STATEMENT OF BASIS
STEWART WARNER CORPORATION
INDIANAPOLIS, INDIANA
U.S. EPA ID # IND 005 213 715

1.0 Introduction

This Statement of Basis explains the proposed remedy for impacted soils and groundwater at the vacant Stewart Warner Corporation property ("site" or "facility") located at 1514 Drover Street in Indianapolis, Indiana. In addition, the Statement of Basis includes summaries of corrective measure alternatives evaluated by Stewart Warner. The United States Environmental Protection Agency (U.S. EPA) will select a final remedy for the Stewart Warner site only after the public comment period has ended and the information provided by the public has been reviewed and public comments considered.

The U.S. EPA is issuing this Statement of Basis as part of its public participation responsibilities under the Resource Conservation and Recovery Act (RCRA). This document summarizes information that can be found in greater detail in the Phase I and Phase II RCRA Facility Investigation (RFI) Reports, Interim Measures (IM) Report, and the Corrective Measures Study (CMS) Report. The U.S. EPA encourages the public to review these documents to gain a more comprehensive understanding of the Stewart Warner site and the RCRA activities that have been conducted.

2.0 Purpose of Remedy

The purpose of the remedy is to minimize the risks posed to human health and the environment by implementing appropriate actions to address the past releases of hazardous constituents into the soil and groundwater. The results of the RFI indicated the presence of certain chlorinated hydrocarbons in the soil and groundwater with concentrations above human health risk levels. Certain heavy metals were also detected in the soil above human health risk levels. Without appropriate remedies, the releases have the potential to pose unacceptable exposure risks. The selection of the proposed remedy is based on an evaluation of the data and information from work performed to date, namely the RFI, IM and the CMS phases. The proposed remedy will then be published for public comment input for a period of 30 days in accordance with the RCRA statutes. The proposed remedy will become final only after all the comments received have been evaluated for their validity and have been adequately addressed.

3.0 Facility Background

The site is located at 1514 Drover Street on the southwest side of Indianapolis, Marion County, Indiana. The following sections summarize the site conditions and land use, geologic conditions, facility history, Interim Measures conducted to date, and the results of the RCRA Facility Investigation (RFI). The Interim Measures Report, (Phase II) RFI Report, and Corrective Measures Study Report present additional information.

3.1 Site Description and Land Use

The site covers approximately 20 acres and is located in a mixed industrial/manufacturing and residential area. The site is zoned I-4-U Heavy Industrial. The site is bordered by:

- National Starch Food Innovation (National Starch) facility to the east and southeast;
- Lilly Technology Center (Eli Lilly & Co.) to the west and south; and
- Residential area north of the site.

The buildings and all other structures on-site were demolished in the mid-1990s. The site is currently being leased for use as a staging area for trailers and shipping containers.

3.2 Geologic Conditions

Soil in the upper approximately 10 feet across the site consists of mixed fill materials (e.g., cinder, slag), sandy silt, and sandy/silty clay (Upper Soil Zone). Below a depth of 10 feet, the lithology is dominated by sand and mixed sand and gravel to a depth of approximately 60 ft. below ground surface (bgs). The unsaturated soil below a depth of 10 ft. below ground surface (bgs) has been designated as the Lower Soil Zone. Below the sand and gravel, dense silty clay and bedrock is present.

Groundwater at and in the vicinity of the site occurs at an average depth of approximately 20 feet bgs. The natural groundwater flow direction in the general vicinity of the site is southeast toward the White River; however, the flow has been reversed due to a cone of depression caused by extensive building basement dewatering activity by the adjacent Lilly facility. As a result, groundwater below the Stewart Warner property is effectively being captured by the Lilly dewatering wells. The water from these dewatering wells is then conveyed approximately 2,000 feet via a dedicated sewer owned by City of Indianapolis and discharged to the White River through a 200-foot long man-made, rip-rap lined Outfall Channel.

3.3 Facility History

Stewart Warner operated a heater and heat exchanger manufacturing facility in Indianapolis, Indiana from approximately 1935 to 1989. The major waste producing activities were metal cleaning and degreasing, brazing and welding, finishing and painting and assembly. Degreasing operations, which use chlorinated solvents, are known to have been present in several areas in the western and northern portions of the site.

