a result, a quick return of a site to commercial and industrial use is not a criterion against which remedial actions are evaluated.
- b. The proposal of a twelve inch cover was rejected for the same reasons that S-6 of the FS was rejected. These reasons are detailed in the ROD document itself, and the reader is referred to the appropriate sections of the ROD.
- c. Monsanto's approach to remediate the overall groundwater problem posed by the site has merit; however, for reasons stated in the ROD, the Agency selected an interim groundwater remedy until the resolution of the area-wide problem is resolved. Therefore, Monsanto's proposal is inappropriate for the same reasons that GW-3 and GW-4 are.
- d. The proposal for remediation of the odors caused by the hide deposits advanced by Monsanto was not responsive to the actual site conditions; instead it was a more conceptual approach to the problem. Implementation of Monsanto alternative would not be feasible because, like A-2, A-3, and A-4 proposed in the FS, it wished to control odors at the expense of eliminating wetland. The Agency found this approach unacceptable. In addition, Monsanto indicated that substantial reworking of the piles to form one large pile was attractive, stating that the odor release could be dealt with. The Agency believes that there is no effective method to accomplish both tasks at the same time and, as a result, Monsanto's air proposal would create unacceptable quantities of odor emissions.

47. Janpet Associates, owner of land in North Woburn, is concerned that, because of the slow site cleanup process and various impediments to conducting real estate activities on-site, the financial burden to landowners has become substantial.

EPA Response:

The Agency recognizes that, as a result of either being part of the Site or adjacent to it, there may be an economic burden placed on the landowner. The Agency's primary objective at any hazardous waste site is to investigate thoroughly the nature and extent of contamination in order to evaluate and select a remedial action which is protective of the public health and welfare and environment, and which is in compliance with other applicable or relevant and appropriate federal public health and environmental requirements. The Agency will attempt to

complete this process as expeditiously as possible; however, the process is long and complicated, especially at a site as large and old as the Industri-plex site. It is not the Agency's intent to cause financial hardship as a result of this process; however, the Agency will not permit personal and private interests to prevent implementation of the most cost-effective, long-term remedy for a site.

#### Wetlands Issues

In addition to the public health comments received during the initial public comment period, the Agency received three additional comments during the supplemental public comment period on the wetlands.

48. The first was from the Mystic River Watershed Association, Inc., acknowledging receipt and review of the document. The President, Dr. Herbert Meyer, indicated that the reports were adequate.
49. The second comment was from the Woburn Conservation Commission indicating the following comments and concerns:
  - a. The Conservation Commission believes the report is thorough, technically sound, and clearly written.
  - b. The Commission will want to review the mitigation plan to compensate for unavoidable impacts on the wetlands, identified as 1.C and 7.
  - c. The Commission urges EPA to require that the replacement wetlands shall be completed prior to alterations to the existing wetlands west of Commerce Way.
  - d. The Commission is supportive of the stated intention to take appropriate measures toward the enhancement of the existing wetlands at Industri-plex in order to maximize their wetland values.

#### EPA Response

- a. The Agency concurs with the Conservation Commission assessment of the quality of the reports.
- b. The Agency believes that the Woburn Conservation Commission will play an integral and active role in any future dealings relative to wetlands. The Agency further believes that a community should be the primary proponent in the protection of important natural resources such as wetlands.
- c. The Agency's decision to control the environmental impact resulting from the East Hide Pile was not to draw and fill the pond and adjacent wetlands. As a result, this comment is no longer pertinent.

50. The final comments were received from Dundee Park Properties, a developer abutting the Site to the north. The bulk of Dundee Park Properties' letter was devoted to the Park's belief that the action was not necessary, infeasible to implement as proposed, and ultimately reduces the amount of developable property east of Commerce Way as a result of the formation of a new replacement wetlands. Specifically, Dundee Park Properties' questions were:

- a. Will the proposed creation of the 4.1 acres of wetland on the east side of Commerce Way affect the 12" waterline that Dundee Properties has installed across the Mark-Phillip Trust property? If so, Dundee Park Properties feels it is important that they also be allowed to review the proposed wetland plans being drawn up by Stauffer's consultants as referred to in the report.
- b. What costs may be set upon Dundee Park Properties for installation and future maintenance of any south dike flow control device if the 4.1 acre wetland is drained?

EPA Response

- a. As a result of the Agency's determination that the pond and its associated wetlands located between the East and West Hide Pile need not be eliminated in order to successfully implement a remedial action, the proposed new wetlands east of Commerce Way will not be built. As a result, Dundee Park Properties' concern relative to their waterline is moot.
- b. The costs and the responsibility for assuming these costs have not yet been finalized. These issues will be the subject of upcoming negotiations between the agencies and the responsible parties.

The remainder of the Park's letter was devoted to the Park's opinion as to why the filling of the wetlands and the subsequent taking of uncontaminated developable land was not required. The Agency believes that it is inappropriate to comment on the Park's rationale at this time.

ATTACHMENT A  
COMMUNITY RELATIONS ACTIVITIES CONDUCTED AT  
THE INDUSTRI-PLEX SITE

To ensure that all interested parties are communicating regularly, the EPA has conducted a community relations program at the Industri-plex site. Community relations activities conducted at the Industri-plex site to date include the following:

- EPA prepared a community relations plan, Summer, 1981
- EPA and DEOE attended and participated in meetings of the Industri-plex Citizens' Advisory Committee, ongoing throughout the RI/FS.
- EPA released for public review and comment the draft remedial investigation/feasibility study (RI/FS) on site cleanup alternatives prepared by Stauffer Chemical Company, May, 1985.
- EPA prepared and distributed an information sheet on the draft RI/FS, May, 1985.
- EPA held a public meeting on May 21, 1985 at Woburn High School to describe the RI/FS study and to respond to citizens' questions. Approximately 30 to 35 people attended.
- EPA held a public hearing on July 17, 1985 at Woburn High School to record comments by the public, local and State officials and potentially responsible parties. A transcript of this hearing is available at the main branches of the public libraries in Woburn, Reading, Winchester and Wilmington.
- Following one extension, the public comment period closed on August 1, 1985. It lasted approximately twelve weeks.