During its operation, Stewart Warner was registered with the Indiana Department of Environmental Management (IDEM) as a RCRA hazardous waste generator, (EPA ID #IND 005 213 715). The facility operated as an Interim Status RCRA TSDF (Treatment, Storage, Disposal Facility) with regulated “Storage” and “Treatment” units.

The U.S.EPA conducted a RCRA Facility Assessment in 1998, and identified potential operations areas that required additional information or investigation. A Phase I RCRA Facility Investigation (RFI) was conducted under a Voluntary Corrective Action Agreement (“Agreement”) signed jointly in September 2000 by Stewart-Warner and U.S.EPA. After performing certain investigative work, which is categorized as Phase 1 RFI, Stewart-Warner unilaterally withdrew from the Agreement in December, 2002. All subsequent activities,

including a Phase II RFI and Interim Measures were conducted under a RCRA 3008(h) Administrative Order (Order) issued to Stewart Warner by U.S. EPA on August 18, 2003 following the withdrawal from the Agreement.

3.4 Interim Measures Conducted

Interim Measures (IMs) are typically undertaken to protect human health and the environment until final corrective measures can be completed. The Order required the implementation of certain IMs to meet the following objectives:

1. To minimize and control the migration of impacted groundwater across the northwest facility by constructing and operating an air sparging fence with an accompanying soil vapor extraction system; and

2. To minimize and control all human exposures to the impacted groundwater.

Under the Order and the Interim Measures Work Plan, Stewart Warner implemented a series of Interim Measures designed to mitigate potential threats to human health and the environment. The specific details of the Interim Measures are described in the Interim Measures Report (December 13, 2004). A summary of the Interim Measures follows below.

- **SVE/AS Interim Measures System**. A soil vapor extraction/air sparge (SVE/AS) system designed to capture and remove the volatile organics (chlorinated solvents) from the soil and groundwater was installed in the western portion of the site in March 2004. The system has operated continuously since start-up. The rationale for using this area of the site was the proximity to the neighboring Eli Lilly facility and being in the hydraulic pathway of the basement pumping operation and the vicinity of Lilly's production wells. Based on the type and nature of the organic contaminants in the soil and groundwater, namely, volatile chlorinated hydrocarbons, the technology selected was SVE/AS.
- **Lower Soil Zone SVE System.** An SVE system designed to remove Volatile Organic Compounds (VOCs) from soils was installed in the Lower Soil Zone in the western portion of the site. The SVE system was activated in May 2005 and has operated continuously. The system is currently undergoing expansion to remove additional impacts at other areas of the Site.
- **Residential Vapor Intrusion Mitigation Systems**. Vapor mitigation units were installed in 20 nearby residential basements and crawl spaces to reduce concentrations of VOCs in the basements. The objective was to minimize the human exposures concentrations in the residences that had unacceptable VOCs concentrations.
- **Outfall Channel Fencing and Warning Signs**. The pumped water from the Lilly basement discharged to the White River under a state NPDES permit has detectable concentrations of VOCs and therefore this pathway needed to be addressed. Access to the 200-foot long Outfall Channel leading to the White River was eliminated by installing security fencing and warning signage.

- **Water Well Survey in Residential Area**. The survey revealed that there are no drinking water wells in the residential area. This measure was also part of the approved IM work plan to eliminate the human exposure pathway.

3.5 RFI Investigation

In conjunction with the Interim Measures described above, an expanded Phase II RFI (following the Phase I conducted under the Agreement) was conducted, which included:

- Soil screening at 105 boring locations spaced in a grid pattern across the site;
- Soil sampling in 35 borings located in and around the areas identified during soil screening;
- Installing 11 additional groundwater monitoring wells, and sampling these wells and the existing wells (total of 24 monitoring wells) on a semi-annual basis; and,
- Collecting additional soil and groundwater samples from 35 select locations.

Soil and groundwater samples were analyzed for VOCs and select metals in accordance with the Phase II RFI Work Plan. The results of the RFI were reported in the Phase II RFI Report dated February 8, 2005. The RFI revealed several organic and inorganic constituents in soil and groundwater:

- Soil
  - VOCs: perchloroethene (PCE), trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), vinyl chloride, and 1,1,2,2-tetrachloroethane.
  - Metals: arsenic, chromium, and lead.
- Groundwater
  - VOCs: PCE, TCE, and vinyl chloride.

Based on the investigation effort, the principal Constituents of Concern (COCs) at the site determined to be addressed were PCE and TCE. These constituents are identified in both soil and groundwater in the western portion of the site, and the presence of these constituents is consistent with the location of known historical degreasing operations.

However, due to Interim Measures, institutional controls, and other factors currently in-place, the exposure pathways for these constituents have, in effect, been eliminated. A more detailed explanation of the exposure pathways is provided in the following section.

4.0 Summary of Facility (Site) Risks

Human and ecological exposure pathways and risks were evaluated based on current and reasonably anticipated future land use. The exposure pathways were evaluated to determine whether possible human or ecological exposure pathways are “incomplete” or “complete, but under control”.

- “Incomplete”, meaning that human and ecological receptors are not in fact being exposed to COCs in soil, groundwater, and surface water (thus no risk); or
- “Complete, but under control”, meaning that exposure to COCs is occurring, but at sufficiently low magnitude that the concentration levels do not present an unacceptable risk to human health or the environment.

Incomplete exposure pathways were eliminated from further consideration. Complete exposure pathways were further evaluated: (i) to characterize the magnitude and probability of the potential for harm to the receptor(s); (ii) to assess the beneficial impacts of interim measures that have already been implemented; and (iii) to identify additional corrective measures (e.g., engineering systems, administrative controls) that are necessary to protect human health and the environment. Complete exposure pathways with a low magnitude of exposure, or which have a low probability/occurrence, were eliminated and are considered "under control". The evaluation exposure pathways and risks are presented in detail in the CMS Report dated October 12, 2005.

4.1 Soil Impacts

Direct Contact, and Industrial and Construction Activities

There are no unacceptable risks associated with the soil direct contact pathway (ingestion of soils, inhalation of soil vapors, and dermal contact with soils in the Upper and Lower Soil Zones) because:

- Over 95% of the site is covered with concrete and asphalt;
- The locations where COC were detected in the Upper and Lower Soil Zones are all covered with asphalt or concrete;
- The site is secured with a perimeter fence;
- Work activities associated with the on-site soils (e.g., installation of SVE systems) is proposed to be conducted by properly trained and qualified environmental personnel using appropriate safety protocols and personal protective equipment (PPE), and any soils created by such activities are, and will be, properly managed;
- VOC constituents in the Lower Soil Zone are not accessible with respect to direct contact; and
- Off-site sampling has revealed VOC constituents below appropriate protective levels, and any work off-site (e.g., future construction) would be conducted outdoors by trained personnel.

Migration-to-Groundwater

There are no unacceptable risks associated with the soil migration-to-groundwater pathway (ingestion of groundwater, dermal contact) because:

- There are no drinking water supply wells at, or in the vicinity of, the site;
- Potable water for drinking and other purposes (e.g., washing, gardening) for all residents, businesses, and industries in the vicinity of the site is provided by the Indianapolis Water Company.
- The nearest use of groundwater as a drinking water source is the Indianapolis Water Company's White River Station, which is located approximately 3 miles north of the site and is situated upgradient (hydraulically) of the site.

4.2 Groundwater Impacts

Direct Contact

The groundwater direct contact pathway (ingestion of groundwater, dermal contact) is an incomplete exposure pathway, based on the items identified above for the soil migration-to-groundwater exposure route. Additionally, work activities that potentially involve contact with impacted groundwater (e.g., operation and maintenance of the Lilly wells) should not present any unacceptable exposure risk since the magnitude and occurrence of such exposures is low (as identified in the CMS report).

Vapor Intrusion (VI)

The potential points of exposure with respect to the VI pathway include the Lilly manufacturing buildings and several of the homes in the vicinity of the site. There is no potential unacceptable exposure risks associated with VI into Lilly building(s). The adjacent Lilly buildings are equipped with an air ventilation system that operates under constant positive pressure. Thus, there is no potential for intrusion into these structures.

The VI exposure pathway for the residential structures (inhalation of PCE and TCE vapors) is a complete exposure pathway because of the presence of TCE and PCE vapors in residential basements and crawlspaces. However, the exposure pathway is under control and has been essentially eliminated. Stewart Warner installed vapor mitigation systems in affected residential basements and crawl spaces in the vicinity of the site. Post-installation sampling confirms that levels are below the site-specific cleanup standards.

4.3 Surface Water

Direct Contact in the Outfall Channel

The surface water direct contact pathway (by ingestion or dermal contact) associated with the Outfall Channel is essentially incomplete because Stewart Warner installed a security fence and signage around the Outfall Channel to eliminate the potential for ingestion or contact with water flowing in the channel.

Direct Contact in White River

The surface water direct contact pathway resulting from human or ecological exposure to COCs in the White River is a complete exposure pathway since COC-impacted surface water in the River (at, and downstream of the point where the water from the outfall is mixed with the water in the River) is not subject to the same barriers/restrictions as in the Outfall Channel. However, PCE and TCE concentrations in the White River are below the State of Indiana Minimum Surface Water Quality Standards that is protective of human health. Furthermore, the COC concentrations in the White River are below the U.S. EPA Region 5 Ecological *Screening* Levels that are protective of ecological receptors. Thus, this pathway can be eliminated from further consideration because the potential exposure resulting from VOCs in the surface water discharge to the White River does not result in an unacceptable human or ecological exposure risk potential.

5.0 Scope of Corrective Action

Based on the activities conducted to date, and the evaluation provided above, current exposure pathways are either "incomplete", or "complete but under control" due to existing engineering controls or a low magnitude or low frequency of potential exposure. These incomplete or complete but under control pathways can be maintained in the future by using a combination of engineering controls, institutional controls, and restrictive covenants to ensure protection of human health and the environment.

As such, additional active remediation is not deemed necessary to protect human health and the environment under current conditions, or under any potential future condition, as long as the proposed appropriate actions are undertaken to ensure that the potential exposure pathways remain either incomplete, or complete, but under control. The suite of activities presented in Section 7 is designed to ensure the continued protection of human health and the environment, as well as reduce the contaminant mass at the site.

6.0 Summary of Corrective Measure Alternatives

Although the evaluation provided in the CMS concludes that there is no risk to human health and the environment under current and potential future exposure pathways, other potential corrective measures alternatives that could potentially be employed at the site were also evaluated. A description and brief summary of the potential remedial technologies for impacted soil and groundwater is provided below.

6.1 Upper and Lower Soil Zone Corrective Measure Alternatives

Option #1: Institutional Controls, Existing Interim Measures, (Upper and Lower Soil Zones) Restrictive Covenants, and Progress Reporting.

- Establish institutional controls and restrictive covenants that would:
  - Maintain current non-residential site usage;
  - Prohibit installation of water wells on-site;
  - Maintain the existing concrete/asphalt barrier at site;
  - Provide construction worker notification regarding handling of on-site soils; and
  - Provide notification regarding vapor intrusion for any future structures on-site
- Operation of active remediation systems, including:
  - The SVE/AS system;
  - Lower Soil Zone SVE system;
  - Fencing around outfall location; and,
  - VI mitigation systems in residential area.
- Progress Reports to U.S. EPA.
- This option is a long-term site management strategy, and requires a new Corrective Measures Implementation Order (CMI Order).
- Estimated costs for implementation are $1,695,000, which includes 5-years of SVE/AS, Lower Soil Zone SVE, and VI mitigation, and 30-years of Progress Reporting.

***Option #2: In- Situ* Biodegradation (Upper and Lower Soil Zone)**

- Bioremediation systems utilize various environmental amendments and addition of nutrients to encourage the growth of specific microorganisms that enhance the biodegradation of contaminants.
- Bioremediation would entail injecting various amendments, nutrients, etc. into the subsurface soils over a large area. These systems typically require more than one treatment.
- Estimated cost for site-wide treatment is approximately $4,500,000.

Option # 3: Capping (Upper Soil Zone and Lower Soil Zone)

- Capping options evaluated for the site included the following:
  - Placement of three feet of clay;
  - Geotextile membrane and 18-inches of clay soil;
  - Asphalt; and,
  - Spot patching and repair of existing concrete/asphalt.
- All capping options significantly restrict site usage.
- Capping would require significant long-term maintenance.
- The estimated cost for capping with 30-years of O & M ranges from approximately $1,634,500 (spot-patching/repair) to $4,158,500 (asphalt).

Option #4: Chemical Oxidation (Upper Soil Zone)

- Application of chemical oxidants through a series of boreholes, wells, or other application methods to non-selectively oxidize organic constituents.
- This technology was tested by Stewart-Warner as part of the CMS. Bench-scale testing revealed that potassium permanganate was the best performing oxidant. Pilot testing revealed some limited success in reducing the VOC concentrations.
- Based on the testing results, more than one application of oxidant would likely be required to treat soils at the site.
- The estimated cost for one application of oxidant is $1,500,000.

Option #5: Soil Vapor Extraction (SVE) (Lower Soil Zone)

- SVE option would require the installation of a series of wells throughout the impacted Lower Soil Zone to remove VOCs.
- SVE is not a viable option for Upper Soil Zone due to type of soil which is clay.
- Pilot testing has revealed that SVE would effectively remove VOCs from the Lower Soil Zone.
- The estimated cost to install and operate system for 5-years is $1,170,000.

6.2 Groundwater Corrective Measures Alternatives

Option #1: Institutional Controls, Existing Interim Measures, (Upper and Lower Soil Zones), Restrictive Covenants, and Progress Reporting

- Establish institutional controls and restrictive covenants (as identified as Option #1 for soils) that would:
  - Prohibit installation of water wells on-site;
  - Establish a No Well Zone in the vicinity of the site;
  - Maintain the existing concrete/asphalt barrier at the site; and,
  - Progress reporting to U.S. EPA.
- The estimated cost to implement the institutional controls, restrictive covenants and progress reporting (for30 years) is $350,000.

Option #2: Groundwater Pump and Treat w/ Air Stripping

- Groundwater pump and treat would require installation of one or more groundwater extraction wells. The extraction wells would help control off-site migration of groundwater impacts.
- Modeling was conducted to develop possible groundwater extraction layouts.
- Several extraction well layouts were identified that could potentially intercept groundwater.
- All layouts require long-term maintenance and monitoring.
- The estimated cost for installation, 30-years of operation and maintenance and groundwater monitoring is $19,730,000.

Option #3: Air Sparging (AS)

- Air sparging is the injection of air into the groundwater zone to facilitate removal of VOCs. It is used in conjunction with SVE.
- The technology was pilot tested, and results from the testing revealed reductions in VOC concentrations downgradient of the system.
- The cost to install an air sparge network within the primary impacted groundwater zones and operate the system for 5-years (including semi-annual groundwater sampling) would be approximately $1,200,000 (excluding the cost for SVE).

Option #4: Chemical Oxidation

- Chemical oxidation is the application of chemical oxidants (peroxide, permanganate, etc.) into the groundwater zone resulting in the non-selective destruction of organic constituents.
- The oxidants are delivered to the subsurface through injection points or wells.
- Several injection events may be required.
- The estimated costs to inject chemical oxidants into the impacted groundwater zone at the site are $4,160,000.

***Option #5: In Situ* Biodegradation**

- Bioremediation systems utilize various amendments, nutrients, or proprietary compounds to encourage the growth of specific microorganisms that enhance the biodegradation of contaminants.
- For groundwater treatment, a groundwater circulation zone could be established using several extraction wells and several injection wells, or the inoculants could be injected into multiple location throughout the impacts area.
- Estimated minimum estimated cost for site-wide treatment would be approximately $3,423,500, which includes 5-years of operation and maintenance and groundwater monitoring.

7.0 Final Corrective Measure Alternative Evaluation Criteria

The final corrective measure alternative must pass evaluation under a set of specific threshold criteria, which consist of the following:

- Protect human health and the environment.
- Attain media cleanup objectives.

- Control the source of the releases so as to reduce or eliminate, to the extent practical, further releases that may pose a threat to human health and the environment.
- Comply with any applicable standards for management of wastes.

In addition, the final corrective measures alternative must also be evaluated by analyzing balancing criteria such as implementability, effectiveness, and cost. Following is an evaluation of the soil and groundwater remedial alternatives identified above, followed by a description of the proposed corrective measure.

7.1 Corrective Measures Evaluation

7.1.1 Protection of Human Health and the Environment

Soil Alternatives:
All of the five identified options above would protect human health and the environment. Based on the exposure pathway and risk analysis presented above, there are no risks currently associated with the soils at the site. Option #1 is a combination of passive and active controls, including: institutional controls, restrictive covenants, active remedial systems and reporting.

Groundwater Alternatives:
All of the options would protect human health and the environment. Option #1 is a combination of active and passive controls, and includes long-term provisions for protecting human health and the environment. Options #2 does not treat contaminants at the source, and instead treats contaminated groundwater as it leaves the site. The remaining options are active options that address the VOC-impacted source areas.

7.1.2 Attainment of Media Cleanup Standards

Soil Alternatives:
Under current conditions, media cleanup standards for the currently complete (but eliminated) exposure pathways (surface water and vapor intrusion) have been achieved. The remaining potential exposure pathways (e.g., groundwater ingestion and soil direct contact) are incomplete as a result of engineering controls and other factors. Option #1 is a combination of passive controls (e.g., institutional controls, restrictive covenants, and reporting) and active systems (e.g., SVE/AS and Lower Soil Zone SVE).

Groundwater Alternatives:
All the identified options will be able to meet the media clean-up standards for meeting the human health and environment criteria although at different costs and to varying degrees.

7.1.3 Control the Source of the Releases

Soil Alternatives:
Option #1 would control the source of the releases by removing VOCs from the subsurface by operation of the SVE/AS and Lower Soil Zone SVE systems and establishing a Restrictive Covenant that would, among other things, require maintenance of the engineered barrier at the site. The remaining options would control the source of the release through containment or *in-situ* treatment

Groundwater Alternatives:
Option #4 does not control the source of the releases, and instead treats groundwater as it migrates. Option #3 controls the sources of the release by removing VOCs (via SVE/AS and SVE) from the groundwater in the source areas, as well as requiring maintenance of the existing surface barriers, thus limiting leaching of impacts to the groundwater zone. The remaining options are active technologies designed to control the source of the releases.

7.1.4 Comply with Applicable Standards for Management of Wastes

Soil Alternatives:
Applicable RCRA waste management standards would not prevent the implementation of any of the options identified above. No wastes would be generated under Option #1, #3 or #5. The remaining options would generate some waste, but these options would comply with applicable standards. For Option #4 or #5, an air permit may also be required.

Groundwater Alternatives: All of the options will generate waste as a result of groundwater treatment or sampling associated with system performance monitoring of a technology. Activities that generate waste would be conducted in accordance with applicable standards for managing wastes.

7.1.5 Long-term Reliability and Effectiveness

Soil Alternatives:
Among the options, Option #1 would be reliable and effective in the long-term, since institutional controls, restrictive covenants and progress reporting are long-term methods to ensure protection of human health and the environment, and the active technologies associated with this option (SVE and mitigation of vapor intrusion) are proven technologies that are both reliable and effective. The remaining Options are anticipated to be reliable and effective but each would require maintenance and monitoring to ensure performance.

Groundwater Alternatives:
Option #1 would be reliable and effective since the institutional controls, restrictive covenants, and monitoring (in conjunction with progress reporting) are long-term methods to ensure protection of human health and the environment. Option #5 may not have long-term reliability or effectiveness due to the intensive O & M required to maintain these systems and because changes to Lilly's pumping well configuration or volume could alter the capture area of the system and limit system effectiveness. The remaining options would not potentially have long-term reliability and effectiveness either because the contaminants have been reduced or removed.

7.1.6 Reduction in Toxicity, Mobility, or Volume of Wastes

Soil Alternatives: Options #2 and #4 are typically conducted by injecting materials into the soils. As such, there is some potential that impacts could be spread. In addition, Option #2 may result in increases in potentially toxic breakdown products from degradation of PCE and TCE (such as vinyl chloride). Option #1 employs both passive (maintenance of engineered barriers) and active (SVE) approaches, which will result in a reduction in toxicity, mobility, or volume of wastes. The remaining technologies also would reduce the toxicity, mobility, and volume of wastes.

Groundwater Alternatives: Option #1 would reduce the toxicity, mobility, and volume of waste due to Restrictive Covenants (e.g., requiring maintenance of engineered barriers to reduce leaching), and active remediation (SVE/AS and SVE). Continued operation of the SVE/AS and Lower Soil Zone SVE systems would reduce the volume of impacted soils at the site, resulting in a continued decrease in the VOCs entering groundwater. Options # 2 and #5 are long-term remedies and would reduce the toxicity, mobility, and volume of wastes. Options #3 and #4 are active technologies that would also reduce the toxicity, mobility, or volume of wastes. Option #4 will require introduction of chemicals into the groundwater and may result in production of additional wastes.

7.1.7 Short-term Effectiveness

Soil Alternatives:
Option #2: This is a technology that is not effective in the short-term, as a result of being either slower to implement or slower to treat. Option #1 is effective in the short-term since the ongoing Interim Measures have proven to be effective and have eliminated the potential exposure pathways associated with the site. Option 3, 4 or 5 are effective in the short-term as a result of either rapid implementation or rapid cleanup timeframes.

Groundwater Alternatives:
Option #1 is effective in the short-term since the ongoing Interim Measures have proven to be effective and have eliminated the potential exposure pathways associated with the site. The remaining Options are long-term remedies due to implementation or cleanup timeframes.

7.1.8 Implementability

Soil Alternatives:
Option #1, or #3 can be rapidly implemented. For Option #1, Interim Measures systems including SVE are already in place, and the remaining restrictive covenants and institutional controls can be implemented rapidly. Option #2 or #4 could be more difficult to implement due to the need for additional testing, the likely number of injection locations, and the potential for more than one application. Option #3 (capping) would be difficult to implement since it would require a substantial amount of planning, contracting, and actual work activity. .

Groundwater Alternatives:

Option #1, #2, or #3 is easily implementable. For Option #1, Interim Measures systems (SVE/AS and SVE, and vapor mitigation) are already in place, and the remaining restrictive covenants and institutional controls can be implemented rapidly. Option #3 is an active remedial approach and is easily implemented since air sparging is a relatively well understood technology. Option #4 could have some difficulties in implementation due to the number of likely boring/injection locations.

7.1.9 Cost

Soil Alternatives:
The cost of the various technologies ranges from $50,000 to $5,130,000. Option #1 is the most comprehensive for the overall cost ($1,695,000), since it consists of both active and passive approaches, and is a long-term remedy.

Groundwater Alternatives:

The cost of the groundwater Options ranges from $50,000 to $19,730,000. Since there are no current risks to human health and the environment, and Interim Measures SVE/AS and Lower Soil Zone SVE systems currently operating, Option #1 is the most economical while providing the necessary level of protection.

7.2 Proposed Final Corrective Measures

Based on the actual current and potential future exposure pathways and currently operating Interim Measures and on a detailed evaluation of the various technologies identified and outlined above, the recommended corrective measures approach is Option #1. This option includes a suite of corrective measures for both soil and groundwater. The selected Option is a combination of active remediation systems (current Interim Measures systems - VI mitigation systems, SVE/AS system, Lower Soil Zone SVE system and outfall signs and fencing), Institutional Controls, Restrictive Covenants, and submission of progress reports. These activities, which are outlined below, would be implemented under a Corrective Measures Implementation (CMI) Order or a modification of the existing order to be issued by the U.S. EPA following the decision of the final remedy selection. The selected remedy utilizes both active remediation to reduce the levels of hazardous constituents in soil and groundwater associated with the site and a suite of institutional controls and restrictive covenants to ensure continued protection of human health and the environment. To summarize, the proposed final corrective measures contain the provisions outlined below:

- Operate the current Lower Soil Zone soil vapor extraction (SVE) system, and expand the existing system;
- Operate the SVE/air sparge system. (SVE/AS);
- Operate vapor intrusion (VI) mitigation systems in nearby residential basements and crawlspaces;
- Maintain signs and fencing around the Eli Lilly and Company (Lilly) outfall at the White River;

- Implement the selected Institutional Controls and Restrictive Covenants to ensure that, apart from maintaining the non-residential status of the site, current site conditions are maintained and installation of drinking water wells is prohibited at the site and in the adjacent residential area;
- Report on the Site Conditions, and;
- Enter into a Corrective Measures Implementation Order with U.S. EPA.
- At the conclusion of the remedy completion, U.S.EPA will review the overall effectiveness of the remedy to evaluate if further steps are necessary.

7.2.1 Current Interim Measures

Stewart Warner would continue to operate and maintain the current Interim Measures, which include:

- Vapor mitigation systems in the residential area;
- Lower Soil Zone SVE and the SVE/AS Interim Measures systems located in the western portion of the site; and,
- Security fencing and signs around the outfall channel near White River.

7.2.2 Lower Soil Zone SVE Expansion

In April 2006, Stewart Warner commenced a significant expansion of the Lower Soil Zone SVE network. Although the expansion of the system was not required to address any current, unacceptable exposure scenario, the system should result in a decrease of VOCs in the Lilly surface water discharge and in the groundwater that flows under the residential areas adjacent to the site.

7.2.3 Institutional Controls

The Municipal County Health Department (MCHD) would develop a “no well zone” in the residential area in the vicinity of the site. This “no well zone” would prohibit the installation and use of any residential water wells and would be enforced by the Health Department.

7.2.4 Restrictive Covenant

Stewart Warner would prepare and record a Restrictive Covenant for the site that would include the following provisions:

- Prohibition on residential land use;
- Prohibition of on-site wells for groundwater use;
- Construction Worker Notification of on-site conditions;
- Maintenance of existing surface barriers;
- Vapor intrusion notification; and,
- Proper management of soils created from any excavation activities.

7.2.5 Progress Reports

Stewart Warner will submit periodic Progress Reports to the U.S. EPA, annually at a minimum. The Progress Reports will include information regarding the status of potential exposure pathways, any changes to the risk assumption/conclusions in the CMS, and an update on Lilly pumping well (s) and discharge information and updates to the site usage or condition.

8.0 Public Participation

U.S. EPA solicits input from the community on the corrective measures identified above. The public is also invited to provide comment on corrective measure alternatives not addressed in this Statement of Basis. U.S. EPA has set a public comment period from May 8, 2007 to June 11, 2007, to encourage public participation in the selection process. U.S. EPA will accept written comments up to the close of the comment period.

The proposed corrective action is issued under the provisions of Section 3008(h) of the Resource Conservation and Recovery Act of 1976 as amended 42 U.S.C. Section 6928(h). A public notice will appear in the Indianapolis Star newspaper on May 7, 2007. You can obtain more information by login in the web at: http://www.epa.gov/reg5rcra/wptdiv/permits/index.htm

The Administrative Record for the Stewart Warner Facility is available at the following location:

West Indianapolis Branch Library
1216 S. Kappes Street,
Indianapolis, Indiana 46221

And

U.S. EPA Region 5
Waste, Pesticides and Toxics Division, Records Center
77 West Jackson Boulevard, 7th Floor
Chicago, Illinois 60604-3590
(312) 866-0902
Hours: Mon-Fri, 8:00 a.m.–4:00 p.m.

After consideration of the comments received, U.S. EPA will select the remedy and document the selection in the Final Decision and Response to Comments. In addition, public comments will be summarized and responses provided. The Final Decision and Response to Comments will be drafted at the conclusion of the public comment period and incorporated into the Administrative Record.

To send written comments or request technical information on the Stewart Warner Facility, please contact:

Mr. Nate Nemani
United States Environmental Protection Agency

Region 5
77 West Jackson Boulevard, Mail Code DW-8J
Chicago, Illinois 60604-3590
Telephone Number: (312) 886 – 3224
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And

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